engage

Engage Society for
Risk Awareness and Resilience

# Midterm societal impact report

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**Abstract**: ENGAGE aims at linking the informal resilience naturally inherent in citizens with the formal work of authorities to prevent, prepare for, respond to, and recover from disasters. It brings together 14 partners from 8 countries aiming to show how individuals and local practices can interrelate effectively with planned preparedness and response, practitioners, and technology.

This deliverable provides a midterm report on the societal impact of the ongoing project and makes recommendation for the second part of the project's lifecycle. The analysis of the societal impact focuses on the impact of data collection and delivers an assessment of the effects of the initial results on populations in crisis, on disaster managers and on society as a whole. The possible negative and positive effects of the project's research and products on vulnerable and traumatized citizens will get particular attention in this report.

## INFORMATION TABLE

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» **PCOS**

- **proposed:** Describes planned content and structure of different sections. Document authors submit for internal review.
- **revised:** Document authors produce new version in response to internal review comments.
- **approved:** Internal project reviewers accept the document.

» **Intermediate**

- **proposed:** Document is approximately 50% complete – review checkpoint. Document authors submit for internal review.
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# Executive summary

This deliverable provides an overview of the project's effects on different populations in terms of its data collection methods and in terms of the solutions assessed and presented by the project. Based on this overview, it provides recommendations for the second half of ENGAGE's lifecycle.

To do so this report first develops a theoretical framework for assessing the social impact of ENGAGE's societal resilience approach, by insisting on a qualitative and nuanced methodology and by referring to common biases of resilience approaches as basis for its recommendations. Hence, in developing a societal impact approach that goes beyond common social impact methodologies, the project should particularly avoid five biases. First, it should not shift responsibilities from authorities and emergency organizations to victims of disaster. Second, it should avoid a fuzzy use of the resilience concept. Third, it should not be based on an oversimplified understanding of society. Fourth, the project should not overlook power relations. And fifth, it should not privilege approaches that merely promote mere adaption to crisis.

For understanding the societal impact of ENGAGE, dimensions of scale and temporality should be considered to ensure comprehensive solutions for varied societal needs and sectors, as well as to all phases of crisis management.

The report's concrete recommendations focus on data protection adjustments for data collection and accessibility of ENGAGE's dissemination platforms by emphasizing the inclusion of vulnerable groups.

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# 1 INTRODUCTION

## 1.1 GOAL OF THE DELIVERABLE: ASSESSING ENGAGE SOCIETAL IMPACT MIDWAY

The task 6.2 on ENGAGE's societal impact consists of anticipating the social impact of the project with a distinct methodology insisting on the societal dimension of the project's impact and providing recommendations for producing the impact it desires by respecting citizen's fundamental rights and liberties. It identifies potential risks and opportunities for enhancing beneficial impact on society. The process by which this is done involves two steps, a midterm report, for providing direct recommendations to project partners for adapting tools and approaches as well as final societal impact report that is orientated towards the impact of the project's results on society.

Thus, the purpose of this first report on societal impact is to provide a first step in identifying risks and opportunities and formulate recommendations that can be implemented during the second half of the project's lifecycle. The report addresses the project structure as a whole as well as its outcomes. It does not directly assess the solutions the project promotes, but it takes into account the criteria on which they are selected and how they are analyzed and presented.

- The document serves as a basis for developing a framework for evaluating societal impact in the final impact report and for giving operational feedback while the project is running. Hence, the primary target audience of the midterm report D.6.2 are project partners, whereas the final report on the social impact of the project D6.3 addresses a larger audience.

## 1.2 OBJECTIVES OF THE DELIVERABLE

The aim of this deliverable is threefold. It provides an overview of the project's effects on different populations in terms of the project's data collection methods, in terms of the solutions assessed and presented by the project and it provides recommendations for the second half of ENGAGE's lifecycle.

## 1.3 INTENDED READERSHIP

The document has the following groups of intended readers:

First, it targets work package leaders. Considering that work package leaders have substantive leeway in interpreting the DoA, the midterm societal impact report provides them with internal feedback mid-project and gives them recommendations for improving the project's impact on society.

Second, the whole consortium, independent of specific responsibilities, thrives to maximise beneficial societal impact. Hence, all partners profit from a structured anticipation of the project's effect insofar as they adapt their contributions, are made aware of risks, but also more easily work towards a common goal.

Third, the project's Knowledge and Innovation Community of Practice (KI-CoP) is not only a relevant target group considering their operational expertise, but it functions as well as representation of the stakeholder groups of first responders, researchers, authorities and civil society that the project seeks to impact. The midterm societal impact report provides them with an understanding of how the projects anticipates its outcomes and their impact.

Fourth, stakeholders and end-users of the project can understand the projects rationale, methods, risks and outcome by reading this deliverable.

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Fifth, all form of citizens, even if they are not precisely targeted by the project are a possible readership of this deliverable. It provides transparency to the general public of the project's ambition, perceived societal resilience, its approach to enhance resilience, and the risks involved.

Sixth, there are the readers that are associated with the European Research Council, the European Commission (EC), and the project reviewers.

Overall, the dissemination level of the deliverable is public, and it can be shared outside the consortium, the EC, and the project reviewers.

## 1.4 OUTLINE

In a first part the report presents the theoretical framework for assessing the societal impact of ENGAGE's societal resilience approach. This theoretical part is structured in a conceptual part reflecting on resilience approaches and social impact methodologies and a methodology section defining dimension of societal impact assessment for ENGAGE.

A second part is dedicated to recommendations. After presenting the rationale for recommendations, this part is subdivided into a first section on recommendations for data collection, a second section on the outcomes of the project.

