



Regionaal Archief Tilburg

Notes Before Completing the Application

We have read and understood the notes concerning our application submission.

True

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

CORE TRUSTWORTHY DATA REPOSITORIES REQUIREMENTS

Background & General Guidance

Glossary of Terms

BACKGROUND INFORMATION

Context

R0. Please provide context for your repository.

Repository Type. Select all relevant types from:

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

Brief Description of Repository

Regionaal Archief Tilburg (RA Tilburg) is one of the four institutions of foundation Mommerskwartier and is based in Tilburg, the Netherlands. This application applies solely to RA Tilburg. The other institutions of the foundation are Textiel Museum Tilburg, Stadsmuseum Tilburg, and Vincent's Tekenlokaal. The foundation was founded in 2007.

The region where RA Tilburg operates, consists of the municipalities Tilburg, Drimmelen, Goirle, Oosterhout, Dongen, Loon op Zand, Geertruidenberg, Hilvarenbeek, Alphen-Chaam, Baarle-Nassou, Oisterwijk, Gilze en Rijen. Service contracts have been signed with all these municipalities, located in the province Noord-Brabant .

The statutory task (Public Records Act <https://bit.ly/3iCTI7f>) of RA Tilburg is to function as a repository for decentralized, local government organizations such as municipalities, communal schemes, and Water Authorities. RA Tilburg also manages private archives, and archives of organizations, institutes, or the public in general.

RA Tilburg stores textual data and images like constructional drawings, including corresponding metadata, in the repository. In the future, the textual files and images will be extended with other files such as environmental permits. Since municipalities work completely digital, chances are very high that video or sound files, like recordings of meetings (minutes), will be added in the future too.

RA Tilburg derives its reason for existence largely from the Public Records Act. Art. 1, Clause c of the Act stipulates that it relates to documents 'regardless of their form'. Consequently, the same requirements apply to both analog and digital repositories. This law requires that governmental institutions transfer their (digital) archives to a repository maximum of 20 years after the closure of the files. After transferal to the repository, the archives are publicly published by RA Tilburg based on Art. 14 of the Public Records Act, unless European laws like the GDPR (<https://bit.ly/2Jlflqi>) forbid it. Once the files have been transferred to RA Tilburg from the municipalities, RA Tilburg takes responsibility for maintaining and publishing the files, but the municipalities will remain the owner of the data.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

Brief Description of the Repository's Designated Community.

For private archives, there is a slightly different approach. If private individuals want their archives added to our collection, the complete archives must be judged by the municipal archivist and donated to the municipality they apply to. RA Tilburg requires this to ensure that only archives with the correct archival value and value to our region are added to the repository and ensure that RA Tilburg can give these archives the same treatment as all the other archives concerning publishing, conservating, and preservation.

In brief, this was the basis for the definition of two target groups: the producers of the digital archive (governmental institutions or private individuals), and the public in the broadest sense of the word. Persons or businesses wishing to peruse data from our archives can contact RA Tilburg or visit our website. To ensure RA Tilburg provides the best experience for the designated community, they engage in national and international communities by joining and hosting knowledge-sharing sessions about market changes and upcoming developments concerning preservation and publication that may affect the repository. Furthermore, a delegate team from RA Tilburg visits all the municipalities once a year to stay in touch with and inform the municipalities about developments concerning the repository. During these meetings, the wishes of the designated community are heard and RA Tilburg examines what is possible to realize with contemporary techniques.

As stated in the digital preservation policy of RA Tilburg (chapter 9.2), various users consult our repository. Some of them are happy with a visual presentation of the digital object, and others with a different kind of presentation. It all depends on the context. For example, some users might want to see the page of an old document as a picture to look at the materials used, and others would like to read the text in current text formats. To meet the needs of the designated community, RA Tilburg uses the software Transkribus (<https://bit.ly/3yDd83J>), which is an Artificial Intelligence (AI) powered handwritten text recognition program to learn old handwritings. Thanks to the use of Transkribus, RA Tilburg can speed up the transcribing process of old archival documents and are old documents published as a picture and as plain text at the same time. The digital preservation policy of RA Tilburg can be consulted via <https://bit.ly/2NmUZnr>.

Finally, RA Tilburg obtains information from the designated community by sending out customer satisfaction surveys to our customers and website users. These surveys clarify how users of the repository experience the repository access and the information RA Tilburg provides. If the survey shows that certain parts are highly valued, RA Tilburg tries to implement these parts in the repository and if certain parts are less successful RA Tilburg does her utmost best to make them better, to ensure the designated community has the best experience possible.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

Level of Curation Performed. Select all relevant types from:

A. Content distributed as deposited, 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 Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

Comments

A. Most of our content is distributed as it is deposited. This means that the municipalities deliver the data to RA Tilburg and RA Tilburg ingest this data into our repository exactly as they delivered it to us. This does not mean there are no quality measures taken before RA Tilburg deems it ready for ingesting. RA Tilburg works closely with the municipalities to achieve that quality level. As stated in the Digital Preservation Policy of RA Tilburg (chapter 5.4), RA Tilburg has a list of file types with preferred and accepted file formats on which they must comply. The document can be consulted via <https://bit.ly/2NmUZnr>.

B. Next to filetypes there is certain metadata RA Tilburg requires for every file before ingesting to meet the quality requirements. RA Tilburg commits to the dutch governmental national metadata standard; Toepassingsprofiel Metadatering Lokale Overheden (TMLO: <https://bit.ly/3hzli7b>). This metadata standard gives context to the files and gives structure to the big data storage in the repository. Thanks to this standard, files can still be found by searching for keywords and consulted at a later moment in time. RA Tilburg further advises on publication of the files regarding compliance with the European GDPR law. This decision is stored in the metadata too. As the municipalities keep ownership of the data, they are responsible for the correct definition of this metadata field.

C. If the above measures are met, the data can be ingested into the repository. During this stage, the repository checks all the file types to see if there are newer common file types available. If a newer common file type is available, the repository will convert the file to a new file and store this second file together with the original file. As stated in the digital preservation policy of RA Tilburg (chapter 4.7), RA Tilburg never changes the original deposit file. RA Tilburg only adds the newer common filetype to the repository.

