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Exploring Research Trends and Impact: A Bibliometric Analysis of RESTI Journal from 2018 to 2022

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Abstract

This study provides a comprehensive analysis of the RESTI Journal, a prominent publication in the field of systems engineering and information technology. The analysis aims to evaluate the journal's publication output, citation impact, and overall contribution to the field. The study uses data from the Dimensions database, focusing on articles published between 2018 and 2022, resulting in a data set of 594 articles. To analyze the data collected, the study employs bibliometric and network visualization tools such as Bibliometrix and VOSviewer. The analysis reveals a notable increase in the number of publications over time, indicating a growing interest and research activity in the field. Furthermore, the distribution of author productivity deviates from Lotka's law, highlighting variations in author patterns and productivity levels. An examination of institutional affiliations reveals Telkom University as the dominant institution, making a substantial contribution to the journal. Visualizations based on author-provided titles, abstracts, and keywords highlight research trends in image recognition and classification, with a particular emphasis on utilizing convolutional neural networks (CNN) and Support Vector Machines (SVM). Overall, this study provides valuable information on the performance and trends of the RESTI Journal. The findings contribute to a deeper understanding of the impact and its role in advancing knowledge in systems engineering and information technology. These insights can inform researchers, practitioners, and stakeholders in the field, guide future research directions and improve the scholarly impact of the RESTI Journal.

Keywords: bibliometric; dimensions; journal; RESTI; research trends

1. Introduction

RESTI (Rekayasa Sistem dan Teknologi Informasi) is a peer-reviewed open access journal that publishes original research articles in the field of systems engineering and information technology. The journal is published by Ikatan Ahli Informatika Indonesia (IAII), the Indonesian Association of Computer Science Experts[1]. RESTI was founded in 2016 and is currently indexed in DOAJ, SINTA 2 and Google Scholar. SINTA accreditation is a system developed by the Ministry of Education, Culture, Research and Technology of Indonesia to evaluate the quality of scientific journals. The system is based on a number of criteria, including the impact factor, h-index, and number of citations.

Based on available data from the RESTI Dimensions database[2], the journal has made a significant contribution to the scientific literature in the field of systems engineering and information technology. The journal published a total of 673 articles between 2017 and 2022, indicating consistent research output throughout the period.

A notable observation among these published articles is that 244 articles were cited multiple times, indicating their impact and influence within the academic community. The fact that these articles have been cited more than once suggests that they made valuable contributions to the field and attracted the attention of other researchers and scholars.

Citations are an important benchmark to assess the impact and importance of scientific work. They point out that other researchers have found the articles relevant, informative, and worthy of reference in their own studies[3]. The presence of a significant number of multicited articles is an indication of the quality and relevance of the RESTI research published in the Journal RESTI.

Accumulating a total of 477 citations in the Dimensions database, these cited articles have demonstrated their influence and potential to contribute to the advancement

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of knowledge in the field of systems engineering and information technology. Citations not only validate the importance of published research, but also serve as evidence of the journal's impact within the scientific community.

The purpose of this research is to provide a comprehensive analysis of the RESTI Journal by examining its publication result, the effect of citations, and the overall contribution to the field of systems engineering and information technology. Using data from the Dimensions database[4], the study examines the total number of articles published by the journal from 2018 to 2022 (five years), the frequency of citations received and the presence of multi-cited articles. This is because research that is older than five years may be outdated or superseded by newer research. Furthermore, the field of computer science is constantly evolving, so it is important to stay up-to-date on the latest developments.

Scientific journals are an essential part of the scientific process. They play a crucial role in the advancement of science, the peer review process, and the public's understanding of science[5]. For these reasons, it is important to conduct in-depth analyzes of scientific journals and their impact on science. Through in-depth analysis of scientific journals, we can improve the scientific process and the public's understanding of science. This will help ensure that science is used for the benefit of society and that the public is able to make informed decisions about scientific issues.

Singh et al. (2023) conducted a comprehensive examination of the academic structure and development of the World Leisure Journal (WLJ) over a 23-year period, from 2000 to 2022, using bibliometric analysis[6]. They collected and analyzed 535 articles published in WLJ to reveal the impact on the field of leisure studies, as well as its conceptual framework and key themes. They also identified and acknowledged the most productive and influential authors who contributed to WLJ and traced the sources and directions of knowledge flow within the journal. The paper demonstrated that WLJ has established itself as a prominent platform for disseminating innovative and interdisciplinary research on various aspects and dimensions of leisure.

Viglia et al. (2021) performed a similar analysis for the Service Industries Journal (SIJ), which has been in existence for more than 40 years[7]. The analysis covered the main themes, citation patterns, and methodological approaches of the authors. They found that the research published in the journal evolved from conceptual-qualitative to empirical-quantitative, and a more global network of collaboration emerged over time.

The results of this research will be of interest to a wide range of stakeholders, including researchers, journal editors, and funding agencies. The results will help researchers identify the most important research results in the field and develop new research plans. The results will also help journal publishers improve the quality of their journals and make them more relevant to researchers' needs.

2. Research Methods

The study used the Dimensions database to collect articles published in the RESTI journal between 2018 and 2022[2]. The Dimensions database is widely recognized as one of the largest and most comprehensive abstract and citation databases available. It provides comprehensive coverage of scientific literature and allows researchers to search and extract relevant publications in their field[4], [8]. Using the Dimensions database, the study ensured a robust and comprehensive collection of RESTI articles and allowed for an in-depth analysis of research trends and patterns within the journal over the specified time period.

To extract relevant articles for analysis, the study conducted a search of Dimensions database using the source title ‘Jurnal RESTI (Rekayasa Sistem dan Teknologi Informasi)’. This search resulted in a total of 674 documents. In order to focus the analysis on a specific time period, the study filtered the retrieved documents by limiting them to the years 2018-2022. This filtering process resulted in a final set of 594 articles published within that specified time period.

The study then carefully examined the selected articles to ensure that they were suitable for the final analysis. This included assessing the relevance of the articles to the research objectives, checking for duplicate or irrelevant entries, and verifying the accuracy and completeness of the data. Through careful review and selection of appropriate articles, the study ensured the integrity and reliability of the data set used for the subsequent analysis of research trends in the RESTI journal.

The data collected for the analysis was processed and analyzed using the Bibliometrix tool and its web interface application called biblioshiny. Developed using the R programming language, Bibliometrix offers a comprehensive set of functions specifically designed for bibliometric analysis[9]. One of the key benefits of using Bibliometrix is access to high-quality numerical routines, effective statistical algorithms, and built-in data visualization tools. These capabilities allow researchers to perform detailed analyzes of bibliometric data and gain valuable insights into research patterns, collaborations, and trends[10]–[12].

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In addition to the Bibliometrix tool, we used VOSviewer for network visualization in our research[13]. VOSviewer is a powerful and widely used software tool specially designed for the visualization and exploration of bibliometric networks. Provides researchers with the comprehensive capabilities to analyze and present complex networks derived from bibliographic data. With VOSviewer we were able to visualize the relationships and connections between different elements in our dataset, such as authors, keywords or citations. Using advanced visualization techniques, VOSviewer allowed us to better understand the underlying structure and patterns within the research network[14].

3. Results and Discussions

The objective of this study is to provide a comprehensive and in-depth examination of RESTI, encompassing diverse aspects such as documentation, document substance, and author collaboration. To accomplish this objective, the investigation begins with a comprehensive exposition of the contextual details pertaining to the data.

Table 1 provides a succinct overview of the pertinent contextual details of RESTI between 2018 and 2022, utilizing research publications sourced from the Dimensions database. This comprehensive review establishes the groundwork for a thorough investigation of RESTI, with the aim of establishing a strong foundation for subsequent analysis.

Table 1. Main Information

Description	Results
Timespan	2018-2022
Documents	594
Annual Growth Rate %	18.11
Authors	1353
Authors of single-authored docs	41
Co-Authors per Doc	2.91

The analysis of Table 1 reveals significant findings related to RESTI during the period 2018-2022. There has been a substantial increase in the number of documents pertaining to RESTI, with a cumulative count of 594 publications that have been identified.

This indicates growing interest and research activity in this field during the specified time frame. In addition, the compound annual growth rate (CAGR) of 18.11% highlights the consistent expansion of the RESTI literature throughout time, signifying the persistent importance and value of this area of research.

The significant increase in publication performance and the positive CAGR reflect the dynamics of research in RESTI. This means that these scientists and researchers are actively contributing to the field, generating new knowledge, and sharing their knowledge through publications in RESTI. This growing body of literature not only demonstrates the growing interest in the subject but also provides a solid foundation for further exploration, collaboration, and advancement in systems engineering and information technology.

The study sheds light on the collaborative nature of the RESTI journal. With 1,353 unique authors contributing to the identified documents, it is evident that a diverse range of researchers have been involved in advancing the RESTI journal. Moreover, the average of 2.91 co-authors per document underscores a moderate level of collaboration among authors, showcasing the importance of interdisciplinary collaboration and knowledge sharing in advancing research in this field.

Research elucidates the collaborative characteristics of the RESTI journal RESTI. The presence of 1,353 different authors who have contributed to the identified documents indicates that a diverse group of researchers has participated. In addition, the mean value of 2.91 co-authors per document indicates a moderate degree of author collaboration, highlighting the significance of interdisciplinary cooperation and knowledge exchange in promoting research progress in this field.

Table 1 shows a vibrant research landscape in the RESTI journal that is notable for having a collaborative research group and an increasing number of publications. The aforementioned results offer a thorough and inclusive synopsis of investigating undertakings and patterns within this particular domain, and establish a fundamental framework for subsequent research and advancement RESTI journal.

3.1 Citation Analysis

The significance of the citation count in a journal cannot be overstated, as it functions as a crucial metric to assess the sway, pertinence, and effect of articles that have been disseminated within its pages[3]. Elevated citation counts serve as an indicator of resonance of the research that has been carried out and presented in journal articles, as well as its ability to garner attention and recognition from fellow researchers within the scientific community.

Citations serve as a means of validating the caliber and significance of scholarly work, as they indicate that the findings, concepts, and methodologies expounded in the publications are deemed valuable and meritorious by other academics[15]. Moreover, a substantial amount of citations has the potential to enhance the standing of the journal, attract a greater number of submissions from prominent scholars, and facilitate the propagation and progression of knowledge in the respective domain[3].

The annual publication rate exhibits a fluctuating pattern. As depicted in Figure 1, there was a notable increase in the number of articles published in the year 2020, with a total of 151 publications, representing the highest figure within the specified time frame. The

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number of articles has exhibited a minor decline in the years 2021 and 2022, with 147 and 144 publications, respectively. The frequency of citations over a given period of time serves as an indicator of varying degrees of involvement and influence. The number of citations received by the articles in 2018 amounted to 77, which exhibited a slight decrease to 67 citations in the following year of 2019.

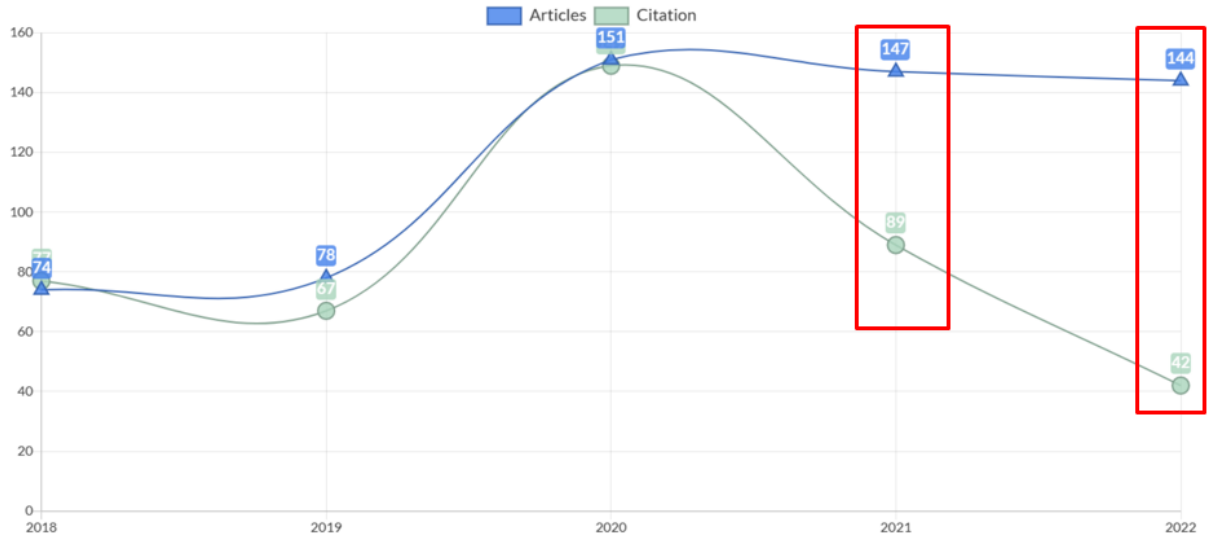

Figure 1. Annual Scientific Production and Citation Journal RESTI (2018-2022)

In 2020, there was a noteworthy surge in citations, totaling 149, which suggests a greater degree of acknowledgement and citation by fellow scholars. By comparison, there was a marked decrease in the quantity of citations, with a reduction of 89 in 2021 and a further decrease to 42 in 2022.

The decrease in citation count observed in 2021 (89 citations) and 2022 (42 citations) may suggest a reduced level of influence or prominence of the scholarly articles that were disseminated during those respective years. The observed decline in output could potentially be attributed to the dissemination of articles that exhibit comparatively lower levels of relevance or impact compared to those published in previous years.

An alternative approach could involve reducing the level of visibility and the extent of dissemination efforts. The weaker promotional efforts or outreach programs of the journal might be to blame for the lower exposure and citation rates during those years. One possible explanation for this phenomenon could be a lack of alignment between the subject matter addressed in the years 2021 and 2022 and the prevailing trends or areas of emphasis within the relevant field.

Table 1. Average Citations Per Year

Year	Mean TC/Art	N	Mean TC/Year	Citable Years
2018	1.04	74	0.17	6
2019	0.86	78	0.17	5
2020	0.99	151	0.25	4
2021	0.61	147	0.20	3
2022	0.29	144	0.14	2

Table 2 displays the fluctuation in the mean citation count per article over different years, with values ranging from 0.29 to 1.04. The statement posits that there is a fluctuation in the influence and acknowledgment of singular articles featured in the RESTI Journal over time. Certain scholarly articles may garner a greater number of citations, thereby signifying their increased impact and pertinence within the academic sphere, whereas others may receive a lesser number of citations.

The mean annual citation count of the journal exhibits variability in the range of 0.14 to 0.25. The data suggest that the citation efficacy of the RESTI Journal exhibits interannual variability. Certain years may exhibit elevated levels of citation activity, indicating a more substantial overall influence of articles disseminated during those time frames, whereas other years may demonstrate a diminished citation.

Table 3 presents a comprehensive summary of the top five most influential articles published in the RESTI Journal. An article by Muhammad Fachrie from the Universitas Teknologi Yogyakarta that stands out for its notable influence and frequency of citations is one of the noteworthy pieces of literature. Fachrie's scholarly inquiry pertains to the advantages of employing deep learning methodologies for the purpose of vehicle enumeration, rendering it the most impactful publication in the RESTI journal in terms of citation.

According to data taken from the Dimensions database, the ground-breaking research he conducted has so far received a noteworthy total of 14 citations. The scholarly article was published in the fourth volume of the journal in June 2020.

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Table 3. Top Five Most Cited Articles

No	Title	Author(s)	TC	TC/Year	Research Theme
1	A Simple Vehicle Counting System Using Deep Learning with YOLOv3 Model	Muhammad Fachrie (2020)[16]	14	3.50	The research discusses the benefits of using deep learning for vehicle counting, such as its accuracy and speed.
2	Implementation of e-Modules at Bina Darma University Informatics Management Study Program Based on Mobile Web	Imam Solikin (2018)[17]	12	2.00	The research discusses the implementation of information technology (IT) in the form of an e-module to improve the student study.
3	Analysis of the Effect of Data Scaling on the Performance of the Machine Learning Algorithm for Plant Identification	Ambarwari et al. (2020)[18]	11	2.75	The research discusses the effect of min-max normalization techniques and standardization (zero-mean normalization) on the performance of machine learning algorithms.
4	Semantic Approach for Big Five Personality Prediction on Twitter	Salsabila et al. (2021)[19]	8	2.67	The research discusses the problem of how to improve the performance of personality prediction systems.
5	Emotion Classification of Song Lyrics Using Bidirectional LSTM Method with GloVe Word Representation Weighting	Abdillah et al. (2020)[20]	8	2.00	The research discusses the use of deep learning to classify the emotions of songs based on their lyrics.

The study reveals a promising approach to developing a vehicle counting system using YOLOv3, a state-of-the-art object detection algorithm, without the need to track vehicle movements[16]. The counting mechanism is based on the assessment of the distance between the center of gravity and a specified boundary line. When analyzing front-side 1x zoom videos, the system achieved an impressive 97.72% accuracy rate. This underscores the effectiveness of YOLOv3 in accurately detecting and counting vehicles, as the counting process focuses solely on identified objects.

His findings provide valuable information in the field of vehicle counting systems and underscore the potential of YOLOv3 and its ability to accurately count vehicles based on their center of gravity distances. By understanding the differential accuracy rates between different vehicle categories and the importance of frame rate, researchers and practitioners can make informed decisions when designing and implementing vehicle counting systems, ensuring their effectiveness and reliability in real-world scenarios.

3.2 Most Prolific Authors and Affiliation

Within the journal, certain authors who stand out for their remarkable productivity and influence and occupy prominent roles in its pages. These authors contribute significantly to the content and impact of the journal.

An analysis of the data for the period 2018-2022 shows that a total of 1353 authors published their work in the journal RESTI. To highlight the most notable contributors, Table 4 lists the most prolific authors in RESTI, particularly those who have published more than five articles.

Table 4. Top Ten Most Prolific Authors

No	Name	Affiliation	NP	TC	H_index	PY_Start
1	Erwin Budi Setiawan	Telkom University	16	25	2	2020
2	Yuliant Sibaroni	Telkom University	11	12	3	2020
3	Imam Riadi	Universitas Ahmad Dahlan	11	4	1	2020
4	Rusydi Umar	Universitas Ahmad Dahlan	11	4	1	2020
5	Windu Gata	STMIK Nusa Mandiri Jakarta	8	10	2	2018
6	Abdul Fadlil	Universitas Ahmad Dahlan	8	2	1	2020
7	Arief Goeritno	Universitas Ibn Khaldun Bogor	8	2	1	2020
8	Anton Yudhana	Universitas Ahmad Dahlan	8	2	1	2020
9	Yufis Azhar	Universitas Muhammadiyah Malang	7	1	1	2021
10	Isman Kurniawan	Telkom University	7	8	1	2020

Table 4 highlights the notable achievements of the authors in the RESTI Journal and provides insights into their productivity and impact. In particular, Erwin Budi Setiawan from Telkom University is the top author in terms of number of articles with an impressive body of work. Setiawan's contributions demonstrate a deep commitment to the journal, further cementing his influence and reputation in the scientific community. In addition, his research has attracted a lot of attention, as evidenced by the highest number of citations, 25 citations in Dimensions. This demonstrates the widespread recognition and impact of his work, as other researchers refer to his contributions to further their own studies.

An interesting observation in Table 4 is the affiliation of the two authors. Both Erwin Budi Setiawan and the

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second-place author are from the same institution, highlighting Telkom University's continued productivity and influence in the RESTI Journal. This indicates a conducive research environment and a strong commitment to academic activities at Telkom University, as evidenced by the significant contributions of its researchers.

Another notable trend seen in Table 4 is the dominance of Ahmad Dahlan University, which ranks four authors among the ten most prolific authors in the RESTI Journal. This demonstrates the institution's commitment to fostering a research culture and producing scientific results. The significant presence of authors from Ahmad Dahlan University highlights their valuable contributions to the journal's content, further enriching the academic discourse, and enhancing the university's reputation in the field of information systems and technology.

These results underscore the importance of recognizing and recognizing the contributions of individual authors and their affiliated institutions. Authors such as Erwin Budi Setiawan and institutions such as Telkom University and Ahmad Dahlan University contribute to the knowledge advancement and growth of the RESTI Journal through their productivity, influence, and citation power. Their combined efforts shape the scientific landscape, inspire other researchers, and foster a vibrant academic community.

In collaboration with Ghina Dwi Salsabila, Erwin Budi Setiawan received the most attention in RESTI in his study on semantic approaches on Twitter, being cited eight times in Dimensions[21]. Their research discusses how to improve the performance of personality prediction systems using social media data. The researchers used a dataset of 295 Twitter users with 511,617 tweets to train and test two different methods: Support Vector Machine (SVM) and a combination of SVM and BERT.

They found that combining SVM and BERT with LIWC is a promising approach to improve the performance of personality prediction systems. They indicated that personality prediction systems have the potential to be used in various applications such as human resource management, marketing, and education. This research was published in Volume 5 #4, August 20, 2021.

Another collaboration with Brenda Irena, Erwin Budi Setiawan, on his research on identifying fake news on social media, also received significant attention from researchers with seven citations in Dimensions. Their research is concerned with the development of a system to identify hoax messages on the social media Twitter using the Decision Tree C4.5 classification method[22].

They found that classification tests using feature weighting and feature selection gave the best accuracy of 72.91%. They indicated that the combination of feature weighting and feature selection is a promising approach to improve the accuracy of hoax message detection systems. This research was published in Volume 4, 2020.

Table 5. Author Productivity Based on Lotka's Postulate (%)

Article (N)	Author (N)	Based on Analysis	Based on the Lotka Postulate	Difference
1	1160	85.73	76.41	9.32
2	125	9.23	13.23	3.99
3	32	2.36	4.74	2.37
4	13	0.96	2.29	1.32
5	7	0.51	1.30	0.78
6	4	0.29	0.82	0.52
7	4	0.29	0.55	0.26
8	4	0.29	0.39	0.10
11	3	0.22	0.17	0.04
16	1	0.07	0.06	0.005

Determining the productivity of authors in RESTI journals is a crucial aspect of evaluating their contributions and understanding the scientific dynamics in the field of information systems and technology. Lotka's postulate serves as a valuable tool in this regard, providing a quantitative framework that aids in analyzing author productivity and gaining a comprehensive understanding of the authoring landscape[23].

Lotka's postulate, also known as Lotka’s law or the inverse square law, proposes a mathematical relationship that characterizes the distribution of scientific productivity among authors[24]. It states that the number of authors publishing a certain number of articles decreases exponentially as the number of publications increases. By examining author productivity patterns through the lens of Lotka's postulate, researchers can identify and analyze the distribution of scholarly output among authors, uncovering patterns and trends that contribute to a more comprehensive understanding of the research ecosystem as shown in Table 5.

Alfred J. Lotka, a Polish-American mathematician and physical chemist, postulated in 1926 that the distribution of scientific productivity obeys a power law. This means that the number of authors who produce *n* articles is proportional to *1/n^2*. In other words, a small number of authors will produce a large number of articles, while a large number of authors will produce a small number of articles[25].

By applying Lotka's postulate, researchers and stakeholders in information systems and technology can delve into quantitative analysis to assess the productivity of authors in RESTI journals. Lotka's postulate allows the frequency and distribution of authors' publication records to be examined, thus allowing for a systematic assessment of their productivity. This quantitative approach provides

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valuable information on overall productivity patterns within the journal and allows meaningful comparisons between authors[26].

In the context of RESTI journals, applying Lotka's postulate allows for an examination of author productivity and the identification of prolific authors who have made significant contributions to the field. By quantifying the author productivity and assessing its distribution, researchers can gain insight into the dynamics of scientific output, identify patterns of collaboration, and see the influence of individual authors on the development and advancement of information systems and technology.

This analysis of author productivity not only contributes to the evaluation of individual articles but also provides valuable insights into the collaborative nature of the research within the RESTI journal. Understanding the and patterns of author productivity can inform future research strategies, foster collaboration, and facilitate the development of novel ideas and advances in information systems and technology[27].

Table 6 presents the author's productivity based on Lotka's postulate (%) and compares the actual analysis results with the expected values calculated from Lotka's postulate. In the analysis, 85.73% of the total articles (N=1160) are contributed by authors who have only published one article (N=1160).

This percentage is higher than the expected value based on Lotka's postulate, which predicts that 76.41% of articles should be written by single-publication authors. The difference between the actual analysis and Lotka's postulate for single-article authors is 9.32%, indicating a slightly higher than expected concentration of single-article authors.

For authors with two articles, the actual analysis shows that they account for 9.23% of all articles (N=125). This percentage is below the Lotka Postulate expectation of 13.23%. The difference between the actual analysis and Lotka's postulate for two-article authors is 3.99%, indicating a relatively lower presence of two-article authors compared to what Lotka's postulate would predict.

Likewise, the analysis shows that authors with three articles contribute 2.36% of the total articles (N=32), while Lotka's postulate would expect them to contribute 4.74%. The difference between the actual analysis and Lotka's postulate for authors with three articles is 2.37%, indicating a lower representation of authors with three articles than Lotka's postulate suggests.

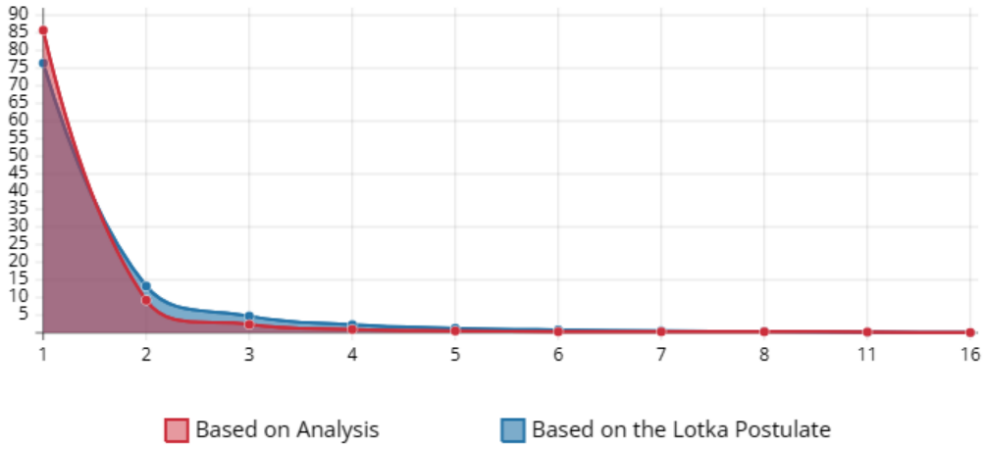

Figure 2. Annual Scientific Production and Citation Journal RESTI (2018-2022)

Figure 2 shows the author productivity based on Lotka's postulate (%) and highlights the differences between the actual analysis results and the expectations derived from Lotka's postulate. These differences indicate variations in the concentration and distribution of author productivity levels and show deviations from the predicted patterns outlined in Lotka's postulate.

However, further testing is required to validate the observed differences between the actual analysis results and Lotka's postulate. A statistical test that can be used for this purpose is the Kolmogorov-Smirnov test[23].

The Kolmogorov-Smirnov test is a nonparametric test used to determine whether a sample follows a specific distribution. In the context of Lotka's postulate, it can be applied to assess the goodness of fit between the observed distribution of author productivity and the expected distribution based on Lotka's law[28].

By comparing the cumulative distribution function (CDF) of the observed data with the theoretical CDF derived from Lotka's postulate, the Kolmogorov-Smirnov test provides a quantitative measure of the similarity or dissimilarity between the two distributions.

The results of the Kolmogorov-Smirnov test in Table 6 provide valuable information on the distribution of author productivity in the RESTI Journal from 2018 to 2022. The maximum deviation value obtained from the

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test is 1, indicating the largest difference between the observed and the expected sum distributions. Considering a critical value of 0.053 at a significance level of 0.05 and a sample size of 1353, we can assess the conformity of the author productivity distribution to Lotka's postulate. The fact that the maximum deviation value of 1 exceeds the critical value of 0.053 means a significant deviation from the expected distribution based on Lotka's postulate. This suggests that the distribution of author productivity in the RESTI journal over the given time period does not match the pattern predicted by Lotka. The observed productivity levels show significant fluctuations and deviations from the expected distribution.

Table 6. Kolmogorov-Smirnov test for Lotka's Postulate

N-Article (x)	N-Author (y)	Freq Based Analysis (y')	Total Cumulative y' [$S_n(x)$]	Freq-Based Lotka's postulate [y_x]	Total Cumulative [$F_0(x)$]	|F0(x)-Sn(x)|
1	1160	0.8573	0.8117	0.7641	0.7489	0.063
2	125	0.0923	0.9496	0.1323	0.8964	0.053
3	32	0.0236	0.9732	0.0474	0.9438	0.029
4	13	0.0096	0.9828	0.0229	0.9667	0.016
5	7	0.0051	0.9879	0.0130	0.0000	0.988
6	4	0.0029	0.9908	0.0082	0.0000	0.991
7	4	0.0029	0.9937	0.0055	0.0000	0.994
8	4	0.0029	0.9966	0.0039	0.0000	0.997
11	3	0.0022	0.9988	0.0017	0.0000	0.999
16	1	0.0007	0.9995	0.0006	0.0000	**1**

These results suggest that author productivity in the RESTI journal does not strictly conform to Lotka's postulate, which assumes a specific pattern of concentration of author productivity. The discrepancies observed in the distribution indicate the existence of various factors that affect author productivity and underscore the need for further investigation of the authorship dynamics in the journal.

A notable disparity in the number of affiliations between authors was observed during the study period. Telkom University became the dominant institution with a significant contribution of 178 publications in the RESTI Journal. This indicates a strong research presence and active engagement of Telkom University scientists in the subject area covered by the journal. Close behind was the Telkom Purwokerto, which put in a commendable performance with 108 publications as shown in Figure 3.

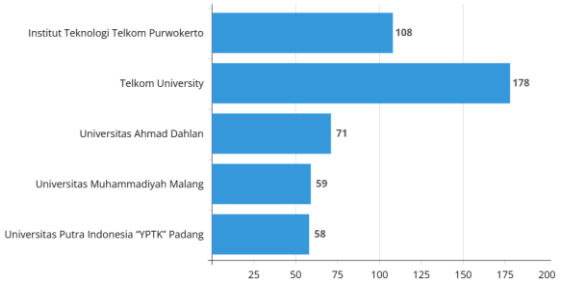

Figure 3. Top Five Affiliations (2018-2022)

One of the most contributing and impactful studies with the highest number of citations (8) of this affiliation was by Salsabila et al. (2021) carried out to predict the personality of Twitter users and improve the performance of personality prediction systems[29].

The authors conducted an online survey using the Big Five Inventory (BFI) questionnaire and collected 295 Twitter users with 511,617 tweet data. They experimented with two different methods using a support vector machine (SVM) and a combination of SVM and BERT as a semantic approach. They also implemented Linguistic Inquiry Word Count (LIWC) as the linguistic function for the personality prediction system.

The results showed that the combination of these two methods achieved an accuracy value of 79.35% and with the implementation of LIWC, the accuracy value can be increased to 80.07%. The authors stated that the low accuracy value was due to unbalanced data. They also indicated that the use of language and word features is useful for understanding personality traits.

An analysis of all authors using VOSviewer revealed that 151 authors met the threshold to be co-authors of at least two documents in the RESTI journal. This means that each of these authors has published at least two articles in the journal and has co-authored at least one of these articles with another author. However, not all of the 151 authors were linked. Only 11 authors who were consistently networked and collaborating on RESTI as shown in Figure 4.

The coauthor analysis performed in this study provided interesting results, showing the existence of strong collaborative patterns in a group of 11 authors. These authors showed consistent connections among themselves and formed four distinct groups characterized by 18 interconnected connections.

In particular, Windu Gata, an author associated with STMIK Nusa Mandiri Jakarta, emerged as the most prominent figure among these 11 authors, as he belonged to Cluster 1 which had an impressive six links.

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Windu Gata has also authored a total of 10 citations in Dimensions (Table 7) with eight publications as of 2018.

The finding that only 11 out of 1,354 authors in the RESTI journal exhibited close collaboration and consistent co-authoring patterns is an interesting observation. This indicates that a relatively small group of authors within the journal community have developed strong collaborative relationships and are actively involved in collaborative research efforts.

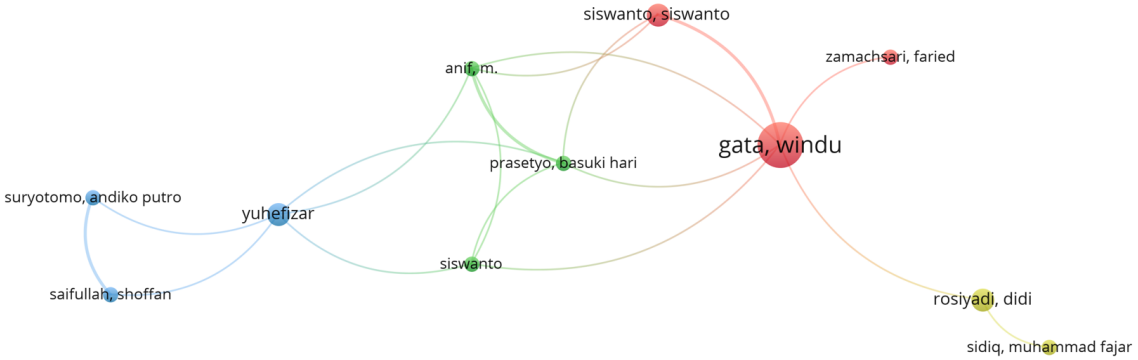

Figure 4. Co-authorship Analysis

Table 7. Top Author in Co-Authorship Analysis

No	Name	Affiliation	Cluster	Link	Pub	TC	PY_start
1	Windu Gata	STMIK Nusa Mandiri Jakarta	1	6	8	10	2018
2	Siswanto	Universitas Budi Luhur	1	3	5	3	2018
3	Faried Zamachsari	STMIK Nusa Mandiri Jakarta	1	1	2	1	2020
4	M. Anif	Universitas Budi Luhur	2	5	3	1	2019
5	Basuki Hari Prasetyo	Universitas Budi Luhur	2	5	2	4	2020
6	Siswanto	Universitas Budi Luhur	2	4	5	3	2018
7	Yuhefizar	Politeknik Negeri Padang	3	5	7	4	2019
8	Andiko Putro Suryotomo	Universitas Pembangunan Nasional Veteran Yogyakarta	3	2	2	3	2021
9	Shoffan Saifullah	Universitas Pembangunan Nasional Veteran Yogyakarta	3	2	2	3	2021
10	Didi Rosiyadi	Universitas Bina Sarana Informatika	4	2	5	6	2019
11	Muhammad Fajar Sidiq	Institut Teknologi Telkom Purwokerto	4	1	2	1	2020

The presence of these 11 authors with ongoing collaborations suggests the existence of related research networks or research groups within the RESTI journal. These authors may have formed specialized research teams, developed close working relationships, or fostered collaborative networks through ongoing research projects. Their combined efforts may have resulted in increased productivity, shared resources, and synergistic contributions to the journal.

Regardless of the reason, the fact that only a small group of authors work closely together in the RESTI journal is a cause for concern. This suggests that the journal may be becoming increasingly isolated and that new ideas may not be getting the attention they deserve. It is important for the journal to find ways to encourage more collaboration to ensure the best ideas can reach the widest possible audience.

3.3 Analysis of research trends and keywords

Research trends in journals are the topics and themes that attract the most attention and interest from researchers and publishers in various fields of study[30]. They reflect the current state of knowledge, the gaps and challenges, and the opportunities and directions for future research.

Research trends in the field of system engineering and information technology, as observed in the RESTI Journal, are characterized by their vastness and dynamic nature. This field encompasses a wide range of topics, including, but not limited to, software engineering, data science, network security, artificial intelligence, human-computer interaction, and information management.

To examine research trends in the RESTI Journal from 2018 to 2022, we performed a comprehensive analysis by extracting the titles and abstracts of published articles and using the powerful tool VOSviewer[31]. By setting a minimum threshold of 10 term occurrences, we identified 312 terms that were commonly used in the publications during this period.

To focus our analysis, we selected 60% of the most relevant terms. The result was a curated set of 187 terms representing the main research topics and issues explored in a journal over the five-year period. This selection process allowed us to uncover key areas of

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interest and provide insights into the evolving research landscape in the field of systems engineering and information technology.

The visualization of research trends obtained from VOSviewer is presented in Figure 5, showing the grouping of terms based on their coexistence patterns.

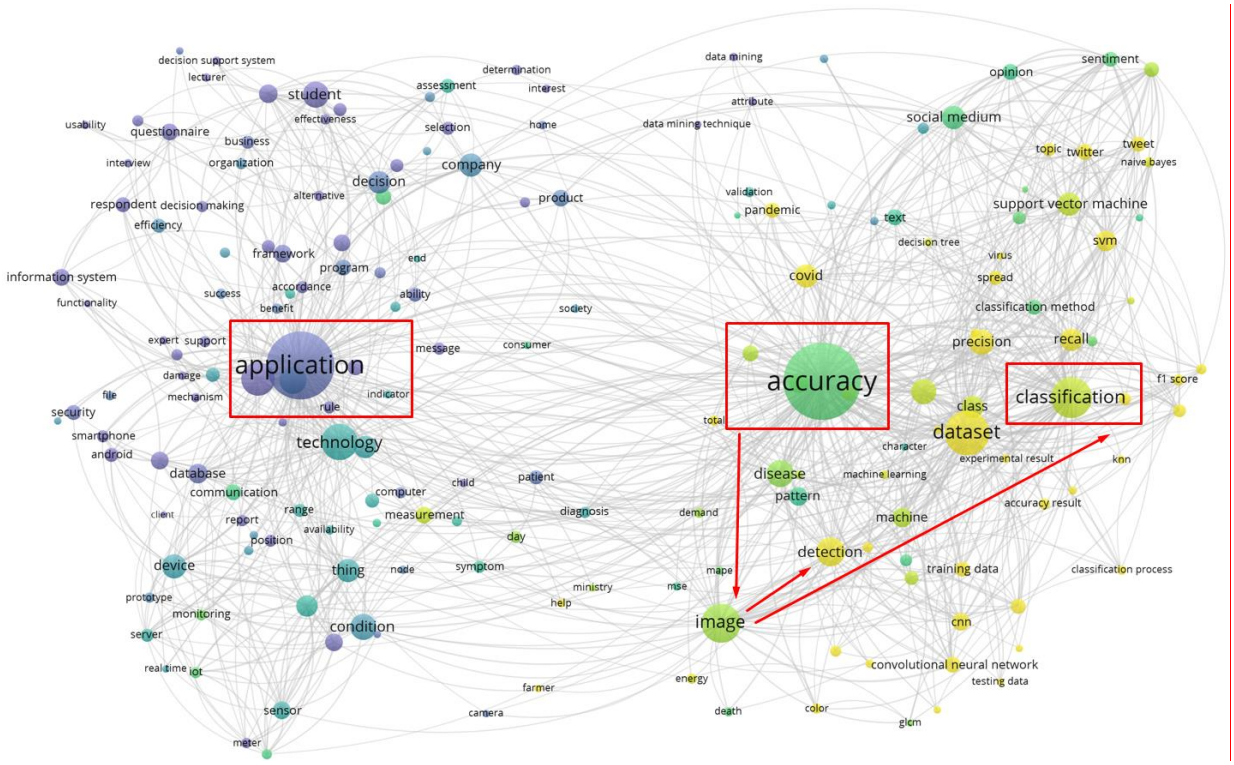

Figure 5. Research Trend Based on Title and Abstract

Within this visualization, we observed different clusters representing different research topics. Cluster 1 is characterized in particular by application-related terms, which indicates a strong focus on practical implementations and real-world scenarios. Cluster 2 is dominated by terms such as precision, suggesting that there is a significant focus on improving the precision and reliability of any system or model. Finally, Cluster 3 highlights the prevalence of notions such as classification, indicating an active exploration of methods of categorizing and organizing information.

The visualization of research trends in the RESTI Journal includes different colors to represent different research periods. The color purple corresponds to publications published in the 2020 period, while green and yellow represent publications from 2021 to 2022, the last period covered in this study. This enables us to specifically monitor and analyze research trends within this group.

Highlighted in red, the cluster associated with ‘accuracy’ stands out as one of the largest groups, closely followed by the “application” cluster at the beginning of the research period. Focusing on accuracy is critical as it serves as a key metric to assess the performance and reliability of predictive models.

Further analysis shows that the research trend in terms of accuracy has shown a shift towards image recognition and image classification. In the field of computer vision, these tasks are different but closely related. Image recognition primarily uses convolutional neural networks (CNN) to identify objects in images, while image classification typically uses support vector machines (SVM) to classify images into specific categories.

The proximity of the CNN and SVM clusters, represented by the yellow color, indicates that the research trend in the RESTI Journal is towards image recognition or classification using CNN or SVM methods. This indicates a growing interest in advancing the field of computer vision, particularly in the context of improving accuracy in image-related tasks.

By identifying these research trends, researchers and professionals in the field of systems engineering and information technology can gain valuable insight into the growing areas of focus of the RESTI Journal. This information can guide future research directions and foster collaboration among researchers who wish to contribute to the RESTI Journal.

The final phase of this research involves analyzing research trends using a word cloud visualization based on author keywords. By examining the keywords

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provided by the authors themselves, we can gain a deeper understanding of the main topics and areas of interest in the RESTI Journal.

The word cloud visualization presents a collection of keywords in a visually appealing way, with each word sized according to its frequency or importance. The larger the word, the more frequently it appears in the author's keywords, indicating its importance to the research conducted in the journal.

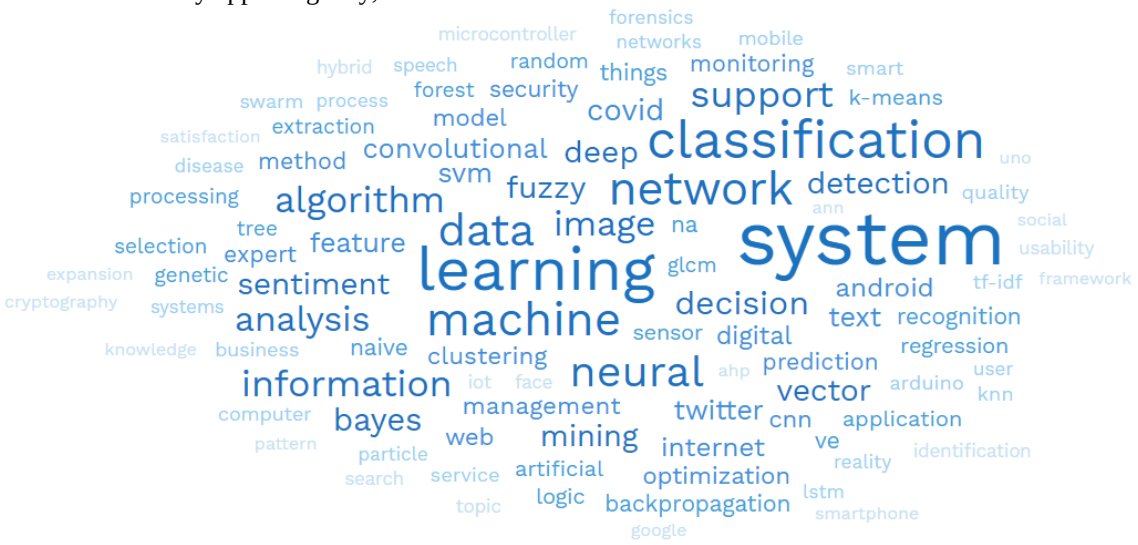

Figure 6. Research Trend Based on Author Keywords

As shown in Figure 6, we limited the visualization to just 100 keywords and found that "System" was the most used keyword, followed by "Classification", "Machine Learning" and \"Network\". These results support the previous visualization, which showed that the research trend in RESTI led to the development of classification algorithms.

The development of classification algorithms is a central part of the research trend in RESTI. Classification algorithms allow systems to learn and adapt to their environment by assigning labels to data points. This can be used to spot patterns in the data, make predictions, and take action. The development of classification algorithms is a promising research area in RESTI, which has the potential to explore the landscape of information technology landscape.

4. Conclusions

This research has shed light on some key aspects of the RESTI journal and its research landscape. The analysis shows a significant increase in the number of publications over time, indicating a growing interest and research activity in the field of systems engineering and information technology. However, the decline in citation counts in 2021 and 2022 indicates a possible decline in the impact or visibility of articles published in those years, which could be due to weaker promotional efforts or outreach programs. The fluctuations in the annual number of citations highlight the fluctuations in the citation effectiveness of the RESTI Journal and underscore the need for ongoing efforts to increase the visibility and impact of published articles.

Furthermore, the distribution of author productivity does not conform to Lotka's law, indicating differences in author patterns and levels of productivity. Telkom University emerged as the dominant institution and contributed a significant number of publications, further underscoring its influence in this area. In particular, Erwin Budi Setiawan from Telkom University was the top author in terms of number of articles with an impressive number of works. Setiawan's contributions demonstrate a deep commitment to the journal, further cementing his influence and reputation in the scientific community. The coauthor analysis revealed strong patterns of collaboration within the 11-author group, with Windu Gata from STMIK Nusa Mandiri Jakarta standing out. This underscores the importance of collaboration for the advancement of research in this area.

Finally, visualizations based on author titles, abstracts, and keywords show a research trend focused on image recognition or classification using Convolutional Neural Networks (CNN) and Support Vector Machines (SVM). This reflects the growing interest in the development of classification algorithms in the field of systems engineering and information technology at RESTI.

In general, this study provides valuable information on publication trends, citation patterns, author productivity, collaborative networks, and research topics in the RESTI Journal. The findings contribute to a better understanding of the subject and can guide

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future research efforts in the field of systems engineering and information technology. However, the RESTI Journal still seems to be struggling to get international collaborations, so going to the next level needs to be carefully considered.

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