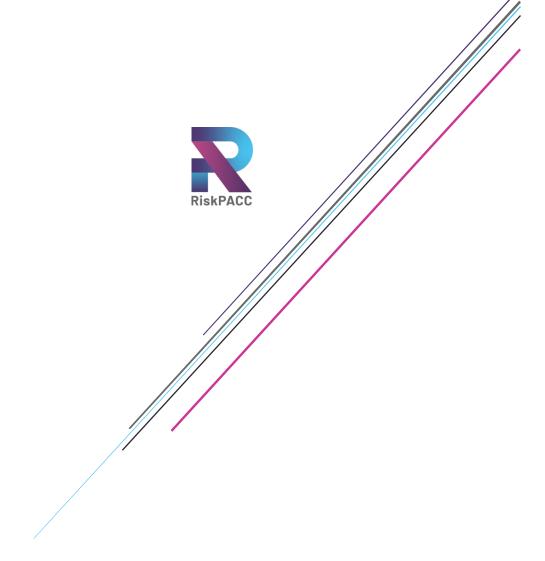


### INTEGRATING RISK PERCEPTION AND ACTION TO ENHANCE CIVIL PROTECTION-CITIZEN INTERACTION

#### COMPLETION OF TRAINING MATERIAL

**Deliverable 5.4** 

**Dissemination Level: PU** 







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## **ABOUT RISKPACC**

Increasingly complex and interconnected risks globally highlight the need to enhance individual and collective disaster resilience. While there are initiatives to encourage citizen participation in creating a resilient society, these are typically fragmented, do not reach the most vulnerable members of the communities, and can result in unclear responsibilities for building disaster resilience.

New technologies can also support preparedness and response to disasters, however, there is limited understanding on how to implement them effectively. Awareness of risks and levels of preparedness across Europe remain low, with gaps between the risk perceptions and actions of citizens and between the risk perceptions of citizens and Civil Protection Authorities (CPAs).

The RiskPACC project seeks to further understand and close this Risk Perception Action Gap (RPAG). Through its dedicated co-creation approach, RiskPACC will facilitate interaction between citizens and CPAs to jointly identify their needs and develop potential procedural and technical solutions to build enhanced disaster resilience. RiskPACC will provide an understanding of disaster resilience from the perspective of citizens and CPAs, identifying resilience building initiatives and good practices led by both citizens (bottom-up) and CPAs (top-down). Based on this understanding, RiskPACC will facilitate collaboration between citizens, CPAs, Civil Society Organisations, researchers and developers through its seven (7) case studies, to jointly design and prototype novel solutions.

The "RiskPack" toolbox/package of solutions will include a framework and methodology to understand and close the RPAG; a repository of international best practice; and tooled solutions based on new forms of digital and community-centred data and associated training guidance. RiskPACC consortium comprised of CPAs, NGOs, associated organisations, researchers and technical experts will facilitate knowledge sharing and peer-learning to close the RPAG and build disaster resilience.



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### Executive Summary

The deliverable 5.4 provides the overview of the training material developed for the support of the technological tools created and improved within the RiskPACC project. The developed materials and tools were created based on bilateral meetings with tech and case-study partners. The training material acts as a guidance tool for the user that encompasses the forms of fact sheets, manual instructions to incorporate the tool into real-act operations, and videos with links accessible to the public. It is also linked to a decision-making quiz that allows the user to identify the most suitable tool for a given need. The training material mainly comprises infographics, though also includes videos explaining the overall purpose of the individual tools, and in the case of the PublicSonar tool provides detailed step-by-step instructions for how to use the tool. The material is meant to be used in close collaboration with WP8, providing information to raise awareness, and serves as the basis for the final testing of tools in associated cities/regions within Task 6.2.

Acronyms	Definition
AR	Augmented Reality
CAFO	Czech Association of Fire Officers
CBRN	Chemical Biological Radiological and Nuclear hazards
CPD	Municipality of Padova
СРА	Civil Protection Authorities
DRM	Disaster Risk Management
HOTOSM	Humanitarian OpenStreetMap Team
HTML	HyperText Markup Language
ISAR	International Search And Rescue
KEMEA	Center for Security Studies
МоЕ	Municipality of Eilat
MRP	Municipality of Rafina-Pikermi
OSM	OpenStreetMap
RPAG	Risk Perception-Action Gap
UI	User Interface
VGI	Volunteered Geographic Information
WP	Work Package

#### Glossary and Acronyms

TABLE 1: GLOSSARY AND ACRONYMS



# **1 INTRODUCTION**

### 1.1 Overview

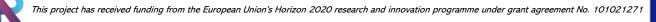
The RiskPACC Task 5.4 focuses on developing the training material to support all the technological tools created and adapted in WP5, described in Tasks 5.1, 5.2, and 5.3. The objectives of this Task include (i) the creation of case study material that addresses the needs of Civil Protection Authorities (CPAs) and citizens, (ii) the development of source guidelines of how the tools created can be used for operational disaster risk management, (iii) ensuring that the training material aids the final testing of the tools in Task 6.2, and (iv) the dissemination of the training material in collaboration with WP8.

The first step of Task 5.4 was to identify the end-users, CPAs, and Training requirements based on their interaction and lessons learned through citizens' insights during WP3 workshops, i.e., Lab Phases I and II. Based on these requirements, the structure of the training material was designed. The training material comprises three parts: the decision quiz is an interactive approach to recommend tools to a user based on their needs. Potential users of the RiskPACC platform select options from a predefined set of questions, and consequently, they are recommended which RiskPACC tool best fits their requirements. The second part consists of a number of application videos, introducing the tools and detailing which problems in disaster management they address and how. Lastly, detailed training manuals were prepared on how the tools and all functionalities were created. In addition, explanations of key functionalities are provided in an accessible format through infographics.

The solutions presented for this Task will be used for the purposes of T6.2 and will help the effort in WP8. The training material will be used as a guideline where the observer cities will participate and support efforts in the ability to transfer the tools in a wider geographic context.

# 1.2 Structure of the deliverable

This document consists of 6 chapters. **Chapter 1** provides a brief overview of the deliverable. In addition, relations to other Work Packages of the RiskPACC project are explained, and the expected readers are specified. **Chapter 2** describes the end-user requirements for each tool, while **Chapter 3** consists of conceptualizing and implementing the tool recommendation decision quiz. **Chapter 4** describes the conceptualisation and the creation of the scope of application material. It includes the script structure, and the efforts made to include the most relevant information possible. **Chapter 5** explains the creation of the training manuals, with focus on the infographics, and how the training material will be integrated into the RiskPACC platform. **Chapter 6** provides a summary. Following the format used for RiskPACC deliverables, Annexes provide a list of the literature referenced, as well as detailed illustrations for training materials not showcased in the main text.





