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DAREnet

D4.1 – 1st Workshop of Topic Working Groups

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Abstract: The deliverable sums up the results from the 1st Topic Working Group Workshop held in Cluj-Napoca (Romania) on May 15 and 16, 2018, which was set up to identify innovation opportunities for the first round of RDI topics.

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Glossary

Abbreviation / acronym	Description
3GPP	3rd Generation Partnership Project
CMT	Community Management Tool
D2D	Device-to-Device
DNC	DAREnet National Contact
Dx.y	Deliverable
ECMWF	European Centre for Medium-Range Weather Forecasts
EFAS	European Flood Awareness System
EMS	Emergency Management Service
EUCPM	European Civil Protection Mechanism
GIS	Geographic Information System
GloFAS	Global Flood Awareness System
JRC	Joint Research Centre
KB	Knowledge Base
MCPTT	Mission Critical Push-to-talk
MVNO	Mobile Virtual Network Operator
PMR	Private Mobile Radio
PPDR	Public Protection and Disaster Relief
QCI	QoS Class Identifiers
QoS	Quality of Service
RDI	Research, Development, Innovation
TWG	Topic Working Group

1 Executive Summary

The present deliverable presents the results from the 1st Workshop of Topic Working Groups which was set up in Cluj-Napoca, Romania, on May 15 and 16, 2018. The aim of the workshop was to identify the innovation opportunities for the set of selected RDI Topics in the first roadmapping cycle.

Beside the presentation of the current state of work for each Topic Working Group (TWG), the workshop was used as a working meeting to prepare poster presentation for the ELSEDIMA Conference 2018, which took place directly after 1st DAREnet TWG Workshop and where DAREnet was invited to present the project itself as well as the first findings of the TWGs within a poster session. Moreover, the posters were intended to give interested parties - especially practitioners that might have a potential interest in joining a TWG and contributing to it – an overview on the content of the RDI Topic related to the TWG as well as an impression for what kind of experiences and knowledge the TWG is looking for.

By identifying a first set of questions for each TWG the basis for creating a questionnaire that shall be distributed to the national networks in order to collect national and international input from practitioners, was generated. The questionnaire itself was not part of the workshop and will be finalized in the follow-up.

2 Introduction

The mission of the DAREnet project is to support flood management practitioners across the EU Danube River basin and from different disciplines to deepen and broaden their research, development and innovation (RDI) related collaboration. Therefore, a multi-disciplinary community of practitioners, organisations operating in the field of civil protection, and stakeholders from policy, industry and research is being built up in order to establish a trans-national and interdisciplinary ecosystem to foster synergies, innovations and to ensure the continuity of the DAREnet innovation process after project end.

A main outcome of the project is the RDI Roadmap, which will be a direct result from the dialogue in the DAREnet Community and Network. The RDI Roadmap aims at shaping future research and innovation policies for the Danube region and the research programmes implementing them. Specifically, the Roadmap will foster innovation opportunities that:

- Match practitioner needs and gaps experienced in the daily practice of flood management,
- Significantly improve nowadays flood management and/or enable practitioners to cope with upcoming flood events (e.g. due to climate change),
- Comply with regional strategies for flood prevention and risk management,
- Create synergies with modules and facilities of the European Civil Protection Mechanism (EUCPM),
- Strengthen exchange and collaboration between practitioners beyond borders and different disciplines,
- Have a promising perspective for industrialisation and market-entry.

The RDI Roadmap is the result of an iterative process of identifying, assessing and prioritising potential innovations as well as mapping important RDI requirements and gaps. The roadmapping process starts with formulating the most critical challenges for flood management in the Danube region. From the challenges specific RDI Topics are derived, each covering a relevant field or source of innovation (cf. D1.1 DAREnet Challenges & RDI Topics).

RDI Topics were grouped and for the most pressing ones, RDI Topic Working Groups (TWG) are set up to correlate and contextualise the potential innovations with practitioner needs and gaps.

DAREnet is divided into four roadmapping cycles and during each cycle, practitioners bring forward and discuss potential solutions for innovating flood management with respect to the specific RDI Topic of the Working Groups. The discussions are fed with information about innovative solutions from the industry, research and best practices. In the next step, the identified innovation opportunities are taken up by the Innovation Assessment (cf. WP5) to benchmark the relevance of each innovation for practitioners from a holistic perspective.

In the present deliverable we present the results from the 1st Workshop of Topic Working Groups which was set up in Cluj-Napoca, Romania, on May 15 and 16, 2018. The aim of the workshop was to identify the current status for the set of selected RDI Topics regarding key performance indicators such as relevance, requirements/needs, available solutions and expertise in the first roadmapping cycle.

To prepare for the 1st DAREnet TWG Workshop, each RDI Topic Working Group had to provide a presentation indicating the most important findings of the TWG up to that date as well as a poster. Templates for both were provided before the workshop. Furthermore, each TWG had to deal with the following questions as preparation for the discussion:

- Why is this RDI topic relevant?
- Which requirements / needs arise from that RDI Topic from the (various) practitioners point(s) of view?

- What are your impressions from the first monitoring of existing solutions? Are there adequate solutions available right now?
- From the investigations above, which expertise does your topic working group additionally need in order to answer the questions?

3 Results from 1st DAREnet TWG Workshop

3.1 Agenda

Tuesday, 15 May 2018		
Time	Item	Speaker
From 10:00	Registration and arrival of participants	
12:00-13:00	Get together and business lunch	
13:00-13:15	Welcome note from the coordinator, Introduction	THW
13:15-14:15	Topic Working Group 1: “Civil Protection Training” Presentation (~15min), Discussion (~45min)	HCPA
14:15-14:45	Coffee Break	
14:45-15:45	Topic Working Group 2: “Resilience of Citizens” Presentation (~15min), Discussion (~45min)	FB
15:45-16:15	Coffee Break	
16:15-17:15	Topic Working Group 3: “Spontaneous Volunteers” Presentation (~15min), Discussion (~45min)	THW
17:15-17:45	Coffee Break	
17:45-18:45	Topic Working Group 4: “Civil Protection Methods, Procedures and Technology” Presentation (~15min), Discussion (~45min)	APELL
18:45	End of day 1	
20:00-22:30	Dinner	

