

Trends In Journal Publishing

P.Terheggen, Managing Director,
Journals, Elsevier

April 2017

Who we are

A global information analytics company specializing in science and health.



Why we do it

Global research spend is growing every year.¹

Predicted spend
\$1.9TN
research in 2016

^ **3.4%**
from 2015

Researchers lack the tools they need to be effective.²



Studies:

70-80% of research asks the wrong questions or cannot be reproduced

Life-saving drugs are expensive to develop.³

1/20
success rate
of drugs

\$2.5BN
median pharmaceutical
spend per drug

Doctors cannot save lives without the best information.⁴

Preventable medical errors:
Third largest cause of death in the US

611k

Heart
Disease

585k

Cancer

225k

**Medical
Error**

149k

Respiratory
Illness

Our strategy

Combine content with technology, supported by operational excellence,
to turn to turn information into actionable knowledge

Operational Excellence

Content



Technology

Chemistry database

500m published experimental facts

User queries

13m monthly users on ScienceDirect

Books

35,000 published books

Drug Database

100% of drug information from pharmaceutical
companies updated daily

Research

16% of the world's research data and articles published by
Elsevier

1,000

technologists employed by Elsevier

\$400m

invested in technology annually

Machine reading

475m facts extracted from ScienceDirect

Machine learning

Over 1,000 predictive models trained on 1.5 billion
electronic health care records

Semantic Enhancement

Knowledge on 50m chemicals captured as 11 billion facts

Collaborative filtering:

1bn scientific articles added by 2.5m researchers analyzed
daily to generate over 250m article recommendations

Our strategy

Combine content with technology, supported by operational excellence, to turn to turn information into actionable knowledge.



What we do



We can tell
clinicians

‘You could use this treatment to save a life’



We can tell
researchers

‘This article answers your questions’



We can tell
governments

‘This is the research to invest in’



We can tell
**pharmaceutical
companies**

‘This is the cancer treatment you should pursue’



We can tell
nursing students

‘This is the area you need to improve to qualify’

Example: Social & enhanced reading

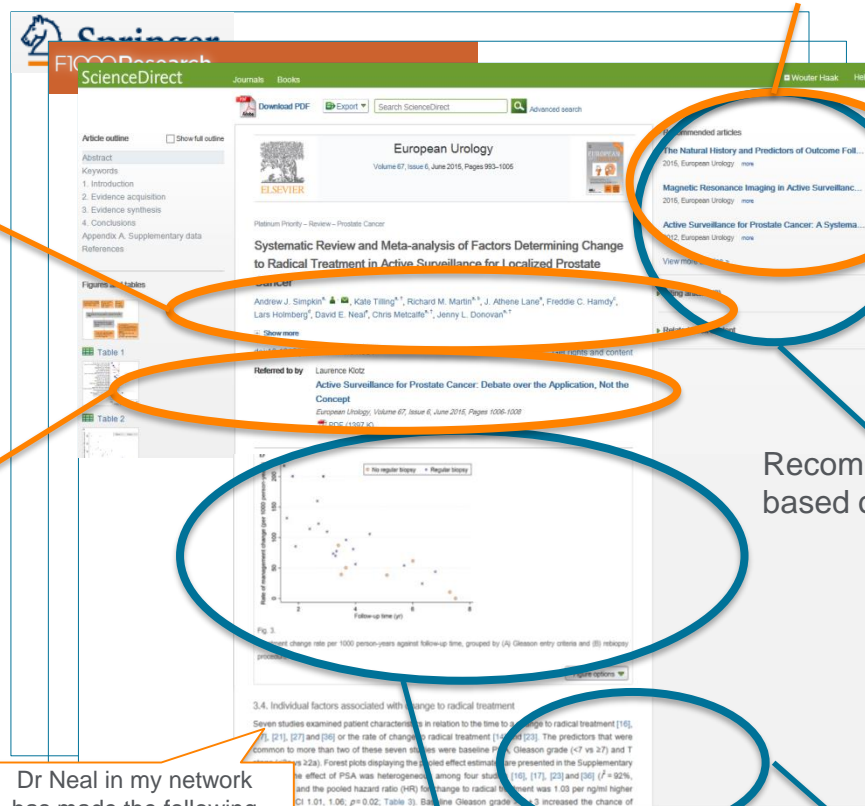
**Social
(networks)**

How do these authors relate to me?

