



D3.7

Stakeholders' webinars

| | |
|----------------------------------|---|
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List of Acronyms

| | |
|------|---|
| AB | Advisory Board |
| AVA | Avanti Communications LTD |
| CA | Consortium Agreement |
| CFRS | Catalan Fire and Rescue Service |
| CIMA | Centro Internazionale in Monitoraggio Ambientale – Fondazione CIMA (CIMA Foundation) |
| CRI | Associazione della Croce Rossa Italiana (Italian Red Cross) |
| CTTC | Centre Tecnològic de Telecomunicacions de Catalunya (Catalan Technological Telecommunications Centre) |
| DLR | Deutsches Zentrum für Luft- und Raumfahrt e.V. (German Aerospace Center) |
| DRM | Disaster Risk Management |
| EC | European Commission |
| EKUT | Eberhardt Karls Universität Tübingen |
| EUW | End-User Workshop |
| FBBR | Frederiksborg Brand og Redning (Frederiksborg Fire and Rescue Service) |
| GA | Grant Agreement |
| ICCS | Institute of Communication and Computer Systems |
| ICGC | Institut Cartogràfic I Geològic de Catalunya (Catalan Institute of Cartography and Geology) |
| INT | Departament d'Interior – Ministry of Home Affairs (Government of Catalonia) |
| IPR | Intellectual Property Right |
| MoM | Minutes of Meeting |
| PB | Project Board |
| PC | Project Coordinator |
| PCF | Fundació d'Ecologia del Foc i Gestió d'Incendis Pau Costa Alcubierre (Pau Costa Foundation) |
| Q&A | Question and Answer |
| QMR | Quarterly Management Report |
| SFRS | Scottish Fire and Rescue Service |
| SP | Service Platform |
| SPH | Space Hellas S.A. |
| TL | Task Leader |
| TM | Technical Manager |

| | |
|---------|---|
| ToC | Table of Contents |
| TSYL | Tecnosylva S.L. |
| UNISTRA | Université de Strasbourg (University of Strasbourg) |
| UI | User Interface |
| WP | Work Package |
| WPL | Work Package Leader |

Intentionally blank

Executive Summary

A series of webinars have been organized as a manner to understand better the perspectives of the end-users and how the HEIMDALL system can contribute to provide real solutions for their operational needs. Speakers mainly involve the HEIMDALL end-user partners, but also research and technical partners, whose participation has been essential to understand the requirements for the development of a tool that is grounded on a participatory co-design approach. All the webinars were recorded and made publicly available on the [HEIMDALL YouTube channel](#).

HEIMDALL project in brief

The HEIMDALL project aims at **improving preparedness of societies to cope with complex crisis situations** by providing a flexible platform for multi-hazard emergency planning and management. To achieve that, this platform makes use of innovative technologies for the definition of multi-disciplinary scenarios and response plans while providing integrated assets to support emergency management, such as monitoring, modelling, situation and risk assessment, decision support and communication tools. Furthermore, HEIMDALL fosters data and information sharing among the relevant operational organisations involved in crisis management, maximises the accuracy of valuable information and improves population awareness.

With the aim of successfully achieving this overall purpose, HEIMDALL addresses the following key aspects:

- (i) improved data and information access and sharing among the involved stakeholders, including the population and first responders on the field;
- (ii) better understanding of the situation by using advanced multi-hazard methods to develop realistic multi-disciplinary scenarios, risk and vulnerability assessment, information sharing and emergency response;
- (iii) recognising the value of information by advanced data fusion, situation assessment and decision support tools.

The combination of these aspects will be integrated in a modular and highly flexible platform which will make use of a federated architecture to provide user-tailored interfaces and foster information sharing among the involved stakeholders. Additionally, the platform will provide citizens at risk and first responders on the field with valuable incident-related information, increasing population awareness.

System engineering

The challenging HEIMDALL objectives are achieved by following a detailed system engineering process, based on an iterative version of the well-established Vee model for system engineering (Figure 0-1) and a close cooperation with the relevant stakeholders (first responders), both the consortium partners and the members of the Advisory Board.