# **2 CASE-STUDY REQUIREMENTS**

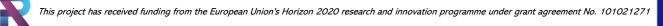
After developing the tools, each tech partner liaised with their respective case study partners to determine their training requirements. That is, enquiring what training materials they need about the tools' functionalities. This approach was chosen because the case studies had conducted various WP3 workshops to test the technical tools, and were well aware of the needs of the citizens that arose when using the tools. Hence, those insights were communicated to discern training requirements. The co-design participatory approach (Belgrave et al., 2022) occurred through bilateral meetings with the tech and case study partners. Information about the specific functionalities they need to be trained on, the preferred medium of the training materials (digital such as videos, infographics versus non-digital mediums), and the priority of the requested requirements to be implemented. An Excel sheet was used to combine the case study feedback and define the deliverable structure and content. The case studies represent the end users of the training materials. Hence, they are referred to as end-users in this document.

# 2.1 End-user requirements for the Aeolian Augmented Reality App

The Aeolian AR App is an Augmented Reality (AR) mobile application to enhance preparedness and response to anthropogenic hazards that are being implemented in the case studies of the Municipality of Rafina-Pikermi (MRP), the Czech Association of Fire Officers (CAFO) and the Municipality of EILAT (MoE).

The requirements suggested for improving the Aeolian AR App were raised only from the Municipality of Rafina-Pikermi. End-user requirements of the Aeolian AR App involved addressing accessibility needs for a user with reduced visual perception, e.g., font size selection, brightness, and background colour. In addition, it was requested the development of the ability to choose different native languages for the use of case studies. Creating the option for accessibility on the RiskPACC platform was not accomplished, as the training material was in Video, infographics, and PDF formats. As a solution, video transcripts for all videos were created. In addition, the exchange of the training material in different languages, such as Greek, for the MRP use case could not be accomplished with the RiskPACC platform developed only in English.

ΤοοΙ	Case-study partner	End-User Requirements (Volunteers/ Citizens functionalities)	End-User Requirements (CPA functionalities)	Preferred medium (eg videos, flash cards etc)	Priority (mandatory, important, nice to have)
Aeolian	MRP	Accessibility for people with reduced visual perception	Accessibility for people with reduced visual perception (e.g., font size, brightness,	Should be embedded in the RiskPACC platform for user to customise according to	Nice to have





		background colour)	their preferences.	
	Choice of language			Important
CAFO	n/a	n/a	n/a	n/a
ELIAT	n/a	n/a	n/a	n/a

TABLE 2: END-USER REQUIREMENTS FOR AEOLIAN

# 2.2 End-user requirements for the HERMES App

Hermes is a social network-like platform tool designed to address the communication challenges faced during emergencies implemented in the Municipality of Padova (CPD) case studies and the Municipality of EILAT (MoE).

CPD required the HERMES tool to have detailed information for the registration process and the functionalities offered. MoE had similar end-user requirements for HERMES and provided detailed user experience information.

ΤοοΙ	Case-study partner	End-User Requirements (Volunteers/ Citizens functionalities)	End-User Requirements (CPA functionalities)	Preferred medium (e.g., videos, flashcards etc.)	Priority (mandatory, important, nice to have)
HERMES	CPD	More detailed information about the registration process	More detailed information about the registration process	Video and document of summary	Mandatory
		More detailed information about the functionalities offered	More detailed information about the functionalities offered	Button on Video and document of summary	Mandatory
	MoE	More detailed information about the registration process	More detailed information about the registration process	One page summary	Mandatory
		More detailed information about the functionalities offered	More detailed information about the functionalities offered	One page summary	Mandatory
		More detailed information about the user experience	More detailed information about the user experience	One page summary	Mandatory

TABLE 3: END-USER REQUIREMENTS FOR HERMES
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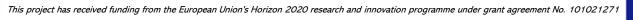


# 2.3 End-user requirements for MappingDamage

The MappingDamage app aims to complement satellite post-disaster damage maps using crowdsourced information, and it is implemented in the case study of MRP. The Municipality of Rafina-Pikermi had specific demands regarding the end-user requirements of the MappingDamage tool, i.e., to provide detailed information for the registration process, application instructions, guidelines, the scope of the application, photos examples of damages and damage categorization, Open Street Map (OSM) training material and accessibility requirements.

Tool	Case- study partner	End-User Requirements (Volunteers/ Citizens functionalities)	End-User Requirements (CPA functionalities)	Preferred medium (e.g., videos, flashcard s etc.)	Priority (mandatory, important, nice to have)
MappingDamage	MRP	More detailed information about the registration process. Emphasizing what not to do.		Video or flash card	Mandatory
		Photos, examples of damages of damages to features.		Photos	Important
		An overview training of the tool for the citizen's user		Page instruction	Mandatory
				Flashcard	Important
		Scope of the application	Scope of the application	Menu bar for uploading PDF and flashcards to the RiskPACC platform	Mandatory
		Training material for using OSM	Training material for using OSM	Menu button of OSM mapping	Nice to have

TABLE 4: END-USER REQUIREMENTS FOR MAPPINGDAMAGE





## 2.4 End-user requirements for PublicSonar

The Public Sonar is a tool designed to allow the detection of emerging and developing incidents early on, thus support maintaining situational awareness during disruptive events implemented in the CPD and CAFO case studies.

International Search And Rescue (ISAR) for the optimization of the PublicSonar tool and adaptation to its need required the provision of the application instructions, description of the use case of PublicSonar in real-life study cases, and a definition of the fictional alert scenario. In addition, CPD requested the report and manuscript of the video in Italian.

ΤοοΙ	Case-study partner	End-User Requirements (Volunteers/ Citizens functionalities)	End-User Requirements (CPA functionalities)	Preferred medium (e.g., videos, flashcards etc.)	Priority (mandatory, important, nice to have)
CS (Public Sonar)	ISAR, Germany		Application instruction	One page summary	Mandatory
			Real-life scenario	Video	Nice to have
			Set the alert with fictional scenario	Manuscript for Video, and the CPD makes a Video in the Italian language.	Mandatory
	CPD		Set up the report.	Manuscript for Video, and the CPD makes Video in Italian language.	Mandatory
	CAFO		No requirement provided	n/a	n/a

TABLE 5: END-USER REQUIREMENTS FOR PUBLICSONAR

# 2.5 Case-study requirements for Thermal Comfort Tracker

Thermal Comfort Tracker is a tool designed to bridge the data gap and provide valuable insights being implemented in the case studies of CPD. As the only case study linked to the Thermal Comfort Tracker, CPD's requirement was for a scope of application video about the tool's usefulness.

