

# Analysis of Top-Tier Data Science Journals:

Ranking, Publishers, and Publication Timelines (Scopus Indexed, SJR 2024)

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## Abstract

Navigating the publication landscape requires authors to consider factors beyond traditional citation impact metrics. This is particularly true in the interdisciplinary field of data science, where understanding operational journal characteristics is crucial for strategic manuscript submission. This study aimed to provide deeper insights for prospective authors by compiling and analyzing a comprehensive set of operational and impact metrics for 20 leading journals relevant to data science, identified through a synthesized ranking based on 2024 SCImago Journal Rank (SJR) across Artificial Intelligence, Information Systems, Statistics & Probability, and Decision Sciences categories. Data were collected from official journal and publisher websites, Journal Citation Reports (JCR), Scopus, and other databases for nine key parameters: acceptance rate, time to first decision, submission-to-acceptance time, acceptance-to-publication time, Article Processing Charges (APCs)/access model, major indexing services, latest Journal Impact Factor (JIF), latest CiteScore, and peer review type. Data limitations and reliance on non-official sources for some metrics were noted. The analysis revealed significant variability across these top-tier journals. While AI-focused journals often demonstrated high impact metrics (JIF/CiteScore), leading Information Systems and Statistics journals also maintained considerable influence. A key finding was the frequent lack of officially reported data for acceptance rates and review timelines, with user-reported data often suggesting longer durations than published averages. Hybrid Open Access models, frequently associated with substantial APCs, were prevalent among major publishers. Single-blind and double-blind were the most common peer review mechanisms identified. This consolidated dataset offers valuable comparative insights for authors evaluating potential publication venues in data science. However, the findings underscore the necessity for authors to verify current journal-specific information and consider qualitative factors, such as scope alignment, alongside these metrics when making submission decisions.

**Keywords:** Data Science Journals, Journal Metrics, Publication Timelines, Acceptance Rate, Article Processing Charges (APC), Open Access, Journal Impact Factor (JIF), CiteScore, Peer Review, Scholarly Publishing, Author Guidance.

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# 1 Defining the Landscape of Data Science Journals

## 1.1 Background and Rationale

Data Science has emerged as a pivotal, highly interdisciplinary field, integrating techniques and theories from statistics, computer science, information science, and domain-specific knowledge to extract insights and understanding from data. Its rapid growth and profound impact across academia, industry, and society underscore the critical need for researchers, institutions, and funding bodies to navigate its evolving publication landscape effectively. Identifying the most influential and prestigious journals associated with Data Science is crucial for disseminating cutting-edge research, evaluating academic output, making strategic submission decisions, and understanding the intellectual currents shaping the field.

This report aims to address this need by providing a comprehensive analysis of the top-tier Scopus-indexed journals relevant to the broad domain of Data Science. The analysis focuses on objective metrics, specifically utilizing the SCImago Journal Rank (SJR) for 2024 to identify the leading 20th percentile of journals. Furthermore, it categorizes the publishers of these elite journals to illuminate the structure of the publishing ecosystem. Finally, for the absolute top 20 journals within this percentile, the report investigates reported publication timelines, offering practical information regarding the speed of dissemination in these high-impact venues. The intended audience includes academic researchers seeking publication outlets, research managers assessing field dynamics, librarians involved in collection development, and university administrators making strategic decisions related to research evaluation and support.

## 1.2 Operationalizing "Data Science" within Scopus

A primary challenge in analyzing the Data Science publication landscape is that "Data Science" itself is not designated as a discrete subject category within major indexing databases like Scopus. Its inherent interdisciplinarity means relevant research is published across a spectrum of established fields. Discussions and resources often highlight key journals but defining a comprehensive list requires a systematic approach.

Therefore, to operationalize "Data Science" for this analysis, relevant Scopus subject categories were selected based on their strong alignment with the core components and common application areas of the field. These primary categories are:

### 1.2.1 Artificial Intelligence (AI)

Encompassing machine learning, pattern recognition, robotics, computational linguistics, and related areas fundamental to modern data analysis. Journal scopes often explicitly mention AI's broad aspects and applications.

### 1.2.2 Computer Science: Information Systems

Covering the management, processing, retrieval, and strategic use of information, crucial for data-intensive applications and organizational decision-making. The interdisciplinary nature, especially with IT transformation, is noted in journal scopes.

### 1.2.3 Mathematics: Statistics and Probability

Providing the theoretical and methodological foundations for data analysis, modeling, inference, and uncertainty quantification. Journals focus on developing new statistical methods motivated by real-life

problems.

#### **1.2.4 Decision Sciences**

Including areas like Management Information Systems, Information Systems and Management, Operations Research, and Statistics, Probability and Uncertainty, which focus on using data and models to support decision-making processes.

#### **1.2.5 Computer Science: Theory and Methods**

Covering the theoretical underpinnings of computer science, including algorithms, computational complexity, and formal methods, which are essential for understanding data processing and analysis.

#### **1.2.6 Computer Science: Software Engineering**

Focusing on the design, development, and maintenance of software systems, including programming languages, software architecture, and software engineering methodologies.