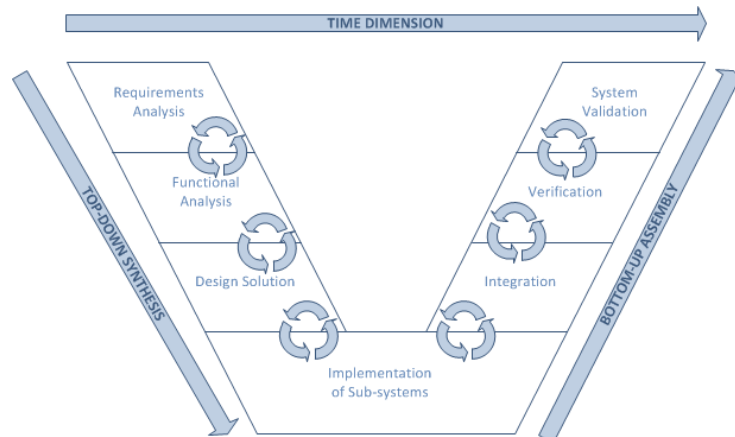


Figure 0-1. Vee model of system engineering.

The diagram in Figure 0-2 depicts the interaction between the system engineering and the stakeholder management layers. The HEIMDALL system engineering process has defined a series of milestones for the system development; namely, the initial system specification, three intermediate releases and the final release. These milestones are aligned with interactions

with the relevant stakeholders (partners with first responder profiles and Advisory Board members), by means of the planned Advisory Board (AB) and End-Users Workshops. Therefore, the outcome of the different workshops is used to perform preliminary system demonstrations to evaluate the preliminary releases and gather end user feedback until the final operational demonstration.

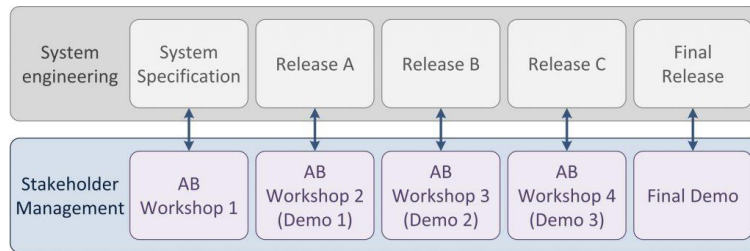


Figure 0-2. HEIMDALL approach.

1 Introduction

The HEIMDALL project has built up a varied Consortium that brings together end-users partners with emergency operational responsibilities (i.e. firefighting units, medical emergency services, police departments, civil protection units, control command centers) and partners with a technical profile (i.e. software developers, solution designers). Technological solutions developed by the technical partners and incorporated into the HEIMDALL platform need to be tailored to the operational needs gathered from the end-users. In order to make effective the engagement and transference of knowledge from end-users to technical partners, the HEIMDALL project has opted for a collaborative design approach where cooperative, interactive and iterative efforts between both parties drive the design and implementation of effective and accepted system capabilities.

In the framework of this collaboration between end-users and technical partners, a series of webinars have been organized as a manner to understand better the perspectives of the end-users and how the HEIMDALL can contribute to provide real solutions for their operational needs. These series of webinars, therefore, are a space where end-users can relate their experiences during specific incidents, convey their requirements based on the objectives of the HEIMDALL project and expose practical situations where the use of the platform can serve as support tool for decision making. This helps technical partners to better comprehend to the reality of end-users and so facilitate the effectiveness of the collaborative design. Furthermore, additional webinars have been given by non-end-user partners to showcase the platform functionalities and features while placing an emphasis on how they can help end-users to better take decisions across the different emergency phases (training, preparedness, response). It is worth stating that webinars' sessions are open (free) to all publics, so webinars have also served to disseminate the project outcomes to a more general audience.

Webinars are related to WP3 that focuses on all those activities and actions that involve stakeholder knowledge capitalization, support stakeholder engagement and human factors and ethical issues for a suitable design of the system platform.

The remainder of this document is structured as follows:

- Section 2 introduces the objectives and rationale for running webinars.
- Section 3 overviews all conducted webinars.
- Section 4 concludes the document with a summary of lessons learnt and final remarks.