D. Even after the above processes, data in the repository can need editing. For example, if a specific field needs a more

accurate explanation. This is always done in consultation with the owners (municipalities) of the data. Before RA Tilburg makes changes to the data in the repository, RA Tilburg investigates the changes that need to be made and how this affects the collection. Based on the findings, RA Tilburg advises the municipalities on the right cause of action and after approval, RA Tilburg carries out these changes. All these changes are recorded in the repository, as explained in the digital preservation policy of RA Tilburg (chapters 3 and 6.4).

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

Insource/Outsource Partners. If applicable, please list them.

RA Tilburg has two outsource partners concerning the repository; Picturae Holding B.V. (<https://bit.ly/2T1f3yK>) and MvBWorks (<https://bit.ly/3wjY4M>).

Picturae Holding B.V. supplies the software, storage, and hosting of our repository. RA Tilburg is registered as a beneficiary of the Picturae Escrow Arrangement (<https://bit.ly/3otTfr7>) which applies to all the services from Picturae Holding B.V. (<https://bit.ly/3hCtflB>) such as preserving collections (<https://bit.ly/3yrqhwO>). This is in case the continuity of Picturae Holding B.V. is threatened. Picturae Holding B.V. is also ISO 9001:2015 (<https://bit.ly/3wd31jS>) certified (quality management) and utilizes a security management system that complies with the requirements of the information security standard ISO 27001:2017 (<https://bit.ly/3u2vKqn>).

RA Tilburg has commissioned MvBWorks to write the software tool 'Topx Creator' (<https://bit.ly/33XTMrO>) which is used as a pre-ingest application for our repository. The tool is built for use with the dutch governmental national metadata standard; Toepassingsprofiel Metadatering Lokale Overheden (TMLO: <https://bit.ly/3hzli7b>) and can adjust to different standards like the upcoming; Metagegevens Duurzaam Toegankelijke Overheidsinformatie (MDTO: <https://bit.ly/3ote7ia>) through the development of MvBWorks. The tool is specifically written for our type of repository. RA Tilburg advises the supplying municipal administrations to check and add metadata files with this tool to ensure a correct ingest of the metadata. Therefore RA Tilburg has a manual available on how to use the tool (<https://bit.ly/3v10fOx>). Through this application, our participating municipalities can create a TopX-file (<https://bit.ly/2HjWFLP>) on their data, which combined are the SIP files they provide us to ingest into the repository.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

Summary of Significant Changes Since Last Application (if applicable).

Does not apply.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

Other Relevant Information.

RA Tilburg adds no content to the (digital) archives of the participating municipalities by default, only when the designated community deems it necessary. Because RA Tilburg takes her role and goal concerning the repository very seriously RA Tilburg does checks, improvement suggestions, and discuss provided concepts with each supplying municipal administration. RA Tilburg explains national standards for delivery to our repository to each participant. RA Tilburg represents the supplying municipalities for responses to the renewal of the national standards and formats concerning repositories. The existing documentation for the repository is continuously updated by ourselves based on current technical developments in our application environment.

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

ORGANIZATIONAL INFRASTRUCTURE

1. Mission/Scope

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

The mission of RA Tilburg is to include, manage and provide access to files of the participating governmental institutions, and archives of citizens and businesses. The distinctive character of RA Tilburg is accessibility, expertise, and client focus.

The explicit mission stated in the Strategy Note (chapter 3) is based on the Public Records Act. Access to and preservation of files is delivered for digital archive documents with the same care and quality maintained for analog archives. The strategy note 2019-2022 examines the accessibility of digital archives in more detail.

The strategy note refers to the following formal definition of a repository: “A repository is the entirety of organization, policy, processes and procedures, financial management, personnel, data management, data security, and available hardware and software, which enables sustainable management and consultation of digital archive objects to be stored.” (Nationaal Archief: <https://bit.ly/3aF6yQI>).

The strategy note of RA Tilburg 2019-2022 has been approved by the supervisory board and the works council as of the first of July 2020. The document can be consulted via <https://bit.ly/3mHF52Z>.

Reviewer Entry**Reviewer 1**

Comments:

Accept

Reviewer 2

Comments:

accept

2. Licenses

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

Archives from governmental institutions under the stewardship of RA Tilburg are public and can be consulted by users unconditionally on the grounds of the Public Records Act. There are no licenses or admission criteria. At most, it is possible to impose publication restrictions on some files for a specific period of time on the grounds of Articles 15, 16, and 17 of the Public Records Act. The municipal archivist indicates which files are subject to publication restrictions, for what period, and on what grounds. As mentioned in the digital preservation policy from RA Tilburg (chapters 5, 7, and 9), for example, due to copyright (<https://bit.ly/3vLs6C8>) or the GDPR law. The document can be consulted via <https://bit.ly/2NmUZnr>.

All 12 governmental institutions sign a service agreement with RA Tilburg every ten years. Digital repository clients sign an additional service agreement.

The municipal archivist makes these decisions based upon the following criteria:

- Respect for personal living conditions/quality of life
- The interests of the State and its allies
- Disproportionate advantage or disadvantage

If restrictions are imposed on access to the files due to copyright, this must be included in the metadata. As mentioned in the digital preservation policy of RA Tilburg (chapter 7.2), this is noted in the metadata by a copyright start and end date, to avoid disputes regarding publicity. Additional conditions are added to the metadata, such as 'reuse under conditions' or 'ban on reuse until 75 years after the death of the author'. Thanks to this metadata, the system knows exactly when the files can be made public.

As mentioned in R0 the municipalities stay the owner of the data and are therefore responsible for the displayed content. The municipalities need to verify in the metadata whether or not the files are copyrighted. The repository of RA Tilburg makes the files public or hidden based on this metadata. If the copyright date has passed, the files become public. If someone wishes to peruse one of the copyrighted files during the copyrighted period, a request must be addressed to the executive council of the responsible governmental institution. They determine whether the data can be viewed or not. If the request is granted, the files will be handed over to the requestor with a disclaimer; for personal use only, do not

distribute.

For files from the public domain, the same process as mentioned in R0 applies. Meaning they need to be completely donated (including the copyright) to the municipality they apply to before RA Tilburg will add them to the repository.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

3. Continuity of access

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

3 – The repository is in the implementation phase

Reviewer 2

Comments:

3 – The repository is in the implementation phase

Response:

The operation of the repository is guaranteed through its statutory task. The Public Records Act stipulates that governmental institutions indicate a repository. Archives are deposited, managed, published, and available through the repository. Nevertheless, a wide range of threats can obstruct the continuous operation of the repository.