Tool Case-study partner	End-User Requirement s (Volunteers/ Citizens	End-User Requirement s (CPA functionalitie s)	Preferred medium (e.g., videos, flashcards etc.)	Priority (mandatory, important, nice to have)
----------------------------	--	---	--	--





		functionalitie s)		
Thermal Comfort Tracker	CPD	Scope of application video about the usefulness of the tool	Video and transcript	

 TABLE 6 : END-USER REQUIREMENTS FOR THERMAL COMFORT TRACKER

# **3 TOOL RECOMMENDATION – DECISION QUIZ**

Through the decision quiz, the end-users can select the criteria for the suitable tool that fits the user needs. The result of the decision quiz provides the tool's description, including the tools' introduction and training material.

The decision quiz was created to allow potential users outside the original RiskPACC consortium to make informed decisions about which technological tool in the RiskPACC toolbox fits their needs. The potential users refer to case-study observer cities and CPAs who may be interested in what it offers. It follows a short quiz approach, asking users about their disaster situation and needs. The results suggest tools from the Toolbox that are most suited based on their quiz entries. It also highlights the recommended tool limitations as per their quiz answers.

### 3.1 Quiz conceptualisation

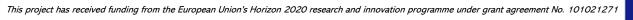
The goal of the tool recommendation quiz is to provide an initial direction to the user of the RiskPACC platform about which tools are most relevant for their specific needs. Four types of questions lead to the recommendation of suitable tools for the user, categorized accounting to disaster type, stages, principal user, and main functionality.

The first question to select the disaster types focuses on choosing ten disaster types, listed in Table 7. The following question is to choose the disaster stages they are interested in, categorized into three types, as shown in Table 8. The third question is to determine the main user of the tool, either the Civil Protection Authorities, citizens, or even both (see Table 9). The last criterion is to choose the types of functionalities needed (see Table 10), whether for monitoring and situational assessment using social media data, crowdsourced data collection and disaster reporting, dissemination of disaster information, training the citizens about disaster events and best practices, collecting the disaster perception from citizens, and place the emergency calls.

All the technological tools (Aeolian, Hermes, PublicSonar, MappingDamage, and Thermal Comfort Tracker) were tabulated according to the questions and options and were assigned by **yes**, **no**, and **potential** according to their degree of matching for each category.

# 3.2 Quiz logic

In order to recommend the best tool for the user needs, a vote-based system is used. For each option in each question, a vote will be cast for each tool as *yes*, *no*, or





*potentially*. "Yes" means that the tool is relevant to the given need. "*No*" means the tool does not address this need, and "*potentially*" denotes that customization may be necessary for this tool to fit your needs. In case of two or more recommendations, the user should see the tools recommended and see how each tool fits his/her needs.

At the end, the tool with the highest number of votes is recommended. Using a result bar, the user can also see how the recommended tool performed. Based on his/her entry, the resulting bar shows in terms of questions and options selected, the proportion of votes that were *yes*, *no*, and *potentially* for the recommended tool

Criteria	PublicSonar	Aeolian	HERMES	MappingDamage	Thermal Comfort Tracker
Which disaster(	s) are you inter	ested in?			
Flood	Yes	Yes	Yes	Yes	No
Wildfire	Yes	Yes	Potential	Yes	No
Earthquake	Yes	Yes	Yes	Potential	No
Heatwaves	Yes	No	Yes	No	Yes
Chemical, Biological, Nuclear and Radiological	Yes	Yes	Potential	No	No
Landslide	Yes	Yes	Potential	Potential	No
Tsunami	Yes	Potential	Potential	Potential	No
Hurricanes or other heavy storms	Yes	Yes	Potential	Potential	No
Volcano	Yes	Potential	Potential	Potential	No
Anthropogenic hazards (Terrorism and pandemics)	Yes	Yes	No	No	No

TABLE 7: TYPES OF DISASTER(S) OPTION

Criteria	PublicSonar	Aeolian	HERMES	MappingDamage	Thermal Comfort Tracker
Which disaster(	(s) stages are	you interested in?			
Preparedness & Mitigation	Yes	Yes	Yes	No	Yes
Response	Yes	Yes	No	No	No
Recovery and Reconstruction	No	No	No	Yes	No

TABLE 8: DISASTER(S) STAGES OPTION





Criteria	PublicSonar	Aeolian	HERMES	MappingDamage	Thermal Comfort Tracker
Who are your	principal user?				
Civil Protection Authorities	Yes	No	No	No	No
Citizens/ Volunteers	No	No	No	No	No
Both CPAs and Citizens/ Volunteers	No	Yes	Yes	Yes	Yes

TABLE 9: TYPES OF PRINCIPAL USER

Criteria	PublicSonar	Aeolian	HERMES	MappingDamage	Thermal Comfort Tracker
Select the functiona	lity you are mo	st interested	in.		
Topic monitoring and situational assessment using social media data	Yes	No	No	No	No
Crowdsourced data/information collection and report about disaster situation	Yes	Yes	No	Yes	No
Disaster information dissemination (bilateral communication between CPAs and citizens/volunteers)	No	Yes	Yes	Potential	Potential
Training citizens about disasters events and best practices	No	Yes	Yes	No	No
Collection of citizens disaster perception	No	No	No	No	Yes
Place emergency calls	No	Yes	No	No	No

TABLE 10: OPTION FOR FUNCTIONALITY





# 3.3 Technical implementation of the Quiz

On the landing page, users are asked to enter their answers. Based on the answers provided, they receive a recommendation of which app best suits their needs. The result is displayed as text (the name of the recommended app), a result bar, and a percentage indicator illustrating the degree of fit. In other words, in which categories does the recommended tool fit the user's needs, and in which categories it does not, based on the user's answers. An introductory video of the recommended tool(s) is also displayed.

The User Interface (UI) was consistent with the RiskPACC colour palette detailed in D8.4. Figures 1-5 illustrate the quiz flow and its UI implementation. To maintain consistency with the RiskPACC platform, the tool was built using HTML, CSS, and AngularJS. HTML and CSS were used to build and customize the frame and styling, respectively, while AngularJS was used to customize the quiz flow and logic.

Let's help you decide the most relavant tool for your needs. Take the decision survey quiz and enter information about your disaster situation.

