



## Assessment Information

[CoreTrustSeal Requirements 2017–2019](#)

Repository: Survey Research Data Archive  
Website: <https://srda.sinica.edu.tw/>  
Certification Date: 19 June 2019

This repository is owned by: **Center for Survey Research, RCHSS, Academia Sinica**



# Core Trustworthy Data Repository Requirements

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## BACKGROUND INFORMATION

### Context

R0. Please provide context for your repository.

#### **Repository Type.**

National repository system; including governmental  
Research project repository

#### **Reviewer 1:**

Accept

#### **Reviewer 2:**

Accept

#### **Comments**

The mission of the Survey Research Data Archive (SRDA) is to collect, process, archive and disseminate survey data. The sources of the survey data and related metadata are from local universities, research institutions, and government organizations.

#### **Reviewer 1:**

Accept

#### **Reviewer 2:**

Accept



### **Brief Description of the Repository's Designated Community.**

Those who use secondary survey data in their research, including researchers, teachers and students at universities or academic institutions in Taiwan and around the world.

#### **Reviewer 1:**

Accept

#### **Reviewer 2:**

Accept

### **Level of Curation Performed.**

B. Basic curation – e.g. brief checking; addition of basic metadata or documentation

C. Enhanced curation – e.g. conversion to new formats; enhancement of documentation

D. Data-level curation – as in C above; but with additional editing of deposited data for accuracy

#### **Reviewer 1:**

Accept

#### **Reviewer 2:**

Accept

### **Comments**

Prior to release, each dataset is checked and processed by SRDA staff based on a set of data curation procedures to ensure data quality, integrity, and accessibility. SRDA staff examine the completeness of the data and metadata files and standardize the format of all documents. A report on data verification will be attached to the released data and metadata files as references.

The basic data checking and processing procedures contain the following tasks.

A. Ensure that the data description (e.g., variable names and labels, value labels, and value columns) of data files should match with that of codebooks and other relevant metadata.

B. Make sure that there are no error messages associated with data definition statements.

C. Check for possible illegal values (wild codes) of the data.

D. Delete or process personal confidential information to minimize the risk of disclosure.



**Reviewer 1:**

Accept

**Reviewer 2:**

Accept

**Outsource Partners. If applicable, please list them.**

SRDA was established by the Academia Sinica (A.S.) in November 1994, and is currently affiliated with the Center for Survey Research, Research Center for Humanities and Social Sciences (RCHSS). In addition to funding from the A.S., we have also received technical support from the Department of Information Technology Services (DITS) of the A.S. DITS has achieved ISO 27001 certification and provided data backup services to SRDA.

Please refer to the following file for the organizational structure of the A.S. and RCHSS:

<https://drive.google.com/file/d/1Dki45SHxalKLXrPuCV-kk0HpYQ1Y4l4O/view?usp=sharing>. More information regarding A.S. and DITS, please visit <https://www.sinica.edu.tw/en> and <https://its.sinica.edu.tw/site/home#>.

Since 2016, in collaboration with da|ra (<https://www.da-ra.de/en/home/>), SRDA has adopted digital object identifiers (DOI) in data registration.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept

**Other Relevant Information.**

SRDA is recognized as the primary survey data archive for social science researchers who are interested in quantitative studies of Taiwan. Currently we provide over 2,300 academic and government survey datasets. The number of data downloads exceeded 19,000 in 2017.

Some of the government survey datasets archived by SRDA are listed on the following webpage:

<https://srda.sinica.edu.tw/browsingbydatatype.php?category=surveymethod&type=4>.



We also work with the Ministry of Science and Technology (MOST) of Taiwan to archive academic survey data. The website of MOST is <https://www.most.gov.tw/?l=en>. For any MOST-funded project, the PI has to sign a consent form before the implementation of the project. The consent form can be downloaded from the MOST website at

<https://www.most.gov.tw/most/attachments/cc6b33c7-8634-4d69-ac09-45520bcaa364?>

Data deposition requirements for projects involving survey data collection are stated in Article 3 of this consent form; below is the translation of the relevant contents.

"Within three months after the project is completed, for projects based on survey method (e.g., face-to-face survey, telephone survey, or mail survey), the PI should provide an authorization form and deposit the data (including survey data, codebook, and other metadata files) to the Survey Research Data Archive (SRDA), Center for Humanities and Social Sciences, Academia, Sinica."

SRDA adopts a membership scheme. Those who are qualified for SRDA membership can apply to be a member easily. Data access and usage are regulated by the SRDA Membership Agreement (<https://srda.sinica.edu.tw/register.php>). Registration is required if a member wants to download raw data or analyze data online. In addition, a member can use restricted survey data via remote access or on-site access.

SRDA has joined the International Federation of Data Organizations (IFDO), the International Association for Social Science Information Services and Technology (IASSIST), and the Network of Asian Social Science Data Archives (NASSDA) to better connect with other data archives and data experts.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## ORGANIZATIONAL INFRASTRUCTURE

### I. Mission/Scope

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R1. The repository has an explicit mission to provide access to and preserve data in its domain.**

SRDA expertizes in acquisition, management, preservation, and dissemination of survey data in Taiwan. Not only does SRDA prevent valuable survey data from being scattered around, but it also provides rich materials for national and international academic research.

