Data and Technology for Good: Elsevier‘s Developments in AI
資料和技術造福人類: Elsevier 在人工智慧領域的發展

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Elsevier 學術與政府資深客戶經理
Nov 15 2023

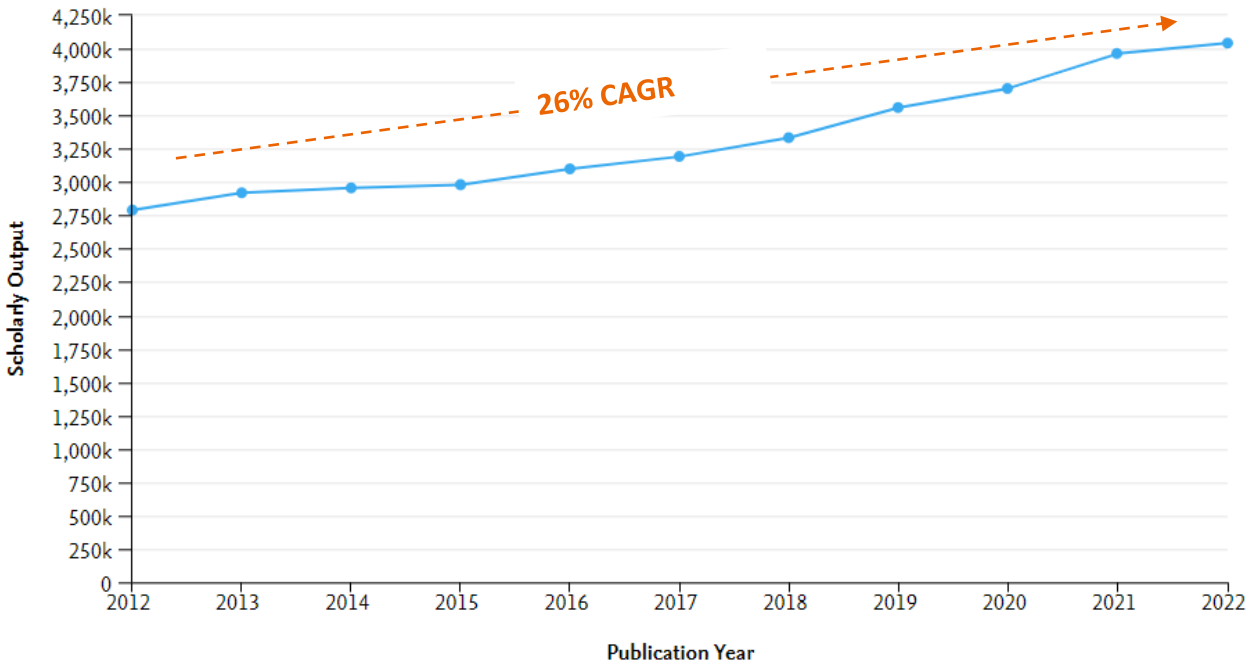
Information overload & authenticity

Scientific information is growing rapidly

Global publication output has grown at the rate of

26% CAGR

Global Publications indexed in Scopus 2012-2022



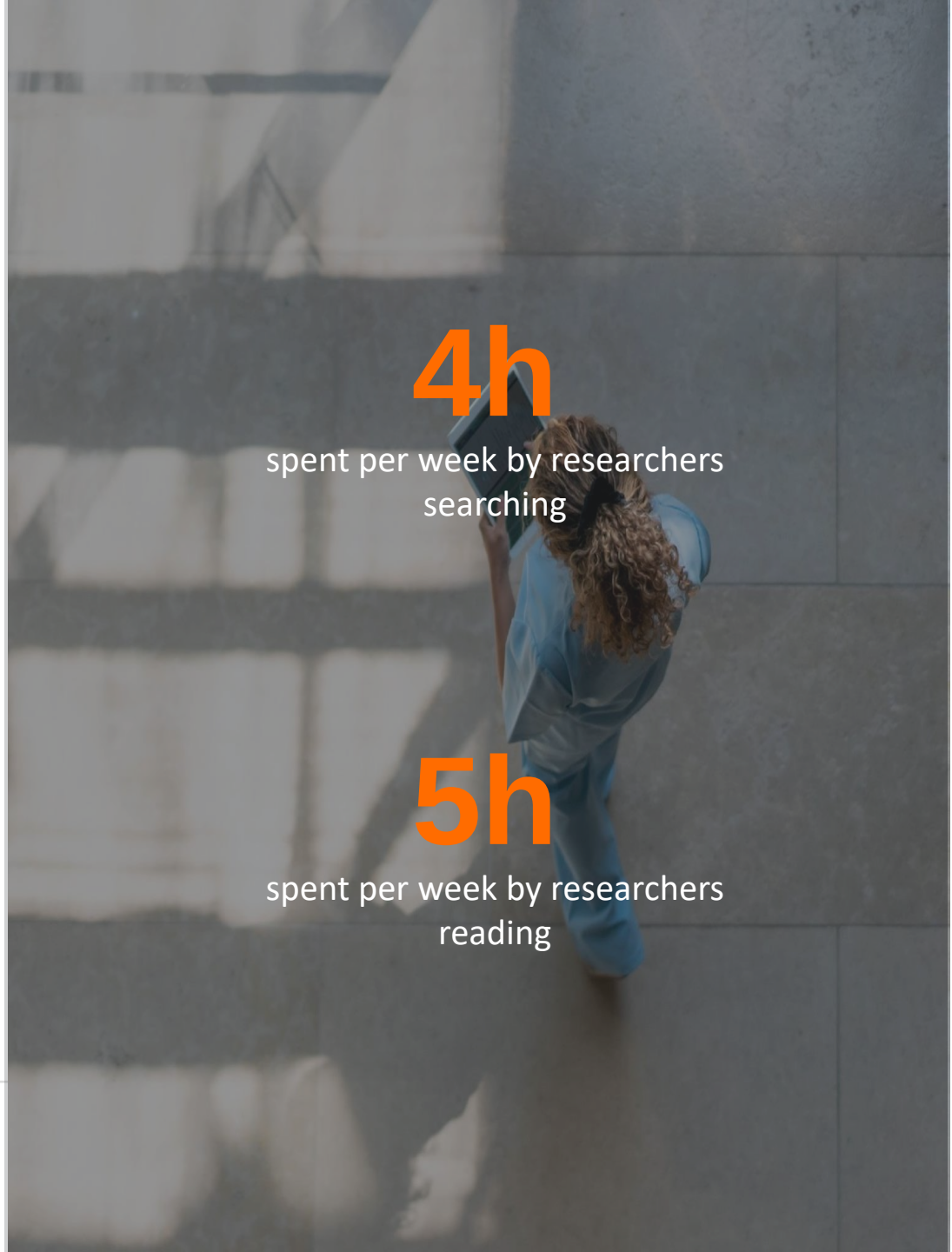
Source: Publications indexed in Scopus 2012-2022 www.Scival.com

The increase of scientific information from multiple sources poses a significant challenge

The research community often tells us that they need help with scientific literature reviews.

According to our recent study*, researchers spend significant time searching for relevant content, and only half of the articles read are considered useful.

With article output growing, staying up to date with the latest trusted research is becoming harder.



*Source: Elsevier Trust in Research report

In this new era of technology, information will continue to increase much faster

- Overall growth rates of scientific literature are expected to rise by **4.10% annually** **with a doubling time of 17.3 years**[1]

- With the introduction of AI tools, such as ChatGPT, we expect the doubling time to **reduce from 17.3 years to 12.6 years**.

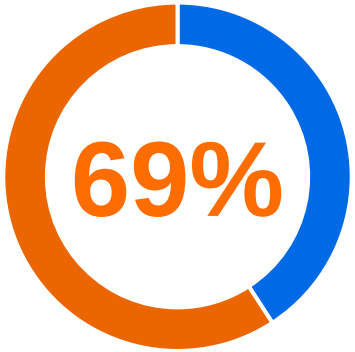
Researchers will be further overwhelmed with the sea of scientific information available

[1]Growth rates of modern science, Nature, 2021

Not only is trusted scientific information increasing, but the amount of misinformation is also increasing and is a major concern for researchers

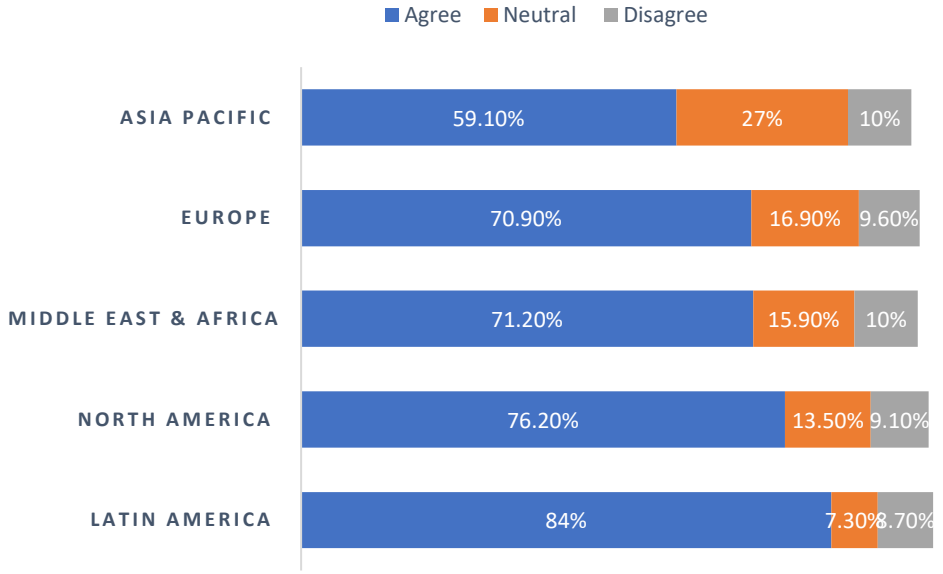
Covid-19 saw widespread misinformation disseminated across traditional media, social media and even in policy circles - Confidence in Research Report, 2022

Across the board, the pandemic has spurred concerns around misinformation.



Of researchers surveyed say that the pandemic has increased the importance of separating good quality research from misinformation

The pandemic increased the importance of separating good quality research from misinformation.



Confidence in Research Report, 2022

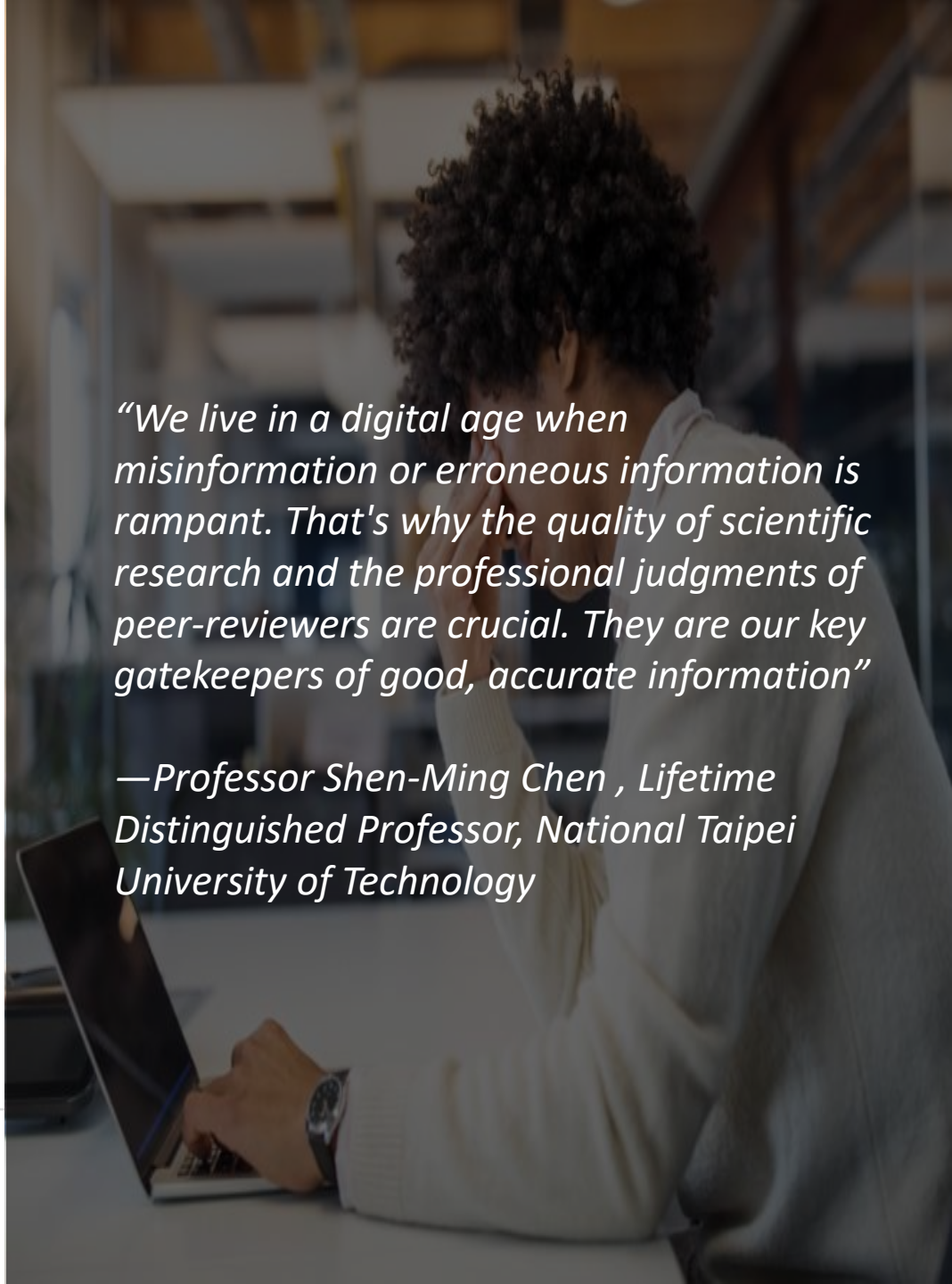
• Sample size (N): North America (N = 849) Latin America (N = 126) Europe (N = 817) Asia Pacific (N = 1163) Middle East and Africa (N = 189)

Information overload is affecting researchers' efficiency

- Researchers are required to constantly filter out information that is either not relevant or authentic.
- This is exceptionally time-consuming and lengthens their research workflow. It impacts the overall quality of education, research output and outcomes for an institution and student experience.

Researchers already overwhelmed by bench and field work, grant-writing, publishing and other responsibilities, trying to navigate the growing deluge of information can be overwhelming.

*https://www.elsevier.com/connect/trust-in-research

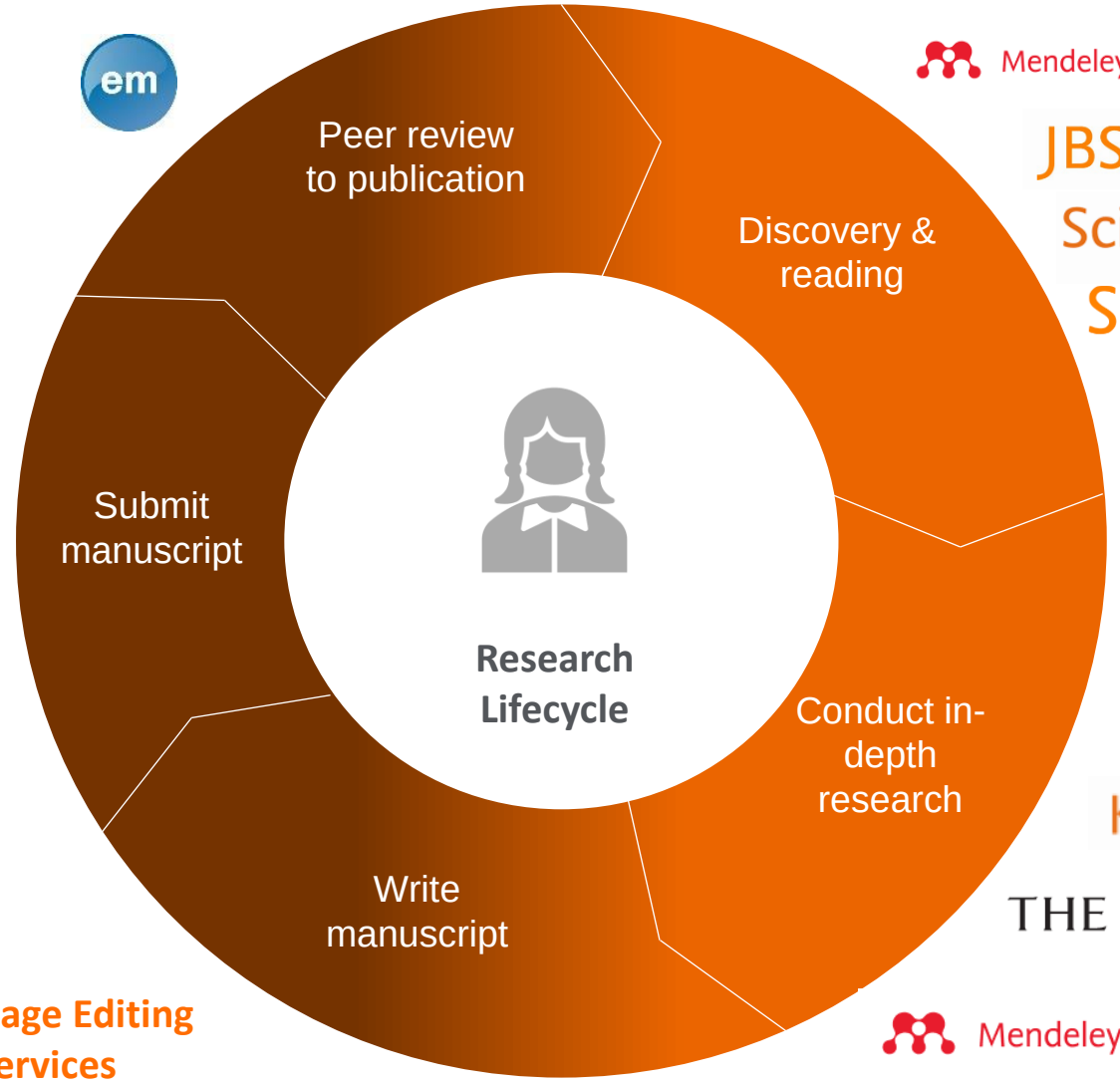


ScienceDirect

Advanced technology incorporation and continuous investments make our platform robust

The value we provide to customers at R&L

Establish knowledge



Discover knowledge

em
SSRN
Mendeley
JBS
ScienceDirect
Scopus
SSRN
STM Books
Embase
Reaxys
Knovel
Engineering Village
THE LANCET
CellPress
Mendeley
Language Editing Services

*We continue to enhance customer value by **connecting experiences across the researcher journey***

ScienceDirect was launched as a revolutionary platform and has continued to move from strength to strength

ScienceDirect is a powerful platform that has taken over 20 years to build; it is very hard to replicate

1999

Commercial launch of ScienceDirect.com

2000 2007

Digitization of content

Backfiles
Major Reference Works
eBooks
Book series

2008 2012

Functionality expansion

Multimedia Document Download Manager
Related articles
Citing articles
Article of the Future
Three-pane article UI
Content innovations

2012 2014

Enhanced online usability

Article of the Future
Three-pane article UI
Content innovations

2014 2018

Tech modernization

New micro-services back-end
Waterfall to agile
Experimentation infrastructure
Mobile-first responsive UI
Search migrations
FAST SOLR Cloud
Elastic

2015 2019

Use case expansion

Topic pages
Online PDF reader
Personalization
Article evaluation e.g. PlumX

2020+

Invest in core

Remote access
SEO & Accessibility
Privacy & Security
GetFTR

2022+

Expand value

Content syndication
Product integrations: Reaxys, Scopus
Support for authors to find a journal
AI experimentation
Advanced researcher use cases

2023+

And beyond

Top 200 domain #1 accessible homepage.
Exploration in Generative AI

ELSEVIER

With ScienceDirect you can guarantee that

Researchers can get the **most efficient route** to relevant content. *ScienceDirect* provides **unrivalled ease of access** and efficient remote and federated access options.

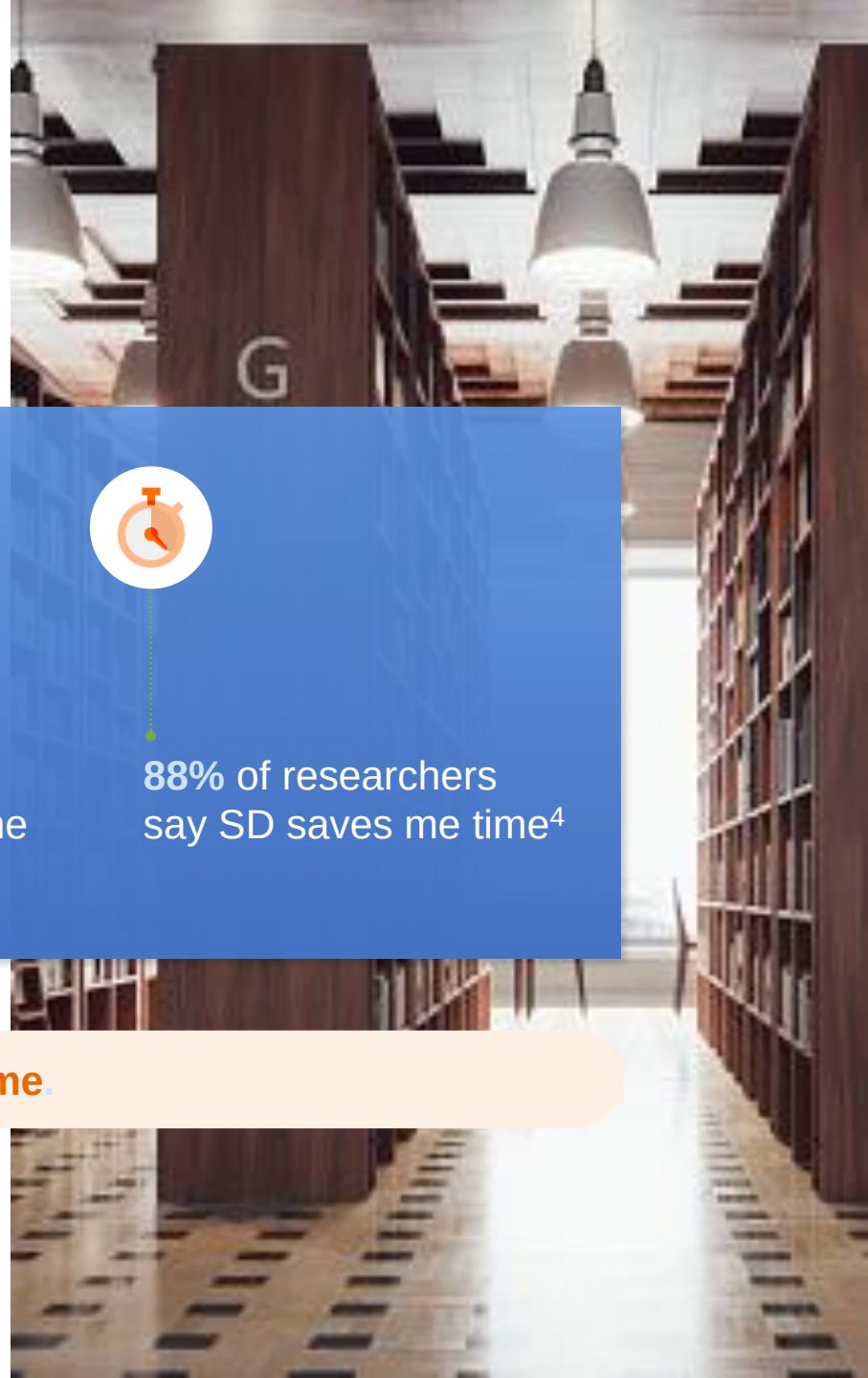
'Top 200' platform ranking on the internet[1]

#1 most accessible platform out of the top 1 Million home pages[2]

>2 times the monthly visits of the next competitor[3]

88% of researchers say SD saves me time[4]

ScienceDirect is always available, anywhere at anytime with **99.9% uptime**.



(1) Ahref ranking, (2) 2023 annual WebAIM Top Million study (3) Monthly traffic on SimilarWeb (May 2022) – ScienceDirect with 104m monthly visits, while competitors SpringerNature, Wiley, Taylor & Francis, Frontier and MDPI each received less than 50m monthly visits, (4) ScienceDirect user survey (n=2,071)

AI-Driven Technology

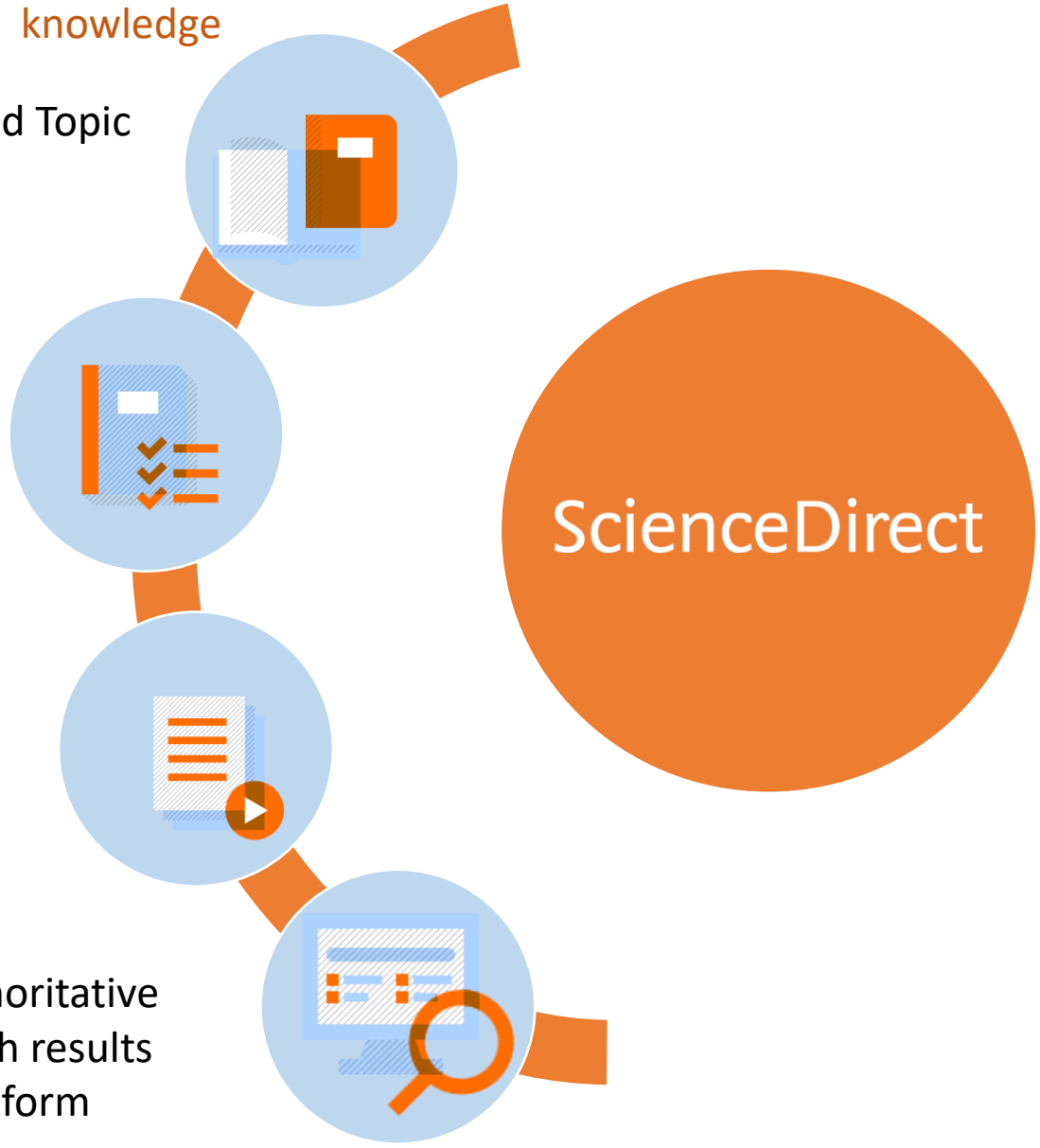
Discover knowledge

AI-powered Topic Pages

Journal Recommendation Tool

Journals Insight Page

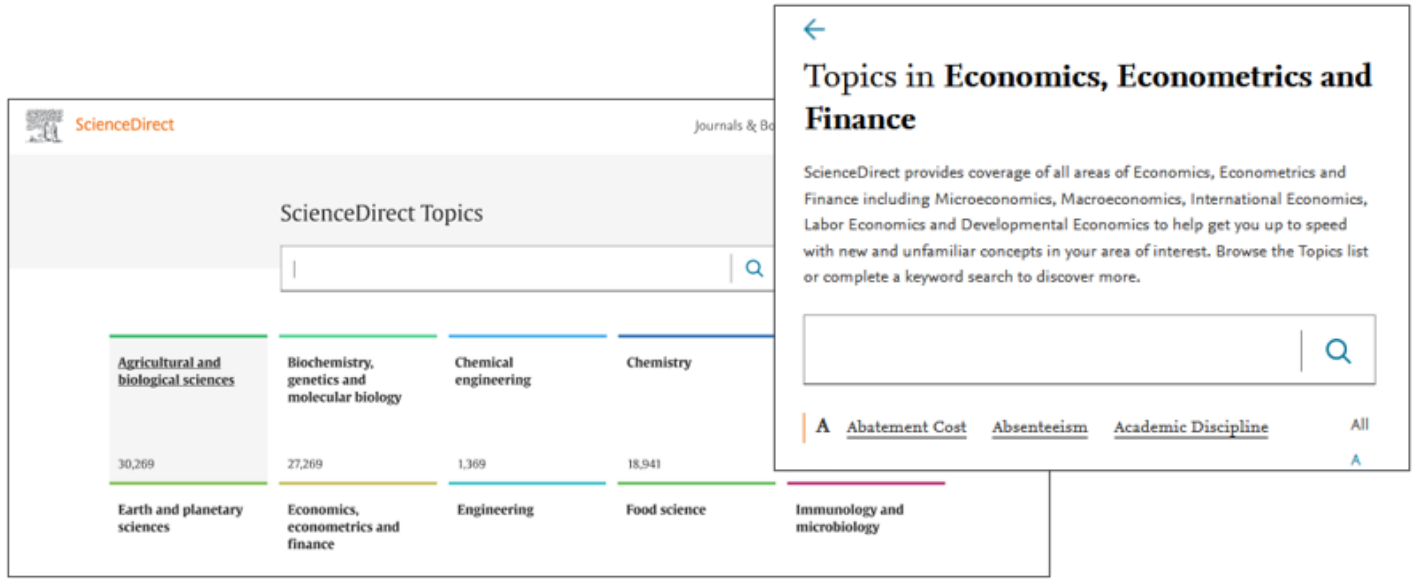
quick and authoritative keyword search results within the platform

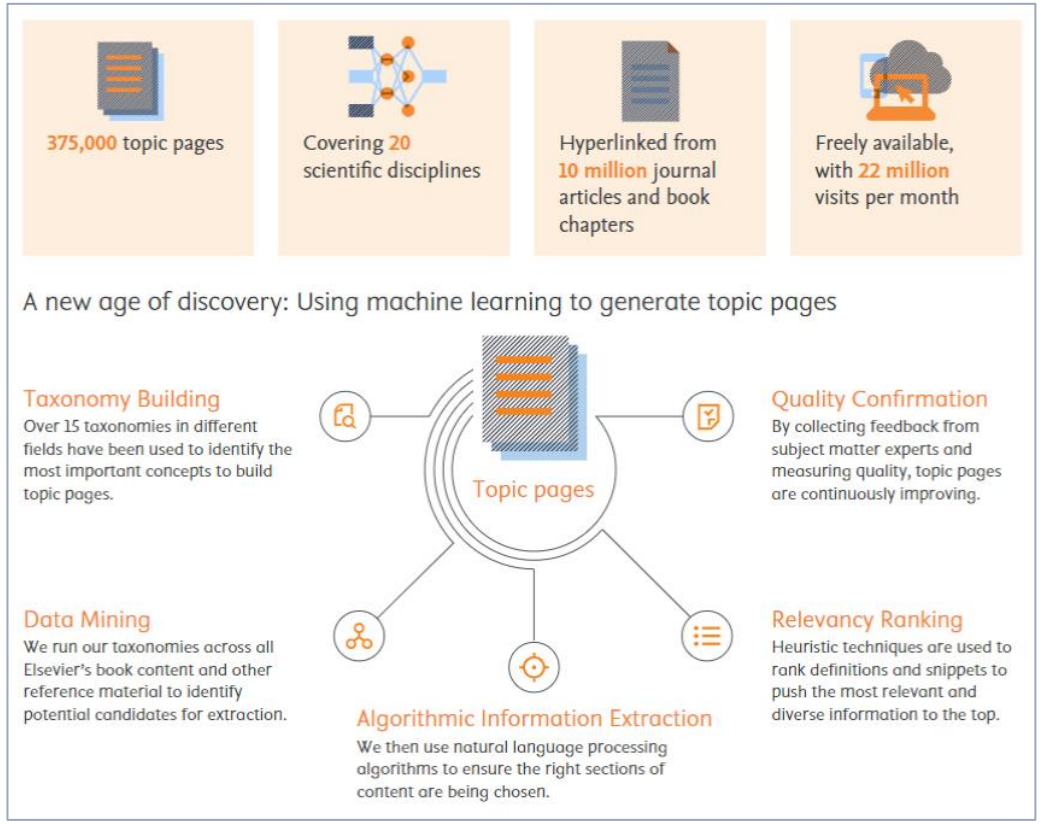


ScienceDirect

Access ScienceDirect via topic pages, delivering free, critical and contextual information at the time of need

Using **artificial intelligence**, **machine learning algorithms** and **natural language processing tools**, topic pages build a bridge between **book and journal** content to surface comprehensive, interdisciplinary knowledge that answers research questions, deepens users' understanding of a specific topic and fosters getting up to speed





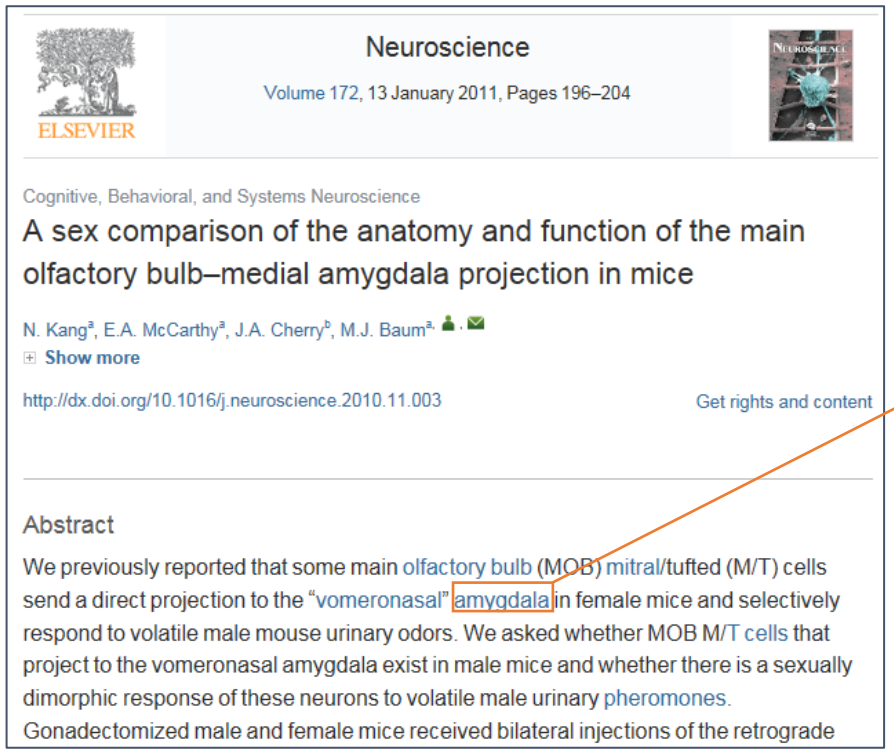
Enhancing Fundamental Knowledge

- A central place from which to start the path of discovery and understanding

- **375,000+** pages across **20** subject areas, hyperlinked from **10 million** journal articles
- Over **22 million** visits per month, **2nd** most visited after article pages

Performics

Understand unfamiliar terms and concepts in an article with a single click from AI-generated topic pages



Neuroscience

Volume 172, 13 January 2011, Pages 196–204

Cognitive, Behavioral, and Systems Neuroscience

A sex comparison of the anatomy and function of the main olfactory bulb–medial amygdala projection in mice

N. Kang[a], E.A. McCarthy[a], J.A. Cherry[b], M.J. Baum[a]

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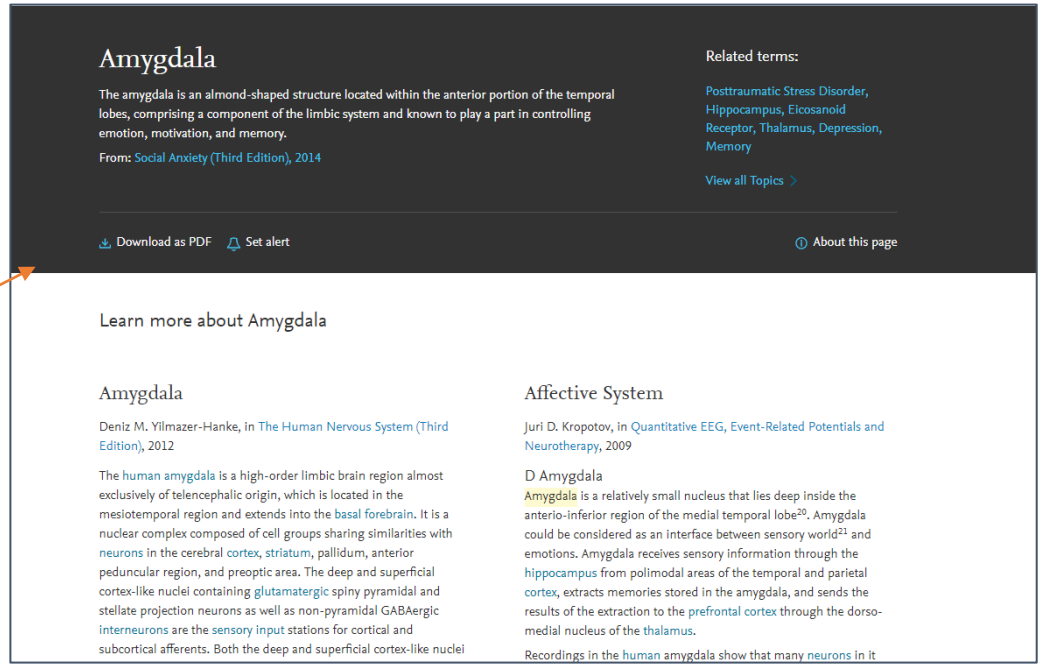
http://dx.doi.org/10.1016/j.neuroscience.2010.11.003 Get rights and content

Abstract

We previously reported that some main olfactory bulb (MOB) mitral/tufted (M/T) cells send a direct projection to the "vomeronasal" amygdala in female mice and selectively respond to volatile male mouse urinary odors. We asked whether MOB M/T cells that project to the vomeronasal amygdala exist in male mice and whether there is a sexually dimorphic response of these neurons to volatile male urinary pheromones. Gonadectomized male and female mice received bilateral injections of the retrograde



Amygdala

The amygdala is an almond-shaped structure located within the anterior portion of the temporal lobes, comprising a component of the limbic system and known to play a part in controlling emotion, motivation, and memory.

From: Social Anxiety (Third Edition), 2014

Related terms:

Posttraumatic Stress Disorder, Hippocampus, Eicosanoid Receptor, Thalamus, Depression, Memory

View all Topics

Download as PDF Set alert About this page

Learn more about Amygdala

Amygdala

Deniz M. Yilmazer-Hanke, in The Human Nervous System (Third Edition), 2012

The human amygdala is a high-order limbic brain region almost exclusively of telencephalic origin, which is located in the mesiotemporal region and extends into the basal forebrain. It is a nuclear complex composed of cell groups sharing similarities with neurons in the cerebral cortex, striatum, pallidum, anterior peduncular region, and preoptic area. The deep and superficial cortex-like nuclei containing glutamatergic spiny pyramidal and stellate projection neurons as well as non-pyramidal GABAergic interneurons are the sensory input stations for cortical and subcortical afferents. Both the deep and superficial cortex-like nuclei

Affective System

Juri D. Kropotov, in Quantitative EEG, Event-Related Potentials and Neurotherapy, 2009

D Amygdala

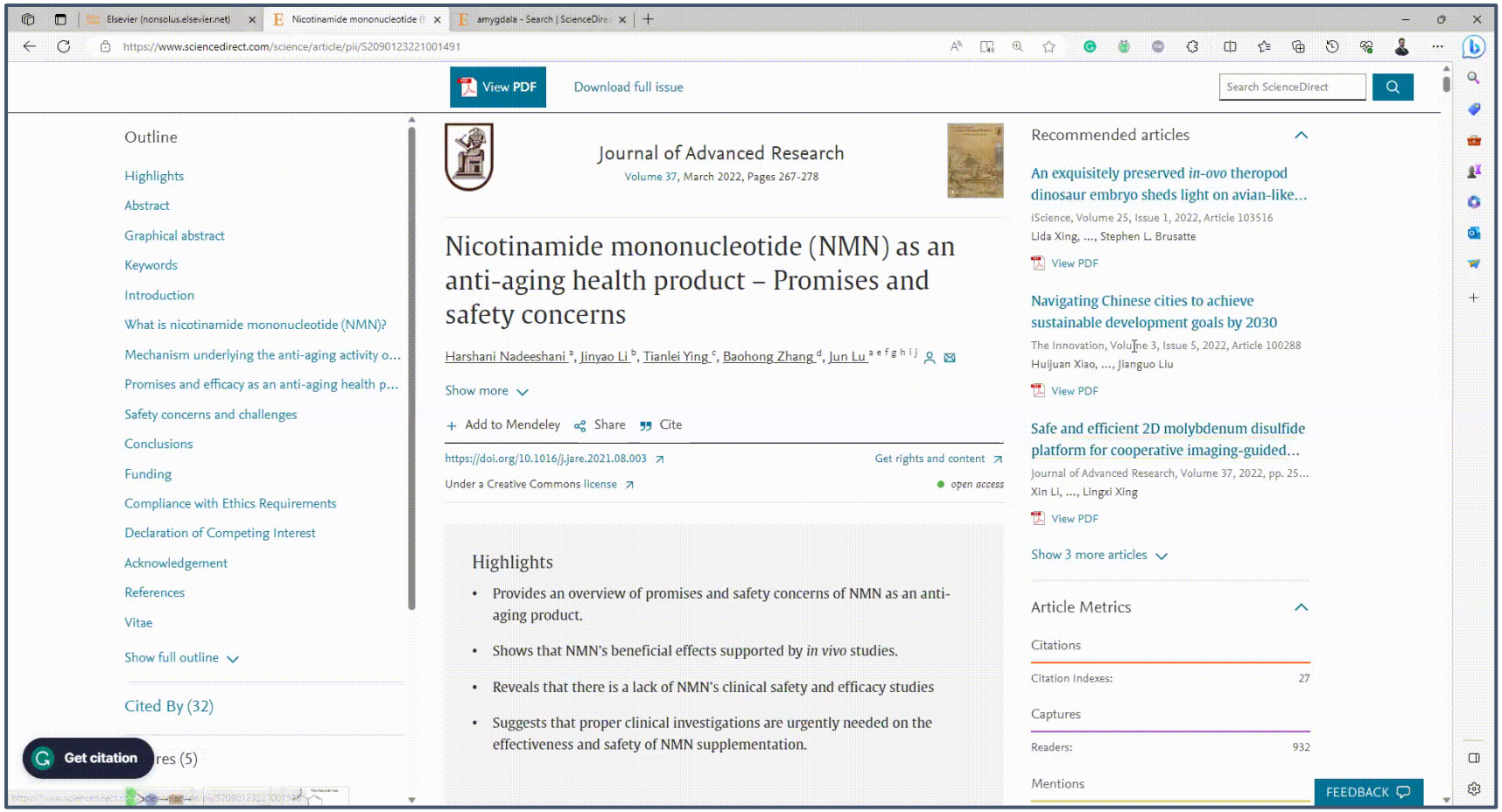
Amygdala is a relatively small nucleus that lies deep inside the anterio-inferior region of the medial temporal lobe[20]. Amygdala could be considered as an interface between sensory world[21] and emotions. Amygdala receives sensory information through the hippocampus from polimodal areas of the temporal and parietal cortex, extracts memories stored in the amygdala, and sends the results of the extraction to the prefrontal cortex through the dorso-medial nucleus of the thalamus.

Recordings in the human amygdala show that many neurons in it

Enhancing Fundamental Knowledge

- Automatically added links in an article take users directly to topic pages
- Giving the contextual information and foundational knowledge of a topic at the time of need

Understand unfamiliar terms and concepts in an article with a single click from AI-generated topic pages (Video/GIF for customer demo)



Enhancing Fundamental Knowledge

- Automatically-added links in an article take users directly to topic pages
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A new journal recommendation tool to help authors choose journals for their research

Author Challenge: Publishing research can be a very long process, and more often than not, authors choose the wrong journal to submit (based on the rejection rate)

ScienceDirect Journal recommendation tool supports authors in increasing their chances of selecting a more suitable journal by recommendation.

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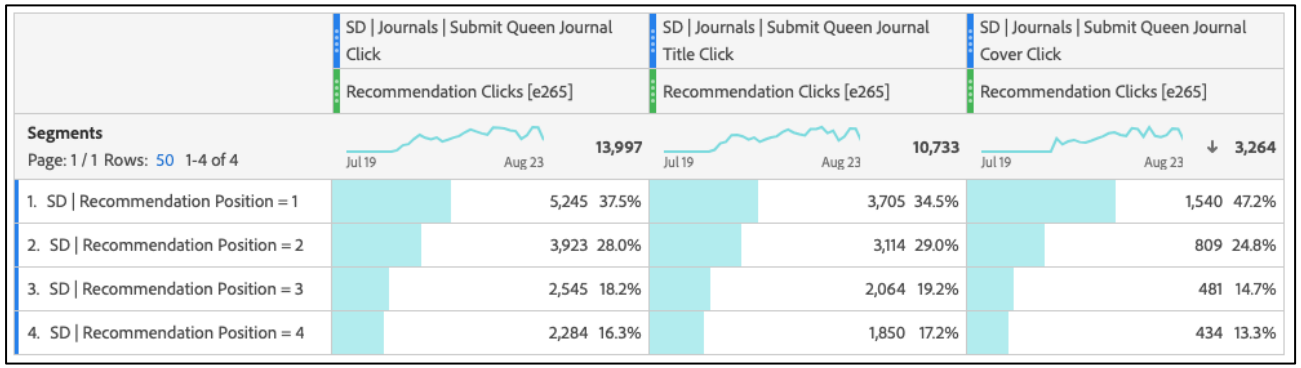
ScienceDirect®



	SD | Journals | Submit Queen Journal Click Recommendation Clicks [e265]		SD | Journals | Submit Queen Journal Title Click Recommendation Clicks [e265]		SD | Journals | Submit Queen Journal Cover Click Recommendation Clicks [e265]	
Segments Page: 1 / 1 Rows: 50 1-4 of 4	Jul 19 – Aug 23	**13,997**	Jul 19 – Aug 23	**10,733**	Jul 19 – Aug 23	↓ **3,264**
1. SD | Recommendation Position = 1	5,245	37.5%	3,705	34.5%	1,540	47.2%
2. SD | Recommendation Position = 2	3,923	28.0%	3,114	29.0%	809	24.8%
3. SD | Recommendation Position = 3	2,545	18.2%	2,064	19.2%	481	14.7%
4. SD | Recommendation Position = 4	2,284	16.3%	1,850	17.2%	434	13.3%

Improving Author Experience

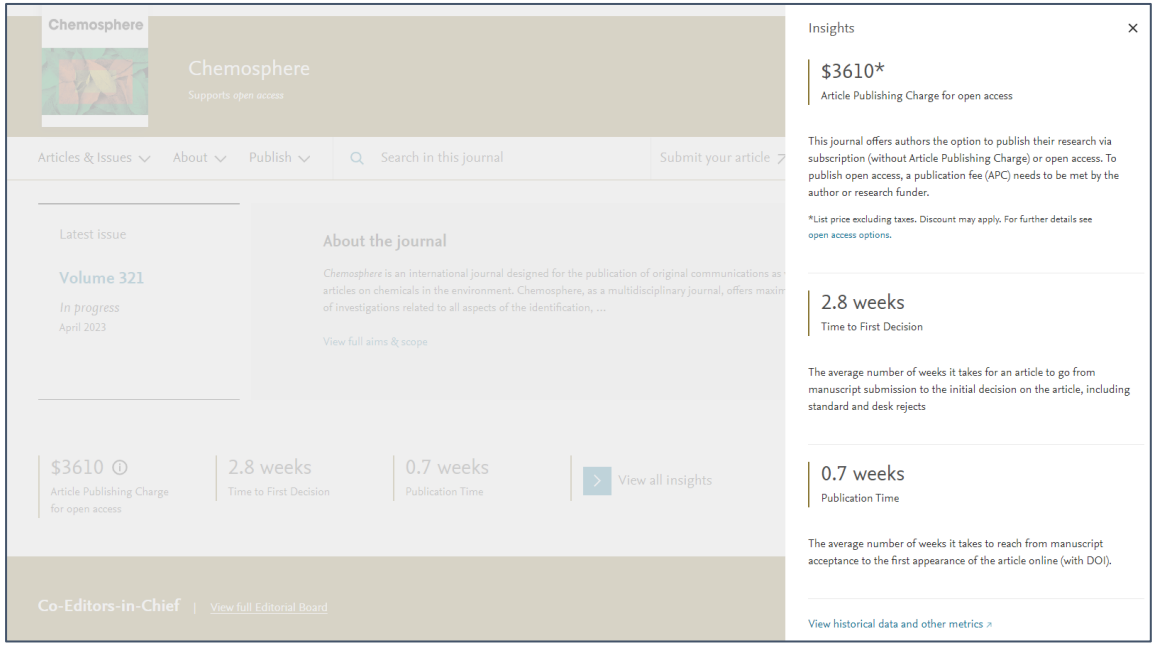
- Get Journal recommendations from ScienceDirect to publish your research.
- Increasing the chance of articles being accepted at first submission.

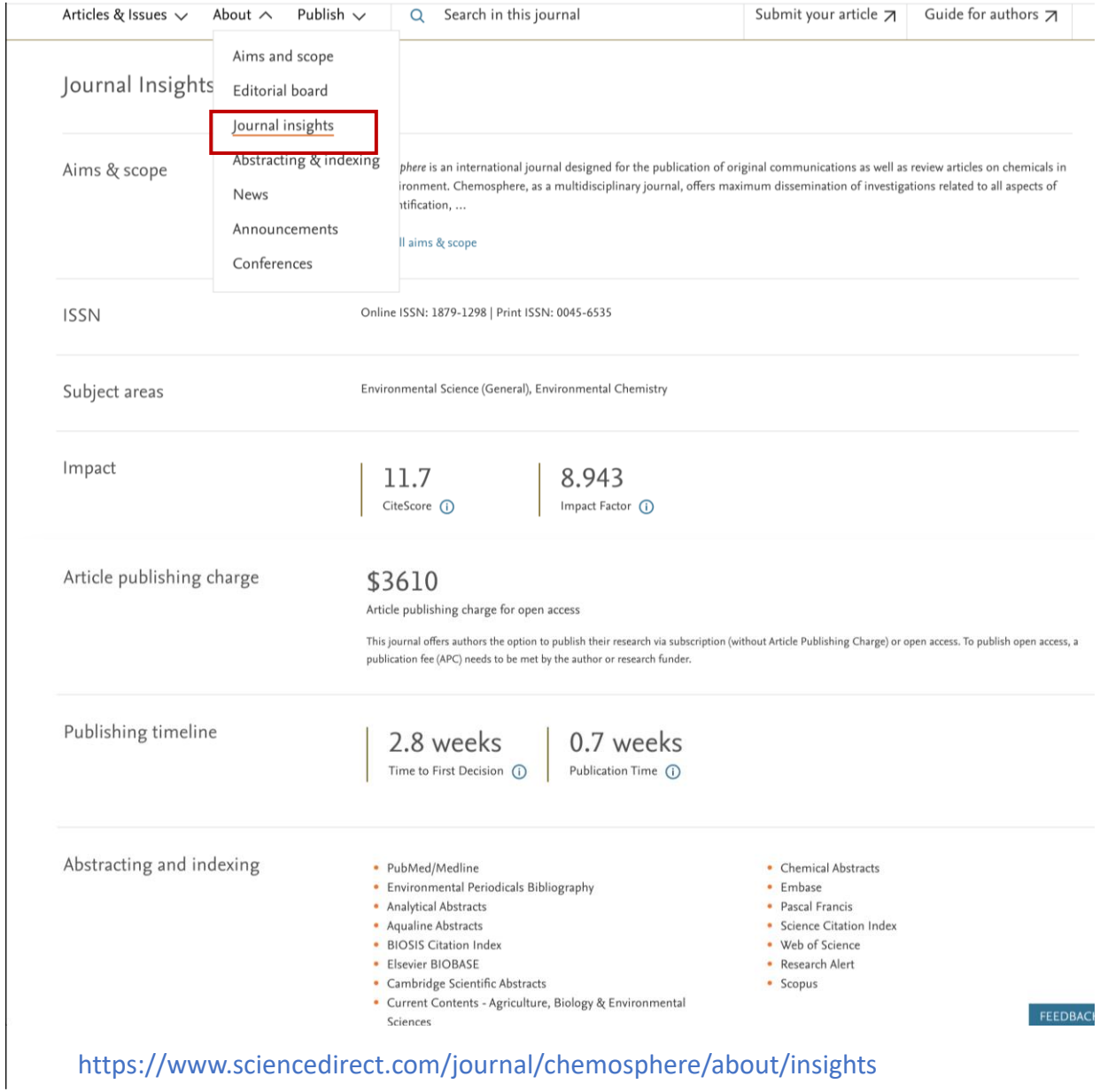
Performics

Find deeper insights about Journals through the Journals Insight Page

Improving Author Experience

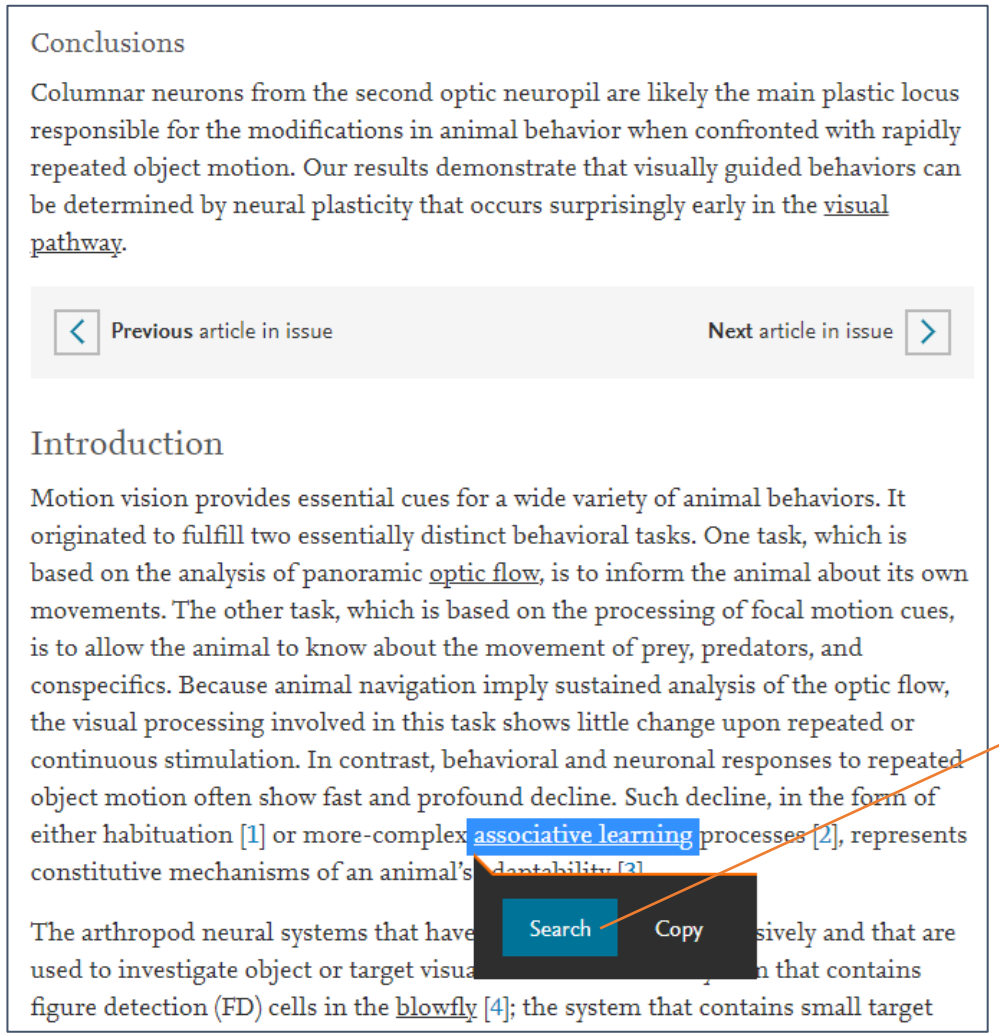
- Find Key metrics and deeper insights about Journals with the new Journals Insights page.
- This feature enables end-users to make informed decisions about the Journal during their article submission process.

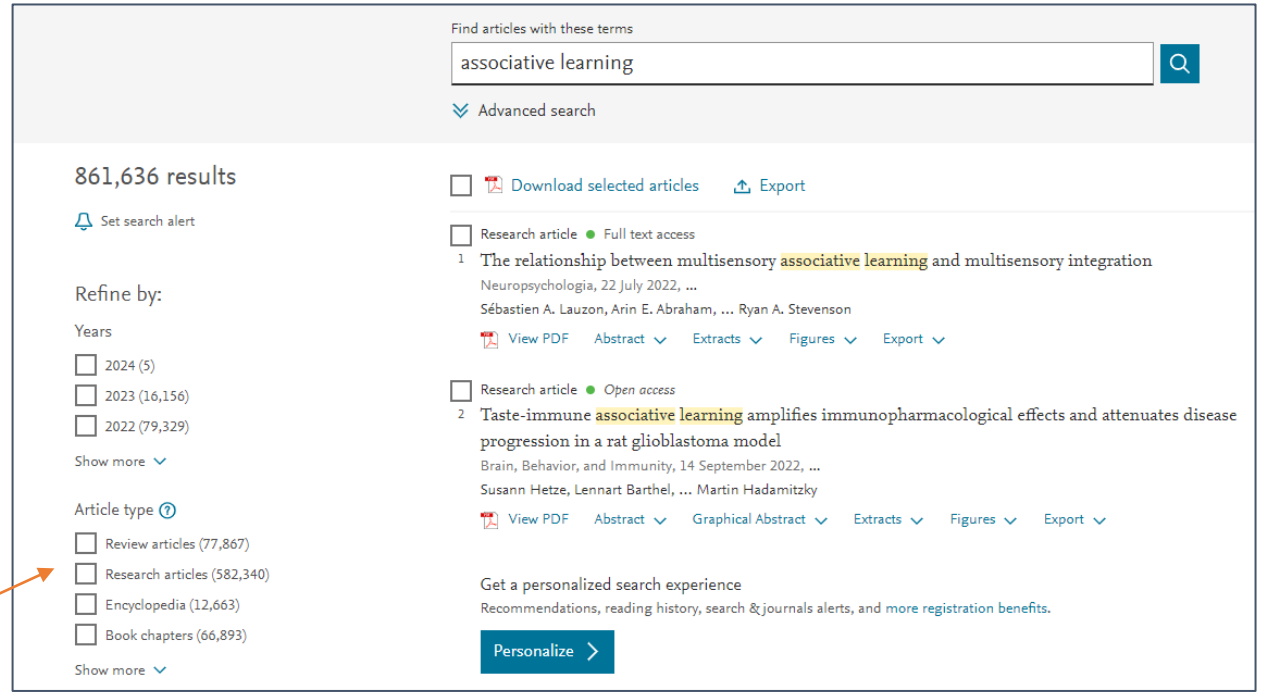




https://www.sciencedirect.com/journal/chemosphere/about/insights

Get quick and authoritative keyword search results within the platform



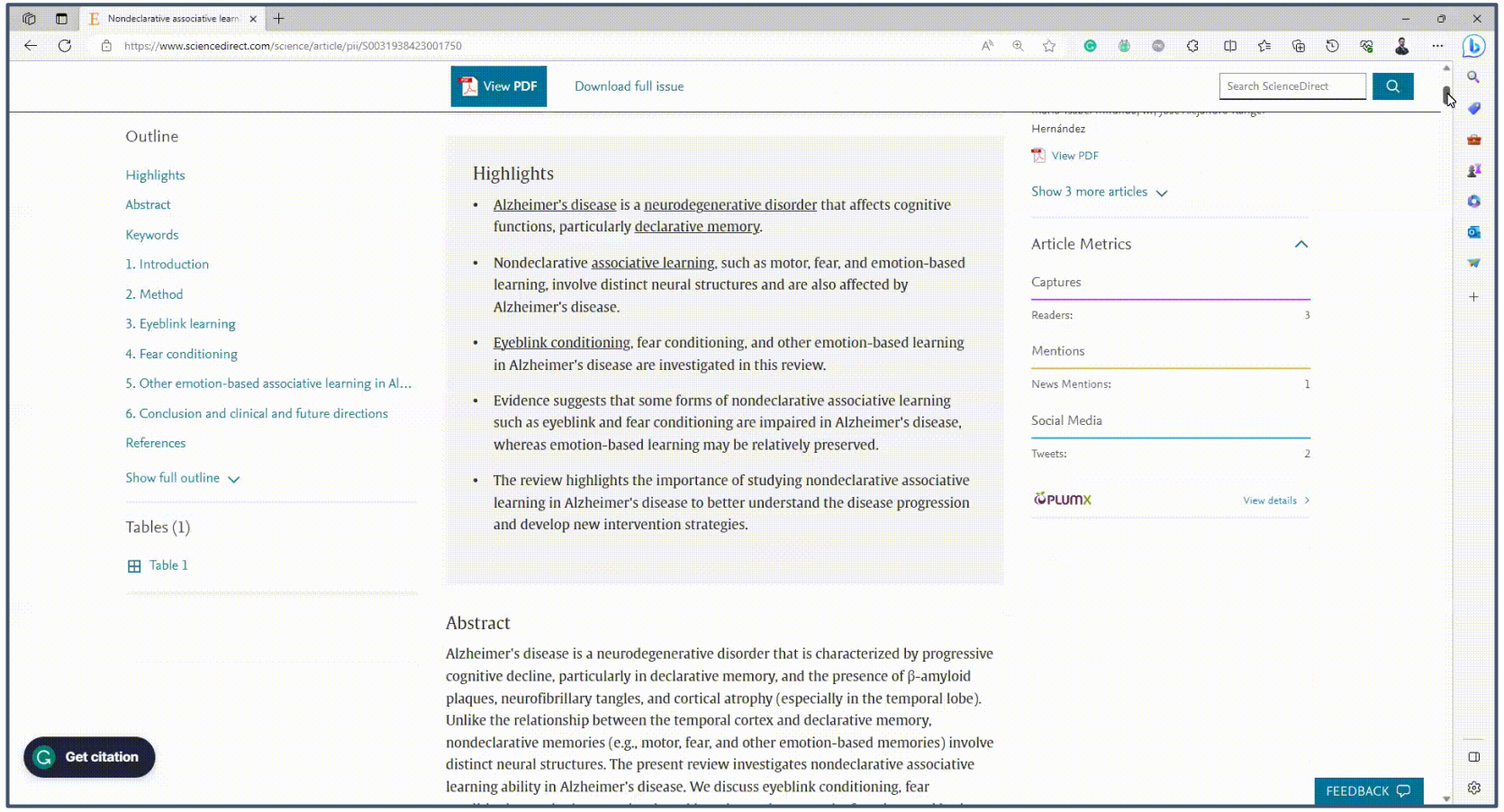


Enhancing Fundamental Knowledge

- Users can select any keyword or text to get quick and authoritative search results
- The user's next move is anticipated and their need to visit other platforms is removed

Performics

Get quick and authoritative keyword search results within the platform (Video/ GIF for Customer Demo)



Enhancing Fundamental Knowledge

- Users can select any keyword or text to get quick and authoritative search results
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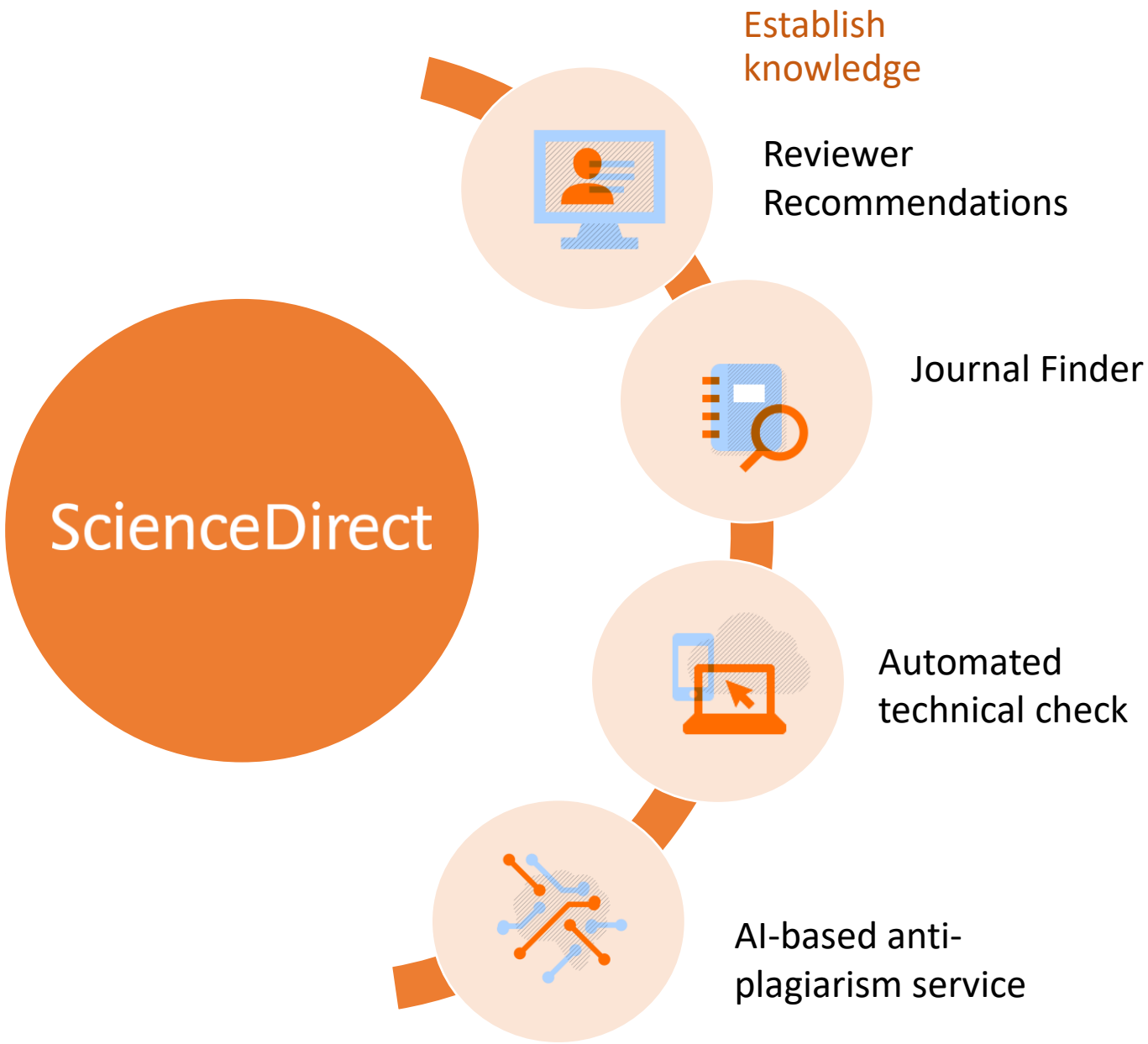
Performics

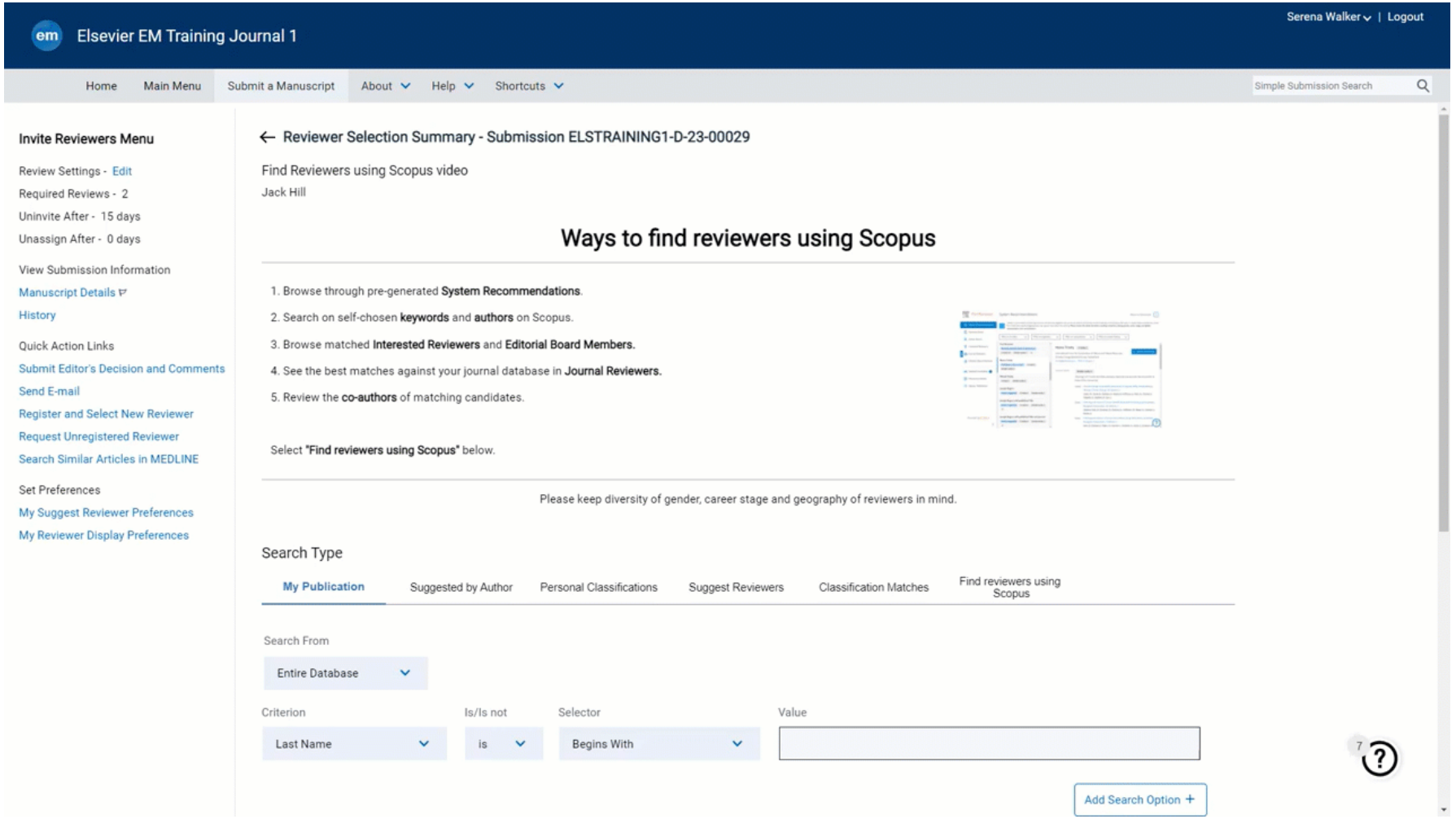
AI-Driven Technology

How is Elsevier using AI to assist in the editorial process?



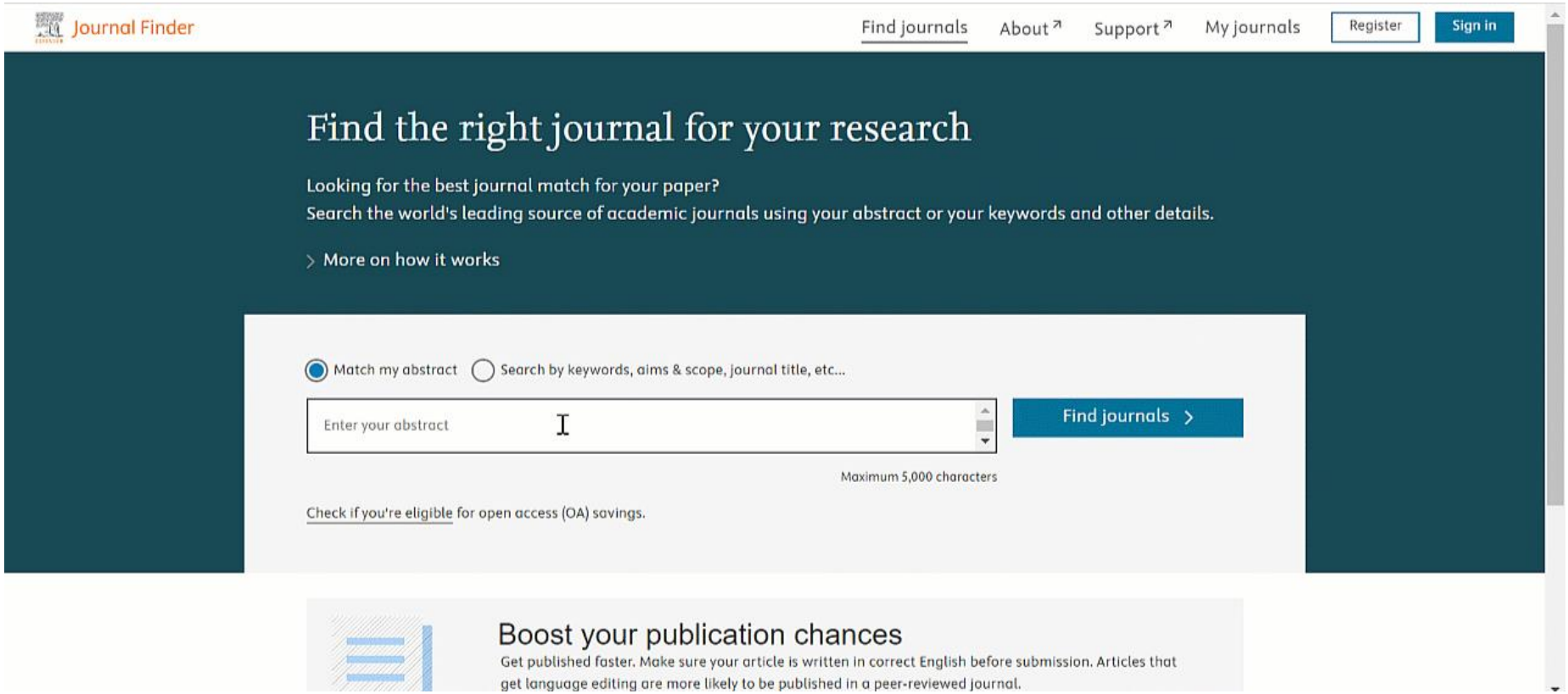
Reviewer Recommendations

Editors are assisted by providing **reviewer recommendations** based on keywords and other metadata. The reviewer data source is from Scopus.



Journal Finder

Authors are supported with **finding a suitable journal** to submit to, both pre-submission (Journal Finder) and after desk reject (Transfer Your Manuscript). Journal Finder is a tool that uses a machine learning algorithm to recommend Elsevier journals that match the scope of author's manuscript.



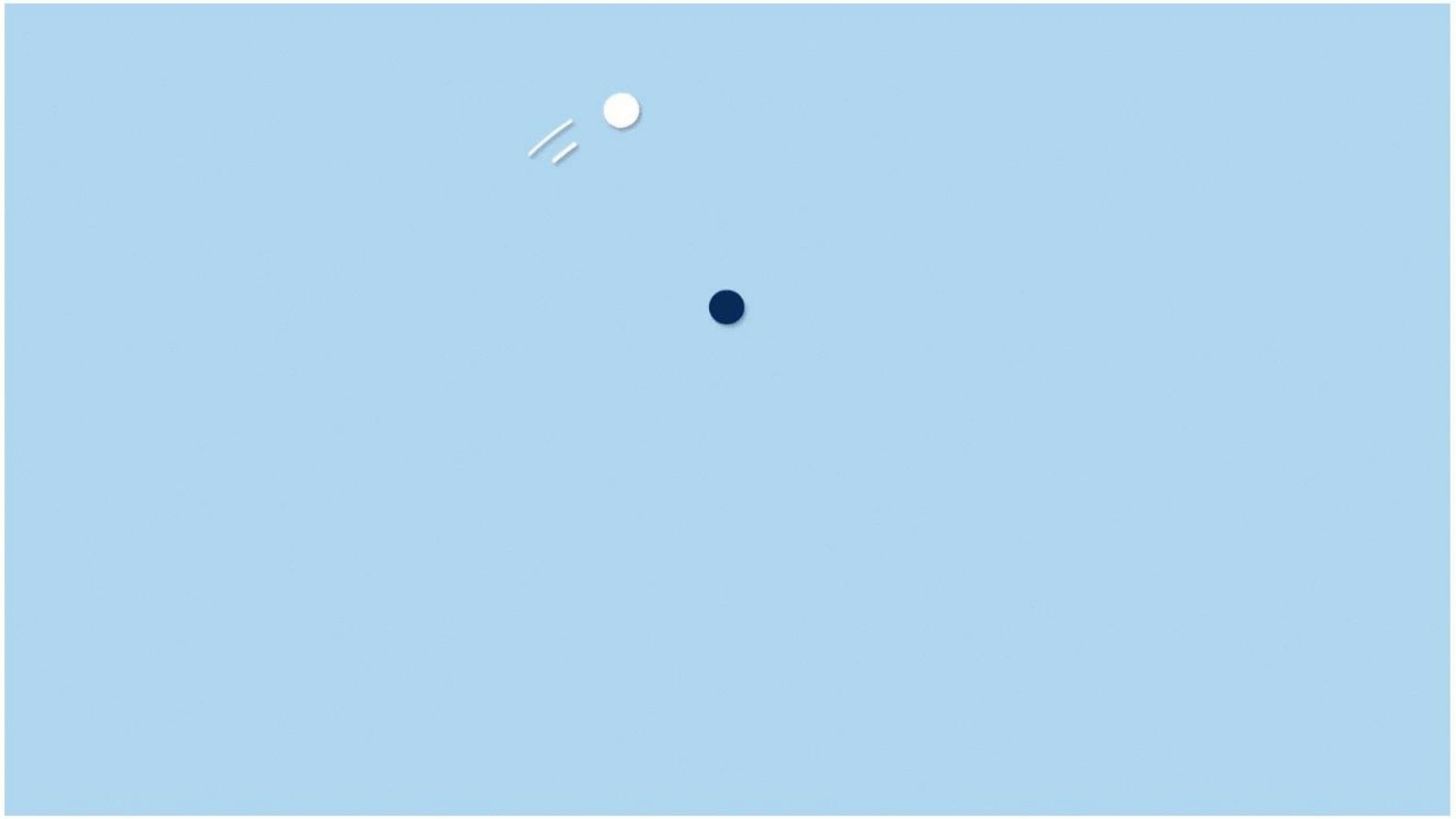
Automated Technical checks

We are developing a service that performs an automated **technical check** on a paper (missing items, usability, etc.) and gives feedback to the author during the editorial process.
Automated technical checks are in development as part of our “New Submission Experience”

AI-based anti-plagiarism service

We are using an **AI-based anti-plagiarism service** which checks the percentage of overlap in a paper and presents the results back to the editor for human evaluation. As we believe that safeguarding research integrity must be done through collaboration with all stakeholders in the scholarly ecosystem, we are part of the cross- publisher STM Integrity Hub initiative.

Crossref Similarity Check
Powered by iThenticate



Elsevier's policies for authors, editors and reviewers on Generative AI

Responsible use

Elsevier's Generative AI policy for authors emphasizes **responsible use** & the need for **disclosure**

Protecting authors' rights

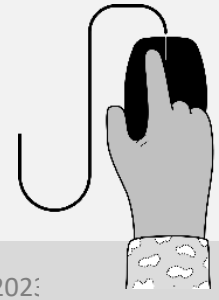
Our policies for editors and reviewers focus on **protecting** the authors' **confidentiality** and data **privacy rights**

Policies will evolve

Elsevier will **monitor ongoing developments** in this area closely and will **adjust** or **refine** the policies as appropriate

Answering questions

Our policy page features a **FAQ-section** which we will continue to **refresh** as **questions** and **concerns** from the **community** arise



Policies are published on Elsevier's Publishing Ethics page:

- https://www.elsevier.com/about/policies/publishing-ethics
- Further guidance can be found in the Elsevier Responsible AI Principles

May you use AI for other purposes than text?

- For making language corrections? ✓
- For sorting through a dataset for potential interesting results? ✓
- For suggesting new combinations of experiments ✓
- For making illustrations for the publication ✓
- For making the reference list? ✗
- For selecting co-authors? ✗

Thank you!

How is Elsevier using AI to assist in the editorial process?

Elsevier continues to develop and adopt in-house or licensed technologies that support researchers and respect authors', reviewers' and editors' confidentiality and data privacy rights. Our AI-driven technologies are identity-protected and conform to the Elsevier Responsible AI principles.

Examples include:

- Editors are assisted by providing **reviewer recommendations** based on keywords and other metadata
- Authors are supported with **finding a suitable journal** to submit to, both pre-submission (Journal Finder) and after desk reject (Transfer Your Manuscript)
- We are developing a service that performs an automated **technical check** on a paper (missing items, usability, etc.) and gives feedback to the author during the editorial process
- We are using an **AI-based anti-plagiarism service** which checks the percentage of overlap in a paper and presents the results back to the editor for human evaluation. As we believe that safeguarding research integrity must be done through collaboration with all stakeholders in the scholarly ecosystem, we are part of the cross- publisher STM Integrity Hub initiative.

Where does Elsevier stand, on all this?

Publishing ethics Duties of the Publisher Duties of Editors Duties of Reviewers Duties of Authors References

Elsevier's AI author policy states that *authors* are allowed to use generative AI and AI-assisted technologies in the writing process before submission, but only to improve the language and readability of their paper and with the appropriate disclosure, as per our instructions in Elsevier's Guide for Authors.

This policy has been triggered by the rise of generative AI and AI-assisted technologies* and

Generative AI or AI-assisted technologies should not be used by editors to assist in the evaluation or decision-making process of a manuscript as the critical thinking and original assessment needed for this work is outside of the scope of this technology and there is a risk that the technology will generate incorrect, incomplete or biased conclusions about the manuscript.

upload a submitted manuscript or any part of it into a generative AI tool as this may violate

Elsevier owns identity protected AI-assisted technologies which conform to the RELX Responsible AI Principles, such as those used during the screening process to conduct completeness and plagiarism checks and identify suitable reviewers.

including any notification or decision letters as they may contain confidential information

about the manuscript and/or the authors. For this reason, editors should not upload their letters into an AI tool, even if it is just for the purpose of improving language and readability.

Peer review is at the heart of the scientific ecosystem and Elsevier abides by the highest

https://beta.elsevier.com/about/policies-and-standards/publishing-ethics?trial=true

manuscript implies responsibilities that can only be attributed to humans. Generative AI or