LINKS

Strengthening links between technologies and society for European disaster resilience

D8.4 First LINKS Community Workshops and LINKS Advisory Committee report

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)

Bringing together 15 partners and 2 associated partners across Europe (Belgium, Denmark, Germany, Italy, Luxembourg, the Netherlands) and beyond (Bosnia & Herzegovina, Japan), the project will develop a framework to understand, measure and govern SMCS for disasters. The LINKS Framework consists of learning materials, such as scientific methods, practical tools, and guidelines, addressing different groups of stakeholders (e.g. researchers, practitioners, and policy makers). 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 main purpose of the present deliverable (D8.4) is to report and elaborate on the results of the first LINKS Community Workshop (LCW) and LINKS Advisory Committee (LAC) meetings with the aim of guiding, informing and qualifying the events to come in the future. The LCWs and LAC represent two key components of the broader LINKS Community. The LCWs are workshops for capacity-building at the local level, organised locally by the LINKS project partners and linked to the five pre-defined case studies (earthquakes in Italy, industrial hazards in the Netherlands, drought in Germany, flooding in Denmark and terrorism in Germany). They are crucial for gathering and communicating information regarding the project's objectives and requirements, and for exchanging best practices among local stakeholders about the use of social media and

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crowdsourcing (SMCS) in disasters to increase the resilience of the society. The LAC consists of invited professionals and experts from relevant organizations (representing practitioners, researchers, and citizens) that advise, inform and validate developments and results in the project.

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LIST OF ACRONYMS

Acronym / Abbreviation	Description
ANCI	Associazione Nazionale Comuni Italiani
DCT	Disaster Community Technologies
DMP	Disaster Management Processes
DRPV	Disaster Risk Perception and Vulnerability
LAC	LINKS Advisory Committee
LCC	LINKS Community Center
LCW	LINKS Community Workshop
NGOs	Non-governmental organizations
SASU	Soccorso Alpino e Speleologico Umbria
SMCS	Social Media and Crowdsourcing
SMEs	Small and Medium Enterprises
WP	Work Package

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DEFINITION OF KEY TERMS[1]

Term	Definition
LINKS Advisory Committee (LAC)	Invited professionals and experts from relevant organizations (representing practitioners, researchers, and citizens) that advise, inform and validate developments and results in the project.
LINKS Community	A sustainable stakeholder community consisting of multidisciplinary stakeholders from several countries, professions and schools of thought. The main stakeholders involved in the LINKS Community are: practitioners, industry, decision makers, researchers and networks (the scientific community), citizens and civil society.
LINKS Community Center (LCC)	The LCC brings together different stakeholders (LINKS Community) in one user-friendly and flexible web-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 Community Workshops (LCW)	Workshops for capacity-building at the local level, organised locally by the LINKS project partners and linked to the five pre-defined case studies (earthquake in Italy, industrial disasters in the Netherlands, drought in Germany, flooding in Denmark and terrorism in Germany). They are crucial for gathering and communicating information regarding the project's objectives and requirements, and for exchanging best practices among local stakeholders on the use of SMCS in disasters.
LINKS Framework	A set of learning materials, such as methods, tools and guidelines for enhancing the governance of diversity among the understanding 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

[1] Definitions are retrieved from the LINKS Glossary (forthcoming).

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	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.
LINKS Knowledge Domains	The three crucial domains of analysis for studying European disaster resilience and SMCS. These include: - Disaster Risk Perception and Vulnerability (DRPV), for assessing changes in the citizens 'perception of disaster risks induced by SMCS, as well as assessing the changes in the vulnerability of practitioners and citizens. - Disaster Management Processes (DMP) for analysis of how SMCS changes the procedures and processes within the crisis and disaster management. - Disaster Community Technologies (DCT), for assessing SMCS related technologies used by practitioners (and citizens) in disasters.
Sustainable Advanced Learning	A maintainable and evolving collection of knowledge and best practices produced for and by relevant stakeholders. Sustainable advanced learning entails a cognitive dimension (the capability to gain in-depth knowledge of crises and crisis response) and a social dimension (the ability to implement the knowledge into new practices), and a transformative dimension whereby reflections are made on how knowledge was learned, what has changed in the process, and how and in what ways new knowledge might continue to evolve.

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1. INTRODUCTION

The creation of a sustainable stakeholder community - the LINKS Community - is one of the primary objectives of the LINKS project. As we introduced in deliverable D8.1: LINKS Community Strategy (Philpot, J. & Reuge, E., 2020), the LINKS Community consists of multidisciplinary stakeholders from several countries, professions and schools of thoughts, working together with the LINKS Consortium, learning and benefiting from the project development and results, and in turn providing their knowledge and expertise for the improvement of LINKS research.

The LINKS Community is designed around three primary means of knowledge-sharing and interaction during the lifetime of the project:

- LINKS cases (earthquake in Italy, industrial disasters in the Netherlands, drought in Germany, flooding in Denmark and terrorism in Germany) cut across diverse hazard scenarios, geolocations, socio-cultural and demographic contexts, and are used to leverage the contextualized knowledge of local stakeholders and in the LINKS research.
- LINKS Community Workshops (LCWs) are used for capacity-building at the local level with relevant stakeholders, and are organised locally by the LINKS project partners to focus on specific topics relevant to the research and results in LINKS.
- LINKS Advisory Committee (LAC) includes selected relevant professionals and experts to advise, inform and validate developments and results in the project.

The contextualized knowledge and inputs collected from the LINKS Community through the cases, the LCWs and the LAC are used to inform the projects research and results at different points during the project and on different levels. At the broadest level, the inputs are crucial for the development and evaluation of the LINKS Community Center (LCC) and LINKS Framework, and for their continued development and use once the project has concluded. Indeed, the LCC and the LINKS Framework are conceptualized to outlive the project's lifecycle and to become an established resource for different types of stakeholders dealing with, or affected by, social media and crowdsourcing (SMCS) in disasters. The LCC acts as the web-platform facilitating online sharing, sustainable advanced learning, and integrating lessons learned, ongoing experiences and knowledge within the LINKS Community. Through the LCC, LINKS Community members engage with LINKS results including the LINKS Framework,[2] which consists of different learning materials, such as scientific methods, practical tools, and guidelines, addressing different groups of stakeholders in the Community (e.g. researchers, practitioners, and policy makers).

[2] The Framework 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).

