

Qualitative and actual survey on the use of digital archives in 47 prefectural libraries nationwide

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Abstract

Digital archives are being created and made public by libraries and other institutions that hold cultural information resources for the purpose of preserving and utilizing them, and further development is expected. In this study, we used the Cabinet Office's Digital Assessment Tool to conduct a qualitative and actual survey of the status of digital archive initiatives, targeting the digital archive website pages of all 47 prefectural libraries across the country, as well as basic policies and library directories. The purpose of this survey is to verify the effectiveness of the Cabinet Office's Digital Assessment Tool and to make policy recommendations (new additions to the Digital Assessment Tool) for better digital utilization.

Key words: Digital archives, Cabinet Office's Digital Assessment Tool, 47 prefectural libraries nationwide

1 Introduction

With the current rapid advancement of digitalization, the "utilization of digital technologies" has become essential in all areas. At the same time, the Cabinet Office has pointed out that in order to make greater use of "data," the existence of open databases whose reliability and accuracy are guaranteed by the government is necessary. Digital archives are being created and made public by libraries and other institutions that hold cultural information resources for the purpose of preserving and utilizing them, and further development is expected.

In this study, we will utilize the Cabinet Office's "Digital Assessment Tool" to conduct a qualitative and actual survey of the status of digital archive initiatives, targeting the website pages of the digital archives of 47 prefectural libraries nationwide, as well as basic policies and library directories. Through this survey, we aim to verify the effectiveness of the Cabinet Office's "Digital Assessment Tool" and to make policy recommendations for better digital utilization.

2. Background and Significance of This Research

Digitalization is currently progressing rapidly across all content. According to the Ministry of Internal Affairs and Communications (2020) Information and Communications White Paper, the volume of information traffic on the Internet as a whole increased 6,000-fold between 2002 and 2020. In order for Japan as a whole, including industries and regions where digitalization has not yet progressed, to make greater use of digital technology, the Cabinet Office has pointed out that the existence of an open database in which the accuracy and reliability of data held by domestic universities, government agencies, companies, and other organizations can be guaranteed by the government and shared and utilized is essential. Digital archives, created primarily by public institutions, not only increase the value of secondary information created using data, but also prevent physical deterioration and loss by preserving it, allowing for eternal access.

As of 2022, there are a total of 3,287 public libraries in Japan, of which 276, including the National Diet Library, have public digital archives. According to the 2019 Digital Library and E-Book Lending Service Survey Report, there were examples of digital archives being created in collaboration with local residents or by departments other than the library. While half of the libraries responded that they have no plans to preserve or provide digital archives, several others said they are actively considering the idea. Indeed, Nagasaki Prefectural Library has released its new "Nagasaki Digital Collection" since 2023, and the Digital Archive Society was founded in May 2017. This indicates a trend toward an increase in the number of digital archives being released and attracting more attention.

Against this backdrop, the number of newly created and managed digital archives is on the rise. Meanwhile, for various reasons, some digital archives have stopped being updated or have disappeared. However, given the role of public libraries as "archives," maintaining permanent continuity and preventing their disappearance is a minimum standard that must be met. Furthermore,

given their role as "digital archives," it is also necessary to encourage users to actively utilize them. In this study, we used the Cabinet Office's "Digital Assessment Tool" to conduct a qualitative and actual survey of the state of digital archive efforts on the digital archive website pages of all 47 prefectural libraries across Japan, as well as basic policies and library directories. By conducting this survey, we aim to verify the effectiveness of the Cabinet Office's "Digital Assessment Tool" and to make policy recommendations for better digital utilization.

3. Previous Research

The Cabinet Office's "Toward the Realization of a Digital Archive Society, as Japan Envisions" outlines the practical challenges to the introduction and continuation of digital archives, citing three main issues: budgetary constraints, personnel shortages, and technical shortages. With regard to budgetary constraints in particular, library expenses fell from 360 billion yen in fiscal year 1999 to 292.2 billion yen by 2009, and library materials expenses also fell from 35.6 billion yen to 28.2 billion yen between fiscal years 1999 and 2015.

