



# xR4DRAMA

Extended Reality For Disaster management And Media planning

H2020-952133

## D1.4

# xR4DRAMA Ethics Guide

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### Abstract

Following the Ethics Requirements of Work Package (WP8) deliverables, this report will guide the consortium on how to manage ethics matters and comply with the ethics principles and EU Data protection rules during the project's lifetime. Also, this report outlines the societal aspects that xR4DRAMA scientific research will touch.

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## Executive Summary

This document is a public deliverable of the xR4DRAMA Innovation Action project. The project's overarching goal is to create a solution that will improve the situational awareness of those user groups who are responsible for handling disasters. This deliverable starts with a section regarding the scope of the xR4DRAMA project. xR4DRAMA's methodology is based on Extended Reality (XR) technologies. The tools and platform that will be developed throughout the project will be tested through live demonstrations as pilot use cases. Prior and during these demos/tests, humans are going to be involved either directly or indirectly. These pilot tests touch various ethical points as data protection, copyright protection and societal aspects that are analysed in this report.

Section 2 provides details of data protection framework which is divided to the following sub-sections personal data, data processing on the basis of personal consent, data processing on the legitimate interest, specific data processing in individual uses cases, further fundamental principles of data processing and compliance rules and possible sanctions. The processing of personal data within the xR4DRAMA project is ruled by the European General Data Protection Regulation (GDPR). Therefore, all consortium partners of the xR4DRAMA project which are EU state members will follow the GDPR code in terms of data processing.

Section 3 outlines the specific recruitment procedures that will be applied for the recruitment of the internal and external participants. Their participation in the field demonstrations will be voluntary. Furthermore, prior to pilot use cases, participant information sheet (see Appendix A.1) and consent form (see Appendix A.2) will be given to participants. The goal of the project, the data that will be collected throughout the xR4DRAMA research, the methods that the data will be processed have been included in the information sheet. Also, the information sheet includes the rights of the participants to refuse their involvement in the research anytime. As well in this section, the DPO's contact details of all partners have been included. We enclose this section with the data protection rules in agreement with GDPR.

Section 4 contains details and articles related to copyright protection. The xR4DRAMA project's activities will include, to some extent, the processing of content that comes from third parties and may be protected by copyright. In these conditions, the consortium will be required to follow the copyright protection regulations.

Section 5 presents a list of further societal aspects and the ethical code that the xR4DRAMA's research will be based on. Briefly some of the aspects that the consortium will take into consideration are: transparency, accountability, respect to human rights and privacy. In addition, the consortium would always monitor the latest updates on ethics and legal framework.

Lastly, section 6 provides a summary of the report and the Appendix includes the Information sheet and Consent form used in this project.



## Abbreviations and Acronyms

<b>EU</b>	European Union
<b>D</b>	Deliverable
<b>DPO</b>	Data Protection Officer
<b>GDPR</b>	General Data Protection Regulation
<b>GEO</b>	Geographic
<b>IA</b>	Innovation in Action
<b>ICT</b>	Information Communication Technology
<b>PUC</b>	Pilot Use Case
<b>RIA</b>	Research and Innovation in Action
<b>TRL</b>	Technology Readiness Level
<b>UAV</b>	Unmanned Aerial Vehicle
<b>VPN</b>	Virtual Private Network
<b>VR</b>	Virtual Reality
<b>XR</b>	Extended Reality
<b>WP</b>	Work Package



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## 1 INTRODUCTION

### 1.1 xR4DRAMA in a nutshell

The EU-funded xR4DRAMA project aims to create a solution that will improve situation awareness of those user groups who are responsible for handling disasters, man-made crises or public events. The groups range from first responders, local authorities and security forces to media companies and event planners. Situation awareness is crucial for them to execute tasks efficiently, plan things and take the appropriate decisions.

The proof of concept of this project will focus on first responders and media companies before extending the use cases to other domains. xR4DRAMA's methodology is based on Extended Reality (XR) technologies, and the tool can be used remotely and on site for an augmented and shared perception of a given situation. In particular, innovative technologies will be developed in order to:

- facilitate the sourcing of all relevant information needed to plan necessary actions;
- create an "as if on site" experience of an environment (e.g. in VR) to anticipate the planned event or an incident as thoroughly as possible;
- create a joint understanding of an environment (a "distributed situation awareness") to be shared by team members, allowing for smoother communication and consultation;
- provide the possibility to continuously update the representation of the location (e.g. in VR) during the evolving incident/event so as to understand and potentially re-assess consequences of specific decisions.

### 1.2 Scope of this document

In order to test and evaluate the platform's capabilities and the interoperability across all the involved services, a number of operational tests and demonstrations will be performed throughout the project's lifetime. Following the development cycles and the foreseen evaluation approaches, the tests will include real operation scenarios as pilot use cases:

- Disaster Management
- Outdoors Media Production

Prior and during these demos/tests, humans are going to be involved either directly as interviewees and participants or indirectly as third parties that provide data, information and content to the project (e.g. via Social Media channels). These activities touch various ethical domains:

**Data protection:** In the course of the project, we will necessarily collect personal data from those who participate in the use case scenarios as first responders or media production staff. Furthermore, we will evaluate the prototypes by questioning domain experts whose contact details and - more importantly - personal views on the prototypes will be processed by the consortium. Thirdly, various data is going to be collected from Unmanned Aerial Vehicles (UAV) that will be operated in the field. This data will consist of video recordings and images that could potentially capture identifiers of individual persons. And finally, we intend to crawl the web and other sources for additional information from third party contributors on the specific locations. This will also contain





personal data (e.g. images, GEO data or simply the contributors' personal details). In all these four cases, the processing of personnel data needs to be legitimate, meaning that it has to be based on either personal consent or on other reasons as laid down by law.

**Copyright protection:** As mentioned before, we will also process content about specific locations that are provided by third-party contributors via various (web) sources (e.g. images, videos and texts via Social Media). This content will most likely be protected by Copyright. Again, the usage of this protected content items is only legitimate if it can be based on personal consent or on other reasons as laid down by law.