How important is this article within my own network? (who in my network has read, cited, shared this article)?

Dr Neal in my network has made the following comment on this article

Engagement becomes stronger if it is persistent for most publishers and most content; therefore need to incorporate it on pdf as well



Recommendations based on my profile

Recommendations based on the content

Direct ability to engage with underlying data (analyze, visualize, re-use)

Links to (foundational) related content

**Enhanced Reading
(content)**



Elsevier Journals

We publish world-leading science that shapes our future

CRISPR - a new genome editing tool that is transforming biology



Picture: German Society for Biochemistry president Johannes Buchner, Elsevier publisher Dolors Alsina honour Dr Emmanuelle Charpentier with the Otto-Warburg-Medal (sponsored by Elsevier/BBA) for her discovery of CRISPR*

- Discovered by Dr Emmanuelle Charpentier
- Between 2012 - 2016, Dr Charpentier published 19 papers on CRISPR in 9 different Elsevier journals

Blue LEDs – materials science breakthrough with significant impact



Picture: Nobel Prize winner Hiroshi Amano, pictured with Elsevier publisher Karine van Wetering

- Hiroshi Amano shared the 2014 Physics prize for inventing efficient blue light-emitting diodes, enabling energy-saving white light sources
- Path to discovery documented in 31 papers in 7 Elsevier journals

ZIKA – responding to a public health emergency



- Zika Virus Resource Center - free access to research from 26 Elsevier journals, online tools and expert advice



The Lancet

World's leading independent general medical journal consisting of a weekly journal, The Lancet, plus 13+1 monthly specialty journals



Current Opinions in Biotechnology

Expert views on current advances in biotechnology & evaluations of the most interesting papers in the field



Nano Energy

Get new article feed
Get new **Open Access** article feed
Subscribe to new article alerts
Add to Favorites
Copyright © 2015 Elsevier Ltd.

Nano Energy

Multidisciplinary journal publishing key developments in nanomaterials and nanodevices



Cell

14 +1 high impact titles that form the foundation of contemporary life science research



International Journal of Cardiology

Broad cardiology journal with research & clinical papers serving clinicians and research workers



