



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 700748

## LIQUEFACT

Assessment and mitigation of liquefaction potential across Europe: a holistic approach to protect structures/infrastructure for improved resilience to earthquake-induced liquefaction disasters.

H2020-DRA-2015

GA no. 700748



### Deliverable D9.17

### Initial Data Management Plan

v. 2.0

|                             |                                |
|-----------------------------|--------------------------------|
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| Responsible Partner:        | Anglia Ruskin University (ARU) |
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## Document Revision History

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| 25/10/2016 | 01      | Katie Hiscock | First Draft | Draft         |
| 24/05/2017 | 02      | Keith Jones   | First Draft | Final Version |

## List of Partners

| Participant       | Name                                                                       | Country        |
|-------------------|----------------------------------------------------------------------------|----------------|
| ARU (Coordinator) | Anglia Ruskin University Higher Education Corporation                      | United Kingdom |
| UNIPV             | Universita degli Studi di Pavia                                            | Italy          |
| UPORTO            | Universidade do Porto                                                      | Portugal       |
| UNINA             | Universita degli Studi di Napoli Federico II.                              | Italy          |
| TREVI             | Trevi Societa per Azioni                                                   | Italy          |
| NORSAR            | Stiftelsen Norsar                                                          | Norway         |
| ULJ               | Univerza v Ljubljani                                                       | Slovenia       |
| UNICAS            | Universita degli Studi di Cassino e del Lazio Meridionale                  | Italy          |
| SLP               | SLP Specializirano Podjetje za Temeljenje Objektov, D.O.O, Ljubljana       | Slovenia       |
| ISMGEO            | Istituto Sperimentale Modelli Geotecnici Societa a Responsabilita Limitata | Italy          |
| Istan-Uni         | Istanbul Universitesi                                                      | Turkey         |



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## Glossary

| Acronym | Description                              |
|---------|------------------------------------------|
| CA      | Consortium Agreement                     |
| DoW     | Description of Work                      |
| EC      | European Commission                      |
| EEAB    | External Expert Advisory Board           |
| EILD    | Earthquake Induced Liquefaction Disaster |
| GA      | Grant Agreement                          |
| PM      | Project Manager                          |
| PC      | Project Coordinator                      |
| PO      | Project Officer                          |
| WP      | Work Package                             |
| WPL     | Work Package Lead                        |

## Contents

|                                                       |   |
|-------------------------------------------------------|---|
| Document Revision History.....                        | 2 |
| List of Partners .....                                | 2 |
| Glossary.....                                         | 3 |
| Executive Summary.....                                | 4 |
| Introduction, Goal and Purpose of this document ..... | 4 |
| Admin Details.....                                    | 5 |
| 1. Data Summary.....                                  | 6 |
| 2. Fair Data .....                                    | 6 |
| 2.1 .....                                             | 6 |
| 2.2 .....                                             | 7 |
| 2.3 .....                                             | 7 |
| 2.4 .....                                             | 7 |
| 3. Allocation of Resources.....                       | 8 |
| 4. Data Security .....                                | 8 |
| 5. Ethical Aspects .....                              | 9 |
| 6. Other Procedures.....                              | 9 |



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## Executive Summary

Recent events have demonstrated that Earthquake Induced Liquefaction Disasters (EILDs) are responsible for tremendous structural damages and fatalities causing in some cases half of the economic loss caused by earthquakes. With the causes of liquefaction being substantially acknowledged, it is important to recognize the factors that contribute to its occurrence, to estimate hazards, then to practically implement the most appropriate mitigation strategy considering the susceptibility of the site to liquefaction and the type and size of the structure. The LIQUEFACT project addresses the mitigation of risks to EILD events in European communities with a holistic approach. The project deals not only with the resistance of structures to EILD events, but also with the resilience of the collective urban community in relation to their quick recovery from an occurrence. The LIQUEFACT project sets out to achieve a more comprehensive understanding of EILDs, the applications of the mitigation techniques, and the development of more appropriate techniques tailored to each specific scenario, for both European and worldwide situations.