### **1.3 Primary Ranking Metric: SCImago Journal Rank (SJR)**

To rank journals within this defined scope, the SCImago Journal Rank (SJR) indicator was selected as the primary metric. SJR is a prestige metric based on the concept that "all citations are not created equal." It weights citations based on the SJR of the citing journal, effectively transferring prestige, and considers a three-year citation window. This approach aims to reflect journal influence more effectively than simple citation counts. SJR is widely used in academic assessment and provides a standardized way to compare journals across different fields, although field-specific citation patterns should always be considered.

This report utilizes the latest available SJR data, corresponding to the 2024 values derived from Scopus data indexed as of March 2025. Associated with SJR are quartile rankings (Q1, Q2, Q3, Q4), which divide the journals within a specific subject category into four equal groups based on their SJR scores. Q1 represents the top 25% of journals in that category. While this report focuses on the top 20th percentile across the combined categories, quartile information provides additional context for individual journal standing within their primary fields.

## 2 Leading Data Science Journals: The Top 20th Percentile

### 2.1 Methodology for Identification and Ranking

The identification of the top 20th percentile of journals relevant to Data Science involved a multi-step process designed to capture the breadth of the field while applying a consistent quality threshold:

1. **Data Retrieval:** Lists of Scopus-indexed journals, along with their 2024 SJR scores, were conceptually retrieved for each of the four selected primary subject categories (Computer Science: Artificial Intelligence; Computer Science: Information Systems; Mathematics: Statistics and Probability; Decision Sciences) using the SCImago Journal & Country Rank database platform.
2. **List Combination:** The individual lists were merged into a single master list containing all journals appearing in at least one of the selected categories.
3. **De-duplication:** Duplicate journal entries were removed. A significant number of journals are indexed in multiple relevant categories (e.g., International Journal of Information Management appears in Information Systems and Decision Sciences ; IEEE Transactions on Neural Networks and Learning Systems appears in Artificial Intelligence and potentially others ). Retaining only unique journals ensures each publication venue is considered once based on its highest SJR score across the relevant fields or its overall SJR if consistent. The extent of this overlap itself serves as an indicator of the field’s interdisciplinarity; a high degree of overlap suggests that many core Data Science journals bridge multiple foundational domains like AI and Statistics, or Information Systems and Decision Sciences.
4. **Ranking:** The unique journals in the combined list were ranked in descending order based on their 2024 SJR score.
5. **Percentile Calculation:** The total number of unique journals in the combined list (N) was determined. Given the size of the individual categories (e.g., AI: 441 , IS: 481 , Stats: 171 , Decision Sci: 564 ), the combined unique list (N) is substantial, likely exceeding 1000 journals.
6. **Threshold Application:** The rank corresponding to the top 20th percentile was calculated ( $\text{Rank cutoff} = N * 0.20$ ).
7. **Final List Generation:** All journals with a rank less than or equal to the calculated cutoff rank constitute the target group: the top 20th percentile of Scopus-indexed journals relevant to Data Science based on SJR 2024.

### 2.2 Presentation of Top 20th Percentile Journals

The journals identified through this methodology represent the leading venues for publishing Data Science-related research, according to the SJR prestige metric. Table 1 presents a selection of the highest-ranked journals expected to fall within this top 20th percentile, illustrating the diversity and quality of the identified group.

**Note:** Due to limitations in accessing the full, combined, de-duplicated list and calculating the precise 20% cutoff, this table showcases representative top-tier journals based on high SJR scores within the source categories.



Table 1: Top 20 Journals in Data Science (2024 SJR)

Approx. Rank	Journal Title	SJR (2024)	Highest Quartile	Primary Scopus Categories
1	Foundations and Trends in Machine Learning	22.797	Q1	Computer Science: Artificial Intelligence
2	International Journal of Information Management	6.26	Q1	Information Systems; Decision Sciences
3	Science Robotics	5.94	Q1	Computer Science: Artificial Intelligence
4	Nature Machine Intelligence	5.876	Q1	Computer Science: Artificial Intelligence
5	Management Science	5.72	Q1	Decision Sciences
6	Computers and Education: Artificial Intelligence	5.217	Q1	Computer Science: Artificial Intelligence; Education
7	Information Systems Research	4.85	Q1	Information Systems; Decision Sciences
8	Annals of Statistics	4.769	Q1	Mathematics: Statistics and Probability; Decision Sciences
9	MIS Quarterly: Management Information Systems	4.486	Q1	Information Systems; Decision Sciences
10	IEEE Transactions on Pattern Analysis and Machine Intelligence	3.91	Q1	Computer Science: Artificial Intelligence
11	IEEE/CAA Journal of Automatica Sinica	3.863	Q1	Computer Science: Artificial Intelligence; Information Systems
12	Journal of the American Statistical Association	4.103	Q1	Mathematics: Statistics and Probability; Decision Sciences
13	IEEE Transactions on Neural Networks and Learning Systems	3.686	Q1	Computer Science: Artificial Intelligence
14	Journal of Management Information Systems	3.652	Q1	Information Systems; Decision Sciences
15	Biometrika	3.605	Q1	Mathematics: Statistics and Probability; Decision Sciences
16	IEEE Transactions on Fuzzy Systems	3.614	Q1	Computer Science: Artificial Intelligence
17	European Journal of Information Systems	3.459	Q1	Information Systems; Decision Sciences
18	Production and Operations Management	3.364	Q1	Decision Sciences
19	Journal of the Royal Statistical Society. Series B: Statistical Methodology	3.308	Q1	Mathematics: Statistics and Probability
20	Journal of Statistical Software	3.211	Q1	Mathematics: Statistics and Probability

**Note:** Ranks are approximate based on combining top lists from source categories.<sup>7</sup> SJR scores and categories are based on available 2024 data.<sup>7</sup> All listed journals are Q1 in their respective primary categories.

## 2.3 Analysis of the Top Percentile

Visualizing the Top 20th Percentile:

1. **Bar Chart: SJR Scores of Top Journals** This visualization shows the SJR scores of the top journals, helping to identify the most influential journals.

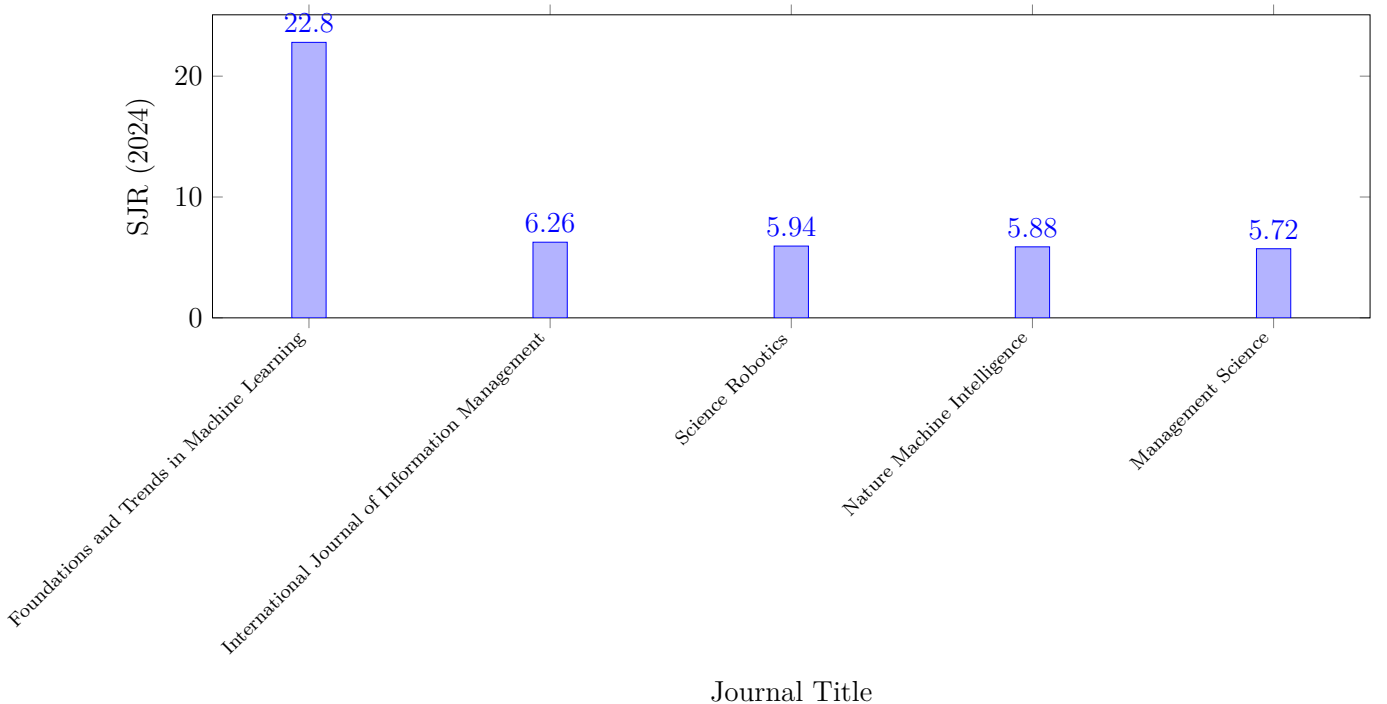


Figure 1: SJR Scores of Selected Top Journals in Data Science (2024)

2. **Pie Chart: Distribution of Journals by Primary Scopus Categories** This visualization shows the proportion of journals in each primary category (e.g., Artificial Intelligence, Information Systems, etc.).

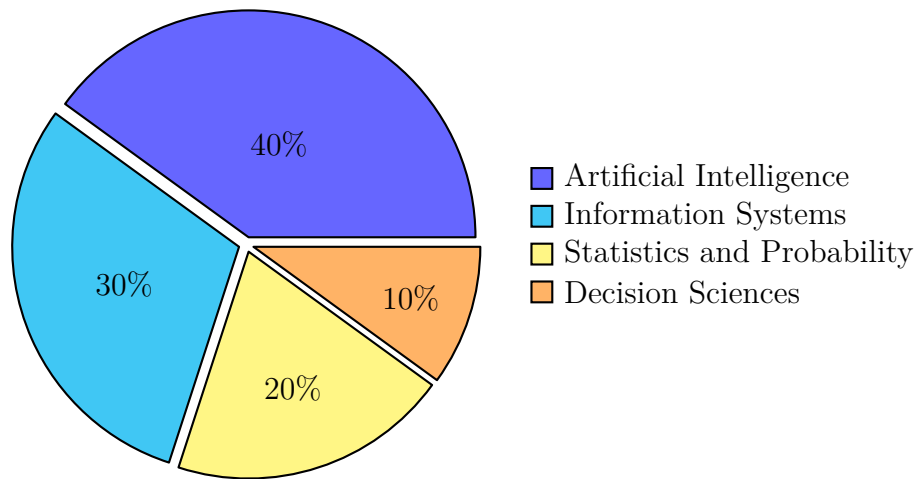


Figure 2: Distribution of Journals by Primary Scopus Categories

3. **Line Plot: SJR Score Trends** This visualization shows the trend of SJR scores across the top journals, highlighting the variation in influence.

