



# LINKS

Strengthening links between technologies and society  
for European disaster resilience

## D2.5 CASE ASSESSMENT REGARDING DISASTER RISK PERCEPTION AND VULNERABILITY

Research Report

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## EXECUTIVE SUMMARY

### About the project

LINKS “Strengthening links between technologies and society for European disaster resilience” is a comprehensive study on disaster governance in Europe. In recent years, social media and crowdsourcing (SMCS) have been integrated into crisis management for improved information gathering and collaboration across European communities. The effectiveness of SMCS on European disaster resilience, however, remains unclear, the use of SMCS in disasters in different ways and under diverse conditions. In this context, the overall objective of LINKS is to strengthen links between technologies and society for improved European disaster resilience, by producing sustainable advanced learning on the use of SMCS in disasters. This is done across three complementary knowledge domains:

- Disaster Risk Perception and Vulnerability (DRPV)
- Disaster Management Processes (DMP)
- Disaster Community Technologies (DCT)

The project will develop a framework through an iterative process and bring together 15 partners and two associated partners across Europe (Belgium, Denmark, Germany, Italy, Luxembourg, the Netherlands) and beyond (Bosnia & Herzegovina, Japan) to understand, measure and govern SMCS for disasters. The LINKS Framework consolidates knowledge and experiences on the uses of SMCS into useful products for relevant stakeholders. It will be developed and evaluated through five practitioner-driven European cases representing different disaster scenarios (earthquakes, flooding, industrial hazards, terrorism, drought), cutting across disaster management phases and diverse socioeconomic and cultural settings in four countries (Denmark, Germany, Italy, the Netherlands). Furthermore, LINKS sets out to create the LINKS Community, which brings together a wide variety of stakeholders, including first-responders, public authorities, civil society organisations, business communities, citizens, and researchers across Europe, dedicated to improving European disaster resilience through the use of SMCS.

### About this deliverable

The aim of this deliverable is to show the latest stage of progress of the Disaster Risk Perception and Vulnerability (DRPV) knowledge base (KB), through the work conducted in the cases, with a specific focus on the Including Citizens Handbook and on Feel Safe (formerly known as the Educational Toolkit, managed by Save the Children Italy). The foundations of these two products are in fact rooted in the Disaster Risk Perception and Vulnerability model as presented in D2.3. Additionally, the present deliverable represents a theoretical evolution of the results highlighted in D2.1 and D2.2 through the lenses of a practical approach to the topics related to DRPV KB. The document is structured in two core sections: one describing the work done on the Handbook, and the second covering Feel Safe as well as the activities conducted by the Italian Case Assessment Team.

Regarding the former, particular attention was paid to illustrating how the DRPV KB was integrated into the product. Again, according to this logic, the other focal point was to show the application of the DRPV methodology and its updating. One of the purposes of the present deliverable is to highlight the progression from a theoretical perspective to a practitioner-driven approach. In order to do so, a specific attention has been devoted to the collaboration with the LINKS partner Province of Terni. The outputs and feedback of the partner have been acknowledged and taken into account consistently throughout the whole process of creation and then refinement of the Handbook. Moreover, the present deliverable will highlight the process towards the digitalization of the Handbook and the rationale behind the decision to create a digital platform addressed to the practitioners.

The main key results are the following:

- The finalisation of two out of the four sections of Handbook (“How to make information accessible” and “How to mobilise citizens”);
- The refinement of the other two parts of the product (“How to increase awareness” and “How to engage with volunteers”);
- The inclusion of access to additional materials (i.e. articles, guidelines, examples) on the past application of social media and crowdsourcing in different contexts;
- A thorough redesign of the product and its translation into an educational platform;
- The inclusion of multimedia resources (such as interactive guidelines and videos);
- An overall improvement of the communication of the content;
- A special attention was paid to the user’s navigation experience across the sections and subsections that compose the digital format of the Handbook.

As for Feel Safe, the intent is to highlight the progression of the product in conjunction with the advancement of the activities planned by the Italian Case Assessment Team, mostly in the form of educational workshops and lectures, aimed to validate the platform with students and teachers, especially in collaboration with the Istituto Comprensivo G. Fanciulli. The latter is a K-14 school for children from the municipalities of Ferentillo and Arrone (both in the Province of Terni, Umbria region), and other bordering municipalities of the so-called Bassa Valnerina Ternana, an area extremely exposed to earthquakes.

A multi-generational perspective as well as a practical approach still inform Feel Safe being the most significant features of the product. The main key results are the following:

- Bottom-up approach, as it is co-designed with a participatory approach by teachers and students;
- Free access as it is an open-source platform, and all the content is free;
- Promotion of good practices networks, advertising external useful links and initiatives;
- Sustainability, as it is managed by Save the Children Italy with planning and exploitation strategy that goes beyond the lifespan of the project;

- Fun experience, with an appealing layout for children;
- Mix of resources, you can find a library (stories for promotion of good practices and reading material) and activities divided by topic (i.e., natural disasters of communication during emergencies);
- Social experience, through practical experiences and learn by doing and teamwork activities that not only engage children within the school context but also promotes relationship between the schools and other emergency stakeholders in the area;
- Feedback mechanism from user to product owner to ensure continuous development and co-design;
- Updates and new features, as new activities will be proposed seasonally, and resources updated constantly.

To conclude, the present deliverable is conceived for both the LINKS partners and for a broader audience, i.e., for the disaster manager organisations as well as for the scientific community. For the first type of reader, the document presents practical inputs and suggestions according to the experiences of the stakeholders involved in the LINKS project. For the second one, the theoretical results and the research conducted by WP2 on the DRPV KB, could be useful for the academic community interested in developing new perspectives on the overall field of Disaster Risk Management (DRM).

## TABLE OF CONTENTS

1. Introduction .....	11
2. Building the Including Citizens Handbook: how the second methodology for the DRPV informed the product.....	13
2.1 Development Process and Timeline (March 2022 – April 2023) .....	15
2.2 Consultation Process.....	17
2.2.1 Handbook Taskforce Meetings .....	18
2.2.2 Case Level Meetings.....	18
2.2.3 Targeted Consultations with Province of Terni .....	19
2.3 Online Surveys: Updates on the Validation Process.....	21
3. “How to make information accessible” and “How to mobilise citizens”: an overview .....	24
3.1 How the DRPV Knowledge Base has been translated into the product .....	25
3.1.1 A selective overview of the most recent scientific literature on DRPV and on the use of SMCS in disaster management (2023) .....	26
3.1.2 “How to make information Accessible?”: how the knowledge base has been integrated .....	30
3.1.3 “How to Mobilize Citizens?”: how the knowledge base has been integrated .....	32
3.2 How the guidelines/actions have been conceived and developed .....	35
3.2.1 Examples from “How to make information accessible” .....	35
3.2.2 Examples from “How to mobilise citizens” .....	37
4. “How to increase awareness” and “How to engage with volunteers”: an overview from the Danish case.....	42
4.1 Introduction .....	42
4.2 Development status of the two thematic sections.....	43
5. Towards the Digitalization of the Product: the Including Citizens Handbook as an Educational Platform for DMOs.....	44
6. Vulnerable Groups: Children in Disasters.....	47
6.1 Feel Safe: Digital Education for Disaster Resilience.....	48
6.2 Testing and Validation of the Product .....	51
7. Integration of the Including Citizens’ Handbook and Feel Safe into the Final Version of the LINKS Framework.....	52

8.	Conclusion.....	54
8.1	The Including Citizens Handbook and Feel Safe: the Next Steps.....	54
9.	Bibliography.....	57
10.	Annexes.....	62
10.1	Annex I: Online survey .....	62

## LIST OF TABLES

Table 1:	WP2 meetings schedule .....	17
Table 2:	Theoretical development of the guidelines in the “Mobility” section of the Including Citizens Handbook .....	19
Table 3:	Theoretical development of the guidelines in the “Accessibility” section of the Including Citizens Handbook .....	20
Table 4:	Main questions and related results from the online survey on the “Accessibility” part of the Including Citizens Handbook .....	22
Table 5:	A synthetic overview of the main actions taken on the communicative aspect of the Including Citizens Handbook.....	25
Table 6:	Overview of the most recent literature on DRPV (2023).....	27
Table 7:	Overview of the most recent literature on the use of SMCS in disaster management (2023) .....	28

## LIST OF FIGURES

Figure 1:	An overview of the development process and the timeline of the activities conducted on the Including Citizens Handbook starting from December 2022 .....	16
Figure 2:	Structure of the Including Citizens Handbook .....	24
Figure 3:	The update of the scheme on “Accessibility” in comparison to the one presented in D2.1 .....	31
Figure 4:	The page dedicated to “Cultural Accessibility” taken from the Including Citizens Handbook as presented in its original PDF format .....	32
Figure 5:	The update of the scheme on “Mobility” in comparison to the one presented in D2.1....	33
Figure 6:	The page dedicated to “Cultural Mobility” taken from the Including Citizens Handbook as presented in its original PDF .....	34
Figure 7:	Recommendations on how to guarantee the accessibility of information in case of a hazard, taken from the Including Citizens Handbook (original PDF format).....	36
Figure 8:	How to set up an accessible social media post, a guideline taken from the Including Citizens Handbook .....	37



Figure 9: “How to craft an emergency supply kit” to be shared as a social media post, a guideline taken from the Including Citizens Handbook ..... 39

Figure 10: How to set up a plan to reunite with your family members after a disaster, a guideline taken from the Including Citizens Handbook ..... 40

Figure 11: A checklist on how to coordinate spontaneous aid from citizens to be shared through a social media post, a guideline taken from the Including Citizens Handbook..... 41

Figure 12: An exemplary page from the digitized version of the Including Citizens Handbook: “How to craft your evacuation plan” taken from the section on Mobility..... 45

Figure 13: An exemplary page from the digitized version of the Including Citizens Handbook: “Connecting problems to actions”, taken from the section on “Accessibility” ..... 46

Figure 14: Feel Safe main page ..... 49

## LIST OF ACRONYMS

Acronym / Abbreviation	Description
DMO	Disaster Management Organisation
DMC	Disaster Management Cycle
DRM	Disaster Risk Management
DRPV	Disaster Risk Perception and Vulnerability
DRR	Disaster Risk Reduction
KB	Knowledge base
SMCS	Social Media and Crowdsourcing
WP	Work Package

## DEFINITION OF KEY TERMS<sup>1</sup>

Term	Definition
Case assessment	The assessment of the LINKS Framework in local cases
Crowdsourcing	Describes a distributed problem-solving model where the task of solving a challenge or developing an idea gets “outsourced” to a cloud. It implies tapping into “the wisdom of the crowd”.
Disaster risk management	Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.
First responder	A first responder is a member of an authority or organisation or an individual responding first to the scene of an emergency. First responders are for example a member of fire and rescue departments, police departments, other law enforcement agencies, hazardous materials response teams, emergency medical services, and other organisations that have public safety responsibilities and who would respond to rescue and treat victims, and who would protect the public during an incident. First responders could also be NGOs or individuals that act independent from authorities.

<sup>1</sup> Definitions are retrieved from the LINKS Glossary (forthcoming).

LINKS Community Center (LCC)	The LCC brings together different stakeholders (LINKS Community) in one user-friendly and flexible web-based platform and enables them to exchange knowledge and experiences and to access, discuss and assess learning materials on the usage of SMCS in disasters.
LINKS Framework	A set of best-practices consisting of methods, tools and guidelines for enhancing the governance of diversity among the understandings and applications of SMCS in disasters for relevant stakeholders. Methods in LINKS refer to approaches that will enable researchers and practitioners to assess the effects of SMCS for disaster resilience under diverse conditions. Tools are practical instruments supporting first-responders, public authorities and citizens with the implementation of SMCS in disaster and security contexts. Guidelines are recommendations for improving national and regional governance strategies on SMCS as well as introductions and explanations of how to apply the methods and tools under diverse conditions.
LINKS Knowledge bases	"The outputs and knowledge obtained from the assessments of the three knowledge domains.  The knowledge is used to develop the LINKS Framework. "
(Disaster) Risk perception	Risk perception is the way individuals and groups appropriate, subjectivise and perceive risks that might or might not be calculated in an objective manner during risk assessments. The importance of studying risk perception more seriously is obvious: risk perception directly influences people's ability and level of preparedness. Risk perception covers what is also referred to as "risk awareness".
Vulnerability	"The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.  The LINKS project focuses on social vulnerability, which is interpreted as a function of exposure, susceptibility and resilience. It is a pre-existing and dynamic condition, a result of processes built over time (e.g., social power relations at national and international levels) and all the environmental and social circumstances that allow or limit community's capacity to deal with risks. "

## 1. INTRODUCTION

This deliverable aims to show the work conducted on the results of the case assessment regarding Disaster Risk Perception and Vulnerability (DRPV), presenting the latest stage of development of two products, namely the Including Citizens Handbook and Feel Safe (formerly known as the Educational Toolkit), being both based on the DRPV model, as shown in D2.3 (Bonati et al. 2021). The two products are two of the core components of the LINKS Framework as they provide a set of resources and tools that feed into the main goal of guiding relevant stakeholders to focus on what is important when using social media and crowdsourcing.

As it will appear throughout the reading of this deliverable, the collaboration with local communities, especially with the Province of Terni, has been implemented and played a pivotal role on different stages of development of each product. In the case of the Handbook, working with the Province of Terni meant the active involvement of the partner through targeted meetings in the actual phase of implementation of the product; in the case of Feel Safe, the deep dive into an intergenerational perspective reached a new stage with the active participation of children and teachers in the educational activities created for the platform.

As for the Handbook, the product is the result of the regular interaction and consistent collaboration between the Italian and the Danish Team. Even though the two teams worked together on the conception, design, and development of the product, each one respectively focused on two out of four parts of the Handbook.

- The Italian Team worked on “How to make information accessible” (i.e., “Accessibility”) and on “How to mobilise citizens” (i.e., “Mobility”);
- The Danish one on “How to increase awareness” (i.e., “Awareness”) and on “How to engage with volunteers” (i.e., “Volunteers”).