The SRDA website: <https://srda.sinica.edu.tw/about.php?switchlang=en>

Two documents (in Chinese) regarding the 2018 budget plans and research projects of the Academia Sinica can be found here: <https://drive.google.com/file/d/1taZThGRWDvdSRG1-cDRoe29DUDb12nZ4/view?usp=sharing>. The task descriptions of the SRDA are marked in yellow. You can also download full text versions from the following link (Chinese only):

<https://acc.sinica.edu.tw/site/datas/lists/31/136/149/256>

In addition, web linkages and brief introduction to SRDA are provided on the AS and RCHSS websites below:

<https://www.sinica.edu.tw/en/articles/23> (Quick Links-->Academic Resources database-->SRDA)

[http://www.rchss.sinica.edu.tw/adm/super\\_pages.php?ID=adm1](http://www.rchss.sinica.edu.tw/adm/super_pages.php?ID=adm1)

Reviewer 1:

Accept

Reviewer 2:

Accept



## II. Licenses

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

### R2. The repository maintains all applicable licenses covering data access and use and monitors compliance.

SRDA adopts a membership scheme. There are four types of members: researchers at Academia Sinica, 2-year regular members, 1-year regular members, and web members.

- Academia Sinica members: Researchers at Academia Sinica
- Regular members:
  - Two-year members: Researchers at colleges or research institutions
  - One-year members: Students and research assistants at colleges or research institutions
- Web members: General public

To become a member, one should agree to the terms and conditions of SRDA membership. Those who apply to be an A.S. member or regular member need to provide their identity certificates. The agreement of membership contains the rights and obligations of members, ethical requirements, etc. For the contents of the SRDA Membership Agreement, please refer to the following webpage

<https://srda.sinica.edu.tw/register.php>.

Data held by SRDA are released in three versions, each of which are available to different types of members.

The three versions of data in SRDA are:

[https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=8](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=8))

1. Public access version

All SRDA members (web, regular and A.S. members) can download data in the public access version directly from the SRDA website after they log in.

2. Standard access version



Only regular and A.S. members can access data in the standard access version. The majority of data in this version can be downloaded directly. But for certain datasets, filling out an application form with a brief description of the purpose of use is required, as requested by the data providers.

### 3. Restricted access version

Only regular and A.S. members can apply for use of restricted data, which contain confidential and/or sensitive information. They have to submit a completed application form (see the attached file) with a detailed research plan. These submitted documents are reviewed by the researchers in SRDA or the donor of the particular dataset.

SRDA provides two types of services: on-site service and remote service for members who have been granted access to restricted data. The on-site room is equipped with two computers with no connection to the internet and USBs, and six surveillance cameras whose video recordings are kept at least 6 months. Inspection procedures are also in place. All the items the users carry in and out of the on-site room must be checked by our staff.

Besides the on-site room located at the Academia Sinica, the users can get access to the restricted data at their homes or offices through our remote service. Two sets of usernames and passwords for logging into VPN and the remote AD server are provided to the restricted-data users. The log files recorded by VPN and the AD server are kept at least one year.

Once the users log into the restricted usage account, they are using the terminal computer. Some functions of their own computers will be temporarily shut down, such as Print Screen, Copy and Paste, Print and internet connection.

The users can create their own working folders, saved in the AD server, where they can store all the command files, processed data and statistical results they ran. The statistical results can be provided to the users by email after our staff receive the users' requests and make sure there is no sensitive information in the result files.

Information regarding who can have access and how to get data is illustrated in the webpage of each dataset. For example, 'Manpower Survey, 1978' is downloadable by application for regular members and A.S. members ([https://srda.sinica.edu.tw/datasearch\\_detail.php?id=1](https://srda.sinica.edu.tw/datasearch_detail.php?id=1), please check 'availability').

In general, SRDA members can start adding datasets to the download/order list after they log in to the SRDA website. The login and download information is saved in the SRDA data management system and kept permanently. Please see this document for more details:

[https://drive.google.com/file/d/14rQ4SxMk8rQ6lGjhpJJipNrJTtU211\\_1/view?usp=sharing](https://drive.google.com/file/d/14rQ4SxMk8rQ6lGjhpJJipNrJTtU211_1/view?usp=sharing).





Reviewer 1:

Accept

Reviewer 2:

Accept



### III. Continuity of access

Compliance Level: 3

Reviewer 1:

3

Reviewer 2:

3

#### R3. The repository has a continuity plan to ensure ongoing access to and preservation of its holdings.

The main funding of SRDA is from the regular budget of Academia Sinica, which is a prominent academic institution under the Office of the President, Taiwan. The rest of the funding of SRDA is from the Ministry of Science and Technology (MOST), which is a government organization in charge of the development of humanities, social sciences and sciences in Taiwan. Both sources of funding are long-term and stable budgets provided by the government, which can assure sustainable operations and maintenance of SRDA in providing ongoing access to and preservation of its holdings.

In case of cessation of funding, we will seek the MOST's assistance in taking over the holdings and operations of SRDA. This is because the majority of the academic datasets held by SRDA come from research projects sponsored by the MOST. As for the datasets authorized by the government departments, each government department has its own data release policy. We will provide SRDA members with information on how to apply directly to government departments for the desired data.

Reviewer 1:

In the future, one would expect SRDA to develop and publish a continuity plan to show that preparations are in place to address the risks inherent to changing circumstances.

