DIGITAL PRESERVATION IN THE LIBRARY OF ECONOMIC AND BUSINESS FACULTY OF GADJAH MADA UNIVERSITY (FEB UGM) YOGYAKARTA

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ABSTRACT

Preservation is one of the main activities in the library. Today, there are many digital collections in library, so that need for an effort to preserve them. Every library has different policies to preserve the digital collections. The title of this paper is Digital Preservation in the Library of Economic and Business Faculty of Gadjah Mada University (FEB UGM), Yogyakarta. The purposes of this paper are; 1) to understand what the purpose of digital preservation in the library of FEB UGM, 2) to understand the process of digital preservation in the library of FEB UGM, 3) to understand any problem that inhibit in this digital preservation. The kind of this paper is a field research and uses description-analysis method. The data in this paper are collected by documentation. From this paper, the author is able to conclude that: 1) the purpose of digital preservation in the library of FEB UGM Yogyakarta is to provide the information in order to be used in the long time continuously, to maximize using collection to be used by patrons in the right time. 2) the process of digital preservation is using refreshing method. The digital preservation consist of selection of content, archival storage, and management metadata. 3) the problem that inhibit the digital preservation process is the copy right of the collection and the regulation of digital preservation activities. From this paper, the author is able to recommend that the library must to create the policy and it must be written in order to be used as a guidance and standardization for this digital preservation. In addition, the library staffs should make preservation activity as core or main activities like administrative activities. Then, the digital preservation activities should be managed by a professional staff that can operate the tool of technology.

Keyword: Digital Library, Collection, Preservation

A. INTRODUCTION

The existence of the information technology (IT) in the digital age gives a variety of convenience in all aspects of human life. With the help of information technology, in a matter of minutes and even seconds, the informations are already available and can be obtained. This ease is largely utilized by many people to ease their work. In the context of the library, the development of information technology has a positive impact on the ease of access to information in the library. Online Public Access Catalogue (OPAC) for example, before the OPAC, someone who wants to find a collection of books should look at the catalog card di-
rectly with coming to the library, then with the help of internet access that catalog can be viewed from anywhere and is not limited for space and time. Nowadays, many libraries are switching from conventional to digital library. They are vying with the maximum service of their digital collections. If we look for further, the digital collections are actually very prone to damage, whether due to a virus, human actions or even the development of the technology itself. Ironically, there are many libraries which do not predict these things, so that when the collections could not be opened or read, they are automatically considered to be damaged though they still contain the information which must be preserved. This is supported also by the ignorance of the applicable period (lifecycle) of the extent to which digital collections.

Gladney (2007: 1) says that "If all that information is worth creating in the first place, surely some of it is worth saving!" (If all information has a value that is valuable when created, of course, the information is also important to be saved). This is why digital preservation activities (digital preservation) absolutely carried out by the library as in line with the rule of library in Indonesia number 43 in 2007, on the third verse which explains that one of the functions of the library is preservation. Thus, the library must maintain and protect and also utilize the library materials (digital) to the maximum.

In connection with this, the author wants to examine the digital preservation process in the Library of Economic and Business Faculty (FEB) of Gadjah Mada University (UGM) Yogyakarta. This paper will present the results of the digital preservation process that has been done in the Library of Economic and Business Faculty (FEB), what the purpose is, the measures used, and any problems encountered. In this study, the author uses a descriptive approach to obtain a clear and intact illustration.

B. LITERATURE REVIEW

1. Digital Preservation

Basically, the digital preservation can not be separated from the digital collections in libraries. Lasa Hs (2009: 176) gives the definition of the word "collection" as all information in the form of paper, printed and / or recorded, in the various media which have educational value, which is collected, processed, and administered. As for digital collections, Online Dictionary for Library and Information Science (ODLIS), gives the definition of the digital collection as "A collection of library or archival materials converted to machine-readable format for preservation or to provide electronic access. Likewise, library materials produced in electronic formats, Including e-zines, e-journals, e-books, reference works published online and on CD-ROM, bibliographic databases, and other Web-based resources ".

Saleh (2010: 6-7) explains that there are several types of formats of digital collections, among other html or hypertext mark-up language, portable document format (PDF), Microsoft Word or MS-Word, Microsoft Excel, especially for text document. While the document images (graphics), usually in JPEG, GIF, etc. While the storage media for the digital or electronic collection is diverse. There are the internal hard drive of computer or external hard drive, diskette, CD or CD-ROM or DVD, and Flash disks. In fact, today's digital documents already stored virtually in the internet server.

Beside that, in the word of "preservation", Lasa (2009: 233-234) gives the definition as a processing system and protection of the library materials, and or a duty or work to repair, restore, protect, and care for the library materials, documentations, archives and also information materials as well as building a library also.

While the meaning of the digital preservation, McLellan (2011) defines it as "Planning for the long-term accessibility and usability of authentic digital information". A
similar definition can also be found in the *Dictionary of Information and Library Management* (2006: 58) which defines the digital preservation as “The act of preserving data by putting it into electronic form, which can be copied, stored and distributed easily without loss of quality”.

Hedstrom (1998:189) also explains that digital preservation as “the planning, resource allocation, and application of preservation methods and technologies to ensure that digital information of continuing value remains accessible and usable”.

Generally, the preservation activities have several purposes. According to Martoat-modjo (1993: 5), he says that the preservation activities have several purposes, these are:

a. Save the information values of the document
b. Save physique of the document
c. Overcome shortage of space
d. Accelerate the acquisition of information. The documents which are saved in a CD (*Compact Disc*) are very easy to be accessed, whether at close range or long range, even shared usage (sharing). Thus, the use of the document or the library materials is to be optimal.

Moreover, Sulistyo-Basuki (1991: 271) adds that the purpose of preservation of library materials and archives is to preserve the information contents of library materials and archives with over form by using other media or preserve their original form as completely as possible to be used optimally.

2. Digital Preservation Activities

There are two main concepts which be associated with the concept of preservation. The first is the premise of preservation, especially regarding what needs to be preserved and how to preserved. Second is a more definite link between the preservation of library materials with history and memory of the community (public), or the broader cultural heritage (Pendit, 2009: 110).

In the context of digital preservation, often requires two versions of the format for each digital object, which are the main version or the original (*master*) and its copy. The master data will be saved for the long term, while its copy is usually a copy and adapted to the user’s environment (Pendit, 2009: 116).

Pendit (2008: 252-253) explains that preservation activities in fact consists of several types of activities as follows:

1. The technology preservation in the form of a thorough treatment of all the hardware and software which be used to read or run a specific digital material.
2. Refreshing or updating by taking into account the age of the media, for example in the form of the transfer of data from one media to another media.
3. Migration and reformatting in the form of activities to change the configuration of digital data without changing its intellectual contents.
4. Emulation is the process of "refreshment" in the system environment. It means that, theoretically can be periodically re-making of the specific computer programs to continue to read the digital data which be recorded in various formats and different versions.
5. Digital Archaeology with the assumption that someday (sometime) there will be a special branch of science that concentrates on the digital media excavation to find out what is in it.
6. Converting the digital data into an analog, especially for digital materials that are difficult to be saved with all methods of the above.
Furthermore, one of standards that used in the digital preservation is the Open Archival Information System (OAIS) model. Open Archival Information System (OAIS) is a reference model for archiving communities and most of the archiving projects are based on OAIS models. Encyclopedia of Library and Information Science (second edition) explains that the Open Archival Information System (OAIS) is a conceptual framework for an archival system dedicated to preserving and maintaining access to digital information over the long run.

Pendit (2009: 26) explains that, in terms of the name of OAIS, it can be seen as an archival model and emphasis on conservation or preservation function. However, archiving and preservation here are not only to save, preserve or maintain the form, but make sure that the information is always available to be used as long as possible.

OAIS has some components which include; 1) ingest, 2) archival storage, 3) data management, 4) access, 5) administration and preservation planning. Furthermore, the foundation of an OAIS is the Information Package (IP), consisting of a digital objects and their associated metadata. IP variants, based on its lifecycle, include Submission Information Package (SIP), Archival Information Package (AIP), and Dissemination Information Package (DIP). In the SIP, the digital object package is sent to the archive by the information producer. Than in the AIP, contains all of information needed in order to preserve the digital object, and in the DIP, the user will receive the metadata of digital objects that preserved.