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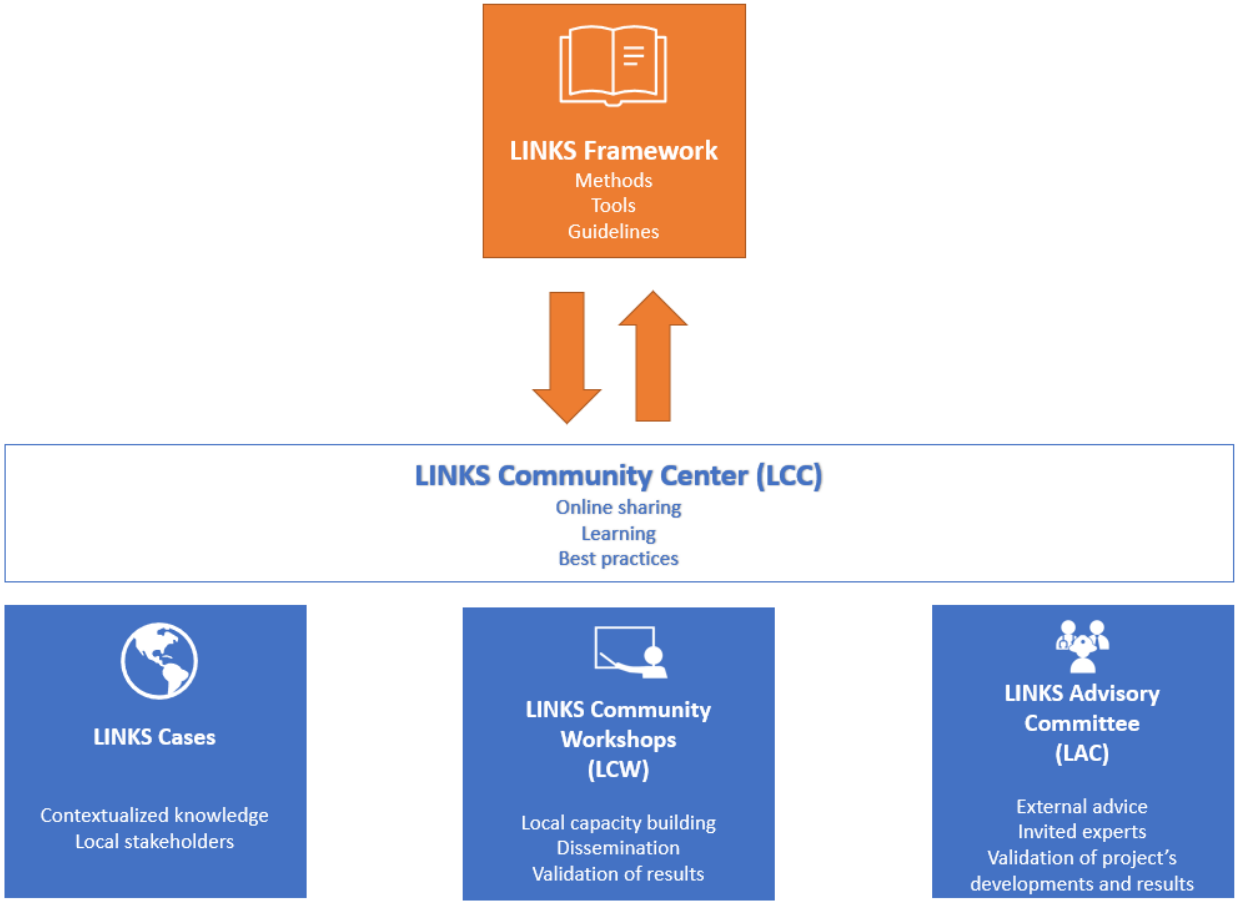
Figure 1 below provides and overview of the main project areas where members of the LINKS Community are engaged.

Figure 1: Visual identity of the LINKS Community



This deliverable is specifically concerned with the developments of the LCWs and LAC meetings. The document reports and elaborates on the main results of the first LCW and the first LAC meeting of the project, and provides input and suggestions to guide, inform and qualify upcoming events.[3] In order to reach this aim, this report is structured as follows:

- Section 2 revisits the work previously done in the LINKS Community Strategy (D8.1), providing a brief overview on the LINKS Community, introducing the purpose and objectives for LINKS Community engagement through LCWs as well as the types of stakeholders targeted.
- Section 3 presents the LCWs' roadmap for the next six months.

[3] Note the first report on the LINKS Cases are provided in separate, forthcoming deliverables D6.4 (May 2022).

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- Section 4 presents the main results of the first LCW, that took place in Italy on 9 November 2021.
- Section 5 presents the lessons learnt from the first LCW and it provides local partners with an updated suggested methodology for organising and planning future workshops.
- Section 6 describes the set-up of the LINKS Advisory Committee. The main results of the first meeting, which was held virtually in January 2021, are presented as well.

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2. LINKS COMMUNITY WORKSHOPS WITHIN THE BROADER LINKS COMMUNITY

This section provides a brief overview on the LINKS Community, introducing the purpose and objectives for LINKS Community engagement through LINKS Community Workshops (LCWs) as well as the types of stakeholders targeted.

2.1 Overview on the LINKS Community

As introduced in Section 1, the LINKS Community brings together multidisciplinary stakeholders working together with the LINKS Consortium, learning and benefiting from the project development and results and in turn providing their knowledge and expertise for the improvement of LINKS research. It is open to individuals and organisations actively working with social media and crowdsourcing (SMCS), in crisis-management or in related fields, as well as to those directly impacted or interested in the use of SMCS in disasters. In particular, LINKS identifies members from specific target groups defined in D8.1 (Philpot, J. & Reuge, E., 2020), and they encompass practitioners, businesses, policy and decision-makers, developers and feedbackers. Nevertheless, in the course of the project, and with the aim of building a multidisciplinary and sustainable Community, the Consortium decided to address one additional target group, namely disseminators (e.g. media providing information about disaster management and/or civil protection).

The LINKS Community is conceptualised and designed to work collaboratively hand in hand with the LINKS Consortium to better investigate, explore and develop new knowledge on best practices for the use of SMCS in disasters.

In particular, the ambition for the LINKS Community is that it becomes a resource for the LINKS Consortium while also contributing to the practices of its members, ultimately enhancing the resilience of EU communities. It is expected to remain a key tool throughout the duration of the project, allowing new stakeholders to join the Community on a continuous basis. Its sustainability will also be ensured beyond the lifetime of the project.

The main objectives of the Community can be summarised as follows:

- To provide its members with a first-hand insight into the developments of the project and to offer them the opportunity to contribute to the project's research and results;
- To be used as a discussion forum to facilitate and harness the sharing of information, knowledge and best-practices on the use of SMCS for disaster resilience;
- To help develop and evaluate the LINKS Framework;
- To ensure sustainability of the LCC and project results beyond the lifetime of the project;
- To connect with other relevant communities and networks at the EU-level and beyond.

The Community's main benefits for its members can be summarised as follows:

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- Members can engage with the project's research and results (through the LCWs, LAC, cases) contributing to new and important developments on the uses of SMCS in disaster resilience;
- Members are provided with the opportunity to learn from each other and to exchange knowledge based on their diverse expertise and experiences;
- Members can access unique learning materials (e.g. methods, tools, guidelines, etc.) and knowledge based on organisational objectives (e.g. handling misinformation in the response phase of a disaster).