Reviewer 2:

Accept



## IV. Confidentiality/Ethics

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R4. The repository ensures, to the extent possible, that data are created, curated, accessed, and used in compliance with disciplinary and ethical norms.**

SRDA complies with legal regulations of government and ethical principles established by academic communities. Please refer to the following links:

1. The Taiwan Personal Information Protection Act:

<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=I0050021>

The regulation (in PDF format) is included here

[https://drive.google.com/file/d/1\\_ndNZZt3naDA87o8JdO3APGpPMSMFGc1/view?usp=sharing](https://drive.google.com/file/d/1_ndNZZt3naDA87o8JdO3APGpPMSMFGc1/view?usp=sharing), in case the link becomes invalid due to webpage changes.

2. Ethical regulations set for humanities and social sciences research:

<https://irb.sinica.edu.tw/english/regulation.html>

In line with these regulations and principles, SRDA has established relevant guidelines for its staff in data processing and dissemination processes. In addition, SRDA staff who work with data have been well trained in privacy protection and ethical norms so they can follow the relevant guidelines in their daily work.

The Taiwan Personal Information Protection Act

(<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=I0050021>) has strict regulations on the collection, processing, and use of personal data. In addition, survey projects subsidized by colleges, research institutions, or the Ministry of Science and Technology are usually required to gain approval from IRB if the data collection plan involves human subjects. Yet, not all funding agencies in Taiwan require that their subsidized projects should be reviewed by IRB when human subjects are involved. This is the reason that SRDA has not yet requested that data producers provide IRB approval certifications. Instead, SRDA is responsible for the evaluation of disclosure controls and procedures of its archived data.



For data with disclosure risk, we only provide restricted access, including remote service and on-site service. As to data which are downloadable by SRDA members, generalization and suppression are the usual practices to eliminate the risk. Additional approaches such as sampling, randomization, and disturbing might be adopted as well.

For data with disclosure risk, only SRDA staff are allowed to process and manage data files. There are strict regulations for SRDA staff in processing and managing the data. SRDA members can get access to restricted data via remote service or on-site service. When accessing restricted data, data users should follow the rules set by SRDA and project PIs.

For access to restricted data with confidential and/or sensitive information, SRDA provides two services: on-site service and remote service. Both services are provided only after the application is approved.

- Restricted Data On-site Service

Restricted data can be accessed in the on-site room of the CSR. Users are not allowed to bring out any paper or electronic copy of data files. Only the analytical results and programs can be brought out after they are checked by SRDA staff. The documents being brought out should not contain any information that could directly or indirectly identify subjects.

- Restricted Data Remote Service

The remote service uses a built-in "Remote Desktop Connection" from Microsoft operating systems. For access to secure data, users may connect to SRDA at their office or home with simple network configurations, with no need for additional software. Users are not allowed to download or copy any data file. Upon request, SRDA staff can send analytical results and/or programs via email after checking the relevant documents for possible identifying information.

SRDA staff will evaluate risk of disclosure of a dataset once it is deposited. Then the staff will decide whether to provide downloadable access after suitable anonymization procedures, and/or to provide restricted access via on-site service or remote service.

SRDA staff are well-trained in the management of data with disclosure risk. They have knowledge and experience about how to process and anonymize data with disclosure risk.

In addition, relevant lectures and workshops have been held from time to time to enhance the knowledge and skills of staff.

If a dataset still has high disclosure risk or its research value diminishes significantly after the processing, the dataset will not be released to SRDA members.

All researchers with approved access to the secure data are obligated to follow all the regulations contained in the Agreement for the Use of Secure Data. Because we do not have an English version of the regulations,



please select Chinese in the upper right corner of the SRDA homepage first, then copy the following URL and paste it to the URL column to get the correct information.

[https://srda.sinica.edu.tw/browsingbyrestrictive\\_rule.php?id=11](https://srda.sinica.edu.tw/browsingbyrestrictive_rule.php?id=11)

[https://srda.sinica.edu.tw/browsingbyrestrictive\\_rule.php?id=12](https://srda.sinica.edu.tw/browsingbyrestrictive_rule.php?id=12)

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## V. Organizational infrastructure

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R5. The repository has adequate funding and sufficient numbers of qualified staff managed through a clear system of governance to effectively carry out the mission.**

SRDA was established by the Center of Survey Research (CSR), which is one of the five specific-topic research centers under the Research Center for Humanities and Social Sciences (RCHSS) of Academia Sinica (A.S.), Taiwan. SRDA therefore curates survey data mainly in the domain of humanities and social sciences. Regarding the organizational structure that connects A.S., RCHSS and CSR, please refer to this document for details: [https://drive.google.com/file/d/1\\_h-HZHVSLhlisJJs3vG-adxdWAmc0UgK/view?usp=sharing](https://drive.google.com/file/d/1_h-HZHVSLhlisJJs3vG-adxdWAmc0UgK/view?usp=sharing).

There are two heads of the SRDA division. They have decision rights over daily routine operation. However, they are required to report on the division's work progress in the CSR's administrative meeting, held every two weeks, in which certain SRDA-related matters are frequently discussed and decided. Members who attend the administrative meeting include the executive director, the executive secretary, heads of divisions and a panel survey project, and R&D and administrative staff.

The A.S. provides long-term and stable funding for SRDA. The total number of full-time workers in SRDA is 12, including 2 IT technicians. They all are employed on a permanent basis. Besides staff resources and IT resources, we set a travel budget that supports our staff in attending meetings, or participating in education and/or training programs. SRDA staff can apply for subsidies on an annual basis.