To prevent threats and implement appropriate measures RA Tilburg has a continuity plan. The plan can be found in the digital preservation policy of RA Tilburg (chapter 4.5 - 4.10). The document can be consulted via <https://bit.ly/2NmUZnr>. Technical back-up and security measures will be further explained in R9, R15, and R16.

A threat is an event that has severe negative consequences for the progress of vital business processes. If this threat is not treated in time the continuity of the repository will be disrupted. The continuity plan for the repository is written by the repository management team. The specific risks for RA Tilburg, depositor, and supplier have been listed for each separate threat. A category and factor are determined for each risk, and it is recorded how RA Tilburg can limit each risk.

The digital preservation policy of RA Tilburg is a tactical continuity plan. It describes measures and actions that are taken when a threat occurs to maintain the preservation goals. The management team recommends including measures in:

- The Service Contracts (SCs) between depositors and RA Tilburg,
- The Archive Regulation of the individual depositors,
- GDPR Data Processing Agreements between Picturae and RA Tilburg,
- GDPR Data Processing Agreements between governmental institutions and RA Tilburg,
- The SLA contract between the Picturae Holding B.V. and RA Tilburg.

The Service Level Agreement between Picturae Holding B.V. and RA Tilburg can be consulted via <https://bit.ly/2WGo7aC>.

These measures designated a high risk in the digital preservation policy of RA Tilburg and have been implemented:

- RA Tilburg is registered as a beneficiary of the Picturae Escrow Arrangement. This is important if Picturae is no longer able to guarantee continuity as an organization. The source codes and documentation of the application curated by the escrow agent will be given to the owner of the data (RA Tilburg). This means that RA Tilburg can completely export the data from the Picturae Holding B.V. repository and import the data into a different repository hosted by another institute.
- The Service Level Agreement (SLA) with Picturae contains agreements on performance, processes, and procedures for example for the following aspects: back-up & restore, fixity controls, exit-strategy, service provision, and hosting.
- Organisational and financial continuity of RA Tilburg within the foundation Mommerskwartier.

As the statutory task of RA Tilburg obliges to maintain a repository, RA Tilburg is designated as the repository on the basis of the archive regulation of the participating depositors; the municipalities. Medium-term plans are to connect all 12 municipalities to our repository through a manual ingest procedure. This is our strategic goal, as mentioned in the Strategy Note (chapter 3). This means that all 12 municipalities must have established a manual transmitting connection with our repository, through which they can store files conforming to the Public Records Act.

For the long-term, RA Tilburg has plans to create a digital connection between the municipalities and RA Tilburg, which will result in the continuous transfer of files. RA Tilburg has already taken measures for this long-term strategy by creating a universal connector in our repository to which the municipalities can connect their Content Management Systems. The first conversations are already being held for this.

The Strategy Note can be consulted via: <https://bit.ly/3mHF52Z>.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

4. Confidentiality/Ethics

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

In principle, the digital files that RA Tilburg manages are public according to the law under the Public Records Act. At most, it is possible to impose publication restrictions for a certain period. The depositor indicates the documents to which this applies, for what period, and on what grounds. The repository of RA Tilburg complies with this by excluding the files from the public domain during this period. The staff of RA Tilburg and outsourcing partners are trained for notification and discuss this topic each time it occurs with the depositor. The depositor is accountable for the final decision in this matter.

Besides the Public Records Act, governmental institutes are subject to the General Data Protection Regulation; GDPR (<https://bit.ly/3nR4UiK>) when they bring data into the public domain. The Public Records Act and GDPR conflict with each other. The Public Records Act is geared to active publication and according to the GDPR, you may only publish (process) as minimal data as is required to complete the task. These are two completely different mindsets. The GDPR prescribes that organizations must be cautious with the publication of personal data and of course, archive documents contain a great deal of personal data, but personal data only applies to living persons. Therefore RA Tilburg does not actively

publish files with personal data from the last 70 years. RA Tilburg has multiple procedures for this, such as a random check of files during ingest into the repository.

The depositors themselves have accurate procedures concerning personal data as well. They store security checks in organizational and technical procedures conforming to the security standard for governmental institutions called; Baseline Informatiebeveiliging Overheid (BIO: <https://bit.ly/3vM0226>). BIO is a security standard based on ISO 27001:2017, and ISO 27002:2017. This security standard has multiply requirements concerning privacy, such as required Data Processing Agreements with IT suppliers and privacy by design demands for applications and systems.

To ensure that the repository of RA Tilburg only publishes files that are allowed to be published, the system needs to know for each file that is about to be ingested, which value (public or hidden) applies. Therefore RA Tilburg has created a specific field in the metadata files that are part of the SIP during ingest. This is an extra field for each file and contains the value hidden or public. Thanks to this procedure the system knows exactly which files need to be published and which files don't. To commit to this procedure the municipalities deliver the correct criteria in the metadata through their own systems or manual by responsible experts. It is only possible to deviate from this if the executive council receives written permission from the depositor. In case of a complaint, RA Tilburg will forward this issue to the depositor for further settlement.

The host institute Picturae Holding B.V. takes the necessary technical security measures to prevent any unauthorized access or data leaks from the repository application. Picturae Holding B.V. is ISO 27001:2017 compliant and works by its procedures.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

5. Organizational infrastructure

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.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

The continuity of financial resources to maintain our repository is guaranteed due to its statutory task. The Public Records Act prescribes that governmental institutions must designate a repository. Archives (regardless of form) are curated, managed, made accessible, and available through the repository. The available financial resources are included in the long-term budget of the organization's foundation Mommerskwartier. Besides that RA Tilburg makes sure that a large part of the financial budget is reserved for the digital repository. The budget is reviewed yearly. This makes sure that the funds are sufficient enough to guarantee an adequate repository.

The technical management of the software, storage, and hosting of the repository is provided by Picturae Holding B.V. This company is specialized in the digital management and disclosure of heritage collections. Since 2005 RA Tilburg and Picturae Holding B.V. cooperate on the development of our heritage portal. Over those years Picturae Holding B.V. has proven to be a trustworthy partner and in 2016 RA Tilburg started the co-development of the current repository with an ever-growing clientele.

