Khizanah al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, & Kearsipan
p-ISSN: 2354-9629
e-ISSN: 2549-1334
Volume 11 Issue 2, December, 2023

Development Analysis of Institutional Repository Website in the West Nusa Tenggara: Webometrics Study

Ridwan[1]

[1]Library Study Program, Muhammadiyah University of Mataram, Indonesia
Correspondence email: ridwanr320@gmail.com

Notes

This paper was presented at the "Hybrid International Conference on Library and Information Science" held by the **Asosiasi Penyelenggara Pendidikan Tinggi Ilmu Perpustakaan dan Informasi (APTIPI)** in collaboration with **Program Studi Ilmu Perpustakaan, UIN Alauddin Makassar** on October 25th, 2023 with the theme: *"Fostering the Alignment of Teaching, Learning, and Field Experience to Build Competencies in Library & Information Science Education"*

How to cite: Ridwan. (2023). Development Analysis of Institutional Repository Website In the West Nusa Tenggara: Webometrics Study. Khizanah Al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan, 11(2). Retrieved from https://journal.uin-alauddin.ac.id/index.php/khizanah-al-hikmah/article/view/44036

DOI: 10.24252/kah.v11i2cf5

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ABSTRACT

The global proliferation of institutional repositories has garnered significant attention, particularly from research-intensive institutions. This trend is crucial for effectively storing, disseminating, and providing access to copious research and scientific output, benefiting both the academic community and society. In Indonesia's research history, repositories have been extensively explored, with a focus on comprehensive research across the country's repositories. This study specifically analyzes institutional repositories in eight West Nusa Tenggara universities. Its objective is a quantitative depiction of higher education institutional repositories in West Nusa Tenggara, utilizing webometrics indicators. This descriptive quantitative research employs a webometrics study with data collected through observation and documentation. The analysis relies on webometrics indicators: Size (S), Visibility (V), Rich File (R), Scholar (Sc), and Weighting. The study showed that Mataram University's institutional repository secured the top webometrics ranking, excelling in Size (S), Visibility (V), and Scholar (Sc). Muhammadiyah University of Mataram follows, securing second place, while Mataram State Islamic University (UIN) claims third. Gunung Rinjani University's institutional repository in East Lombok ranks last among the eight repositories analyzed.

Keywords: Webometrics; institutional repository; digital library

1. INTRODUCTION

Current developments in academics, science and information technology have resulted in libraries being required to make innovations or changes in providing services to users. The presence of a library as a center for information and knowledge in higher education must be

able to support the institutional mission as reflected in the Tri Dharma of Higher Education, namely education, research and community service. The information needs of the higher education academic community are very diverse and the need for libraries to develop the services available to them is increasing. Information technology is one of the solutions used by libraries to meet library needs. Thus, the current library model is a library model that focuses on services for users to make it easier to get the information they want in accordance with developments in information technology.

An institutional repository is a database and also part of a library service that collects, processes, stores, indexes, preserves and disseminates the results of a university's scientific research in digital form and can be accessed online Barton & Waters (2004:10) in (Asmad et al., 2018). The development of institutional repositories throughout the world has attracted attention, especially for institutions that produce a lot of research and scientific work. This has a direct impact on management and governance strategies so that work can be stored, disseminated and accessed by the academic community and society in general. The history of research development in Indonesia, the subject of repositories has been widely published, especially research involving all repositories in Indonesia such as the results of research that has been carried out Farida et al (2015) in (Asmad et al., 2018) by title - *A Concept Higher Education Model of Open Access Institutional Repository in Indonesia Academic Libraries: Viewed from Knowledge Management Perspective,*

Meanwhile, the number of universities in West Nusa Tenggara based on the Ministry of Research and Technology's Higher Education Database and the ministry of religion's database is 61 universities consisting of 17 university levels, 3 institutes, 30 high schools, 1 polytechnic and 10 academy levels. From the university data, no one has conducted research related to the development of institutional repository websites in West Nusa Tenggara. So this research needs to be developed through development research with different concepts and research methods and focuses on analyzing the development of institutional repositories in West Nusa Tenggara Province. Through this research, the impact of the development of repositories in universities in West Nusa Tenggara Province on scientific communication can be seen directly and can ultimately contribute to decision making regarding the condition of Institutional Repositories in West Nusa Tenggara Province.

The focus of this research is analyzing 17 university-level institutional repository websites in West Nusa Tenggara, from the results of data obtained from the Higher Education Database of the Ministry of Research and Technology and the Ministry of Religion database, as follows:

Table 1. List of Universities in West Nusa Tenggara

No	University Name
1	Mataram University
2	Mataram State Islamic University
3	Muhammadiyah University of Mataram
4	Mahasaraswati University Mataram
5	Al-Azhar Islamic University, Mataram
6	University 45 Mataram
7	Nahdlatul Wathan University, Mataram
8	Mount Rinjani University, Lomtim
9	Samawa University Sumbawa Besar
12	Sumbawa University of Technology
13	Nahdlatul Ulama University, West Nusa Tenggara
14	Hamzanwadi University, East Lombok
15	Qamarul Huda Badaruddin Bagu University
16	Mandalika Mataram University of Education
17	Bumigora University

Table 1 above shows that there are 17 universities that are objects for analysis and deeper observation regarding the development of institutional repositories in West Nusa Tenggara.

The background explained above gives rise to several main problems in this research and is formulated in several points, namely 1) How to analyze the visibility indicators for institutional repository websites at universities in West Nusa Tenggara, 2) How to analyze the size of institutional repositories at universities in Nusa Tenggara. West, 3) How to analyze the Rich File indicator for institutional repository websites at universities in West Nusa Tenggara, 4) How to analyze the Scholar indicator for institutional repository websites at universities in West Nusa Tenggara, and 5) How to analyze the webometrics ranking of institutional repository websites at universities in West Nusa Tenggara.

