



Implementation of the CoreTrustSeal

The CoreTrustSeal board hereby confirms that the Trusted Digital repository Irish Social Science Data Archive (ISSDA) complies with the guidelines version 2017-2019 set by the CoreTrustSeal Board.

The afore-mentioned repository has therefore acquired the CoreTrustSeal of 2016 on March 6, 2018.

The Trusted Digital repository is allowed to place an image of the CoreTrustSeal logo corresponding to the guidelines version date on their website. This image must link to this file which is hosted on the CoreTrustSeal website.

Yours sincerely,

The CoreTrustSeal Board

Assessment Information

Guidelines Version: 2017-2019 | November 10, 2016
Guidelines Information Booklet: [DSA-booklet_2017-2019.pdf](#)
All Guidelines Documentation: [Documentation](#)

Repository: Irish Social Science Data Archive (ISSDA)
Seal Acquiry Date: Mar. 06, 2018

For the latest version of the awarded DSA for this repository please visit our website: <http://assessment.coretrustseal.org/seals/>

Previously Acquired Seals: None

This repository is owned by: **Irish Social Science Data Archive (ISSDA)**

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Assessment

0. Context

Applicant Entry

Self-assessment statement:

(1) Repository Type: Domain or subject based repository

(2) Repository's Designated Community.

The Irish Social Science Data Archive (ISSDA) serves a designated community of educators and researchers across multiple sectors and jurisdictions with broad relevance to the Social Sciences and Public Health. Within Ireland, it provides data to researchers and research groups in the higher education sector, in private-sector research institutes, within public sector bodies, and others; it also provides services to a growing cohort of international researchers, particularly from the higher education sector. In addition, it provides key services to Irish Data Depositors for the dissemination and preservation of anonymised survey microdata.

ISSDA has provided services to the Irish research and education communities since 2002. For much of this time it has provided educational outreach and data provision services on behalf of a small number of key Data Depositors in the Irish public sector.

(3) Level of Curation: B. *Basic curation – e.g., brief checking, addition of basic metadata or documentation*

(4) Outsource Partners.

ISSDA is hosted organisationally by UCD Library (www.ucd.ie/library, last accessed 2017-04-10), the library of University College Dublin (UCD: www.ucd.ie, last accessed 2017-04-10). ISSDA engages with several service providers based at UCD, and benefits from arrangements with one key external service provider.

On the UCD campus, it has contracted for support services with the UCD Centre for Support and Training in Analysis and Research (CSTAR: see www.cstar.ie, last accessed 2017-04-10). A Service Level Agreement (SLA)

is in place between CSTAR and ISSDA and this is available on request. CSTAR specialises in the biostatistical and methodological areas of health research, both quantitative and qualitative, offering training and support services. ISSDA contracted for an initial review of datasets received from Data Depositors to assess compliance to terms agreed for deposit of data, and to evaluate integrity of datasets. It is expected that contractual arrangement will terminate in the course of 2017 with the additional of a permanent data analyst position within ISSDA.

Other campus services leveraged by ISSDA include technical support for computing equipment. The instance of Nesstar managed by ISSDA (see R13 for further details) resides in the server rooms of UCD IT Services (see: <https://www.ucd.ie/itservices/aboutus/customercharter/> for IT Services Customer Charter, , last accessed 2017-04-10). IT Services provides services including virtual machines, data storage, and backup services on a fee-for-services basis. ISSDA storage is considered a Priority 2 Level according to IT Services Customer Charter.

5) Other Relevant Information.

ISSDA have developed a Data Protection Policy (see: http://www.ucd.ie/t4cms/ISSDA_Data_Protection_Policy_V1.pdf, last accessed 2017-04-10) which outlines how we collect and use personal data (information) about individuals requesting access to data in the Archive. We feel that this helps Data Consumers feel more confident about giving us their personal information. This has been endorsed by UCD Legal (see: <http://www.ucd.ie/corpsec/>, last accessed 2017-04-10) in a letter to ISSDA, available on request, stating that the policy complies with existing Data Protection legislation. This policy will be updated in light of new Data Protection legislation and UCD Legal will provide guidance on any changes necessary.

In the summer of 2017 ISSDA carried out an 'Impact Study' with a view to demonstrating the impact of ISSDA on researchers and the research landscape in Ireland. Part of the study gathered a bibliography of articles where data obtained from ISSDA was used. This included scholarly publications (journal articles, books etc.), media coverage (newspaper articles etc.) and public policy. As well as allowing us to demonstrate the impact of ISSDA's services the bibliography will also help to build trust among researchers in ISSDA's datasets and in ISSDA as a whole. The full report is available on our website (see: <http://www.ucd.ie/t4cms/Demonstrating%20the%20Value%20&%20Impact%20of%20ISSDA.pdf>, last accessed 2018-02-02).

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

1. Mission/Scope

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

4. Implemented: This guideline has been fully implemented for the needs of our repository.

Self-assessment statement:

ISSDA's mission statement is publicly available on its website and reads: "The Irish Social Science Data Archive (ISSDA) is Ireland's leading centre for quantitative data acquisition, preservation, and dissemination. Its mission is to ensure wide access to quantitative datasets in the social sciences, and to advance the promotion of international comparative studies of the Irish economy and Irish society." (See: www.ucd.ie/issda, last accessed 2017-04-10).

ISSDA's mission and its administrative placement within University College Dublin (UCD: www.ucd.ie, last accessed 2017-04-10) has been expressly approved by University management in a letter of understanding with the Irish Research Council (IRC: www.research.ie, last accessed 2017-04-10), which has approved ISSDA's role as the Irish Service Provider within the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10). This arrangement will be further formalised through a Memorandum of Agreement with the Irish Research Council and Department of Education and Skills as Irish membership arrangements for CESSDA progress in 2018.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

2. Licenses

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

4. Implemented: This guideline has been fully implemented for the needs of our repository.

Self-assessment statement:

All Data Collections received by ISSDA are controlled by a Deposit Licence (See: http://www.ucd.ie/t4cms/ISSDA_Deposit_Licence_V1.2.docx, last accessed 2017-04-10). The Deposit Licence, Clause 2.1 awards ISSDA permission to:

- distribute copies of the Data Collection to approved applicants in a variety of media formats
- promote and advertise the Data Collection in any publicity (in any form) for ISSDA
- catalogue, enhance, validate and document the Data Collection
- to store, translate, copy or re-format the Data Collection in any way to ensure its future preservation and accessibility
- incorporate metadata or documentation in the Data Collection into public access catalogues for the Data Collections

This is a non-exclusive contract, wherein the Depositor retains rights and responsibilities for the Data Collection including making Data Collections available through whatever means they choose. Depositors indicate on the Deposit Licence whether the data can be used for research purposes, teaching purposes or both.

All data consumers are asked to complete and sign an End User Licence (EUL: http://www.ucd.ie/t4cms/ISSDA_Application_Research_V2.3.docx, last accessed 2017-04-10). Separate licences cover use of data for research purposes or for use in teaching (See: http://www.ucd.ie/t4cms/ISSDA_Application_Teaching_V2.1.docx, last accessed 2017-04-10). These Agreements identify the terms of use to which data consumers agree. The EUL asks Data Consumers for contact details, including institution or company, the datasets requested as the EUL can cover multiple datasets, a short description of the intended use of the dataset/s and a list of all users who will have access to and use of the data. The Data Consumer is required to sign a physical copy of the form, scan it and email the completed form or to attach a digital signature.

The very occasional requests received that fall outside the remit of research or teaching use, for example commercial use of data, are referred back to the Data Depositors for their approval or otherwise. See R4 for more information.

Terms are set out in the EUL to monitor compliance and action will be taken in the event of any breach of terms. Clause 16 of the EUL states:

“Any breach of any of the provisions of this Agreement will lead to immediate termination of the End User’s access to all services provided by ISSDA either permanently or temporarily, and may result in legal action being taken against the End User. The End User acknowledges that the data depositor will be notified in the event of a breach coming to the notice of the End User. Permission to use the data for the specified purpose may be withdrawn by ISSDA at any time, without notice and without cause assigned, by written notice to the End User, signed by or on behalf of the Director of ISSDA.”

