

**Responding to the “Digital Era” at the National Archives of Japan  
— Toward the realization of comprehensive information services  
for historical public records and archives —**

Tetsuo Yokaichiya

National Archives of Japan

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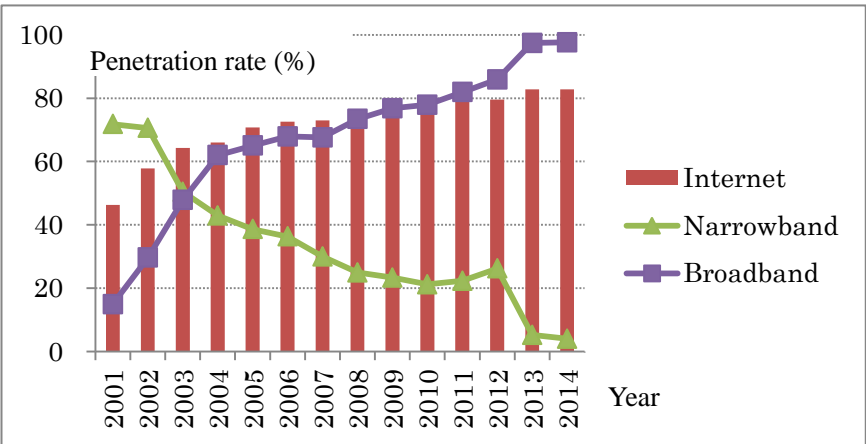
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1. Introduction

The theme of this year’s EASTICA conference is “Archives in the Digital Era: Revisited.” The “digital era” was triggered by the innovation “from atoms to bits”<sup>1</sup> that resulted from the revolution in information and communications technology at the beginning of the 21<sup>st</sup> Century. The emergence and spread of digital recording technology and media in place of paper was a change that had a decisive effect on archives. Fifteen years have now passed since this century began and broadband networks have spread throughout the world; people, things, and information are connected as never before. Information systems are being introduced into all aspects of people’s daily lives, as well as the activities of companies and public organizations, and irreversible digitalization of functions and activities is progressing throughout society.

Since the dawn of the digital era, the National Archives of Japan (hereinafter referred to as “NAJ”) has sought to address these changes. The NAJ was made into an incorporated administrative agency in 2001. In the same year, the Japan Center for Asian Historical Records (hereinafter referred to as “JACAR”) was established as an organization under the NAJ, and added momentum to the NAJ’s efforts. When JACAR first opened, the internet and broadband lines were still not commonly in use, but we launched new initiatives as a pioneer at the advent of the digital era. (Please refer to Figure 1 below for the internet penetration rates.)

Figure 1: Changes in the penetration rates for the internet and broadband lines in Japan



(Created by the author<sup>2</sup> based on results of the “Communications Usage Trend Survey” for each year by the Ministry of Internal Affairs and Communications)

In 2005, the NAJ began operation of the “National Archives of Japan Digital Archive” (hereinafter referred to as “DA”), which is a digital archive for all of the materials held by the NAJ. The NAJ holds the nation’s most important official documents such as the Constitution of Japan, as well as the Cabinet Library, which is a collection of books and materials collected by the Edo Shogunate (1603-1867) and the Meiji Government (1868-1912). The NAJ’s precious holdings that were previously difficult for public users to access became available through the DA via the internet, enabling users to benefit significantly from the digital era.

With each fiscal year, the NAJ and JACAR have increased the number of digitized images provided in their respective digital archives. On the basis of “at anytime, from anywhere, by anyone, freely, and with no charge,” the NAJ and JACAR ensure open access from inside and outside of Japan and provide services through the internet. They have also worked to promote and popularize use of the two digital archives by giving presentations at every opportunity both in Japan and in other countries.

In 2011, the “Public Records and Archives Management Act” (hereinafter referred to as PRAMA) (Act no. 66 of July 1, 2009) came into effect, and the NAJ began to provide new services under the newly established records management system. PRAMA stipulates that the NAJ is obligated to prepare and publicize a catalog of its holdings and to make efforts to “promote use.” Digital archives are positioned as a means of promoting use pursuant to this provision.

