Driving Innovation in Crisis Management for European Resilience

D953.14 – ENHANCING THE SHARED UNDERSTANDING OF CM – FINAL REPORT AND WAY FORWARD

SP95 - IMPACT, ENGAGEMENT AND SUSTAINABILITY

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The DRIVER+ project

Current and future challenges, due to increasingly severe consequences of natural disasters and terrorist threats, require the development and uptake of innovative solutions that are addressing the operational needs of practitioners dealing with Crisis Management. DRIVER+ (Driving Innovation in Crisis Management for European Resilience) is an FP7 Crisis Management demonstration project aiming at improving the way capability development and innovation management is tackled. DRIVER+ has three main objectives:

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

In order to achieve these objectives, five Subprojects (SPs) have been established. **SP91** ***Project Management*** is devoted to consortium level project management, and it is also in charge of the alignment of DRIVER+ with external initiatives on Crisis Management for the benefit of DRIVER+ and its stakeholders. In DRIVER+, all activities related to Societal Impact Assessment are part of **SP91** as well. **SP92** ***Test-bed*** will deliver a guidance methodology and guidance tool supporting the design, conduct and analysis of Trials and will develop a reference implementation of the Test-bed. It will also create the scenario simulation capability to support execution of the Trials. **SP93** ***Solutions*** will deliver the Portfolio of Solutions which is a database-driven web site that documents all the available DRIVER+ solutions, as well as solutions from external organisations. Adapting solutions to fit the needs addressed in Trials will be done in **SP93**. **SP94** ***Trials*** will organize four series of Trials as well as the Final Demo (FD). **SP95** ***Impact, Engagement and Sustainability***, is in charge of communication and dissemination, and also addresses issues related to improving sustainability, market aspects of solutions, and standardisation.

The DRIVER+ Trials and the Final Demonstration will benefit from the DRIVER+ Test-bed, providing the technological infrastructure, the necessary supporting methodology and adequate support tools to prepare, conduct and evaluate the Trials. All results from the Trials will be stored and made available in the Portfolio of Solutions, being a central platform to present innovative solutions from consortium partners and third parties, and to share experiences and best practices with respect to their application. In order to enhance the current European cooperation framework within the Crisis Management domain and to facilitate a shared understanding of Crisis Management across Europe, DRIVER+ will carry out a wide range of activities. Most important will be to build and structure a dedicated Community of Practice in Crisis Management, thereby connecting and fostering the exchange of lessons learnt and best practices between Crisis Management practitioners as well as technological solution providers.

Executive summary

The overarching objective of the DRIVER+ project is to improve the way capability development and innovation management are tackled, by testing and validating (in realistic environments) solutions that are addressing the operational needs of practitioners dealing with Crisis Management. However, Crisis Management is a complex and multi-layered field, involving many different organisations and disciplines throughout its cycle (mitigation, preparedness, response, recovery). With newly arising, cross-border security threats in Crisis Management (natural disasters, terrorist threats, pandemics, migration), Europe is in need of a convergence of resources, but also of solutions and knowledge, to better manage those ever-changing risks and threats. Market fragmentation, lack of common certification, as well as common standards in the field, adds to the challenges practitioners are facing today. To overcome these limitations, and therefore to reach a shared understanding in Crisis Management across Europe, there is a clear necessity for the creation of a united ecosystem in Crisis Management, the establishment of common practices, the access to similar information and the set-up of mechanisms for exchanges on lessons learned. The engagement of policy makers, researchers, practitioners, industry representatives, and citizens in Crisis Management innovation is a key to reduce fragmentation, create a shared understanding, and find better solutions to cope with today's and tomorrow's threats and crises.

Currently several frameworks, initiatives and visions for Crisis Management exist in Europe, but no overarching strategy has been defined yet at a macro level on how to effectively and efficiently involve the diverse groups of stakeholders. The current and most notable driving forces of this overarching strategical process are (i) the European Union Civil Protection Mechanism (EUCPM) and the envisioned Union Civil Protection Knowledge Network; (ii) DG HOME´s 'Community of Users on Secure, Safe and Resilient Societies' initiative (iii), the Disaster Risk Management Knowledge Centre (DRMKC); (iv) the IFAFRI and (v) the European Forum for Disaster Risk Reduction (EFDRR). While these mechanisms aim to define and implement this overarching strategy, a clear need to further develop, support, complement and strengthen the existing frameworks and initiatives has been identified in order to foster innovation and a shared understanding in Crisis Management across Europe.

The ambition of DRIVER+ with regards to an improved stakeholder engagement and the emergence of a shared understanding is first and foremost a long-term one: to build and engage with an active and structured Community of Practice in the field of Crisis Management that will be sustainable after the end of the project duration. The Crisis Management Innovation Network Europe (CMINE) is established to facilitate this interaction. It has the potential to become an overarching body connecting Crisis Management stakeholders to exchange best practices, lessons learned and innovative ideas, in order to facilitate the implementation of policies and the uptake of research and innovation by practitioners and policymakers.

Being the final iteration of a series of four reports, the present document will provide critical reflections and a concluding overview of the outcomes of the activities. The most notable outcome is the successful establishment of a Community of Practice in Crisis Management supported by the CMINE (Crisis Management Innovation Network Europe) that will be sustained beyond the scope of the project. This is complemented by significant contributions towards enhancing the shared understanding that were achieved by (1) creating a diverse set of sustainable results, ranging from the Test-bed to networking opportunities and a dynamic repository of innovative solutions, to the Trials and by (2) facilitating complex knowledge generation processes that resulted in comprehensive policy recommendations for the European CM domain (PRDR, I4CM). There is a specific value in this approach which is fostering a shared understanding of Crisis Management at various levels and from complementary perspectives. The sustainability concerns that have guided the design and development of the DRIVER+ outputs give reason to expect that this shared understanding, as promoted by the project, will carry on beyond DRIVER+. Against the background of these achievements and in the light of the project closure this report will provide an outlook and give recommendations for the practical and strategical development of the Community of Practice (CoP) beyond the scope of the project.

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List of Acronyms

Acronym	Definition
API	Application Programming Interface
CM	Crisis Management
CMINE	Crisis Management Innovation Network Europe
CMT	Community Management Tool
CoE	Centre of Expertise
COCP	CMINE Online Community Platform
CoPCM	Community of Practice in Crisis Management
CoU	Community of Users
CSO	Civil Society Organization
D&C	Dissemination and Communication
DG	Directorate General
DPA	Data Protection Authority
DRMKC	Disaster Risk Management Knowledge Centre
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EFDRR	European Forum for Disaster Risk Reduction
EU	European Union
EUCPM	European Union Civil Protection Mechanism
F2F	Face-to-face
FC	Final Conference
GDPR	General Data Protection Regulation
I4CM	Innovation for Crisis Management
IFAFRI	International Forum to Advance First Responder Innovation
KPI	Key Performance Indicators
NGO	Non-Governmental Organization
PCT	Project Coordination Team
PMO	Project Management Office
PMB	Project Management Board
PO	Project Officer
PoS	Portfolio of Solutions
PRDR	Policy Research Dialogue Roundtable

RAN	Resilience Advisors Network
R&D	Research and Development
RTFRA	Real-Time Flood Risk Assessment
SP	Subproject
SPCC	Subproject Coordination Committee
THW	Bundesanstalt Technisches Hilfswerk (German Federal Agency for Technical Relief)
TIEMS	The International Emergency Management Society
UCPM	Union Civil Protection Mechanism
URL	Uniform Resource Locator
WP	Work package

1. Introduction

1.1 Background and objectives for engaging with the Crisis Management Ecosystem

WP953 ***Enhancing the shared understanding of Crisis Management***, aims at supporting the realisation of the third main objective of the DRIVER+ project (i.e. to foster a shared understanding in Crisis Management), and at setting the basis for the creation of a European Crisis Management culture necessary to ensure the adoption and uptake of the project's results; and ultimately enhance the European Crisis Management capabilities.

Currently several frameworks, initiatives and visions for Crisis Management exist in Europe, but no overarching strategy has been defined yet at a macro level on how to effectively and efficiently involve the diverse groups of stakeholders dealing with the complex field of Crisis Management in Europe. The current and most notable driving forces of this overarching strategical process are the:

- **European Union Civil Protection Mechanism (EUCPM)** which aims to facilitate reinforced cooperation between the EU and the Member States and fosters coordination in the field of civil protection to improve the effectiveness of systems for preventing, preparing for and responding to natural and man-made disasters including climate hazards, geological hazards, acts of terrorism and technological, radiological or environmental accidents. Within this framework the envisioned Union Civil Protection Knowledge Network is of particular relevance and importance.
- **Community of Users on Secure, Safe and Resilient Societies (CoU)** initiative by DG HOME that has made significant progress in facilitating the knowledge exchange in the highly fragmented Crisis Management domain in Europe during the past years.
- **Disaster Risk Management Knowledge Centre (DRMKC)** that is providing a networked approach to the science-policy interface in DRM, across the Commission, EU Member States and the DRM community within and beyond the EU.
- **International Forum to Advance First Responder Innovation (IFAFRI)** is an organization set up by international government leaders (including the EC/DG HOME), that focuses on advancing technologies that are needed to help first responders conduct their missions safely, effectively and efficiently.
- **European Forum for Disaster Risk Reduction (EFDRR)** which is helping Member States to better align their national policies with the Sendai framework

While these four mechanisms aim to define and implement this overarching strategy, **a clear need to further develop, support, complement and strengthen the existing frameworks and initiatives** has been identified in order to foster innovation and a shared understanding in Crisis Management across Europe.

The engagement with the Crisis Management ecosystem is of utmost importance for DRIVER+ to jointly create acceptance for new solutions and approaches towards the successful introduction of innovation. In particular, the systematic participation of many DRIVER+ stakeholders in various project activities helps the DRIVER+ consortium to align with and to follow-up on relevant policies, challenges, gaps and community needs. The project ambition with regards to stakeholder's engagement and the emergence of a shared understanding is first and foremost a long-term one: to build and engage with an active and structured Community of Practice in the field of Crisis Management that will be sustainable after the end of the project duration. Therefore, it is the intention and ambition of DRIVER+ to seek collaboration and provide targeted support to enhance the existing frameworks and initiatives through the following project instruments:

- **Crisis Management Innovation Network Europe (CMINE)** has been established to build a Community of Practice in Crisis Management which is closely aligned with and complementing the Community of Users (CoU) on Secure, Safe and Resilient Societies initiative run by DG HOME. It aims to become an overarching body that connects Crisis Management stakeholders by offering all Crisis Management

stakeholders a collaborative (online) space in which emerging needs, best practices and innovative solutions for (cross-) national and multi-faceted risk scenarios can be jointly discussed. This will facilitate the implementation of policies and the uptake of research and innovation by practitioners and policy-makers.

- **Policy-Research Dialogue Roundtable (PRDR)** has been developed as workshop-based discussion format that aims to bring together a diverse group of stakeholders to strengthen the knowledge exchange in Crisis Management between policy-makers, the research community and related initiatives.
- **Innovation for Crisis Management (I4CM)** has been successfully established and implemented as an annual conference event which contributes to a shared understanding by enabling exchanges on issues of common interest, best practices and lessons learned in the Crisis Management domain as well as by creating synergies between initiatives.

The specific project related objectives that are targeted through these three instruments are the following:

- **Extend the knowledge base:** Involving new network partners and practitioner organisations will allow the project to gain access to new knowledge and expertise, in particular with respect to operational and management challenges, specific technological requirements, challenges related to regulations and standardisation, or challenges related to the evaluation processes. Moreover, sharing of best practices and lessons learnt will allow to learn about innovative solutions supporting their operations.
- **Enhance the cooperation framework:** Developing synergies with related initiatives and projects at international and local levels should increase the outreach and intensify the impact of the project, therefore enhancing the transfer of knowledge and research outputs to practitioner organisations and networks.
- **Ensure the relevance of the project activities:** Enabling the participation of external innovative solution providers, concerned practitioners and relevant experts to the DRIVER+ Trials, the Final Demonstration, the PRDR and the I4CM will ensure their high quality, appropriateness and relevance.
- **Get support and attract potential users:** Involving stakeholders properly to assure they can act as advocates of the project, multiplying the outreach and finding appropriate options for securing the sustainability of the project results.

1.2 Scope and structure of the document

This deliverable **D953.14** ***Enhancing the shared understanding of Crisis Management – Final report and way forward*** (M71) is intended to provide a concluding overview of the outcomes of the activities carried out within **WP953** throughout the course of the project. The activities that were carried out in the period between M65 to M72 will be reported and evaluated in the light of the objective to maximise the project's impact and to ensure the sustainability of the results in the final stage of the project. The document will provide critical reflections on the activities carried out across the lifespan of the project while providing recommendations.

In the light of the project closure the report will give recommendations and provide guidance for the further practical and strategical development of the Community of Practice (CoP) beyond the scope of the project while laying out the details of the strategy and implementation plan aimed to sustain the results and achievements. At the end an assessment will be made if and how the different activities contributed towards achieving the third main project objective of enhancing the shared understanding of Crisis Management in Europe.

The current document is divided into five core sections:

Section 1 provides the reader with an overview of the document, its scope and objective as well as its structure.

Section 2 provides the reader with information on the development and outcomes of the Crisis Management Innovation Network Europe, including information on the final governance structure, the

aims and outputs of the Themes and Chairs. The section will draw lessons learned and give recommendations for the continuation and further development of the network.

Section 3 provides an update of the developments, configuration and lay-out considerations of the CMINE Online Community Platform (COCP). Furthermore, a detailed overview of the structure of the community platform as well as statistical information of the usage of it will be provided. It will be laid out how dissemination and communication activities contributed to engagement of externals in the overall community building process. In addition will details be provided about the experiences and best practices related to the management of the community; this is geared towards preparing for the hand-over of this role to another entity by providing practical guidance on how to best carry out this task. Finally an outlook will be given and potentials for further developments described.

Section 4 describes the efforts and outcomes that were made to ensure the sustainability of CMINE. An overview of the potential adopters of the CMINE, how it could be of added value to the specific objectives of their respective organisation as well as the way forward for each of the identified adopters will be provided. The section closes with an overview of the specific arrangements and the envisioned next steps to be taken by the new hosts and facilitators of CMINE, the Resilience Advisors Network (RAN).

Section 5 provides an overview of the conceptualization, implementation and key outcomes of the second and third Policy Research Dialogue Roundtables (PRDR) that have been organized.

Section 6 draws conclusions on how various activities carried in the lifespan of the project contributed towards achieving the third main objective of enhancing the shared understanding of Crisis Management in Europe. This will be done by reflecting on how the different outputs and related activities can be viewed from the perspective of a shared understanding. This concluding reflection will be complemented by an analysis of the feedback received during the DRIVER+ Final Conference.

Wherever applicable will references to the KPIs be made throughout the text. The complete overview of the KPIs, the level of achievement and reasons for deviations can be found in Annex 2.

2. Development of the Crisis Management Innovation Network Europe

Since the previous deliverable **D953.13** ***Enhancing the Shared Understanding of CM – Progress Report N°3*** (1), the Crisis Management Innovation Network Europe (CMINE) has progressed significantly. At the time of the submission, the CMINE is a growing community with almost 800 (764) members registered on the COCP.

This section provides a detailed outline of the final CMINE governance structure (**Section 2.1**), the aims and outputs of the Themes and Chairs (**Section 2.2**), the Task Groups governance structure (**Section 2.3**) and a detailed summary of the experiences the CMINE Theme Chairs made with the COCP (**Section 2.4**). The dynamic community development process and active use of the COCP in the past year allowed the **WP953** team to collect a significant amount of lessons learned from a large variety of stakeholders. It also allowed the **WP953** team to elaborate on the remaining challenges which will have to be taken up by the adopter of the COCP. Each of the section mentioned above highlights the specific lessons learned during the project, followed by overall recommendations concerning the overall setup, funding and governance of the CMINE that will be provided in **Section 2.5**.

2.1 CMINE governance

This section elaborates on the application of the governance structure that was envisaged to help coordinate the activities as part of the CMINE. The previous Progress Report (**D953.13** (1)), elaborates in more detail on the rationale behind the design of the CMINE governance. Therefore, this section will briefly summarise the envisaged CMINE management and will then reflect on the actual application of this governance structure. This section will also analyse why certain features were, in practice, implemented differently than they were originally envisaged. Finally, this section of the report will provide an outlook for the future application of the governance design.

2.1.1 Operational management

The governance structure of the CMINE is centred on the Task Groups. Each Task Group is headed by a Theme Chair. The Theme Chairs are, in turn, led by a Head Chair. Although the original plan for the CMINE governance provided space for Theme Chairs to chair different Task Groups, this did in reality not occur. Each Theme Chair chaired one Task Group. The management and coordination of one Task Group per Theme turned out to be rather intensive already. The Theme Chairs flagged that, as a result of the Task Group members not being reimbursed for their efforts, a large chunk of the work was to be done by the chairs themselves. In addition, the coordination of the Task Groups was rather complex as all Task Group members participated in the Task Group voluntarily, and meetings had to be planned outside the regular professional obligations of the members. Finally, although the Theme Chairs did receive a reimbursement for their efforts, they also had other ongoing duties which did not allow them to spend more time on the CMINE and the Task Group than they did by heading one Task Group.

Although the creation of an additional Theme and Task Group might have benefitted the CMINE, it was decided not to do so by the Steering Committee. Firstly, the creation of an additional Theme would require an extensive application procedure to be set up again while the other Task Groups were already activated. The additional Task Group would, then, have a different pace than the other two. Another reason to abstain from the creation of an additional group was the uncertain future outlook of the CMINE. Since it was not entirely clear for a long period if and how the CMINE would be sustained after the end of the DRIVER+ project, it was not deemed attractive to start yet another group. As the experiences with the established groups showed, Task Groups would benefit from having (at least) one-year time to reach their objectives. This could not be guaranteed if another group was to be established. Therefore, it was agreed to invest in the creation of two additional 'lighter' groups (see below) rather than the development of additional Themes and Task Groups. In **D953.13** (2), the KPIs for the CMINE were defined, and it was agreed

that the aim for April 2020 was to create more than one Task Group per Theme. As the reflections above show, this was not deemed feasible. Hence, each Theme consisted of one Task Group, Annex 2 presents a full overview of the CMINE KPIs.

The established Task groups were headed by the Head Chair (Todor Tagarev). The tasks of the Head Chair (the overall coordination of the CMINE), as well as those of the Theme Chairs (to chair a Task Group), were only adjusted slightly compared to the original proposed plan (as presented in **D953.13** (1)). The progress of the Task Groups will be discussed in more detail in Section 2.2 below.

2.1.2 Steering Committee

The governance of the CMINE was split into three parts: the support activities, operational management and strategic management. The latter was the prime responsibility of the CMINE Steering Committee, headed by the Head Chair. Other members of the Steering Committee included the individuals involved in the CMINE community management (ARTTIC, Laure Dodin and Myriam Ben Ammar) and operational management (Ecorys, Alexandra Schmid and Gabriëlle op 't Hoog), the DRIVER+ coordinators (TNO, Marcel van Berlo van Marijn Rijken), the **SP95** lead (ARTTIC, Andreas Seipelt) and the parties involved in dissemination and communication (PSCE, Marie-Christine Bonnamour and ARTTIC, Rob Munro). Furthermore, one external project organisation (Risk Society, Magda Stepanyan) took part in the committee, thereby serving as the liaison with the Sustainability Board. The members of the Steering Committee were selected based on their involvement with the CMINE and the broader DRIVER+ project. Some of the members play a key role in the day-to-day management of the CMINE (i.e. ARTTIC, Ecorys and Todor Tagarev), other members have broader role in the DRIVER+ consortium (i.e. communication and dissemination, PSCE) and, finally, TNO was included as this organisation leads the DRIVER+ project.

The tasks of the Steering Committee were split into four issue areas; namely: (1) community development, (2) validation and quality control, (3) sustainability and (4) CMINE internal support activities). An update on each of these issue areas can be found throughout this report. These sections will also touch upon the KPIs that were set in **D953.13** (1) and are presented in Annex 2.

Table 2.1 provides an overview of the different tasks and responsibilities within the Steering Committee.

Table 2.1: Overview of issue areas and responsible partners in Steering Committee

Issue area	Responsible partner
Issue area 1 - Community development	
Community management	ARTTIC
Dissemination and external engagement	PSCE
Issue area 2 - Validation and quality control	
Validation and Quality Control	CSDM
Issue area 3 – Sustainability	
Sustainability	Risk Society
Long-term governance	Ecorys/ Risk Society
CMINE funding models	Ecorys
Issue area 4 – CMINE internal support activities	
CMINE Task Group Coordination/Support Office	Ecorys
CMINE Steering Committee Coordination	Ecorys

The role of the Steering Committee was envisaged to be monitoring the progress of the CMINE as well as providing strategic advice. In practice, the Steering Committee did indeed engage in these activities; the committee members played an active role in identifying various sustainability avenues for the CMINE as well as in shaping the community as a whole. With regards to providing strategic advice, the Steering Committee played an important role in identifying potential avenues for the future development of the CMINE (I.e. Issue Area 3). Steering Committee members would jointly discuss opportunities which would then be further developed with the use of a Sustainability Model Canvas (see Annex 3). A first draft of the canvasses would be developed by Ecorys who would then share the draft for review with the other members of the Steering Committee. Based on the revised drafts, the committee would discuss the viability of an opportunity. Magda Stepanyan (Risk Society) played an active role in providing feedback and validating the draft sustainability model canvasses.

Furthermore, through the PMO, the Steering Committee was kept up to date on the progress of the Task Groups as well as on the challenges that the chairs were facing. In the early phase of the CMINE, the Steering Committee discussed the online platform extensively and, ultimately, guided the move from the CMT to the Hivebrite platform. Once this platform had been activated, the committee remained closely involved and in every meeting, the progress towards gaining traction on the platform was evaluated. In order to spark interaction on the platform, concrete tasks were assigned to different members of the committee. By doing so, it was attempted to make use of the momentum which had been created with the establishment of the 'new' CMINE online platform.

In addition, the Steering Committee fulfilled a crucial role in the delivery of the Final Reports where it was tasked to assess the quality of the reports (the Final Reports on each of the Task Groups as well as the one on standardisation potentials can be found here). Before submission, each of the Final Reports was reviewed by members of the Ecorys team, the ARTTIC team, the PSCE team and TNO team. They would provide feedback to the Task Group Chairs who would then revise the Final Reports accordingly. In this sense, the Steering Committee members acted as a back stopper rather than playing an active role in monitoring. In practice, monitoring of the Task Groups was done by Ecorys who was in charge of the operational management of the CMINE. Ecorys would update the Steering Committee during each of the Steering Committee teleconferences. This division of work proved to be effective, and the quality review role of the Steering Committee was found to be of real added value.

All in all, it can be understood that the role of the Steering Committee was clear cut and of added-value to the governance of the CMINE. From the start of the initiative, the division of roles between the Theme Chairs, Head Chair, support office and the Steering Committee was clear. After the Steering Committee had convened for a number of times, the internal task division (as per the table above) was established which led to a clear division of roles and responsibilities (although some tasks slightly overlapped). The Steering Committee regularly convened in online meetings (I.e. approximately once per 6 weeks).

2.1.3 Support Office

The support office of the CMINE was envisaged to consist of two components; firstly, there would be a project management office geared towards the coordination of CMINE-related activities and overseeing the overall implementation of the project. The PMO would also support the Head Chair. Secondly, the CMINE community managers would be primarily focused on managing the CMINE online platform.

The project management office was managed by Ecorys, as was envisaged in the original governance structure. This work concerned, for a large part, coordination between the different elements of the CMINE (i.e. the Steering Committee, Theme Chairs, Head Chair and support office). With the Task Groups being largely self-governing, the role that the project management office played was rather to facilitate requests, deal with ad-hoc issues and to oversee the delivery of the Final Reports. This happened in close coordination with ARTTIC and PSCE who took care of proofreading and formatting the reports.

ARTTIC provided the CMINE community managers and, in that capacity, taking care of any incoming requests through the CMINE online platform. **Section 3** below provides a more detailed overview of the

specific activities that were carried out in this regard. From a governance perspective, the CMINE community managers played a key role in liaising with parties who could potentially play a role in the future of CMINE, providing them with handbooks, creating (closed) groups on the CMINE and assisting them finding the right features.

The collaboration between the PMO and CMINE community managers was smooth. Both parties communicated closely with each other and had regular phone and email contact. Often, representatives of both parties would respond to questions and requests jointly. This was particularly the case for Hivebrite-related questions where the CMINE community managers would have the technical understanding of the platform while the PMO had a good understanding of the overall coordination and direction of the initiative. While, for good reasons, the work of the PMO and CMINE community managers was separated throughout the lifespan of the DRIVER+ project, this does not necessarily have to be the case when moving ahead. The tasks of the PMO and the CMINE community managers were quite different but complementary and, therefore, could also be taken up by one party. A key consideration to be made in this regard is the amount of resources which are then reserved as both roles do require a substantial amount of time and efforts.

2.1.4 Additional groups

On top of the amendments to the governance structure as discussed above, two lighter Task Groups, referred to as 'groups', were created (in line with the set KPIs, see Annex 2). These were geared towards fostering exchange between the Task Groups and, thereby, strengthening the ties between them. These additional groups are not as 'heavy' as the Task Groups but, rather, support the Task Groups by generating more traction on the CMINE or by fostering ties across the Task Groups. The two groups were established in the fall of 2019, and each had a different goal and focus:

2.1.4.1 Standardisation Group

With standardisation being a topic that is relevant for all three Task Groups, it was decided to set-up a group focusing on this theme and, thereby, acting as a horizontal connector between the Task Groups. Standardisation is (through **SP92**) one of the core elements of the DRIVER+ project. However, this topic was less prevalent in the CMINE. Therefore, the Steering Committee opted for the establishment of a standardisation group which would aim at (1) enhancing the understanding of standardisation of the Task Group members and (2) collecting ideas for potential standards in the respective domains of the Task Groups (please see Annex 4 for a more elaborate concept note).

From the Roadmap documents developed by the Task Groups, it became clear that only the Volunteer Management Task Group addressed standardisation matters explicitly. Hence, the standardisation group was geared towards creating awareness and understanding of the topic of standardisation (i.e. assessing the level of familiarity of the Task Group members with the topic and, subsequently, broadening their knowledge base in this domain). As a second step, the standardisation group aimed at identifying and discussing potential ideas for standardisation in each of the respective thematic areas (i.e. floods, volunteer management and wildfires). As the degree of familiarity with standardisation differed across the Task Groups and between Task Group members, it was decided that these ideas for standardisation activities would be collected in a Standardisation White Paper. This white paper did not present concrete or developed ideas for standards, instead, it presented initial thoughts and ideas voiced by practitioners. The Standardisation Group was comprised of ARTTIC, PSCE, DIN and Ecorys.

During in-person meetings of the Wildfire and Floods Task Group, a mini-workshop (I.e. an hour-long inter-active session as part of the in-person Task Group meeting) on standardisation was held to introduce and familiarise the Task Group members with the concept. During these workshops, potential ideas for standards in the respective fields were collected. The Task Group Volunteer Management delivered such ideas independently in written format. The ideas, along with an overview of other DRIVER+-related

standardisation activities were presented in the Standardisation White Paper (3), which was also presented during the DRIVER+ Final Conference.

Although the level of detail of the collected standardisation ideas differed per Task Group, the group did help to put the topic of standardisation (clearer) on the radar of each of the Task Groups and their respective members. It, therefore, contributed to the familiarity and awareness about the added value of standards.

2.1.4.2 Innovative solution competition

This competition was geared towards, on the one hand, creating more visibility of and attention for solutions developed inside and outside the DRIVER+ project. Through open voting, the competition aimed to put a spotlight on developed solutions and to, thereby, contribute to the ultimate uptake of these solutions. On the other hand, the innovative solution competition was developed in an effort to boost the interactions on the CMINE online platform. As the voting took place on the CMINE online platform, the solution aimed to increase the number of visitors to the webpage. While these visitors would come to the CMINE online platform the vote, the long-term vision was to ensure continuous use of the CMINE online platform (please see Annex 5 for a more elaborate concept note). The competition was open to various kinds of solutions in the Crisis Management domain.

The competition was announced in December 2019. Anyone could propose solutions that should be included in the shortlist and, subsequently, voting commenced. In total, 17 solutions were registered for the competition. The voting took place on two levels; online popular voting (where the public could cast their votes) and jury voting (where a group of experts casted their votes). Head Chair Todor Tagarev led this group and installed a jury consisting of Esther Kähler (DIN), Chaim Rafalowski (National Emergency Medical Service Israel), Thomasz Zwęgliński and Grzegorz Beltowski (SGSP) and Steven van Campen (XVR). Each of the entries was evaluated with regards to three criteria: (1) contribution to Crisis Management or disaster risk reduction, (2) affordability and (3) contribution to Crisis Management innovation.

The popular vote ranked most highly the following solutions:

1. STORM
2. Real Time Risk Assessment Viewer
3. 3Di - Water Management
4. CrowdTasker
5. eHealthPass
6. Scenario enabled Psychological First Aid (PFA) training

The jury ranked the entries in the following order:

1. CrowdTasker
2. Scenario enabled Psychological First Aid (PFA) training
3. eHealthPass
4. CrisisSuite

Three solutions took the fifth place, namely: 3Di - Water Management, Portfolio of Solutions, and ASIGN with equal number of points. The top solution in each list received 17 points, the second – 16, and so on, and the last on the list earned 1 point.

During the Final Conference, the top three solutions which yielded most votes were called to the stage and awarded with a prize. The 2020 winner of the innovative solution competition was CrowdTasker, developed by a team from the Austrian Institute of Technology GmbH (AIT). Runners-up, with an equal number of points, were eHealthPass (by Gnomon informatics S.A.), and Scenario enabled Psychological First Aid (PFA) training (by the International Federation of Red Cross Red Crescent Societies' Reference Centre for Psychosocial Support in Denmark).

The competition contributed to populating CMINE, with more than 100 members registering in the week of the voting (which accounts for a 20% increase) and the Portfolio of Solutions, with 13 solutions added from the announcement of the competition till the deadline for registering entries (30 % increase).

2.1.5 Changes with regards to the original governance structure

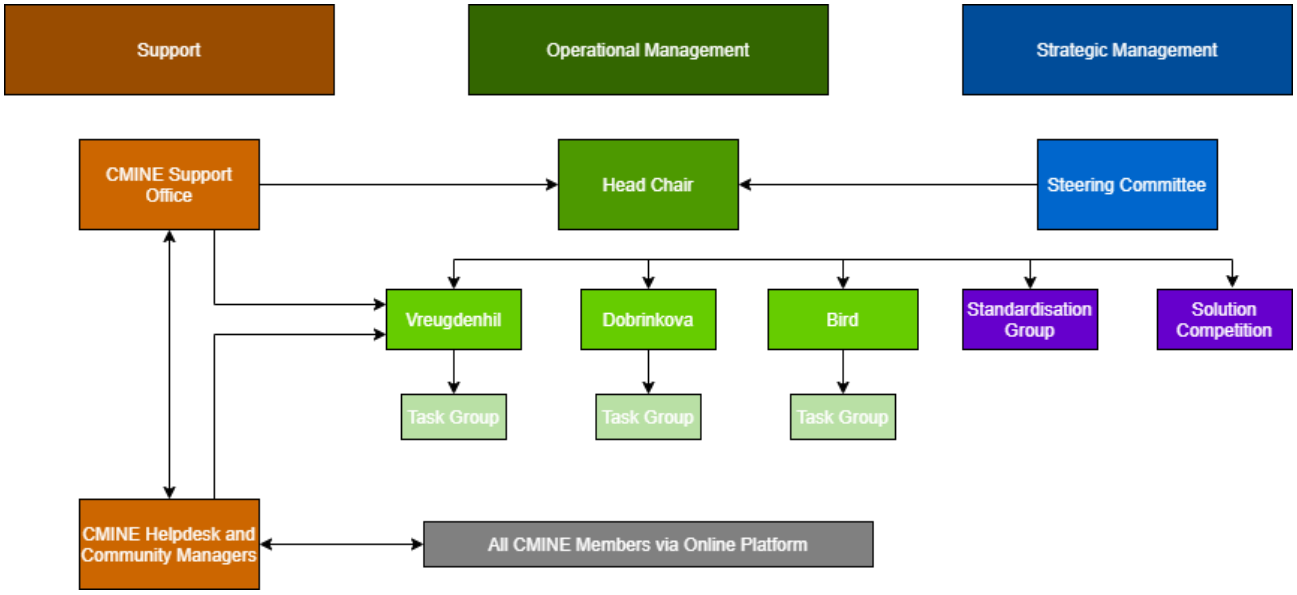

Figure 2.1: Revised outline of CMINE governance structure

Taking into account the above, five adjustments were made to the initially proposed CMINE governance structure:

1. Two additional groups

Two groups were added on top of the three Task Groups managed by the Theme Chairs. The two additional groups were geared towards standardisation and the innovative solution competition. The former aimed at fostering connections between the existing Task Groups and sought to enhance awareness about standardisation. The latter helped to attract attention to the solutions developed inside and outside the DRIVER+ consortium. Furthermore, it had a positive effect on the number of subscribers to the CMINE.

2. One Task Group per Theme Chair

The initial governance structure deliberately left space in the organigram for Theme Chairs to start various Task Groups. In practice, however, it turned out that one Task Group per Theme Chair was more realistic. Depending on the future evolution of the CMINE, Theme Chairs can, of course, chair multiple Task Groups. However, given the resources needed to coordinate a Task Group (as described below and in the management report of the CMINE), it might be unrealistic to assume that one single Theme Chair would be available to coordinate multiple Task Groups.

3. Independent Theme Chairs

Although it does not explicitly show from the original organigram (as presented at the start of this section), the PMO anticipated the Theme Chairs to require more support in setting up the Task Groups and managing them. However, in practice, it turned out that the Theme Chairs were familiar with the DRIVER+ project and its consortium (as all Theme Chairs were consortium members), in addition, each of the Theme Chairs took a proactive stance in coordinating their groups. Hence, the PMO played a supporting role throughout the lifespan of the project and was most active at the start (i.e. the selection procedure), around meetings (i.e. in-person Chair meetings) and the end (i.e. the submission of the Final Reports).

4. Direct contact between PMO and Theme Chairs

Related to the above, the original organigram did not foresee a direct line of communication between the PMO and the Theme Chairs. However, in practice, it turned out that the PMO and Theme Chairs would communicate on a bilateral basis (always keeping the Head Chair informed).

5. Direct contact between CMINE Help desk and Theme Chairs

Similarly, with the CMINE online platform playing a bigger role in the second half of 2019, the CMINE Help Desk was sometimes in direct touch with the Theme Chairs when liaising about the set-up of the (closed) groups, features, etc. In these exchanges, the PMO and/or Head Chair were included to allow for coordination where needed.

A revised visualisation of the CMINE governance structure would, thus, look like the one presented in Figure 2.1.

2.1.6 Lessons learned and recommendations

This subsection will present the lessons learned and recommendations for each of the elements of the CMINE governance structure.

Operational management

Although the originally envisaged governance structure left the option for multiple Task Groups per Theme open, it was found that in practice, this was not realistic. As the management and coordination of the Task Groups turned out to be quite resource-intensive, it can be concluded that one should not aim for multiple Task Groups for each of the themes, especially not at the start of a community of practice. One lesson that can be drawn from the reflections on the CMINE governance structure is that the resources available should be decisive in determining the efforts and structure of the community of practice.

A key recommendation in this regards would, therefore, be to realistically reflect on the available resources and adapt the ambition level accordingly. Once a community of practice has moved ahead and has become more mature, one can contemplate whether it would be feasible to add new Task Groups.

Steering committee

Despite the clear value added by the Steering Committee, a number of lessons learned and avenues for improvement have been observed. Firstly, the members of the Steering Committee were, at times, requested to provide feedback on quite a number of documents – in particular on the Sustainability Model Canvasses. These were drafted by Ecorys and then circulated among the other Steering Committee Members. Due to the busy schedules of the Steering Committee members, the input received on the draft Sustainability Model Canvasses was sometimes rather minimal. In order to enhance the amount (and quality) of the feedback received in future processes, it could be considered to share a more accurate timeline with regards to the development of these canvasses in order for the members to schedule time to review the canvasses into their calendars.

Another issue that was identified is the difficulty to include Theme Chairs in the decision-making processes. On the one hand, the Steering Committee was in the position to take decisions and to steer the CMINE in a certain direction. On the other hand, the Theme Chairs (and their Task Group members) played a critical role and took on a large part of the work. Hence, when making decisions on, for instance, adding another Task Group to the Themes, adding a new theme or establishing two additional groups, the Theme Chairs would need to be included at some point as the decisions would have an impact on their work. Sometimes, the Steering Committee failed to include the Theme Chairs at an early stage and decided without consulting the Theme Chairs. As a result, the two additional groups were established without consent or input from the Theme Chairs.

As the standardisation group required input from the Theme Chairs, this could have been communicated more sensitively. The Theme Chairs did not have time for this additional task nor did they feel competent

to make an analysis of the standardisation needs in their respective field of expertise. Moreover, if the Theme Chairs would have been involved more actively in this decision-making process, it is likely that the buy-in by the Theme Chairs to participate in the standardisation group would have been higher.

A similar observation can be made with regards to the move from the CMT to the Hivebrite platform. The Theme Chairs were only lightly involved in this (decision-making) process while they were the ones who were requested to make use of the platform very actively. One of the reasons why this did not materialise fully might have been the limited outreach from the Steering Committee to the Theme Chairs in this process.

Support office

Overall, the support office was found to be a useful addition to the CMINE governance structure. The PMO played a pivotal role in the overall coordination of the CMINE initiative whereas the community managers pushed the online platform ahead. Given the close interconnection between the two entities, effective communication is key. A recommendation for other communities of practice in this regard would be to maintain close links between the various members of the support office and to ensure adequate follow-up of emails and other forms of communications. Having close links between the support office entities is essential.

Additional groups

Finally, the addition of the two new groups while the Task Groups were active already was, one the one hand, a success as it allowed for a horizontal connection across the Task Groups. On the other hand, it was at times perceived to be an additional burden by the Theme Chairs who had not agreed to the establishment of the additional groups. As the standardisation group was established when the Task Groups were activated already, the Theme Chairs indicated to have limited availability to take on much additional work. Hence, the ambition of the standardisation group was adjusted to accommodate the Theme Chairs. As elaborated upon above (under operational management, Section 2.1.1), it was observed that in the process of establishing the standardisation group, it would have been beneficial to include the Theme Chairs more actively in order to enhance the level of buy-in from their side. If the Theme Chairs had been involved in the design of the additional groups (in particular the standardisation group), this could have had a positive effect on their willingness and ability to provide inputs, thereby also positively affecting the quality of the output of these groups. Moving forward, it is, thus, recommended to continuously engage the different involved parties (and/or individuals) in the decision-making process. In particular, when these decisions concern activities that have a direct effect on those parties.

Finally, the solution competition was found to be of added value to the CMINE. Not only did it increase the activity on the CMINE online platform, but it also helped to attract more attention to the solutions created within and outside the DRIVER+ platform. In addition, it served as a festive ending to the DRIVER+ Final Conference.

2.2 Themes and chairs

D953.13 (2) elaborates on the rationale behind the Task Groups as well as the process of establishing them and selecting relevant Task Group members. This section will briefly summarise these elements and then continues to discuss the managerial aspects of the Task Groups as well as the key lessons learned and the recommendations for future endeavours.

The three themes (floods, volunteer management and wildfires) which have served as the backbone of the CMINE during its initial cycle were selected based on the DRIVER+ trials and the expertise of the Theme Chairs. The call for experts for each of the Task Groups was launched in January 2019 and yielded 47 responses (thereby, the KPI on the minimum amount of applications was reached, see Annex 2). Once the Theme Chairs had selected the members of their Task Groups, the groups formally commenced their activities. Group members were selected based on their expertise, and the Theme Chairs were encouraged to keep in mind the geographic diversity as well as the diversity of backgrounds of the groups. In total

experts from 16 different EU Member States took part as a member in a Task Group, representing practitioners, researchers and decision makers (thereby, the KPI on geographic diversity of the Task Groups was achieved, see Annex 2). In preparation to the start of their Task Group, the Theme Chairs had developed a roadmap outlining both the aim and objectives of the Task Group (in terms of content) as well as the governance of the Task Group. The roadmaps of the Task Groups were annexed to **D953.13** (1).

At the time of writing this progress report (April 2020), the Task Groups have each submitted their Final Report, presenting the content-related findings and outcomes of their work. These Final Reports were included in the presentation on the CMINE at the Final Conference and were made accessible to all participants of the conference via USB. In addition to the Final Report, each Theme Chair delivered a Management Report which outlines their experiences with the CMINE, best practices and avenues for improvement. The full CMINE Management Report is included in Annex 6. The majority of the advanced draft versions of both the management reports as well as of the Task Group Final reports were received in time and, therefore, the Theme Chairs met the KPI related to the timely delivery of outputs (see Annex 2).

Table 2.2 below provides a brief overview of the different elements of each of the Task Groups which will be further elaborated upon in the sections below.

Table 2.2: Brief overview of Task Group governance features

	Floods	Wildfires	Volunteer Management
Aims and output	Development of a tool to assess the effect of interventions in flood management	Development of guidelines on addressing wildfires	Development of handbook for the management of spontaneous volunteers
Governance	• One Chair • Active members • Internal and external reviewers • Three case studies	• One Chair • Two co-chairs	• Two co-chairs • Four sub-groups
Communication	Mainly via email, teleconferences and 4 in-person meetings	Mainly via WhatsApp and emails and 4 in-person meetings	Mainly via email and teleconferences (for environmental reasons, the group tried to reduce in-person meetings to a minimum)
COCP usage	Limited use	Limited use	Limited use

2.2.1 Aims and outputs

Each of the three Task Groups, naturally, worked towards a different objective and outputs. The aim and foreseen application of the outputs also impacted the way the Theme Chairs structured their Task Group; hence, it is essential to touch upon the Task Group's objectives briefly.

The Task Group Floods aimed to develop an internationally-recognised approach to quantify the effectiveness of flood measures and to bring about an effective use of open data. Hereby, the group aimed to address a challenge that was identified as one of the DRIVER+ gaps (see **D922.11 *List of Crisis management Gaps*** (4)**)**, gap number 1, p. 6, with more detailed description on pp. 35-36). Crisis Management teams tend to have little or no experience with extreme situations, such as (natural) disasters. Consequently, the expert's judgement on what needs to be done at a specific moment in a crisis can be difficult to reproduce. Therefore, the Task Group Floods developed a procedure to enhance the

transparency and replicability of expert judgments. The Task Group Floods created the Real-Time Flood Risk Assessment (RTFRA), this includes an expert judgement process which can be used reproducibly and estimates the impact of a measure on the basis of the expert knowledge. The RTFRA method thereby improves the quantification of flood risk reduction and support emergency personnel and decision-makers. The Bulgarian Task Group members have indicated to be interested in the tool that was developed, and in an additional Task Group meeting (January 2020) potential application to the Bulgarian Crisis Management coordinators was discussed.

Secondly, the Task Group Wildfires aimed to create a common expert view of the potential added value of "guidelines" for policy, science and practice, based on expert opinion and expertise. Besides, the Task Group aimed to contribute to changing the existing fire management paradigm where the focus is on the prevention rather than on mitigation of the unwanted effects of fires. The group departs from the assumption that the challenges with regards to 'fire' that we experience nowadays are actually the result of badly management landscapes. As landscapes in bad shape provide for fuel to the fires, the group aimed to address this element in their activities. The final output of the Task Group is a suggestion for common EU legislation that will help to merge the governance of land management on the national, regional and local level. Pro-active wildfire management requires practices, tools and programs readily available and effectively functioning at the different phases of Crisis Management: prevention, preparedness, response and recovery. This involves a coordinated and harmonized planning at the landscape level, including education programs on Pan-European level, assessment of fire risk and the development of an action plan for wildfire management. Due to the vast amount of damage incurred due to wildfires in the last couple of years, the insights provided by the Task Group come at a relevant point in time. From the Final Report of this Task Group, it remains unclear what potential uptake and dissemination avenues for these outputs could be. The report does not specify any recommendations or actions in this regard.

Thirdly, the Task Group Volunteer Management aimed to contribute to quality management of volunteers in crisis. More specifically, the aim was (1) to contribute to the thinking and practice around spontaneous unaffiliated volunteers and (2) to foster an EU wide community around this topic. Recent years have seen a shift in the way many people volunteer. They are less loyal to established organizations and more driven by causes and events. This represents challenges for Crisis Management organizations; spontaneous unaffiliated volunteers are often exposed stressors specifically related to not being affiliated with an organization. Some guidelines on working with spontaneous unaffiliated volunteers in Crisis Management exist, but for the most part, they completely neglect the aspect of providing support and care to the spontaneous unaffiliated volunteers, or only do so in the most rudimentary way. The Task Group worked to deliver the material '*New ways of volunteering. Challenges and opportunities. A working paper and toolbox for care and support for spontaneous unaffiliated volunteers*' that pulls together the most salient issues in care and support for spontaneous unaffiliated volunteers. This will help crisis managers, policymakers and practitioners to provide good care and support for spontaneous unaffiliated volunteers.

2.2.2 Reflections

Each of the three Task Groups seems to have addressed a topic which is relevant to their respective professional community. This can be concluded based on the fact that each Task Group consisted of an international group of experts, each knowledgeable in the field. In addition, for one of the outputs produced by the Task Groups specific interest was shown by other parties, thereby validating the relevance of the Task Group and their work (i.e. this was the case for the Floods group where the Bulgarian partner indicated interest).

