Preservation and Dissemination Policy of the LISS Data Archive

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1 Summary

The LISS Data Archive provides access to data collected through the LISS panel. This panel is an innovative data collection infrastructure designed to advance and integrate research across various disciplines, including economics, social sciences, life sciences, and behavioral sciences. The Longitudinal Internet studies for the Social Sciences (LISS) panel aims to be as representative as possible of the Dutch population and is based on a probability sample drawn from the population register by Statistics Netherlands(CBS). It consists of approximately 7,000 to 7,500 panel members from 5,000 households. Respondents participate in online surveys each month.

This document outlines the data preservation and dissemination policy for the LISS Data Archive, (hereafter referred to as *the archive*). It describes the purpose of the archive, its management structure, and the organization of its operational functions related to data preservation and dissemination. Additionally, it explains the measures implemented to ensure the long-term security and preservation of the LISS data.

1.1 Revisions and version control

Revisions in the current version (v 3.0) compared to the previous version (v 2.1)

1. **General readability and textual updates** – The entire document has been reviewed for clarity, consistency, and readability, with textual updates made where necessary.
2. **Introduction → Summary** – The 'Introduction' section has been retitled to 'Summary.'
3. **Purpose section** – The 'Purpose' section has been retitled 'Purpose of the LISS Data Archive.' The Mission, Scope, and Objectives have been updated; in the Scope section, EASY was replaced with DANS Data Vault, and the Objectives are now more explicitly and separately formulated.
4. **Legal and Regulatory Framework** – Reference to VSNU (2005) replaced with UNL (2018); additional references have been included.
5. **Organization** – Relevant references have been added.
6. **Data Production** – Minor updates to role descriptions to better reflect scope and responsibilities.
7. **Data Archiving & Management Roles** – Major updates to role descriptions to align with international research data management terminology and to more accurately reflect responsibilities in data curation, metadata management, and long-term preservation, in line with the infrastructure domains described by Corti et al. (2019) and Verbakel et al. (2022), and in accordance with FAIR principles (Wilkinson et al., 2016) and OAIS (CCSDS, 2024).
8. **Cooperation** – Added and updated information on Centerdata's partners and the services used by the archive.
9. **Data Archival Process** – Section title updated; reference model and Figure 1 updated to CCSDS 650.0-M-3 (2024). The Data Quality, Validity, and Reliability text box has been updated.
10. **Ingest** – Table 1 updated to reflect revised roles.
11. **Access** – Added information on the ODISSEI Portal; removed reference to Narcis.

12. **Preservation Planning** – Updated information on stored and disseminated file formats; added details on QuestionnaireCTRL, Centerdata's survey software; replaced EASY with DANS Data Vault; described changes in DOI minting and assignment of persistent identifiers.
13. **Data Safeguarding** – Updated security measures and added information on ISO and NEN certifications.
14. **Definitions and References** – updated.

2 Purpose of the LISS Data Archive

2.1 Mission

The LISS Data Archive ensures the preservation, curation, and dissemination of data from the Longitudinal Internet Studies for the Social Sciences (LISS) panel to support high-quality, reproducible research in the social and behavioral sciences. It provides secure access to researchers and policymakers, adhering to internationally recognized standards for research data management and digital preservation.

2.2 Scope

The archive covers the full life cycle of LISS panel data, from preparation and ingestion to long-term preservation and dissemination. Its primary users consist of accredited academic researchers and policymakers, nationally and internationally, conducting non-profit scientific research. While all metadata are openly accessible, data access is granted under agreed terms of use. The archive also enables interoperability with other repositories and supports integration into secondary research infrastructures.

In addition to its own system for archiving and disseminating (meta)data, the LISS panel also deposits its data in the DANS Data Vault (Dutch Data Archiving and Networking Services), a safe and sustainable long-term preservation archive that meets the highest archiving requirements[1].

2.3 Objectives

The archive aims to:

1. Safeguard the long-term accessibility, authenticity, and integrity of LISS panel data.
2. Maintain and apply procedures for quality control, versioning, and metadata documentation.
3. Protect data privacy and confidentiality through a privacy-by-design approach.
4. Facilitate discoverability and reuse by aligning with relevant (FAIR) standards and infrastructures.
5. Support transparent and reproducible research by providing well-documented datasets.

