



## Expecting the unexpected and know how to respond



Horizon 2020: Secure societies

Topic DRS-2014-14

Crisis and disaster resilience –  
operationalizing resilience concepts

Research and Innovation Action

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## **DARWIN CoCRP Terms of Reference**

### Abstract:

The DARWIN project aims to develop state of the art resilience guidelines and innovative training modules for crisis management. The guidelines, which will evolve to accommodate the changing nature of crises, are developed for those with responsibility for protecting population or critical services, from policy to practice.

This deliverable concerns the initial description of the Terms of Reference which will provide the Community of Crisis and Resilience Practitioners (CoCRP) and the partners of DARWIN with a framework for establishing, facilitating and developing a common method of work. CoCRP is an open association that provides interactive communication among practitioners, researchers and professionals in the fields of crisis and resilience. Present and future members will be interested in the development of the guidelines and may be willing to apply them within their given organisation or field of expertise.

This document demonstrates terms for sharing knowledge including innovation processes, games and methods for collaboration. This will allow the CoCRP to achieve the primary objective of the DARWIN project – the development of European Resilience Guidelines and their continuity beyond the end of the project. Members of the CoCRP are invited to exchange views on resilience concepts, practices, resilience management guidelines and pilot applications. These exchanges are essential to enable the guidelines to evolve and to be relevant to a diverse range of critical infrastructures.



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PU	Public, fully open, e.g. web	PU
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<b>Role</b>	<b>Name and organisation</b>	<b>Date</b>
<b>Editor</b>	Eddie Shaw, (CARR)	17.08.2015
<b>Contributors</b>	Orla McCarthy (CARR), Rachel Galligan (CARR), Rebecca Forsberg (KMC)	17.08.2015
<b>Reviewed by</b>		
<b>Role</b>	<b>Name and organisation</b>	<b>Date</b>
<b>Reviewers</b>	Assunta Di Nicola (ISS), Luca Save, (DBL)	28.7.2015
<b>Reviewers</b>	Thomas Feuerle (TUBS), Ivonne Herrera (SINTEF)	03.08.2015
<b>Approved by</b>		
<b>Role</b>	<b>Name and organisation</b>	<b>Date</b>
<b>Coordinator</b>	Ivonne Herrera (SINTEF)	17.08.2015
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## Members of the DARWIN consortium



Stiftelsen SINTEF (SINTEF)  
NO-7465 Trondheim  
Norway  
[www.sintef.com](http://www.sintef.com)

**Project Coordinator / Technical Manager:**  
Ivonne A. Herrera  
[ivonne.a.herrera@sintef.no](mailto:ivonne.a.herrera@sintef.no)  
+47 906 80 634



Technische Universität Braunschweig (TUBS)  
DE-38106 Braunschweig  
Germany  
[www.tu-braunschweig.de](http://www.tu-braunschweig.de)

**Contact:** Thomas Feuerle  
[t.feuerle@tu-braunschweig.de](mailto:t.feuerle@tu-braunschweig.de)



Carr Communications (CARR)  
Dublin 4  
Ireland  
[www.carrcommunications.ie](http://www.carrcommunications.ie)

**Contact:** Eddie Shaw  
[eddie@carrcommunications.ie](mailto:eddie@carrcommunications.ie)



Deep Blue Srl (DBL)  
IT-00198 Rome  
Italy  
[www.dblue.it](http://www.dblue.it)

**Contact:** Luca Save  
[luca.save@dblue.it](mailto:luca.save@dblue.it)



ENAV S.p.A  
IT-00138 Rome  
Italy  
[www.enav.it](http://www.enav.it)

**Contact:** Giancarlo Ferrara  
[giancarlo.ferrara@enav.it](mailto:giancarlo.ferrara@enav.it)



Istituto Superiore de Sanità (ISS)  
IT-00161 Rome  
Italy  
[www.iss.it](http://www.iss.it)

**Contact:** Luca Rosi  
[luca.rosi@iss.it](mailto:luca.rosi@iss.it)



Totalförsvarets forskningsinstitut (FOI)  
SE-16490 Stockholm  
[www.foi.se](http://www.foi.se)