Nevertheless, it remains rather unclear what will happen with the outputs developed by the Task Groups. The Theme Chair for the Floods Task Group mentions that one of the members of the group might be interested in exploring the implementation of the solution, however, this avenue is still rather uncertain and vague. For the other two Task Groups, a similar observation can be made. A number of reasons can be identified which account for the limited number of concrete uptake activities. Firstly, the Roadmap documents which each of the Task Groups developed at the start of their work, do not include a specific

section outlining the research uptake and outreach strategies. The Steering Committee had developed these templates and overlooked the importance of outlining the dissemination and uptake strategies in an early phase of the activities already. It would have been useful if the Chairs were encouraged to think about how to generate uptake of their ultimate outputs from the start of their activities on. Related to this, there was limited pro-active involvement from the parties responsible for the dissemination and external engagement. The work that was done in this regard was primarily aimed at disseminating information about the CMINE as a whole and not necessarily about the progress and outputs of the Task Groups. The partners responsible for the dissemination and communication activities did liaise several times with the chairs about elements of their Task Groups that could potentially be used for communication purposes, however, the former indicated they had not received useful inputs from the chairs in this regard.

Furthermore, the CMINE online platform should have functioned as a lively communication platform where the Task Group results would have been shared with a large audience, thereby, boosting the potential for uptake of the outputs. However, given the limited action on the CMINE and the critical stance from the Chairs towards the CMINE online platform, this did not materialise.

Finally, the Chairs repeatedly stressed that the management and coordination activities were much more intensive than anticipated. As all Task Group members joined the Task Group on a voluntary basis, all meetings were to be planned outside other professional obligations. This did not only enhance the complexity of finding suitable moments for all members, it also resulted in a substantial amount of work to be done by the chairs themselves. This, in addition to the rather heavy administrative burden (i.e. the reporting that was requested by the DRIVER+ project), reduced the amount of resources available for the actual research and dissemination activities of the Task Groups.

2.2.3 Recommendations

The above analysis and reflections naturally lead to a number of recommendations which could be implemented in the framework of the CMINE as well as in the light of other communities of practice.

- To address the dissemination and research uptake strategies in the early stages of the activities. Ideally this issue should be addressed when also designing the set-up of the Task Group and when deciding on the objective and goals of the Task Group. By doing so, the topic of research uptake is on the radar of the Theme Chair as well as on the radars of the Task Group members. This allows them to scan for potential opportunities to disseminate the findings throughout the lifespan of the Task Group activities. Moreover, it encourages them to look for such changes more proactively.
- The parties responsible for the dissemination and external engagement activities of the CMINE (or the community of practice) on the general level should liaise closely with the Theme Chairs on their plans, strategies and progress. Checking in regularly helps to maintain the topic of dissemination on everyone's agenda and it forces all involved parties to think about ways in which information can be best shared.
- The work with regards to actually disseminating outputs and generating uptake should not be underestimated. Sufficient resources should be set aside to allow Task Groups to actively pursue these activities. If resources allow, one of the Task Group members could even be appointed as the 'dissemination lead', thereby continuously monitoring the Task Group's progress and potential opportunities in this regard.

2.3 Task Group governance

Fundamental to the CMINE governance design is the relative amount of freedom that the Theme Chairs enjoyed in structuring and designing (the work of) their Task Groups. Based on personal experiences of the Theme Chairs and the objectives of the Task Groups, each Theme Chair designed their respective Task Group differently. This section elaborates on the various structures that were applied, followed by a brief analysis of the strengths and opportunities.

The Theme Chair heading the Task Group floods worked with a number of 'active Task Group members', internal reviewers and external reviewers (a full list of names and affiliations can be found in Annex 6). The Theme Chair was in charge of coordinating the group and was in direct touch with the Head Chair and the CMINE PMO. The Theme Chair, with the help of local hosts, also organised the face-to-face meetings. The group identified three case studies within the framework of the Task Group. On the basis of these case studies, three working sessions in different countries were organised, these were meant to test the RTFRA method. Upon request of the Bulgarian partner, the Crisis Management and Disaster Response Centre of Excellence, one additional meeting was held in January 2020 in Sofia, Bulgaria. This meeting was aimed at exploring the potential applicability of the RTFRA tool to the Bulgarian context. Outside the face-to-face meetings, this Task Group mainly communicated via email and bilateral calls.

The Task Group on Wildfires was led by the Chair who was supported by two vice-Chairs. In addition to the Task Group members there were reviewers who acted as quality controllers. The Theme Chair served as the go-to person for all Task Group members as well as for the Head Chair, the PMO and the CMINE community managers. In addition, the face-to-face meetings of the group were organised with the help of local organisations. The Task Group's main channel of communication was WhatsApp. Due to the busy schedules, which intensified during the fire season, it was found to be difficult to schedule meetings or calls that all members could attend. Hence, the WhatsApp group was a useful substitute. In addition to WhatsApp, the group also made extensive use of email communication.

Finally, the work of the Task Group on Volunteer Management was structured around different sub-groups working on a separate topic under the guidance of one of the Chairs. The Task Group members played a decisive role in steering the direction of the sub-groups. The group had regular (online) meetings to discuss their progress and align their work, both within sub-groups and across the entire Task Group. Ultimately, the Task Group's draft Final Reports were submitted to a double review process. This process entailed a review by external reviewers and an anonymous online consultation. Throughout the activities of the Task Group, the members predominantly communicated via emails, teleconferences, Google docs and face-to-face meetings. Each of the Task Group members also created a profile on the CMINE where the co-chairs would post regular news updates on the closed group's page.

2.3.1 Reflections

The descriptions of the different shapes of Task Group governance show that different models work, as long as it is clear how the roles and responsibilities are divided. Each of the Theme Chairs organised her Task Group differently; nevertheless, all seemed to function well. This can be perceived as a key strength of the CMINE governance.

While the chairs were granted much freedom with regards to the way they structured and managed their Task Groups, they were requested repeatedly to move their communications to the respective closed groups on the CMINE online platform. This did not materialise (for a number of reasons which are specified in more detail in Section 2.4) as the Task Group members continued to communicate via email and WhatsApp. Although this did not necessarily impact the governance structure of the CMINE or the Task Groups, it did affect the cohesion between the Task Groups as well as the activity on the CMINE online platform. Originally it was envisaged that the active Task Groups on the CMINE would use the CMINE online platform to communicate within the Task Group, in a closed space. Regularly, updates would be shared with the broader public in a non-disclosed manner, on the public page. In addition, the idea was that there would not only be exchanges within the closed groups but also between groups. Due to the limited engagement with the CMINE online platform, such exchanges and public posts did not take place in practice.

2.3.2 Recommendations

Looking at the Task Group governance, two key recommendations can be made for future Task Groups to be established in the light of the CMINE (as well as for other community of practice initiatives):

- Allowing Theme Chairs to design their respective Task Group as they seem best fit can be understood as a best practice. This approach helps to give Theme Chairs a sense of ownership over their Task Group and allows them to manage the group as they seem most workable (also taking into account their resources and limitations). It is essential to set a clear framework (i.e. the overall CMINE governance) in which roles and responsibilities are clearly outlined. Within this framework, Theme Chairs (and the Task Groups) would benefit from some discretion.
- A community of practice generally grows naturally. As elaborated in **D953.11** ***Enhancing the shared understanding of Crisis Management – Progress report 1*** (5), the literature on communities of practice state that such communities have a strong bottom-up character where the members of the group are to steer the direction and development of the group (rather than the management bodies of a group). Imposing certain methods or tools on the groups goes against this natural set-up and, thus, does not always work out. The Task Groups would naturally use emails or WhatsApp to communicate with each other; using different forms of communication would 'go against their nature' and, hence, it is recommended to reflect on the added value of certain tools critically. If a tool is deemed to be of great value, it is essential to approach the application and implementation of such a tool bottom-up, rather than top-down (see the next section for more analysis).

Furthermore, it became clear that granting the Theme Chairs relatively much freedom to design and structure their Task Groups as they saw best fit can be understood as a best practice. Based on their professional and personal experience, the Theme Chairs each chose a different approach to the management of their respective Task Groups. Each turned out quite different, but all models seemed to work well (as elaborated upon in more detail in the next section). Based on the research on the design and functioning of Communities of Practice in the early stages of the CMINE, the **WP953** team agreed to maintain a fair amount of discretion for the Theme Chairs, and this worked well. Hence, should new themes and Theme Chairs be identified in the future, it is recommended to apply a similar governance structure to those as was done in by the DRIVER+ project. In fact, this recommendation is relevant for other communities of practice who contemplate about the best ways to structure their efforts.

2.4 Experiences with the CMINE online platform

Despite each of the Task Groups having a different set of objectives and working in a different structure, each Theme Chair invested efforts to activate the members on the CMINE online platform. When being asked to reflect on their experiences, the Theme Chairs seemed to have similar experiences with the platform. The below bullets present the main take-aways as presented by the Theme Chairs in their Management Reports.

- **Difficult to change habits**. Task Group members were generally very familiar and used to working with Outlook. They perceived email exchanges as a useful and effective way to collaborate, hence, it was difficult to convince the members to move their conversations to the CMINE.
- **Reluctance to become active on CMINE platform**. Related to this, the added-value of the COCP remained unclear. One of the reasons for this was the so far limited activity on the CMINE. Since a number of Task Group members were also active in other EC-funded projects, they would sometimes be in the process of developing an online communication platform themselves. Hence, they were reluctant to get involved in another platform. This is particularly the case for the domains where the communities are relatively small (I.e. the wildfire community).
- **Limited belief in added-value of CMINE**. Although it was, partially, the role of the Chairs to populate the CMINE with relevant information which would help to gather attention, this did often not materialise because neither the Chairs nor the Task Group members were firm believers in the CMINE.

- **Migration from CMT to Hivebrite**. Another criticism is related to the migration from the CMT to the Hivebrite platform. For legal reasons, it was impossible to move the user database from the one platform to the other one. Hence, experts who had previously subscribed to the network were asked to re-subscribe. The Chairs indicated that Task Group members were hesitant to do so because they were not convinced by the added value of the CMT.
- **CMINE platform did not fully meet needs of Chairs**. The chairs indicated that the CMINE platform should have allowed for collaborative work on documents; however, the platform did not support these features (yet).

2.4.1 Reflections

The text above shows that the CMINE online platform did not fully meet the needs and expectations of the Theme Chairs. One of the reasons for this might be the transfer of the CMINE online community from the original CMT to the new Hivebrite platform in June 2019. With the rather late transition a significant amount of time was lost where the COCP could have been positioned, promoted and actively used for the various project activities originally foreseen.

Although the new platform was welcomed and reactions were positive, the Theme Chairs noticed that Task Group members had grown hesitant to join yet another platform. Firstly, they had been a member of the CMT platform and were neither enthusiastic nor convinced by this platform. They were expecting something similar of the Hivebrite platform and, therefore, did not want to go through the hassle of registering again. Secondly, most of the Task Group members have many online profiles at various platforms already and, therefore, were not very keen on joining yet another platform. This was particularly the case for the Task Group members who were also active in other EU-funded projects as most of them are required to develop an online platform of their own.

Another factor that negatively affected the willingness of the Chairs and Task Group members to become active on the CMINE might have been the top-down approach by the DRIVER+ project as a whole and the Steering Committee in particular. From the start of the DRIVER+ project it was clear that an online community platform would be developed and, therefore, with the creation of the CMINE, an online platform was created in parallel. In the development of the governance structure and set-up of the CMINE, there was little room to discuss with the potential final users of the CMINE online platform if there was an actual need for such platform. The original platform (i.e. on the CMT) was created before the Theme Chairs were identified and, therefore, the Theme Chairs had no say in this process and were simply expected to start using this channel. Even when the CMT was migrated to the Hivebrite platform, the Theme Chairs were only involved in the design and selection of features of the platform at a minimal level. This resulted in the Steering Committee of the CMINE somewhat imposing the CMINE online platform on the Theme Chairs. Looking back, a bottom-up approach where the Theme Chairs would have been more actively involved in designing the online platform would likely have positively impacted their trust, buy-in and engagement with the platform.

Related to the above was that in the initial months of the project, much efforts and resources were spent on the development of a strategy on the application of the CMT. As the application of this platform, ultimately, did not prove to be suitable, limited time and resources remained to realise active engagement on the Hivebrite CMINE platform. Creating and maintaining such engagement takes ample time, hence, the remaining period (after the implementation of the Hivebrite online platform) proved to be insufficient to realise the envisaged levels of engagement.

2.4.2 Recommendations

Based on these reflections, a number of recommendations can be distilled which can be of use for communities of practice developing online communication platforms. In addition, these can also be relevant for the CMINE if, in the future, its design and/or the features on the platform are to be revised.

- Apply a bottom-up approach in the design and development of the online platform. Make sure to include (representatives of) the end-users in order to create trust, generate buy-in and make sure that the platform meets the needs of the users.
- Prior to developing the online platform, it is essential to map the landscape of existing online communities in the respective domain. Rather than adding on to the existing portfolio, it might be more useful to liaise with existing ones and to explore opportunities for collaboration. In fact, the CMINE provides a best practice in that regards as various networks have started to create closed or open groups on the CMINE to continue their networks activities online. Although this was done when the transition from the CMT to Hivebrite was made, it might have been useful to include the members of the Task Group in this exercise (given their knowledge of the landscape).

2.5 Lessons learned

While each of the Task Groups had a different aim, envisaged outputs and governance structure, the chairs identified similar areas for future improvement. These suggestions are listed below.

Governance structure and Task Groups

- The CMINE governance structure (i.e. the Task Groups and (co)chairs) worked well and should be replicated in the future.
- The open call for experts was perceived to be a key asset of the CMINE. The call yielded applications from different geographic areas as well as the applications from experts outside the networks of the chairs. This diversity resulted in new, refreshing insights and enhanced the quality of the outputs. Each of the chairs confirmed that their work for the CMINE helped them to extend their networks. Nevertheless, it remains unclear how these networks will be put into practice after the DRIVER+ project has been finalised.
- Nevertheless, despite the voluntary commitment of the Task Group members, the governance structure should somehow safeguard continuous commitment upon which the Theme Chairs can rely.
- A small group of active members turned out to be much more effective than a large group of more passive members. Specific attention should be paid to this in the application procedure and selection of experts.
- The Task Groups were all structured in a way that encouraged an open discussion between members. This was rated very positively by the chairs; they indicated that the open and honest discussions helped to elevate the quality of the end products.
- The roadmaps developed prior to the start of the Task Groups were perceived as a helpful foundation to the work of the Task Group in later stages (although they should have included a section on dissemination of outputs).
- The close involvement of practitioners was experienced as an asset. This helped the chairs to focus the efforts of the Task Group members on understanding what the needs of practitioners on the ground are and how these can be met through research. The Floods Task Group proved that the outputs they produced do actually meet needs in the field as the Bulgarian partners (Crisis Management and Disaster Response Centre of Excellence) indicated their interest in the tool that was developed.
- In the future, chairs recommend rethinking the heavy management-related reporting structure. In order to allocate more resources to the Task Group (i.e. its members), resources from the management layer might be better spent at the Task Group level (i.e. related to the content).

Resources

- The absence of a reimbursement (outside travel reimbursements) for Task Group members was repeatedly mentioned as one of the major pitfalls of the CMINE concept. It required members to work on the CMINE outside their regular working hours and, thereby, significantly reduced their availability to work on the tasks and/or attend meetings. The voluntary nature of the engagement of the members made it difficult for the chairs to push on their commitment. In addition, the Wildfires Task Group chairs reported that the members found the reimbursement procedures rather complex which

did not have a positive. In order to motivate the members, the added-value of their contributions should be crystal clear.

Online platform

- For future endeavours it is recommended to involve the end-users of the online platform in the design, where possible. This would reduce the chance of a platform being developed which does not match the needs of the end users (I.e. the absence of collaborative documents).
- Moving forward, a qualified person should be tasked with monitoring and animating the CMINE in order to enhance the livelihood of the fora. This person would ideally have content knowledge as well as community management experience (i.e. secretary or chairing experience). Although these tasks were mainly carried out by two partners (i.e. ARTTIC and Ecorys) within the framework of the DRIVER+ project, it could also be possible for one party to take on this role (although ample resources should be reserved for these activities).

Communication and dissemination

- It is essential to celebrate positive results (i.e. on the CMINE); this helps to motivate the Task Group and to communicate concrete achievements to the broader public.

More generally, the Theme Chairs mention that the main pitfall of CMINE is stating that a network has been established. The start-up of CMINE was top-driven and does not (yet) represent or support the domain and the professionals working within it.

2.6 Recommendations

The above analysis and reflections naturally lead to a number of recommendations which could be implemented in the framework of the CMINE as well as in the light of other communities of practice.

- To address the dissemination and research uptake strategies in the early stages of the activities. Ideally, this issue should be addressed when also designing the set-up of the Task Group and when deciding on the objective and goals of the Task Group. By doing so, the topic of research uptake is on the radar of the Theme Chair as well as on the radars of the Task Group members. This allows them to scan for potential opportunities to disseminate the findings throughout the lifespan of the Task Group activities. Moreover, it encourages them to look for such chances more proactively.
- The parties responsible for the dissemination and external engagement activities of the CMINE (or the community of practice) on the general level should liaise closely with the Theme Chairs on their plans, strategies and progress. Checking in regularly helps to maintain the topic of dissemination on everyone's agenda and it forces all involved parties to think about ways in which information can be best shared.
- The work with regards to actually disseminating outputs and generating uptake should not be underestimated. Sufficient resources should be set aside to allow Task Groups to actively pursue these activities. If resources allow, one of the Task Group members could even be appointed as the 'dissemination lead', thereby continuously monitoring the Task Group's progress and potential opportunities in this regard.
- Allowing Theme Chairs to design their respective Task Group as they seem best fit can be understood as a best practice. This approach helps to give Theme Chairs a sense of ownership over their Task Group and allows them to manage the group as they seem most workable (also taking into account their resources and limitations). It is essential to set a clear framework (i.e. the overall CMINE governance) in which roles and responsibilities are clearly outlined. Within this framework, Theme Chairs (and the Task Groups) would benefit from some discretion.
- A community of practice generally grows naturally. Imposing certain methods or tools on the groups goes against this natural set-up and, thus, does not always work out. The Task Groups would naturally use emails or WhatsApp to communicate with each other; using different forms of communication would 'go against their nature' and, hence, it is recommended to critically reflect on the added value

of certain tools. If a tool is deemed to be of great value, it is essential to approach the application and implementation of such tool bottom-up, rather than top-down (see the next section for more analysis).

- Apply a bottom-up approach in the design and development of the online platform. Make sure to include (representatives of) the end-users in order to create trust, generate buy-in and make sure that the platform meets the needs of the users.
- Prior to developing the online platform, it is essential to map the landscape of existing online communities in the respective domain. Rather than adding on to the existing portfolio, it might be more useful to liaise with existing ones and to explore opportunities for collaboration. In fact, the CMINE provides a best practice in that regards as various networks have started to create closed or open groups on the CMINE to continue their networks activities online. Although this was done when the transition from the CMT to Hivebrite was made, it might have been useful to include the members of the Task Group in this exercise (given their knowledge of the landscape).

3. The CMINE Online Community Platform

Since its launch on the new Hivebrite platform in June 2019, the CMINE Online Community Platform (COCP) has evolved substantially in terms of members, activity, content and functionalities. In line with the roles and responsibilities that were defined for the issue area 1 "Community development" within the CMINE Steering Committee (see Table 2.1) will the following two elements be covered in this section:

1) Community management.
2) Dissemination and external engagement.

Section 3.1 will provide the reader with an overview of the main achievements in relation to the development of the community since the last report (for a comparison with the set KPIs see Annex 2). To provide guidance for the chapters to follow the updated and final conceptual overview of the COCP (see Section 3.1.1) will be introduced afterwards. This will be followed by an overview of the main developments and improvements of the platform (see Section 3.1.2) online community and the platform itself. **Section 3.2** will provide an overview of the community management approach and activities that were carried out to proactively steer the development of the CMINE community. This will be followed by a comprehensive overview of the current structure of the online community as well as statistical information about the usage of the platform in **Section 3.3.** This will be followed in **Section 3.4** by an overview in of various the dissemination and external engagement activities that contributed towards building the community.

3.1 Community development

The main achievements and improvements of the past period can be summarised as follows:

- Registration of 764 individuals (Status: 08.05.2020) from all relevant stakeholder domains.
- Registration 26 organisations/projects/networks.
- Proactive community building activities by the designated community managers and partners (e.g. posting news items, embedded tweets, RSS feeds, promoting events).
- Extensive dissemination and external engagement activities (see Section 3.4).
- Interfacing of the COCP with the Portfolio of Solutions (PoS).
- Improved configuration of the platform (see Section 3.1.2).
- Upgrade of functionalities of the COCP and launch of the CMINE app (see Section 3.1.2).

An in-depth description of the final outcomes will be provided in the following sections.

3.1.1 Final conceptual overview of the COCP

Since the launch of CMINE a conceptual approach has been defined that directly builds upon the different capabilities of the Hivebrite solution. In the course of time the set up and configuration of the platform was adapted to better meet the needs of the users as well as to highlight certain sections (see Figure 3.1). Changes include a renaming of the former Project" section to "Partners and members" now containing all projects, networks and organisations and a new page to highlight Innovative Crisis Management solutions from the PoS database who was interfaced with CMINE. The reason for this change was to ensure a clear separation between the CMINE partners and the innovative Crisis Management solutions that were formerly displayed on the same page. Other changes include the media centre which acts as a repository and was fed with all relevant DRIVER+ related materials (key public deliverables, leaflets, videos and pictures). The Portfolio and Jobs page was not activated yet as it was decided to concentrate on the existing elements first to ensure they are well used and fed with content, however it is included in the future planning (see Section 4.3) and will be addressed in the hand-over process to RAN.

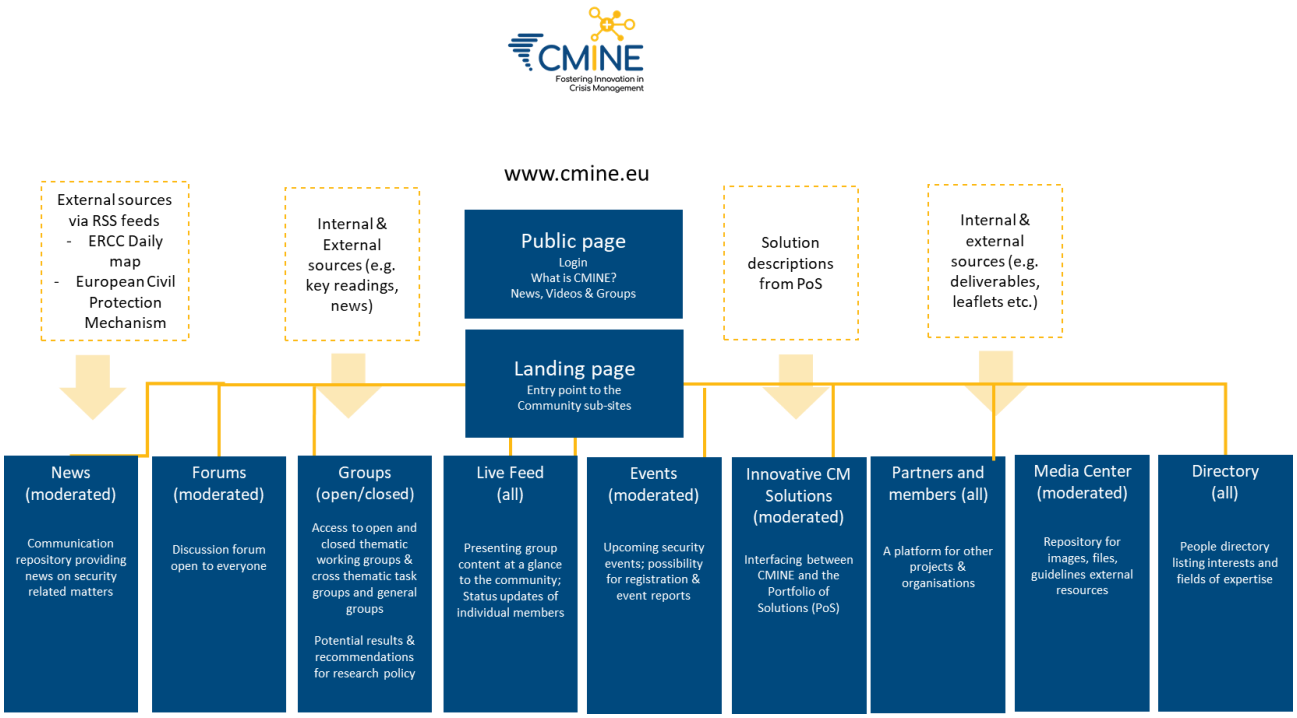

Figure 3.1: Final conceptual overview of CMINE Online Community Platform

3.1.2 Main developments and improvements of the COCP

Interfacing between CMINE and the Portfolio of Solutions (PoS)

One of the main reasons to transition from the former community platform to the current one was to ensure the automatic exchange of information between the Portfolio of Solutions and CMINE. This is aimed to allow for a discussion and exchange of experiences with certain solutions.

The interfacing between the PoS and CMINE was established in September 2019 and is configured in a way that allows for the automatic transfer of solution descriptions from the PoS to CMINE. A prerequisite is the written consent that the solution provider needs to give when registering the solution on the PoS. When this consent is given the following information is transferred via a script written by AIT to the COCP CMINE page "Innovative CM solutions":

- Name and logo of the solution.
- Name and location of the solution provider.
- Description of the solution.
- Weblink of the solution or solution provider.
- TRL.

At the time of submission of the deliverable (08.05.2020) a total of 41 solutions from the PoS are displayed on the COCP (see Annex 7 Figure A9).

The currently ongoing discussions about the signing of a cooperation agreement between AIT and DCNA, which are aimed to ensure the sustainability of the PoS beyond the scope of DRIVER+, will also consider ensuring the continuation of the automatic provision of the solution descriptions from the PoS to CMINE. At the time of writing the final agreement and technical details were not yet in place.

CMINE Mobile app development

Another highlight was the development of the CMINE App which provides a much easier and quicker access to the main features of the platform and can be downloaded via the Android and Apple Store. The process for the development of the apps was closely followed up with Hivebrite and screenshots to promote the apps were chosen. The community managers concluded that the profile, news, events and groups pages provide the best overview of the key assets of the platform and would be most convincing for professionals to join. In order to optimise the screenshots the community managers revamped the pages to display current content, for instance wildfires, which was a very current topic at the time of the launch in January 2020. Both apps were announced via a targeted campaign to all CMINE users, via its live feed, the DRIVER+ website and social media channels LinkedIn and twitter as well as to all DRIVER+ partners asking them to diffuse the message via their channels.

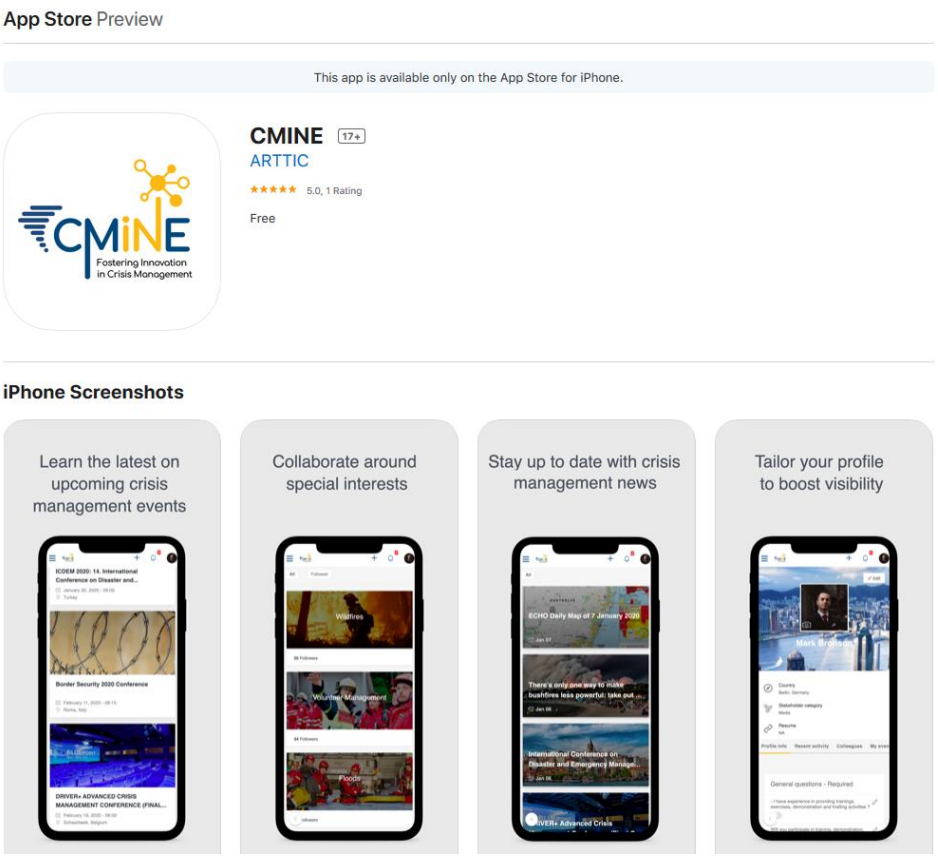

Figure 3.2: CMINE App on Apple Store

So far, the apps were well received, in particular at its launch but progress has to be made in further promoting it and feeding the pages on CMINE with content to convince stakeholders that CMINE is the source of information when it comes to crisis management. On Google Play active devices were at a peak of 69 active devices in February 2020 and then slightly decreased to an average to 57 active devices as of early May 2020. Active devices are defined by Google as the number of devices on which the app is installed. On Apple active devices were at a peak of 14 active devices in February 2020 and then decreased to an average to 3 active devices as of early May 2020.

Upgrade to Enterprise package

In order to further strengthen the value proposition and therefore the sustainability potential of CMINE it has been decided to upgrade the current contract with Hivebrite from the “Premier package” to the “Enterprise package”. This upgrade addresses and reflects the needs of the network of networks that CMINE envisions extremely well. The advanced group functionalities will be available from May 2020 and

allow for a completely decentralised and autonomous management of the platform by group owners while still being part of the wider CMINE ecosystem. The additional features that will become available, some of them are only planned to be developed by Hivebrite during the course of 2020, on the group level are:

- Full public homepage, home page login and white-label URLs for each group.
- Custom attributes in the registration form and the group directory.
- Improved options to differentiate between group types and categories.
- Jobs & opportunities.
- User to user invitations.
- Additional global and group admin accounts.

3.2 Community management

Creating a sustainable CMINE online community has been considered as a strategic objective of DRIVER+. To that regard, guiding principles and activities were carefully defined and put in place to reach out to the various stakeholders operating in Crisis Management and Disaster Risk Reduction, to make them aware of the benefits provided by the CMINE platform and to launch different initiatives to prompt CMINE users' engagement and information sharing. While all DRIVER+ partners, in particular the members of the CMINE Steering Committee, played an important role in developing the CoPCM, the two dedicated Community Managers ensured the proactive management of a community building process on the COCP. The community management tasks encompassed:

- Validating applications for registration of the platform.
- Further setting-up the CMINE platform.
- Creating and posting-up of content for News and Live-feed.
- Creating and managing Event pages.
- Setting up of Groups and assistance to 'Groups' leaders.
- Day- to-day technical maintenance of the platform.
- Regularly doing demonstrations of the key features of the CMINE platform, whether online through video conference or in person at different DRIVER+ events (User Workshop, Final Conference).
- Providing assistance in the creation of content (e.g. News, Live Feed, RSS feeds), the launching of events (e.g. Top 3 competition of innovative solution) and the optimal use of CMINE platform's features.
- Reaching out to project partners and external stakeholders to improve the contributions to the CMINE platform.
- Running and sharing of analytics.
- Feeding the Media Centre with relevant content.
- Launching e-mail campaigns and surveys.
- Facilitating the interactions within the CMINE community.
- Undertaking relevant actions to have the CMINE apps developed.

The above set of activities not only ensured the continuous and targeted structuring and expansion of the COCP, it also provided the starting point for the planning of the hand-over of the community management to RAN (see Section 4.2).

3.3 Community structure and platform usage

The community building activities that were carried out attracted a vast range of stakeholders from different fields and various countries. At present, 764 users (Status: 08.05.2020) joined the platform and numbers are steadily increasing. At present (08.05.2020) CMINE has got 70,9 % active users which are users that are subscribed and actively use CMINE. 29,1 % are inactive users which means the users signed up to CMINE but never validated their accounts once they signed up. The Community managers will send a

reminder to these users to ask them to validate their accounts before the end of the project. The majority of the users are coming from Europe, followed by Israel, Turkey and the United States of America. The largest number of users coming from a European country are from Italy, the Netherlands, Germany and the UK (see Table 3.1: Users by country (Status: 08.05.2020)). 28% of the users are Scientists and Researchers, 16% are Practitioners, 15% come from the private sector, 11% are working in Training & Education, 11% are policymakers, 9% are from NGOs& CSOs, 3% work in the field of standardisation, 1% in media and 6% in other domains (see Figure 3.3). Most users are aged between 30-54 years (see Figure 3.4).

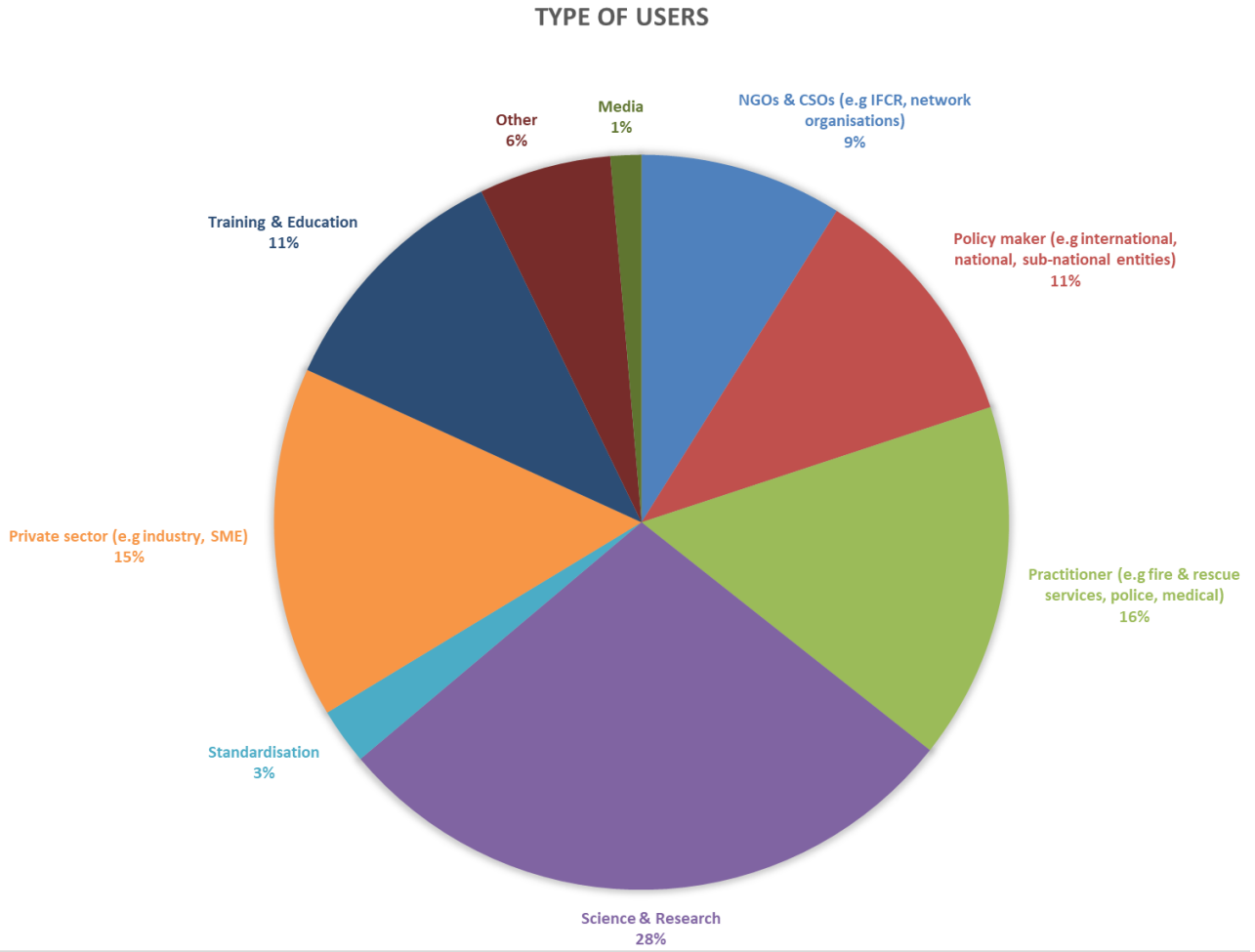

Figure 3.3: User type structure

Table 3.1: Users by country (Status: 08.05.2020)

Users by country	Nr. of users	Users by country	Nr. of users
Italy	62	India	2
Netherlands	55	Cyprus	3
Germany	56	Rwanda	2
United Kingdom of Great Britain and Northern Ireland	46	Slovakia	2
Belgium	37	Ukraine	2
France	34	Czechia	2

Users by country	Nr. of users	Users by country	Nr. of users
Greece	28	Albania	2
Austria	28	Nepal	2
Bulgaria	27	Switzerland	2
Poland	22	Paraguay	1
Spain	22	Singapore	2
Portugal	13	Hungary	1
Israel	12	Iraq	1
Sweden	11	Mexico	1
Denmark	9	Latvia	1
Turkey	8	Republic of North Macedonia	1
Norway	6	Lebanon	1
Finland	6	Slovenia	1
United States of America	6	China	1
Croatia	4	Nigeria	1
Romania	5	South Africa	1
Estonia	3		

Groups

The groups section is one of the sections that developed the most, currently a total of 23 groups were created (See Table 3.2).

During the process of engaging with external networks and projects the majority aimed to present themselves on the partners and members section, others expressed an interest to launch a group. Not only were additional external groups such as the Resilience Advisors Network (RAN) and the International Forum to Advance First Responder Innovation (IFAFRI) created but also internal groups such as the Crisis Management Terminology, the Societal Impact, the Standardisation and Centres of Expertise and Trial Guidance Methodology groups.

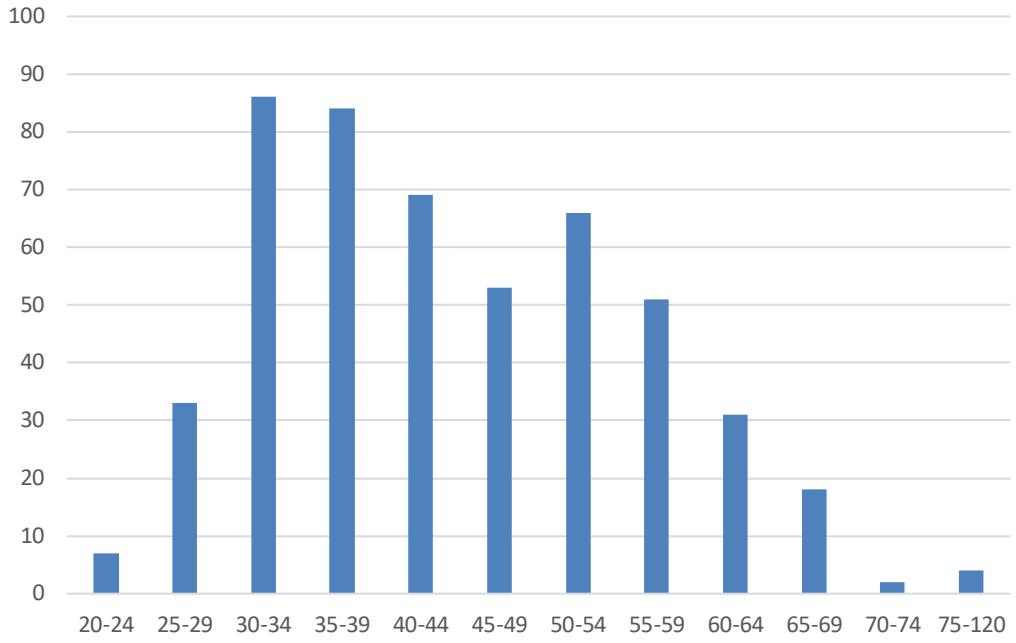

Figure 3.4: Users by age

Table 3.2 provides an overview and categorisation of the groups that have been setup until now. Those groups can be distinguished as being internal or external to the DRIVER+ project. Public groups mean they appear in the global list of groups and are visible to all members. In particular the group owners of the recent newly launched groups decided to keep their groups private for the reason to share information with their individual networks or to become more familiar with CMINE before going public. Open groups can be accessed by all members of the platform while closed groups require the previous approval of the group administrators.

Table 3.2: Overview of CMINE groups

Name	Scope and objectives	Owner/ Admin	Internal/ External	Public/ Private	Open/ Closed
Wildfires	Creation of common expert view of what can be done with sets and directions towards "guidelines" for policy, science and practice, based on expert opinion and expertise. Recommendations will be generic and not elaborated in detail due to limited time and funding.	Nina Dobrinkova	Internal	Public	Open
Floods	Visualization and improvement of the effectiveness of emergency measures related to flood risk management	Hanneke Vreugdenhil	Internal	Public	Open
Volunteer Management	Working group consisting of representatives of European and International organizations working with and through volunteers in crisis management to reflect on the provision of support and care for spontaneous volunteers	Martha Bird	Internal	Public	Open

Name	Scope and objectives	Owner/ Admin	Internal/ External	Public/ Private	Open/ Closed
Trials	Investigation of innovative solutions under simulated crisis condition to put together evidence base for decision-makers	No dedicated person	Internal	Public	Open
Capability Gaps	Review of identified gaps in 5 CM functional domains and exploration of new ones	No dedicated person	Internal	Public	Open
Centers of Expertise	Provision of a common space for supporting the dialogue and coordination between CoEs located in different EU countries	No dedicated person	Internal	Public	Open
Crisis Management Terminology	Group aims to reflect on, define and share the variety of terms used in International Crisis and Disaster Management in order to achieve mutual understanding while updating and discussing existing terminologies	Esther Kähler	Internal	Public	Open
Test-bed Technical Infrastructure	Space for all users of the TTI to exchange information about applications and potential updates of the TTI	Erik Vullings	Internal	Private	Open
Societal Impact Assessment	Focus on unintended positive or negative impacts of crisis management on different societal groups or society as a whole, as well as on its core values and societal principles	Stine Bergersen	Internal	Public	Open
Resilience Advisors Network (RAN)	Coordination of RAN activities	Jon Hall	External	Private	Open
International Forum to Advance Responder Innovation (IFAFRI)	Focus on the technologies needed to help first responders conduct their missions safely, effectively and efficiently. Assistance to industry and academia. Stimulation of solutions. Provision of information on relevant global markets.	Alexandra Schmid	External	Private	Open
Exercises (Johanniter)	Provision of information on large full-scale exercises in Civil Protection	Harm-Bastian Harms	External	Private	Closed
Bavarian Red Cross	Facilitation of exchanges on experience, reports and information between rescue service and disaster management experts.	Uwe Kippnich	External	Private	Open

Name	Scope and objectives	Owner/ Admin	Internal/ External	Public/ Private	Open/ Closed
	Strengthening of the community.				
TIEMS	Forum for exchange of best practices, experiences and research findings amongst emergency managers worldwide	Roman Tandlich	External	Private	Closed
COVID-19	Discuss COVID-19 related experiences and lessons learned; structured along various COVID-19 related gaps and challenges; provide recent news and links to COVID-19 related topics	No dedicated person	Internal	Public	Open
CMINE Steering Committee	Group created as a pilot	No dedicated person	Internal	Private	Closed
Standardisation	Education on the added value of standards and how they can be developed; collection of potential standardisation needs from the DRIVER+ Task Groups; update on CWAs; incubator to explore interest in a Standardisation TG	Esther Kähler	Internal	Public	Open

When being explained the assistance offered by the CMINE platform and the growing community it has been supporting, a number of Crisis Management stakeholders in lack of such a platform showed a keen interest in having their organisation somehow hosted on the CMINE platform. The Resilience Advisors Network (RAN) was the first to join, briefly followed-up by the International Forum to Advance First Responder Innovation (IFAFRI). Both organisations were after a collaborative platform which could provide a forum-type space to post up news and initiate discussion topics but would also be restricted to their members. With its possibility to keep groups private together with its News and Live Feed features, the CMINE appeared as a good working solution to them and has proved so.

Other organisations are considering joining the platform. This is the case for the Johanniter which, via a CMINE Group entitled Exercises, intends to provide information on large full-scale exercises in Civil Protection. It is also the case for the Austrian Red Cross, the Pau Costa Foundation, the European Fire Safety Community and the Network Digital Simulations. All these organisations share an interest in setting up a community of practice easy to navigate and to contribute to, and have found in CMINE a good option. In addition to benefitting from a forum space and a repository of resources, an association like TIEMS sees in CMINE a way to store teaching materials and to provide support to students. Some Crisis Management - related research projects are also interested in being represented on the CMINE platform and becoming active members of the CMINE community: they include DARENet and FIRE-IN. For DARENet, the main motivations behind joining CMINE would be to offer to the consortium partners a visually attractive and user-friendly space to update on the project's advances and advertise on events. On its side, FIRE-IN is interested in exploring how their project's platform lessons on fire could be connected to CMINE. Medi@4Sec also expressed an interest to add their tool catalogue to the DRIVER+ PoS and CMINE as well as the ENCIRCLE project who suggested cross-referencing between their catalogue and the DRIVER+ PoS and CMINE. These options are currently being explored and will have to be followed up by the new community managers once the project ceases.

Partners and members

Besides the individual members that are registered on CMINE, a total of 26 projects / organisations are currently "formally" registered in the "Partners and members" tab (see Annex 2). Projects and organisations can easily add their projects to the site using the function 'Create organisation' of the partners and members tab.

CMINE members vigorously added projects to the "Partners and members" section. In addition, the Community Managers approached projects and networks of interest to enquire whether they have an interest to be promoted on the CMINE and in consequence added them to the projects page. Further efforts in attracting networks and projects to join CMINE were made by PSCE. They launched a campaign in December 2019 sending 62 invitations to various projects and networks (see Annex 8). This in addition to the direct approach of projects by the community managers led to new inscriptions of members of those networks as well as projects and networks publishing project their projects on the partners and members page.