Take Decision Survey



Question:	(1/4)
Which disaster(s) are you interested in?	
Flood	U Wildfire
✓ Earthquake	✓ Heatwaves
Chemical Biological Radiological Nuclear	Landslide
🗌 Tsunami	Hurricanes or other heavy storms
Uvlcano	Anthropogenic hazards (Terrorism and pandemics)
PREVIOUS	NEXT







Question:	(2/4)
Which disaster stage(s) are you interested in?	
O Preparedness & Mitigation	
Response	
O Recovery & Reconstruction	
PREVIOUS	NEXT
FIGURE 3: THE DISASTER(S) TYPE SELECTION	
Question:	(3/4)
Who are your principal users?	
O Civil Protection Authorities (CPAs)	
<ul> <li>Citizens (including Volunteers)</li> </ul>	
CPAs and Citizens	
	NEXT
CPAs and Citizens	NEXT
CPAs and Citizens  PREVIOUS	
• CPAs and Citizens  PREVIOUS FIGURE 4: THE PRINCIPAL USER SELECTION	NEXT (4/4)
• CPAs and Citizens  PREVIOUS  FIGURE 4: THE PRINCIPAL USER SELECTION  Question:	
CPAs and Citizens      PREVIOUS  FIGURE 4: THE PRINCIPAL USER SELECTION  Question:  Select the functionality you are most interested in?	(4/4)
CPAs and Citizens      PREVIOUS  FIGURE 4: THE PRINCIPAL USER SELECTION  Question:  Select the functionality you are most interested in?      Topic monitoring and situational assessment using social media data	(4/4
OPAs and Citizens   PREVIOUS   FIGURE 4: THE PRINCIPAL USER SELECTION   Question:   Select the functionality you are most interested in?   O Topic monitoring and situational assessment using social media data   O Crowdsourced data/information collection and report about disaster situation	(4/4)
OPAs and Citizens PREVIOUS FIGURE 4: THE PRINCIPAL USER SELECTION Question: Select the functionality you are most interested in? Oropic monitoring and situational assessment using social media data Crowdsourced data/information collection and report about disaster situation Isaster information dissemination (bilateral communication between CPAs and Communication Communication between CPAs and Communication Communication Communication between CPAs and Communication Communic	(4/4

FIGURE 5: THE FUNCTIONALITY SELECTION





es	83%
Which disaster(s) are you interested in?	
Earthquake	
Anthropogenic hazards (Terrorism and pandemics)	~
Which disaster stage(s) are you interested in?	
Response	~
Who are your principal users?	
CPAs and Citizens	~
Select the functionality you are most interested in?	
Disaster information dissemination (bilateral communication between CPAs and citizens/volunteers)	' 🗸
otential	0%
9	16%

FIGURE 6: THE OUTPUT OF TOOL RECOMMENDATION, SHOWING THE DEGREE OF FIT OF THE RECOMMENDED TOOL ACCORDING TO THE USER CHOICES.

(In this case, the Aeolian tool was recommended by a fit of 83% of the user requirements. The user can also use the expandable dropdown list to see what specific requirements are met)

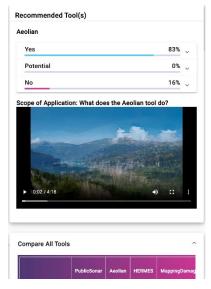


FIGURE 7: IN ADDITION, AN INTRODUCTORY VIDEO DETAILING THE MAIN USES AND FUNCTIONALITIES OF THE RECOMMENDED TOOL(S) IS DISPLAYED

# 4 SCOPE OF APPLICATION OF THE DEVELOPED APPS

The scope of the application is a video defining a tool's application for end-users to access the tool. These videos contain several sub-parts: the **Problem statement** has





a brief overview of the problem and its impact on user; **Introduction** states the name of the tool as well as the creator of the tool; **Explanation of the tool** provides a clear explanation of the software tool, including its abilities and its dynamic, the intended user of the tool and the ways that this tools can solve the problem it was designed for; **Overview of functionalities** highlights the unique features of the software tool for disaster risk management and reducing the RPAG, while **Call for action** follows in the end.

Video encourages users to try the software tool for themselves including a link to the website of the tool. In addition, these videos are publicly accessible through the YouTube webpage.

## 4.1 Storyboarding and scripting

The storyboarding and scripting of the scope of the application video were created by the tech partners responsible for developing the tools. All videos contain the sub-parts defined above: **problem statement, introduction, explanation of the tool, overview of functionalities**, and **call for action**. The storyboarding and scripting of PublicSonar is explained in Table 11, while the storyboarding and scripting for all the other tools (Aeolian, HERMES, MappingDamage, and Thermal Comfort Tracker) are explained in Annex 1.

Sub-part	Points	Description of the problem and tool's abilities
Problem Statement	Describe the problem that the software tool was designed to solve	During a crisis's 'Golden Hour', CPAs need to make quick and informed decisions while dealing with an information gap. Important insights about the impact of emergencies and disasters can be found by tapping into the knowledge of the public. PublicSonar was designed to solve the problem of finding the 'needle in the information haystack' by detecting incidents early on and maintaining situational awareness during disruptive events.
	Describe the impact of the tool on user	PublicSonar saves time and money for the user by collating information from online sources, enhancing the collaboration process within and across teams, automating the analysis process and offering built-in alerting and reporting functions.
Introduction	Name of the tool	PublicSonar
Explanation of the tool	What the tool does	The function of PublicSonar is to search for, analyse, report on and share important information found across dozens of online sources in real time.
	The intended user	Civil Protection Authorities (CPAs)





	How does the tool solve the problem it was designed for	The tool solves the problem by rapidly extracting important information from online sources, including social media, and presenting the insights to the user.
Overview of functionalities	What unique features of the tool help disaster risk management and reducing	List the unique functionalities of the tool and their usefulness in a Disaster Resilience Management (DRM) context:
	the RPAG.	Advanced search capabilities allow user to gather new information about a disaster
		Save time and make faster decisions by sharing progress and communicating with colleagues
		Be notified of a new disaster with the Alerting function
		Share disaster-related information with stakeholders by using the Reporting and Dashboarding function
Call for action	A clear call to action, how can a user access the tool.	User can reach out to info@publicsonar.com to request more information or receive a live demo of the tool (Publicsonar, 2023).

TABLE 11: STORYBOARDING AND SCRIPTING OF PUBLICSONAR

#### 4.1.1 VIDEO GRAPHICS

The scope of the application video graphics can be accessed via the RiskPACC social media platform, including the YouTube video link that is publicly accessed. The summary of the video graphic for each tool is displayed in Table 12. Creating the video graphic has to conform to the palette colour defined by RiskPACC (see Figure 8). All voiceovers in the video graphics are in English.