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# 2 THEORETICAL FRAMEWORK: FROM SOCIAL IMPACT APPROACHES TO ANALYZING THE IMPACT OF SOCIETAL RESILIENCE

## 2.1 APPROACH

ENGAGE's mission is to "provide novel knowledge and impactful solutions for exploiting Europe's hidden and unused resource: its inherent resilience" (DoA, p. 3). Resilience is described as "an intrinsic ability of the society as a whole to adjust its functioning and sustain operations prior, during and after disasters." (ibid.) The purpose of this report, then, is to say something about the societal impact of ENGAGE's knowledge-production this far in increasing resilience, as well as the societal impact of ENGAGE's own data-collection: the societal impact of knowledge-production itself. In order to do so, however, we must first unpack these two highly ambiguous concepts: resilience and societal impact. What is meant by resilience and societal impact within ENGAGE's own ambitions, and what can the wider literature tell us about resilience and societal impact in order to ensure that the project's quest for strengthening resilience becomes societal resilience i.e., benefits society as a whole?

Before delving into the specifics of ENGAGE itself, we will first provide an overview of the academic discussions around resilience, societal resilience and societal impact in order to reach a formulation of these concepts that aligns with the objectives of the project.

Societal resilience is the central notion of the project and links all its different components together. Anticipating societal impact of societal resilience should necessarily consider criticisms of the concept and its applications as a starting point.

## 2.2 THEORETICAL FRAMEWORK

### 2.2.1 RESILIENCE

The concept of resilience has emerged in academic discourses on security, critical infrastructure and disaster risk reduction since the early 2000s (Dunn Cavelty et al 2015). This development is related to the emergence of risk and uncertainty as central concepts. Simply put, one can say that whereas security relates to known threats, risk is more often related to the omnipresence of unknown dangers, where the goal is not to eliminate risk, but to mitigate and manage it. As such, the logic of risk lends way to the idea of resilience and the ability of society to withstand and overcome external shocks and disasters.

#### *2.2.1.1 Mapping common criticisms of resilience approaches*

As a normative concept, the focus on resilience is a highly political issue and organizing principle. Several criticisms have been put forward against certain uses and implicit biases of the concept. To map those criticism makes it possible to anticipate undesired societal impacts of its use in the ENGAGE project.

The main criticism arises from an implicit shift of part of the responsibility for handling a disaster away from authorities and onto communities and individuals that are already affected by the disaster (Dunn Cavelty et al 2015). It relies in that sense on the performance of affected communities and does not sufficiently consider context factors that explain why certain communities cope better with disaster than others. As such, by moving away from a focus on security and defense and the idea that the responsibility for providing security lies with the

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authorities towards a focus on societal resilience, one risks making the victims of a disaster responsible for handling the effects of that disaster. This can include a movement away from preventive measures by authorities towards burdening societies and communities with providing their own safety.

A second type of criticism refers to resilience as a stretched concept with fuzzy content, being used or as a buzzword to promote certain types of policies or being eclectic with contradictory roots in ecology, (disaster) psychology and crisis engineering. Whereas resilience has been analyzed as a "boundary concept" enabling cooperation between academic disciplines and scientists and practitioners, conceptual incommensurability can lead to contradictory uses by different stakeholders of a common process.

Third, this criticism also addresses an oversimplified use of resilience, especially when referring to communities and social groups. Weichselgartner and Kelman (2015) regret for instance that resilience approaches often do not grasp the complexity of cultural values and knowledge in a given community.

Fourth, the concept was also criticized for insufficiently tracing power relations and social inequalities (Cote and Nightingale, 2012). By focusing on the overall capacity of social systems to "bounce back" as analytical entry, discourses and practices of resilience can maintain unjust practices. By implicitly choosing who is addressed as a resilient actor, hierarchies can be reproduced, since one actor's resilience can be another actor's vulnerability.

Finally, resilience has been depicted in that sense as a conservative concept, promoting stability over social change. The insistence on dynamic adaptation in parts of the resilience literature, superficially hides in that sense that the main goal of resilience is the preservation of a community, instead of its radical transformation, even though this community might not be sustainable in its current form. This criticism has notably been put forward in terms of climate change.

#### *2.2.1.2 Societal resilience as an alternative approach*

ENGAGE's reference to societal resilience as a core concept addresses this criticism.

The conceptualization of societal resilience within the ENGAGE project is critically assessed and discussed in D.1.1, D1.2 and D1.3, where especially the dynamic, local and informal nature of societal resilience is emphasized, be it as part of a context sensitive grounded theory approach based on case studies in D1.1, a comparative multi-dimensional approach to societal resilience in D1.2 and an analysis of crisis communication with special attention to gender and diversity in D1.3. By doing so, ENGAGE aims to appreciate local knowledge in its study of solutions for increasing societal resilience, account for context and address all actors of society. D1.1 defines societal resilience based on four dimensions:

1) society consists of different social units, including the individual citizen, formalized as organizational and spontaneous informal social groups, as well as national and transnational societies.
2) Resilience is understood as a process that emerges from discourses and actions that are embedded in society, its structure, but also its values and bonds.
3) Thus, societal resilience is a relational approach to the way people cope with disruptive events and processes.
4) As embedded in society and consisting of social relations, societal resilience is context dependent. Understanding the discourses and actions that form societal resilience thus requires sensitivity to the social context in which they take place.