Wednesday, 16 May 2018		
Time	Item	Speaker
09:00-09:15	Welcome, recap day 1, Introduction to day 2	THW
09:15-10:15	Topic Working Group 5: “Communication” Presentation (~15min), Discussion (~45min)	ITTI
10:15-10:45	Coffee Break	
10:45-11:45	Topic Working Group 6: “General Data Management” Presentation (~15min), Discussion (~45min)	DLR
11:45-13:00	Lunch break	
13:00-14:00	Introduction to CMT (Community vs. Consortium) Introduction to the Knowledge Base	THW DLR
14:00-15:30	Poster and Questionnaire preparation	Moderated by DLR
15:30-16:00	Coffee Break	
16:00-17:00	Lessons Learnt and upcoming actions (Brainstorming)	Moderated by THW, DLR
17:00-17:30	Wrap-up, outlook and closure of the meeting	THW
17:30	End of day 2	
20:00-22:30	Dinner	

3.2 Day 1

3.2.1 TWG "Civil Protection Training"

Current state:

- The TWG decides to focus on the following RDI subtopics for the first roadmapping cycle:
  - Comparison of available training programs
  - Exercises and workshop
  - Exchange of knowledge
  - Training
- The chosen RDI topics are relevant due to the following reasons:
  - Training of professional organisations:
    The challenges of risk mitigation, the implementation of civil protection tasks in a constantly changing social environment, require continuous capacity building and the development of the qualification of volunteer organizations that need to be reflected in the system of the training, further training and cooperation, and in the concept of using technical tools.
  - Education of the population:
    Developing the awareness of local society is a prerequisite for residents to know the dangers, including all important parameters. Training, education and information do not only express the culture of emergency behaviour, but also protect the built-in and natural environment and avoid damage.
- The RDI TWG has identified certain requirements when dealing with the selected sub topics:
  - Funding sustainability of the expert network
  - Good practice database
  - Effective forms of training (practical, theoretical)
  - Effective training tools for the transfer of knowledge
  - Review of the acquired knowledge
  - Tools and related training must be available for volunteers
- To provide answers, the RDI TWG will monitor and evaluate national and international training systems and the population protection campaigns as well as unregulated issues (sustainability, efficient database building) which require targeted research. It is planned to firstly collect national solutions that are analysed internally within the group (now Hungarian-Croatian) and then synthesized to identify a common solution (good practice) for the selected RDI sub themes.
- To provide answers the following expertise is needed within the TWG:
  - Civil Protection education and training experts;
  - Experts from protection and rescue operational forces engaged in disaster response activities;
  - Experts for citizens protection education and training;
  - Risk management and risk reduction (mitigation) experts;
  - Hydrology disaster risk adaptation experts.
- The TWG faces the following issues / risks:
  - under-motivated national experts → strong risk;
  - slow / inefficient communication between the members of the group → medium risk;
  - non-comparable systems → low risk.

Notes from the workshop

- The TWG is looking for opportunities to cooperate, especially with the DNC to find out which kind of training material is available on the national level. Therefore, it is

planned to conduct a research on training documents by providing an Excel sheet to compare the available documents and to find improvement potential.

Questionnaire Preparation

The TWG identified the following questions for the questionnaire during the TWG Workshop:

- Do you know any training programme regarding…
  - … swift water rescue?
  - … use of assets (e.g. boats, vehicles and others) in flood rescue?
  - … use of technical equipment (e.g. chainsawing, pumps)?
  - … flood prevention and damage reduction (dyke defense)?
  - … sheltering during floods?
  - … flood rescue crisis managment training for strategical and tactical level?
- Do you know who organizes the training and for what purpose is it used?

3.2.2 TWG "Resilience of Citizens"

Current state:

- The TWG decides to focus on the following RDI subtopics for the first roadmapping cycle:
  - Cadastre of people with special needs, e.g. respiratory support
  - Concepts for evacuation
  - Evacuation plans
  - Information campaigns
  - Publishing / teaching the public
  - Recommendations for preparation
- The chosen RDI topics are relevant due to the following reasons:
  - Enhanced resilience allows better anticipation of disasters and better planning to reduce disaster losses instead of waiting for an event to occur and paying for it afterward.
  - Minimizes hazards' adverse effects through effective precautionary measures that ensure a timely, appropriate, and efficient delivery of response and relief action.
  - Knowing what to do in a disaster's aftermath, knowing how to do it, and being equipped with the right tools to do it effectively.
  - Not knowing how to respond when something unexpected happens is practically a recipe for disaster.
- The RDI TWG has identified certain requirements when dealing with the selected sub topics:
  - Engaging the whole community in disaster policymaking and planning;
  - Developing and deploying tools or metrics for monitoring progress toward resilience;
  - Building the culture and practice of disaster resilience is not simple or inexpensive;
  - Attaining satisfying levels, and maintaining such levels is an ongoing effort that may take years;
  - Every individual and community in the nation should have access to the risk and vulnerability information they need to make their communities more resilient;
  - Engaging the whole community in disaster policymaking and planning and identifying and communicating the roles and responsibilities of communities and all levels of government in building resilience;
  - Numerical means of assessing resilience are needed to identify the priority of required improvements, to monitor changes, to show that resilience has

improved, or to compare the benefits of increasing resilience with the associated costs;
    - Linking public and private infrastructure performance and interests to resilience goals;
    - Understanding the landscape of government policies and practices to help communities to increase resilience;
    - Improving public and private infrastructure and essential services (such as health and education);
    - Communicating risks, connecting community networks, and promoting a culture of resilience;
    - Organizing communities, neighbourhoods, and families to prepare for disasters;
    - Adopting sound land-use planning practices;
    - Adopting and enforcing building codes and standards appropriate to existing hazards.
- To provide answers, the RDI TWG will monitor existing research results, programs and strategies that are already or can be implemented in a national framework as well as recommendations from experts regarding preparedness.
- To provide answers the following expertise is needed within the TWG:
    - Practitioners to interact with civilians and to provide training;
    - Systems managers and researchers;
    - Psychology and the behavioural health sciences;
- The TWG faces the following issues / risks:
    - Conducting research in different countries;
    - Language barriers;
    - Support from national politicians.

Notes from the workshop:

- The current members of the TWG only cover the scientific perspective. Therefore, the TWG raised the question how to involve practitioners. From the involvement of practitioners, they hope to get answers to the questions: “What are practitioners needs regarding resilience?” and “Which practitioner has which know-how respectively what can each practitioner contribute to the TWG?”

Questionnaire Preparation

The TWG identified the following questions for the questionnaire during the TWG Workshop:

- Do you know about any public information campaigns regarding floods?
    - … to encourage people to prepare for floods?
    - … to raise flood awareness?
- Do you know about education materials (e.g. guides, recommendations) for citizens regarding preparation for floods?
    - … to inform citizens about available resources they can use to prepare themselves?
    - … to improve citizens‘ preparedness for floods?