**Contact:** Rogier Woltjer  
[rogier.woltjer@foi.se](mailto:rogier.woltjer@foi.se)



Katastrofmedicinskt Centrum (KMC)  
SE-58330 Linköping  
Sweden  
[www.regionostergotland.se/kmc](http://www.regionostergotland.se/kmc)

**Contact:** Rebecca Forsberg  
[rebecca.forsberg@umu.se](mailto:rebecca.forsberg@umu.se)



Ben-Gurion University of the Negev (BGU)  
IL-8410501 Beer Sheva  
Israel  
<http://in.bgu.ac.il/en/>

**Contact:** Bruria Adini  
[adini@netvision.net.il](mailto:adini@netvision.net.il)



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## Executive summary

The Community of Crisis and Resilience Practitioners (CoCRP) is an open association including crisis and resilience practitioners which facilitates interactive communication concerning topics related to resilience. Members of the CoCRP are from different domains and are important potential contributors to and users of resilience guidelines. Membership is voluntary. The CoCRP is a vitally important part of resilience guidelines development as it provides inputs from research, practice and policy and will exist beyond the lifetime of the project

The purpose of this deliverable document ‘DARWIN CoCRP Terms of Reference’ is to provide the CoCRP and the partners of DARWIN with a framework for establishing, facilitating and developing a common method of work. This will lead to an improvement in the ability to anticipate, monitor, respond, adapt, learn, evolve and operate efficiently in the face of crisis through the development of the resilience guidelines.

This deliverable provides evidence of the following advances towards the achievement of the project’s objectives:

1. Facilitating the working relationship, expansion and continuity of the CoCRP
2. Initial development of the Terms of Reference for the CoCRP for interactive communication among practitioners, researchers and professionals interested and/or willing to apply resilience management guidelines to sustain operations in the face of crisis
3. Expansion of the CoCRP at European, national and local level during the project
4. Defining the benefits to the CoCRP members of participation in the DARWIN project
5. Connecting the tasks of the development of the resilience management guidelines (work packages in the DARWIN project) with the development of the CoCRP
6. Establishing the level of engagement with the CoCRP throughout the duration of the project

The benefits for the CoCRP from the working relationship with the project partners will be:

1. Building and sustaining a close working relationship with DARWIN partners
2. Building and sustaining the expanding national and international network of the CoCRP
3. Access to and participation in a dedicated resilience web portal with comprehensive up-to-date research from experts in resilience and crisis management
4. Exchanging views and experiences in an interactive environment enabled by social media
5. Participation in the surveying and cataloguing of resilience concepts, approaches, practices and needs
6. Participating in adapting and customising the survey results to the needs of various domains or specific organisations
7. Participating in two pilot studies applying project results in two key areas – Healthcare and Air Traffic Management
8. Participating in the development, application and continuity of ‘state of the art’ European Resilience Guidelines beyond the life of the project



**About the project:** The DARWIN project aims to develop state of the art resilience guidelines and innovative training modules for crisis management. The guidelines, which will evolve to accommodate the changing nature of crises, are developed for those with responsibility for protecting populations or critical services from policy to practice.

The guidelines address the following resilience capabilities and key areas:

1. Capability to anticipate
  - Mapping possible interdependencies
  - Build skills to notice patterns using visualisations
2. Capability to monitor
  - Identify resilience related indicators, addressing potential for cascade
  - Establish indicators that are used and continuously updated
3. Capability to respond and adapt (readiness to respond to the expected and the unexpected)
  - Conduct a set of pilot studies
  - Investigate successful strategies for resilient responses
4. Capability to learn and evolve
  - Explore how multiple actors and stakeholders operate in rapidly changing environments
  - Enable cross-domain learning on complex events
5. Key areas: social media and crisis communication; living and user-centred guidelines; continuous evaluation and serious gaming





# 1 Introduction

The main objective and core result of the DARWIN project will be the development of European Resilience Guidelines. The CoCRP is a group created during the DARWIN proposal and will continue to expand during and beyond the DARWIN Project. It is an open association including crisis and resilience practitioners for interactive communication concerning topics related to resilience. Members of the CoCRP are from different domains and are important potential contributors to and users of resilience guidelines. Membership is voluntary. The CoCRP is a vitally important part of resilience guidelines development as it provides inputs from research, practice and policy and will exist beyond the lifetime of the DARWIN project.