Araide (2018) analyzes that despite an increasing demand for public libraries, the increase in the number of libraries and materials has slowed, resulting in a chain reaction of reduced personnel costs and a shortage of technicians.

In his article "The Disappearance and Rescue of Digital Archives," Shibayama Akihiro (2022) points out that public institutions often face "organizational challenges" that can arise over long-term operation, such as staff being transferred to other departments every few years and changes in enthusiasm for the initiative following changes in leadership, as well as "systemic challenges" such as changes in specifications due to updates to operating systems, recording media, and file formats, as well as the financial burden of responding appropriately to data loss and maintaining servers. He points out that these two issues must be taken into consideration when building and operating digital archives over the long term.

In 2010, the National Diet Library conducted a survey of cultural and academic institutions and compiled the results as a report on the management of digital archives. This report provided concrete numerical data on the status of creation and publication, issues facing, budgets, and usage, and stated that it provided sufficient reference information for institutions planning to build or operate digital archives in the future. There was no section on "utilization."

As such, there is a wealth of literature analyzing the current status and challenges of creating and preserving digital archives as a whole. There are no survey reports or research on utilization.

Therefore, in this study, we used the Cabinet Office's "Digital Archive Assessment Tool" to conduct a qualitative and actual survey of the status of digital archive efforts, targeting the digital archive website

pages of all 47 prefectural libraries across the country, as well as their basic policies and library directories.

4. Research Methodology

As shown in Figure 1, the Cabinet Office's "Digital Archive Assessment Tool" consists of seven basic items and six use case items. Of these, six use case items are detailed breakdowns of "5. Daily use and expansion of activities" within the seven basic items. Furthermore, "6. Manage in a sustainable manner" is a question about the storage of master data, which is the original data digitized from real documents or the original data created.

The system's permanent management system and the location of backups are internal information and are not described, so they were excluded from the survey. Furthermore, "7. Provide in a manner ensuring interoperability" was also excluded because no specific documents could be found that specifically described the linkage information.

Therefore, this survey targeted a total of 11 items, including <Basic Items> 1-5 and <Use Case Items> I-VI (see Figure 1).

Figure 1. Cabinet Office's "Digital Archive Assessment Tool"
 Basic Items and Use Case Items in the Survey

<Basic items>	
1. Addressing the issue systematically 2. Organizing metadata 3. Creating and publishing content 4. Clearly stating the terms of secondary use 5. Utilizing it regularly and expanding activities 6. Managing it in a way that ensures sustainability 7. Providing it in a way that ensures interoperability	<ul style="list-style-type: none"> ■ Presence or absence of information in guidelines/manuals, etc. ■ Presence or absence of a URL for each individual data item ■ Accessibility for viewing ■ Assessment on the website (Yes/No/Not stated) ■ Meets one of the following six criteria 'Excluded from investigation due to ambiguity' 'Excluded from investigation due to ambiguity'
<Examples of use>	
I. Case Studies II. Everyday Use III. Social Media IV. Contribution to Events V. Linked Data VI. Community Building	<ul style="list-style-type: none"> ■ Case studies are presented on the website ■ Encouraging daily use ■ Mentioned on various official social media platforms ■ Attendance at external events ■ Availability of detailed data information ■ Presence of proactive usage events

(Source) Edited by the author based on the Cabinet Office's "Digital Archive Assessment Tool"

5. Survey Results

based on the "desired state" described in the assessment

5.1 <Basic Items>

tool. The results are as follows (see Table 1・2).