In general, the aim of this research has been stated in the background above, however the aim in detail is related to the results of this research to obtain a quantitative picture of the condition of higher education institutional repositories in West Nusa Tenggara Province using webometric indicators. The benefit obtained from this research is that it serves as a reference for universities that want to develop their institutional repositories. Apart from that, this research is also useful as information for library managers, especially university libraries, about the extent of their role in supporting higher education webometrics rankings.

2. METHODS

This research uses a descriptive quantitative type of research by conducting webometrics studies in the field of social sciences, the types of research that exist tend to be quantitative in nature. This research will describe the analysis of webometrics indicators on higher education institution repository websites in West Nusa Tenggara Province.

The population in this research is 17 higher education institutional repository websites in West Nusa Tenggara. The sampling technique uses purposive sampling with the following sampling criteria:

1) University level universities in West Nusa Tenggara which have institutional.
2) Repository websites of higher education institutions indexed by Google and Google Scholar.
3) Institutional repository websites that are not in error (maintenance) conditions during data mining.

In accordance with the explanation of the criteria for determining the sample above, the sample used in this research will be determined during the observation process in accordance with the data collection technique used.

Data collection techniques are the most strategic step in research, because the main aim of research is to obtain data. Without knowing data collection techniques, researchers will not get data that meets the set data standards. The data collection techniques used in this research as follows.

1) Observation. Observations are carried out by monitoring and analyzing search results on webometrics indicators systematically and using existing indicator standards. Data generated from each webometrics content indicator (size, visibility, file quality, and scholar) on the institutional website is processed through a search engine and normalized.

Table 2. List of Institution Names and its Repository Websites

No	Institutional Repository	Repository Websites
1	Mataram University	http://eprints.unram.ac.id/
2	Mataram State Islamic University	http://repository.uinmataram.ac.id/
3	Muhammadiyah University of Mataram	https://repository.ummat.ac.id/
4	Al-Azhar Islamic University, Mataram	http://repository.unizar.ac.id/
5	Nahdlatul Wathan University, Mataram	http://repository.unwmataram.ac.id/
6	Mount Rinjani University, East Lombok	http://repository.ugr.ac.id:1015/
7	Hamzanwadi University, East Lombok	http://eprints.hamzanwadi.ac.id/
8	Bumigora University	http://repository.universitasbumigora.ac.id/

Source: Processed Data 2023

Table 2 above shows the results of observations on institutional repository websites from 17 universities in West Nusa Tenggara that meet the requirements to be the object of this research, only 8 universities.

2) Documentation. Documentation is carried out by collecting secondary sources related to the integrity of the study, so that you can compare the content between the two universities and find out the strengths and weaknesses of each. This is considered important because the results of this research can be useful information for other institutions who want to develop their website repositories and obtain the best rankings at national and international levels, as well as webometrics repository rankings in 2023 for institutions in the West Nusa Tenggara region.

Meanwhile, the data analysis technique uses indicators from webometrics, namely Size (S), Visibility (V), Rich File (R), Scholar (Sc) and Weighting, Isidro F, Et all (2010) in (Qurotianti, 2019).

Table 3. Query Webometrics Indicators on Search Engines

Indicator	Search Engine	Query
Size (S)	Google	Site:L
Visibiliti (V)	Majestic SEO	L
Rich File (R)	Google	Site:L filetype:f*
Scholar (Sc)	Google Scholar	"L"

Notes:

- L is the link address or domain of the institutional repository website
- F* is the file format that will be searched for like, pdf, doc/docx, dan ppt

The data analysis used in this research is distribution-free or non-parametric statistics, because the data analyzed is the ranking of institutional repository websites in ordinal form. Non-parametric statistics are used to analyze nominal and ordinal data that do not need to have a normal distribution (Sugiyono, 2010).

Data analysis used in this research uses webometrics indicators explained by Isidro F, et. al. (2010), as follows.

1) Size (S)

Determining the Size (S) indicator is the number of institutional repository website pages that have been indexed by the Google search engine. Once it is successfully identified, it will be normalized using a formula:

$$N(S) = \frac{Log(Sa + 1)}{Log(Max(Si) + 1)}$$

Notes:

N(S)	=	Normalized value of the indicator Size (S)
Sa	=	Number of institutional repository website pages obtained
Max (Si)	=	The highest Sa number of all repository websites institution

2) Visibility (V)

The Visibility indicator (V) is used to determine the number of external links that an institutional repository website has that is accepted by the number of domains from the search engine, namely MajesticSEO, and the results obtained will be normalized using the formula:

$$N(V) = \frac{Log(Va + 1)}{Log(Max(Vi) + 1)}$$

Notes:

N(V)	=	Normalized value of the indicator Visibility (V)
Va	=	Number of search results on MajesticSEO
Max (Vi)	=	The highest number of Va of all institutional repository websites

3) Rich File (R)

Rich File (R) aims to determine the amount of content in institutional repositories in Adobe Acrobat (.pdf), Microsoft Word (.doc), and Microsoft Power Point (.ppt) formats that has been indexed by Google. Calculation of the number of Rich Files (R) uses the following formula:

$$N(R) = {}^{1}/_{2} * (pdf + doc + ppt)$$

Notes:

N(R)	=	Value of Rich File (R)
pdf	=	Number of Rich Files in .pdf format indexed by the Google search engine
doc	=	Number of Rich Files in .doc format indexed by the Google search engine
ppt	=	Number of Rich Files in .ppt format indexed by the machine google search