In the same year, the NAJ began accepting and preserving electronic public records and archives that had been electronically created, managed, and transferred. This was the first attempt to preserve electronic public records in Japan, and the NAJ launched a project to construct a management system for electronic public records and archives in light of research and reviews conducted by the government.

During the time that we were tackling the aforementioned challenges, digital technology was continuously developing, and we once again need to review the current situation to find a path for the future. I assume that the word “revisited” in this year’s title refers to the necessity for such review. In this report, I would like to look back over the measures taken by the NAJ to respond to the “digital era” and explore the current issues, initiatives, and direction for the future.

## **2. Developments Thus Far**

### **(1) The two digital archives at the National Archives of Japan**

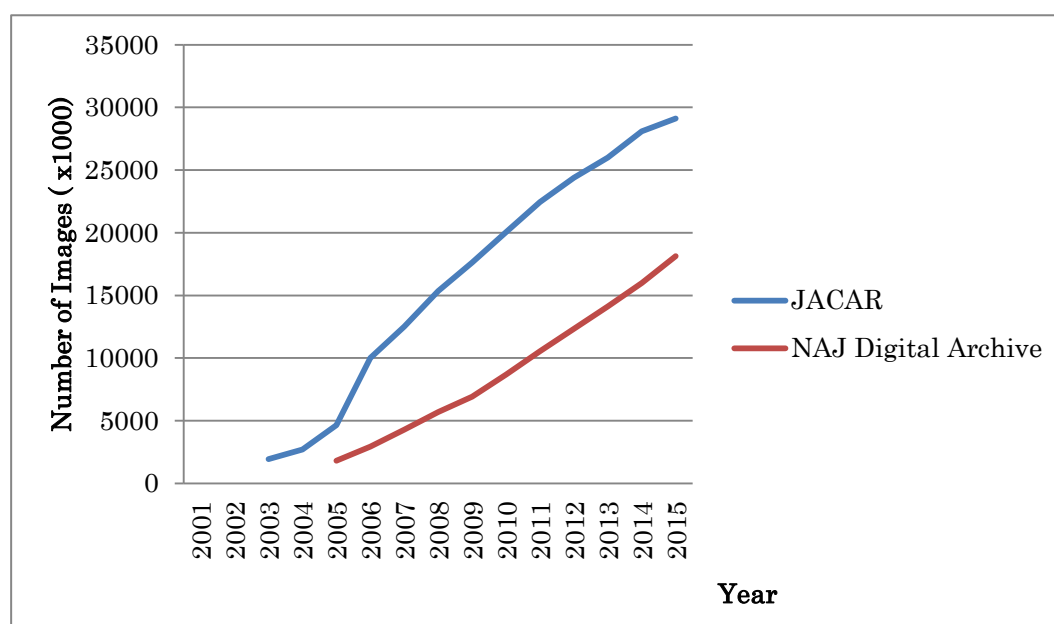
#### **A. The Japan Center for Asian Historical Records**

Since its establishment under the NAJ in 2001, JACAR has developed its digital archive and provided information via the internet. JACAR has been provided with digitized images of Asian Historical Records (documents and other records of importance as historical records concerning Japan's relationship with neighboring Asian countries in modern times) held by the NAJ, as well as the Ministry of Foreign Affairs' Diplomatic Archives and the Ministry of Defense's National Institute for Defense Studies. JACAR has actively worked to enhance the volume and quality of its data, create digital exhibition contents on its website and conduct promotion activities to publicize its work and promote use. As a result of such initiatives, traffic on its website from both inside and outside Japan has increased and there were approximately 510,000 hits last fiscal year.

In 2015, JACAR provided a cumulative total of 1,990,000 materials and 29,130,000 images on the internet (refer to Figure 2 below). In addition, for the purpose of expanding information provision, last fiscal year JACAR began a new service in collaboration with the University of the Ryukyus Library, to provide information on records held by using a data link to search the JACAR system and access image data from the library's system. This is one new attempt to collaborate with information systems provided by other organizations and further expand the information provided by JACAR.

Until now, JACAR has mainly provided materials from the early Meiji period to the end of World War II, but now JACAR is considering further expansion of its information provision, to include materials from the period after the war, to mark the passing of seventy years since the end of WWII.