For the <Basic Items>, achievement was determined

Table 1: Digital archive sites of all 47 prefectural libraries across Japan

NO	Digital archives of all 47 prefectural libraries across Japan
1	Hokkaido Prefectural Library: https://www3.library.pref.hokkaido.jp/digitallibrary/
2	Aomori Prefectural Library: https://www.plib.pref.aomori.lg.jp/digital-archive/
3	Iwate Prefectural Library: https://www.library.pref.iwate.jp/dli/index.html
4	Miyagi Prefectural Library: https://www.library.pref.miyagi.jp/
5	Akita Prefectural Library: https://da.apl.pref.akita.jp/lib/
6	Yamagata Prefectural Library: https://www.lib.pref.yamagata.jp/
7	Fukushima Prefectural Library: https://www.library.fcs.ed.jp/?pageid=262
8	Ibaraki Prefectural Library: https://www.lib.pref.ibaraki.jp/guide/shiryou/digitallib/digitallibmain.html
9	Tochigi Prefectural Library: http://www.lib.pref.tochigi.lg.jp/?pageid=307
10	Gunma Prefectural Library: https://www.library.pref.gunma.jp/?pageid=650
11	Saitama Prefectural Library: http://www.eizou.pref.saitama.lg.jp/library/OnTof01
12	Chiba Prefectural Library: https://www.library.pref.chiba.lg.jp/nanohana/
13	Tokyo Metropolitan Library: http://archive.library.metro.tokyo.jp/da/top
14	Kanagawa Prefectural Library: https://www.klnet.pref.kanagawa.jp/find-books/digital-archive/
15	Niigata City Library: https://www.pref-lib.niigata.niigata.jp/
16	Toyama Prefectural Library: https://www.lib.pref.toyama.jp/gallery/collection/
17	Ishikawa Prefectural Library: https://www.library.pref.ishikawa.lg.jp/shosho/digicolle
18	Fukui Prefectural Library: https://www.library-archives.pref.fukui.lg.jp/archive/
19	Yamanashi Prefectural Library: http://digi.lib.pref.yamanashi.jp/da/top
20	Nagano Prefectural Library: https://www.ro-da.jp/shinshu-dcommons/
21	Gifu Prefectural Library: https://www.library.pref.gifu.lg.jp/find-books/digital-collection/
22	Shizuoka Prefectural Library: https://www.tosyokan.pref.shizuoka.jp/contents/library/index.html
23	Aichi Prefectural Library: https://websv.aichi-pref-library.jp/digilib.html
24	Mie Prefectural Library: https://www.library.pref.mie.lg.jp/find-book/digital-library/
25	Shiga Prefectural Library: https://da.shiga-pref-library.jp/
26	Kyoto Prefectural Library: http://www.archives.kyoto.jp/
27	Osaka Prefectural Library: https://www.library.pref.osaka.jp/site/oec/index.html
28	Hyogo Prefectural Library: https://www.library.pref.hyogo.lg.jp/wini/opac/search-original-a.do?lang=ja
29	Nara Prefectural Library: https://www.library.pref.nara.jp/digitalarchives
30	Wakayama Prefectural Library: https://www.lib.wakayama-c.ed.jp/monjyo/archive/index.html
31	Tottori Prefectural Library: https://digital-collection.pref.tottori.lg.jp/
32	Shimane Prefectural Library: https://www2.library.pref.shimane.lg.jp/webmuseum/
33	Okayama Prefectural Library: http://digioka.libnet.pref.okayama.jp/sup/jp/concept.html
34	Hiroshima Prefectural Library: https://www2.hplibra.pref.hiroshima.jp/introductionbooks/digitalcollection
35	Yamaguchi Prefectural Library: https://adeac.jp/yamaguchi-pref-lib/top/
36	Tokushima Prefectural Library: https://adeac.jp/tokushima-bunkanomori/top/
37	Kagawa Prefectural Library: https://www.library.pref.kagawa.lg.jp/digitallibrary/
38	Ehime Prefectural Library: https://adeac.jp/ehime-pref-lib/top/
39	Kochi Prefectural Library: https://kochilib.iri-project.org/
40	Fukuoka Prefectural Library: https://adeac.jp/fukuoka-pref-lib/top/
41	Saga Prefectural Library: https://sagalibdb.jp/
42	Nagasaki Prefectural Library: https://nagasaki-dc.iri-project.org/
43	Kumamoto Prefectural Library: https://www2.library.pref.kumamoto.jp/?pageid=231
44	Oita Prefectural Library: https://wwwa6.musetheque.jp/oita-digital/
45	Miyazaki Prefectural Library: https://www2.lib.pref.miyazaki.lg.jp/?pageid=625
46	Kagoshima Prefectural Library: https://www2.library.pref.kagoshima.jp/da/opac/top.do?lang=ja
47	Okinawa Prefectural Library: https://www.library.pref.okinawa.jp/archive/index.html