Thanks to those developments Picturae Holding B.V. has become a managed hosting provider. They use their own facilities in Heerhugowaard and the data center Global Switch in Amsterdam. All data storage is mirrored, and Global Switch is the primary site. Picturae Holding B.V. uses the Information Security Management System from the ISO 27001:2017 standard which is applicable to the long-term storage of digital heritage.

Foundation Mommerskwartier reserves the annual budget for the repository and sufficient funds for staff, IT resources, and education. The staff keeps their knowledge up-to-date by attending courses and seminars. Together this guarantees a stable organization to maintain and continue the development of the repository in accordance with the strategy note 2019-2022. As mentioned in our digital preservation policy (chapter 10.4) RA Tilburg has the following roles defined for staff that focus on the sustainability of the repository.

- Adviseur Digitale Informatievoorziening (Information Provisioning)
- Adviseur E-depot (Technical Design)
- Functioneel beheerder (Functional Management)
- Project Manager (Managing Municipalities Ingest Projects)
- Adviseur Dienstverlening & Archief (Usability, Service and Support)
- Directeur (Director with final responsibility)

This team is responsible for maintaining the sustainability of the repository, the continuous influx of digital files, up-to-date security, testing and implementing new functionalities, forming a digital strategy, forming a digital preservation policy, and making digital information available. The range and depth of expertise of both the organization and its staff contribute to the National Archive knowledge base KIA (<https://kia.pleio.nl/>). They organize and join multiple meetings to exchange knowledge and gain expertise on archival and repository subjects.

Besides financial stability, trusted cooperation with Picturae Holding B.V., well-educated staff, and contributing to the national archival community, the organizational infrastructure of the repository is based on stability, quality, and continuity. As mentioned in R1. (mission) and R3. (continuity). A wider description of these aspects is included in the digital preservation policy. This document can be consulted via <https://bit.ly/2NmUZnr>.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

6. Expert guidance

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

As mentioned in R5 RA Tilburg has multiple advisors concerning the repository. They all have their own specific field of expertise. Together they orchestrate the functional processes concerning the repository. Technical advice is provided by an independent external Technical Repository Advisor. Once a month the General Manager of RA Tilburg arranges a multidisciplinary meeting about the repository in which all these employees discuss new developments about all aspects of the repository to ensure its continued relevance and to improve the repository. Additional technical IT advice is being obtained by engineers from the managed hosting provider Picturae Holding B.V.

Besides our own repository advisers, the archive sector has many national and international communities where advice can be found. These communities meet to draw up standards and provide advice about all kinds of archival and repository subjects. As mentioned in point R5, employees of RA Tilburg participate in a large number of these expertise groups in order to share and obtain knowledge. These communities communicate through various methods like online forums, e-mail, (video)calls, and physical meetings. Specific to our Archivematica (<https://bit.ly/2FKLX0h>) solution, RA Tilburg joins up with other Dutch regional repositories, for continuous product improvement. If a case from RA Tilburg deems other external advice necessary, advisers from the community may be consulted to find a definitive solution and vice versa. RA Tilburg always provides their learning lessons as feedback to the community so they can grow.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

DIGITAL OBJECT MANAGEMENT

7. Data integrity and authenticity

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

Concerning data integrity, RA Tilburg requires that the files to be ingested are accompanied by metadata in compliance with the Toepassingsprofiel Metadatering Lokale Overheden (TMLO: <https://bit.ly/3hzli7b>). This metadata profile applies to all the ingested files in the repository. RA Tilburg uses this standard to ensure authenticity in the repository and to provide context and searchability. Therefore all types of depositors (municipalities or private) need to comply with this standard. Another important standard that is being used is the Open Archival Information System (OAIS) model, part of ISO 14721 (<https://bit.ly/2Wla5FF>). The repository from RA Tilburg is completely based on this model. The model and a reference to the repository of RA Tilburg can be found in the digital preservation policy (chapter 8.3). The document can be consulted via <https://bit.ly/2NmUZnr>.

The dutch metadata standard Toepassingsprofiel Metadatering Lokale Overheden (TMLO) contains among other elements the identity of the depositor and the filenames to deposit which are added to the Submission Information Package (SIP, notice the OAIS overview). The repository of RA Tilburg has multiple sections for each municipality. By adding the value of the identity of the depositor RA Tilburg can ensure that the files from municipality X, are stored in the repository section of municipality X and not in the repository section of municipality Y. Furthermore, a checksum is compulsory as another metadata element (TMLO 21.7: Physical Integrity). As mentioned in the digital preservation policy (chapter 3), RA Tilburg requires a checksum (SHA256) as part of a SIP. During an ingest in the repository, the checksum is generated again and the repository checks if the generated checksum matches the unique checksum in the SIP. This ensures the integrity and authenticity of the data.

The completeness of the supplied data and metadata is checked during the ingest procedure. This is done by microservices (<https://bit.ly/3hgoqT1>) that are part of the application Archivematica. Microservices are running jobs configured in the application (for example, starting an antivirus scan on the files to ingest). These jobs check the validity and completeness of metadata based on a diagram called ToPX-2.3_1.xsd (<https://bit.ly/34GB2xW>). Besides that, the data is checked on package contents, doublures, viruses, identification of the file format, etc. After ingesting, the files are entered into the storage environment as an Archival Information Package (AIP, notice the OAIS overview). Corruption of data objects is prevented by permanent checksum checks at block-level. Every executed command triggers the creation of a checksum which proves the integrity of the files. The entire ingest procedure and all changes in data, version management, and metadata in storage are logged in the Metadata Encoding and Transmission Standard (METS) file (<https://bit.ly/37Lyy3a>). This METS file is stored in Archivematica, combined with the deposit files in the AIP. All changes to the AIP are logged in this METS file.

Besides the checks above, RA Tilburg follows the preservation planning of each file as mentioned by PRONOM (<https://bit.ly/30IIDt2>) from the U.K. National Archives. To fulfill this preservation strategy, the rules from PRONOM are implemented in the format policy registry in Archivematica. As mentioned in R0, the repository checks file types that are being ingested to see if they comply with the format policy register. So far all ingested files complied with the preservation planning, but it is highly possible that deposit files will have file extensions in the future that are no longer sustainable,

meaning that preservation actions need to be taken to ensure continuous access to the files. If that is the case, RA Tilburg needs to make sure that a sustainable file format is created from those original files. The repository will therefore create an extra copy of the original file during the ingest procedure, with a new sustainable file format, and stores this file in the AIP, together with the original file and original metadata. To execute the same preservation policy to already ingested files, Archivematica has the possibility to create new files in the AIP and records these changes in the METS file that is part of that AIP.