News and livefeed

In total 379 news were regularly posted via the news section. Content for news was mainly derived from the DRIVER+ project, PreventionWeb and via RSS feeds including the Emergency Response Coordination Centre (ERCC) Daily Maps and the European Civil Protection Mechanism. In addition, e-mail campaigns were launched (see Figure 3.5) by the Community Managers to for instance inform users about the new CMINE app, activities of the CMINE task groups and more. The live feed has been very actively used by community managers to keep the members informed about upcoming events, call for papers and news. Members also used the live feed primarily to share relevant documents & news, their current location and upcoming trips for networking purposes which can be seen in Figure 3.6**Figure 3.4**. In particular the Advanced Crisis Management conference led to a high engagement rate since a lot of users joined the Community which can be seen in the increasing rate in March 2020.

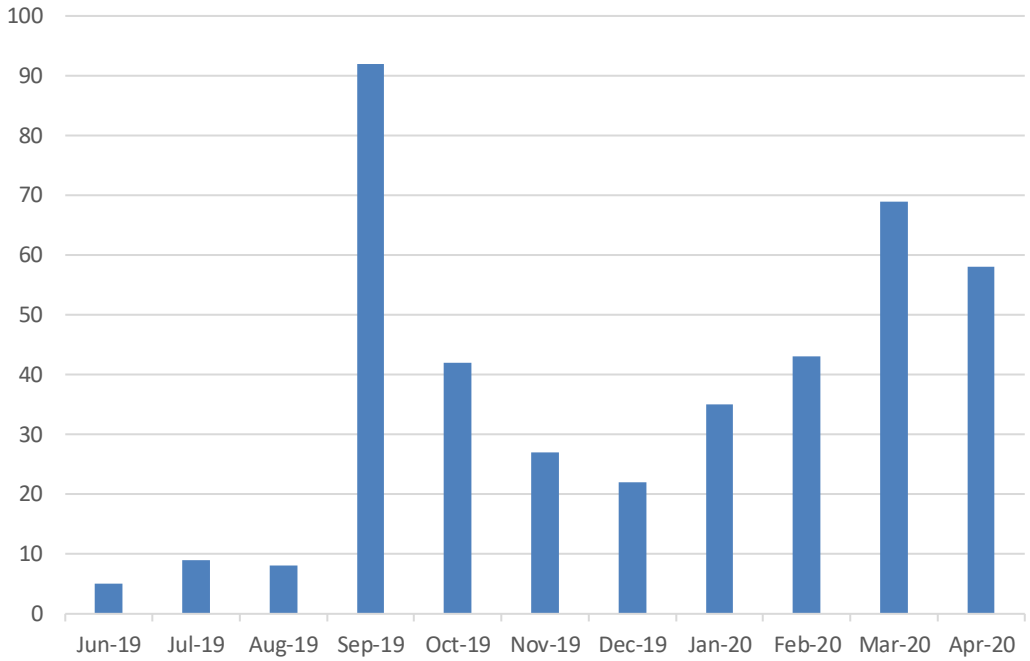

Figure 3.5: News and e-mail campaigns created by CMINE's community managers per month

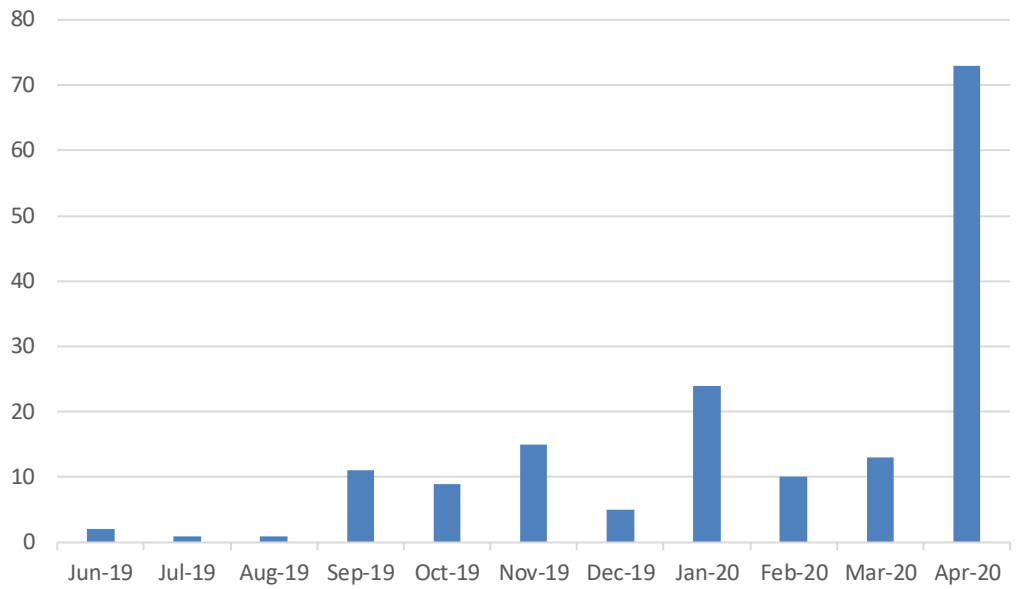

Figure 3.6: Live feed posts by users per month

Events

In order to keep the community members updated about upcoming project and third-party events entries, such as the DIGILIENCE 2019 or the DRMKC Annual Seminar were regularly added by PSCE and the two community managers (see Figure 3.6). Moreover, community members added their events to promote upcoming events and inviting stakeholders to join (see Figure 3.7). The expanded events registration functionality including tickets and payments options was used at numerous occasions by the DRIVER+ project, for instance for the DRIVER+ User Workshop, the PRDR, the VIP event and the DRIVER+ Advanced Final Conference.

Several attendees of the Advanced Crisis Management Conference and new CMINE group owners such as RAN expressed a particular interest in this functionality. In consequence, the Community Managers created guidelines for the users on how to create an event on CMINE which can be found in the media centre of CMINE and were announced to the users via a pinned feed on the live feed.

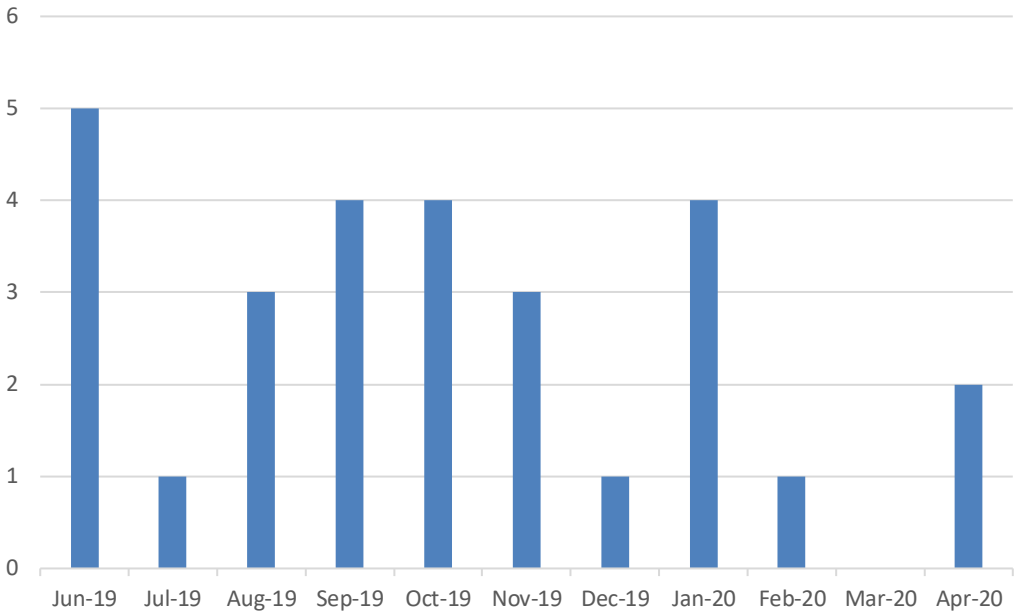

Figure 3.7: Events created by CMINE (Community managers) per month

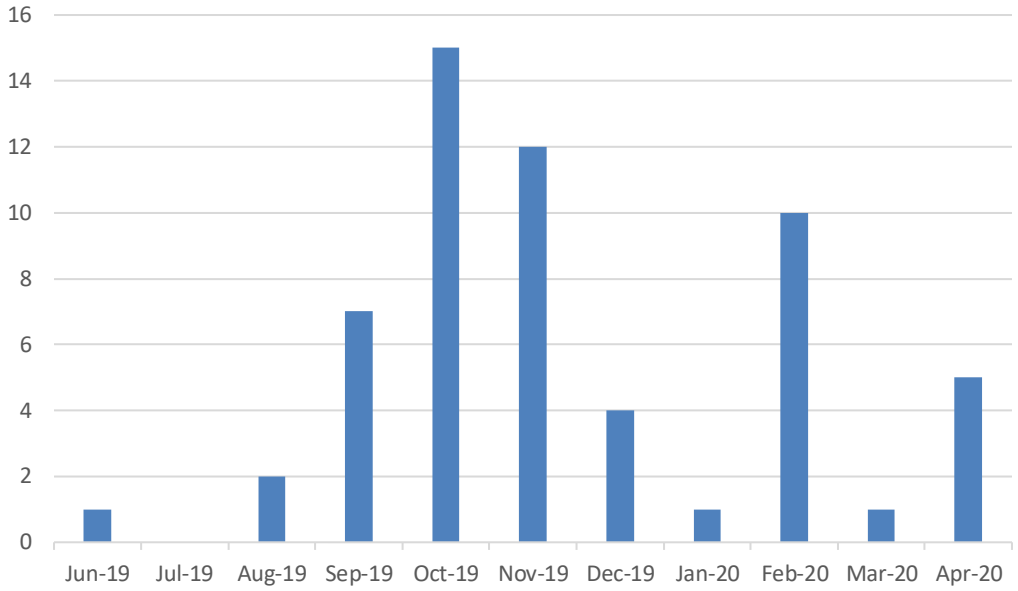

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Figure 3.8: Events created by users per month

3.4 Dissemination and external engagement

The community building process was supported through extensive dissemination and external engagement activities with the aim to attract individuals, networks, organisations and projects to join CMINE. Since the last report the following activities were carried out:

- Targeted and personalised outreach campaigns to networks, associations and projects based on the mapping of CM networks, organisations and projects (see Annex 8)
  1. Creation of tailored communication materials towards stakeholders that could feed and/or be positively affected by CMINE
  2. Active promotion of the network through continuous dissemination via social media channels
- Promotion during events

The following sections will provide an overview of the activities listed above, for a more in-depth description of the dissemination and communication strategy of the project and the overview of activities carried out (see **D952.14** ***Dissemination and Communication activities – Final report*** (2)).

3.4.1 Targeted outreach campaigns to networks, associations and projects

The first wave of invitations was delayed until September 12th 2019 , as the CMINE platform was still not fully active and operational. Moreover, a series of revisions were done to finalise the four invitation letters. PSCE drafted an invitation letter for each Thematic Group (Volunteers Management, Wildfires and Floods) and a general one about CMINE, for the general crisis management networks. However, the registration results were poor and the mass sending was not considered optimal as the message could have become too anonym for the recipients who easily realised that the sending had been processed through mass sending — mailchimp platform — rather than a dedicated personalised email.

The impossibility of correlating invitations and registrations on CMINE platform was proved — a question that was raised within the Steering Committee and also to Hivebrite — and as personal interactions are key to develop interest and confidence, it was agreed that the new campaign would be done by email. As such, interested stakeholders could react/ask questions, allowing for a reminder 10 days later and not by using mailchimp or any other mass-sending platform. As a consequence, it was decided to promote more actively the networks and projects in a more personal approach.

The second wave of invitations was done on December 12th 2019 by individual emails in order to allow the identification of both the sender/recipient and to allow for a direct exchange. At this stage, the message sent on the invitation letter was slightly modified and was also the occasion to promote the final conference, taking place in February 2020, in Brussels.

In March 2020, PSCE has crosschecked the current CMINE membership with the existing identified networks in order to assess the number of registered networks. The CMINE platform already counts with over 700 registered members, but with the goal to reach 1000, it was decided to insist on a third and refined sending. PSCE was in charge of sending a third batch of invitations, once again, in a personalised fashion, by email. As such, the revamped strategy entailed the drafting of an enhanced communication about the value and benefits of joining CMINE. Once the document is finalised, a third sending to all networks that have not registered as well as to newly identified projects and networks in the Crisis Management field will be done during the course of May.

3.4.2 Social media activities

It was deemed crucial that the CMINE online platform was advertised to the Crisis Management community to raise interest in the platform while prompting registrations. In alignment with the CMINE's value proposition, a number of messages have been drafted and communicated via DRIVER+ LinkedIn (15 messages) and Twitter (16 messages) accounts since November 2019. Impact-wise, LinkedIn and Twitter messages advertising features or activities related to CMINE generated 12 176 'live feed views' and 21 382 views on Twitter. This was complemented by communication activities via the CMINE Twitter account which has reached more than 200 followers.

Communication on CMINE was also regularly made via DRIVER+ newsletters (see for example Newsletter 10: https://us17.campaign-archive.com/?e=[UNIQID]&u=fb128d01e63161c740035d848&id=296fd430d7 and Newsletter 9: https://mailchi.mp/eb9a6c28e2cd/newsletter-9-december-2019?e=[UNIQID]) and on an ad hoc basis (for instance as part as the campaign on DRIVER+ Final Conference: https://mailchi.mp/a8564b37a5e1/driver-advanced-crisis-management-conference-2585669?e=[UNIQID].

3.4.3 Specialist media activities

In order to promote CMINE and to invite potential partners to join the network collaborations with several external publishers was ensured. For example 15 articles have been published in diverse and influential sources such as: Cordis, DRMKC, RadioSource, Information & Security, International Fire Fighter, Critical Communications Review, International Association Fire and Rescue Services, PRIO, Euronews, and others.

The publications that were submitted during the preparatory phase of the Final Conference as well as the post-conference submissions always touched upon CMINE and included invitations to the network (see **D952.14** (2)).

At the time of the submission of this deliverable a final press release is under preparation. The press release will be circulated to specialist online media channels throughout Europe and it is expected to that it will lead to a further increase in registered individuals and organisations before the formal end of the project.

3.4.4 Third party events

At the same time, several opportunities to present CMINE were exploited present and promote CMINE, the most notable ones during the between October 2019 and February 2020 are the S&S Test Arena at the University of Umea (Sweden), the European Network for Psychosocial Support, Boosting Innovation through standards CEN-CENELEC Conference, Anywhere Final Conference, CIPROVOT Final Event: *"*How *to Best Train Volunteers", EWWF Wildfire Conference, PMR Expo 2019, CommsConnect, PSCE Conference, Humanitarian Networks and Partnerships Week 2020.* Internal initiatives (such as the Top 3 of Innovation solution Competition) and events (User Workshop, Final Conference) also provided a good opportunity to showcase the CMINE platform and attract new members.

4. The way forward – ensuring the sustainability of CMINE

The question of how to sustain the CMINE has been a core consideration in both the conceptualisation and implementation phase of the network from October 2017 onwards. Throughout the project substantial efforts were therefore invested to ensure the sustainability of the CMINE beyond the scope of DRIVER+. Against the background of the above this section will elaborate on the activities that were carried to identify and engage with potential adopters of CMINE as well as the exploration of future funding mechanisms. The section will close with a detailed description of the current arrangements with the adopter of CMINE, the Resilience Advisors Network, as well as the envisioned roadmap towards an adoption of CMINE by an EC body after the formal closure of the project.

4.1 Identification of and engagement with potential adopters of the CMINE

As a first step in identifying a potential adopter for the CMINE, a mapping of potential adopters of the COCP was conducted. The tables 4-1 till 4-6 present the outcomes of the activities for the six potential adopters that were identified and that signalled their interest and/or became actively engaged in the process. Building upon and summarizing the sustainability model canvases (see Annex 3) and adoption scenarios (see Annex 9) the following tables will summarise and elaborate the engagement process as well as the way forward for each of the envisioned potential adopters of CMINE.

Table 4.1: Summary of the engagement and way forward with DG HOME / CoU

Category	Summary
	The DG HOME initiative 'Community of Users for Secure, Safe and Resilient Societies' (CoU) has been established to act as a platform of various users of the Secure Societies research program, acting as an interface between policy, end-users and R&I projects. Up until 2019, Thematic Groups (ThGs) enabled to gather policy-makers, scientists, practitioners, industry/SMEs, and civil society organisations) at different levels (International to Regional), creating dialogues around research in various security areas and "bridges" among different sectors. From 2020 onward the intention is to move to a more proactive participation of experts, calling for inputs and defining what would be optimal outputs from the overall CoU. In this respect, the ThGs will become Thematic Working Groups (ThWGs) with specific missions all over the year and the design of a Coordination Board will be set. Building on existing experience, Thematic Working Groups (ThWGs) will be given specific missions such as: • Raising awareness on major policy and research updates. • Analysing capability needs and gaps and prioritisation of related research orientations. • Identification of solutions available to address the gaps. • Identification of synergies among different funding instruments. • Production of Annual Thematic State of the Art Reports. • Other needs to be defined (standardisation, citizen dimension etc.).
Rationale and vision	Given the scope and objectives of the CoU positioning the COCP as a central element in the CoU structure would be a natural fit as it could: • Support the collaboration and information sharing within and between thematic groups. • Provide an information platform in-between CoU and expert meetings. • Facilitate the organisation of joint events by projects.

	• Enable the identification and discussion about gaps and solutions within a professional community of practice. • Serve as a platform where policymakers from different DGs can directly communicate with practitioners, researchers, industry representatives and civil society
Summary of the engagement	The collaboration with DG HOME has started in spring 2018 when the initial concept was presented. When DG HOME started the discussions on of implementing a governance structure including the introduction of Thematic Groups for the CoU, DRIVER+ saw an opportunity to support the plans with the CMINE platform by providing a virtual collaboration space for the Thematic Groups. Although the discussion between DRIVER+ and the responsible Policy Officer were promising and progressing, more concrete plans to tailor the CMINE to the needs of the CoU had to be halted due to the uncertain developments concerning the introduction of the CoU governance structure.
Current status and way forward	At the time of submission, the CoU internal developments with regards to the overhaul of its governance structure are still ongoing. Hence, at this point, the CoU cannot start making use of the CMINE. Nevertheless, DG HOME has expressed interest in the CMINE and, therefore, collaboration in a to be defined shape will still take place in the future. Since the sustainability of CMINE is now ensured will DG HOME be approached with a tailored value proposition and, if possible, will a virtual meeting between DRIVER+, DG HOME and RAN be organised before the formal end of the project. This is aimed to pick-up up the original discussions, establish direct contacts between RAN and DG HOME that are required to ensure a continued discussion about the next steps that need to be taken in jointly exploring how CMINE could support the CoU 2.0 after the end of DRIVER+.

Table 4.2: Summary of the engagement and way forward with DG HOME / Practitioner Networks

Category	Summary
Description of the stakeholder	Within FP7 and H2020, several consortia received funding to establish a practitioner network. Such networks would be developed alongside other elements of the project (i.e. the development of a practitioner network is not the sole purpose of these projects).
Rationale and vision	As communication between such 'practitioner network projects' is crucial, project coordinators of these projects have exchanged contact details and meet once or twice a year to discuss the challenges they face, to exchange best practices and, most importantly, to create synergies. Engagement of practitioners proves to be particularly challenging given the limited availability of this group. In addition, there seems to be only a relatively small group of practitioners that is keen on engaging in such networks. Hence, coordination and communication between those projects is key. All the Practitioner Network projects are creating their own communities and platforms. However, these are not linked, which hinders good information exchange and collaboration between these Network projects. Furthermore, at the time of writing this deliverable (April 2020) it is not clear how these networks/communities will be sustained once these projects have ended (NB: one exception would be the i-LEAD project that is closely linked to the ENLETS community).

	CMINE could potentially serve as a forum where these practitioner network projects can liaise outside the in-person meetings. On the COCP, the network could create a closed group where these project coordinators can continue their conversations.
Summary of the engagement	Mid-2019, DRIVER+ has offered to DG HOME to use the CMINE for this purpose. At that time, there was some reluctance from the projects because it was not clear yet how sustainable the CMINE would be, plus that the projects feared they had to give up their website and community.
Current status and way forward	Due to the COVID-19 crisis the discussions with the responsible Policy Officer at DG HOME have been paused. Nevertheless, since the sustainability of CMINE is now ensured will DG HOME be approached with a tailored value proposition and, if possible, will a virtual meeting between DRIVER+, DG HOME and RAN be organised before the formal end of the project. This is aimed to pick-up up the original discussions, establish direct contacts between RAN and DG HOME that are required to ensure a continued discussion about the next steps that need to be taken in jointly exploring how CMINE could support the current and future Practitioner Network projects after the end of DRIVER+.

Table 4.3: Summary of the engagement and way forward with DG ECHO - UCPKN

Category	Summary
Description of the stakeholder	The Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) is the European Commission's department for overseas humanitarian aid and for civil protection. DG ECHO expressed a keen interest in using DRIVER+ outcomes to support the development of their Union Civil Protection Knowledge Network (UCPKN). Responding to disasters requires efficient collaboration and a multi-skilled approach. The 2019 revision to the Union Civil Protection Mechanism (UCPM) created a Union Civil Protection Knowledge Network to bring together civil protection and disaster management experts and organisations, increase knowledge and its dissemination within the UCPM, and support the Union's ability and capacity to deal with disasters. Currently, under development, the Knowledge Network will support experts, practitioners, policy-makers, researchers, trainers and volunteers at every stage of the disaster management cycle through networking, partnerships, collaborative opportunities, and access to expertise and good practices. It will facilitate the active participation of knowledge holders and foster an inclusive approach to ensure that the Knowledge Network addresses key concerns and needs of its members. It will also connect and strengthen cooperation with existing initiatives, such as the Disaster Risk Management Knowledge Centre and relevant international and national structures to increase cooperation, exchange of knowledge, and further expand networking opportunities.
Rationale and vision	CMINE can be a valuable building block to start the operationalisation of the Knowledge Network. It facilitates direct interaction with the policy makers. New ideas are reflected upon or pitched by experts. CMINE is used for direct communication with the Union Civil Protection Mechanism experts and modules on content, like improvement of procedures, standardisation and sharing experiences of missions. The Emergency Response Coordination Centre (ERCC) could use CMINE as a channel for their public reports and to get feedback.
Summary	DG ECHO has expressed a strong interest in using DRIVER+ outcomes to support the

of the engagement	development of their Union Civil Protection Knowledge Network. DRIVER+ has offered DG ECHO to have a follow-up discussion on how to best structure this. The development of the UCPKN has a strong political dimension, so liaising with the Member States is important.
Current status and way forward	Due to the COVID-19 crisis the discussions with DG ECHO have been paused. Nevertheless, since the sustainability of CMINE is now ensured will DG ECHO be approached with a tailored value proposition and, if possible, will a virtual meeting between DRIVER+, DG ECHO and RAN be organised before the formal end of the project. This is aimed to pick-up up the original discussions, establish direct contacts between RAN and DG ECHO in order to ensure a continued discussion about the next steps that need to be taken in jointly exploring how CMINE could support the creation and operation of the UCPKN after the end of DRIVER+.

Table 4.4: Summary of the engagement and way forward with TIEMS

Category	Summary
Description of the stakeholder	The International Emergency Management Society (TIEMS) is a global forum for education, training and certification in emergency and disaster management. TIEMS international expert network comprises users, planners, researchers, industry, managers, response personnel, practitioners, social scientists, and other interested parties within emergency and disaster management.
Rationale and vision	While TIEMS and CMINE differ slightly in their geographic focus (international vs European), thematic focus (emergency management vs Crisis Management and disaster risk reduction), there are various opportunities for the two networks to collaborate as their nature and objectives overlap (i.e. focus on innovation, inclusivity and cross-border collaboration to address pressing challenges). TIEMS wishes to improve the communication within its international network. The organisation has no platform to communicate jointly and communicates mostly via email. For an international non-governmental organisation like TIEMS which has to collaborate on a day-to-day basis, the CMINE online platform can be an important vehicle to improve their collaboration and connect with other Crisis Management professionals. The CMINE online platform offers an interactive online environment where members can easily exchange information, participate in forum discussions. At the same time, TIEMS is an established network with a robust agenda for physical events. In this sense, the CMINE online platform serves as the 'glue' of the community in between those in-person events. The collaboration with TIEMS helps to broaden the geographic and thematic scope of the CMINE. The CMINE has a focus on Europe, and the currently existing Task Groups are concentrated on challenges that are relevant in the European context. The majority of the Task Group members are European (although some groups include members from the USA and Israel). With this established European group of experts, CMINE adds to the existing (geographic) focus that TIEMS has (which is international rather than European).
Summary of the engagement	The discussions with TIEMS were initiated in summer 2019 when TIEMS members actively participated in several DRIVER+ events. During this time TIEMS decided to use the CMINE to improve its international communication actively. As a first step in the implementation process a concept for the use of CMINE within TIEMS developed and in a second step piloted programme the Africa chapter. During this process three layers of

	groups were setup. The TIEMS Africa Chapter will start using the CMINE Online Platform to communicate with each other. This serve as a pilot phase based upon which the entire TIEMS community might move towards using the CMINE for internal communication purposes.
Current status and way forward	TIEMS are entirely up to speed with what the CMINE can and cannot do in terms of features. At the time of submission no decision by TIEMS was taken yet, clarifying the situation will be ensured before the end of the DRIVER+ project. It has been communicated by the president that TIEMS, as an international NGO with limited funds, would have no means to take on a more significant community management role or provide financial assistance to sustain the CMINE. Due to the fact that financial capacity of the organisation is limited it is to be expected that TIEMS would consolidate and expand the use of CMINE and can therefore contribute to the growth of the community at large, in particular attracting additional members on a global level.

Table 4.5: Summary of the engagement and way forward with IFAFRI

Category	Summary
	The International Forum to Advance First Responder Innovation (IFAFRI), is an organisation set up by international government leaders. It gives a greater voice to first responders. The forum focuses on the technologies needed to help first responders conduct their missions safely, effectively and efficiently. To assist industry and academia and stimulate and shape the development of solutions, it provides information on the relevant global markets. The IFAFRI has three Committees which are defining and developing the strategic direction of the organisation. The Capability Gaps Committee is responsible for identifying and prioritizing common first responders' capability gaps. The Research and Development (R&D) Committee's role is to disseminate market information to incentivise industry and academia to initiate the development of solutions to first responder capability gaps. The role of the Stakeholder Engagement Committee is to identify, cultivate and maintain relationships with first responders, industry, and academia. IFAFRI was established in 2014 and is represented by international government leaders from Australia, Canada, the European Commission, Finland, Germany, Israel, Japan, Mexico, New Zealand, Singapore, Spain, Sweden, The Netherlands, United Kingdom, and the United States. IFAFRI has a rotational chairmanship. Currently, the European Commission (DG HOME) is chairing the initiative. The chairing member is also expected to run the Secretariat of the organisation, provide funding for the day-to-day activities (via a Project Management Office), host the website and is responsible for the production of dissemination materials and social media activities.
Rationale and vision	The overall objectives of IFAFRI and the CMINE are somewhat similar. Both initiatives focus on innovation in the Crisis Management domain, are solution-oriented, aim at reducing fragmentation and aim at connecting Crisis Management professionals. Both initiatives are looking at the needs of first responders and work together with industry, the research and development community and policy-makers. Membership in IFAFRI is voluntary and comes without any institutional strings attached. Decision-making is consensus-based. IFAFRI is a forum that offers its members the possibility to discuss

	and engage but does not restrict them in any way. The CMINE follows the same logic; CMINE is not a hierarchical initiative and collaboration is encouraged between all levels and types of stakeholders. The CMINE Head Chair leads the initiative and serves as a representative but is on an equal level with the Task Group Chairs. Similar to TIEMS, IFAFRI is an international organisation which has a website but does not have a virtual collaboration space. From an IFAFRI perspective, the CMINE online platform adds high value to IFAFRI. IFAFRI does have a website but is lacking an interactive community platform where members can collaborate, interact, and share knowledge between the physical meetings. First, the Task Group concept of the CMINE could be used for IFAFRI specific thematic challenges. Second, the closed groups could be used better to organise the work of the three IFAFRI standing committees. Third, the community platform would potentially allow much more First Responders to participate virtually in the gap validation process and therefore adding to the legitimacy of the commonly identified IFAFRI gaps. Fourth, industry and the Research & Development community could actively participate in the discussions within IFAFRI via the online platform, which could contribute and strengthen collaboration between those stakeholder groups, speed up the development process and market-uptake of Crisis Management solutions on an international basis. Fifth, IFAFRI could benefit from the European network that the CMINE would bring along.
Summary of the engagement	Discussions with IFAFRI started after Ecorys, which is also responsible for the Project Management Office of IFAFRI, reached out to the responsible Policy Officer and whether they would be interested in setting up a group on the CMINE. After the DRIVER+ Technical Coordinator gave a presentation about the CMINE and its features at the IFAFRI Annual Forum Conference in Helsinki in November 2019, the Ecorys team created a group on the CMINE which is now officially used by IFAFRI.
Current status and way forward	The IFAFRI group on the CMINE is active and open for registrations for IFAFRI members. The IFAFRI members are currently exploring and testing the group for their purposes. IFARFI is using the forum with three categories/tags, for all the committees. People can start discussions here, share files/images/URLs, etc. DRIVER+ has offered the current chair of IFAFRI to structure CMINE in such a way it can best support IFAFRI. However, as the chairmanship of DG HOME is ending, and a new chair is still not assigned yet IFAFRI has not taken a decision.

Table 4.6: Summary of the engagement and way forward with CoE

Category	Summary
	A Centre of Expertise (CoE) is an organisation operating in the domain of Crisis Management and Disaster Risk Reduction that acts as the primary contact point for practitioner organisations at the national or regional level, supporting their capability development and innovation management.
Rationale and vision	On CMINE, the CoEs are able to contact each other, share experiences, ask for peer support, share potential suggestions for furthering the development of the various DRIVER+ products, organise joint events, and initiate joint activities.
Summary of the engagement	At this moment, the following organisations are part of the DRIVER+ CoE network. • SRC PAS (Poland). • SGSP (Poland). • ARC (Austria).

	• L3CE (Lithuania). • Valabre (France). • EASS (Estonia). • IFV (the Netherlands). • RAN (Ireland). • MSB (Sweden). • THW (Germany). • Campus Vesta (Belgium). There is already a dedicated group established (but membership has to be promoted and discussions still initiated). Besides, the CoEs can, of course, also contribute to other Groups as well.
Current status and way forward	The further usage of CMINE by the CoEs will be discussed till the end of the project, and will be a central element of the foreseen CoE training end of June 2020 (either virtual or face to face). With RAN adopting CMINE as well being one of the CoEs, the update of CMINE by the other CoEs will be positively impacted.

4.2 Planning the adoption of CMINE by RAN

The Resilience Advisors Network (RAN) is an Irish network organisation. RAN is a formal teaming of more than one hundred resilience and civil protection experts from UK and Europe, specialising in the following areas: Emergency & Disaster Management, large-scale rescue operations, firefighting, health and security disciplines. Their primary purpose is to support national and public bodies with expertise and capability across the full range of Civil Protection and Humanitarian activity. They also support organisations and private companies where the aims or products align entirely with their primary purpose. RAN predominantly delivers through three main methods which are training, exercising and consultancy. In addition to their government level and public engagements, the Resilience Advisors Network can support your business where you may find it challenging to access highly credible professional and local expertise.

Since the first expression of interest in CMINE by RAN during the DRIVER+ User Workshop in October 2019, extensive bilateral discussions between DRIVER+ and RAN representatives, resulting in the agreement that RAN will take over the community management role of the CMINE after the formal end of the DRIVER+ project. In their capacity as a large and independent European network of resilience and civil protection experts RAN they are very well positioned to ensure the continuation of the CMINE with the aim to continue working towards and adoption by one or several of the entities listed in .

Since March 2020 the DRIVER+ leadership, ARTTIC and RAN are in continuous discussions about the specific implementation plans needed to ensure not only ensure a smooth transition and continuation of the leadership for the community management to RAN but also about the planning of strategic actions needed to continue working towards the adoption of CMINE by one of the entities listed above.

To sustain the efforts undertaken so far and facilitate the hand-over of the platform, the two current Community Managers are preparing a guidance document to help the Community Managers who will replace them gain a good understanding of the platform functionalities and be in a position to provide efficient back-office support. This document will be completed by a number of online tutorials, some of them already recorded. All guidance documents and webinars, such as the recorded videos of training sessions from Hivebrite to DRIVER+ staff, were put together as a hand-over package and made available in an access restricted CMINE Group. This will be complemented by sharing lessons learned regarding the community management so RAN can built upon these experiences.

Besides the operational hand-over are adoption scenarios (see Annex 9) as well as tailored communications targeted towards each the potential adopters listed in Section 4.1 in preparation. This geared towards picking-up up and ensuring a continued discussion about the next steps that need to be taken in jointly

exploring the adoption of CMINE as well as establishing direct contacts between RAN and the focal points of the potential long-term adopters.

All of the above will form the basis upon which a cooperation agreement between DRIVER+, ARTTIC and RAN will be created. At the time of submission of this report the process was not yet concluded, but the following elements are planned to be covered:

- **Scope and objectives** (What should be the aims and objectives in the short, medium long-term to be achieved by RAN?).
- **Roles and responsibilities** (What kind of activities should be carried out by RAN to further build the community? For how long?):
  - Continuation and expansion of engaging community management activities.
  - Maintaining the current, ensuring an active involvement and responsibility of ownership of the respective group owners.
  - Inviting further networks and projects to the platform to create additional groups or projects.
  - Feeding the platform with relevant content via the news, media centre and events section.
  - Maintaining an interface with the Portfolio of Solutions.
- **Rules of engagement** (What are the criteria for the engagement in the community, e.g. if a group is inactive for three months they should be notified, conflict resolution).
- **Legal and administrative aspects** (DPA; financing options).
- **Financing options** (e.g. Payment arrangements for projects, for instance additional group admin requests (first 50 groups are free, afterwards 300€ per year)).
- **Potential for further developments** (targeted and expanded use of platform functionalities, in particular of the Enterprise package; continued and expanded collaboration).

4.3 Conclusion and outlook

While the availability of the COCP as well as the continuation of the community management has been secured for three years after the end of the project, two main challenges, besides the continued building of the community, remain in order to ensure the long-term sustainability of CMINE:

1. **Ensuring the adoption and financing of the CMINE Online Community Platform** after the end of the three-year period.
2. **Defining the mandate and position of CMINE within the existing European Crisis Management landscape** - how can the uptake and/or active use by one or several of the main actors be ensured that fits into the existing Crisis Management landscape without duplicating existing initiatives.

While significant progress has been made several options for furthering the CMINE development and exploiting the full potential of the COCP exists. The following elements should be considered and dealt with by the future CMINE Community Managers:

- **Interfacing with external sources** – with 1) projects and associations encompassing catalogues such as Medi@4Sec, ENCIRCLE, EENA, EDEN; 2) expert databases of associations and organisations such as EENA or HumanSurge; 3) DRMKC Projects Explorer; 4) Social Searcher, a free social media search engine to incorporate all relevant input to CMINE.
- **Ensuring availability of relevant and up-to-date content** – in particular the use of automatic content generation via RSS feeds should be considered.
- **Expanding, exploiting and promoting the features of the COCP** - in particular of the newly available enterprise package.
- **Responding to user requests** – in particular two additional functionalities were requested by current users, namely the option for collaborative editing of documents similar to Google docs and the possibility to host webinars; the feasibility of both should be explored.
- **Exchange about best practices** - such a dialogue has been established with the European Fire Safety Community about the use of the Hivebrite platform.

5. The Policy-Research Dialogue Roundtables

5.1 Background

In the past years, EU research and innovation projects have delivered extensive results but a thorough assessment and comparison of these results as to inform the capability development of practitioner organizations has been insufficiently conducted. Similarly, there's been a need to gain a better understanding of the extent to which project's outputs have actually met the demands put forward at policy level. As pointed out by DG HOME in the presentation on "Research as a strategic enabler for capability development in the security sector", while knowledge and value creation are inherent to R&I, it is the impact they can have on the security of European citizens that needs now to be focused on (DRIVER+, PRDR3, 18/12/2019, Brussels). In order to support innovation in capability development, he highlighted a number of open issues, including the identification of relevant capability gaps, the targeting of R&I towards identified needs and the development of a streamlined cooperation between the various stakeholders involved in security research.

The Policy-Research Dialogue Roundtable (PRDR) has been designed to try and contribute to the tackling of such issues. Adopting a workshop-based approach as to facilitate in an interactive way perspective sharing and reflections on best practices and way forward in Crisis Management, the three PRDRs have been playing a convening function between experts from the policy area and the research community.

Each PRDR tackled a different topic whose scope was defined in discussion with DG HOME/DG ECHO/REA in order to ensure that it reflected pressing items from the policy agenda. Participation-wise, the three PRDRs have managed to bring together representatives from EC DGs (in particular DG HOME, DG ECHO/ERCC, DG RTD and DG CLIMA), the DRMKC, international organisations (IFAFRI, UNISDR), national civil protection authorities from the Member States, standardisation bodies and selected Research & Innovation projects.

Concerning methodology, the PRDRs all included a combination of keynote speeches and interactive sessions. The material captured on the day fed into a number of recommendations and into a position paper which was meant to be circulated within the Crisis Management community and contribute to the EC's reflection.

While PRDR 1 was already covered in **D953.13** (1) the following sections will provide an overview of the concept, objectives and design principles as well as the outcomes of PRDR2 and PRDR3.

4.2 PRDR2

5.1.1 Concept, objectives and design principles

The PRDR2 was designed as a brainstorming event to generate inputs for the ongoing co-design process in relation to the priority 'Disaster-resilient societies' of the envisioned Horizon Europe cluster "Civil Security for Society". It took place on 18 December 2020 in Brussels and was attended by 45 participants, among whom a number of policy makers and representatives of major Crisis Management organisations such as THW, TIEMS and the Red Cross. There were also a World Bank representative and people from a number of research organisations.

Focusing on the needs and requirements for an improved capability development process, it more specifically tackled 3 specific domains: two climate-related risks (wildfires and floods) and one addressed in Horizon Europe and other Union programmes (CBRN-E).

The PRDR2 adopted a strategic and foresight approach supported by a visual roadmap to engage participants in exploratory thinking and helped them:

- Visualise and explore over time a number of key dimensions related to the uptake of research projects' solutions, ways to improve capability development through research programming and to impact the Work Programme of Horizon Europe, and potential roles that the UCPM Knowledge Network should play.
- Identify and anticipate barriers, enablers as well as potential linkages such as alignment and coordination opportunities between the three topics at stake.
- Build a shared vision which provides a sense of directions, identifies key actions against a timeline and allows for easy update and circulation.
- List and prioritise key actions to address guiding questions.

5.1.2 Outcomes

From the discussions which took place among the PRDR2 participants in the three topic-based sessions, emerged a number of recommendations and suggestions for topics to be included in Horizon Europe research programming. They are being fed into a position paper (see Annex 10) which is to be shared with the EU Commission and touch upon the different roadmap dimensions. They include:

- An overview of the gap between key needed capabilities (referred to as ideal state) and current capabilities.
- A list of detailed actions which would need to be conducted in the short term, medium term and long term to reach the ideal state and the reasonable timeframe within which the different actions could be carried out and achieved.
- The various enablers fostering the achievement of the ideal state (e.g. dedicated funding agency; technology allowing for the data collection, management and analysis to support a European repository data; research programme; Common Operational Picture with European symbols, …) as well as factors representing challenges to overcome (e.g. lack of funding; different cultures, mindset and approaches between countries and/or agencies, organisations; insufficient training of people; missing innovative tools; lack of cooperation due to sensitive data; ...).
- A ranking of enablers and barriers to give a sense of priority and urgency, with thresholds to reach to make the ideal state for capability development possible (e.g. dedicated research programme; common training standards across Europe; interoperability between different repository data; good command of English from field practitioners to management and policy; etc.).
- An action list with "high-level" tasks to conduct to support capability development and make achievable the capabilities expected in an ideal state.

In summary, the key recommendations for action include:

1. Implement a forward-looking capability planning mechanism in practitioner organisations
2. Adopt a common trial and validation framework
3. Establish a pan-European network of Centres of Expertise
4. Align Member States and EU capability development strategies
5. Advance the dialogue between all stakeholders
6. Tackle the fragmented (institutional) market

5.2 PRDR3

5.2.1 Concept, objectives and design principles

The third Policy-Research Dialogue Roundtable was the final event of the PRDR series. It took place in Brussels on 18 February 2020, the day before the opening of the DRIVER+ Final Conference, and focused on research-related standardisation activities in Crisis Management. It was more specifically concerned with reflecting on the possible ways to integrate standardisation in research programmes to address

standardisation needs in the Crisis Management sector. It also aimed to develop recommendations to inform and support the integration of standardisation in Horizon Europe.

35 people attended PRDR3, among whom some ground practitioners, representatives of major Crisis Management organisations such as MDA, RAN and the Red Cross, people from standardisation bodies (UNE, CEN-CENELEC, DIN) and academics.

The half-day event was structured around two guiding questions:

- What are the experiences, best practices and approaches which have been tried and adopted to better integrate standardisation in research programmes? Were they successful? What can be learnt from them?
- In the Horizon Europe context, what could be the key recommendations to foster the integration of standardisation in research programming by the EU Commission?

To structure the roundtable discussions, a SWOT (strengths, weaknesses, opportunities, and threats) analysis was adopted.

The reasons underpinning this choice were the limited time available for the roundtable discussions, and therefore the need to use an assessment framework easy to understand and to manage, the diverse groups of stakeholders which had to have a common reference framework and the dynamic approach supported by the SWOT perspective.

5.2.2 Outcomes

The PRDR3 combined both presentations from research projects on their experiences with standards development and facilitated roundtable discussions. Special attention was paid to those mechanisms and good practices likely to enable the involvement of research projects in standardisation activities. The wrapping-up of the session was done by Philippe Quevauviller (DG HOME) who stressed how timely the PRDR3 was and took the opportunity of the event to convey DG HOME's call for recommendations from practitioners about standardisation needs for security.

The use of the SWOT framework for PRDR3 permitted to gain an informed overview of the internal and external factors impacting the integration of standardization in research programmes and projects, as well as current and future potential in this area. It fostered realistic and fact-based considerations while emphasizing core assets and challenges.

The position paper (see Annex 11) has been finalised and sent to DG HOME for distribution and further use.

6. DRIVER+ contributions towards a shared understanding of Crisis Management in Europe

The third main objective of DRIVER+ is to contribute towards a *"shared understanding in Crisis Management across Europe, through the enhancement of the cooperation framework"*. In order to assess if and to what extent this objective has been achieved, this section analyses and reflects upon how the different project outputs and activities contributed towards a shared understanding of Crisis Management in Europe. This will be done by assessing the key project outputs and activities (Trials, TGM, TTI, PoS, CMINE, CoE and Events) while taking into account, where possible, the different objectives of a shared understanding that were defined in the first version of this series of reports (see also section 1.1), namely:

- **Extend the knowledge base:** Involving new network partners and practitioner organisations will allow the project to gain access to new knowledge and expertise, in particular with respect to operational and management challenges, specific technological requirements, challenges related to regulations and standardisation, or challenges related to the evaluation processes. Moreover, sharing of best practices and lessons learnt will allow to learn about innovative solutions supporting their operations.
- **Enhance the cooperation framework:** Developing synergies with related initiatives and projects at international and local levels should increase the outreach and intensify the impact of the project, therefore enhancing the transfer of knowledge and research outputs to practitioner organisation and networks.
- **Ensure the relevance of the project activities:** Enabling the participation of external innovative solution providers, concerned practitioners and relevant experts to the DRIVER+ Trials, the Final Demonstration, the PRDR and the I4CM will ensure their high quality, appropriateness and relevance.
- **Get support and attract potential users:** Involving stakeholders properly to assure they can act as advocates of the project, multiplying the outreach and finding appropriate options for securing the sustainability of the project results.

In order to find answers to what extent this third main project objective was achieved, two approaches were combined:

1. Obtaining external feedback from the participants of the Final Conference through a questionnaire.
2. Obtaining internal reflections from key project members / product owners.

6.1 External feedback

The following tables will summarize the external feedback that was obtained through the distribution of a survey postcard (see Annex 12) among the participants of the DRIVER+ Final Conference.

The survey contained the following questions:

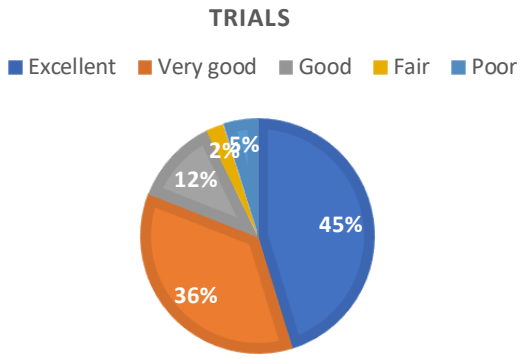
- After having attended the Final Conference would you say that DRIVER+ has contributed to fostering a shared understanding in Crisis Management across Europe?
- Which DRIVER+ outputs/activities do you expect to contribute most towards further enhancing this shared understanding in the future? Please specify why and how.
- What recommendations would you give to ensure the sustainability of the project's outputs?

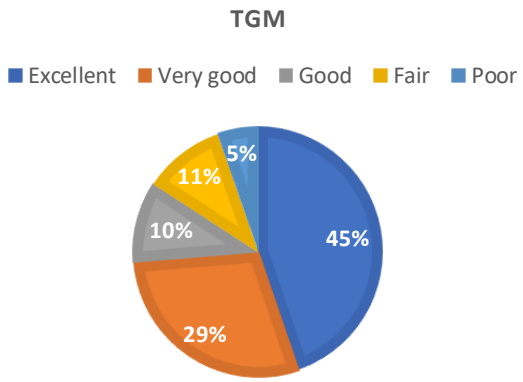
Error! Reference source not found. Figure 6.1 presents the statistical overview of the external rating of m ain project outputs contribution towards fostering a shared understanding in Crisis Management across Europe.