3.2.3 TWG “Spontaneous Volunteers”

Current state:

Due to the absence of DG FSCP, THW took the lead and reminded of the discussion in Vienna, that obviously the understanding of spontaneous volunteers has not been universal among the partners. Generally, citizens without training and association to any organization are meant by this term (see also D1.1 or ISO 22319:2017).

Questionnaire Preparation

The TWG identified the following questions for the questionnaire during the TWG Workshop:

- Do you have any experience with spontaneous volunteers?
  - If yes, were there any problems or challenges?
- Are there any trainings/procedures to prepare you for the involvement of spontaneous volunteers?

3.2.4 TWG "Civil Protection Methods, Procedures and Technology"

Current state:

- The TWG decides to focus on the following RDI subtopics for the first roadmapping cycle:
  - Dyke monitoring systems
  - Best-practice / lessons-learned data base
  - Guidelines / standards
  - Technical solutions
- Relevance:
  - The decision makers highly depend on the choice of appropriate methods and procedures in case of flood crisis situations. On the one hand, good procedures provide a way to communicate and apply consistent standards and practices. On the other hand, especially in preparedness and mitigation stage by implementing the best and innovative methods and solutions we could better manage the flood risk and rise the resilience of citizen.
- Requirements / Needs:
  - Monitoring systems: devices/tools e.g. for water level monitoring, logistics support, resources and personnel availability
  - Guidelines / standards: open standards, compatibility, optimisation, common procedures and standards, standardization of terminology, uniform terms, cooperation
  - Best-practice data base: accessibility to data, data processing, refinement
  - Technical solutions: decentralised material and logistics support, telecommunication infrastructures, resources and personnel availability, evacuation boat/ "truck"
- Monitoring:
  - space for rivers (more space in flood prone area);
  - adapted agricultural and forestry practices to increase the rain-water infiltration;
  - more "green" spaces instead of impervious ones in order to decrease the runoff coefficient (dimensionless coefficient relating the amount of runoff to the amount of rainfall received);
- Expertise needed:
  - Civil Protection experts;
  - Experts from protection and rescue operational forces engaged in disaster response activities;
  - Experts for citizens protection education and training;
  - Risk management and risk reduction (mitigation) experts;
  - Hydrology disaster risk adaptation experts.

Notes from the workshop:

- The TWG plans to get input from the authorities involved in EUROMODEX (i.e. exercises on civil protection modules, technical assistance and support teams and European Union civil protection teams).

- The TWG recommends installing an information assessment (possible criteria: priority, validity etc.) for information stored in the DAREnet Knowledge Base.

Questionnaire Preparation

The TWG identified the following questions for the questionnaire during the TWG Workshop:

- Which methods / procedures / technologies do you have in your organization to cope with floods with regards to:
  - … water level monitoring?
  - … dyke monitoring?
  - … evacuations using boats / trucks?
  - … dyke defense?
- Do you have encountered any issues in using these methods / procedures / technologies?

3.3 Day 2

3.3.1 TWG "Communication"

Current state:

- The TWG decides to focus on the following RDI subtopics for the first roadmapping cycle:
  - Universal warning systems
  - "Fake News" detection
  - Communication systems interoperability
  - Timely information
- Definition of "Fake News": A type of yellow journalism or propaganda that consists of deliberate misinformation or hoaxes spread via traditional print and broadcast news media or online social media.
- Universal warning systems:
  - Relevance
    - Warning systems aim at informing and warning of the population and/or civil security and rescue agencies for upcoming events.
    - Their objective is to warn the possibly affected population and civil security & rescue agencies as soon as possible.
  - Requirements / Needs
    - The warning systems should provide reliable information at the scale of the practitioners needs.
    - Needed improvement of the communication of the different institutions which are involved in the warning systems chain.
  - Monitoring
    - There exist several warning systems, which focus on different scales with different degree of detail.
    - An improvement would be the combination of the current available systems to provide reliable information at the scale which is required by the practitioners.
  - Expertise needed
    - meteorologists
    - experts of warning systems, such as Global Flood Awareness System (GloFAS) and European Flood Awareness System (EFAS), etc.
      - experts from European Centre for Medium-Range Weather Forecasts (ECMWF)
      - experts from the Joint Research Centre (JRC)
    - experts from the national flood warning systems

- "Fake News" detection:
  - Relevance
    - Serious Fabrication – an unverified piece of news and uses eye-catching headlines ("clickbaits"), exaggerations, scandal-mongering, or sensationalism to increase traffic or profits.
    - Large-Scale Hoaxes – "relatively complex and large-scale fabrications" which may include deceptions that go beyond the merely playful and "cause material loss or harm to the victim" in comparison to pranking.
    - Humorous Fakes – if readers are aware of the humorous intent, they may no longer be predisposed to take the information at face value.
  - Requirements / Needs
    - People have to be aware of existing fake news and want to detect them on their own.
    - Be the first source of information in case of critical situation – by app, website etc. and make these sites popular among people.
    - Build relations with influencers etc. in particular area because they can fast detect fake news and correct information publicly.
  - Monitoring
    - Protection against fake news – for example by browser extensions or checking information in few sources.
    - Credibility of sources and indication websites with "true" news.
    - Detection fake news and indication them on different level of "hierarchy" – not only by organization but also by bloggers, influencers and other people connected with crisis management topic.
    - Disclose fake news in newspapers, websites etc. – writing correction by person who gave fake information to the public.
  - Expertise
    - Public Relations Officers at CMT
    - Analysts of „fake news"
    - Media spokespersons at first responders
    - Public communication specialists
    - Information agencies representatives
    - Social media content analysts
- Communication systems interoperability
  - Relevance
    - Communication during crisis situations is vital for information exchange and situation awareness for all entities involved in field and remotely in command centres.
    - Interoperability among different systems to avoid problems with equipment incompatibility and to provide a way for inter-organization and cross-border collaboration.
    - Potential problems:
      - different frequency bands and various radio interfaces,
      - formats of exchanged data and a language and terminology,
      - efficient use of satellite links;
    - In majority of cases voice communication is a sufficient service, nevertheless data transmission has more and more importance for file exchange (e.g. maps, plans and images from action theatre).
    - Operational Communication:
      - Data transmission between a CC and an Incident Scene,
      - Communication between Vehicles and an Incident Scene,
      - Communication between individuals on site,
      - Communication inside tunnels, buildings or basements,

