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Safeguarding Cultural Heritage through Technical and Organisational Resources Management

D12.3 Data Management Plan

STORM Project

H2020- DRS-11-2015: Disaster Resilience & Climate

Ethical/Societal Dimension Topic 3: Mitigating the impacts of climate change and natural hazards on Cultural Heritage sites, structures and artefacts

Grant Agreement n°: 700191

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Disclaimer

The STORM Consortium consists of the following partners:

Participant No	Participant organisation name	Participant short name	Country
1 (Coord.)	Engineering – Ingegneria Informatica S.p.A.	ENG	IT
2	INOV Inesc Inovação - Instituto de Novas Tecnologias	INOV	PT
3	Foundation for Research and Technology, Hellas	FORTH	GR
4	Technological Educational Institute of Piraeus	TEIP	GR
5	Resiltech	RESIL	IT
6	Soprintendenza Speciale Per il Colosseo il Museo Nazionale Romano e l'area Archaeologica di Roma	SSCOL	IT
7	Università della TUSCIA	TUSCIA	IT
8	Kpeople ltd,	KP	UK
9	University of Stuttgart	USTUTT	DE
10	Ministero degli Interni - Corpo Nazionale Vigili del Fuoco	CNVVF	IT
11	Mellor Heritage Trust's	MAT	UK
12	Sparta technologies	SPA	UK
13	Salford University (Archaeology, Climatology)	USAL	UK
14	Nova Conservacao	NCRS	PT
15	Troiaresort – Investimentos Turísticos, S.A.	TRO	PT
16	Portuguese General Direction of Cultural Heritage	DGPC	PT
17	Município de Grândola – Serviço Municipal de Proteção Civil	SMPC	PT
18	Zentralanstalt für Meteorologie und Geodynamik	ZAMG	AT
19	Ephorate of Antiquities of Rethymno, Hellenic Ministry of Culture and Sports	EFARETH	GR
20	Bogazici University	BU	TR

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Dissemination level:

PU = *Public,*

CO = *Confidential, only for members of the STORM Consortium (including the Commission Services)*

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Executive Summary

The Data Management Plan (DMP) describes how the STORM project manages data throughout its life cycle, in order to be compliant to the regulatory framework. The deliverable, following the official guidelines for Horizon 2020, defines the general approach that will be adopted in the context of the STORM project in terms of data management policies. In particular, this report provides an analysis of the main elements of the data management policy that will be used by the Consortium with regard to all the datasets that will be generated by the project, describing rules, best practices and standards that will be used with regard to the datasets preparation, cleansing and processing, including data analysis and analytics. The deliverable includes information related to accessibility, intelligibility, usability and interoperability of the data gathered and takes into account privacy and security aspects.

1 Introduction

According to the EU open research data pilot, a Data Management Plan (DMP) describes the data management life cycle for all data sets that will be collected, processed or generated by the research project. It is a document that outlines how research data will be handled during a research project, and even after the project is completed, describing which data will be collected, processed or generated and following specific methodologies and standards, whether and how this data will be shared and/or made open, and how it will be curated and preserved.

Each dataset that will be generated by the project has to be described in compliance with the five dimensions provided by the EU Commission:

- **Data set reference and name**: a unique persistent identifier for the data set.
- **Data set description**: a description of the data set, which specifies the origin, scope, scale, beneficiaries and the link to the corresponding publications (if any).
- **Standards and metadata**: a reference to relevant standards and a description of the metadata schema adopted to describe the data.
- **Data sharing**: all the information concerning access and reuse of the dataset including the nature of access (open or restricted), the tools or software needed, the reference and type of the repository where data are stored.
- **Archiving and preservation** (including storage and backup): long-term preservation procedures, costs and volume of preserved data.