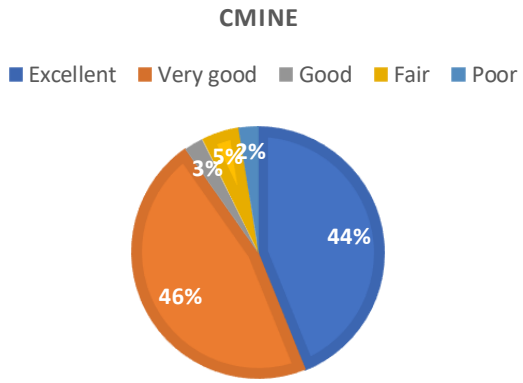
Out of 226 attendees, 42 (18,5%) replied to the questionnaire of which 44% were researchers/scientists, 31% Crisis Management practitioners/experts, 9% policy makers, 9% solution providers and 7% others.

On the question if DRIVER+ has contributed to a shared understanding of Crisis Management in Europe, 43% of the attendees strongly agreed, 48% agreed, 7% neither agreed or disagreed and 2% disagreed. This demonstrates that the impact that DRIVER+ has made is perceived overall as **very positive**.

According to the attendees of the event, the CoE concept is considered **excellent** and contributes the most towards a shared understanding, followed by the Trials, the CMINE and the TGM. The DRIVER+ events are considered to be a **very good** means to contribute towards a shared understanding as well as the CMINE. The PoS is rated overall as a **good** means to contribute to a shared understanding with slightly more people that rated the activity fair.







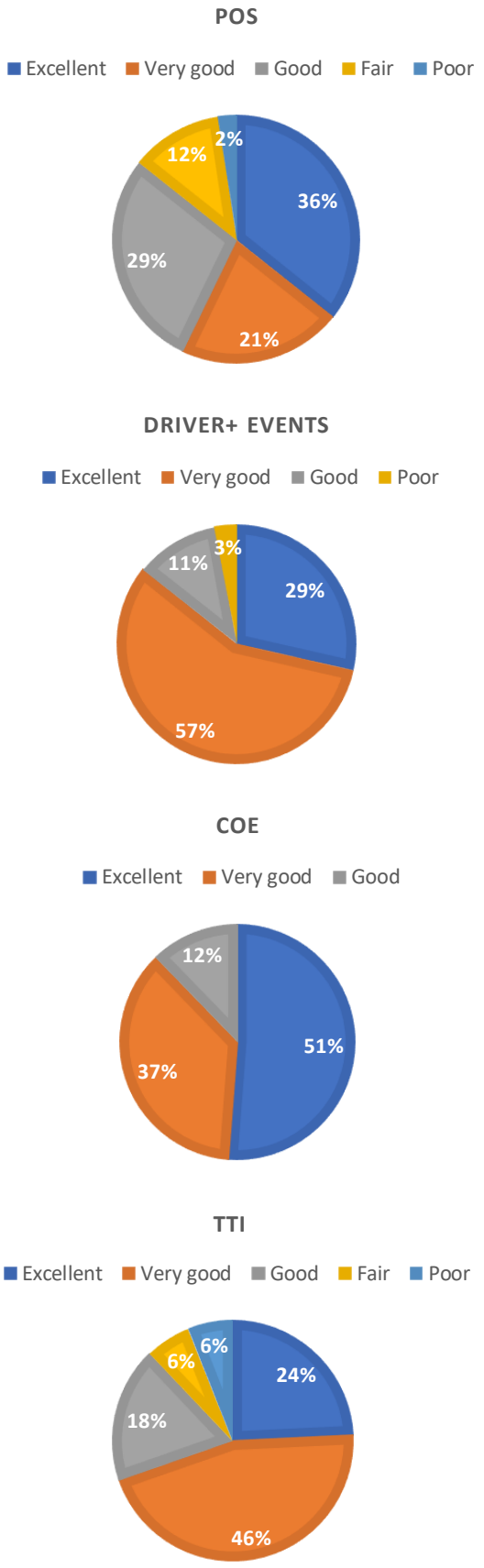


Figure 6.1: External rating of the potential of DRIVER+ outputs/activities towards further enhancing a shared understanding

Table 6.1 summarizes the main qualitative feedback received from the participants of the DRIVER+ Final Conference about how the different project outputs and activities contributed towards fostering and enhancing a shared understanding of Crisis Management in Europe.

Table 6.1: Contributions of DRIVER+ outputs towards a shared understanding of Crisis Management in Europe

Type of outputs	Description
Trials	The Trials are considered to be a very practical and useful format to test available solutions (e.g. equipment, applications) in the field. They provide the currently most scientifically advanced approach on how to lead research and validate the results.
TGM	The TGM is considered to provide the closest information on how to best conduct research and check the validity of the results. It is regarded as a very innovative guide which provides good guidance for testing. The usability needs to be further proven through its use.
TTI	The TTI is considered to provide a very useful and promising set of technical components that allow for the integration and exchange of information between various solutions. It was also stated that further work needs to be done to establish links at a national level.
PoS	The PoS is considered to provide good access to existing knowledge, allows for information sharing and is an innovative approach. However, the usability should be improved further to exploit its full potential.
CMINE	The CMINE, as an expert network for knowledge sharing, is considered to contribute very well towards a shared understanding in the CM domain. It was highlighted that the creation of a network of networks has the potential of breaking fragmentation, but that continuous efforts are need to maintain the momentum.
CoE	The CoE is a good help function with high potential. It opens up new opportunities and very effective for knowledge sharing and networking. It was stated that the success of the CoE depends on its continuation and the establishment of further CoEs.
Events	The DRIVER+ events are considered to provide as a very good occasions for sharing knowledge and experiences as well for building and expanding professional and personal networks.

The attendees finally gave some recommendations of how to ensure the sustainability of the project outcomes which include:

- **Responsibility of the EC** - sustainability is only possible if the EC takes ownership of the results by providing funding (e.g. follow-up networking project)
- **Expanding and consolidating partnerships across Europe** – results have to be implemented across Europe through the CoE network and requires thorough consultation and inclusion of practitioners into the process; cooperation with the networks of practitioners should established to hand-over DRIVER+ results.
- **Applying a business-minded approach** - creating a business model behind the outputs to close the circle (e.g. trials that lead to purchase and implementation of a tool); Innovation without effective business model is just energy.
- **Ensure continued marketing** – this should focus on the added value to potential users, in particular the central element (testing solutions) should be highlighted.

6.2 Internal feedback

The external feedback was complemented by an internal review from the SP leaders and other key project members. The reflection about how the DRIVER+ outputs and activities contributed towards a shared understanding of CM in Europe, was done from the perspective of the four main stakeholder types the project addressed. For this reflection process two of the originally defined dimensions of a "shared understanding" were considered the enhancement of the knowledge base and the cooperation framework.

The key project members that were consulted considered in summary the following as the most important contributions towards enhancing the shared understanding:

- **Trials and Final Demonstration** – significant contribution to an improved understanding of the CM processes, existing CM solutions and the potential value of innovation for CM.
- **TGM** – state-of-the-art methodology that provides a practical, structured, standardised and proven approach to assess the innovation potential of CM solutions.
- **TTI -** the availability of an open source, standardised and documented set of technical infrastructure components needed to set up a Test-bed environment provides the ability to interface and evaluate of the innovation potential of solution on the socio-technical setup of an organisation.
- **PoS** - offering a well-informed and open catalogue of innovations permitting a better understanding of available and emerging solutions.
- **TGT –** provides guidance for the steps to follow when using/applying the TGM and helps planning additional Trials by making results of previous ones available.
- **TM –** allows for providing shared instructions and understanding on how to apply the TGM, TTI, PoS and therefore contribute to an enhanced understanding of the processes and requirements.
- **Terminology –** the use of the same terms and definitions across different actors in the CM domain leads to an improved shared understanding, better cooperation and improved quality of outputs.
- **CMINE** - both the networking/expert finding and the sharing/discussion channel features of the platform were acknowledged.
- **CoE** – the concept and established network is recognized as a good way for connecting relevant actors in the CM innovation ecosystem and fostering capability development in the field.
- **Events** - I4CM conferences, User workshops, PRDRs and the Final Conference provided important opportunities to facilitate the community building and generated impulses for the generation and exchange of knowledge.

Table 6.2 presents the a more detailed overview of the reflections of the key project partners on the contributions and value of the various DRIVER+ outputs for an enhanced shared understanding of CM in Europe. This assessment per key output/activity was done by assessing from the perspective of main stakeholder types addressed an involved.

Table 6.2: Overview of internal feedback on contributions of DRIVER+ outputs to a shared understanding of Crisis Management in Europe

Stakeholder	Contributions and value of the DRIVER+ Trials and Final Demo for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Ability to research innovation in a highly realistic context without the need to conduct research during a real crisis.
CM experts	• Awareness that it is possible to test/assess innovative solutions during trainings and exercises.

Policy makers	• Ability to assess innovation before adopting/buying it. • Ability to assess the implications of new policies on CM operations before their implementation.
Solution provider	• Ability to assess their own product in a realistic setting. • Improved understanding of the operational context in which solutions are to be applied.

Stakeholder	Contributions and value of the TGM for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Structured and proven methodology that allows for standardised way of conducting Trials/tests. • Guidelines for future trial-based projects.
CM experts	• Hands-on guideline/methodology on how to plan, implement and evaluate Trials. • Standardised way of conducting Trials/tests.
Policy makers	• Structured and proven methodology that allows for standardised way of conducting Trials/tests.
Solution provider	• Fully documented and thereby transparent assessment process of the innovation potential of a solution.

Stakeholder	Contributions and value of the TTI for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Open source, standardised and documented set of technical infrastructure components needed to set up a test-bed environment. • Data-based evaluation of the innovation potential of solution on the socio-technical setup of an organisation.
CM experts	• Open source, standardised and documented set of technical infrastructure components needed to set up a test-bed environment. • Ability to collect observations and log data exchanges for later evaluation • Data-based evaluation of the innovation potential of solution on the socio-technical setup of an organisation. • Awareness of the added value of integrated innovative solutions and legacy systems.
Policy makers	• Open source, standardised and documented set of technical infrastructure components needed to set up a test-bed environment. • Data-based evaluation of the innovation potential of solution on the socio-technical setup of an organisation
Solution provider	• Open source, standardised and documented set of technical infrastructure components to link to (for data exchange and logging) • Data-based evaluation of the innovation potential of solution on the socio-

	technical setup of an organisation • Awareness of the added value of integrated innovative solutions and legacy systems.

Stakeholder	Contributions and value of the PoS for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Improved State of the Art view by providing an overview of available and emerging solutions • Access to credible (non-commercial) assessments of and experiences with solutions
CM experts	• Open catalog of innovations (in several TRL) allow for a better understanding of available solutions on the market as well as emerging solutions • Access to credible (non-commercial) assessments of and experiences with solutions
Policy makers	• Open catalog of innovations (in several TRL) allow for a better view on current gaps and solutions, and thus improving the ability to better plan future research programs. • Access to credible (non-commercial) assessments of and experiences with solutions
Solution provider	• Marketing/exposure of product • Better understanding of competing and/or similar solutions • Identifying potential business partners and market opportunities (gaps, potential customers)

Stakeholder	Contributions and value of the TGT for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Providing guidance for the steps to follow when using/applying the TGM • Making results of successful tests of own solutions visible • Using the planning details of already executed Trials for analysis
CM experts	• Providing guidance for the steps to follow when using/applying the TGM • Sharing of experiences with solutions with other practitioners • Using information on former trials as support for planning of own Trials
Policy makers	• Providing guidance for the steps to follow when using/applying the TGM • Sharing of experiences with solutions with other policy makers • Using information on former trials as support for planning of own Trials
Solution provider	• Providing guidance for the steps to follow when using/applying the TGM • Making results of successful tests of own solutions visible • Using information on former trials as support for planning of own Trials

Stakeholder	Contributions and value of the TM for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Providing shared instructions and understanding on how to apply the TGM, TTI, PoS.
CM experts	• Providing shared instructions and understanding on how to apply the TGM, TTI, PoS.
Policy makers	• N/A
Solution provider	• Providing shared instructions and understanding on how to apply the TGM, TTI, PoS.

Stakeholder	Contributions and value of the CoE for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Support for use of TGM/TTI and when organising Trials. • Share experiences in applying and/or improving the DRIVER+ products and, in general, support the capability development process. • Connecting relevant actors in the CM innovation ecosystem.
CM experts	• Provide support for the use of TGM/TTI and when organising Trials. • Share experiences in applying and/or improving the DRIVER+ products and, in general, support the capability development process. • Connecting relevant actors in the CM innovation ecosystem.
Policy makers	• Points-of-contact for policy maker to make a Trial happen and/or for advice regarding TGM/TTI/etc. • Connecting relevant actors in the CM innovation ecosystem.
Solution provider	• Provide support for the use of TGM/TTI and when organising Trials • Connecting relevant actors in the CM innovation ecosystem.

Stakeholder	Contributions and value of DRIVER+ events for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	General: • Networking, exposure and marketing opportunity Specific: • Fostering the participation of related project-external initiatives, expert networks and research projects (I4CM & PRDR) • Improved understanding of standardisation opportunities for research projects and its value. (PRDR-3) • Opportunity to try out project outputs and interact with developers (I4CM & FC) • Better understanding of the supply side of the market, including potential synergies between specific solutions and/or DRIVER+ outputs (FC & User Workshop)
CM experts	General: • Networking, exposure and marketing opportunity
Policy makers	General: • Networking, exposure and marketing opportunity Specific: • Improved understanding of the standardisation potential of the DRIVER+ outputs. Plus recommendations on how to further stimulate standardisation in European research programmes (PRDR-3)
Solution provider	General: • Networking, exposure and marketing opportunity

Stakeholder	Contributions and value of CMINE for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Forum to discuss about shared gaps and solutions, and to generate new ideas. • Platform to remain up-to-date with latest CM news/info, and related projects. • Networking & Expert finding.
CM experts	• Forum to discuss about shared gaps and solutions, and to generate new ideas. • Platform to remain up-to-date with latest CM news/info, and related projects. • Networking & Expert finding.
Policy makers	• Forum to discuss about shared gaps and solutions, and to generate new ideas. • Platform to remain up-to-date with latest CM news/info, and related projects • Channel for sharing and exchanging information on policies. • Networking & Expert finding.
Solution provider	• Forum to discuss about shared gaps and solutions, and to generate new ideas. • Platform to remain up-to-date with latest CM news/info, and related projects

Stakeholder	Contributions and value of CMINE for an enhanced shared understanding of CM in Europe
	• Networking & Expert finding.

Stakeholder	Contributions and value of the DRIVER+ Terminology for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Using the same terms and definitions across different actors in the CM domain leads to an improved shared understanding, better cooperation and improved quality of outputs.
CM experts	• Using the same terms and definitions across different actors in the CM domain leads to an improved shared understanding, better cooperation and improved quality of outputs.
Policy makers	• Using the same terms and definitions across different actors in the CM domain leads to an improved shared understanding, better cooperation and improved quality of outputs.
Solution provider	• Using the same terms and definitions across different actors in the CM domain leads to an improved shared understanding, better cooperation and improved quality of outputs.

Stakeholder	Contributions and value of the L3 for an enhanced shared understanding of CM in Europe
Researchers/ Scientists	• Sharing of lessons identified/learned within the own community and with other stakeholders
CM experts	• Sharing of lessons identified/learned within the own community and with other stakeholders
Policy makers	• Sharing of lessons identified/learned within the own community and with other stakeholders
Solution provider	• Sharing of lessons identified/learned within the own community and with other stakeholders

As a way of conclusion for this section highlighting how DRIVER+ has contributed to enhancing the shared understanding of crisis management, the mere range of the projects' outputs needs to be emphasised. Ranging from the Test-bed Technical Infrastructure to networking opportunities and a dynamic repository of innovative solutions, to hands-on tests, collaborative on-line platform and Trial guidelines, these outputs address a variety of crisis management-related aspects. There is a specific value in this approach which is fostering a shared understanding of crisis management at various levels and from complementary perspectives. The sustainability concerns that have guided the design and development of the DRIVER+ outputs since the beginning of the project give reason to expect that this shared understanding, as promoted by the project, will carry on beyond DRIVER+.

7. Conclusion

The frameworks, initiatives and visions for Crisis Management that currently exist in Europe have clearly evolved on many levels since the start of the DRIVER+ project. But **up to date still no overarching strategy has been defined** at a macro level on how to effectively and efficiently involve the diverse groups of stakeholders dealing with the complex field of Crisis Management in Europe.

The activities carried out during the course of the DRIVER+ project clearly contributed to further develop, support, complement and strengthen the existing frameworks and initiatives. DRIVER+ can therefore be regarded as an **important enabler and facilitator towards a more integrated CM system in Europe**.

The ambition of DRIVER+ with regards to an improved stakeholder engagement and the emergence of a shared understanding is first and foremost a long-term one: to build and engage with an active and structured Community of Practice in the field of Crisis Management that will be sustainable after the end of the project duration. The Crisis Management Innovation Network Europe (CMINE) is established to facilitate this interaction. It has the potential to become an overarching body connecting Crisis Management stakeholders to exchange best practices, lessons learned and innovative ideas, in order to facilitate the implementation of policies and the uptake of research and innovation by practitioners and policymakers. Important steps were taken by the project in developing a diverse and sustainable set of tools that contributed towards making this a reality. Nevertheless, the **CM domain remains highly fragmented and politically charged; this was not possible to be overcome by DRIVER+**, but having ensured the sustainability of all main outputs will surely help in working towards this. This will be further stimulated by having the various EC actors (mainly DG HOME, DG ECHO, REA, JRC) using these outputs themselves and strongly endorsing the uptake by other stakeholders (policy makers, practitioners, research and capacity building projects).

The current **COVID-19** situation will surely trigger a critical reflection on the current setup of crisis management within Europe; this window of opportunity **might lead to a more integrated CM system in Europe**. Crises affecting several MS simultaneously need an integrated and harmonized approach across Europe, and for this, a common understanding of CM in Europe is preconditional.

References

1. **DRIVER+ project.** *D953.13 Enhancing the Shared Understanding of CM – Progress Report N°3.* 2019.

2. —. *D952.14 - Dissemination and Communication activities - Final Report.* 2020.

3. —. *Standardisation potentials identified by DRIVER+.* 2020.

4. —. *D922.11 - List of CM gaps.* 2018.

5. —. *D953.11 – Enhancing the shared understanding of Crisis Management – Progress report 1.* 2018.

Annexes

Annex 1 – DRIVER+ Terminology

In order to have a common understanding within the DRIVER+ project and beyond and to ensure the use of a common language in all project deliverables and communications, a terminology is developed by making reference to main sources, such as ISO standards and UNISDR. This terminology is presented online as part of the Portfolio of Solutions and it will be continuously reviewed and updated[1]. The terminology is applied throughout the documents produced by DRIVER+. Each deliverable includes an annex as provided hereunder, which holds an extract from the comprehensive terminology containing the relevant DRIVER+ terms for this respective document.

Table A1: DRIVER+ Terminology

Terminology	Definition	Source
Best Practice	This encompasses the preferred actions in a specific type of situation to efficiently and effectively achieve a certain objective. Best Practice may be formalised in internal policy documents such as handbooks and standard operation procedures and could be based on one or several Lesson Identified/Lessons Learned approved by decision-makers.[2]	initial DRIVER+ definition
Community building	Practices directed toward the creation or enhancement of community among individuals within a regional area (such as a neighbourhood) or with a common interest	DRIVER+ deliverable **D934.16**
Community of Practice	An (online) platform that facilitates and fosters cooperation and synergies among Crisis Management professionals. A broad variety of stakeholders including practitioners, researchers, industry representatives and policy makers can exchange knowledge and best practices and initiate cooperation on Crisis Management topics.	
Crisis management	Holistic management (3.135) process (3.180) that identifies potential impacts (3.107) that threaten an organization (3.158) and provides a framework for building resilience (3.192), with the capability for an effective response that safeguards the interests of the organization's key interested parties (3.124), reputation, brand and value creating activities (3.1), as well as effectively restoring operational capabilities. Note 1 to entry: Crisis management also involves the management of preparedness (3.172), mitigation (3.146) response,	ISO22300 (DRAFT 2017) 8

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

	and continuity (3.49) or recovery (3.187) in the event of an incident (3.111), as well as management of the overall programme through training (3.265), rehearsals and reviews (3.197) to ensure the preparedness, response and continuity y plans stay current and up-to-date.	
Disaster risk reduction	Disaster risk reduction is the policy objective aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contributes to strengthening resilience.	UNISDR: Terminology on Disaster Risk Reduction: A Technical Review. August 2015 p14
Innovation	Implementation of a new or significantly improved product (good or service), or process, new marketing method, or new organizational method in business practices, workplace organization or external relations.	ISO 9000:2015(en) Quality management systems — Fundamentals and vocabulary, 3.6.15.
Interoperability	The ability of diverse systems and organisations to work together, i.e. to interoperate.	ISO 22397:2014(en) Societal security — Guidelines for establishing partnering arrange-ments.
Lesson Learned	[lessons learning: process of distributing the problem information to the whole project and organization as well as other related projects and organizations, warning if similar failure modes or mechanism issues exist and taking preventive actions]	[ISO 18238:2015(en) Space systems — Closed loop problem solving management, 3.3]
Trial Guidance Methodology	A structured approach from designing a Trial to evaluating the outcomes and identifying lessons learned	
Trial Guidance Tool	A software tool that guides Trial design, execution and evaluation in a step-by-step way including as much of the necessary information as possible in form of data or references to the Portfolio of Solutions	

Annex 2 – Key Performance Indicators (KPIs) for WP953

Table A2: KPI achievements and deviations

	By April 2020	Level of achievement	Deviations
CMINE overall structure/setup			
Cross-thematic Task Groups (synergies)	>2	2 additional groups	No deviations, KPI achieved
No. of officially connected networks	>5 signed MoUs	5	Yes, original KPI was adjusted. It was agreed within the CMINE SC that formalising the connection of a network to CMINE via an MoU would be a potential barrier, therefore will entities that have created a group on CMINE be regarded as "officially connected networks"
No. of individual stakeholders (DRIVER+ external) invited to join the CMINE	>400	>500	No deviations, KPI achieved
No. of registered individual stakeholders (DRIVER+ external) on CMINE CMT	>200	762 registered stakeholders (04.05.2020)	No deviations, KPI achieved
No. of networks invited to join the CMINE	>60	85 networks	No deviations, KPI achieved
No. of registered networks on CMINE (H2020 projects and others)	>30	26	Yes, but it is expected that the number will increase further with the final outreach campaign,
Engaging different types of stakeholders (practitioners, policy-makers, solution provider, academia, civil protection authorities)	>20 representatives of at least 3 stakeholder categories need to be registered on CMINE CMT	28% of the users are Scientists and Researchers, 16% are Practitioners, 15% come from the private sector, 11% are working in Training & Education, 11% are policymakers, 9% are from NGOs& CSOs, 3% work in the field of standardisation, 1% in	No deviations, KPI achieved

		media and 6% in other domains	
No. of Task Groups per Theme	>1	2 Task Group per Theme (one private & 1 public)	No deviations, KPI achieved
CMINE online platform activity			
No. of discussion threads	>15 – 30 in total	>15 – 30 in total	Yes
No. of visitors (daily)	>20	Not known	Cannot be measured with the current platform analytics. KPI was defined at a time when the new analytical capabilities of the platform were not yet known.
No. of returning visitors (per month)	>120	Not known	Cannot be measured with the current platform analytics. KPI was defined at a time when the new analytical capabilities of the platform were not yet known.
No. of people engaged in all discussion threads sharing informative content (uploading files etc.)	>100	Not known	Cannot be measured with the current platform analytics. KPI was defined at a time when the new analytical capabilities of the platform were not yet known. However it can be stated that it was observed that users engaged in discussion threads to share news, their locations, events, call for papers and so forth.
No. of 'Share CMINE' button clicks per week	>20	Not known	Cannot be measured with the current platform analytics. KPI was defined at a time when the new analytical capabilities of the platform were not yet known.
Average time spent on CMINE per group page visit	2.5 Min.	Not known	Cannot be measured with the current platform analytics. KPI was defined at a time when the new analytical capabilities of the platform were not yet

			known.
Discussion threads on theme level	>6 per theme	>6 per theme	Yes
Task Groups			
Task Group method led to demonstrated outcome	>1 Solution per Task Group presented at DRIVER+ Final Conference	1 Solution per Task Group presented at DRIVER+ Final Conference	Yes
Number of new Task Groups developed by current Task Group	>1	None	No, due to the workload of Task groups it was not feasible to have new tasks groups established. The CMINE SC agreed with the TG chairs to not proceed with this task.
No. of reports approved/Total no. of reports written	>80 %	100%	No deviations, KPI achieved
No. of reports submitted by deadline/Total no. of reports written	>80 %	85%	No deviations, KPI achieved
Task Group members of different geographic backgrounds	>15 EU MS	16 EU MS	No deviations, KPI achieved
Different types of stakeholders within one Task Group	>3 different types of stakeholders per Task group	Practitioners, scientists and civil society groups	No deviations, KPI achieved
No. of applications following Call for Experts	>12	47 applications	No deviations, KPI achieved
Majority of the Task group present at in-person meetings	The Task Group members are expected to be present at all in-person meetings. At least 80% of the Task group members should be present (virtual or in-person) during the first two meetings (March and June 2019) and for the remainder of the project.	90%	No deviations, KPI achieved
External Impact			
No. of news articles	>8	14	No deviations, KPI achieved

about CMINE			
No. of mentions on social media channels (with CMINE hashtag)	>75	/	Difficult to measure due to an existing #CMINE that belongs to another organisation
No. of followers on CMINE Twitter account	>200	192 (+ 968)	No, when only taking into account the CMINE Twitter account, but when including the DRIVER+ twitter account which has been used as the main communication channel of the project this figure has been exceeded substantially.

Annex 3 – Sustainability Model Canvases

Sustainability Model Canvas CMINE as an Umbrella Portal

Date: 10 December 2020

Foreseen scenario

Based on the discussions that were held during the DRIVER+ Users Workshop on 17 October 2019 in Brussels, the idea for the CMINE as an 'umbrella portal' for crisis management professionals was further developed. Rather than having the CMINE adopt or being adopted by one single initiative, the CMINE could serve as the vehicle for exchange, collaboration and interaction for multiple initiatives in the crisis management domain. The flexible nature, features and governance structure of the CMINE allows for initiatives to select aspects of the network that are most relevant for them and adapt those to their needs (i.e. the events registration function on the online portal, the Task Group structure, the community forum, etc.). With multiple initiatives making use of the CMINE, the network could truly serve as an umbrella as it would facilitate contact between the different projects and organisations and, thereby, it has the potential of strengthening the crisis management community.

The scenario would consist of the following core elements:

Groups chaired by different initiatives. The online CMINE platform offers the possibility to create different types of groups, this includes closed groups (the current Task Groups and the Steering Committee Group) and open groups (i.e. the Standardisation Group). The groups created were originally directly related to the CMINE but as multiple initiatives have already voiced their interest in the network, a number of additional non-DRIVER+ groups have been created on the CMINE in October and November 2019. These include a TIEMS group, a RAN (Resilience Advisors Network), a group for the International Forum to Advance First Responder Innovation and an EU Network Digital Simulations group. Depending on the preferences of the hosts of these groups, the groups can be made private or public. Other groups, such as DARENet are considering to create closed groups for their member base. In addition, TIEMS is in the process of setting up an additional group to facilitate educational purposes (thereby serving as a trial). Hereby, these groups serve as a pilot phase for the CMINE as an umbrella scenario; CMINE provides the vessel for the initiatives to set-up their specific groups.

Events registration. In addition to the creation of private and public groups, initiatives can make use of the feature provided by the CMINE to promote events and allow registration to be organised through the CMINE. This feature is available for all initiatives, not only to those who created a group. The events registration feature does not only provide the option for initiatives to present and promote their event, it also allows them to run the registration including payments through the platform. During the Users Workshop, a number of initiatives mentioned that this was particularly interesting to them as they have been struggling with the organisation of their events (in particular the registration of participants) in the past. The CMINE could, thus, become a vehicle for events to be displayed, promoted and for registration to take place.

Community building. Besides the groups (which allow for interaction on a specific topic) and the events registration feature, the CMINE online portal is designed in such a way that it maximises the opportunities for community building and networking between the various groups. The platform differs from other networks such as Facebook and Twitter in that it is geared to active community building; it allows for the sharing of documents, easy interaction between participants, more general discussions on the forum, etc.

At this point, the non-DRIVER+ groups on the CMINE have only just been created or are in the process of being created, and the CMINE work package members are exploring how these groups interact and make use of the platform. To test and validate this scenario, the groups that are currently active would need to be encouraged to start making use of the full range of features offered by the CMINE. In addition, new groups can be added.

Risks

However, the future outlook of the CMINE as an umbrella network needs further scrutiny. Although the hosting of the CMINE online platform is sustained for two more years; additional funding would be required to fund community managers who provide technical and (limited) secretariat support. The community managers would, amongst others, be in charge of adding new initiatives as groups(and would function as gatekeepers to avoid potential misuse of the platform and unbalanced proliferation of groups on the online platform. In addition, thoughts are required to develop a strategy for the sustainability of the CMINE after this two-year period.

To have the scenario outlined above materialise, it is essential for the different initiatives and the CMINE to clarify what their tasks and responsibilities are, both in terms of management and funding. Moving forward, it would have to become clear for each of the initiatives making use of the CMINE where their responsibilities start and end. In an effort to reduce the burden on the community managers, avenues to shift (part of) their work towards the individual initiatives should be discussed with those very initiatives. Ideas for such a shift include discussions on the clear positioning of the Chairs in the CMINE, talks about the funding by the different entities, etc.

Furthermore, to facilitate synergies between the different initiatives making use of the CMINE, community managers and the initiatives themselves are to be encouraged to not only interact within the dedicated groups but to also engage across those groups. If all initiatives interact mainly in silos, this could possibly affect the 'umbrella' function of the CMINE.

Another item to consider is whether to train Crisis Management professionals to become proficient enough with the Hivebrite software to act as community managers or the other way around. The former is deemed to be the best option as it would allow the community managers to act from a content perspective. However, the question remains whether this would be feasible, both in terms of timing (to have external Crisis Management experts familiarise themselves with the platform by April 2020) and funding (see below).

Table A3: General challenges and mitigation measures

General challenges	Possible Mitigation Measure
Role of the community managers after the DRIVER+ project ends: who decides which groups can be added?	If the community managers are mandated with the full operational and strategic management of the CMINE, they could be tasked with deciding which groups can be added to the CMINE and which cannot. However, this would substantially enhance the number of tasks of the community managers which will, therefore, most likely be reflected in the number of resources required to fulfil this task. Ideally, there would be two community managers who could share the work and who would be able to discuss options and make decisions together.
Funding of the community managers	Whereas the CMINE platform has secured funding for another two years, the funding of the community managers has not been secured yet. As described above, the installation of (at least) two community managers is essential and, therefore, funding needs to secured. A possible mitigation measure is to apply for a European Commission grant to be able to continue the services. Further research needs to be done how such a grant can be applied for. Ecorys has taken action and investigated which funds could potentially be interesting. There seem to be few available options. The entity which can envisage proposing services to the European Commission (and receive the budget if granted) will be expected to take the lead in drafting the grant proposal. The option of CoEs funding the community managers is deemed unrealistic given the fact that CoEs are not reimbursed for their work as a CoE, let alone to

General challenges	Possible Mitigation Measure
	take on community management tasks. In addition, CoEs generally tend to be focused on the national level, hence, the added value for supporting the community management of a European network such as CMINE is not clear. Another option would be to sustain funding through IFAFRI; the Chair of IFAFRI could fund the community management of the CMINE on a rotational basis. With IFAFRI currently exploring whether CMINE could be useful for them, the feasibility of this mitigation measure is still to be explored. Finally, users of the CMINE could be asked to pay a small annual fee to sustain the community management. However, this is only deemed realistic if the users of the platform are convinced that the platform brings something new to the table.
Funding for the Chairs of (Task) Groups	In the current shape of the CMINE, Task Group Chairs receive resources from fulfilling their task, whereas Task Group Members only receive reimbursements for their travel costs. The Task Group Chairs face challenges in getting the Task Group Members to work as there is no financial incentive for them to invest energy and time. Based on this experience, it is recommended to secure funding for those who lead a Task Group as well as (to a more limited extent) for those that participate in a Task Group. Some initiatives might be able to provide this financial support (i.e. they can financially support 'their' Chair and the Task Group Members of their respective Task Group). However, other initiatives might not have such resources. One option could be to have each closed group figure out a funding structure for its members by themselves, however, this could potentially harm the attractiveness of the CMINE (in particular as some groups already indicated that they would rather use established networks rather than a new one – i.e. as indicated by the Red Cross).
Governance of the CMINE (Who leads CMINE: who is the central coordinating body)	With the CMINE acting as an umbrella, the network gives a significant amount of freedom to other initiatives to make use of the platform's features. While this high degree of flexibility is one of the key assets of this scenario, it also results in a variety of challenges including the question of leadership and legitimacy. Are the community managers the formal leaders of the platform? Which entity (company) will be tasked with such a role? Is a Steering Committee needed? How will this Steering Committee function and coordinate if there is limited funding available? What is the mandate of the community manager to make the decision and who is giving the mandate to them? In order to facilitate the uptake of the CMINE, a lean governance model is proposed. However, those involved in the governance of the CMINE would need to receive (small amounts of) funding to compensate for their work.
What are the criteria for an initiative to create a group on the CMINE?	As outlined above, the question of who is the central decision-making body is related to the criteria based on which decisions can be made. Which projects are well-suited to be presented by a group on the CMINE? Do initiatives have to fulfil criteria to be eligible to be presented on the CMINE? With the CMINE being the vessel, it is essential to safeguard the reputation and quality of the network (also in the light of the broader DRIVER+ image).
GDPR compliance of the platform	Related to the point above, the platform must be fully GDPR compliant and that the necessary safeguards are in place to make sure the CMINE to avoid having any uncertainties on the side of the CMINE members and to avoid data leaks at all costs. To make sure the platform fulfils the necessary requirements, a data

General challenges	Possible Mitigation Measure
	protection specialist focussing on the technical aspects and lawyer should be hired who can perform a perform a due diligence check.
Legal considerations (GDPR, data protection, liability)	Legal implications require careful consideration. Which organisation or entity is liable for the content on the platform and data protection? If, for example, users are misusing the platform to share racist propaganda and hate speech or if user accounts are being hacked, who is going to face the legal consequences?
Conflicting projects hosted on the CMINE	If the CMINE functions as an umbrella where multiple projects can connect to, there is a risk that initiatives that oppose each other in objectives. Examples of such situations could be competing consortia who open closed groups on the CMINE, or groups who have completely different approaches to certain issues/challenges. It would need to be clearly defined who would be in the position to take decisions in such situations (i.e. to deny project access to the CMINE, to facilitate dialogue between the initiatives in question, etc.). If this work would be shifted towards the community managers, this would need to be reflected in the resources allocated for this.
Funding of the Hivebrite licence after 2 years	This depends on the way the CMINE is structured and designed after the DRIVER+ project ends. Depending on how the platform is taken over, different initiatives could chip in to sustain the licence. If EU or national governments get involved, these could potentially provide an avenue for funding. It is difficult to assess this risk at this stage as it is unclear where the CMINE will be left in April 2020.

Table A4: Sustainability Model Canvas

SMC item	Component	To further investigate	Risks/challenges
Activities	The public and private groups that the initiatives can create on the CMINE can serve as Task Groups (dedicated working towards a specific goal) or more 'free' groups (as the Standardisation Group). Besides, the initiatives are welcomed to use the groups the way they seem the best fit (i.e. for communicating, as TIEMS intends).	Who decides which groups can be added, and what are the criteria for new initiatives to be eligible to be added to the CMINE? Are there any restrictions on what groups can be/do? What is the geographic and thematic scope of the groups?	Groups with opposing ideas being hosted on the CMINE The 'objective' and thematic focus of the CMINE being lost Groups misusing CMINE as a platform for misconduct
	The CMINE can be used to create, promote and register for events. In particular, the ability to allow people to pay for registration for events is deemed useful.	How does the payment work in practice? I.e. how does money that is paid on the CMINE platform flow to the right initiative? Is the event registration tool fully GDPR compliant?	Personal data storage (leaks) Management of the Hivebrite forum (troubleshooting) requires a significant amount of resources
	The nature of the CMINE platform as being geared towards community building can help strengthen the interactions between different initiatives and, thereby the crisis management community as a whole.	Who monitors the interactions on the forum?	Community building mainly happens within a group (i.e. TIEMS people communicate within the TIEMS group) and the overall platform largely remains unused.
Partners	Interested initiatives active in the crisis management domain	Do we set (thematic) criteria for the initiatives? How to guard the thematic scope of the CMINE?	
Resources	Resources are secured for the hosting of the online platform (for two years)	What will happen to the platform after two years? Will it go 'black'?	Willingness and/or ability to pay for the CMINE is not sufficient to sustain the platform.
	Additional resources are needed for the community managers. Depending on the role we foresee for the community managers, more/fewer resources are needed.	How do we see the role of the community managers? What are their tasks? Monitoring the platform (forum discussions), troubleshooting, deciding which new initiatives can join the CMINE, facilitate in risk management, strategy definition of the CMINE? Which organisation(s) want(s) to take up this	Ideally, two organisations would be involved to avoid a conflict of interest for the party who provides the community manager.

SMC item	Component	To further investigate	Risks/challenges
		role? Where does the funding for this position come from?	
	Additional resources are likely to be needed to fund the activities of the Task Group Chairs.	Needs to be investigated if the initiatives which start groups are also able to provide financial support to the Task Group Chairs. Who would provide funding for the Task Group Chairs if initiatives cannot do this themselves?	Unclear where funding for Chairs would come from
	The members of the Task Groups would need to be (partly) reimbursed for their travel costs	Who would take up these costs?	Unclear where funding for Task Group Members would come from.
Governance	The governance of the CMINE could be with the community managers; however, their role is more on the operational side of the platform. Therefore, a Steering Committee might be needed to define the strategic direction of the CMINE.	Who would be part of the Steering Committee? Who would chair the Steering Committee (the community managers?) Who would fund the members of the Steering Committee? What is the division of work between the Steering Committee and the community managers?	Unclear where funding for Steering Committee would come from. Member contributions for a member-elected Steering Committee and a supportive CMINE governance Secretariat might be an option.
Value proposition	CMINE as the umbrella network in crisis management, facilitating connections and interaction between various crisis management initiatives	How would the interaction between those initiatives be shaped? We cannot assume that they will 'just' start interacting on the forum; they need to be poked and probed.	
	CMINE as events portal where calendar of past and upcoming events is presented and where initiatives can host the registration process to their events.	How would the secure handling of data and money be handled?	High chance of questions/trouble shooting requests. Community managers are likely to be needed here.
	CMINE to facilitate CoU 2.0 for DG HOME	How the strategy towards the development of the CoU will evolve. Depending on how the new structure will take shape, a community platform might be needed to facilitate	The development of the CoU strategy is still taking shape, this is rather a political process which DG HOME cannot outsource. The CMINE

SMC item	Component	To further investigate	Risks/challenges
		exchanges	would rely on the CoU and, thereby, lose control over the timeline (i.e. it is not realistic that the CoU will be ready for an online platform by April 2020).
	CMINE to support the EUCP Knowledge Network for DG ECHO		
	CMINE to provide an overview on all (past and ongoing) projects, stimulating info exchange and collaboration between various project, organising joint events for DG REA/DG HOME	How would this overview relate to the DRMKC database? How to link this to the work of the JRC?	Duplication of efforts Difficult to develop a comprehensive overview A general risk is that many platforms with which the EC works need to be integrated in the EC websites
Users	Crisis management professionals, policymakers, practitioners, researchers	How can the CMINE maintain its link with practitioners?	Change of scope of the CMINE and, thereby, losing the practitioners out of sight.
Channels	CMINE Online Platform		
	In-person meetings	To what extent will the in-person meetings play a role when the CMINE becomes an umbrella network? Will CMINE in-person meetings be needed/ relevant? Or will the CMINE mainly function as an event-hosting platform?	

Sustainability Model Canvas CMINE – Community of Users

Date: May 2019 (update March 2020)

Foreseen scenario

CMINE as Chair of the Thematic Group (ThG) on Natural Disasters. In this capacity, the CMINE leads the ThGs and collects ideas, issues and challenges which then can be voiced to the CoU Coordination Board. At the same time, the CMINE serves as a liaison between the CoU and local and regional initiatives in the field of Natural Disasters.

The CMINE will also play a more active role in the planning and coordination of the CoU events.

CMINE representative as part of the Coordination Board. Here, the CMINE works together with other Chairs of Thematic Groups, DG representatives and Member States experts to support the European Commission in developing recommendations and briefs and in supporting the implementation of the CoU mandate.

The CMINE can serve as the platform to facilitate the communication and information exchange within the Thematic Group of Natural Disasters outside the CoU meetings. On the CMINE online platform, members of the Thematic Group can share files, discuss challenges and ideas, support Task Groups (or start Task Groups), etc. In this capacity, the virtual platform can serve as the 'glue' of the Thematic Group in between the in-person CoU meetings. In this regard, the CMINE could also function as a support body for the organisation of the in-person CoU events. On the online platform, members of the Thematic Group could for instance voice their interest for panels and panellist, can pre-start discussions on certain topics, can follow-up on discussions after the meeting, etc.

As the CMINE ultimately intends to attract various types of stakeholders, including policymakers, the CMINE could serve as a platform where policymakers (from different DGs such as DG HOME, DG ECHO, DG RTD, DG CLIMA, DG DEVCO) can directly communicate with practitioners, researchers, industry representatives and civil society on the other hand.

The CMINE would also provide all members of the Thematic Group with direct access to the DRIVER+ project outcomes (such as the PoS, Test-bed, Trials, etc.).

The CMINE could also serve as a living calendar in which Thematic Group members can upload and share relevant calendar activities.

Update March 2020

The CoU internal developments with regards to the overhaul of its governance structure are still ongoing. Hence, at this point in time, the CoU cannot start making use of the CMINE. Nevertheless, DG HOME has expressed interest in the CMINE and, therefore, collaboration in a to be defined shape can still take place in the future.

Key challenges

What will be the funding mechanism for the ThGs? How will CMINE sustain its activities after the DRIVER+ project ends?

What are they actual key selling-points of CMINE at this moment? (in terms of activities, community, online platform)

Why would CMINE be the best candidate to take on the role of the Chair?

Table A5: General challenges and mitigation measures CoU

General challenges	Possible Mitigation Measure
Unclear how CoU governance discussion will develop (will it be ready by 2020?) Unclear if CMINE will be selected to take a role in the CoU governance structure Who will host and finance the CMINE online platform after the DRIVER+ project ends? How will CMINE activities post-DRIVER+ be financed? How will the different Chairs of Thematic Groups cooperate? Role of the CMINE/Chair in CoU events Which other parties might be interested in chairing the ThG on natural disasters? What are they key selling points? How attractive is the CMINE today? Community is small but working – online component is not convincing	

Table A6: Sustainability Model Canvas CoU

SMC item	Component	To further investigate	Risks/challenges
Activities	**Online** CMT portal where natural disaster ThG can meet and discuss challenges, etc. (extension of the CoU webpage) Task Groups working on pressing issues and challenges	Is it desirable to have a separate webpage for the Natural Disasters ThG or would CoU prefer to have this integrated into the CoU website? How can these activities be funded after DRIVER+ project ends?	Funding needs to be in place in order to continue the CMINE activities (let alone if we would want to expand them) CMINE online platform needs to be updated to meet the needs of the users.
	Offline CoU events where CMINE members/TG can meet in person (TG in-person meetings) At CoU events, CMINE solutions can be presented At CoU events, new input for TG can be collected (new challenges)	Which opportunities are there to link the work of the TG to other ThGs? How does the CoU foresee to structure its events in the future (will there be an opportunity for the different ThGs to collect data/ideas/input?)	
Partners	DG HOME JRC DRMKC Other initiatives leading the ThGs Other initiatives in the natural disasters domain UNISDR	Other CMINE-like initiatives that we should pair up with? What is the added value of partnering up with CMINE? (compared to other initiatives)	
Resources		How much funding is needed? Which tasks would need to carried out for this sum? For how long can this type of funding be sustained? How will this funding be secured?	Without funding it would be difficult (if not impossible) to maintain the role of the CMINE in CoU (as someone would have to chair the ThG on a voluntary basis and Task Group chairs would not receive any reimbursement).
Governance	CMINE as integral part of CoU governance structure. CMINE would chair the Natural Disasters ThG and would participate in the Coordination Board. The scope of the CMINE would be broadened and other themes could be added as task groups.	Exact governance structure be further defined by CoU Who would continue to support the CMINE PMO and Steering Committee? How to link up with other existing initiatives (i.e. instead of increasing the number of Task Groups,	Ensuring funding Competition between initiatives (why would CMINE be the right initiative to chair the ThG and why would other initiatives be willing to connect with/to the CMINE?)

SMC item	Component	To further investigate	Risks/challenges
		other initiatives could serve as a Task Group and CMINE could provide the larger infrastructure)	
Value proposition	Both the CMINE and CoU are bottom-up initiatives where practitioners and experts 'on the ground' are central. The CoU seeks to link the needs of practitioners to research opportunities whereas CMINE provides a platform for practitioners (and experts) to develop such solutions themselves. Both are heavily focused on the needs and challenges that practitioners face. The CMINE has the infrastructure in place to host Task Groups whereas the CoU has the large network of different types of stakeholders across different countries that could participate in such Task Groups. CoU thrives by its informal set-up	Will the informal set-up of the CoU be maintained moving forward (and if so, how?)	A key selling point of the CMINE is its 'fast procurement'. However, this fast procurement is made possible by DRIVER+ financing. How can this be sustained when the DRIVER+ project ends?
Users	Different types of stakeholders (albeit focus on practitioners) Geographic spread (members from different MS) CMINE users are now mainly coming from wildfire, flood and/or volunteer management domain. In the future this can be broadened to include different fields (other natural disaster-related issue areas)	Funding structure of the CoU	The CMINE base can only be maintained and broadened if funding is secured. In order to maintain and attract new users, the online platform needs to be established soon
Channels	CoU events (for in-person meetings of TG, to present CMINE solutions and to yield ideas for future TGs) CoU website (for communication between TGs and about TGs) CoU Brief (to share progress of TGs) CMINE CMT	Is it desirable to create another platform or should the ThG platforms be integrated in the CoU website? How would the CMINE platform relate to the CoU webpage?	How will the online platform be maintained after DRIVER+ ends?