**Societal aspects:** Beyond data and copyright protection, other societal aspects might have ethical implications. For instance, the need for protecting people from natural disasters might come into conflict with the desire for privacy and fear from permanent surveillance.

Within this document we will further detail these three areas of legal and ethical implications and describe how the consortium will follow respective rules throughout the project.



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## 2 DATA PROTECTION FRAMEWORK

The processing of personal data within the xR4DRAMA project is ruled by the European General Data Protection Regulation (GDPR). The GDPR was passed in 2016 and came into force in 2018 with the purpose of providing one unified data protection regime within the EU. Its provisions are therefore binding in all EU member states and for all xR4DRAMA consortium partners.

### 2.1 Personal data

The GDPR is only applicable when personal data are processed. Article 4 (1) GDPR defines “personal data” as *any information relating to an identified or identifiable natural person* (the ‘data subject’). An identifiable natural person in this sense *is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person*. It is discussed controversially whether a person needs to be identifiable by the specific data controller in question (who could have restricted means and sources) or whether it is sufficient that this person is *theoretically* identifiable by someone. Data protection authorities (e.g. in Germany) tend to lean towards the latter view. A ruling by the European Court of Justice from 2016 also tends to a wide understanding of personal data by declaring *dynamic ip addresses* as personal data (Judgement of the Court of October 19<sup>th</sup>, 2016 - case reference C-582/14). Therefore, and in order to be on the safe side, the consortium should consider any piece of information that could somehow be related to a specific data subject as personal data.

For xR4DRAMA, this means that all information that clearly identifies a specific data subject (names, contact details etc.) is personal data. But even pseudonymised information or any piece of information that could theoretically (e.g. by big data analysis) be related to a specific data subject should be considered as personal data. Only completely anonymised data that cannot be referred back to an individual person is not considered as personal data.

### 2.2 Data processing

According to Article 4 (2) GDPR, “processing” means any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction. Given this wide definition, any dealing with personal data by the consortium should be considered as “data processing” in the light of the GDPR.

### 2.3 Data processing on the basis of personal consent

The most straight-forward way to obtain legal permission for the processing of personal data, is to ask for the data subject’s personal consent. According to Article 6 (1a) GDPR,



*processing shall be lawful [...] if and to the extent that [...] the data subject has given consent to the processing of his or her personal data for one or more specific purposes.*

Article 7 GDPR further specifies the conditions for consent by especially requiring that

*the request for consent shall be presented in a manner which is clearly distinguishable from [...] other matters, in an intelligible and easily accessible form, using clear and plain language.*

Prior to giving consent, the data subject needs to be informed that he or she has the right to withdraw his or her consent at any time without giving any specific reason. It needs to be as easy to withdraw as to give consent. However, any withdrawal of consent does not affect the lawfulness of processing based on consent before its withdrawal.

With regard to xR4DRAMA, this means that in all cases that we ask for the personal consent of data subjects, we will do this by explaining in clear and plain language for which specific purposes we intend to process the data. Templates for a Participant Information Sheet and for a Consent Form can be found in the appendices to this deliverable.

## **2.4 Data processing on the basis of legitimate interest**

Although personal consent is the most straight-forward legal ground for data processing, it is often not the best choice or even a manageable option. First of all, the right to withdraw consent at any time causes risks as this withdrawal terminates the lawfulness of data processing for the future; a consequence that could be severe when, for instance, successful scientific research is based on the further availability of this data. Furthermore, the specific data subject(s) might not be reachable or quite simply not prepared to give consent. And finally, especially with regard to big data analysis, it might not be manageable to address all affected data subjects.

In order to facilitate lawful data processing in at least some of these cases, Article 6 GDPR provides a *conclusive* enumeration of additional legal grounds. With regard to scientific research projects such as xR4DRAMA, the processing of personal data could be based on *legitimate interest* according to Article 6 (1f) GDPR. Here, the regulation provides that the processing of personal data is lawful if it is

*necessary for the purposes of the legitimate interests pursued by the controller or by a third party, except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, in particular where the data subject is a child.*

This means that, as a first step, we need to assess whether the interests of the xR4DRAMA consortium can be considered as “legitimate interests” in the sense of Article 6 (1f) GDPR.

In fact, the GDPR privileges scientific research in a number of sections. For instance, data processing for archiving purposes in the public interest, *scientific* or historical *research purposes* or statistical purposes is generally not considered to be incompatible with the initial purposes (Article 5 (1b) GDPR). This means that scientific research remains possible even if it was not covered by the initial purpose and even if the data subject had not been informed about this option beforehand. It is also not required to subsequently inform the



data subject about the use of his or her data if the provision of such information proves impossible or would involve a disproportionate effort (Article 14 (5b) GDPR). Furthermore, this personal data may be stored for longer periods as long as the data will be processed solely for [...] scientific [...] research purposes (Article 5 (1e) GDPR).

On the other hand, these regulatory privileges for scientific research correspond with specific safeguards that researchers need to observe. Especially Article 89 GDPR contains a number of safeguards and derogations relating to data processing for scientific research. Its goal is to balance out the fundamental rights to privacy and data protection on one hand and the freedom of scientific research on the other. Altogether, Article 89 and the various other provisions in the GDPR lead to the following principles that need to be observed when the processing of personal data is justified by scientific research:

- The processing of personal data for scientific research should be carried out on the basis of *anonymised datasets*. If the research purpose does not allow for anonymisation, the datasets should at least be pseudonymised. The risk of *re-identification* should be minimised as far as possible.
- The processing of personal data for scientific research is only permitted if the responsible researchers establish organisational and technical measures that safeguard a maximum of integrity, confidentiality, transparency, availability and resilience of processing systems and services.
- Researchers are only entitled to *publish* personal data on the basis of prior personal consent.

In brief, research activities within xR4DRAMA may be considered as legitimate interest that allows for the processing of personal data according to Article 6 (1f) GDPR as long as the aforementioned safeguards and limitations are observed. In the following sections, we will therefore briefly analyse whether the individual use cases involve the processing of personal data and whether legitimate interest (or any other reasons laid down by law) might justify that data processing.