The decision to add sections on the development process is due to the necessity to explain how the Second Methodology (see D2.3 and D2.7 (Lüke et al. 2022)) and the Knowledge Base (KB) on DRPV (see D2.1 (Bonati et al. 2020) and D2.2 (Pazzi et al. 2020)) have informed the final outcome of the product. Practical questions on:

- How to strengthen the links between Disaster Management Organisations (DMOs) and citizens;
- How to make the “invisibles” (i.e., vulnerable groups) visible and how to guarantee their representation;
- How to promote inclusivity through connectivity;

were all taken as guidelines for the creation of the product. Henceforth, in this final stage, the effective context of application of the Handbook has played a pivotal role in defining the product's aims, crafting its structure, and creating the content.

The Handbook is shaped by following scientific as well as practical knowledge on DRPV. Henceforth, the first section of this deliverable will describe how the product has been built according to the DRPV methodology following the first cross-case assessment (see section 3 on the case reports in D6.4 (Clark et al. 2022)). In particular, it will explain how the Second Methodology was adapted to the requirements of the final stage of development of the product. Moreover, the second section explains how the DRPV KB actually fed into the Handbook, that is how the knowledge base has been filtered and shaped into takeaways and handy definitions suitable for the needs of the practitioners.

The second section is followed by the third and the fourth sections which provide an overview of the structure of Handbook, with a focus on how the DRPV KB has been integrated into the product.

As the last paragraph will explain in detail, the Italian and Danish teams have decided to translate the Handbook into a digital format and to create an educational platform divided into the four aforementioned sections. By doing so, the product would acquire the dynamicity and user-friendliness that a static medium, such as a PDF, would not be able to provide. The next steps will move forward towards the translation of the platform from English to the four languages of the LINKS consortium: Danish, Dutch, German, and Italian.

Regarding Feel Safe, the present deliverable will highlight the latest advancement towards the finalisation of the platform. As already stated on several occasions, Feel Safe is an online bilingual (English and Italian) educational tool that promotes the use of social media, technologies and digital education and digital literacy. Its overall aim is to improve the community's resilience to disasters and promote the multidimensional method of teaching civic education in schools, sustainable development and digital citizenship. The website is organised into 5 thematic areas focused on vulnerability, awareness, communication, preparedness and natural hazards (e.g., earthquake), aimed at stimulating students' awareness and learning about preparedness to the risk of natural and human-made disasters. The activities are based on Save the Children's approach founded on the pedagogy of rights and are characterised by a strong participatory and playful approach, thus responding to the need for a language and design that stimulate both creativity and learning. In addition to the activities, a 'stories' channel and a 'news' channel will be integrated in the home page. The first one will contain good practices and documents to be shared and integrated in the activities, while the latter will draw the users' attention to both national and international events (e.g., school safety day).

## 2. BUILDING THE INCLUDING CITIZENS HANDBOOK: HOW THE SECOND METHODOLOGY FOR THE DRPV INFORMED THE PRODUCT

As stated in the D2.7 (see in part. section 3.6), the Including Citizens Handbook came later in the process of development of the Knowledge Base (KB) and its beginnings are to be traced back to the first integration of the Disaster Risk Perception and Vulnerability (DRPV) KB in the first version of the LINKS Framework (see section 2.3.4 of D5.3 (Fonio et al. 2022)).

The improvement of the knowledge base on DRPV starting from the foundations laid down with the D2.2 and D2.3, progressed towards the refinement of the outputs coming from the interviews in the first round of case assessments (see D6.4), and the activities connected to the second round of case assessments (forthcoming D6.5 (Laurrina et al. 2023)). This process of elaboration was conducted in parallel with the research activity on the literature concerning DRPV. The work on the interview data analysis conducted by WP2, as presented in D6.4, both on a cross-case level and on a deep-dive level, has influenced the current state of knowledge on DRPV. A selected group of key elements has emerged, which could be summarised as follows:

- The interrelation between accessibility, representativeness, and vulnerability, here regarded as both dynamic and entwined concepts;
- Diversity as a “crossing-factor”, i.e., diversity as an agent that cuts across multiple domains, e.g., institutions, technologies, people (especially “cultural diversity”, see it in relation to the case of flood hazards in 2010 in Northern and Southern Punjab as discussed in Raheem et al. 2023);
- A “people-centred perspective”, to be interpreted as the study and the practical translation of the potentialities of people’s active involvement in the Disaster Risk Management (DRM) process in different phases of a disaster (see D3.1 (Nielsen et al. 2020) and D3.2 (Nielsen et al. 2021)). At the core of the DRPV methodology stands the idea of people as active resources that could provide support to the disaster manager organisations in a systematic and structured way.

Two outputs in particular should be taken into account, which directly derive from the Italian interviews:

- The use of social media and crowdsourcing could be extremely useful in the *pre-event phase* as an efficient mean to disseminate good practices and guidelines to follow;
- Additionally, it could be highly beneficial in the *post-event phase*, as social media and crowdsourcing might offer targeted information on:
  - People’s needs in real time;
  - Fundraising activities;
  - Voluntary work;
  - How to reunite with the family members;

- How to provide psychological support and assistance to the community.

On the first point, i.e. the application of social media and crowdsourcing in the pre-event phase, it is important to stress the difference between the preparedness phase and the warning one (on the usage of “warning Tweets”, cf. Sutton, Spiro, Johnson et al. 2014): from the interviews conducted (see the aforementioned D6.4), emerged the necessity to invest in the research of guidelines on how to raise awareness of the community on the necessity “to be vigilant” even if the hazard might occur not in the near future.

About the second point, i.e., the usage of social media in the post-event phase, the scientific literature supports the importance of improving mental health resilience at a community level as an integral part of the recovery stage (cf. Zahran, Peek, Snodgrass et al. 2011). In this regard, an attentive and aware use of social media could effectively cooperate in the creation of a support system, as well as to improve the understanding of disaster resilience (cf. Zou, Lam, Cai et al. 2018 about the usage of Twitter; Veer, Ozanne & Hall 2016 about Internet in general). In the context of the responsive phase to a disaster, as the scientific literature has pointed out, the cultural factor plays a pivotal role in affecting people’s behaviour in times of crisis (cf. Dressel 2015; Dressel & Pfeil 2017). The acknowledgement of the flexibility and mutability of response to a hazard immediately leads to the acknowledgment of the necessary flexibility and dynamicity of the crisis communication system.

According to the elaboration of the outputs from the aforementioned interview data analysis, paired with the literature review, the Handbook has been conceived as a product with a twofold aim:

- To be an informative tool that can instruct disaster manager organisations on the latest achievements in the scholar field on the application of social media and crowdsourcing to disaster management;
- To be a guiding tool, namely a practical and intuitive instrument that provides guidelines and actions on how to engage with people with different vulnerability profiles, through a strategic use of the main communication channels.

As for the first point, which will be discussed in detail in the subsequent sections on Accessibility and Mobility, the main purpose was to:

- Filter the DRPV KB according to the inputs received by the practitioner, and select the key point elements;
- Create key takeaways on how to reduce vulnerabilities, based on the most recent literature review;
- Include scientific insights with data that corroborate the information provided;
- Add supplementary materials through external links (academic papers, guidelines and so on), in case the practitioner would need to delve into the topic. In this way, information could be provided on two interconnected levels: a first level of knowledge, schematic and

essential, and a second one, which offers a deeper understanding of the subject. By doing so, the practitioners would have the freedom to choose on which level of knowledge they would need to work on.

## 2.1 Development Process and Timeline (March 2022 – April 2023)

Regarding the development process of the Including Citizens Handbook within the LINKS Framework, as highlighted in the section 3.1 of D5.4 (Fonio et al. 2022), the product maturity level was around 3 (December 2022) out of a scale of 7 levels: at the end of last year, the product was in a phase of thorough re-definition aimed to define methodologies and solutions to avoid overlaps of information between the four parts of the product.

As shown in the table below, the phase starting from mid-January 2023 saw the rapid and consistent implementation of the Handbook on a multiple level, which led to the current state of development (level 7 on the TRL scale).<sup>2</sup> The development timeline can be summarised as follows:

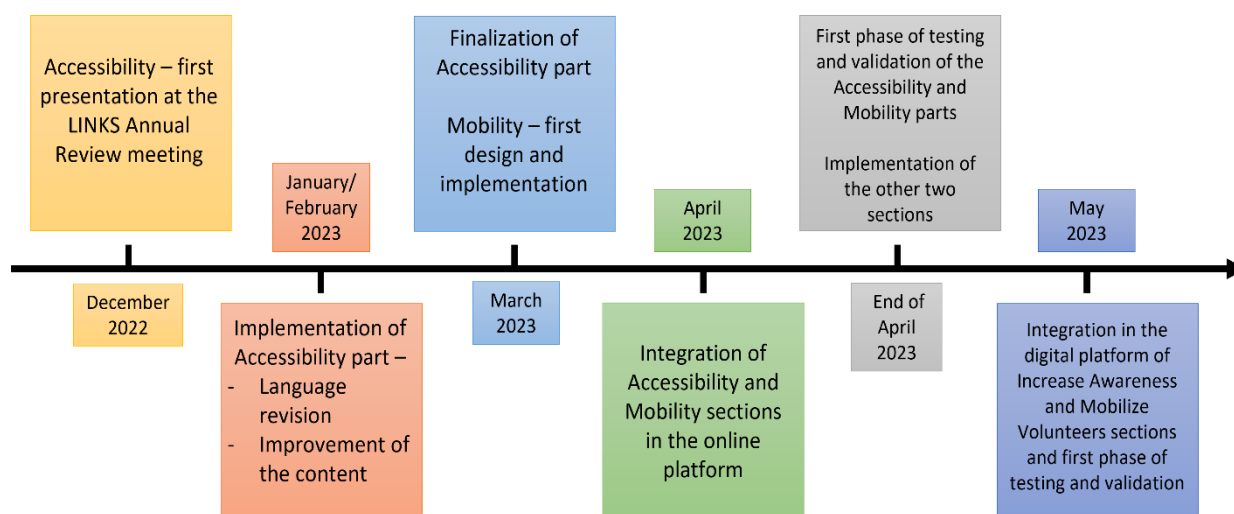
- Overall implementation of “How to make information accessible”, especially centred on the refinement of the content as well as on the language revision (starting from December 2022);
- Parallel work in the same period of time has been conducted on the first draft of the part “How to mobilise citizens” immediately followed by its general implementation (Mid-April 2023);
- Parallel work on the other two sections of the product, “How to engage with volunteers” and “How to raise awareness”;
- Initial draft of the digital platform of the Handbook and first phase of integration of the Accessibility part (April 2023) and then Mobility (end of April 2023);
- Integration of the sections “How to engage with volunteers” and “How to raise awareness” in the digital platform (end of April – beginning of May 2023).

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<sup>2</sup> An overview of the main activities that led to the current state of development will be included in D5.5 (The last version of the LINKS Framework).



**Figure 1: An overview of the development process and the timeline of the activities conducted on the Including Citizens Handbook starting from December 2022**



**Source:** Author contribution

The progression of the work on the Including Citizens Handbook, as well as on Feel Safe, should be regarded as the result of the activities planned and conducted by the Italian team during the first and the second case assessments (from October 2021 on). The activities also involved other case assessment teams (CATs), especially the Dutch and the Danish teams. As reported in the country case report in D6.4 (see section 3.1 on the Italian Case), the most valuable and significant results provided by interviews and other deep dives activities, offered a solid base for planning the development of both products under WP2. The Handbook coherently reflects in its structure as well as in its content the inputs from the local context, but also the themes that cut across the LINKS knowledge domain.

In particular, the interviews led to the emergence of two important points that became the core elements of the Handbook (see section 3.1.1 of D6.4):

- The necessity to have guidelines on how to communicate with vulnerable people;
- To limit the spread of fake news and disinformation in order to safeguard people's right to be correctly informed for their own safety.

It is important to mention that the contribution of both the interviews and the deep dive activities contributed to the development of the LINKS Framework, namely the refinement of the learning paths approach in relation to both themes: Improving Communication (specifically: targeting communication and making information accessible) and Engaging with Citizens (specifically: mobilising citizens and mobilising volunteers).

## 2.2 Consultation Process

Since the beginning of the LINKS project, as highlighted in D2.3 and then deepened in D2.7, the consultation process among the partners had provided the basis for the definition of the core elements of the DRPV KB, the LINKS Framework, the case assessments, and the DRPV Methodology. In the last stage of the Handbook development, the consultation process followed the guidelines already established in deliverables D2.3 and D2.7: it has been not only implemented but also adapted to the last phase of work on the product which started in January 2023.

The meetings with the partners involved have been strategically scheduled and followed three main levels of engagement, as synthetically presented in the table below:

**Table 1: WP2 meetings schedule**

Level	Consortium Level	Consortium Level	Case Level	Local Level
<b>Type of meeting</b>	Handbook Task Force Meetings	Case Coordinators Meetings (CCM)	WP2 Internal Meetings	Consultations with PDT representative
<b>Short description</b>	Meetings dedicated to the development of the product. Sharing of general updates and major decisions are taken.	Meetings used for planning activities, sharing and discussing results and information between the Case Coordinators and the Work Package Leader (WP6) on their ongoing activities of the case assessment teams (CATs) (e.g., research, dissemination and communication activities with local stakeholders)	Meetings that generally involve UNIFI and SCIT focused on the coordination/scheduling of the activities as well as on the updates on the products under WP2 (e.g., Handbook and Feel Safe).	This type of meeting is mostly dedicated to the validation of the two products under WP2 (e.g., Handbook and Feel Safe), as well as to a general consultation with the practitioner (Province of Terni). The meetings also involve the planning of dissemination and communication activities
<b>Participants</b>	UNIFI – UCC/UCPH WP5 – LINKS Framework VU	Case Coordinators and other CATs members, if available.  WP6 (VU)  Also open to all working on the cases (product owners and consortium members)	UNIFI SCIT WP6 (when needed)	UNIFI Representative from PDT SCIT

Level	Consortium Level	Consortium Level	Case Level	Local Level
<b>Regularity</b>	Every two weeks	First Tuesday of each month	Every two weeks	When needed
<b>Duration</b>	1 h	90 min	1 h	1 h / 2 h

### 2.2.1 Handbook Taskforce Meetings

The WP2 and WP3 groups met periodically to brainstorm on the most efficient and best effective format for the Including Citizens Handbook. Being a product developed through the collaboration between two teams, the Italian and the Danish one, the regular collaboration between the parties made it possible to work on a double level: on a domain-specific level that pertains the singular scenarios (earthquakes in Italy, flooding in Denmark), and on a cross-case level.