2.2 LINKS Community engagement through LINKS Community Workshops

The LCWs are a key component of the LINKS Community and one of the main tools through which the Community engages with the project partners. In particular, the LCWs can be considered as a means to foster knowledge exchange within the Community, which is in turn critical to the success of the project and to ensuring that project's partners are provided with valuable feedback and resources.

Concretely, the LCWs are workshops for capacity-building at the local level. They are organised locally by partners and are crucial for gathering and communicating information regarding the project's objectives and scope, and for exchanging best practices among different stakeholders on the use of SMCS in disasters. LCWs are held in each of the four pre-defined case countries and linked to the five pre-defined case scenarios (earthquake in Italy, industrial disasters in the Netherlands, drought in Germany, flooding in Denmark and terrorism in Germany) to leverage the contextualized knowledge of the Community and apply it to the LINKS research.

Importantly, the LCWs are not only open to the project partners, but also to external stakeholders (who vary according to the objective of each workshop), and their local focus does not exclude the involvement of regional, national and even international participants and experts if relevant for the LCWs objectives. In this regard, the LCWs may foster the sharing of local and broader experiences and knowledge among key stakeholders to inform the research across the three LINKS knowledge domains:

- Disaster Risk Perception and Vulnerability (D2.1 (Bonati, S., 2020); D2.2 (Pazzi, V., Morelli, S., & Bonati, S., 2020);
- Disaster Management Processes (D3.1 (Nielsen, A.B & Raju, E., 2020);
- Disaster Community Technologies (D4.1 (Habig, T., Lüke, R., Sauerland, T. & Tappe, D., 2020);

and to guide the development and evaluations of the LINKS Framework and the LCC.

In summary, the main objectives of the LCWs are to:

1. Improve information and knowledge exchanges among the stakeholders in local cases, together with relevant stakeholders and experts in the broader LINKS Community;

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2. Collect data and inform the assessments of the LINKS knowledge domains and the development of the LINKS Framework;
3. Disseminate project developments and results.

The overall outcome expected from the LCWs is that the discussions and conclusions reached will contribute to enhancing disaster resilience. From the organisers' point of view, the foreseen consequence is that the outputs from the workshop will help develop the further research of the project (e.g. the organiser has gained a better understanding of disaster community technologies (DCT) used in disaster management processes (DMP) at the local Danish level) and validate key results. From the participants' point of view, the expected outcome is that the workshops discussions feed into practice, ultimately allowing them to improve their work or that of their organization (e.g. knowledge exchange on best practices and potential collaboration on disaster community technologies and disaster management processes between firefighters and municipalities). Furthermore, participants from different stakeholder target groups benefit from connections established among them through the LCWs. For instance, policy makers may gain a better understanding on how to make policies on risk communication more inclusive to vulnerable groups and industries can gain an in-depth understanding of the end-users' needs when dealing with SMCS in disasters.

Of course, the benefits stemming from a LCW vary according to the specific LCW objectives and the selection of participants. Nevertheless, we identify a number of overall expected benefits from LCWs based on the participation of the different stakeholder target groups defined in the LINKS Community Strategy (D8.1), and on that of the additional target group mentioned in section 2.1.

Practitioners: the LCWs are a means through which practitioners are engaged to provide their feedback related to LINKS activities and outputs. The LCWs are thought and designed to give practitioners an impact on the research process to develop credibility and acceptation within the Community as these stakeholders will make use of the project's outputs. From the practitioners' perspective, the LCWs can be used as discussion forum to present their needs and gaps to industry and researchers, which will be useful to develop new methods, products and services to assist them in using SMCS in disasters.

Businesses: the LCWs allow to involve industries in the LINKS Community to understand practices in the deployment of relevant goods and services, and how LINKS research will impact and be impacted by this. In turn, industries can engage with the project's research and results contributing to the development of innovative SMCS technologies in disaster resilience. By discussing with a wide range of stakeholders, and with practitioners in particular, industries will be able to provide the products that tackle the needs of the end-users. This is beneficial for industries as it implies that their investments will lead to procurement. Furthermore, industries, and Small and Medium Enterprises (SMEs) in particular, could benefit from the LCWs by introducing their applications.

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Policy and decision-makers: the LCWs allow identifying with public authorities potential policy implications of the LINKS outputs and ensuring these outputs comply with current legislation and can contribute to standardisation efforts. At the same time, by participating in the LCWs, policy and decision-makers will get a better understanding of the challenges existing when using SMCS in disasters, which is crucial to design and implement effective measures aimed at improving European disaster resilience (e.g. active use of crowdsourcing data to guide decision-making to prevent and respond to disasters, greater inclusion of local citizens in disaster management efforts).

Developers: developers are expected to be participants in several workshops, sharing their expertise and knowledge to guide the project's research, either by providing inputs that will guide the research process, or by providing feedback to validate research results. In parallel, by discussing with stakeholders from different schools of thoughts, developers will be able to invest in research that fits the actual needs of end-users and is exploited by industry. This is beneficial as it implies an uptake of research results. Moreover, developers could also benefit from the LCWs by introducing their own research experience, concepts and results, which may contribute to the development of the LINKS Framework.

Feedbackers: this category refers to different groups of citizens who need to be informed regarding a disaster and can provide relevant related data and information. As such, feedbackers, including civil society organizations, non-governmental organizations (NGOs), are given a main role within the LCWs in order to ensure that the public concerns and aspirations regarding LINKS are well-received and taken into consideration by the Consortium. Civil society organizations, such as educational institutions, organized volunteers' groups, social movement organizations and networks, could offer a different perspective on the disaster risk management processes. In particular, they may help the LINKS research to better focus on specific social groups (e.g. vulnerable groups) that usually risk staying at the margins of the process or are engaged only in some phases (e.g. in crisis response but not in prevention). Similarly, vulnerable groups can use the LCWs to present the real challenges they deal with when using SMCS in disasters based on their own local experiences. Through the LCWs, citizens therefore have the opportunity to provide local knowledge, thus being in the forefront of new developments in the use of SMCS and hence shaping the way to deal with disasters through SMCS. Participating in the LCWs will therefore be beneficial for citizens as it will ultimately enhance their resilience against disasters.

Disseminators: in the framework of the LINKS project, disseminators refer to media providing information about disaster management and/or civil protection. As such, disseminators represent a relevant target group for the project since they may contribute to the spread of the scientific evidence developed in LINKS and of the project results. Through the LCWs, disseminators are in turn offered the possibility to engage with different stakeholders on the ground and hence understand the main obstacles from their point of view when using SMCS in disasters. This may ultimately result in improved communication strategies about disaster management.

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3. LINKS COMMUNITY WORKSHOPS' ROADMAP

Throughout the lifetime of the project, it is foreseen that 20 LINKS Community Workshops (LCWs) will be organised. They are to be held in relation to the five local cases taking place in Italy the Netherlands, Germany and Denmark. Workshops may be organised across several cases or looking specifically at one particular local case, depending on the objectives of each individual workshop.