2 Objectives

The realization of the webinars combines several specific objectives that are listed below:

- To compile, analyse and debate lessons learnt from the end-users, and get their feedback and recommendations.
- To present relevant use cases deployed in the successive system releases in which the system has been subjected to test and evaluation by the end users and the members of the AB.
- To showcase the features and functionalities available in the HEIMDALL platform while providing insight into their practical use by end-user's organisations to better manage emergency events.
- To disseminate the project activities, achievements and outcomes to a wider audience beyond the members of the HEIMDALL Consortium (e.g. emergency managers, European Commission delegates, AB members, participants of related projects...).

3 Project webinars

HEIMDALL project webinars were all hosted and moderated by PCF, as stakeholder manager and WP3 leader, and presented by different HEIMDALL partners, mainly end-users. The webinars had the following structured:

- **Speaker introduction** (up to 5 min): the moderator (PCF) introduced the speaker background, field of expertise, organisation profile as well as the role within the HEIMDALL Consortium. Moreover, the moderator encouraged the audience to formulate their questions during the webinar, which will be answered by the speaker once the presentation finishes.
- **Speaker presentation** (15 to 20 min): speakers' presentations were about emergency use cases, operational procedures, best practices and work methodologies, making emphasis on what are their main challenges and limitations and concluding how the HEIMDALL system can help them to better do their job.
- **Q&A time**¹ (up to 10 min): after the presentation, the moderator transferred to the speaker the questions from the audience. These questions were targeted to enquire further clarification on certain points, highlight relevant aspects and provide guidance or suggestions on how to leverage on the operational knowledge and experience to intelligently facilitate HEIMDALL partners in addressing the goals of the project. Thus, the webinars became a valuable source for additional feedback from people outside the HEIMDALL Consortium.

All the webinars were organised using the ZOOM meeting platform in webinar mode and were eventually published on the [HEIMDALL YouTube channel](#).

PCF, as leader of T3.1 and T7.1 relevant to stakeholder management and dissemination respectively, with the support of other project partners, launched the announcement of the webinars at least one week before through the social networks (Twitter and LinkedIn). Moreover, an email was always circulated to the HEIMDALL contact mailing list that included delegates of other EU projects, the members of the AB, the Project Officer and other people who has showed interest in the project.

The audience was mainly composed of emergency practitioners (e.g. fire fighters, police and civil protection authorities), researchers in the field of emergency management, delegates from other EU projects and other people with a strong interest in the field of emergency management.

A total of 10 webinars (Table 3-1) have been conducted within the project lifecycle, covering various thematic areas and presented by a broad representation of the HEIMDALL Consortium.

Table 3-1. Overview of HEIMDALL project webinars.


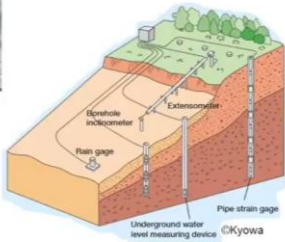
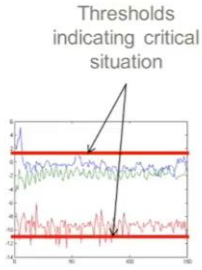

| Webinar title | Speaker (organisation) | Date |
|-------------------------------------|---|------------|
| HEIMDALL Introduction to Landslides | Clàudia Abancó (ICGC) | 14/02/2018 |
| HEIMDALL Concept Presentation | Javier Mulero and Benjamin Barth (DLR-KN) | 07/03/2018 |

¹ Not all webinars included Q&A time.


| | | |
|---|---|------------|
| HEIMDALL Methodology to Analyse Use Cases | Jordi Vendrell (PCF) | 04/04/2018 |
| HEIMDALL – IN-PREP Cooperation | Evangelios Sdongos (ICCS) | 16/05/2018 |
| HEIMDALL Platform from a Civil Protection point of view | Sefik Muhic and Jesper Bachmann (FBBR) | 30/05/2018 |
| HEIMDALL Case Studies: Introduction to Monesi di Mendatica Landslide and Barberà de la Conca | Silvia Venier (CRI) and Clàudia Abancó (ICGC) | 18/03/2019 |
| HEIMDALL Case Studies: Entella river floods | Lorenzo Massucchielli (CRI) | 16/10/2019 |
| HEIMDALL Case Studies: Ballater river floods | Bruce Farquharson (SFRS) | 17/01/2020 |
| The HEIMDALL platform as a decision support tool for future flood disasters from a police perspective | Daniel Milla (INT-PD) | 02/07/2020 |
| HEIMDALL System Introduction and Demonstration of the tool | Benjamin Barth (DLR-KN) | 13/11/2020 |