![Diagram of OAIS model]

Note:
SIP: Submission Information Package
AIP: Archival Information Package
DIP: Dissemination Information Package

C. RESEARCH METHODOLOGY

The kind of this paper is a field research. The Methodology is a qualitative method. The qualitative method used to know the process of digital preservation in the Library of FEB UGM based on the OAIS (Open Archival Information System) model. The data in this paper are collected by documentation and interview. The data are analyzed use the description-analysis method. In this case, researcher analyzes the data based on digital preservation process in the library of FEB UGM. The data are that evaluated will be presented in narratif description.
D. DISCUSSION
1. Profile of Library of Economic and Business Faculty (FEB) UGM Yogyakarta

The Library of Economic and Business Faculty of Gadjah Mada University (UGM) is one of the supporting units for faculties and students activities in the Faculty of Economic and Business (FEB), Gadjah Mada University, as an implementation of *Tri Dharma Perguruan Tinggi* such education and learning, research, and public services, especially in economic and business fields (accountant, management, and economics). The library existence is support the vision and mission of FEB and UGM, especially to become an international research university.

This library is located at Jl. Humaniora No. 01, Bulaksumur, Yogyakarta. The library was built in 1955 that located in UGM central building (Balairung) namely ‘Library of Economic Faculty’. At that time, the head of the library is Prof. Dr. Sukadji Ranuwiharjo, MA. In 2007, the library name changed from “Library of Economic Faculty” to the 'Library of Economic and Business Faculty’, following the changing of the name of the new faculty.

The name of the head of the library’s departments, as follows:
1. Prof. Dr. Sukadji Ranuwiharjo, MA (1955-1960's)
3. Drs. Widodo (1975-1983)
9. Maryatun, S.E., M.A. (March 2013- present)

The library has two locations that are Unit 1 (located at the first floor, on the north side of undergraduates program building) and Unit 2 (located at the first floor of the doctoral and graduates program building). Library Unit 1 is special for administration, membership and circulation services (books collection). Furthermore, this unit is supplied with several support facilities: internet access, multimedia, The Asian Development Bank (ADB) corner, reading rooms, and discussion. While the Library Unit 2 is special for periodicals, references and theses collections services. This unit is supplied with several support facilities: multimedia, internet access, reading rooms and discussion.

The library has more than 25,000 exemplar of printed collections in various types such as textbook (monograph), journals, magazines, newspapers, serials, other periodicals, and research publications. In addition, it has thousands collections on digital formatted, especially books supplement, statistical data, journals, and the new one is theses (undergraduates and graduates theses) since 2006. All of digital collections are stored in CD/DVD media, but in 2008 the library provide a web application to access abstract and full text, called EBDL (economics and business digital library). Then, in 2008, all of theses collections have changed to digital formatted ([www.lib.feb.ugm.ac.id/profile](http://www.lib.feb.ugm.ac.id/profile)).

2. Digital Collection of Library of FEB UGM

Based on data, the library of FEB UGM has a number printed collection of approximately 25,000 copies consisting of text books, journals, magazines, periodicals and research reports. In addition, the library also has a digital collection comprising thousands of books supplement, statistics, and research reports (thesis, thesis) which can be accessed through
a Economic Business Digital Library (EBDL). The detail of the digital collections of library of FEB UGM, in 2014, are:

<table>
<thead>
<tr>
<th>No</th>
<th>Collection Type</th>
<th>Title</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thesis (Undergraduate)</td>
<td>4495</td>
<td>4495</td>
</tr>
<tr>
<td>2</td>
<td>Thesis (Postgraduate)</td>
<td>3374</td>
<td>3374</td>
</tr>
<tr>
<td>3</td>
<td>Dissertation</td>
<td>102</td>
<td>102</td>
</tr>
<tr>
<td>4</td>
<td>CD-ROM (Book Supplement, ICMD)</td>
<td>512</td>
<td>1013</td>
</tr>
</tbody>
</table>

| Amount | 8483 | 8984 |

From this data, it shows that the total number of digital collection of library of FEB UGM amounts to 8984 copies, and 8483 title.

3. Digital Preservation

The Dictionary of Information and Library Management (2006: 58) gives a definition of digital preservation as “the act of preserving data by putting it into electronic form, which can be copied, stored and distributed easily without loss of quality”. The Digital Preservation in the Library of FEB UGM is a responsibility of library materials processing division. The processing division does not only to process the library materials processing but also must ensure that collection is available. Which meant available also include the provision of information can be accessed and used in the long term.

3.1 The Purposes of Digital Preservation

The digital collection or digital materials on Library of Economic and Business Faculty (FEB) UGM consisting of two varieties:

a. Digitized collection material (transformed into digital). This collection is a result of digitalization process in the Library of FEB UGM since 2012. The materials existed form a thesis, dissertation and some of articles in the mass media.

   b. Born digital. This collection include a Compact Disc (CD), ebook, the researching of the lecturer, and a thesis and dissertation that starting on 2008 period.