The introduction provides a current context in which to read the initial terms of reference of the CoCRP for the DARWIN project.

See Appendix 1 for a list of initial CoCRP members.

## 1.1 Purpose of the document

The purpose of this document ‘DARWIN CoCRP Terms of Reference’ is to provide the CoCRP and the partners of DARWIN with a framework for establishing, facilitating and developing a common method of work in order to improve the ability to anticipate, monitor, respond, adapt, learn, evolve and operate efficiently in the face of crisis. The existence of the CoCRP is central to achieving the development of European Resilience Guidelines, which is the main objective and core result of the DARWIN Project. This deliverable sets out the initial Terms of Reference of the CoCRP. Revisions will be made in M12 and M24. The final version of this deliverable is due in M36 after collecting and applying experiences to improve the Terms of Reference.

The concept of resilience is hyper-popular in the last years [1]. Resilience in the H2020 work programme context is defined as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its basic structures and functions”. DARWIN combines the latest developments from Resilience Engineering and Social Resilience Doctrines. The challenge for this project lies in bringing together resilience concepts into practical guidelines relevant to a diverse range of critical infrastructures taking into account end-user needs.

1. The nature, scale and probability of man-made crises and their consequences that have been added to the natural disasters with which we are more familiar and which also have the potential for catastrophic consequences
2. The impact of technology as an agent of change in the response to and management of these crises and disasters
3. The consequent pace, scale and complexity of change, the management of this change, concurrent with the management of the response to a crisis
4. The training and development of people to ensure this pace of change is matched in the knowledge, skills and understanding of the crisis responders, managers and policy advisers and policy makers.



The pace and scale of change is a familiar issue across many domains and activities. We are familiar with catastrophic events, such as:

1. The volcanic eruption of Eyjafjallaökull
2. The Deepwater Horizon environmental disaster
3. The Fukushima Daiichi nuclear disaster
4. The Nepal earthquake
5. The migration and humanitarian crisis in the Mediterranean region

These are the type and scale of events with which we associate with the concepts of resilience and understand the need to improve the capability of resilience in order to anticipate, monitor, respond and adapt, learn and evolve in times of crisis.

We are perhaps less familiar as ‘an event’ with the scale of the humanitarian crisis in Greece brought about by man-made policy decisions in the area of politics, economics and austerity. We are less familiar with (relatively rare) terrorist events. We are less familiar with the threat of technology used for the purpose of creating a catastrophe. At a recent Global Intelligence Conference, in Dungarvan, Ireland in July 2015, hosted by the Ridge School of Intelligence Studies and Information Science at Mercyhurst

University, Lewis Merletti, a former Director of the Secret Service, was asked what the main threats to world security are. He replied ‘Obviously Isis, Isil . . . There’s so many threats out there: Cybersecurity, cyber theft, lone wolf attacks, self-radicalisation through social media. I think these are all new threats that we have to approach.’ Cybersecurity, on its own, is a threat to all of the service infrastructures vital to the continuity of life in most nations of the world. The more developed the nation the more at risk it is and the more catastrophic for civil society are the consequences of a successful breach of key service infrastructures.

Technology is also a powerful agent of positive change – the technology of locating, collecting, processing data in a way not thought possible in the recent past. The capability to analyse this data and produce relevant, accurate, real time information to front-line crisis responders and to the managers of these response teams. Robotic/unmanned technology is capable of accessing, assessing and reporting on crisis areas hostile to or impossible for human access. The technology of communication through social media is continuously challenging and transforming the current crisis management structures and crisis response capability. The rapid evolution and development of the technology of cyber counter intelligence as it seeks to keep pace with the known threats from cyber-attacks. In many areas of work, manufacturing and services, administration and research, education and training, there is continuous pressure to ‘keep up to date’ with change, the management of change and its consequences. The challenge of this pace and scale of change has itself become the focus of research.