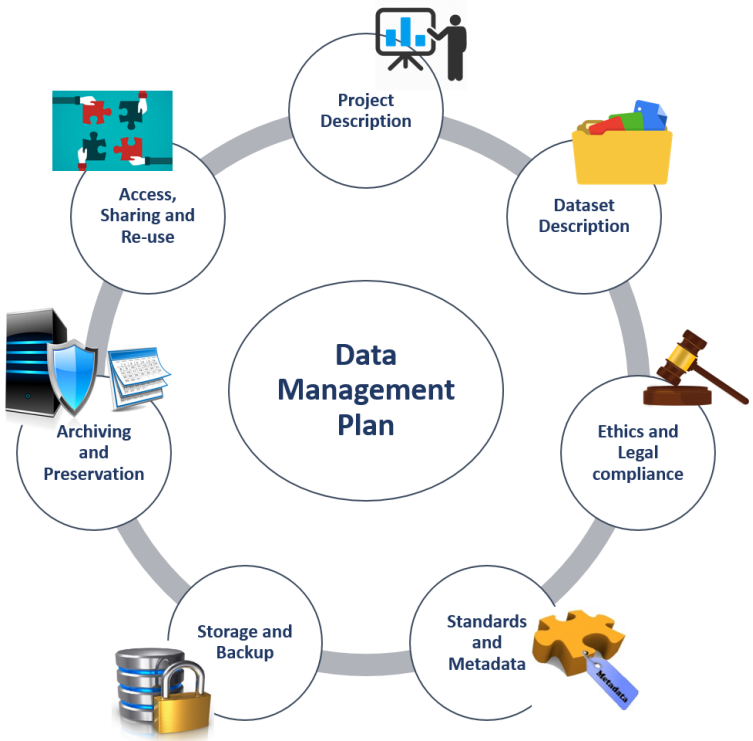

Figure 1 Data Management Plan

The STORM DMP has been developed by taking into account the template of the *Guidelines on Data Management in Horizon 2020*[1]. This document aims to help applicants and beneficiaries of projects to meet their responsibilities with regards to research data quality, sharing and security. In addition to the guidelines provided by the European Commission, this document also refers to the plan to address the ethical issues related to data that will be collected during the project timeframe.

Moreover, this DMP is oriented to

- The consortium partners;
- All stakeholders involved in the project;
- The European Commission.

This document can evolve along the project and it will be updated, if needed, within the Reports *D12.4 - Periodic Reports* due at M12, M24, M36 that will present periodically the project's activity and results including an updated 'plan for the dissemination and exploitation of results'. However, the updates could include new set of data and change in consortium policies. European DMP guidelines, that this document follows, the Consent form template and details about datasets that will be used are respectively reported in Annex 1, Annex 2 and Annex 3.

[1] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

2 Project Data Management

2.1 Project Purposes

STORM aims at defining, developing and assessing a technological integrated framework providing eco-innovative, cost-effective and collaborative methodologies to support all the involved stakeholders to better act in the prevention (to mitigate the effect of climate phenomena) and intervention (when a disaster occurs) phases. The STORM project Consortium will develop a set of novel predictive models and improved non-invasive and non-destructive methods of survey and diagnosis, respectively for effective prediction of environmental changes and for revealing threats and conditions that could damage materials and structures in the Cultural Heritage sector. In this course, STORM will combine legacy sensor systems, new novel sensing technologies and use open data to harvest the potential of crowdsensing and crowdsourcing in an integrated CyberPhysical Sensory System (CPS) that will follow the Large Environment Scenario definition example for the Internet of Things (IoT), as this is described in IEEE's "Towards a definition of the Internet of Things (IoT)" (IEEE, 2015). Here experience, knowledge, best practices, and research will be collected and shared among the EU stakeholders, thus enabling and supporting the creation of a EU framework aimed at fostering and disseminating the knowledge and expertise for protecting the Cultural Heritage in Europe, respecting its historic and cultural integrity. To put such valuable information in a practical and useful set of tools for heritage safeguarding and taking it to the next level is where the STORM project differs from all other existing projects.

STORM integrated solution will be tested through five pilots in five different countries (Italy, Greece, UK, Portugal and Turkey), showing the type of risks that are most prevalent in each site and region, contributing to building a European risk map.

2.2 Project Data

A wide range of data from several heterogeneous and distributed sources will be collected and analysed during the research within the project. Specifically:

- **Data collected from the field by physical sensors**. Acoustic Wireless Sensor Networks, Weather Stations, UAV equipped with sensor infrastructure for surveying, diagnosis and monitoring open-space Cultural Heritage and different type of sensors.
- **Data collected from the field by human sensors and operators** (crowdsensing). Installed applications on personal mobile devices for crowdsensing and crowdsourcing applications, appropriately designed to support, correspondingly, the human sensors in the field and STORM stakeholders.
- **Existing data sets of the PAs and information systems** (e.g., climate data, Cultural Heritage data, etc.) that provide information about pilot sites conditions.