The Consortium has decided to allow for a certain degree of flexibility regarding the timing for the realisation of LCWs. This is to ensure that workshops actually benefit the project and the participants themselves, instead of taking place for the sole purpose of reaching a pre-determined ceiling. As such, the timing and total number of LCWs may also vary based on the project's progress and evolving objectives, as well as on the partners' research needs. This will ensure maximisation of LCWs' impact.

For organisational and planning purposes, a LCWs' roadmap has been established. It provides a tentative schedule for when workshops will be taking place throughout the 42 months of the project, thereby improving coordination, preparation and efficiency while avoiding duplication of efforts and budgetary constraints. At the partner level, it is a crucial tool for planning ahead the travels, workloads, staff implications and so on. The roadmap takes into consideration potential challenges as well, such as the COVID-19 pandemic related situation, local partners and potential attendees' availability, and the holiday seasons. In fact, the uncertainty due to the current pandemic situation inevitably slowed down the workshops' timetable that the LINKS partners had originally established. Specifically, the possibilities of organising in-person workshops have substantially decreased, and in order to maximise the impact of said workshops it was necessary to postpone the start of the workshops cycle. Furthermore, the geographical detail, albeit positive in some respects, has created an organizational structure that had to take into account many facets, such as identifying the best time to organize the Workshop and the needs of each local partner. The strategy, despite the delays due to the reasons explained above, went ahead trying to offer qualitative rather than quantitative experiences, taking into consideration the main aspects of the project and its objectives.

These were the challenges that the Consortium had to face in the first 18 months, changing and calibrating its strategy but at the same time never losing the sight of the objectives set at the beginning of the project. The LCW roadmap has kept the project on course despite early challenges, and is continuously monitored by the LINKS Consortium, and more particularly by EOS and the case coordinators. The LCW roadmap is updated and modified according to the partners' needs and the project's developments and the availability of participants.

As explained above, one of the main objectives of the LCWs is to guide the project's research, either by gathering inputs from participants that will guide said research, or by using participants' feedback

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to validate research results. According to that approach, and considering that deliverables in LINKS contain the outputs developed by the responsible partners at a dedicated point in time, some LCWs are planned to take place in accordance with specific deliverable submissions during the project. Other case coordinators, however, may follow a different approach for planning LCW if deemed more appropriate. Therefore, this strategy will be decided upon on a case-by-case basis. Further details for the LCW at the case level are also included in D6.2: Second work plan for the five cases (Fonio & Clark, 2021).

The LCWs' roadmap for the next six months of the project is illustrated below in Figure 2:

Figure 2: LCWs' roadmap for the next six months

	Nov-21	Dec-21	Jan-22	Feb-22			Mar-22		Apr-22	May-22
LCWS #	1		2	3	4	5	6	7		8
Location	Italy		Germany	Netherlands	Germany	International	Germany	Denmark		Italy
WPs	WP2		WP4+WP6	WP5-6-7	WP4+WP6	WP2 Online focus group	WP4	WP3		WP2
Cases	Earthquake in Italy		Drought Terrorism Germany	Industrial hazard Netherlands	Drought Terrorism Germany	No specific case focus	Social Media and Crowdsourcing in Drought	Flooding Denmark		Earthquake in Italy
Description	1st introductory workshop		Experiences in the uses of SMCS and DCT	Presentation of the LINKS project to mayors, involved aldermen, specific officials of the surrounding municipalities, and to local residents	Evaluating different SMCS technologies for the communication and coordination between DMO	Inform and assess DRPV tool	Identification of future potentials from SMCS technologies	Use and effect of SMCS from interviews		Intergenerational discussion
Organiser	UNIFI; SCIT; PDT		SIC and DHPol	ST, VU, VRZL	SIC and DHPol	UNIFI	SIC	FRB; HBR, UCC, UCPH		UNIFI; SCIT; PDT

While flexible and adaptable, the roadmap is useful to coordinate efforts linked to the organisation of workshops and to the development of the project research. Based on this approach, the following section will describe and elaborate on the organisation and main results of the first LCW that took place in Italy, on 9 November 2021.

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4. FIRST LINKS COMMUNITY WORKSHOP

This section provides an overview of the first LINKS Community Workshop (LCW), which took place in Italy on 9 November 2021, and reports on its main outcomes. The workshop was held on at the Province of Terni building, in the city of Terni.

4.1 Context and objectives

The Italian case in LINKS focuses on earthquakes in the geographical area known as Valnerina (Terni), including Municipalities of Arrone, Ferentillo, Montefranco and Polino: an area that presents important elements of social and structural vulnerability. This area is located in the Umbria region, in central Italy. In evaluating the Italian case, it is assumed that minors and the elderly are often among the most vulnerable groups in the event of disasters and among the groups most exposed to the risks of the digital environment, nowadays increasingly exploited thanks to the new technologies, with consequent marginalization with respect to decision-making processes and exclusion from any kind of communication.

The overall objective of the workshop was to introduce the LINKS project and Italian case, and to disseminate the projects developments among the participants. In particular, this first workshop was used to introduce the project to the most relevant stakeholders involved in civil protection and to local policymakers in Umbria region. Thus, both employed and volunteer personnel has been invited to participate. Expected outcomes included beginning to establish a local network in the region around the project topics, and to better understand their experiences and needs for SMCS in disasters.

Figure 3 illustrates the first LCW ongoing on-site.

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Figure 3: First LCW ongoing on-site

4.2 Format

The format of the workshop was based on two different phases, managed by two different partners. This choice was done to answer two specific needs: to create a local network and to collect information. Thus, the first phase has been thought to present the civil protection system active on the territory, to present the LINKS project, and to give voice to different local stakeholders. Accordingly, after a series of presentations, the morning session has been closed with a roundtable that has seen the participation of policymakers, volunteer organizations and civil protection representatives, and it was used to open a discussion among the different stakeholders there represented and to also provide them with the possibility to know the needs of the others and their expectations. The morning session has been managed by the Province of Terni (PDT), guest of the event, as the best partner to work for the development of the local network.

The second phase has been managed by the University of Florence (UNIFI) and has been finalized to have a first in-depth discussion and to collect data about how local volunteer civil protection associations use social media and crowdsourcing platforms in the different phases of the disaster risk management cycle and what are needs and challenges according to their direct experience during last emergencies. The focus on volunteer associations has been decided as in line with D2.3 (Bonati, S., Pazzi, V., & Graziani, F., 2021) plans and because information on civil protection employers was already collected during interviews. Accordingly, the focus was given on experienced connected to last earthquakes but also experience during COVID-19 pandemic was

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considered as an important turning point to understand the potentials and the future of the digital environment and to open to a multi-hazard perspective.

Figure 4 illustrates the agenda of the first LCW.