## **2.5 Specific Data processing in the individual use cases**

In both use cases, the consortium will process

- personal information about direct participants (such as first responders or media production staff);
- personal information about domain experts who will be asked to test and evaluate the prototypes;
- personal information about third parties that will be crawled from the web and other sources;
- personal information about third parties that will be gathered by UAV cameras.

Further specification of this data and the way in which it will be processed can be found in D8.2.

Regarding the personal data of direct participants or domain experts who will evaluate the prototypes we will ask for their personal consent. The respective information sheet and consent form can - as mentioned before - be found in the appendices to this deliverable. On the other hand, we will not be able to obtain consent from third parties whose data might be processed when crawling the web or filming with UAVs. In these



cases, the character of the project as a scientific enterprise is reason enough to serve as legitimate interest according to Article 6 (1f) GDPR. Nevertheless, we will need to take into account that xR4DRAMA is not a more research-oriented "Research and Innovation Action" (RIA) but an "Innovation Action" (IA) that strives for a higher Technology Readiness Level (TRL). In Innovation Actions, the boundaries between scientific research and actual exploitability or marketability might be more fluid. Consequently, we need to keep in mind that the data processing framework might have to be adapted when the consortium approaches the level of exploitability towards the end of the project.

Additionally to the categories of personal data that we have mentioned before, the consortium will also process biometric data. This refers especially to the disaster management use case where various sensors will monitor the physiological status (e.g., heart rate, breath rate and voice data) of first responders in order to assess their stress level. According to Art. 9 GDPR, this kind of data can only be processed if the data subject has given explicit consent to the processing of those personal data for one or more specified purposes. This means that the information sheet and consent form needs to be very clear and specific about what kind of personal physiological data will be processed in which context and for which purpose. Again, D8.2 has already detailed how this data will be collected, processed and securely stored.

In brief, the planned data processing activities within the xR4DRAMA project will be based on personal consent (wherever possible) or - as part of scientific research - on legitimate interest.

## **2.6 Further fundamental principles of data processing**

Even if data processing can be based on personal consent or legitimate interest, the data controller still needs to strictly follow a number of fundamental principles regarding the treatment of this data:

- *Purpose limitation*: Personal data need to be collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes (Article 5 (1b) GDPR).
- *Data minimisation*: The processing of personal data needs to be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (Article 5 (1c) GDPR).
- *Accuracy*: The processing of personal data needs to be accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay (Article 5 (1d) GDPR).
- *Storage limitation*: Personal data need to be kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed. However, personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes subject to implementation of the appropriate technical and organisational measures required by this Regulation in order to safeguard the rights and freedoms of the data subject (Article 5 (1e) GDPR).



- *Integrity and confidentiality*: Personal data need to be processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures (Article 5 (1f) GDPR).

D8.2 describes how the consortium as such and individual partners will comply with these principles. Additionally, Section 3 describes which specific measures will be implemented regarding the recruitment of participants and the treatment of their personal data.

## 2.6 Compliance rules and possible sanctions

The GDPR also provides a number of compliance rules. Their purpose is to establish management structures and specific protocols within the data controller's organisation that ensure that the processing of data follows the GDPR's provisions. The most relevant compliance rules are:

- *Privacy by design*: The data controller is obliged to implement appropriate technical and organisational measures, such as pseudonymisation, which are designed to implement data-protection principles, such as data minimisation, in an effective manner and to integrate the necessary safeguards into the processing in order to meet the GDPR's requirements. These measures need to take into account the state of the art, the cost of implementation and the nature, scope, context and purposes of data processing as well as the risks for the respective data subject (Article 25 (1) GDPR).
- *Privacy by default*: The data controller is obliged to implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed. That obligation applies to the amount of personal data collected, the extent of their processing, the period of their storage and their accessibility (Article 25 (2) GDPR).
- *Records of processing activities*: The data controller is obliged to maintain a record of processing activities under its responsibility. That record is supposed to contain:
  - the *name* and contact details of the controller and, where applicable, the joint controller, the controller's representative and the data protection officer;
  - the purposes of the *processing*;
  - a description of the categories of data subjects and of the categories of personal data;
  - the categories of recipients to whom the personal data have been or will be disclosed including recipients in third countries or international organisations;
  - where applicable, transfers of personal data to a third country or an international organisation;
  - where possible, the envisaged time limits for erasure of the different categories of data;
  - where possible, a general description of the technical and organisational security measures that are taken in order to safeguard personal data. (Article 30 GDPR)
- *Data protection officer*: Data controllers that regularly process personal data on a larger scale are obliged to appoint a data protection officer whose main tasks are to advise the data controller about data protection, to monitor compliance with the



GDPR and to serve as contact point for the supervisory authorities (Articles 37, 38 GDPR). In Germany, for instance, any organisation with ten or more employees in charge of processing personal data, is obliged to point a data protection officer (§ 38 Federal Data Protection Act).

Again, D8.2 details how the consortium and the individual partners will adhere to these compliance rules. Additionally, Section 3 describes which specific measures will be implemented regarding the recruitment of participants and the treatment of their personal data.



### 3 SPECIFIC MEASURES REGARDING THE RECRUITMENT OF PARTICIPANTS

This section sets out the specific procedures and criteria for identifying and recruiting participants in the workshops and field-tests described in WP6.

As per section, 5.1. of the xR4DRAMA Grant Agreement, it is important to note that all participants in xR4DRAMA activities will be volunteers who have actively consented to participating in the research activity. Their involvement will be required for validating the developed services. The validation process will be based on synthetic scenarios of emergency situations. Wherever possible, the volunteers will be employees or directly affiliated with the consortium partners. The xR4DRAMA ethics board will work closely with pilot organisers to ensure that these activities comply with ethical research standards and data protection principles.