As mentioned in R0 and in the digital preservation policy (chapter 4.7), RA Tilburg never makes any changes to the original file (or its extension) to prevent data loss. Thanks to this preservation strategy, the original and preserved file are both stored in the repository. This functionality is part of our repository and frequently tested (for example, during every new release). This process results in multiple stored files referring to the same metadata, but one file as the true original deposit file. To guard the authenticity, original deposit files will always keep their original file extension. With this policy, RA Tilburg prevents that certain functionalities from the original files are lost over time. For example, changing an Excel file to a PDF file has as a consequence that all macros (<https://bit.ly/3iHXBKf>) will be lost and thereby the functionality of the file too.

RA Tilburg is able to maintain this strategy because they send a copy of each file to an external Digital Asset Management System (DAM) where changes can be made without touching the deposit files in the AIP. The repository sends all the data in a Designation Information Package (DIP, notice the OAIS overview) to this system. This means that if an extra file has been added because of the preservation policy, both files will be part of this DIP. The DAM is used as an access database for the website to publish the records. Most of the data producers at RA Tilburg are governmental institutions. RA Tilburg uses the preservation planning strategy as a unique selling point for these organizations. RA Tilburg makes data producers aware of this strategy at the first introduction to the repository and will continue to provide them with updates on changes in the strategy. Data producers, therefore, provide closed files (without any source of encryption or passwords) that contain final versions of the documents.

Due to the OAIS basis of Archivematica provenance information is saved within the AIP (<https://bit.ly/2WFzZK8>). This information tells the origin or source of the content information, any changes that may have taken place since it was originated, and who has had custody of it since it was originated. This information refers to the storage, handling, and migration of the repository files. This information is centrally being logged and can be viewed for audit purposes.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

8. Appraisal

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

The Public Records Act is the most important reference for the selection of data eligible for archiving. Governmental institutions are obliged by this law to preserve archives aged over a maximum of 20 years by transferring them to an appropriately designated repository. Once the files are transferred to RA Tilburg they are, based on the Public Records Act, meant to be made and stayed public. Therefore stored files in the repository are never deleted. The Public Records Act does not apply to private archives. As mentioned in R0 all files from private archives need to be donated to the municipality they apply to, so RA Tilburg can take proper care of them.

To determine the correct metadata RA Tilburg commits to the Toepassingsprofiel Metadatering Lokale Overheden (TMLO) structure and to ensure all metadata is correctly collected before ingesting the SIP RA Tilburg uses the TopX creator tool. This tool contains all the necessary metadata procedures, checks if the metadata is delivered in the right way, and creates a TopX file. The TopX file relates the metadata to the files and records and the relationship between them in a given structure. RA Tilburg requires that all provided metadata meet the requirements of TMLO.

Besides the above standards, RA Tilburg commits to a list of default preferred file formats to maintain sustainability based on PRONOM. As mentioned in the digital preservation policy (chapter 2.4), RA Tilburg commits to the preferred file formats list of the Dutch National Archive (<https://bit.ly/2ONQIHd>), which is a published subset list of files that are accepted according to the PRONOM registry. When the governmental institutions create a SIP with the TopX creator tool, the integrity of the metadata and the file formats is checked and therefore insured. During an ingest, the repository checks the file formats again. This ensures (next to the checksum check mentioned in R7) that the SIP has not been modified during the delivery process and is correctly being imported into the repository.

RA Tilburg communicates the required file formats beforehand with the governmental institutions. The files are rejected by the repository if the supplied files do not comply with the preferred file format list. This happens through microservices that

check the file format of each ingested file. RA Tilburg notifies the governmental institutions when this occurs so they can convert the files to a sustainable file type.

Before the files are transferred to RA Tilburg, the responsibility for the condition of, and access to the files, including the right content - as obliged in the Public Records Act - lies with the governmental institutions. After the files are transferred to RA Tilburg, the responsibility for the condition and access to the files transfers to RA Tilburg. But because the governmental institutions are still owners of the data, they are still responsible for the right content in the files. If in the worst case, the governmental institutions are no longer available, RA Tilburg will take responsibility for maintaining the further data.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

9. Documented storage procedures

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Processes and procedures are documented in the Strategy note 2019-2022, Project Initiation Document (PID), GDPR Data Processing Agreements, and the Service Level Agreement with Picturae.

As described in the digital preservation policy of RA Tilburg (chapters 4.5, 4.6, 4.9, and 10.2), RA Tilburg anticipates data loss by duplicating our application data to a different data center and yearly test the failover-recovery procedure. The document can be consulted via: <https://bit.ly/2NmUZnr>. The repository of RA Tilburg is therefore hosted and managed by Picturae Holding B.V. Eight times a day (every three hours) a snapshot is created from all the applications to ensure RA Tilburg can react quickly if an issue occurs. These snapshots give us the possibility to go back to the state of an application earlier that day. A complete data back-up is made daily and copied to the passive datacenter for redundancy. The progress is monitored by Picturae Holding B.V. systems and employees. <https://bit.ly/2NmUZnr>

In addition, Picturae Holding B.V. has fixity checks at block-level in place for all its hosting and storage environments, including the Archivemata environments, which means that all files get a fixity check each time they are consulted. For the files that are not consulted regularly, the system monthly runs a fixity check to guarantee the integrity of those files. This is one of the measures taken to ensure that the back-ups are correct.

The repository runs on multiple virtual servers. Because the servers are virtual they can easily move from one storage location to another. This means they do not lean on one physical hard disk. The harddisks can be removed and replaced (hot-swappable) if necessary to prevent data loss. Picturae Holding B.V. constantly monitors the current state of the physical hard drives and acts accurately on replacing them in time to prevent bit-rot. Throughout the process (from ingest to publication), all data and metadata are processed and hosted by Picturae holding B.V.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

10. Preservation plan

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

RA Tilburg has described their view on digital preservation in the digital preservation policy. This document describes the policy about authenticity (chapter 3), preservation (chapter 4), digital objects (chapter 5), metadata (chapter 6), rights (chapter 7), norms (chapter 8), access (chapter 9), organization (chapter 10), and certification (chapter 11). The preservation plan is part of the entirety of measures to facilitate the long-term accessibility of the RA Tilburg repository. The plan shows the preservation actions that RA Tilburg executes and how RA Tilburg documents those actions in their context, motives, criteria, and tools. The document can be consulted via <https://bit.ly/2NmUZnr>.