SRDA staff are encouraged to develop knowledge and expertise within the areas of data curation, data management, data risk disclosure, etc.

The CSR has an on-the-job training vision that all the staff should spend some hours per year in attending seminars, workshops, and conferences held in or outside Academia Sinica.

The CSR focuses on expertise related to survey methodology, including sampling, questionnaire design, modes of data collection, survey implementation, etc. In addition to the relevant knowledge and skills, SRDA



staff are required to be familiar with data curation, data management, data promotion, data disclosure risk assessment, IT technique, etc.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## VI. Expert guidance

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R6. The repository adopts mechanism(s) to secure ongoing expert guidance and feedback (either in-house, or external, including scientific guidance, if relevant).**

At the CSR researchers' meeting held every two months, the head of SRDA makes an oral report and seeks advice from the CSR researchers.

The RCHSS consultation committee also holds a meeting every two years to review the performance of each center, and to give suggestions on future development of SRDA and other sectors of the CSR.

Within Academia Sinica, there are many institutes and centers that are related to the expertise of SRDA, such as the Institute of Information Science, Institute of Statistical Science, Institutum Iurisprudentiae, and Research Center for Information Technology Innovation. SRDA can consult with the relevant experts when necessary.

Depending on the domain of the topic, SRDA holds expert meetings, symposia, lectures, etc. Sometimes SRDA staff contact experts to seek advice.

SRDA provides a variety of communication channels to users, such as telephone, email, online consultation, and Skype, to facilitate feedback from users (<https://srda.sinica.edu.tw/information.php>). Furthermore, SRDA conducts a satisfaction web survey every year to collect members' opinions and suggestions in order to improve the services of SRDA. For the results (in Chinese) of member satisfaction surveys from 2013 to 2017, please visit our website: <https://srda.sinica.edu.tw/ref.php?type=3&page=1&pagerows=10>

Reviewer 1:

Accept





Reviewer 2:

Accept



## DIGITAL OBJECT MANAGEMENT

### VII. Data integrity and authenticity

Compliance Level: 3

Reviewer 1:

3

Reviewer 2:

3

#### R7. The repository guarantees the integrity and authenticity of the data.

Datasets in SRDA are deposited by principal investigators of survey projects. After deposition, SRDA staff check whether the number of cases and variables included in data files are consistent with the description in the research report and related documentation provided by PIs. A summarized flowchart for reference is given here: [https://drive.google.com/file/d/1S1da2o\\_E6F0nlmt9EuhTbNyHqjAS\\_RTe/view?usp=sharing](https://drive.google.com/file/d/1S1da2o_E6F0nlmt9EuhTbNyHqjAS_RTe/view?usp=sharing).

Before acquiring data, SRDA staff provide a reference manual to the PI of a survey project. The manual contains required items, data format and information needed in the codebook, questionnaires, data files and research reports. Example files can be downloaded from this URL:

[https://srda.sinica.edu.tw/portal\\_y3.php?button\\_num=y3](https://srda.sinica.edu.tw/portal_y3.php?button_num=y3). After the survey data are deposited, SRDA staff check for completeness of the relevant files using the data management system developed by SRDA. The design of the SRDA data management system is compatible with the DDI standard. SRDA staff further edit metadata according to the research report and deposit form filled out by the data provider. Items that may be processed during data cleaning are listed on the following website:

[https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=1](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=1)

Changes to the data are usually initiated by the PIs or data providers. Before releasing the revised version, SRDA staff reconfirm the changes with the PIs or data providers. All the versions of the dataset are stored on the file server in different date folders. As for the modification of metadata, SRDA does not store previous versions, but keeps records of the person making the modification in the system.

In general, the data version is distinguished by date. Data files of the same version are stored together in one folder named with the date. Information regarding data version also can be found on the SRDA website.

Taking the "Panel Study of Family Dynamics: RI2003" for example, please refer to the following webpage for the descriptions of this dataset: [https://srda.sinica.edu.tw/datasearch\\_detail.php?id=801](https://srda.sinica.edu.tw/datasearch_detail.php?id=801)



Data users can view the webpage for the newest version and version history of the dataset.

Data Documentation Initiative (DDI) Codebook (<http://www.ddialliance.org/>) is used to develop the SRDA data management system. DDI is an international standard for describing the data produced by surveys and other observational methods in the social, behavioral, economic, and health sciences.

There are two cases in which a data file could be modified by SRDA staff. First, SRDA staff find errors when they check the data. Second, the PI or data provider instructs SRDA to modify the data. In either case, SRDA staff confirm the changes with the PI or data provider before the revised data are released.

All data archived in SRDA are stored on a file server with regular backups. User accounts, passwords, and user access to the shared folders on the server are reviewed periodically. In addition, SRDA keeps a server audit trail for at least 3 months. For data users, each dataset is released with a user guide that provides information about who is the original data collector, and errors found in data or what has been modified during data processing by SRDA staff. Please see an example of a user guide (filename:C00179\_3en.pdf) at [https://srda.sinica.edu.tw/datasearch\\_detail.php?id=930](https://srda.sinica.edu.tw/datasearch_detail.php?id=930).

SRDA used to collect metadata through a deposit form. The data providers were asked to send the filled form to SRDA along with data. Those metadata contained in the deposit form were later entered into the SRDA data management system by SRDA staff. Recently, we have developed an online data deposit system through which data providers can directly enter metadata and provide data online ([https://srda.sinica.edu.tw/portal\\_y1-0.php?button\\_num=y1](https://srda.sinica.edu.tw/portal_y1-0.php?button_num=y1)). All metadata and data files are kept in the data management system and backed up regularly.