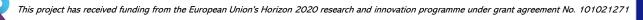


FIGURE 8 COLOUR PALETTE DEFINED BY RISKPACC





Tool	Video Description	Weblink
PublicSonar	PublicSonar revolutionizes crisis management with its powerful features and advanced capabilities. In this Video, learn how PublicSonar helps Civil Protection Authorities (CPAs) make quick and informed decisions during critical situations by extracting important information from online sources in real-time. With advanced search functionalities, collaboration tools, alerting functions, and comprehensive reporting capabilities, PublicSonar empowers CPAs to efficiently gather insights, communicate with stakeholders, and maintain situational awareness during emergencies and disasters. PublicSonar enhances decision-making, streamlines crisis response, and saves time.	https://www.youtub e.com/watch?v=JN US2s3nyFE
Aeolian AR Mobile App	Aeolian AR Mobile App is a powerful tool designed to establish bidirectional communication between citizens, volunteers, and Civil Protection Authorities (CPAs) during all phases of the disaster management cycle. This immersive app provides timely information, warnings, and media exchange to enhance prevention, preparedness, and response to natural and anthropogenic hazards. Seamlessly blending real environments with virtual objects through augmented reality (AR) technology, the app offers an accessible and user-friendly format. With features like hazard maps, reports, training modules, notifications, and emergency calls, the Aeolian AR Mobile App empowers user to actively contribute to inclusive disaster management, knowledge exchange, and increased disaster preparedness.	https://www.youtub e.com/watch?v=MN MHwUtOG1g
HERMES	HERMES is a social network-like platform designed to revolutionize communication during emergencies. In this Video, discover how HERMES addresses the challenges of inadequate communication between various entities and citizens during critical situations. Explore its features, including the ability for Civil Protection Authorities to create posts with warnings and weather alerts while citizens can share their firsthand experiences and insights. With HERMES, information sharing becomes faster, more efficient, and centralized in a common space, ensuring timely updates and relevant documentation for disaster preparedness and response. HERMES enables the collaboration between citizens, volunteers, Civil Protection Authorities, and first responders as they connect, exchange information, and foster a stronger sense of community resilience.	https://www.youtub e.com/watch?v=eZ orOU0PI40
MappingDamage	MappingDamage is a Volunteered Geographic Information (VGI) platform designed to bridge the communication gap between citizens and Civil Protection Authorities (CPAs) in the aftermath of disasters. In this Video, discover how MappingDamage leverages the power of volunteers as data collection agents to gather crucial information about damages and relay it to the appropriate authorities. Witness how this	https://www.youtub e.com/watch?v=erk cRwn_2B0





	innovative tool enables CPAs to conduct needs assessments, allocate resources, make informed decisions, and implement targeted post-disaster recovery and reconstruction interventions. With unique functionalities like surveys, result visualization, and a post function for discussions, MappingDamage fosters collaboration and empowers CPAs and volunteers.	
ThermalComfort Tracker	Discover the revolutionary ThermalComfort Tracker, a Volunteered Geographic Information (VGI) tool designed to address the lack of data infrastructure and monitoring mechanisms in understanding heatwave situations for municipalities. In this captivating Video, learn how ThermalComfort Tracker empowers Civil Protection Authorities (CPAs) to gain valuable insights into citizens' perceptions of thermal comfort during heatwaves. Witness the integration of citizens' responses to thermal comfort indicator questions with environmental data collected from thermal sensors placed across the city. This tool enables CPAs to design effective interventions, promote sustainable practices, and mitigate the impact of heat waves on the environment.	<u>https://www.youtub</u> <u>e.com/watch?v=Jtjg</u> <u>5QsGaqc</u>

TABLE 12: THE DESCRIPTION OF VIDEO GRAPHICS OF THE TOOLS INCLUDES THE YOUTUBE LINK TO ACCESS

# **5 TRAINING MANUALS**

Training manuals are designed to provide a support guideline for end-user when using the tools. The training manuals are provided in infographic design for Aeolian AR app, HERMES, MappingDamage, and Thermal Comfort Tracker while PublicSonar provides fictional videos for the training manual.

## 5.1 Infographic design

The infographics are "digestible" training information for each tool's main features and assist users in performing main tasks. Note that for the PublicSonar tool no infographics were created; instead, a step-by-step instruction is provided in a series of videos. Those will be included in the RiskPACC platform (<u>https://riskpaccplatform.eu/</u>), but for IP reasons are not made publicly accessible on Youtube (where only the overall introductory video is shared (see Table 12).

### 5.1.1 AEOLIAN AR APP

The Aeolian AR application supports the main functionalities: reporting the disaster, disaster training, and AR campaign. Infographics to guide user on performing these functionalities were created and can be found in Annex 2.





### 5.1.2 <u>HERMES</u>

The HERMES tool main functionalities are designed to support both CPAs and citizens. With the HERMES tool, the CPAs can upload disaster knowledge-based information, disaster warnings, and dissemination of disaster information. Meanwhile, the tool functionalities for citizens include bilateral communication with CPAs via a chat system and dissemination of disaster information. Infographics to guide user on performing these functionalities were created and can be found in Annex 3.

### 5.1.3 <u>MAPPINGDAMAGE</u>

The MappingDamage app's main functionality is a user guide to provide and collect damage information. Infographics to guide user in filling out the survey were created and found in Annex 4.

#### 5.1.4 THERMAL COMFORT TRACKER

The Thermal Comfort Tracker's main functionality is a user guide to fill in the survey. Infographics to guide users on how to fill out the survey were created and can be found in Appendix 5.

### 5.2 Fictional scenario videos for PublicSonar

PublicSonar's main functionalities are creating a case, creating a report, gaining insight from a case, and setting up an alert. Infographics to guide user on performing these functionalities were created and can be found in Annex 6.

### 5.3 Detailed training material

Detailed training manuals for technical tools were created, and they include a comprehensive description of the functionalities of each tool in a clear and structured manner. The manuals are slightly different for each tool but include a general introduction, a list of all the functionalities and features, a step-by-step navigation workflow, and relevant screenshots and illustrations. The intended user of the manuals are CPAs who have adopted or are interested in adopting the technological solution. Citizens/Volunteers associated with CPA regions will also benefit as CPAs can use the manuals as a guide to train them in operating the tools for a desired result.