To show the level of responsibility and commitment of RA Tilburg to digital preservation RA Tilburg has obliged itself to the Scalable Preservation Environments (SCAPE) framework (<https://bit.ly/3qFlzGQ>). This framework has been developed with an overview by the Open Preservation Foundation (OPF) and is a European standard for preservation policy. The digital preservation policy of RA Tilburg is based on this framework.

Since January 2020 RA Tilburg has signed the dutch Manifest Digital Heritage Network (<https://bit.ly/3nODERJ>). Being part of the Digital Heritage Network means that RA Tilburg works according to certain principles and has made a shift from “institutional thinking” to “network thinking”. A growing number of organizations from the heritage sector support this approach. Network thinking is crucial in the way RA Tilburg engages with the designated community and the market.

To engage with the designated communities, RA Tilburg hosts and joins multiple knowledge-sharing sessions about market changes. Mostly these meetings arise from the input RA Tilburg receives from users of the repository through the website, from the municipalities through information exchange or RA Tilburg receives information from the designated community by sending out customer satisfaction surveys. For example, the municipalities will let us know that there is a need for the recording of video files in the repository. RA Tilburg then investigates the possibilities to meet these needs and, if it is deemed necessary, RA Tilburg will start to work to a possible solution for it. To investigate needs and possibilities further, RA Tilburg hosts yearly a meeting for all institutions that use the same Archivemática repository system from the supplier Picturae Holding B.V. to discuss these new developments and to identify if further actions are needed.

Besides that, the staff of RA Tilburg attends multiple meetings about all kinds of aspects, for example about metadata. RA Tilburg does this to create national standards related to metadata. RA Tilburg does this for the new national metadata standard; Metagegevens voor Duurzaam Toegankelijke Overheidsinformatie (MDTO: <https://bit.ly/3vRMcur>), which is to become the successor of the current standard Toepassingsprofiel Metadatering Lokale Overheden (TMLO). RA Tilburg monitors these developments closely so upcoming changes can be implemented on time and metadata changes over time can be achieved correctly.

To prevent obsolescence of data the repository converts files in bulk. With this ability, RA Tilburg can convert the files in time to a more common file format. To anticipate which files need to be changed, the staff of RA Tilburg monitors the national and international communities closely. To manage format risks, and other risks such as governance of the authenticity of the files, RA Tilburg has a test environment of the repository with representative data. If a certain file needs to be changed to a new file format, or metadata needs to be improved or enriched with additional metadata, this is first tested in the test environment before any changes are made in the production environment. This process applies to all changes RA Tilburg makes to the repository and stored data (including updates from the system, services, or changes in metadata). RA Tilburg does this to ensure that all changes being made to the repository or (meta)data stored in the repository have no negative effect on parts of the repository that they shouldn't. Thanks to these procedures RA Tilburg can ensure a clean and well-functioning repository system.

RA Tilburg has multiple contracts with several governmental institutions like service contracts and project-based contracts. In these contracts, necessary requirements are documented and put into place to ensure responsibilities are known to all stakeholders and project members. This is done in a Project Initiation Document (PID). This document has a clear transfer of custody of the files written. After an ingest of a SIP, RA Tilburg takes complete responsibility for maintaining and publishing the files, but the content of the files stays a responsibility of the governmental institutions. An example of the Project Initiation Document (PID), 'Aansluiting E-depot RA Tilburg', can be consulted via <https://bit.ly/3nlp7Hg>. By signing this document the governmental institutions grant us permission to copy, transform, and store the items to make preservation and publication of the files possible.

The actions RA Tilburg takes to copy, transform and store files are based on their preservation policy. To make sure these policies are taken in place, RA Tilburg takes technical and organizational measures. Technical measures like fixity checks and if proven necessary, storage of multiple file-formats is being performed. Organizational measures are taken in place by specialized staff. The repository management monthly reviews the complete operating of the repository to ensure these policies are applied. RA Tilburg makes risk assessments (impact analyses) and implements proper countermeasures to minimize the risk that may apply. For example, as mentioned in R9, and further mentioned in R16, back-ups are being made daily and tested yearly as a countermeasure to the risk of possible data loss. Besides the back-up, the security of the repository is being checked as well by a yearly penetration test (<https://bit.ly/2WGWluC>), done by an independent supplier. This penetration test is done to minimize the vulnerability to cybersecurity threats a digital repository is being exposed to. This will be further explained in R16.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

11. Data quality

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.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

Quality requirements on the repository are described in the Public Records Act and related regulations. Art. 3 of the Public Records Act stipulates that governmental institutions are obliged to ensure that the files entrusted to them are and remain in a good, orderly, and accessible condition, which is in line with the strategy of RA Tilburg.

Archive regulation (Archiefregeling: <https://bit.ly/3aET1sg>) art. 17 stipulates that the following aspects of every stored file in the repository can be accessed at any time.

- a. the content, structure, and form when ingested or created by the government organ, in as far as these aspects had to be knowable for the execution of the work process in question,
- b. when, by whom, and on the basis of what task or work process it was ingested or created by the government organ,
- c. the connection with other archive documents ingested and created by the government organ,
- d. the management activities executed in relation to the archive documents, and
- e. the software or application software with which the archive documents are stored or managed.

Clause 2 of Art. 19 of the archive regulation stipulates the governmental institutions to add metadata to the accurate files to meet with the given aspects mentioned in art. 17. These together create the SIP which the governmental institutions deliver to RA Tilburg to ingest in the repository. Articles 21 to 26 specifically discuss special regulations for digital archive documents to be stored. RA Tilburg only ingests archives to be stored permanently (as mentioned in R8). Therefore the quality of the data and metadata depends on the degree to which governmental institutions comply with the requirements

in the Public Records Act and the archive regulation.