        - Access to information from the Internet or other external data sources;
      - Informing citizens (TV and radio broadcasting, alarm systems e.g. sirens, SMS's).
    - Requirements / Needs
      - Interoperability:
        - for voice and data transmission between different systems,
        - between systems of the same standard that are manufactured by different producer;
      - Broadband data transmission & frequency channels;
      - Mission critical services, especially for voice;
      - Common communication procedures for all organizations;
      - Business models for optimal acquisition of new networks to find a trade-off between cost and features: dedicated networks, commercial networks, hybrid networks, security, high reliability and availability of networks and services, uninterruptible power back-up for more than 30 hours.
    - Monitoring (identified solutions and challenges)
      - MCPTT functions in mobile systems
      - Additional QoS Class Identifiers (QCI)
      - Voice service for group calls
      - D2D communication on the basis of IP protocol
      - Multimedia Push-to-X services
      - MVNO for sub-set of services
      - Repeater/relay stations
      - Interoperability gateways
      - Systems based on 3G/4G/5G standards
      - Effective encryption
      - UPS
      - Improved frequency management
      - Better coordination of communication procedures
    - Expertise
      - PPDR/responder organizations employees with knowledge about PMR systems and networks
      - Specialists in procedures for inter-organization communication
      - Designers and developers of mobile radio systems
      - Technology experts in:
        - configuration of communication services including voice, message, data and video
        - interoperability solutions like gateways
        - 3GPP standards and their progress toward 5G systems
- Timely information
    - Relevance
      - Timely information about the temporal evolution of a disaster such as a flood is highly required to support, e.g. civil protection agencies and local rescue teams as well as to update warning systems.
      - Communication media have to be provided in order to inform all parties on time.
      - The objective is to provide information to the decision makers and citizens as soon as possible.
    - Requirements / Needs
      - The provided information should be available as soon as possible.
      - All information provided to the practitioners should be consistent with:
        - incident dementia,
        - thread awareness,

                - pre-training just in case of disaster.
        - Monitoring
            - Regarding satellite-based timely information extraction there exist several mechanisms, such as:
                - the International Charter 'Space and Major Disasters',
                - the mapping service of the Copernicus Emergency Management Service (EMS) or
                - DLR's near real-time flooding mapping services.
        - Expertise
            - CMT members:
                - Decision makers,
                - Threats and risk analysts,
                - Damage assessment specialists,
                - GIS expertise (in case of timely information derived from satellite imagery).
- The TWG faces the following issues / risks:
    - „set up and moderated by DAREnet consortium partners but involves participants from all DAREnet national networks"
    - Lack of practitioners in the TWG

Notes from the workshop:

- The TWG is already working on a document, which summarizes the findings of their research.
- The TWG recommends not only inviting practitioners to a survey, but also to a Face-2-Face-Meeting in order to get them involved to TWG.

Questionnaire Preparation

The TWG identified the following questions for the questionnaire during the TWG Workshop:

- Which warning systems (e.g. local, national, European, global) do you know? Which of them are you using in practice?
- What communication systems do you use?
- Do you see any gaps with regards to communication technologies or solutions?
- Have you ever encountered "Fake News"? How have you dealt with this?

3.3.2 TWG "General Data Management"

Current state:

- The TWG decides to focus on the following RDI subtopics for the first roadmapping cycle:
    - Accessibility of data
    - Centralized data pool
    - Efficient information management
    - Standardisation of data format
    - Technical front-end support solution
- The TWG "General Data Management" is relevant due to the following reasons:
    - Efficient decision support tools highly depend on reliable information.
    - Especially in crisis situations, a fast and sound assessment of the current situation as well as forecast regarding upcoming actions must be accessible by those at the scene.
    - Therefore, a lot of various data sets are needed to enhance the process of decision making.

    - Managing these data sets is a key challenge and thus, requires further exploration.
- Accessibility of the data
    - Relevance
        - Decision making is much easier if authorities have access to all available data / information / knowledge.
    - Requirements / Needs
        - Data / information availability and reliability
        - Authentication and authorization procedures
        - Telecommunication infrastructures
        - (Personal) terminals
        - Operated interfaces
    - Monitoring of available solutions
        - OGC-based Interfaces
- Centralized data pool
    - Relevance
        - Enhances the reliability of available data / information since an authorized centralized data pool might secure information uniqueness (i.e. avoid rumours/fake news!)
    - Requirements / Needs
        - Accessibility to data pool
        - Diversity of data / multi-sided trans-sectoral data markets (containing e.g. water level data, georeferenced (infrastructural) data or social/demographic data)
        - Reliability / uniqueness of data / information
        - Resilient infrastructures
        - User management (handling)
    - Monitoring of available solutions
        - Open Data Platforms (e.g. EUROSTAT, mCloud, Big Data Value Center, Dike Data Service Centre)
        - Cloud Computing solutions
        - Plug & Play solutions
- Efficient information management
    - Relevance
        - Allows a fast and sound assessment of the current situation and thus, enhances the situational awareness as well as the decision-making process (PDCA cycle!)
    - Requirements / Needs
        - Intelligent management systems
        - Support of information distribution
        - Not only on national level, but also trans-national
        - Quality metrics: relevance, accuracy, usefulness, timeliness, completeness
        - Integrated, i.e. supporting information collecting and compiling processes
    - Monitoring of available solutions
        - Warning Systems (e.g. EFAS)
- Standardization of data formats
    - Relevance
        - Enhances the compatibility between different systems and secures information consistency between organizations.
    - Requirements / Needs
        - Open standards
        - Global context (exchange formats, storage, etc.)
        - Quality metrics: consistency, reliability, compatibility
        - Optimisation of existing standards
    - Monitoring of available solutions

        - National / international standards (ISO, EN, DIN, etc.)
        - extension and optimisation of existing standards
        - usage of common standards
- Technical front-end support solutions
    - Relevance
        - Information visualisation and presentation enhances the situational awareness and understanding of current situations.
    - Requirements / Needs
        - Device/OS independent
        - UX principles / responsive design / intuitive
        - Quality metrics: usability, reliability
        - Real-time visualisation
        - 3D visualisation, VR / Augmented Reality
        - Language-independent / multi-lingual
    - Monitoring of available solutions
        - Crowd Tasker (Frequentis)
        - XVR on Scene / XVR Resource Management (XVR)
        - ArcGIS (ESRI)
        - Decision Support Systems (e.g. IODA, CIS by EPISECC)
        - Hardware: personal devices, screen walls, surfaces
- The TWG is looking for practitioners with the following expertise:
    - Management level, i.e. practitioners dealing with situational awareness, risk & demand analysis and assessment of situations in order to make decisions
    - Operational level, i.e. practitioners in the field who handle information terminals that require up-to-date information
    - Communication level, i.e. practitioners dealing with information exchange (internal, but also inter-organizational, trans-national etc.)
    - Technical level, i.e. practitioners dealing with provision of data
- The TWG faces the following issues / risks:
    - Getting practitioners involved / right usage of DNC
    - Collaboration opportunities with other DAREnet partners / other projects etc.
    - Subtopics have a broad thematic range that makes it difficult to focus on.