Sustainability Model Canvas CMINE – IFAFRI

Date: October 2019 (update March 2020)

Foreseen scenario

A potential scenario is that the International Forum to Advance First Responder Innovation (IFAFRI)[2] adopts the CMINE online platform. IFAFRI is a global collaboration between countries focused on enhancing and expanding the development of affordable technology and innovative solutions to improve first responder safety, efficiency and effectiveness. IFAFRI was established in 2014 and is represented by international government leaders from Australia, Canada, the European Commission, Finland, Germany, Israel, Japan, Mexico, New Zealand, Singapore, Spain, Sweden, The Netherlands, United Kingdom, and the United States. IFAFRI has a rotational chairmanship. Currently, the European Commission (DG HOME) is chairing the initiative.[3] The chairing member is also expected to run the Secretariat of the organisation, provide funding for the day-to-day activities (via a Project Management Office), host the website and is responsible for the production of dissemination materials and social media activities.

- The strategic objectives of IFAFRI are as follows:
- Define a list of common capability gaps
- Provide a platform for international collaboration on innovative research and development (R&D) initiatives and solutions
- Characterize global first responder markets, to inform and guide industry to make innovative technology available at affordable prices
- Provide unbiased information about relevant and available first responder technologies

The IFAFRI has three Committees which are defining and developing the strategic direction of the organisation. The Capability Gaps Committee is responsible for identifying and prioritizing common first responders' capability gaps. The Research and Development (R&D) Committee's role is to disseminate market information to incentivise industry and academia to initiate development of solutions to first responder capability gaps. The role of the Stakeholder Engagement Committee is to identify, cultivate and maintain relationships with first responders, industry, and academia.

The overall objectives of IFAFRI and the CMINE are somewhat similar. Both initiatives focus on innovation in the crisis management domain, are solution-oriented, aim at reducing fragmentation and aim at connecting crisis management professionals. Both initiatives are looking at the needs of first responders and work together with industry, the research and development community and policy-makers. Membership in IFAFRI is voluntary and comes without any institutional strings attached. Decision-making is consensus-based. IFAFRI is a forum that offers its members the possibility to discuss and engage but does not restrict them in any way. The CMINE follows the same logic; CMINE is not a hierarchical initiative and collaboration is encouraged between all levels and types of stakeholders. The CMINE Head Chair leads the initiative and serves as a representative but is on an equal level with the Task Group Chairs.

However, the geographic and thematic scope as well as the membership structure of both initiatives also do show differences. By definition, the CMINE is a Europe-oriented initiative, while IFAFRI has an international focus with members from all over the world. Also, in its current format, the CMINE is envisioned to

[2] https://www.internationalresponderforum.org.

[3] Ecorys is supporting the work of the current Chair (European Commission, DG HOME) and is in charge of the Project Management Office.

be a network for a wide variety of European crisis management stakeholders ranging from academia to first responders, while IFAFRI was set up as a global network of policy-makers. Hence, membership in the CMINE is open to all interested crisis management professionals, while membership in IFAFRI is restricted to government representatives. First responders can participate and contribute, but cannot become members of IFAFRI. Within the crisis management cycle, IFAFRI is mainly focussing on response, while the CMINE follows a more holistic approach by incorporating the entire crisis management cycle. Thematically, IFAFRI's focus is narrower with the main purpose of identifying and closing common capability gaps and incentivising industry to develop matching solutions. The CMINE, however, is looking at various thematic challenges within the crisis management domain, which is reflected in different Task Groups on a diverse range of topics.

A draft strategy paper on the integration of CMINE and IFAFRI could be circulated within IFAFRI to gather feedback and input from the IFAFRI membership community. Based on the feedback received, the paper could be further developed. IFAFRI could discuss and vote on the integration during its Annual Forum Meeting in November 2019 in Helsinki. IFAFRI members could come up with ideas for international Task Groups which address IFAFRI and CMINE relevant questions. In concrete terms, the CMINE could be made accessible via the IFAFRI website or vice versa. If feasible, the integration could still take place during the project duration of DRIVER+.

If the CMINE would be adopted by IFAFRI, the raison d'être of the CMINE would need to be adjusted to make the network fit within the context of IFAFRI. Looking at the objectives of the CMINE, the network might run the risk of moving too far away from its initial vision and mission. At the same time, the fact that IFAFRI is an already established, active, international, and well-regarded organisation could be a way to sustain the CMINE by opening itself up to an international audience. Instead of a European initiative, the CMINE would expand its geographical scope but slightly narrowing its thematic scope with the main focus on serving the first responder community. Another avenue is that IFAFRI widens its thematic scope. IFAFRI itself is a relatively young initiative which can build on the existing momentum and, at the same time, develop itself further.

From an IFAFRI perspective, the CMINE online platform would add high value to IFAFRI. IFAFRI does have a website but is lacking an interactive community platform where members can collaborate, interact, and share knowledge in between the physical meetings. First, the Task Group concept of the CMINE could be used for IFAFRI specific thematic challenges. Second, the closed groups could be used to better organise the work of the three IFAFRI standing committees. Third, the community platform would potentially allow much more First Responders to participate virtually in the gap validation process and therefore adding to the legitimacy of the commonly identified IFAFRI gaps. Fourth, industry and the Research & Development community could actively participate in the discussions within IFAFRI via the online platform, which could contribute and strengthen collaboration between those stakeholder groups, speed up the development process and market-uptake of crisis management solutions on an international basis. Fifth, IFAFRI could benefit from the European network that the CMINE would bring along.

Just like DRIVER+, IFAFRI has a repository or portfolio of projects and solutions relevant to the IFAFRI gaps which is currently not visible to the public. Via the CMINE online platform the repository could be made available to show which international solutions exist next to the ones in the DRIVER+ Portfolio of Solutions (which would also accessible on the CMINE platform).

Update March 2020

IFAFRI has created a closed group on the CMINE platform and is currently testing this way of collaborating.

As the IFAFRI chairmanship will rotate at the end of the year, it is unclear whether the IFAFRI might want to be interested in taking a bigger role in the CMINE (i.e. chairing it).

Table A7: General challenges and mitigation measures IFAFRI

General challenges	Possible Mitigation Measure
If the CMINE would be adopted by IFAFRI, the raison d'être of the CMINE would need to be adjusted to make the network fit within the context of IFAFRI. Looking at the objectives of the CMINE, the network would run the risk of moving too far away from its initial vision and mission.	Keeping in mind the general objectives of the CMINE and not so much focussing on the activities. Maybe the objectives can also be reached within a different setup.
Given that IFAFRI rotational chairmanship structure continues to work and sufficient funding would be provided by the hosting government, the CMINE online platform could be run by the IFAFRI Project Management Office (PMO) or another contractor. Having said this, the future funding structure of IFAFRI largely depends on the political will to continue the work of the organisation. The EC chairmanship will end in autumn 2020 and the next hosting chair is yet to be found.	Stay in close touch with DG HOME on future development of IFAFRI to get updates as soon as possible.
Even if a future chair can be identified, the funding of a new IFAFRI chair might not be sufficient to run the CMINE especially if Task Group structure would be adopted (with selection of Task Group members etc.).	Small membership contributions from participating countries and the European Commission are also imaginable, especially if IFAFRI-CMINE gain leverage by receiving more international attention.
IFAFRI members might not understand and/or might be opposed to the idea of integrating CMINE.	Present integration white paper, create room for discussion. Create a common vision and mission.

Table A8: Sustainability Model Canvas IFAFRI

SMC item	Component	To further investigate	Risks/challenges
Activities	IFAFRI does have a website but is lacking an interactive community platform where members can collaborate, interact, and share knowledge in between the physical meetings.	Interest of IFAFRI in having a community component Concrete implementation and merge of CMINE-IFAFRI community	Members might not be using the platform despite its benefits and functionalities.
	The Task Group concept of the CMINE could be used for IFAFRI specific thematic challenges.	Identify IFAFRI challenges for Task Group Identify common CMINE-IFAFRI challenges (e.g. Capability Gap development)	The focus of IFAFRI is too narrow and the focus of the CMINE too broad to identify synergies.

SMC item	Component	To further investigate	Risks/challenges
	The closed groups of the CMINE could be used to better organise the work of the three IFAFRI standing committees.	Analyse the current use and functioning of the closed group and how structure can be applied to IFAFRI by identifying best practices.	
	The community platform would potentially allow more First Responders to participate virtually in the gap validation process and therefore adding to the legitimacy of the commonly identified IFAFRI gaps.	Explore how First responders could virtually take part in gap validation process via the CMINE. Explore how CMINE members could get involved in the gap development process.	
	Industry and the Research & Development community could actively participate in the discussions within IFAFRI via the online platform, which could contribute and strengthen collaboration between those stakeholder groups, speed up the development process and market-uptake of crisis management solutions on an international basis.	Investigate how to concretely engage with R&D community and industry Think of innovative concepts such as a CMINE-IFAFRI best solution award.	Too much losing the own identity of the government members of IFAFRI Reluctance of US industry to share information with EU industry and R&D organisations.
	IFAFRI has repository or portfolio of projects and solutions relevant to the IFAFRI gaps which is currently not visible to the public. Via the CMINE online platform the repository could be made available to show which international solutions exist next to the ones in the DRIVER+ Portfolio of Solutions (which would also accessible on the CMINE platform).	Investigate if and how to integrate IFAFRI repository to CMINE.	Too many different portfolios/repositories might be confusing for users.
Partners	DRMKC United Nations CoU Etc.	Identify additional (international) partners who might want to get involved	
Resources	Given that IFAFRI rotational chairmanship structure continues to work and sufficient funding would be provided by the hosting government, the	Investigate which country will become the next IFAFRI Chair.	The future funding structure of the IFAFRI largely depends on the political will to continue the work of

SMC item	Component	To further investigate	Risks/challenges
	CMINE online platform could be run by the IFAFRI Project Management Office (PMO) or another contractor.		the organisation. The EC chairmanship will end in autumn 2020 and the next hosting chair is yet to be found.
Governance	Membership in IFAFRI is voluntary and comes without any institutional strings attached. Decision-making is consensus-based. IFAFRI is a forum that offers its members the possibility to discuss and engage but does not restrict them in any way. The CMINE follows the same logic; CMINE is not a hierarchical initiative and collaboration is encouraged between all levels and types of stakeholders. The CMINE Head Chair leads the initiative and serves as a representative but is on an equal level with the Task Group Chairs.	How can the CMINE and IFAFRI governance structure be aligned, what are the differences, what are the similarities?	
Value proposition	IFAFRI would get the opportunity to engage more stakeholders and strengthen its credibility, outreach and visibility by having more responders participating in the gaps validation process, involve industry and get continuous input from the R&D community. It also offers IFAFRI to further developing itself from solely focussing on capability gaps to other topics relevant for first responders worldwide such as Standardisation and Volunteer Management (both topics are currently dealt within the CMINE Task Groups). The governance structure of the CMINE and the already established ways of working	How can the CMINE concretely be adopted by the CMINE for example through a workshop (f2f, virtual) followed by discussion, organize a webinar for the members, set out a questionnaire, write and distribute position paper. What would be the concrete benefits for the CMINE? How can the CMINE preserve its identity and fulfil its objectives as part of an international organisation mainly focusing on first responder needs? How can a concrete implementation timeline look like?	

SMC item	Component	To further investigate	Risks/challenges
	could furthermore inspire the organisational structure of IFAFRI In this scenario, the CMINE would be the online crisis management community of IFAFRI. The CMINE on the other hand would benefit from the already existing structures of IFAFRI, its in-person components/ meetings and the institutional structures in which it would be embedded. The online platform of the CMINE and the Task Group structure could be adopted where members autonomously decide on which concrete task they would like to work on. The CMINE would instantly receive international attention. IFAFRI members could reach out to their international First Responder Community and invite them to register and participate in the CMINE. At the same time, the CMINE Task Groups would be even more diverse and benefit from international expertise and best practices. The Task Group Wildfire already has members from the U.S. and the EU who are comparing the situation in both countries and are trying to identify best practices.		
Users	**First Responders** **Industry** Policy-Makers R& D Community Academia	Will the target group(s) change if IFAFRI adopts the CMINE? How can IFAFRI open itself up without becoming too broad and losing its initial objective?	
Channels	IFAFRI website CMINE Online Platform Physical events and meetings	How could the CMINE benefit from and be integrated into the in-person meeting structure of IFAFRI	

Sustainability Model Canvas CMINE – TIEMS

Date: October 2019 (update: March 2020)

Initial ideas

While TIEMS and CMINE differ slightly in their geographic focus (international vs. European), thematic focus (emergency management vs. crisis management and disaster risk reduction), there are various opportunities for the two networks to collaborate as their nature and objectives overlap (i.e. focus on innovation, inclusivity and cross-border collaboration to address pressing challenges). A set of initial ideas for potential cooperation is presented below:

- **Broadened geographic scope**. CMINE has a focus on Europe and the currently existing Task Groups are concentrated on challenges that are relevant in the European context. The majority of the Task Group members are European (although some groups include members from the USA and Israel). With this established European group of experts, CMINE could add to the existing (geographic) focus that TIEMS has (which is international rather than European). In this sense, it could strengthen the existing regional European chapters or, potentially, new chapters could be established.
- **Thematic scope**. The CMINE is not specifically tied to any of the disaster risk management phases; however, its three Task Groups are in the process of developing outputs that are particularly suited to the preparedness phase (guidelines, monitoring, etc.). In this sense, CMINE and TIEMS could be complementary as they both focus on the preparedness aspects. Nevertheless, the flexible set-up of the Task Group structure (Task Groups are free to determine their own objectives/aims) would allow to mould the groups in a preferred direction.
- **Training and education**. This focus could be further enhanced when advancing the innovation and education leg of TIEMS in collaboration with the CMINE Task Groups. (A concrete example is the Volunteer Management group that is developing guidelines on how to deal with spontaneous volunteers. Such guidelines could eventually be developed into a training and could be certified by TIEMS.)
- **CMINE online platform as vehicle for TIEMS.** The CMINE online platform offers an interactive online environment where members can easily exchange information, participate in forum discussions, etc. This recently developed platform could be an interesting vehicle for TIEMS to facilitate its activities (i.e. it could support the networking between different experts and chapters, it could serve as a portal for the training and certification activities, and it could serve as a membership portal where experts can easily find each other and exchange information and ideas). At the same time, TIEMS is an established network with a solid agenda for physical events. In this sense, the CMINE online platform could serve as the 'glue' of the community in between those in-person events.
- **Interaction between the two organisational structures.** While TIEMS is structured based on the geographic scope (i.e. regional chapters), CMINE is structured based on different thematic Task Groups. However, these two different organisational models do not necessarily have to compete; instead, they could reinforce each other. Potential avenues for an integration of the two organisational structures could be:
  - To subdivide the activities of chapters in Task Groups, based on their thematic focus
  - To facilitate cross-chapter collaboration via thematic Task Groups

Update March 2020

The TIEMS Africa Chapter will start using the CMINE Online Platform to communicate amongst each other. This will serve as a pilot phase based upon which the entire TIEMS community might move towards using the CMINE for internal communication purposes.

Table A9: Sustainability Model Canvas TIEMS

SMC item	Component	To further investigate	Risks/challenges
Activities	**Online** CMINE portal as communication hub for TIEMS (where TIEMS members and chapters can share files, set up discussions, etc.). Platform can host open and closed groups (i.e. for different TIEMS chapters or, if CMINE organisational structure is adapted, also thematic groups)	Would TIEMS be interested in adopting the CMINE organisational structure (Task Groups, etc.)? Which features of the CMINE platform would be particularly interesting for TIEMS? How will the platform be sustained? (financially and in terms of effort (PMO) How could CMINE benefit from strong TIEMS offline network and agenda?	Funding to establish PMO/Community Managers Office
Partners	TIEMS chapters Members of TIEMS (using the certification mechanism, education, etc.).	What is the added value of partnering up with CMINE? (compared to other initiatives)	
Resources	EC will cover website costs two years after end DRIVER+ project	What are the costs to maintain the platform? (technically and in terms of efforts) How much human resources are required to keep the network alive?	TIEMS is NGO with limited financial capacity
Governance	TIEMS has existing governance structure	Would TIEMS be interested in adopting (parts of) CMINE governance structure? How can CMINE be integrated in existing TIEMS structure? Could CMINE be interesting to facilitate cross-chapter and thematic collaboration (rather than geographic-oriented)	
Value proposition	CMINE's user-friendly, communication-oriented platform would fit well with TIEMS' need as it is geared towards community management, is developed for a similar thematic domain and is currently being tested CMINE's platform is flexible and new widgets can be added/deleted as the initiative sees fit CMINE would bring in European expertise and thereby strengthen the European leg of TIEMS	How can the Task Groups be transferred to TIEMS? Which functionalities would be relevant for TIEMS? Which ones are missing?	

SMC item	Component	To further investigate	Risks/challenges
Users	TIEMS members (chapters) CMINE members Both users are similar in terms of thematic scope	Thematic scope of TIEMS and CMINE is similar but not identical how can the two be merged?	
Channels	CMINE online platform for all communication TIEMS in-person events for real life exchanges		

Annex 4 – CMINE Standardisation Group concept

The CMINE Standardisation Group will complement the existing Task Groups of the CMINE but will adopt a slightly different format than these groups. Due to the limited remaining time until the end of the DRIVER+ project, the setting-up of a full-fledged Standardisation Task Group, including corresponding chairmanship and outcomes is not deemed realistic.

The Standardisation Group will have two functions:

1. It will act as a liaison between the different existing Task Groups, ensuring that a standardisation perspective is represented across the different groups

2. It will serve as a hatching/incubation process, helping to mature the idea of a Task Group on standardisation which could be transformed in a 'full Task Group' in the second cycle (i.e. after April 2020)

In its function as a liaison, the Standardisation Group will reach out to the three existing Task Groups and discuss standardisation in their respective domain. Hereby, the Standardisation group will raise awareness about standardisation (i.e. discuss the purpose of standards, existing standards, etc.) as well as collect potential standardisation needs in the different domains. Based on the collected inputs, the Standardisation group will produce a white paper outlining the needs articulated in the different Task Groups. This white paper can, in turn, serve as the basis for the full Task Group that is envisaged to be established at a later point in time. It should be made clear that this Standardisation Group will not develop standards itself, this will be communicated on the Standardisation Group page on the CMINE website.

Input

The Standardisation group will have a lead who is in charge of the coordination of the group's work. However, compared to the role of the Chairs of the Task Groups, this role will be far less demanding. The role of the lead will be taken up by PSCE. In practice, this leader will reach out to the three Task Group chairs to discuss standardisation and their needs in this regard and, ultimately, will develop the white paper.

Other input is to be provided by ARTTIC, which will lead the development of communication materials, and by DIN, which will play a role in reviewing the quality of the (communication) materials and final output of the Standardisation group. Ecorys will serve as the linking pin between the Task Groups, the Steering Committee and the Standardisation group.

Output

The concrete output of the Standardisation group is the development of a white paper outlining the needs for standards that were voiced by the different Task Groups. This document will be presented during the DRIVER+ Final Conference in February 2020 and can serve as the basis for a full Task Group on Standardisation in the second cycle of Task Groups that is foreseen to commence after the Final Conference.

Interaction with existing Task Groups

As outlined above, the Standardisation group will function as a vertical connection, developing linkages with the existing Task Groups. An initial relationship with the Task Group Chairs will be established though setting up bilateral calls during which the concept of the Standardisation Group is explained. During this call, the Standardisation Group Lead will discuss with the Chairs how to best shape the process of collecting ideas for standards and what is expected from them in terms of the white paper. These initial discussions will be held during the first two weeks of September and will be reflected upon during the in person meeting with the Chairs on 18 September.

Figure A1 below outlines how the Task Groups and the Standardisation group relate to each other.

Figure A1: CMINE Governance Structure and additional groups

Annex 5 – CMINE Top 3 Innovative Solutions in Crisis Management Concept

Goal: Organize a competition for Crisis Management solutions with high innovation potential

(Here, we will assess only the capacity to lead to innovation; in future years CMINE may review whether the awarded solutions have indeed contributed to innovation in Crisis Management, who made better assessments – the 'crowd' or the designated experts, …)

Anticipated side effects:

- Increased visibility of DRIVER+ and CMINE
- Speeding up the process of populating the POS
- Increasing the membership and the activity in CMINE

Task Group composition

Members of the DRIVER+ consortium who (and their organization) do not intend to participate in the competition with an entry.

Methodology

Simplified version of the approach used to select solutions to be trialled in DRIVER+. Another potential source is the Japanese study on the "Top 30 innovations in Crisis Management."

All entries need to be uploaded on POS.

The decision will be made by averaging the results of a "popular vote" (on CMINE) and expert assessment by the TG members.

Timeline:

1.	Approve the idea	Done (16 July)
2.	Develop the concept (TT)	31 October
3.	Create the Task Group	05 November
4.	Agreement on methodology and process	12 November
5.	Prepare the Call for innovative solutions (presenting briefly the methodology)	14 November
6.	Agree on and publish the Call	18 November
7.	Submission deadline	08 January
8.	Evaluation and decisions	29 January
9.	Invitation to the winners to present at the Final Conference	30 January
10.	Presentation of the winning solutions at the Final Conference	18-20 February 2020

Geographic constraints

- Geographic constraints on the origin of competition entries? (EU + Associated countries)
- Geographic constraints on voting CMINE members? – no constraints

What a solution provider would get: Visibility; For the winners – opportunity to present to the DRIVER+ Final Conference, covering their travel costs

Evaluation criteria and scales

Three criteria:

1. Contribution to CM/DRR.
2. Affordability.
3. Contribution to innovation.

Evaluation scales

1. Contribution to CM/DRR.

Table A10: Evaluation criteria on contribution to CM/DRR

Contribution	Score
• Addresses a critical gap fully	5
• Partially meets critical new requirements (coming from a gap)	4
• Increases current effectiveness	3
• Allows more efficient performance of known functions and tasks	2
• Hardly any contribution	1

2. Affordability

Table A11: Evaluation criteria on affordability

Affordability	Score
• Excellent benefit/cost ratio	5
• Affordable, minor adaptation is necessary	4
• Affordable, substantial upgrade and adaptation would be necessary	3
• Rather expensive	2
• Unaffordable	1

3. Contribution to innovation [1]

The upper level builds on the lower levels

Table A12: Evaluation criteria on contribution to innovation

Contribution	Score
• The solution is scalable – it can be easily and quickly implemented in other countries/ other organisations with similar responsibilities	5
• The adoption of the solution will contribute significantly to organizational performance and agility	4
• The adoption of the solution will lead to service innovation	3
• The solution is easy to adopt for the target customer, with low switching costs	2
• The benefits from implementing the solution are easy to understand and to communicate	1

Evaluation of solutions

Each TG member evaluates the solutions according to the three criteria using the scales above.

All CMINE registered members can vote on any of the participating solutions.

The final score is the average of the crowd and the TG scores.

We announce the two list (top 5) separately and the final list of the Top 3 solutions.

This CMINE Task Group consists of the following members:

- Todor Tagarev (CMINE Head Chair, Institute of ICT, Bulgarian Academy of Sciences)
- Esther Kähler (German Institute for Standardization (DIN))
- Chaim Rafalowski (Magen David Aom)
- Steven van Campen or Maurice Sammels (XVR Simulation BV)
- Tomasz Zwęgliński (SGSP The Main School of Fire Service)

Annex 6 – CMINE Management Report

1. Introduction

The Crisis Management Innovation Network Europe (CMINE) is a community of practice that aims to foster innovation and enhances a shared understanding in the fields of crisis management and disaster risk reduction in Europe. CMINE is creating an umbrella network of stakeholders active in crisis management by linking existing projects, networks and initiatives. By doing so, CMINE aims to reduce fragmentation, generates ideas and helps to identify innovative solutions to improve European resilience.

CMINE comprises an online community platform and face to face meetings and workshops with the aim of tackling current and future challenges and facilitating the uptake of research and innovation by practitioner organisations. Different Task Groups have been set up to develop approaches aimed at resolving current issues in various crisis management domains, such as floods, wildfires or volunteer management. CMINE is designed to evolve continuously through collaboration with the aim of becoming a pan-European platform, which is centred on the exchanges between various crisis management professionals.

The CMINE was launched in December 2018 and its Task Groups were installed in March 2019. Now, one year later, the first cycle of Task Groups has ended and this provides an opportunity to reflect on the set-up of the CMINE. This Management Report, therefore, complements the Task Group Final Reports which reflect the content produced by the Task Groups throughout their lifespan. Rather than presenting the actual outcomes and outputs of the Task Group, this Management Report is geared towards a reflection on the 'back-office' of the CMINE. It comprises three core chapters one each of the three Task Groups. Each of the Chairs was asked to look back on the set-up, organisation, strengths and limitations of the CMINE.

This Management Report will serve as a useful document to further improve the CMINE in the future.

2. Task Group Floods

2.1. Goal of the Task Group

The aim of the Task Group Floods was to develop an internationally-recognised approach to quantify the effectiveness of flood measures and bring about an effective and efficient use of open data (such as water levels, levee information, flood scenarios, alarm levels, critical moments, possible risk reduction measures per zone or area).

The challenge of the Task Group Floods has already been mentioned as one of the DRIVER+ gaps (see **D922.11** (4), gap number 1, p. 6, with more detailed description on pp. 35-36). The gap is related to the challenge to reduce the risk by assessing the effects of measures: "To enhance response operations […], there is a need for fast and accurate assessment of the concerned territory at the pre-event and response phase (for the incident-specific attributes that cannot be anticipated at the planning phase). Detailed forecasts and models (predictive modelling capabilities) need to be produced in real-time with incident-specific variables. The incident commander needs to understand both the current situation and how it will evolve (crisis dynamic). Time is a critical factor". Although the focus in this gap is on decision-making in cases of chemical threats where preparation time is not available; it is also relevant for floods, because time is also critical and modelling and risk assessments play an important role in evolving crises.

Although many Crisis Management teams have the legitimate feeling that they are well prepared for facing and fighting a flood, there may be little or no experience with extreme situations, such as (natural) disasters. As a result, when experts express their recommendations on what should be done at a specific moment in the crisis, this expert's judgement can be difficult to reproduce. That is why in the CMINE Task Group Floods a procedure has been developed to make the expert's opinion transparent and more reproducible.

What is the concrete output of the Task Group?

The Task Group Floods has created a method called Real-Time Flood Risk Assessment (RTFRA), included in which is an expert judgement process which can be used reproducibly, and which in practice estimates the impact of a measure, on the basis of the expert knowledge. The RTFRA method thereby improves the quantification of flood risk reduction and the support provided to emergency personnel and decision-makers.

Why and how does the output of the TG contribute to the respective domain?

The Task Group focused on the requirement that knowledge needs to be translated into actionable information. This translation can be performed through quantitative analysis (calculations) and knowledge (expert judgement). In this method, the centre of attention is on the role of the expert, expressed in the 'expert's opinion'. With the expert's opinion, the experts' knowledge can be combined with the knowledge in calculation rules. The information approved by the expert is ultimately authoritative in flood risk management.

2.2. Composition of the Task Group

The Task Group Floods consisted of a management which oversaw the activities carried out by the active members, internal reviewers and external reviewers. Several external experts participated in trialing the RTFRA method and supporting tools.

The Task Group members started their collaboration by sharing their knowledge, thoughts and experience related to the task. After this kick-off, three cases were prepared. A suitable group of interested people were matched and assigned to each of the cases. The Dutch members participated in two local meetings for the Dutch case, which was of assistance to the Task Group, as it enabled members to elaborate the methodology and the RTFRA viewer.

The Task Group Chair was the person who communicated with all Task Group Members and Reviewers. The communication and documents, which the group members and reviewers have discussed and produced, have been reviewed by the Task Group Management.

The face-to-face meetings have been organized predominantly by the Task Group Chair with the help and support of the local hosts (group members). Any organisational matters for the Task Group members, which needed additional attention, have been dealt with by the Task Group Chair.

Task Group members during the one-year mandate have been 15 people with different backgrounds covering the expertise of policymakers, practitioners, and private companies. The Task Group Members were representatives from Spain, Germany, Hungary, Bulgaria, Denmark and the Netherlands. The Task Group Members' main duty was to present their opinion as experts in the field of floods and act in the expert judgment sessions.

The Task Group Reviewers have been involved as advisors during the Task Group work via emails. The reviewers had the possibility to review the draft final report.

Work processes organization in the Task Group

The work was organised around the working sessions in different countries. The working sessions were meant to test the RTFRA expert judgment method with the help of the viewer. All Task Group members and internal reviewers have been invited to all meetings. In the final report, an overview of the participants can be found.

Three working sessions have been organised during 2019 and one extra on specific request in 2020, after closing the final report. This additional expert judgment session took place on February 10th in the Crisis Management and Disaster Response Centre of Excellence (CMDR COE) in Sofia, Bulgaria. Twelve participants represented four different crisis organisations in Bulgaria. They were convinced that it was a useful and valuable workshop and were surprised by the simplicity and power of the Real-Time Flood Risk

Assessment viewer and the expert judgment methodology. Host Orlin Nikolov (CMDR COE director) expressed his willingness to introduce the methodology in their national crisis management trainings.

The results of the work have been presented and discussed by the Task Group Chair during the DRIVER+ final conference (February 2020 in Brussels).

The following sections outline the experts involved in the Task Group Floods.

2.2.1. Management

- Hanneke Vreugdenhil (The Netherlands): HKV Consultants, Organisational Chair of Task Group Floods.
- Bas Kolen (The Netherlands): HKV Consultants, Substantive Chair of Task Group Floods.
- Todor Tagarev (Bulgaria): Head, Centre for Security and Defence Management, Head Chair CMINE Task Groups.

2.2.2. Active members

- Leskó György (Hungary): Doctoral School of Military Engineering, National University of Public Service, researcher.
- Ralf Hedel (Germany): Fraunhofer Institute, Head of Team Risk modelling, researcher.
- Orlin Nikolov (Bulgaria): Director of Crisis Management and Disaster Response Centre of Excellence, practitioner.
- Marcel van der Doef (The Netherlands): Waterboard Brabantse Delta, practitioner.
- André de Rond (The Netherlands): Safety Region Haaglanden, DRIVER+ Trial 4 Host, practitioner.
- Roelof Moll (The Netherlands): TU Delft, H2020 BRIGAID, researcher.
- Jaap van der Veen (The Netherlands): Waterboard Zuiderzeeland, WAVE2020, practitioner.
- Martin Nieuwenhuis (The Netherlands): Waterboard Rijn and IJssel, WAVE2020, practitioner.
- Jan van der Lingen (The Netherlands): Waterboard Hollands Noorderkwartier, Asset management, practitioner.

2.2.3. Internal reviewers

- Antoni Rifa Ros (Spain): Chief of the Catalan Fire Service Brigade, Girona, practitioner.
- Carmen Castro (Spain): Centre of Security and Emergencies and Valencia Local Police (emergency management), policymaker.
- Kim Lintrup (Denmark): Fire and Rescue Service Frederiksborg, Executive director and Chief Fire Officer, practitioner.
- Evert Hazenoot (The Netherlands): Waterboard Rivierenland, practitioner.
- Ludolph Wentholt (The Netherlands): STOWA, policymaker.
- Raymond de Landmeter (The Netherlands): Waterboard Hollands Noorderkwartier, Crisis management, practitioner.

2.2.4. External reviewers/interested professionals

- Massimo Lanfranco (Italy): Senior Technical Officer Regione Liguria, practitioner.
- Leo van Nieuwenhuijzen (The Netherlands): Waterschap Rijn en IJssel, flood defence expert, practitioner.
- Marco van Ravenstein (The Netherlands): Safety Region Gelderland-Midden, crisis manager, practitioner.
- Anders Philipsen (Denmark): Environment Solutions – producer flood barriers, solution provider.
- Peter Salamon (European Commission).
- René Kastner (Austria): Disaster Competence Network Austria, researcher.

This composition has been chosen in order to attain a geographical spread of members across Europe, thereby creating the possibility of having a diversity of cases in different countries and, further, to involve the water authorities in the development of the method. All of the Task Group members share a strong track record in Crisis Management relating to floods. The Task Group is an assortment of people with a research background, practitioners and crisis managers. Despite the participation of a large number of Dutch representatives, an EU perspective has been maintained by selecting and organising cases in three different countries.

2.3. Experiences with CMINE online platform

The Task Group members have been invited by the Task Group Chair to join the CMINE platform. The platform has not been used much; people preferred to use mail as a faster and more direct communication medium. During the work, some general information and an interview about the Task Group work has been posted by the Task Group Chair. The draft report has been shared on the CMINE platform, enabling Task Group members and other CMINE participants to review the draft and provide additional comments.

The CMINE platform has been used for review purposes. In the end most reviewers decided to provide their comments by mail. No persons other than those who were directly asked for a review responded.

To populate the CMINE platform effectively, there should be more content and task-related information available and ready to be produced and to share. Experts and specialists should have the feeling that they are missing the discussion on relevant topic if they are not involved in CMINE. Although we know that this is a chicken-or-egg dilemma, the experience so far is that there is still too little reason to participate. Although the Task Groups were launched to get CMINE moving and to create a momentum, it did not work that way.

2.4. Strengths of Task Group

Professionals from different countries (EU and non-EU) and different backgrounds have met each other and visited each other's crisis management centres and teams. They all supported the idea to develop a viewer on floods risks and to use this viewer in an expert judgment procedure. This extension to the normal crisis management processes is assessed as valuable. The specific request from the Sofia-based Crisis Management and Disaster Response Centre of Excellence to have an expert judgment session even after closing the report reflects this enthusiasm and the general support.

The international CMINE Task Group meetings were well visited by the members:

- Kick-off: participants from Bulgaria, Hungary, Germany, the Netherlands.
- Preparation meeting Amersfoort: participants from the Netherlands.
- Expert judgment meeting Amersfoort: participants from the Netherlands.
- Expert judgment meeting Budapest: participants from Bulgaria, Hungary, the Netherlands.
- Expert judgment meeting Dresden: participants from Bulgaria, Germany, the Netherlands.
- Expert judgment meeting Sofia: participants from Bulgaria.

The Task Group itself fulfilled its role as network impulse. During the international working sessions, the Task Group members were able to share and discuss possible improvements in flood risk management, also related to the topic of Standardization. The set-up of the Task Group and the set-up of the meetings both played a role in reaching the reported results.

2.5. Limitations of the Task Group

Some Task Group members dropped out from the beginning. They were not able to accept invitations to meetings or tasks. The general response to the report review request was low.

The Task Group realised what has been promised with some efforts because the work is coming along with the daily work. Meetings scheduled months ahead are a necessity to attract busy professionals. No publications or papers have been realised.

The Task Group has been dedicated to a specific task and should need a new task to arrive at the same level of involvement.

About CMINE: a network of experts will work when participants are convinced that there is 'something in it' for them. Participants should get and bring input and ideas. Also, someone being paid for the work is needed to organise the network and provide ideas, feedback and information.

2.6. Lessons learned and recommendations

What are the main take-aways from the CMINE from the management point of view?

Firm goals are needed for the public to know exactly what the network and Task Groups are aiming for. Sharing and celebrating positive results and successes is one of the things that went well in the last months and should be kept up.

If the CMINE is to continue, which elements should be kept?

The Dutch participants have shown to be curious about the follow-up. The theme certainly is current in the water authorities. The Bulgarian participant will implement the ideas in training sessions for crisis managers. So, the (slightly thinned out) Task Group might continue working on this topic. For CMINE, the content on the site and active guidance remains important.

If the CMINE is to continue, which elements should be altered or removed?

In the Task Group Chair's opinion, the more general Task Groups (like Crisis Management and Standardization) are not working well. It does not supply enough added value to participants.

What are the main challenges/pitfalls?

The main pitfall is non-committal actors in CMINE and the Task Groups. Just 'to be there' and no active participation of some is frustrating for the more active participants. That is why smaller dedicated working groups, the participants in which get to know each other better and value each other, might work better.

Where do the key opportunities (in terms of management) lie?

Communication on crisis management topics is, in my opinion, the key opportunity of CMINE. Participants need to be able to bring and get information and inspiration by others. CMINE could be the place when one needs dedicated input or reviews for papers or reports.

3. Task Group Volunteer Management

3.1. Goal of the Task Group

The aim of the Task Group was to contribute to quality management of volunteers in crises. More specifically, the aim was 1) to contribute to the thinking and practice around spontaneous unaffiliated volunteers and 2) to foster an EU wide community around this topic.

Communities have always come together to help each other out in times of crisis. But as crisis management has become increasingly organized, professionalised and regulated, less room has been left for spontaneous unaffiliated volunteers. Recent years have seen a shift in the way many people volunteer. They are less loyal to established organizations and more driven by causes and events. As regards their affiliation, these spontaneous unaffiliated volunteers are on the ground experiencing and reacting to a crisis. This represents challenges and opportunities for crisis management organizations, which must address these new ways of volunteering.

Spontaneous unaffiliated volunteers are often exposed to the same stressors as affiliated volunteers and professional staff. But there are also stressors specifically related to not being affiliated with an organization: lack of training, not being familiar with command structures, not being part of an established team, unclear expectations and roles, to name but a few.

Some guidelines on working with spontaneous unaffiliated volunteers in crisis management exist, but for the most part, they completely neglect the aspect of providing support and care to the spontaneous unaffiliated volunteers, or only do so in the most rudimentary way.

The Task Group worked to deliver the material 'New ways of volunteering. Challenges and opportunities. A working paper and toolbox for care and support for spontaneous unaffiliated volunteers' that pulls together the most salient issues in care and support for spontaneous unaffiliated volunteers.

The knowledge thought leadership, practical tools, case examples and recommendations collected here will contribute to supporting both crisis managers, policymakers and practitioners to provide good care and support for spontaneous unaffiliated volunteers.

3.2. Composition of the Task Group

The Task Group members all have a strong track record in crisis management, volunteer management and/or psychosocial support. The group is purposefully multi-disciplinary, with diverse, specialized but also complementary skills and competencies. Thus, the group represents a mix of people with a research background, practitioners, crisis managers and psychologists. Group members hail from both within and beyond the DRIVER+ project. DRIVER+ internal members support bi-directional learning between DRIVER+ at large and the CMINE group, while DRIVER+ external members learn from DRIVER+ while also bringing new knowledge, thoughts and experience into the project.

The group functions as an emergent yet central node in the networks of MHPSS and crisis management practitioners and experts that its members represent. The group is agile, highly productive and demonstrated an ability to create impact in the research, management and practitioners' communities that its members are part of. It is highly valuable to continue and build on the structures and knowledge developed within CMINE. Establishing an EU-wide function to support and animate the continued existence of the group, to build and cement the network of networks and to ensure a stable funding stream for the work would allow for the much-needed sustained care and support for volunteers.

The Task Group was coordinated by the co-chairs:

- Martha Bird, Senior Consortium Lead at the IFRC Reference Centre for Psychosocial Support.
- Louise Juul Hansen, Senior Communications Advisor at IFRC Reference Centre for Psychosocial Support.

The co-chairs were active members of the Task Group.

The following persons were active members of the CMINE Task Group on volunteer management:

- Adjmal Dulloo, Global Volunteering Coordinator at the IFRC (International Federation of the Red Cross and Red Crescent Societies).
- Andreas Löepsinger, Advisor on Psychosocial Support for Syrian & Iraqi Refugees and IDP for Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. He is currently based in Dohuk (Iraq).
- Chaim Rafalowski, Magen David Adom, in charge of research activities.
- Daniel Auferbauer, Junior Scientist at the AIT Austrian Institute of Technology, Center for Digital Safety and Security.
- Isabel Silva, founder and volunteer coordinator at VOST (Virtual Operations Support Team) Portugal.
- Itamar Laist, paramedic and disaster management officer in MDA.
- Massimo Lanfranco, Senior Programme Officer in Regione Liguria, Italy.

- Nathalie Rigall, project assistant at the IFRC Reference Centre for Psychosocial Support.
- Nina Baron, Senior Lecturer at the Emergency and Risk Management program at University College Copenhagen, Copenhagen, Denmark.
- Serena Tagliacozzo, Research Fellow and Evaluation Specialist at the National Research Council (CNR) of Italy.

The Task Group was divided into subgroups working on separate topic under the general guidance of the co-chairs. At regular intervals, the group came together in common sessions – both digital and physical – to discuss cross-cutting issues, evaluate each other's work and cross-fertilize thinking.

All members of the Task Group were engaged in work on all subgroups, but to a varying degree; each member contributed to drafting the text for a subgroup and then also functioned as reviewer, discussant and contributing author to the other subgroups' work. The co-chairs were engaged in drafting, reviewing and discussion all parts of the work.

Subgroups addressed the following specific issues:

- Ways to describe and understand unaffiliated and spontaneous volunteers. This subgroup worked on definitions, delineations and taxonomy.
- Designing policies that work for spontaneous unaffiliated volunteers. This subgroup worked to deliver guidance and recommendations to policymakers at all levels. The same subgroup also delivered content on Challenges and benefits of caring, supporting, and protecting unaffiliated spontaneous volunteers.
- Operational considerations for care and support of spontaneous unaffiliated volunteers. This subgroup collected good practice and practical tool and developed guidelines for field level work.
- Digital volunteers. This subgroup worked to deliver a detailed study of this emergent type of volunteers and delivered recommendation on how organisations engage with them.

Additionally, the task group collaborated to generate the content to the introduction, a section on tools to aid implementation of care and support measures for spontaneous unaffiliated volunteers, an overview of guidelines on spontaneous volunteers, and a bibliography. This work was collated and heavily edited to form a coherent whole by the co-chairs.

3.2.1. Work processes

Figure A2 below illustrates the work processes of the Task Group on Volunteer Management.

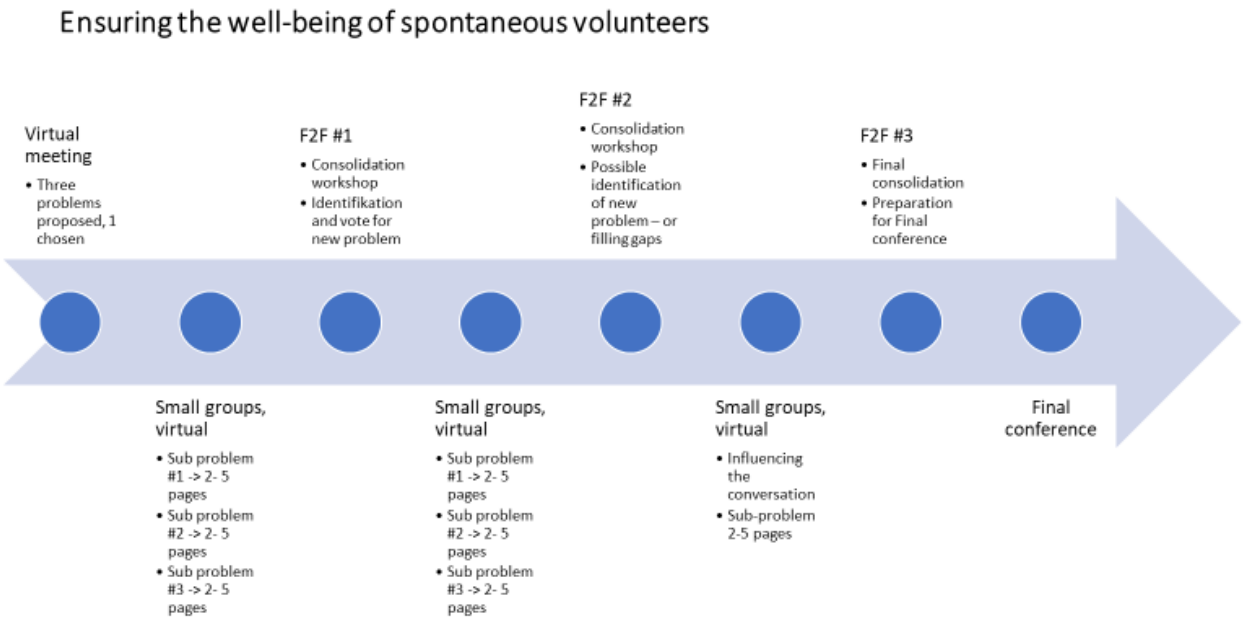


Figure A2: Process for the drafting work of the volunteer management Task Group

The work was led by the co-chairs, but highly sensitive to the expertise and agendas of the Task Group members. As such, the topics of work were not finally decided upon by the co-chairs. Rather, a number of topics were presented for discussion, selection and further development by the Task Group members in a first virtual meeting. At interval, the direction and continued relevance of the topics was discussed with the group, new topics assessed, and the further direction of the group's work decided upon. This iterative and hermeneutic process ensures continued relevance of outputs.

The subgroups' drafts were compiled and edited by the co-chairs to form a coherent whole. Draft versions were then circulated between the Task Group and the co-chairs in several rounds to deliver a mature draft. The subgroups met and worked digitally. The subgroups all met digitally with the co-chairs to discuss content and process. This virtual work was amplified by two face-to-face meetings, where all task group members met to review drafts and deliberate on key issues. The final version was consolidated by the co-chairs. The mature draft was then put through a double review process:

- A classic review process.
- An open online consultation.

For the classic review process, 12 individuals were approached to review the mature draft. The reviewers were selected based on their expertise on the topics included in the working paper and were identified by the task group members, the co-chairs and the head chair. A total of 7 person responded:

- Todor Tagarev, Institute of ICT of the Bulgarian Academy of Science.
- Susanne Berendt, Danish Red Cross.
- Ferdinand Garoff, Finnish Institute of Health and Welfare.
- Salla Himberg, Red Cross EU Office.
- Elise Poymay, Red Cross EU Office.
- Cecilie Dinesen, IFRC Reference Centre for Psychosocial Support.
- Barbara Hildegard Juen, University of Innsbruck.

For the open online consultation, an anonymous digital survey was published openly with a PDF version of the mature draft. The links to both were circulated widely for anyone interested to provide feedback. This gave significant exposure to the draft and CMINE. It yielded feedback from 5 individuals. While this number is not high, the quality of feedback was very good.