Checking the integrity of the data is secured in an automatic process. The completeness and authenticity (see also R7) are checked during the transfer and ingest process in Archivematica. To ensure the quality of the metadata, it needs to be compliant with the standards given in Toepassingsprofiel Metadatering Lokale Overheden (TMLO). The municipality archivist will evaluate the data. If it is apparent that the governmental institution fails to meet the quality requirements in the Public Records Act and archive regulations, the ingest is rejected and the governmental institution must first ensure compliance before ingesting can be considered again.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

12. Workflows

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

The digital preservation policy of RA Tilburg contains all the workflow subjects regarding the repository. The business processes related to the workflows in the repository are completely based on the OAIS model and, naturally, the requirements of the Public Records Act apply. The document includes descriptions of functions, responsibilities, and specific business processes regarding the delivery of the files and the ingest process. These processes can only be run by

authorized personnel. Various references to documentation and descriptions of processes are already included in the answers to different questions. The document can be consulted via <https://bit.ly/2NmUZnr>.

As mentioned in the digital preservation policy, RA Tilburg ensures that the digital archives are ingested (chapter 4), managed, and made accessible and available (chapter 5). For ingest in the repository, the depositor delivers the files and metadata to RA Tilburg by a hard disk or by a digital (cloud) storage platform. Before the files are ingested they are transferred to the repository from these storage locations. After ingest, the files are copied to a Digital Asset Management (DAM: <https://bit.ly/32WwAJI>) system from which they can be accessed and managed by our Collection Management System; Memorix Archives (<https://bit.ly/3wSLKNR>) and made publicly available by our website www.regionaalarchieftilburg.nl. The complete workflow of our repository can be found in the digital preservation policy of RA Tilburg (chapter 8). This process is of course first completed in the test environment of the repository.

Whenever a step in this process is done, the governmental institution will receive an update about the result. If a specific part of the workflow is worth mentioning, even if it is not a breaking point, they will get notified about the progress. RA Tilburg reminds the governmental institutions about new publications that are scheduled. When the files are published, RA Tilburg communicates this internally through the intranet and externally through the website www.regionaalarchieftilburg.nl.

Our repository hosting supplier Picturae Holding B.V. is ISO-27001 certified. This means that all their workflows and business processes are based on those standards. Part of this certification is Role Based Access Control (RBAC). RBAC authorizes employees of RA Tilburg based on their function group. This means that only personnel with the right responsibilities are authorized to execute the necessary processes to achieve the goal of archiving the files.

During the transfer and ingest process multiple qualitative and quantitative checks are executed. In the digital preservation policy of RA Tilburg is described how these integrity checks are monitored. One of these integrity checks contains object identification which validates the file formats. This means that the format needs to comply with the accepted formats that RA Tilburg requires for ingesting in the repository to ensure long-term preservation. If a file does not comply with the accepted format, the process is stopped and the transfer of the files is declined.

The repository has as many as possible automatic decision handling processes built-in, and some others are being performed manually. An example of a manual decision is the choice of the AIP storage location for certain ingest. In case RA Tilburg notices a workflow can be improved a request is made and reviewed by the repository management. If the request is granted, the change will be implemented in the workflow description. Any technical change that follows from this decision is implemented by the hosting provider Picturae Holding B.V.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:

accept

13. Data discovery and identification

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

Compliance Level:

3 – The repository is in the implementation phase

Reviewer Entry

Reviewer 1

Comments:

3 – The repository is in the implementation phase

Reviewer 2

Comments:

3 – The repository is in the implementation phase

Response:

In the application Archivematica, it is possible to search directly in the Archival Information Packages (AIP's) for metadata. The FullText Open Source Search Engine Elastic Search (<https://bit.ly/3nIr06O>) is used to search through the data. In compliance with the OAIS model, a DIP is created from the AIP in order to make the digital archive available. The DIP is opened via the Collection Management System; Memorix Archives (<https://bit.ly/3hillNa>) and published through the website www.regionaalarchieftilburg.nl. The portal to search through files on our website can be found via <https://bit.ly/3j6dlSc>.

The Collection Management System; Memorix Archives uses several international archival standards, such as:

ISAD(G): General International Standard Archival Description (<https://bit.ly/3jbx5t4>)

ISAAR (CPF): International Standard Archival Authority Record for Corporate Bodies, Persons and Families (<https://bit.ly/3gSmZM1>)

ISDIAH: International Standard for Describing Institutions with Archival Holdings (<https://bit.ly/3gPjEgK>)

Thanks to these standards, the ingested metadata conforming Toepassingsprofiel Metadatering Lokale Overheden (TMLO) becomes functional in Memorix Archives. TMLO contributes to the standardization of metadata namely and ensures that enough metadata is stored in the system with the files. The archival standards from Memorix Archives ensure that all this metadata is applicable, meaning that Memorix Archives is able to work with the metadata, and users can search through, or find the files.

The use of persistent identifiers (PID: <https://bit.ly/3h7lcSu>) is possible but currently not implemented in the repository. RA Tilburg intends to implement this PID functionality in the future and in the meantime, as mentioned in the digital preservation policy of RA Tilburg (chapter 4), RA Tilburg uses Universally Unique Identifiers (UUID's: <https://bit.ly/31v8gxI>). UUID's can be used for reliably identifying very persistent objects across a network. In Archivematica UUID's are added to the Archival Information Package (AIP) and are unique for every AIP (<https://bit.ly/2SSIZ0I>).

The repository provides options for automated harvesting of metadata via linguistic analyzers based on OAI-PMH (<https://bit.ly/3wnr9Qz>). These are analyzers for text processing. RA Tilburg does this for example by connecting to the Archives Portal Europe (<https://bit.ly/35PE3w4>) network from Europeana (<https://bit.ly/3gSFNuJ>). This connection is created by an Application Programming Interface (API: <https://bit.ly/3vQxJ1F>) between our own Collection Management System; Memorix Archives and the systems of Archives Portal Europe. This connection enables Archives Portal Europe to harvest our data and makes our files available to a wider audience in the world. The portal to search for files from RA Tilburg in Archives Portal Europe can be found via <https://bit.ly/35OneS1>.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

14. Data reuse

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.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:

4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

Various stipulations relating to metadata are already described in R11. The supplied metadata must meet the Toepassingsprofiel Metadatering Lokale Overheden (TMLO) standard. This metadata is stored in the repository and collection management system. When a digital archive is accessed, users can search through the database based on the metadata elements from TMLO. TMLO provides mandatory requirements for metadata for the long-term preservation of records, including requirements for contextual, technical, and data management metadata. These requirements are in place to ensure that all users and designated communities will get access to unchanged, authentic, and understandable information.

