The Archives nationales' data preparation workflow

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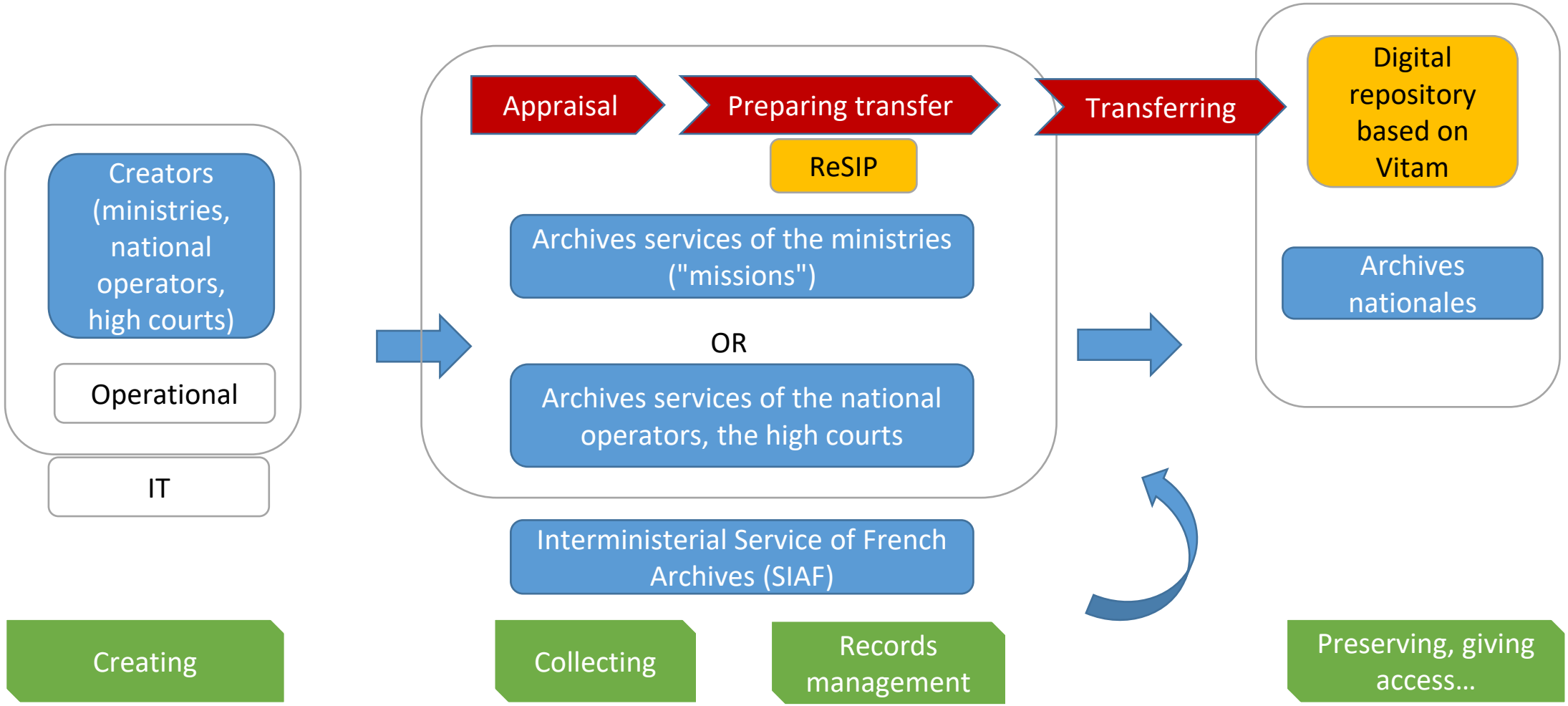
Organization of the archives network (national scale)



- Ideally, preservation should be planned as early as possible… but the National Archives are not in charge of appraising and preparing data
    - Except in two cases: private archives and data migration

Constatations

- The ingestion process to our Vitam-based digital archiving platform **includes format identification** (Siegfried) but so far, this is the only preservation action (no metadata extraction except in the case of mailboxes, no validation)
- As a result, in our our digital archiving platform:
  - Most objects are identified and readable, but…
  - Some formats are incorrectly identified (due to the limitations of the identification tools, but also because of their implementation in Vitam)
  - Some files cannot be accessed (due to being damaged, or due to being encrypted, password-protected…)