By focusing on solutions for improving interactions between disaster managers and populations, ENGAGE is implicitly interested in the embeddedness of social actors while a disaster happens, since disaster management traditionally focuses more on the response and recovery. Thus, the focus on societal resilience in this project tends to privilege short-term aspects of disaster

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management - how disaster management solution immediately improves the coping capacities of citizens while a crisis happens or shortly after a disaster took place. Nevertheless, the project also wants to counteract this bias and promote solutions that are also addressing long term effects of disasters and preparing for crisis.

Combined with the sensitivity to context, as well as the focus on both first responders as well as authorities, and the communication and cooperation between the two, makes the focus on resilience within the project holistic.

However, the focus on societies' ability to uphold its "functions" during and after a disaster, risks to avoid a critical engagement with what "society" is, as well as what its "functions" entail and whether ability to uphold societal stability is a measure suitable to capture whether a society is resilient or not. As this report will discuss the societal impact of this project, a critical engagement with ENGAGE's implicit conceptualization of both society and resilience will be central, but before doing so, we wish to provide an overview of the idea of "societal impact" itself to make our approach explicit.

### 2.2.2 SOCIAL IMPACT METHODOLOGIES

During the last decade, measuring societal impact has become a key component in European research funding. Nevertheless, what exactly "societal impact" entails is not always clear. Overall, the notion refers to the effect on society of both conducting the research, as well as the effect of the findings of research itself.

Until the 1970s, there was an assumption among policy makers that science and research would always have a positive impact on society, thus evaluating the impact of research was not considered necessary (Hebing and Fecher 2021). With the National Environmental Policy Act (NEPA) in the US in 1969, attention was given to the possibility of research having a potential negative impact on the environment and research projects were therefore required to provide an Environmental Impact Statement (EIS). However, for the first decade of NEPA, this did not include an assessment of social impact (Freudenburg 1986). The eventual introduction of Social Impact Assessments (SIA) had a normative effect on scientific research (Ibid.: 463), where it increasingly became expected that researchers account for the value of their work. Initially, this value was measured according to bibliometric measures and proof that the research had impact within the scientific field. Gradually, however, this impact was assessed beyond the field of research and scientists were required to account for how their work would benefit society as a whole.

#### *2.2.2.1 Critically assessing societal impact*

We can therefore view the concept of "societal impact" within a genealogy of critical assessment of the value of science along the lines of the contributions of fields such as Science and Technology Studies (STS). The requirement to evaluate societal impact is an acknowledgment that science itself is social and should therefore be understood and assessed within its social context. This idea of research as social is widely supported by researchers. In Fecher and Hebing's (2021) study of researchers in Germany's approach to societal impact, they found that 86% of researchers in natural sciences, 91% in the humanities and 93% within the social sciences agreed that public engagement is part of scientific activity. However, only 15-30% of the respondents were convinced that their institutional communication departments were reaching relevant stakeholders in society and only about half of them agreed that "social impact" should be given more weight in evaluations. This implies that the idea of research as a social endeavor is widely accepted, but that this idea is not the same as social impact evaluations. Fecher and Hebing theorize that this discrepancy may partly also be caused by the association of social impact evaluations with extra work. In addition to this, however, one could also argue that this discrepancy is caused by the ideological underpinnings driving how societal impact is measured do not correspond with how researchers envision their work to have a societal impact.

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In the same survey, Fecher and Hebing found that contributing to education was the most important goal across all groups of researchers (picked by 69%), followed by stimulating public discourse (55%) and contributing to informed political decision-making (37%). However, societal impact evaluations are largely driven by a motivation to convert research into marketable and consumable products or services with socioeconomic gains for society as a whole (Bornmann 2012). Furthermore, Reale et al (2017) have found that most methods employed to measure societal impact of research are based on natural sciences and tend to underestimate the impact of social sciences and humanities (SSH) research. Whereas certain research within the natural sciences can lead to more immediate and quantifiable impacts in the form new medications or technologies with a more directly measurable socioeconomic impact, SSH research should be measured within a long-term perspective. The emphasis on quantitative measurements of societal impact also fails to capture the qualitative impact of research, such as the desired contribution to education and public discourse as favored by the researchers themselves. Lastly, the metrics commonly used to measure societal impact tend to favor successful research outcomes and downplay unsuccessful research, although research that does not find the anticipated results may be valuable within the scientific field studied as a whole. This is interlinked with the individualization underlying most social impact evaluations, where each research project tends to be measured individually, rather than viewing scientific research as a collective whole, where impact cannot necessarily be identified and reduced to individual papers or projects. Connected to this is also the problem of "societal impact" being a fundamental element in most research funding. This potentially leads to societal impact assessments downplaying negative societal impacts, reducing an evaluation that could be an exercise in critical self-reflection to a buzzword used to sell a research idea.

## 2.3 METHODOLOGY

The methodology of this report relies on a multidimensional analysis of the societal impact

» by considering the different approaches and methods of the project,

» by considering the impact of the project depending on the scale of its effects,

» by assessing the effects depending on the type of stakeholder,

» and by reflecting on the depth of the societal impact.

First, instead of distinguishing only by positive and negative impacts the report aims to show that societal impact varies depending on the aforementioned dimensions and in time and has to be monitored continuously.

Second, rather than developing metrics that do not reflect the project's real "societal impact", we develop here a critical framework for assessing the project's impact on society in a qualitative way. This framework will notably inform the societal impact report at the end of the project's lifecycle (D6.3), who will also add quantitative indicators for societal impact, since the catalogue of solutions and knowledge platform will already provide data to do so (in terms of website traffic, more data could also be collected by integrating a user questionnaire)

Concretely, this report based its theoretical framework and its recommendations on the analysis of all of ENGAGE's current outcomes including all its deliverables, its website, the catalogue of solutions mockup as well as internal documents like interview guidelines, shared online documents and consent forms.