If the data provider provides a different version, we usually ask the data provider to provide a description of the difference. If the data provider is not able to provide a description, our staff use statistical software to compare the versions.

The depositors can be staff of government organizations, or researchers at universities or research institutions. Before the deposition, there are usually several rounds of contact and/or communication between the depositors and SRDA staff. The identities of depositors are verified during the process.

#### Reviewer 1:

It is recommended that SRDA develops its process regarding to fixity checks.

#### Reviewer 2:

Accept



## VIII. Appraisal

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

### R8. The repository accepts data and metadata based on defined criteria to ensure relevance and understandability for data users.

The goal of SRDA's collection development policy is to expand the amount and diversity of archived data. Our priority is survey data with greater research potential, such as large-scale, nationally representative, multinational, multicultural, repeated, long-term, and panel datasets. Yet up till now, SRDA has deposited as much data as possible.

#### 1. Academic survey data

We have actively contacted PIs of large-scale research projects to secure their agreement to deposit their survey data in SRDA. In addition to survey data, we are now considering expanding the data archived to other kinds of data, such as experimental data, qualitative data, and big data. Findability, accessibility, interoperability, and reusability are the guiding principles for data selection.

#### 2. Government survey data

We have actively contacted government agencies to secure their agreement to deposit their survey data in SRDA. The main focus is on repeated large-scale survey data and panel data.

Please refer to the following link for more information.

<https://srda.sinica.edu.tw/about.php?switchlang=en> (in English)

[https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=2](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=2) (in Chinese)

SRDA has set up a standard operating procedure for processing data. Once a dataset is deposited, we check whether the relevant files are complete and sufficient. Then the disclosure risk of data is assessed. For releasable data, each data file is checked for wild code and consistency with metadata description.

If we find problems during data processing, we contact the data provider for confirmation. If the revisions are minor, they are often taken care of by SRDA staff. Supposing the problems cannot be fixed, we will state the



problems in the user guide to remind the users. In some rare cases, the data provider may decide not to release the data. Please refer to the file uploaded in R7 and our website [https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=1](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=1).

SRDA mainly follows the practice of the UKDA and ICPSR and the international standard—DDI— to develop the required metadata. For any released dataset, the basic metadata contain files including any questionnaire, codebook, survey report and user guide.

SRDA often seeks answers from related materials provided by the depositor. Or, SRDA staff may contact the depositor for solutions.

SRDA has made some examples and a description of data formats for data providers.

[https://srda.sinica.edu.tw/portal\\_y3.php?button\\_num=y3](https://srda.sinica.edu.tw/portal_y3.php?button_num=y3)

One of the steps of data processing is to check if the data format meets SRDA standards.

SRDA converts data files into user preferred formats, in terms of raw data. SPSS, Stata and CSV formats are also provided. As to metadata files such as questionnaires and codebooks, PDF format is provided.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## IX. Documented storage procedures

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

### R9. The repository applies documented processes and procedures in managing archival storage of the data.

We use a self-developed data management system to keep records of data collection, processing, dissemination, etc. The data management system is mainly for internal use. We restrict access to this system by password and authorized IP address. A screenshot of this system is given here:

[https://drive.google.com/file/d/1tC6QCrV-gYO\\_xRHXYfEIRDkyb8ZIFLa/view?usp=sharing](https://drive.google.com/file/d/1tC6QCrV-gYO_xRHXYfEIRDkyb8ZIFLa/view?usp=sharing).

SRDA has been awarded ISO 27001 certification by BSI since 2010 for its digital data storage and usage services. In addition, SRDA has obtained ISO27001:2013 transition certifications in 2015. However, we changed the third-party verification company, from BSI to SGS, because DITS invited us to attend a multi-site ISO27001 certification program for which the certification service is provided by SGS in 2018. Therefore, the scheduled dates for stages 1 and 2 of the assessment this year are November 9 and 27, respectively. The latest certificate was issued on 19 December 2018. Please find the attached file for more details

<https://drive.google.com/file/d/1dX7O8saWKzBkME9j-0eTgIFo-u4jXILF/view?usp=sharing>.

The file servers that store data are in a server room with access control and under surveillance. Some applications can be logged into only from particular IP addresses. And different staff members of SRDA are authorized different levels of access and actions.

Our preservation policy is primarily intended to preserve data permanently, and to maintain the confidentiality, integrity, and reusability of data at the same time.

Policies regarding what kinds of datasets will be archived and data format requirements can be found at the following website: [https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=2](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=2) (in Chinese)

We back up all types of files, including survey data files, application codes and databases on a regular basis. The frequency of data backups depends on how much the data have changed over time. For example, we back up the SQL database every day, but back up restricted-access files on a fortnightly basis.



According to the SRDA Recovery Plan of ISO:27001, the validation and recovery processes must be documented and tested every three months.

Our checks for backup consistency include:

- (1) whether there are warning messages in the backup report;
- (2) whether the number of files and sizes of files are the same as the original data.

Our IT staff check the server status every two weeks. We also have an asset management system so that the servers and related storage media are replaced on a regular basis.