Figure 2: Change in the number of digitized images provided by JACAR and DA (unit: 1,000 images)



#### B. The National Archives of Japan Digital Archive

In addition to the aforementioned initiative by JACAR, in light of Governmental IT strategies and suggestions by advisory panels of the Cabinet Office, the NAJ has started to develop a digital archive for all of its holdings. Since 2005, we have been operating the DA, which makes it possible to search the catalog of holdings and view digitized images via the internet. Every year we add catalog information for materials that have been newly transferred, while proceeding with the digitalization of our holdings and enhancing information available from the DA. As a result of such initiatives, the amount of traffic from both inside and outside of Japan has increased, and last fiscal year there were approximately 350,000 hits.

As of 2015, the DA provides internet-searchable catalog information on all 1,370,000 of the NAJ's holdings, while 10% of all the NAJ's holdings can be viewed on the internet, totaling some 18,130,000 digitized images of approximately 140,000 materials. These digitized images include the Constitution of Japan and official documents on the formulation of key national documents, laws and regulations, important cultural properties, as well as the "Cabinet Library" that was collected by the Edo Shogunate government and the Meiji government. These are now freely accessible from

Japan and other countries.

As mentioned above, since PRAMA came into effect in 2011, the DA is obliged to take appropriate measures in response to item 4 of Article 15 (Preservation of Specified Historical Public Records and Archives), which obliges us to make and publicize catalogs of specified historical public records and archives, as well as Article 23 (Promotion of Use) which stipulates that “the head of the NAJ, etc. shall actively endeavor to provide Specified Historical public Records and Archives...for public use through exhibitions or other means.”

## **(2) Digitalization of Holdings**

The NAJ has been creating digitized holdings while considering user needs, etc. For the digitizing, we have adopted a method of scanning microfilms that were created and accumulated as substitute materials for original. We use the international standard, JPEG2000, as the basic format. For preservation, we create reversible compression data and for provision on the internet we create irreversible compression data and PDF data. We preserve reversible compression data on optical disks in the Tsukuba Annex which is some distance from Tokyo, in preparation for future disasters.

Since 2012, we have adopted a new method of digitalizing paper materials by directly scanning using an overhead scanner. Since this has already been reported on, I will not discuss it in detail here, but in fiscal 2010 we compared the technical and expense merits and demerits of microfilming paper documents and digitizing and preserving them electronically, and we reached the following conclusions on future policy.<sup>3</sup>

- New adoption of digitalization by scanning paper materials with overhead scanner.
- Selection of media in accordance with conditions of preservation and frequency of use of original materials. The basic policy is to create substitute materials by digitalizing in the case that the condition of preservation is comparatively good.

As a result of adopting these digitalization principles, it became possible to create and provide full color, high resolution and high-quality digitized images that can digitally express even faded characters written in pen or pencil, the color of seals, and the texture of paper used.

Figure 3: Digitalization using an overhead scanner



### **(3) Promoting the development of digital archives at public archives nationwide and information-sharing among them**

The NAJ is also conducting an initiative to promote the development of digital archives in public archives across Japan and information-sharing among them. All the public archives face the common challenges of rapid progress in digitalization throughout society and the need for new responses. Local governments and local public archives are trying to better utilize information technology and improve convenience.

In addition, in order to realize a mechanism by which Japan's historical public records and archives can be ascertained, searched and used in a unified manner from anywhere in the country, it is necessary to develop digital archives at public archives, etc. From the perspective of ensuring interoperability, it is also essential to adopt standard technologies such as for digitalization of catalog data and image data.

However, while public archives, etc. are treating the response to computerization and digitalization as a subject for consideration, it is not easy for them to develop a digital archive because of insufficient knowledge and information on specific technologies. In light of this, in 2008,

the NAJ made its “Standard Specifications for Digital Archive Systems,” which summarized perspectives on the digitalization of catalog data, image data and the various functions of digital archive systems.<sup>4</sup> Since 2009, we have been providing this document to public archives, etc. and supporting them with technical assistance, such as by directly visiting public archives and having discussions on digital archives. As of 2015, there are system collaborations between the systems of nine archives and the DA. While progress is still only gradual, we are achieving outcomes from this initiative on technical assistance. Based on such initiatives by the NAJ, we hope to make progress in the development of digital archives and information-sharing among public archives throughout Japan.