The xR4DRAMA consortium is committed to complying with ethical principles and applicable international, EU and national law. We will ensure respect for people and for human dignity and fair distribution of the benefits and burden of research. We will protect the values, rights and interests of the research participants. The consortium will obtain the free and fully informed consent of research participants. No deception will be used in the field trials or system development.

The consortium recognises that for medical and human research, it must follow the procedures for informed consent described in the Declaration of Helsinki and the Oviedo Bioethics Convention. However, our field trials and system development do not involve medical research. Our research does involve humans, however.

The consortium will ensure that its research methodologies do not result in discriminatory practices or unfair treatment.

When conducting surveys, interviews or workshops where personal information is gathered and stored, we will pay attention to:

- Privacy – The consortium will collect biometric data, such as, stress level, voice and heart rate from the field trial participants.
- Data protection – The consortium will pseudonymise the details of all participants in the trial and will password-protect files and control access to the files.
- Data management – The consortium will ensure that any data processed in the workshops and field trials complies with the project's data management plan.
- The health and safety of participants – Participants will be able to cease participation in the trial of the xR4DRAMA platform and solutions whenever they want. Participants will have regular breaks.

#### 3.1 The Protection of Participants' Personal Data

During the demos/tests that are going to be conducted throughout the project's lifetime, basic personal data such as name, job title and contact information are going to be asked from the participants via the informed consent form.

The following questions of the Horizon 2020 Guidelines (European Commission, 2019) have been responded to ensure the provision of the necessary information regarding these processes.





Question	xR4DRAMA Responses
<b>Does your research involve processing of personal data?</b>	<p>Yes; apart from the collection of basic personal information via the informed consent forms and the evaluation forms that will be collected prior and after the demo, respectively; xR4DRAMA's research also involves the collection of imagery and videos of people in combination with their location data (in some PUCs). Therefore, their signed informed consents for the processing of such data are going to be collected before their involvement in the research. Information sheets with all the necessary information will also be provided to them beforehand.</p> <p>In case the participant feels that his/her data are not being treated appropriately, the contact details of the responsible partner's Data Protection Officer as well as CERTH's Data Protection Officer contact details are going to be mentioned in the information sheet.</p>
<b>Does it involve the processing of special categories of personal data (e.g. genetic, health, sexual, lifestyle, ethnicity, political opinion, religious or philosophical conviction)?</b>	Yes, biometric data (as heart rate, breath rate and voice data). A Data Protection Impact Assessment has been conducted by CERTH and may be found below.
<b>Does it involve processing of genetic, biometric or health data?</b>	Yes, biometric data (as heart rate, breath rate and voice data).
<b>Does it involve profiling, systematic monitoring of individuals or processing of large scale of special categories of data, intrusive methods of data processing (such as, tracking, surveillance, audio and video recording, geolocation tracking etc.) or any other data processing operation that may result in high risk to the rights and freedoms of the research participants?</b>	No.
<b>Does your research involve further processing of previously collected personal data (including use of pre-existing data sets or sources, merging existing data sets)?</b>	Yes.
<b>Does your research involve publicly available data?</b>	Yes, (Twitter, gov.gr).



Is it planned to export personal data from the EU to non-EU countries?	No.
Is it planned to import personal data from non-EU countries into the EU?	No.

Table 2: Ethics Self-assessment Questions (Personal Data)

### 3.2 Data Protection Officer

According to Art. 37 of GDPR (2016/679), a Data Protection Officer (DPO) should be officially appointed in order to monitor compliance with the Regulation and other data protection law. Moreover, the primary role of a Data Protection Officer is to ensure that both the researchers and the research participants are informed about their rights, obligations and responsibilities as well as advice partners about the interpretation and application of the data protection rules.

The table below contains the DPOs’ contact details of all partners that will conduct a demo or an operational test and will collect and process personal data via the informed consent and the evaluation forms.

Partner (Short name)	Do you have a DPO? Yes/ No	Responsible DPO	DPO address and/or contact details	If no DPO, provided copy of data protection policy.
CERTH	Yes	Ioannis Chalinidis	CERTH – Center for Research and Technology Hellas  Address: 6th km Charilaou-Thermi Road, P.O. Box 60361, 57001 Thessaloniki, Greece  Email: dpo@certh.gr	N/A
DW	Yes	Dr. Thomas Gardemann	Deutsche Welle Kurt-Schumacher-Strasse 3 53113 Bonn  T. +49.228.429-0  datenschutz@dw.com	N/A
NURO	Yes	Bjoern Goetsche	Nurogames GmbH, Schaafenstrasse 25, koln 50676	N/A
U2M	Yes	Christos Stentoumis	Michail Mela 21. Athens 11521, Greece, christos@up2metric.com	N/A
UPF	Yes	Marc Vives	marc.vives@upf.edu	N/A



AAWA	Yes	Cesare Lanna	Cesare.lanna@distrettoalpiorientali.it	N/A
STX	No			See below

Table 3: DPO per partner

The following partner (STX) is not required to appoint a DPO under the GDPR but is obliged under this grant agreement to submit a detailed data protection policy for the project. Please check D8.2 section 2.1 for STX's privacy policy.

### 3.3 Process of personal data within the project

As a part of the ethics deliverables, information was asked from all partners that are involved in the demos/operational tests in order to identify what type of data will be collected during their simulations. Whilst planning the evaluation phase through pilot tests, various data such as name, job title, contact details, will be collected based on informed consents that we will ask all participants to provide prior to their involvement in the demo/test.

This data is going to be collected, processed, and safely stored by the responsible partner for the demo/test in secure and locked locations in order to avoid their corruption or breach.

A digital copy may also be stored by some partners in secure servers that require a unique username and password, or decryption means to access them and will be deleted (the latest) upon the completion of the project.

Regarding the data collected from the UAVs and physiological sensors during the demos/tests, they will be biometric data (such as voice data, stress level and hear rate etc.) and video recordings from the cameras attached to the UAVs. More information about the collection of biometric data can be found in section 3.1 in D8.2 These data will be transmitted to xR4DRAMA and will be kept safe during this process by using a VPN (in case of a 4G connection), by standard Wi-Fi protection (in case of using a long-range Wi-Fi antenna), in a secure cloud or in a fiber network intranet – depending on the partners involved.