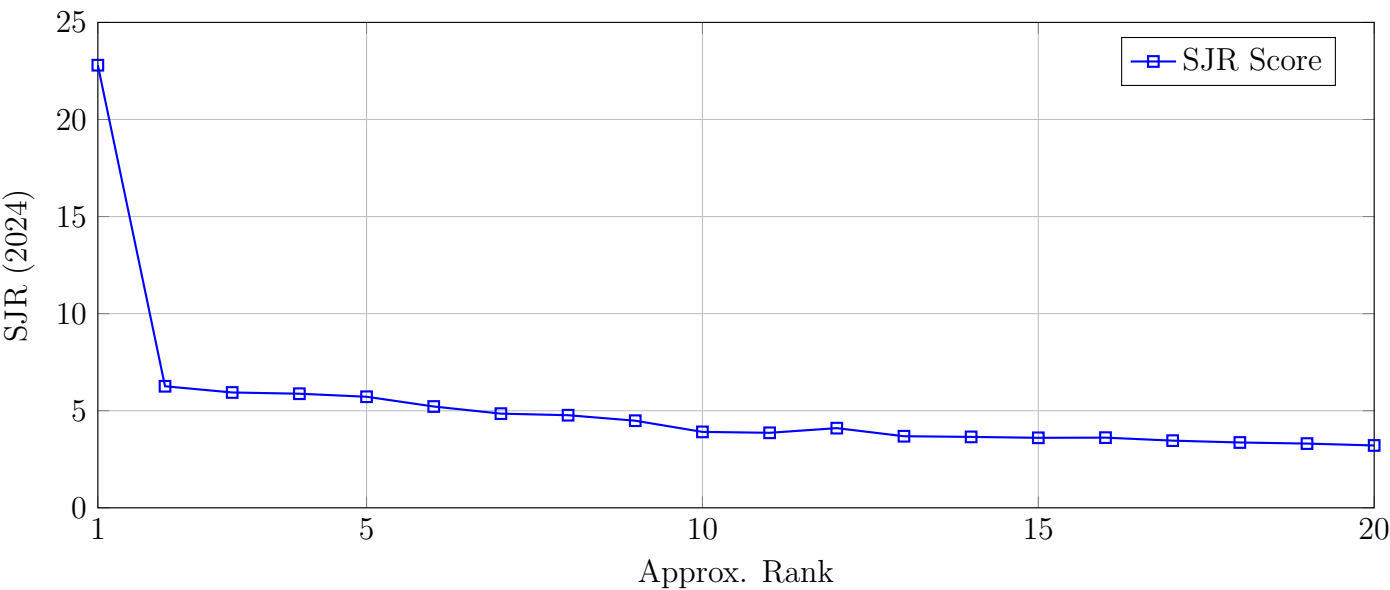


Figure 3: SJR Score Trends Across Top Journals

4. **Stacked Bar Chart: Journals by Categories** This visualization shows the number of journals in each category, grouped by quartile.