#### **(4) Preservation and use of electronic public records and archives**

At the beginning of the “digital era,” the NAJ’s initiatives began with firstly digitalizing analog materials. At the same time, we also started to study from early period the preservation of public records and archives that were created electronically, so-called “born digital.” The fundamental perspectives listed below were pointed out in a report by the “Committee on Proper Management of Governmental Records including Proper Preservation and Use.”<sup>5</sup>

- The principle of preserving electronic records, without converting electronic media into non-electronic media
- Long-term preservation of the “essence” that is essential for sustaining the evidential value of electronic records
- For electronic records, it is necessary to manage the entire life cycle, from the time of creation to the stages of preservation and use.

In light of the aforementioned report, the Cabinet Office conducted and reported on demonstration experiments on possible formats and metadata for electronic records and identified operational challenges for tasks and systems. Based on the findings of this study, the Cabinet Office started to preserve electronic public records and archives from 2011, and presented the following policies.<sup>6</sup>

- Transfer: Transfer by transportable media such as CD-R, DVD-R, or HDD.
- Acceptance: Conduct quarantine process. In principle, transportable media are not preserved.



- Preservation: Convert to a long-term preservation format, and preserve.
- Use: Use through the DA (for public use)

Use through the Kasumigaseki WAN (governmental network) (for use by the organization that transferred it)

In 2010, the NAJ developed its “The System for Transferring, Preserving, and Using Electronic Public Records and Archives” based on the aforementioned national policies. Since April 2011, it has been operating that system and beginning to accept and preserve electronic public records and archives. As of 2015, although the number of transfers of electronic public records and archives is still a limited quantity compared to paper public records and archives, “born digital” is already being used in numerous situations in everyday life, as well as in national governmental organizations. Therefore, the importance of this system will almost certainly increase from now on, and we are working to accumulate experience and know-how in preparation for the future.

### **3. New Challenges and Initiatives**

#### **(1) Increasing efficiency and improving convenience of digital archives**

Since operation of the two digital archives in the NAJ began, we have been striving to improve their convenience, while renewing their respective equipment, etc. every five years. Key challenges that these two digital archives face in recent years are the further improvement of their convenience based on innovation using the latest information technology and services, and increasing the efficiency of overall operation costs for both systems. To address these issues, the NAJ has been studying and reviewing its systems since fiscal 2012. In fiscal 2013, we formulated the “Optimization Plan of Services and Systems for the Digital Archive System on National Archives of Japan,” based on the basic principles of further reduction of costs of the system as a whole and simplifying and streamlining operation and maintenance, by integrating the systems of the DA and JACAR.<sup>7</sup> In light of recent information technology developments, this plan aims to integrate the infrastructure foundations of the two systems, streamline the systems as a whole, and further improve convenience by responding to new metadata technologies and Web technologies. The main

points are as follows:

A. Maintain and improve convenience

- Strengthen mechanisms for providing Digital Information Resources

Respond to recent metadata technologies (such as “machine-readable,” etc.), tablet devices, and PDF format.

- Inform people about and publicize the Historical Public Records and Archives to make well-known and familiar

Respond to SNS (Social Networking Services)

- Introduce upgraded mechanisms to encourage further use

Download functions for high-definition image data

B. Reduce costs

- Reduce costs and streamline operations for the system as a whole by integrating common equipment that can be shared, such as hardware, software, and internet lines.

Based on this plan, we are now designing and developing a new system this fiscal year. However, the system integration under this plan is only for the integration of infrastructure, and the services of the two Digital Archives will continue to be separate and operated individually, the same as before.

## **(2) Further acceleration of the creation of digitized images**

At the NAJ, as a result of our efforts to create more digitized images of our holdings each year, as of 2015, approximately 10% of all of the NAJ’s holdings can be used on the internet. We will continue to work on creating digitized images, but for the near future, we will proceed mainly with the Cabinet Library materials, which are frequently used and for which there are concerns about damage or defacement of materials due to use of the originals. In particular, we would like to accelerate the digitalization of precious materials that are unique to the NAJ and that have a long and distinguished history, such as Momijiyama Bunko and Shoheizaka Gakumonjo, which are an essential part of our collection, to make it possible for users in Japan and other countries to use them via the internet. We also think that it is necessary to gradually proceed with the digitalization of major important cultural properties, materials that require repair, audio-visual materials, etc., on

which work has not progressed until now, due to the work burden and cost.