In particular, the meetings were aimed to:

- Align the development of each section of the Handbook in order to ensure the coherence of the whole;
- Discuss on the design of the Handbook, focusing on how to make it usable, intuitive and accessible;
- Coordinate on the aims of the guidelines at the end of each section;
- Set a plan for the workshop on the Handbook scheduled for the LINKS Annual Meeting (July 2023) and other activities aimed to validate the product.

### 2.2.2 Case Level Meetings

The WP2 internal meetings played a pivotal role in the process of elaboration of the two parts of the Handbook under the University of Florence as well as for the planning of the activities related to the Italian Case Assessment Team. The meetings were regularly scheduled in order to guarantee a periodical exchange of perspectives on the design and purpose of the product, as well as to ensure the collaboration between the partners involved in the project.

Since January 2023, bilateral meetings regularly saw the participation of the three partners: University of Florence, Save the Children Italy, and Province of Terni when needed. The involvement of the latter was due to the necessity of receiving feedback and inputs from the Italian practitioner, as the product has been largely informed by a local perspective.

The WP2 internal meetings have been particularly useful for the process of development of the second part of the Handbook (How to Mobilise Citizens, i.e., Mobility), especially for the elaboration of practice-oriented guidelines and actions. Additionally, the collaboration between the three partners played a significant role in scheduling the collateral activities with minors and the Province, mostly developed by Save the Children Italy under the supervision of the University of Florence.

One of the key elements of the first case assessment regarding the Italian case was the intergenerational perspective, with a special focus on minors and their communication capacity. Despite the fact that in this final phase there was more attention to elderly people and local minorities, among the outcomes of the collaboration between Save the Children Italy and the University of Florence on the issue of mobility, was the creation of an action by the University of Florence addressed to minors that will be added in the Feel Safe platform as a direct contribution to the development of the product.

### 2.2.3 Targeted Consultations with Province of Terni

In order to ensure that the development of the Including Citizens Handbook was practitioner oriented, a series of targeted consultations with a representative of the Civil Protection of the Province of Terni (PDT) was scheduled by WP2 during the month of March 2023.

These meetings were organised by WP2 in a targeted and strategic way, since their main purpose was to collect ideas on how to structure the section on “How to mobilise citizens” and how to implement the section on “How to make information accessible”. The purpose of these consultations was to receive valuable information from the practitioners’ point of view, that was transferred specifically into the guidelines section of the product. In addition, the participation of representative from PDT has been essential in order to:

- Ensure the connectivity with the territory on a local level;
- Share local knowledge on the basis of past experience.

The partner’s participation guaranteed the practicality of the guidelines on how to mobilise citizens before, during, and after a hazardous event. On the basis of the practitioners’ experience in the field of first response, it was possible to conceive a handy set of instructions and tools that might be effectively employed by disaster manager organisations. In this context, the role of WP2 has been to provide questions that mostly focused on how it is possible to make a targeted use of social media and crowdsourcing platforms to mobilise citizens and share good practices through social media.

The figure below shows how the inputs and questions raised during the meetings have been translated into guidelines in the Mobility section.

**Table 2: Theoretical development of the guidelines in the “Mobility” section of the Including Citizens Handbook**

Input from the practitioners	Guideline/Action	Type of activity
Citizens can be mobilised if they are well informed on how to prepare in case they cannot	Action 1a: pocket guideline on how to prepare citizens for in-house sheltering or for outside temporary shelters	Preparedness activity

Input from the practitioners	Guideline/Action	Type of activity
leave their homes or are forced to leave		
People should be informed on how to find their relatives after a hazard	Action 1c: how to reunite after a disaster	Preparedness activity
Social media could be useful to send updated information on obstructed areas	Action 2: How to give information for an efficient mobilisation	Coordination activity
In the aftermath of a disaster that received high media coverage, people and aids spontaneously reach the area, and they can obstruct first responders' activities	Action 3: how to coordinate people and aids using social media	Coordination activity

Moreover, the consultations also helped to improve the functionality of the other part of the Handbook assigned to the University of Florence, i.e. “How to make information accessible”: as mentioned at the very beginning of this deliverable, this section of the product required significant improvements, starting from the content of the guidelines. In this regard, the feedback received from Province of Terni on the relevance of the tools and accuracy of the information have been highly beneficial for the quality of the product. As the table below shows, the inputs from the practitioner on the development of the usability of the product were mostly centred on the enhancement of the intergenerational aspect, that is the focus on elderly people, young people, and on the issues related to gender disparities.

The table below presents the results of the engagement with the practitioner on how to implement the Accessibility section.

**Table 3: Theoretical development of the guidelines in the “Accessibility” section of the Including Citizens Handbook**

Input from the practitioners	Guidelines/action implemented
Elderly people usually are not familiar with SMCS. How can we tailor a message addressed to this group?	Action 2a: How to ensure the accessibility of your communication. New Box included: Elderly people

Input from the practitioners	Guidelines/action implemented
Younger people usually use SMCS because they are appealing and intuitive. How can we provide a message that can be both useful and user-friendly?	Action 4: Connecting problems to action; Action 2a: new box included: young people
Gender disparities have emerged in the past years as a central issue which should be included	Action 4: How to reduce gender disparity
How can we tailor our communication channel according to the different types of groups / issues / hazards?	Action 1: How to identify your target group

## 2.3 Online Surveys: Updates on the Validation Process

In order to test and validate the efficacy and understandability of the Handbook, a preliminary survey has been prepared in order to obtain feedback related to the structure and the content of the product (see Annex I). The survey regards the section of the Handbook that deals with the accessibility of information, while the one related to the mobilisation of people/aid will be provided in the upcoming period of time, being a part developed later.

The overall idea sustaining the survey is to understand how representatives of non-governmental organisations and experts with different profiles would evaluate the product, if they would find it useful and applicable in case of an emergency and so on. On a more general level, the survey is composed by three main sections:

- The first one is related to the theoretical part of the Accessibility section, with questions about its clarity, the quality and the completeness of the sections;
- The second one contains questions about the four actions provided in the product in order to understand their level of clearness, comprehension, and general applicability;
- The last one concerns the language, if the practitioner finds it accessible and user-friendly.

All the questions are foreseen to provide an answer on a scale from 1 to 10, where 1 represents the lowest score and 10 the maximum one. The survey also contains a section open to general comments or additional information, in case the practitioner would like to express her/his opinion more in detail.

As regards the participants in the questionnaire, the team decided to involve a selected group of five Italian experts, each belonging to a different field in disaster management. In this first phase of validation, the decision was in fact to focus on the profile of the participants rather than on their number, in order to have a more punctual response on the issues dealt with in the Handbook. For

this reason, the group was made up of a disaster manager operator, a volunteer, a representative of the local public administration of the Province of Terni, and two technicians.

The survey was presented in two languages (Italian and English) at the request of the actors involved, since they are not necessarily fluent in the use of English. Therefore, in order to offer the opportunity to fully understand the questions and to freely express one's opinion, WP2 has decided to translate the questionnaire and provide a draft in Italian of the part of the Handbook involved.

The table below contains the main questions of the survey divided in the two sections: for each question is reported the average score based on the results obtained by the surveys.

**Table 4: Main questions and related results from the online survey on the "Accessibility" part of the Including Citizens Handbook**

Sections	Questions	Average Score (1-10)
Theoretical section	Usefulness of the theoretical section	9
	Is the focus on data analysis useful?	8
	Is the language clear and user-friendly?	8
	Are the sections/information useful, clear and precise?	8.5
	Should we add additional thematic areas?	Not so necessary
Section on Actions	Are the actions clear, useful and applicable in emergencies?	9
	Are they usable?	It depends on the resources of the territory
	Are the additional resources useful?	9
	Should the product be translated?	10
	Provide a general and final opinion (i.e., level of appreciation of the overall outcome of the product from 1 to 10)	8

As the results reported in the table above demonstrate, the Accessibility section of the Handbook has been positively received by the majority of the actors involved. In particular, volunteers and technicians have shown particular interest in the product, also declaring that they are in favour of its use in the future. The structure, design and language were judged positively, as was the decision to add conclusive focus sections with the collection of scientific data on the topics covered.

Particularly valid suggestions that will be taken into consideration for the future improvement of the product are the following:

- To indicate more clearly that the product is addressed to practitioners rather than citizens;
- To explain the meaning of the term “crowdsourcing” because it is not commonly known;
- To add a section about situations where communications may be disrupted and technology cannot be relied upon;
- To take under consideration the idea of creating a similar product but targeting citizens instead of experts.

Additionally, the following observations have been made.

The group should take into consideration that not all the actions included in the Handbook could be applied in all the areas, mostly due to the lack of a balanced distribution of resources and possibilities throughout the municipalities; additionally, the different characteristics and aspects of territory, administrations and organisations emerged as conditions to be taken into account. Moreover, one participant suggested that it could be interesting to consider the Disaster Management Cycle (DMC) so as to apply and to adapt the actions to the different phases of the cycle to provide instruments useful and specific for the prevention, preparedness, response and recovery phases.

The results of the online survey (i.e., general inputs and comments) layed the foundation for the preparation of a subsequent activity of both validation and dissemination of the Handbook, that is an online meeting with a number of Italian experts (12 participants in total). The roundtable was scheduled for 22 May 2023, and it provided the occasion to expand the debate around the Handbook and its further improvements.



### 3. “HOW TO MAKE INFORMATION ACCESSIBLE” AND “HOW TO MOBILISE CITIZENS”: AN OVERVIEW

The purpose of this section is to provide a reading guide of the two parts of the Handbook developed by the University of Florence, so as to highlight the rationale behind their structures and overall design. As said in Section 2, the Handbook has been conceived as a product with a two-fold aim:

- To create an informative tool on the issues raised by the most recent literature on disaster vulnerability, with a specific focus on social media and crowdsourcing;
- To provide disaster manager organisations with guidelines and actions on how to effectively incorporate the use of social media and crowdsourcing in the disaster management processes.

Therefore, following this pattern, it will be illustrated how the theoretical as well as the practical components of the Handbook were created.

**Figure 2: Structure of the Including Citizens Handbook**



**Source:** Author contribution

### 3.1 How the DRPV Knowledge Base has been translated into the product

This paragraph will explain how the Disaster Risk Perception and Vulnerability (DRPV) Knowledge Base (KB) has been refined and filtered in order to make it suitable for the specific needs of the potential users of the Handbook (e.g., first responders, policy makers, volunteers, technicians, civil protection offices).

Among the cornerstones of the development of the knowledge suitable for the use of the practitioners, there has been an interest in questioning traditional and customary concepts, such as mobility, connectivity, and accessibility. The need was therefore to provide a type of knowledge suitable for creating social relationships by highlighting the potentialities and the challenges created by the factor of diversity in the context of multiple hazards. In formulating the contents to be included in the two sections of the Handbook created by the University of Florence (i.e., accessibility and mobility), the aim was to provide targeted and useful knowledge on the role that social media and crowdsourcing can assume in creating contexts for citizen participation and therefore in strengthening community resilience. The issues of accessibility of information and the mobilisation of people/aid strictly depend on the conditions dictated by connectivity at the local level: without this precondition, it is not possible to identify the main problems involved when it comes to accessibility and mobility.

On the basis of the systematisation of the scientific literature on vulnerability, perception, and adoption of social media and crowdsourcing, conducted by WP2 and object of D2.1 and D2.2, some problematic junctions, conclusions, and outputs have been highlighted which, on the basis of a careful investigation, have been considered as particularly useful for the specific activities and interests of the practitioner.

It is important to underline that the information provided in the Handbook has not been formulated to be static and definitive: one of the objectives that WP2 has set itself was to provide outputs and suggestions in order to keep the dialogue open between practitioners, citizens, and the scientific community, on the multiple issues related to vulnerability, diversity, and resilience.

On the linguistic and communicative levels, the objectives set by WP2 in the formulation of the theoretical and informative parts of the Handbook, followed the summary scheme included below.

**Table 5: A synthetic overview of the main actions taken on the communicative aspect of the Including Citizens Handbook**

TO AVOID	TO ENSURE
Excessive mass of information	Accessible and concise knowledge
Technical jargon	Easy to read – easy to share
Academic jargon	Schematic but still argumentative, pleasurable to read (i.e., use of visuals)

TO AVOID	TO ENSURE
Excessive length	Key takeaways and definition
Unnecessary information	Practical examples on past usage of SMCS in hazardous contexts
	Scientific data that corroborate the information

As regards the section of the Handbook relating to accessibility, this is to be understood as a focus on the potential ways in which it is possible, through the use of social media and crowdsourcing, to make information accessible without leaving the most vulnerable social groups behind. Consequently, the guiding thread of this section of the Handbook is:

- To identify groups which are usually on the margins of the system, and which therefore suffer the consequences of exclusion, especially when disasters occur;
- To assess what are the main risks, limits, and associated problems;
- To find solutions that require the use of digital tools and digital platforms (particularly social media).

As established by the Vulnerability-Paradigm of the KB of D2.1, marginalised social groups, in order to overcome their isolation, tend to rely more on social media to search for information, consequently it is necessary to establish ways in which disaster manager organisations (including policy makers, local administrations, etc.) can strengthen this communication channel.

### 3.1.1 [A selective overview of the most recent scientific literature on DRPV and on the use of SMCS in disaster management \(2023\)](#)

In the context of updating the knowledge base on DRPV with respect to past deliverables (D2.1 and D2.2), a desk research activity was conducted on the most recent scientific contributions on the subject, limited to the year of publication 2023. A highly selective approach was adopted on the basis of the interest of the topic, level of scientificity of the paper, and level of innovation. Obviously, the degree of coherence with the research we are conducting also played a significant role in the selection of the contributions.

