

University Webometrics Ranking Analysis using SWOT and Gap Analysis

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ABSTRACT

The Webometrics ranking serves as a crucial metric for assessing the quality and online visibility of universities. In this investigation, the study employs a SWOT analysis approach to delineate the strengths, weaknesses, opportunities, and threats influencing university Webometrics rankings. The primary objective is to scrutinize Webometrics rankings through the dual lenses of SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) and Gap analysis. The approach includes collecting Webometrics ranking data from reliable sources, followed by an in-depth SWOT analysis to identify the factors that impact the university's position in the Webometrics ranking. Additionally, gap analysis is applied to assess disparities between the current Webometrics ranking and the university's aspirations. Through gap analysis, the study identified areas where the university has the potential to enhance its Webometrics standing. The study's findings are anticipated to offer valuable guidance for universities seeking to elevate their Webometrics rankings.

Keywords: Webometrics; university rankings

1. INTRODUCTION

One defining feature of the digital information era is the ease and rapidity with which information can be accessed. This phenomenon significantly influences the field of education, particularly in colleges and universities. One of the access points for information at a university is its official website. University Webometrics Rankings have become a significant indicator of the quality, reputation, and visibility of a higher education institution. The Webometrics ranking reflects the extent to which universities leverage their online potential to interact with the wider community, produce relevant research, and disseminate knowledge via digital platforms. In order to improve Webometrics rankings, universities need to understand the factors influencing their position and identify any gaps that exist.

University's website usually contains information about their university information, for instances related institutions and departments, resources and services, information on faculty, faculty, students, and alumni. University's website is a very important aspect for decision-makers considering the need to assess the University's ranking in the internet world (Aguillo et al., 2008; Dastani & Sadr, 2019; Shahrudin S. S. & Malik, 2019). The Webometrics ranking principle is not to analyze the general educational activities of a university, but how that university is represented on the Internet (Shari Sharunizam & Genoni, 2012; Yakymenko et al., 2020).

Webometrics is the study of quantitative aspects of the use of resources in the form of information, structure and technology on the internet which can be described using a bibliometrics and informetrics approach (Cantu-Ortiz, 2018; Chellappandi P. & Vijayakumar, 2018; Daraio, 2020; Gonzalez, 2019; Islam, 2011; Sivertsen, 2021). Webometrics deals with website measurements in various aspects, parts of web pages, words on web pages, hyperlinks, as well as results from web search engines such as Google, Yahoo, Bing and others (Thelwall, 2009).

University web rankings can be seen on one of the web rankings, namely webometrics.info. The goal of webometrics is not to evaluate websites, their design or usability, or the popularity of their content based on the number of visits or visitors, but to promote the presence or existence of an academic web. In addition, webometrics also aims to support open access initiatives to significantly increase the transfer of scientific and cultural knowledge generated by the University to the rest of society (Memisevic & Memisevic, 2022).

State Islamic University of North Sumatra (UIN SU) Medan is a state Islamic university in North Sumatra which not only consists of faculties of Islamic studies and sciences, but also has a general faculty which is the development of all fields of knowledge. UIN SU is currently ranked 8,939 in the world, ranked 3,381 in Asia and ranked 269 in Indonesia according to webometrics.info. The top rank of university in Indonesia is the University of Indonesia, followed by Gadjah Mada University in second place and Brawijaya University in the third place.

The ranking of UIN SU is in 16th position out of 17 UINs in Indonesia and the first rank is occupied by UIN Sunan Gunung Djati Bandung. The ranking of UIN SU is right below UIN Imam Bonjol which is ranked 15th. This needs to be a concern, considering that when viewed from the number of lecturers, UIN SU has 1,098 lecturers while UIN Imam Bonjol has fewer lecturers, of total 826 persons (Kemdikbud, 2022). For this reason, it is necessary to analyze the webometrics ranking. In analyzing webometrics rankings, it is necessary to evaluate the current condition of UIN SU.