Notes from the workshop:

- The TWG only covers the scientific perspective of the topic. Therefore, the main of the TWG must be to involve practitioners.

Questionnaire Preparation

The TWG identified the following questions for the questionnaire during the TWG Workshop:

- How do you share data / information during flooding events?
- How do you visualize the data / information?
- Do you use support software for situational awareness or decision making?
- What have been major issues when sharing data / information?

3.3.3 Poster Preparation

During the 1st DAREnet TWG Workshop each TWG had to prepare a poster. The intention of these posters was twofold: on the one hand, the posters were planned to be used as dissemination material for the ELSEDIMA Conference, which took place directly after 1st DAREnet TWG Workshop and where DAREnet was invited to present the project itself as well as the first findings of the TWGs within a poster session. On the other hand, the posters were intended to give interested parties - especially practitioners that might have a

potential interest in joining a TWG and contributing to it – an overview on the content of the RDI Topic related to the TWG as well as an impression for what kind of experiences and knowledge the TWG is looking for. Therefore, the posters were structured in the following sections:

1. **Relevance of the RDI Topic**, i.e. a short explanation why the TWG is interested in the selected topic.
2. **Graphical Overview on the current state of work**, i.e. picture that sums up the findings of the TWG regarding the selected subtopics of the RDI Topic, the requirements / needs and possible already available solutions.
3. **Questions to identify the practitioner's needs**, i.e. a section that asks for input from practitioners in form of selected questions in order to raise awareness that the DAREnet project highly depends on the input from external parties who are working in the operating environment of flood management.

The final posters are attached to ANNEX II.

3.3.4 Questionnaire Preparation

From the questions identified during the 1st DAREnet TWG Workshop, a questionnaire will be designed in the follow-up of the workshop. Since the questions are intended to be forwarded to each DNC involved in the DAREnet project, it was decided to develop only one questionnaire that contains the questions of all TWG within one document but separated in related sections. Moreover, to avoid confusion the questionnaire will include a hint that there is no need to answer questions in sections that do not touch the own field of activity of the respondents. However, standard questions related to the respondent's civil protection experience (e.g. name of organisation, years of experience and role in flood management) should be required in order to give the TWGs the opportunity to assess the quality of given answers.

The first draft of the questionnaire that will be finalized after the 1st DAREnet TWG Workshop is attached to ANNEX III.

3.3.5 Lessons Learnt and upcoming actions

In the final discussions of 1st DAREnet TWG Workshop the following lessons learnt were identified:

- Missing involvement of third party practitioners calls for better cooperation with WP2.
- The CMT is not efficiently used by the DAREnet partners yet. A reason might be the user-friendliness of the CMT (e.g. difficult and confusing functionality of joining groups). Thus, the CMT requires some improvements regarding its handling.
- A more detailed and specific task description is needed in order to clearly communicate the objectives.
- The structure of the TWGs needs to be improved as well. Currently, each of the TWG lacks in the involvement of practitioners since the present members cover more the scientific perspective of the topic.
- The questionnaire, for which the questions were identified during the 1st TWG Workshop, should have been done in an earlier project stage to foster the involvement of practitioners.
- DAREnet project must be more engaged with other projects dealing with similar topics.

Regarding upcoming actions, the TWGs agreed on the following process indicating 5 tasks that each TWG has to do according to the schedule in **Error! Reference source not found.**:

1. Identification of relevant aspects from the RDI topics,

2. Design the according questionnaire section,
3. Elaboration of national specialities regarding step 1,
4. Provision of national input to the KB,
5. Sighting international input from questionnaire responses,
6. Compilation of national and international input,
7. Provision of input for D4.2.

4 Conclusions

The 1st Topic Working Group Workshop took place in Cluj-Napoca, Romania, from May 15 to 16, 2018. The aim of the workshop was to identify the innovation opportunities for the set of selected RDI Topics in the first DAREnet roadmapping cycle. Therefore, all the TWG that were set up in the consortium meeting in Vienna from January 23 to 25, 2018, were invited to present their current stage of work as well as to discuss further steps.

From the discussion we found out that all TWG suffer from a lack of practitioners that could communicate actual needs regarding the selected RDI Topics. Thus, in most cases they were only able to examine the scientific perspective of those topics.

As a result, most of the time of the workshop was spent to identify a first set of questions for each TWG in order to create a basis for a questionnaire that is intended to be distributed to the national practitioner's networks through the DNCs. The aim of preparing a questionnaire is to collect national and international input from practitioners and to find out basic background information on national level from each involved country. With the focus on river floods, the questionnaire shall in particular provide answers to the question "What are the practitioner's needs?" (according to each identified RDI topic) in order to identify the problem space and thus, to close the gap between the scientific and the practical / operational perspective within the TWGs.

Beside the presentation of the current state of each Topic Working Group (TWG) and the identification of relevant questions for a questionnaire, the workshop was used as a work meeting to prepare dissemination material for the ELSEDIMA Conference 2018, which took place directly after 1st DAREnet TWG Workshop and where DAREnet was invited to present the project itself as well as the first findings of the TWGs within a poster session. Moreover, the posters were intended to give interested parties - especially practitioners that might have a potential interest in joining a TWG and contributing to it – an overview on the content of the RDI Topic related to the TWG as well as an impression for what kind of experiences and knowledge the TWG is looking for.