Of course changes in the (digital) world can affect the standard and therefore the standard is constantly reviewed, with input from lots of archives in the Netherlands, by the Dutch national archive; 'Nationaal Archief' (<https://bit.ly/3jpw9kY>) to check if it still fits the needs of the users and the designated community as best as possible. Thanks to does reviews, a new version of this standard is being developed named; Metagegevens Duurzaam Toegankelijke Overheidsinformatie (MDTO: <https://bit.ly/3ote7ia>).

To ensure continued understandability of the data changes in file formats, RA Tilburg continuously monitors the common file formats from the PRONOM database from the U.K National Archives (<https://bit.ly/38r6Do8>). If a new commonly used file type replaces an older file type, RA Tilburg creates a copy of the original file with the older file type and creates a new file with the new 'common' file type in the AIP. This means that the originally ingested files from the SIP remain unaffected, and a completely new file will be generated, in a different file format. As already mentioned in R7, original files will never be changed or deleted in our repository. Original files will always have the same file extension as they had during the ingest to ensure the authenticity of the original deposit file.

To give the public access to the files, the rendering of many common file formats is possible through the repository's extensible render facilities. Alternatively, files can be made available as downloadable copies. Files are also - in a viewable file format - stored in a different storage system (e.g. a JPEG version of a specific page from a PDF file). Feedback from our designated communities helps to decide which file formats to prioritize for adding to the viewable file formats, and which files can be made available as a downloadable copy. For continued understandability of metadata, every AIP in Archivematica contains a README.html file that describes the content of the AIP.

Our archives are open to the public and a lot of files are legally available for re-use. However, there are exceptions if files are copyrighted. As mentioned in R2, if the files are copyrighted a request must be addressed to the executive council of the responsible governmental institution. They determine whether the data can be viewed or not. If the request is granted, the files will be handed over to the requestor with a disclaimer; for personal use only, do not distribute. Sometimes reuse or publication of the files can possibly have an impact on the security or privacy of those involved. If that is the case those files are not published, not available for the public, and not available for re-use.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

TECHNOLOGY

15. Technical infrastructure

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.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

The infrastructure of the repository from RA Tilburg is being hosted and maintained by Picturae Holding B.V. Their infrastructure is physically situated in the data center Global Switch in Amsterdam and in their own data center in Heerhugowaard, as mentioned in R5 and R9. These two data centers have multiple ISO certifications: ISO 9001, ISO 14001, OHSAS 18001, and ISO 27001. Picturae Holding B.V. is constantly developing the infrastructure.

Upon this infrastructure run various virtual servers are needed to host the Open Source Archivemata repository. The infrastructure and servers are scalable without causing downtime of the provided services. Archivemata itself is

completely based on another international ISO standard: ISO 14721. This standard includes the OAIS model. All ISO certification of the ISO family needs to be reviewed every 5 years to ensure their relevance.

Picturae Holding B.V. has started a partnership with Artefactual Systems Inc. (<https://bit.ly/3r8SKDQ>), the lead developer of Archivemata to make sure that their strategy is aligned with theirs and the infrastructure is ready for future developments of the repository. Thanks to the Open Source vision of Artefactual and its continuous development of the software, Archivemata is a highly appreciated application within the community.

Picturae Holding B.V. is responsible for maintaining system software, documentation, sustainable bandwidth, sufficient connectivity, and availability of the services as mentioned in the Service Level Agreement (SLA). In this document rules are applied for back-up and recovery procedures, to maintain the continuity of the online services RA Tilburg provides. Within the Service Level Agreement, an exit strategy is in place, which obliges Picturae Holding B.V. to support us till two months after the ending of the contract. The Service Level Agreement can be consulted via <https://bit.ly/2WGo7aC>.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
accept

16. Security

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

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Picturae Holding B.V. has demonstrated an appropriate security level with the ISO 27001 certification and has taken various measures to be compliant, including:

- Logical access control – using strong passwords that are changed very regularly
- Screen locks
- Physical measures for access security
- Securing network connection using TLS technology
- Purpose-specific access to personal data
- Checking assigned authorizations

Critical components of the infrastructure are installed with checksumming and data scrubbing (<https://bit.ly/3rmJyvP>). The correctness of the data is checked and repaired if necessary with every read command. The technical infrastructure is monitored to detect disruptions early. The correctness of data is checked monthly. If a checksum is incorrect, personnel of Picturae Holding B.V. is warned automatically. If a discrepancy is detected by the system, personnel of Picturae Holding B.V. will take action and, solve the issue. When a storage system is replaced, all data is synchronized with the new system and checked with the aid of checksums. The new system will be taken into use when they are in sync. Back-ups are checked daily and data loss will be recovered from images from the back-up. Back-ups are saved for 62 days.

To ensure that the security of the application is top-level, and to ensure already implemented measures are in place and working correctly, RA Tilburg yearly lets an independent security party checks the repository system by a security penetration test (<https://bit.ly/2WGWluC>). During this test, certified ethical hackers will do their utmost best to find and exploit vulnerabilities in the system. They use two methods for this test, a black-box and a grey-box method (<https://bit.ly/34DPIha>). During the black-box method, 0 pre-information is given and during the grey-box, limited information is given. This gives us different perspectives on the security level as an outsider and insider of RA Tilburg.

During both methods, the focus is on the OWASP top 10 web application security risks (<https://bit.ly/34JEKa5>). This test aims to find out where our strengths and weaknesses are, so RA Tilburg can build a more solid repository and patch vulnerabilities before a virus or other malicious parties can abuse them. If one of the outcomes of the test is negative, actions are taken to remove this weakness or reduce it to a minimum, as soon as possible. After the measures are in place, a retest is done to ensure that the measures are in place correctly. Thanks to these procedures the repository from RA Tilburg is as safe as it can be.

To prevent unauthorized access to our repository, system administrative tasks like creating a new user is only authorized by the administrator accounts from the hosting supplier Picturae Holding B.V. The creation of a new user in the repository needs to have a valid request from one of our repository managers through the helpdesk, all other requests will be declined. The governance of privacy-related data processed during requests and publications is guaranteed by the signed GDPR Data Processing Agreements.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:

accept

APPLICANT FEEDBACK

Comments/feedback

These Requirements are not seen as final, and we value your input to improve the CoreTrustSeal certification procedure. Any comments on the quality of the Requirements, their relevance to your organization, or any other contribution, will be considered as part of future iterations.

Response:

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments: