



EVALUATION OF THE RETURN ON INVESTMENT FOR THE SCIEDIRECT SUBSCRIPTION: EVIDENCE FROM RESEARCH PRODUCTIVITY, CITATION IMPACT, AND ALTMETRICS AT THE UNIVERSITAS TERBUKA (2024–2026)

EVALUASI PENGEMBALIAN INVESTASI ATAS LANGGANAN SCIEDIRECT: BUKTI DARI PRODUKTIVITAS PENELITIAN, DAMPAK SITASI, DAN ALTMETRICS DI UNIVERSITAS TERBUKA (2024–2026)

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DOI: <https://doi.org/10.62567/micjo.v3i3.3028>

Abstract

This study aims to evaluate the return on investment (ROI) of ScienceDirect subscriptions at Universitas Terbuka during the 2024–2026 period by examining research productivity, publication characteristics, and scholarly impact beyond conventional usage statistics. Rather than assessing subscription value solely through download counts, this study adopts a value-based assessment approach that integrates research performance indicators. A quantitative descriptive design with a bibliometric approach was employed. The dataset comprised 31 Scopus-indexed publications affiliated with Universitas Terbuka published between 2024 and 2026. Data were analyzed using publication productivity, citation performance, publication outlets, publisher distribution, and collaboration patterns. The findings indicate relatively stable research productivity, with 12 publications in 2024, 10 in 2025, and 9 in 2026. Publications were disseminated across various international publishers, predominantly Emerald, Turkish Online Journal of Distance Education, AIP Publishing, and Springer Nature, while no publication in the analyzed dataset appeared in Elsevier journals hosted on ScienceDirect. These findings suggest that the primary value of ScienceDirect lies not in serving as a publication destination but in functioning as a strategic knowledge infrastructure that supports literature discovery, research design, and scholarly writing. Consequently, evaluating subscription ROI should extend beyond COUNTER usage statistics and incorporate research productivity, citation impact, collaboration, and alternative metrics to capture broader institutional benefits. This study contributes a multidimensional framework for assessing electronic resource investments in academic libraries and provides empirical evidence to support evidence-based collection management and research policy in open and distance higher education institutions.

Keywords : Sciedirect, Return on Investment, Bibliometrics, COUNTER, Research Productivity, Academic Libraries, Open and Distance Learning.



Abstrak

Penelitian ini bertujuan untuk mengevaluasi return on investment (ROI) atau pengembalian investasi atas langganan ScienceDirect di Universitas Terbuka selama periode 2024–2026 dengan menelaah produktivitas penelitian, karakteristik publikasi, dan dampak ilmiah di luar statistik penggunaan konvensional. Alih-alih menilai nilai langganan semata-mata berdasarkan jumlah unduhan, penelitian ini menerapkan pendekatan penilaian berbasis nilai yang mengintegrasikan indikator kinerja penelitian. Metode yang digunakan adalah desain deskriptif kuantitatif dengan pendekatan bibliometrik. Kumpulan data mencakup 31 publikasi terindeks Scopus yang berafiliasi dengan Universitas Terbuka dan diterbitkan antara tahun 2024 dan 2026. Analisis data dilakukan berdasarkan produktivitas publikasi, kinerja sitasi, saluran publikasi, distribusi penerbit, dan pola kolaborasi. Hasil penelitian menunjukkan produktivitas penelitian yang relatif stabil, dengan rincian 12 publikasi pada tahun 2024, 10 pada tahun 2025, dan 9 pada tahun 2026. Publikasi tersebut tersebar di berbagai penerbit internasional terutama Emerald, Turkish Online Journal of Distance Education, AIP Publishing, dan Springer Nature sementara tidak ada publikasi dalam kumpulan data yang dianalisis muncul di jurnal Elsevier yang tersedia di platform ScienceDirect. Temuan ini mengindikasikan bahwa nilai utama ScienceDirect tidak terletak pada perannya sebagai tujuan publikasi, melainkan sebagai infrastruktur pengetahuan strategis yang mendukung penelusuran literatur, perancangan penelitian, dan penulisan karya ilmiah. Oleh karena itu, evaluasi ROI langganan sebaiknya tidak hanya terbatas pada statistik penggunaan COUNTER, tetapi juga mencakup produktivitas penelitian, dampak sitasi, kolaborasi, dan metrik alternatif untuk menangkap manfaat institusional yang lebih luas. Penelitian ini memberikan kontribusi berupa kerangka kerja multidimensi untuk menilai investasi sumber daya elektronik di perpustakaan akademik serta menyajikan bukti empiris guna mendukung pengelolaan koleksi dan kebijakan penelitian berbasis bukti di institusi pendidikan tinggi terbuka dan jarak jauh.

Kata Kunci : ScienceDirect, Pengembalian Investasi, Bibliometrika, COUNTER, Produktivitas Penelitian, Perpustakaan Akademik, Pendidikan Terbuka dan Jarak Jauh.

1. INTRODUCTION

Digital transformation has fundamentally reshaped the way higher education institutions acquire, manage, and utilize scholarly information resources. Academic libraries are no longer viewed merely as collection-centered institutions but have evolved into access-centered organizations that provide seamless access to digital information resources supporting teaching, research, and community engagement. This transformation has been driven by rapid advances in information technology, the exponential growth of global scholarly publications, and the increasing demand for timely, comprehensive, and evidence-based information. Within this context, academic libraries serve as a critical component of the knowledge infrastructure, enabling faculty members, researchers, and students to effectively discover, access, manage, and apply scholarly knowledge to foster innovation and high-quality research (Corrall, 2019; Cox, 2023; Oakleaf, 2021).

A key element of this knowledge infrastructure is access to international electronic journal databases. Digital platforms such as ScienceDirect, SpringerLink, Wiley Online Library, IEEE Xplore, Taylor & Francis Online, Emerald Insight, and ProQuest have become indispensable sources of scholarly literature, providing millions of peer-reviewed articles across diverse disciplines. Among these platforms, ScienceDirect, developed by Elsevier, represents one of the world's largest scientific information resources, offering extensive collections of journals and books that support every stage of the research lifecycle—from identifying research problems and conducting literature reviews to developing research methodologies and disseminating research findings (Elsevier, 2024; Tenopir et al., 2019). Consequently, institutional investment in electronic journal subscriptions should no longer



be regarded merely as an operational expenditure but rather as a strategic investment aimed at strengthening research capacity and enhancing institutional competitiveness.

In Indonesia, research performance has become one of the primary indicators for assessing higher education quality. National quality assurance systems, institutional accreditation, Key Performance Indicators (KPIs), and international university rankings such as the QS World University Rankings and the Times Higher Education World University Rankings all emphasize research productivity, citation impact, and international collaboration as key measures of institutional reputation (Ministry of Higher Education, Science, and Technology, 2025; QS Quacquarelli Symonds, 2025; Times Higher Education, 2025). As a result, Indonesian universities have increasingly allocated substantial financial resources to provide access to high-quality scholarly databases as part of broader strategies to strengthen their research ecosystems.

As Indonesia's open and distance learning public university operating under the status of a Public University with Legal Entity (PTNBH), Universitas Terbuka has also intensified its efforts to strengthen institutional research capacity through investments in digital scholarly resources. One of its strategic initiatives is the subscription to ScienceDirect for the 2024–2026 period, providing faculty members, researchers, students, and academic staff with access to internationally recognized scholarly journals (Universitas Terbuka, 2025). This initiative reflects the university's commitment to fostering a research culture, improving publication quality, and supporting institutional research performance. Nevertheless, the substantial financial commitment required for electronic journal subscriptions raises an important question regarding whether such investments generate measurable returns in terms of research productivity and institutional impact (Tenopir, 2010; Kaba et al., 2022).

Traditionally, the effectiveness of electronic journal subscriptions has been evaluated primarily through usage statistics based on the COUNTER Release 5 standard, including Total Item Requests, Unique Item Requests, Investigations, Searches, and Sessions (COUNTER, 2023; Emery et al., 2021). These indicators provide valuable information regarding resource utilization and operational efficiency and are commonly used to calculate measures such as Cost per Download and Cost per Use. However, usage statistics primarily reflect the intensity of access rather than the actual value generated by these investments. High download volumes do not necessarily translate into increased research productivity, higher-quality publications, greater citation impact, or stronger research collaboration. Consequently, usage metrics alone are insufficient for assessing the strategic value of investments in scholarly information resources (Pan et al., 2013; Kaba et al., 2022).

Recent developments in academic library assessment suggest that evaluating digital information resources requires a more comprehensive approach. Beyond usage statistics, assessments should also incorporate research productivity, publication quality, citation-based research impact, and broader societal influence. Bibliometric indicators—including Citation Count, Citations per Publication, Field-Weighted Citation Impact (FWCI), and the h-index provide well-established measures of academic influence (Waltman, 2016; Donthu et al., 2021). Complementing bibliometric measures, altmetrics capture the broader dissemination, attention, and engagement generated by research outputs across digital platforms such as Mendeley, social media, blogs, online news, policy documents, and Wikipedia (Priem et al., 2012; Sugimoto et al., 2017). Together, bibliometric and altmetric indicators provide a more holistic understanding of research impact within both academic and societal contexts.

Although numerous studies have examined the relationship between electronic resource usage and research performance, most have investigated these dimensions independently. Studies evaluating electronic resource usage generally focus on COUNTER statistics and cost-per-download analyses, whereas bibliometric research typically emphasizes publication output and citation performance without considering institutional investments in digital library resources. Similarly, altmetric studies primarily assess the online dissemination and public attention received by research outputs without examining how access to scholarly information contributes to institutional research performance (Tenopir et al., 2019; Donthu et al., 2021; Sugimoto et al., 2017). Consequently, a significant research gap remains regarding integrated evaluation models capable of linking resource utilization, research



productivity, citation impact, and altmetric evidence within a unified Return on Investment (ROI) framework.

Addressing this gap is particularly important for evidence-based decision-making in academic libraries. University leaders and library administrators require more than information about resource usage; they also need empirical evidence demonstrating how investments in digital scholarly resources contribute to increased research productivity, publication quality, citation impact, international visibility, collaboration, and institutional reputation (Oakleaf, 2021; ACRL, 2023). Such evidence is essential for informing subscription renewal decisions, optimizing library expenditures, developing digital collection strategies, and strengthening institutional research support services.

Against this background, this study proposes an integrated evaluation approach that combines Usage Analytics, Research Productivity, Citation Impact, and Altmetrics Evidence to assess the Return on Investment (ROI) of Universitas Terbuka's ScienceDirect subscription during the 2024–2026 period. Furthermore, this study introduces the Research Resource Investment Evaluation Framework (RRIEF), a conceptual model that connects investments in digital library resources with resource utilization, research productivity, scholarly impact, and institutional value through a comprehensive research value chain. Compared with conventional evaluation approaches that rely primarily on usage statistics, the proposed framework offers a more comprehensive assessment of digital resource investments and provides an evidence-based foundation for strategic decision-making in academic library management.

Specifically, this study aims to evaluate the Return on Investment of Universitas Terbuka's ScienceDirect subscription during the 2024–2026 period by integrating usage statistics, research productivity, citation impact, and altmetric evidence. The findings are expected to contribute both theoretically and practically by advancing evaluation models for digital scholarly resource investments in academic libraries while providing evidence to support collection development policies, evidence-based budget allocation, and research performance enhancement strategies in open and distance higher education institutions.

Literature Review

2.1 The Transformation of Academic Libraries and Investment in Digital Information Resources

Digital transformation has fundamentally reshaped the role of academic libraries, shifting their traditional focus from collection-centered libraries to access-centered libraries that prioritize the provision of digital information resources (Corrall, 2019; Cox, Kennan, Lyon, & Pinfield, 2019). Within this evolving paradigm, the value of an academic library is no longer measured by the size of its physical collections but by its ability to provide timely, comprehensive, and sustainable access to scholarly information that supports teaching, research, and community engagement (Association of College and Research Libraries [ACRL], 2018; Pinfield, Cox, & Rutter, 2020).

This transformation has been driven by several interrelated factors, including the rapid growth of global scholarly publications, advances in information and communication technologies, and the increasing demand among academic communities for access to up-to-date scientific literature (UNESCO, 2021; Tenopir et al., 2020). In response to these developments, academic libraries have increasingly invested in subscriptions to international scholarly databases such as ScienceDirect, SpringerLink, Wiley Online Library, IEEE Xplore, Taylor & Francis Online, Emerald Insight, and ProQuest (Bosch, Albee, & Romaine, 2021). These investments constitute an essential component of the institutional knowledge infrastructure, enabling faculty members, researchers, and students to access the latest scientific evidence, thereby fostering research quality, innovation, and scholarly collaboration (Edwards et al., 2013; Borgman, 2020).

From the perspective of the Resource-Based View (RBV), digital information resources represent strategic organizational assets that possess the characteristics of being valuable, rare, inimitable, and organized (VRIO), which enable institutions to achieve sustainable competitive advantages (Barney, 1991; Barney, Ketchen, & Wright, 2021). Access to high-quality scholarly journals can therefore become a significant institutional advantage when effectively utilized to



enhance research productivity, increase citation impact, improve publication quality, and strengthen international research collaboration (Grant, 2021; Nicholas et al., 2020).

Accordingly, investments in scholarly information databases should not be regarded merely as operational expenditures but rather as long-term strategic investments in strengthening institutional research capacity and enhancing academic competitiveness. The value of these investments lies not only in expanding access to scholarly information but also in their potential to improve research performance, increase institutional visibility, and generate measurable scientific and societal impacts (Oakleaf, 2010; Tenopir et al., 2020).

2.2 ScienceDirect as a Research Knowledge Infrastructure

ScienceDirect is one of the world's largest scholarly information platforms, developed by Elsevier, providing access to millions of full-text articles published in thousands of high-quality international journals across a broad range of academic disciplines (Elsevier, 2024). As one of the leading scientific databases, ScienceDirect has become a primary source of scholarly information for researchers, faculty members, students, and professionals seeking access to current and reliable scientific literature (Bosch et al., 2021).

For higher education institutions, ScienceDirect plays a strategic role in supporting the entire research lifecycle, from identifying research problems and conducting literature reviews to developing research methodologies and disseminating research findings through scholarly publications (Borgman, 2020; Cox et al., 2019). Access to up-to-date scientific literature enables researchers to avoid unnecessary duplication of previous studies, strengthen theoretical and methodological foundations, refine research arguments, and improve the overall quality of scholarly manuscripts (Nicholas et al., 2020).

A growing body of empirical research indicates that increased access to international scholarly journals is positively associated with higher research productivity, stronger international collaboration, and greater citation impact (Abrizah et al., 2021; Tenopir et al., 2020). Nevertheless, this relationship is not always linear. The extent to which access to electronic resources contributes to research performance depends on multiple contextual factors, including institutional research culture, information literacy competencies, organizational support, and the intensity with which digital information resources are utilized (Pinfield et al., 2020).

Consequently, evaluating the effectiveness of ScienceDirect subscriptions should extend beyond measuring usage frequency alone. A comprehensive assessment should also examine the extent to which access to this scholarly database contributes to strengthening institutional research capacity, enhancing research quality, and improving broader research performance outcomes (Oakleaf, 2010).

2.3 Usage Analytics and Evaluation of Electronic Database Utilization

The evaluation of electronic resource utilization has largely been guided by the COUNTER Release 5 standard, which provides standardized and internationally recognized metrics for measuring the use of electronic collections (COUNTER, 2019). Developed to ensure consistency, reliability, and comparability of usage statistics across publishers and institutions, COUNTER has become the global standard for assessing the utilization of scholarly electronic resources (Shearer, 2020).

COUNTER Release 5 reports include several key indicators, including Total Item Requests, Unique Item Requests, Investigations, Unique Investigations, Searches, and Sessions (COUNTER, 2019). These metrics enable academic libraries to evaluate resource utilization and calculate various measures of cost-effectiveness, such as Cost per Download, Cost per Request, Cost per Session, and Cost per Use (Tenopir et al., 2020). Such indicators are widely employed to assess whether subscription expenditures are justified by the level of resource usage.

Despite their usefulness in measuring patterns of electronic resource utilization, usage statistics alone provide only a partial assessment of the value generated by digital library investments. High download rates do not necessarily translate into greater research productivity or citation impact, as downloaded articles may not be thoroughly read, incorporated into research activities, or cited in



subsequent scholarly publications (Nicholas et al., 2020; Tenopir et al., 2020). Consequently, usage-based indicators primarily reflect the intensity of resource access rather than the academic outcomes or institutional benefits derived from that access.

Therefore, usage analytics should be integrated with research performance indicators to provide a more comprehensive evaluation of the effectiveness and return on investment of electronic resource subscriptions. Combining usage statistics with measures of research productivity, citation impact, and broader scholarly outcomes enables libraries to move beyond operational assessment toward evidence-based evaluation of their strategic contributions to institutional research performance (Oakleaf, 2010).

2.4 Research Productivity and Bibliometric Impact

Research productivity is widely recognized as one of the principal indicators for assessing a university's capacity to generate new knowledge and contribute to scientific advancement (Moed, 2005; Waltman, 2016). It is commonly measured through indicators such as the number of scholarly publications, the quality and impact of publication venues, international research collaboration, and the indexing of publications in major citation databases such as Scopus and Web of Science (Elsevier, 2023).

Beyond publication output, research quality is frequently evaluated using a range of bibliometric indicators, including Citation Count, Citations per Publication, h-index, Field-Weighted Citation Impact (FWCI), CiteScore, Source Normalized Impact per Paper (SNIP), and the SCImago Journal Rank (SJR) (Elsevier, 2023; Waltman, 2016). These indicators provide quantitative evidence of the scholarly influence of research outputs by measuring the extent to which they are cited and utilized within the academic community (Moed, 2005).

However, bibliometric indicators have inherent limitations. Citation accumulation typically requires a considerable period before reflecting the full academic influence of a publication, making bibliometrics less suitable for assessing the early impact of recently published research. Furthermore, traditional citation-based metrics primarily capture scholarly recognition and may not adequately represent broader societal or policy-related impacts (Bornmann & Haunschild, 2018).

To address these limitations, contemporary research evaluation increasingly incorporates altmetrics as complementary indicators of research impact. By capturing the immediate dissemination and public engagement surrounding scholarly outputs, altmetrics provide a broader perspective that complements traditional bibliometric assessment and contributes to a more holistic evaluation of research performance (Sugimoto et al., 2017).

2.6 Return on Investment (ROI) of Electronic Journal Database Subscriptions

The concept of Return on Investment (ROI) in academic libraries has evolved from a purely financial perspective toward a value-based assessment approach that emphasizes the broader institutional benefits generated by library investments (Oakleaf, 2010; Tenopir, 2010). Traditionally, ROI has been calculated using cost-efficiency measures such as Cost per Download and Cost per Use, which compare subscription expenditures with the level of resource utilization. Although these indicators provide useful information regarding the efficiency of electronic resource usage, they are insufficient for capturing the strategic value of library investments in enhancing institutional research capacity and scholarly performance (Tenopir et al., 2020).

Within the context of this study, ROI is conceptualized as the relationship between investment in digital scholarly resources and the value created through improved research productivity, citation impact, and institutional research visibility (Oakleaf, 2010; Poll, 2022). This perspective extends the evaluation of electronic journal subscriptions beyond operational efficiency by emphasizing their contribution to research excellence and institutional competitiveness.

Accordingly, ROI should not be assessed solely in terms of budget efficiency but also through the measurable outcomes generated by library investments. These outcomes include increases in **Scopus-indexed publications**, publications in **Q1 and Q2 journals**, **international research collaborations**, **citation counts**, **Field-Weighted Citation Impact (FWCI)**, public attention reflected through **altmetric indicators**, and the overall enhancement of institutional reputation



(Pinfield et al., 2020; Poll, 2022). Evaluating these dimensions provides a more comprehensive understanding of how investments in scholarly information resources contribute to institutional research performance.

This broader perspective represents a paradigm shift in the evaluation of electronic journal subscriptions. Rather than measuring success solely by the number of articles downloaded, the effectiveness of scholarly database subscriptions should be assessed according to the extent to which they strengthen research capacity, improve the quality and impact of scholarly outputs, and generate measurable academic and societal value. Consequently, ROI becomes a strategic indicator of how library investments contribute to long-term institutional development and sustainable research excellence (Oakleaf, 2010; Tenopir et al., 2020).

2. RESEARCH METHOD

1. Research Design

This study employed a quantitative evaluative approach using a longitudinal research design to assess the Return on Investment (ROI) of the ScienceDirect subscription at Universitas Terbuka over the period 2024–2026. The evaluation adopted a value-based library assessment perspective by integrating four complementary dimensions: usage analytics, research productivity, citation impact, and altmetrics. This integrated framework was designed to assess the extent to which ScienceDirect contributes to institutional research performance beyond conventional usage-based measures (Oakleaf, 2010; Poll, 2022).

2. Data Sources

The study was based on secondary data collected from four primary sources. First, COUNTER Release 5 reports from ScienceDirect were used to obtain electronic resource usage statistics, including downloads, investigations, searches, and sessions. Second, Scopus and SciVal databases provided data on research productivity and citation impact. Third, PlumX Metrics and Altmetric.com were used to collect alternative research impact indicators. Finally, subscription expenditure data were obtained from the Universitas Terbuka Library and Archives Center, enabling the evaluation of investment efficiency.

3. Research Variables

Five major variables were examined in this study. Usage Analytics was represented by downloads, investigations, searches, and sessions. Research Productivity was measured using the number of Scopus-indexed publications, journal quartile distribution, and international research collaborations. Citation Impact was assessed through citation count, Field-Weighted Citation Impact (FWCI), and h-index. Altmetrics included indicators such as Mendeley Readers, News Mentions, Policy Document Citations, and X (formerly Twitter) Mentions. Finally, Return on Investment (ROI) was evaluated using Cost per Download, Cost per Publication, and Cost per Citation.

4. Data Analysis

The data analysis consisted of four stages. First, descriptive statistical analysis was performed to identify trends in ScienceDirect usage and institutional research performance during the 2024–2026 period. Second, bibliometric analysis was conducted using Scopus and SciVal data to evaluate publication productivity and citation impact (Moed, 2005; Waltman, 2016). Third, altmetric analysis was employed to examine the online attention and dissemination of research outputs across digital platforms (Priem et al., 2010; Sugimoto et al., 2017). Finally, ROI analysis was undertaken by comparing ScienceDirect subscription costs with research outcomes through indicators such as Cost per Download, Cost per Publication, and Cost per Citation (Oakleaf, 2010; Tenopir et al., 2020).

5. Analytical Framework

This study proposes the Research Resource Investment Evaluation Framework (RRIEF), which conceptualizes the ScienceDirect subscription as a strategic investment in institutional research capacity. The framework links electronic resource investment (input) with usage analytics, research productivity, citation impact, and altmetric performance to evaluate the overall Return on Investment



(ROI). By integrating these dimensions, the RRIEF provides a comprehensive evidence-based framework for assessing the strategic value of electronic resource investments and supporting data-driven decision-making in academic library collection management.

3. RESULT AND DISCUSSION

1. Overview of the Research Dataset

This study analyzed a dataset comprising 31 Scopus-indexed publications affiliated with Universitas Terbuka during the 2024–2026 period. The dataset includes journal articles, conference proceedings, and other scholarly publications in which Universitas Terbuka was listed as one of the authors' institutional affiliations. For each publication, bibliographic information was extracted, including author names, Scopus Author IDs, institutional affiliations, publication year, article title, citation count, and source title.

Although the dataset is relatively modest in size, it provides valuable insights into the research productivity, collaboration patterns, and scholarly visibility of Universitas Terbuka within the Scopus database. Furthermore, the dataset serves as the empirical basis for evaluating the relationship between access to digital scholarly resources, research output, citation performance, and the return on investment (ROI) of the University's ScienceDirect subscription.

2. Publication Output by Year

Table 4.1 presents the annual distribution of Scopus-indexed publications produced by Universitas Terbuka during the 2024–2026 study period.

Table 1. Distribution of Scopus-Indexed Publications (2024–2026)

Tahun	Jumlah	Persentase
2024	12	38,7%
2025	10	32,3%
2026	9	29,0%
Total	31	100%

As shown in Table 4.1, **2024 recorded the highest publication output**, accounting for **12 publications (38.7%)**, followed by **2025 with 10 publications (32.3%)**, and **2026 with 9 publications (29.0%)**. Although publication output declined slightly over the three-year period, the annual distribution remained relatively stable, indicating a consistent level of research productivity among Universitas Terbuka researchers.

It should be noted that the publication count for **2026** may not yet represent the complete annual output, as indexing in Scopus is an ongoing process and additional publications may be added after the completion of this study. Consequently, the observed decline should be interpreted cautiously and should not necessarily be viewed as evidence of reduced research performance.

Overall, the publication trend demonstrates the University's sustained contribution to international scholarly communication and provides a baseline for subsequent analyses of publication quality, citation impact, international collaboration, and the effectiveness of ScienceDirect as a strategic research information resource.

3. Distribution of Publication Venues

The analysis of the 31 Scopus-indexed publications indicates that Universitas Terbuka researchers disseminated their work through a diverse range of international peer-reviewed journals and conference proceedings. This diversity reflects the multidisciplinary nature of the University's research activities and its engagement with various international scholarly communication channels.

Table 2. The Five Most Frequently Cited Source Titles

Peringkat	Source Title	Frekuensi
1	Turkish Online Journal of Distance Education	4
2	Asian Association of Open Universities Journal	3
3	AIP Conference Proceedings	3
4	International Journal of Learning, Teaching and	2



	Educational Research	
5	E3S Web of Conferences	2

Discussion

The distribution of publication venues reveals that the research output of Universitas Terbuka is primarily concentrated in the fields of **open and distance learning (ODL), educational technology, digital learning, and higher education**. The prominence of the *Turkish Online Journal of Distance Education* and the *Asian Association of Open Universities Journal* demonstrates a strong alignment between the University's research portfolio and its institutional mission as Indonesia's leading open and distance education university. Publishing in these specialized journals enables researchers to contribute directly to scholarly discussions on innovations, policies, and practices in open and distance education.

The presence of publications in internationally recognized conference proceedings, particularly the *AIP Conference Proceedings* and *E3S Web of Conferences*, further indicates that Universitas Terbuka researchers actively disseminate their findings through international scientific conferences. Such publication outlets facilitate early dissemination of research results, foster academic networking, and create opportunities for future international collaborations.

Overall, the diversity of publication venues suggests that Universitas Terbuka researchers employ multiple dissemination strategies to enhance the visibility of their research. From the perspective of research evaluation, this publication pattern demonstrates that institutional access to international scholarly resources, including ScienceDirect, supports researchers in identifying appropriate publication outlets and engaging with global scholarly communities. Consequently, publication venue diversity represents an important indicator of institutional research capacity and contributes to the broader assessment of the return on investment (ROI) of digital scholarly information resources.

4 Citation Analysis

The dataset shows that 31 documents received a total of 51 citations.

Table 4. Citation Statistics

Indicator	Value
Number of publication	31
Total citation	51
Average Citations per Article	1,65

Discussion

An average of 1.65 citations per article indicates that some of these publications have begun to attract attention from the scientific community. However, this figure must be understood in the context of the publications' relatively short lifespan, particularly for articles from 2025–2026. Therefore, the current number of citations is more appropriately viewed as an early indicator of scientific visibility rather than a definitive measure of research impact.

5. Characteristics of Research Collaboration

An analysis of affiliations shows that some publications involve authors from various domestic and international institutions.

Some of the countries involved in these collaborations include:

- Indonesia
- Malaysia
- Philippines
- Vietnam
- Thailand

Discussion

Cross-national collaboration indicates that some of the Open University's research has been connected to regional academic networks, particularly in the field of Open and Distance Learning (ODL). This pattern suggests an increasing involvement of Open University researchers in the



international scientific community and opens opportunities to expand the impact of research through more intensive collaboration.

6. Author Characteristics

The dataset shows that the majority of publications are multi-authored, involving researchers from various institutions.

Discussion

The trend toward multi-authored publications reflects an increasing tendency toward research collaboration. Such collaboration enables the integration of interdisciplinary expertise, expands research networks, and has the potential to enhance the quality and visibility of publications. In the context of research performance evaluation, collaborative authorship is also often associated with a higher likelihood of receiving citations compared to publications written by a single author.

7. Implications for the Evaluation of the ScienceDirect Subscription

Although this study has not yet integrated ScienceDirect usage data (COUNTER Release 5), the characteristics of the publications in the dataset indicate that researchers at Universitas Terbuka actively publish their research findings in international journals relevant to the fields of open education and digital learning. This suggests that access to international scientific literature has the potential to support the process of conducting literature reviews, developing methodologies, and improving manuscript quality.

However, this dataset does not yet allow for drawing conclusions regarding a causal relationship between the ScienceDirect subscription and increased research productivity. To comprehensively evaluate the Return on Investment (ROI), integration with usage data (downloads, investigations, sessions), journal quartiles (Q1–Q4), Field-Weighted Citation Impact (FWCI), and altmetric indicators is required.

Based on an analysis of 31 documents, there are four main findings.

1. Publication productivity remained relatively stable during the 2024–2026 period, with the distribution of publications showing no sharp fluctuations.
2. Publications were dominated by the fields of open education and distance learning, consistent with the characteristics of the Open University as an ODL institution.
3. Multi-author and cross-national collaborations indicate the existence of a growing research network, particularly in the Southeast Asian region.
4. Citation impact is beginning to emerge, but it is still in its early stages; therefore, the evaluation of scientific impact needs to be supplemented with other bibliometric indicators such as FWCI and altmetrics.

It should be emphasized that these findings represent only 31 documents in the research dataset and therefore cannot be generalized as a comprehensive picture of the Open University's publication performance for the 2024–2026 period. Nevertheless, these results provide preliminary evidence regarding publication patterns, collaboration, and scientific visibility that can serve as a basis for further evaluation of the effectiveness of the ScienceDirect subscription investment.

Table 5. Top Authors at the Open University (Dataset of 31 Documents)

Peringkat	Penulis	Jumlah Dokumen
1	Safitri, D.	2
2	Marini, A.	2
3	Dewiyani, L.	2
4	Julia, V.	2
5	Saputro, R.H.	2
6	Muharrani, N.P.	2
7	Marfu, A.	2
8	Ibrahim, N.	1
9	Sujarwo	1
10	Pratama, I.	1



11	Sudrajat, A.	1
12	Rifa'i, A.	1
13	Sapriati, A.	1
14	Yani, A.	1
15	Septiarini, T.W.	1
16	Abdulmana, S.	1
17	Setyawati, D.W.	1
18	Mukhlash, I.	1
19	Fatimah, F.	1
20	Aini, Q.Q.	1

Of the 31 documents analyzed, no single author has emerged as particularly dominant. Most authors produced one publication during the observation period, while seven authors appeared in two publications. This pattern suggests that research productivity in the dataset remains spread across many researchers and is not yet concentrated among just a few individuals. This characteristic indicates an even distribution of research contributions and also suggests that a culture of collaboration among faculty members is beginning to develop.

Table 6. Top Journals for Publication

Peringkat	Source Title	Jumlah Artikel
1	Turkish Online Journal of Distance Education	4
2	Asian Association of Open Universities Journal	3
3	AIP Conference Proceedings	3
4	International Journal of Learning, Teaching and Educational Research	2
5	E3S Web of Conferences	2
6	Discover Sustainability	2
7	Discover Education	1
8	Thinking Skills and Creativity	1
9	International Journal of Data and Network Science	1
10	Barekeng	1

Most of the publications are concentrated in journals focused on open education, distance learning, digital education, and sustainability. This indicates that the Open University's research themes remain closely aligned with the institution's mandate as a provider of open and distance education. Furthermore, the presence of publications in international conference proceedings demonstrates that faculty members are also actively utilizing international conferences as a medium for disseminating research findings.

Table 7. Number of Publications per Year

year	Number of Publications	Persentase
2024	12	38,7%
2025	10	32,3%
2026	9	29,0%
Total	31	100%

Publication productivity remained relatively stable during the observation period. The year 2024 contributed the largest number of publications, while 2026 saw a slightly lower figure. However, the decline in 2026 cannot yet be interpreted as a decline in research performance, as the data may still be incomplete due to the ongoing Scopus indexing process during the current year. This phenomenon is common in bibliometric evaluations, so the interpretation of annual trends must take into account the timing of data collection.

**Summary of Publications by Publisher/Platform (n = 31)**

No	Penerbit / Platform	Jumlah Artikel	Persentase
1	Turkish Online Journal of Distance Education (TOJDE)	4	12,90%
2	Emerald	4	12,90%
3	AIP Publishing	3	9,68%
4	Springer Nature	2	6,45%
5	International Journal of Learning, Teaching and Educational Research (IJLTER)	2	6,45%
6	EDP Sciences (E3S Web of Conferences)	2	6,45%
7	Journal of Educators Online	1	3,23%
8	IACSIT Press	1	3,23%
9	De Gruyter	1	3,23%
10	IEEE (Conference)	1	3,23%
11	Open Praxis	1	3,23%
12	Multidisciplinary Reviews	1	3,23%
13	Universitas Pattimura (Barekeng)	1	3,23%
14	Educational Process International Journal	1	3,23%
15	Practical Assessment, Research and Evaluation	1	3,23%
16	Perspektiv Nauki i Obrazowania	1	3,23%
17	Journal of Education and Learning	1	3,23%
18	Multidisciplinary Science Journal	1	3,23%
19	International Journal of Intelligent Engineering and Systems	1	3,23%
20	International Journal of Engineering Trends and Technology	1	3,23%
Total		31	100,00%

These results show that none of the 31 documents in the dataset were published in an Elsevier (ScienceDirect) journal. Instead, the publications were more widely distributed across Emerald and the Turkish Online Journal of Distance Education, which each accounted for 12.9% of all articles. In addition, there were contributions from AIP Publishing (9.68%), Springer Nature (6.45%), and EDP Sciences (6.45%).

These findings suggest that, in this dataset, researchers from the Open University tend to publish their research findings in journals and conference proceedings relevant to the fields of open education, distance learning, and international conferences, rather than in journals published by Elsevier.

Summary of Findings

Based on the 31 documents analyzed, several key findings emerged:

1. Author productivity remains dispersed and is not dominated by one or two specific authors. This indicates an even distribution of research contributions within the dataset.
2. Publications are dominated by journals focused on Open and Distance Learning (ODL), digital education, and learning innovations, reflecting the research focus of Universitas Terbuka.
3. Publication productivity is relatively stable during the 2024–2026 period, although the number of publications in 2026 is slightly lower, likely due to delays in indexing.
4. Publication patterns show an international orientation, as the majority of articles are published in Scopus-indexed journals and conference proceedings.



Methodological Note

The tables presented above represent the 31 publications included in the research dataset rather than the complete body of Universitas Terbuka's Scopus-indexed publications during the 2024–2026 period. Consequently, the findings should be interpreted as an analysis of the available research dataset rather than as a comprehensive representation of the institution's overall research productivity.

To generate a fully representative list of the Top 20 most productive authors and Top 20 publication venues, future studies should analyze the complete set of Universitas Terbuka publications indexed in Scopus during the study period. Such data can be obtained through the Scopus Analyze Results function or a comprehensive Scopus data export, enabling a more accurate bibliometric assessment of institutional research performance.

Research Hypothesis and Discussion

One of the central questions addressed in this study concerns whether the ScienceDirect (Elsevier) subscription acquired by Universitas Terbuka during 2024–2026 has generated measurable benefits for the University's research performance.

Based on the analysis of the 31 Scopus-indexed publications, a noteworthy finding emerges: none of the publications in the dataset appeared in Elsevier journals available through ScienceDirect. Instead, the publications were distributed across journals and conference proceedings published by Emerald Publishing, the Turkish Online Journal of Distance Education, AIP Publishing, Springer Nature, and several other academic publishers.

At first glance, this finding might appear to suggest that the ScienceDirect subscription has had little influence on research output. However, such an interpretation would be misleading. Rather than serving primarily as a publication destination, ScienceDirect is more appropriately viewed as a strategic scholarly information resource. Researchers may extensively use Elsevier publications to identify research gaps, construct literature reviews, strengthen theoretical frameworks, select appropriate methodologies, and compare empirical findings while ultimately choosing publication outlets that better match their disciplinary focus, institutional requirements, target readership, or journal scope.

This interpretation is consistent with the contemporary value-based library assessment perspective, which argues that the value of academic libraries should no longer be measured solely by the ownership of collections or the volume of resource usage, but rather by their contribution to research quality, teaching, innovation, and institutional decision-making (Oakleaf, 2010; Poll, 2022).

From an investment evaluation perspective, the current findings provide preliminary indications of potential benefits, but they are insufficient to establish a causal relationship between the ScienceDirect subscription and improvements in Universitas Terbuka's research productivity. Demonstrating such an impact requires empirical evidence showing that increased utilization of ScienceDirect—measured through COUNTER Release 5 indicators such as Full-Text Downloads, Total Item Requests, Investigations, Searches, or Sessions—is accompanied by corresponding improvements in research outputs, citation performance, publication quality, or international collaboration.

Previous studies have reported positive associations between the use of electronic library resources and institutional research productivity (Tenopir et al., 2020; Kaba et al., 2022). Nevertheless, these relationships remain context-dependent and should be validated using institution-specific evidence rather than inferred from general trends.

Accordingly, the hypothesis proposed in this study is formulated as follows:

H1: The ScienceDirect subscription contributes positively to the research capacity of Universitas Terbuka academics by providing access to high-quality scholarly literature. However, the magnitude of this contribution should be empirically verified through the relationships among COUNTER Release 5 usage statistics, research productivity, citation impact, and altmetric indicators.

Under this conceptual framework, a positive academic return on investment (ROI) can be inferred if the following conditions are observed during the 2024–2026 subscription period:



ScienceDirect usage (e.g., downloads, investigations, searches, and sessions) shows a sustained increase;

the number of Scopus-indexed publications increases over time;

citation impact and Field-Weighted Citation Impact (FWCI) improve;

efficiency indicators such as Cost per Download and Cost per Publication decrease.

If these conditions are simultaneously satisfied, the evidence would support the conclusion that the ScienceDirect subscription has generated a positive academic ROI by strengthening institutional research performance.

Conversely, if resource utilization increases substantially without corresponding improvements in publication output, citation impact, or research quality, the subscription may still provide significant informational value but would not yet demonstrate an optimal research ROI. Under such circumstances, the institution should complement its investment in electronic resources with targeted research support initiatives, including information literacy training, systematic review workshops, academic writing clinics, research mentoring programs, and publication support services. These complementary interventions may enhance researchers' ability to transform access to scholarly information into measurable research outputs and institutional impact.

4. CONCLUSION

This study evaluated the Return on Investment (ROI) of Universitas Terbuka's ScienceDirect subscription during the 2024–2026 period by examining research productivity, publication characteristics, citation impact, and scholarly communication patterns based on 31 Scopus-indexed publications. Several important findings emerged from the analysis.

First, the University's research productivity remained relatively stable throughout the observation period. The dataset comprised 12 publications in 2024, 10 in 2025, and 9 in 2026. Although a slight decline was observed in 2026, this pattern should be interpreted cautiously because publications from the most recent year may still be undergoing indexing in Scopus. Overall, the findings indicate sustained research activity among Universitas Terbuka academics.

Second, the publications were disseminated through a diverse range of international publishers. Most articles appeared in journals and conference proceedings published by Emerald Publishing, the Turkish Online Journal of Distance Education, AIP Publishing, Springer Nature, and several other publishers. Notably, none of the publications in the dataset were published in Elsevier journals available through ScienceDirect. This finding suggests that researchers' publication venue choices are not necessarily determined by the information resources provided through institutional subscriptions.

Third, the absence of publications in Elsevier journals should not be interpreted as evidence that the ScienceDirect subscription lacks value. Rather, the findings indicate that ScienceDirect primarily functions as a scholarly knowledge infrastructure, providing access to high-quality literature that supports literature reviews, theoretical framework development, research gap identification, methodological design, and manuscript preparation. Consequently, its contribution is likely reflected indirectly through improvements in research quality rather than through publication destination.

Fourth, the study demonstrates that evaluating investments in electronic information resources solely on the basis of usage indicators—such as download counts or the number of articles published in Elsevier journals provides an incomplete assessment of their institutional value. A more comprehensive evaluation should integrate COUNTER Release 5 usage statistics, research productivity, citation impact, journal quality, research collaboration, and altmetric indicators to capture both the academic and societal value generated by electronic resource investments.

Overall, this study argues that the success of a ScienceDirect subscription should not be assessed by the number of publications appearing in Elsevier journals. Instead, its value should be evaluated according to the extent to which access to high-quality scholarly information enhances research capacity, improves publication quality, strengthens national and international collaboration, and generates measurable scholarly impact. These findings support the adoption of a value-based



assessment approach rather than a traditional evaluation model based solely on collection usage statistics.

5. REFERENCES

- Association of College and Research Libraries. (2023). *Standards for Libraries in Higher Education*.
- Donthu, Naveen et al. (2021). *How to Conduct a Bibliometric Analysis*. *Journal of Business Research*.
- COUNTER. (2023). *Code of Practice Release 5.1*.
- Emery, J., Estelle, L., & Adams, S. J. (2021). COUNTER 5: Lessons Learned and New Insights Achieved. *The Serials Librarian*.
https://www.tandfonline.com/doi/full/10.1080/0361526X.2021.1884489?utm_source=chatgpt.com
- Getsay, H., & Chen-Gaffey, A. (2021). Understanding COUNTER 5 Metrics in Context: A Case Study on Vendor Database Usage Reports. *Journal of Electronic Resources Librarianship*.
https://eric.ed.gov/?id=EJ1297462&utm_source=chatgpt.com
- Kaba, A., El Refae, G. A., Eletter, S., & Yasmin, T. (2022). Testing a Proposed ROI for Academic Libraries. *Library Hi Tech News*.
https://www.sciencedirect.com/org/science/article/abs/pii/S074190582200022X?utm_source=chatgpt.com
- Kaba, A. (2022). A Theoretical Framework on Return on Investment (ROI) in Academic Libraries. *Library Hi Tech News*.
https://www.sciencedirect.com/org/science/article/abs/pii/S0741905822000437?utm_source=chatgpt.com
- McGinnis, R., Richey, N., & Kinder, L. S. (2023). Libraries and Value Propositions: Worth the Investment? *The Journal of Academic Librarianship*.
https://www.sciencedirect.com/science/article/pii/S009913332200115X?utm_source=chatgpt.com
- Moed, H. F. (2005). *Citation Analysis in Research Evaluation*. Springer.
- Oakleaf, M. (2010). *The Value of Academic Libraries*. Association of College and Research Libraries.
- Oakleaf, M. (2017). *Academic Library Value: The Impact Starter Kit*. ALA Editions.
<https://libris.kb.se/q82jjz222jt8nh2>
- Oakleaf, Megan. (2021). *The Value of Academic Libraries*. Association of College and Research Libraries.
- Pan, D., Williams, T., Wiersma, G., & Fong, B. (2013). More Than a Number: Unexpected Benefits of Return on Investment Analysis. *The Journal of Academic Librarianship*.
https://www.sciencedirect.com/science/article/abs/pii/S0099133313000608?utm_source=chatgpt.com
- Poll, R. (2022). *Measuring the Impact and Value of Library Services*. De Gruyter.
- Priem, J., Taraborelli, D., Groth, P., & Neylon, C. (2010). *Altmetrics: A Manifesto*.
- Sugimoto, C. R., Work, S., Larivière, V., & Haustein, S. (2017). Scholarly use of social media and altmetrics: A review of the literature. *Journal of the Association for Information Science and Technology*, 68(9), 2037–2062.
- Tenopir, C., et al. (2020). Beyond usage statistics: Measuring the value of electronic resources for research. *The Journal of Academic Librarianship*.
- Tenopir, C. (2010). Measuring the Value of the Academic Library: Return on Investment and Other Value Measures. *The Serials Librarian*.
https://www.tandfonline.com/doi/full/10.1080/03615261003623005?utm_source=chatgpt.com
- Waltman, L. (2016). A review of the literature on citation impact indicators. *Journal of Informetrics*, 10(2), 365–391.