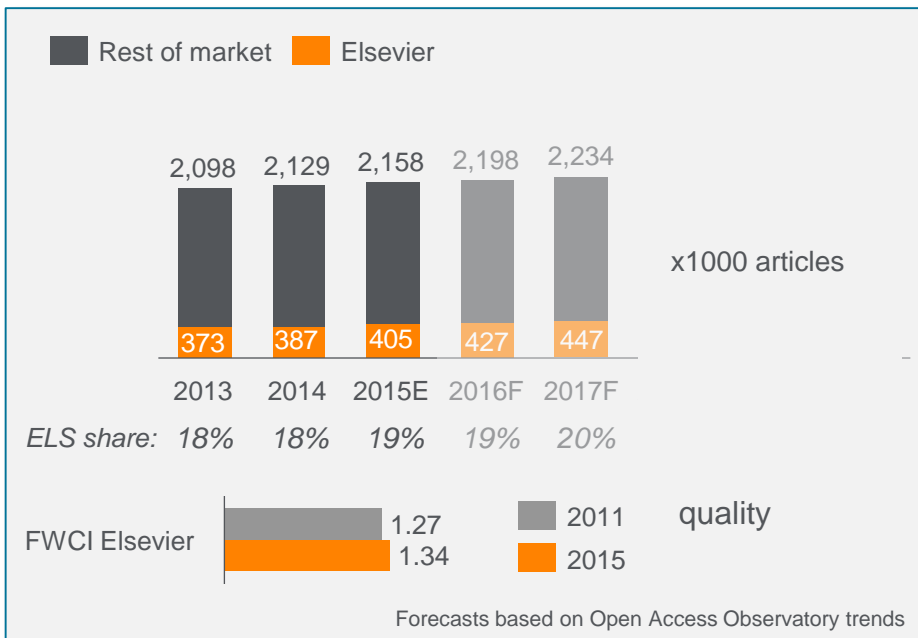
Journal of Financial Economics

Get new article feed
Get new **Open Access** article feed
Subscribe to new article alerts
Add to Favorites
Copyright © 2015 Elsevier B.V. All rights reserved

Financial Economics

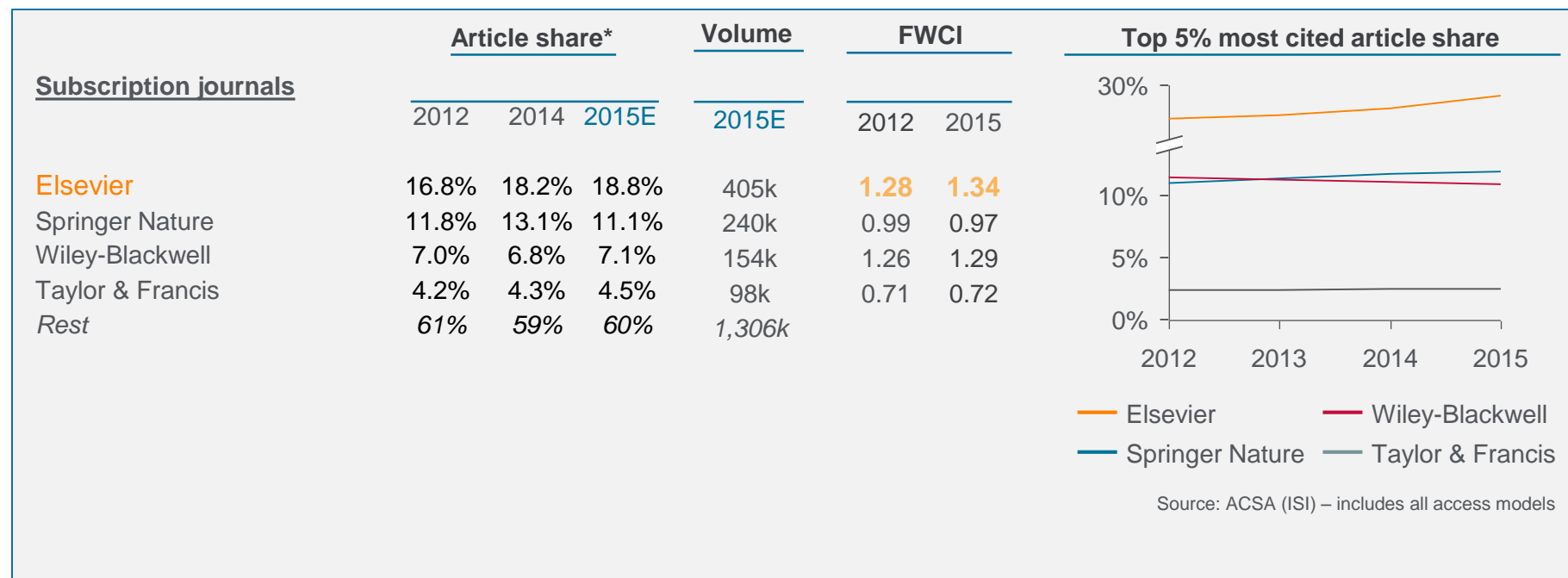
High-quality professional outlet for scholarly studies of actual cases, events or practice in financial economics

Elsevier articles



- We publish 20% of all articles
- Quality >30% than world average

Elsevier's research impact for subscription articles



Elsevier's research impact (measured by citations):