A multimodal data flow will be collected from these data sources. Leveraging on innovative techniques for extracting and filtering features and information, only the "relevant" data for the specific STORM domain (Information Fusion Services) will be identified, selected, and processed. Different datasets will be taken into account:

- Data/information collected from the field by physical and human sensors and evaluators;
- Existing data sets of the PAs (e.g., climate data, Cultural Heritage data, etc.).

Each of these has specific type, attributes and dimensions and will be treated in different manner. The general strategy for data management will be based on the identification and classification of data generated and collected, standards and metadata to be used, exploitation and availability of data as well as how the data will be shared and archiving preservation of the information.

2.3 Roles and Responsibilities

All research data collected as part of this project and all the results are owned by the beneficiary that generates them. The whole Consortium will take responsibility for the collection, management, storage, security, sharing and quality assurance of the research data.

3 Dataset Description

3.1 Dataset 1 - Data from physical and human sensors

These data are collected from the field by physical and human sensors and operators (crowdsensing). A wide range of data, related to pilot sites will be collected by using real-time data from the sensor installations on the sites as also crowd-sensing data in an innovative way. This dataset will will promote and apply the use of open data related to Cultural Heritage protection for better planning of protection. STORM will introduce **a decision support system** based on these data coming from a flexible data gathering and modelling scenario incorporating sensor and human generated data. The event processing approach will allow STORM to **analyse data incoming from monitoring sensors as real events**. Information from both physical and human sensors will be correlated and aggregated in real-time for detecting critical situations. Once data have been retrieved from sensors, it is necessary to operate in order to extract relevant information related to the STORM domain. **Information must be validated, classified and located in space and in time**. This activity will also provide techniques and means able to filter data incoming from multimodal sources (e.g., different physical sensors, mobile apps and Social Media sources) and make them homogeneous in order to be analysed and processed. From these techniques components and services will be derived (to be integrated into the STORM platform) for automatically extracting useful information and building relevant events. The available data and information related to the disaster (threats, vulnerabilities and risks) and how it has to be managed (operative procedures and processes, best practice, lessons learned, etc.) will be collected, managed and shared among different community stakeholders (CH actors, first responders, citizens, public authorities, etc.) using a set of integrated functionalities such as blogs, wikis, discussions, document library, ecc. The available existing knowledge related to the disaster and how it has to be managed will be collected, managed and shared among different community stakeholders. Data coming from the sensor installations in combination with the environmental and anthropogenic risk factor concerning each pilot site will be analysed in order to derive detailed exposure patterns. Based on the concept of vulnerability susceptibility, the coping capacities of all Cultural Heritages will be also taken into account. This will be mainly done by a defining and applying the necessary methods and models that will use, analyse and combine all the qualitative and quantitative data provided from the targeted stakeholders, conservators and the trusts of the pilot sites.

These new data sources will be defined by the project and will be identified as a result of requirements analysis in STORM. Whenever possible, these additional data sources will also be made available as Open Data or through Open Services. However, some of the collected data, in particular that concerning Cultural Site profiles and organisational data, could be sensitive and will not be made available.

Data in this category include pictures in the form of images, or moving in the form of video. Data come from human sensors and, in this case, human is simple the reporter of the data. In the case data are reported by human and the use of personal devices and particularly

smartphones for the generation of such data is considered. While in the case of data from sensors, these are considered to come from different type of sensors and networks.

3.2 Dataset 2 - Existing datasets of the PAs

These data are collected from existing data sets of the PAs (e.g., climate data, Cultural Heritage data, etc.). This type of data has difficulty in access key data held in silos by various governments. This type of data, for example in the prevision for heritage maintenance services and related budgets, is very sensitive and has costs and rewards attached to them; that seems to be a political decision affecting operational regulation.