Figure 4: Agenda of the first LCW

LINKS

Strengthening links between technologies and society for European disaster resilience

1° workshop Progetto LINKS

"Rafforzare i legami tra tecnologie e società per una resilienza europea ai disastri"

9 novembre 2021 - Terni, Palazzo del Governo

Programma della giornata

Ore 9.00 Apertura – *Saluti istituzionali*
Ore 9.30 *Protezione Civile: pianificazione provinciale e d'ambito*

Gli ambiti ottimali di protezione civile in Umbria (***Nicola Berni*** - Regione Umbria)

I sistemi GIS a supporto della pianificazione di protezione civile comunale e di ambito (***Lorenzo Marzolla*** - Anci Umbria prociv)

Mappare la resilienza territoriale: il progetto pilota della Valnerina (***Marco Serini*** e ***Fulvio Toseroni*** - Provincia di Terni)

Ore 10.15 *Il progetto UE – Horizon 2020 - LINKS*

LINKS: Strengthening links between technologies and society for European disaster resilience (***Chiara Fonio*** - Vrije Universiteit Amsterdam – Responsabile sviluppo LINKS framework)

Accessibilità, connettività mobilità: gli obiettivi della ricerca in Valnerina (***Mirella Loda***, ***Matteo Puttilli***, e ***Sara Bonati*** - Università degli Studi di Firenze)

Il percorso con l'Istituto Comprensivo Giuseppe Fanciulli: tra ricerca ed azione (***Francesco Graziani*** - Save the Children – Capo progetto Unità Emergenze)

Ore 11.30 *Le potenzialità delle tecnologie digitali nella prevenzione e gestione delle emergenze*

Conduce il dibattito *Chiara Bianchini*
Intervengono: Fabio Di Gioia (sindaco di Arrone) - Elisabetta Cascelli (sindaco di Ferentillo) – Rachele Taccalozzi (sindaco di Montefranco) – Remigio Venanzi (sindaco di Polino) – Rappresentanti delle strutture operative di protezione civile professionali e volontarie.

Ore 14.30 - *Parlare al territorio, parlare con il territorio* - Lavori di gruppo con le associazioni locali di protezione civile – a cura dell'Università degli Studi di Firenze.

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4.3 Participants

Overall, 35 participants attended the workshop: 26 in the morning session, and 9 in the focus group in the afternoon. All the participants came from organizations of the Umbria Region and from the Italian consortium partners. Participants were selected according to their role in the Civil Protection system and their level of expertise in the risk management in Umbria Region.

The organizations of the workshop's participants are listed below:

- Prefettura di Terni
- Provincia di Terni
- Regione Umbria
- Associazione Nazionale Comuni Italiani (ANCI)
- University of Florence (UNIFI)
- Save the Children
- Comuni di Arrone e Montefranco
- Polizia
- Soccorso Alpino e Speleologico Umbria (SASU)
- Associazione di Ingegneri per la Protezione dell'Ambiente e del Costruito (AIPAC)
- Gruppo Cinofilo da Soccorso Le Orme di Askan - Organizzazione di volontariato di Protezione Civile O.N.L.U.S

At the end of the workshop, participants were asked to complete the LCW Feedback Form (see Annex I) in order for the organisers to gather information about the needs and expectations of local stakeholders affected by and/or managing disasters. Said form was adapted to the local context and translated into Italian language. After the workshop, the case coordinators were asked to complete the LCW Report Template (see Annex II), based on which this section was drafted. Further comments were collected orally by members of the University of Florence and Province of Terni.

4.4 Outcomes

In order to contribute to the success of the project, the workshop was thought as an important moment to create a network of local stakeholders to be involved in the project and to orient its results. Furthermore, the discussions held were useful to collect information about the needs and expectations of the different stakeholders in the region and to implement knowledge about the existing communication systems.

One of the main needs emerging from the workshop's participants was to have a space, such as a website or a social media page, in which to store documents and materials to share with

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people, and to receive indications on how to better improve the use of social media. Limited experience in the use of crowdsourcing was identified. Furthermore, problems in the communication systems were identified such as worries about the use of social media to collect information provided by affected citizens.

In light of these outputs, it can be said that the actual achieved outcome, to create a local network and to identify its main needs, matches the expected one. Furthermore, the workshop was also important to implement the information already collected through other research activities (e.g. interviews) and to better focus the next steps of the project towards the achievement of something effectively useful for the local stakeholders.

4.5 Next steps

The feedback and information gathered in the first LCW will be used to improve the knowledge on the Italian case, with particular reference to the earthquake hazard scenario.

However, a distinction between feedback and information has to be made. Feedback will be mainly used to improve the plan of actions in the Italian case, such as to better direct the outputs and the future LCWs expected in Italy. This point will be mainly addressed by the Italian case team. Furthermore, feedback will be useful to inform the other local cases in the planning of their workshops. This point will be mainly addressed by EOS as the lead organizer of LCWs, with the support of the Italian case team. About the information collected during the second phase (focus groups), they will be used to inform the outputs of the project, and in particular the Disaster Risk Perception and Vulnerability (DRPV) tool. Some of the information provided will be also used to inform all the three LINKS knowledge bases, in particular the DRPV knowledge base, additionally some information about the use of social media and their main functions could be provided also to the Disaster Community Technologies (DCT) knowledge base. This is being discussed with responsible partners for the knowledge bases, within the methodological taskforces. Accordingly, the results of the analysis will be presented and discussed by the Italian case team and other case teams under WP6, and furthermore this information will contribute to a strategy on incorporating the feedback coming from the case teams into the LINKS Framework under WP5.

Lastly, a plan on how to continue to involve the local stakeholders that have participated to the workshop and declared their availability to collaborate with LINKS will be developed as part of joint development for the LINKS Community and LINKS Community Center under WP7 and 8.

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5. LESSONS LEARNT AND SUGGESTIONS FOR UPCOMING EVENTS

This section provides the LINKS project partners with specific suggestions on the format and methodology to organise future LINKS Community Workshops (LCWs). For this, we depart from the suggestions provided in the LINKS Community Strategy (D8.1) and readapt them taking into account the main lessons learnt from the experience of the first LCW. The suggestions are also based on other internal and external workshops which took place as part of LINKS in the first year of the project, all of which contribute to reformulation of formats for LCWs. A complete, updated strategy for the LCWs based on these experiences will be included in the updated LINKS Community Strategy (D8.2) in February of 2022.

5.1 Format of LINKS Community Workshops

This section presents the suggested (and readapted from D8.1) format of the LCWs. The principles listed below are advisory, not prescriptive, and will therefore be adjusted on a case-by-case basis taking into account the specific context of a workshop and the needs of the local partners in charge of hosting and conducting it.

Participants: the workshop should have a limited number of participants compared to the number of presenters (e.g. no more than 10 participants per presenter). This is for several reasons, such as the difficulty of focusing on specific topics before a large audience, of managing a large number of participants with only one moderator, and for COVID-19 related restrictions. Alternatively, with more presenters, more participants can be invited. Overall, keeping participants numbers low should allow specialisation.