In determining the N(R) value, the total number must be divided by 3 so that the value obtained is the average of the total number of four file types or formats searched. Next, it will be normalized using a formula:

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)}$$

Notes:

N(R)	=	Normalized value of the *Rich File (R*) indicator
Ra	=	The average number of the four file types or formats searched
Max (Ri)	=	The number of Ra is the highest of the four types or file formats searched from all institutional repository websites

4) Scholar (Sc)

The aim is to determine the number of scientific publications from institutional repository websites that have been indexed in the Google Scholar database and the search results will be normalized using a calculation formula:

$$N\ (Sc) = \frac{Log(Sca + 1)}{Log(Max(Sci) + 1)}$$

Notes:

N(V)	=	Normalized value of the Scholar (Sc) indicator
Sca	=	Number of search results on Google Scholar
Max (Vi)	=	The highest number of SCAs of all institutional repository websites

5) Weighting

This botting aims to determine the total value of the webometrics ranking. After knowing the results of the values of the four indicators, weighting is carried out using a calculation formula:

$$\boldsymbol{W = (10\%xS) + (50\%xV) + (10\%xR) + (30\%xSc)}$$

Notes:

S = Normalized value of the Size indicator
V = Normalized value of the Visibility indicator
R = Normalized value of the Rich File indicator
Sc = Normalized value of the Scholar indicator

3. RESULTS AND DISCUSSION

The results of the analysis based on webometrics indicators, Size (S), Visibility (V), Rich File ®, and Scholar (Sc) carried out on eight institutional repository websites are presented in the following table.

Table 4. Data Mining Results from Each Webometrics Indicator on Eight Institutional Repository Sites

No	Institutional Repository	Indicator					
		V	S	R			Sc
				Pdf	Doc	Ppt	
1	Mataram University	10.847	62.000	17.800	0	0	26.000
2	Mataram State Islamic University	992	16.100	4.600	0	0	4.730
3	Muhammadiyah University of Mataram	1.516	17.300	7.860	0	0	4.670
4	Al-Azhar Islamic University, Mataram	2	777	264	0	0	190
5	Nahdlatul Wathan University, Mataram	6	2.260	1.610	0	0	483
6	Mount Rinjani University, Lomtim	19	1.870	964	0	0	0
7	Hamzanwadi University, East Lombok	203	4.360	468	0	0	1.530
8	Bumigora University	1.183	1.640	816	0	0	716

Source: Processed data for 2023

Data Mining Results for Size (S) Indicators on 8 West Nusa Tenggara Institutional Repository Websites

In accordance with the data displayed in table 4, namely the results of data mining from search engines, then normalization calculations will be carried out for each indicator. The image below shows the results of data mining for the Size (S) indicator in 8 West Nusa Tenggara institutional repositories.

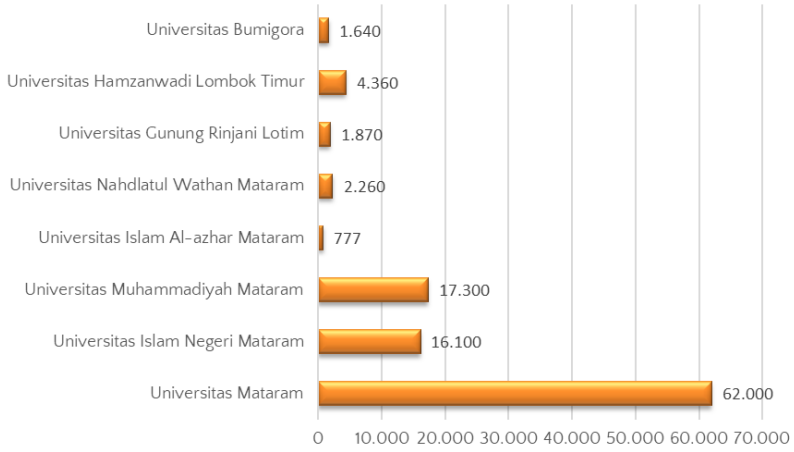

Figure 1. Data Mining Results for Size (S) Indicators on Eight West Nusa Tenggara Institutional Repository Websites

Figure 1 above shows the query results for the Size (S) indicator from 8 West Nusa Tenggara institutional repository websites. Mataram University repository website has the highest value compared to other repository websites and will be used as the maximum value in the Size indicator normalization process, namely 62,000. Thus, normalization for each size indicator can be obtained, as follows:

1) Normalization of the Size (S) Indicator on the Mataram State Islamic University (UIN) repository website.

$$N\ (S) = \frac{Log(Sa+1)}{Log(Max(Si)+1)} = \frac{Log(16.100+1)}{Log(62.000+1)} = \frac{4{,}207}{4{,}792} = 0{,}878$$

2) Normalization of the Size (S) Indicator on the University of Muhammadiyah Mataram repository website.

$$N\ (S) = \frac{Log(Sa+1)}{Log(Max(Si)+1)} = \frac{Log(17.300+1)}{Log(62.000+1)} = \frac{4{,}238}{4{,}792} = 0{,}884$$

3) Normalization of the Size (S) Indicator on the Al-Azhar Mataram Islamic University repository website.

$$N\ (S) = \frac{Log(Sa+1)}{Log(Max(Si)+1)} = \frac{Log(777+1)}{Log(62.000+1)} = \frac{2{,}891}{4{,}792} = 0{,}603$$

4) Normalization of the Size (S) Indicator on the Nahdlatul Wathan Mataram University repository website.