4 Ethics and legal compliance

Since STORM could involve various types of data during its realization, it is important to pay attention to the EU legal framework that regards the processing of data and the free movement of such data. A privacy-compliant management of these data has to be foreseen. Such management will be detailed during the project development. The STORM project is implemented considering fundamental ethical standards to ensure the quality and excellence in the process and after the life of the project. In the Horizon 2020 it is specified that Ethical research conduct imply the application of fundamental ethical principles and legislation to scientific research in all possible domains of research. According to the procedure established in the Horizon 2020 in terms of Ethics, in order to achieve the engagement of the scientific research with the ethical dimension, STORM will foresee a process to guarantee the correct assessment and orientation of its activities. The whole STORM Consortium is rigorously applying Horizon 2020‘s ethical standards and guidelines.

STORM Consortium will foresee documentation for informed consent to distribute among end user partners. Participants who voluntary take part in the research will sign the consent and assent form, after being previously informed of the objectives, development and goals of the project, as well as of the use to be given to their personal data.

Following the European recommendations for Horizon 2020 projects, the informed consent must have the following information:

- Explanation of the research aims and the expected duration of the subject’s participation;
- A statement declaring that participation is voluntary and informed;
- A statement declaring that participants wishing to withdraw from the research will be able does so at any moment;
- Information about who is organizing and funding the research;
- A description of any benefits to the subject or to others that may be reasonably expected from the research, avoiding inappropriate expectations;
- A statement describing the procedures adopted for ensuring data protection/confidentiality/privacy including duration of storage of personal data;
- A reference to whom to contact for answering all the pertinent questions about the research and research subjects’ rights and whom to contact in the event of a research-related injury to the subject;
- An explanation of what will happen with the data or samples at the end of the research period and if the data/samples will be retained or sent/sold to a third party for further research;
- Information about what will happen to the research results.

Involved participant will properly fill and sign the consent forms. The distribution of consent forms will be accompanied by a full explanation of the overall goals of the STORM project and the specific goals of the WP in which the fieldwork takes place. In addition, subjects will be informed about the conditions of their participation, and of any potential risk or benefit involved. Researchers will be responsible to distribute all the necessary information, so that subjects are able to make informed decisions regarding their potential participation in the study.

5 Standard and metadata

Data standards are the rules by which data are described and recorded. In order to share, exchange, and understand data, the format as well as the meaning has to be standardized. Standardization can be achieved by subdividing information into two main categories: *data values*, that are responsible of the result that can be obtained by the analysis of the data, and *metadata*, that allow users to understand, analyze, synthesize and research the datasets, as well as following and monitoring the progress of the research project. The use of data standards allows agencies to move from "project-based" data files to "enterprise" data files - and vice versa. In other words, the data become usable to more than just the project or person that created the data, because who use the data knows the data will be in an expected format and what it represents. Since datasets will come from distributed and heterogeneous sources, an **ontology-based** data mapping approach will be designed to characterize these datasets. Each data source will provide metadata that express the rules/conditions that each schema realizes. For the considered datasets, no definitive standards have been identified yet, but a set of metadata will be defined in relationship with the own data source. For this reason, more mature description of metadata used will be provided during the project development, respect to the needs that could arise.

5.1 Dataset documents and Naming convention

Documents that explain the structure of the datasets involved will be shared among Consortium partners, in order to make them continuously updated about the possible changes that can be made during the project development. A dedicated repository will be available for data documents sharing and accessible by all partners. The identifier of each dataset is made by the concatenation of five sub-identifiers (all in uppercase):

ProjectName_DatasetName_PartnerName_Date_Version

In particular:

- **ProjectName** – STORM;
- **DatasetName** – PHSENS (Physical and Human sensors), PA (existing datasets of the PAs);
- **PartnerName** – short name of the partner involved in the pilot which the dataset belongs to;
- **Date** – in format YYYYMMDD;
- **Version** – numbered with progressive number.

5.2 Metadata

For more details on metadata used for the analysis of datasets, see Annex 3 - STORM Datasets.

6 Data storage and backup

Due to the large volume of data that the STORM framework will have to manage, a plan for storage and backup of data must be realized in a detailed manner, in order to foresee situations of exponential growth of the data volume. Scalability will be guaranteed in order to manage these situations.