# 6 CONCLUSION

Deliverable 5.4 is expected to provide the training material for RiskPACC tools: Aeolian AR app, Public Sonar, HERMES, MappingDamage, and Thermal Comfort Tracker. Technological partners created tools and collaborated with their respective case study partners to identify training material needs. The case study partners, wellinformed from WP3 workshops, communicated citizen needs arising from tool usage. This input guided the training material development, involving co-design through bilateral meetings. Details like required functionalities preferred digital or non-digital formats, and priority were determined collaboratively. In addition, it explains the conception of selecting suitable tools that fit the user requirements. The main objective





of this tool is to work closely with WP8 and provide relevant information to improve awareness. Additionally, it serves as the basis for the final assessment of tools in Task 6.2. Nevertheless, the scope of the application and the infographic designs for each tool are elaborated in this deliverable.

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# 8 ANNEXES

# Annex 1

Sub-part	Points	Description
Problem Statement	Describe the problem that the software tool was designed to solve	This tool was designed to establish a bidirectional communication between citizens and/or volunteers and CPAs on both natural and anthropogenic hazards during different phases of the disaster management cycle, aiming to contribute to bridge the RPAG.
	Describe the impact of the tool on the user	This tool enables user to access information on natural and anthropogenic hazards during all phases of the disaster management cycle (prevention, preparedness, response, and recovery) in an interactive and immersive way.
Introduction	Name of the tool	Aeolian AR Mobile app
	Creator of the tool	ICCS developed this tool following a co-creation approach at iterations with the case studies that were matched with this tool at the early stages of the RiskPACC project, i.e., the Municipality of Rafina- Pikermi case study (MRP), the Olomouc region case study (CAFO) and the Municipality of Eilat case study (MDA/MOE). In particular, the core functionalities of the tool were initially designed by ICCS, and discussions with CPAs from MRP, KEMEA, and Eilat followed. The different phases of the tool were presented and discussed with CPAs, volunteers, and/or citizens during targeted workshops, and the functionalities were further shaped, refined, and eventually finalized. Especially for the CPAs, training sessions were foreseen in order to familiarize them with the tool.
Explanation of the tool	What the tool does	The Aeolian AR mobile app enables the dissemination of timely bi-directional information (e.g., warnings) and media (e.g., photos, videos) between citizens (and volunteers) and CPAs to enhance prevention, preparedness, and response phases to natural and anthropogenic hazard events. At the same time, the tool offers the option to disseminate lessons learned from historic hazardous events that have affected the area of interest, thus enhancing the recovery phase of the disaster management cycle. In addition, the app is coupled with AR technology, which seamlessly blends real environments and virtual objects in a user-friendly, accessible, and easy-to-digest format.
	The intended user	The intended user of the tool are citizens, volunteers, and CPAs, while its user could also include tourists (who are not necessarily familiar with the particularities of each area).
	How does the tool solve the problem it was designed for	The design process of this crowdsourcing solution places relevant CPAs and citizens/volunteers at the center, delivering a user-friendly tool to enhance inclusivity, knowledge generation, and exchange.





		The mobile app is built to directly disseminate early warnings, offer real-time bi-directional interaction between experts and communities through targeted campaigns, and effectively communicate climatic and other risks to citizens to increase their disaster preparedness and enhance their response. The AR feature aims to enhance learning through virtual education material focused on natural and anthropogenic risks (e.g., flood-related hazards, forest fires, droughts, landslides, and chemical accidents). At the same time, the features of the Aeolian AR mobile app support effective communication of climatic and other risks to relevant CPAs, allowing for precautionary actions to be employed in areas of concern.
Overview of functionalities	What unique features of the tool help disaster risk management and reduce the RPAG.	The core functionalities of the tool include Hazard Maps, Reports, Training, Notifications and Emergency calls. Especially for Training, the user has three different options: Disaster Training, AR Campaigns, and Good to Know. Appropriately selected DRM content can be provided by CPAs to the user of the app in the Hazard Maps and Training tabs. User can send to CPAs reports on (ongoing) hazard events in their area, and any updates on uploaded material to the app are communicated through Notifications. The user can dial the pan- European emergency telephone number 112 by selecting the Emergency call.
Call for action	A clear call to action: how can a user access the tool.	The tool is accessible in the Google Play store and can also be downloaded from the RiskPACC platform (Ba et al., 2021).

TABLE 13: STORYBOARDING AND SCRIPTING OF AEOLIAN

Sub-part	Points	Description
Problem Statement	Describe the problem that the software tool was designed to solve	During emergencies, one of the most significant challenges is the inadequate communication between various entities and citizens. Communication channels often face several barriers leading to inefficiencies: At the technological level, Communication
		technologies used by CPAs and citizens may not be interoperable, making it difficult to share information promptly. In addition, a lack of centralization and uniform sharing of resources online on multiple platforms/ websites can make searching and finding relevant information challenging.
		Societal, inefficient media use can also cause citizens' lack of interest and willingness to find information from CPAs. In addition, information is often researched only when an event occurs, Leading to people being unprepared for difficulties.
		Economic barriers and communication means are often expensive, and messaging systems can have





		unaffordable costs for municipalities. Furthermore, these systems may have message-sending capacity limitations that lead to communication delays. Building new telecommunication networks can also be complex and expensive.
	Describe the impact of the tool on user	Civil Protection Authorities and citizens need to be closer, and information sharing must be effective and efficient. HERMES can provide a common and shared space where civil protection authorities and citizens can exchange information rapidly.
Introduction	Name of the tool	HERMES
	Creator of the tool within the RiskPACC project	This tool was developed by STAM (STAMtech, 2023) following the co-creation approach in partnership with CPD and MoE.
Explanation of the tool	What the tool does	HERMES is a social network-like platform where different user can share information in a common, shared space. Civil protection authorities can create posts with warnings, weather alerts and/or share documentation (e.g., best practices in case of an emergency). Similarly, citizens can create posts about the local situation they are directly experiencing.
	The intended user	HERMES is designed and developed as a support tool for different user levels. Citizens, volunteers, Civil Protection Authorities, and First Responders can be all members of the same community.
	How does the tool solve the problem it was designed for	Citizens are the first beneficiaries of HERMES as they can use a new communication channel for sharing information. Next, Civil Protection Authorities and first responders must be involved as they have the important Task of keeping the population informed and up-to-date on events and what to do.
Overview of functionalities	What unique features of the tool help disaster risk management and reduce the RPAG.	HERMES provides a social network-like platform where different user can share information in a common and shared space, enabling faster and more effective communication during emergencies.
		- Civil Protection Authorities can create posts with warnings and weather alerts to keep citizens informed and up-to-date on events as they unfold. Also, citizens can create and share new posts based on events they are directly experiencing.
		- HERMES allows for sharing documentation such as best practices, emergency procedures, and other relevant information that can help citizens and first responders prepare for and respond to disasters.
		- HERMES is also a direct communication channel between Civil Protection Authorities and citizens, thanks to the built-in messaging system that allows the two parties to chat.
Call for action	A clear call to action: How can a user access the tool.	User have to register with HERMES as in any other social network, providing basic information to define their user profile and interests. This information is necessary to ensure an optimal user experience and





	to have a feed that includes all relevant news and events.