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Table 2: Survey results list

Prefectures	5.1 <Basic items>					5.2 <Examples of use>						7.1 Consideration of new items				
	1.	2.	3.	4.	5.	I.	II.	III.	IV.	V.	VI.	①	②	③	④	⑤
Hokkaido	○	○	○	○	○	×	○	○	○	○	○	×	○	○	○	×
Aomori	○	○	○	○	○	○	×	×	×	×	×	○	×	×	×	○
Iwate	○	×	○	○	○	×	○	○	○	○	○	○	×	×	×	×
Miyagi	○	×	○	○	○	○	○	○	×	○	○	×	○	○	○	○
Akita	○	○	○	×	○	×	×	○	×	○	○	○	○	○	○	×
Yamagata	○	×	○	○	○	×	×	○	×	×	×	×	×	○	×	×
Fukushima	×	○	○	×	○	×	×	○	×	×	×	×	×	○	×	×
Ibaraki	×	○	○	×	×	×	×	×	×	×	×	×	×	○	×	×
Tochigi	○	○	○	○	○	×	×	○	×	×	×	×	×	○	○	○
Gunma	○	○	○	○	○	×	×	×	×	○	×	○	○	○	×	×
Saitama	○	○	○	○	○	○	○	○	×	○	×	○	○	○	○	×
Chiba	○	×	○	○	○	×	×	○	×	×	×	×	×	○	×	○
Tokyo	○	○	○	○	○	×	×	○	×	○	×	○	○	○	○	○
Kanagawa	×	×	○	○	○	×	×	○	×	○	×	×	×	○	×	×
Niigata	○	○	○	○	○	×	×	○	×	○	×	○	×	○	×	○
Toyama	×	○	○	×	○	×	×	○	×	○	×	○	×	○	×	×
Ishikawa	○	○	○	○	○	○	○	○	×	○	○	○	○	○	○	○
Fukui	×	○	○	○	○	×	×	○	×	○	×	×	×	○	○	○
Yamanashi	×	○	○	×	○	×	×	○	×	○	×	×	×	○	×	×
Nagano	○	○	○	○	○	×	○	○	○	○	○	×	○	○	○	○
Gifu	○	○	○	○	×	×	×	×	×	×	×	×	×	○	○	×
Shizuoka	○	○	○	×	○	×	×	○	×	○	×	○	×	○	○	×
Aichi	○	○	○	○	○	×	×	○	×	○	×	×	×	○	×	○
Mie	○	○	○	○	○	×	×	○	×	○	×	○	×	○	×	×
Shiga	○	○	○	○	○	×	×	○	×	○	×	○	○	○	○	○
Kyoto	○	○	○	○	○	×	×	○	×	○	×	○	○	○	○	○
Osaka	○	○	○	○	○	×	×	○	×	○	×	×	○	○	○	○
Hyogo	○	○	○	×	×	×	×	×	×	×	×	×	×	×	×	×
Nara	×	○	○	○	○	○	○	○	×	○	○	×	○	○	○	○
Wakayama	○	○	○	○	○	×	○	×	×	○	×	○	○	○	×	×
Tottori	○	○	○	○	○	×	○	○	○	○	○	○	×	○	○	○
Shimane	○	○	○	○	○	×	○	×	×	×	○	×	×	○	○	○
Okayama	○	○	○	○	○	×	○	○	×	○	○	○	○	○	○	○
Hiroshima	○	○	○	○	○	×	○	○	×	○	○	×	○	○	○	×
Yamaguchi	○	○	○	○	○	×	×	○	×	○	○	○	○	○	×	○
Tokushima	○	○	○	○	○	×	○	○	○	×	○	×	○	○	○	○
Kagawa	○	○	○	○	×	×	×	×	×	×	×	×	×	○	×	○
Ehime	×	○	○	○	○	×	×	×	×	○	×	×	×	○	×	○
Kochi	×	○	○	○	○	×	×	×	×	○	×	×	×	○	×	○
Fukuoka	○	○	○	○	○	×	×	○	×	○	×	×	○	○	○	○
Saga	○	○	○	○	○	○	○	○	×	○	○	×	○	○	○	○
Nagasaki	○	○	○	×	○	×	×	×	×	○	×	×	×	○	○	×
Kumamoto	○	○	○	○	○	×	○	○	○	○	○	×	×	○	×	○
Oita	○	○	○	○	○	×	×	○	×	○	○	×	×	×	×	○
Miyazaki	○	○	○	×	○	×	×	○	×	○	×	×	×	○	×	○
Kagoshima	○	○	○	○	○	×	×	×	×	○	×	×	×	×	×	○
Okinawa	○	○	○	○	○	×	×	○	×	○	×	○	○	○	○	○