With the specificity of societal resilience in mind, it is central to define the different stakeholders and social dimensions that the project wants to impact.

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### 2.3.1 SCALE

#### *2.3.1.1 Micro*

First, the project seeks to impact a micro-level, localized crisis situations, by cataloguing solutions that are transferable between emergency organizations and authorities in European countries, and that unfold their potential in specific, often more localized crisis contexts. Assessing the societal impact of this process relies on the use case of solutions and their detailed characterization. Understanding the application context is already a central aspect in the way both of these processes are designed in WP3. A limited number of solutions will be analyzed precisely to determine how they impacted social actors when they were used or on how they may impact social actors in the future. However, social groups that appear in these in-depth characterizations are those who directly interacted with the solution. Applications that indicate evacuation sites in case of an emergency are a typical example for how societal impact can be evaluated on a micro-level, since they are often designed to facilitate orientation on site and impact, therefore, all those who did use it to find shelter. Use case of respective solutions may, for instance, help to understand, which groups, even though they are directly affected by an emergency, cannot benefit from such an application.

Validation exercises are a second way the project will assess societal impact on the micro-level of a localized scenario. Here, it is the participants of the exercise that will be impacted.

In both cases, societal impact analysis remains most of time limited to certain groups. Whereas this allows for a detailed understanding of the effects of a solution, it is however important to anticipate impact on other levels.

#### *2.3.1.2 Meso*

On a meso-level, organizations that use solutions, be it emergency organizations or authorities, are impacted by a solution independently of a specific application during a crisis or afterwards. By implementing and adopting, they also adapt their organizational structure on a more daily basis. They might also reorganize the way they cooperate with others. Solutions for facilitating volunteer management are an example for assessing the impact of solution on a meso-level. Not only the organizational procedures and structures are affected by these solutions, but also the interactions with different social groups.

An analysis on how the catalogue of solutions and the knowledge platform are used by organizations would enable an anticipation of societal impact on a meso-level. For practical reasons, Ki-CoP members could provide such feedback. This may provide an opportunity to understand this meso-level of societal impact. The validation exercises may already provide insights on this societal impact and so it can be integrated in the final impact report.

#### *2.3.1.3 Macro*

Finally, on a macro-level - and much more difficult to analyze and anticipate - the project impacts societies if recommended solutions are in fact adopted by a considerate number of users. To be aware of this macro-level of impact is not a question of probability of success, but more a question of anticipating all possible outcomes. In other words, the project has to analyze each of the solutions as if their use could be generalized, to ensure a beneficial societal impact. This relates to the fact that the overall societal impact that a selected solution represents has to be transparent, independently if ENGAGE manages to promote it through its knowledge platform. However, European public waning systems are solutions that have already gained a considerable number of users and will gain even more in the next months until it reaches all 27 members states. For this solution, the macro level will be achieved very quickly and could be a good example to exercise assessments of societal impact.

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### 2.3.2 TEMPORALITIES

#### *2.3.2.1 Short-term impact*

The same applies for the societal impact of different temporalities. The impact that is more accessible and more measurable is the short-term impact. For example, the immediate usefulness of a solutions that provides map of a disaster-affected area can be assessed already during the disaster management itself. For this, the projects need to track if the solutions it presents in its catalogue are constructed in a way that they allow for beneficial impact in avoiding shift in responsibility towards citizens, fuzzy uses of resilience or an oversimplified understanding of society. They should instead promote transformative approaches and reflect on power relations (see 2.2.1.1 for more details on these elements). A second analysis would entail the use of a solution, when it is integrated in planning activities or in exercises. Its application during a real crisis is a third step of immediate use of a solution. At least the first two steps will be part of the final societal impact report, whereas the third step could be part of it, depending on the occurrence of a crisis in which a solution is applied.

#### *2.3.2.2 Long term impact*

The long-term impact of ENGAGE is more difficult to grasp. It depends first on the long life-cycle of the project's components, notably its website and knowledge platform as well as the impact of its other publications and second on the implementation and diffusion of the solutions ENGAGE presents in its catalogue. The effects of a solution that facilitates resource allocation during disaster management can impact an area longtime after a disaster happened. A concrete plan on how the after-project is organized will therefore be integrated in the societal impact report at the end of the projects grant period.

### 2.3.3 STAKEHOLDERS

Finally, it is necessary to quickly detail the main social groups impacted by ENGAGE, even though, as mentioned earlier, the project's solutions should strive towards a beneficial impact on the general populations.

#### *2.3.3.1 Victims of crisis*

The project seeks to address mainly victims of crisis by influencing their interaction with emergency organizations and authorities. So even though the project targets victims indirectly by promoting solutions used by organisational end-users, it has to anticipate societal impact on these populations. This includes future victims of crises.

#### *2.3.3.2 Particularly vulnerable populations*

Victims of crisis are however not equally affected by a disaster. Specific groups are more vulnerable than others, such as homeless, disabled or ill, poor, people not speaking the dominant language etc. Impact on these populations is considerably larger, both in a beneficial and a detrimental way.

#### *2.3.3.3 Emergency organizations and authorities*

These end-users of ENGAGE's knowledge platform, catalogue of solutions and participants in validation exercises are directly impacted by ENGAGE's output. They are less vulnerable than victims of disasters, but they are the key component for a beneficial societal impact, since they implement and apply the project's output. Uses of the solutions ENGAGE presents in its catalogue can also indirectly influence end-users that are not part of the consortium or the Ki-COP or even do not visit the website, as the ultimate goal of ENGAGE is to promote promising solutions that should gain traction through their efficiency and transferability.