#### TABLE 14: STORYBOARDING AND SCRIPTING OF HERMES

Sub-part	Points	Description of the problem and tool's abilities
Problem Statement	Describe the problem that the software tool was designed to solve	This tool was created to address the issue following a disaster, where a communication gap commonly exists between the general public and local municipal authorities. Civil Protection Authorities (CPAs) frequently remain uninformed or lack vital information and data required for swift and efficient intervention. Conversely, individuals who are usually the ones most affected by these disasters often lack the avenues to communicate their challenges to the appropriate authorities.
	Describe the impact of the tool on user	The Mapping Damage Tool aims to address the communication gap by leveraging citizens as data collection agents to gather information about damages and relay it to the appropriate authorities. The data collected are crucial for municipalities' post-disaster recovery and reconstruction endeavors. The gathered information serves various purposes for the CPAs, such as conducting needs assessments, allocating resources, devising plans, making informed decisions, documenting damages, and implementing targeted interventions.
Introduction	Name of the tool	MappingDamage
	Creator of the tool	MappingDamge is a Volunteered Geographic Information tool built by the UT in partnership with MRP and KEMEA using an iterative co-creation approach.
Explanation of the tool	What the tool does	To provide need-specific information to CPAs by leveraging volunteers to report damages caused by wildfire and flood impacts according to predefined damage categorization. The volunteers here refer to civic individuals with local knowledge, tasked to collect relevant information that meets the CPA's needs.
	The intended user	CPAs and Citizens
	How does the tool solve the problem it was designed for	Enabling CPAs and Volunteers alike to keep abreast with damages. Volunteers collect post-wildfire and flood data to report damages to basic infrastructure, such as the conditions of burned buildings, roads, vehicles, fire hydrants, and utility holes.
Overview of functionalities	What unique features of the tool help disaster risk management and reduce the RPAG.	<b>Survey:</b> Volunteers log in to the system and can select surveys based on their preferences, focusing on either floods or wildfires. They can choose the surveys they wish to complete, providing valuable insights and data related to the selected disaster type.





		<b>View results:</b> CPAs can visualise the survey results, which allows a summary of damages that occurred.
		<b>Post function to aid discussion:</b> The post function facilitates CPAs and volunteers to exchange ideas, thoughts, and issues that may arise.
Call for action	A clear call to action: How can user access the tool.	Through the RiskPACC platform (RiskPACC, 2023).

TABLE 15: STORYBOARDING AND SCRIPTING OF MAPPINGDAMAGE

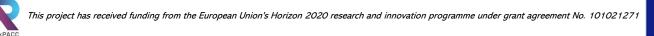
Sub-part	Points	Description of the problem and tool's abilities
Problem Statement	Describe the problem that the software tool was designed to solve	This tool, designed to solve the lack of data infrastructure, poses a significant challenge in understanding the heatwave situation for municipalities. Insufficient data collection systems and monitoring mechanisms hinder the availability of accurate and up-to-date information on citizens' perceptions and adaptive behavior during heat waves.
	Describe the impact of the tool on user	CPA can now have insight into citizens' perceptions of their thermal comfort during heatwaves.
Introduction	Name of the tool	Thermal Comfort Tracker
	Creator of the tool within the RiskPACC project	Thermal Comfort Tracker is a Volunteered Geographic Information tool built by the UT in partnership with CPD through an iterative co-creation approach.
Explanation of the tool	What the tool does	This tool provides a set of thermal comfort indicator questions for the citizens to answer. A target group consisting of individuals of different ages within municipal buildings will be requested to provide information about their age, gender, country of origin/place of residence within the past five years, clothing types as a measure of thermal insulation, previous metabolic activity, current thermal state, which ranges from cold to hot on a 6-point scale, and an indication of the desired change in thermal state. The information received will be integrated with air temperature, humidity, and air pressure data from thermal sensors installed around the city using thermal comfort models such as the Predicted Mean Vote (PMV) and Percentage of dissatisfaction (PDD) to estimate thermal comfort levels.
	The intended user	CPAs and Citizens
	How does the tool solve the problem it was designed for	Understanding citizens' perceptions of heatwave and thermal comfort preferences can help CPAs design more effective and targeted interventions and promote sustainable practices to mitigate the impact of heatwaves on the environment.
Overview of functionalities	What unique features of the tool help disaster risk	<b>Survey</b> : Volunteers log in to the system, click on the thermal comfort survey and enter information about





	management and reduce the RPAG.	their Age, Gender, Country/place of past residence, Clothing, prior, metabolic activity prior thermal exposure, current thermal state, and their desired change in thermal state.
		View <b>results</b> : CPAs can visualise the survey results, which allows a summary of damages that occurred.
		<b>Post function to aid discussion:</b> The post functional facilitates CPAs and volunteers to exchange ideas, thoughts and issues that may arise.
Call for action	A clear call to action: How can user access the tool.	Through the RiskPACC platform (RiskPACC, 2023)

TABLE 16: STORYBOARDING AND SCRIPTING OF THERMAL COMFORT TRACKER



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## Annex 2

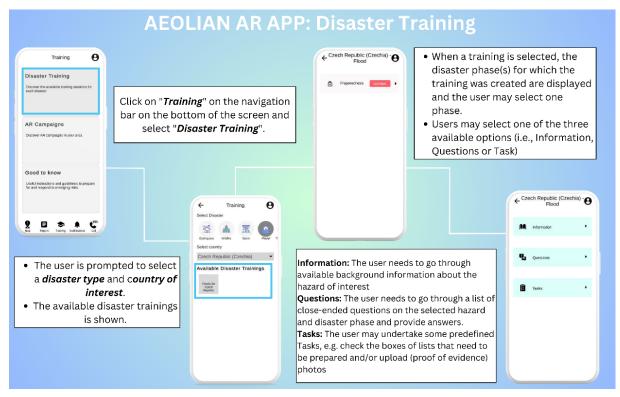
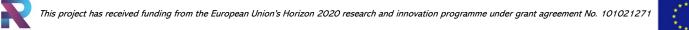
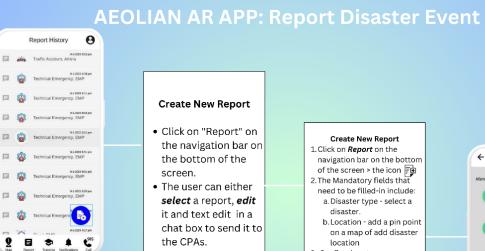