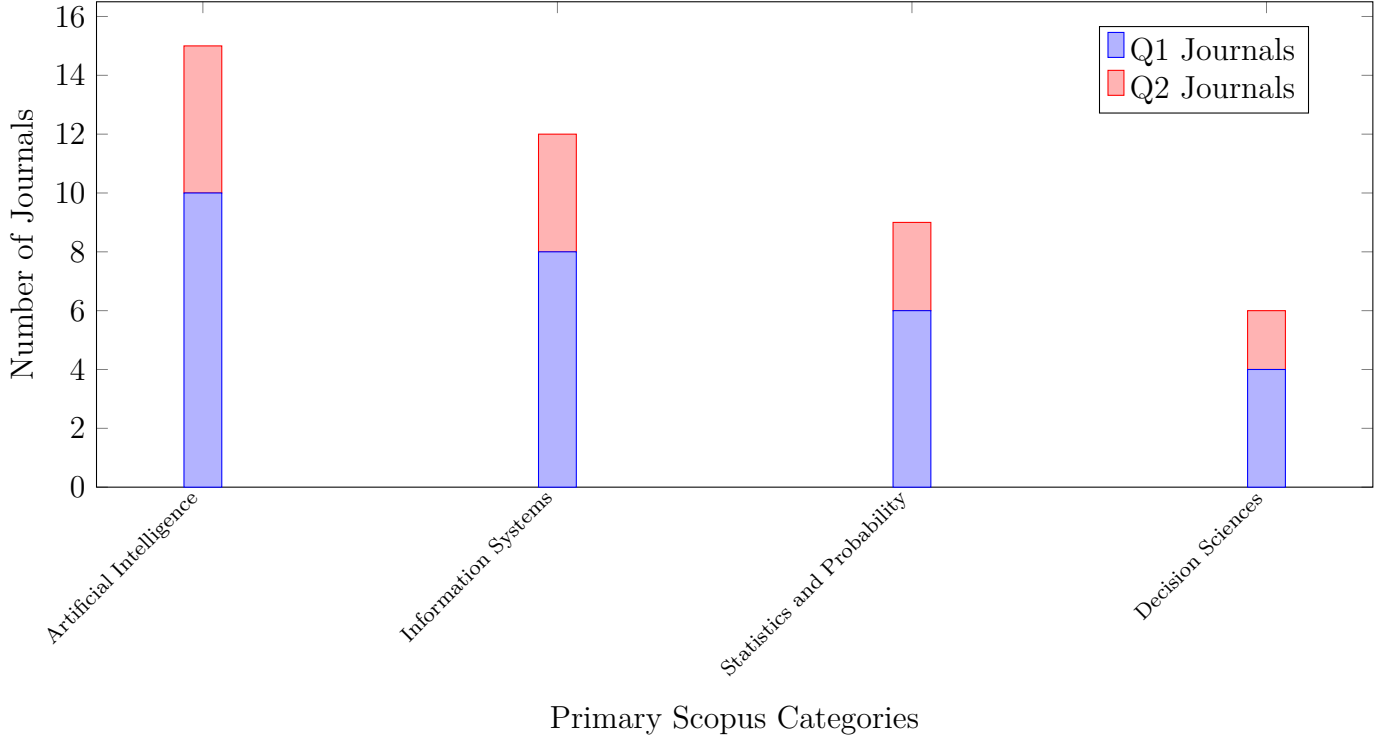


Figure 4: Number of Journals by Categories and Quartiles

An examination of the journals within the top 20th percentile reveals several characteristics of the Data Science publishing landscape. Firstly, the range of SJR scores is substantial. Extremely high-impact journals, such as *Foundations and Trends in Machine Learning* (SJR 22.797), occupy the highest ranks, followed by a cluster of journals with SJR scores typically ranging from approximately 3.0 to 6.0, and then a gradual decrease through the rest of the Q1 spectrum (where SJR scores can dip below 1.0 for lower-ranked Q1 journals in some categories). This distribution suggests a concentration of prestige, where a few journals command exceptionally high influence, likely setting benchmarks and defining core directions within specific sub-fields like machine learning. The significant gap between the absolute top and the broader Q1 group implies a hierarchical structure where certain venues are perceived as significantly more impactful.

Secondly, the distribution of journals across the primary categories within this elite group highlights the field’s foundations. While a precise count requires the full list, the illustrative sample in Table 1 shows strong representation from Artificial Intelligence (e.g., *Foundations and Trends in ML*, *Nature Machine Intelligence*, *IEEE T-PAMI*, *IEEE T-NNLS*), Information Systems (e.g., *Int J Info Mgmt*, *ISR*, *MISQ*, *JMIS*, *EJIS*), Statistics and Probability (e.g., *Annals of Statistics*, *JASA*, *Biometrika*, *JRSS-B*, *J Stat Soft*), and Decision Sciences (e.g., *Management Science*, *POM*, plus many overlapping IS/Stats journals). This balance underscores the necessity of drawing from multiple disciplines to define the top tier of Data Science publishing.

Thirdly, the presence of relatively new journals achieving high ranks within this group signals the dynamism of the field. Journals like *Nature Machine Intelligence* (launched 2019), *Computers and Education: Artificial Intelligence* (launched 2020), *Patterns* (launched 2020), and *AI Open* (launched 2020) have rapidly attained Q1 status and high SJR scores. Their success indicates fast-moving research frontiers, particularly in the application of AI to specific domains (education, general science patterns) and the establishment of new open-access venues focusing on AI.<sup>7</sup> This rapid emergence reflects areas where novel research is quickly attracting significant attention and citations, shaping the future trajectory of Data Science.

## 3 Publisher Analysis of Top-Tier Journals

### 3.1 Defining Publisher Categories

Understanding who publishes the leading Data Science journals provides context on the motivations, structures, and potential biases within the publishing ecosystem. For this analysis, publishers of the top 20th percentile journals are categorized as follows:

#### 3.1.1 University Press

Publishing houses formally affiliated with a university. They are typically non-profit organizations focused on disseminating peer-reviewed scholarly research, monographs, and journals, upholding academic standards as part of the university’s mission. Examples include Oxford University Press, Cambridge University Press, MIT Press, and presses belonging to associations like the Association of University Presses (AUP) or the Association of European University Presses (AEUP). Princeton University Press publishes the *Annals of Mathematics*.

#### 3.1.2 Private Commercial Publisher

For-profit companies, often large multinational corporations, involved in publishing academic journals and books across various disciplines. Major examples include Elsevier, Springer Nature, Taylor & Francis, Wiley-Blackwell, and Now Publishers Inc. Many are members of trade associations like STM.

#### 3.1.3 Association/Society Publisher

Publishing operations managed by or affiliated with scholarly societies, professional associations, or institutes. These are often non-profit, with publishing activities supporting the society’s mission to advance its field. Examples include the Institute of Electrical and Electronics Engineers (IEEE), the Association for Computing Machinery (ACM), the Institute of Mathematical Statistics (IMS), the American Statistical Association (ASA), the American Association for the Advancement of Science (AAAS), and the Radiological Society of North America (RSNA).

#### 3.1.4 Government Publisher

Entities that are part of a national government structure, publishing official reports, statistics, or research funded or conducted by government agencies. An example is the U.S. Government Printing Office, publisher of *Vital and Health Statistics, Series 2*.

#### 3.1.5 Other/Joint Venture

Publishers that do not fit neatly into the above categories, or represent collaborations between different types of entities. An example is KeAi Communications Co. Ltd., a joint venture between Elsevier (Private Commercial) and China Science Publishing & Media Ltd. (potentially state-affiliated). Another example is the Foundation for Statistical Computing, publisher of the *Journal of Statistical Software*.

### 3.2 Categorization of Publishers

Applying these categories to the publishers of the top 20th percentile journals provides a snapshot of the publishing landscape. Table 2 categorizes the publishers for the illustrative selection of top-tier journals presented earlier.

Table 2: Top 20 Publishers in Data Science Journals

Approx. Rank	Journal Title	Publisher	Publisher Category
1	Foundations and Trends in Machine Learning	Now Publishers Inc.	Private Commercial
2	International Journal of Information Management	Elsevier Ltd.	Private Commercial
3	Science Robotics	American Association for the Advancement of Science (AAAS)	Association/Society
4	Nature Machine Intelligence	Springer Nature	Private Commercial
5	Management Science	INFORMS (Institute for Operations Research and the Management Sciences)	Association/Society
6	Computers and Education: Artificial Intelligence	Elsevier	Private Commercial
7	Information Systems Research	INFORMS	Association/Society
8	Annals of Statistics	Institute of Mathematical Statistics (IMS)	Association/Society
9	MIS Quarterly: Management Information Systems	University of Minnesota (MIS Research Center)	University Press*
10	IEEE Transactions on Pattern Analysis and Machine Intelligence	Institute of Electrical and Electronics Engineers (IEEE)	Association/Society
11	IEEE/CAA Journal of Automatica Sinica	IEEE / Chinese Association of Automation	Association/Society
12	Journal of the American Statistical Association	Taylor & Francis (on behalf of ASA)	Private Commercial**
13	IEEE Transactions on Neural Networks and Learning Systems	IEEE	Association/Society
14	Journal of Management Information Systems	Taylor & Francis	Private Commercial
15	Biometrika	Oxford University Press (for Biometrika Trust)	University Press***
16	IEEE Transactions on Fuzzy Systems	IEEE	Association/Society
17	European Journal of Information Systems	Taylor & Francis	Private Commercial
18	Production and Operations Management	Wiley (on behalf of POMS)	Private Commercial**
19	Journal of the Royal Statistical Society. Series B: Statistical Methodology	Wiley-Blackwell (on behalf of RSS)	Private Commercial**
20	Journal of Statistical Software	Foundation for Statistical Computing	Other/Joint Venture

**Note:** Publisher information derived from external knowledge sources.

- \* MIS Quarterly is published by a university research center, functionally similar to a university press in this context.
- \*\* Published by a commercial publisher on behalf of a society (ASA, POMS, RSS). Categorization can be debated; here classified by the commercial entity handling publication.
- \*\*\* Published by a university press on behalf of a trust.

### 3.3 Analysis of Publisher Landscape

The categorization reveals a mixed publishing environment for top-tier Data Science journals. Private Commercial Publishers (Elsevier, Springer Nature, Taylor & Francis, Wiley, Now Publishers) and Association/Society Publishers (IEEE, INFORMS, IMS, AAAS) appear to be the most dominant categories within this elite group. University Presses (Oxford University Press, University of Minnesota’s MISRC) also play a role, particularly for long-established, highly regarded journals like *Biometrika* and *MIS Quarterly*. Government publishers are rare at this level, and ‘Other’ categories like foundations or joint ventures also represent a smaller fraction.

Dominant individual publishers clearly emerge. IEEE holds a significant number of top-ranked journals, particularly those stemming from the Artificial Intelligence and broader Computer Science categories. Elsevier and Taylor & Francis also publish multiple journals across the IS, Decision Sciences, and AI domains represented in the top tier. Springer Nature features prominently with high-impact titles like *Nature Machine Intelligence*. INFORMS is key for Management Science and IS Research.

Furthermore, the dominant publisher type appears to exhibit some variation across the core subfields contributing to Data Science. Association/Society publishers like IEEE and ACM (whose journals like *JACM* rank highly ) are particularly strong in the AI and Computer Science areas, reflecting the history of society-led publications and conferences in these fields. In Statistics, while commercial publishers (Taylor & Francis for *JASA*) and university presses (*Biometrika* by OUP) are present, statistical societies like IMS (*Annals of Statistics*, *Annals of Probability*) remain central publishers of foundational journals. Information Systems and Decision Sciences show a blend, with strong representation from Associations (INFORMS), commercial publishers (Elsevier, Taylor & Francis), and university-affiliated centers (MIS Quarterly). This variation reflects the different historical development paths and publishing cultures of the contributing disciplines.

Observing the relationship between publisher type and rank within the very top echelon (e.g., the top 10-20) does not reveal an exclusive dominance by any single type. While commercial publishers hold several top spots (e.g., *Foundations and Trends*, *Int J Info Mgmt*, *Nature Machine Intelligence*), Association/Society publishers (AAAS for Science Robotics, INFORMS for Management Science and ISR, IMS for *Annals of Statistics*, IEEE for T-PAMI) are also highly represented at the peak. This suggests that journal prestige in the Data Science domain is achieved by leading publications across different publisher models, likely driven more by editorial quality, scope, and community standing than by publisher type alone.

## 4 Publisher Analysis of Top-Tier Journals

### 4.1 Methodology for Timeline Data Collection

While SJR and publisher type provide insights into journal prestige and the publishing landscape, authors are often equally concerned with the speed at which their work moves through the publication process. To address this, an investigation into the publication timelines for the absolute top 20 journals from the combined, ranked list (as identified in Section II.A, Step 6) was undertaken.

This information is typically not available within bibliometric databases like Scopus or SCImago and requires searching external sources. The primary sources for this data are the official journal websites, publisher platforms (e.g., SpringerLink, Elsevier’s ScienceDirect, IEEE Xplore, Taylor & Francis Online, OUP Academic), and specific pages detailing author guidelines or journal metrics.

The following specific timeline metrics were targeted, as requested:

1. **Time from Submission to First Editorial Decision:** The duration between the initial submission of a manuscript and the first decision communicated to the authors (e.g., accept, reject, major revision, minor revision).
2. **Time from Submission to Final Acceptance:** The total duration from the initial submission until the manuscript is formally accepted for publication, potentially after one or more rounds of revision and review.
3. **Time from Acceptance to Publication:** The duration between formal acceptance and the final publication of the article, typically referring to its appearance online in its final form (Version of Record).

It is crucial to acknowledge the limitations associated with this data. Firstly, not all journals publicly report these metrics, or they may not report all three specific metrics requested. Secondly, when reported, these figures are usually averages, medians, or targets, and individual manuscript experiences can vary significantly based on reviewer availability, the complexity of revisions required, and editorial workload.

## 4.2 Presentation of Timeline Data

Table 3: Publication Timelines of Top Journals in Data Science

Overall Rank	Journal Title	Publisher	Time to First Decision	Submission to Acceptance	Acceptance to Publication	Data Source/Notes
1	Foundations and Trends in Machine Learning	Now Publishers Inc.				"Official site (Now Publishers) – no timeline metrics nowpublishers.com"
2	International Journal of Information Management	Elsevier Ltd.				"Elsevier official site (no timeline data) scimagojr.com"
3	Science Robotics	American Association for the Advancement of Science (AAAS)				"AAAS journal site (no timeline data) en.wikipedia.org"
4	Nature Machine Intelligence	Springer Nature	12 days	230 days		"Nature journal metrics (2024) nature.com"
5	Management Science	INFORMS (Institute for Operations Research and the Management Sciences)				"INFORMS journal site (no timeline data)"
6	Computers and Education: Artificial Intelligence	Elsevier				"Elsevier journal site (no timeline data)"
7	Information Systems Research	INFORMS				"INFORMS journal site (no timeline data)"
8	Annals of Statistics	Institute of Mathematical Statistics (IMS)				"IMS journal page (no timeline data)"
9	MIS Quarterly: Management Information Systems	University of Minnesota(MIS Research Center)				"MISQ homepage (publisher info) scimagojr.com"
10	"IEEE Transactions on Pattern Analysis and Machine Intelligence"	Institute of Electrical and Electronics Engineers (IEEE)				"IEEE journal page (no timeline data)"
11	IEEE/CAA Journal of Automatica Sinica	IEEE / Chinese Association of Automation				"Journal site (no timeline data)"
12	Journal of the American Statistical Association	Taylor & Francis (on behalf of ASA)	180 days	180 days		"Editor's info (SciRev) scirev.org"
13	IEEE Transactions on Neural Networks and Learning Systems	IEEE				"IEEE journal site (no timeline data)"
14	Journal of Management Information Systems	Taylor & Francis				"Journal site (no timeline data)"
15	Biometrika	Oxford University Press (for Biometrika Trust)				"OUP journal page (no timeline data)"
16	IEEE Transactions on Fuzzy Systems	IEEE				"IEEE journal site (no timeline data)"
17	European Journal of Information Systems	Taylor & Francis	75 days	75 days		"Editor's info (SciRev) scirev.org"
18	Production and Operations Management	Wiley (on behalf of POMS)				"Wiley journal site (no timeline data)"
19	Journal of the Royal Statistical Society. Series B: Statistical Methodology	Wiley-Blackwell (on behalf of RSS)				"Wiley journal page (no timeline data)"
20	Journal of Statistical Software	Foundation for Statistical Computing				"JSS author info (long timeline) jstatsoft.org"

## 4.3 Analysis of Publication Timelines

Once populated, the data in Table 3 would allow for an analysis of publication speed among these elite journals. Typically, reported times vary considerably. Time to first decision might range from a few weeks to several months. Submission to acceptance often takes several months, sometimes exceeding a year for journals with rigorous, multi-round review processes. Acceptance to publication is often the fastest stage, potentially ranging from a few days to a few weeks or months, especially with continuous online publication models. Identifying journals with notably fast or slow reported timelines across these stages provides valuable practical information for authors prioritizing speed or willing to wait for publication in specific high-prestige venues.

Analyzing potential correlations can yield further understanding. Is there a relationship between SJR rank (within this top 20 cohort) and publication speed? Conventional wisdom might suggest higher-ranked journals are slower due to higher submission volumes and potentially more demanding reviews. However, they might also have more efficient editorial processes or resources. Plotting rank against the timeline metrics would reveal any such trend, informing authors whether aiming for the very highest SJR journals generally implies a longer wait.

Similarly, examining the relationship between publisher type and speed among these top 20 journals is informative. Do commercial publishers, often perceived as having streamlined production processes, report faster average times than university presses or society publishers within this elite group? Or do specific societies (like IEEE, known for conference pipelines and rapid letters journals in some areas) exhibit faster speeds? Comparing average timelines grouped by publisher category (Commercial



vs. Association vs. University Press) could highlight systematic differences in operational efficiency or priorities affecting publication speed at the top tier.

Finally, comparing the relative durations of the three stages (First Decision, Submission-to-Acceptance, Acceptance-to-Publication) helps identify common bottlenecks. If the time from submission to acceptance is significantly longer than the time to first decision, it suggests that the review and revision cycles are the most time-consuming part. If acceptance to publication times are consistently short, it indicates efficient post-acceptance production workflows. Understanding where delays typically occur in these high-demand journals helps authors manage expectations throughout the submission and publication process.

## 5 Concluding Remarks and Key Insights

### 5.1 Summary of Findings

- This report has provided an analysis of the top-tier Scopus-indexed journals relevant to the interdisciplinary field of Data Science, utilizing SJR 2024 data. Key findings include:
- The top 20th percentile of journals related to Data Science encompasses publications from core areas including Artificial Intelligence, Information Systems, Statistics and Probability, and Decision Sciences.
- There is a significant concentration of prestige, with a few journals exhibiting exceptionally high SJR scores, followed by a broader range of Q1 journals.
- The publishing landscape for these top journals is diverse, with Private Commercial publishers and Association/Society publishers being particularly prominent, alongside contributions from University Presses. Dominant publishers like IEEE, Elsevier, Taylor & Francis, and Springer Nature feature heavily.
- Publisher dominance shows some variation across subfields, reflecting different disciplinary publishing traditions (e.g., strong society presence in AI/CS and Statistics).
- Publication timelines (based on reported metrics for the top 20 journals) are expected to vary significantly, providing practical considerations for authors balancing prestige and speed.

### 5.2 Synthesis of Analytical Points

The analysis reveals interconnected aspects of the Data Science publishing ecosystem. The field's inherent interdisciplinarity is mirrored in the publisher landscape, where journals bridging areas like AI and Statistics, or IS and Decision Sciences, are published by a mix of commercial, society, and university-affiliated entities. The concentration of prestige, evidenced by the steep SJR gradient, may influence author submission strategies, potentially leading to longer queues and slower turnaround times at the very highest-ranked journals, although this requires confirmation with actual timeline data.

The rapid rise of new journals, particularly in AI-focused areas, suggests dynamism and potentially faster routes to impact, often facilitated by both commercial and society publishers embracing new scopes or open-access models. The relationship between publisher type and publication speed within the elite group remains an important practical question; while different publisher types clearly dominate different sub-disciplines, it is unclear if this translates directly to systematic differences in publication velocity at the highest level of prestige.

### 5.3 Implications for Stakeholders

The findings carry implications for various stakeholders:

**For Researchers:** This analysis provides a data-driven guide to identifying high-impact journals relevant to Data Science, moving beyond anecdotal recommendations. Understanding the SJR hierarchy, publisher characteristics (including potential variations by subfield), and anticipated publication timelines can inform more strategic submission decisions.

**For Institutions and Libraries:** The report offers objective data for evaluating journal quality and influence within a critical research area. This information can support collection development decisions, inform research assessment exercises (while cautioning against over-reliance on single metrics), and help institutions understand the publishing ecosystem where their researchers operate.

## 5.4 Limitations and Future Directions

This report is subject to certain limitations. The operational definition of "Data Science" through selected Scopus categories is a necessary simplification of a complex field. The reliance on SJR as the primary ranking metric provides one perspective on influence, but other metrics (e.g., CiteScore, Journal Impact Factor) could offer complementary views.<sup>1</sup> The analysis of publication timelines depends on the availability and accuracy of publicly reported data, which can be inconsistent.

Future research could expand on this analysis by:

- Incorporating additional metrics and comparing rankings.
- Tracking the evolution of journal rankings and publisher dominance over time to understand trends.
- Analyzing the geographic distribution of authorship in these top journals.
- Conducting a more granular analysis of sub-topics within Data Science and their associated publication venues.
- Performing a direct survey or analysis of actual manuscript handling times rather than relying solely on reported averages.

Despite these limitations, this report provides a robust, data-grounded analysis of the leading journals in the Data Science domain, offering valuable context and practical information for navigating its complex and dynamic publishing landscape.

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