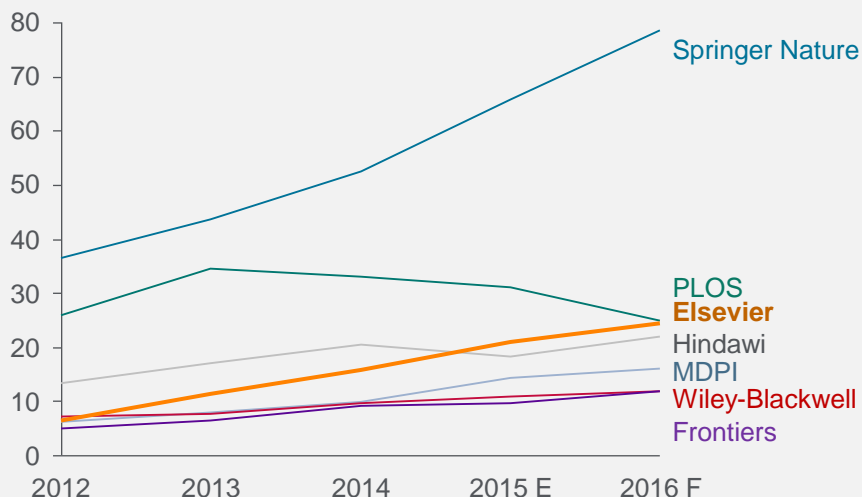
- High Field Weighted Citation Impact
- Share of top cited articles x2 or x3 *cf* other publishers

* Based on Scopus Feb 2017 data: 2015 ELS article numbers increased by 2% and competitors by 4% to compensate for delays in indexing. In addition, journals with unknown business model have been included as subscription in market totals INCLUDES HYBRID OA articles.

Leading in Open Access (Gold + Hybrid)

OA (Gold OA + hybrid) top 7 publishers

Articles published in K



Research impact (Field Weighted Citation Impact)

	FWCI 2012	FWCI 2015↓
Elsevier	1.39	1.42
PLOS	1.78	1.37
Wiley-Blackwell	1.23	1.26
Frontiers	0.97	1.08
MDPI	0.76	0.9
Springer Nature	0.88	0.89
Hindawi	0.59	0.61
Market	1.23	1.22

Source: Scopus 1 Feb 2017. FWCI from MAS-Scopus (5 yrs backwards). FWCI shown for all content in these journals (this includes subscription content in hybrid journals).



EBioMedicine

Publishing articles across **Life and Health Sciences** with **cascading from Cell and The Lancet**



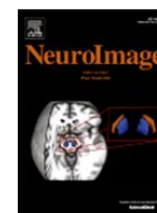
Cell Reports

Open access journal **from Cell Press** publishing high-quality papers across the **entire life sciences**



Heliyon

Multidisciplinary author pays mega journal with cascading from a wide selection of Elsevier titles



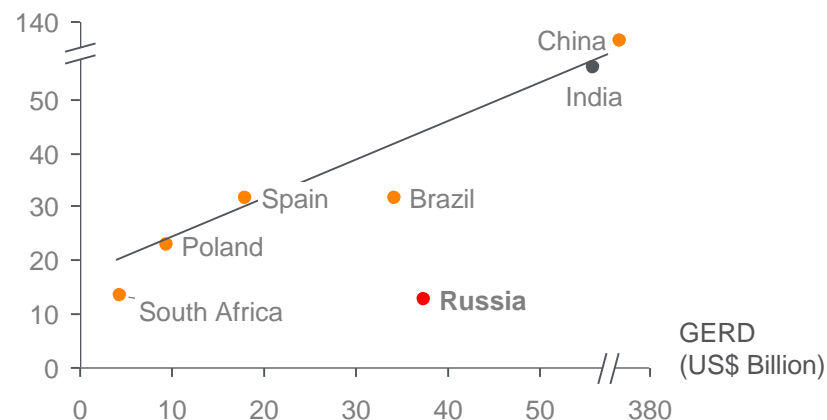
NeuroImage

Subscription journal on brain imaging which allows authors to publish sponsored articles

Comparison with peer countries indicates potential for total annual A&G spend of at least \$25M and up to \$45M a year (currently \$13M)

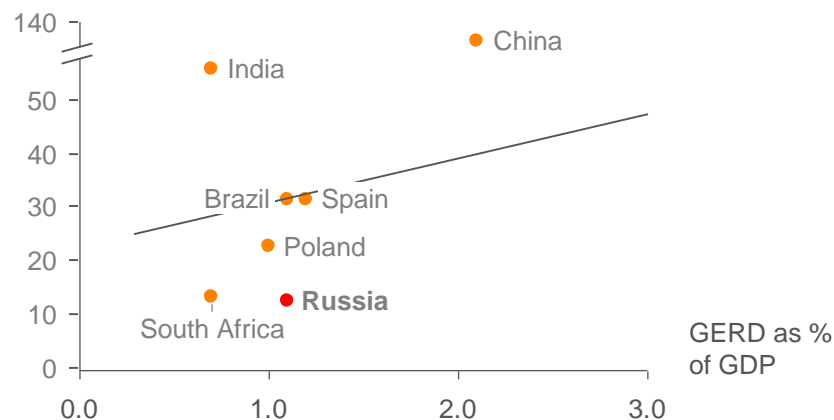
Inputs – R&D Spend

Total 2016 A&G spend with Elsevier (US\$ Million)



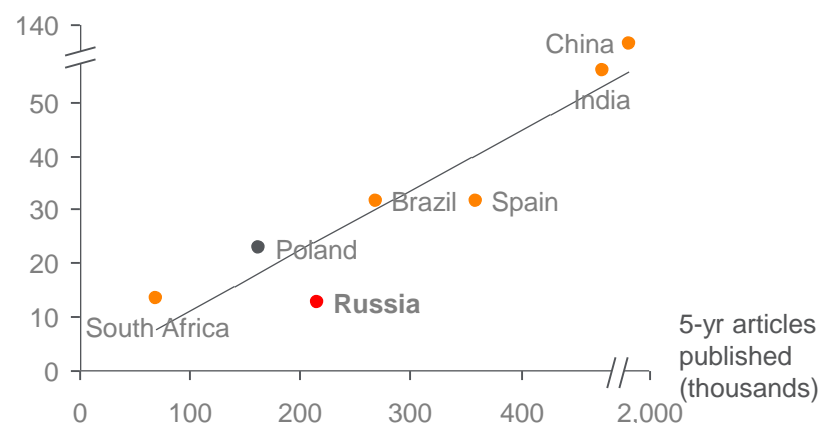
Inputs – R&D Spend as % of GDP

Total 2016 A&G spend with Elsevier (US\$ Million)



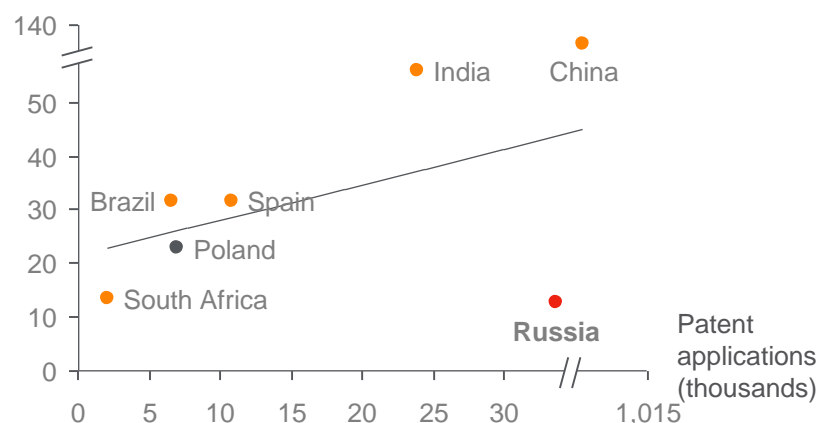
Outputs – Publications

Total 2016 spend with Elsevier (US\$ Million)



Outputs – Patent applications

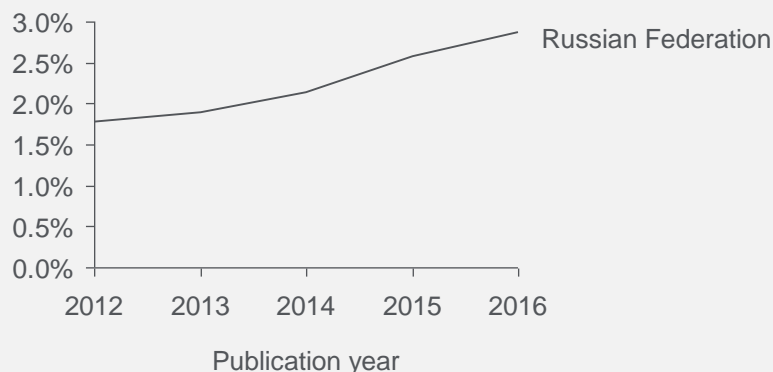
Total 2016 A&G spend with Elsevier (US\$ Million)



Russian research highlights

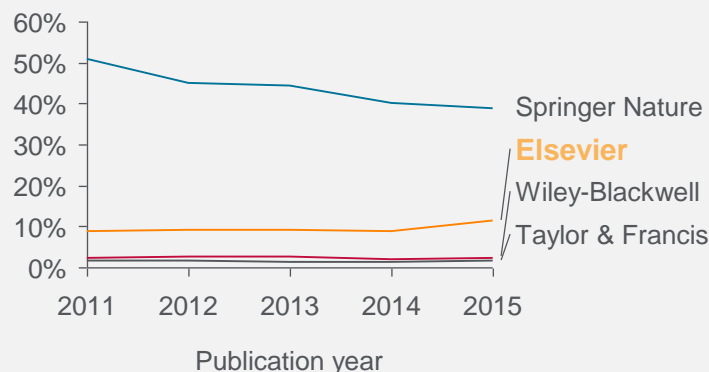
Russia is growing its proportion of world articles

Country share of world articles



Elsevier has a stable share of Russian-authored articles, starting to grow in recent years

Publisher share of Russian-authored articles

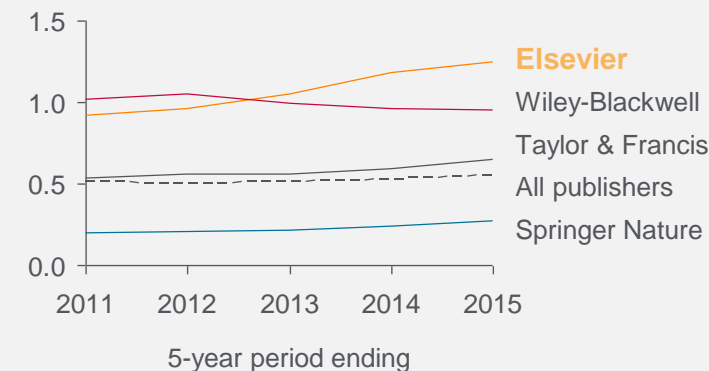


Elsevier publishes largest share of Russia's strongest work (top 1% cited articles) and is at leading front in citations both to and from Russian-authored articles

	Share of citations to/ from Russian-authored articles (2015)		Share of top 1% cited Russian-authored articles (2011-15)
	To	From	
Elsevier	23.2%	25.0%	23%
Springer Nature	25.7%	24.2%	15%
Taylor & Francis	1.6%	2.1%	1.1%
Wiley-Blackwell	5.1%	8.4%	3.6%

Elsevier has a leading and growing Field-Weighted Citation Impact (FWCI) of Russian-authored articles

Publisher FWCI of Russian-authored articles



Russian research: international impact

- Russian underinvesting in world content
- Research output low in quality, not growing
- Research authors with Elsevier x 2 higher quality, and rising.
- Elsevier content tops highest for citation by Russian scientists.

Researchers lack the tools they need to be effective.²



Studies:

70-80% of research asks the wrong questions or cannot be reproduced



14. Macleod, M. R. *et al.* Biomedical research: increasing value, reducing waste. *Lancet* **383**, 101–104 (2014).

Support reproducibility:

- Protection against cognitive bias ✓
- Improving methodological training
- Implement independent methodological support ✓
- Encourage collaboration and team science ✓
- Promote study pre-registration ✓
- Improve quality of reporting ✓
- Promote transparency and open science ✓
- Diversify peer review ✓
- Incentives e.g. for data sharing ✓

From content to a information analytics

...

2012

2013

2014

2015

2016

2017

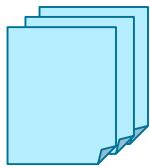
2018

2019

2020

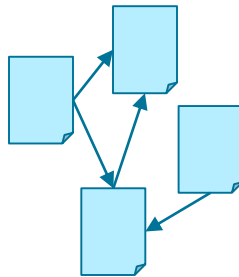
...

CONTENT



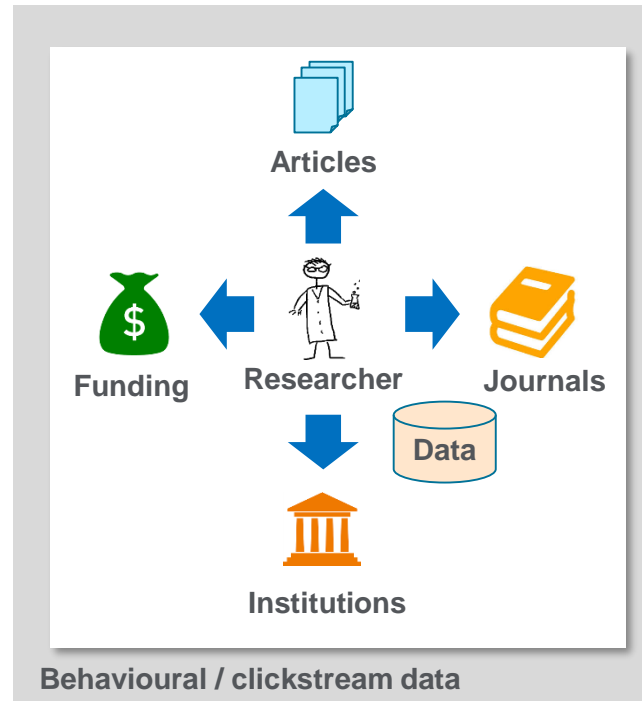
Article as digital
object

CITATION GRAPH



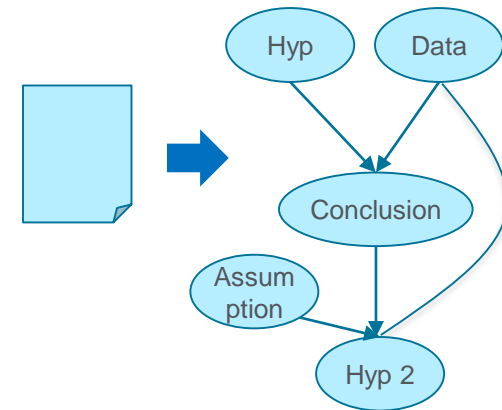
Analytics on
citation graph
(SciVal)

NETWORKED CONTENT



Analytics on Social Graph

KNOWLEDGE GRAPH



Machine readable
articles

High impact journals have trust from intern. community

International journals

- Research evaluation by high international standards
- High quality feedback on research (peer review)
- Readers trust brand value of journal
- Fast route to promote national research
- Golden source to support top national research