6.1 Storage

Data will be stored in a secure environment. Sensitive information needs to be stored in the appropriate infrastructure and format, corresponding to the related requirements and specifications of each pilot. Accessibility to the information needs to be maintained controlled and the networking configuration should not allow data duplication and circulation. Identification and access to STORM data will comply with national and EU legal requirements and guidance. For this reason, datasets may either be managed by

(i) The local research institute in its own research data repository, which will be included in a register of research data repositories;

(ii) A trusted and certified repository.

Data will be stored following the guidelines that STORM Consortium will provide during the project development, in order to be compliant with the ethics and privacy policies. Furthermore, anonymization (and/or pseudonymization) will be applied to datasets, if required by their pilots.

Finally, time of storage duration should also be considered for the cases in which data destruction is needed after an establish time period.

6.2 Backup and Recovery

Backup and recovery strategy will be planned, in order to prevent data loss risks. Confidentiality must be strictly maintained and anonymization will be applied, where required. In addition, the researchers involved in this study will not reveal sensitive data about the participants. These same principles will be taken into consideration in the dissemination of data.

6.3 Security and Permission

STORM framework will provide security policies in order to maintain the integrity of data and to make sure that the data will not be accessible by unauthorized parties or susceptible to corruption of data. STORM will provide security networking configurations, in order to face every possible crack of data from external sources. Moreover, both hardware and software

security solutions will be implemented. Hardware-based security mechanisms will involve disk encryption and data redundancy techniques, in order to prevent data corruption. Software-based security mechanisms will be used to manage permission policies, in order to make STORM compliant with the privacy-preserving data management. Authentication mechanism will be provided in order to restrict access to data files to the research personnel involved in STORM development. A generic STORM operator can connect to the system through an authentication process. This process should include in the security provisions access control and authentication mechanisms for the different roles that a user would have when utilizing the service. This security level is needed to ensure the data access control to authorized users and entities.

7 Data archiving and preservation

Data management plan will provide guidelines for the short and long term of data archiving and preservation. Data deletion clauses are also considered as part of data archiving policies.

7.1 Short-term

The data used and produced during the project development will be updated each time they change in project lifetime. The new updated dataset will be identified by the number of the previous dataset version plus one, according the naming convention reported. For each dataset update, a reference document will also be produce. This document will report the changes of the dataset respect to previous version. Also the reference document will be identified by the number of the previous document version plus one, according the naming convention reported. Project datasets for training tasks will be generally archived on the STORM collaborative platform, in order to make them available to all Consortium partners. In particular cases, especially for confidential or sensitive data, the responsible partners may store these data in their infrastructure. Each dataset will be archived according to a related *Data Deposit Agreement*, which will be signed by the partner that provides the dataset. The Data Deposit Agreement will:

- guarantee that nothing in the data archiving is illegal, and in particular that the data archiving does not breach the rights of third parties (including in particular data protection and ownership);
- cite the data source, including the institution and researchers that produced the dataset;
- guarantee that nothing in data is in conflict with access, use and sharing conditions.

7.2 Long-term

As a project funded by the European Community, STORM datasets used in the demonstrator will be maintained for at least five years after project termination. Sensitive data preservation will follow the guidelines that STORM Consortium will provide during the project development.

In this time, the Consortium will ensure that they remain accessible and usable and destruction of research data will not take place, unless a participant requests it. For cases in which the Consortium will not be able to keep data available for the established time, specific archiving policies for those data will be provided and well documented by the Consortium. The choice of the repository will be carried out considering the present consolidated solutions. The costs required to manage the repository will be divided between the partners and then described and justified.

7.3 Data deletion

For both short-term and long-term cases, project data can be deleted only after that related archiving deadlines are reached. Destruction of research data before established deadlines will not take place, unless a participant formally requests it and the Consortium approves the deletion.

8 Data management and IPR

The Consortium adheres to an open access policy of all projects results, guidelines and reports. All relevant information and the toolkit textual material will also be freely available on the project website. In order to guarantee that also people who are visually impaired have access to all textual materials we will provide accessible PDF files.