## Introduction, Goal and Purpose of this document

The LIQUEFACT project is a collaborative project involving 11 partners from six different countries (UK, Italy, Portugal, Slovenia, Norway and Turkey) including representation from four EU Member States and is organised in three phases (Scoping, Research and Implementation) across nine work packages (WPs), each of which encapsulates a coherent body of work. The first seven WPs highlight the major technical activities that will take place throughout the project and have been scheduled to correlate with one another. The final two WPs (WP8 and WP9) are the continuous activities which will take place throughout the duration of the project.

In order to ensure the smooth running of the project for all project partners, management structures and procedures are necessary to facilitate effective and efficient working practices. Following the management information included in the Grant Agreement (GA) and its annexes, the Consortium Agreement (CA), Commission rules as contained in the Guidance Notes and organisational Risk Management policies and procedures including Corporate Risk Strategy, Policy and Guidance and Health and Safety Policies this manual highlights important procedures to be carried out in order to monitor, coordinate and evaluate the management activities of the project.

**Goal: This document aims to aid the LIQUEFACT project consortium to meet their responsibilities regarding research data quality, sharing and security through the provision of an initial data management plan in accordance with the Horizon2020 Guidelines on Open Access.**



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## Admin Details

**Project Name:** LIQUEFACT Data Management Plan - DMP title

**Project Identifier:** LIQUEFACT

**Grant Title:** 700748

**Principal Investigator / Researcher:** Professor Keith Jones

**Project Data Contact:** Professor Keith Jones, +44(0) 1245 683907. keith.jones@anglia.ac.uk

**Description:** Assessment and mitigation of liquefaction potential across Europe: a holistic approach to protect structures/ infrastructure for improved resilience to earthquake-induced liquefaction disasters.

**Funder:** European Commission (Horizon 2020)

**Institution:** Anglia Ruskin University

| Task | Data                                                                                                                          | Type                         |
|------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| T1.1 | Reference list/Bibliography                                                                                                   | Qualitative                  |
| T1.2 | Questionnaire                                                                                                                 | Qualitative and Quantitative |
| T1.4 | Glossary/Lexicon                                                                                                              | Qualitative                  |
| T2.1 | Ground characterization; Geophysical prospecting; Soil Geotechnical and Geophysical tests; Ground investigations; Lab testing | Quantitative                 |
| T2.6 | Reference list/Bibliography                                                                                                   | Qualitative                  |
| T3.1 | Numerical modelling; Experimental data.                                                                                       | Quantitative                 |
| T3.2 | Field trials and pilot testing; Simulations; Numerical modelling                                                              | Quantitative                 |
| T4.1 | Soil characterization (Mechanics)                                                                                             | Quantitative                 |
| T4.2 | Centrifugal Modelling                                                                                                         | Quantitative                 |
| T4.3 | Field trials; Lab and Field testing                                                                                           | Quantitative                 |
| T4.4 | Numerical modelling                                                                                                           | Quantitative                 |
| T5.2 | Individual and Community resilience measures/metrics                                                                          | Qualitative and Quantitative |
| T5.3 | Cost/Benefit Models                                                                                                           | Quantitative                 |
| T7.1 | Reference list/Bibliography                                                                                                   | Qualitative                  |



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## 1. Data Summary

- Quantitative and qualitative data will be collected in line with the overarching aims and objectives of the LIQUEFACT project; to help deliver a holistic approach to the protection of structures, infrastructure and resilience to Earthquake Induced Liquefaction Disasters (EILDs) across Europe.
- It is important to recognise the opportunity for mitigation strategies to help aid protection for both people, places and communities through a more comprehensive understanding of EILDs.
- Data collection will aid the development and application of techniques, applicable across European and global situations.
- Site specific data collection at differing case study sites across Europe will be undertaken alongside data gathering from the academic and community fields to better inform decision making.
- It is hoped that this data will be useful to a wide ranging, spatially and temporally diverse audience - across the policy-practitioner interface.

## 2. Fair Data

### 2.1

- Open access will be provided to all scientific publications in line with the guidance provided by the Commission in their letter dated 27<sup>th</sup> March 2017 (The open access to publications obligations in Horizon 2020).
  - Self-archiving through suitable repositories within six months of publication (12 months for social science and humanities publications); or
  - Open access publishing on the publisher/journal website.
- It is anticipated that data will be made available in varying forms for varying uses.
- Identification mechanisms will be utilised to improve the usability of the data within differing contexts.
- Data cleansing will be considered in order to present clear and considered formatting.
- Versions, Keywords and Digital Object Identifiers will be explored in principle to aid the applicability of data.
- Anglia Ruskin University adheres to the Research Data Management Guidelines;
  - encouraging scientific enquiry and debate and increase the visibility of research.