[1] https://dans.knaw.nl/en/data-services/data-vault/ (Accessed on May 2nd, 2025)

3 Legal and Regulatory Framework

The LISS Data Archive is managed and operated by Centerdata, a non-profit scientific research institute located on the campus of Tilburg University in the Netherlands. Centerdata complies at all times with applicable laws and regulations in the Netherlands, including the General Data Protection Regulation (GDPR; in Dutch: Algemene Verordening Gegevensbescherming)[2].

In addition, Centerdata adheres to working procedures in line with the guidelines developed by the Universities of the Netherlands (UNL) as outlined in the Code of Conduct for use of personal data in scientific research (UNL, 2018)[3].

Centerdata is registered with the Dutch Data Protection Authority (Autoriteit Persoonsgegevens; AP)[4] under number FG008875, and with the Tilburg Chamber of Commerce under KvK (Kamer van Koophandel)[5] number 41098659.

[2] https://autoriteitpersoonsgegevens.nl/en/themes/basic-gdpr
[3] Code of Conduct for the Use of Personal Data in Scientific Research: https://www.universiteitenvannederland.nl/files/publications/Netherlands%20Code%20of%20Conduct%20for%20Research%20Integrity%202018.pdf
[4] https://www.autoriteitpersoonsgegevens.nl/en
[5] https://www.kvk.nl/en/

4 Organization

In 2006, the Dutch Research Council (NWO) granted funding for a proposal entitled An Advanced Multi-Disciplinary Facility for Measurement and Experimentation in the Social Sciences (MESS). This funding was used to establish the LISS panel (see NWO, 2006)[6]. An additional Immigrant panel was set up at a later stage of the project but was discontinued in 2014. In this document, we refer to both panels collectively as the LISS panel. The data collected through these panels are preserved and disseminated via the LISS Data Archive, which is managed by Centerdata, an official partner[7] of Tilburg University in the Netherlands.

Within the organization, specific roles are assigned to support the LISS panel and the data archive. Below we describe these roles and responsibilities according to three main functions within the data life cycle: data production, data archiving & management, and data consumption (see also the illustration in Chapter 6, Figure 1). Since Centerdata is responsible for both collecting and archiving the data for the LISS Data Archive, some roles apply to both data production and data archiving & management tasks.

4.1 Data Production

Director of Centerdata

The Director of Centerdata makes strategic decisions concerning the panel and holds the final responsibility for data safeguarding.

Head of Survey Research

The Head of Survey Research is responsible for the organizational management of the panel. This includes overseeing the planning of data collection and managing contracts with Client Researchers. The Head of Survey Research reports to the Director of Centerdata.

Head of IT & Development

The Head of IT & Development is responsible for Information Security and Privacy across Centerdata. This role also includes overseeing the administration and maintenance of all IT infrastructures that support the collection, processing, dissemination, and archiving of research data. The Head of IT ensures that systems are secure, reliable, and aligned with institutional policies. The Head of IT reports to the Director of Centerdata.

LISS Coordinator

The LISS Coordinator is responsible for the operational activities of the LISS panel. Key responsibilities are maintaining the panel's representativeness, data quality, response rates and governance of the LISS Data Archive. The LISS Coordinator reports to the Head of Survey Research.

[6] https://www.nwo.nl/projecten/1760102005017-0
[7] https://www.tilburguniversity.edu/current/news/more-news/tilburg-university-and-centerdata-sign-agreement-closer-collaboration

Panel Member Support Manager

A dedicated department is responsible for the operational support management of the LISS panel members, including (technical) helpdesk support and communication. The Panel Member Support Manager oversees these activities and supervises the department's staff. The Panel Member Support Manager reports to the Director of Centerdata.

Project Leader

Project Leaders from the Survey Research department are responsible for the data collection and dissemination of LISS panel projects. Each Submission Information Package (SIP) undergoes a second-reader check by another staff member from the same department, before it is submitted to the Data Steward (see section 4.2). Project Leaders report to the Head of Survey Research.

System Administrator

System Administrators perform routine maintenance of the IT infrastructure, provide internal technical support to colleagues, offer project-specific technical support to panel members, and ensure the proper functioning of the archive servers. System Administrators report to the Head of IT & Development.