The feedback from both types of review were analysed by the co-chairs and incorporated into the draft final version of the material. Task Group members were included in this process ad hoc and in a teleconference.

The draft final material was sent through an English language proofread, final adjustments were then made, and finally, the work was concluded.

3.2.2. Communication

The CMINE Task Group members communicated among themselves using a combination of emails, teleconferences, Google docs and two face to face meetings. The Task Group members all signed up to a closed group for the Task Group on the CMINE platform and to the open CMINE group on volunteer management.

The Task Group communicated to persons beyond the Task Group through emailing, personal meetings, telephone, WhatsApp, and the survey tool 'Survey Exact'. The co-chairs posted news on the CMINE online, including the links to and material for the open online consultation.

The CMINE online platform was overall a hindrance to the work performed by the Task Group and to the efforts to build a community around the topic of care and support for unaffiliated spontaneous volunteers. It was not well known and when approached directly, persons did not want to sign up as they could not see the added value of doing so. The fact that one has to sign up to be able to read and use content is a major

obstacle to communication. For instance, accessing the open online consultation links required interested persons to sign up to the CMINE platform. Beyond that, the platform does not support meaningful collaboration: the chat functions are too rudimentary to support meaningful digital knowledge exchange between wider audiences. For closed working groups basic survey functionality was not installed at the time of the Task Group's work, nor was a collaborative editing function, which would have been highly relevant for the co-authoring working style of the group. Instead Google Docs was used.

3.3. Strengths of the Task Group

The Task Group showed several strengths. The three most important are listed below.

Identification of Task Group members

Task Group members were identified partly by the co-chairs and invited to join the group through the application procedure. Other members were identified through the application procedure and were not known the two co-chairs in advance to the initiation of CMINE. Upon final selection, the Task Group consisted of a mix of persons from both channels. The mix proved fruitful, with unexpected and useful insights and results. Allowing the co-chairs to nominate a number of members from their network ensured a measure of certainty regarding quality of outputs and network and supported co-chairs to be able to take more risk in terms of inviting person that were not part of the established organisations or fora to join the work.

Content of high quality

The content delivered at all stages of the Task Groups work was high. This was in essence because the Task Group authors are very qualified and professional. Secondly, the iterative process created very strong ownership of the process among the authors and a spirit of trust and collaboration meant that authors could add to each other's works and that co-editors could edit the drafts and make several substantial changes before consulting the authors in ensuring rounds. The process and topic were defined in a roadmap from the onset, meaning that discussions and adjustment were always specific and concrete.

Review process and final drafting

The two-pronged review process served to confirm the main arguments made in the working paper and to sharpen key arguments. Although time-consuming, it created much value

Final editing was completed by the co-authors. Because of the co-authored nature of the work, where authors hailed from multiple countries and backgrounds, the styles of argument and writing differed. In addition, the topical approach sometimes resulted in authors developing parallel lines of argument in several sections and this needed editing into one streamlined narrative. While the process of using only two persons conducting the bulk of the work to draft the mature versions of the material adds quality and consistency, it is nevertheless a very time-consuming work. The co-chairs have a long track record on co-editing materials and had also both been engaged with the Task Group's work throughout the process, which were both advantages in the final drafting phases.

3.4. Limitations of the Task Group

In every process, limitations are to be expected. Here, the three most important are listed:

Task Group members are very busy volunteers

Most of the Task Group members work in this field in a professional capacity but were nevertheless part of the Task Group as volunteers. None of them had the CMINE task assigned to them within their job description and they therefore contributed to CMINE outside their full-time jobs. This did not affect dedication or quality (one might in fact argue to the contrary) but coordination within and of the group was highly complicated and time consuming as work had to be organised around the busy schedules of a large group of international professionals' full-time jobs. Planning meetings of any kind was very difficult and

meant that the co-chairs often conducted bilateral calls to compensate for group calls that were often just not possible. Towards the second half of the 12-month period set aside for the Task Groups work, the co-chairs found it necessary to assign a third person, a project assistant, to the Task Group to manage processes.

Open online consultation restricted

The open online consultation showed potential, but as a strong platform to promote it did not exist, from the exposure did most likely not reach its potential. The consultation was branded as a CMINE exercise to generate activity on the CMINE platform and build membership of the platform. However, the platform did not functionally support the consultation as explained above.

Hierarchical management and reporting structure of CMINE is heavy

The DRIVER+ management of CMINE includes many stakeholders, making the hierarchy very top-heavy. In addition, the reporting schedule used required a fair amount of effort of the co-chairs. This was balanced against the high demands on engaging the Task Group volunteer members as described above. The pull-on resources created by these structures left less resources for the Task Group work.

3.5. Lessons learned and recommendations

The main take-aways from the CMINE from the management point of view is that more resources should be put towards the Task Group work rather than management of the CMINE structures.

The Task Group work was guided by a Task Group Roadmap. The roadmap was the result of an extensive process and well-structured and thought through. It is recommended that future CMINE processes are guided by similarly specific Terms of References as this will make the identification of persons and actual work specific and outputs tangible.

For CMINE to continue, it is necessary that the online platform is profoundly reworked to support actual needs of the networks. As importantly, the networks will only continue if they are supported by qualified and paid persons to act as curators or animators to structure conversations and content.

The main pitfall of CMINE is stating that a network has been established. The start-up of CMINE was top driven and does not (yet) represent or support the domain and the professionals working within it in any real sense. This becomes even clearer when it is considered that there are no content or Task Group hosts to carry on the legacy after DRIVER+ concludes.

A good opportunity in terms of management lies in replicating the co-chair and Task Group structure for future topics; this includes the application process for Task Groups. All contributed to the strengths on CMINE as outlined above.

4. Task Group Wildfires

4.1. Goal of the Task Group

The main goal of the CMINE Wildfire Task Group was the creation of a common expert view of what can be done with sets and directions towards “guidelines” for policy, science and practice, based on expert opinion and expertise. The group tried to organize all expert knowledge available among its members in a way that observed practical shortcomings can be addressed in a structured way which is also easy to understand for “non fire” people.

Further, this Task Group's primary aim was to start a change in the fire management paradigm, shifting the focus more on prevention than on mitigation of the unwanted effects of fires. The group was promoting the SENDAI Framework recommendations [4] as well as the recommendations of the EU Commission report called "Forest Fires, Sparking firesmart policies in EU"[5]. The new focus on prevention and land management as the main tool to combat mega-fires was at the centre of the group discussions, suggestions and final outcomes. The group expertise has been formed by the group members. Every member has past experience either with computer-based or real field fire propagation work. Thus, the group as a whole evaluated that the nowadays "fire problem" is actually a problem of badly managed landscapes. This is a conclusion coming from the fact that wildfire can only sustain if there are three elements altogether at the same time in place: oxygen, heat and fuel. The first two we cannot affect as human beings, but the fuel is possible to the tackled by appropriate land management throughout Europe in order to have a mosaic of fuel barriers stopping the fire spread.

The reality of European fires

Wildfires have been a critical topic in Europe during the past decades and especially in recent years. Not only due to their increased occurrence across the continent but also due to their high magnitude. Large, uncontrollable fires are becoming the normality, and from Portugal in 2017 to Sweden and Greece in 2018, many countries suffer yearly from wildfire events that cost millions of euros in natural, social and infrastructural damages.

Between 2000 and 2017, the impact of forest fires in the European Union has been assessed in terms of environmental, human and economic losses. [6]

In fact, as of April 2019, the burned area in ha over Europe had already reached the total of 2018 (EFFIS). By the 26th of August 2019, nearly 290,000ha have been burned in Europe (EFFIS). These figures are still under-representing the total burned area, as fires smaller than 30 ha are not mapped by EFFIS. 1746 fires were registered by EFFIS system of a magnitude of 30ha or more.

As we observe an increasing number of fires during last years' fire seasons, fire prevention is more often referred to as a top priority in local and international agendas. Due to these emerging insights discussions on effective preventive measures (forest management schemes), improved preparedness and corresponding action plans are imperative.

Wildfires can burn when three major parameters are in place at the same time, which are: weather conditions, geography and vegetation that is flammable. There is very little that can be done for the geography and weather conditions, but vegetation has many options for land management and land use that can be implemented in few years and give results. Thus, land management is avoided as an option and millions of Euros are invested in expensive equipment and machinery. However, fires do not disappear. In contrary, fires in south Europe become "mega" fires and fires in north Europe no longer classify as "unprecedented".

[4] Available at the link: https://www.undrr.org/implementing-sendai-framework/sendai-framework-action

[5] Available at the link: https://resilience-blog.com/2019/02/28/sparking-firesmart-policies-in-the-eu-lets-train-together/

6 According to the European Forest Fire Information System (EFFIS), approximately 480 000 ha have burned per year, accounting to a total of 8.5 million ha of forested land. 611 firefighters and civilians have tragically lost their lives during those 17 years, while the economic impact amounted to more than EUR 54 billion or an estimated EUR 3 billion per year. Following the current pace of economic growth and environmental degradation, the European Commission PESETA II project indicated that the economic impact of forest fires for Greece, Spain, France, Italy and Portugal may increase to over EUR 5 billion per year by 2070-2100.

Outputs

The final output of the one-year mandate of the CMINE Wildfire Task Group work is a suggestion for common EU legislation that will glue together missing pieces between the national, regional and local levels of governance about land management.

Fire is not a bad thing and it is part of the natural lifecycle of the non-urban areas. However, climate change, abundant rural zones and poor land management with no vision for future threats will increase the money paid for suppression instead of investing them in prevention measures. Land management changes are not easy or fast happening, but this is the only way we can meet the new weather conditions.

Therefore, the CMINE Wildfire Task Group outcome after its one-year mandate has structured the following conclusions:

Pro-active wildfire management requires practices, tools and programs readily available and effectively functioning at the different phases of crisis management: prevention, preparedness, response and recovery. This involves a coordinated and harmonized planning at the landscape level, including education programs on Pan-European level, assessment of fire risk and the development of an action plan for wildfire management. An integrated fire management approach first and foremost has to be clear and with shared Vision and Strategy of all affected and mandated stakeholders in order to achieve:

resilient landscapes – adapted communities –adequate response.

This Vision is providing overall direction and defines specific objectives:

1. Avoid Catastrophic Fires.
2. Reduce Unwanted Fires and their negative effects.
3. Use Positive Fire Effects.
4. Increase Fire-Fighter Safety and fire-fighting efficiency.

Then, to implement this vision and objectives, there is a need for respective fire management plans with Strategy covering:

1. Early Warning and Rapid Detection.
2. Good Access.
3. Well trained and equipped fire services.
4. Community awareness.
5. Leadership and coordination among involved actors.
6. Reduction of Fuel Load and Fuel Availability.
7. Forest Conversion towards resilient structures, i.e. “Continuous Cover Forestry”.

4.2. Composition of the Task Group

4.2.1. Task Group Chair and Members

Task group Chair – Assoc. Prof. Dr. Nina Dobrinkova

Dr Dobrinkova obtained her PhD in 2012 specializing in - systems for early warning with an emphasis on wildfire propagation models and fire spread calculations in real time. She has held post-doctorate positions in the University of Colorado Denver and the USDA Forest Service, Missoula Fire Sciences Laboratory in USA. She worked with WRF-Fire (WRF-Sfire) in UCDenver and Behave Plus, FARSITE and FlamMap in the Missoula Sciences Fire Lab. Dr Dobrinkova is involved in multiple international and national projects funded under DG ECHO, FP7, H2020, Greece-Bulgaria Interreg, Erasmus+ KA and Bulgarian Science Funds. Currently, the active projects with a wildfire topic on which she is working are: “Cooperation

for fusing skills on Cloud-based Open GeoInformatics: Innovative Environmental Management (FuseGI)", funded under Erasmus+ KA2 - Cooperation for innovation and the exchange of good practices - KA203 - Strategic Partnerships for higher education. And "Protecting biodiversity at NATURA 2000 sites and other protected areas from natural hazards through a certified framework for cross-border education, training and support of civil protection volunteers based on innovation and new technologies (eOUTLAND)", funded under Interreg Greece – Bulgaria Cooperation Program 2014-2020.

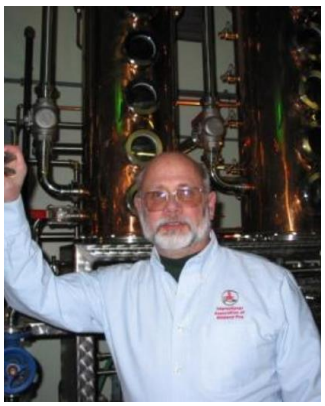
Alexander Held – Vice Theme Chair Wildfires

Senior Expert (Forest Fire and Silviculture), European Forest Risk Facility (@ EFI)

Germany

Alexander Held is a Senior Expert at EFI Resilience Programme. He holds MSc in Forest Science from Freiburg University, Germany. He started as a fire ecologist at the Fire Ecology working group of the Max-Planck Society, got a number of operational qualifications in the US and South Africa. He moved from fire ecology to fire management and worked with the Global Fire Monitoring Center GFMC in Europe and southern Africa. Later, Alex worked with the South African Working on Fire Program, from its early beginnings till 2012, when he joined the European Forest Institute EFI. At the EFI, Alex works on the establishment of the European Forest Risk Facility, where the exchange of expertise and knowledge, mutual assistance and cooperation in Europe is the tool to create more resilient landscapes. His expertise is in risk fire, silviculture and deer management.

Chuck Bushey – Vice Theme Chair Wildfires



International Association of Wildland Fire, National Wildland Fire Management Cohesive Strategy, Fire Ecologist and Fire Behaviour Analyst with Montana Prescribed Fire Services, Inc.

USA

Chuck Bushey, Past President of International Association of Wildland Fire (IAWF) Billings, Montana, USA - Charles Bushey was the President of the IAWF from 2007-2011. He is President of Montana Prescribed Fire Services, Inc. performing duties as fire ecologist, prescribed fire specialist, fire behaviour analyst, and fuel mitigation specialist. Previously Chuck worked at the USDA Forest Service, Missoula Fire Sciences Laboratory and later Systems for Environmental Management, Inc. on fire research topics dealing with post-fire effects, fire use, wilderness fires, fire behaviour, and smoke management. A few of his fire qualifications have included Fire Behavior Analyst, Wildland Fire Arson Investigator, and Strike Team Leader (Engines). Chuck has an MSc from Southern Illinois University - Carbondale and has authored over 50 publications and reports.

Marc Castellnou

Pau Costa Foundation, Spain

Marc Castellnou is a strategic fire analyst with the Regional Fire Services, Catalonia, Spain and the head of the GRAF units. He has 30 years of practical experience of working as a firefighter and a fire analyst. He teaches various courses and is actively involved in events aimed both for the forestry and fire professionals as well as the general public. He is associated professor at the University of Lleida, Spain. Since 2010 he has also served as the president of the Pau Costa Foundation.

Cathelijne Stoof

Profession: Wageningen University, The Netherlands, Tenured Assistant Professor (Soil, Water, Landscapes, Fires)

Netherlands

Dr Cathelijne Stoof is Assistant Professor at Wageningen University in the Netherlands. She is a board member of the International Association of Wildland Fire, the national delegate of The Netherlands to the EU Expert Group of Forest Fires, and coordinator of the newly funded Innovative Training Network PyroLife, that will train 15 PhD candidates to become our the generation of integrated fire management experts. PyroLife will foster knowledge transfer from southern Europe to temperate Europe, and from cross-risk approaches including water management to fire. It thereby combines how the North solves community problems with fire knowledge from the European South, with a strong focus on diversity in terms of interdisciplinarity, science-practice links, geography and gender. With this, PyroLife will train young people to understand fire, deal with uncertainty, communicate risks, and stimulate knowledge exchange to improve awareness and preparedness for current and future fire challenges.

George Boustras

Director, Centre for Risk and Decision Science (CERIDES) and Dean, Ioannis Gregoriou School of Business Administration

Cyprus

George is Professor in Risk Assessment at European University Cyprus, Dean of the Ioannis Gregoriou School of Business Administration and Director of the Centre of Risk and Decision Sciences (CERIDES). George is a PhD in Probabilistic Fire Risk Assessment from CFES at Kingston University London, he was Honorary Research Fellow at CPSE at Imperial College London (2003 - 2005), and KTP Research Fellow at FSEG at the University of Greenwich (2009). He sits at the Management Committee of Secure Societies - Protecting Freedom and Security of Europe and its citizens of "HORIZON 2020". George has been invited to present his and CERIDES' work at a number of organisations (e.g. Imperial College, JRC Ispra, University of Malaga, University of Dalian etc).

He was appointed by the Ministerial Council of the Republic of Cyprus to Head the Special Task Force that overlooked the modernization of the Fire Services. He was hired by World Bank to contribute to the modernisation of licensing services provided by the Fire Service of the Hellenic Republic. The President of the Republic of Cyprus appointed him, as Vice President in the Energy Strategy Council. He consulted the Ministry of Defence of the Republic of Cyprus in the Risk Assessment of Unexploded Ordnance as part of Gas Exploration.George is Editor-in-Chief of Safety Science (Elsevier) and Member of the Editorial Board of Fire Technology (Springer), the International Journal of Emergency Management and International Journal of Critical Infrastructure (both Inderscience). He (co-)supervises 7 PhD students.

Georgios Eftychidis

R&D Manager, Center for Security Studies-KEMEA (Environmental Planning, Forester, Policy Maker, Disaster Management), Greece

George Eftychidis (male) graduated in Forestry and Environmental Management from the Aristotelian University of Thessaloniki, Greece since 1987. He worked for twenty years in the private ICT sector on public and private contracts dealing with security, environmental monitoring and civil protection. Furthermore, he participated in several European and National R&D projects in the field of crisis and emergency management since 1994,

and he coordinated a number of them. During the last twenty years he cooperated with the E.C. services as a reviewer and subject matter expert in natural risks and security related policy making missions. His R&D topics of interest include natural hazards, impact analysis and risk assessment, modelling and simulation. He contributed to the development of GIS applications and relative web services for assessing forest fire danger, fire behaviour, wildfire propagation and growth patterns, using proper simulation tools. Such tools are currently used operationally by public services in several EU countries. George Eftychidis contributed also to the development of forest fuel and risk analysis maps at the local, regional, national and EU level. Furthermore, he cooperated with several public national and EU organizations regarding the analysis of needs and requirements of practitioners from public services in security, civil protection and environmental safety while he has contributed to communicating and disseminating results of research to a variety of stakeholders. Currently, he is an associate researcher heading the Department of R&D projects at the Center for Security Studies (KEMEA), of the Hellenic Ministry of Citizen Protection.

Ciaran Nugent

Forest Engineer, Irish Forest Service, Ireland

Ciaran Nugent is a Regional Forestry Inspector with the Forest Service, Department of Agriculture, Food and the Marine, Ireland. Based in South-West Ireland, he is the Irish Representative on the EU Expert Group on Forest Fires and a Member of Pau Costa Foundation. He holds a Master's Degree in Forest Engineering and is also a qualified Wildland Firefighter and Prescribed Fire Technician. Since 2011 he has been involved with developing solutions to wildfire problems in Ireland, focussed on upland farming communities, forestry and land management solutions. He is very interested in identifying and adapting traditional land use practice and fire use patterns and augmenting these with modern techniques and fire management objectives.

Craig Hope

Lead Wildfire Officer, South Wales Fire and Rescue Service, UK

Craig Hope joined the fire service in 1993 and worked at numerous posts and stations, in 2003 he became a Watch Manager at one of the busiest Wildfire stations in South Wales, if not the UK. For the last 13 years, he has been heavily involved in the Wildfire project. After a promotion to Station Manager, he now manages the Wildfire Strategy including both response and prevention. Through years of courses, study and research (both in the UK and internationally), he has developed the project from an idea into a progressive strategy. This includes introducing specialised off-road vehicles, fire fogging systems new and risk-specific PPE, new tactics and training, prescribed and tactical fire use and procedures for working with observation and firefighting helicopters. Currently, he is working towards completing a Master's research Degree in Wildfire at Swansea University. This involves research around the public perceptions of wildfires in wales

Carlos Trindade

Forest Engineer, Wildfire Management, Civil Protection Officer

Portugal

Carlos Júlio Trindade, graduated in Forestry Engineering in the Trás-os-Montes and Alto Douro (UTAD) University in Vila Real, Portugal. He is a former military from the Portuguese Army on the transmission weapon. He began his professional activity as a Trainee Researcher in the Forest Fire Research Centre (CEIF) Coimbra, where he participated in Forest Fire Monitoring Actions with automatic detection systems, decision support programs developing, but mainly carried out research on the behaviour of forest

fuels and forest fires. Throughout his professional career, he maintained a permanent link to the theme of Wildfires, from the frequency of various courses and training, mainly related to the Wildfire behaviour and individual security. He has developed several works within the theme, mainly community's defence plans, from the local to the national levels, working on the first application for community measures in this area, for the Pombal Municipality in 2001 and Sabugal in 2003. In 2011 he got the position of Coordinator of the Civil Protection Service and the Municipality Heliport director, where he is responsible for planning, coordinating and execution of the Mafra Municipality Civil Protection Policy, namely in the prevention and response to major accidents and disasters, protection and relief of populations; Support the Civil Protection.

Adrián Cardil Forradellas

Forest Engineer, Private Company for forest fires modelling solutions representative, Spain

Dr. Adrián Cardil is a graduate and postgraduate in Forest Engineering (BS and MSc) and management and innovation in the food industry (MSc) from the University of Lleida, where he received a PhD with honours in 2015 (predoctoral grant from Catalan Government). Afterwards, he has worked as a part-time lecturer at University of Lleida (UdL; Spain; 2017-present) and postdoctoral researcher at the Forest Sciences Centre of Catalonia (CTFC; 2016), University of Navarra (Spain; 2016-17; competitive postdoctoral position) and Tecnosylva (Spain; 2017-present), where he benefits from a "Torres Quevedo 2015" contract, a national competitive postdoctoral program. He made postdoctoral collaborative research stages at the University of Sassari (Italy; 2013; 2 months), European Forest Institute (Germany; 2015; 8 months), Université du Québec à Montréal (Canada; 2016; 2 months), FPinnovations (Canada; 2017; 4 months), CONAF (Chile; 2017; 1 month), Bulgarian Academy of Sciences (BAS; Bulgaria; 2018; 3 months); Wageningen University and Research (Netherlands, 2019, 3 months) and Technosylva US (San Diego, USA; 2019; 4 months).

4.2.2. Reviewers of the Task Group activities

Peter Moore

Forest Officer in Forest Fire Management & Disaster Risk Reduction

FAO-Forestry Department, Italy

Rob Testelmans

Policy, Safety and Security Advisor in the municipality of Geel, Belgium

Dejan Radović

Research Associate in University of Belgrade, Serbia

4.2.3. Rationale for this composition

The CMINE Wildfire Task Group call for members was open for citizens of EU member states, but also for non-EU experts. In the final composition, the Task Group consists of experts from 10 countries; covering both southern and northern countries. The Task Group Members were representatives from the states of Spain, Greece, Cyprus, Ireland, Germany, UK, Portugal, the US, and the Netherlands. The reviewers have been selected from countries that are not represented in the core team of the Task Group. While the domain of fires is usually predominantly a male topic, our group has three female representatives of Bulgaria and the Netherlands.

The ten members of the group represent specialists from academia, policymakers, practitioners, first responders and private companies. The knowledge in the group varies from field expertise to operational response and scientific theoretic background.

The composition of the reviewer's panel also included people with different knowledge and background with the idea to have fair correctives in our group discussions covering all major knowledge that the group members have.

4.2.4. TG organisation in different subgroups

The Wildfire Task Group Structure consisted of a Task Group Chair, two Vice Task Group Chairs, Task Group members and Task Group Reviewers. The following diagram presents the general structure of the Wildfire Task Group during its mandate in 2019:

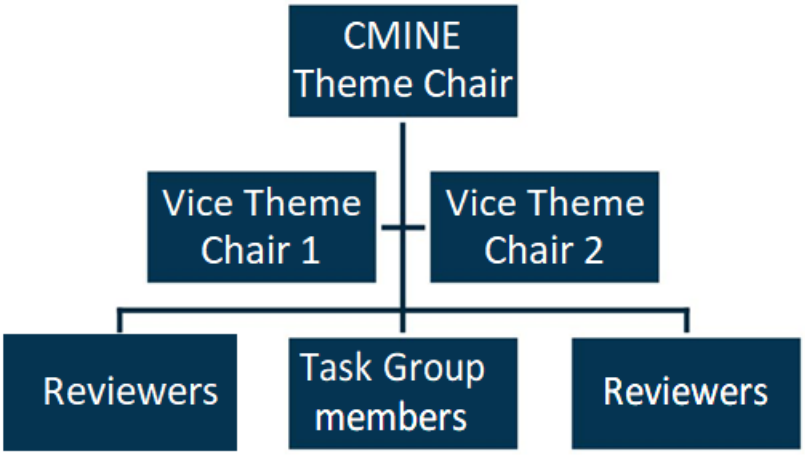


Figure A3: Structure of the Wildfire Task Group during its mandate in 2019

The Task Group Chair was the person who communicated with all Task Group Members and Reviewers. Two Vice Task Group Chairs have been selected from the Task Group in order to easily facilitate the Task Group management. The official communication and official documents, which the group members and reviewers have discussed and produced, have been reviewed by the Task Group Chair and the Vice-Chairs.

The face to face meetings have been organized predominantly by the Task Group Chair with the help and support of the Vice-Chairs and the local hosts when this is a group member. Any organisational matters for the Task Group members, which needed additional attention, have been dealt by the Task Group Chair.

The Task Group Members main duty was to present their opinion as experts in the field of wildfires suppression measures, fuel management and fire propagation simulation tools and any other related topic that may help in building of a common expert view of what can be done with sets and directions towards "guidelines" for policy, science and practice, based on expert opinion and expertise with suggestions on improvements in the field of wildfire prevention/preparedness, detection and suppression measures.

The Task Group Reviewers have been involved as advisors during the Task Group discussions via emails or WhatsApp. This was needed as an opinion outside the main group with corrective functions. One of the reviewers came to the second face to face meeting of the Task Group covering all his costs for participation.

There have been two groups in the general organization of the CMINE Wildfire Task Group. The first one was the management group which included the Task Group Chair and the vice-chairs. The second one was the general group members. Because of the fieldwork and heavy schedules, both groups have created a WhatsApp CMINE Wildfire Group, were all needed task and activities have been discussed in real-time. One kick-off meeting has been done before the first face to face meeting of the group with the usage of Doodle and Zoom as tools for online meeting planning.

Work processes organization in the TG

The work process of the group has been done in two channels of communications. The first one was the WhatsApp Group and the second via emails. The discussions, new ideas and illustrative photos exchange have been done via WhatsApp. The heavy files with written information or task member country related information exchange have been disseminated via emails only. Three physical meetings took place during 2019. In addition, Doodle and Zoom were used only for the online kick-off of the group work.

4.2.5. Experiences with CMINE online platform

The CMINE online platform, as one of the DRIVER+ project outputs, has been used in seldom cases mainly by the Wildfire Task Group Chair. The main reason for this was that the initial CMINE platform was transitioned from the old platform to a new with no implementation of the subscribed users from the first platform to the second one. The Wildfire Task Group have subscribed around 50% of the members in the first one and found the platform not user-friendly, thus it was very hard to convince the group to use it with its second platform version.

The only way this under usage of the CMINE platform to be improved is by promoting CMINE platform among other projects which end soon but have in their deliverables outcomes like the CMINE platform. If the suggestion for free incorporation and further support of their platforms is in place CMINE platform popularity will increase drastically. An example is that in our CMINE group we had representatives from three different projects other than DRIVER+; each of them was having a similar platform as the one CMINE had. The “fire” community and users in Europe and worldwide is not very big, so asking a small number of people subscribing in numerous platforms will only result in overwhelming these users with so many IDs and passwords that they will quit using all of them in the end.

4.3. Strengths of the Task Group

There is only one good thing that can be evaluated as promising - people from different countries (EU and non-EU) and different backgrounds supported the idea that land management is the only solution for decreasing the potential of the European nature for future “mega” fires.

Not the set-up of the group but the open face to face discussions gave the result.

4.4. Limitations of the Task Group

The idea behind CMINE Wildfire Task Group has been evaluated as very good from every member of the group. As the main weakness of the Task Group was that no one of the group members have been paid for his/her efforts thus the number of man-hours dedicated per member on the Task Group activities has been on its bare minimum. In many tasks, the Group Chair has to prepare preliminary materials in order to get good or not so good outcome from the group and start a discussion.

The second one was that CMINE requested the group members to use the project platform. However, the “fire” community and users in Europe and in general worldwide is not very big, so asking a small number of people subscribing in numerous platforms could only result in quitting the use of all of them. This is what happened to our group. No one found the platform useful and did not use it.

Reimbursement procedures and communication with the financially responsible people in CMINE was classified from “heavy” to “I will pay myself or I do not want to argue anymore”. It is worth mentioning that the Task Group Chair herself could not solve payments of simple amounts for catering for more than nine months for the second physical meeting in France and one month for the third physical meeting.

On February 14th 2020, the Chair Nina Dobrinkova stepped down from her position.

4.5. Lessons learned and recommendations

What are the main take-aways from the CMINE from the management point of view?

The main takeaway would be that large groups of experts are not possible to be managed if they are not paid or if they are not at least contracted somehow. Travel budget if paid as lump sums per person before every trip will be much easier to manage and will be much more appreciated than the current option.

If the CMINE is to continue, which elements should be kept?

If CMINE continues its work more focused groups with preliminary predefined duties and responsibilities should be in place. Any person who participates in volunteer work has the possibility to drop his participation in the very last minute and no one can change this. The general idea of CMINE collecting all common projects under the same umbrella of the CMINE platform is very good. This has to continue.

If the CMINE is to continue, which elements should be altered or removed?

The CMINE platform is good idea and should continue its life. The groups of experts if are not paid most probably will have very limited outcomes in future and the chairs will struggle to provide something valuable.

What are the main challenges/pitfalls?

Most of the experts in the fire or any disaster fieldwork on more than 3-4 projects at the same time in order to have decent salaries. This makes them very selective when choosing where to contribute with ideas or work. No future initiative will be supported for free at least from the fire group.

Where do the key opportunities (in terms of management) lie?

Management is a complex process, if we talk about specialized groups in disaster management like the wildfires there must be a well-predefined task with deadlines and duties which are paid in order good outcomes to be in place. If we talk about EU fire management initiatives, we should consider EU Fire Directive as the one created for the Floods called INSPIRE. There is no single country in the European Union following the same land management ideas. The different firefighting plugin standards make the life of the fire-fighters miserable when the cross-border fire is running because every team can operate with their plugs for the water pumps because the standards in France is not the same as the standard in Spain and Portugal. There is a need someone to do a complete list of all changes needed on operational teams and legislation level per country and after that expert group on Fires like the CMINE one can be of huge help because of the member's field experience.

5. Conclusions

This report reflects the experiences and opinions of the Theme Chairs after having worked with the CMINE over a year. It serves as a basis for further development of the CMINE and its Task Groups; the lessons learned and best practices will help further shape the CMINE in the future. Looking at the presented reflections, a couple of conclusions can be drawn.

All in all, the experiences shared by the Theme Chairs with the CMINE are positive. They enjoyed working together in the governance structure that the CMINE provides and indicate that this set-up worked out positively for them. The freedom that the Theme Chairs enjoyed allowed them to structure the working processes as they deemed most fit, hereby, they were able to organise the work of the Task Group in a way they felt most comfortable with.

Looking at the diversity of the Task Groups, the chairs reflected that the different backgrounds and geographical expertise of the Task Group members (and reviewers) contributed positively to achieving the Task Group's objectives. The open call for applications resulted in a large variety of applications to the Task Groups, both from inside and outside the Theme Chair's networks. Ultimately, this diversity increased the quality of the final deliverables and outputs and it yielded new, unexpected insights.

Furthermore, the chairs applauded the CMINE for yielding truly relevant outputs that can be applied by practitioners in the field relatively easily. The Task Group Floods provides an excellent example in this

regard as the outputs of the team were presented separately to the Bulgarian team members who indicated to be interested in potentially taking up the results of the Task Group.

Nevertheless, the chairs also indicated a number of shortcomings and opportunities for further development. Below, the two major take-aways are presented.

Firstly, they indicated that asking the Task Group members to perform their tasks pro bono (i.e. outside their regular working hours) creates a serious challenge for the management of the Task Group and maintaining the quality of the work. Firstly, with experts being generally very busy; it is extremely complicated to find a moment to jointly discuss the progress of the Task Group – both virtually and online. Secondly, as experts engage in the CMINE on a voluntary basis, their commitment to the group was not always up to standard. The chairs indicated that they would not always feel comfortable requesting more input from the Task Group members as the latter was doing all the work on a voluntary basis already.

Another pitfall which was identified is the limited added-value and functionalities of the CMINE online platform. On the one hand, the discussions on the CMINE did not materialize as they would have ideally done. One reason for this lack of interaction is the fact that many of the Task Group members are also active in other EU-funded projects which are setting up similar online platforms themselves. These members, therefore, saw little added-value of making use of the CMINE. On the other hand, the CMINE did not provide all functionalities that the Theme Chairs would have liked to use (i.e. collaborative document working). As such features would be of great use for the Task Groups, it is a shame they were not available.