This first part focuses on the recent scientific literature that has addressed the issue of the link between social vulnerability and risk perception. The table below schematically shows which aspects and contexts the scientific community has focused on in the last year. First, it is clear how the issue of risk perception and vulnerability has been addressed in the context of the effects of climate change and related natural disasters. Particular emphasis was placed on the capacity to develop the resilience of small peasant communities (Asia-Pacific area and South Africa): the object of this type of study is in particular the applications of indigenous knowledge to survival. These mostly anthropological and sociological studies tend not to consider the possibility of the benefits

of adopting digital tools (therefore social media and crowdsourcing) in these contexts but are more interested in analysing the adaptability of small communities. Furthermore, as emerges once again from the table, little attention has been paid to vulnerability and risk perception in the context of terrorist attacks: it is probable that this depends on the greater frequency of ecological disasters and geohazards in the last period, especially floods. We should also hypothesise that this attention of the most recent studies to this problem could be an effect, rather than a response, to the intensification of ecological activism and the exponential growth of the so-called "eco-anxiety" in the younger generations. Finally, it is important to specify that a contribution from 2022 (Rankoana) was included in the list reproduced here, since it was deemed useful to compare this article focused on the resilience of farmers in the Limpopo province (South Africa), with that of Pal et al. (2023) who addresses a similar issue but focusing on the case of Asian communities.

**Table 6: Overview of the most recent literature on DRPV (2023)**

Scientific Literature	Definition	In relation to
Nam, et al. (2023)	<b>“Social vulnerability</b> refers to the underlying factors leading to the inability of people, organisations, and societies to withstand impacts from the natural hazards. The concept of social vulnerability has been used widely to understand individuals’ and groups’ vulnerability in terms of preparing and recovering from natural disasters”	Geo-hazards
Pal et al. (2023)	Social vulnerability is here regarded through the lens of <b>educational vulnerability</b> . The main focus is the analysis of the impact of hazards on school education systems and the consequences of families’ multiple relocations and consequential financial instabilities	Climate-induced hazards
Nagano & Sekiyama (2023)	Social vulnerability is discussed in relation to <b>climate change and conflicts</b> , two phenomena seen as deeply intertwined	Climate change and conflicts
Agyepong & Liang (2023)	“Researchers should be more cognizant of the dynamic <b>interaction between vulnerability and resilience</b> and that when examining theories and models, these two notions should be approached together with social <b>capital and risk awareness</b> ”	Public risk communication
Pal et al. (2023)	<b>The multi hazard vulnerability</b> to natural disasters is mostly caused by climate change	Natural hazards and Indigenous knowledge

Scientific Literature	Definition	In relation to
	and here regarded in relation to <b>indigenous knowledge</b> of farmers located in the Asia-Pacific area	
<b>Rankoana (2022)</b>	The article should be read in parallel with the one quoted above (Pal et al. 2023) as it presents a comparative case <b>on social vulnerability and resilience of small-scale farmers</b> working in the Limpopo province of South-Africa	Climate Change and social vulnerability of subsistence farmers
Nouri et al. (2023)	The topic is the effects of <b>COVID-19 pandemic</b> on vulnerable groups, here included elderly and pregnant women	COVID-19 and vulnerable profiles
Raheem et al. (2023)	Social vulnerability is here regarded in the sense of " <b>cultural vulnerability</b> ", a definition applied to the Northern and Southern Punjab communities	Flood hazards Cultural vulnerability
De Pascale (2023)	The essay provides a systematic literature review on the topic of <b>social vulnerability</b> , with a particular emphasis on natural disasters	Social vulnerability and natural hazards

With regard to studies on the use of social media in crisis contexts, it emerged that in recent years there has been an increase in the use of social media data, especially Twitter, as the most suitable digital tool for mapping areas affected by flooding (for instance Li et al. 2023). As a matter of fact, floods and hurricanes (i.e., Sandy in 2012, Harvey in 2017, and Dorian in 2019) are frequently taken as case studies, to the detriment of earthquakes and terrorist attacks. For instance, in the Jakarta area alone, fourteen cases of floods were recorded throughout 2022 which had serious consequences on the native communities (see Saddam et al. 2023). As previously stated, weather-related disasters have been on the rise over the last couple of years, and the scientific literature, as our desk research has pointed out, is clearly reflecting the gravity of the problem by studying and analysing new solutions that often entail the adoption of social media or, as in the case of Huang et al. (2023), of Artificial Intelligence (AI).

**Table 7: Overview of the most recent literature on the use of SMCS in disaster management (2023)**

Scientific Literature	General content	In relation to
Karimiziarani et al. (2023)	The article focuses on the " <b>dynamic patterns of social responses</b> " to hurricanes	Twitter

Scientific Literature	General content	In relation to
	(in part. Hurricane Harvey and Hurricane Dorian) as well as to climate change by analysing <b>big data provided by Twitter</b> (35 million tweets)	Climate Change Perception  Hurricanes (i.e., Harvey in 2017, and Dorian in 2019)
Jayasekara et al. (2023)	The article provides insight into the potentialities of the <b>use of social media based on age groups</b> . The hazard here considered is tsunami, on the basis of the past experience with the Indian Ocean Tsunami of 2004	Use of social media based on age groups  Early warnings  Tsunami (i.e., Indian Ocean Tsunami in 2004)
Li et al. (2023)	The article is centred on the use of social media data as a tool <b>for urban flood mapping</b> . The case study is the Chengdu city in China, being quite susceptible to floodings	Urban flood susceptibility  Social media data  Chengdu city, China
Saddam et al. (2023)	The paper provides a focus on sentiment analysis <b>on data collected through Twitter for flood disaster management</b> . The case study is the capital city of Jakarta, where 14 cases of flood occurred in 2022	Flood disaster management  Twitter data  Jakarta
Huang et al. (2023)	The essay is centred on <b>the combined usage of social media and Artificial Intelligence (AI)</b> in order to provide support to emergency centres in hurricane emergency response. The case study is the Hurricane Harvey and the Houston flooding	Hurricane disaster management response  Social media big data and Artificial Intelligence (AI)
Wang et al. (2023)	This paper analyses <b>Twitter activities</b> during Hurricane Sandy in 2012. Among the results, the study is proving that zip code areas with major transportation hubs and commercial activities or low night-time population are <b>major factors affecting Twitter use in the aftermath of a hazard</b>	Twitter  Hurricane Sandy (2012)
Shi et al. (2023)	The article explores <b>the role of compassion</b> in social media content in crisis communication. It focuses on the case of <b>public sectors and non-profit</b>	Facebook  Crisis communication during an

Scientific Literature	General content	In relation to
	<p><b>organisations.</b> The case study is a recent winter freeze crisis that occurred in Texas (2021) during the COVID-19 pandemic emergency</p>	<p>emergency</p> <p>Psychological support through social media</p> <p>Winter freeze crisis in Texas (2021) and COVID-19 pandemic emergency</p>

### 3.1.2 “How to make information Accessible?”: how the knowledge base has been integrated

According to D2.1 (see in part. sections 4.2; 4.2.1; 4.2.1.1; 4.2.2; 4.2.3), always with regard to accessibility, the following issues and declinations had been identified:

- *Material accessibility*, in the general sense of access to the communication and information system as well as to technological devices, which could be affected by both social and spatial conditions;
- *Information Accessibility (Cultural Accessibility)*, i.e., the ability of the individual to have access to information and resources, also including access to quality information in the sense of the ability to discern truthful/reliable information from fake news;
- *Institutional Accessibility (Relief Accessibility)*, to be understood as access to representativeness from a social perspective.

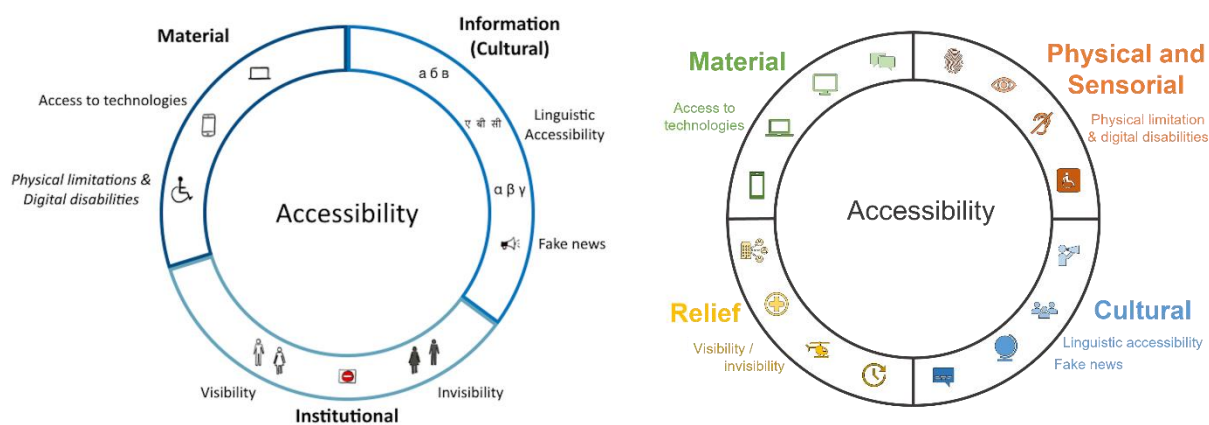
In the reformulation of these concepts in the context of the elaboration of the Handbook, given the importance and breadth of the theme of material accessibility, an autonomous subsection has been dedicated to *physical and sensory accessibility* (cf. Ellis & Kent 2015; Ellis & Kent 2016; Goggin & Newell 2003). The issue of the role played by physical limitations and by digital disabilities deserved to be acknowledged separately being a relevant topic frequently addressed by the scientific community. In this regard, Tsatsou (2019) not only provided an overview of intra-disability diversity but encouraged to regard individuality as a conditioning factor when it comes to consider accessibility: as the latter pointed out, “disability-fixed categorisations” could prevent researchers to fully understand the question of digital inclusion. As highlighted by Manzoor and Vimarlund (2018, p. 378), “despite the number of emerging technologies that have been suggested to support individuals with disabilities, the expected goals with respect to the integration of individuals with disabilities into society have not been achieved.”

As a result of the desk research activity, the following subsections have been included in the Handbook:

- Material Accessibility;
- Physical and Sensory Accessibility;
- Cultural Accessibility;

- Relief Accessibility.

**Figure 3: The update of the scheme on “Accessibility” in comparison to the one presented in D2.1**



**Source:** Author contribution from D2.1

The image above shows on the left the scheme related to accessibility in relation to the use of Social Media and Crowdsourcing (SMCS) as provided in D2.1; on the right, how the same scheme has been updated as a reflection of the aims and purposes of the Handbook.

As regards the elaboration of the information contained in the KB, the need to select those aspects and problems suitable for use by the practitioner, immediately emerged. Taking the page dedicated to the subsection on Cultural accessibility as an example, it is possible to see that it was decided to proceed with a set of short and concise definitions: a first definition was therefore inserted, below the title, followed by a short text. Two macro-texts have been separated in order to highlight the essential points:

- The first one, that cultural accessibility is conditioned by both social and cultural differences, since improvement of the educational system can contribute to the reducing of marginalisation and discrimination (cf. McEntire 2011);
- The second one, that the processes of social inequality could produce conditions of social vulnerability, as the degree of vulnerability also depends on socio-economic-demographic determinants (cf. Fordham et al. 2013).



**Figure 4: The page dedicated to “Cultural Accessibility” taken from the Including Citizens Handbook as presented in its original PDF format**

LINKS EU PROJECT

## Cultural accessibility

It deals with the individual's capacity to gather reliable sources of information and determine the quality of the information itself.

Digital disparities especially in the use of mobile technology, are exacerbated by pre-existing socio-structural conditions as well as by information constraints. Demographic, linguistic and knowledge differences play a central role in this regard: age, gender, education, geographical location (especially meant as marginalization), and income represent important differentials in access to digital tools as well as information.

**“Cultural accessibility is affected by social and knowledge differences.”**

The knowledge gap between advantaged and disadvantaged groups is reflected in significant variations in disaster information and in preparedness behavior. The lack of familiarity with the common language, for instance, could affect the use of the official sources of information and exacerbates informational vulnerabilities, with consequences on people



capacity to properly react in case of emergency. Furthermore, people with limited capacity to understand the official information are also more exposed to risks of disinformation, misinformation and fake news. As a consequence of the inability to provide official accessible information, some social groups could experience further level of marginalization (perceived or real), reducing or losing their trust in the official response system.

**“Vulnerability and inequality negatively affect people's susceptibility to risks”**

### DATA ON CULTURAL ACCESSIBILITY

According to the data elaborated by UNICEF about the school-age digital connectivity (December 2020), 2.2 billion, that is two-thirds of children's and young people aged 25 years old or less, do not have internet access at home. A recent survey by the same institutions (May 2021) highlighted significant differences due to factors such as country of provenance, income group, and the residence location (urban or rural). Compared to the 33% global average, only 5% of school age people in West and Central Africa have internet access, and only 6% of children in low-income countries have Internet access, compared to the 87% in high-income countries.