A one-by-one description of every webinar conducted during the project follows. The descriptions for each webinar are presented in the form of *factsheets* that include the title of the webinar, the date, the name of the presenter and the organisation, a brief description, a screenshot of the presentation and the link for visualisation on YouTube.

3.1 HEIMDALL Introduction to Landslides

| HEIMDALL Introduction to Landslides | |
|-------------------------------------|---|
| Date: | 14 th of February 2018 |
| Speaker (organisation): | Clàudia Abancó (ICGC) |
| Description | <p>Is the terrain stable? What can make it unstable? The webinar overviews the types of instabilities, their triggering factors and how landslide hazard is assessed. Differences between landslides and the other two phenomena involved in HEIMDALL (forest fires and floods) are emphasized.</p> |
| | <div style="text-align: right; font-size: small;">Slide 15</div> <p>In-situ sensors</p> <ul style="list-style-type: none"> ➤ Measure changes in soil that indicate: <ul style="list-style-type: none"> ➤ Conditioning factors to terrain movement ➤ Terrain movement <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;">  <p style="font-size: x-small;">Multi-hazard Cooperative Management Tool for Data Exchange, Response Planning and Scenario Building</p> </div> <p style="text-align: center; margin-top: 10px;">Figure 3-1. Screenshot of the webinar HEIMDALL Introduction to Landslides.</p> |
| Youtube link: | https://www.youtube.com/watch?v=sXhDrgZK3YM&t=22s |

3.2 HEIMDALL Concept Presentation

| HEIMDALL Concept Presentation | |
|--------------------------------|--|
| Date: | 7 th of March 2018 |
| Speaker (organisation): | Javier Mulero and Benjamin Barth (DLR-KN) |
| Description | <p>The main objective of this webinar is to introduce the HEIMDALL project and system to all relevant stakeholders (practitioners, industry and research community). The webinar includes an overview of the main scenarios being addressed, emphasizing the requirements targeted by the system and which build up the HEIMDALL service portfolio. Finally, the webinar introduces the system architecture designed for the provision of the intended services.</p> |
| | <p style="text-align: center;">  Multi-hazard Cooperative Management Tool for Data Exchange, Response </p> |
| | Figure 3-2. Screenshot of the webinar HEIMDALL Concept Presentation. |
| YouTube link: | https://www.youtube.com/watch?v=9RZjDxwW_EM |

3.3 HEIMDALL Methodology to Analyse Use Cases

| HEIMDALL Methodology to Analyse Use Cases | |
|--|---|
| Date: 4 th of April 2018 | |
| Speaker (organisation): Jordi Vendrell (PCF) | |
| Description | |
| <p>This webinar introduces the methodology to collect data from specific events such as forest fires, floods and landslides to a broader audience. This webinar puts emphasis on the need to establish a common methodology among emergency services at European level to extract data (fire behaviour, means deployed, flood evolution over time, population affected, etc.) to be used for technical developers, researchers, etc.</p> | |
| Slide 5 | |
| <p>Methodology</p> <p>➤ Initial methodology developed using a case study of the 2017 Olmeta di Tuda Wildfire (Corsica), in the frame of GEO-Safe Project participants:</p> <ul style="list-style-type: none"> ➤ Núria Prat (PCF) ➤ Jordi Vendrell (PCF) ➤ Commandant Patric Botey (SDIS2b) ➤ Commandant Marien Setti (SDIS2b) | <ul style="list-style-type: none"> Data collection (1) <ul style="list-style-type: none"> • Identify sources (e.g. emergency services, official national and regional sources), local residents, media and news media • Field work • Comparison (e.g. meteorological data, cartography, other data) Processing (2) <ul style="list-style-type: none"> • Extract images from videos • Ordering available photos and resources • Extract information from databases and cartography • Data correction • Data validation Risk & scenario analysis (3) <ul style="list-style-type: none"> • Wildfire risk, flood risk, landslide risk • Fire perimeter, flood affectation area, landslide area • Locations • Fire behavior (speed, flame length, spotting...), flood level, land mass mobilized Operations and response (4) <ul style="list-style-type: none"> • Description of the decision making structure • Strategy (objectives and decisions taken) • Analysis of priorities, potentials & critical points • Tactics & Operations (temporal and spatial analysis) Evaluation (5) <ul style="list-style-type: none"> • Means deployed (temporal and spatial analysis) • Impact on vulnerable assets (buildings, roads...) • Impact on critical infrastructures |
| | <p>Multi-hazard Cooperative Management Tool for Data Exchange, Response Planning and Scenario Building</p> |
| <p>Figure 3-3. Screenshot of the webinar HEIMDALL Methodology to Analyse Use Cases.</p> | |
| <p>Youtube link: https://www.youtube.com/watch?v=nvbn2JPY1Ak</p> | |