For what concerns data management, we note that a portion of the relevant data for STORM comes from existing data sets of the PAs (e.g., climate data, Cultural Heritage data, etc.), while new data sources will be defined by the project and will be identified as a result of requirements analysis in STORM. Whenever possible, these additional data sources will also be made available as open data or through open services. However, some of the collected data, in particular that concerning cultural site profiles and organisational data, could be sensitive and will not be made available. Some aggregated and/or generalised data will be made available to relevant stakeholders outside the project Consortium only with the explicit informed consent from data owner and after a careful investigation on security issues

8.1 Strategy for knowledge management and protection

Special attention is given to the knowledge generated, as a result of the project, by one or more partners and/or their employees that, according to contractual or national legal provisions, may claim rights to such knowledge. They refer specifically to information related to “Background”, data and information related to the “Results” (regarding the knowledge emerged by the project), and finally “Scientific publications”.

8.1.1 Background

It means any data, know-how or information – whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights – that is:

- held by the beneficiaries before they acceded to the Agreement
- needed to implement the action or exploit the results.

In relation to access rights to Background, the consortium will comply with the H2020 default rules (Europeam IPR helpdesk 2015); it means that:

- on the one hand, the partners/beneficiaries will provide each other access — on a royalty-free basis — to Background needed to implement their own tasks under the action/project;
- on the other hand the partners will give each other access — under fair and reasonable conditions — to background needed for exploiting their own results.

At proposal stage it has been confirmed that all partners have the access they need to each other background; in the Grant Agreement (GA) that will be signed between partners, the conditions for the point II will be outlined.

8.1.2 Results

In relation to protection of the results, the partners will aim to protect all results that can be commercially or industrially exploited either through Trademark (brand, etc.), Industrial design, Copyright, Trade-secret, or Confidentiality, as appropriate (i.e. the form which offers the most adequate and effective protection for each type of result). In particular:

- Results shall be owned by the participant generating them,
- Results generated jointly (e.g. STORM platform), will be jointly owned by means of agreements,
- Access rights to Results. In keeping with the H2020 default rules the partners will give each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action. The partners will give each other — under fair and reasonable conditions — access to results needed for exploiting their own results.

8.1.3 Open access to peer-reviewed scientific publications

The two ways authors can provide open access for scientific publications are

- by self-archiving their journal articles in an open access repository, also known as 'green' open access;
- by publishing in an open access journal, known as 'gold' open access.

It is envisaged that ‘gold’ open access will be the preferred option, whereby the partners will publish in peer-reviewed scientific journals that, already, are committed to solely open access methods or that can foresee (under payment) this option. The technical reports and other communicative documents will be archived within the project website, in the repository section “Documents and reports”, with free access (‘green’ open access).

9 Annex 1 - Data Management Plan Template

The purpose of the Data Management Plan (DMP) is to provide an analysis of the main elements of the data management policy that will be used by the applicants with regard to all the datasets that will be generated by the project. The DMP is not a fixed document, but evolves during the lifespan of the project. The DMP should address the points below on a dataset by dataset basis and should reflect the current status of reflection within the consortium about the data that will be produced.

Data set reference and name
Identifier for the data set to be produced.
Data set description
Description of the data that will be generated or collected, its origin (in case it is collected), nature and scale and to whom it could be useful, and whether it underpins a scientific publication. Information on the existence (or not) of similar data and the possibilities for integration and reuse.
Standards and metadata
Reference to existing suitable standards of the discipline. If these do not exist, an outline on how and what metadata will be created.
Data sharing
Description of how data will be shared, including access procedures, embargo periods (if any), outlines of technical mechanisms for dissemination and necessary software and other tools for enabling re-use, and definition of whether access will be widely open or restricted to specific groups. Identification of the repository where data will be stored, if already existing and identified, indicating in particular the type of repository (institutional, standard repository for the discipline, etc.). In case the dataset cannot be shared, the reasons for this should be mentioned (e.g. ethical, rules of personal data, intellectual property, commercial, privacy-related, security-related).
Archiving and preservation (including storage and backup)

Description of the procedures that will be put in place for long-term preservation of the data. Indication of how long the data should be preserved, what is its approximated end volume, what the associated costs are and how these are planned to be covered.

10 Annex 2 - Data Collection Consent Form

Data Collection Consent Form for STORM project partners

Text to be added here on

- Purpose of the pilot/demonstrator/research
- What will be researched?
- How will the research be executed?
- How will your data be used and managed?
- How to withdraw your personal information?
- Retention period
- Involved third parties
- …

In the name of the STORM organization, to which I participate for the STORM project, I agree on the collection and use of these data.