4

Source: Including Citizens Handbook

### 3.1.3 “How to Mobilize Citizens?”: how the knowledge base has been integrated

With regard to the section of the Handbook dedicated to Mobility, always maintaining consistency with the DRPV KB, Mobility has been considered from multiple perspectives: as the physical mobilisation of citizens, as the mobilisation of ideas, as the mobilisation of aid. The main focus has

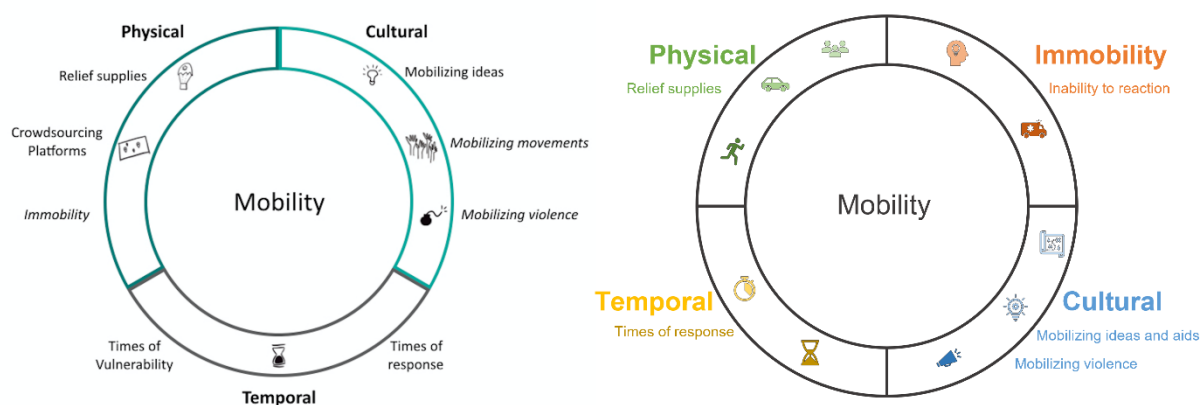
been to provide information and input on the involvement of social media and technologies in multiple contexts:

- In the process of evacuating citizens, with particular regard to vulnerabilities;
- In sharing ideas, in the sense of social participation and activism;
- In mapping procedures and transfer of aid in areas affected by a disaster.

Henceforth, following the categories and definitions already presented in D2.1 (see in part. sections 4.4; 4.4.1; 4.4.1.1; 4.4.2; 4.4.2.1; 4.4.2.2; 4.4.3), four thematic areas have been identified and inserted as subsections within the Handbook:

- *Physical mobility*, in the sense of both the physical and psychological ability of the individual to move and to reach a safer place;
  - Immobility, i.e., the temporary incapacity of the individual to react due to a physical or psychological trauma;
- *Cultural mobility*, i.e., the mobilisation of ideas and good practices to create social involvement and therefore support a network of aid; in this context, mobilisation can also have a negative outcome, i.e., defuse or foment hatred, for example racial hatred;
- *Temporal mobility*, to be understood as the timescales necessary for first-responders to intervene.

**Figure 5: The update of the scheme on “Mobility” in comparison to the one presented in D2.1**



**Source:** Author contribution from D2.1

The image above shows on the left the scheme related to mobility in relation to the use of SMCS as provided in D2.1; on the right, how the same scheme has been updated as a reflection of the aims and purposes of the Handbook.

As can be seen from the example page shown below, in relation to cultural mobility, the same scheme, layout, and design adopted for the section relating to accessibility, was followed. So, we proceeded by providing definitions (below the title and then in the body of text), and finally a table

with scientific data to support the information on the mobilisation of ideas in the context of social media.

**Figure 6: The page dedicated to “Cultural Mobility” taken from the Including Citizens Handbook as presented in its original PDF**

LINKS EU PROJECT

## Cultural mobility

Digital platforms can support the mobilization of ideas and good practices, but also foment hate and incite violent acts.

Digital media and crowdsourcing platforms could facilitate the participation of people by diffusing communication and social initiatives even on a transnational level.

**“Social media provide new opportunities for mobilization, organization, and coordination”**

That is new and dynamic spaces for articulated debates and united actions. Social networks could be essential to the promotion of social campaigns and in the creation of a so-called “shared awareness”, i.e. helping people to connect with other people who equally understand the problems they are coping with. At the same time, several studies have



highlighted the potential disadvantages that social media might bring to activism, as they could enhance weak forms of social engagement (e.g., “slacktivism” and “clicktivism”). People might feel socially engaged by simply clicking a post, for instance, without seriously contribute to the initiative at hand. On a different level, social media platforms could disseminate bad practices by oversimplifying complex phenomena: as a consequence, they might prevent people from finding more reliable and accurate information. On the other hand, digital platforms could vehicle hate and incite violence, particularly at the expenses of vulnerable groups (i.e. minorities and immigrants). In part years, social media have proven to be one of the most effective channels for political hate propaganda, especially in the aftermath of a terrorist attack.

### FOCUS ON CULTURAL MOBILITY

As for youth engagement in climate change content on social media, among U.S. social media users, 45% of people born between 1997 and 2012 (the so-called Generation Z), and 40% of people born between 1981 and 1996 (the so-called Millennials), had an interaction with social media content centered on the need for action on climate change by either posting or sharing content, by commenting a post, or by following a particular account. About the 69% of One Z and 59% of Millennials reported anxieties and concerns when they saw content on coil media apropos natural disasters caused by climate change. Studies have shown that the younger generations can become promoters of initiatives aimed to increase awareness on the risks related to climate change. This social phenomenon is mostly due to their high level of confidence in the use of new technologies and coral media strategies as an example, about 53% of Gen Z and 53% Millennial (still referring to the U.S. case) reported to be motivated to learn more about climate change and its effects since the last time they crossed related content on social media platform.



4

Source: Including Citizens Handbook

## 3.2 How the guidelines/actions have been conceived and developed

This section aims to provide an overview of the main methods used to conceive and then develop the guidelines for the two parts of the Handbook the present deliverable is dealing with. In order to avoid redundancy, only a few exemplary cases per section will be taken into account. It is important to recall that the practitioner's viewpoint had a role in identifying the major issues, to raise questions, and then to find effective solutions to common problems through the adoption of digital tools. In general terms, the process of creation of the guidelines/actions was guided by four main propositions:

- How to connect problems to actions;
- Which tool in which situation;
- In which ways the use of social media and crowdsourcing could be advantageous and beneficial in case of hazards;
- How to include vulnerable groups and how to make them visible in disasters.

### 3.2.1 Examples from “How to make information accessible”

One of the main questions around accessibility is how to ensure accessible information in case of disasters, which leads to a further question on how it is possible to identify the most recurrent accessibility issues. By considering accessibility as a condition deeply connected to the problem of under-representation of specific social groups in the social system, a series of four guidelines/actions have been conceived as part of this section of the Handbook. Below are described two actions particularly relevant in this regard.

The action “How to ensure the accessibility of your communication” provides some suggestions to follow in order to ensure that the information could reach different groups, so as to avoid discriminatory consequences. In this case, besides a short list of recommendations, also a link to additional information has been added in case the practitioners would need to delve into that particular topic. Four main groups have been included: elderly people, people with visual and hearing impairments, and younger people.

**Figure 7: Recommendations on how to guarantee the accessibility of information in case of a hazard, taken from the Including Citizens Handbook (original PDF format)**

### **People with visual impairment**

- ✓ Make photos accessible for screen reader by including alternative texts in the posts
- ✓ Hashtags are important, hence they should be written in capital letters
- ✓ Add alternative means of contact such as phone numbers
- ✓ If you are linking to a PDF document, make sure it follows the Web Content Accessibility Guidelines (WCAG) standards and is accessible to the reader.
- ✓ More information [here](#)

### **Young people**

- ✓ Provide a safe and inclusive space for children to express their views
- ✓ Provide appropriate information and facilitate the expression of children's views
- ✓ Ensure that children's views are communicated to someone with the responsibility to listen
- ✓ Ensure that children's views are taken seriously and acted upon
- ✓ More information [here](#)

**Source:** Including Citizens Handbook

The bullet points in Figure 7 named “More information here” are hypertextual links to additional materials (i.e., scholarly literature or additional guidelines on the subject)

A second action, which is correlated to the previous one, is called “How to set up your communication channel”. It is a checklist that would give guidance to the practitioner on how to craft an accessible message that could be shared among people with different vulnerability profiles.

**Figure 8: How to set up an accessible social media post, a guideline taken from the Including Citizens Handbook**

 <b>DO</b>	<b>Material/ physical/ sensorial accessibility</b>	<input type="checkbox"/> Creating both mobile and website design <input type="checkbox"/> Giving possibility of access for people with old smartphones <input type="checkbox"/> Use the right colors for texts and backgrounds <input type="checkbox"/> Include alternative text to all images
	<b>Cultural accessibility</b>	<input type="checkbox"/> Providing translation support in all languages, including LIS <input type="checkbox"/> Adding subtitles and audio description to videos <input type="checkbox"/> Using system to identify fake news <input type="checkbox"/> Using an user-friendly language <input type="checkbox"/> Ease the keyboard navigation
	<b>Relief accessibility</b>	<input type="checkbox"/> Promoting the official channels to collect verified information <input type="checkbox"/> Create direct link with institutional channels <input type="checkbox"/> Give visibility to vulnerable groups <input type="checkbox"/> Providing specific communication for vulnerable groups
 <b>AVOID</b>	<b>Material/ physical/ sensorial accessibility</b>	<input type="checkbox"/> Writing large section of text in 'all-caps' <input type="checkbox"/> Putting valuable information in headers and footers as screen readers will ignore them <input type="checkbox"/> Underlying large blocks of text as it reduces readability <input type="checkbox"/> Adding temporary elements <input type="checkbox"/> Adding too much information
	<b>Cultural accessibility</b>	<input type="checkbox"/> Using acronyms and technical language <input type="checkbox"/> Adding emoticons <input type="checkbox"/> Using images, symbols and icons
	<b>Relief accessibility</b>	<input type="checkbox"/> Creating more than one official page <input type="checkbox"/> Using institutional pages to promote not strictly necessary information <input type="checkbox"/> Using just one social media (each social media has its accessibility rules)

**Source:** Including Citizens Handbook

### 3.2.2 Examples from “How to mobilise citizens”

As highlighted in the previous section on the translation of the DRPV KB and its adaptation to the needs of the practitioner, mobility can be interpreted as the physical mobilisation of the citizen, in the sense of either abandoning the respective home or preparing for in-home-sheltering; at the same time, the concept of mobility can also be extended to the coordination of aid and support to

the affected community. As far as the first definition of mobility is concerned and as scientific studies have shown, the development of a “culture of prevention” and “culture for disaster preparedness” (Appleby-Arnold et al. 2021), to be taken in the sense of a culture based on citizens’ cohesion, could represent a concrete aid to the efforts of the first responders in multiple hazards (the importance of preventive behaviours has been particularly stressed by recent literature on the COVID-19 pandemic, see the case in Serbia, Cvetković et al. 2020). Being informed on how to behave can help to reduce the shock and disorientation due to the radical break with one's daily habits. For this reason, the elaboration of the "preparedness activities" for this part of the Handbook required attention and effort.

The purpose behind the action “Assembling a disaster supply kit for evacuation or home-sheltering situations” is to sensitise people on the importance of having a disaster supply kit as a precautionary measure in the aftermath of a hazard. This guideline has been prepared according to recent research conducted on the relevance of the so-called “household preparedness” (see the data collected in Japan in the aftermath of the 2011 earthquake, Onuma et al. 2017).

The core element at the basis of this checklist is its vividness and clarity, as it provides disaster manager organisations with a template which acts as a reminder addressed to people to be aware of risks related to hazards. The supply kit checklist is designed to be an easy and useful tool to be published on the chosen social platform by the disaster manager organisations.

## PRACTITIONERS’ VIEWPOINT

In 2011, the national communication campaign “Io non rischio” was founded with the intent of disseminating good civil protection practices. The rationale behind the campaign is the idea that “only through knowledge, awareness and good practices it is possible to say *I don’t take risks*”.

The initiative is active on Facebook, Twitter, Youtube, and Instagram, with the hashtag #iononrischio. Each social media profile has a daily monitoring and provides informative videos and photos with an educative intent.

**Figure 9: “How to craft an emergency supply kit” to be shared as a social media post, a guideline taken from the Including Citizens Handbook**

EMERGENCY SUPPLY KIT CHECKLIST		
Object	Quantity	Last check
Copy of keys	1	
Copy of personal documents (personal ID, bank account)	1	
Money		
Flashlight	1	
Batteries	1	
First Aid Kit	1	
Common medicines		
Personal medicines		
Multipurpose knife	1	
Small hand tools (generic kit)	1	
Hand sanitizer	1	
Sanitary napkins	1	
Garbage bags	5	
Adhesive tape twine, metal wire	1	
Matchstick and lighter	2	
Notebooks plus pens	1	
Cellphone plus charger	1	
Computer/laptop plus charger	1	

**Source:** Including Citizens Handbook

The action “Reunite After a Disaster” was conceived following a consultation with the Civil Protection Office (Province of Terni) on the mobilisation of citizens in the aftermath of the earthquake at L’Aquila (Abruzzo region, Italy) in April 2009.