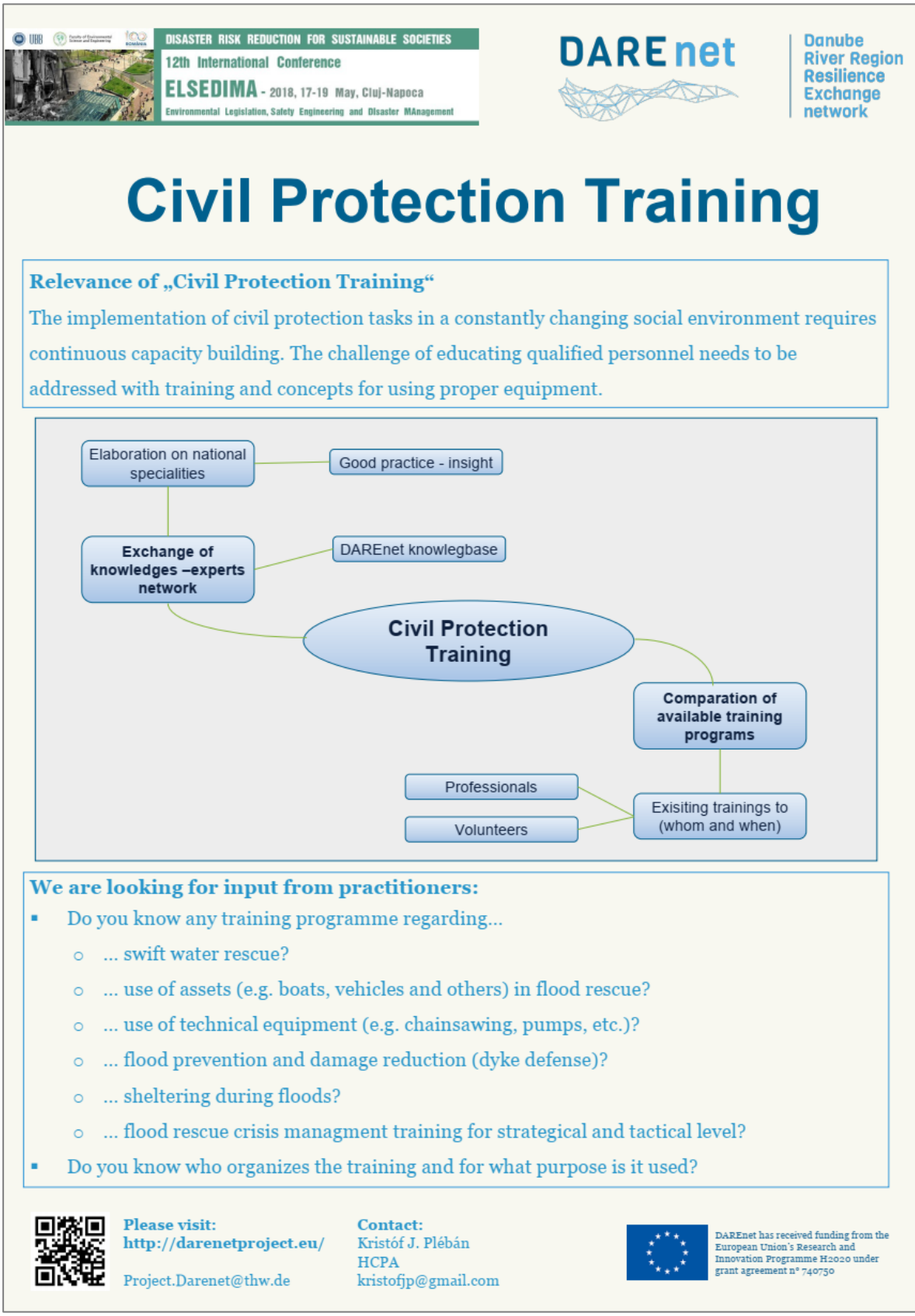
In the follow-up of the 1st DAREnet TWG Workshop our next steps will include:

- Finalising the questionnaire,
- Distributing the questionnaire through the DNCs to the national networks,
- Collecting the practitioner's feedback and compiling the national and international input,
- Contributing the findings to the DAREnet Knowledge Base,
- Providing identified innovation opportunities.

The provision of the innovation opportunities relates to the next step in the DAREnet roadmapping cycle, where the identified results will be taken up by the Innovation Assessment done in WP5.

Annex I: TWG Posters

Topic Working Group: "Civil Protection Training"



Topic Working Group: "Resilience of Citizens"

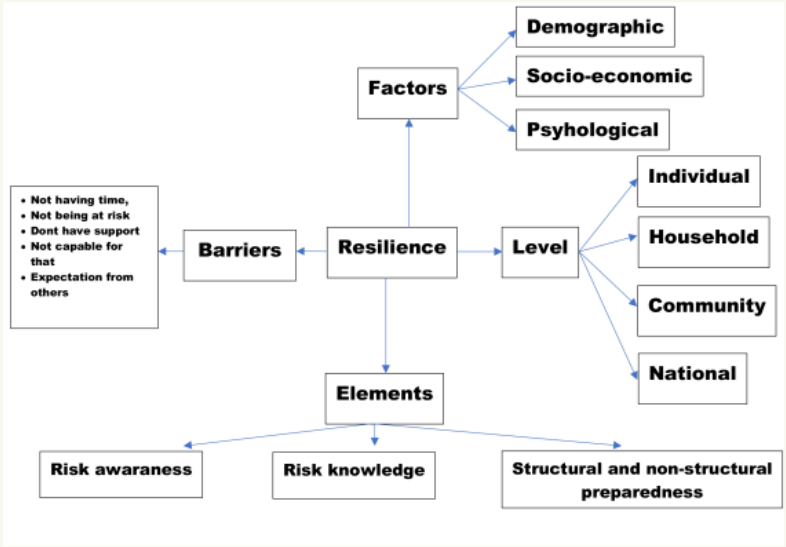
DARE net

Danube River Region Resilience Exchange network

Resilience of Citizens

Relevance of "Resilience of Citizens"

- Enhanced flood resilience allows better planning to reduce disaster losses
- Through effective flood precautionary measures we can minimize hazards
- Important ways to reduce the negative impacts of floods
- Proactive investments and policy decisions can reduce loss of lives and costs



We are looking for input from practitioners:

- Do you know about any public information campaigns regarding floods?
  - ... to encourage people to prepare for floods?
  - ... to raise flood awareness?
- Do you know about education materials (e.g. guides, recommendations) for citizens regarding preparation for floods?
  - ... to inform citizens about available resources they can use to prepare themselves?
  - ... to improve citizens' preparedness for floods?

