

Ecosystem Climate and Digital Library Transformation at Indonesian Agency for Agricultural Standardization (IAAS)

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Article history:

Received: 2023-09-06 Accepted: Settings 2023-11-09 Published: 2024-04-01

Abstract

Libraries as information resource centers certainly have librarians/library managers who can manage and serve the community in a valid and up-to-date manner. Librarians in the era of the digital ecosystem are expected to be able to accelerate themselves to become an integral part of providing optimal service to users. The purpose of the study is to determine the ecosystem climate and digital library transformation at the Indonesian Agency for Agricultural Standardization (IAAS). The study was designed in a qualitative descriptive manner using a survey method of librarians/library managers totaling 39 respondents. Data were collected and analyzed using the standard deviation in Microsoft Office Excel 2010 with the implementation of the July 2022 – June 2023 study. The results of the study showed that the majority of librarians/library managers were men aged 25-50 years with a Strata 1 education level. The level of understanding of librarians/library managers regarding digital knowledge is high but the level of embedded knowledge is low. The climate of the digital transformation ecosystem is still at the processing stage in compiling e-catalogues, bibliographies and indexes in the online library master catalogue, but library websites, mobile apps, databases and cloud computing are still at the Developing stage. Library digital transformation activities are faster in transformation at the collecting stage, namely collecting and sorting collections according to commodity subjects which are the duties and functions of each library within the IAAS scope. Technological advances, it is hoped that librarians/library managers will be more literate and more innovative in the future development of digital libraries.

Keywords: ecosystem; transformation; digital library; librarian; library manager; IAAS

INTRODUCTION

In the era of globalization, information is growing very rapidly and has become a major human need. The library is a means of providing information, required to provide various kinds of information in accordance with the development of science and the needs of users. The library is a place for searching and collecting information, therefore the library is required to provide the latest and complete collection according to the needs of the user. Information has become a necessity for everyone, because with information new knowledge can be obtained so that it can be used as material for decision making.

Libraries are institutions that manage collections of written works, printed works, and/or recorded works in a professional manner with a standardized system to meet the educational, research, preservation, information, and recreational needs of users (UU No. 43 of 2007). Article 3 of Law Number 43 of 2007 concerning Libraries stipulates that the function of libraries is as a vehicle for education, research, preservation, information and recreation to enhance the intelligence and empowerment of the nation based on the principles of lifelong learning (life long education), democracy, justice, professionalism, openness, measurability and partnership (Bondar, A. 2015)

Libraries consist of several types, namely national libraries, school libraries, college libraries, public libraries, etc. One type of library that is often encountered in everyday life is a special library. According to Law no. 43 of 2007 a special library is a library intended for users in a limited way in government institutions, community institutions, religious educational institutions, houses of worship, or other organizations. Special libraries are in great demand because the types of collections meet and support the information needs of the organization where the library is located. Articles 25 and 26 state that special libraries provide library materials according to the needs of users and provide services within their environment and outside their environment on a limited basis (Perpusnas RI, 2007).

In presenting information to users, libraries can present and manage this information properly, so that users can use and utilize information effectively and efficiently. Management of information in the library will develop if it is supported by work, talent, creativity, and encouragement of good human resources.

Technological developments in libraries and so that librarians are not disrupted must carry out transformations with smart thoughts and actions towards library 4.0, and keep up with web 4.0 developments (Rumani, 2018; (Wahid Nashihuddin; Fajar Suryono, 2018). According to Noh (2015); (Prasetyo, 2019) the development of library

4.0 is focused on utilizing digital technology that is interconnected in social communities by paying attention to aspects of developing environmentally friendly digital technology, such as makerspace, google glass, digitization, big data, cloud computing, and augmented reality. In this case, librarians need prepare knowledge and skills in information technology and communication that are more competent in their fields (Azmar, 2018).

The library as a center for information resources certainly has librarians who can manage and serve the community in a valid and up-to-date manner (Astika & Sholihah 2018). According to Astika & Sholihah (2018) that the readiness of librarians to face an increasingly broad information age and encroach on people's lives needs to know what kind of position should be applied in the information technology era.

The digital ecosystem is a source of information technology that is useful and interrelated as a complete unit between systems and other sub-systems. As for the benefits of the digital ecosystem, one of them is faster in adopting information technology; the ability to develop new resources significantly; and lower processing and shipping costs.

Library transformation is defined as not only dealing with quantitative changes (rooms, books, collections) but also touching on what fundamental changes are made and how to do them in business processes (Irhamni, 2018). Santi (2014) states that a transformed library must seize new opportunities by adding value to the library itself, being able to follow the flow of development, expansion and innovation so that it is attractive to visit. Library transformation can be carried out in terms of library functions, librarians (HRD), library programs, library services and library facilities.

Pendit (2017) stated that library transformation also concerns the professionalism of librarians, they must transform first. Meanwhile, Santi (2014) said that library transformation must be able to improve the quality of library services.

Librarians in the era of the digital ecosystem are expected to be able to accelerate themselves to become an integral part of providing optimal service to users. The librarian acts as a library partner in carrying out search activities in a fast, precise and accurate manner. According to Bondar, A. (2015) that the factors causing low library utilization are the implementation of information technology in libraries that have not comprehensively answered the needs of users; and the human resources of the librarian staff who are not yet prestigious.

According to Jonak Tukatzs, *et al* (2016); (Agus Utomo; Hery Ipung Sri Purwanti, 2020) that a librarian must have digital knowledge and skills, including internet capabilities, so that this librarian is able to manage a digital library.

The results of research by Nurfadhila & Mayesti (2021) show that the Ministry of

Agriculture Library can carry out various strategies, namely collecting collections for repository content using the concept of independent archiving, collection collection procedures are carried out by providing operational access to the publication fields of each Work Unit/Technical Service Unit within the scope of Ministry of Agriculture. Obstacles and obstacles in developing repositories at the Ministry of Agriculture are written policies and regulations, human resource motivation, non-uniformity of metadata, and organizational structure (Nurfadhila & Mayesti, 2021).

Based on the background and problems, the aim of the study is to determine the ecosystem climate and digital library transformation seen from the Level of Understanding of the Digital Library Ecosystem and Digital Library Transformation within the scope of the Indonesian Agency for Agricultural Standardization (IAAS).

METHOD

The study was designed as a quantitative descriptive survey using a descriptive survey method. The population is IAAS librarians/library managers using the survey method totaling 39 respondents. The selected respondents represent the IAAS scope library through data collection techniques by distributing online questionnaires using the Google Form application; as well as literature studies related to the purpose of the study. Data were collected and analyzed quantitatively and qualitatively. Categorization uses a Likert scale level 4, namely strongly agree, agree, disagree and disagree. Data were analyzed using descriptive analysis and standard deviation. With the standard deviation, one can give an idea of the quality of the sample data he obtained and determine the average using Microsoft Office Excel 2010 and the study was carried out in Jakarta with an implementation time of July 2022 – June 2023.

RESULT AND DISCUSSION

The development of digital libraries has a major impact in terms of service. Librarians can serve the needs of users quickly, precisely and efficiently and must adapt to developments in information technology. With the involvement of librarians in service activities, they must have competence and skills in working so that they can provide excellent service. Based on the descriptive analysis, the characteristics of the librarian/library manager respondents showed that the age of the majority of the male respondents was 25-50 years old with a strata 1 education. The full characteristics of the respondents are presented in table 1.

Table 1. Characteristics of IAAS librarian/library manager respondents

No.	Characteristics of Respondents	Total	%
1.	Age		
	>50 years	15	38,46
	25-50 years	24	61,54
	<25 years	0	0
2.	Gender		
	Man	25	64,10
	Woman	14	35,90
3.	Level of Education		
	S2	2	5,13
	S1	19	48,72
	Diploma	18	46,15

Sources: Authors, 2023 (edited)

Level of Understanding of the Digital Library Ecosystem

Digital transformation certainly cannot be separated from digital activities, at the present time it is a necessity and is a form of evolution. Even in the 2015 United Nations Sustainable Development Goals (SDG) program the emphasis is on technology and connectivity. When talking about technology and connectivity issues, it will indirectly lead to internet technology that already exists and is used by many people (SDGS.un.org 2021; (Kristophorus Hadiono; Hari Murti; Rina Candra Nur Santi, 2021).

The existence of a digital ecosystem makes it easier for libraries to manage and service users to obtain the information needed and the library to become a center for various changes in the field of information and communication technology. Information services are required to be fast, precise, easy, inexpensive and comfortable to the public without having to come directly by utilizing information technology through literacy access to the digital library ecosystem. Library managers must have internet-based information technology capabilities in responding to the digital era so that information management units can participate and be directly involved in the digital ecosystem and are able to understand the behavior and information needs of the users served.

The digital library ecosystem has various advantages, namely the ability to provide, organize, store, manage and disseminate and preserve information. But the progress and demands of the times should not have an impact on digital library management itself. In this context, that digital library seeks to share information with

users who need it.

Before designing and applying the development of a digital library, first analyze the needs of the users with the conditions of the users served. This is done mainly to find out what information is needed and the results of the analysis will later influence the design of the model to be implemented providing space that will provide opportunities for users to access information.

The digital ecosystem in this study adopts digital library transformation from an embedded knowledge point of view; knowledge integration, knowledge digitization and data visualization (Kristophorus Hadiono; Hari Murti; Rina Candra Nur Santi, 2021). Based on the analysis, it was found that the librarian/library manager's level of understanding of digitized knowledge was high with an average of 3.08 but embedded knowledge had a low standard deviation of 0.17 in the sense that librarians/library managers had digitization knowledge but the level of embedded knowledge was still low. Based on a qualitative analysis of the results of interviews with IAAS librarians/library managers that digitizing libraries is very good to do so that efforts to maintain the existence of libraries can be more advanced by transferring print collections into digital form all library collections in an era of increasingly developing information technology. According to response, digitization is an activity of preservation, storage efficiency, and ease/speed of information services to serve as a means of disseminating information so that it can be found more quickly and transform printed and analog library materials into digital formats for the benefit of access and preservation. The level of understanding of IAAS librarians/library managers of the digital library ecosystem is in table 2.

