

SP19 - TWIST Twin Infrastructure for Safer Transportation

DATA MANAGEMENT PLAN

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Project

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Review and reference page

1 Introduction

Research data management in accordance with the principles of Open Science and FAIR data helps ensure that research is transparent, reproducible and trustworthy, thereby enhancing the quality of the research, its outputs and the resulting innovations.

SP TWIST is funded through public research funding and supported by contributions from project partners. The project therefore has a responsibility to manage research data in a manner that maximises its scientific, societal and economic value while complying with applicable legal, ethical and contractual requirements. Research data are valuable assets, and the project will follow the principle of making data *as open as possible and as closed as necessary*, considering issues such as personal privacy, commercial confidentiality, intellectual property rights and the protection of security-sensitive infrastructure information.

This Data Management Plan (DMP) describes how research data generated, collected and processed within the SP TWIST project will be managed throughout the project lifecycle. The DMP is intended as a living document and will be reviewed and updated as project activities, data management practices or regulatory requirements evolve.

2 Research data

SP TWIST will use datasets provided by external organisations and project partners. Such datasets remain subject to the ownership, licensing conditions and data management practices defined by the respective data providers. Where a data provider has established a Data Management Plan or equivalent data governance documentation, the project will comply with its provisions regarding storage, access, use, sharing, retention and disposal.

The project will generate and process research data from multiple sources, including geospatial and infrastructure data, field observations, sensor measurements, environmental and hazard data, digital models, simulation outputs, software, algorithms and documentation. The project may also generate workshop material and other stakeholder-related information.

The exact datasets will evolve throughout the project and are therefore maintained in a project Data Register hosted on the SP TWIST SharePoint site (Table 1). The register is updated throughout the project and provides information on datasets, ownership, storage locations, access permissions and retention. It complements, but does not replace, dataset metadata records, as described in Section 3.1.

Table 1 Attributes of SP TWIST's Project Data Register on SharePoint.

Field	Description	Example
Dataset ID	Unique identifier for the dataset / File name	DS 001

Description	Short description	Images collected during slope inspections
Category	Type of data	Project-generated / Third-party / Public Open Data
Work Package	Associated work package(s)	WP2
Dataset owner organisation	Organisation that owns the dataset	NGI / NPRA / ...
Dataset owner responsible	Person responsible within the owner organisation	Name(s)
Dataset responsible	Person responsible within SP TWIST	Name(s)
Storage location	Primary storage location	NGI server / SharePoint / Azure / Partner server
Metadata URL	Link to the dataset metadata record or catalogue entry	
Access level	Who may access the data - Public: Openly available - Project: Available to all project partners and members - Limited: Available only to authorised people or organisations	Public / Project / Limited
Sensitivity classification	Data sensitivity	Open / Personal / Commercial / Security-sensitive
Contains personal data	GDPR relevance If yes, access level will be "Limited"	Yes / No
File formats	Formats	GeoTIFF, CSV, LAS, IFC, ...
Metadata standard	Metadata used	ISO 19115 / Dublin Core / Other
External data governance	Reference or link to the applicable Data Management Plan, Data Sharing Agreement, licence, data policy or terms of use governing the dataset.	Link to DMP / CC BY 4.0 / ...
Publication restrictions	Short description of publication restriction.	Open / Embargo until [date] / Supplier approval required before publication / Not publishable / ...
Retention / Archive	Planned retention or archive location	Zenodo / Partner archive / Delete after project / ...

Status	Dataset lifecycle	Planned / Active / Archived
Last review date	Date when the dataset information has been checked	2026-07-29
Comments	Additional notes	

3 Data Management

Data will be documented sufficiently to enable interpretation, reuse and reproducibility. Datasets will be accompanied by appropriate metadata (see Section 3.1) and supporting documentation where relevant. Version control will be used for software, scripts and documentation. Data quality will be ensured through validation procedures appropriate to the individual data source and processing workflow.