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DARENet has received funding from the European Union's Research and Innovation Programme H2020 under grant agreement n° 740750

Topic Working Group: "Spontaneous Volunteers"

DARE net

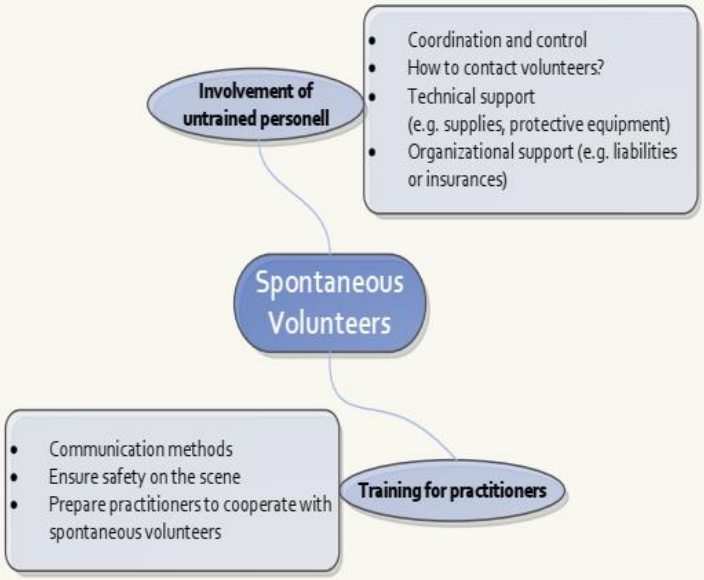
Danube River Region Resilience Exchange network

Spontaneous Volunteers

Spontaneous volunteers are "just" citizens willing to help. They are not related to any organization and have not received any preparatory training nor equipment. Typical civil protection responders are either professionals or volunteers engaged in dedicated organizations. They also received proper training and preparation, as well as the adequate equipment to reduce their personal risk.

Relevance of "Spontaneous Volunteers"

Flood management and response entails many labour-intensive and enduring tasks. This often challenges civil protection structures. Therefore, spontaneous volunteers can be a huge relief to responders.



We are looking for input from practitioners:

- Do you have any experience with spontaneous volunteers?
  - If yes, were there any problems or challenges?
- Are there any trainings/procedures to prepare you for the involvement of spontaneous volunteers?

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Topic Working Group: "Civil Protection Methods, Procedures and Technology"

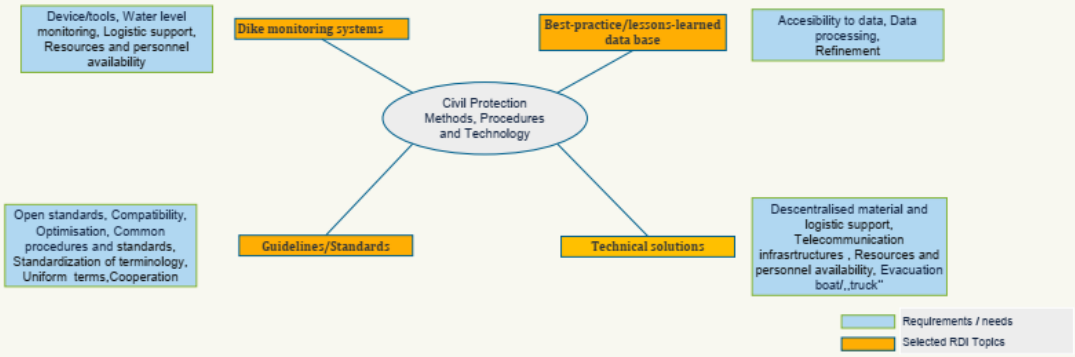
DARE net

Danube River Region Resilience Exchange network

Civil Protection Methods, Procedures and Technology

Relevance of "Civil Protection Methods, Procedures and Technology"

Practitioners highly depend on the presence of appropriate methods and procedures in case of floods. On the one hand, good procedures provide a way to effective communication by applying consistent standards and practices. On the other hand, by implementing the best and innovative methods and solutions we could improve flood risk management.



We are looking for input from practitioners:

- Which methods / procedures / technologies do you have in your organization to cope with floods with regards to:
  - ... water level monitoring?
  - ... dyke monitoring?
  - ... evacuations using boats / trucks?
  - ... dyke defense?
- Do you have encountered any issues in using these methods / procedures / technologies?