4.2 Data Archiving & Management Roles

LISS Coordinator

The LISS Coordinator holds strategic responsibility for the governance and dissemination of data from the LISS panel and the LISS Data Archive. The role ensures that data access and reuse comply with scientific, ethical, and legal standards (including the GDPR), FAIR principles, and the Code of Conduct for the use of personal data in scientific research. The LISS Coordinator oversees the implementation of data access policies, including the LISS data user agreement, and defines conditions for responsible use of LISS data. This includes setting clear limitations and approved scenarios for AI/ML applications to safeguard data confidentiality and integrity. The role also promotes transparency, reproducibility, and proper citation practices, while actively engaging with the research community. Additionally, the LISS Coordinator represents the LISS panel in national and international data infrastructure initiatives, contributing to the panel's long-term visibility, trust, and scientific value. The LISS Coordinator reports to the Head of Survey Research (section 4.1).

Data Steward

The Data Steward oversees the archive's daily operations and is responsible for the procedural ingest and dissemination of data within the LISS Data Archive. Key tasks include reviewing Submission Information Packages (SIPs), transforming them into Archival Information Packages (AIPs), and publishing validated updates to the archive website. The Data Steward coordinates the work of Archive Operators and ensures the deposit of disseminated data in the DANS Data Vault. In addition to coordinating daily archival workflows, the Data Steward plays a key role in ensuring that research data management practices align with the full research data life cycle: from data creation and documentation to long-term preservation and reuse. The role implements the FAIR principles, and ensures that research data comply with recognized metadata and data management standards. To guarantee long-term usability, the Data Steward monitors changes in data formats and

statistical software and takes corrective action when necessary. The role also upholds metadata standards (e.g. DDI), ensures technical compliance with archival policies, supports data accessibility, and facilitates the creation of data catalogues and the assignment of persistent identifiers (e.g., DOIs). The Data Steward reports to the Head of Survey Research (section 4.1) and works in close collaboration with the LISS Coordinator to support the sustainable and responsible preservation and dissemination of LISS (meta)data.

Archive Operator

The Archive Operators support the day-to-day operations of the LISS Data Archive by processing and maintaining research data and metadata. This includes preparing and entering validated datasets and accompanying metadata into the archive, submitting data packages to the DANS Data Vault, and uploading scholarly publications based on LISS panel data. In addition, the Archive Operators are also responsible for processing signed data user agreements and managing access rights for approved Data Users, in accordance with established policies. When questions arise regarding access permissions or data handling, the Archive Operators consult with the Data Steward and the LISS Coordinator and report to the Head of Survey Research (section 4.1). They play a key supporting role in enabling transparent, FAIR-compliant data sharing and reuse.

Database Manager

The Database Manager is responsible for the technical development and maintenance of the LISS Data Archive's digital infrastructure, including both the public-facing archival system (front-end) and the underlying dissemination and access application (back-end). The role ensures the system's performance, security, and scalability, while supporting seamless access to archived datasets and metadata. The Database Manager monitors relevant developments in archival and metadata standards and implements updates to maintain long-term compatibility and interoperability. System improvements and new features are developed in close consultation with the LISS Coordinator, the Data Steward, and the Archive Operators, based on evolving user needs, research requirements, and policy updates. The Database Manager reports to the Head of IT & Development (section 4.1).

Information Security Officer

The Information Security Officer is responsible for the implementation and continuous monitoring of technical and organizational security measures to safeguard the confidentiality, integrity, and availability of data stored in the LISS Data Archive. This includes securing both the infrastructure and access controls for data storage, dissemination systems, and user interfaces. The role involves assessing potential vulnerabilities, performing risk analyses, and ensuring that system configurations and procedures align with ISO 27001 policy standards. The Information Security Officer collaborates closely with the Database Manager to implement encryption protocols, manage system logs, and enforce secure data transfer practices. The Database Officer also supports incident response planning, penetration testing, and the periodic review of security measures to ensure long-term system resilience and trustworthiness. The Information Security Officer reports to the Head of IT & Development (section 4.1).

Privacy Officer

The Privacy Officer is responsible for ensuring that the processing, storage, and dissemination of LISS data fully comply with applicable privacy legislation, including the General Data Protection Regulation (GDPR), as well as with ethical standards and research codes of conduct. The role oversees legal and ethical aspects of data processing activities, including the drafting and evaluation of data processing agreements, informed consent procedures, and access policies. The Privacy Officer advises the LISS Coordinator and Data Steward on lawful data reuse, anonymization practices, and the use of personal data in scientific research. In addition, the Privacy Officer conducts privacy risk assessments, contributes to Data Protection Impact Assessments (DPIAs) where applicable, and ensures that data subjects' rights can be upheld throughout the research data life cycle. The Privacy Officer reports to the Head of IT & Development (section 4.1).