$$N\ (S) = \frac{Log(Sa+1)}{Log(Max(Si)+1)} = \frac{Log(2.260+1)}{Log(62.000+1)} = \frac{3{,}354}{4{,}792} = 0{,}699$$

5) Normalization of the Size (S) Indicator on the Gunung Rinjani Lotim University repository website.

$$N\ (S) = \frac{Log(Sa+1)}{Log(Max(Si)+1)} = \frac{Log(1.870+1)}{Log(62.000+1)} = \frac{3{,}272}{4{,}792} = 0{,}683$$

6) Normalization of the Size (S) Indicator on the Hamzanwadi University East Lombok repository website.

$$N\ (S) = \frac{Log(Sa+1)}{Log(Max(Si)+1)} = \frac{Log(4.360+1)}{Log(62.000+1)} = \frac{3{,}639}{4{,}792} = 0{,}759$$

7) Normalization of the Size (S) Indicator on the Bumigora University repository website.

$$N\ (S) = \frac{Log(Sa + 1)}{Log(Max(Si) + 1)} = \frac{Log(1.640 + 1)}{Log(62.000 + 1)} = \frac{3{,}215}{4{,}792} = 0{,}671$$

From the results of the normalization calculation for the Size (S) indicator above, the results will then be displayed in diagram form so that they can be understood and compared with each other, as follows:

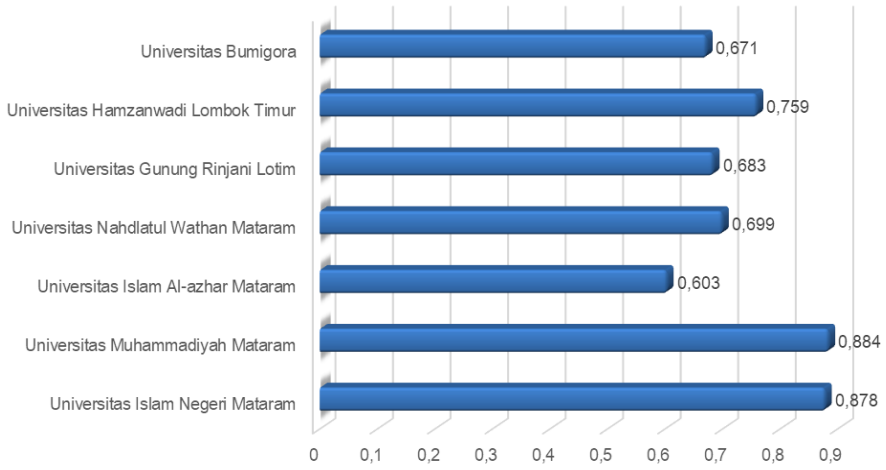

Figure 2. Normalization Calculation Results of the Size (S) Indicator on the Repository Websites

Figure 2 shows that from the results of the normalization calculation of the Size (S) indicator on the West Nusa Tenggara Institution Repository Website, it is known that the value of the Size (S) indicator belonging to Mataram University received the highest score with 62,000 pages and was ranked first. This proves that the dissemination of information through the Mataram University institutional repository is higher than other higher education repositories. Meanwhile, the institutional repository of Muhammadiyah University of Mataram was ranked second with a normalized value of 0.884 from a total of 17,300 pages.

The Mataram State Islamic University institutional repository was ranked third with a normalized value of 0.878 from a total of 16,100 pages. Meanwhile, the one ranked last out of 8 institutional repositories is Al-Azhar Islamic University, Mataram, with a Normalization value of 0.603 from a total of 777 pages.

Results of the Visibility Indicator (V) on 8 West Nusa Tenggara Institutional Repository Websites

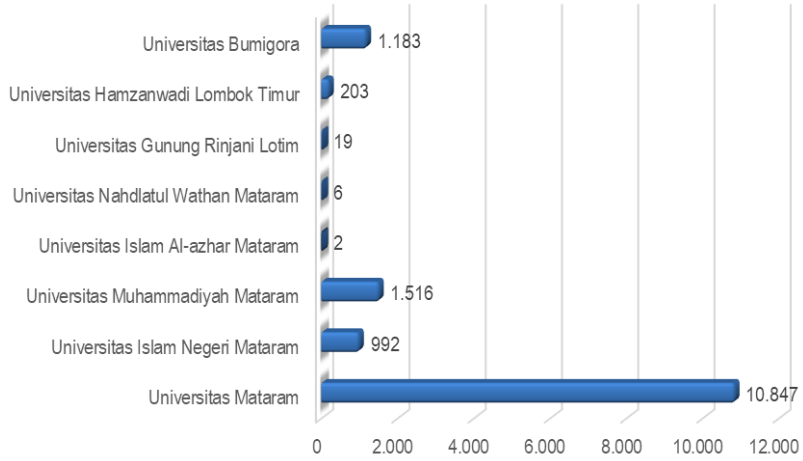

Figure 3. Results of Data Mining for Visibility Indicators (V) on Eight Institutional Repository Websites

Figure 3 above shows the query results for the Visibility (V) indicator from 8 West Nusa Tenggara institutional repository websites. The Mataram University repository website has the highest value compared to other repository websites and will be used as the maximum value in the normalization process for the Visibility (V) indicator. namely 10,847. Thus, normalization for each Visibility (V) indicator can be obtained, as follows:

1) Normalization of the Visibility (V) Indicator on the Mataram State Islamic University (UIN) repository website

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(992+1)}{Log(10.874+1)} = \frac{2{,}997}{4{,}036} = 0{,}743$$

2) Normalization of the Visibility (V) Indicator on the Mataram Muhammadiyah University repository website.