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For "1. Organizational efforts," we considered achievement to be achieved by clearly describing in each library's directory or guidelines (those that specifically mention digital archives) the organizational creation, updating, and utilization of digital archives. Note that some documents also mentioned "digitization" of books and other materials.

Due to reasons such as preventing deterioration of documents, libraries operate them as e-books that can only be viewed within the library, and "digitization" alone was not considered to be a reference to digital archives. Furthermore, Aomori and Osaka did not disclose their policies. As a result, 38 out of 47 libraries met "1. Organizational efforts." While this was the lowest number achieved among the five <Basic Items>, the achievement rate was high at approximately 81%. All 38 libraries mentioned "expanding the number of content," suggesting a high level of awareness of creation and preservation. Meanwhile, only 12 libraries (Miyagi, Yamagata, Ishikawa, Nagano, Shizuoka, Shimane, Hiroshima, Fukuoka, Saga, Kumamoto, Oita, and Miyazaki) mentioned plans to use content at events or on social media.

For "2. Metadata Preparation," we determined whether each piece of data published within the archive had a unique extension (URL or PDF). This was achieved by 42 out of 47 sites, representing an achievement rate of approximately 89%. Ideally, metadata should be updated daily to a globally accepted file format (such as PDF).

At the Ibaraki Prefectural Library Digital Library, although each piece of data is prepared, we had to use a Chrome extension.

For "3. Content Creation and Publication," we assumed that if digital data was published within the archive, it was naturally created at the same time, and we judged whether it was available for viewing. As a result, all 47 out of 47 sites met the criteria. The "quantity" of content varied greatly. Among the sites we confirmed, Kyoto had the most with 1.19 million, followed by Fukui with 880,000, and Ishikawa with 550,000. Tochigi, Ehime with 231, and

Kagawa with 254, followed by Tochigi with 148, Ehime with 231, and Kagawa with 254.

Differences in the amount of data digitized and stored by each library are thought to be due to factors such as the number of historical documents, population ratio, number of libraries in each area, and number of years in operation. There were also differences in the "quality" of content, with examples such as only thumbnails of books in Kagoshima being viewable, and examples in Akita where the search function was confused with the library's internal collections and made it difficult to distinguish between viewable materials and other materials.

"4. Clear indication of conditions for secondary use" was judged based on whether the scope of copyright for each piece of data was clearly indicated. Five libraries in Akita, Fukushima, Hyogo, Nagasaki, and Miyazaki did not have terms of use or other information written on their website or library homepages, and four libraries in Ibaraki, Toyama, Yamanashi, and Shizuoka required inquiries to confirm rights to individual data, resulting in a total of 38 libraries meeting the criteria.