4.3 Data Consumption

Client Researcher

The Client Researcher commissions Centerdata to collect data using the LISS panel. Before data collection starts, the Client Researcher signs a contract with Centerdata outlining the terms of the project. Prior to receiving the data, they must sign the Statement[8] for the Use of Data.

Data User (Consumer)

Data Users (or Consumers) must comply with Centerdata's terms for appropriate, responsible, and ethical data use. Access to the LISS panel data is granted only after signing the Statement[8] for the Use of Data.

[8] https://liss.statements.centerdata.nl/

5 Cooperation

Centerdata cooperates with the following parties and services to support the LISS Data Archive, enhance data visibility and appliance, and to ensure the long-term preservation of its data.

5.1 DANS

DANS (Data Archiving and Networking Services)

To ensure long-term preservation and accessibility, datasets disseminated through the LISS Data Archive are also deposited in the DANS Data Vault, a safe and sustainable long-term preservation archive that meets the highest archiving requirements. These deposits run semi-automatically via a SWORD (Simple Web-service Offering Repository Deposit) interface that has been built between LISS and DANS. The data deposits in the DANS Data Vault include the LISS data files and codebooks and the study level metadata.

5.2 ODISSEI

ODISSEI (Open Data Infrastructure for Social Science and Economic Innovations) Portal

To enhance the discoverability of studies in the LISS Data Archive, metadata are harvested in real time and made searchable through the ODISSEI Portal, which provides integrated access to social science data resources in the Netherlands. Data Users can search for studies and access metadata via the ODISSEI Portal and are referred to the LISS Data Archive to download the actual data files and view more detailed metadata.

Secure ANalysis Environment (SANE)

SANE facilitates secure access to selected confidential datasets from the LISS panel not disseminated through the LISS Data Archive. It enables researchers to extend existing datasets by securely integrating sensitive information, all within a highly protected setting. SANE operates on a scalable cloud infrastructure, via SURF's HPC Cloud, other cloud providers, or on-premise, and is embedded in the SRAM ecosystem and SRC's ISO 27001 certification.[9]

ODISSEI Code Library

The ODISSEI Code Library is a curated collection of scripts and code for preprocessing and analyzing LISS panel data, along with links to related datasets and publications. By making code easier to locate, assess and reuse, the Code Library enhances the FAIRness of research workflows and promotes transparency and reproducibility of LISS data in the social sciences.[10]

[9] https://odissei-data.nl/facility/secure-analysis-environment-sane/
[10] https://odissei-data.nl/facility/odissei-code-library/

FAIR Implementation Profile (FIP)

The FAIR Implementation Profile (FIP)[11] for the LISS Data Archive[12] provides a transparent, machine-readable overview of how the archive implements the FAIR principles. The FIP offers clear insight into the standards, formats, and access protocols used, making it easier to find, understand, and reuse LISS data in a compliant and reproducible way. It facilitates technical alignment and interoperability with other services and repositories, supporting seamless data exchange and integration within the broader FAIR data ecosystem. The LISS Data Archive FIP has been developed with support from and in collaboration with ODISSEI.