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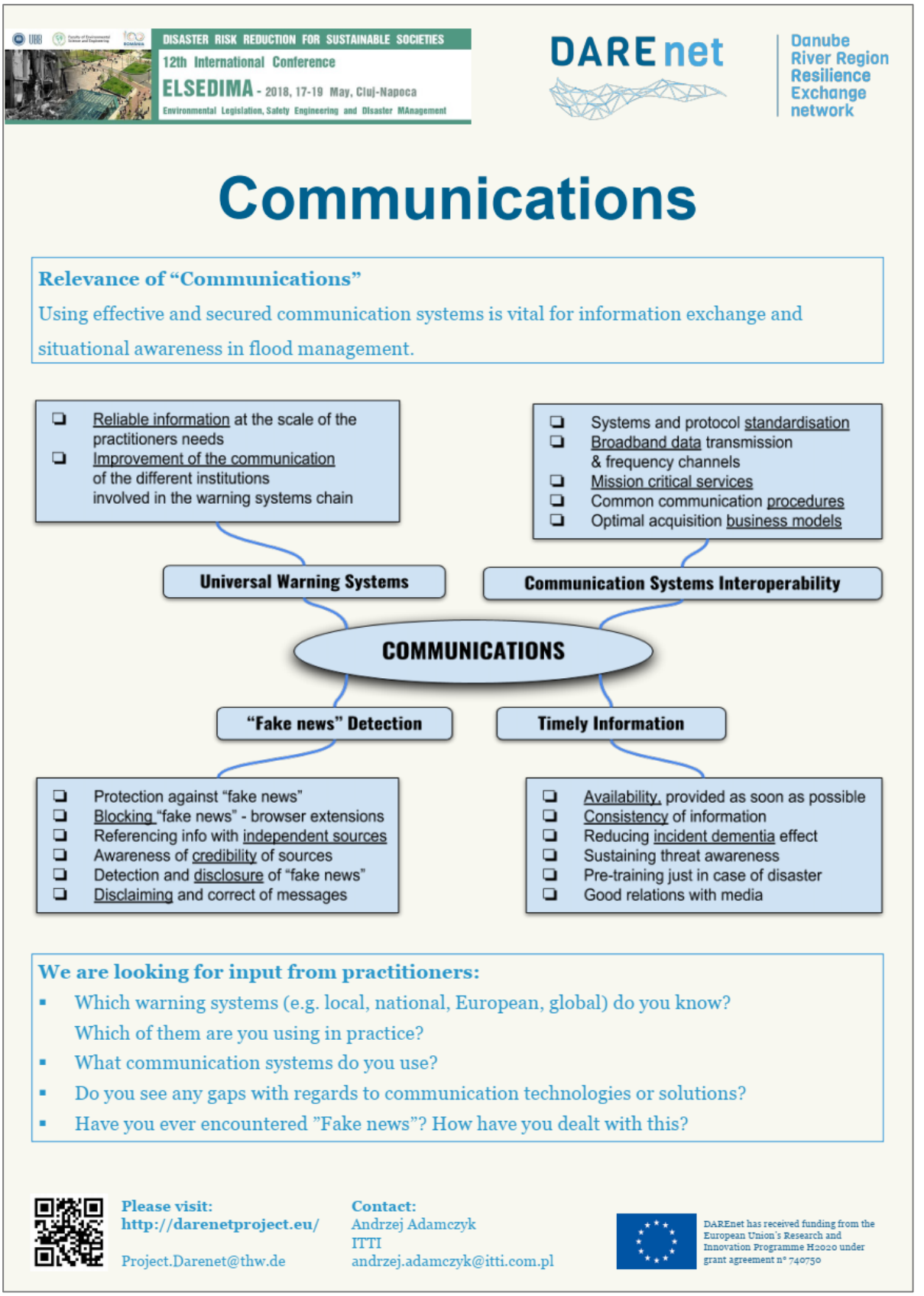
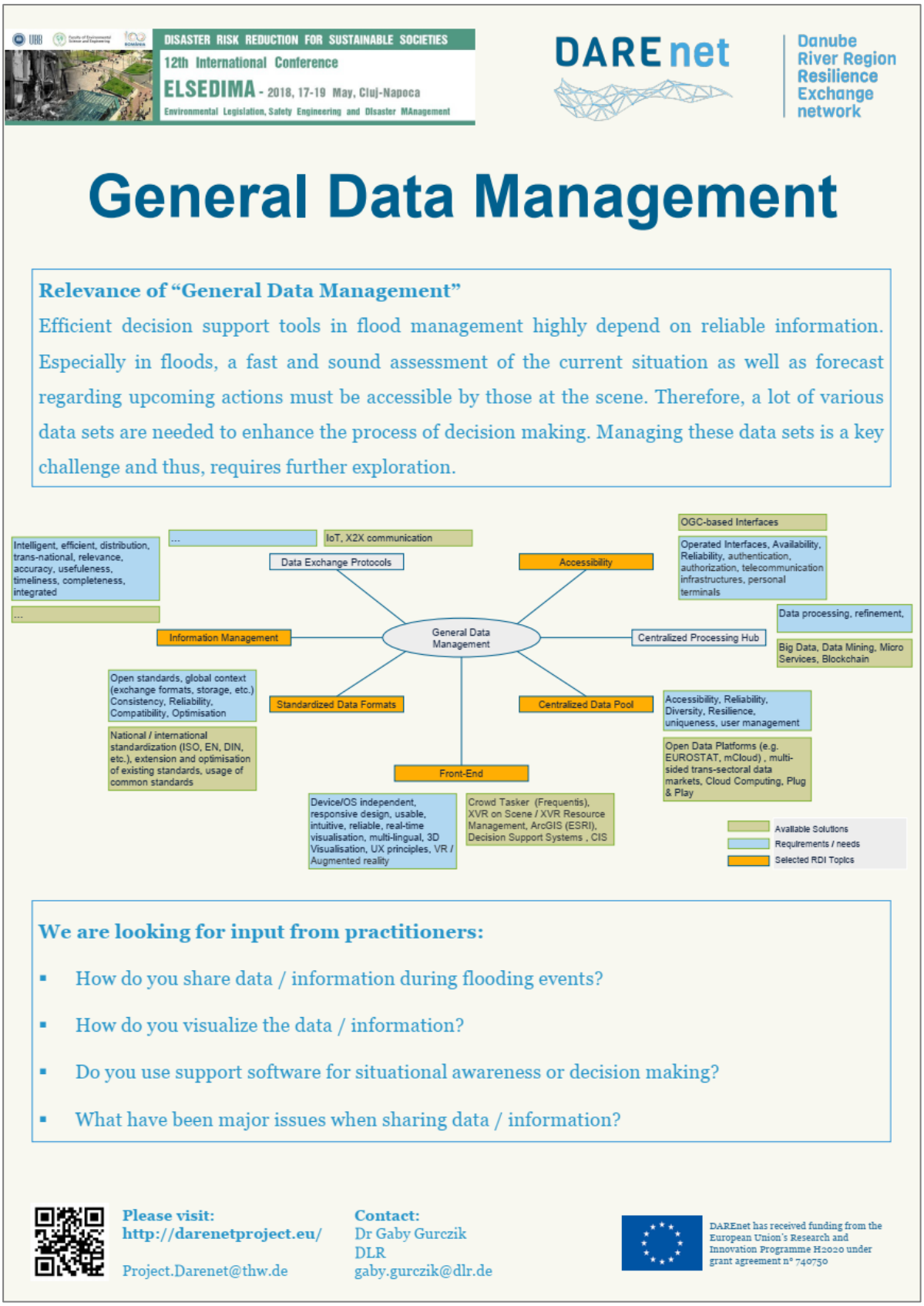
Topic Working Group: "Communication"



Topic Working Group: "General Data Management"



Annex II: Questionnaire Draft

Resilience of Citizens

- Do you know about any public information campaigns regarding floods?
  - … to encourage people to prepare for floods?
  - … to raise flood awareness?
- Do you know about education materials (e.g. guides, recommendations) for citizens regarding preparation for floods?
  - … to inform citizens about available resources they can use to prepare themselves?
  - … to improve citizens' preparedness for floods?

Communications

- Which warning systems (e.g. local, national, European, global) do you know? Which of them are you using in practice?
- What communication systems do you use?
- Do you see any gaps with regards to communication technologies or solutions?
- Have you ever encountered "Fake news"? How have you dealt with this?

Civil Protection Training

- Do you know any training programme regarding…
  - … swift water rescue?
  - … use of assets (e.g. boats, vehicles and others) in flood rescue?
  - … use of technical equipment (e.g. chainsawing, pumps, etc.)?
  - … flood prevention and damage reduction (dyke defense)?
  - … sheltering during floods?
  - … flood rescue crisis managment training for strategical and tactical level?
- Do you know who organizes the training and for what purpose is it used?

Spontaneous Volunteers

- Do you have any experience with spontaneous volunteers?
  - If yes, were there any problems or challenges?
- Are there any trainings/procedures to prepare you for the involvement of spontaneous volunteers?

Civil Protection Methods, Procedures and Technology

- Which methods / procedures / technologies do you have in your organization to cope with floods with regards to:
  - … water level monitoring?
  - … dyke monitoring?
  - … evacuations using boats / trucks?
  - … dyke defense?
- Do you have encountered any issues in using these methods / procedures / technologies?

General Data Management

- How do you share data / information during flooding events?
- How do you visualize the data / information?
- Do you use support software for situational awareness or decision making?
- What have been major issues when sharing data / information?