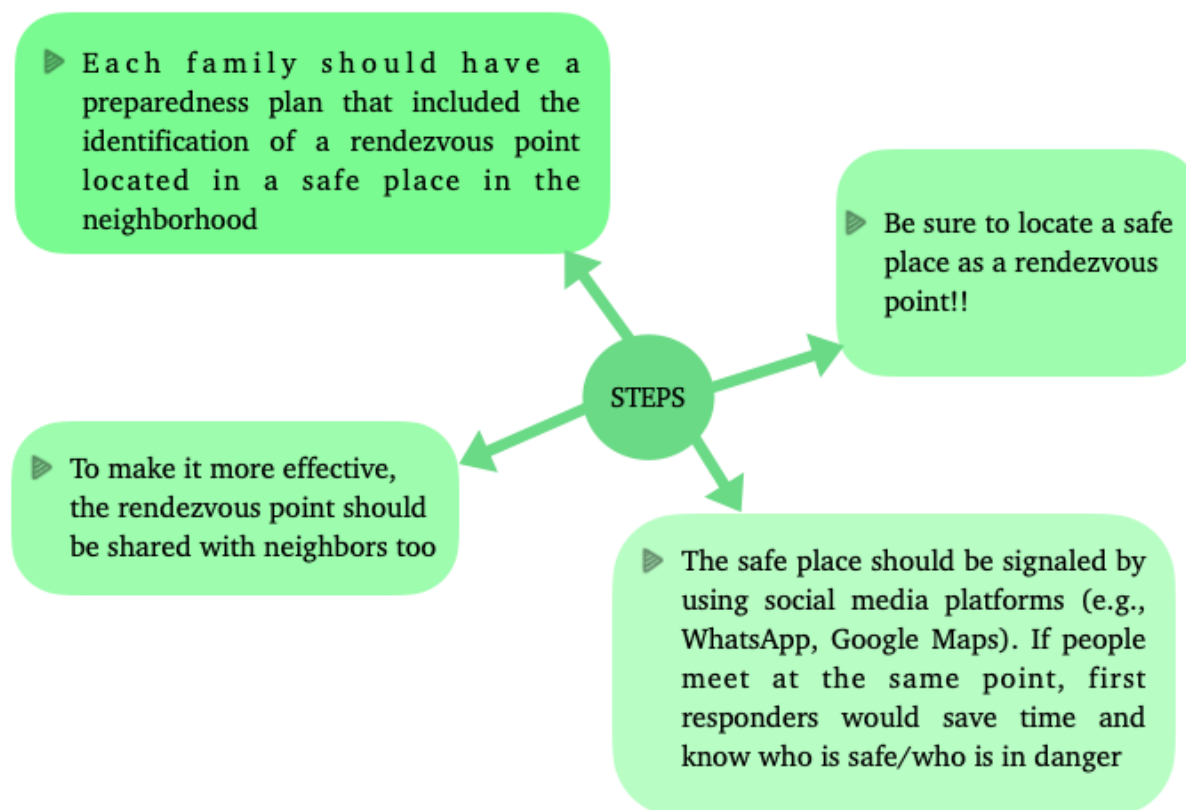
As Oliver-Smith (2022, p. 167) has recently stated, “Natural hazards certainly exist, but they are not framed as hazards until they intersect with human populations. That is to say, a hurricane in the mid-Atlantic is not a hazard, though it may become one. Human choices and their products and effects in the sociocultural and material world *convert hazards into disasters*”. In other and simpler words, disasters could no longer be regarded solely as natural phenomena, but as socially constructed events with sociological consequences (Sutopo 2022). Henceforth it is crucial to understand and acknowledge that the family nucleus represents a social “micro-reality” that could be disrupted by a hazard with severe consequences on the community and to its further coping capacity. As a matter of fact, the family network represents a form of spontaneous but deeply



rooted psychological support for the individual, and a significant agent in the individual recovery process.

This particular guideline highlights how digital resources such as WhatsApp or Google Maps, could be useful in reconnecting with the family members as well as with the neighbourhood members. Being reunited with familiar people could decrease the situations of vulnerability and isolation.

**Figure 10: How to set up a plan to reunite with your family members after a disaster, a guideline taken from the Including Citizens Handbook**



**Source:** Including Citizens Handbook

As the previous action, also the guideline “Coordinating spontaneous aid from citizens who would like to help” was conceived following case studies connected to the Italian context, in particular to the aforementioned earthquake at L’Aquila. In this context, the traditional media as well as social media, especially Facebook, focused on raising awareness on the need of support on a national and then international level. The negative effect of the media coverage of the earthquake was the massive transportation of aid (i.e., clothes, food, toys and so on), which not only obstructed first responders’ mobility, but also created an engulfment in the whole system of distribution of basic needed items. In this regard, Brown and Milke (2016, p. 21), for instance, highlighted how “Disasters often create significant volumes of debris and waste: in some cases, overwhelming existing solid waste management capacity”.

Through social media communication, it is possible to raise awareness and provide reliable information on how to give effective and targeted support. Quite often people want to offer support without knowing exactly what type of items they might send to the stricken community.

**Figure 11: A checklist on how to coordinate spontaneous aid from citizens to be shared through a social media post, a guideline taken from the Including Citizens Handbook**

 <b>AVOID</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Providing unnecessary types of clothes (fancy dresses, hills, and so on)</li> <li><input type="checkbox"/> Broken or even slightly ruined or dirty clothes</li> <li><input type="checkbox"/> Make spontaneous donations without having done a proper research on what people in need may actually already have</li> <li><input type="checkbox"/> Physically reach the area where the disaster occurred ( you would obstruct first responders in their activities)</li> <li><input type="checkbox"/> Search for information on unofficial sources or through random research</li> <li><input type="checkbox"/> Go to the emergency area and directly ask instructions on how to enroll as a volunteer</li> <li><input type="checkbox"/> Share or disseminate second-hand and unverified information or news</li> </ul>
 <b>TO DO</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide brand new clothes, better if still packed</li> <li><input type="checkbox"/> If you would like to send second-hand clothes, make sure they are clean and intact</li> <li><input type="checkbox"/> Be sure the items you would like to give are both useful and not damaged</li> <li><input type="checkbox"/> Ask information to first responders on the items they would actually need according to their inventories</li> <li><input type="checkbox"/> If you would like to donate items, ask about the specific needs of vulnerable groups (e.g., elderly people, infants, people with physical impediments)</li> <li><input type="checkbox"/> If you would like to become a volunteer, address to official and authorized groups</li> <li><input type="checkbox"/> Every time first responders/volunteers indicate the item they might need through social media, always check the day and the hour the post was published. Maybe they have already received what they needed</li> </ul>

**Source:** Including Citizens Handbook

## 4. “HOW TO INCREASE AWARENESS” AND “HOW TO ENGAGE WITH VOLUNTEERS”: AN OVERVIEW FROM THE DANISH CASE

### 4.1 Introduction

The themes of these two parts of the Including Citizens' Handbook rely on results from both literature studies and empirical findings from WP2 and WP3. The literature recommends<sup>3</sup> and stresses the importance of focus and prioritisation of dealing with these matters in relation to tasks regarding disaster phases, but cross case interviews which took place in the first phase of the project, show that disaster manager organisations miss reflections on the two themes: Increasing awareness of disaster risk and mobilising (spontaneous) volunteers (see D3.4 (Nielsen et al. 2023) for an elaboration on the empirical findings).

The guiding principle behind the focus on the two themes is that:

- Strengthening of resilience requires an inclusion of civil society in European countries to a much larger extent than the case is today;
- Citizens can be engaged in building a resilient society, to protect themselves, their family, home, belongings, and community. It does however require that they are approached, involved and communicated to, to engage them;
- In some cases, spontaneous volunteers wish to help, and engage themselves to assist their fellow citizens prone to or struck by a disaster. In such cases, this civil engagement needs a certain degree of organisation and systematisation, which civil society organisations, disaster manager organisations, and authorities will be responsible for.

The two themes and the related sub-themes for these two parts are:

The “Increasing awareness” section of the Handbook is divided into three sub-themes that deal with the questions that disaster manager organisations should take into consideration and pay attention to when they aim to increase the awareness of certain hazards among citizens that need to take care of themselves. The section suggests how disaster manager organisations can plan and produce communication materials in formats that are better suited at creating a change among citizens. The argument running through these themes is that different target groups need differently suited messages applying different formats and disseminating through different channels and in relevant networks and settings. In synthesis, it should be stressed the importance of:

- Use of news media to communicate to the broader public;
- Take into consideration individual preconditions – differentiate communication to different groups;

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<sup>3</sup> For the desk research on the scientific literature related to the topics discussed in these two sections of the Handbook, see D3.4 as an update on the knowledge base about Disaster Management Processes (DMP)

- Adopting existing networks to spread risk messages.

The “Mobilising volunteers” section of the Handbook is divided into three subthemes, each engaged with the question on how to improve volunteer management and mobilisation and their interplay with social media and crowdsourcing (SMCS). It is primarily concerned with the interplay between spontaneous volunteers and Disaster Management Organizations (DMOs), as this form of voluntarism, mediated through digital platforms, is becoming increasingly popular and challenges the traditional command and control relationship between volunteers and disaster manager organisations (see D3.4). The section targets practitioners from this field that want to increase their organisation capacities in relation to spontaneous volunteers. On the digital platform, there will be access the three subsections of the part of the Handbook on Mobilising Volunteers:

- Onboard Spontaneous Volunteers through digital platform;
- Mobilise Spontaneous Volunteers through digital hubs;
- Building bridges to Spontaneous Volunteers.

## 4.2 Development status of the two thematic sections

These two parts of the Handbook are results of a close collaboration in a working group with participants from both LINKS practitioner partners and practitioners from outside LINKS. This group has contributed to the shaping of both the format (as stated in the introduction to this deliverable, regarding the choice of a digital format and regarding the wish for e.g., short explainers in a video/infographic format), and they have also contributed to the content of the Handbook. One example of this is that a representative from Danish Red Cross has informed the content of the part on Mobilising Volunteers by providing thorough insight into the organisation’s work on mobilising and onboarding unaffiliated volunteers. Another example is that LINKS partner “Veiligheidsregio Zuid-Limburg” (VZRL) has provided material for the section of the Handbook on “Increasing Awareness” with the organisation’s own material, evaluations, surveys, studies and recommendation for raising awareness.

The scaffolding of the content of these two sections of the Handbook is completed, and text, guidelines, and example of procedures is being written as the first parts are soon ready for test.

## 5. TOWARDS THE DIGITALIZATION OF THE PRODUCT: THE INCLUDING CITIZENS HANDBOOK AS AN EDUCATIONAL PLATFORM FOR DMOS

One of the key aspects that was taken into account by the Italian and Danish team was the coherence of the product, in the sense of the interrelationship of the four parts that compose the Handbook. In order to ensure the coherence of the product, the original PDF format has been upgraded into a digital version that can work across the range of themes being developed by the two teams.

The first page of the Handbook presents four different chapters (Accessibility, Mobility, Awareness and Volunteerism), each of which would give access to a specific “course” into that particular section. Different learning steps have been created accordingly but still allowing the user to navigate freely through the subsections and to choose a specific content or guideline on the basis of its needs.

In order to maintain the consistency with the plan of the Handbook, originally conceived as a practical translation of the Disaster Risk Perception and Vulnerability (DRPV) Knowledge Base (KB), each section provides a theoretical introduction on the themes of vulnerability, accessibility, and the potential usage of social media and crowdsourcing in for the management of hazardous contexts. Specific guidelines, actions, and exemplary cases are provided accordingly.

The main focus in designing the platform revolved around the following points:

- Allowing the user to address multiple types of hazards within different contexts;
- Setting the methods that would allow the user to explore overlapping themes across the four chapters and to navigate through them;
- Giving to the practitioner the opportunity to choose whether she/he would prefer to deep dive into a singular section or a particular subsection;
- Making downloadable content in PDF format;
- Improving the communication through infographics and videos, so as to make the product more appealing to different types of users.

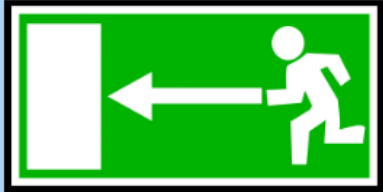
As regards specifically the two thematic areas of competence of the Italian Team, i.e., "accessibility" and "mobility", the group has proceeded to digitalize the contents and materials in the following way. In order to make the educational experience more interactive and fluid, hyperlinks have been created between the various sections and subsections. In this way, the relationship between theory and practice appears more direct and concrete.

We may take the part dedicated to accessibility as an example: from the introductory page on the definition of accessibility and its relationship with vulnerability, it is possible to view its various declinations (i.e., material accessibility, physical and sensory accessibility; cultural accessibility; relief accessibility). The user can therefore click on the part of her/his interest, for instance cultural accessibility, and therefore move onto a thematic study. Navigation then proceeds with the

possibility of considering the chosen theme from a more practical perspective: the practitioner can therefore open the section dedicated to guidelines, good practices, etc., which provide concrete examples on how to guarantee access to information for citizens through the use of social media and crowdsourcing.

**Figure 12: An exemplary page from the digitized version of the Including Citizens Handbook: “How to craft your evacuation plan” taken from the section on Mobility**

**ACTION 1B: Crafting a family evacuation plan**



Here are some easy steps you can share to help build an evacuation plan in case people are requested to leave their home with a short notice

**STEP 1**      **STEP 2**      **STEP 3**

**STEP 4**      **STEP 5**

**TIPS:**

- Always keep in mind that hazards could disrupt the land line or the telephone service,so you should need to create an alternative plan
- In case of disruption of the telephone service, always rely on text messages instead of WhatsApp messages for instance

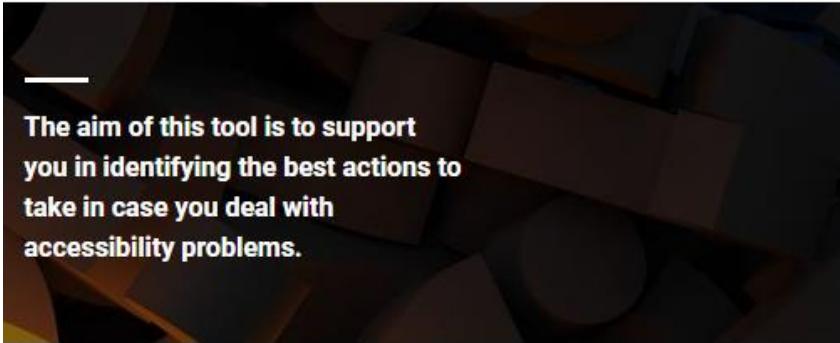
**Source:** Including Citizens Handbook

**Figure 13: An exemplary page from the digitized version of the Including Citizens Handbook: “Connecting problems to actions”, taken from the section on “Accessibility”**

Lesson 9 of 10

## Action 4: Connecting problems to actions

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The aim of this tool is to support you in identifying the best actions to take in case you deal with accessibility problems.

How to involve <b>low income and homeless people</b> ?	How to communicate in a <b>child-friendly</b> way?	How to guarantee accessibility to people with <b>visual impairments</b> ?
How to create <b>accessible presentation and websites</b> ?	How to offer support to people with <b>hearing impairments</b> ?	How to include <b>local minorities</b> ?
How to reduce <b>gender disparities</b> ?	How to engage <b>vulnerable groups</b> in research activities?	