5.3 Combell

Combell hosting provider

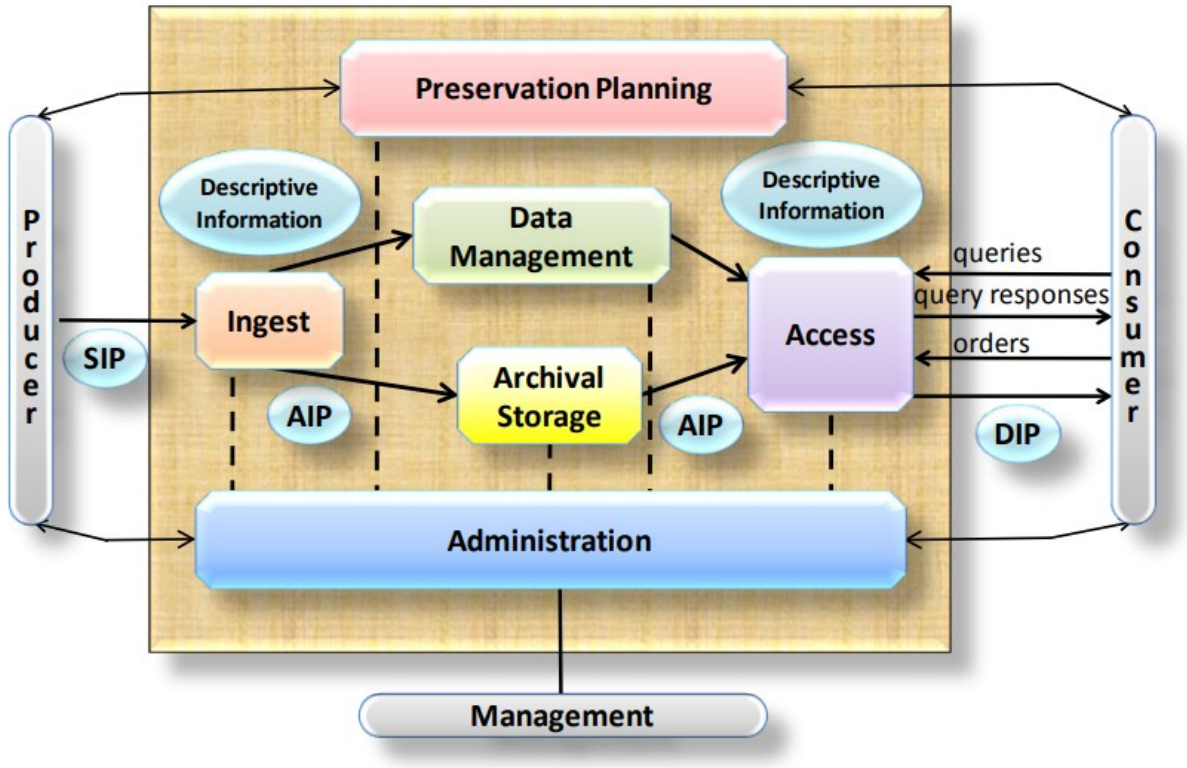
To ensure secure data storage, Centerdata uses the services of hosting provider Combell. Its ISO 27001-certified data centers are fully redundant and physically located within the European Economic Area. Centerdata operates within its own protected partition, which is inaccessible to third parties, ensuring full control over data integrity and confidentiality.

[11] 10.5281/zenodo.7428411
[12] https://fip-wizard.ds-wizard.org/wizard/projects/b52b5e18-c20b-4c58-b3a1-c360cc84b4b7

6 Data Archival Process

This chapter outlines the key tasks involved in managing the LISS Data Archive, based on the Open Archival Information System (OAIS) reference model. According to this model, the archival process is organized into six functional entities and their associated interfaces (CCSDS 650.0-M-3, 2024)[13]: Ingest, Data Management, Archival Storage, Administration, Access, and Preservation Planning (Figure 1). In addition to these core functions, this chapter also describes the pre-ingest processes related to data collection.

Figure 1. The OAIS functional entities, adapted from CCSDS 650.0-M-3 (2024).



6.1 Pre-ingest

The data in the LISS Data Archive are collected through the LISS panel. Academic researchers worldwide can request a data collection service via the LISS panel. The service request procedure is described on the panel website[14]. Once a research contract has been signed, a Centerdata employee is assigned as the Project Leader for the data collection project. The Project Leader coordinates with the Client Researcher to determine the timing of the fieldwork and to finalize the questionnaire content and design. Centerdata reserves the right to revise or decline questions it deems unsuitable for panel members.

[13] The LISS Data Archive aligns with the OAIS Reference Model as defined in CCSDS 650.0-M-3. While the official OAIS diagram in Figure 1 remains unchanged compared to previous versions, the updated model introduces 'Preservation Watch' as a sub-function within Preservation Planning, responsible for monitoring evolving risks and ensuring alignment with long-term preservation objectives.
[14] https://www.lissdata.nl/use-the-panel

The Centerdata Project Leader is responsible for the correct execution of the data collection and processing, and for preparing the data for inclusion in the LISS Data Archive. After completing the fieldwork, the Project Leader delivers the data to the Client Researcher. Subsequently, the study is prepared for archiving.

The different steps in the LISS data archiving process are shown in Table 1 below. First, the Project Leader prepares a Submission Information Package (SIP) (step 1). The SIP includes the dataset and accompanying documentation (such as the codebook) prepared according to the LISS Data Archive's standards, ensuring the files are ready for ingest. The procedure for preparing the SIP is documented in a manual detailing data and metadata requirements and quality checks. All data processing steps are executed using an SPSS syntax file (or R / Python syntaxes, in case of more complex, high volume or high frequency data) to ensure a full audit trail back to the original raw data and to support reproducibility. Each SIP is then reviewed by a second reader (step 2) and, if needed, improved based on their feedback (step 3), before being submitted to the Archive Operator for ingest (step 4).