SRDA performs risk assessments every year to evaluate what kinds of incidents may occur and the most appropriate ways to avoid such incidents. The evaluation of risk is based on the value of the assets, the probability associated with the risk, and the degree of impact. If the estimated risk level is higher than the acceptable threshold, SRDA will take actions to mitigate the risk.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## X. Preservation plan

Compliance Level: 3

Reviewer 1:

3

Reviewer 2:

3

**R10. The repository assumes responsibility for long-term preservation and manages this function in a planned and documented way.**

SRDA has developed a preservation plan. Its contents include file naming and format conversion principles, backup cycles, types and locations of backup storage, etc.

For a brief description regarding our preservation policy, please visit the following link:

[https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=2](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=2) (in Chinese)

SRDA staff meetings are held every two weeks. Strategies related to data preservation are reviewed in the meetings in response to changing demands, if any.

Based on the importance of data and how much the data have changed over time, a number of backup strategies have been developed. In general, the data with high frequency of changes, such as SRDA member profiles, and metadata of survey data, are backed up every day in multiple copies.

Under the contract between depositors and SRDA, SRDA are allowed to edit and reproduce survey datasets, and to disseminate copies to SRDA members for academic purposes.

The depositor is asked to sign an authorization agreement when he or she deposits data in SRDA. All the rights and obligations associated with both sides are well specified in the agreement. The agreement form is available at our website: [https://srda.sinica.edu.tw/portal\\_y2.php?button\\_num=y2](https://srda.sinica.edu.tw/portal_y2.php?button_num=y2)

In the authorization agreement, it is clearly specified that the deposited data can be edited and reproduced by SRDA, and can be reused by SRDA members for academic purposes.

This file contains an authorization letter, examples of data formats, and instructions for deposition preparation: [https://drive.google.com/file/d/11Df0UeezKwCcnS17qjou\\_xCm\\_-c1qNps/view?usp=sharing](https://drive.google.com/file/d/11Df0UeezKwCcnS17qjou_xCm_-c1qNps/view?usp=sharing).

The depositor can also download the file from [https://srda.sinica.edu.tw/portal\\_y3.php?button\\_num=y3](https://srda.sinica.edu.tw/portal_y3.php?button_num=y3).





Once a dataset is deposited, SRDA checks to ensure the data and related materials are sufficient. Then more checks are carried out in order to examine whether the data meet the requirements of interoperability and reusability.

**Reviewer 1:**

For future certifications, we encourage SRDA to publish its preservation plan.

**Reviewer 2:**

Accept



## XI. Data quality

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R11. The repository has appropriate expertise to address technical data and metadata quality and ensures that sufficient information is available for end users to make quality-related evaluations.**

A checklist must be completed prior to data release. In addition, two of our staff members check and recheck data to make sure they conform to the standards set for released data.

In the data management system developed by SRDA, there is no automated function for checking of metadata. However, Nesstar (developed by NSD, <http://www.nesstar.com/>) is used by SRDA as an automated scheme to check whether metadata meet the DDI standard.

From a survey report provided by each depositor, data users can understand the definition of population, sampling method, data collection methods and the relevant information about the survey. The user guide created by SRDA contains findings on data checking performed by SRDA. All the information is published on the SRDA website and to some extent can be used to evaluate the quality of the data. Visit the following link for an example: [https://srda.sinica.edu.tw/datasearch\\_detail.php?id=889](https://srda.sinica.edu.tw/datasearch_detail.php?id=889)

On the SRDA website, we provide bibliography of data-related literature for some important survey data. The bibliography is maintained and updated on a regular basis by SRDA. The types of literature include journal articles, books, book chapters, working papers, dissertations, conference papers, etc. There are currently more than 5 thousand publications available on the website (<https://srda.sinica.edu.tw/booksearch.php>).

Reviewer 1:

Accept

Reviewer 2:

Accept



## XII. Workflows

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

### R12. Archiving takes place according to defined workflows from ingest to dissemination.

We follow the workflow outlined below to ensure reusability.

1. Check whether the required items are complete.
2. Check whether there are direct identifiers in data or documentation.
3. Check whether the number of cases and variables is consistent with the information provided by the depositor.
4. Check whether all variables have comprehensible variable labels and all categorical variables have comprehensible value labels.
5. Check whether there are error or warning messages when reading data into SPSS or other statistical software.
6. Perform logical checks to ensure that categorical variables have values within the defined range.
7. List all problems deserving attention in the User Guide.
8. Create a metadata record based on information provided by depositors (in the deposit form).
9. Reconfirm with depositors on the files to be archived and released.
10. Convert data and metadata files to dissemination formats.
11. Publish data and create DOI.

The same information can be found at the following link:

[https://srda.sinica.edu.tw/datamanager.php?button\\_num=c8&gid=1](https://srda.sinica.edu.tw/datamanager.php?button_num=c8&gid=1).

We have detailed data processing instructions for datasets from different sources.

If we encounter problems during data processing, we will contact the depositor for confirmation and possible solutions. After data checking, SRDA staff prepare data and metadata files. Within the metadata documents, the 'user guide' contains details on data processing, and data problems discovered by SRDA staff.



The levels of security have little impact on the workflows, but have imposed restrictions on the data processing site. For data containing personal information (e.g., names, ID, addresses), the on-site data laboratory is used as the data processing site.

After all the data and metadata files are completed, an SRDA staff member is assigned to recheck these files to make sure all requirements are fulfilled.