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- encouraging innovation and the reuse of existing datasets in different ways, reducing costs by removing the need to collect duplicate research data.
- encouraging collaboration between data users and data creators.
- maximising transparency and accountability, and to enable the validation and verification of research findings and methods.

## 2.2

- Appropriate data will be made available through the use of an online portal or reputable repository, details of which are yet to be confirmed but may include the LIQUEFACT website ([www.liquefact.eu](http://www.liquefact.eu)) Zenodo or [www.Re3data.org](http://www.Re3data.org).
- Generic software tools will be predominantly used including MS Office and SPSS.
- A Technical Data Report will be provided for each data set through the creation and statement of the aims, objectives and methodology.

## 2.3

- Text mining tools and methods will help external actors to extract common and relevant data.
- Commonly used ontologies will be utilised.
- A glossary of terms will be collated by project partners.
- Data files will be saved in an easily-reusable format, commonly used by the research community. Including the following format choices; .txt; .xml; .html; .rft; .csv; .SPSSportable; .tif; .jpeg; .png.

## 2.4

- Data will be stored either on each institution's back-up server or on a separate data storage device that is kept in a secure and fireproof location, separate from the main data point.
- Data will be released no later than the publication of findings and within three years of project completion.
- Primary data will be securely retained, in an accessible format, for a minimum of five years after project completion.



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### 3. Allocation of Resources

- At this stage costs have not been accounted for in the H2020 LIQUEFACT project budget.
- Data Management Plans will be regularly updated by the Project Coordinator with data collection, collation and usability the responsibility of all partners involved in the project.
- By providing this data it is anticipated that future utilisation will contribute to the long term success of the LIQUEFACT project and enhance EILD improvements across and between countries and organisations.

### 4. Data Security

This research aims to follow these principles;

- Avoid using personal data wherever possible.
- If the use of personal data is unavoidable, consider partially or fully anonymising the information to obscure the identity of the individuals concerned.
- Use our secure shared drives to store and access personal data and sensitive business information, ensuring that only those who need to use this information have access to it.
- Use remote access facilities to access personal data and sensitive business information on the central server instead of transporting it on mobile devices and portable media or using third party hosting services.
- Personal equipment (such as home PCs or personal USB sticks) or third party hosting services (such as Google Mail) should not be used for high or medium risk personal data or business information.
- If email is used to send personal data or business information outside the university environment, it should be encrypted. If you are sending unencrypted personal data or business information to another university email account, indicate in the email title that the email contains sensitive information so that the recipient can exercise caution about where they open it.
- Do not use high or medium risk personal data or business information in public places. When accessing email remotely, exercise caution to ensure that you do not download unencrypted high or medium risk personal data or business information to an insecure device.
- Consider the physical security of personal data or business information, for example use locked filing cabinets/cupboards for storage.
- The fifth principle of the Data Protection Act 1998 states that personal data processed for any purpose or purposes should not be kept for longer than is necessary for that purpose or





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purposes. It is therefore important to implement our retention and disposal policies so that personal data and sensitive business information is not kept for longer than necessary.

## 5. Ethical Aspects

- Ethical considerations in making research data publicly available are clearly designed and discussed by Anglia Ruskin University regarding data sharing throughout the entire data cycle.
- Ensuring compliance with the Data Protection Act 1998.
- Informed consent will be obtained from all participants for their data to be shared/made publicly available. Providing participants with sufficient information to make an informed decision regarding involvement.
- Data will always be anonymised with examples of direct or sensitive identifiers removed.
- The user (licensor) will be given due credit for work when it is distributed, displayed, performed, or used to derive a new work.

## 6. Other Procedures

- Data Protection Act 1998
- Anglia Ruskin University Research Training, Ethics and Governance as part of the Research Policy and Support group within the Research and Innovation Development Office
- Anglia Ruskin University's Research, Innovation and Knowledge Exchange strategy 2016-2017
- DMP Online
- Zenodo
- OpenAIRE