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(1.516+1)}{Log(10.874+1)} = \frac{3{,}181}{4{,}036} = 0{,}788$$

3) Normalization of the Visibility (V) Indicator on the Al-Azhar Mataram Islamic University repository website.

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(2+1)}{Log(10.874+1)} = \frac{0{,}477}{4{,}036} = 0{,}118$$

4) Normalization of the Visibility (V) Indicator on the Nahdlatul Wathan Mataram University repository website.

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(6+1)}{Log(10.874+1)} = \frac{0{,}845}{4{,}036} = 0{,}209$$

5) Normalization of the Visibility (V) Indicator on the Gunung Rinjani Lotim University repository website.

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(19+1)}{Log(10.874+1)} = \frac{1{,}301}{4{,}036} = 0{,}322$$

6) Normalization of the Visibility (V) Indicator on the Hamzanwadi University East Lombok repository website.

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(203+1)}{Log(10.874+1)} = \frac{2{,}309}{4{,}036} = 0{,}572$$

7) Normalization of the Visibility (V) Indicator on the Bumigora University repository website.

$$N\ (V) = \frac{Log(Va+1)}{Log(Max(Vi)+1)} = \frac{Log(1.183+1)}{Log(10.874+1)} = \frac{3{,}073}{4{,}036} = 0{,}761$$

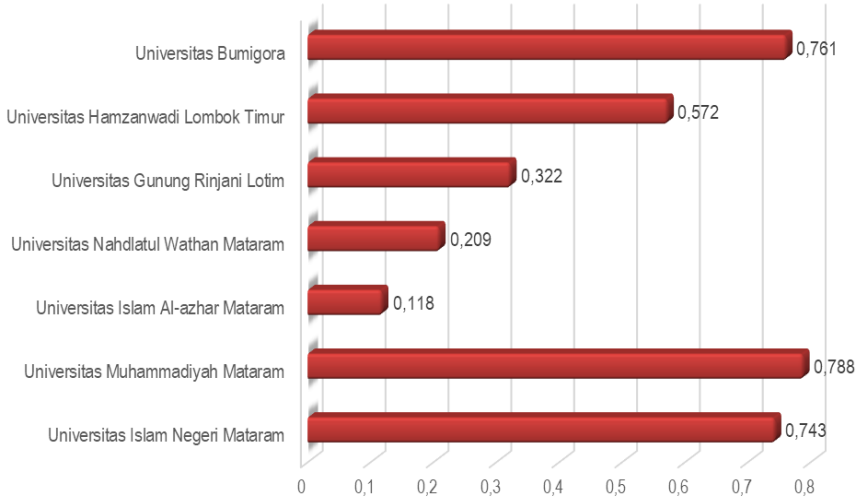

Figure 4. Calculation Results of Normalization of Visibility Indicators (V) on Eight Institutional Repository Websites

Figure 4 above shows that from the results of the normalization calculation of the Visibility (V) indicator on the West Nusa Tenggara Institution Repository Website, it is known that the Visibility (V) indicator value for the Mataram University institutional repository has the highest value of 10,847 pages. The institutional repository of the Muhammadiyah University of Mataram was ranked second with a normalization result of 0.788 from a total of 1,516 pages. Bumigora University's institutional repository is ranked third with a normalization result of 0.761 from a total of 1,183 pages. Meanwhile, the last ranking of the 8 institutional repositories in West Nusa Tenggara is Al-Azhar Islamic University Mataram with a normalization result of 0.118 with a number of pages of 2.

Rich File (R) Indicator Results on Eight Institutional Repository Websites

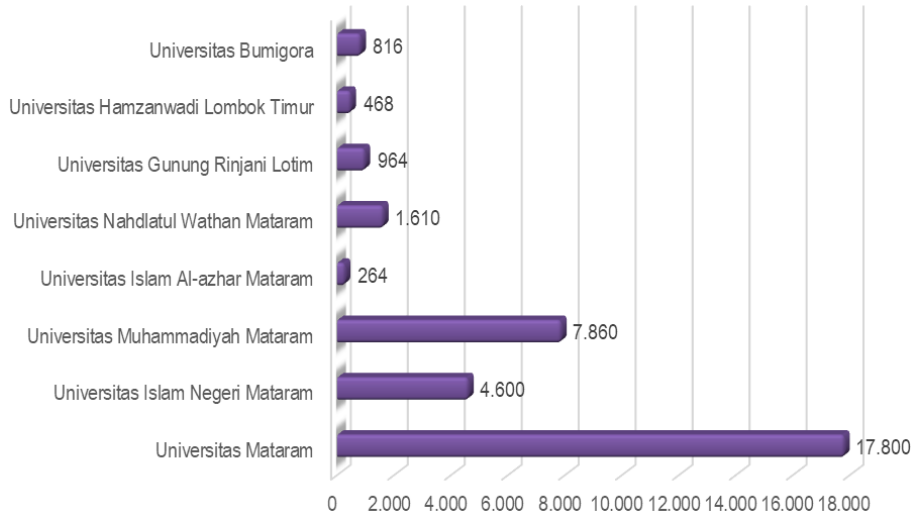

Figure 5. Results of PDF type Rich File (R) Indicator Analysis on Eight Repository Websites

Figure 5 above shows the query results for the Rich File (R) indicator in pdf format, while the Rich File (R) format .doc and .ppt from all 8 institutional repository websites in West Nusa Tenggara yielded no search results. From the results of the search query, the Rich File (R) indicator in pdf format for the Mataram University repository website has the highest value compared to other repository websites and will be used as the maximum value in the normalization process for the Rich File (R) indicator, namely 17,800. Thus, normalization for each Rich File (R) indicator can be obtained, as follows:

1) Calculation of Normalization of Rich File (R) Indicator Data on the Mataram State Islamic University (UIN) Website Repository.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(4.600 + 1)}{Log(17.800 + 1)} = \frac{3{,}662}{4{,}250} = 0{,}860$$

2) Calculation of Normalization of Rich File (R) Indicator Data on the Website Repository of Muhammadiyah University of Mataram.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(7.860 + 1)}{Log(17.800 + 1)} = \frac{3{,}895}{4{,}250} = 0{,}906$$

3) Perhitungan Normalisasi Data Indikator Rich File (R) pada Wesite Repository Universitas Islam Al-azhar Mataram.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(264 + 1)}{Log(17.800 + 1)} = \frac{2{,}423}{4{,}250} = 0{,}570$$

4) Calculation of Normalization of Rich File (R) Indicator Data on the Nahdlatul Wathan Mataram University Repository Website.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(1.610 + 1)}{Log(17.800 + 1)} = \frac{3{,}207}{4{,}250} = 0{,}755$$

5) Calculation of Normalization of Rich File (R) Indicator Data on the Gunung Rinjani University Repository Website.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(964 + 1)}{Log(17.800 + 1)} = \frac{2{,}985}{4{,}250} = 0{,}702$$

6) Calculation of Normalization of Rich File (R) Indicator Data on the Hamzanwadi University Repository Website.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(468 + 1)}{Log(17.800 + 1)} = \frac{2{,}671}{4{,}250} = 0{,}628$$

7) Calculation of Normalization of Rich File (R) Indicator Data on the Bumigora University Repository Website.

$$N\ (R) = \frac{Log(Ra + 1)}{Log(Max(Ri) + 1)} = \frac{Log(816 + 1)}{Log(17.800 + 1)} = \frac{2{,}912}{4{,}250} = 0{,}685$$

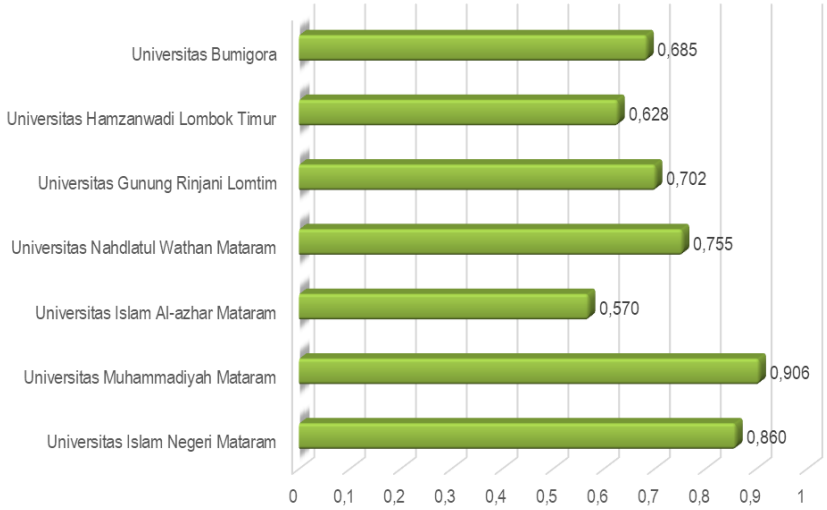

Figure 6. Calculation Results of Normalization of the Rich File (R) Indicator on Seven Institutional Repository Websites

Figure 6 above shows that from the results of the normalization calculation of the Rich File (R) indicator on the West Nusa Tenggara Institution Repository Website, it is known that the Rich File (R) indicator value for the Mataram University institutional repository has the highest value of 17,800 Rich Files in pdf format. The institutional repository of Muhammadiyah University of Mataram was ranked second with a normalization result of 0.906 from a total of 7,860 Rich Files (R) in pdf format. The Mataram State Islamic University institutional repository is ranked third with a normalization result of 0.860 from a total of 4,600 Rich Files (R) in pdf format. Meanwhile, the last ranking of the 8 institutional repositories in West Nusa Tenggara is Al-Azhar Islamic University Mataram with a normalization result of 0.570 from a total of 264 Rich Files (R) in pdf format.

Scholar Indicator (Sc) Results On Ten West Nusa Tenggara Institutional Repository Websites

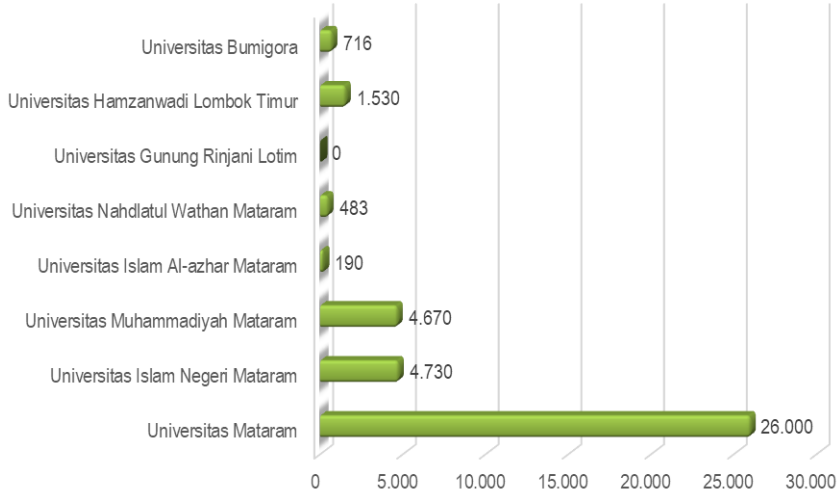

Figure 7. Results of Scholar (Sc) Indicator Analysis on Eight Institutional Repository Websites