Data Quality, Validity, and Reliability

The LISS panel has been extensively evaluated in peer-reviewed research, with consistent evidence of high data quality, validity and reliability. Shortly after the launch of the LISS panel in 2007, Scherpenzeel (2009) compared responses from CATI/CAPI recruitment interviews with subsequent online questionnaires in the LISS panel. Validity coefficients estimated in a Multitrait-Multimethod (MTMM) model were higher for the Internet questions than for CAPI questions and similar to the CATI questions. Reliability coefficients obtained with the same model were clearly higher for the Internet questions than for both the CATI and CAPI questions. Revilla and Saris (2013) compared the quality of European Social Survey (ESS) questions in the (regular) face-to-face survey with the quality of the same questions in the LISS panel. Their conclusion was that the validity and reliability coefficients for ESS questions were similar in the Internet and the face-to-face mode of data collection. Internationally, the panel has been cited as a benchmark for high-quality, probability-based online surveys. Callegaro and DiSogra (2008) used LISS as a reference in developing standardized response metrics, and Callegaro et al. (2014) highlight its rigorous recruitment, inclusion of non-internet households, and transparency. Other studies confirm stable measurement quality. Lugtig (2017) found that measurement errors in LISS were generally larger than attrition bias but still low, and de Leeuw et al. (2019) showed high reliability, measurement equivalence, and predictive validity of a survey attitude scale using LISS data. Rekker, Van der Meer and Van der Brug (2020) showed that the quality of data collected by the LISS panel is comparable to data collected through CAPI and a fresh random CAWI sample drawn by Statistics Netherlands (CBS). Together, these findings confirm that the LISS panel produces high-quality data suitable for robust and reproducible scientific research.

6.2 Ingest

When the Archive Operator receives the Submission Information Package (SIP), they review the data and metadata using a standardized data entry checklist. Based on this review, the Archive Operator either accepts or rejects the SIP (step 5). If accepted, the SIP is converted into an Archival Information Package (AIP) by entering the data and documentation into the archive and adding the appropriate meta-data (step 6). The data entry forms used for registering (meta)data in the LISS Data Archive include several systematic checks to prevent the entry of incorrect or duplicate information. After this, a second Archive Operator performs a quality check on the AIP and either accepts or rejects it for publication (step 7).

Table 1. LISS data archiving protocol

	Step	Description	Who	Documentation
1	Prepare SIP	LISS dataset and codebook are processed into a SIP	Researcher A*	LISS dissemination manual
2	SIP check	The SIP is checked	Researcher B*	LISS dissemination checklist
3	Improve SIP	The SIP is improved based on feedback from the second reader	Researcher A	
4	Request to archive	Archive Operator is asked to archive the SIP	Researcher A	
5	Accept to archive	Archive Operator checks that the SIP conforms with the archival standards and accepts or rejects the SIP	Operator A	LISS Data Archive data entry manual
6	Ingest	A study is created in the LISS Data Archive, the dataset and codebook are entered and metadata are added	Operator A	LISS Data Archive data entry manual
7	AIP accept & publish	A quality check on the AIP: accept or reject for publication	Operator B	LISS Data Archive data entry check-and-publish manual
8	Deposit at DANS	The published study is sent to DANS via SWORD	Operator B	LISS Data Archive data entry check-and-publish manual
9	Inform about data publication	Inform Researcher A and LISS Data Archive Coordinator about the published study	Operator B	LISS Data Archive data entry check-and-publish manual
10	DIP check	The published online version of the study is checked	Researcher A; Data Steward	LISS Data Archive data entry check-and-publish manual

**) Researcher A may also delegate the preparation of simple SIPs to an (Archive) Operator. In that case, the researcher performs the second-reader check (step 2) themselves. Researchers in Table 1 are Centerdata staff members.*

The data archived in the LISS Data Archive are also deposited to the DANS Data Vault for long-term preservation. After the Archive Operator has published the Archival Information Package (AIP), they transfer it to DANS using a SWORD interface (Simple Web-service Offering Repository Deposit) (step 8). Finally, the Archive Operator notifies the Project Leader and the Data Steward that the study has been published (step 9) and requests that they verify the Dissemination Information Package (DIP) online (step 10).

6.3 Archival Storage

Centerdata has developed its own application for data archiving and dissemination, originally known as Questasy (De Bruijne & Amin, 2010) and now called RepositoryCTRL, which is part of the larger DataCTRL suite. This system forms the technical foundation of the LISS Data Archive and is used to disseminate all studies conducted within the LISS panel. RepositoryCTRL is a web-based application built using a PHP framework and uses a relational database to store data. The application supports the longitudinal structure of the LISS panel data and is based on version 3 of the Data Documentation Initiative (DDI). Version 3 of DDI introduced a life-cycle approach to survey documentation, distinguishing between metadata related to question items (data collection) and variables (datasets). At the time of its development in 2007, no existing applications applied DDI 3 to data as complex as those from the LISS panel. This lack of suitable tools prompted Centerdata to develop a new archival application[15] tailored to the needs of rich, longitudinal survey data.

6.4 Data Management and Administration

Within the context of the OAIS model, data management and administration include, among other things, information on database requests and events, statistical information needed by archive administration and management, customer profile information, and preservation process history data that track the migration of AIPs, including media replacements and AIP transformations.

Access to the LISS Data Archive requires login to a personal account with provided unique credentials. External data users who are logged in have limited rights within the system, primarily to download published datasets and to view or edit parts of their personal account information. All data downloads are logged to monitor user statistics.

Internally, Centerdata employees must also register to access the archive's backend. Depending on their tasks, a specific role is allocated, and access rights are determined accordingly. Uploads and changes to studies are logged and can be traced back to individual employees. Two aspects of data management receive special attention: ensuring data authenticity and version control. Data authenticity refers to safeguarding and verifying the unchanged meaning and value of the data, which is closely related to version management and media monitoring.

As discussed in the data archiving protocol, all data processing steps are documented in SPSS syntax files (or R/Python scripts when needed) when data files are processed for archiving. These syntax files are stored in the same internal directory as the data files, which is an IP-range-restricted and VPN secured environment only accessible to Centerdata employees. If the data file or documentation needs to be corrected after publication, then the following procedure applies:

1. A copy of the original file is modified by the Centerdata Project Leader, using the same documentation procedure as for the first version, that is, using a syntax file that includes the modifications of the data file.

[15] RepositoryCTRL is also used by several European partners of Centerdata, e.g the European Values Study (EVS) and the Survey for Health, Aging and Retirement (SHARE).
More information on the earlier and current versions of the application can be found at the following sources:
- http://www.ddialliance.org/sites/default/files/QuestasyDocumentingAndDisseminatingLongitudinalDataUsingDDI3.pdf
- https://datactrl.eu/

2. Data file names include an extension which stands for the version number and which is updated for the new version.
3. The changes in the data file are documented in a log file.
4. The file naming and version logging of the related documentation such as codebooks follow the same procedure as for the data file.

The Project Leader then delivers the new SIP version to the Archive Operator along with the log file. The Archive Operator ingests the updated files into the archive and records the modifications in designated AIP fields visible to Data Users. Older versions remain stored in the database, but only the most recent version of any file (such as the dataset or codebook) is disseminated.

To verify file integrity, MD5 and SHA1 checksums are generated whenever a file (e.g., datasets, codebooks, images) is uploaded to the server. Integrity can be checked by recalculating the checksum of the current file on the server and comparing it with the value from the original upload. These checksums are generated automatically but are not displayed publicly by default; however, they can be provided to a Data User upon request to verify the integrity of downloaded files.

6.5 Access

Access to LISS data is open to all academic researchers, both in the Netherlands and abroad. Beginning six months after delivery to the original (PI) Client Researcher, the data are also made available to the scientific community via the LISS Data Archive website[16].

The archive provides an extensive set of metadata covering the entire life cycle of each research project, including information on study objectives, details of the data collection process, the full questionnaire, and metadata for the dataset and individual variables. When available, information on publications related to the data is also provided. Users can search the database in multiple ways, such as by keyword, by browsing lists of studies, or through topic- or concept-based searches[17].

While all metadata are openly accessible, users must register before downloading any data. Data Users are required to sign and comply with the rules set out in the Statement Concerning the Use of Data of the LISS Panel. The signed statement is verified by the Data Archive Operator, who provides login credentials via email once access has been approved. After approval, the Data User can download any published datasets from the archive.

To facilitate metadata harvesting, the repository supports the OAI-PMH protocol[18]. Dublin Core metadata describing published study units can be harvested through this interface, and the LISS Data Archive metadata are also searchable via Google. To further increase the visibility and accessibility of studies available in the LISS Data Archive, the repository is connected to the ODISSEI portal, which combines metadata from a wide variety of social sciences research data repositories into a single interface, allowing for advanced semantic queries to support findability, and facilitate data access.[19]

[16] https://www.lissdata.nl
[17] The topic based search functionality is based on the European Language Social Science Thesaurus (ELSST): https://elsst.cessda.eu/
[18] https://www.oai-pmh.centerdata.nl/lissdata/oai2.php
[19] https://portal.odissei.nl/

6.6 Preservation Planning

Combell, Centerdata's hosting partner, is an ISO 27001-certified data center responsible for the operational management of the server infrastructure and for carrying out the tasks of the Administration functional entity. An incremental backup of the LISS Data Archive application (including all data) is created daily and stored in a dedicated backup storage. Combell also manages updates to the relevant software packages.

To mitigate the risk of file format obsolescence, Centerdata actively monitors developments in the software packages used for data processing. Research data are currently stored and disseminated SPSS, Stata, and CSV file formats. In addition, the source code of the surveys – programmed in QuestionnaireCTRL[20] and containing the metadata used for data labeling – is stored internally and can be exported to PHP, DDI3, XML, CSV, HTML, PDF, Blaise, and JSON file formats to ensure maximum software interoperability.

In addition to maintaining its own system, Centerdata deposits published data files and codebooks to the DANS Data Vault, along with study-level metadata. An agreement with DANS ensures that access will be granted if the continued operation of the LISS Data Archive is ever at risk. While the primary strategy for ensuring long-term preservation is sound management of the LISS Data Archive itself, this additional safeguard further strengthens confidence in the archive's sustainability.

DANS previously assigned persistent identifiers – Uniform Resource Names (URNs) and Digital Object Identifiers (DOIs) – to LISS data files. Following recent policy changes regarding DOI minting, Centerdata now mints and assigns the persistent identifiers itself. Each study unit in the LISS Data Archive contains a unique DOI for reference.

[20] https://en.centerdata.nl/werkvelden-2/datactrl-survey-tool-suite

7 Data Safeguarding

The LISS Data Archive is hosted at the Combell data center. Physical and organizational access controls limit entry to Combell's server rooms, which are equipped with fire protection and power continuity systems.

Functional access to the system is restricted to designated system administrators. Logical access security is enforced through password protection and IP restrictions; account passwords are hashed in the database after the first login. At Centerdata, access to the LISS Data Archive backend application is granted based on role-specific authorization, and only authorized IT staff can access the underlying database. Server and application configurations, as well as log files, are periodically reviewed and updated as needed. Centerdata also maintains an internal incident registration system.

The Centerdata application servers are protected by firewalls, with additional measures in place to detect irregularities on the network and defend against Distributed Denial of Service (DDoS) attacks. On this basis, the government's BIR guidelines are met.

7.1 ISO and NEN certification

Security and risk management for Centerdata's research databases, including the LISS Data Archive, are outlined in the Centerdata Handbook on Information Security and Privacy, which is based on the ISO 27001 standard. Centerdata is certified in accordance with ISO 27001 (Information Security Management), NEN 7510 (Information Security in Healthcare), and ISO 9001 (Quality Management), demonstrating compliance with internationally recognized standards for data protection, operational quality, and continuous improvement.

8 Definitions

AIP
Archival Information Package. A Submission Information Package (SIP) that has been ingested by the archive and processed into an AIP, which may contain additional metadata compared to the SIP. An AIP conforms to the archive's data formatting and documentation standards (NCDD, 2020; CCSDS, 2024).

DDI
Data Documentation Initiative. An international standard for describing data in the social, behavioral, and economic sciences. The DDI metadata specification supports the entire research data life cycle (DDI Alliance, 2020).

DIP
Dissemination Information Package. An information package created by the archive in response to a Data User's request, containing the requested data and associated metadata (NCDD, 2020; CCSDS, 2024).

FAIR
The guiding principles for scientific data management and stewardship: Findable, Accessible, Interoperable, and Reusable (Wilkinson et al., 2016).

OAI-PMH
Open Archives Initiative Protocol for Metadata Harvesting. A low-barrier protocol that facilitates repository interoperability (Open Archives Initiative, 2020).

OAIS
Open Archival Information System. An archive that has accepted responsibility for preserving information and making it available to its designated community. The term "Open" refers to the fact that the system's recommendations and standards are developed in open forums, and does not imply unrestricted access to the archive (CCSDS, 2024).

SIP
Submission Information Package. The data and associated metadata sent to the archive by the Data Producer (NCDD, 2020; CCSDS, 2024).

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