"5. Use daily and expand activities" was judged based on whether one or more of "5.2 Use case items" were met, with 43 achieving this.

Furthermore, the average number of digital archive sites that achieved these five basic items was 4.4 items, with only one site in Ibaraki achieving two items and five sites in Fukushima, Kanagawa, Toyama, Yamanashi, and Hyogo achieving three items. 41 sites achieved four or more items, accounting for over 87%, and 27 sites achieved all five items, accounting for over 57%, both of which are high figures. This survey therefore reveals that many sites meet the targets of the Digital Archive Assessment Tool (see Table 3).

Table 3. Number of items achieved in <Basic Items>
(Unit: number of items)

1.Organized	2. Metadata	3. Creation and publication	4.Secondary use	5. Use
38/47	42/47	47/47	38/47	43/47

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5.2 <Usage Examples Items>

The survey results for the <Usage Examples Items> are as follows (see Table 1).

For "I. Usage Examples," the assessment was based on whether examples of data usage from the digital archive were displayed on the digital archive's website page or on the library's page.

Six libraries met this criterion: Aomori, Miyagi, Saitama, Ishikawa, Nara, and Saga. All six libraries presented examples of actual use, including Saga's "use in television programs." Ishikawa also included examples of how to use the archive for independent research and in school lessons, in addition to actual examples.

"II. Daily Use" refers to usage by users, not by the library itself. Since it is not possible to confirm whether users are making daily use of the archive, the assessment was based on whether the library was encouraging users to make daily use of it. Since the purpose was to encourage daily use, this suggests that posting usage examples would encourage specific uses.

A total of 14 libraries met this condition, but of the 6 libraries that met "I. Usage Examples," 5 (excluding Aomori) also met "II. Daily Use." In Aomori's case, the information was included in the help page, so it was not considered to be used for the purpose of encouraging use.

"III. Information Dissemination via SNS, etc." was assessed based on the presence or absence of information dissemination about the digital archive on various SNS sites. The target platforms were "X (formerly Twitter)," "Facebook," and "Instagram," and both dedicated digital archive accounts and official library accounts were investigated. 35 out of 47 libraries met this criterion, representing over 74%, indicating that many libraries are doing this.

However, focusing on the timing and frequency of posts, there was a significant difference in the most recent posting date as of December 31, 2023. Nine libraries (Saitama, Ishikawa, Nagano, Aichi, Osaka, Okayama, Tokushima, Fukuoka, and Saga) had posted within the last month, while 10 libraries (Iwate, Kanagawa, Toyama,

Fukui, Mie, Shiga, Nara, Tottori, Hiroshima, and Kumamoto) had not posted for over a year. In particular, in Mie Prefecture, the last update was in March 2015, and no information had been disseminated for over eight years.

"IV. Event Participation" was judged based on whether or not they exhibited at events organized by external parties. Although there were no entries mentioning participation in events within the digital archive, after referring to the activity records of each library, it was found that six prefectures (Hokkaido, Iwate, Nagano, Tottori, Tokushima, and Kumamoto) had participated.

"V. Linked Data" used the presence or absence of descriptions of background information such as sources that are difficult to confirm from the book data, the history of book creation, and additional information on author data as criteria. 36 out of 47 prefectures achieved this, making it the highest number among the six categories.

"VI. Community Building" differs from "IV. Event Participation" in that it is an item aimed at creating a new community that utilizes the digital archive, with the library taking the lead in organizing the events. Similar to IV, no event listings were found on the digital archive websites, but it was confirmed from the implementation records that 16 libraries were carrying out such initiatives. Six libraries (Hokkaido, Iwate, Nagano, Tottori, Tokushima, and Kumamoto) simultaneously fulfilled items II, IV, and VI, and all cases that fulfilled IV also fulfilled II and VI. Furthermore, including the aforementioned six, there were 10 cases that simultaneously fulfilled items II and VI (including Miyagi, Ishikawa, Nara, Hiroshima, and Saga), representing more than half of the cases for both "II. Daily Use" and "VI. Community Building." The number of libraries that achieved all six items was zero, and the average number of items achieved was 2.4, which is a low level compared to the basic items.