FIGURE 9: THE DISASTER TRAINING INFOGRAPHIC DESIGN OF AEOLIAN AR APP



FIGURE 10: AEOLIAN AR APP CAMPAIGN INFOGRAPHIC DESIGN





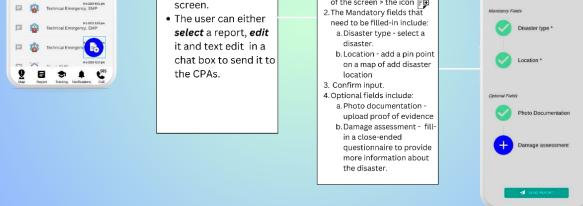


FIGURE 11: THE REPORT DISASTER EVENT INFOGRAPHIC DESIGN OF AEOLIAN AR APP

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Report Creation

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# Annex 3

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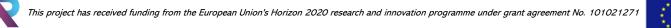
FIGURE 12: HERMES COMMUNICATION DISSEMINATION INFOGRAPHIC DESIGN FOR CITIZENS





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FIGURE 13: HERMES BILATERAL COMMUNICATION BETWEEN CPAS AND CITIZENS





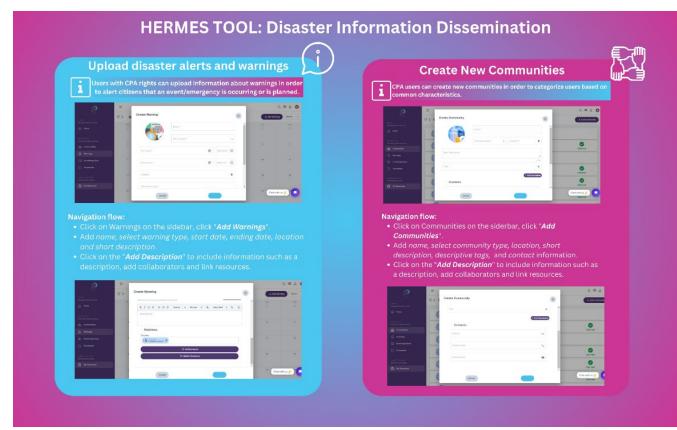


FIGURE 14: HERMES DISASTER INFORMATION DISSEMINATION INFOGRAPHIC DESIGN FOR **CPAs** 





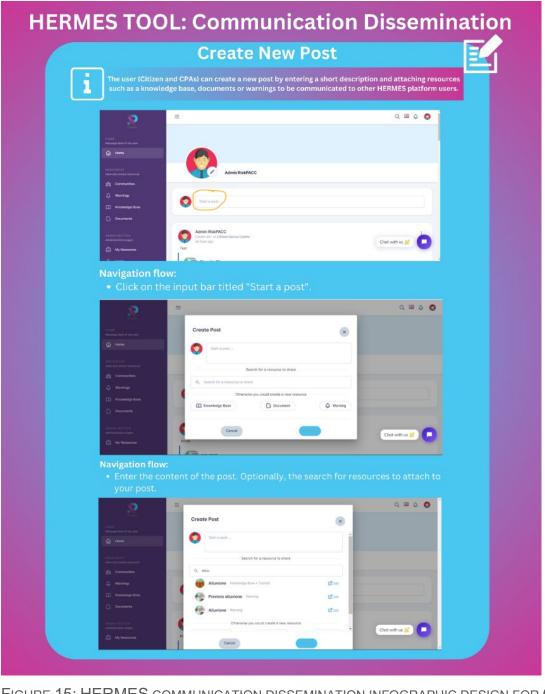


FIGURE 15: HERMES COMMUNICATION DISSEMINATION INFOGRAPHIC DESIGN FOR CPAS

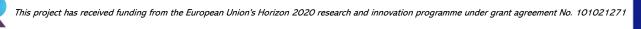






FIGURE 16: HERMES DISASTER KNOWLEDGE DISSEMINATION INFOGRAPHIC DESIGN FOR CPAS



# Annex 4

### MAPPINGDAMAGE TOOL: USER'S GUIDE TO FILL IN SURVEY



- 1. Using the control panels, users can create posts and find posts. Users can also scroll through the list of surveys and posts that exist in the channel.
- 2. Click on a survey of interest and then click on Open Survey.
- 3. A user can interact with a survey by writing a comment or flagging the survey for what ever reason.
- Click on Open Survey > consent to the terms and conditions > click on Start Survey.
- 5. Click on Fill this Section.
- 6. Select the feature you want to collect information on. These features include buildings, roads, fire hydrants, rainwater manhole, areas of greenery, private water supply infrastructure and destroyed vehicles. As an example, choose Roads. Click on Next.
- 7. Next, choose the area of Rafina-Pikermio you want to map. Click on Next.
- 8. Select the road you want to provide information on. Select a single feature by clicking on the feature and click on the navigation icon for direction using google maps. Click Next.
- 9. Select the option that best describe the road type.
- 10. By answering a Yes or No, select if there are any damages seen on the road by answering a series of questions. Click Next.
  11. Upload photo of the road.

FIGURE 17: MAPPING DAMAGE INFOGRAPHIC DESIGN OF USER GUIDE TO FILL IN SURVEYS





# Annex 5

### THERMAL COMFORT TRACKER TOOL: USER'S GUIDE TO FILL IN SURVEY

Thermal Comfort Tracker You are moderator	
	Thermal Comfort Tracker
Margret Azuma	
Givent	
<ul> <li>V</li> </ul>	Want to post something?
	V IDEA 'Y QUESTION 'Y ISSUE © SURVEY
	Mergent Azuma Sovertha ago-Padova, Padova Nadova Inter()
	The Thermal Confort Tracker is a single survey to continuously monitor and evaluate indoor thermal confort paragraphics in selected award in interest. The information sams to be contended with physical encours multicompt are as traperative. Junnifer, modified, and to be

- On the landing page of the <u>Thermal Comfort Tracker</u> tool the sees the Thermal Comfort Tracker survey, click on Open Survey.
- Click on Open Survey again and confirm that you have read and understood the terms and conditions. Click on Start Survey > Fill this section.
- Enter location by clicking on the location/GPS icon and click on Next.

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worn. Click on Submit and Continue.

FIGURE 18: THERMAL COMFORT TRACKER INFOGRAPHIC DESIGN OF USER GUIDE TO FILL IN SURVEYS



# The RiskPACC Consortium



FIGURE 19 THE RISKPACC CONSORTIUM