Based on the data of the research, in the period of 1990s, so many collections which destroyed without any attempt to rescuing this collection. This is the policy of the Dean of the Faculty of Economic dan Business. The reason is the limited space in the library to store that collections. Then in 2008, there is a new policy from the Dean of the Faculty of Economic dan Business that every university student who wants to graduation has to give their thesis or dissertation on the digital format on the Compact Disc (CD). The reason is to saving the stored space in the library. Eventhough, the library FEB UGM still gives the services for accessing printed collection of the thesis and dissertation. Then on 2012, the Library of FEB UGM execute the digitalization of the thesis and dissertation on the printed format which started form the 1998-2001 period.

From the data, the purposes of digital preservation in the library faculty of FEB UGM is keep information in order to be used continuously for the long time. Cause, the digital collection is very sensitive to damage, for example by virus on computer or the broken of storage media. This purpose is suitable with the functions of library are to educating; researching; preserving; information; and recreation (The rule of Library in Indoensia, number 43 in 2007). It regulation explains the one of library function is a preservation.
As what Gladney (2007: 1) said that "If all that information is worth creating in the first place, surely some of it is worth saving!". In this condition, the Library of FEB UGM preserves the information because the information value that includes in the digital collection. Absolutely, in order to the information that contains in the digital collection can be used in the long time continuously.

Subsequently, the second purpose of the digital preservation in the Library of FEB UGM is to give the best service of accessing information. The digital collection gives the opportunity to increase the quality of services in the library for accessing information. Every users can use the collection or information in the right time. Thus, every information in the digital collection must be preserve to keep the information is available to access.

### 3.2 Selection of Content

There are an ever growing number of digital collections in the Library of FEB UGM. So it is essential to decide upon the preservation priorities of the specified collection which should be preserved. The selection process is done by holding discussions with librarians, lecturers, students, and all of staffs in faculty. From the results of these discussions will be known types of information that should be given priority in digital preservation.

In determining the content that should be preserved, there are some criteria which specified by the library division of FEB UGM, namely:

1. Digital Collections must have academic and research value. For example: thesis, dissertation, handbooks, and other
2. Digital Collections should contain updated information. For example: statistical data
3. Digital collections support the learning process in FEB UGM

Referring to the OAIS standard, digital preservation can be started with the Submission Information Package (SIP), which is derived from the producer. This submission, in addition carried out independently by the library of FEB UGM, also formed a partnership with either individually or by the college to obtain digital content, such as theses, dissertations, university publications, faculty papers, proceedings, seminar or workshop materials, students’ research paper, and others. In this case, the submission is done by an electronic receipt (electronic submission) for example through email, computer networks, digital media transfer (transfer of digital media) (CD / DVD, flash drive, external hard drive, etc).

While the submission by digitization is done by the library of FEB UGM encompasses scanning materials with the scanner tools, creating the highest quality, and then stored in a computer before being distributed.

Once digital content is selected and received from the producer, the digital content will be in ingest through two stages, namely data management and archival storage. As for the ingest process in digital preservation in the library of FEB UGM carried out into FEB Repository named Economic Business Digital Library (EBDL). EBDL is a Open Source Software for building the digital library and repository that named original “Ganesha Digital Library (GDL)” This software developed by the Knowledge Management Research Group (KMRG) Institut Teknologi Bandung (ITB).

### 3.3 Archival Storage

In the OAIS, archival storage included in the Archival Information Package (AIP). In AIP, all digital content should be ensured to be stored and well maintained for long time conservation interests. For example, for storing digital content in image format using TIFF, while for the document or slide presentation using the PDF format.

In this case, archival storage also serves to keep the digital content in the long time. This archival storage relates to the selection of digital content formats. Preferable, the digital
content is stored in the highest quality that can be used in the long term. So that, it is necessary to digital preservation with a variety of procedures, such as technology preservation, refreshing, migration and re-formatting, emulation, etc.

The strategy which undertaken by the library of FEB UGM of doing digital preservation is by refreshing. Simply, refreshing can be defined as treatment with examining media age, so that need for transferring data from one form of media to other media. Refreshing is done by copying digital files from one storage medium to another medium. For example, from CD to Flash Drive.

For the first time, digital files created in derivative versions of the copy. Digital files of digitization are made available in PDF format and be copied. The original file from digitization is used as backup material. The original file be burnt to DVD and stored in a special cupboard which equipped with air conditioning (AC) to make it more durable. In addition, the files are stored in the DVD should be created in metadata by using computer, so that it will be easily found when the process of backup data is required. The selection of DVD storage media is due to the greater storage capacity than a CD.

Meanwhile, the copy of the PDF file is uploaded into the server of EBDL. The files that uploaded are managed and created its metadata in order to facilitate the process of retrieval. Periodically, the librarian replaces the existing digital files in server with a digital file that was previously used for backing up. The goal is to ensure that the digital files can always be accessed and used by users.

The born digital files which are stored on CD, such as thesis from students of university, the file will be copied to computer and uploaded in to server in EBDL. The, the CD that contains digital files will be stored into a special supboard which equipped with air conditioning (AC) like a DVD that contains the digitization files. However, bot of them are placed in different board.

3.4 Metadata

Basically, the existence of metadata is closely related to the digital collection. In digital preservation, the existence of metadata greatly assists these activities. Because, through this metadata, the information records of a digital object can be found from the time of manufacturing until the lifecycle of digital object.

In OAIS, metadata management is included in the Archival Information Package (AIP) and become one of the functions of data management. Metadata here is not only descriptive metadata, but also administrative metadata. The existence of such metadata does not only assist in the process of information retrieval, but also helps in digital preservation activities. The existence of this metadata contains the information which needed to manage and preserve a digital object for long time.

Metadata management also includes metadata preservation itself. Metadata preservation will also assist in the management of data and access to the digital object itself. The metadata management of digital objects in the library of FEB UGM is automatically included in EBDL itself. In addition, metadata management is also carried out by staff with the help of a computer to the digital files stored on the CD / DVD. The preserved metadata includes descriptive and administrative metadata.

From this metadata, it can be seen when a digital object is created and who is the producer, so it can help the preservation activities. With this metadata, the staff can determine when a digital object must be refreshed periodically to ensure that digital objects can be used or accessed for a long time.

The digital objects in the library of FEB UGM can be accessed through EBDL that became the repository of FEB UGM. In OAIS, the existence of a digital object access by the
consumer or the visitors is the end of the archiving process which includes in the Dissemination Information Package (DIP).

3.5 Problems of Digital Preservation

The problem of digital preservation is a complex problem. Digital preservation could not be equated with the preservation of printed collection. There are some problems in the process of digital preservation at Library of FEB UGM. The problems are:

1. Copyright

   In the Library of FEB UGM, some digital collection, especially in the Economic Business Digital Library (GDL) is only can be access with local network. It is mean that digital collection in the Library of FEB UGM can not access from the outside of library. Copyright is one of the aspect that consideration of this policy. This policy is protect a plagiarism in the Faculty of Economic and Business UGM Yogyakarta.

2. Regulation

   In the process of digital preservation, there is no specific regulation that written as a mutual instruction or guidelines. Beside that, the digital preservation has not become a regular or main activities in the Library of UGM. So, this digital preservation run only rudimentary and without specific reference and standarititation.

3.6 Recommendation

From the discussion, the author gives some recommendations for the development of digital preservation activities in the Library FEB UGM:

1. Recommendations for Library

   The library needs to make the guidelines and standardization of digital preservation activities. With the standard instructions and procedures, the preservation activities will be controlled and easy to be evaluated. Furthermore, all the digital information in the library should be access optimally and flexibly accessible in the right time.

   Furthermore, the Library needs to evaluate the performance of EBDL. In this case, the researcher suggest the other Open Source Software such as DSpace or Eprints that more support to preservation activities.

2. Recommendations for library staffs

   Library staffs should make preservation activity as core or main activities like administrative activities. In addition, the digital preservation activities should be managed by professional staff that can operate the technology. Moreover, the head of the library should develop the digital preservation activities into the library policy, especially in the maintenance of digital collections or digital material.

E. CONCLUSION

In the digital age, many libraries provide source of information in a digital format. when it seen further, digital collections are very vulnerable to damage. however, in some libraries, digital preservation still not a major activity in the library. this is due to lack of knowledge that the digital collection is very vulnerable to damage either due to a virus or human activities. Therefore, digital preservation should start in the library to prevent any damage to the collection as well as to maintain the continuity of information.

Implementation of digital preservation in the library is not a simple problem. There are some problem lies in the implementation. eg copyright, lack of support equipment and the lack of regulation of the existence of digital preservation in the library so that there is no ba-
sic instructions on the implementation of digital preservation. This causes the digital preservation process runs without any definite standard.

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