Figure 7 above shows the query results for the Scholar (Sc) indicator from 8 West Nusa Tenggara institutional repository websites. The Mataram University repository website has the highest value compared to other repository websites and will be used as the maximum value in the normalization process for the Scholar (Sc) indicator. namely 26,000. Thus, normalization for each Scholar (Sc) indicator can be obtained, as follows:

1) Mataram State Islamic University.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(4.730 + 1)}{Log(26.000 + 1)} = \frac{3,675}{4,415} = 0,832$$

2) Muhammadiyah University of Mataram.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(4.670 + 1)}{Log(26.000 + 1)} = \frac{3,669}{4,415} = 0,831$$

3) Al-Azhar Islamic University Mataram.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(190 + 1)}{Log(26.000 + 1)} = \frac{2,281}{4,415} = 0,517$$

4) Nahdlatul Wathan University, Mataram.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(483 + 1)}{Log(26.000 + 1)} = \frac{2,685}{4,415} = 0,608$$

5) Mount Rinjani Lotim University.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(0 + 1)}{Log(26.000 + 1)} = \frac{0}{4,415} = 0$$

6) Hamzanwadi University, East Lombok.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(1.530 + 1)}{Log(26.000 + 1)} = \frac{3,185}{4,415} = 0,721$$

7) Bumigora University.

$$N\ (Sc) = \frac{Log(SCa + 1)}{Log(Max(SCi) + 1)} = \frac{Log(716 + 1)}{Log(26.000 + 1)} = \frac{2,856}{4,415} = 0,647$$

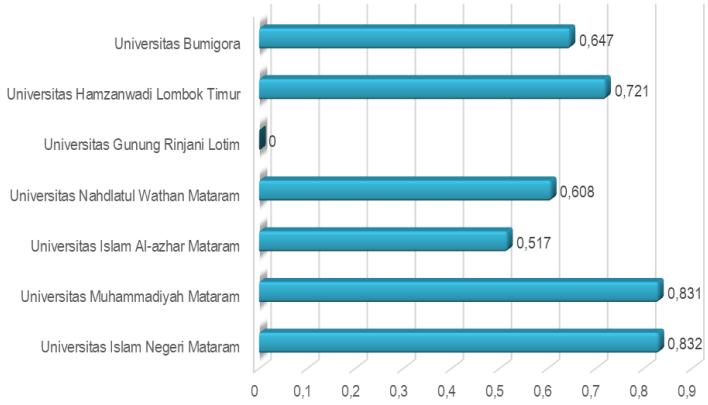

Figure 8. Calculation Results of Normalization of Scholar (Sc) Indicators on Seven Institutional Repository Websites

Figure 8 above shows that from the results of the normalization calculation of the Scholar (Sc) indicator on the West Nusa Tenggara Institution Repository Website, it is known that the Scholar (Sc) indicator value for the Mataram University institutional repository received the most search results, namely 26,000 views via Google Scholar search results. The Mataram State Islamic University institutional repository is ranked second with a normalization result of 0.832 from a total of 4,730 views. The third most ranked by the University of Muhammadiyah Mataram institutional repository with a normalization result of 0.831 from a total of 4,670 views. Meanwhile, the last ranking is at the repository institution, Gunung Rinjani University, East Lombok Regency with a normalized result of 0 from a total of 0 views.

Weighting

1) Webometrics weighting on the Mataram State Islamic University (UIN) Website Repository

Table 5. Webometrics Weighting Results on Mataram State Islamic University (UIN) Repository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,878	0,0878
Visibility	50	0,743	0,3715
Rich File	10	0,860	0,086
Scholar	30	0,832	0,2496
		Amount	0,7949

2) Webometrics weighting on the Website Repository of Muhammadiyah University of Mataram

Table 6. Webometrics Weighting Results on Muhammadiyah University of Mataram Repository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,884	0,0884
Visibility	50	0,788	0,394

Rich File	10	0,906	0,0906
Scholar	30	0,831	0,2493
		Amount	0,8223

3) Webometrics weighting on the Website Repository of Al-Azhar Islamic University, Mataram.

Table 7. Webometrics Weighting Results on Al-Azhar Mataram Islamic University Repository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,603	0,0603
Visibility	50	0,118	0,059
Rich File	10	0,570	0,057
Scholar	30	0,517	0,1551
		Amount	0,3314

4) Webometrics weighting on the Nahdlatul Wathan Mataram University Website Repository

Table 8. Webometrics Weighting Results on Nahdlatul Wathan Mataram University Repository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,699	0,0699
Visibility	50	0,209	0,1045
Rich File	10	0,755	0,0755
Scholar	30	0,608	0,1824
		Amount	0,4323

5) Webometrics weighting on the Website Repository of Gunung Rinjani University

Table 9. Webometrics Weighting Results on Mount Rinjani University Repository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,683	0,0683
Visibility	50	0,322	0,161
Rich File	10	0,702	0,0702
Scholar	30	0	0
		Amount	0,2995

6) Webometrics weighting on the Hamzanwadi University Website Repository

Table 10. Webometrics Weighting Results on Hamzanwadi University Repository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,795	0,0795
Visibility	50	0,572	0,286
Rich File	10	0,628	0,0628
Scholar	30	0,721	0,2163
		Amount	0,6446

7) Webometrics weighting on the Bumigora University Website Repository

Table 11. Webometrics weighting results on Bumigora UniversityRepository Website

Indicator	Weight (%)	Indicator Value	Webometrics Value
Size	10	0,671	0,0671
Visibility	50	0,761	0,3805
Rich File	10	0,685	0,0685
Scholar	30	0,674	0,2022
		Amount	0,7183