Given the fact that xR4DRAMA will have the participants' consent to collect and process their data, the partners will have a lawful basis to act as such, in accordance with GDPR's Article 6(1). Additionally, the lawful basis for this processing also applies to the purposes of the legitimate interests pursued by xR4DRAMA's Consortium and the European Commission based on the signed Grant Agreement between the two.

### 3.4 Data Protection Rules

xR4DRAMA will base its data protection rules on the basic principles laid out in the GDPR:

#### Lawfulness, fairness, transparency

xR4DRAMA has identified its lawful basis for data processing which is the acquisition of a signed consent from the participant, by which he/she agrees to take part in the demonstration/operational test that is going to be executed and allows the responsible partner to process his/her data.



Thus, xR4DRAMA ensures that the collected data will be treated in a fair way by providing the potential participant with all the necessary information from the start of the research. After giving them the essential information, they can decide whether they would like to participate in this research study or not and hence, not misleading them in any way. Moreover, giving the potential participant the opportunity to ask any further questions to PUC responsible partners regarding the research if they feel like the information provided to them with the information sheet is not enough, indicates that the xR4DRAMA consortium is willing to act in a transparent and open way. Lastly, all involved partners have appointed a DPO and to whom both partners can turn for assistance and participants for clarifications or doubts.

### **Purpose limitation**

The purposes of the conducted research are identified in the information sheet provided to the potential participants and are limited to the following:

- setting out the user requirements,
- designing the system and the used technologies and
- demos/operational tests that are going to take place.

If the purposes change along the way, the updated ones should be reported in the respective deliverables and mentioned in the information sheet provided to the upcoming participants.

### **Data minimisation**

xR4DRAMA will only collect data that is adequate, relevant and limited to what is necessary for its purposes. The personal data collected from the consortium interaction with the participants is limited to:

- their names (mostly because they were either the project's employees or recruited through the use of the consortium's own contacts, therefore basic personal information is already known to the researcher),
- their job title (for the pre-mentioned reason and for reassuring that they can provide the consortium with valuable feedback from their participation in the demo/test),
- their email address/phone number (for contacting them for briefing and in case of emergency),
- their feedback and opinion about the xR4DRAMA system and modules
- in the disaster management use case physiological data such as heart rate, breath rate and voice data.

This personal data should be sufficient for the consortium's needs in order to achieve its goals, and it should be reviewed before the next demo to determine which of them are still useful and which should be removed.

Regarding the data collected from the UAVs during the demos/operational tests, they will not be stored anywhere in the UAV or xR4DRAMA's system for more than the project's duration.



### **Accuracy**

By using the consortium's own network for recruiting participants for the demos/operational tests, xR4DRAMA diminishes the risk of acquiring false or ambiguous personal data. All collected data should go through a check by the responsible partner in order to ensure that the data is correct and updated.

Additionally, by involving professionals in the demos/tests (e.g. UAV operators) the consortium makes sure that the vehicles are going to be properly operated and will accurately focus on the data needed for the project's scopes and objectives.

### **Storage limitation**

The informed consent and evaluation forms containing personal data will be securely held in the responsible partner's premises until the project's end, allowing partners to refer back to them for information on the system's improvement. As long as the data collected from the demos/tests is relevant, it will be securely stored in servers which are password protected and will be accessed only by the involved partners. The main reason of securely stored the data is that partners will have enough time to evaluate and assess the collected data and to see how they can further improve the xR4DRAMA's system.

Temporary storage will assist the consortium with the monitoring of the project's progress and with the writing of scientific articles in journals or magazines in order to encourage future relevant researches. However, all personal data will undertake an evaluation before the following demo/operational test takes place to reassure that the previously collected ones are indeed of need.

### **Integrity and confidentiality**

As xR4DRAMA is following a "Privacy by Design" approach, all collected personal data is going to be treated in full confidentiality and will not be shared outside of the consortium unless xR4DRAMA is required to share this information with the European Commission/national authorities as a part of its obligations. This possibility will also be mentioned in the information sheet provided to the participant. All participants will, of course, have the right to access, edit or delete their data upon request.

Regarding the protection of the collected data, the xR4DRAMA consortium has made sure to be equipped with the necessary means in order to physically and digitally protect the data they collect. As mentioned above, hard copies of the signed informed consents that will be handed out to participants will be securely stored in areas in the responsible PUC partner's facilities and digital copies that may be created will be stored in secure servers in the responsible partner's premises. Each participant will have a unique set of username and password in order to access them.

More specifically, the data collected from the UAVs operated on the field (e.g. videos and imagery) will undertake a review based on a neural detection network which will automatically blur and cover human faces that could have been captured in the footage. The collected footage will also undergo an additional review by CERTH in order to blur and consequently anonymise any footage that might have been missed by the drones/cameras. Following these two procedures, the data collected may be shared with the rest of the partners.



Moreover, in case of an accidental collection of personal data during the execution of the demo/test, will enforce its “incidental findings policy”, which is the following:

- In case a person working for xR4DRAMA has enacted an illegal activity with the sole purpose of testing the system and has been detected by the system, the local practitioner authority (e.g. National Police) will issue said person with a Letter of Commission stating that he or she has performed the action resembling an illegal act for the sole purpose of testing the system. No further action is needed.
- In case a person not involved in any way in the project engages in an illegal activity detected by the system, then the person will be handed over to the national police units present who will carry out standard operational procedures determined by regulations on the given case, and all relevant data has to be secured/encrypted and handed over to the police as evidence.
- Any data collected from video, imagery or other sensors that incidentally may be considered relevant for the identification of individuals not involved in the project will be immediately isolated and erased from all storage devices (e.g. cameras).