Annex 7 – CMINE Pages

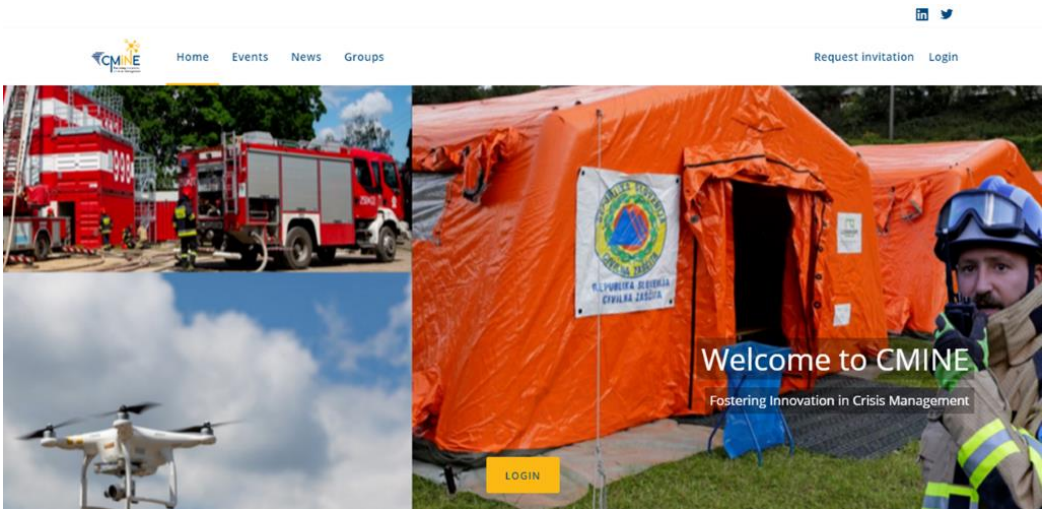


Figure A4: CMINE Homepage

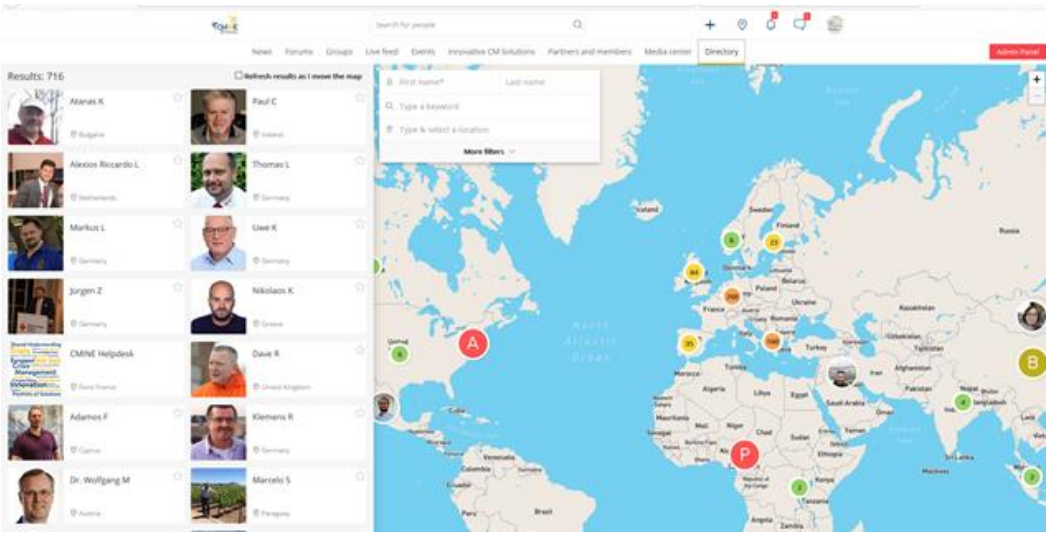


Figure A5: CMINE Directory

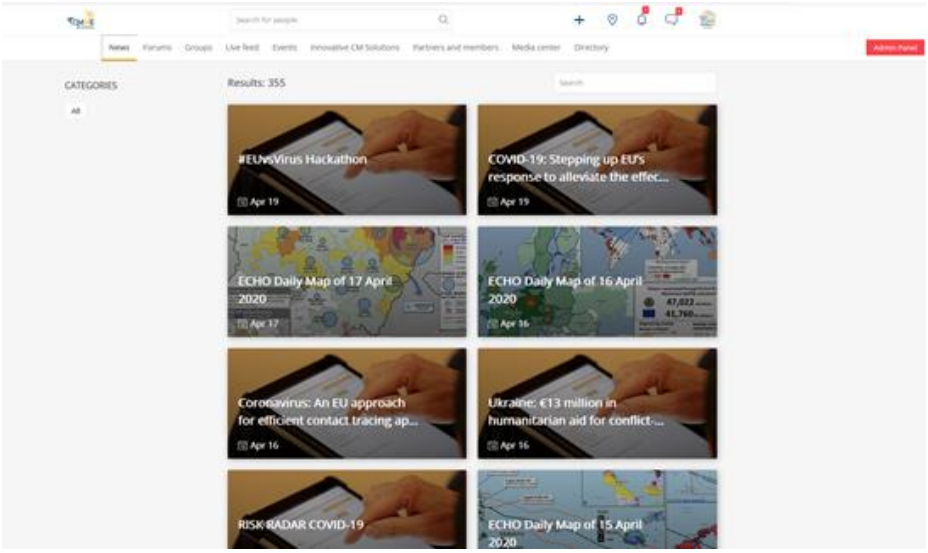


Figure A6: CMINE News

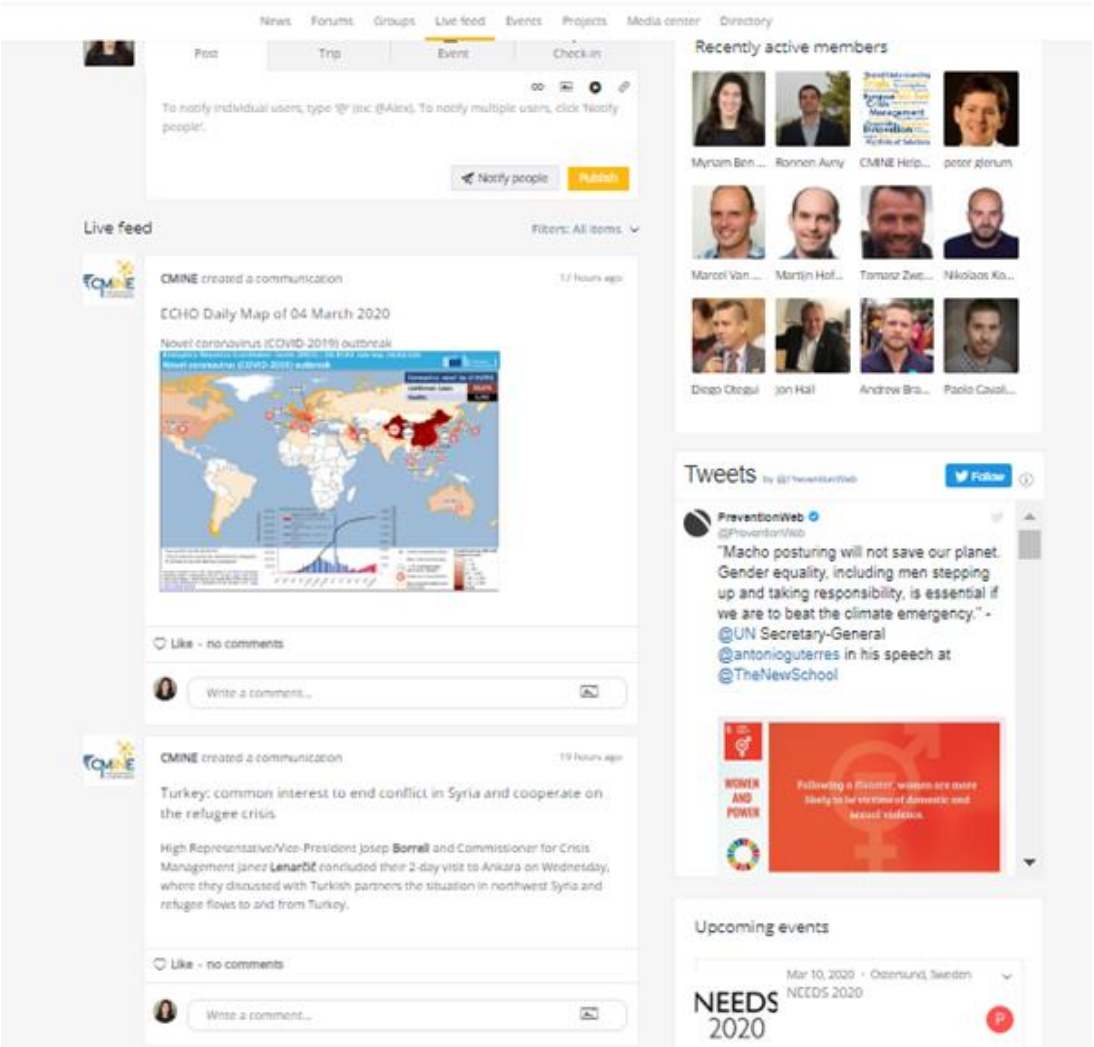


Figure A7: CMINE Live-feed

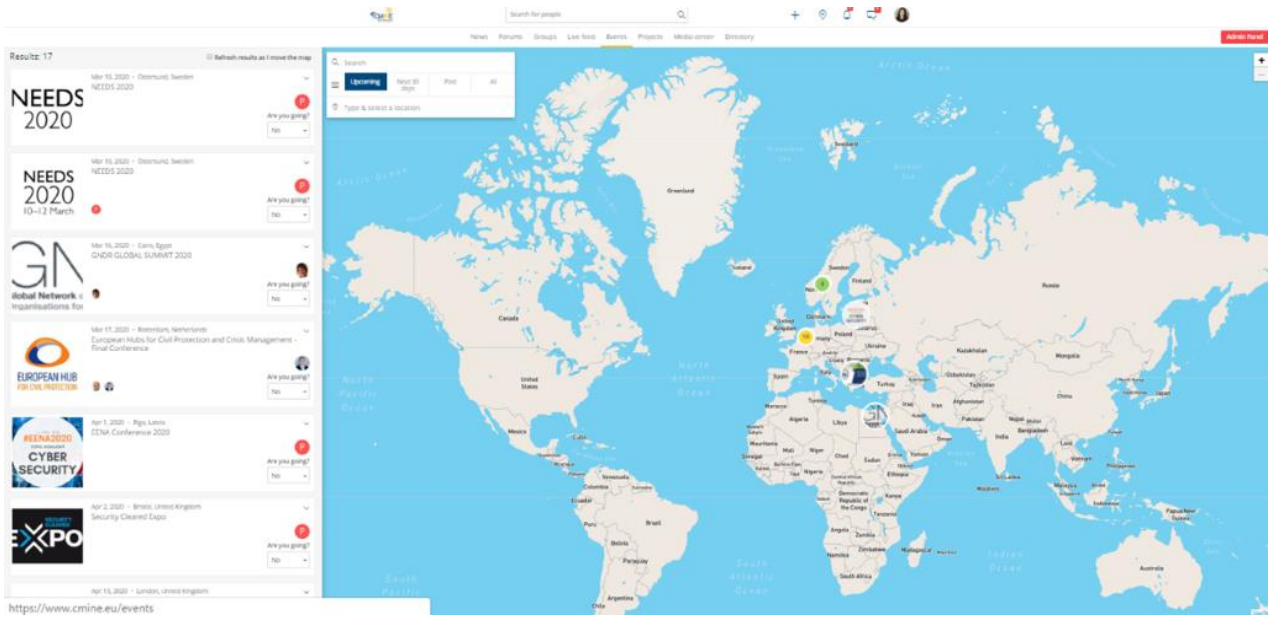


Figure A8: CMINE Events

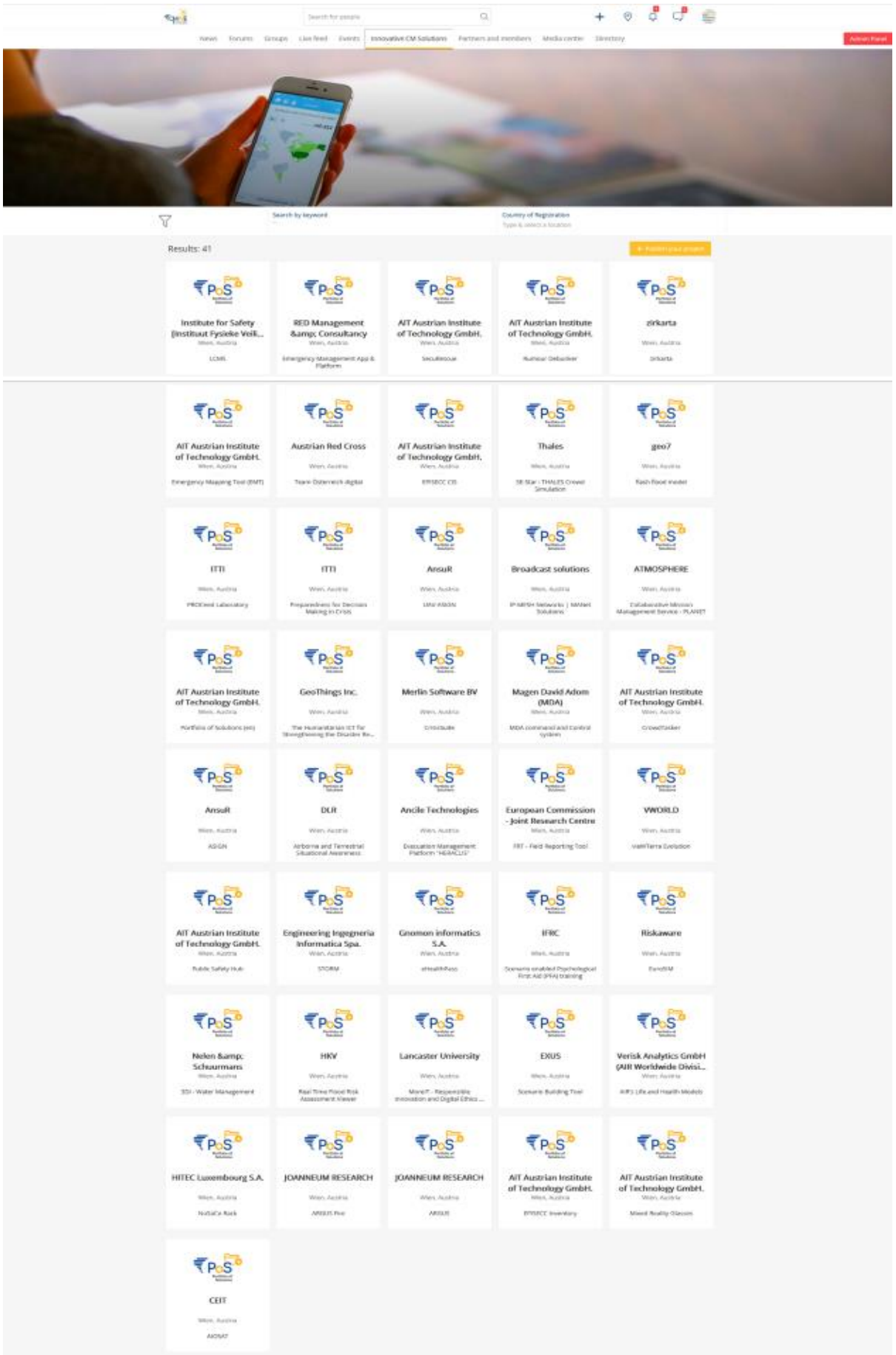


Figure A9: CMINE Innovative CM Solutions

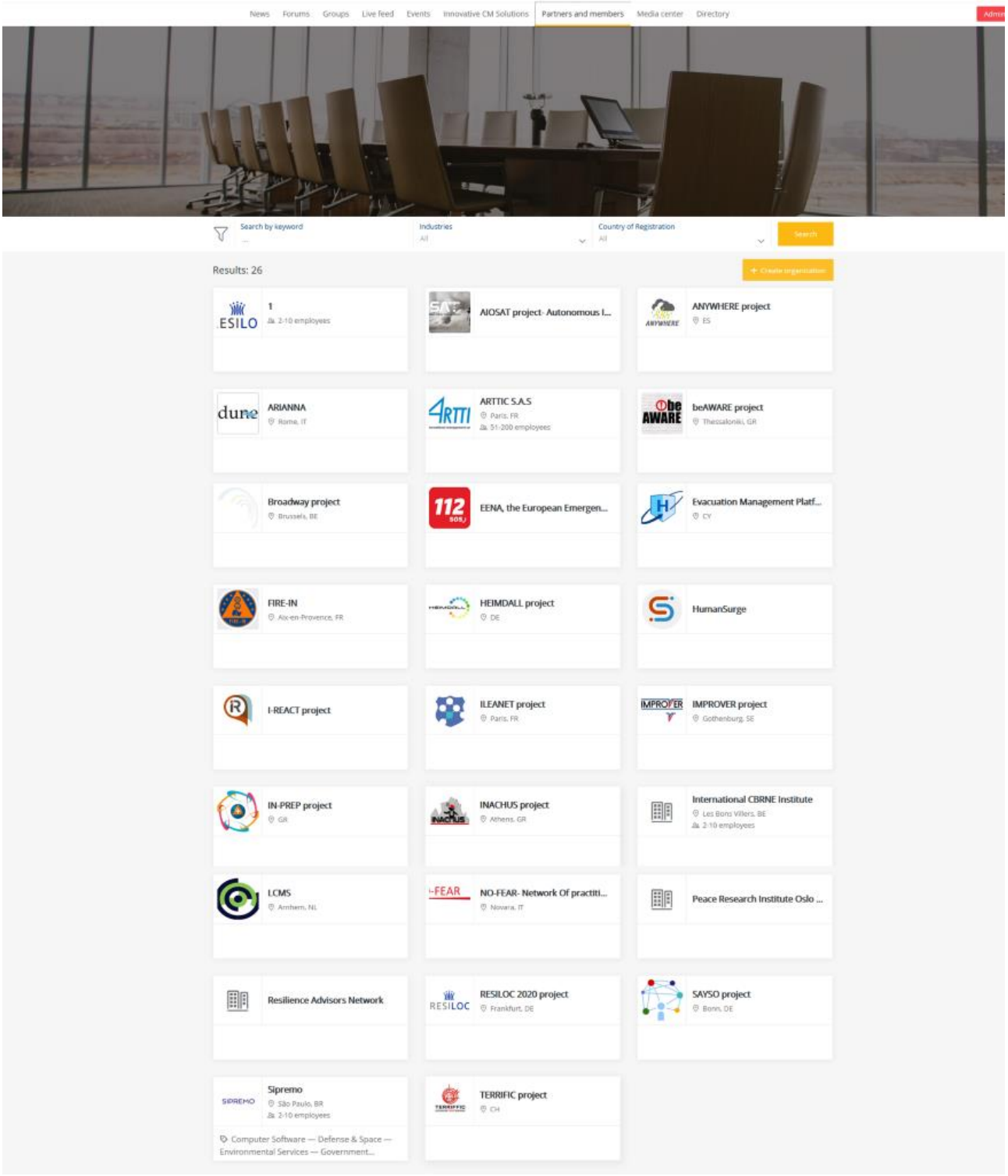


Figure A10: CMINE Partners and members

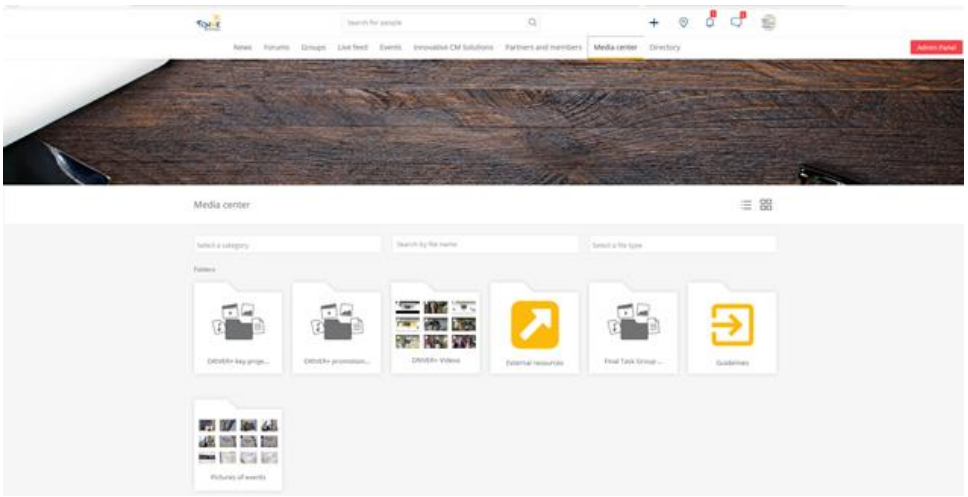


Figure A11: CMINE Media Center

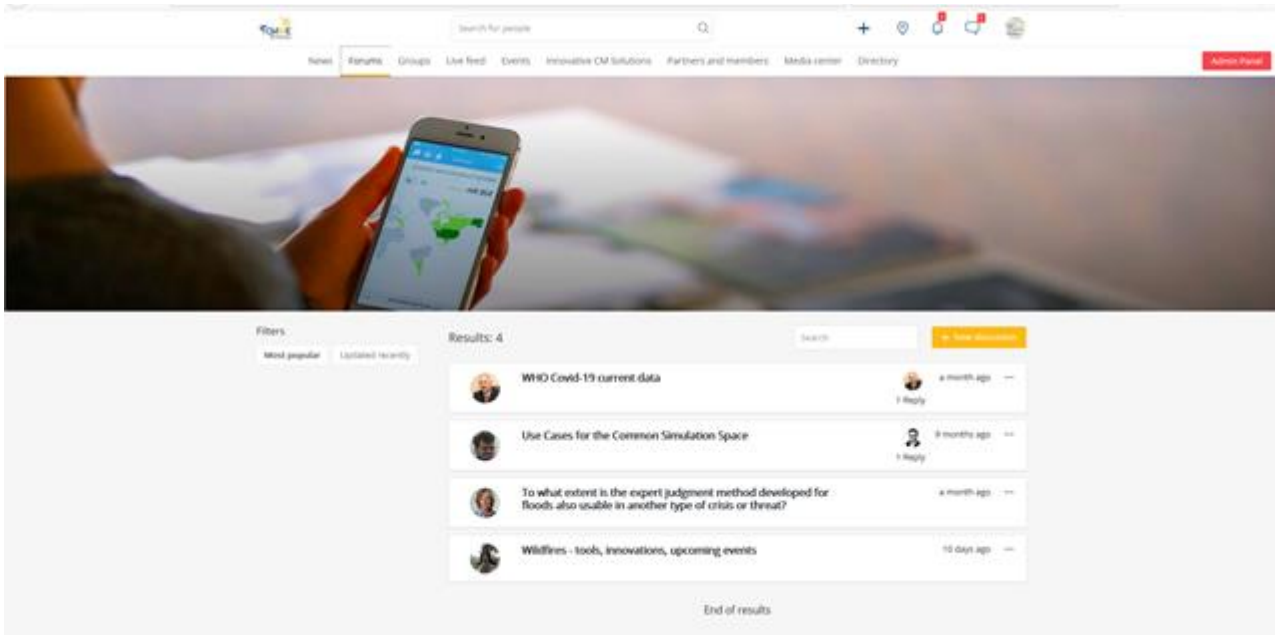


Figure A12: CMINE Forums

Annex 8 – Projects & networks outreach campaign December 2019 / May 2020

Table A13: Projects and networks approached during outreach campaign in December 2019 / May 2020

Thematic Area	Organisation
WILDFIRES	Expert Group on Forest Fires
WILDFIRES	FIRE-IN
WILDFIRES	FEU
WILDFIRES	FNSPF - French Fireman
WILDFIRES	CFOA
WILDFIRES	CTIF
WILDFIRES	EUSTAFOR (Forest)
WILDFIRES	Eurosprinkler
WILDFIRES	EFISA - European Fire Safety Alliance
WILDFIRES	CFPA Europe
WILDFIRES	CFPA Europe
WILDFIRES	Fire Safe Europe
WILDFIRES	European Fire Academy
WILDFIRES	European Fire Academy
WILDFIRES	The Global Fire Monitoring Center - GFMC
WILDFIRES	MEFISTO
WILDFIRES	DBI Certification
WILDFIRES	EFFUA
WILDFIRES	EFSG
WILDFIRES	PAU COSTA Foundation
WILDFIRES	PAU COSTA Foundation
WILDFIRES	London Fire Brigade
WILDFIRES	Lisbon Fire Brigade
CBRN	e-NOTICE
CBRN	ENCIRCLE
VOLUNTEER MANAGEMENT	EFRIM
VOLUNTEER MANAGEMENT	PKAVS Third Sector Interface
VOLUNTEER MANAGEMENT	Association of Volunteer Managers
VOLUNTEER MANAGEMENT	Doing Good Leeds

Thematic Area	Organisation
VOLUNTEER MANAGEMENT	VOST Europe
VOLUNTEER MANAGEMENT	VOST Germany
VOLUNTEER MANAGEMENT	Malteser International
VOLUNTEER MANAGEMENT	Malteser International
VOLUNTEER MANAGEMENT	SOLIDAR
VOLUNTEER MANAGEMENT	SOLIDAR
VOLUNTEER MANAGEMENT	ANPCDEFP
VOLUNTEER MANAGEMENT	JINT
VOLUNTEER MANAGEMENT	IZ
VOLUNTEER MANAGEMENT	Red Cross Sweden
VOLUNTEER MANAGEMENT	Red Cross Luxembourg
FLOODS	DAREnet
FLOODS	ECRR
FLOODS	EEB
Crisis management	MEDEA
Crisis management	ARCSAR
SECURITY	EXERTER
SECURITY	ILEAnet
SECURITY	Europol
MEDICAl EMERGENCY	NO FEAR
EMERGENCY SERVICES (112)	EENA
SECURITY	CENTRIC
SECURITY	MediLabSecure
SECURITY	SECTRANS NS
SECURITY	SECTRANS NS
SECURITY	JCBRN Defence COE
SECURITY	ISEM Institute
SECURITY	ICI International CBRNE Institute
SECURITY	Crisis Management and Disaster Response Centre of Excellence
SECURITY	Merlin Crisis (Software for Crisis)
SECURITY	Nuclear Security Support Centre (Bulgaria)

Thematic Area	Organisation
SECURITY	The Resilience Advisors Network
SECURITY	Cross-border Research Association, CBRA

Annex 9 – Adoption scenarios

Adoption scenarios for DG ECHO

Context

DG ECHO has expressed a strong interest in using DRIVER+ outcomes to support the development of their Union Civil Protection Knowledge Network. DRIVER+ has offered DG ECHO to have a follow-up discussion on how to best structure this. The development of the UCPKN has a strong political dimension, so liaising with MS is important: due to COVID-19 these discussions have paused. A (virtual?) meeting between DRIVER+ and ECHO is foreseen for mid-April. A UCPKN group on CMINE could be suggested.

Scenario 0

DG ECHO is committed to the concept of the UCPKN and the development and engagement in other network are seen as independent activities that could be possibly supportive. The central focus on UCPKN of the MS and the politics around this makes a CMINE an outsider who will easily be neglected when the policy experts in the MS are not feeling that CMINE could be of their benefit. Another option within this scenario is that the MS see the UCPKN as a closed network, only to be accessible for National CP authorities. This trend is already visible in the Prevention and Preparedness calls for proposal of 2020.

Scenario 'support'

This scenario is close to the 'null scenario'. CMINE is used by groups in the Union Civil Protection Mechanism. Examples could be groups of UCPM trained experts, search and rescue experts and experts in other modules. the duty officers of the ERCC engage in the groups. The partners in CMINE are putting much effort in making the groups active. The policy makers stay on the sideline promoting the CMINE by words. Integration of CMINE in the concept of the UCPKN is found difficult because of the spread of opinions. The work programmes of 2021 and 2022 keep focussed on the making the UCPKN happen in another form. CMINE will be seen as a 'private initiative'. There will be no sustainable funding from DG ECHO.

Scenario 'embrace'

CMINE is seen as an ideal way to start the operationalisation of the UCPKN concept. Different groups are made for direct interaction with the policy makers. New ideas are tested on experts or pitched by experts. CMINE is used for direct communication with the UCPM experts and modules on content, like improvement of procedures, standardisation and sharing experiences of missions. The ERCC has its own channel for their public reports and uses CMINE to get feedback. CMINE will receive a fund for the activities on behave of DG ECHO and the UCPM.

Short term: before end DRIVER+
Mid-term: before 2021
Long term: after 2021

Table A14: Adoption scenarios, action and timings DG ECHO

	Scenario 0		Scenario 'support'		Scenario 'embrace'	
	CMINE interferes wit UCPKN		**Sideline interaction with CMINE, UCPKN seen separate**		**CMINE is first operationalisation of UCPKN**	
	Action	*Timing*	*Action*	*Timing*	*Action*	*Timing*
DG ECHO	• Interest MS in CMINE • Choose between see CMINE separate of UCPKN or as a first operationalisation.	Short term Ongoing	• To investigate the possibilities of CMINE as a reach out tool / knowledge sharing tool • Investigate possibilities for seed funding. • To be open for experiences with CMINE platform by UCPM groups • Engage with CMINE management for certain operational topics. •	Short term Ongoing Ongoing Mid-term	• To evaluate experience with CMINE platform • To identify areas for improvement • To actively make use of the CMINE platform in policy making • Adopt CMINE as part of the UCPKN and arrange temporal funding for 2020 and 2021 and more structural funding in annual work programme 2022	Short term Ongoing Ongoing Mid-term and Long term
RAN	• Support of DG ECHO with ideas on possible interaction, integration with UCPKN • To identify best practices/areas for improvement • To track activity expert groups in the UCPM context	Ongoing Ongoing Ongoing	• To continuously monitor experiences with CMINE platform • To identify best practices/areas for improvement • To set-up and track activity expert groups in the UCPM context. • Actively support the discussion in the UCPM groups • Lobby for integration in UCPKN	Ongoing Ongoing Ongoing Ongoing	• To continuously monitor experiences with CMINE platform • To identify best practices/areas for improvement • To track activity expert groups in the UCPM/ DG ECHO policy context. • To set-up and track activity expert groups in the UCPM context. • Actively support the discussion in the UCPM groups • Evaluate RAN management of CMINE	Ongoing Ongoing Ongoing Mid-term Mid-term Mid-term Long term
ARTTIC	• Building business cases based on subscription	Short term Ongoing	• Building business cases based on subscription • To assist in contractual issues • Actively participate as knowledge institute in CMINE	Short term Short term Ongoing	• Actively participate as knowledge institute in CMINE • To assist in contractual issues	Short term Ongoing
Ecorys	• Building business cases based on subscription	Short term	• Building business cases based on subscription • Actively participate as knowledge institute in CMINE	Short term Ongoing	• Actively participate as knowledge institute in CMINE	Ongoing

Adoption scenario for DG HOME[7]

The Community of Users (CoU) has been established to act as a platform of various users of the Secure Societies research program, acting as an interface between policy, end-users and R&I projects.

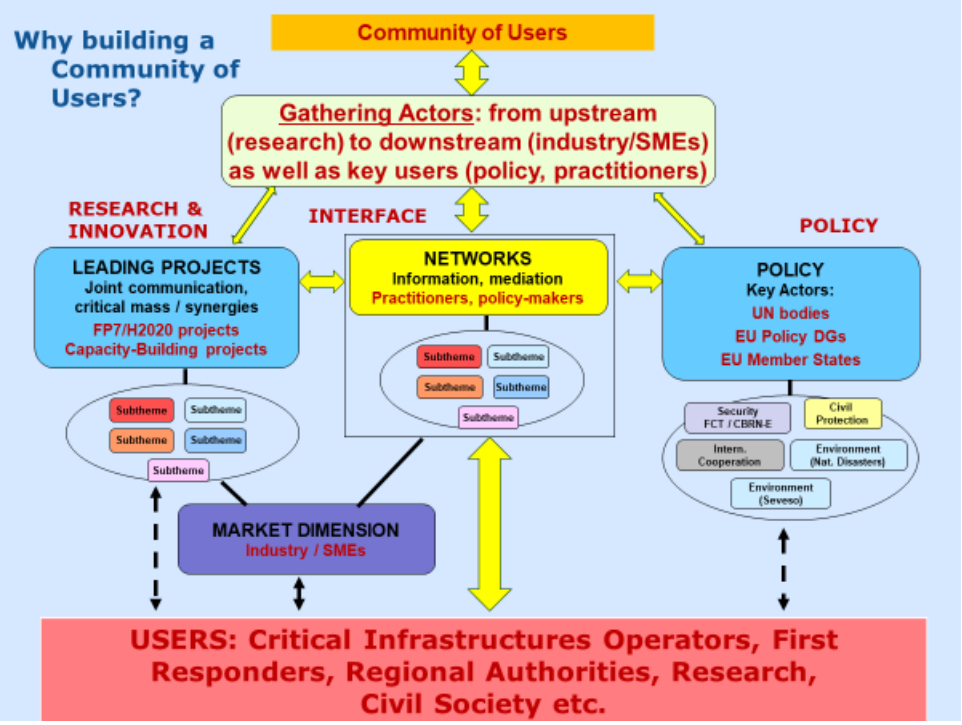


Figure A13: Building a Community of Users (Quevauviller/DG HOME, 2019)

The CoU has the ambition to play an essential role in Horizon Europe:

- **Exchanges among different actors** (policy-makers, scientists, practitioners, industry/SMEs, civil society organisations) at all levels (EU to regional): enhancing visibility of research outputs, help access to market, discuss usability, create "bridges", etc.
- **Joining forces** between existing networks and National/Regional platforms.
- **Developing synergies** among (research and capacity-building) projects.
- **Annual State of the Art reports** produced by Thematic Working Groups.
- **Contributions to Strategic Civil Security Research Agendas** in support of HE programming.

Up till 2019, Thematic Groups (ThGs) enabled to gather policy-makers, scientists, practitioners, industry/SMEs, and civil society organisations) at different levels (International to Regional), creating dialogues around research in various security areas and "bridges" among different sectors. From 2020 onward the intention is to move to a more proactive participation of experts, calling for inputs and defining what would be optimal outputs from the overall CoU. In this respect, the ThGs will become Thematic Working Groups (ThWGs) with specific missions all over the year and the design of a Coordination Board will be set. Building on existing experience, Thematic Working Groups (ThWGs) will be given specific missions such as:

- Raising awareness on major policy and research updates.

[7] Based on: Quevauviller/DG HOME, 2019: Community of Users on Secure, Safe and Resilient Societies – Further steps toward CoU 2.0. Presentation during CoU Governance meeting, 06-11-2019, Helsinki, Finland.

- Analysing capability needs and gaps and prioritisation of related research orientations.
- Identification of solutions available to address the gaps.
- Identification of synergies among different funding instruments.
- Production of Annual Thematic State of the Art Reports.
- Other needs to be defined (standardisation, citizen dimension etc.).

ThWGs cover the areas of INFRA, DRS (incl. CBRNE), FCT and BES, and have several subthemes.

A high-level coordination and operational direction for the CoU will be established through a Coordination Board with the following role:

- Checking / Validating Annual State-of-the-Art Reports.
- Based on these, producing recommendations for Civil Security Research Agenda.

Both the ThWGs and the Coordination Board are chaired by the Commission and comprise a selection of experts (in their personal capacity) based on expressions of interests with various criteria (representativity of relevant communities). The members are representatives of the respective policies, EU-funded projects (incl. the Networks of Practitioners), industry/SMEs, Practitioners, and DGs. The Coordination Board is not a decision-making body but rather an enabling entity supporting the research programming.

The Networks of Practitioners play an important horizontal role in the CoU2.0. These networks are driven and coordinated by practitioner organisations, often supported by research organisations. The practitioner networks identify, for a longer period of time, within a specific Theme or discipline, the current state of the art, emerging gaps, and available as well as emerging technologies and solutions. The results are shared within the broader end-user community throughout Europe resulting in a better understanding and programming of research topics.

Within the new CoU2.0, CMINE supports the collaboration and information sharing within and between the ThWGs as well as within and between the Networks of Practitioners. Identified gaps are discussed and reflected upon, as well as the identified solutions. Inputs regarding the annual State-of-the-Art reports are gathered, shared and discussed. It facilitates the organisation of joint events/workshops by projects and other organisations. Furthermore, CMINE plays an important role as information platform in-between CoU meeting, expert meetings and various other events. It is used and to share information by the EC (DG HOME, REA, related DGs). CMINE facilitates to attract many different groups, which has led to a more balanced population of the CoU. With this more intense information sharing, the visibility, attractiveness and added value of the CoU to the MS has been enlarged.

Way forward

The transformation to the new CoU 2.0 is currently ongoing. For each of the ThWGs, Scoping Groups have been established discussing the scope of each ThWG, and the planning of the related activities/ events. Already during this process, the CoU could have its own Group on CMINE, with each of the ThWGs having a dedicated discussion forum. Another option would be to create Groups for each ThWG, with each Group having a dedicated discussion forum for each subtheme. In addition, the Coordination Board can have its own Group as well. In this way, all representatives of the ThWGs and the Coordination Board can already start working jointly, and benefit from the shared platform. Updates regarding the CoU2.0 transformation process and upcoming events can be easily shared in the own CoU Group as well as in the Live Feed on the main page.

The Networks of Practitioners are currently creating their own communities and platforms. However, these are not linked, which hinders a good information exchange and collaboration between these Network projects. Furthermore, it is not clear how the networks/communities will be sustained once these projects have ended. The overall Network of Practitioner networks could have its own Group on CMINE, with each of the individual projects having a dedicated discussion forum. In addition, each project can also have a Group on CMINE, directly linked to the project's public website.

Because the CoU is relevant for the whole community of Users on Secure, Safe and Resilient Societies, all newly granted projects (DRS, FCT, BES, INFRA) are required by REA (and endorsed by DG HOME) to create a Group on CMINE and use this as the primary interface with the external world.

Financing options

- The CoU is being supported by a Project Management Office. This is the result of a public procurement. Currently, Ecorys is fulfilling the PMO role. In case this PMO role has to be procured again, the annual fee for the technical platform and costs related to the community management can be included.
- An additional financing option could be that all projects that are represented in the ThWGs, as well as all granted Practitioner Network projects contribute a small budget to the annual fee of the platform and the overall community management. The Chair of each ThWG is responsible for managing the respective Group on CMINE.
- All newly granted DRS, FCT, BES and INFRA projects are obliged to pay an annual fee to cover the costs for the platform and community management.

In order to guarantee the continuity of CMINE, it makes sense that one organisation is the prime point of contact to the platform service provider (Hivebrite) and is the overall CMINE community manager. The community management of dedicated Groups (e.g. CoU, ThWGs, Practitioner Networks) can be done by respective chairs of these Groups. The total annual fee for the platform could be included within the CoU PMO procurement (app. €23,000). The costs for the overall community management can be covered by the contributions from each project (represented in ThWGs, Practitioner Networks and/or all Secure Societies projects): this will only be a relative small amount per project.

Follow up contact

Discuss the way forward and financing options with DG HOME (respective HoU, project officer of CoU and project officer of Practitioner Networks).

Adoption scenarios for IFAFRI

Four scenarios for the engagement of IFAFRI with CMINE:

Scenario 0 – negative experience with CMINE
IFAFRI activated its group on CMINE and continues working with it.
IFAFRI does not see the added value of working with the CMINE and does not actively make use of its groups (for various reasons).
The IFAFRI group is removed from the CMINE page.
Added value for IFAFRI: none

Scenario 1 – good experience with CMINE
IFAFRI is using its group on CMINE and continues working with it.
IFAFRI enjoys working with CMINE and sees the added-value of continued use of the platform
IFAFRI sees the added value of the CMINE but the CMINE Chair does not want to use parts of its PMO budget for the usage of the CMINE platform. Instead it would move on to other freemium fora.

Added value for IFAFRI: ready-to-use communication channel where the IFAFRI members can communicate and interact internally. The platform can also be used to disseminate the outputs of IFAFRI (e.g. new commonly agreed gaps)

Scenario 2 – intensified engagement with CMINE
IFAFRI is using the CMINE and continues working with it.
More and more IFAFRI members are joining the CMINE and are actively using it.
IFAFRI members enjoys working with CMINE, use it on a day-to-day basis and see the added-value of continued use of the platform.
IFAFRI does not want to does not want to use parts of its PMO budget for the usage of the CMINE platform (yet) but continue to test the platform OR the IFAFRI wants to use it but no budget can be made available due to a lack of financial resources of the new chair OR only very limited financial resources can be made available which would not be sufficient.
IFAFRI government officials see added value of the CMINE and wants to extend the usage of other types of groups (i.e. cross-national)

Added value for IFAFRI: ready-to-use communication channel where IFAFRI can communicate internally. A spill-over effect to other cross-national groups of IFAFRI members might be initiated.

Scenario 3 – full IFAFRI transition to CMINE
IFAFRI is using it group on CMINE and start working with them
IFAFRI enjoys working with CMINE and sees the added-value of continued use of the platform
CMINE become the main internal communication hub for IFAFRI and one of the main dissemination channels to create awareness of the CMINE (e.g. for IFAFRI outputs and relevant events).
The IFAFRI Chair is willing to pay a certain amount for the CMINE.
A spill-over effect has been created IFAFRI members are using the CMINE for IFAFRI non-related purposes.
A few of the them add the financing of the CMINE to their budget lines.

Added value for IFAFR: ready-to-use communication channel where all TIEMS chapters and members can communicate within and outside their chapters. CMINE also offers a platform where TIEMS' courses can be stored, developed and presented. It allows for interactive sessions and in-group discussions on the content of the course. In this scenario, CMINE would become the one-stop-shop for TIEMS where all its online activities (communication, education, etc) can take place.

Scenario 1, 2 and 3 are further elaborated upon in the table below.

Disclaimer:
None of these scenarios have been discussed (in detail) with IFAFRI.
Funding of PMO is crucial.
IFAFRI currently finds itself at the very early stages of engagement with CMINE.
Presenting these options to IFAFRI at this point in time might have a deterring effect; it might give them a sense that CMINE is 'pushing'. It is recommended to approach IFAFRI careful in this regard.

Short term: before end DRIVER+
Mid-term: before 2021

Long term: after 2021

Table A15: Adoption scenarios, action and timings IFAFRI

	Scenario 1		Scenario 2		Scenario 3	
	Good experience with CMINE		**Intensified engagement with CMINE**		**Full IFAFRI transition to CMINE**	
	Action	*Timing*	*Action*	*Timing*	*Action*	*Timing*
IFAFRI	To evaluate experience with CMINE platform	Short term	To evaluate experience with CMINE platform	Short term	To evaluate experience with CMINE platform	Short term
	To identify areas for improvement	Ongoing	To identify areas for improvement	Ongoing	To identify areas for improvement	Ongoing
	To actively make use of the CMINE platform	Ongoing	To actively make use of the CMINE platform	Ongoing	To actively make use of the CMINE platform	Ongoing
			To draft outline for use CMINE for dissemination	Mid-term	To outline use CMINE for dissemination purposes.	Mid-term
			To initiate funding possibilities with IFAFRI	Mid-term	To discuss IFAFRI usage vis-à-vis other CMINE users	Mid-term
					To discuss funding possibilities by IFAFRI	Long term
RAN	To continuously monitor experiences with IFAFRI platform	Ongoing	To continuously monitor experiences with CMINE platform	Ongoing	To continuously monitor experiences with CMINE platform	Ongoing
	To identify best practices/areas for improvement	Ongoing	To identify best practices/areas for improvement	Ongoing	To identify best practices/areas for improvement	Ongoing
	To track activity IFAFRI groups (are they still being used?)	Ongoing	To track activity IFAFRI groups (are they still being used?)	Ongoing	To track activity IFAFRI group (are they still being used?)	Ongoing
			To contribute to designing and setting up of educational group	Mid-term	To contribute to designing and setting up of more groups	Mid-term
			To facilitate discussions between IFAFRI and Hivebrite on options to design educational group	Mid-term	To facilitate discussions between IFAFRI and Hivebrite on options to design educational group	Mid-term
					To contribute to determining design of full IFARI usage of CMINE	Long term

	Scenario 1		Scenario 2		Scenario 3	
					To lead discussions on status TIEMS vis-à-vis other CMINE users To discuss funding options with TIEMS	Long term Long term
ARTTIC	To request evaluation on experience with CMINE platform To assist in contractual issues	Short term Ongoing	To request evaluation on experience with CMINE platform To assist in contractual issues	Short term Ongoing	To request evaluation on experience with CMINE platform To assist in contractual issues	Short term Ongoing
Ecorys	To co-assess evaluation IFAFRI	Short term	To co-assess evaluation IFAFRI	Short term	To co-assess evaluation IFAFRI	Short term
TNO	To co-assess evaluation TIEMS	Short term	To co-assess evaluation IFAFRI	Short term	To co-assess evaluation IFAFRI	Short term
PSCE	To co-assess evaluation TIEMS	Short term	To co-assess evaluation IFAFRI	Short term	To co-assess evaluation IFAFRI	Short term

Adoption scenarios for TIEMS

Four scenarios for the engagement of TIEMS with CMINE:

Scenario 0 – negative experience with CMINE
TIEMS activated its groups on CMINE and started working with them
TIEMS does not see the added value of working with the CMINE and does not actively make use of its groups (for various reasons)
The TIEMS groups are removed from the CMINE page
Added value for TIEMS: none

Scenario 1 – good experience with CMINE
TIEMS activated its groups on CMINE and started working with them
TIEMS enjoys working with CMINE and sees the added-value of continued use of the platform
TIEMS does not want to extend the usage of the CMINE platform to other chapters than the African chapter (yet)
TIEMS does not want to extend the usage of the CMINE platform to other types of groups (i.e. educational groups) yet
Added value for TIEMS: ready-to-use communication channel where the Africa chapter can communicate internally.

Scenario 2 – intensified engagement with CMINE
TIEMS activated its groups on CMINE and started working with them
TIEMS enjoys working with CMINE and sees the added-value of continued use of the platform
TIEMS does not want to extend the usage of the CMINE platform to other chapters than the African chapter (yet)
TIEMS wants to extend the usage of the CMINE platform to other types of groups (i.e. educational groups where TIEMS' courses are taught)

Added value for TIEMS: ready-to-use communication channel where the Africa chapter can communicate internally. CMINE also offers a platform where TIEMS' courses can be stored, developed and presented. It allows for interactive sessions and in-group discussions on the content of the course.

Scenario 3 – full TIEMS transition to CMINE

TIEMS activated its groups on CMINE and started working with them
TIEMS enjoys working with CMINE and sees the added-value of continued use of the platform
TIEMS wants to extend the usage of the CMINE platform to (all) other chapters. CMINE will become the main communication hub for TIEMS
TIEMS wants to extend the usage of the CMINE platform to other types of groups (i.e. educational groups where TIEMS' courses are taught)
In this scenario, financial support from the side of TIEMS should be discussed
Added value for TIEMS: ready-to-use communication channel where all TIEMS chapters and members can communicate within and outside their chapters. CMINE also offers a platform where TIEMS' courses can be stored, developed and presented. It allows for interactive sessions and in-group discussions on the content of the course. In this scenario, CMINE would become the one-stop-shop for TIEMS where all its online activities (communication, education, etc) can take place.

Scenario 1, 2 and 3 are further elaborated upon in the table below.

Disclaimer:
None of these scenarios have been discussed (in detail) with TIEMS. At some point, it was discussed to add educational groups for TIEMS to CMINE, however this has not been further detailed to date.
As TIEMS is scattered around the world, communication with the initiative is not very rapid (as internal alignment is needed before any decisions are made/communication is shared). Moving forward is expected to take some time.
TIEMS currently finds itself at the very early stages of engagement with CMINE. They have not started working with the platform yet. Presenting these options to TIEMS at this point in time might have a deterring effect; it might give them a sense that CMINE is 'pushing'. It is recommended to approach TIEMS careful in this regard.

Table A16: Adoption scenarios, action and timings TIEMS

	Scenario 1		Scenario 2		Scenario 3	
	Good experience with CMINE		**Intensified engagement with CMINE**		**Full TIEMS transition to CMINE**	
	Action	*Timing*	*Action*	*Timing*	*Action*	*Timing*
TIEMS	To evaluate experience with CMINE platform To identify areas for improvement To actively make use of the CMINE platform	Short term Ongoing Ongoing	To evaluate experience with CMINE platform To identify areas for improvement To actively make use of the CMINE platform To draft outline for use CMINE for educational groups To populate and activate educational group on CMINE	Short term Ongoing Ongoing Mid-term Mid-term	To evaluate experience with CMINE platform To identify areas for improvement To actively make use of the CMINE platform To outline use CMINE for educational groups To populate and activate educational group on CMINE To outline use of CMINE by entire TIEMS organisation	Short term Ongoing Ongoing Mid-term Mid-term Long term Long term Long term

	Scenario 1		Scenario 2		Scenario 3	
					To discuss TIEMS usage vis-à-vis other CMINE users To discuss funding possibilities by TIEMS	
RAN	To continuously monitor experiences with CMINE platform To identify best practices/areas for improvement To track activity TIEMS groups (are they still being used?)	Ongoing Ongoing Ongoing	To continuously monitor experiences with CMINE platform To identify best practices/areas for improvement To track activity TIEMS groups (are they still being used?) To contribute to designing and setting up of educational group To facilitate discussions between TIEMS and Hivebrite on options to design educational group	Ongoing Ongoing Ongoing Mid-term Mid-term	To continuously monitor experiences with CMINE platform To identify best practices/areas for improvement To track activity TIEMS groups (are they still being used?) To contribute to designing and setting up of educational group To facilitate discussions between TIEMS and Hivebrite on options to design educational group To contribute to determining design of full TIEMS usage of CMINE To lead discussions on status TIEMS vis-à-vis other CMINE users To discuss funding options with TIEMS	Ongoing Ongoing Ongoing Mid-term Mid-term Long term Long term Long term
ARTTIC	To request evaluation on experience with CMINE platform To assist in contractual issues	Short term Ongoing	To request evaluation on experience with CMINE platform To assist in contractual issues	Short term Ongoing	To request evaluation on experience with CMINE platform To assist in contractual issues	Short term Ongoing
Ecorys	To co-assess evaluation TIEMS	Short term	To co-assess evaluation TIEMS	Short term	To co-assess evaluation TIEMS	Short term
TNO	To co-assess evaluation TIEMS	Short term	To co-assess evaluation TIEMS	Short term	To co-assess evaluation TIEMS	Short term
PSCE	To co-assess evaluation TIEMS	Short term	To co-assess evaluation TIEMS	Short term	To co-assess evaluation TIEMS	Short term

Annex 10 – PRDR 2 position paper

POLICY RESEARCH DIALOGUE ROUNDTABLE 2

Position paper on the needs and requirements for an improved capability development process

Context

Adopting the Sendai Framework for Disaster Risk Reduction 2015-2030[8] showed a clear shift from managing disasters to managing the underlying risks. It clearly recognised the strong role that the scientific community can play in an improved understanding of risk and communicating about new knowledge and innovations. With the new rescEU policy framework recently entering into force[9], new ways of collaboration, decision-making, information exchange and of allocating responsibilities will need to be established.

The EC has implemented a co-design process to prepare the Strategic Plan for Horizon Europe – the European Union Framework Programme for Research and Innovation 2021 – 2027 (Horizon Europe)[10]. An open web consultation was conducted between 31 July 2019 and 4 October 2019, and several meetings and exchanges at the European Research and Innovation Days (24-26 September 2019) were held. This consultation was primarily aimed at gathering comments and ideas regarding the whole process reflecting a project lifecycle, from proposal submission to reporting and exploitation of results[11]. How to organise and implement a co-design process to define the topics and content of future Research and Innovation programs has not established yet.

For this purpose, building upon the outcomes of the Program Committee meeting (17 October 2019) and the Security Research Event (6-7 November 2019) the DRIVER+ project[12] together with DG HOME, organised a second Policy-Research Dialogue Roundtable (PRDR) in Brussels on 18th December 2019. This PRDR2, which is a follow up of the first PRDR (28 February 2019) explored a roadmap approach supporting the capability development process in relation to the priority 'Disaster-resilient societies' of the envisioned Horizon Europe cluster "Civil Security for Society".

The discussion was guided around three main questions:

- How can the future program for research and innovation improve the current capability development process by ensuring a better uptake of results from previous projects?
- How can these elements be best implemented in the Horizon Europe Work Programme and other funding instruments?
- How can the synergies between the Community of Users framework and the envisioned UCPM Knowledge Network be best exploited to enhance the European capability development process in Disaster Risk Management?

[8] https://www.unisdr.org/we/coordinate/sendai-framework

[9] Decision (EU) 2019/420 of the European Parliament and of the Council of 13 March 2019 amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism

[10] https://ec.europa.eu/research/pdf/horizon-europe/ec_rtd_orientations-towards-the-strategic-planning.pdf

[11] https://ec.europa.eu/info/sites/info/files/research_and_innovation/contact/documents/ec_rtd_he-codesign-implementation_112019.pdf

[12] https://www.driver-project.eu/

The event focussed on the needs and requirements for an improved capability development process regarding climate-related risks (wildfires and floods) as well as CBRN-E, that should be addressed in Horizon Europe and other Union programmes.

Adoption of a roadmap approach

There is value in adopting a strategic and foresight approach to engage in exploratory thinking, especially when supported by a structured and graphical template often referred to as visual roadmap. Indeed, such a template not only prompts thinking and stretches the mind in a non-incremental way but also facilitates discussions and reporting back. It also helps adopt a dynamic perspective and assists in exploring and identifying a range of useful information against a clear timeline, including enablers, barriers, objectives, milestones, interdependencies between various activities and coordination-related issues.

In the PRDR2 context, the roadmap's architecture (see Annex 1) was tailored in order to help participants:

- visualise and explore over time a number of key dimensions related to the uptake of research projects' solutions, ways to improve capability development through research programming and to impact the Work Programme of Horizon Europe, and potential roles that the UCPM Knowledge Network should play.
- identify and anticipate barriers, enablers as well as potential linkages such as alignment and coordination opportunities between the three topics at stake.
- build a shared vision which provides a sense of directions, identifies key actions against a timeline and allows for easy update and circulation
- list and prioritise key actions to address guiding questions.

In more details, the template was structured around 8 different items to be explored in a step-by-step way:

Key elements and timeline:

Step 1: **Definition of ideal state**	**Key capabilities that should exist in an "ideal world" (i.e. established connections between existing frameworks)**
Step 2: **Record of the current state**	Capabilities which exist today (in 2019 – 2020)
Step 3: **Development of path forward**	Detailed actions which would need to be conducted in the short term, medium term and long term to reach the ideal state
Step 4: **Reflection on timeline**	Reasonable timeframe within which the different actions could be carried out and achieved

Milestone and actions:

Step 5: **Identification of key enablers and barriers**	**Enablers fostering the achievement of the ideal state (e.g. dedicated funding agency; technology allowing for the data collection, management and analysis to support a European repository data; research programme; Common Operational Picture with European symbols, …) and factors representing challenges to overcome (e.g. lack of funding; different cultures, mindset and approaches between countries and/or agencies, organisations; insufficient training of people; missing innovative tools; lack**

	of cooperation due to sensitive data; ...)
Step 6: Selection of top key enablers and barriers	Ranking of enablers and barriers to give a sense of priority and urgency
Step 7: Listing of key milestones	Thresholds to reach to make the ideal state for capability development possible (e.g. dedicated research programme; common training standards across Europe; interoperability between different repository data; good command of English from field practitioners to management and policy; etc....)
Step 8: Prioritisation of actions to conduct	Key and "high-level" actions to conduct to support capability development and make achievable the capabilities expected in an ideal state (e.g. research synergies between national and European programmes; standards development; launching of a European data repository; ...).

During the PRDR2, these steps were applied for two climate-related risks (wildfires and floods) and CBRN-E. This resulted in an overview of which topics and research questions have already been addressed sufficiently, what are the open research questions, what are the emerging topics, which topics may be included in the Horizon Europe programming and an outline of a roadmap for addressing these topics. An overview of the results is presented in Annex 2.

Recommendations

From the debate which took place among the PRDR2 participants, structured by the three guiding questions, six key recommendations were identified and framed by the DRIVER+ project (see Figure 1).

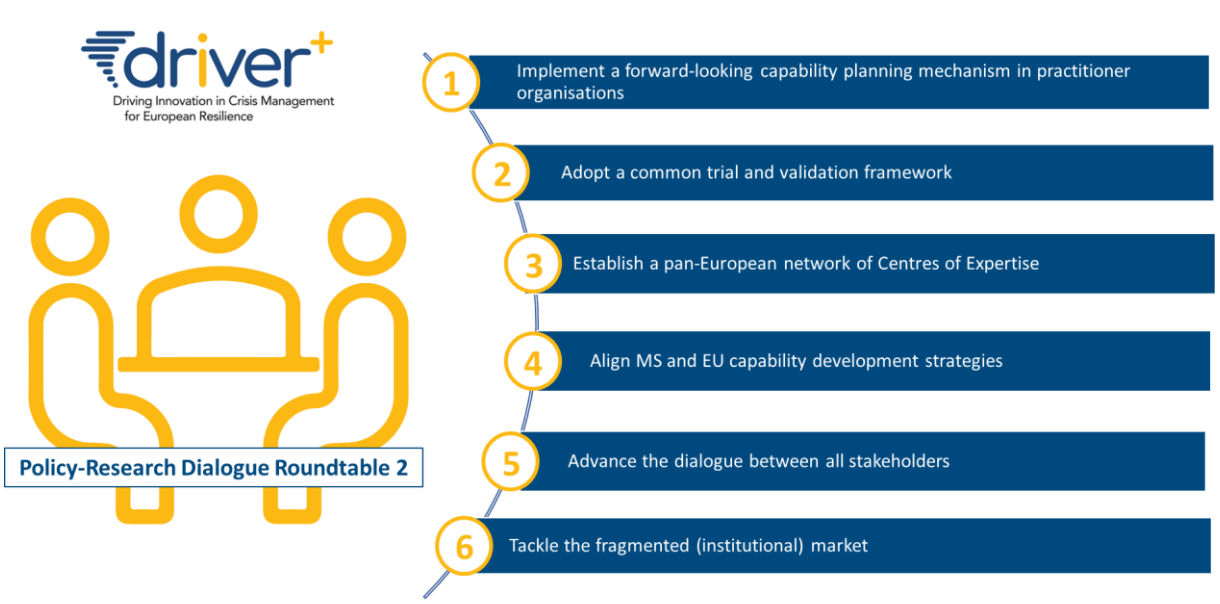


Figure 1: "At a glance" recommendations of PRDR2

1. *Implement a forward-looking capability planning mechanism in practitioner organisations*

Many practitioner organisations do what they have to do: prepare for and respond to urgent and actual crisis situations. Planning is usually covering a period up to 5 years ahead. The initiation of research and innovation activities is often triggered by specific events. This limited timeframe and reactive approach leads to a situation in which fast-changing security situations are not adequately dealt with. The risk is that research and innovation programmes are focusing on solving yesterday's crises. A pre-condition to a capability deployment programme would be the establishment of a forward-looking capability planning process in Disaster Risk Management and Security. Such a process would identify medium to long-term needs and gaps and would contribute to the definition of EU R&I agendas matching the end-user requirements.