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#### 2.3.3.4 *Researchers*

ENGAGE's output also addresses researchers that could promote concrete solutions or ENGAGE takes on societal resilience and the model to assess and enhance it. To ensure a beneficial impact, they have to be addressed explicitly.

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# 3 RECOMMENDATIONS FOR ENHANCING SOCIAL IMPACT

Bearing this in mind, the purpose of this report is not to quantify the societal impact of the implementations of ENGAGE's proposed solutions for increasing societal resilience. This report aims to engage critically with the idea of societal impact as a concept itself, and to assess not only the dissemination of the results of ENGAGE, but also the societal impact of the data collection contributing to the project, including the premises underlying what data is chosen to be collected. The starting point of this report is therefore that research is a social activity which does not happen separately to the society as a whole. This does not only require a critical engagement with the practice of research itself, it also begs a critical engagement with what society it understood as in this context.

Recommendations for assessing and enhancing the societal impact of ENGAGE are listed below and detailed in the subsequent sections.

a) Criteria for evaluation

For enhancing societal impact all project outcomes should be assessed if they highlight and enhance the following:

- Interconnectedness, Interdependence and coordination between citizens and emergency organizations and authorities
- Conceptual clarity and an explicit reference to dimensions of societal resilience
- A precise description of the specific social groups the outcome targets
- A holistic and inclusive perspective on society by highlighting which social groups are not addressed by a given outcome and how the outcome affect power relations
- A transformative perspective on society

b) Recommendations for data collection

The following recommendations can help avoiding a detrimental societal impact while collecting data:

- A secure and confidential interview setting should be chosen.
- The interviewer should be aware of specific risk in terms of data protection and health of respondents. Anticipating those specific risk in writing helps making them explicit.
- The consent form should be explicitly named and explained.
- A support system for avoiding traumatic experiences should be in place.
- Respondents should be advised that they can be accompanied by a support person.
- External interview platform providers should be chosen in accordance with their data protection measures.
- Data protection should be included as criteria for developing the chatbot model.
- Respondents in focus groups should be made aware that they should not reference personal data of other participants.

c) Recommendations for description of solutions

For enhancing the societal impact of ENGAGE's principal outcome, its description of solutions, the following recommendation should be implemented:

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- The description of solutions should make explicit if possible how the solution affects gender, socioeconomic status, nationality, "race", digital literacy, disability and age.
- The description of solutions should reflect on the inclusion or exclusion of vulnerable groups by a solution.
- When speaking of transferability, it should be made explicit if this refers exclusively to European context or not.
- The ENGAGE website as well as the catalogue of solutions could follow the Web Content Accessibility Guidelines (WCAG).

d) Recommendations of validation exercises
   - It should be made explicit to which social groups participants belong.
   - Representation of vulnerable groups or organization than represent interests of vulnerable groups should be integrated in validation exercises.

## 3.1 Criteria for evaluation

### 3.1.1 Avoiding common biases of resilience approaches

The main findings in this intermediary report are that ENGAGE has a conceptual framework that seeks to answer common criticism of resilience approaches. Common biases are:

» a performance bias, shifting responsibility to disaster victims and their performance

» concept stretching, referring to a fuzzy use of the concept of resilience

» oversimplification of social dynamics

» blindness for existing power relations,

» and a conservative bias, promoting continuity rather than social change

Even though this may not ensure a beneficial social impact alone, it ensures that the project has the means to reflect on its limits and possible shortcomings in enhancing societal resilience. However, the project needs to ensure that the solutions it identified (WP2) as well as the way they are characterized as part of the catalogue of solutions (WP3), validated through exercises (WP4) and conceptualized by constructing a model for assessing and enhancing societal resilience (WP1) are aware of the risk that common criticisms of resilience approaches may manifest not only as "negative" societal impact, but also as missing beneficial impact.

### 3.1.2 Criteria for evaluating societal impact

The following cross-cutting dimensions based on biases of resilience approaches enable to do the following:

e) Solutions should be evaluated by their capacity to address the interconnectedness between authorities' responsibilities and citizens' coping actions, to avoid displacing responsibilities to citizens. The model for assessing and enhancing societal resilience, needs to be focused on the way citizens' action are interconnected, interdependent and coordinated with official disaster management, while analysing citizen's appropriate capacities in coping with disaster.

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f) Solutions' contribution to societal resilience should be clear and refer to one of its conceptual dimensions, while describing precisely how this dimension is operationalized by each solution. Validation exercises should also make explicit the way solutions are validated according to their impacts on stakeholders.

g) Complexity of localized social contexts should be integrated in validation exercises and guide the in-depth-characterization of solutions. The project needs to address how concretely its outputs enhance, in terms of knowledge platform and catalogue of solutions, society by following up on initial uses.

h) They should also address directly or indirectly unequal access to resources or be aware of power relations, be it through integrating or addressing minority or vulnerable groups, or by providing open access.

i) Finally, based on the notion that disasters are always rooted in the society in which they occur (Blaikie et al., 1994; Hewitt, 1983; Wisner et al., 2004), solutions should enable social change that goes beyond the immediate context of a use of the solution in a given crisis.

### 3.1.3 IDENTIFYING SOCIETY IN SOCIETAL IMPACT

ENGAGE has so far developed a reflected and critical approach to how research practices impact society, but there are certain gaps in the project's conceptualization of "society" that could be addressed in the second part of the project's lifecycle.

Whereas the ethical guidelines for collecting data are detailed and anticipate different forms of societal impact, the premises underlying choices as to what data to collect reflect a narrower view on who and what society actually is. ENGAGE wants to explicitly address both diversity and gender relations, but this could be done more directly. One possible example of this is the invisibility of people with disabilities and/or mental illnesses.