### **Accountability principle**

Each partner who processes personal data is responsible for adhering to GDPR. Also, xR4DRAMA ensures that it holds itself accountable to its research participants by adopting these standards that are based on GDPR's primary principles. Moreover, It will make sure that it keeps its data protection rules updated according to the latest EU Directives/Regulations/national legislation, by continuously reviewing the legal framework throughout the whole project.

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## 4 COPYRIGHT PROTECTION WITHIN THE PROJECT

The work in the xR4DRAMA project will to a certain extent involve the processing of content that originates from third parties and might be protected by copyright. This specifically refers to videos, images and texts that are crawled from Social Media or from other sources. In these cases, the consortium will need to observe the rules on copyright protection. We can assume that most of the videos, images and text that will be used are indeed protected by copyright. This means, in principle, that any copying and processing of these works requires the prior approval by the respective rightsholders. However, as we will be processing these items in the context of scientific research, and more specifically, in the context of text and data mining, we will benefit from certain legal privileges.

In 2019, the EU passed a *Directive on Copyright in the Digital Single Market* ("European Copyright Directive")<sup>1</sup>. The European Copyright Directive foresees certain privileges regarding the use of works that are protected by copyright without the rightsholders' approval. Most relevant for the xR4DRAMA project is Article 3 that stipulates that

*"member states shall provide for an exception to [Copyrights] for reproductions and extractions made by research organisations and cultural heritage institutions in order to carry out, for the purposes of scientific research, text and data mining of works or other subject matter to which they have lawful access".*

This includes the right to store copies of these works, provided that they are stored

*"with an appropriate level of security and may be retained for the purposes of scientific research, including for the verification of research results"*

However, the directive also points out that these copies may only be retained for as long as is necessary for the purposes of text and data mining (Article 4(2)). Also, these privileges for text and data mining

*"shall apply on condition that the use of works [...] has not been expressly reserved by their rightsholders in an appropriate manner, such as machine-readable means in the case of content made publicly available online".*

At the beginning of the xR4DRAMA project, this directive had not been implemented into the laws of the member states. In the meantime, the implementation period has ended on June 7<sup>th</sup>, 2021, and a large number of member states has passed according legislation.

Section 60d of the German Act on Copyright and Related Rights, for instance, supports large-scale text and data mining by universities, research institutes or other institutions that carry out scientific research as long as

1. *they follow non-commercial purposes only,*
2. *they reinvest any profit in scientific research or*
3. *they are acting on the basis of a state-approved mission in public interest.*

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<sup>1</sup> Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC



As EU co-funded projects should be considered as *state-approved missions in public interest*, text and data mining within xR4DRAMA should be lawful according to German law. However, the manner how the European Copyright Directive is implemented into national law will vary from one member state to the other. All consortium partners should therefore carefully examine the provisions of their respective national legislation.





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## 5 FURTHER SOCIETAL ASPECTS AND ETHICAL CODE

Taking all the above into consideration, xR4DRAMA can form its ethics policy that it is going to base its research on, in order to be in accordance with H2020 guidelines and EU regulations.

### 5.1 Understand social and ethical challenges.

As mentioned above, the Consortium understands the reasons why the collection of data (and especially biometric data) may raise concerns among citizens, as it might seem as an intrusion to their privacy. Especially, the deployment of drones and the use of physiological sensors might be seen as a "threat" or might lead at least to a "feeling of discomfort". In a large number of cases, individuals have objected the deployment of UAVs or have even taken measures into their own hands. German courts, for instance, have ruled that it is allowed under certain circumstances to shoot down an UAV with an air gun<sup>2</sup>. These might be extreme measures, but they reflect a growing unease with the possibilities of mass surveillance by anonymous technologies. It should be obvious that it is not the intention of the xR4DRAMA project or its partners to enter into the surveillance of individuals. However, the consortium is aware that it is dealing with a sensitive matter and technology. We will carefully take into account objections and fears in society and among individuals regarding the use of these technologies.

Furthermore, the Consortium will keep conducting desk-top research and monitoring the situation to have a deeper knowledge of the topic and to be able to successfully handle it.

Experienced professionals are already involved in the project, who can prove of help to reassuring citizens and research participants that their involvement in this project will not cause any harm to them. Responsible partners for demos/operational tests should be available to communicate with their participants and provide them with all the information they need.

### 5.2 Put high priority on transparency and accountability.

The Consortium should always be transparent and open towards participants about the procedures they follow and the data they collect. In the information sheet it should be stated in detail which activities are going to take place in this specific demo/test and the role of the participant within the research. They should always be explicit and precise. In addition, they should clearly state what type of information/data is going to be collected from the participant during his/her contribution in the research. The participant will of course have access to his/her data in order to review, edit or delete them upon request from the data controller.

### 5.3 Pay respect to Human Rights.

In order to further diminish any ethical concerns that may arise, xR4DRAMA will always take into serious consideration the Human Rights declared in EU's respective Charter

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<sup>2</sup> AG Riesa, 9 Cs 926 Js 3044/19, available at:

<https://dejure.org/dienste/vernetzung/rechtsprechung?Gericht=AG%20Riesa&Datum=24.04.2019&Aktenzeichen=9%20Cs%20926%20Js%203044%2F19>



(2021) and put special focus on the right on liberty and security, the integrity of a person, the protection of private life and the protection of data. xR4DRAMA aims to improve the situational awareness via extended reality (XR) technology and increasing levels of response in environment disasters (e.g floods) among EU. In addition, certain Data Protection Rules has already been set out (see section 2) and are already followed by the Consortium in order to protect the data collected and the outcomes of the research.

#### **5.4 Protect Privacy.**

As mentioned above, the Consortium has established a set of rules in order to properly collect and process (personal) data during the project's lifetime. Apart from the participants' personal feedback and opinion regarding the xR4DRAMA project and system, only basic personal information (such as name, contact details etc.) will be collected from the participants. In the information sheet it should be clearly stated which data will be collected the demo/test (e.g. video footage), how they are going to be used, where and by whom they are going to be processed.