PARTICIPANT FULL NAME _____

STORM PARTNER ORGANISATION _____

CONTACT TELEPHONE _____

EMAIL ADDRESS _____

SIGNED _____ DATED_____

STORM senior local research coordinator: <name>, < function>

Contact details: <address>, <tel.>. <e-mail>

STORM validation coordinator: <name>, <function>

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 700191

11 Annex 3 - STORM Dataset

11.1 Dataset 1 - Data from physical and human sensors

Data set reference and name:
Data from physical and human sensors
Data set description
These data are collected from the field by physical and human sensors and evaluators (crowdsensing) by using real-time data from the sensor installations on the sites as also crowd-sensing data. These data come from multimodal sources (e.g., different physical sensors, mobile app and Social Media sources). Information from both physical and human sensors, will be correlated and aggregated in real-time for detecting critical situations. Once data have been retrieved from sensors, it is necessary to operate in order to extract relevant information related to the STORM domain. **Information must be validated, classified and located in space and in time**. This activity will provide techniques and means able to filter data incoming from multimodal sources and make them homogeneous in order to be analysed and processed. This dataset will promote and apply the use of open data related to Cultural Heritage protection for better planning of protection.
Standards and metadata
Measurements coming from different sensor types will constitute the dataset of this dataset. The metadata will be obtained from these measurements: SensorDataPackage; SensorData, HumanSource, DeviceApp, SensorNodeSource, SensorFeature.
Data sharing
The Consortium adheres to an open access policy of all projects results, guidelines and reports. All relevant information and the toolkit textual material will also be freely available on the project website. In order to guarantee that also people who are visually impaired have access to all textual materials we will provide accessible PDF files. For what concerns data management new data sources will be defined by the project and will be identified as a result of requirements analysis in STORM. Whenever possible, these additional data sources will also be made available as open data or through open services. However, some of the collected data, in particular that concerning cultural site profiles and organisational data, could be sensitive and will not be made available. Some aggregated and/or generalised data will be made available to relevant stakeholders outside the project Consortium only

with the explicit informed consent from data owner and after a careful investigation on security issues.
Archiving and preservation (including storage and backup)
In relation to procedures that will be put in place for long-term preservation of the data, protection of the results, the partners will aim to protect all results that can be commercially or industrially exploited either through Trademark (brand, etc.), Industrial design, Copyright, Trade-secret, or Confidentiality, as appropriate (i.e. the form which offers the most adequate and effective protection for each type of result). In particular: • Results shall be owned by the participant generating them, • Results generated jointly (e.g. STORM platform), will be jointly owned by means of agreements, • Access rights to Results. In keeping with the H2020 default rules the partners will give each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action. The partners will give each other — under fair and reasonable conditions — access to results needed for exploiting their own results.

11.2 Dataset 2 - Existing dataset of the PAs

Data set reference and name:
Existing dataset of the PAs
Data set description
These data are collected from existing data sets of the PAs (e.g., climate data, Cultural Heritage data, etc.). This type of data, for example in the prevision for heritage maintenance services and related budgets, is very sensitive and has costs and rewards attached to them.
Standards and metadata
Some data are routed to open local web sites of each Pilot Site or main organisations operating in a related sector.
Data sharing
For what concerns data management, a portion of the relevant data for STORM comes from existing data sets of the PAs (e.g., climate data, Cultural Heritage data, etc.). This type of data has difficulty in access key data held in silos by various governments. Whenever possible, these data will also be made available as open data or through open services.
Archiving and preservation (including storage and backup)

In relation to procedures that will be put in place for long-term preservation of the data, protection of the results, the partners will aim to protect all results that can be commercially or industrially exploited either through Trademark (brand, etc.), Industrial design, Copyright, Trade-secret, or Confidentiality, as appropriate (i.e. the form which offers the most adequate and effective protection for each type of result). In particular:

- Results shall be owned by the participant generating them,
- Results generated jointly (e.g. STORM platform), will be jointly owned by means of agreements,

Access rights to Results. In keeping with the H2020 default rules the partners will give each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action. The partners will give each other — under fair and reasonable conditions — access to results needed for exploiting their own results.