However, in order to proceed with such digitalization work, we need to enhance our work regime and facilities. In the case of digitizing by overhead scanning from paper, the work process is as follows: (a) check conditions of materials before beginning digitalization, (b) mend the materials if necessary, (c) make detailed catalog information, (d) scanning materials, (e) quality inspection, and (f) check condition of materials after work. In order to conduct such work processes in parallel, we need a sufficient organization and facility equipped with a wide work space for simultaneously conducting various processes, and personnel who have specialized knowledge and skills in preserving, repairing, digitalization, and deciphering the content of materials. Other essential components are the preservation, management, and ensuring the safety of original materials during the work period, and it is also important to ensure electricity and air conditioning capacity for the work space.

The NAJ is currently outsourcing to an imaging company that has specialists, scanners and work process knowledge, which conducts the aforementioned work as onsite work within the NAJ facilities. However, in order to further accelerate this work from now on, it is essential to secure work space and establish a work regime. In order to respond to the needs of users in Japan and other countries, we intend to address these tasks and devote further efforts to these initiatives.

### **(3) Promoting the development of digital archives, ascertaining the location of records and archives, and responding to new technology**

At the Annual Conference of the Directors of Public Archives<sup>8</sup> in June 2015, the fundamental perspectives on digitalization were summarized as follows: “Historical public records and archives are important records that should be preserved and used in the future as well. They are the “treasures” of each respective region. They are resources that will cultivate individuals’ attachment to their region, show and communicate the appeal of each region, and create new value.” The NAJ intends to continue to develop digital archives at public archives, etc. nationwide and to continue to work to promote information-sharing.<sup>9</sup>

There are two matters of debate in conducting such initiatives. The first is the purpose and method

of conducting information-sharing. In relation to this point, in its “Council for Reviewing and Studying the Future of the Functions and Facilities of the National Archives of Japan,” the Cabinet Office stated that promoting digital archives that are linked to collections of location information and other organizations is an “essential and important function” of the NAJ.<sup>10</sup> Since fiscal 2015, the NAJ began research to ascertain the locations of official documents and other records, as historical important public records, located in national government organizations, incorporated administrative agencies, local governments, and other private sector entities. We are studying and organizing tasks for realizing the integrated provision of such location information.

Another area of debate is technical issues. The latest information technology, such as “cloud” technology, for example, seems to present possibilities for lowering the difficulty level of tasks that were previously high “hurdles,” from the perspective of preparing a system related to digital archive and information-sharing and cost burden. One example is the case of multiple archives jointly developing a single system and individually providing services. According to this system model, it makes it possible to install a digital system under circumstances where advanced demands are made of operators and managers for knowledge of advanced technology on digital archives, responding to the various needs of users, such as tablet computers and SNS, and responding to the frequent occurrence of security problems. It is not easy to install and manage a system that can handle advanced high demands in current world. But a joint digital archive system with inter-archives represents a more achievable model and more realistic method.

The NAJ is currently examining this theme by considering the points mentioned above, toward the development of digital archives and information-sharing among public archives nationwide.

#### **(4) Toward appropriate preservation of electronic public records and archives**

Since we began preservation of electronic public records and archives in 2011, we have implemented the “The System for Transfer, Preservation, and Use of Electronic Records and Archives of Japan,” which is Japan’s first system for handling such work. In introducing this system, we carefully designed and developed the system based on the results of study and consideration by the Cabinet Office and advice from experts. Therefore, at present, we are conducting preservation

work such as acceptance, quarantine, conversion to a long-term preservation format, taking metadata, and long-term preservation appropriately with no critical problems.

One issue is that the number of transfers of electronic public records and archives is still limited. According to a report on management states of public records and archives in fiscal 2013 by the Cabinet Office, the number of administrative document files that are being retained is 15,280,000 files for governmental agencies as a whole, and of those 14,240,000 are files of paper records (93.2%) and 1,000,000 are files of electronic records (6.5%).<sup>11</sup> In addition, electronic records accounted for only 4.8% of all newly created records in fiscal 2013. From this, it can be seen that creation and management of digitalized documents at each governmental organization is still limited.