3.1 Data provenance

Data provenance will be documented in metadata records following ISO 19115 for GIS data and Dublin Core standards for other data types. This will cover data sources, collection dates, and transformations to ensure traceability and verifiability.

Metadata standards will be extended or customised if necessary to meet project-specific needs (e.g., AI model metadata standards such as ML Schema).

4 Storage and security

Project data will be stored using approved infrastructure provided by NGI and project partners. Depending on the data type, workflow and access requirements, datasets may be stored either on NGI's internal servers (e.g. S:) or on approved cloud platforms such as Microsoft Azure.

Cloud-based storage is preferred for datasets that require application access, collaboration across organisations, access control and version management. Internal NGI servers may be used for operational and background datasets where it better supports established workflows and efficient data processing.

Dynamic data accessed through APIs may remain hosted by the original provider, with access arrangements documented in the Project Data Register.

All storage locations shall be recorded in the Project Data Register. Access permissions, backup procedures and information security measures shall be applied according to the sensitivity of the data and the requirements of the hosting organisation.

5 Legal and ethical considerations

Where personal data are processed, the project will comply with applicable data protection legislation, including GDPR. Personal data will be collected only where necessary and handled in accordance with institutional procedures. Commercially confidential information and security-sensitive infrastructure data will be managed in accordance with contractual obligations and relevant legislation.

6 Sharing and preservation

Research outputs will be published in accordance with the project agreement and applicable Open Science principles. Data that can be shared without violating legal, contractual, commercial or security restrictions will be made available through suitable repositories. Data that cannot be openly shared will remain protected and accessible only to authorised users.

7 Responsibilities

- Principal Investigator: overall responsibility
- Work package leaders: responsible for datasets collected and produced within their activities
- Individual project members: documentation, storage and compliance
- Project partners: responsible for data provided to the project under agreed conditions

8 Revision of the DMP

The DMP will be reviewed annually and updated when significant changes occur in project activities, data types, policies, or project direction.

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Sted/Location	Sted/Location
Kartblad/Map	Felt, blokknr./Field, Block No.
UTM-koordinater/UTM-coordinates Zone: East: North:	Koordinater/Coordinates Projection, datum: East: North:

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NGI – The Norwegian Geotechnical Institute – is an independent research centre in the field of geotechnical engineering and the engineering geosciences.

We combine geotechnical knowledge and technology to develop smart and sustainable solutions in infrastructure on land and at sea, in environmental technology, contaminated soil and natural hazards such as landslides and avalanches. Our research provides knowledge that contributes to solve some of the most important challenges the world faces with regards to climate, the environment, energy and societal security.

Our societal mission is to develop the geosciences and produce the knowledge basis to build, live and travel on safe ground. We solve this by combining research and consulting hand-in-hand and being a bridge-builder between academia, industry and the public sector.

We have offices in Norway, the US and Australia, including internationally recognised laboratories.

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NGI – Norges Geotekniske Institutt - er et uavhengig forskningsinstitutt innen geoteknikk og andre ingeniørrettede geofag.

Vi kombinerer geokunnskap og teknologi for å utvikle smarte og bærekraftige løsninger innen infrastruktur på land og til havs, innen miljøteknologi, forurensset grunn og naturfarer som jord- og snøskred. Forskningen vår leverer kunnskap som bidrar til å løse noen av de viktigste utfordringene verden står overfor innenfor klima, miljø, energi og samfunnssikkerhet.

Samfunnsoppgaven vår er å utvikle geofagene og fremskaffe kunnskapsgrunnlaget for å bygge, bo og ferdes på sikker grunn. Dette løser vi ved å la forskning og rådgivning gå "hånd i hånd" og være brobygger mellom akademia, næringsliv og det offentlige.

Vi har kontorer i Norge, USA og Australia og vi har internasjonalt anerkjente laboratorier.

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