Additionally, as the technical partners will need the collected information in order to adjust and modify their technologies, all collected personal data is going to be anonymised, before being shared with the technical partners. Moreover, in case of an incidental finding that involves a suspicious person, the data that is going to be shared with the authorities will be encrypted and secured, in avoidance of a possible breach to the public. In case of an incidental finding of a person that is by no means involved in this research and there is no suspicion over them, then the data is going to be immediately deleted from all storage devices (e.g. UAVs cameras).

Only data considered necessary for the successful conduct of the research should be collected.

#### **5.5 Keep monitoring the legal and ethical framework in order to be up to date.**

Currently, as technology and society are constantly evolving, new ethics issues may arise and be addressed. Therefore, the Consortium should always carefully follow the updates and reforms of all EU Regulations may undertake and make sure that they comply with them. This will be achieved by having periodic reviews (before the next demo/test is to be carried out) in order to make sure that everything is done according to EU/national legislation.



## 6 CONCLUSION

In conclusion, this deliverable presents the aim and the scope of the project as well as the need of human participation in xR4DRAMA research. Real operation scenarios will be organized and executed related to disaster management and outdoors media production. In the course of the demos/ test, human participation is needed in order the consortium to collect constructive feedback for the development of platform/ tools. The consortium will take into serious consideration some ethical key points as personal data and data processing policies. Moreover, copyright policy will be taken into account due to the fact that the consortium will collect videos and imagery from the third parties that might be protected.

Moreover, this report clearly states that within the XR4DRAMA research the collection of personal data is necessary for the platform development. This need has been justified by scientific research described in this report as well. Personal data will be collected from first responders or media production staff who will participate in use cases. Furthermore, throughout the field tests various data is going to be collected from Unmanned Aerial Vehicles (UAV) that will be operated in the field. This data will consist of video recordings and images that could potentially capture identifiers of individual persons. Hence, the consortium will follow principles as anonymization/ pseudonymization for removing potential personal identifiers.

Also, this deliverable describes the specific measures regarding the recruitment of human participants. Partners will invite participants experienced in the field of research. In addition, the DPO's contact details for all partners have been indicated. xR4DRAMA research will be set up on some basic principles related to data processing as lawfulness, fairness, transparency, purpose limitation, data minimisation, accuracy, storage limitation, integrity and confidentiality and accountability principle.

Ethical code has been set forth to comply with fundamental ethical principles and legislation to scientific research in all possible domains of research. Experienced professionals are already involved in the project, who can reassure citizens and research participants that their involvement in this project will not cause any harm to them. Responsible partners for demos/operational tests will be available to communicate with their participants and provide them with all the information they need.

Overall, the scope of this report is to guide beneficiaries to deal with the ethics issues raised by their research and if necessary, to take preventive or/and corrective measures.



## 7 REFERENCES

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## A APPENDIX

### A.1 Participant Information Sheet

The participant information sheet, which is to be provided to research participants prior to engaging in xR4DRAMA research, is as follows:

#### PARTICIPANT INFORMATION SHEET

##### General Information

You have been requested to participate in a research conducted by xR4DRAMA's Consortium coordinated by CERTH (Centre for Research and Technology – Hellas). xR4DRAMA is a project funded by the European Commission concerning a solution that will improve the situational awareness of those user groups who are responsible for handling disasters, man-made crises or public events. This document will provide you with all the necessary information you will need in order to completely understand why this research is taking place and what it involves, before providing us with your consent for participation.

##### Participation

It should be highlighted that your participation is completely **voluntary**, and you can **withdraw** at any time of the process without providing any reason. For this objective, please contact [NAME] (responsible partner for this demo) whose contact details can be found at the end of this document. After contacting him/her, you might be asked whether you would like to permanently delete your data or if you consent to continue processing these data. In addition, you might be asked for the reason why you would like to withdraw from the research, but you are not obliged to respond. In the case of being recruited by your employer, please ensure you are under no unjust pressure to participate. Therefore, we would like to ask you to carefully read the following, make sure that you fully understand the research and its scope and ask for any clarifications or translation, if required.

##### The project

xR4DRAMA project aims to create a solution that will improve the situational awareness of those user groups who are responsible for handling disasters, man-made crises or public events. The groups range from first responders, local authorities and security forces to media companies and event planners. Situational awareness is crucial for them to execute tasks efficiently, plan things and take the appropriate decisions.

xR4DRAMA's research started in November 2020 and will be completed in October 2022 – more information can be found at the project's website <https://xr4drama.eu/>. As stated above, this research is funded by the European Commission under Horizon 2020 (Grand Agreement No.: 952133, Call: H2020-ICT-2019-3, Topic, ICT-55-2020 - Interactive Technologies, <https://cordis.europa.eu/project/id/952133> ) and is run by 7 partners across Europe:



1. Centre for Research and Technology Hellas (Greece)
2. Deutsche Welle (Germany)
3. Nurogames GMBH (Germany)
4. U2METRIC (Greece)
5. Universidad Pompeu Fabra (Spain)
6. Autorita Di Bacino Distrettuale Delle Alpi Orientali (Italy)
7. SMARTEX S.R.L. (Italy)

### Description of the research

This specific research of xR4DRAMA is centered on [explanation of the PUC – PUC1 taken as an example here] - the simulation of a disaster management. During floods, decision makers and first responders face a stressful scenario; there are a lot of different tools to use that are oriented to only the management of floods. However, the most important information during floods for most people involved is the situation before the flood and exactly this dataset is mostly unavailable. Furthermore, first responders are not trained to face those real-life scenarios because mostly they acquired theoretical knowledge on how to act during flood events but have little actual experience. The VR environment will replicate the principal features of a generic flood. xR4DRAMA will allow participants to be trained in a safe situation also making use of physiological sensors to monitor response and health data. [responsible partner's acronym] officials of its location and severity of the situation via the xR4DRAMA platform.