The main indicators in webometrics ranking are 50% visibility, 10% transparency and 40% excellence. These three indicators are calculated quantitatively so that the calculation results are obtained and then they are ranked on webometrics (Lab Cybermetrics - IPP-CSIC, 2022; Memisevic & Memisevic, 2022).

Visibility is the number of links and unique external domains linked to the resource. In terms of visibility, UIN SU is currently ranked 5,370 in the world. This visibility value is influenced by the large number of uinsu.ac.id external links that are spread on the internet (Davis, 2019; Shahrudin S. S. & Malik, 2019). In terms of transparency, UIN SU is ranked 7,619 in the world. Transparency is assessed by the number of citations from the top 210 authors as seen on Google Scholar but not the top 20 authors. To increase transparency, there needs to be awareness for lecturers to update their Google Scholar account. In terms of excellence, UIN SU is ranked 7,217 in the world. Excellence is assessed by the number of the top 10% most cited scientific papers from different disciplines from the complete database indexed by Scimago (Faishol & Subriadi, 2021).

As for one of the policies that have been made by university stakeholders, namely by forming an Academic Data Record team whose job is to help professors update Google Scholar

and Sinta data. However, this effort has not been maximized, seen from the lack of response from professors and the level of awareness that is still low.

Much research has been done on webometrics, but most of it focuses only on visibility indicators, or focuses on content analysis on university websites (Agusta, 2020; Bahtiar, 2018; Id et al., 2021; Mulyanto & Mulia, n.d.; Sarwar et al., 2021). This study focuses on the analysis of webometrics rankings at UIN North Sumatera Medan based on webometrics.info indicators, namely visibility, transparency and excellence. This study also aims to conceptualize strategies or ways that can be done to improve UIN SU's webometrics ranking.

2. METHODS

The method used in this study is a qualitative research method. Data collection techniques used in this study include observation, interviews, and literature study. The data analysis technique used is descriptive comparative statistical techniques and critical analysis. Data validity techniques used were data source triangulation, focus group discussions, and key informant reviews. The research framework can be seen in the following figure:

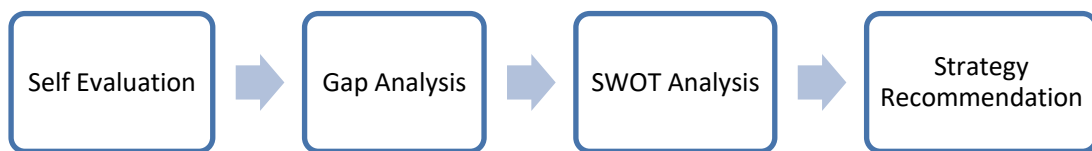


Figure 1. Research framework

At the self-evaluation stage an analysis of the uinsu.ac.id website was carried out based on three webometrics indicators , namely visibility, transparency and excellence with various search engines. After that, a gap analysis is carried out to assess the gap between the current condition and the expected condition. After analyzing the gaps, an analysis of the strengths, weaknesses, opportunities and threats at UIN SU was carried out as described in the SWOT analysis (Strength, Weakness, Opportunity, and Threat). Interviews and Focus Group Discussions were also conducted with stakeholders starting from the rector, vice-rector, heads of institutions, deans, even up to the level of heads of study programs. The goal is to get a set of strategies and policies that have been or will be implemented in improving webometrics rankings.

3. RESULTS AND DISCUSSION

Self Evaluation

UIN SU is currently ranked 8,939 in the world, ranked 3,468 in Asia and ranked 269 in Indonesia according to webometrics.info. The webometrics assessment measurement consists of three assessment parameters, namely 50% visibility, 10% transparency and 40% excellence.