Length: between 2-4 hours but subject to availability, type of workshop and chosen topics. Workshops are expected to take place over one or two days depending on the degree of specialization needed.

Outcome: feedback received by presenter are incorporated into LINKS research. This can be done through requesting written feedback or through recording verbal feedback from participants. Ideally, the organiser should aim not only at collecting participants' opinions on the topics discussed during the workshop, but at understanding whether the discussions held may have an impact on the work of the participants or that of their organization.

Besides the principles presented above, it should be taken into account that due to the COVID-19 pandemic, in-person workshops will most likely continue to be restricted for an unpredictable time. Therefore, the following guidelines can facilitate the organisation of virtual workshops and mitigate the difficulties associated with virtual meetings.

1. Organise online meetings via a tool that allows for breakout sessions

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Most teleconferencing software now offer the opportunity to separate participants into smaller groups ('breakouts') for discussions and evaluation purposes. Organisers should familiarise themselves with the mechanisms of Microsoft Teams (or other conferencing tools such as Zoom or GoToMeeting) so that they are comfortable managing this during the meeting.

2. Have extra organisers to help facilitate breakout sessions

If possible, having an organiser participating in each breakout room can ensure that discussions proceed well and that groups are kept on track, as they can steer discussions towards profitable areas and clarify any misunderstandings. This will have the added benefit of allowing the organisers to be exposed to the discussions that take place and inform the eventual conclusions (this could also be done by recording the breakout sessions, but would be more time-consuming to review).

3. Understand the limitations of the format and plan accordingly

Virtual meetings are clearly very different from physical ones, and the limitations can be quite severe in comparison. Demonstrations, discussions and interaction may not be as easy to facilitate and gathering helpful feedback can be more challenging. Anticipating this and preparing accordingly – will help ensure that the LCW's remain a valuable tool for the project and for its participants.

4. Prepare participants for meetings by sharing materials (and potential explanations on their use) in advance

Organisers can share materials - diagrams, worksheets, feedback sheets, explanations - with participants in advance, along with an explanation for their use. This will allow participants to familiarise themselves with the workshop's topics and material beforehand, enabling discussions to proceed to more advanced levels more quickly.

5. Accept that discussions and feedback may not be as comprehensive or incisive and adapt accordingly

The virtual context clearly makes discussions less natural and organic. This may mean that the organisers will need to adapt their expectations for the workshops - rather than being able to fully discuss a process or research topic and gather input on its entirety, it might be the case that they will need to compartmentalise the workshops. The advantage of virtual meetings is that it is easier to plan and hold them compared to in person meetings, and they can reach a higher number of participants with different competencies and expertise. It could therefore be the case that a topic that would be covered in one in-person workshop is covered in multiple, distinct virtual workshops, allowing the organisers to implement feedback from one workshop and adapt the following ones. Specific guidelines on how such virtual workshops can be organized can be also found in Section 4 of D7.1: Report about the needs and potentials of the LINKS Community Center (Kiehl, M., Lüke, R., Tappe, D., Gehlhar, S., Habig, T. & Marterer, R., 2021).

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5.2 Methodology for organising and planning the workshops

LCWs are organised collaboratively between the European Organisation for Security (EOS), leader of the LINKS Community, and the local partners who are hosting and conducting the workshop. Depending on the scope of the workshop, EOS will leverage the Community to help local partners identifying relevant stakeholders to attend the event, who will be invited via email, or, if possible, in person through local contacts. The invitation will clearly present the purpose of the workshop and why their particular input is valued, and, if possible, why the workshop will be beneficial for the participants as well. While the invitation process is managed by the local partners hosting the workshop, EOS will support said process where needed. Similarly, while the partner responsible for conducting the LCWs will define the content and purpose of the workshop, EOS will work alongside them to help design and structure the workshop in the most effective manner, based upon the research area, the objectives and topics of discussion, and the feedback that is required.

Finally, in order to collect feedback from the participants and to produce relevant reports on the LCWs, EOS, working alongside the LINKS Impact Task Force, has developed the following forms:

- LCW Feedback Form (see Annex I): to allow the organisers to gather information about the needs and expectations of local stakeholders affected by and/or managing disasters. Said form can be adapted to the local context and has to be translated by the local partners into the language used in the country where the workshop takes place.

- LCW Report Template (see Annex II): this document has been designed by aligning the LCW objectives with the project's objectives and expected impacts. It has to be completed by the organisers after the workshop in order to present the workshop's main aspects and achievements (objectives, participants, expected and achieved outcome etc.).

In terms of planning, and in order for the LCWs to best contribute to LINKS research, it is important that they are scheduled taking in consideration various external and internal factors, such as the period of year, the concomitance with other events, so that can be followed and implemented in the best way possible and the feedback can be incorporated in a timely manner. This means that depending on the type of research to be presented and the expected contributions from participants, it may be more beneficial to hold a workshop earlier or later in the deliverable and research cycle. If participants are intended to contribute to the initial findings or hypotheses, earlier in the cycle would be better. If, on the contrary, participants are expected to validate or test research findings, later in the cycle makes more sense. Similarly, if other research outputs from the project are relying on input from a specific workshop, holding the workshop earlier will allow for better planning and understanding for the dependent partners.

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To give an indication of how the LCWs should be planned, EOS encourages the organisers to follow the four steps presented below. However, different methods are available for proceeding through each stage, and the organisers are encouraged to use any methods they are familiar with.

Step 1

The first step for each organiser is to define their objective for the workshop. Once this is defined, it will be easier to design specific contents that will allow participants to work towards this objective and provide the input required. Beginning with the definition of the objective will ensure that the workshop remain focused and is a valuable tool both for the participants and for the LINKS research.

Step 2

Once the objective is defined, the second task for the organisers is to ensure that they can demonstrate their research and provide clear and straightforward explanations of the concepts, theories and practical application of the discussion topics. Ideally, this will involve some interactive elements to ensure active participation from the participants as well as a more engaging form of sharing information, so that participants are better able to analyse and provide feedback.

Step 3

The third step is to design a stimulation opportunity for discussions that enables dynamic engagements among participants and helps them evaluating the topics at hand and reach conclusions that can be incorporated into LINKS research. Typically, dividing participants into smaller groups helps facilitate discussions and allow all participants to contribute.

Step 4

The final step consists of designing an effective feedback mechanism to allow evaluation and discussion results to be clearly identified and incorporated into LINKS research. An ideal feedback mechanism will allow participants to share not only the conclusions of their discussions, but also their forecast on whether the discussions held may impact their work (or that of their organisation) or not. This can help give further insight into the research evaluation. To support the organiser with this step, the LCW Feedback Form presented above (and included in Annex I) has been created. The assessment of the LCW long-term impact will be performed through future follow-up surveys addressed to the workshop participants.

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6. LINKS ADVISORY COMMITTEE

This section provides an overview of the aim and composition of the LINKS Advisory Committee (LAC), together with a reference to the first LAC meeting that took place virtually on 19 January, 2021.