3.4 HEIMDALL – IN-PREP Cooperation

| HEIMDALL – IN-PREP Cooperation | |
|--|--|
| Date: 16 th of May 2018 | |
| Speaker (organisation): Evangelios Sdongos (Institute of Communication and Computer Systems) – IN-PREP project coordinator | |
| <p>Description</p> <p>This webinar introduces the scope of the IN-PREP and HEIMDALL projects, emphasizing on the synergies between them and the common objectives. The webinar details the joint activities planned for the first cooperation year.</p> | |
| <p>IN-PREP Target Markets/Stakeholders</p> | |
| | |
| <p>Figure 3-4. Screenshot of the webinar HEIMDALL – IN-PREP Cooperation.</p> | |
| <p>Youtube link: https://www.youtube.com/watch?v=T0Tv7fxLBXU&t=7s.</p> | |

3.5 The HEIMDALL Platform from a Civil Protection point of view

| HEIMDALL Platform from a Civil Protection point of view |
|--|
| Date: 30 th of May 2018 |
| Speaker (organisation): Sefik Muhic and Jesper Bachmann (FBBR) |
| <p>Description</p> <p>This webinar presents the potentialities of use and needs expected to be covered by the HEIMDALL Platform from a Civil Protection point of view. FBBR members explain how the HEIMDALL platform can be used in their organisation to prevent fires and other emergencies from happening and in doing so reducing death, injury and damage to property.</p> |
| <div style="text-align: right; font-size: small;">Slide 5</div> <p>FBBR – Exploitation and Dissemination Strategy</p> <p>HEIMDALL - Outcomes</p> <ul style="list-style-type: none"> Information to/from citizens regarding an extra-ordinary incident (e.g. floods, forest fires, etc.) HQ – video transmission Collecting information by drones (e.g. pictures and videos) Use EO images for risk assessment areas Check and control evacuation areas Prediction in risk assessment e.g. for floods, forest fires and other representative risks System propose action to be taken Response planning – response flow Real-time monitorization of resources Simulation of the representative scenarios e.g. floods and forest fires and to share real-time information and send alerts to citizens by dedicated system alerting app To provide easy to use early warning systems to EU- candidate countries (e.g. Balkan countries) <p>FBBR</p> <p>Authorities and Institutions – at different levels</p> <p>Other relevant parts and actors in DK</p> <p>International partners (BALKAN EU candidate countries; CP organizations – at different levels, etc.)</p> |
| Figure 3-5. Screenshot of the webinar the HEIMDALL Platform from a Civil Protection point of view. |
| YouTube link: https://www.youtube.com/watch?v=_dniwqH6CwQ . |

3.6 HEIMDALL Case Studies: Introduction to Monesi di Mendatica Landslide and Barberà de la Conca

HEIMDALL Case Studies: Introduction to Monesi di Mendatica Landslide and Barberà de la Conca

Date: 18th of March 2019

Speaker (organisation): Silvia Venier (CRI), Clàudia Abancó (ICGC)

Description

Through this webinar, two case studies on landslides are presented: Monesi di Mendatica (Italy) and Barberà de la Conca (Spain). These case studies served as a basis to deploy the End-Users workshop 3 that took place in Savona (Italy) the week after.