**Source:** Including Citizens Handbook

## 6. VULNERABLE GROUPS: CHILDREN IN DISASTERS

In a world more and more affected by natural and man-made hazards, the implementation of disaster risk reduction strategies that look at systemic risks (such as the climate crisis) and aim at building more resilient communities are at the core of the United Nations agenda. Furthermore, according to the European Environment Agency, more than 90% of the disasters are linked to climate with severe consequences on people's livelihoods and livestock; this phenomenon is further triggering poverty and migration flows<sup>4</sup>. The climate crisis has a direct impact on land, food and water insecurity which are known to be root causes for conflicts. In this scenario, scalable new technologies and nature-based solutions are identified as innovative recipes to face the climate crisis.

The need to develop a safety culture with a particular view to risk prevention and risk management has been a top priority for the international community as whole, as shown by different international protocols such as the Hyogo Framework for Action and the Sendai Framework for Disaster Risk Reduction (DDR).

The Sendai Framework 2015-2030 on Disaster Risk Reduction<sup>5</sup> provides guidelines for member States to promote key actions to reduce disasters risk developing specific strategies for risk awareness that include the most vulnerable groups, such as children. With this approach in mind, Feel Safe was developed targeting children in order to support the effort of investing in young generations, preventative actions and digital skills. Feel Safe is directly connected to the findings of the knowledge base on risk perception and vulnerability.

In the Italian context, the investment in Prevention and Preparedness is disproportionately low compared to the cost of an emergency response (1 to 10), either natural or man-made. As a matter of fact, extreme events can destroy homes, schools, childcare centres and infrastructures critical to children's well-being. This poses a serious threat to minors' rights in emergency contexts, where those can easily be violated, ignored or undermined by circumstances. This is particularly true if we think that when it comes to planning and responding to emergencies, children are usually indicated as primary vulnerable victims, yet they are often excluded from active participation in processes of prevention, preparation, response and recovery.

In this perspective, Save the Children believes that children should be more involved in disaster risk management (DRM) and their potential in contributing to more resilient societies should not be overlooked. Investments should be made to promote child centred Disaster Risk Reduction (DRR)

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<sup>4</sup> In the EU Agenda for Mitigation the climate crisis is considered as one of the root causes of irregular and forced displacement in third countries

<sup>5</sup> The Sendai Framework was adopted at the 3<sup>rd</sup> UN World Conference for Disaster Risk Reduction in March 2015 in Sendai, Japan



education programs in order to enhance child protection mechanisms during emergencies and child participation in prevention and preparedness activities.

In particular, the studies carried out under WP2 underlined the implications of using social media and crowdsourcing (SMCS) in disaster management processes and how the way we used them can affect vulnerable individuals and communities. LINKS findings provided that a safe and positive use of technologies can greatly contribute to children's resilience to disasters and hence their community as a whole. As a matter of fact, the project examined dynamics and interconnections between diversity, accessibility, connectivity, and mobility and how those can have a positive or negative impact on the resilience to disaster of vulnerable groups. For example, access of children to social media in disaster situations can facilitate timely access to key information and help them to become more visible; moreover, use of social media can strengthen the response from volunteers or help mobilising material and monetary help. Technologies and social media can help reduce social economic and other inequalities. On the other hand, digital skills are deemed important to discern between a positive and negative use of social media which can spark hate, disinformation, as well as hamper the effective management of emergencies. It becomes therefore crucial to talk to children from a young age about disasters and disaster management, to promote their proactive engagement in society and to familiarise them with the positive impact that the 'online' can have in reducing the impact of disasters especially on vulnerable individuals and groups.

The Feel Safe platform developed by Save the Children Italy within the LINKS project merges all the above into an innovative online educational tool that promotes the use of social media, technologies and digital education as a means to improve the community's resilience to disaster.

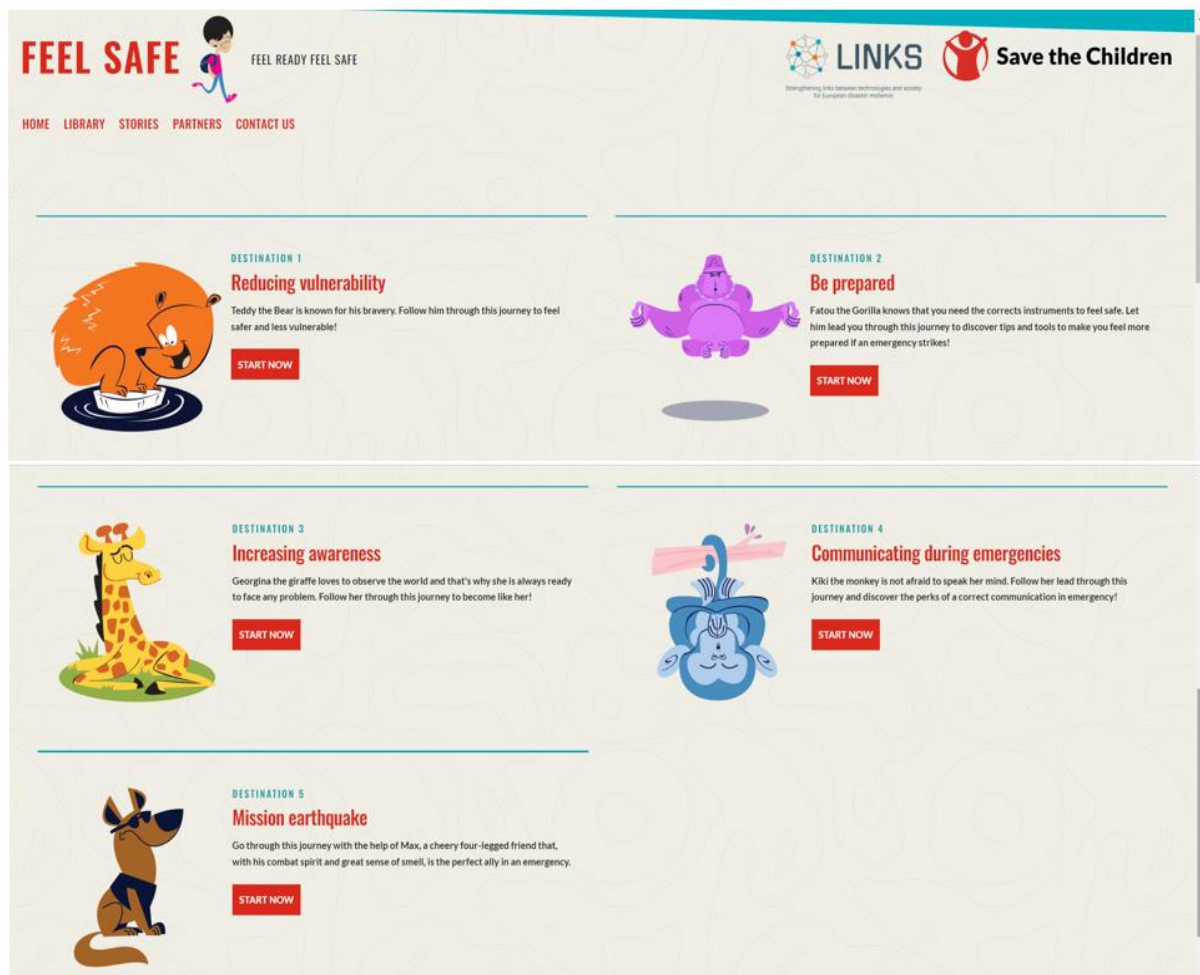
The rationale behind the Feel Safe platform is thus to envelop digital skills, experiential learning, DRR education into a common, overarching framework which primarily targets younger generations and invests in prevention awareness, a culture of safety and resilience.

## 6.1 Feel Safe: Digital Education for Disaster Resilience

The LINKS project takes up the challenge proposed by the Sendai Framework and the opportunity provided by the European Community to design ideas, tools and responses aimed at concretely reducing local vulnerability, focusing its activities on the most fragile subjects. The goal of the project is much more ambitious than the construction of a community that is more resilient to disasters, as it extends the boundaries of the community under study to the entire European community (and beyond). LINKS aims to create a community of stakeholders, the LINKS Community, which brings together first responders, public authorities, civil society organisations, business communities, citizens and researchers from across Europe. Among the target groups, particular attention is paid to children through the creation of an educational platform, Feel Safe, which allows minors to train on civil protection issues in different educational contexts using familiar tools and technologies for

learning. The goal of this tool is to increase the resilience to disasters of children and, as a consequence, of the entire community.

Figure 14: Feel Safe main page



Source: Feel safe educational platform

The aim of Feel Safe is, therefore, to support the network of good practices that encourages a child-oriented and child-centred approach to disaster risk reduction. The main users of Feel Safe are middle school teachers and educators who work with children aged ten to fourteen on risk management. The website is organised into five thematic areas focused on vulnerability, awareness, communication, preparedness and natural hazards (e.g., earthquake), aimed at stimulating student awareness and learning of prevention and risk preparedness from natural and man-made events. With the prospect and ambition of involving children in building a resilient society, the platform offers activities and practical tests focused on the risks present and possible scenarios to underline the experiential, inclusive and participatory methodology with which Feel Safe is built. Each activity is designed to help teachers guide students in the use of technology and support the learning process. Each activity, in fact, includes a brief introduction to the topic followed by proposals for

individual or group work. These activities integrate online tools and multimedia support and contribute to actively stimulating the understanding and interpretation of the natural, social and cultural phenomena that characterise a disaster. Furthermore, the activities are inspired by Save the Children's approach based on the pedagogy of children's rights and are characterised by a strong participatory and playful approach, thus responding to the need for a language and design that stimulate both creativity and learning. The aspect of participation is also underlined by the fact that the activities are developed with a co-design-oriented approach. Specifically, teachers and students can contribute to refining the proposed activities by testing their teaching effectiveness through meetings and workshops in schools. This process is aimed at underlining the central role of the end user of the website, who can provide feedback and suggest improvements to be considered in the design and development of the platform and the proposed activities. In addition to the activities, a 'stories' channel, and a 'library' channel will be integrated into the home page. The 'stories' channel will contain experiences, good practices and documents that collect experiences from all over the world and which can be shared and integrated into the activities proposed by Feel Safe. The 'library' channel will propose topics and documentation concerning the methods of interaction and support for minors in emergency situations. The Feel Safe activities have already been presented in workshops held in some schools of the Save the Children network with positive feedback from teachers and students. Save the Children will integrate the suggestions received and promote the integration of Feel Safe into school curricula. In this way, minors become the driving force for the whole society towards increased resilience. In fact, by guaranteeing minors their rights, it is possible to guarantee the development of the entire society.

The strong link between the concepts of vulnerability and resilience can only be the basis of the planning of every activity aimed at emergency management. The condition of vulnerability, especially in subjects commonly labelled as fragile and, consequently, unable to improve or at least contribute to the improvement of their condition, can become an opportunity for active involvement in all emergency management activities, from planning to response.

The activities and projects put in place by Save the Children to protect minors favour, on the one hand, the dissemination of children's rights both in normal conditions and in emergency situations and at the same time guarantee the active participation of minors in decision-making processes. In this way, the needs and requirements of minors can concretely be considered and integrated within the policies and social practices implemented at all levels of governance, from local to national to international.

Through direct involvement and active participation in decision-making processes, minors are given the opportunity to assert their rights even in emergency contexts where they risk being more eclipsed. Implementing an approach to emergencies aimed at giving children and their needs a voice ensures the development of tomorrow's society, while ensuring today's society is more prepared for disasters and therefore more resilient.

## 6.2 Testing and Validation of the Product

Feel Safe design started in November 2021 and was carried out under the umbrella of the Italian Case Assessment under WP6 and Links Community Workshops under WP8. Also, the product's development saw the involvement of two main actors:

- The first one is a scientific committee. The committee was formed to provide scientific guidance to the development of the website and validation of resources to be uploaded into the website. The committee included experts from Save the Children Italy, Province of Terni and the University of Florence (UNIFI);
- The second one is the school Istituto Comprensivo G. Fanciulli who participated with 3 classes to 12 workshops meant to co-design and test Feel Safe. Most importantly, children from the school were consulted on every aspect of the product to ensure that it is relevant for them. Moreover, the activities conducted with the school reflected the approach of the product, which is based on experiential learning and fun, two important elements to ensure full participation of the children to the activities.

A detailed description of the progress can be found in D6.4 and D8.4 (Bianchi et al. 2022). Furthermore, Feel Safe pursued several other opportunities for guided testing that were beyond the agenda of the Italian Case Assessment Team, in particular:

- In November 2022, LINKS partners had the opportunity to experience and test the product during a workshop;
- The product was also presented during the LINKS Advisory Board Meeting in January 2023 and the members were given the opportunity to provide feedback through a survey;
- Feel Safe was also presented and tested during the World Bosai Forum in March 2023 and during the EENA conference in April 2023. In both occasions, practitioners and other relevant stakeholders were requested to leave their feedback through a survey;
- Furthermore, Feel Safe was presented to the Italian Teachers' Geography Association on 3 different occasions, Firenze 2022, Brescia 2023 and Levanto 2023. Participants were engaged in practical activities through the use of the product;
- Last but not least, Feel Safe was presented to Italian Civil Protection disaster managers and other practitioners during the RESIFEST in Gorizia 2022, and during the event 'La Protezione Civile incontra la cittadinanza' ('The Civil Protection meets the citizenship'), held in Rome in April 2023.

The outcomes of the above-mentioned workshops can be found in D6.4 and in the information related to the product development. To summarise, the guided tests were successful with a very positive feeling from participants. According to the audience, feedback varied from graphic and design, features and functionality of the website and content. There was always a general sense that Feel Safe is original, easy to use and could become a relevant tool for working on DRR with children with a focus on social media and crowdsourcing.

## 7. INTEGRATION OF THE INCLUDING CITIZENS' HANDBOOK AND FEEL SAFE INTO THE FINAL VERSION OF THE LINKS FRAMEWORK

The development of the Including Citizens Handbook, especially in its last phase coinciding with the digitalization of the product, means an alignment with the respective development of the learning paths that feed into the LINKS Framework (see section 3.2 of D5.4). According to what has been established with reference to the second version of the Framework, the definition of *learning paths* had the purpose of guiding and facilitating the access of stakeholders to knowledge on the use of social media and crowdsourcing (see section 2.1 of D5.4). These entry points have been elaborated according to pre-established questions which, literally like a compass, point the user to the resource he/she needs within the range of the LINKS products. The learning path approach is currently being revised to come up with the last version of the LINKS Framework (forthcoming: D5.5 (Fonio et al. 2023)). A more user-friendly guidance will also be implemented in the LINKS Community Center (LCC).

Given these premises, the Handbook, one of the six products that make up the Framework, fits organically into its structure having been conceived as a product that provides resources suited to the two main thematic areas of the Framework (see D.5.3):

- Engaging with citizens, focusing on the mobilisation of citizens as well as volunteers (see section 3.2.1 of D5.4);
- Improving communication, centred on making information accessible and on raising awareness on preparedness (see section 3.2.2 of D5.4).

Since its original conception, the elaboration of the Handbook has conformed to the logic of the learning paths by adopting a practitioner-oriented approach. In fact, one of the product's main objectives has been the understanding of the emergency dynamics within local communities, while maintaining a broad and articulated perspective, capable of reflecting a more complex and multifaceted reality. The structure of the Handbook, particularly in the latest stage of development, as described in the paragraphs above, was conceived in a way that could steer the navigation by suggesting problems and matching solutions, following the "learning paths" approach mentioned above.

More specifically, within the context of the LINKS Framework, the Handbook has been structured to provide targeted resources by dividing the issues (i.e., how to mobilise citizens and volunteers, how to raise awareness, how to make information accessible) into relative sub-themes that correspond to specific issues: for example, how is it possible to prepare citizens for in-home-sheltering using social media? How is it possible to guarantee access to information to linguistic minorities? And so on.

In this regard, a practical usage and application of the Handbook have been already described in D5.4 (see here section 2.2.2) as an example of *user story* narrative in the hazard scenario of the

Dutch case (i.e., industrial hazard). In this context, the Handbook provided a valuable solution to the needs of the Safety Region of South Limburg (VRZL), located in the South-Eastern part of the Netherlands: the LINKS Framework can support the VRZL communication department by orienting its research of a tool that could provide guidelines on how to make information accessible. As shown in the aforementioned D5.4, VRZL selects the section on “Accessibility” of the Handbook and shows a specific interest on two guidelines in particular, i.e. “How to identify your target group” and “How to set up your communication channel”.

Concerning the integration of Feel Safe in the final version of the LINKS Framework, consistent with the logic of the learning paths described above, the product, as the Handbook, provides resources for crisis communication solutions but with a particular focus on minors. For this reason, the platform could be extremely valuable for a potential user interested in finding guidelines on how to engage with children in disaster preparedness activities through educational materials. Henceforth, Feel Safe coherently feeds into the subtheme of the Framework “How to make information accessible” and the relative learning path by offering *ad-hoc* solutions to questions related to how to communicate with children on hazards. An example of the potential usage of Feel Safe by the aforementioned practitioner, VRZL, was described in D5.4 (see section 2.2.2), in relation to the user story “Improving Communication”. In this context, VRZL wanted to pair the information on how to make information more accessible to the practitioners in the community, with additional information on how to also include minors. In this frame, Feel Safe supports the stakeholder by providing guidelines and suggestions on the better way to approach children on matters related to hazards. As for the other theme of the LINKS Framework, i.e., “Engaging with citizens”, and its sub theme “Mobilising citizens”, Feel Safe can also contribute by offering resources (i.e., instructions for teachers) on how to potentially bridge the gap of communication between children and volunteers.

In conclusion, regarding the current state of integration of the digital format of the Handbook as well as of Feel Safe into the final version of the LINKS Framework (forthcoming D5.5), the improvement and refinement of the learning paths is an on-going process that constantly entails the regular collaboration with the Italian as well as the Danish practitioners. In this specific context, consultation with the respective reference stakeholders constitutes an essential aspect and an integral part of an overall methodology founded on the integration of the theoretical component with the practical one, as well as on the integration of a local perspective with a comprehensive one. Additionally, a more precise mapping of the learning paths and the matching with all products, including the Handbook and Feel Safe, have been carried out in the frame of WP5, with the involvement of WP2. The outcomes will be described in detail in D5.5 (forthcoming).

## 8. CONCLUSION

This deliverable presented how the work on the results from the case assessments and related activities, especially the desk research, has supported the development of the Disaster Risk Perception and Vulnerability (DRPV) Knowledge Base (KB). Additionally, it had the objective of showing the progress of the development of the two products under WP2 in their final phase, i.e., the Including Citizens Handbook and Feel Safe.

As for the former, particular attention was paid to the methodology used in converting the vulnerability knowledge base into a theoretical framework for the Handbook and in conceiving guidelines and tools on the issues involved (i.e., accessibility and mobility). As regards this last part, the intention was to select and illustrate examples taken directly from the Handbook to demonstrate how some guidelines were created.

In addition, one of the essential elements of this deliverable was to underline the active involvement of the Italian case practitioner, namely the Terni Civil Protection office, in the Umbria region: the inputs, suggestions and opinions expressed through a series of meetings guided the elaboration and subsequent improvement of the product. This aspect is an integral part of the decision to move from a research-driven approach to a practitioner-driven one.

In the following two sub-paragraphs, the planned next steps for the Including Citizens Handbook as well as for the Feel Safe platform are highlighted.

### 8.1 The Including Citizens Handbook and Feel Safe: the Next Steps

The next steps for the improvement of the Including Citizens Handbook are the following:

- In order to enhance the accessibility of the content and to improve the communication, different types of materials in different media are provided by the platform: the use of visuals, not only in terms of images, animations, and photos, but also of videos would represent the next step in the development process. The Italian and Danish Teams are involved in the process of creating visual boards and storytelling for a total of six videos of two minutes each that will be made accessible on the platform as part of the Handbook.
- Furthermore, the digitalisation process of the Handbook will involve the integration of the product in the Links Community Center (LCC): this will mean not only the optimization of the (already existing) interconnections of the product with the rest of the LINKS Framework products but will also entail the work on the optimization of access to the Handbook and the browsing experience of the user accessing the LCC.
- Regarding the translation of the content of the Handbook, the Italian and the Danish team agreed on providing different translations that would cover the four additional languages of the LINKS project, apart from English: Danish, Dutch, German, and Italian. The importance of translating information on disaster management in multiple languages has been pointed

out also in recent scientific literature. O'Brian et al. (2018, p. 627), for instance, stressed that "When 'communication' or 'information' related to disaster management is discussed, it is frequently in general terms and without expressed consideration for the fact that, to be accessible, information often has to be disseminated in multiple languages. Translation—the rendering of the meaning expressed in one language into another language—is therefore required. Yet, *the needs of those with limited understanding of the dominant language used during response and recovery operations is often overlooked*".

- With a specific regard to the two parts of the Handbook on "How to engage with volunteers" and "How to raise awareness", the next steps would involve a targeted validation of these two sections. A test workshop is planned for May 1<sup>st</sup> in "Hovedstadens beredskab" (HBR), where feedback on the material and the parts of the modalities is planned. Following from this, other tests are planned for the material that undergoes correction and change following from the first workshop.
- Additionally, the Annual Meeting of the LINKS project at Osnabrück (Germany) at the beginning of July 2023, will include a workshop session where the product will be validated with the practitioners involved and with the LINKS partners.

As for the Feel Safe platform, the key actions planned are to improve the features, accessibility and the quality of the content proposed. Moreover, in the upcoming weeks, new resources will be developed to broaden the target envisaged by the product and to also include material meant for primary school and high school students.

The next steps that are currently envisaged for the product are:

- Feel Safe official launch. This event will be organised during the International Disaster Risk Reduction (DRR) Day on the 13<sup>th</sup> of October 2023. The official launch will see the organisation of an official event and a webinar hosted by Save the Children Italy in Rome. The event will see the participation of LINKS partners, children and DRR experts and it will be a mixture of high-level panels and activities carried out with school children. On the other hand, the webinar will be open to the participation of the 3,000 Save the Children Italy partner schools all over Italy and will revolve around the practical use of the product;
- Following the launch of the product, Save the Children Italy will start a social media sponsorship targeting citizens with interest in emergency management and as well schools. The duration of the social media sponsorship will be determined in a second stage according to the success of the activity;
- Another important step will be the translation of the product into other languages. Ideally, Feel Safe will be translated into Italian, English, Japanese, German, Danish and Dutch before the end of the project. Additionally, languages such as French, Greek and Spanish will be considered according to potential partnerships;
- From September 2023, Feel Safe could be considered by schools as a tool to guide the implementation of DRR activities. Save the Children Italy will monitor not only the use of the



product in terms of access, but also the number of schools that are concretely using Feel Safe for their curricula;

- Save the Children Italy will also ensure a feedback system and communication with schools; this will also allow for a bidirectional communication and for users to impact the product by sharing their experiences and suggestions;
- Save the Children Italy will organise free of charge training sessions through webinars in order to provide opportunities for schools and other interested actors to better understand the applicability of the product;
- Last but not least, Save the Children Italy will look for new funding opportunities to keep the product up to date, ensure quality management, strengthen the service by providing additional resources and boost the network promoted by Feel Safe.

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## 10. ANNEXES

### 10.1 Annex I: Online survey

**SURVEY**  
**INCLUDING CITIZENS HANDBOOK**  
**ACCESSIBILITY – MAKING INFORMATION ACCESSIBLE**

Through this survey, we are asking you to evaluate the part of the Including Citizens Handbook on “Accessibility” (see PDF attached to the email) developed within the European Horizon 2020 project called LINKS "Strengthening the link between technology and society for European disaster resilience". The project aims to strengthen the link between technology, in particular social media, and society to improve resilience at European level.

The survey has two main sections: the first on the theoretical part and the second on the concrete actions that have been developed. Follow the questions and rate the product on a scale of 1 to 10, i.e., from lowest to highest score. If the rating is lower than 6, please give an explanation for your choice. Under each section, there is also: “Additional notes on this section if any” box, where you can add additional comments, if any. It is very useful for us to understand the real needs of those who intervene during an emergency in order to provide them with practical, simple but useful solutions to support the work and activities they are doing to help the population and citizens.

Suggestions and advice are all very welcome!

**ADD HERE THE PROFESSIONAL POSITION** \_\_\_\_\_

## QUESTIONS ON THE SINGULAR SECTIONS (FROM P. 2 TO 5)

- **MATERIAL ACCESSIBILITY (p. 2)**

Do you find this section clear?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

Does it cover all the issues related to material accessibility in an effective way?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Do you find the focus on material accessibility useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

ADDITIONAL NOTES ON THIS SECTION IF ANY



- **PHYSICAL AND SENSORY ACCESSIBILITY (p. 3)**

Do you find this section clear?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

Does it cover all the issues related to physical and sensory accessibility in an effective way?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Do you find the focus on physical and sensory accessibility useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

ADDITIONAL NOTES ON THIS SECTION IF ANY

- **CULTURAL ACCESSIBILITY (p. 4)**

Do you find this section clear?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

Does it cover all the issues related to cultural accessibility in an effective way?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

Do you find the focus on cultural accessibility useful?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

ADDITIONAL NOTES ON THIS SECTION IF ANY

- **RELIEF ACCESSIBILITY (p. 5)**

Do you find this section clear?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

Does it cover all the issues related to relief accessibility in an effective way?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Do you find the focus on relief accessibility useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

ADDITIONAL NOTES ON THIS SECTION IF ANY

## GENERAL REVIEW OF THE FIRST PART OF THE PRODUCT

- Do you find this theoretical introduction on the problems related to accessibility useful and necessary?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

- Do you think we should add an additional aspect on accessibility, besides the four we covered?

YES  SUGGESTION ...	NO
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- Do you find the focus sections useful or redundant?

USEFUL	REDUNDANT
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- Do you find the language clear enough?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

- Do you think the language is user-friendly?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

- Do you find the terms we used too technical?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

## QUESTIONS ON THE ACTIONS

- **Action 1: How to Identify your Target Group**

Is the aim of this action clear enough?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Do you find this action useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you actually employ this guideline within your organization?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Rate its applicability in the context of a disaster

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you have additional comments on how to improve this action?

- **Action 2a / 2b: How to Ensure the Accessibility of Your Communication**

Is the aim of this action clear enough?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Do you find this action useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you actually employ this guideline within your organization?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Rate its applicability in the context of a disaster

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you use the links to additional materials?

YES	NO
-----	----

Do you find the additional materials useful? Would you read them?

YES	NO
-----	----

Would you have additional comments on how to improve this action?

- **Action 3: How to Set Up Your Communication Channel**

Is the aim of this action clear enough?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Do you find this action useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you actually employ this guideline within your organization?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Rate its applicability in the context of a disaster

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you use the links to additional materials?

YES	NO
-----	----

Do you find the additional materials useful? Would you read them?

YES	NO
-----	----

Would you have additional comments on how to improve this action?

- **Action 4: Connecting Problems to Actions**

Is the aim of this action clear enough?

1	2	3	4	5	6	7	8	9	10
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EXPLANATION IF UNDER 6

Do you find this action useful?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you actually employ this guideline within your organization?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Rate its applicability in the context of a disaster

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

EXPLANATION IF UNDER 6

Would you use the links to additional materials?

YES	NO
-----	----

Do you find the additional materials useful? Would you read them?

YES	NO
-----	----

Would you have additional comments on how to improve this action?



## GENERAL QUESTIONS

As for the references at the end of the document, do you find them useful?

YES	NO
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How do you rate the overall product?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Would you employ the product within your organization?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Would you recommend the translation of the product in Italian?

YES	NO
-----	----

Are you satisfied with the overall design of the product?

YES	NO
-----	----

Should the product need additional improvements? If so, do you have any recommendations?

YES	NO
-----	----

Are you satisfied with the guidelines/actions?

YES	NO Please explain why
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Do you think we should add more guidelines/actions?

YES Do you have any suggestions?	NO
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OTHER SUGGESTIONS? FINAL COMMENTS?