Table 4. Number of completed items in <Examples of Application> (Unit: number of items)

I. Display of usage examples	II. Daily use	III. social media, etc.	IV. Event participation	V. Linked Data	VI. Community Building
6/47	14/47	35/47	6/47	36/47	16/47

(Source) Created by the author

6. Results and Discussion

Regarding prefectural libraries, it was found that many sites met the assessment tool criteria in the <Basic Items> section, although there were differences in quantity and quality.

Even excluding "5. Regularly utilize and expand activities," 29 out of 47 libraries (over 61%) met all four items, and 42 libraries (over 89%) met three or more items. This suggests that a certain level of achievement has been attained in terms of the purpose of creation and preservation.

Furthermore, regarding the utilization stage, while a relatively high level was achieved in "5. Regularly utilize and expand activities," with 43 out of 47 libraries meeting this criterion, this number only indicates that at least one item in the <Utilization Case Items> section was met.

Therefore, the average number of items met in the <Utilization Case Items> section was 2.4 out of 6, which cannot be considered a high level.

The distribution of the number of <Utilization Case Items> achieved by each library is shown in Figure 2.

Figure 2 shows that the number of items achieved is widely distributed from 0 to 5, indicating a large variance. This suggests that the "5. Regularly utilize and expand activities" item in the <Basic Items> section of the current assessment tool is not functioning effectively as an indicator, and that differences in the degree of achievement are arising due to the efforts of each archiving institution.

These results indicate necessary to increase the number of items in the "Digital Archive Assessment Tool" to provide more detailed information.

7. Policy Recommendations

This survey covered a total of 11 items from the Cabinet Office's "Digital Archive Assessment Tool," including Basic Items 1-5 and Utilization Items I-VI. The results showed that the average number of Utilization Examples was 2.4 out of 6, which is by no means a high level. Therefore, the following study was conducted to clarify what items would be necessary to add to the Utilization Examples list.

Asako Kubo (2020) points out that creating websites with an awareness of user experience (UX) leads to increased usage, and cites Peter Morville's (2004) "User Experience Honeycomb" as an example of practical use in UX design and measurement.

Hashimoto Ruria states that user satisfaction (ease of use) is important in promoting the use and utilization of a site, and that an excellent site can be created by satisfying multiple items from the six categories of the "UX honeycomb structure" - "① Useful," "② Desirable," "③ Accessible," "⑤ Findable," and "⑥ Usable."

In light of the above, newly added items will be categorized into the six categories of the "UX honeycomb structure," and one item will be created for each item that applies. Furthermore, at this time, "④ Credible" will be excluded as it is a measure primarily implemented by the government and is therefore considered to be sufficiently credible and has already been achieved.

7.1 Examination of New Items

In "① Useful," it is explained that instead of simply listing data, further applications should be implemented to make it more useful. Therefore, in digital archives, as an example of further applications using data, 13 cases were confirmed where "special feature pages" were created, so this will be used.

In "② Desirable," it is stated that a balance should be struck between emphasizing site efficiency and neglecting the power and value of emotional design. Among all prefectural libraries conducting digital archiving, one element that allows each site to feel different to users is

regional differences. In fact, 20 out of 47 cases were disseminating "local charm." Specifically, Wakayama Prefecture featured materials about the local festival, the Gobo Festival, and a "special feature page" was also provided. Shimane and Hiroshima Prefectures featured local historical figures, and Hokkaido and Okayama Prefectures featured local folktales and picture books, demonstrating the use of data to promote local charm in all 20 cases. On the other hand, there were 7 examples of incorporating regional characteristics into the site design: Saitama, Ishikawa, Wakayama, Yamaguchi, Tokushima, Fukuoka, and Okinawa. Therefore, "local charm" will be used.