Table 2. Level of understanding of IAAS librarians/library managers of the digital library ecosystem

No.	Level of Understanding	Scale	Average	Standard deviation
1.	Embedded Knowledge	1-4	2,97	0,17
2.	Knowledge Integrity	1-4	2,72	0,47
3.	Knowledge Digitization	1-4	3,08	0,35
4.	Data visualization	1-4	2,82	0,40

Sources: Authors, 2023 (edited)

Library Digital Transformation within the Scope of IAAS

Libraries viewed from the perspective of civilization are reliable information management and have gone through various evolutions and stages from manual

management, automation to digital libraries. It is hoped that innovation in libraries will continue and be able to respond to developments in information technology, especially the era of the industrial revolution 4.0, which produces a variety of services such as internet-based services, cellular, artificial intelligence to big data. Several aspects are carried out in the digital transformation activities of the IAAS scope of the Library, namely Collecting; processing; Serving, Preserving, Developing, and Accessing. The digital transformation process gives rise to the emergence of digital format maturity which can be seen from the impact and readiness, as well as the challenges of changing or being run over by an organization (Kristophorus Hadiono; Hari Murti; Rina Candra Nur Santi, 2021).

Susanti (2018) stated that the transformation of today's librarians must be able to become facilitators who can facilitate network access, and be able to manage and design web pages, act as database managers, collaborators, policymakers who can participate and develop information policies in an organization.

The results of the climate analysis in table 3 conclude that the IAAS library in digital transformation is still at the *Processing* activity stage with a mean of 2.79, whereas through the standard deviation test obtained at the *Developing* activity stage it is 0.47. This means that the library within the IAAS scope of transformation is still at the *processing* stage, such as compiling e-catalogs, bibliographies and indexes in the online library master catalogue, but the library *websites*, *mobile apps* and *cloud computing* are still at the development stage. Currently the IAAS library covers 96.87% of 64 Work Units/Technical Service Units that have used OPAC in an automated and integrated manner at <http://kikp.pertanian.go.id> using the Inlislite 3.0 application. (PUSTAKA, 2022). Based on interviews with librarians, it was concluded that the development of libraries in digital transformation is very important in terms of technological advances and focuses on developing infrastructure (IT development) and human resources to make them more digitally literate and to innovate even more in the future development of digital libraries.

In table 3 it is also found that among the six digital transformation activities of libraries within the scope of IAAS, the transformation that is faster is at the *collection* stage with an average of 2.67, which means that librarians/library managers in *collection* activities are collecting and sorting collections in accordance with commodity subjects which are the duties and functions of each IAAS library. The scope of agricultural subjects includes four main commodities, namely food commodities, plantations, horticulture and livestock (Nurfadhilah & Mayesti, 2021). Complete details of library digital transformation activities including IAAS are presented in Table 3.

Table 3. Library Digital Transformation Activities within the scope IAAS

No.	Transformation Activities	Scale	Average	Standard deviation
1.	<i>Collecting</i>	1-4	2,67	0,58
2.	<i>Processing</i>	1-4	2,79	0,51
3.	<i>Serving</i>	1-4	2,62	0,51
4.	<i>Preserving</i>	1-4	2,50	0,56
5.	<i>Developing</i>	1-4	2,63	0,47
6.	<i>Accesing</i>	1-4	2,30	0,72

Sources: Authors, 2023 (edited)

According to a statement (Agus Utomo; Hery Ipung Sri Purwanti, 2020) high access to digital information requires librarians to innovate, increase competence in the field of technology and work efficiency to facilitate data exchange services, communication and uniformity of information. Based on the results of Siregar study (2012) the University of North Sumatra (UNS) digital E-Repository ecosystem describes interactions between librarians and UNS library users and users outside the library via Facebook, Twitter and Flickr as well as interactions between users and USU's E-Repository via the link contained in OpenDOAR, Wordcat, Driver, IESR, ROAR and DOAJ.

CONCLUSION

The climate of the digital library ecosystem within the IAAS scope shows that the level of understanding of librarians/library managers regarding digital knowledge is high but the level of embedded knowledge is still low. In the IAAS scope of digital library transformation activities, it is still at the *processing* stage, such as compiling *e-catalogs*, bibliographies and indexes in the online library master catalog, but the library *website*, *mobile apps*, *database* and *cloud computing* are still at the *Developing* stage.

Library digital transformation activities are faster in transformation at the collecting stage, namely collecting and sorting collections according to commodity subjects which are the duties and functions of each library within the IAAS scope. For technological advances in libraries within the IAAS scope, it is hoped that librarians/library managers will be more literate and more innovative in the development of digital libraries in the future.

ACKNOWLEDGMENT

Infinite thanks go to the librarians and library managers within the IAAS scope who have participated in filling in the study data, so that the study manuscript can be completed.

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