Indonesia							
Ranking	World Ranking	University	Det.	Country	Impact	Openness	Excellence
269	8939	Universitas Islam Negeri UIN Sumatera Utara			5370	7619	7217

Figure 2. Ranking of UIN SU in Indonesia Webometrics Version for the period of July 2022
(Source: Lab Cybermetrics - IPP-CSIC, 2022)

Visibility is the number of links and unique external domains linked to the resource. In terms of visibility, UIN SU is currently ranked 5,370 in the world. This visibility value is influenced by the large number of uinsu.ac.id external links that are spread on the internet. In terms of transparency, UIN SU is ranked 7,619 in the world. Transparency is assessed by the number of citations from the top 210 authors as seen on Google Scholar but not the top 20 authors. To increase transparency, there needs to be awareness for lecturers to update their Google Scholar account. In terms of excellence, UIN SU is ranked 7,217 in the world. Excellence is assessed by the number of the top 10% most cited scientific papers from different disciplines from the complete database indexed by Scimago.

Visibility Analysis

UIN SU currently uses the main website with the domain uinsu.ac.id. This main website is customized by the Information Technology Center and Database of UIN North Sumatra and is managed by the Public Relations Section (HUMAS). Apart from the main website, UIN SU also has website subdomains for each faculty, study program, institution, study center, and several student organizations.

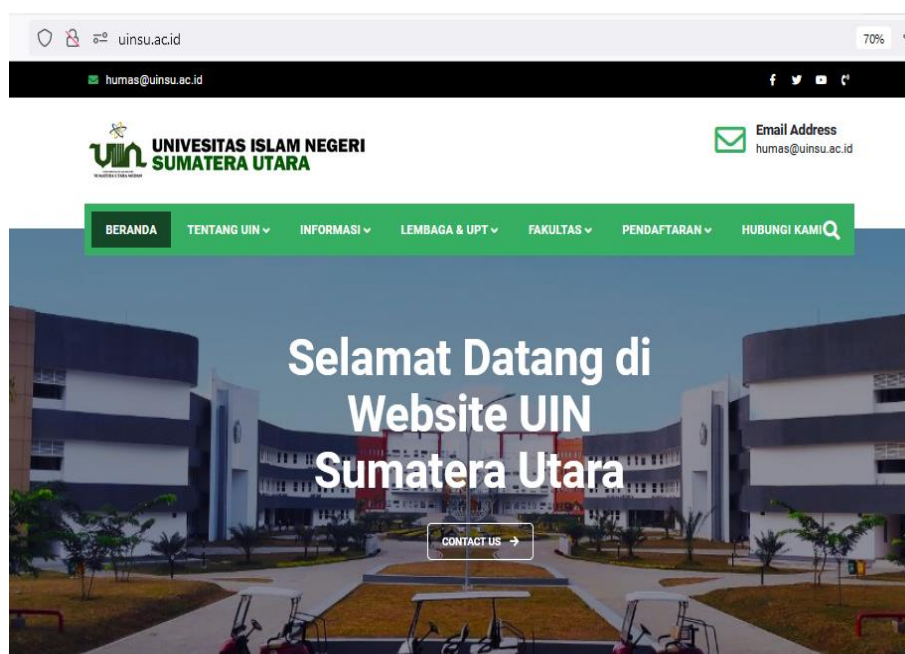


Figure 3. Website's homepage UIN SU (UINSU, n.d.)

The UIN SU subdomain is managed by each related unit. This is an advantage, because UIN SU only uses one main domain and subdomains contained in one main domain, the assessment for websites is centralized and not divided into several domains. The diagnosis of the UIN SU website subdomain is carried out on the ipsaya.com website page, which is one of the network lookup tools to check all information related to the Internet network. The checking results showed that 119 subdomains were found on the uinsu.ac.id website.

Search results on the Google search engine showed that there were about 103,000 results in 0.19 seconds. This is still relatively small compared to the University of Indonesia's website which reached 2,520,000 results, the Gadjah Mada University's website which reached 1,920,000 results and the UIN Sunan Gunung Djati Bandung's website which reached 234,000 results. One of the things that affects website visibility in search engines is the number of external links received by the website domain from third parties. Visibility in webometrics is viewed from two providers, namely [Majestic](#) and [Ahrefs](#). Currently the UIN SU's website has not subscribed to these two providers, making it difficult to analyze the website's visibility.

The UIN SU website has not yet implemented a Search Engine Optimizer (SEO) or an Internal Linking System. This can be seen from the small number of backlinks on the uinsu.ac.id website. The number of UIN SU website backlinks found on Ahrefs is 498,651, 3,759 referring domains with a domain rating of 54.

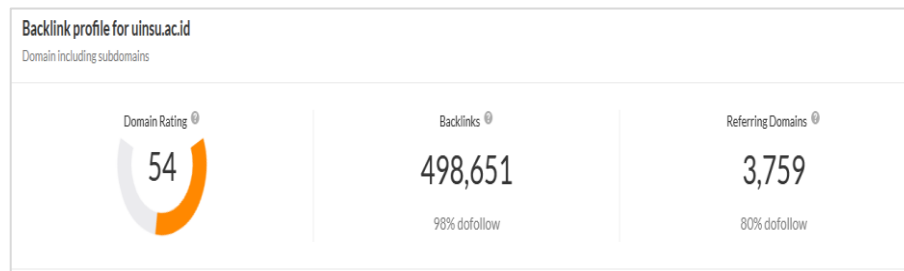


Figure 4. Number of UIN SU Backlinks Based on Ahrefs (Ahrefs, n.d.)

Apart from Ahrefs, visibility is also assessed from the Majestic provider. From Majestic's data it can be seen that the number of external referring URLs to the uinsu.ac.id website is 21,983. The problem that occurs at UIN SU is the low number of backlinks based on both Ahrefs and Majestic providers. What needs to be improved is not only the quantity of backlinks, but there must also be efforts to improve the quality of existing backlinks.

Links from news and entertainment sources are rated low by webometrics and high-value scientific site sources. What is very important for Webometrics ranking are natural links (those that users place directly on the site), and they need to be improved. Universities may be disqualified from the rating for building link mass or artificial links purchased on specialized services or through link exchanges.

Transparency Analysis

Transparency is assessed from the number of citations of the top 210 authors as seen from the Google Scholar profile but is not included in the top 20 authors so that those assessed are authors ranked 21 to 230. In terms of transparency UIN SU is ranked 7,619 in the world. Judging from sinta.kemdikbud.go.id data, UIN SU in 2022 has 501 authors, with a total of 12,269 articles on Google Scholar and 81,184 citations. However, on the webometrics page, there is no data on the number of citations for the top 210 authors.

The problem with this Google Scholar (GS) account is that some authors/lecturers at UIN SU do not manage their GS account properly. There are even some lecturers who do not know their GS accounts. There are those who do not even update their list of publications on GS and keep writing that doesn't belong to them listed on their GS accounts.

In addition to the problems above, another thing that affects transparency is the use of email addresses at the time of publication. There are still authors/lecturers who have not used institution email and still use yahoo or gmail for their email accounts. This causes publications in the form of journal articles or books that are not connected to the GS of UIN SU accounts.

The use of various affiliate names is also an obstacle. The correct affiliation for UIN SU is "Universitas Islam Negeri Sumatera Utara". However, there are still those who use other affiliation names such as "State Islamic University of North Sumatra", "UIN North Sumatra", "UINSU Medan", and others. The non-uniform use of this affiliation also affects ratings in webometrics.

Excellence Analysis

Excellence is assessed from the number of top scientific papers that are most cited from various different disciplines from the complete database indexed by [Scimago](#). If transparency counts quantity, then excellence counts the quality of a scientific work which is judged by the number of citations. At present there is no open access policy by UIN SU so there are still many lecturers who do not share their journal articles openly. Even access to books and articles in the repository is also restricted for commercial reasons.

Currently, various efforts have been made to increase the interest in writing for lecturers at UIN SU, especially in Scopus indexed international journals. In 2019, rewards were given to lecturers who published their Scopus indexed scientific work. However, this only took place in 2019 and there was no more after that. This webometrics excellence assessment refers to the scimago institution ranking, but the website does not find UIN SU data. This obviously greatly reduces ratings in webometrics.

Gap Analysis

Based on the results of the situation analysis, a gap analysis was developed. Gap analysis will determine the strategy to be taken in order to increase the webometrics ranking at UIN SU. The results of the gap analysis can be seen in the table below:

Table 1. Gap analysis

Webometric Factors	As Is	To Be
Visibility	<ul style="list-style-type: none"> Current UINSU rating score is 5,954 The current number of external backlinks is 498,651 The current number of domain followers is 3,759 	<ul style="list-style-type: none"> The UINSU ranking expectation value is 5,500 The number of external backlinks is 1,000,000 Number of domain followers 5,000
Transparency (or Openness)	<ul style="list-style-type: none"> Current UINSU rating score of 7,420 GS citations in 2022 totaling 57,362 	<ul style="list-style-type: none"> Expected score for UINSU's ranking is 7,000 Citation in 2023 increased to 100,000
Excellence (or Scholar)	<ul style="list-style-type: none"> Current UINSU rating score of 7,190 The number of Scopus documents in 2022 is 169 	<ul style="list-style-type: none"> The expected value of UINSU's ranking is 7,000 The number of Scopus documents in 2023 is 250

SWOT Analysis

In addition to identifying the gaps that occur, it is necessary to analyze the strengths, weaknesses, opportunities and threats at UIN SU as described in the SWOT analysis (Strength, Weakness, Opportunity, and Threat). The results of the SWOT analysis can be seen in the table below:

Table 2. SWOT analysis

Strength	<ul style="list-style-type: none"> The number of UIN SU Lecturers is 1,345 people The number of UIN SU students is 32,302 people Students can access the internet in the Study Program. Wifi coverage in buildings around campus is 100% All information, standards, guidelines and procedures for preparation, implementation and evaluation of lectures are disseminated to lecturers, educational staff and students and are available on the Web and are always updated
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Weakness	<ul style="list-style-type: none">• Students are required to upload their thesis, thesis or dissertation to the UIN SU repository• Students are required to publish part of their thesis, thesis or dissertation research in a scientific journal.• E-learning is available to support teaching and learning activities on the e-learning.uinsu.ac.id page.• Implementation of Field Work Lectures, Practical Work and diversification of final assignments with the output in the form of accredited journal articles.• Lecturer publications in accredited scientific journals, Scopus indexed international scientific journals and proceedings.• There is no specific institution responsible for managing university rankings• Lack of awareness and willingness of lecturers to support the Open Access movement• Inadequate research facilities and infrastructure.• The number of lecturers involved in national competitive research is relatively low compared to the number of existing lecturers.• There is no monitoring of lecturers' academic accounts• There is no media for collecting research data for lecturers• There is no research funding from abroad
Opportunity	<ul style="list-style-type: none">• Maximizing the use of e-learning and repository• Increasing digital content in education, research and community service activities• Increase cooperation with other parties• There are research funds sourced from Operational Assistance for State Universities, Public Service Agencies and agencies
Threat	<ul style="list-style-type: none">• Better quality of research at other universities• Competition in obtaining research funding

Discussion

Based on the results of the gap analysis and SWOT analysis, there are several strategies that universities can implement to improve webometrics rankings. Strategies are divided into three groups according to the assessment indicators in webometrics.

In increasing visibility, universities can carry out the following strategies:

1. Universities must use one main domain, namely uinsu.ac.id, and other domains can be subdomains of the main website. Users must use one account to log in to website pages and subdomains, so webometrics assessments can be done centrally. Every lecturer and study program at the University must have a subdomain website from the university domain. All entities within the University who need a website must use the uinsu.ac.id subdomain. Policy support from stakeholders is needed to implement this.
2. Universities need to increase the number of backlinks. Universities can subscribe to two backlink analysis providers, namely Ahrefs and Majestic, to analyze university weaknesses in increasing visibility. The use of artificial links or purchased links should be avoided as they can damage the value of webometrics.
3. Universities need to increase the use of e-learning by evaluating its use and disseminating it to lecturers who haven't used it. Likewise with the repository, the University needs to have a policy to increase the use of the UIN SU repository. Lecturers can promote access to books and other files in the repository to students. A policy is needed so that lecturers can upload research results or books to the repository and arrange for the deletion of repository files agreed with the author when uploading the writing.
4. Universities can increase the number of backlinks by collaborating with other parties and asking them to add a link to SU UIN on their website. The same thing can be done with

companies where Job Training, Field Work Practices, Field Work Lectures, and news websites that contain news about UIN SU.