In "③ Accessible," it is stated that to efficiently increase the number of users, it is necessary to create something that is acceptable to a wide range of people. In digital archives, due to the purpose of "preservation," "ancient documents" were publicly available in 46 out of 47 cases, excluding Hiroshima. From this, it is considered necessary to attract users other than those who are looking for ancient documents, that is, to encourage the publication of data "other than ancient documents," so "data other than ancient documents" will be used.

"⑤ Findable" refers to designing a search system that allows users to find the data they need. A search function is a system installed in all digital archives. Therefore, "search by genre classification," which was implemented by 24 cases at this time, will be used as an item for advanced search functionality.

In "⑥ Usable," it is stated that "usability" is important, but overemphasizing usability can lead to an imbalance with improving site performance. In other words, for anything other than a simple web page, a certain level of skill is required on the user's part. In digital archives, there are many examples of setting up a "manual" to prepare for cases where users lack the necessary skills, and this was observed in 29 cases. Therefore, a "manual" is used.

As described above, we newly investigated five items: (① Special features, ② Local attractions, ③ Items other than ancient documents, ④ By genre, ⑤ Manual).

Table 1 summarizes the details of these survey results.

The overall results are shown in Table 5 (see Table 1 for detailed data).

Table 5: Newly added items and number of achievements (Unit: number of items)

① Feature	② Local attractions	③ Other than ancient documents	④ Genre classification	⑤ Manual
13/47	20/47	42/47	24/47	29/47

(Source) Created by the author

7.2 Recommendations for Newly Added Items

Based on the above research results, we would like to propose the following new items to be added to the Cabinet Office's "Digital Archive Assessment Tool": "8. Creation of Special Feature Pages: Create special feature pages using viewable data within the archive," "9. Promoting Local Charm: Not only providing unique local content, but also incorporating regional characteristics into the site design," "10. Inclusion of Content Other than Ancient Documents: Providing content that meets a wide range of needs," "11. Creation of Genre Classification and Search Functions: Enabling searching by various genre classifications, including the availability of digital viewing," and "12. Creation of an Operation Manual: Including necessary information so that anyone can use it" (see Figure 2).

Figure 2: Policy Recommendations (New items added to the Cabinet Office's "Digital Archive Assessment Tool")

Assessment Tools	Newly added items
1. Addressing the issue systematically 2. Organizing metadata 3. Creating and publishing content 4. Clearly stating the terms of secondary use 5. Utilizing it regularly and expanding activities 6. Managing it in a way that ensures sustainability 7. Providing it in a way that ensures interoperability	8. Creation of a special feature page 9. Promoting the local attractions 10. Inclusion of content other than historical documents 11. Creation of genre categories and search functions 12. Creation of an operation manual

(Source) Created by the author

8. Summary and Discussion

This research study targeted a total of 11 items: items 1-5 of the <Basic Items> and items I-VI of the <Utilization Items> of the Cabinet Office's "Digital Archive Assessment Tool." As a result, we made policy recommendations for five newly added items (① Special Features, ② Local Charm, ③ Content other than Ancient Documents, ④ Genre Classification, ⑤ Manual).

In the future, in order to more accurately analyze the current state of digital archives, it is necessary to conduct surveys including libraries other than prefectural libraries, and to collect and analyze not only objective data such as website pages and library policies and guidelines, but also subjective data such as interviews.

Furthermore, although this study focused on the digital archive assessment tool, it is unclear to what extent the assessment tool is actually being used. Therefore, it is impossible to predict how much effect can be expected by adding these items.

In this paper, we made policy recommendations for the addition of new items, but there is also the problem that the current assessment tool only classifies items into creation/preservation stages and utilization stages.

Therefore, we believe that it is necessary to develop a new assessment tool that further subdivides the items and hierarchically structures them according to each stage.

We hope that this paper will contribute, even in a small way, to the creation of higher-quality digital archives and, consequently, to the revitalization of social knowledge through their utilization.

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