Our formats policy

- Meant to provide **guidelines** for evaluation to the missions (archivists in ministries)
- The principle is not to attribute ratings, but rather to indicate **the degree to which the National Archives can guarantee the long-term preservation** of a given format
- Most formats will be **accepted** or **tolerated**, only **excluding** formats corresponding to:
  - files with no inherent archival value (system files, temporary files, shortcuts...)
  - or files that present obstacles to preservation (zip files, password-protected files…)
  - As databases represent a large proportion of what the National Archives collect, they also have stricter criteria regarding their formats
- The goal is not to constrain collecting, but to adapt to its reality. Our formats policy must be articulated with our archiving policy, which has to comply with legal obligations
- Validation is not appropriate for our context

Preservation issues and goals

- In the context of a massive production of digital archives and a wide range of contents and formats, ensuring a certain level of quality at ingest without impeding collection
- At the very least, the files and data we ingest should be:
  - Identified
  - Readable and intelligible
  - Any damage to their contents should be extensively documented
- These goals must be taken into account **before ingestion**, and therefore **during data preparation** (ideally as soon as archives are received, at the very latest before SIP creation in ReSIP)…
- … So we created a workflow to help data preparers do so easily, using a semi-automated process

AN~DROID

- Goal: allowing data preparers (mission archivists, archivists at the National Archives in certain cases) to conduct **an easy and early preservation audit** on a file hierarchy **using a DROID report**
- The process is simple and relies on widely known and used tools: DROID and Excel (macro)
- Two main steps: running DROID on a file hierarchy and exporting the results as a CSV, then using a macro on that export
- Limitations: requires obtaining the macro (which might not be transferrable by mail for security reasons) and installing DROID (not always possible, depending on security constraints as well)

Why DROID?

- Format identification issues can be **symptoms of preservation issues**
- But ReSIP and VITAM obscure these identification issues and therefore potential file quality problems
- A DROID report provides more accurate information, which along with other elements also featured in the report (size, names, extensions…) can be used for **a first assessment of file quality**
- The format identifications themselves can be compared to our formats policy
- The "AN~DROID" macro-enabled Excel sheet partly **automates this analysis** of the DROID report.

AN~DROID

- The end result is a report on:
  - Empty files and folders
  - Files with no archival value: system files, temporary files (with a ~$ prefix), shortcuts (PUID x-fmt/428)
  - Compressed files (identified from PUIDs)
  - Extension issues: no extension or extension mismatch
  - Unidentified files, or files with multiple identifications (symptoms of readability issues)
  - The status of the identified file formats in the National Archives' formats policy (accepted, tolerated, rejected, requiring further analysis, missing)
  - The macro also highlights duplicates on the basis of their hash (if available in the export)

Demo!

The Little Data Preparer's Handbook

- As part of a wider reflection on data preparation best practices, we have been **gathering the issues** data preparers might encounter**, ways to detect them** when auditing a file hierarchy and **potential fixes** in a "Little Data Preparer's Handbook", as a reminder.
- The Excel AN~DROID sheet provides a semi-automated way to detect these issues in a single audit, but these checks can also be performed manually.
- For data preparers who might not be able to run DROID, the Handbook provide **alternative auditing tools**.
- It also indicates solutions for each problem the audit might reveal.
- These solutions can be implemented using various tools (Windows explorer, ReSIP, Powershell commands…) and at different stages (before or while the files are processed in ReSIP).

Conclusion

- Our data preparation workflow attempts to answer a particularly complex collecting situation, within the specific context of the French public archives network
- But we are convinced that it could prove useful in other contexts with some adaptations, particularly since DROID is widely used internationally
- Some archivists (in mission or at the National Archives) have started using it and we received very positive feedback, but reflections and experiments are ongoing

Further prospects: SOFOCLE

- To go beyond what the DROID report might reveal, development of **SOFOCLE**, a Python executable aiming to **check the readability and accessibility of files** (for certain formats)
- Allows to perform these checks in cases where volumes make it impossible for archivists to manually open every potentially problematic file
- At this point, for internal use only
- Has proven useful, but has limitations (attempts to open files on the basis of their extension, flags issues using categories which might have different meanings depending on content types…)
- Raises theoretical questions we don’t have firm answers for regarding the definition of these categories (corrupted files, inaccessible files)

Thank you!

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