5. Subdomain managers must fill in website content regularly. Subdomain content may repost news or other content from the main website. Links to content from the UIN SU website must also be shared on social media such as Facebook, Instagram, Twitter and LinkedIn. The YouTube video link must be pasted on the website page and the website url must be shared. Coordination between the Public Relations section that manages the University website and the website managers of study programs and institutions is required.
6. Information technology infrastructure at UIN SU must be strengthened. Website pages must always be available, especially during the webometrics assessment period. Routine maintenance by technical parties needs to be done. 24/7 web server availability is essential, as universities without such availability will be excluded from the webometrics assessment.

In increasing transparency, universities can carry out the following strategies:

1. Universities need to increase the number of authors, published works and their citations. Each academic member of the University must create and fill out their own page and present their work publicly. Policies must be made to produce student reports in the form of scientific articles, in addition to coursework. Diversification of final assignments into journal articles has become a policy at UIN SU. Scientific articles must also be the output of KKN and community service activities.
2. Universities need to monitor and evaluate authors' Google Scholar accounts, especially authors assessed in webometrics. Socialization and workshops must be carried out to provide an explanation on how to check a Google Scholar account. Policies regarding the management of Google Scholar accounts must be established. Authors at UIN SU must check their list of publications on Google Scholar, add undetected posts, and remove detected posts by others in their account.
3. Socialization needs to be done for the use of the standard "Universitas Islam Negeri Sumatera Utara Medan" affiliation. The correct use of this affiliation must also be documented in the University's policies. Garuda account synchronization (Digital Reference Garba) must be carried out by each author at the University to match the name of the affiliation in the published journal articles.
4. Universities need to have a policy on using e-mail addresses with the domain uinsu.ac.id. All publications that use the affiliation of " Universitas Islam Negeri Sumatera Utara Medan" must use the official email address of UIN SU with that domain. Students must also be provided with a UIN SU affiliate email generated from their NIM, such as <NIM>@uinsu.ac.id. The use of the University's email allows students to publish their scientific work. Webometrics uses domain email addresses to filter profiles and data on Google Scholar Citations.

In increasing excellence, universities can carry out the following strategies:

1. To increase excellence, universities need to increase the number of Scopus indexed scientific articles in various disciplines. In addition to quantity, it is also important to improve the quality of published scientific papers. Good quality will have an impact on the number of citations. To improve citations, there needs to be a policy that requires students to quote the writings of other lecturers in their study programs. A complete list of lecturer publications with download links can be displayed on the study program website.
2. Universities need to implement an open access policy so that the scientific work of UIN SU academics can be accessed easily by external parties, not only by internal universities.

3. There needs to be a policy of rewarding writers as a motivation to increase the number of scientific works, especially those indexed in Scopus, WoS, and Thompson.

Authors can increase the number of citations by cooperating with other additional authors. Research collaboration can also be an effort to increase excellence. Writing involving collaborative research will have more sites than writing written by only one author.

4. CONCLUSION

In this study, the results of the analysis of the UIN SU rankings were presented based on Webometrics assessment indicators, namely visibility, transparency, and excellence. By carrying out self-evaluations, gap analysis and SWOT analysis, strategies can be proposed for UIN SU in an effort to improve webometrics rankings. In increasing visibility there are six strategies that can be carried out starting from using the domain to improving infrastructure. In increasing transparency, there are four strategies that can be implemented, namely increasing publications to policies on the use of institutional email. In improving excellence, there are four strategies related to increasing international publications and the number of citations. In future research it is suggested to be able to measure the effectiveness of each strategy that has been made and add policies in an effort to increase webometrics rankings. In addition, analysis of university rankings other than webometrics can also be carried out.

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