Relevant institutional bodies involved consist of the Irish regulatory authorities and relevant legislation. These include protection of copyrighted materials and other intellectual property, as per the Copyright and Related Rights Acts, 2000 (See: <http://www.irishstatutebook.ie/eli/2000/act/28/enacted/en/html>, last accessed 2017-04-10). Data supplied by the Irish Central Statistics Office are subject to the provisions of the Statistics Act, 1993 (See: <http://www.irishstatutebook.ie/eli/1993/act/21/enacted/en/html>, last accessed 2017-04-10), in particular Section 34 regarding the provision of anonymised data, as well as the Data Protection Act, 1998 and its amendments (See: <http://www.irishstatutebook.ie/eli/1988/act/25/enacted/en/html>, last accessed 2017-04-10).

Reviewer Entry

Accept or send back to applicant for modification:

Accept

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Comments:

3. Continuity of access

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA is hosted organisationally by UCD Library (www.ucd.ie/library, last accessed 2017-04-10), the library of University College Dublin (UCD). A process has been agreed with the Irish Research Council for formalising this relationship as part of ongoing arrangements for the anticipated Irish membership of the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10). The University's commitment to hosting ISSDA is confirmed by a letter of commitment from the University to the Irish Research Council (September 2016); as agreed with the Irish Research Council, a Memorandum of Agreement will be negotiated between the Council and the University that formalises the University's five-year commitment to hosting ISSDA. As part of this process it is also agreed that a new governance framework will be established in accordance with the usual procedures followed by the Irish Research Council for other ERICs to which Ireland holds memberships.

The Irish Research Council (IRC: www.research.ie, last accessed 2017-04-10), which oversees issues of Irish ERIC participation in the domains of humanities and social sciences, identifies and commissions Service Providers through a tendering process, which it intends to repeat for each Service provider role every five years. The IRC has identified the current ISSDA Office at University College Dublin as the Service Provider for Ireland within the CESSDA ERIC. However the bureaucratic process of Ireland becoming a member of the CESSDA ERIC is still underway. Once membership is established, a Memorandum of Agreement will be struck between the IRC and University College Dublin to formalise terms of ISSDA's operations; continuity of service will be a likely provision of this agreement.

In particular, UCD will propose that, should ISSDA cease operations due to any action of the University or IRC, UCD Library, whose digital repository service (<https://digital.ucd.ie/>, last accessed 2017-04-10) is already certified by the Data Seal of Approval, would assume custodianship of ISSDA's data, either on a permanent basis or until such time that a new Service Provider is identified by the IRC. Were an alternative Service Provider identified in the future, the current ISSDA offices at University College Dublin would work with the newly named Service Provider to assure continuity of service and continued integrity of data assets.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

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4. Confidentiality/Ethics

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

4. Implemented: This guideline has been fully implemented for the needs of our repository.

Self-assessment statement:

ISSDA holds and provides access to Anonymised Microdata Files (AMFs). Data supplied to ISSDA have been anonymised by the Data Depositor and ISSDA works with the Data Depositor to ensure that this is the case. As part of the data checking carried out by CSTAR (see: <http://www.cstar.ie/>, last accessed 2017-04-10) they check for variables considered direct identifiers, however anonymisation of data and disclosure risk remains the responsibility of the Data Depositor as outlined in Clause 3 of ISSDA's Deposit Licence (see: http://www.ucd.ie/t4cms/ISSDA_Deposit_Licence_V1.2.docx, last accessed 2017-04-10), specifically:

"3.2.3 that the Data Collection was created or executed in compliance with the Data Protection Acts 1988-2003 and its amendments;

3.2.4 that the Depositor has taken its best efforts to anonymise the Data Collection and to ensure that there is no disclosure risk;"

As outlined in ISSDA's Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10) Pre-Ingest is a very valuable part of ISSDA's workflow. ISSDA works with individual depositors to ensure data are deposited with sufficient metadata, documentation and in a preferred file format. Anonymisation and disclosure risk always form a part of these conversations. Additionally, there is a continuing programme of training, both for ISSDA staff, depositors and researchers, for example the recent workshop on Anonymisation (See: <http://www.ucd.ie/issda/aboutus/anonymisation/>, last accessed 2017-04-10).

Data are made available for research or teaching purposes. Requests for full access to data must be submitted to ISSDA via a signed End User Licence (EUL: http://www.ucd.ie/t4cms/ISSDA_Application_Research_V2.3.docx, last accessed 2017-04-10) and all applications must include an outline of the intended use of the data (see R2). Unwarranted use is mitigated against through the terms of use to which data consumers agree in the EUL. Each application for data is reviewed individually by ISSDA staff for compliance with the requested intended use of the data (i.e. research or teaching use). This includes a review of institutional affiliation (See: Section 1 of EUL) and Intended Use of Data (See: Section 3 of EUL). The very occasional requests received that fall outside the remit of research or teaching use, for example commercial use of data, are referred back to the Data Depositors for their approval or otherwise.

Data are supplied electronically using HEAnet Filesender. FileSender is developed to the requirements of the higher education and research community and supported by HEAnet, Ireland's National Education and Research Network. (See: <https://www.heanet.ie/services/hosting/filesender>, last accessed 2017-04-10). All files are encrypted before being sent and a decryption password is sent to the user under separate cover. Kleopatra (see: <https://www.kde.org/applications/utilities/kleopatra/>, last accessed 2017-04-10) is used by ISSDA to encrypt datasets before dissemination. It is a certificate manager and a universal crypto GUI. It supports managing X.509 and OpenPGP certificates in the GpgSM keybox and retrieving certificates from LDAP servers.

In cases where a Researcher Microdata File (RMF) is available to researchers, generally through the Irish Central Statistics Office (CSO, See: <http://www.cso.ie/en/aboutus/dissemination/accesstomicrodatarulespoliciesandprocedures/researchaccesstomicrodatafiles/>, last accessed 2017-04-10), ISSDA can advise researchers on the process to access the non-anonymised microdata files.

The Irish Data Protection Commissioner provides guidelines for Personal Data Security Breach Code of Practice applicable to all Data Depositors. As stated in the End User Licence (EUL: http://www.ucd.ie/t4cms/ISSDA_Application_Research_V2.3.docx, last accessed 2017-04-10), should a data user breach any of the provisions of the EUL (Clause 16), ISSDA will terminate immediately access to all of its services either permanently or temporarily, and may also take legal action against the user; ISSDA will also inform the data depositor in the event of a breach.

Relevant norms and regulations that ISSDA adheres to include the Statistics Act 1993 (see: <http://www.irishstatutebook.ie/eli/1993/act/21/enacted/en/html>, last accessed 2017-09-20). The Statistics Act, 1993 allows the Central Statistics Office (CSO: <http://www.cso.ie>, last accessed 2017-09-20) to make available to researchers, for statistical purposes only, information obtained in any way under the Act in such form that it cannot be directly or indirectly related to an identifiable person or business subject to such conditions and restrictions as the Director General may determine. Anonymised microdata files (AMF) are made available to researchers through ISSDA. In addition ISSDA is bound by the Data Protection Act 1988 (see: <http://www.irishstatutebook.ie/eli/1988/act/25/enacted/en/html>, last accessed 2018-02-12) and will be bound by the General Data Protection Regulation (GDPR) which comes into force across Europe on the 25th May 2018.

ISSDA is also working towards the requirements set out by CESSDA in relation to metadata management, data access and dissemination policies and Service Providers' Obligations as set out in Annex 2 of the Statutes of CESSDA ERIC (see: <https://www.cessda.eu/Consortium/Mission-Vision>, last accessed 2017-10-06).

Reviewer Entry

Accept or send back to applicant for modification:

Accept

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Comments:

5. Organizational infrastructure

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA is hosted organisationally by UCD Library, the library of University College Dublin (UCD). A process has been agreed with the Irish Research Council for formalising this relationship as part of ongoing arrangements for the anticipated Irish membership of the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10). See Requirement 3 (R3) for further details.

Funding for ISSDA's operations come have historically been provided through research awards. Since 2012, in the absence of state grant support, ISSDA has operated within UCD Library, leveraging the expertise and availability of permanent FTE staff to fulfil its mission. This arrangement will continue between 2018 and 2022, the initial five-year period for support for ISSDA's activity as a CESSDA Service Provider agreed with the Irish Research Council.

From 2018 we expect that additional funding will be made available to ISSDA to enable hiring of a qualified data analyst, who will provide analytical support for datasets received by ISSDA, and undertake an educational and outreach programme to promote use within Ireland of datasets hosted by ISSDA. Additional funding will be provided to enable continued travel and outreach activities by ISSDA management and staff, assuring continued full engagement with CESSDA and a robust outreach programme.

Training and professional development entitlements are available to all staff within the umbrella of UCD Library, including all staff associated with ISSDA. UCD Library is an associate member of the Digital Preservation Coalition (DPC: www.dpconline.org, last accessed 2017-04-10) and International Association for Social Science Information Services and Technology (iAssist: www.iassistdata.org, last accessed 2017-04-10) and ISSDA staff can avail of training available through these organisations. ISSDA will additionally become the Irish Service Provider within the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10) during 2017 and is already able to benefit from CESSDA internal training activities and the CESSDA Expert Seminar as a result of this relationship.

We feel that, with the additional of a full-time data analyst in 2018, ISSDA will have the full range of expertise and operational capacity to meet the requirements of its designated community:

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Executive Director (0.1 FTE)

- Strategic direction of ISSDA
- Funding streams

•

Managing Director (0.2 FTE)

- Relationship management
- Staff management
- Process management

•

Data Manager (0.5 FTE)

- Marketing, publicity and promotion
- Data Management
- Data organisation
- Metadata, including DDI metadata
- Collection Development
- Workflows, manuals and documentation
- Digital preservation, including creating of Archival Information Packages (AIPs)
- Relationship building and management

•

Data Analyst (1.0 FTE)

- To be fully defined when in a position to recruit

-

Executive Assistant (0.5 FTE)

- Data dissemination
- Encryption
- Request handling
- Record keeping
- Customer service

-

Project Assistant (0.1 FTE)

- Assistance with specific projects, for example the current NESSTAR upgrade

-

IT Support (0.1 FTE)

- Systems administration
- Storage and security of research data, including backups
- Access control
- NESSTAR APIs
- Technical infrastructure
- Digital preservation

-

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

It would be beneficial to include the expertise/qualifications of staff rather than their responsibilities.

6. Expert guidance

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA was established in 2000 under the aegis of the UCD Geary Institute and has been supported by funding from the Irish Higher Education Authority's Programme for Research in Third-Level Institutions since 2001. In July 2012 the administrative home of ISSDA shifted to UCD Library in order that it be able to leverage significant technical work accomplished in established trusted digital repository services with a preservation focus and availability of staff with a range of relevant skills who are able to provide administrative, technical, and end-user support of ISSDA's services. ISSDA functions as an organisational entity within University College Dublin, supported by administrative and data services staff of UCD Library and the Centre for Support and Training in Analysis and Research (CSTAR: www.cstar.ie, last accessed 2017-04-10). Contracts for deposit of data are therefore made between Depositors and University College Dublin.

As agreed with the Irish Research Council (IRC: www.research.ie, last accessed 2017-04-10), ISSDA will be governed by a new governance Board from 2018. This Board will include two representatives of the Irish Research Council, but will appointment members with a broad range of experience as both Data Depositors and members of the Designated Community who consume the data. It is expected that this Board will become active in 2018.

ISSDA has ready access to a range of expertise at University College Dublin. This includes the aforementioned CSTAR, expert staff within UCD Library's Research Services and Library Information Technology units (www.ucd.ie/library, last accessed 2017-04-10), and technical expertise within UCD IT Services (www.ucd.ie/itservices, last accessed 2017-04-10). Additionally ISSDA has access to expertise in the UCD Office of Research Ethics (www.ucd.ie/researchethics, last accessed 2017-04-10) and UCD's Information Compliance Manager (www.ucd.ie/dataprotection, last accessed 2017-04-10).

It also benefits from UCD Library's associate membership of the Digital Preservation Coalition (<http://www.dpconline.org/>, last accessed 2017-04-10), the Coalition for Networked Information (<https://www.cni.org/>, last accessed 2017-04-10), and a national membership of ICPSR (<https://www.icpsr.umich.edu/icpsrweb/>, last accessed 2017-04-10).

Additionally the Irish Research Council has approved ISSDA's role as the Irish Service Provider within the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10) and the anticipated Irish membership of CESSDA allows ISSDA to benefit from the knowledge and expertise

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available through this consortium. See R1 and R3 for further details.

Any feedback received from the Designated Community is acted upon. Feedback is generally gathered informally via email.

In the summer of 2017 ISSDA carried out an ‘Impact Study’ with a view to demonstrating the impact of ISSDA on researchers and the research landscape in Ireland. In order to demonstrate the impact of ISSDA this study gathered a bibliography of articles where data obtained from ISSDA was used. Following on from methods used by Growing Up in Ireland (GUI: https://www.surveymonkey.com/r/GUI_publications, last accessed 2017-04-10) and the European Social Survey (ESS: <http://www.europeansocialsurvey.org/about/singlenew.html?a=/about/news/essnews0019.html>, last accessed 2017-04-10) we contacted all previous users of ISSDA data, asking for details of the publications and other ways in which their use of ISSDA data had impact. We also asked questions about the researchers’ main activity, i.e. PhD student, Academic, Policy etc., the research areas the researcher is most interested in or that their research area relate to as well as how the data obtained from ISSDA was used, i.e. “For your own analysis”, “As a basis for further data collection”, “To support decision making” etc. This allowed us to gain a better understanding of our Designated Community and their needs. The full report is available on our website (see: <http://www.ucd.ie/t4cms/Demonstrating%20the%20Value%20&%20Impact%20of%20ISSDA.pdf>, last accessed 2018-02-02). See R0 for further details on this study.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

7. Data integrity and authenticity

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

4. Implemented: This guideline has been fully implemented for the needs of our repository.

Self-assessment statement:

The majority of ISSDA's depositors are Irish government agencies and departments, including the Central Statistics Office (CSO: www.cso.ie, last accessed 2017-04-10), the Economic and Social Research Institute (ESRI: www.esri.ie, last accessed 2017-04-10) and the Department of Health (<http://health.gov.ie>, last accessed 2017-04-10), as well as large research groups fully or partly funded by the Irish government, for example The Irish Longitudinal Study on Ageing (TILDA: <http://tilda.tcd.ie/>, last accessed 2017-04-10).

The 'Pre-Ingest' stage is a very valuable part of ISSDA's workflow. ISSDA works with individual depositors to ensure data are deposited with sufficient metadata, documentation and in a preferred file format, so that they can be fully understood and re-used by others. We advise Depositors on ensuring the data are cleaned and on provision of suitable documentation, including a data dictionary or codebook and questionnaires, as well as preservation friendly formats for both data and documentation (see ISSDA's File Format Policy: http://www.ucd.ie/t4cms/ISSDA_Format_Policy_V2.pdf, last accessed 2018-02-12). We can also point Depositors to useful information on the anonymisation process for quantitative data. Such pre-ingest activity helps to ensure that issues that may affect the quality of data deposited, for example legal, ethical and rights management issues together with file formats for dissemination and curation, are considered and addressed early in the process.

As part of the Submission Information Package (SIP) ISSDA requires Depositors to complete a Deposit Licence (see: http://www.ucd.ie/t4cms/ISSDA_Deposit_Licence_V1.2.docx, last accessed 2017-04-10) and a Depositor Form (see: http://www.ucd.ie/t4cms/ISSDA_Depositor_Form_V1.docx, last accessed 2017-04-10). The Depositor Form describes in detail the data and documentation being deposited and is DDI compliant. The Data Documentation Initiative (DDI: www.ddialliance.org, last accessed 2017-04-10) is an international standard for describing the data produced by surveys and other observational methods in the social, behavioural, economic and health sciences.

For all files, both the data and all accompanying documentation, ISSDA requests that the depositor indicate filename, file format and a description of the file contents in the Depositor Form. This is considered to be the file manifest. This allows the Data Manager to verify that the SIP is complete; that all files are present, that they conform to the declared file format and can be opened in associated software applications.

If a checksum is delivered with the SIP this is recorded and validated to ensure the integrity of a file and verify it has not been altered or corrupted en route to ISSDA. If one is not delivered a MD5 checksum is generated once the data are in archival storage using a tool called Fixity from AVPreserve (see: <https://www.avpreserve.com/tools/fixity/>, last accessed 2017-04-10) to be used for future fixity checks. By checking file fixity on ingest, or creating a checksum if one isn't delivered ISSDA is able to assert the authenticity of the data and documentation and establish a baseline fixity so unwanted data changes can be detected.

Datasets are sometimes superseded by corrected versions supplied by the Data Depositor; the superseded dataset is removed from the Dissemination Information Package (DIP) by ISSDA but is added by the Archive to the Archival Information Package (AIP) on offline-storage media. All users of the superseded dataset (going back one year) are notified via email and alerted to the availability of revised data, which they can then request. Within the DIP files are given a new file name using the format SN_name_year and version numbers are included where applicable, e.g 0015-12_eu-silc_2014_v2.

This is outlined in ISSDA's Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10). This is publicly available on our website so Data Depositors can see and understand how ISSDA manages their data once it comes into our care. Although technical terms relating to the Open Archival Information System (OAIS) reference model are used to describe our processes and workflows efforts are made to explain these to the Depositors within the Protocol.

ISSDA makes use of the NESSTAR Publisher (see: <http://www.nesstar.com/software/publisher.html>, last accessed 2017-04-10) for creation of Data Documentation Initiative (DDI: <http://www.ddialliance.org/>, last accessed 2017-04-10) metadata. NESSTAR provides an OAI-PMH provider service that supports a limited subset of the OAI-PMH verbs.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

8. Appraisal

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

4. Implemented: This guideline has been fully implemented for the needs of our repository.

Self-assessment statement:

ISSDA has a Collection Development Policy (see: http://www.ucd.ie/t4cms/ISSDA_Collection_Development_Policy_V1.pdf, last accessed 2017-04-10). In accordance with the policy Data Collections offered for deposit are appraised based on the following criteria:

- Relevance: Does the candidate dataset fall within the Scope of Collection?
- Format: Is the dataset and accompanying documentation available in formats that ISSDA identifies as appropriate for deposit?
- Potential for secondary use: Is the scope of the data such that re-use will be of interest? Will the dataset complement or be complemented by other data already held by ISSDA? Is there sufficient supporting documentation to enable effective use of the dataset? Have appropriate steps been taken to anonymise the data collection?
- At risk material: Are the data at risk of being lost?
- Access conditions: Is the depositor willing to access conditions that permit research and/or teaching use and re-use of the data? Does the depositor agree to the long-term preservation of the dataset?

ISSDA works with individual depositors, as part of the relationship building process, to ensure data are deposited with sufficient metadata and documentation so that they can be fully understood and re-used by others. As sharing of research data is relatively new in Ireland beyond large scale government funded studies this comprises part of our education and outreach services to Data Depositor and researchers in our Designated Community. Further advice on depositing data is provided on ISSDA's website, including anonymising data, data cleaning, file formats and deposit of documentation.

ISSDA's preferred and acceptable formats are widely used by our Designated Community (see R0 for a description of our Designated Community). Our Format Policy (see: http://www.ucd.ie/t4cms/ISSDA_Format_Policy_V2.pdf, last accessed 2018-02-12) is publicly available on our website. The policy is reviewed regularly in light of any changes in technology or the requirements of our Designated Community.

Preferred formats are formats most suitable for sharing, reuse and preservation, while acceptable formats are less suitable for data preservation but are widely used within the social sciences community. While we recommend that Data Depositors deposit data in recommended formats, acceptable formats will also be accepted. Other formats may still be considered by ISSDA in discussion with the Depositor. If the Data Depositor is unable to deposit data in the preferred formats, an effort will be made to derive files in SPSS portable format where the source file format can be reliably converted.

ISSDA also recommends that multiple formats are deposited, where possible, to allow as broad a range of researchers to access and use the data as possible. For example, researchers outside of Higher Education institutions may not have access to expensive software for analysing data or may only have access to one type of software.

ISSDA Preferred and Acceptable Formats:

Quantitative Datasets

Preferred formats:

- SPSS Portable (.por)
- SPSS (.sav)
- STATA (.dta)
- Tab-delimited file (.tab) with setup file (for SPSS, Stata, SAS, etc.)

Acceptable formats:

- SAS (.7bdat; .sd2; .tpt)

Documentation

Preferred formats:

- PDF/A (.pdf)

Acceptable formats:

- PDF (.pdf)
- ODT (.odt)
- MS Word (.doc, .docx)
- RTF (.rtf)

Metadata

Preferred formats:

- DDI (.xml)

For long term archiving and preservation ISSDA recommends Tab-delimited file (.tab) with setup file (for SPSS, Stata, SAS, etc.). Once our NESSTAR upgrade is complete (see R13) we will be in a position to archive data in DDI XML for long term preservation.

As a result of our close relationship with our Designated Community we are aware of the importance of availability of data in these formats to them. We are also aware that the use of R for statistical analysis is becoming increasingly popular but as our preferred formats can be read into R and so largely meet the current needs of our Designated Community using R.

Documentation is converted to PDF for dissemination purposes, where possible.

Once the Submission Information Package (SIP) is received by ISSDA it is sent to with the UCD Centre for Support and Training in Analysis and Research (CSTAR: <http://www.cstar.ie/>, last accessed 2017-04-10) who perform quality control checks to ensure the completeness and understandability of data deposited. Specifically CSTAR inspect the quality of the data, assuring that the data is in a format suitable for analysis and that the data is clean, with variable level codes, missing value codes, descriptive and consistent variable names, etc. They additionally check that there are no variables considered direct identifiers and evaluate related accompanying files to verify contextual information is given for the dataset provided. Once the data have been reviewed CSTAR send a report to the ISSDA identifying any concerns as outlined above, including specific actions which must be undertaken by the Data Depositor for correction. If there are any issues the data are returned to the Data Depositor for rectification.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

9. Documented storage procedures

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

Towards the end of 2016 ISSDA performed a preliminary self-assessment of technical infrastructure, services and policies in line with the Digital Repository Audit Method Based on Risk Assessment (DRAMBORA: <http://www.repositoryaudit.eu/>, last accessed 2017-04-12) risk management principles and identified areas for immediate action. These included the development of a Data Protection Policy (see: http://www.ucd.ie/t4cms/ISSDA_Data_Protection_Policy_V1.pdf, last accessed 2017-04-10), implementation of fixity checking within the Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10) and secure offline storage of data unless the data are encrypted for dissemination.

ISSDA works with Depositors to discuss the best way to transfer data. Possible options include encrypted files sent via email, with encryption password sent using a different medium, FTP transfer or HEAnet Filesender Guest Voucher (see: <https://www.heanet.ie/services/hosting/filesender>, last accessed 2017-04-10). See R12 for further information.

Once encrypted data are received by ISSDA they are stored on storage media that is not accessible from a networked context; it remains inaccessible on networks during processing of Archival Information Packages (AIPs). Static Dissemination Information Packages (DIPs) are similarly created and held on non-networked storage media for eventual replication and delivery to authorised Data Consumers. DIPs are encrypted for delivery to authorised Data Consumers.

ISSDA currently uses Nesstar (see: <http://nesstar.ucd.ie/webview/>, last accessed 2017-04-10) as a system for data discovery and offers a search-based discovery service via the platform. Data Consumers can browse basic descriptive metadata for Data Studies available via ISSDA's public data catalogue supported by NESSTAR, as well as via the Nesstar OAI-PMH services. NESSTAR it is not currently used as a data access system, however download of datasets will be implemented, likely in the 2017-2018 timeframe.

Data in NESSTAR and secure offline storage media are backed up on a weekly basis. ISSDA utilises the LOCKSS principles (see: <https://www.lockss.org/>, last accessed 2017-04-10) with copies of SIPs, AIPs and DIPs being kept in multiple locations, across different media. These include external and networked attached storage, as well as copies on DVD.

Archival storage is monitored using fixity checks on both the primary storage and backup storage. ISSDA uses a tool called Fixity from AVPreserve (see: <https://www.avpreserve.com/tools/fixity/>, last accessed 2017-04-10) to perform this function. Checks are scheduled to run automatically, once a week, and results are emailed to the Data Manager. This offers protection from data corruption and loss and any potential problems with storage are detected earlier.

Additionally ISSDA has created a preservation oriented dark archive using the Fedora Commons repository framework with a view toward its long-term preservation. This service is managed behind the UCD firewall and will be accessible only to authorised ISSDA staff via VPN. Full implementation is expected to be completed by end of 2017. All datasets and related documentation will be stored with MD5 checksum values in the Fedora Commons repository.

ISSDA does not, as yet, have a specific preservation policy, although preservation actions take place as part of the Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10). Once the new governance framework is in place a Preservation Policy will be a priority (See R3 for more information). This will address data storage, data consistency and format monitoring and migrations.

ISSDA subscribes to the Emergency Response Plan organised by UCD Library and other repositories within University College Dublin (see: http://www.ucd.ie/library/using_the_library/policies/disasterplan, last accessed 2017-04-10). This document details the appropriate personnel to contact and the steps to be taken in the case of a disaster, including recovery of IT Services.

Library IT Recovery – Library IT Manager

- Contact LITS team as required
- Make initial assessment of the problem and estimate potential downtime
- Access off-site copies of essential documents

- Work to restore Library IT Services
- Work with Service Recovery Manager to ensure business continuity / resumption of service
- Liaise with UCD IT Services as well as relevant Vendors as required
- Provide regular updates to Head of Outreach

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

10. Preservation plan

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA does not, as yet, have a specific preservation policy, although preservation actions take place as part of the Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10). Once the new governance framework is in place a Preservation Policy will be a priority (See R3 for more information). Preservation is among the core functions as identified in ISSDA's mission statement and preservation international best practices are currently followed with regard to data acquisition, workflows and processing of Submission Information Packages (SIP) and creation of Archival Information Packages (AIP) (including creation of DDI metadata, technical metadata, and preservation metadata).

ISSDA has broadly adopted the Open Archival Information System (OAIS) reference model as a framework on which our workflow is based. The ISSDA Data Acquisition Protocol specifies procedures and workflows to be followed when a Data Study has been received from a Data Depositor. The data and supporting documentation supplied by a Data Depositor comprises a Submission Information Package (SIP). The ISSDA Data Acquisition Protocol outlines the process for validating the SIP and creation of an Archival Information Package (AIP) and Dissemination Information Package (DIP) managed within archive storage and, in most cases, the Nesstar data discovery system (see: <http://nesstar.ucd.ie/webview/>, last accessed 2017-04-10). Since January 2017 a project to re-catalogue of all datasets in ISSDA to comply with emerging metadata recommendations being formulated by the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10) has been underway. This will ensure the completeness of existing records within the catalogue and will see the addition of new datasets to the NESSTAR catalogue. Once the re-cataloguing is completed NESSTAR will also function as a data access system. See R13 for more details.

During the ingest process these data, documentation, Depositor Form and Deposit Licence or 'original' files are the Submission Information Package (SIP) and are preserved in the original format in the appropriate directory of the archival storage. During the ingest process the SIP is verified and validated, data are checked, Archival Information Package (AIP) and Dissemination Information Packages (DIP) are generated and descriptive metadata for the Study are created. Further details are provided in R12 Workflows.

The Archival Storage function manages the digital objects (data and documentation) entrusted to ISSDA. ISSDA's Archival Information Packages (AIP) contain a number of elements. These include:

- Depositor Form and Deposit Licence
- 'Original' files, as deposited to ISSDA. In the case of a new edition being deposited these are added to the AIP.
- A record of any deposit processing
- NESSTAR file containing data, study level and variable level descriptive metadata
- DDI metadata in XML format
- CSTAR report
- Correspondence with the Depositor

Archival storage is monitored using fixity checks on both the primary storage and backup storage. ISSDA uses a tool called Fixity from AVPreserve (see: <https://www.avpreserve.com/tools/fixity/>, last accessed 2017-04-10) to perform this function. By checking file fixity on ingest, or creating a checksum if one isn't delivered ISSDA is able to assert the authenticity of the data and documentation and establish a baseline fixity so unwanted data changes can be detected. Checks are also scheduled to run automatically, once a week, and results are emailed to the Data Manager. This offers protection from data corruption and loss and any potential problems with storage are detected earlier.

Preservation levels are accounted for by the above-referenced Data Acquisition Protocol and the ISSDA Format Policy. All files are retained indefinitely in the format received in the Submission Information Package. A first level of preservation interventions consists of validation of file assets received. At a next level data files are evaluated with respect to content integrity, with interventions if needed (for example, to align variable semantics

with values); files comprising documentation are treated similarly. While not oriented toward long-term preservation, interventions may also be made to assure ease of immediate usage, for example, through creation of additional files in commonly used data formats. Additional work is anticipated with regard to long-term preservation of data resources.

The Data Management function works in conjunction with the Archival Storage function.

The Dissemination Information Package (DIP) is created as part of the Ingest process. The DIP consists of the files that are sent to users once a data request has been accepted. All files (data and documentation) are given a new file name using the format SN_name_year, all lowercase e.g.

- 0021-01_healthy_ireland_2015.dta
- 0036-01_qnhs_module_on_disability_Q2_2002.sav
- 0053-02_tilda_wave2_2012-2013.dta

Acronyms may be used if Study name is very long and version numbers are included where applicable, e.g 0015-12_eu-silc_2014_v2.

All Studies are disseminated using the same folder structure, allowing for easier navigation and identification of relevant files by users.

DIP

- Documentation

Data: If multiple formats, different folder for each

- SPSS

- Stata

- etc.

-

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Provisions have been made to guard against format obsolescence in several ways. Data Depositors are asked to submit data only in formats that are ubiquitously used, well documented and amenable to format transformation.

ISSDA's File Format Policy is publicly available (see: http://www.ucd.ie/t4cms/ISSDA_Format_Policy_V2.pdf, last accessed 2018-02-12). In preparing the policy we consulted the recommendations of the following organisations: Digital Archiving and Networked Services (DANS: <https://dans.knaw.nl/en/deposit/information-about-depositing-data/DANSpreferredformatsUK.pdf>, last accessed 2017-04-10), Leibniz-Institut für Sozialwissenschaften (GESIS: <http://www.gesis.org/en/services/archiving-and-registering/data-archiving/preparing-data-for-submission/>, last accessed 2017-04-10), Inter-university Consortium for Political and Social Research (ICPSR: <https://www.icpsr.umich.edu/icpsrweb/content/datamanagement/policies/colldev.html>, last accessed 2017-04-10) and the UK Data Archive (<https://www.ukdataservice.ac.uk/manage-data/format/recommended-formats>, last accessed 2017-04-10).

For long term archiving and preservation ISSDA recommends Tab-delimited file (.tab) with setup file (for SPSS, Stata, SAS, etc.). Once our NESSTAR upgrade is complete (see R13) we will be in a position to archive data in DDI XML for long term preservation.

The Deposit Licence (see: http://www.ucd.ie/t4cms/ISSDA_Deposit_Licence_V1.2.docx, last accessed 2017-04-10), Section 2, signed by Data Depositor grants ISSDA a worldwide, royalty-free licence of the Data Collection to catalogue, enhance, validate and document the Data Collection as well as to store, translate, copy or re-format the Data Collection in any way to ensure its future preservation and accessibility.

ISSDA subscribes to the Emergency Response Plan organised by UCD Library and other cultural heritage repositories within University College Dublin, see R16 for further details (see: http://www.ucd.ie/library/using_the_library/policies/disasterplan, last accessed 2017-04-10).

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

ISSDA takes measures to limit accepted file formats and carries out basic quality checks to ensure that files are not corrupted. Since there is no immediate danger of data loss due to technical obsolescence, this is acceptable for Level 3 compliance. However, ISSDA should take steps to put a preservation policy/plan in place in the near future.

11. Data quality

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

The majority of ISSDA's depositors are Irish government agencies and departments, including the Central Statistics Office (CSO: www.cso.ie, last accessed 2017-04-10), the Economic and Social Research Institute (ESRI: www.esri.ie, last accessed 2017-04-10) and the Department of Health (<http://health.gov.ie>, last accessed 2017-04-10), as well as large research groups fully or partly funded by the Irish government, for example The Irish Longitudinal Study on Ageing (TILDA: <http://tilda.tcd.ie/>, last accessed 2017-04-10).

In the Depositor Form (see: http://www.ucd.ie/t4cms/ISSDA_Depositor_Form_VI.docx, last accessed 2017-04-10) ISSDA requests details of Responsible Parties (Section 1) including:

- Depositor/s
- Data creator/s
- Data collector/s
- Funding

The Depositor Form therefore provides sufficient evidence that data is based on work by the Data Depositor. Other contact details are requested of one or more persons who can be contacted if ISSDA needs to consult with the Data Depositor or clarify any matters concerning the data supplied. These contact details are used should members of the Designated Community or Data Consumers wish to comment on or ask questions related to the data.

Expectations of Data Depositors with regard to metadata are also described in the Depositor Form. ISSDA requests information in various sections of the Depositor Form that are mapped to descriptive and administrative metadata:

- Section 1: Responsible Parties
- Section 2: Collection Description, including the title of the Data Collection, description or abstract, population and observation units, temporal coverage, time dimension, geographical coverage and methods of data collection
- Section 3: File description for both data and documentation
- Section 4: Details of methodology and sampling procedures

Links to websites containing relevant information, or citations for any relevant publications to which ISSDA can link are also requested on the Depositor Form and captured in the DDI metadata. It is a requirement of the End User Licence (EUL: http://www.ucd.ie/t4cms/ISSDA_Application_Research_V2.3.docx, last accessed 2017-04-10) that users send ISSDA citations of any publication based in whole or part on resources provided by the ISSDA for inclusion in a database of related publications.

Additionally, in the summer of 2017 ISSDA carried out an ‘Impact Study’ with a view to demonstrating the impact of ISSDA on researchers and the research landscape in Ireland. (see R0 for further detail). In order to demonstrate the impact of ISSDA this study gathered a bibliography of articles where data obtained from ISSDA was used. This included scholarly publications (journal articles, books etc.), media coverage (newspaper articles etc.) and public policy.

Compliance to legal and ethical norms within Ireland is warranted by the Depositor within the Deposit Licence (See: http://www.ucd.ie/t4cms/ISSDA_Deposit_Licence_V1.2.docx, last accessed 2017-04-10), Section 3: Depositor's Rights and Undertaking. Details of the Depositor agreement will be made available to Data Consumers upon request. ISSDA seeks maximum compliance to guidelines and requirements in the Depositor Agreement.

Once the Submission Information Package (SIP) is received by ISSDA it is sent to with the UCD Centre for Support and Training in Analysis and Research (CSTAR) who perform quality control checks to ensure the completeness and understandability of data deposited. If there are any issues the data are returned to the Data Depositor for rectification.

ISSDA makes use of the NESSTAR Publisher (see: <http://www.nesstar.com/software/publisher.html>, last accessed 2017-04-10) for creation of Data Documentation Initiative (DDI: <http://www.ddialliance.org/>, last accessed 2017-04-10) metadata. Metadata elements for descriptive metadata comply with the Data Documentation Initiative (DDI) metadata framework. Nesstar Version 4 currently supports DDI 1.1.2 with some support for 2.5. A local Nesstar Processing Guide has been developed to ensure consistent application of metadata. This is available on request.

ISSDA currently uses Nesstar (see: <http://nesstar.ucd.ie/webview/>, last accessed 2017-04-10) as a system for data discovery and offers a search-based discovery service via the platform. Data Consumers can browse basic descriptive metadata for Data Studies available via ISSDA's public data catalogue supported by NESSTAR, as well as via the Nesstar OAI-PMH services. NESSTAR it is not currently used as a data access system, however download of datasets will be implemented, likely in the 2017-2018 timeframe. Additional bespoke tools written in perl are available to extract technical and provenance metadata for preservation purposes.

Metadata elements for descriptive metadata comply to the Data Documentation Initiative (DDI) metadata framework, version 2.5. The metadata can be requested in this format as well as OAI-compliant Dublin Core via the NESSTAR OAI-PMH provider service. Metadata documenting studies lodged with ISSDA are available to and supportive of data users via the ISSDA web site, the ISSDA/NESSTAR data catalogue, and the ISSDA/NESSTAR OAI-PMH Provider Service.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

12. Workflows

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

4. Implemented: This guideline has been fully implemented for the needs of our repository.

Self-assessment statement:

Procedural documentation had not been maintained prior to ISSDA's transition from the UCD Geary Institute to UCD Library in 2012.

Development of documentation of policies and procedures was a high priority and an Operational Manual was developed. This is an internal document, available on request, currently in version 0.6, and is regularly updated as needed. These workflows draw upon similar workflows established by UCD Library for creation and management of content for the UCD Digital Library (in receipt of a Data Seal of Approval certification for 2014-2017). The ISSDA Operational Manual covers the following sections:

- Background

- Policies

- Staffing and Roles

- Glossary of Basic Terms

- File Formats

- Studies and Datasets
- Tools (Software and Hardware)
- Communication
- User Services
- Data Services
- NESSTAR
- Administration
- Areas for development

The manual documents both the hardware and software used by ISSDA as well as procedures for communication with Data Depositors as well as Consumers via email, the website, social media and other outreach activities. It also documents user services in terms of request handling, record keeping, queries and registers of use.

With the recruitment of a Data Manager in 2016 further policies and procedures have been put in place and are publicly available on our website (see: <http://www.ucd.ie/issda/aboutus/policy/>, last accessed 2017-04-10). In particular a Data Acquisition Protocol has been developed (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10). This is made available so that Data Depositors can see and understand how ISSDA manages their data once it comes into our care. Although technical terms relating to the Open Archival Information System (OAIS) reference model are used

to describe our processes and workflows efforts are made to explain these to the Depositors within the Protocol.

In particular the workflow for Ingest is outlined as below:

- Data delivery: Discuss with Data Depositor the best way to transfer data. Possible options include encrypted files sent via email, with encryption password sent using a different medium, FTP transfer or HEAnet Filesender Guest Voucher (see: <https://www.heanet.ie/services/hosting/filesender>, last accessed 2017-04-10).
- Receipt of data: Upon receipt of the SIP a Study Number (SN) is assigned to the Study. This is in the format XXXX-XX, e.g. 1234-01. Where the Study is a one off Study the Study Number ends in -00; where the Study will have multiple waves of data the Study Number ends in -01, -02 etc. with the number indicating the number of the wave.
- Data verification: For all files, both the data and all accompanying documentation, ISSDA requests that the depositor indicate filename, file format and a description of the file contents in the Depositor Form. This is considered to be the file manifest. This allows the Data Manager to verify that the SIP is complete; that all files are present, that they conform to the declared file format and can be opened in associated software applications.
- Data validation: If a checksum is delivered with the SIP this is recorded and validated to ensure the integrity of a file and verify it has not been altered or corrupted en route to ISSDA. If one is not delivered a MD5 checksum is generated once the data are in archival storage using a tool called Fixity (see: <https://www.avpreserve.com/tools/fixity/>, last accessed 2017-04-10) from AVPreserve to be used for future fixity checks.
- Data checking: All data and documentation, together with the deposit form, are sent to the Centre for Support and Training in Analysis and Research (CSTAR: <http://www.cstar.ie/>, last accessed 2017-04-10) for data checking. CSTAR inspect the quality of the data, assuring that the data is in a format suitable for analysis and that the data is clean, with variable level codes, missing value codes, descriptive and consistent variable names, etc. They additionally check that there are no variables considered direct identifiers and evaluate related accompanying files to verify contextual information is given for the dataset provided. Once the data have been reviewed CSTAR send a report to the ISSDA identifying any concerns as outlined above, including specific actions which must be undertaken by the Data Depositor for correction. If changes need to be made as a result of CSTAR's recommendations the Depositor is given the opportunity resubmit the data to ISSDA. Subsequent versions of the data are not sent to CSTAR for checking.

- Metadata creation: ISSDA makes use of the NESSTAR Publisher (see: <http://www.nesstar.com/software/publisher.html>, last accessed 2017-04-10) for creation of Data Documentation Initiative (DDI: <http://www.ddialliance.org/>, last accessed 2017-04-10) metadata; descriptive and variable-level metadata are generated from the Depositor Form and documentation deposited with ISSDA and made available via ISSDA's public data catalogue, supported by NESSTAR.
- Deposit processing: Processing of deposited data is minimal, as most issues are dealt with during the Pre-Ingest phase. However, it may be necessary, for example, to shorten variable labels to less than 60 characters before adding to NESSTAR.

See R8 for further details of selection and appraisal of data.

In cases where ISSDA is offered data that does not fall within the mission/collection profile internal discussions are held with regards to the suitability of the data, as well as an evaluation of practices in other reputable social science data archives. Following discussion with the Data Depositors a decision is then made on whether ISSDA will accept this data. Notably, in cases where qualitative data are offered for deposit, the Irish Qualitative Data Archive (IQDA: <https://www.maynoothuniversity.ie/iqda>, last accessed 2017-04-10) is suggested as a more suitable archive.

Decisions within the workflows are ultimately made by the Data Manager in consultation with other staff members and the designated contact within the Data Depositor where necessary. Change management of the workflows is also overseen by the Data Manager.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

13. Data discovery and identification

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

Data is provided in formats widely used in the quantitative social sciences community, generally these are SPSS/SPSS Portable, SAS, Stata, or text formats, see ISSDA's Format Policy (see: http://www.ucd.ie/t4cms/ISSDA_Format_Policy_V2.pdf, last accessed 2018-02-12) for further details of preferred and acceptable formats.

All data and metadata can be browsed and searched on the ISSDA website (see: <http://www.ucd.ie/issda/data/>, last accessed 2017-04-10)

ISSDA additionally uses Nesstar (see: <http://nesstar.ucd.ie/webview/>, last accessed 2017-04-10) as a system for data discovery and offers a search-based discovery service via the platform. Data Consumers can browse basic descriptive metadata for Data Studies available via ISSDA's public data catalogue supported by NESSTAR, as well as via the Nesstar OAI-PMH services. NESSTAR provides an OAI-PMH provider service that supports a limited subset of the OAI-PMH verbs. NESSTAR it is not currently used as a data access system, however download of datasets will be implemented, likely in the 2017-2018 timeframe.

NESSTAR is a software system for publishing data on the web. It allows users to find, browse, visualise and analyse data online. NESSTAR started as a joint development project between the Norwegian Centre for Research Data (NSD), UK Data Archive and the Danish Data Archive (DDA). It is now owned and run by NSD. It is based on Document Description Initiative (DDI) metadata standard and is widely used across European social science data archives including UK Data Archive, the German Social Science Infrastructure Services (GESIS) and Data Archiving and Networked Services (DANS) based in The Netherlands.

Since January 2017 a project to re-catalogue of all datasets in ISSDA to comply with emerging metadata recommendations being formulated by the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10) has been underway. This will ensure the completeness of existing records within the catalogue and will see the addition of new datasets to the NESSTAR catalogue.

Once the re-cataloguing is completed Data Consumers will be able to browse full descriptive and variable-level metadata. Data Consumers will additionally be able to browse, visualise and analyse data online enabling a more robust discovery mechanism. Users will still be required to apply for access to the data using the existing process but they would be able to browse the variable descriptions, frequencies, question text and other metadata in advance. See R2 for discussion of the End User Licence (EUL: http://www.ucd.ie/t4cms/ISSDA_Application_Research_V2.3.docx, last accessed 2017-04-10) signed by the Data Consumer. Once access is granted the user can perform simple online tabulations, produce graphs online without the need for specialist software and download the data in their preferred format. This will be particularly useful for Data Consumers outside of the larger institutions who may not have access to expensive software, for example SPSS.

A new discovery framework has also been prototyped, whereby DDI metadata and supported in documentation for studies is propagated to the public digital repository managed by UCD Digital Library (in receipt of a Data Seal of Approval certification for 2014-2017) and made searchable, within a dedicated ISSDA data catalogue, via the Solr faceted search engine.

Suggested citations for each dataset are based on the Data Citation Roadmap for Scholarly Data Repositories (see: <https://doi.org/10.1101/097196>) and include the study number, title, depositor, published (ISSDA), study URL, publication date, version and type (dataset). The suggested citation for datasets is included in the metadata for the dataset, as well as being inserted as a coverage for deposited documentation.

Each study is assigned a locally unique Study Number (SN) at ingest. This is in the format XXXX-XX, e.g. 1234-01. Where the Study is a one off Study the Study Number ends in -00; where the Study will have multiple waves of data the Study Number ends in -01, -02 etc. with the number indicating the number of the wave.

UCD Library has been a subscriber to the California Digital Library's EZID service (<http://ezid.cdlib.org/>) for registration of virtual resources and persistent identifiers. A discrete DOI account has been created for ISSDA and is ready for use. ISSDA awaits, however, documentation from a CESSDA working group on persistent identifiers prior to assignment of PIDs to studies and documentation, so that all identifiers assigned will be compliant to whatever syntactical specifications may be promulgated by CESSDA. For noting, with a change of policy by California Digital Library that limits its clientele to organisations within the California HEI sector, a transition is underway (February 2018) to receiving services directly from DataCite.

ISSDA will assign DataCite DOIs to datasets and to documentation of datasets. Metadata representing objects registered with DataCite are publicly available through online discovery mechanisms and APIs supported by DataCite (see <https://www.datacite.org/>, last accessed 2017-04-10).

ISSDA has hitherto provided access to metadata representing studies via the Nesstar OAI-PMH services. ISSDA now awaits the complete specification of the CESSDA data harvesting protocol and expects to comply with its

terms. In addition, ISSDA plans to deploy sitemaps on its eventual Data Catalogue web site that include ResourceSync extensions (see <http://www.niso.org/workrooms/resourcesync/>, last accessed 2017-04-10), to enable general indexing or harvesting of openly available resources.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

14. Data reuse

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA requests information in various sections of the Depositor Form (see: http://www.ucd.ie/t4cms/ISSDA_Depositor_Form_V1.docx, last accessed 2017-04-10), which is compliant with the Data Documentation Initiative (DDI: <http://www.ddialliance.org/>, last accessed 2017-04-10) metadata standard.

- Section 1: Responsible Parties, including Depositor, data creators, funding and ownership of copyright
- Section 2: Collection Description, including study title and description/abstract, population and observation units, temporal and geographic coverage, methods of data collections, subject categories etc.
- Section 3: Data and Documentation, including files description for both data and documentation
- Section 4: Details of methodology and sampling procedures

Provisions have been made to guard against format obsolescence in several ways. As outlined in R8, ISSDA's Format Policy outlines our preferred and acceptable formats (see: http://www.ucd.ie/t4cms/ISSDA_Format_Policy_V2.pdf, last accessed 2018-02-12). Data Depositors are asked to submit data only in formats that are ubiquitously used, well documented and amenable to format transformation.

For long term archiving and preservation ISSDA recommends Tab-delimited file (.tab) with setup file (for SPSS, Stata, SAS, etc.). Once our NESSTAR upgrade is complete (see R13) we will be in a position to archive data in DDI XML for long term preservation.

In preparing our Format Policy we consulted the recommendations of the following organisations: Digital Archiving and Networked Services (DANS: <https://dans.knaw.nl/en/deposit/information-about-depositing-data/DANSpreferredformatsUK.pdf>, last accessed 2017-04-10), Leibniz-Institut für Sozialwissenschaften (GESIS: <http://www.gesis.org/en/services/archiving-and-registering/data-archiving/preparing-data-for-submission/>, last accessed 2017-04-10), Inter-university Consortium for Political and Social Research (ICPSR: <https://www.icpsr.umich.edu/icpsrweb/content/datamanagement/policies/colldev.html>, last accessed 2017-04-10) and the UK Data Archive (<https://www.ukdataservice.ac.uk/manage-data/format/recommended-formats>, last accessed 2017-04-10).

Creation of Data Documentation Initiative (DDI: www.ddialliance.org, last accessed 2017-04-10) metadata for all datasets received by ISSDA staff contribute to this as well. ISSDA makes use of the NESSTAR Publisher (see: <http://www.nesstar.com/software/publisher.html>, last accessed 2017-04-10) for creation of Data Documentation Initiative (DDI: <http://www.ddialliance.org/>, last accessed 2017-04-10) metadata. Metadata elements for descriptive metadata comply with the Data Documentation Initiative (DDI) metadata framework. Nesstar Version 4 currently supports DDI 1.1.2 with some support for 2.5.

Technical and preservation metadata are also captured using software tools identified from best practices in the digital preservation community are used, along with metadata representation formats for serialization of these metadata (namely, PREMIS for tracking of preservation events; METS and DDI to represent structural metadata, etc.).

Once the re-cataloguing is completed Data Consumers will be able to browse full descriptive and variable-level metadata. Data Consumers will additionally be able to browse, visualise and analyse data online enabling a more robust discovery mechanism. Users will still be required to apply for access to the data using the existing process but they would be able to browse the variable descriptions, frequencies, question text and other metadata in advance. See R2 for discussion of the End User Licence (EUL: http://www.ucd.ie/t4cms/ISSDA_Application_Research_V2.3.docx, last accessed 2017-04-10) signed by the Data Consumer.

Once access is granted the user can perform simple online tabulations, produce graphs online without the need for specialist software and download the data in their preferred format. This will be particularly useful for Data Consumers outside of the larger institutions who may not have access to expensive software, for example SPSS.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

15. Technical infrastructure

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA's technical and organisational development is guided by the principles of the Open Archival Information System Reference Model (ISO 14721:2003). Planning is also informed by additional best practices frameworks that relate to digital preservation and that focus on specific aspects of data curation and management of the data life cycle. These include the Digital Curation Centre's Curation Lifecycle Model, Digital Preservation Europe's PLATTER: Planning Tool for Trusted Digital Repositories, and the Trusted Digital Repository Checklist (TDR; ISO 16363). Further details of how ISSDA's functions map to the OAIS reference model are available in our Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10).

ISSDA utilises a combination of local and networked storage solutions. All data content and metadata resides on Netapp SAN disks located within the UCD campus data centre. These volumes are then mirrored to identical storage in the UCD Computer Centre.

ISSDA runs on the high-performance HEAnet private network. HEAnet's e-Infrastructure services underpin academic research and education activity in Ireland with approximately 210,000 students & staff (third-level) and approximately 800,000 students & staff (first and second-level) relying on the HEAnet network each day for their learning and research needs.

With the recruitment of a Data Manager in 2016 further policies and procedures have been put in place. In particular a Data Acquisition Protocol has been developed (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10). This document describes the workflow for ingest. SIPs are subject to receipt and validation procedures; AIPs will be constructed as a set of end-processing tasks that include creation of DDI version 3.2 and OAI-compliant Dublin Core descriptive metadata; DIPs are constructed to suit two means of access: via NESSTAR and dissemination electronically using HEAnet Filesender (See: <https://www.heanet.ie/services/hosting/filesender>, last accessed 2017-04-10). FileSender is a web based application that allows authenticated users to securely and easily send arbitrarily large files to other users.

Authentication of users is provided through SimpleSAMLphp, supporting SAML2, LDAP and RADIUS and more. FileSender is developed to the requirements of the higher education and research community.

As noted in R13, cataloguing procedures are subject to revision as the Consortium of European Social Science Data Archives (CESSDA: <https://cessda.net/>, last accessed 2017-04-10) metadata working group completes its work. Moreover, launch of a new ISSDA website and data catalogue, towards the end of 2017, will expand online access, enabling a more robust discovery mechanism. Data security and integrity will be ensured by leveraging the Nesstar Java REST API (http://www.nesstar.com/software/rest_api.html, last accessed 2017-04-10) and integrating the UCD Library authentication/authorisation middleware.

Further technical development scheduled for 2018 includes deployment of tools developed for support of ISSDA, namely: a database for tracking of preservation events and tools for their encoding in the PREMIS schema; tools for extraction of technical and structural metadata from data provided and any normalised data objects; and tools for encoding of machine-readable rights metadata. These data will be stored in a Fedora Commons repository that comprises a preservation-oriented dark archive.

An up-to-date software catalogue is maintained as an appendix in the Data Acquisition Protocol document, demonstrating how open-source, community-supported software is utilized whenever possible. Additional technical documentation is available from the repository on request.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

16. Security

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

3. In progress: We are in the implementation phase.

Self-assessment statement:

ISSDA's offline-storage media are located in a locked room on Level 2 of the James Joyce Library in UCD. Three staff members have access to this room via a key. This room is additionally located in a part of the library that can only be accessed by staff via a keypad.

Within this space, all depositor data is located on offline-storage media, accessible only by one machine in this room and physically secured to the desk. This PC resides on a private network, with no external internet access and all data contained on this drive is encrypted and backed up to the Research Services network attached storage (NAS). This NAS has strict access control lists and is regularly integrity-checked and virus scanned.

The Nesstar repository resides on a virtual machine within the production environment managed by UCD IT Services (see: <https://www.ucd.ie/itservices/aboutus/customercharter/> for IT Services Customer Charter, last accessed 2017-04-10). This is backed up weekly and is treated as a Priority 2 Level according to IT Services Customer Charter.

ISSDA subscribes to the Emergency Response Plan organised by UCD Library and other repositories within University College Dublin (see: http://www.ucd.ie/library/using_the_library/policies/disasterplan, last accessed 2017-04-10). This covers who to contact and what steps need to be taken in the case of a disaster, including recovery of IT Services:

Library IT Recovery – Library IT Manager

- Contact LITS team as required

- Make initial assessment of the problem and estimate potential downtime
- Access off-site copies of essential documents
- Work to restore Library IT Services
- Work with Service Recovery Manager to ensure business continuity / resumption of service
- Liaise with UCD IT Services as well as relevant Vendors as required
- Provide regular updates to Head of Outreach

Towards the end of 2016 ISSDA performed a preliminary self-assessment of technical infrastructure, services and policies in line with the Digital Repository Audit Method Based on Risk Assessment (DRAMBORA: <http://www.repositoryaudit.eu/>, last accessed 2017-04-12) risk management principles and identified areas for immediate action. These included the development of a Data Protection Policy (see: http://www.ucd.ie/t4cms/ISSDA_Data_Protection_Policy_V1.pdf, last accessed 2017-04-10), implementation of fixity checking within the Data Acquisition Protocol (see: http://www.ucd.ie/t4cms/ISSDA_Data_Aquisition_Protocol_V1.pdf, last accessed 2017-04-10) and secure offline storage of data unless the data are encrypted for dissemination.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments:

17. Comments/feedback

Minimum Required Statement of Compliance:

0. N/A: Not Applicable.

Applicant Entry

Statement of Compliance:

0. N/A: Not Applicable.

Self-assessment statement:

We have nothing further to add.

Reviewer Entry

Accept or send back to applicant for modification:

Accept

Comments: