



Digital Preservation at GLAMs in Japan

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Abstract. In recent years, many GLAMs have come to hold more digital materials than ever before, and the long-term digital preservation of these materials has become an issue. The National Diet Library of Japan (NDL) has actively conducted research into and shared information about digital preservation with other domestic institutions. The implementation of effective preservation measures requires an appropriate understanding of the present state of digital preservation, yet a comprehensive survey targeting the GLAM sector in Japan has never been attempted thus far.

Given this background, we conducted a questionnaire survey on digital preservation activities that targeted nearly all GLAMs in Japan. A total of 5,409 institutions were surveyed, and 2,921 responses were received. The results show that while the majority of GLAMs in Japan hold digital materials intended for long-term preservation, few have established relevant policies or implemented plans to put effective digital preservation measures in practice.

Keywords: Digital preservation · Digital curation · Digital materials · Long-term preservation · GLAMs · Questionnaire survey

1 Introduction

In recent years, many galleries, libraries, archives, museums, and similar institutions (GLAMs) have come to hold digital materials¹ in their collections, and the long-term digital preservation of these materials has become an increasingly complex issue to address. Although it is possible to make identical bit-stream copies of original digital material, the preservation of digital materials presents many challenges that differ from those of analogue or physical materials, including issues such as file format obsolescence and the need to maintain playback environments. And research in this area has been conducted by a variety of institutions and international organizations.²

The National Diet Library of Japan (NDL) has been actively conducting research related to digital preservation. Currently, under the *Basic Plan for Digital Preservation*

¹ In this paper, the term “digital materials” is used to refer to all types of materials in digital form, including packaged electronic publications (e.g., optical discs, magnetic disks), born-digital materials (e.g., ebooks, web archives, research data), and other digitized materials.

² The Open Preservation Foundation (OPF) and the Digital Preservation Coalition (DPC) are well-known international organizations in this field.

of *National Diet Library's Collections 2021–2025*, which was formulated in 2021, the NDL undertakes a variety of measures for the long-term preservation of its vast digital collections. [1, 2].

Since the NDL is Japan's only national library, it is expected to play a principal role in raising awareness and educating other GLAMs about the need for and the importance of digital preservation. In particular, we speculate that digital preservation is still largely unaddressed in Japan, and our primary objective was to test that hypothesis. To this end, we conducted in FY2021 a large-scale survey on digital preservation activities at virtually every GLAM in Japan. This paper analyzes data from what was the first comprehensive nationwide survey of its kind in Japan with the intention of clarifying the present state of digital preservation at GLAMs in Japan³.

2 Related Work

Although many reports and white papers on digital preservation have been published, there have been few examples of large-scale surveys of digital preservation at GLAMs.

Recent efforts to conduct questionnaire surveys include the Open Preservation Foundation (OPF)'s 2015 and 2020 surveys. [4, 5] They targeted GLAMs that were already involved in digital preservation, and responses were collected from 132 institutions in 31 countries in 2015 and again from 98 institutions in 31 countries in 2020.

In 2005, the Digital Preservation Coalition (DPC) conducted a survey of over 900 professionals at wide range of organizations in different sectors in the UK to identify their needs for digital preservation [6].

In 2016, the National Library of New Zealand conducted a large-scale survey on the state of digital preservation in that country, and attempted to account for all cultural heritage institutions in New Zealand that could hold archival or special collections materials. Although the scope of the survey was limited to born-digital materials, a total of 371 institutions were surveyed, and 107 valid and complete responses were received.

In 2017–2018, a survey on digital preservation for memory institutions that mainly targeted members of the Canadian Association of Research Libraries (CARL) was conducted in, and 52 responses were received [7, 8].

In FY 2019, the NDL conducted a survey of 138 organizations, primarily national GLAM institutions outside Japan, regarding their digital preservation practices, but received only 11 responses due to the Covid-19 pandemic [9].

3 Method

We conducted a questionnaire survey of virtually every GLAM⁴ and major local government in Japan. Questionnaires were sent by postal mail, and the targeted institutions

³ A comprehensive report of this survey, including the actual questionnaire used, is already available [3], but only in Japanese.

⁴ The International Standard Identifier for Libraries and Related Organizations (ISIL) management ledger was used as a basis, to which was added information made public by the Agency for Cultural Affairs, the National Archives of Japan, the Japanese Association of Museums, and others.

responded via postal mail or web-based survey forms. The survey period was from November to December 2021, and responses were collected from 2,921 of the 5,409 institutions surveyed for a response rate of 54%.

The questionnaire was designed with nine main questions, created with reference to the previous similar surveys mentioned above in Sect. 2. Related Work. Each main question also had several sub-questions that were intended to obtain detailed information. All questions and answers were in the Japanese language.

Main Questions: 1) Basic information about the institution, 2) Characteristics of collections, 3) Practices for digital preservation, 4) Policies and Plans, 5) Technical matters, 6) Metadata for digital preservation, 7) Cooperation with other institutions, 8) Characteristic efforts and Plans (free-text comments), and 9) Details of digital archives or institutional repositories.

4 Results⁵

4.1 Overview of the Respondent Institutions

Table 1 shows the ratio of institutional types⁶. Libraries account for 55% of the total and are the largest for the all respondent institutions (2,921). The mean number of employees was 91 and the median was 12.

Table 1. Types of respondent institutions (n = 2,921).

Institutional type	Number (percentage)
Library	1,593 (55%)
Museum	805 (28%)
Archives	124 (4%)
Other institutions of national or local governments	180 (6%)
Other/No answer	219 (7%)

4.2 State of Digital Material Holdings, Metadata, and Availability

Regarding the state of digital materials holdings, 70% (2,046 institutions) of all respondent institutions hold some form of digital materials.

Institutions that hold digital materials were also asked about the state of metadata preparation and the availability of digital materials. The percentage of institutions that make digital materials available on the web was 50% of those holding digital materials.

⁵ Due to space limitations, only the most important results will be noted with specific figures or tables from the survey. For details, please refer to the poster.

⁶ Each type includes academic affiliated institutions.

4.3 Types of Digital Materials and Ways to Implement Digitization

In libraries, the most frequent mode of acquisition of digital materials is that of networked electronic resources such as electronic journals. On the other hand, in museums and archives, digitization of materials or creation of born-digital materials showed the highest percentage (65%).

As for digitization of materials, 32% of respondent institutions carry out in-house digitization, even if only partially.

4.4 Practices for Digital Preservation

Table 2 shows the results of multiple-answer questions to the 2,046 institutions that hold digital materials on how they position their digital materials in terms of preservation.

The questionnaire also asks the allocation of budget for preservation and management of digital materials and the number of employees in charge of preservation duties. Only 26% of all the institutions with digital material holdings have dedicated budget and only 22% have employees in charge of preservation-related duties.

Table 2. Position of digital materials for preservation (n = 2,046; institutions holding digital materials).

Options	Percentage of responses
Plan to preserve all of their digital materials for at least 30 years or longer	36%
Plan to preserve part of their digital materials for a long term (limit the subject or period of time)	12%
Preserve digital materials, but considering while proceeding with digital material collection and creation	30%
Are not considering long-term preservation	22%

4.5 Policies and Plans

Regarding the state of formulation of policy or plan for digital preservation, only about 13% of the institutions that hold digital materials (2,046 institutions) have some kind of policy or plan for digital preservation. Even if adding institutions planning to formulate such a policy in the future, the total of institutions working on digital preservation policies and plans is still less than 30%.

4.6 Technical Matters

We also inquired about data backup, which is one of the most basic measures for data preservation, particularly with regard to the current state of practice and the number of

copies created. The result shows that 41% of the institutions holding digital materials (2,046 institutions) have at least some kind of partial backup. Many institutions, however, did not respond to the question about the number of copies.

The state of implementation of preservation measures for digital materials other than backup (condition check, migration, maintenance of playback environment, etc.) is asked. The largest number of respondents (45%, 924 institutions) answered “none in particular” for those holding digital materials. Only 14% of the institutions holding digital materials have implemented preservation measures beyond backup and simple condition check.

4.7 Cooperation with Other Institutions

In response to the question inquiring cooperation and information sharing with external organizations for preservation and provision of digital materials, some organizations mentioned cooperation with Japan Search⁷, the National Archives of Japan, or some national research institutions, while others mentioned participation in an international digital-resource-sharing network, such as the Internet Archive. There are also cases of cross-institutional collaboration in the same region.

5 Discussion

5.1 Current State of Digital Preservation Revealed by Survey Results

The results of the survey indicate that as many as 70% of the respondent institutions have digital materials in their collections, while only 22% of them have no specific intent to undertake digital preservation. On the other hand, only 13% of the institutions holding digital materials have any policy or plan for digital preservation, and only 14% have actually implemented some kind of preservation measures other than backup for their digital materials. Many institutions have inadequate staffing and budget, and this lack of resources may be one of the reasons for this stagnation.

These results indicate that there is little work being done on digital preservation at GLAM institutions in Japan. Therefore, Japanese-language teaching materials is needed. At present, we are planning to release videos and translate foreign handbooks.

5.2 Limitations

The nature of the survey itself means that the latent bias against the population, such as higher response rates from institutions with greater awareness of preservation practices or those that hold digital materials, cannot be ruled out. The number of responses was, however, sufficient (2,921 institutions, response rate: 54%) to constitute a representative sample, and the ratio of respondent institutions by type was approximately equal to that in the lists of all GLAMs in Japan prepared for this survey.

⁷ Japan Search, operated by the NDL, is a Japanese national platform for aggregating metadata of digital resources of various fields. <https://jpsearch.go.jp/>.

Although not introduced in this paper, the survey also included multiple free-text comments fields (e.g., categories of materials collected, storage media, etc.), and a thorough analysis of those responses should be a future task. In addition, it would be preferable to conduct a statistical analysis of the survey data.

6 Conclusion

In this research, we surveyed the current state of digital preservation practices in virtually every GLAM in Japan and successfully obtained an unprecedentedly large number of responses. The results showed that, while many institutions hold digital materials and intend to preserve them over the long term, few have established policies or plans for long-term preservation, nor have they put effective preservation measures in practice.

Digital preservation is an activity that requires continuing management activities, including checking for obsolete equipment and formats or timely migration, and securing suitable budget is essential for its steady implementation. It is also necessary to assign personnel with relevant expertise in this field. The NDL will continue efforts to raise awareness of the need for and the importance of digital preservation as well as conduct surveys to help GLAMs guarantee access to digital materials.

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