So far, people with disabilities are referenced, even though all forms of communication and other needs differ for people, according to what abilities they have. Even though WP1 outlines factors influencing societal resilience and mentions depression/anxiety as a "personality trait", disability should be conceptualized as social factor in the model for assessing and enhancing societal resilience. Considering the research done on the vulnerability of people with serious mental health issues, which has become particularly pertinent during the Covid-19 pandemic, the absence of mental illnesses as well as disabilities should be addressed systematically.

## 3.2 SOCIETAL IMPACT OF DATA COLLECTION

This section gives a brief overview of the project's different approaches and methodologies for data collection for assessing the various effects on society and vulnerable populations.

### 3.2.1 QUALITATIVE APPROACH

- D.1.1, D1.3, D2.2, D1.4, D2.4, D2.5

The ENGAGE project relies on three means of qualitative data collection. Expert interviews, semi-structured interviews and focus groups. All three impact social actors in various ways. When asking respondents to verbalize past experiences linked to traumatic events, respondents may experience this as a way of reliving this situation. Even though this can have a cathartic effect enabling distancing and coping, it can also be a painful experience that impacts respondents long after the interview situation or focus group discussion. The a posteriori reconstruction of intimate

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memories can also impact respondents in a less immediate way. By answering questions and participating in discussions, they narrate and redefine past actions and revaluate them. This can be part of a productive integration of life defining moments in a long-term coping process, but it can also lead to distress and damage respondent's confidence in their own capacities.

So far this risk of exposing vulnerabilities in interviews or focus groups was avoided by avoiding interviews with disaster victims, even thought this risk is also latently present while speaking to crisis professionals. Interviews and focus groups of D1.4 will also target disaster victims, so this risk should be addressed. Future deliverables that interact with crisis professionals (D2.4, D2.5) should also be aware of these risks.

Interviews and group discussions are also transactional situations since respondents have legitimate expectations about a form of return from the project. These expectations need to be met beyond the general impact of the project for assuring a beneficial impact on respondents and avoid exploitation.

D.1.1 proposes a preliminary model for assessing societal resilience based on six case studies.

D2.2. gathers data on already existing solutions that allow improving the interaction of emergency organizations and authorities with the civil society. The deliverable followed a triangulation approach that combines several methodologies: the review of sientific and grey literature, and solutions gathered from partner end-users and external end-users.

D.1.3 used a mixed-methods approach which included a qualitative analysis of content from social media accounts of 21 accounts from 14 authorities and first responders, including user comments. Following EU legislation of storing data locally, rather than in a cloud, the data protection of the authors of this content was protected and thus the raw data is not provided as an appendix in the deliverable. The wording of the content referred to is also altered in order to prevent searching for the original content.

#### *3.2.1.1 Expert interviews*

- D1.1, D1.3, D2.1, D2.2

In D1.1, academic experts were favored. They were selected on the basis of knowing the case, having conducted fieldwork on the case or having indirectly participated in crisis management. These interviews were used primarily to identify relevant groups or individual citizens that engaged in coping actions.

In D2.2 semi-structured interviews with external end-users were conducted with the following aims: to identify solutions to improve the interaction of emergency organizations and authorities with the civil society (the results from this part are included in Deliverables D2.2 and D2.3), to identify communication channels and guidelines to reach the civilians (the results from this part are included in Deliverable D2.4), and finally, to identify needs and expectations from the civil society for emergency organizations and authorities to deal better with crises (the results from this part are included in Deliverable D2.1). In total 30 interviews were carried out: 4 in Spain, 5 in Romania, 5 in Norway, 4 in Sweden, 4 in Italy, 3 in France, and 5 in Israel. The distribution of the interviewees based on the profile is the following: 20% of the participants work as a member of either national, regional, or local level authorities, 30% are employed in the health services, 37% were emergency responders, and 13% are from the law enforcement group.

In D2.1 the interviews were carried out by members of the project's consortium in each country. Before the interview, the interviewees received the interview script with the questions that would be addressed and discussed. The interviews were conducted online and they were recorded to be used afterward to extract the information needed. A template was created for the researchers to compile the information obtained from the interviews in a structured way, to ease the analysis process. The interview script was approved by the ethical committee from the Tel-Aviv University (approval number 0002752-1 dated 15 February 2021).

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#### 3.2.1.2 *Interviews with victims of crisis*

- D1.1, D2.1

In D1.1, semi-structured interviews were used in one of the case studies (the L'Aquila case study). Here it was used to interview citizens that took spontaneous action. The ethical guidelines of the ENGAGE project states that victims should only be interviewed with an adequate support mechanism in place for cases of psychological distress, which will entail the possibility to consult with a health professional. This mechanism is under construction for all case studies.

#### 3.2.1.3 *Focus groups*

- D.1.4

This has not yet been conducted and is only planned for deliverable 1.4. As with semi-structured interviews, focus groups entail the risk of causing psychological stress to trauma-victims and is therefore subjected to ethical guidelines.

### 3.2.2 QUANTITATIVE APPROACH

- D1.2, D1.3

The project also relies on a survey to collect relevant data. This survey is an internet-based panel survey organized by a private subcontractor. Data collection is anonymous.

#### 3.2.2.1 *Surveys*

- D1.2, D2.1

In D1.2 a survey was used to examine the varied attitudes and exceptions among the public in the context of societal resilience and risk awareness. D2.1 used an internet-based survey in order to investigate what emergency responders and authorities require from society to better handle a crisis and how these demands differ across the countries studied. The survey was hosted on SurveyMonkey which is a cloud-based software and a service company that specializes in online survey creation. The survey was designed in English and translated into seven different languages. The four different job profiles of interest were: Health services, law enforcement, emergency responders and authorities. The survey was open for responses for 45 days.

#### 3.2.2.2 *Document analysis*

- D1.1, D2.2

Literature research was carried out using Scopus, Web of Science and Google Scholar using keywords related to the case studies in D1.1. Keywords were used both in English and in the local language, when possible.

In D2.2 the document analysis consisted of using the Scopus database to perform a systematic literature review, oriented towards identifying formal solutions to improve the interaction of emergency organisations and authorities with the civil society with the final target of improving societal resilience. Only scientific articles and conference proceedings published after 2000 were selected and furthermore, only articles with more than 5 citations were included. Following this, the number of articles were reduced by reading the abstracts and choosing only the articles providing solution for improving the interaction of emergency organisations and authorities with the citizens. Then, these solutions were categorized into a form in order to formalize them in a structured way. European projects and international reports were also analysed in order to find previous relevant productions on the topic of societal resilience. The outcomes of this search were classified by chronological and thematic order, where priority was given to reports closer in time. In total, 6 European projects and 6 international reports provided formal solutions that were useful for the ENGAGE project.

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#### 3.2.2.3 Workshops

- D2.3, D4.1

D.2.3 organized two workshops. The first with the partner end-users of the project and the second one with the KI CoP. The first served as a preparation for the other, thus some changes were introduced in the second workshop to resolve the problems encountered in the first exercise. In both workshops the MIRO tool was used to register the contributions and ZOOM was utilized to support voice interaction.

D4.1 has planned exercises for testing the validity of the solutions found in the ENGAGE project. These exercises involve three scenarios that are fictional, but close to real disaster events where first-responders test the scenarios with ENGAGE solutions. The three exercises are heat wave in Rome, cyber and terrorist attack in the Basque Region and landslide with cascade effects for critical infrastructure and industrial accident in Norway.

### 3.2.3 RECOMMENDATIONS FOR DATA COLLECTION

The ethical and legal considerations in terms of data collection and the individuals being interviewed are already largely addressed by the project and traced by D6.1 and internal guidelines in WP1 and WP2. The awareness of how ENGAGE's interest in collecting data on resilience in crisis situations may compromise the physical safety and mental wellbeing of participants is thoroughly reflected on. The steps taken to secure the participants anticipate various scenarios and include the responsibility of the interviewer to be aware of issues involving the respondent's safety when undertaking an interview and making these risks explicit. A consent form, signed by respondents, explains the objective of the interview, states its topics and details data protection measures. A secure and confidential interview setting is provided and respondents can end or interrupt the interview at any time. Additionally, all interviews can be conducted with support persons of the respondent present. Here, there should also be reflections as to the vulnerability of the interviewee's situation in order to ensure that a support network is available to the person being interviewed, including access to a health professional in case of need.

#### 3.2.3.1 Online interviews

The interviews may also be conducted through online platforms. The need to ensure data protection should also be considered when choosing the platform for conducting online interviews. Thus, not only the data protection provided by the interviewer and ENGAGE should be considered, but also the data protection provided by the external companies providing us with digital platforms to communicate. Acknowledging that data protection is not merely an issue of researchers working on the ENGAGE project, but also a question of the companies owning the platforms ENGAGE is using, is also lacking in other aspects of the project.

#### 3.2.3.2 Chatbot criteria

The assessment of different chatbots for communicating during a crisis, explored in deliverable D.4.1, does not yet include data protection as one of their assessment criteria of different bots. Considering that some of the bots evaluated deal with issues such as domestic and sexual abuse, not including the issue of data protection can lead to serious negative impacts of the final recommendations of the study.

#### 3.2.3.3 Focus group

The ethical guidelines also show awareness of the fact that in particular the in-depth nature of semi-structured interviews and the interactive dynamic of focus group may lead to exposure of personal data not relevant to the ENGAGE project. Thus, not only the interviewer, but also participants in a focus group should be informed of the need to not name other participants during the interview session, nor third parties.

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## 3.3 SOCIETAL IMPACT OF ENGAGE'S OUTCOMES

In general, the ethical considerations in terms of the welfare of the subjects of data collection are already addressed by the project. However, there are certain aspects to the parameters of the research questions that warrant further reflection. In general, the focus of study within the provided deliverables do not sufficiently consider the inequalities of individuals and groups making up societies. As such, the impact of the solutions arrived at may be to proliferate already existing inequalities in the societies we aim to make more resilient.

As many of the deliverables deal with communication, and thus also digital communication, in a time of crisis, digital literacy is an aspect that is given much emphasis, especially in D.1.3. However, access to information communicated digitally is not merely a question of digital literacy, it is also a question as to whether this information is communicated through accessible media. Whether a digital media is accessible includes firstly whether individuals have access to digital media and the internet at all. Secondly, it is a question of what language information is communicated with, concerning both whether information is available in minority languages in the society discussed, as well as whether the wording of the information is accessible, direct and easily understood. Thirdly, the question of accessibility regards whether a chatbot, a social medium or a website is designed in a way that makes it readable for people dependent on external tools to access internet. Here, the regularly updated Web Content Accessibility Guidelines (WCAG) might be a good reference point to consider. It is also noteworthy that people with disabilities do not yet have equivalent access to emergency communications in all European member states. ENGAGE could therefore enhance its societal impact by recognizing the need of more inclusive solutions. Failure to consider the variety of abilities of individuals in a society means that ENGAGE fails to collect data which tells us something about how vulnerable groups may be more resilient as a part of society. This is an ethical issue, as ENGAGE risks reproducing an idea of societal resilience where only those who are already resilient are made to be more resilient. As such employing a wide understanding of what "society" actually is, and who it is composed of is recommended.