Slide 7

Geological/geomorphological context

- The material in the area is a flysch, constituted by a marly turbidite and a base of calcareous sandstone
- It is covered by quaternary material (40-50 m of gravel and sand)
- Layers are dipping about 15-20° up to 30-35° to NE
- At the foot fo the slope the landslide reaches the river



Multi-hazard Cooperative Management Tool for Data Exchange, Response Planning and Scenario Building

Figure 3-6. Screenshot of the webinar HEIMDALL Case Studies: Introduction to Monesi di Mendatica Landslide and Barberà de la Conca.

Youtube link: <https://www.youtube.com/watch?v=dWZBBV12bsY&t=20s>.

3.7 HEIMDALL Case Studies: Entella river floods

HEIMDALL Case Studies: Entella river floods

Date: 16th of October 2019

Speaker (organisation): Lorenzo Massucchielli (CRI)

Description

The webinar discusses about using HEIMDALL as a tool to support operational and strategic flood management decision-making, with the focus placed on the floods that occurred along the last stretch of the Entella river basin in 2014. This case incident was deployed in the End-User Workshop 4 that took place in Copenhagen (Denmark) the week after.

Scenario 1: potential flooded area

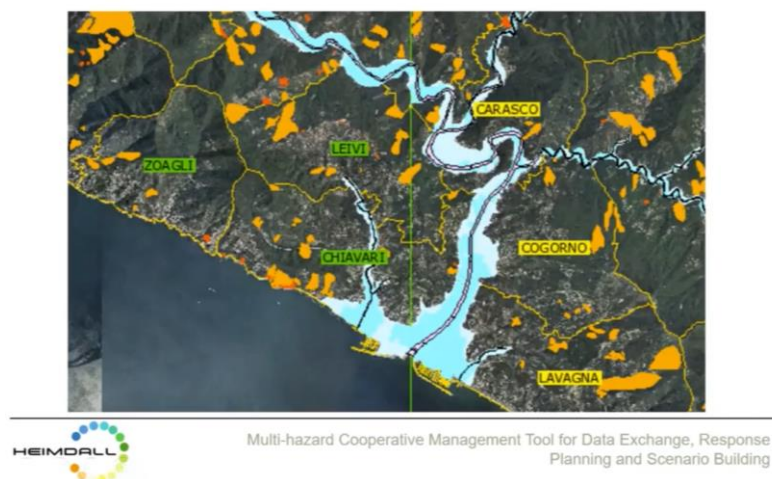


Figure 3-7. Screenshot of the webinar HEIMDALL Case Studies: Entella river floods.

Youtube link: <https://www.youtube.com/watch?v=0AQhEUpNLbg>.

3.8 HEIMDALL Case Studies: Ballater river floods

HEIMDALL Case Studies: Ballater river floods

Date: 17th of January 2020

Speaker (organisation): Bruce Farquharson (SFRS)

Description

The webinar revolves around the Ballater river floods in December 2015. The presenter relates the damages caused by the flood event, the main challenges to deal with the emergency from an operational point of view, and finally argues how the HEIMDALL system can be utilised as a support system to plan for contingencies and deployment operation in flood crisis management.



Figure 3-8. Screenshot of the webinar HEIMDALL Case Studies: Ballater river floods.

Youtube link: <https://www.youtube.com/watch?v=U4uoVKWjOo4&t=50s>.

3.9 The HEIMDALL platform as a decision support tool for future flood disasters from a police perspective

The HEIMDALL platform as a decision support tool for future flood disasters from a police perspective

Date: 2nd of July 2020

Speaker (organisation): Daniel Milla (INT-PD)

Description

This webinar aims to briefly discuss the usage of some HEIMDALL platform functionalities and, in general, the positive externalities of the HEIMDALL Project from the point of view of a police end-user. The discussion will be linked with flood-specific disasters giving concrete examples of past episodes such as the Garona river flood in 2013 or the Ter river flood in 2020 resulting from the Gloria phenomena.