To achieve this goal, besides the practitioners, experts from various technological and social sciences, both from the crisis management and other domains, need to closely collaborate with each other. These experts conduct technology watches, inventory socio-cultural, climate and demographic developments, and determine the potential impacts on the practitioners. Based on these potential future scenarios, capabilities can be described and associated topics for future research programs identified.

This needs to be implemented at MS level. And ideally, these expert groups collaborate across the EU and Associated Countries, in order to avoid unnecessary duplication of efforts, to learn from each other and to allow an exploitation of synergies between the efforts already undertaken at MS level and the ones expected to be complementary on the EU level.

Several tools are useful in this respect. The Portfolio of Solutions (PoS)[13] is a repository that provides an overview of innovative solutions for crisis management. The PoS is online, open-source and interactive, and matches available solutions (supply) with practitioner needs (demand). For each solution, practitioners can share their user experiences and solution providers can give background information and offer support. The PoS therefore helps practitioners to decide whether a solution may be useful for them and provides support for the implementation and deployment.

The Lessons Learned Library (L3)[14] is an online repository in the domain of DRM for collecting and sharing lessons from preventive or response activities at events such as severe incidents, crisis situations, tests or exercises. It offers the opportunity to inventory whether a specific issue requires new research and/or developments, or that available lessons learned can be adopted.

The Gaps Explorer[15] is an online overview of targeted recommendations, tailored to different stakeholder profiles (policy-makers, practitioners and scientists). Although in many domains knowledge is abundant, gaps do still exist. Based on results of EU-funded research and innovation projects[16] and the conclusions of multi-stakeholder workshops and consultations, key recommendations are formulated with a view to adapt policies and to propose R&I topics. An initial integration between the Portfolio of Solutions and the Project Explorer has been established to create a complementary overview of projects and results.

2. Adopt a common trial and validation framework

Following the steps in the capability development cycle, from an analysis of gaps and needs, via an assessment of what is available, to research and innovation, and eventually to acquisition, strongly supports the successful implementation of innovative technologies into the field of operations at MS level.

[13] https://pos.driver-project.eu/en/PoS/solutions

[14] https://l3crisis.eu/

[15] https://drmkc.jrc.ec.europa.eu/knowledge/Gaps-Explorer

[16] https://drmkc.jrc.ec.europa.eu/knowledge/PROJECT-EXPLORER

Validation of whether these needs have been properly addressed should be the responsibility of the MS. In order to support this validation already during the research and innovation projects, it is beneficial to introduce a Pan-European trial and validation framework into the European research programme. It was acknowledged by the workshop participants that a standardised methodology for trialling and validation should be adopted, or at least that there should be a requirement to clearly explain the trial and validation methods to be used. This is not always the case, leading to the potential risk of having an imprecise or inaccurate understanding of the outcomes of a trial, of the reliability and validity of its results and its potential benefits for practitioner organisations. The DRIVER+ test-bed offers the required functionalities and comprises two main components. The Trial Guidance Methodology (TGM)[17] provides practitioner-centred step-by-step guidelines, a list of roles and responsibilities, tools and methods to perform a trial through a clear, structured and co-creative approach. The Test-bed Technical Infrastructure (TTI)[18] provides a toolkit to connect innovative crisis management solutions to each other and to legacy systems, and to create a realistic environment in which solutions can be trialled in a structured and systematic way.

It must be understood, however, that the future is volatile, thus research and innovation projects cannot and should not in all cases directly be linked to clearly defined capabilities. Low 'Technology Readiness Level' (TRL) research actions in the work programmes should be included and be as open as possible to allow the inclusion of potential disruptive technologies. A close link between the Future and Emerging Technologies (FET) program[19] and the domain of DRM needs to be established. Because there is much uncertainty about the future usability of these technologies, the initial duration of such projects should be limited with options for continuation if the results are promising and the future need is still acknowledged. This requires a more flexible and agile research and innovation programming.

3/ Establish a pan-European network of Centres of Expertise

The enhanced involvement of practitioners, not only within the projects, but already in preparing the work programme, thus steering the expected research outcomes, has already started to pay off and is an essential part in Security Research. The Practitioners Network projects are a good initiative. However, the follow-up after the closure of a project and the involvement of a wider network of practitioners in the uptake of the results needs further attention. The workshop participants identified the need to continue leveraging the knowledge-base of practitioner organisations. Many of these organisations still lack knowledge and experience on research and innovation, and on Public Private collaboration. This is a barrier to receiving, understanding, appreciating, adopting and implementing the outcomes conveyed by research projects. This requires a change of culture ("fire-fighters are not trained to innovate") and at the same time supporting them in managing innovation.

In order to work together within the innovation ecosystem, and applying a common trial and validation framework, exchange of information, results and experiences between all stakeholders, projects and knowledge networks should be facilitated. With this purpose in mind, DRIVER+ has established a pan-European network of Centres of Expertise. A Centre of Expertise (CoE) is a practitioner-centred organisation that plays a role in the capability development and/or innovation management of practitioner organisations and has close relations with (applied) research organisations, solution providers and policymakers. The CoEs apply the various DRIVER+ outcomes supporting their stakeholders. As the implementations and experiences will vary from organisation to organisation as well as between Member

[17] https://tgm.ercis.org/

[18] https://github.com/DRIVER-EU/test-bed

[19] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/future-and-emerging-technologies

States, they will gather and share lessons learned, and, if necessary, adapt the respective DRIVER+ outcomes to organisational and/or national contexts. Sharing these experiences and lessons learned within the pan-European network of CoEs, is crucial. Only then a shared understanding in DRM and crisis management, and a shared approach in practitioners' capability development can be achieved and further improved.

4/ Align MS and EU capability development strategies

In many Member States, national institutions are often fragmented and spread across different line ministries leading to poor communication and lack of cooperation: national harmonisation is required. In addition, policy-makers should take ownership of the results. If they call for specific topics/research, they should feel responsible for implementing the results, or at least facilitating their implementation.

DRIVER+ believes that the establishment of the pan-European network of CoEs contributes to a partnership-based DRM innovation ecosystem supporting the alignment of capability development strategies of practitioner organisations, Member States' authorities, European institutions, the research community and the private sector (industry, incubators). This innovation eco-system should be practitioner-driven to ensure practical outputs, systematic tests and trials, and a service-oriented approach. Achieving this would require the adoption of a co-creation process and the constant involvement of practitioners. This multiple-stakeholder engagement is crucial, as the perspectives of practitioners, researchers, policy-makers, industry and citizens on what a "good" result is can be very different.

In addition, it is important to note that R&I projects are no stand-alone projects, but rather a shackle in a chain. In order to have an as strong chain as possible, leading to a successful implementation of new solutions, key actors of the next step in the innovation process should already be actively engaged. Research is only part of the journey, only piece of the bigger security puzzle. One potential way of articulating the connections among the pieces, is to lift the coordination of useful project interactions to DG level, e.g. by a dedicated CSA or platform to facilitate synergies and to avoid duplication in efforts. As reflected in the Security Union, the high interdisciplinary of research topics in Secure Societies also asks for recognition of several other activities, e.g. under DG HOME, DG ECHO, DG SANCO, DG DEFIS and JRC which is difficult to achieve from the viewpoint of a single project.

The rationale for a partnership-based approach lies in the need to implement an efficient capability process that would allow the common missions, needs and operational requirements to be defined and, at the same time, identify possible solutions matching these requirements in a mid to long-term time frame. In the process, the demand side (responsible for the assessment of needs), the research community (better placed to identify technology and capability gaps) and the private sector (well positioned to develop solutions and provide services) complement each other. Such a "requirement pull" approach would make security research investments at MS and EU level more efficient by linking R&I activities to capability deployment, completing the mission-oriented approach proposed in the Horizon Europe Regulation.

5/ Advance the dialogue between all stakeholders

Preconditional to establishing structured partnerships and aligning capability development strategies is the facilitation of a well-structured dialogue between all stakeholders. For this purpose, DG HOME has established the Community of Users for Secure, Safe and Resilient Societies.[20] The CoU acts as a platform of various users of the Secure Societies research program and as an interface between policy, end-users and

[20] https://www.securityresearch-cou.eu/

R&I projects, with the practitioner organisations. It has the ambition to develop synergies among research and capacity-building projects and to contribute to Strategic Civil Security Research Agendas in support of the Horizon Europe programming.

As part of the rescEU policy framework, the Union Civil Protection Knowledge Network is developed. This Knowledge Network[21] brings together civil protection and disaster management experts and organisations, increases knowledge and its dissemination within the UCPM, and supports the Union's ability and capacity to deal with disasters. Currently under development, the Knowledge Network will support experts, practitioners, policy-makers, researchers, trainers and volunteers at every stage of the disaster management cycle through networking, partnerships, collaborative opportunities, and access to expertise and good practices.

DRIVER+ has developed the Crisis Management Innovation Network Europe (CMINE)[22], which is an online community platform that fosters innovation and enhances a shared understanding in the fields of crisis management and DRM. CMINE is creating an umbrella network of stakeholders by linking existing projects, networks, organisations and initiatives. By doing so, CMINE reduces fragmentation, generates ideas and helps to identify innovative solutions to improve European resilience.

It is recommended to use CMINE to advance the dialogue between all stakeholders involved in both the CoU and the Knowledge Network. Within the CoU, CMINE can support the collaboration and information sharing within and between the Thematic Working Groups as well as within and between the Practitioners Network projects. Identified gaps and solutions, as well as potential topics for future research programs can be discussed and reflected upon. It facilitates the organisation of joint events and workshops by projects and organisations. Furthermore, CMINE can play an important role as information platform in-between CoU meetings. It can be used and to share information by the EC (DG HOME, REA, related DGs). In a similar way, CMINE can be a valuable building block to start the operationalisation of the Knowledge Network. It facilitates direct interaction with the policy makers. New ideas are reflected upon or pitched by experts. CMINE is used for direct communication with the Union Civil Protection Mechanism experts and modules on content, like improvement of procedures, standardisation and sharing experiences of missions. The Emergency Response Coordination Centre (ERCC) could use CMINE as a channel for their public reports and to get feedback. Finally, it is recommended to create a synergy between CMINE and the EU Research Results Platform[23] enabling follow up discussions about the public Security Research projects' key exploitable results.

6/ Tackle the fragmented (institutional) market

A more efficient approach to the research programming, and the consecutive procurement of solutions should be based on a medium to long-term approach following a systematic process of the definition of needs, identification of capability gaps and definition of common operational requirements that would allow the successful implementation of the solutions, enhancing interoperability and minimising, at the same time, the risk of security breaches.

A clear vision of the market needs, the barriers as well as enables to market uptake, and the go-to-market strategy already at the early stage of ideation, are considered as key to success. Since the security domain is defined by its complex nature, including multidisciplinary players on all levels from operational to

[21] https://ec.europa.eu/echo/what/civil-protection/knowledge-network_en

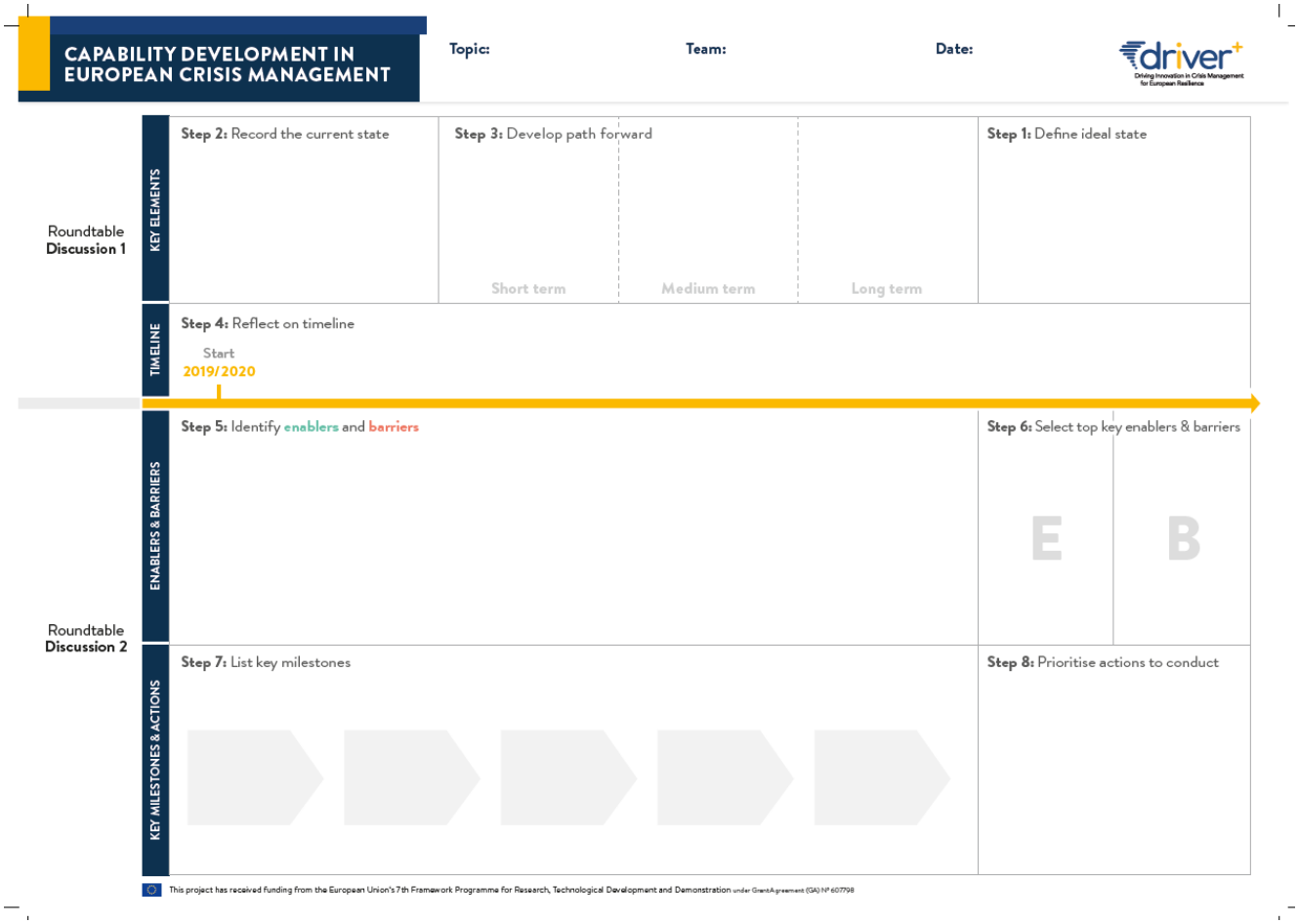
[22] https://www.cmine.eu/

[23] https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform

political, successfully developing solutions in real-life use cases requires a well-coordinated multi-stakeholder approach.

Going from idea to market asks for a coherent development trajectory, reflecting all stages of technology readiness and maturity to be achieved to come up with a final innovative solution. This cannot be covered by one single R&I project: this trajectory comprises multiple, often sequential projects, partly involving different partners. It calls for a better alignment of H2020/Horizon Europe programs with other financial instruments and funding mechanisms (e.g. capacity building projects, InterReg, national innovation programs) to develop projects from early stage concept up to advanced prototype solutions leading to a successful implementation and market uptake.

Annex 1: Visual overview of the roadmap template



Annex 2: Results

2.1: Participants

The group of participants of the PRDR-2 was, in addition to several DRIVER+ partners, composed of policy makers (DG ECHO/DG HOME) and representatives of major crisis management organisations, research representatives of related projects, and industry.

Policy makers	Practitioners, crisis management organisations	Research representatives	Industry	DRIVER+ partners
DG ECHO	Lithuanian Cybercrime Center of Excellence for Training, Research & Education (L3CE)	Eurecat	SES System Engineering Solutions	TNO
DG HOME	German Federal Agency for Technical Relief (THW)	SINTEF / Norwegian University of Science and Technology	CIDSS	DLR
REA	The International Emergency Management Society (TIEMS)	Center for Security Studies (KEMEA)	Tecnoalimenti	Danish Red Cross /IFRC Reference Centre for Psychosocial Support
COST	Resilience Advisors	University of Louvain	Riskaware Ltd	ARTTIC
Worldbank	SAFE Cluster	Instituto Superior Agronomia, - University of Lisbon	CASTRA	JRC
Rijkswaterstaat	Red Cross EU Office	Fraunhofer INT		SRC PAS
Austrian Research Promotion Agency (FFG)		LUPT/ University of Naples		EOS
Stad Geel		University of National and World Economy, Sofia		DIN
				HKV Consultants

From the discussions which took place among the PRDR2 participants in the three topic-based sessions, emerged a number of considerations and recommendations.

2.2: Roundtable session on Wildfires

Step 1: Ideal state

The ideal state for the capabilities needed for fire management was defined around five different dimensions:

1. To implement capability planning for future development in a longer-term view
2. To model and simulate wildfire spread and wildfire risk
3. Based on EUCPM to develop yearly trainings specific for wildfires, to have a mechanism to exchange good practices, knowledge and equipment innovations and to adopt common standards regarding equipment, readiness, capability and action.
4. To implement good practices for landscape management, for example: to have structural budget available for ecosystem services to be used by private and public owners.
5. To implement a common directive for integrated fire management.

Step 2: Current state

1. Focus on day to day activities and less focus on planning future capabilities.
2. Existence of fuel maps on different regions situated in different entities but no fuel map of the entire continent. No common repository either and need to access other data for modelling and simulation of wildfire spread and risk is through various public and private entities
3. No regular and compulsory trainings specific for wildfires. Good practices like EUCPM include various types of crisis.
4. Poor landscape management regarding risk of wildfire
5. No common directive for integrated fire management

Steps 3 & 4: Path forward & timeline

1. 2 years for implementation, long term for support: annually at national level, to request and review a capability development plan of the agencies, related to wildfire integrated management.
2. 3 to 5 years: To fund the development of a fuel map of Europe as well as data repository and models for wildfire risk and wildfire spread development.
3. 2 years: To develop specific training programs for practitioners and to derive lessons learned, then 5 years to develop standards regarding equipment, readiness, capability and action.
4. 2 to 5 years: To explore and develop good practices for landscape management.
5. 5 to 10 years: To implement the good practices for landscape management.
6. 3 to 5 years: To develop and implement a common directive for integrated fire management

Steps 5 & 6: Top enablers (E) & barriers (B)

Key enablers in capability development for fire management were identified as the past experience and the learning from the steps already taken. Key barriers were considered as resulting from the lack of common acceptance; budgetary restrictions and the ownership of property and information resources.

In more details, for each dimension, participants listed the factors they were considering as enabling or hindering ones as follow:

1. At national level – every year, to request and review a capability development plan of the

agencies, related to wildfire integrated management.

E: There is an obligation to prepare a risk assessment. ISDR platforms. EFIS, JRC, Copernicus. Use the existing living labs related to wildfires

B: Short term view, Risk perception. Priorities of practitioner organizations. Lack of close cooperation and coordination between the involved entities.

2. To fund the development of a fuel map of Europe as well as data repository and models for wildfire risk and wildfire spread development.

E: We have weather and topography EFIS and JRC already have data. Copernicus.

B: Data perceived as sensitive. Validation and perception about the utility of the models.

3. To develop specific training programs for practitioners and to derive lessons learned, thus developing standards regarding equipment, readiness, capability and action.

E: We already have good practices - EUCPM.

B: Language skills, long term funding for interoperability. Time consuming activities to allocate resources and equipment for training. Lack of knowledge for latest technological development.

4. To research and develop good practices for landscape management.

E: Already have such practices and several projects working on that.

B: Information sharing.

5. To implement the good practices for landscape management.

E: Already have such practices and several projects working on that. Technology of other agencies could be used.

B: Ownership of the land and related private and public interests. Public acceptance of the funding.

6. To develop and implement a common directive for integrated fire management

E: We already have research and talks on the topic. Extreme wildfires that EU has encountered.

B: A broad acceptance is required, and it will pose a lot of questions.

Step 7: Milestones

The milestones, understood as indicators showing that good progress is made towards the achievement of the ideal state for capabilities, identified by the participants included:

1. The identification of best practices available in long term capability planning
2. Consensus around capability gaps
3. Activities for identification of good practices
4. Established funding
5. Common training requirements & development of training programs
6. Lesson learning from the trainings
7. Development and implementation of standards
8. Identification of best practices
9. Prepared requirements for landscape management
10. Development and implementation of plans for landscape management
11. Preparation and implementation of a common directive for integrated fire management

accepted by all stakeholders

Step 8: Priority actions

1. At national level – every year, to request and review a capability development plan of the agencies, related to wildfire integrated management.
2. To develop specific training programs for practitioners and to derive lessons learned, thus developing standards regarding equipment, readiness, capability and action.
3. To implement the good practices for landscape management.
4. To fund the development of a fuel map of Europe as well as data repository and models for wildfire risk and wildfire spread development.
5. Citizens preparedness and involvement programmes

2.3: Roundtable session on Floods

Step 1: Definition of ideal state

When reflecting on the ideal state, the audience stretched their mind beyond the mere development of capabilities for dealing with flooding to focus on those capabilities needed to raise risk awareness and risk acceptance up to a level at which all stakeholders would be able to "thrive through floods". This awareness would not only be about what can happen but more importantly about what to do to handle the situation and how to recover from it.

In this ideal state, there would also be better synergies between all initiatives, at national and EU level, in order to share good practices, data, methodology and experiences, and also clearly recognized roles and responsibilities with established communication channels between the EU, the government and the local level. Information of population through data management would be key in such an ideal state, with well-informed population and up-to-date, real-time flood risks information. At the EU level, this would be supported by comparable flood risk mapping, land use planning and life-saving strategies.

Step 2: Current state

The current state is highly contrasted with locally varied situations and varied level of access to flood risk data and community resilience.

Among these different groups of people who show different level of experience and knowledge, some can respond well to flood situation (by, for instance, being connected to an app providing updates, warnings and guidance) but others require special assistance, mainly due to lack of actual information and personal perspectives.

Steps 3 & 4: Path forward & timeline for completion

Exploring the different actions to conduct in order to achieve the ideal state by 2040, the participants observed three distinct periods:

- Within 1 year: creation of flood risk awareness through education at school and in the private sector through incentives and data campaigns (where can you find information that is relevant for you); appropriate transcription of information which is already available; more funding for impact research and the development of easy to follow strategies (self-supportive life-saving activities)
- 2 to 7 years: open sourcing of the information and standards; making information available via tools with tailoring and overlay of information from different sources to be of optimal value for its users; organisation of hands-on experiences and awareness raising events to prepare for floods and enable a proactive response to flooding; making people aware about possible locations to go to and to live at through spatial planning
- Up to 15 years: design and organisation of repetitive events (for example declare a yearly 'Day of the flood risk') and exercises to clarify people's roles and tasks and ensure that each stakeholder understands and agrees to its responsibilities; "education" / learn from your lessons of policy makers;

action plan to guide people out of dangerous zones; raising awareness about probabilities and impacts; prevent permanent activities in high risk flood prone areas

Steps 5 & 6: Top enablers & barriers

	Enablers	Barriers
Key	• Lot of information already available, "just" difficult for stakeholders to find or manage it. • Centralised information hub to pool expertise and collect virtual and physical information. • Campaigns and demonstrations about climate changes, environmental risks, flood impact, evacuation strategies. • Possibility to build on networks (for instance through a dedicated Community of Users).	• Misdirection of some EU funding mechanisms with EU research money overspent on technical solutions and innovation.
Secondary	• Efficient tools/ approaches to assess risk perception. • Targeted communication for children. • 35% Horizon Europe for climate change. • Use of multi-hazard locally specific and early warning system.	• Limited space and informal settlements (e.g. people living in dangerous areas for lack of affordable housing). • Issues to tackle all connected and urgent and potential difficulties to set priorities. • Networks in competition for money. • Varied interest from the general public.

Step 7: Key milestones

The possibility to transform data from a wide range of sources into manageable knowledge and the development of mechanisms to access the general public in a targeted way were considered as key in the capability development for flood crisis management.

Step 8: Priority list of actions

For participants, five "high-level" actions were identified and ranked as priority actions to foster capability development in response to flooding and make achievable the capabilities expected in the ideal state as initially identified.

One set of actions concerned research, from the creation of funding for impact research (action 1) and the increase of research funding for the accessibility of data (action 2) to the involvement of SMEs and public authorities in the EU research programming to ensure that research informs decision-makers (action 3). Increasing the community resilience to flooding was considered as another key action which could be conducted through education and training (action 4). The adoption of a user-driven approach was also deemed as a key action, resulting in a guiding principle when assembling flood intelligence and developing response and recovery capabilities (action 5).

2.4: Roundtable session on CBRN-E

Statement from the group: Gaps and needs from high level to low level being already dealt with by many networks programme research and no need to reinvent the wheel, adoption of a high view on the issues at stake.

Step 1: Ideal state

The ideal state for the capabilities needed to address CBRNE-related crisis was defined around 9 key principles:

1. Integration of CBRNE as a piece of a wider space of crisis management.
2. Civil – military cooperation.
3. Taking advantage of close sectors where solutions can be relevant to CBRNE (environment, health …).
4. Complete set of tools for detection, identification, situation awareness developed by projects.
5. Common repository of gaps and needs.
6. Common economic vision and procurement strategy.
7. Perfect coordination between all actors including Member States through an EU CBRNE Agency.
8. Interdisciplinary exchange of professionals.
9. Impact study of EU projects' results on the market.
10. Innovation-minded end-user community.
11. Integration of research, innovation and best practice in training centres.

Step2:

1, 3, 6 & 7: EU projects with no impact.

2: insufficient civil-military interaction.

5: each project defines its own goals and needs.

7: EDA but nothing inside EU.

8: Social aspects (soft science) are insufficiently taken into account.

4, 5, 6: fragmented action.

6: Insufficient EU procurement.

Steps 3 & 4: Path forward & timeline

The path forward includes 3 series of actions:

- In the short-term: feasibility study with the setting of a taskforce that will conduct the studies and foster coordination; new template for exploitation of results for all projects; definition of the end-user landscape emphasising their needs, expectations and everyday practice; new CoU setting priorities and supporting coordination; EU access to NATO initiative for aligning civil-military terminology
- In the medium-term: creation of an executive board to foster joined efforts for setting repository, priorities for world programs; reflection to conduct on reasons why a project was successful and if it includes some social aspects and not technology only; focus to put on knowledge, not only tools, with knowledge as important as technology transfer; creation of an ERASMUS-type fund for security (for instance, to promote exchange of experts); joined training, I.e. civil-military, cross-border and multidisciplinary with materials and curriculum from EU projects
- In the long-term: development of a sustainability network of professionals building on existing initiatives

Steps 5 & 6: Top enablers (E) & barriers (B)

Key enablers in capability development for CBRNE-related crisis management were identified as all emerging technologies (AI, communications), networks and Community of Users, standards for innovation. Key barriers pointed out included the reluctance from industries to have a single market and from member states to have a single CBRNE Agency in the EU. Interestingly, standards which were considered as enablers were also deemed as potential barriers. The lack of dynamic link between the CBRNE Action Plan and second call for projects was also identified as a barrier.

The other enablers encompassed the adoption of an innovation culture, the uptake of results of existing projects, the use of a common language, the tracking of impact, EU defence funds, Horizon Europe and all technological progress. The lack of feedback from the EU regarding the impact of projects and the disconnection between the CBRNE Action Plan and R&D even if both in the hands of DG HOME were other barriers acknowledged by the participants.

Step 7: Key milestones

Participants didn't have much time to look into this dimension. They agreed that milestones in the CBRNE domain had to echo the ones concerning the CoU.

Step 8: Priority list of actions

Five actions were deemed as to be taken in priority:

1. The creation at a supra-national level of an Executive Board embedded in the CoU's new CBRNE theme to support impact studies, coordination between member states and joined repository of gaps and challenges.
2. The fostering of an innovation-oriented spirit in practitioner organisations.
3. The establishment of links between supra-national associations, the CoU and networks of practitioners.
4. Joined training (civil-military, cross-border, multidisciplinary) using materials and curriculum.
5. Demonstration and validation of new technologies.

Annex 11 – PRDR 3 Position paper

POLICY RESEARCH DIALOGUE ROUNDTABLE 3

Position paper on the integration of standardisation in research programming in crisis management

Concept for PRDR3

Standardisation is an acknowledged tool to support dissemination and exploitation of research and innovation project activities, and therefore the European Union promotes the use of standardisation in the current European Framework Programme Horizon 2020[24] as well as in the upcoming Horizon Europe Programme[25]. Hereby and within this position paper, the term standardization refers to formal standardization work conducted and standards published by national (e.g. AFNOR, DIN), European (CEN, CENELEC, ETSI) and international (ISO, IEC) standardisation organizations.

Within DRIVER+, standardisation is considered to be an important component to enhance the uptake of project results by the different stakeholders. Stakeholders include practitioners and policymakers, solution providers and researchers, and thus standardisation will significantly increase the impact of these results. Already in the first DRIVER+ position paper, the standardisation of a methodology for trialling and validation of crisis management solutions was recommended to further support Disaster Risk Reduction[26]. During DRIVER+, contributions to standardisation include the development of CEN Workshop Agreements (CWAs) on:

- The Trial Guidance Methodology.
- Building a common simulation environment.
- Requirements on information exchange across borders and organisations.
- Crisis and disaster management terminology[27].

Inputs are also presented into the ISO 22319:2017 draft standard on "Guidelines for planning the involvement of spontaneous volunteers"[28].

The third Policy-Research Dialogue Roundtable (PRDR3) focused on research-related standardisation activities in crisis management. This was the final event of the PRDR series that DG HOME and DRIVER+ have jointly organized. The event took place on 18 February 2020 in Brussels and was more specifically concerned with reflecting on the possible ways to integrate standardisation in research programmes and to

[24] REGULATION (EU) No 1291/2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation - https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R1291

[25] COM(2018) 435 Establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination - https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018PC0435

[26] https://www.driver-project.eu/wp-content/uploads/2019/05/DRIVER_PRDR1_position-paper_FINAL.pdf

[27] CWA download area, in which all finalized CWAs of DRIVER+ are published - https://www.cencenelec.eu/research/CWA/Pages/default.aspx

[28] https://www.iso.org/standard/66951.html

address standardisation needs in the crisis management sector. It also aimed to develop recommendations to inform and support the integration of standardisation in Horizon Europe.

Mainly two questions were tackled within the PRDR3:

- What are the experiences, best practices and approaches which have been tried and adopted to better integrate standardisation in research programmes? Were they successful? What can be learnt from them?
- In the Horizon Europe context, what could be the key recommendations to foster the integration of standardisation in research programming by the EU Commission?

The half-day event combined both presentations from research projects on their experiences with standards development and facilitated roundtable discussions. At first an overview of the DRIVER+ standardisation activities was presented, followed by a presentation of the BRIDGIT2 project[29] that has developed a set of tools to support the interaction between research projects and standardisation. Following this, the SMR project[30], recognized by the EC as success story, explained their successful integration of standardisation that resulted in CWAs which were up taken on ISO level. The ongoing Stair4Security project[31] presented among others their envisaged platform for supporting exchange between research projects and standardisation. CEN/TC 391 'Societal and Citizen Security' is directly involved in Stair4Security. Special attention was paid to those mechanisms and good practices likely to enable the involvement of research projects in standardisation activities. The wrapping-up of the session was done by Philippe Quevauviller (DG HOME) who stressed how timely the PRDR3 was, and took the opportunity of the event to convey DG HOME's call for recommendations from practitioners about standardisation needs for security.

Adoption of a SWOT analysis approach

As to guide the roundtable discussions, a SWOT (strengths, weaknesses, opportunities, and threats) analysis was adopted.

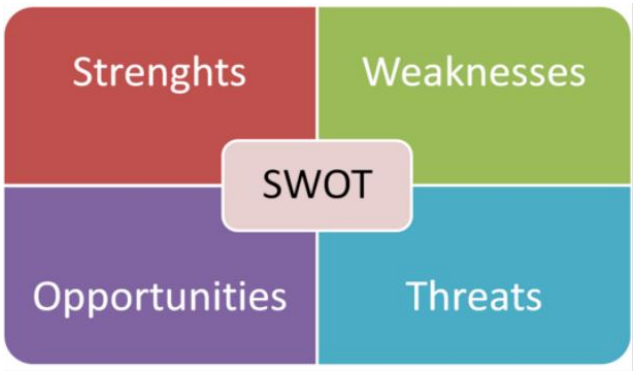


Figure A14: SWOT analysis overview

[29] Results and information on the BRIDGIT2 project can be obtained via: www.standardsplusinnovation.eu

[30] see smr-project.eu/home/

[31] see www.cen-stair4security.eu/

The reasons underpinning this choice were the short timeframe of the roundtable, and therefore the need to use an assessment framework easy to understand and to manage the diverse groups of stakeholders which had to have a common reference framework and the dynamic approach supported by the SWOT perspective.

The use of the SWOT framework for PRDR3 permitted to gain an informed overview of the internal and external factors impacting the integration of standardisation in research programmes and projects, as well as current and future potentials in this area. It fostered realistic and fact-based considerations while emphasizing core assets and challenges.

Findings and recommendations

From the presentations and discussions which took place among the PRDR3 participants, several findings were collected and the following four respective recommendations were developed.

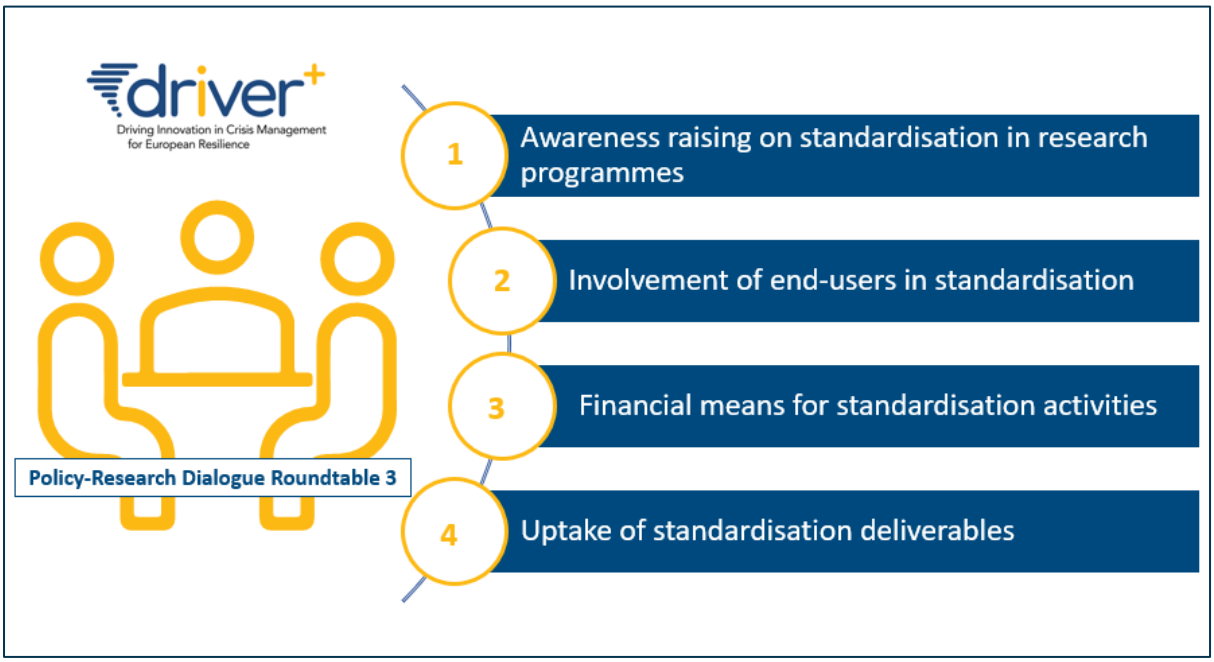


Figure A15: Recommendations of PRDR3

1) Awareness raising on standardisation in research programmes

Findings: There is an increased amount of references on standards and standardisation in FP7 and Horizon 2020 calls, but often these references are highly non-homogeneous by sectors and are not well addressed in the project proposals. This comes along with a lack of awareness on the benefits and possibilities standardisation is offering for research programmes and projects[32]. Therein often the understanding of the activity 'standardisation' is missing in comparison to the worldwide known 'standards'. Thus a lack of knowledge on how to use standardisation as a strategic tool for these activities is the result. The

[32] Related workshop findings were: possibility to get feedback on project results by the large standardisation network and thus project externals, have an end-user oriented and high quality documentation which is distributed by recognized standardisation organizations and the availability of in the project developed standards beyond the project which can be a basis for certification and uplift with national, European or international standards.

standardisation system is offering several tools for research projects to on one hand use existing standards within the projects, and on the other hand to contribute to standardisation and transfer the project results via giving input to existing standards or developing new ones. For the latter, fast track standardisation like CEN/CENELEC Workshop Agreements (CWAs) with a timeframe for development of about 6-12 months is one instrument. Furthermore the involvement of standardisation organizations in the project supports the identification of project results relevant for standardisation. Especially within the security area, related standards and joint standardisation efforts provide a common language for the actors involved and the opportunity to better cooperate cross-border in crisis management.

Recommendations: The EC, EU Framework Program call writers, etc. should systematically consider standardisation within the preparation of calls. The general references to standardisation should be increased consistently in the calls of Horizon Europe, the quality of references in specific topics improved and the standardisation outcomes recognized as KPIs to increase the projects' impact. All stakeholders such as National Contact Persons, EC, researchers knowing the standardisation tool, but also standardisation organizations should spread their knowledge with the support of existing tools such as available on www.standardsplusinnovation.eu [33]. The awareness of possibilities to integrate standards and standardization in FP projects need to be raised. Also more detailed support of projects that have no standardization body included but need or want to address standardization need to be provided/promoted by the EC.

2) Involvement of end-users in standardisation

Findings: Often there is a weak involvement of end-users in research projects in general or other relevant stakeholders are missing, especially practitioners (in the security sectors e.g. first responders, fire and rescue services, police forces, municipalities, social workers, educators and civil society actors). But especially in the security sector the community building and bringing academia and practitioners together are important assets for a faster uptake of research results, which can be supported actively throughout the standardisation of the research project results. Standardisation committees in the security domain have also end-users, practitioners and crisis management experts as members, who can support the standards development via for example project liaisons with this committee or via subcontracting of committee experts. By developing standards out of these results it is due to the open, inclusive multi-stakeholder process of standardisation relatively easy to integrate project externals and thus especially end-users and the target group of the standards. By taking these end-users on board, the time for market uptake of the standards' content is reduced as the potential users have already contributed to the standard and have influenced it in the way they can best use it afterwards. Also the impact of project results increases by this kind of acknowledged and credible documentation done by a wider group of stakeholders including the end-users. Involving the relevant stakeholders and especially the end-users in the standards development process fosters significantly the dissemination and outreach of the project results. Additionally end-users of the project can in the future join the standardisation work in their countries for supporting the uptake of these standardisation deliverables.

[33] Here especially the 'Guide for considering standardisation in European Framework Programmes, calls topics and projects' need to be considered.

Recommendations: End-users such as crisis management practitioners should gain more knowledge on the standardisation system and should use existing standardisation tools such as CWAs to take part in the standards development and thus to path the way for faster uptake of the research results. The EC and the standardisation bodies should support increasing the knowledge of the end-users (e.g. via promotion of existing e-learnings[34]).

3) Financial means for standardisation activities

Findings: When a project had integrated standardisation activities and preferably also a national standardisation organization to support this work already in the proposal, then the financial means to conduct these activities is given. But there are challenges for projects with regard to funding for standardisation that have not considered standardisation in the proposal or that want to follow up on standardisation after the project ends. Also the involvement of end-users, as target audience of most security related standards, is due to their limited personal and financial resources difficult (even when they are already part of standardization committees). There are currently no financial possibilities provided by the EC to support these for the projects' dissemination and exploitation impactful activities. Additionally, there are cultural differences in each member state of the EU. Thus reaching consensus for uplifting e.g. a security related CWA or other European standardization deliverable (such as Technical Specification, Technical Report) into a full consensus European Standard (EN) is not easy, also due to a lack of language. Therefore time and resources for translations and future uptake of standard are needed.

Recommendations: The EC should set up tools for ad-hoc or flexible financing of standardisation activities in projects that have not considered standardisation, as a follow up of the project or for ensuring the end-user involvement in the standards development. Also the translations of standards deliverables other than EN (such as CWAs) in the different countries to support their uptake in the different EU member state need to be supported financially.

4) Uptake of standardisation deliverables

Findings: The uptake for project standardisation deliverables such as CWAs within the relevant standardisation committee (TC) is easier, when previous interaction of the project to this committee is undertaken via e.g. a liaison or through members of the committee already involved in the projects' standardisation activities (e.g. via participation in the CWA development). A link to these committees can be provided directly and is easier facilitated by an in the project participating standardisation organization. Furthermore, there is room for improvement in the interaction between the security related stakeholders such as policy makers, researchers, end-users, NCPs to discuss the results of research projects. With the Community of User (CoU) initiative of DG Home a networking and discussion platform is already available. However, the involvement of governments, decision makers and experts from standardisation bodies and their committees could be increased to allow following up faster on the standardisation deliverables of the research projects. Another issue is that governments and legal frameworks often do not use the standardisation results of the research projects (pro-)actively. But in order to ensure the market uptake of research results support from the governmental authorities is sometimes needed. For example in Europe

[34] see for example www.standardspluselearning.eu/

are directives for product safety in place, but not for e.g. city resilience activities or applying disaster risk related technologies.

Recommendations: Standardisation organizations should explore further means to easier uptake standardisation deliverables deriving from research. The EC should actively promote with specific funded activities the standardisation outcomes of projects. Also, the EC should support the integration of foster and increase the Community of User activities with respect to the potential uptake of standardisation deliverables of research projects. Finally, the EC and the member states should check whether the developed standardisation deliverables of research results should be up taken in parts of or whole Europe via for example directives or regulations.

Annex 12 – Survey postcard Final Conference

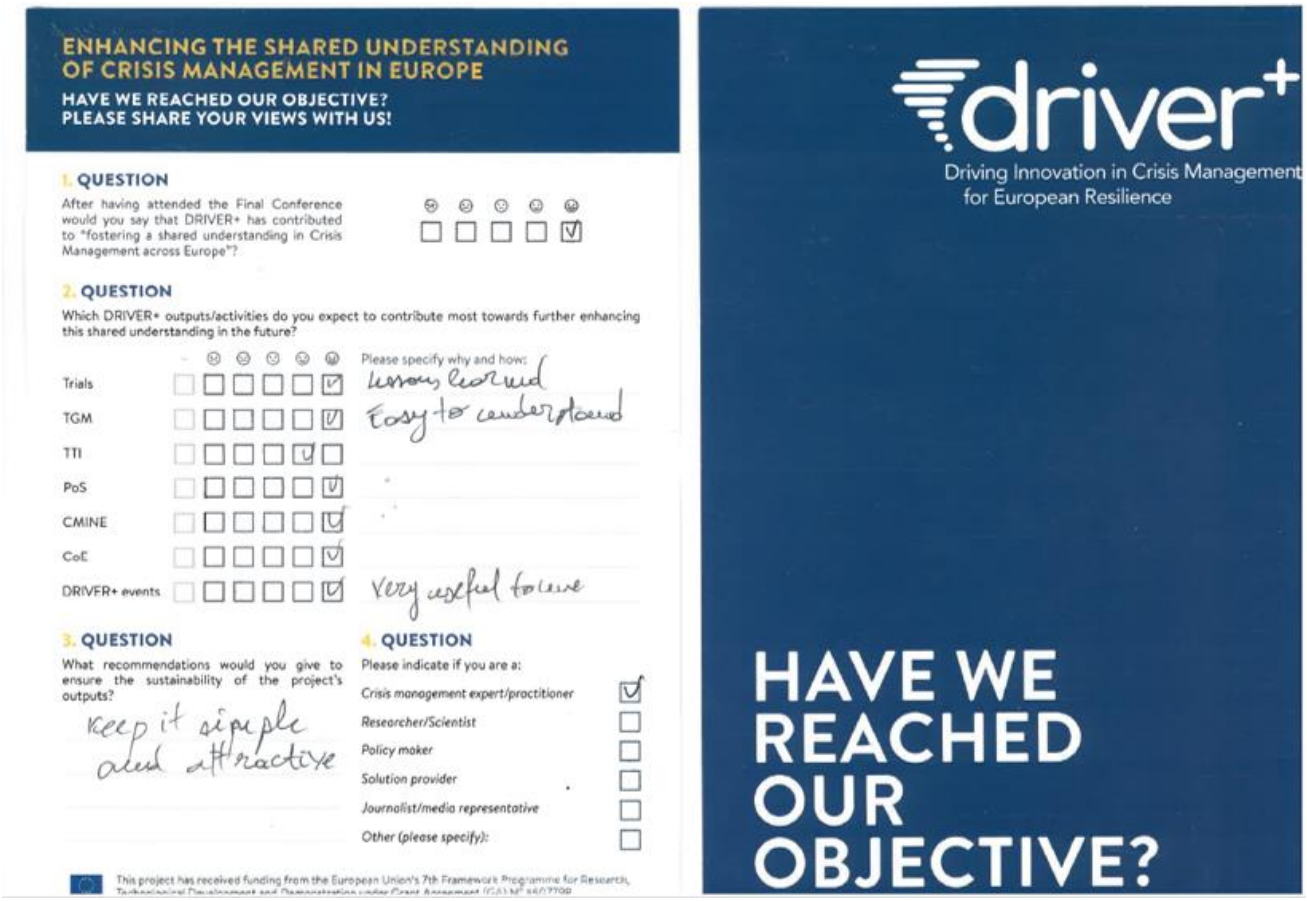


Figure A16: Evaluation postcard for the Final Conference