Nonetheless, the stability of electronic public records and archives for long-term preservation largely depends on whether they are appropriately created and managed at the stage of being current records.<sup>12</sup> Therefore, the NAJ aims to promote and disseminate understanding of electronic public records and archives by making use of opportunities such as employee training by governmental organizations, because it is important to have them understand the technical matters for creating and preserving electronic public records and archives. This initiative is imperative, and it is essential for appropriate preservation in the future that the people who create the current records have a deeper understanding of electronic public records and archives.

As mentioned above, we have a little more time before the fully-fledged, long-term preservation of electronic public records and archives begins in Japan. We would like to effectively utilize this time to ascertain the technology trends for long-term preservation in Japan and other countries, accumulate knowledge and know-how through our work on the current system, and work to build a foundation in order to fulfill our challenging responsibility.

#### **4. Conclusion**

I have provided an overview of the response to the “digital era” at the NAJ and also described our objectives for the near future, by indicating the major issues. In closing, in light of the discussion thus far, I would like to briefly discuss the direction for digital archives going forward.

The first point to make is the need to improve the quality and service level of information services overall. During the last decade, the NAJ has been putting efforts into accumulating “Intellectual Resources” by proceeding with the creation of fundamental catalog information and digitized images of materials. However, over the next decade it will probably be necessary to conduct more effective utilization of such accumulated “intellectual resources.” There are various possible methods for doing so, for example, providing not only basic catalog information but also more detailed catalog information, or developing new functions so that people can search for materials by theme or category. In addition, recently various information systems that produce and provide new information by system collaboration have emerged and it is necessary to ensure interoperability to respond to such new needs from other information systems and services.

The second point is the need to develop an information infrastructure for historical public records and archives. Creation of digital archives and information collaborations among public archives throughout Japan is essential not only for information-sharing in each region, but also for the development of an information infrastructure for historical public records and archives for Japan as a whole. In addition, to facilitate searching for information using the above infrastructure, it is also necessary to ascertain and organize the location information of materials, such as which archives hold the materials researcher want, which record group includes the materials, and whether or not there are other related materials, and to provide this information as a supporting tool for researchers.

In addition, there are many cases in which technologies and functions are shared among public archives. It has become technologically possible to develop an inter-archive shared digital archive system by using “cloud technology,” which is expected to produce cost-reduction effects. Further, in reality the requirements for information systems are extremely high, such as highly complicated and advanced information technology and security policies, and ensuring a backup system that is prepared for possible disasters, and it is not easy to continuously secure professionals who can handle such specialized work. For all these reasons, there are high expectations for the future development of an inter-archive shared information infrastructure.

To conclude, a digital archive makes it possible to share, both inside and outside Japan, and ensure free access to information about historical public records and archives, which are Japan’s important

“intellectual resources,” as an information infrastructure: “Japan’s comprehensive information services for historical public records and archives.” As a result of the development of similar kinds of infrastructure in public archives in the countries of EASTICA, it will become possible to transcend national borders and centuries and share the “intellectual resources” passed down by our predecessors in each country. Toward the realization of this, we look forward to cooperating with and exchanging knowledge and opinions with the staff of public archives and experts related to archives from each country, concerning issues related to the “digital era,” methods of responding such issues, and knowledge and techniques related to digital archives.