### 3.3.1 RECOMMENDATIONS FOR ENHANCING ACCESSIBILITY

This has, of course, to some extent been done in the different deliverables. ENGAGE has also recognized the need to focus on gender when assessing different solutions to crises. Acknowledging that the vulnerabilities and needs of men, women and other genders are not the same is necessary in order to arrive at a more comprehensive understanding of societal resilience. However, this alone does not capture the inequalities of vulnerabilities in a crisis.

As an example, in assessing communication needs, D.1.3. mentions gender, socioeconomic status, nationality and digital literacy as variables influencing differences of communication needs, preferred sources and means of receiving warnings. Gendered communication is directly addressed. D1.1 outlines the importance of acknowledging diversity. Both do not explicitly define which other social groups are targeted. In excluding the social group in the research questions, ENGAGE also risks excluding them from the proposed solutions.

Especially in regard to the planned case study on the covid-19 pandemic, acknowledging the inequalities within a society is of importance. Here, the aforementioned inequalities in access to information are central. Additionally, a more critical engagement with what is meant not only with "resilience", but also with what is meant by "society". In a global crisis such as Covid-19, it is worth asking how one measures societal resilience – who or what in society is able to "bounce back" after a disaster? What or who is prioritized by authorities and first responders in a time of crisis, both in terms of material solutions and communication priorities? Who has not been resilient during a time of crisis and why? And when a society is referred to as "resilient" or back to "pre-crisis" level, what do we define as "society"?

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The premises of ENGAGE are implicitly that everyone in a society is just as valuable for authorities and emergency organizations during a time of crisis. This, however, is not necessarily so. One example of this is how the World Health Organization early on identified people with mental illnesses, especially bipolar disorder and schizophrenia, as particularly vulnerable to covid-19, with people with schizophrenia three times as likely to die from covid-19 (Vai et al 2021). After age, schizophrenia was actually the leading risk factor to die from covid-19. Although the World Health Organization as well as leading doctors and psychologists therefore recommended schizophrenia and other serious mental health disorders to be prioritized when the order of vaccination was to be decided, only four European countries chose to do so (Picker et al 2021). Out of these four, Germany, the Netherlands, Denmark and UK, this priority was however barely communicated. These differences in authorities' priorities, which can also be in conflict with the priorities of first responders and experts, in what to define as "society" in a time of crisis are perhaps more visible in a crisis of global dimensions such as covid-19 than the case studies presented in D.1.1. However, it is advisable that ENGAGE, through its data collection, approach these priorities in a more critical manner, as to not present solutions to societal resilience that risk reproducing and/or exacerbate pre-crisis inequalities.

Where contributing to education and public discourse were chosen as the most important elements of societal impact of research in Fecher and Hebing's (2021) paper referred to above, the ENGAGE website as well as the catalogue of solutions and the knowledge platform, could follow the Web Content Accessibility Guidelines (WCAG) which are also the fundament of the EU Directive on the accessibility of the websites and mobile applications of public sector bodies of 2016. Although ENGAGE is not a public sector body, the project should aim to make their findings accessible to as many people as possible, which includes coding images as text and having sufficient contrast in page layouts. Doing so would increase beneficial societal impact of ENGAGE, at least in terms of its findings reaching a wider audience.

## 3.4 Recommendations for dissemination, validation and implementation

This argument relates also to validation and implementation processes. Since it is not possible to guarantee representativity of all the groups ENGAGE wants to target, it is necessary to make explicit who participates in validation exercises and who does not.

Emergency organization that targets vulnerable groups could be privileged to guarantee the inclusivity of solution presented and validated by ENGAGE.

In regards to the dissemination of the findings, its main vector, the Knowledge Platform, which will form a major part of how ENGAGE disseminates the proposed solutions, is currently under construction. The following recommendations should therefore be interpreted in light of the fact that the platform will undergo several changes.

There are several mentions of the local and contextual nature of societal resilience and disaster management throughout the project. It thus seems to be implicitly acknowledged that the research is centered around certain types of societies, namely Western and in particular European states. This is not a problem for an EU funded project, but the subsequent lack of universality of the results could preferably be made more explicit.

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# 4 CONCLUSION

This report developed a theoretical framework to assess the societal impact of the ENGAGE project mid-term. As such it made an argument for a qualitative approach to societal impact assessment and a critical approach to its conceptual framework of societal resilience. The report notably argues for taking into account criticisms of resilience approaches for anticipating the project's impact on society.

However, due to the position of this report in the middle of the ENGAGE's lifecycle, this methodology cannot be entirely applied to the project's outcome, since several of its key components are currently under construction. The final impact report will, therefore, provide a more complete societal impact assessment.

Nevertheless, this midterm report can instead give recommendations that can help to better adapt the projects' data collection and outcomes to the ambition of enhancing societal resilience. In terms of data collection, recommendations point towards better data protection in carefully choosing platforms for online interviews, integrating data protection in the criteria for chatbots and avoiding the divulgation of personal data in focus groups. For enhancing the societal impact of the project's outcomes, recommendations aim towards a better inclusion of vulnerable groups by using the example of people with disabilities and/or mental illnesses.

The report intends to show how ENGAGE and its societal resilience approaches need to integrate interconnectedness between authorities and emergency organizations for not shifting responsibilities to disaster victims. It needs to show concretely how the solutions that the project promotes concretely enhance societal resilience for diverse and notably vulnerable groups and it has to address how solutions help to induce social change to address the underlying causes of disaster.

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