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Extracting Online Publications Embedded in Websites: NDL Initiatives and Challenges

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Overview: Extracting Online Publications Project

- Background: Web Archiving Project (WARP) in the NDL
- Scope
- Workflow
- Metadata linking to the online catalog
- Challenges and future plans
Background (WARP) (1/4) - Scope

● “WARP” = Web ARchiving Project, since 2002
● Archiving websites of
  ● Japanese public agencies comprehensively based on the National Diet Library Law
  ● private organizations selectively based on the permissions of their webmasters
    (political parties, private universities, international events, etc.)

WARP website
http://warp.da.ndl.go.jp/
Background (WARP) 2/4

- 1.7PB in data size
- 12,600 websites archived (as of Mar. 2020)
  - 5,800 public agencies and 6,700 private organizations
  - 85% available on the internet

WARP’s transition in data size and number of targets
8.5 billion files are archived
Many of the .pdf, .doc(x) and .xls(x) files are e-books or e-zines
Online publications in websites are
- Embedded with other files
- Lacking sufficient metadata

Not efficiently searched for nor easily listed

Need to extract online publications
Scope

- Main targets are
  - .pdf, .doc(x) and .xls(x) files on archived websites in WARP
  - Information-rich publications
    - White papers, annual reports, yearbooks, handbooks, official journals, public relations magazines, bulletins, academic journals, technical reports, research reports, etc.
  - Serial publications that were once published in printed form
  - Publications related to the Great East Japan Earthquake in 2011

- Publications in institutional repositories are **out** of scope
Workflow (1/6) - Overview

1. Specifying a publication to extract

2. Creating metadata

3. Checking metadata

4. Uploading to the NDL Digital Collections
**Workflow (2/6) – Specifying Publications**

- **Step 1:** Specifying a publication to extract on archived websites
  - Specify a webpage with publications to extract
  - Extract anchor texts, URLs, etc. with VBA tools
Workflow (3/6) – Creating Metadata

- Step 2: Creating metadata
  - Create metadata for a publication with VBA tools
  - Metadata follows the National Diet Library Dublin Core Metadata Description (DC-NDL)
  - Half of metadata by in-house production (The other half by an outside supplier)

Screenshots of creating metadata
Workflow (4/6) – Checking Metadata

● Step 3: Checking metadata
  ● NDL staff check metadata created both by in-house production and by outside supplier
  ● VBA tools are used in checking

[Image of an Excel sheet for checking metadata]
Workflow (5/6) – Uploading to the NDL Collections

- Step 4: Uploading to the NDL Digital Collections
  - Publications uploaded with metadata
  - 85% available on the internet

[Image: Screenshot of the NDL Digital Collections]
Workflow (6/6) – Current Status

- 66,000 publications extracted per year
- 565,962 publications were discoverable on the NDL Digital Collections (as of Mar. 2020)

The number of online publications on the NDL Digital Collections
Metadata Linking to the Online Catalog

- Metadata of online publications linked to NDL Online via an API
- Grouping indication of printed and online versions

Grouping indication in a search result on NDL Online
Challenges & Future Plans (1/3) - Improved Efficiency

● Most parts of the workflow done manually
  = Limits number of publications extracted

● Metadata generation tool (experimental phase)
  ● Being developed with Python from 2019
  ● Extracts a title and name of author from the title page of a .pdf file

● Future plan: Semi-automated creation of basic metadata
Challenges & Future Plans (2/3) - Enrichment of Metadata

- Current metadata have only basic elements
  - Do not include subject, classification, keywords, etc.

- NDC Predictor (2019)
  - Developed with machine learning technology
  - Analyzes bibliographic records of publications
  - Predicts a classification based on Nippon Decimal Classification (NDC)

NDC Predictor
https://lab.ndl.go.jp/ndc/
Challenges & Future Plans (3/3) - Archiving Moving Image Files

- Complex publications such as moving images are not archived
- Immediate concern: YouTube videos posted by Japanese public agencies

Future plan: New framework for direct downloads from YouTube
- Need to keep analyzing precedent for video archiving
- Need to keep considering legal aspects
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