The data collection goal of SRDA is to expand the amount and diversity of archived survey data. Our priority is survey data with greater research potential, such as large-scale, nationally representative, multinational, multicultural, repeated, long-term, and panel datasets. Yet up till now, SRDA has deposited as much data as possible.

SRDA has not declined any deposit application initiated by researchers or organizations. If our staff find that a deposited dataset does not conform to the mission of SRDA, the dataset will not be released to SRDA members. But it will be kept intact in the archive.

The data archived by SRDA include survey data and their corresponding metadata. Since one survey data file is paired with its corresponding metadata files, there is no substantial effect on our workflows.

Any decision within the workflows is based on data confidentiality, findability, accessibility, interoperability, and reusability. For example, an Excel data file will be converted to CSV, SPSS, or Stata formats for user friendliness.

Any possible change in workflow must be discussed in the regular meeting of SRDA staff. Two subdivision leaders take turns to serve as the chairperson of the meeting. One subdivision leader is in charge of data dissemination and promotion. The other is in charge of data deposit and curation. Any decision made in the meeting should be approved by the majority of the staff who are present in the meeting. The meeting minutes will be recorded and circulated to the participants for their review and confirmation through a self-developed system.

In case of any change in workflow, the work manual will be revised accordingly. The previous version of the work manual will be moved to a folder named 'old' on an SRDA server. In the next meeting, the person responsible for the revision will announce that the document has been revised. Please find attached the screenshots of the SRDA file server and meeting minutes for the records of storage and publishing of work manuals.

#### Reviewer 1:

Accept



Reviewer 2:

Accept



### XIII. Data discovery and identification

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R13. The repository enables users to discover the data and refer to them in a persistent way through proper citation.**

The SRDA website was last revised in December 2017. There are some tools on the SRDA website to help users find what they want:

- Browse by data type
- Browse by subject area
- Search for data (PI's name, project title, abstract, or keywords)
- Search function of Nesstar online analysis tool
- Search variables and concepts
- Search for publications

The last two functions are only available on our Chinese website. For further details, please visit:

<https://srda.sinica.edu.tw/index.php>

SRDA is a self-sustained survey data repository on social sciences. SRDA develops its own data management system to maintain metadata. The metadata fields in this system are based on the DDI standard. These provide structured searchable information that helps users to find existing data resources, and to evaluate whether a particular dataset is suitable for their research purpose.

The SRDA server neither processes Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) requests nor provides XML metadata in Dublin Core format to other repositories.

In early 2018, SRDA has joined a program that plans to build a portal of social sciences and humanities archives in Taiwan, which is funded by the Ministry of Science and Technology. How to provide metadata of SRDA to the portal, by API or harvesting, has not yet been decided.

SRDA provides a DOI for each dataset since 2013. Currently, SRDA uses the service offered by da|ra (<https://www.da-ra.de/home/>) to register DOI. Our IT staff members have developed a program that can



export metadata from the SRDA data management system to XML files with the da|ra metadata schema.

(<https://www.da-ra.de/en/for-data-centers/register-data/doi-and-metadata/>)

These XML files are then uploaded to the da|ra registration platform to get DOIs. SRDA provides examples on data citation (based on the APA formats) both in website and in the user guide for each released dataset.

Taking “The Survey of Family Income and Expenditure, 2017” for example, please find the following text at this URL: [https://srda.sinica.edu.tw/datasearch\\_detail.php?id=2850](https://srda.sinica.edu.tw/datasearch_detail.php?id=2850) and also in Section IV (Guideline for citation) of this user guide:

[https://drive.google.com/file/d/1KLLHuqu0ODra00OyUL5o8F8MxN8N\\_lko/view?usp=sharing](https://drive.google.com/file/d/1KLLHuqu0ODra00OyUL5o8F8MxN8N_lko/view?usp=sharing).

“Directorate-General of Budget, Accounting and Statistics, Executive Yuan (2018). The Survey of Family Income and Expenditure, 2017 (AA170042) [data file]. Available from Survey Research Data Archive, Academia Sinica. doi:10.6141/TW-SRDA-AA170042-1”

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## XIV. Data reuse

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R14. The repository enables reuse of the data over time, ensuring that appropriate metadata are available to support the understanding and use of the data.**

The data provider sends SRDA the corresponding metadata via a written deposit form or using our web form ([https://srda.sinica.edu.tw/portal\\_y1-0.php?button\\_num=y1](https://srda.sinica.edu.tw/portal_y1-0.php?button_num=y1)). The metadata fields in deposit form are consistent with those in the SRDA data management system and are developed based on the DDI codebook (<http://www.ddialliance.org/>) with adjustments to meet local needs.

Numerical data are released in the formats of statistical software widely adopted in social sciences (e.g., SPSS and Stata), and also in CSV format. Metadata including questionnaires, codebooks, research reports, and user guides are released in PDF format.

Some but not all of the data released by SRDA are in the CSV format. The reason for adopting the CSV format is because CSV files can be processed by almost all existing applications. SRDA will continue to pay attention to the possible evolution of formats.

There are no plans for future migrations yet. SRDA follows the practice of other well-known social sciences data archives. We provide all the relevant materials that the users might need for understanding and analyzing the data. SRDA provides multiple communication channels for possible feedback from users.