This is the context of the DARWIN project and is one of the explanations for the existence and importance of the CoCRP. The CoCRP is and will continue to be critical in ensuring the evolution of resilience guidelines is up to date with the experience and innovation of the practitioners. The Terms of Reference, and their review, will inevitably be part of this evolution. This is the context for the Terms of Reference in the DARWIN project – a project dealing with a pace and scale of change never envisaged by the renowned scientist after whom the project is appropriately named.

In managing the working relationship with the CoCRP the responsibility for the success, quality and outputs of the relationship rests with DARWIN. The credit for the success goes to the voluntary members of the CoCRP.



## 1.2 Intended readership

This deliverable should be read by current and future members of the CoCRP and partners of DARWIN and will provide an initial framework for establishing, facilitating and developing a common method of work.

## 1.3 Acronyms and abbreviations

**Table 1 List of abbreviations**

<b>Term</b>	<b>Explanation</b>
CoCRP	The Community of Crisis and Resilience Practitioners is an open association including crisis and resilience practitioners for interactive communication concerning topics related to resilience. Members of the CoCRP are from different domains and are important potential contributors to and users of resilience guidelines. Membership is voluntary.
Terms of Reference (ToR)	A document that sets out the initial working processes and governance of DARWIN and the CoCRP. It is a framework for establishing, facilitating and developing a common method of work. It describes how knowledge is shared, including innovation processes, games and methods for collaboration. The ToR will develop over the life of the project
Description of the Action (DoA)	The Description of the Action is a document containing the details of how the action (of the DARWIN project) will be carried out.
Resilience	Resilience in the H2020 work programme context is defined as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its basic structures and functions”.
Work Package (WP)	Work Package means a major sub-division in the DoA of the proposed project work



## 2 Terms of Reference

DARWIN CoCRP Terms of Reference will provide the CoCRP and the partners of DARWIN with a framework where, for example, the collaboration and communication strategies are defined and set. These terms will facilitate the ability to anticipate, monitor, respond, adapt, learn, evolve and operate efficiently in the face of crisis among practitioners and stakeholders related to topics of resilience. The existence of the CoCRP is central to achieve the development of European Resilience Guidelines, which is the main objective and core result of the DARWIN Project.

### 2.1 Introduction to the Community of Crisis and Resilience Practitioners (CoCRP)

The CoCRP is defined and explained in the introduction and further elaborated on within the content of the document.

The CoCRP is a community of crisis and resilience practitioners created by the DARWIN Project. It is an open association for interactive communication concerning topics related to resilience. Members of the CoCRP are from different domains and will exchange experiences, lead the evolution of guidelines and provide feedback to the project. The CoCRP are important contributors to and users of resilience guidelines as they provides inputs from research, practice and policy and their contribution will continue even after the project ends.

### 2.2 Objectives

The primary objective of the CoCRP is for the group to become a widely accepted forum on resilience management in case of crisis, initiate resilience innovations and lead evolution of resilience research and practice beyond the life of the project.

Secondary and supporting objectives are:

1. To ensure the guidelines can adapt and evolve through the exchange of knowledge, experience and practices during the project and become self-sustaining after the project.
2. Bring together infrastructure operators, crisis and emergency response managers, policy makers, practitioners, researchers, professionals (individuals and organizations) and other relevant stakeholders and allow them to exchange views and experiences in a dynamic, interactive and fluent way, enabled by social media.
3. To participate in learning process and practical application of resilience concepts enabled by interviews, focus group workshops, questionnaires, webinars and workshops or other type of events/media.
4. From examples of resilience in practice and from experience, act as a source of up to date, dynamic and relevant knowledge, data and information on innovative and creative trends.
5. To identify criteria that will provide principles and/or indicators of what works well and what does not in the area of resilience and may be applied within different domains and incidents as the resilience guidelines evolve.



6. To share experience and create opportunities for learning, for integrated planning and management for resilience.
7. To provide some methods and tools for researchers and practitioners, as well as a platform for exchange of information and ideas related to the practice of integrated planning and resilience building in Communities.
8. The use Social Media is a growing challenge for all crisis responders – from policy makers to practitioners. From an experienced based practical perspective the CoCRP will have a unique contribution to make to the guidelines for the management and application of social media in the context of man-made and natural crises and disasters.

## 2.3 Membership

The membership of the CoCRP will be drawn from civil protection operators, first responders, crisis and emergency response managers, academia, critical infrastructure (e.g. transportation, energy, water, oil and gas) managers and service providers. It will also include representatives of the public such as organisations promoting and supporting the active participation of citizens to social activity and media.

In relation to organisations, membership will be targeted towards individuals interested in and/or willing to apply resilience concepts, individuals who are acknowledged experts in specific fields of resilience and/or crisis management as well as acting in a representative role for their organisation. Individuals or organization membership is acquired by marked interest in scientific work or practical contribution in resilience. The membership of the CoCRP will be developed from a representation, knowledge, skills and expertise, and geographical perspective.

Membership is managed by DARWIN partner Katastrofmedicinskt Centrum (KMC) through the DARWIN website. All DARWIN project partners will be responsible for growing the CoCRP membership by contacting potential members from their member state and through their international contacts and links. Details of the application process will be available on the DARWIN website.

At present, the CoCRP has a membership of 17. DARWIN is represented by nine partner organisations from six different countries across the European Union. As the CoCRP is self-sustaining beyond the life of the project this ensures the continuity of the guidelines in both their practical application and in their continued evolution and development.

## 2.4 Roles, Responsibilities and Relationships

The role of the CoCRP is central to DARWIN. It represents the external, worldwide collaboration for the DARWIN project and will be delivered through key users' representatives and experts (not included as partners) and together with DARWIN partners' participation in international crisis, resilience and domain specific associations. The CoCRP's role is to support the development of DARWIN by providing feedback on the development of resilience concepts, practices and training modules and taking advantage of its work.

A survey and extensive literature review will be conducted expanding from the knowledge and competencies of the DARWIN partners and the CoCRP.

The specific role of the CoCRP will be to give input and feedback to resilience concepts and practices (WP1), resilience guidelines (WP2), serious games and training for resilience in case of crisis (WP3), pilots application (health care, aviation and relevance to other domains) in this way contributing to the



creation and evaluation of the guidelines as they develop (WP4). The plan is to develop mature resilience concepts through pilot applications and exchange the revised guidelines with the CoCRP.

Both the CoCRP and DARWIN partners have extensive reach through their own business networks, contacts and many years of experience and engagement in resilience related crises and disaster research and management across many domains. The intention is that there will be close mutually beneficial working relationship between the CoCRP and DARWIN. This is essential if the guidelines, the main objective and the core result of the project, are to achieve the standard and continuity to which the project aspires.

The role of DARWIN partners is to engage with and stimulate the CoCRP groups or individuals in the activities and events leading to the development of resilience concepts, practices, associated guidelines, training modules and pilots.

The related roles and responsibilities of the DARWIN partners and project are set out in detail in the WP descriptions, tasks and deliverables. In particular to help achieve the impacts listed in the work programme DARWIN has dedicated WP5 to the sole purpose of establishing the CoCRP, supporting self-organisation and encouraging collaboration and learning. A fully integrated dissemination and exploitation plan, involving all partners and the CoCRP is being developed and implemented to ensure the impact of the project is immediate and continues beyond the life of the project.

A social media network and dedicated website continues beyond the life of the project, and is maintained and developed by end users, and members of the CoCRP. Partners will support this activity through new resilience projects and linking DARWIN to the Resilience Engineering Association.

In managing the relationship with the CoCRP the responsibility for the success, quality and outputs of the working relationship rests with DARWIN, particularly WP5 leader KMC, who has ultimate responsibility for managing CoCRP.

## **2.5 Activities, Meetings, Work Plan and Sharing Information**

WP5 is dedicated to the sole purpose of establishing the CoCRP arena where a wider collaboration of end users, those directly involved in crisis and disaster management, can share experiences and where feedback is provided on DARWIN developments. KMC as the leader of WP5 will organise and manage the activities of the CoCRP. The activities will be performed with different strategies at different stages, designed for specific purposes either to share experiences, gather views or to evaluate developments in order to learn and share while collaborating. For example:

- Establish direct contact with other research projects participants
- Different kinds of workshops (e.g. interactive x 3)
- Participation in relevant symposia
- Various forms of studies (e.g. survey, questionnaire)
- Use of innovative tools for iterative and interactive development
- Agile methods
- Sprint meetings and game storming
- Teleconferences (will be used to maintain contact with the CoCRP and subsets of the CoCRP as required in between physical meetings)
- One-to-one or small group conference
- Local area meetings between project members and local members of the CoCRP will be held to respond to particular local issues (for example, resilience concepts, practices and local needs and adaptations, culture, legal or management) as the guidelines develop.



Results such as papers, videos and/or podcasts from activities mentioned above will be produced.

A schedule of meetings will be notified six months in advance and will be updated on a rolling monthly basis. This provides a minimum of six months' notice to those invited to attend. KMC will host online meetings and will provide notifications of meetings to members of the CoCRP. CARR's web manager will host the CoCRP portal as part of the DARWIN project website.

KMC will be given full access to the CoCRP portal for management purposes. KMC will upload and manage all relevant material for the CoCRP, for example:

- Resilience Concepts
- Training modules
- Serious games
- Draft European resilience guidelines
- Topic/conversation threads
- Minutes of CoCRP meetings
- Relevant news items

Meetings where members of the CoCRP will be physically present will be scheduled to coincide with plenary meetings where appropriate and facilitated by the travel budget (to cover travel expenses of the CoCRP) dedicated for this purpose and under the control of WP5. Other meetings of the CoCRP will be organised as required.

Some of these meetings may be in addition to the six-month schedule as they respond to circumstances and requirements of the guidelines development and content.

The number, location and purpose of meetings will be developed to support the activities of the CoCRP. They will continue for the duration of the project.

The detailed work plan will be updated in the project website. Foreseen activities which will require interaction with CoCRP are:

- Event on resilience concepts, experiences, practices and needs including significant crisis and everyday practices (WP1)
- Evaluation of most promising resilience concepts for crisis management (WP1)
- Events on resilience – concepts – practices guidelines for crisis management on specific resilience themes (WP2, WP3 – end user perspective)
- Tutorial on resilience concepts on specific resilience themes (WP3)
- Events related to evaluation of resilience management guidelines (WP4)

In addition to the normal exchange of information during scheduled meetings the dedicated web portal will be the primary location for the storage, retrieval and sharing of information.



## 3 Conclusions

DARWIN CoCRP Terms of Reference will strengthen the capacity for multi- and interdisciplinary community of experts within the CoCRP by facilitating continuously implementation of updated guidelines through transboundary cooperation and the use of a mixture of contemporary innovative means.

### 3.1 Further work

The activities will be performed with different strategies at different stages, designed for specific purposes either to share experiences, gather views or to evaluate developments in order to learn and share while collaborating. Following initial activities will be carried out:

- In collaboration with WP1: Direct contact and for example, survey and/or workshop/s to gather experience and practices from crises management practitioners needs.
- In collaboration with WP1: Compile CoCRP expectations on the project and their views on how to make the CoCRP evolve and survive after the project.
- Send out a letter of introduction in which we inform about the Darwin website, and further describe how we will obtain the CoCRP views and experiences etc.
- The results from the above activities will be shared on for example, a popular scientific webinar where feedback on WP1 Task 1.1 results from the CoCRP will be collected.
- Sprint meetings and game storming will be held once a month





## 4 References

1. Woods, D. D. (2015). Four concepts for resilience and the implications for the future of resilience engineering. *Reliability Engineering & System Safety*. doi:10.1016/j.res.2015.03.018. UTOFIA H2020 project, [www.utofia-project.eu/](http://www.utofia-project.eu/), last accessed 2015-03-01



## A Appendix

### A.1 List of current members of the CoCRP

Individuals from following organizations:

**Civil Air Navigation Services Organisation (CANSO)** is the international organisation of the Air Navigation Service Providers (ANSP). Through its Workgroups, the different ANSP share information and develop new policies, with the ultimate aim of improving air navigation services on the ground and in the air. CANSO also represents its members' views in major regulatory and industry forums.

