




**Kampus  
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FAKULTAS TEKNOLOGI INFORMASI

**THE RELATIONSHIP OF INPUT AND  
OUTPUT VARIABLES WITH THE DEA  
(DATA ENVELOPMENT ANALYSIS)  
APPROACH: EFFICIENCY  
IMPLEMENTATION STUDY IN LIBRARY  
SCIENCE JOURNAL SINTA 2 AND 3**

**KEYWORDS: DEA, EFFICIENCY, LIBRARY JOURNAL, BIBLIOMETRIC**



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# ABSTRAK



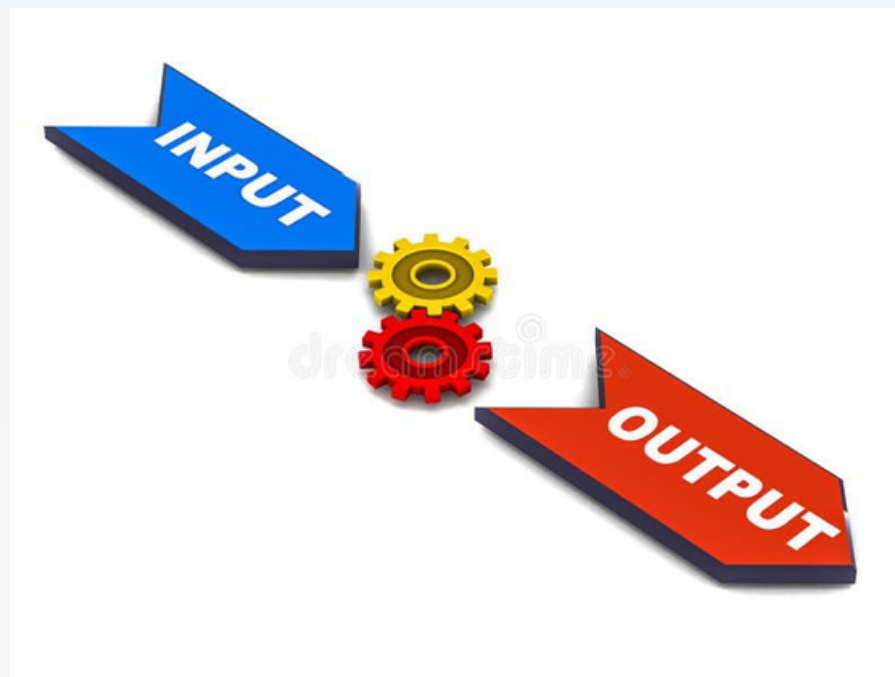
When the impact produced by the output variable (H-Index) is greater than that of the input variable (Impact Factor), the quality of a journal is said to be efficient. This investigation aims to evaluate the effectiveness of SINTA 2 and 3-indexed library science journals. This study examines the relationship between input and output variables using the Data Envelopment Analysis (DEA) method to measure efficiency in a library science journal that is indexed by SINTA accredited 2 and 3. A data-driven technique for calculating the full factor efficiency of homogeneous decision units is called data envelopment analysis (DEA). If the impact produced by the ranking of the output variable (H-Index) is greater than that of the input variable (Impact Factor), then the Library Science Journal is said to be efficient. Four out of the eight library science journals indexed by SINTA 2 and 3 are deemed efficient, according to the study's findings. The Periodical Journal of Library and Information Science, the Read Journal of Documentation and Information, the Journal of Information and Library Studies, and Librarian: Journal of Information and Library Studies are the four library science journals that have been deemed effective.





# GOAL

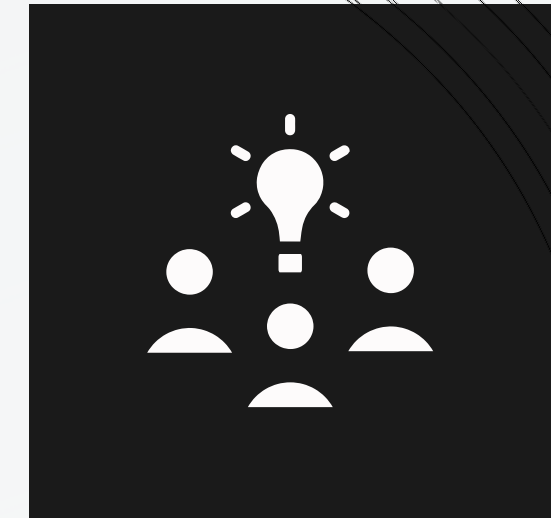
## *Mission*



This study aims to understand how input variables related to library science journals such as the number of authors and the number of publications affect the resulting output, such as the number of impact factors and the H-5 Index.

# RESEARCH METHODS CONCEPT

This research uses a research unit in the form of scientific journals indexed by SINTA in the field of Library Science and Information Science, which is focused on SINTA 2 and 3. The method used in collecting data, namely by documentation techniques or obtaining data related to the required journals is available on the SINTA website. The results of data collection that have been found are 8 journals in the field of Library Science and Information Science which are used as DMU (Decision Making Unit) to determine efficiency in SINTA 2 and 3 journals.



Tabel 1. Journal of Library Science and Information Science Indexed by SINTA 2 &amp; 3.

No	Journal Name	Publisher	Accreditation
1	Khizanah Al-Hikmah: Journal of Library, Information, and Archival Science	Alauddin State Islamic University	SINTA 2
2	Periodical Journal of Library and Information Science	Gadjah Mada University	SINTA 2
3	Read: Journal of Documentation and Information	LIPI (Indonesian Institute of Science)	SINTA 2
4	Journal of Information and Library Studies	Padjdjaran University	SINTA 2
5	Lentera Pustaka: Journal of Library, Information, and Archival Studies	Library Science Study program, Faculty of Cultural Science, Diponegoro University	SINTA 3
6	Record and Library Journal	Library Technican Study Program, Faculty of Vocational Studies, Airlangga University	SINTA 3
7	Edulib: Journal of Library and Information Science	Faculty of Education, Universitas Pendidikan Indonesia	SINTA 3
8	Pustakaloka: Journal of Information and Library Studies	State Islamic Institute of Ponorogo	SINTA 3

# RESEARCH METHODS

## Methode 1

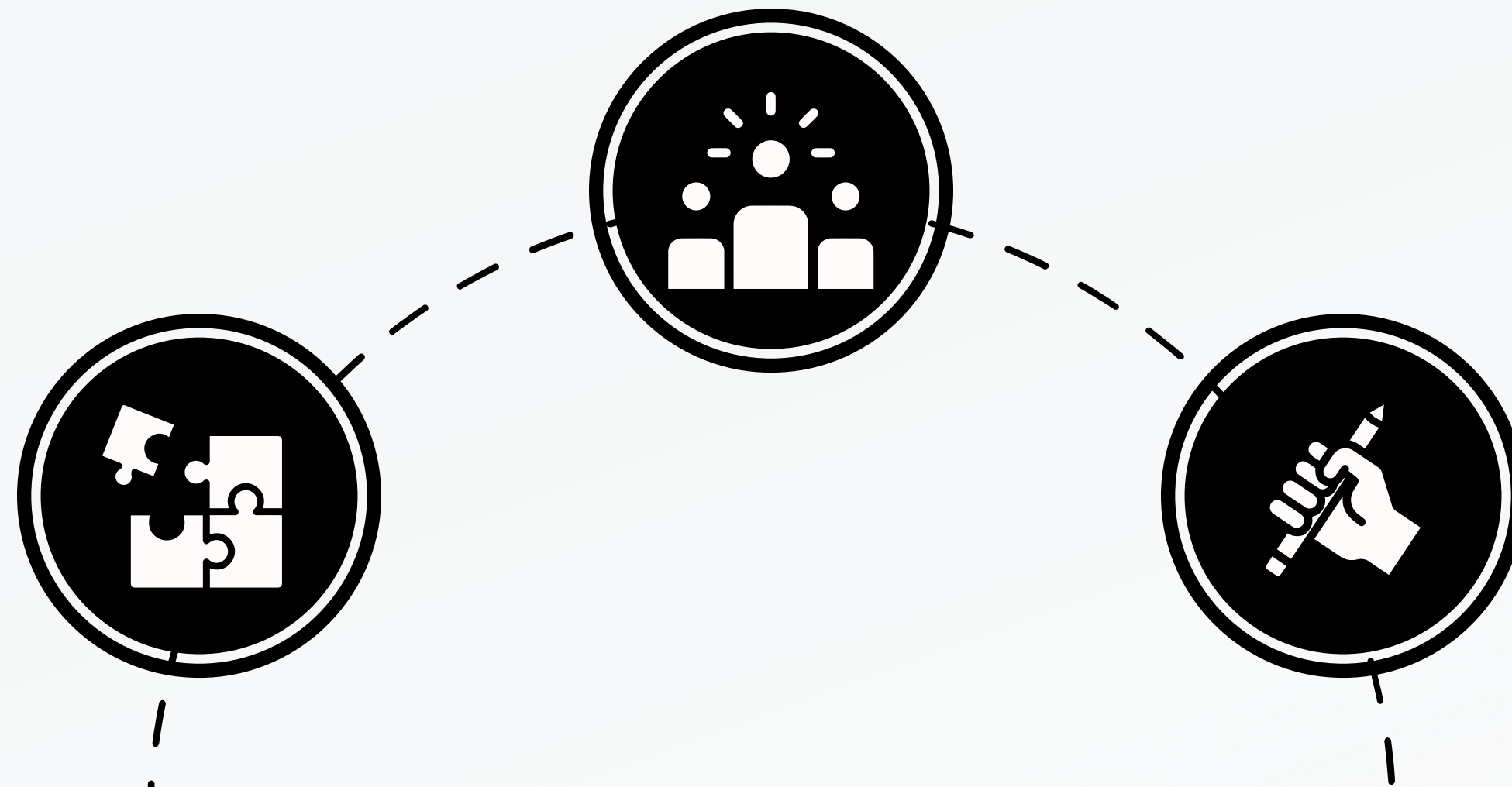
Determination of  
Input and Output  
Variables

## Methode 2

Data Collection Techniques

## Methode 3

Data Analysis  
Techniques





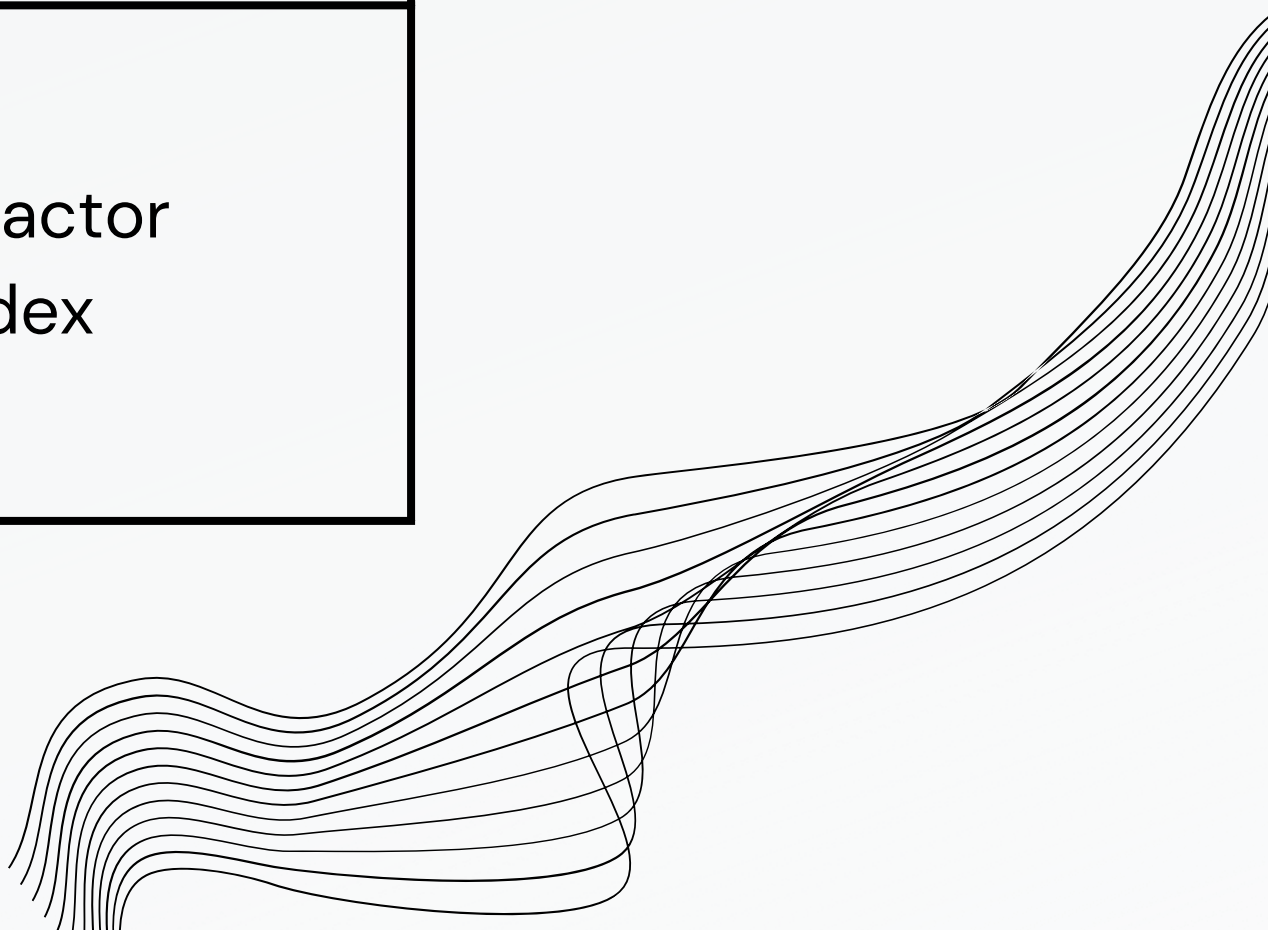


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## DETERMINATION OF INPUT AND OUTPUT VARIABLES

Tabel 2. Input Variables and Output Variables

Input Variables	Number of Authors Number of Publications
Output Variables	Impact Factor H5-Index





## DATA COLLECTION TECHNIQUES

The analysis method used in data collection focuses on SINTA 2 and 3 accredited journals in the fields of library and information science in 5 years, 2018–2022, but the data sources of the input and output variables are different. In the process of collecting the author's data, it will go through a process of collecting data in each volume and publishing each year then processed with Microsoft Excel formatting tools to obtain information on how many of the authors wrote in the learned journal. The variable data such as impact factor, H5-index, number of authors, and number of publications in each SINTA journal.



Tabel 3. Input and Output Variables Period 2018–2022

No	Journal Name	Impact Factor	H5-Index	Number of Publication	Number of Authors
1	Khizanah Al-Hikmah: Journal of Library, Information, and Archival Science	1,00	18	89	217
2	Periodical Journal of Library and Information Science	0,68	14	64	159
3	Read: Journal of Documentation and Information	6,47	11	92	201
4	Journal of Information and Library Studies	2,68	19	70	170
5	Lentera Pustaka: Journal of Library, Information, and Archival Studies	0,96	9	64	132
6	Record and Library Journal	0,30	12	120	254
7	Edulib: Journal of Library and Information Science	4,49	9	89	215
8	Pustakaloka: Journal of Information and Library Studies	8,27	14	78	136

The DEAP application is a program that works based on the concept of DEA constraints to calculate technical and cost efficiency.

The DEAP application software makes calculations much easier. To determine the level of efficiency and decision-making ability for SINTA 2 and 3 journal accreditation in the field of library and information science.

Tabel 4. Efficiency Calculation Results

Journal Name	Impact Factor	H5-Index	Number of Publication	Number of Authors	Technical Efficiency
Khizanah Al-Hikmah: Journal of Library, Information, and Archival Science	1,00	18	89	217	0,949
Periodical Journal of Library and Information Science	0,68	14	64	159	1
Read: Journal of Documentation and Information	6,47	11	92	201	1
Journal of Information and Library Studies	2,68	19	70	170	1
Lentera Pustaka: Journal of Library, Information, and Archival Studies	0,96	9	64	132	0,61
Record and Library Journal	0,30	12	120	254	0,423
Edulib: Journal of Library and Information Science	4,49	9	89	215	0,563
Pustakaloka: Journal of Information and Library Studies	8,27	14	78	136	1

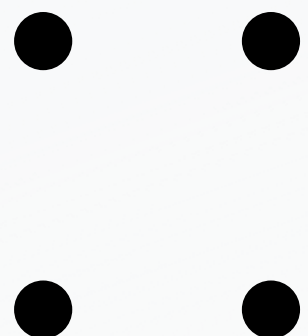





# CONCLUSIONS



Efficient input and output variables in the context of implementing efficiency in library science journals indexed at SINTA 2 and 3. This study aims to understand how input variables relate to library science journals such as the number of authors and the number of publications that affect the output produced, such as impact factors and H-5 Index. Thus, this research can provide insight into the factors that affect the efficiency of implementing library science journals at SINTA 2 and 3. The results of the research can help identify areas where efficiency can be improved and provide guidance for science libraries to improve their performance.



# THANK YOU FOR LISTENING

*Any questions?*