Reviewer 1:

Accept

Reviewer 2:

Accept





## TECHNOLOGY

### XV. Technical infrastructure

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R15. The repository functions on well-supported operating systems and other core infrastructural software and is using hardware and software technologies appropriate to the services it provides to its Designated Community.**

SRDA has been awarded ISO 27001 certification for its digital data storage and usage services since 2010. This certification review is undertaken every year. The latest review was completed in November 2018.

As for the metadata, DDI Codebook 2.1 is used to develop the SRDA data management system. This approach is similar to the practice adopted by some well-established data archives, such as ICPSR and UKDA. Please refer to the following link: <http://www.ddialliance.org/Specification/DDI-Codebook/2.1/DTD/Documentation/DDI2-1-tree.html>. The DDI standard is chosen because it is an international standard used to describe the data produced by surveys, and also because it is a free standard with no certification required. As for OAIS compliance, we don't have any plans yet due to insufficiency of human and financial resources. However, we will assess the possibility when resources allow.

All security controls must be compliant with ISO 27001 requirement. Only one control (A.10.1.2 key management) in Annex A of ISO 27001 is omitted and documented in the Statement of Applicability (SoA). This is because SRDA doesn't use cryptographic techniques.

The objects of our short-term technical infrastructure development plan include: (1) to reduce labor costs by using API to retrieve and/or deploy metadata across systems; (2) to provide interactive visualizations for users to explore data, (3) to create an e-Learning platform to promote secondary data usage, and (4) to develop cloud applications, especially at data storage, backup, and analysis. In addition to the budget provided by the A.S., we also have long-term funding sponsored by the MOST to achieve these goals.

<https://www.grb.gov.tw/advq?queryStr=%E8%AA%BF%E6%9F%A5%E7%A0%94%E7%A9%B6%E8%B3%87>



[%E6%96%99%E6%95%B4%E7%90%86%E8%88%87%E6%AA%A2%E8%AA%A4%E8%A8%88%E7%95%AB&queryType=grb05\)](#)

The open-source software packages used in SRDA are Linux, Apache web server, and virtual box. The software inventory is reviewed on an annual basis.

The SRDA data management system, although developed with technical support from a private programming company, can be maintained by ourselves to a degree, since we have some system documentation at hand such as the software design description (SDD), system management and user's manual.

The SRDA website provides a 24-7 service. SRDA connects to the internet via T1 network provided by Academia Sinica, which is the core node of the Taiwan Academic Network (TANet). The bandwidth is sufficient to meet the users' demand.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## XVI. Security

Compliance Level: 4

Reviewer 1:

4

Reviewer 2:

4

**R16. The technical infrastructure of the repository provides for protection of the facility and its data, products, services, and users.**

The SRDA operating systems and database are backed up on a regular basis so they can be recovered swiftly. Some of these backup services are provided by the DITS (<https://its.sinica.edu.tw/site/datas/detail/1802/37/136/125/155/>). We have set out a disaster recovery plan, which outlines the step-by-step procedure for the recovery of disrupted systems based on disaster simulation. According to our business continuity plan, issues causing service interruption should be resolved within one day.

All these are mandatory documents required by ISO 27001. SRDA is granted a certificate of ISO 27001: 2013. The latest review was completed in November 2018. Regarding the security monitoring and attack detection, SRDA IT staff check the contents of security logs on a regular basis. In addition, we use the security monitoring and attack detection services provided by the DITS (<https://its.sinica.edu.tw/site/datas/lists/42/176/0/0/>). Detailed descriptions of these services are as follows:

(a) Host vulnerability scanning <https://its.sinica.edu.tw/site/datas/detail/1826/37/137/249/308;>

(b) Web application security scanning

<https://its.sinica.edu.tw/site/datas/detail/1824/37/137/249/307;>

(c) Source code analysis

<https://its.sinica.edu.tw/site/datas/detail/1825/37/137/249/306.>

(These pages can be translated into English using Google translation.)

Before the ISO 27001 audit, SRDA applied for the above services in November each year and whenever there was a major revision of the SRDA website.



The mission of the DITS is to support the research undertakings and administrative computing of research units of Academia Sinica (<https://its.sinica.edu.tw/site/datas/detail/1682/30/132/115/0>). As the sole information service unit of Academia Sinica, the DITS has no reason to reject our application for security testing or data backup.

Between SRDA and DITS, there have been many communication channels established, through which SRDA's service needs can be proposed and adequately addressed:

1. Management Review Meeting of ISO 27001 held by SRDA: It is held once a year with the leaders of the security department in DITS attending. The meeting agenda is formulated solely to discuss and improve SRDA's service security.
2. Experience Sharing Forum held by DITS for Information Office Supervisors and Managers in the Academia Sinica (<https://its.sinica.edu.tw/site/datas/detail/1753/30/133/263/287>): This forum is held at least twice a year where SRDA can express opinions and offer suggestions. For the previous meeting materials, please refer to the following link: <https://its.sinica.edu.tw/site/datas/lists/30/133/263/285>.
3. Raise issues through the liaison officers of RCHSS (to which SRDA is affiliated) to the DITS (<https://its.sinica.edu.tw/site/datas/detail/12452/30/133/263/286>)
4. Fill out the Service Needs Form through DITS e-Service Desk: Requests will be followed up by DITS staff; requesters (such as SRDA) can query the processing status at any time. The request processing is taken seriously and further reviewed in the DITS service performance appraisals.

**Reviewer 1:**

Accept

**Reviewer 2:**

Accept



## APPLICANT FEEDBACK

[Comments/feedback](#)