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1. See, Nicholas Negroponte, *Being Digital*, Alfred A. Knopf, Inc., 1995.
  2. See, “Communications Usage Trend Survey by the Ministry of Internal Affairs and Communications,” on the website of the Ministry of Internal Affairs and Communications, “Information and telecommunications database: Statistical survey data: Communications Usage Trend Survey: Press release materials,” viewed September 1, 2015.  
<<http://www.soumu.go.jp/johotsusintokei/statistics/statistics05a.html>>
  3. See, “Report on Review of Preservation Methods for Historical Public Records and Archives,” (March 2011, Council of Experts to Review Preservation Methods for Historical Public Records and Archives), viewed September 1, 2015.  
<<http://www.archives.go.jp/about/activity/pdf/hozonkentou.pdf>>
  4. See, “Standard Specifications for Digital Archive System at Public Archives” (partially revised in October 2012, the National Archives of Japan), viewed September 1, 2015.  
<[http://www.archives.go.jp/about/report/pdf/da\\_121210.pdf](http://www.archives.go.jp/about/report/pdf/da_121210.pdf)>
  5. See, “Report on Centralized Management in the Interim Stage and Management, Transfer, and Preservation by Electronic Records” (June 22, 2006, the Committee on Proper Management, Preservation and Use of Governmental Records), p.13, viewed September 1, 2015.  
<<http://www.archives.go.jp/about/report/pdf/kondankai14houkoku.pdf>>
  6. See, “Principles for Specific Methods of Transferring, Preserving, and Using Electronic Public

- Records and Archives,” (March 26, 2010; Records and Archives Management Division, Minister’s Secretariat, Cabinet Office), in “Collection of materials on Transfer of Public Records and Archives,” (May 2015, the National Archives of Japan), pp. 162-163, viewed September 1, 2015. <[http://www.archives.go.jp/about/report/pdf/h27\\_ikan\\_siryou.pdf](http://www.archives.go.jp/about/report/pdf/h27_ikan_siryou.pdf)>
7. See, “Optimization Plan of Services and Systems for the Digital Archive System on National Archives of Japan,” (March 13, 2014; decided upon by a Project Team for Optimization of Services and Systems at the National Archives of Japan), viewed September 1, 2015. <<http://www.archives.go.jp/information/pdf/saiteki1.pdf>>
8. The “Annual Conference of the Directors of Public Archives” has been held since 1989, for the purpose of smooth operation of the Official Documents Archives Act and appropriate preservation and use of official documents and other records that are important as historical materials with participation of directors of public archives that are established by national and local public organizations in Japan. It also holds discussions on issues faced by public archives to strive for mutually close cooperation among public archives. Since 2008, commemorative lecture meetings for “International Archives Day” have been held concurrently.
9. See, “Fundamental Perspectives for “Digitalization” in The 2015 Annual Conference of the Directors of Public Archives,” (June 9, 2015, Annual Meeting of the Directors of Public Archives), viewed September 1, 2015. <[http://www.archives.go.jp/about/activity/pdf/h27\\_kancho.pdf](http://www.archives.go.jp/about/activity/pdf/h27_kancho.pdf)>
10. See, “Suggestions to the Future of the Functions and Facilities of the National Archives of Japan (Investigative Report 2014),” (March 2015, the Council for Reviewing and Studying the Future of the Functions and Facilities of the National Archives of Japan (Cabinet Office)), p.3, viewed September 1, 2015. <<http://www8.cao.go.jp/chosei/koubun/kentou/26teigen.pdf>>
11. See, chart 2 in page 7, “About the State of Management, etc. of Public Records and Archives in fiscal 2013 (Conditions of Administrative Documents) (Conditions of Corporate Documents) (Conditions of Preservation and Use of Specified Historical Public Records and Archives),” (January 2015, Records and Archives Management Division, Minister’s Secretariat, Cabinet Office), viewed September 1, 2015.



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<[http://www8.cao.go.jp/chosei/koubun/houkoku/heisei25nendo\\_houkoku1.pdf](http://www8.cao.go.jp/chosei/koubun/houkoku/heisei25nendo_houkoku1.pdf)>

12. On the management of electronic public records as “current documents,” an expert on digital archives in Japan, Prof. Sugimoto, has pointed out the following as a task at the stage of managing current documents: “There are cases in which the original section in charge has to manage documents for thirty years, but ...it cannot be said that they have the experience to manage and preserve electronic public records and archives over such a long period.” He therefore points out the necessity for cooperation between the original section in charge and public archives. See, Shigeo Sugimoto, “Expectations and Tasks for Digital Archives - Aiming to Preserve Intellectual Resources that Surpass the Differences of Communities -,” *Archives* (No. 45, October 2011), viewed September 1, 2015.

<[http://www.archives.go.jp/about/publication/archives/pdf/acv\\_45\\_p36.pdf](http://www.archives.go.jp/about/publication/archives/pdf/acv_45_p36.pdf)>