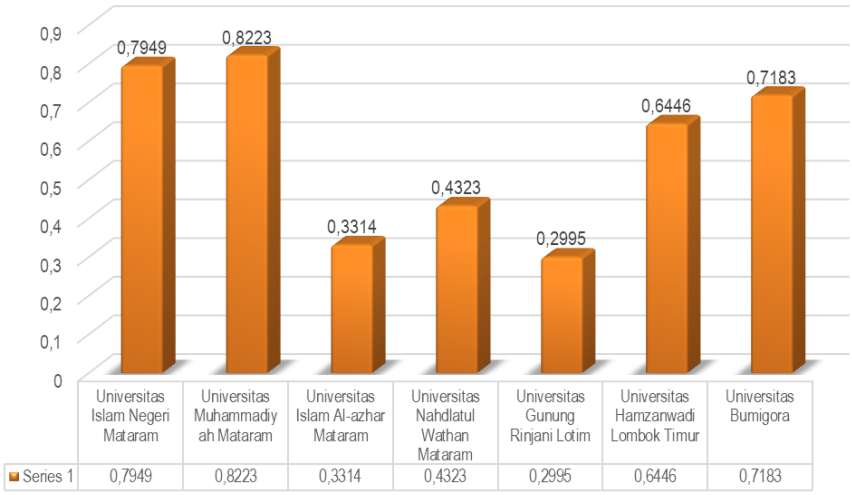

Figure 9. Data Weighting Calculation Results from each Webometrics Indicator on Seven Institutional Repository Websites

Figure 9 above explains the results of data weighting calculations for each webometrics indicator at higher education institutions in West Nusa Tenggara. The purpose of this weighting is to see the webometrics ranking of each institutional repository in West Nusa Tenggara. The image above shows that the University of Mataram institutional repository received the first webometrics ranking, seen from the previous webometrics indicator values, namely Size (S), Visibility (V), and Scoolar (S), which received the highest scores of all institutional repositories in the West Nusa Tenggara region. Meanwhile, second place was achieved by the institutional repository of the University of Muhammadiyah Mataram with a

weighted value of 0.8223. Furthermore, third place was achieved by the institutional repository of the Mataram State Islamic University (UIN) with a weighted value of 0.7949. The final ranking of the total of 8 institutional repositories analyzed in this research was achieved by the institutional repository of Gunung Rinjani University, East Lombok with a weighting value of 0.2995.

4. CONCLUSION

The Size (S) indicator underscores that Mataram University's institutional repository secured the top position with the highest score, boasting 62,000 pages and claiming the first rank. This substantiates that the dissemination of information through Mataram University's repository surpasses that of other higher education repositories. Following closely, the institutional repository of Muhammadiyah University of Mataram achieved the second rank with a normalized value of 0.884 from a total of 17,300 pages. Mataram State Islamic University's institutional repository took the third position with a normalized value of 0.878 from a total of 16,100 pages. Concluding the rankings among the 8 institutional repositories is Al-Azhar Islamic University of Mataram, securing the last position with a normalization value of 0.603 from a total of 777 pages.

Furthemore, the Visibility (V) indicator value for the Mataram University institutional repository has the highest value of 10,847 pages. The institutional repository of the Muhammadiyah University of Mataram was ranked second with a normalization result of 0.788 from a total of 1,516 pages. Bumigora University's institutional repository is ranked third with a normalization result of 0.761 from a total of 1,183 pages. Meanwhile, the last ranking of the 8 institutional repositories in West Nusa Tenggara is Al-Azhar Islamic University Mataram with a normalization result of 0.118 with a total of 2 pages.

The Rich File (R) indicator reveals that the institutional repository of Mataram University holds the highest value, boasting 17,800 Rich Files in PDF format. Following closely, the institutional repository of Muhammadiyah University of Mataram secures the second position, achieving a normalization result of 0.906 out of a total of 7,860 Rich Files (R) in PDF format. Mataram State Islamic University's institutional repository takes the third spot with a normalization result of 0.860, encompassing 4,600 Rich Files (R) in PDF format. Concluding the rankings among the 8 institutional repositories in West Nusa Tenggara is Al-Azhar Islamic University Mataram, earning a normalization result of 0.570 from a total of 264 Rich Files (R) in PDF format.

The Scholar (Sc) indicator highlights that the institutional repository of Mataram University stands out with the highest search results, registering a remarkable 26,000 views through Google Scholar. Following closely, the institutional repository of Mataram State Islamic University secures the second position, achieving a normalization result of 0.832 from a total of 4,730 views. The University of Muhammadiyah Mataram's institutional repository takes the third spot, boasting a normalization result of 0.831 from a total of 4,670 views. In contrast, the repository institution of Gunung Rinjani University in East Lombok Regency ranks last with a normalization result of 0 from a total of 0 views.

The outcomes of the weighting process, aimed at assessing the webometrics ranking of each repository, reveal that the institutional repository of Mataram University secured the top position in webometrics ranking. This is evident from the preceding webometrics indicator values, namely Size (S), Visibility (V), and Scholar (S), which garnered the highest scores among all institutional repositories in the West Nusa Tenggara region. Following closely, the institutional repository of the University of Muhammadiyah Mataram claimed the second spot with a weighted value of 0.8223. Subsequently, the institutional repository of Mataram State Islamic University (UIN) achieved the third position with a weighted value of 0.7949. Concluding the rankings among the total of 8 institutional repositories analyzed in this

research is the institutional repository of Gunung Rinjani University in East Lombok, securing a weighting value of 0.2995.

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