You were selected to participate in this research as your professional background and experience could be of great value to this demo and to xR4DRAMA's general design. Your feedback will be requested via the following ways:

- oral questions/interviews – mostly to technical partners participating in the demo in order to see how the technical solution operates during the demo and if modifications will be required. End user partners will also be asked some questions during the pre-evaluation event that will take place prior to the demo and will serve as an opportunity for them to be familiarized with the platform and report any issues resulted.
- questionnaire – mostly to end user partners involved after the execution of the demo. This will assist the evaluation of the system's ability to operate properly and the feeling of satisfaction for the produced outcome by the end users.

For the collection of this feedback the following information will be required from your side:

- Full name
  - in order to come back to you in case any further clarification is required
- Professional affiliation/command post
  - in order to identify for which components, we should contact you for feedback based on your professional background and experience
- Gender
  - in order to ensure that our research is gender-balanced



- Contact information
  - in order to keep you updated on the research's outcomes

Photographs, video, or audio recordings might be acquired during your participation in this research (e.g. audio recordings, video recording of participation in the demonstration etc.). This information will be used for adjusting the project's user requirements, system design and used technologies for object/individual detection. Additionally, the information provided, and the demonstration's outcomes may also be used for writing articles in journals or industry magazines, conference presentations and workshops or for further dissemination purposes. No further use of your information will take place without your written permission. You can also review these recordings upon request to [NAME] (responsible partners for the PUC):

**Name:** [FULL NAME]

**Affiliation:** [ORGANIZATION ACRONYM] (Responsible partner for the demo)

**E-mail:** [EMAIL ADDRESS]

### Your rights

- **Right to access:** you may access your data and ask copies of your data whenever you wish to.
- **Right to rectification:** you may ask us to rectify the information you have provide us in case you consider that something is missing or is incorrect.
- **Right to erasure:** you may ask us to erase your personal data at any given moment without a specific reason.
- **Right to object:** you may request to stop processing your personal data and withdraw from the research at any desired moment
- **Right to data portability:** you have the right to request the transfer of your personal data to another party or directly to you.

### Benefits gained with the research and possible harm caused to participants, if any

Although, there will be no immediate benefits from participating in this research, the outcomes will contribute to enhancing European Union's resilience against environmental disasters. No physical harm or damage is expected to be inflicted on the participants.

### Personal data and privacy

The Consortium is only collecting and processing personal data in connection with the research's informed consents within the project's timeframe. Only the absolute necessary data for the project will be collected and processed. These data will be strictly retained as confidential and will not be shared outside of the Consortium **UNLESS** it is required to share your information with the European Commission/national authorities as a part of our obligations.

All personal data are processed in accordance with the [EU General Data Protection Regulation \(2016/679\)](#). Video and still imagery will be collected but only for the purposes of an [PUC main goal – PUC1 taken as an example here] **disaster management** and will



not involve the detection of humans in an image or a video captured. This information will be used for the purposes of training and guiding the first responders in a stressful situation (e.g. flood).

In case of **incidental findings**, meaning that the xR4DRAMA system detects something illegal or unintentionally captures personal data through its sensors (e.g. cameras) that may result to the identification of individuals, one of the following procedures will be followed according to each case:

- In case of a person working for xR4DRAMA has enacted an illegal activity with the sole purpose of testing the system and has been detected by the system, the local practitioner authority (e.g. National Police) will issue this person with a Letter of Commission stating that he or she has performed the action resembling an illegal act for the sole purpose of testing the system. No further action is required.
- In case for a person not involved in any way in the project and engages an illegal activity detected by the system, then the person will be handed over to the present national police who will carry out standard operational procedures determined by regulations on the given case, and all relevant data has to be secured/encrypted and handed over to the police as evidence.
- Any data collected from video, imagery or other sensors that incidentally may be considered relevant for the identification of individuals not involved in the project will be immediately isolated and erased from all storage devices.

### Contact Points

- For further information regarding the research:  
**Name:** Stefanos Vrochidis (Project Coordinator)  
**Affiliation:** CERTH – ITI, Center for Research and Technology Hellas – Information Technologies Institute  
**Address:** 6th km Charilaou-Thermi Road, 57001 Thermi-Thessaloniki, Greece  
**Email:** [stefanos@iti.gr](mailto:stefanos@iti.gr)
- Coordinator's Data Protection Officer:  
**Name:** Ioannis Chalinidis  
**Affiliation:** CERTH – Center for Research and Technology Hellas  
**Address:** 6th km Charilaou-Thermi Road, P.O. Box 60361, 57001 Thermi-Thessaloniki, Greece  
**Email:** [dpo@certh.gr](mailto:dpo@certh.gr)
- [responsible PUC partner] Data Protection Officer:  
**Name:** [NAME]  
**Affiliation:** [ORGANIZATION FULL NAME]  
**Address:** [ADDRESS]  
**Email:** [EMAIL ADDRESS]





## A.2 Consent form

The statement of informed consent, which is to be provided to research participants for gain their informed consent prior to engaging in xR4DRAMA research is as follows:

### STATEMENT OF INFORMED CONSENT

I have been requested to participate in a research conducted by xR4DRAMA's Consortium partner [RESPONSIBLE PARTNER NAME], coordinated by CERTH – Centre for Research and Technology Hellas.

- I have read the **Information Sheet** concerning the research and gained sufficient understanding about the research.
  
- I have gained sufficient understanding about the processing of my personal data and the rights that I have concerning the processing of my personal data.
  
- I understand that it is completely **voluntary** to participate in this research and consent to the processing of my personal data. I have at any time the **right to withdraw my consent** to any of the above without announcing any specific reason for my withdrawal

The contact person at [RESPONSIBLE PUC PARTNER] for withdrawal of my participation is:

**Name:** [NAME]

**Affiliation:** [ORGANIZATION ACRONYM]

**Email:** [EMAIL ADDRESS]

With my signature I hereby confirm my participation in the described research and state my voluntary consent to the processing of the personal data in accordance with the information contained in the above-mentioned documents.



**Full Name:**

**Professional affiliation/command post:**

**Email address:**

**Phone:**

**Signature of Participant:**

**Date:** \_\_\_/\_\_\_/20\_\_