**European Aviation Safety Agency (EASA)** is a European Union agency with regulatory and executive tasks in the field of civilian aviation safety. The responsibilities of EASA include: drafting aviation safety legislation and providing technical advice to the European Commission and to the Member States; to coordinate safety programmes, data collection, analysis and research to improve aviation safety.

**DFS Deutsche Flugsicherung GmbH (DFS)** is responsible for air traffic control in Germany and is headquartered in the town of Langen close to Frankfurt. It is a company organised under private law and 100% owned by the Federal Republic of Germany. Founded in 1993, DFS is the successor to the Federal Administration of Air Navigation Services (BFS), a government authority.

**Eurocontrol** is the European Organisation for the Safety of Air Navigation. Founded in 1960, it is an international organisation working for seamless, pan-European air traffic management. Eurocontrol is a civil organisation and currently has 40 member states. Eurocontrol coordinates and plans air traffic control for all of Europe.

**Foundation for an Active Citizenship (FONDACA)** studies citizenship and its changes, via a programme of research and scientific production, consultancy and advanced training, cultural dialogue and policy activities. Its areas of operation include: the public role of non-governmental actors; citizens' organizations as stakeholders in companies and public administration; new forms, and practices of citizenship in modern societies.

**Norwegian Directorate for Civil Protection (DSB)** responsibilities regarding civil protection cover national, regional and local preparedness and emergency planning, fire and electrical safety, safety in handling and transport of hazardous substances, as well as product and consumer safety. The Norwegian Civil Defence is part of DSB. DSB reports to the Ministry of Justice and Public Security.

**Trondheim Municipality Water and Sewage Department** is responsible for providing clean and safe water to the inhabitants. Maintenance, planning and support of water provision as well as waste water handling are the core tasks.

**Det norske oljeselskap ASA** is fully fledged oil company with exploration, development and production of the petroleum resources on the Norwegian shelf.

**Fire and Rescue Service in Östra Götaland (RTOG)** is a fire authority responsible for the provision of fire and rescue services in the Norrköping and Linköping municipality in the Östergötland County, Sweden.



**Criscom** is a Swedish voluntary civil defence organization that provides education and training, and operational support to civil defence actors in the area of crisis communication and information management.

**Socialstyrelsen** – National Board of Health and Welfare is the Swedish Agency responsible for health care and disaster medicine. The agency also represents health care in cross-agency and Nordic countries coordination projects.

**Swedish Red Cross** is the National branch of Red Cross/Red Crescent Societies. SRC has during the last decade focus on domestic disaster preparedness and is participating in RC Federation projects in Europe.

**European Burns Association** – Medical, non-profit organisation working with burn care research and coordination. The EBA has in recent years increased efforts to achieve effective burn care coordination and disaster preparedness in Europe.

Experts from academia:

**Professor Erik Hollnagel** is presently Professor at the University of Southern Denmark and Chief Consultant at the Centre for Quality Improvement, Region of Southern Denmark. Erik is also Visiting Professorial Fellow, University of New South Wales (Australia), Visiting Fellow at the Institute for Advanced Study, Technische Universität München (Germany), and Professor Emeritus at the Department of Computer and Information Science (IDA) at Linköping University (LIU), Sweden. He has published several books and articles addressing Resilience Engineering.

**Dr. David Woods** is a professor at Ohio State University in the Institute for Ergonomics and Past-President of the Human Factors and Ergonomics Society. From his initial work following the Three Mile Island accident in nuclear power, to studies of coordination breakdowns between people and automation in aviation accidents and firefighting. He has published several books and articles addressing Resilience Engineering

**Prof. Chris Johnson** his research helps to understand the failure of complex systems, including national critical infrastructures. In particular, his studies address the interactions between safety and security. He has worked on space mission failures with NASA and the European Space Agency, on contingency planning for the European Commission, military risk assessments and accident analysis for the US Air Force, on the security of sporting events and computer-related fraud in financial institutions.