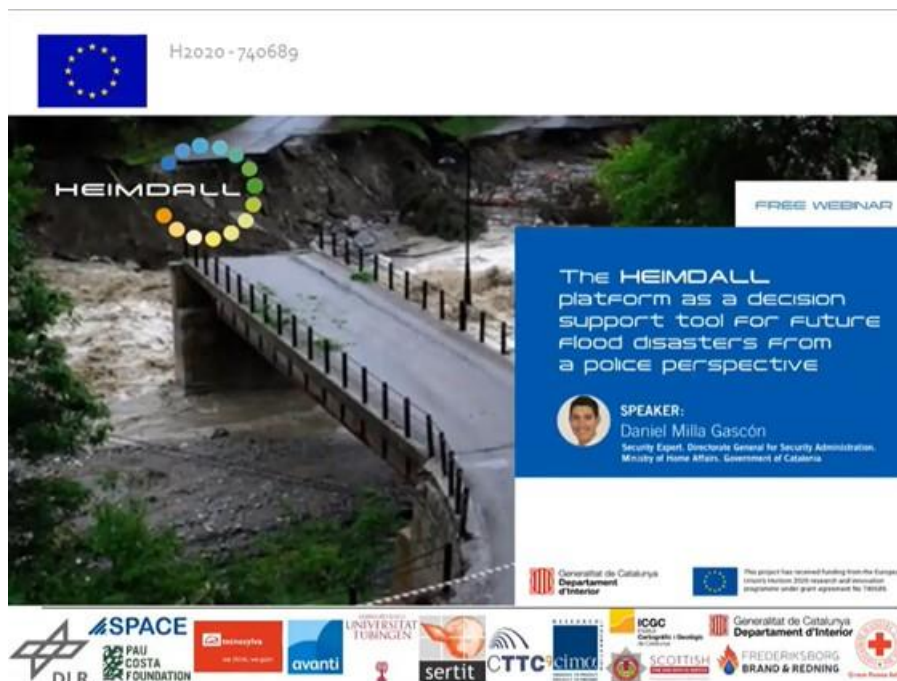



Figure 3-9. Screenshot of the webinar the HEIMDALL platform as a decision support tool for future flood disasters from a police perspective.

Youtube link: <https://www.youtube.com/channel/UC9SLimz1XnkLzEZfP1J7OQA>.

3.10 *HEIMDALL System Introduction and Demonstration of the tool*

| HEIMDALL System Introduction and Demonstration of the tool | |
|---|---|
| Date: | 13 th of November 2020 |
| Speaker (organisation): | Benjamin Barth (DLR-KN) |
| Description | <p>The webinar overviews the HEIMDALL platform modules and functionalities that have been developed since the start of the project. This includes a practical demonstration of how the platform would be used by operational managers in real emergency situations.</p> |
|  | |
| <p>Figure 3-10. Screenshot of the webinar HEIMDALL System Introduction and Demonstration of the tool.</p> | |
| YouTube link: | https://youtu.be/-Mm5J4GVsQg |

4 Conclusions

The document provides detailed information about the ten webinars held throughout the project lifetime, with remarkable the involvement of the HEIMDALL end-users. Whereas the webinars were initially conceived as an instrument for the HEIMDALL end-users to convey their operational challenges, limitations and needs to a wider audience beyond the HEIMDALL Consortium, there has also been room for other actors, such as project researchers and technical developers as well as representatives of other EU-funded projects, to give their perspective about how the HEIMDALL system can become a tool to support operational and strategic emergency management decision-making. The HEIMDALL end-users have certainly provided the essential perspectives on operational needs; however, including researchers and developers have contributed to establish an understanding on the scientific basis and validity for operational application/evaluation and understand the technical requirements for the delivery of computational models. Irrespective of the webinar presenter, the foci of the discussions have always been placed on the community of end-users (i.e. emergency practitioners in the field of wildfire, landslides and flood hazards) and how HEIMDALL needs to be developed so that the end-users can actually see some value in it. Altogether, the diversity of presentations has served to give voice to the different parties involved in the development of a tool that is grounded on a participatory co-design approach.

End of document