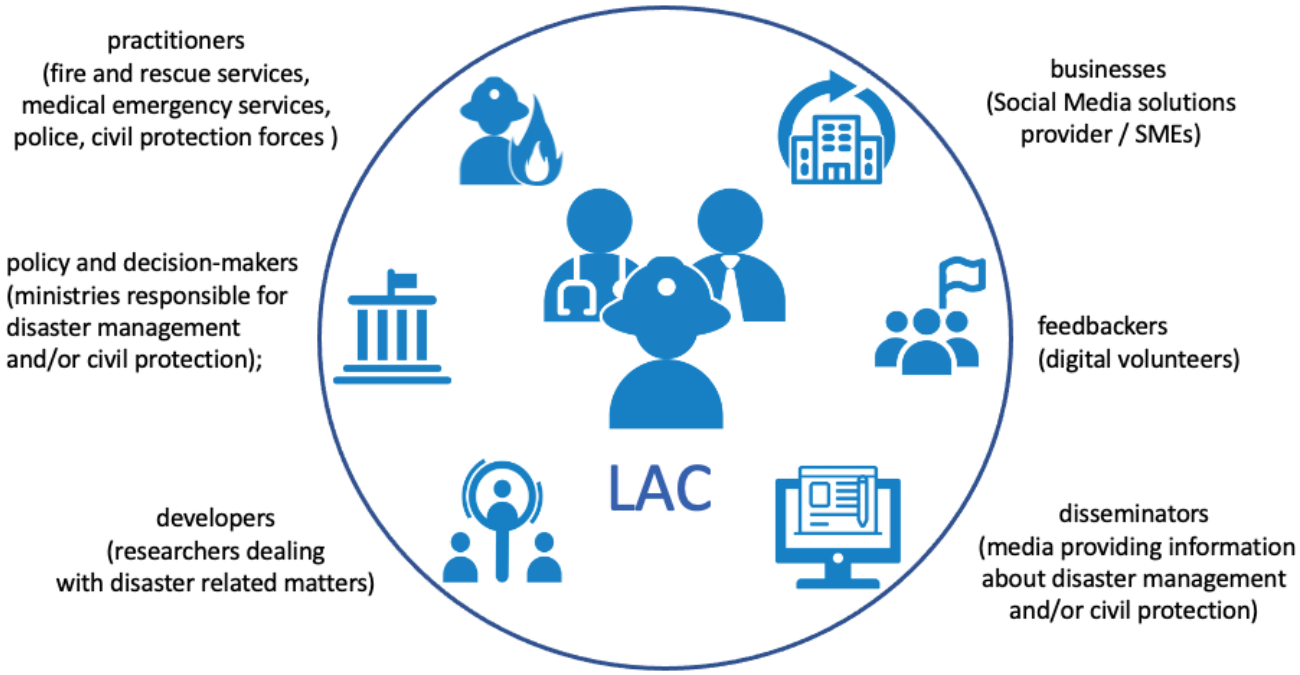
6.1 Scope

The LINKS Advisory Committee (LAC) is another key component of the LINKS Community. Specifically, it aims at advising, informing and validating developments and results in the project. Meetings are held at key points in the project to achieve strategic and useful results, and to disseminate and implement them through the stakeholder's networks.

6.2 Composition and members

The committee consists of invited advisors from different relevant organizations representing the majority of the target groups of LINKS.

Figure 5: Composition of the Links Advisory Committee



The following representatives of the target groups are confirmed as members of the LINKS Advisory Committee:

- Developers

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- Adam Widera, managing Director at Competence Center Crisis Management at ERCIS - European Research Center for Information Systems, University Münster; Germany.
- Florian Roth, Senior Researcher at the Fraunhofer Institute for Systems and Innovation Research (ISI), Karlsruhe; Germany.
- Meinald T. Thielsch, apl. Professor with a focus on organisational psychology and Human-Computer Interaction, University Münster; Germany.

- Practitioners
  - Fire Services:
    - Ulrich Cimolino, Assistant Firechief, FRS Düsseldorf, Lead of Staff unit for climate change-related major events and cooperation with science and research & head of WG Wildfire German Fire Brigade Association; Germany.
    - Hauke Speth, Head of Department at State Fire Academy of North-Rhine Westphalia (IdF NRW); Germany.
  - Civil Protection forces:
    - Gianmario Gnecchi, Technical Fire Officer (Lt.Col.) of the Italian State Fire Service & Managing Director, Regional FRS School in Lombardia.
    - Jan Südmersen, Deputy Chief of Operations, FRS Osnabrück, Chairman of @fire Internationaler Katastrophenschutz Deutschland e.V. (INSARAG certified USAR-light-team); Germany.
  - Medical Emergency Services:
    - Stephen Hines, Clinical Tutor Integrated Patient Care at London ambulance; UK.
  - Police:
    - Rein Hof, Business Conduct Specialist Service Centre Politie Nederland; Netherlands.

- Policy and decision-makers
  - Kaili Tamm, Chief Digital Officer at Ministry of Economic Affairs and Communications & Former Advisor to the Ministry of Interior; Estonia.
- Businesses
  - Jan Müller-Tischer, Owner of crisis-communication training company 'Vor der Lage' and member of VOST-DE, Germany.
  - Alexis Gizikis, ICT consultant & EENA project manager, Greece.

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- Disseminators
    - Emily Hough, Editor in Chief the Crisis Response Journal, Director at Crisis Management, UK.
- Feedbackers
    - Iratxe Gomez Susaeta, Social Media Manager (VOST Europe) & GEMMA Presales manager at ATOS, IT- company, Spain.

6.3 LAC meetings

Committee meetings are used to incorporate the input and guidance of external experts at strategic moments during the project. This entails the incorporation of advisors from different fields of expertise and with different backgrounds and skills based on the objective and scope of a meeting. The meetings are conducted virtually, and eventually also in-person, when possible.

6.3.1 First LAC meeting

6.3.1.1 Scope

In the first period of the project this meant bringing in expertise to assist in the development of the scientific and conceptual foundations for the research and the design thinking for key project outputs, such as the learning components of the LINKS Framework.

6.3.1.2 Participants

The first LAC virtual meeting took place on 19 January, 2021 with Adam Widera being the first advisor nominated at the early stage of the project. His advice was sought owing to his academic and professional background in crisis management, relating to both research methodology development and practitioner engagement.

The meeting was attended by the Work Package Leaders and FEU.

6.3.1.3 Outcome

The first LAC aimed at receiving external feedback from the advisor on the project assumptions for the LINKS Framework, and in general issues of operationalizing the LINKS concepts, e.g. governance, vulnerability etc. The advisor outlined that the theoretical knowledge should be combined with the knowledge from the practitioners (Co-design approach). He spotlighted that by differentiating the generic 'user requirements' from the 'practitioner requirements'. For the development of the use cases which are meant to evaluate the framework one should use human centred design tool kits, such as storyboard method, role playing, rapid prototyping, models and mock-ups. Furthermore, the LINKS workflow is a good approach because the iterative concepts allow inclusion of lessons learnt during the entire project duration.

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Concerning the overall aim and format of the LAC, it was concluded that LINKS should not follow an exam type approach but provide a discussion platform which allows the reaction on different views into the further development of the project at relevant times.

6.3.2 LAC Roadmap

As LINKS research and results are now taking shape more feedback from the potential users and relevant experts is needed in the second phase of the project. In this regard, the first version of the LINKS Community Center (LCC) has been made available and presented in deliverable D7.3 (Kiehl, M., Habig, T. & Marterer, R., 2021). The concept and content of the LCC will form the basis of the discussions at next meeting of the LAC.

In order to have a good outcome of the meeting, LINKS will use as input the current status of the LCC with a specific focus on the Disaster Community Technology knowledge domain (D4.1). Other intermediate results of the project will also be discussed if they are embedded in the LCC.

Based on this, the planning for the next meeting is as follows:

- it will be organised as a virtual meeting on TEAMS
- it will be scheduled for month 21 (tentative date 17 February of 2022)

The nominated LINKS Advisory Committee members will be contacted well in advance of meetings presenting the scope of the upcoming meeting. This will allow them to participate depending on their special interest on items to be discussed.

An update of the LAC roadmap will be made available in D8.2. In general, the number of participants in upcoming LAC meetings will vary depending on whether virtual or in-person meetings can be arranged. A combination of LAC meetings with LINKS Community Workshops are also envisaged moving forward.

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7. CONCLUSION AND NEXT STEPS

The present deliverable (D8.4) reports and elaborates on the main results of the first LINKS Community Workshop (LCW) and LINKS Advisory Committee (LAC) meeting, two key components of the LINKS Community, with the aim of guiding, informing and qualifying the events to come in the future.

The document firstly provides an overview on the LINKS Community, revisiting the purpose and objectives for LINKS Community engagement through LCWs as well as the types of stakeholders targeted. Secondly, it presents the LCWs' roadmap for the next six months. While flexible and adaptable, this roadmap is useful to coordinate efforts linked to the organisation of workshops and to the development of the project research.

Additionally, the document presents the main results of the first LCW, that took place in Italy on 9 November 2021. This first workshop was used not only to create a local network and to identify its main needs, but also to implement the information already collected through other research activities (e.g. interviews) and to better focus the next steps of the project towards the achievement of something that can effectively address the needs of the local stakeholders. An overview on the lessons learnt from the first LCW and an updated suggested methodology for organising and planning future workshops is provided as well. Finally, D8.4 presents the main results of the first LAC meeting, which was held virtually in January 2021 and allowed LINKS project partners to collect relevant external feedback on the project assumptions for the LINKS Framework, and in general issues of operationalizing the LINKS concepts.

The information, inputs and feedback gathered during the first LCW and LAC meeting are being incorporated in the design of the LINKS Framework (forthcoming D5.3), the updated methodologies (D2.4, D3.3, D4.3), and the research in the case assessments under WP6, especially within the Italian case. In addition, they also help the Consortium with the considerations for how better to design and organise upcoming LCWs and LAC meetings. Those suggestions will be adapted as part of the updated LINKS Community Strategy in D8.2, and include both adapting new approaches (e.g. virtual workshops, cross case workshops) to ensure that the Consortium stays on track with the activities planned and use them to ensure maximisation of the LCWs and LAC impact.

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9. ANNEX I: LINKS COMMUNITY WORKSHOPS FEEDBACK FORM

This form gives an example of how feedback can be gathered during the LCW. These questions can be adapted to suit the specific context and content of each workshop, and can be eased to stimulate discussion, or participants can be asked to complete the form during the final session of the workshop, or after each discussion or work session.

Before leaving, we would kindly ask you to answer the following questions, to help us improve [INSERT TOPIC OF WORKSHOP]:

1. Which stakeholder group(s) do you belong to?

2. Was this session/workshop relevant to you? Please explain why/why not.

3. Based on your expectations prior to the session/workshop, did the topics and questions raised in the workshop meet those expectations? Please explain why/why not.

4. Did you understand what was meant by [INSERT RELEVANT CONCEPT/RESEARCH TOPIC]? If some topics required more explanation, please list them.

5. During this session/workshop, which challenges, needs and gaps related to [INSERT RELEVANT CONCEPT/RESEARCH TOPIC] in your own work/organization were you able to identify?

6. Do you think the LINKS outputs discussed during the workshop/session could help you identify and address such challenges, needs and gaps in the future? Please explain why/why not.

7. Do you foresee any potential changes in your own work (or that of your organization) based on this Workshop?

8. Which other relevant organisations/institutions in your network could benefit from these results, and why?

9. May we contact you at the end of the project in order to collect further reflections on how the discussions and outcomes of the workshop may have impacted your work?

10. Do you have any further comments or suggestions related to the workshop?

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10. ANNEX II: LINKS COMMUNITY WORKSHOPS REPORT TEMPLATE

Workshop Title	*Title of the workshop*
Workshop Date and Location	*Date and Location*
Attendants	*Identify the number of participants, their geographical distribution, the types of stakeholder groups they belong to, their expertise and how they are relevant to the workshop (why they were selected). Insert both quantitative statistics (in percentages for instance) and qualitative descriptions.*
Part 1: Introduction	*This should introduce the organisers, the location and date of the workshop, a brief overview of the topics covered as well as the structure/agenda of the workshop. Key definitions should be briefly explained.*
Part 2: Workshop Description	*A more in-depth look and explanation/analysis of the problem that the workshop is assessing. Explain how the workshop fits in with the project's objectives and expected impacts. Define the objective(s) and expected outcome(s) of the workshop and describe how the latter feed into the former. Explain what is expected from the participants and what problems are going to be tackled. What the organisers are seeking to learn from the Workshop.*
Part 3: Workshop methodology and format	*Describe the workshop format, and how the selection of participants, the Workshop questions and the chosen structure (e.g. presentation style, length, presentation flow, presence/absence of interactive elements to enhance the understanding and involvement of the participants) helped achieve the workshop objective(s) and expected outcome(s).*
Part 4: Workshop Outcomes	*In this section, briefly summarise the discussions that have taken place in the workshop, the problems introduced and the solutions that were presented. Outline the achieved outcome(s) of the workshop, how they will be useful for the project and in turn for the participants. Compare and contrast the achieved outcome(s) to your initial expected outcome(s) in order to assess the impact of the workshop. Finally, describe how the achieved outcome(s) feeds into the overall objective(s) of the workshop.*
Part 5: Conclusions and Next steps	*In light of the achieved outcome(s), explain how these will be used for the next steps of the project and identify the stakeholders impacted. Provide insights on the upcoming activities foreseen as well as indications on how/when you may follow up with participants, for next activities, to assess impacts. Ideas about the next workshop(s) are also encouraged.*