National journals

- Good research may not surface in spite of quality
- Feedback on research medium quality
- International trust of national journals is moderate
- Slow route to promote national research
- Lower relevance to support top national research

From observation: how local journals thrive

- **Build Trust**

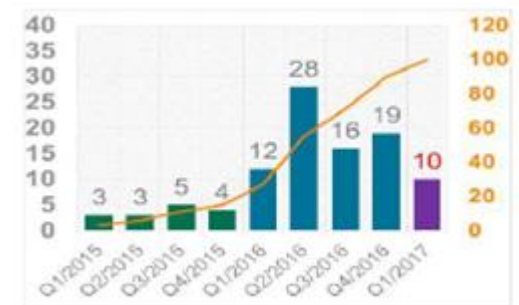
- Transparent peer review
- Be approachable to authors, readers
- Publish data, or other related information
- Internationalize Editors, Editorial Board and Reviewers
- Tight ethical standards (including citation practices)

- **Aim For Impact**

- Go for quality and research relevance (e.g. reproducibility/international research coll.)
- Get best reviewers, publish your list of reviewers
- Add impact metrics such as downloads, citations, etc.
- Optimize digital marketing including SEO, SMO.
- Get covered by SCOPUS, get CiteScore

Now >400 jnls in Scopus

Recent new titles added



- **Act With Rigor**

- Take clear decisions on journal direction
- Follow through on community engagement
- Take editorial decisions fast
- Aim for digital excellence: forget print

Russian Journals in Scopus

334

in Dec 2014

434 (+30%)

in Mar 1, 2017

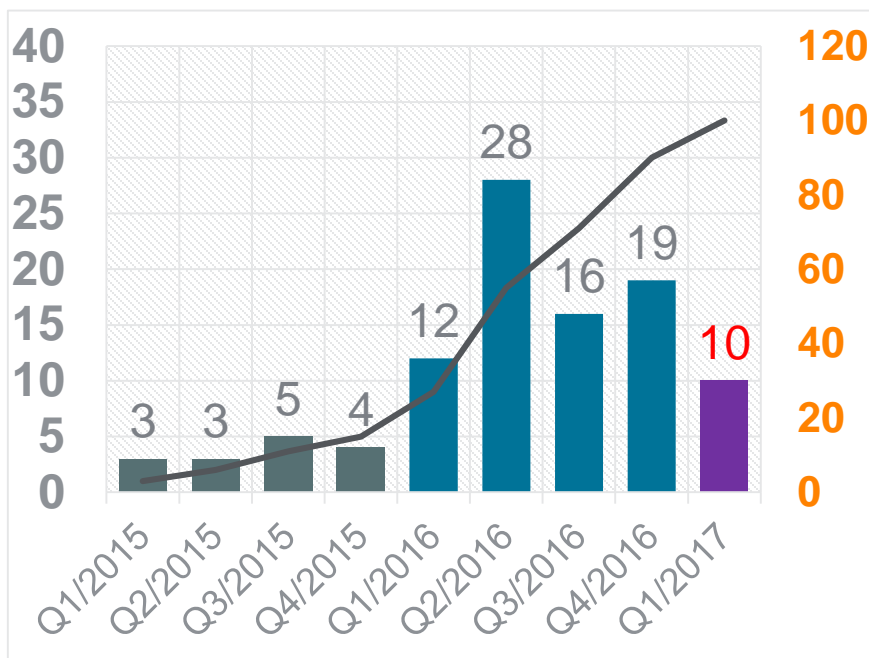


Д. Рю, К. Холланд, П. Миллер (David Rew, Karen Holland and Peter M. Miller, эксперты CSAB Scopus, Великобритания, США).

Специфика региональных журналов и советы их редакторам от международных экспертов БД Scopus

В. Мистер (Wim Meester, ст. менеджер Scopus, Издательство Elsevier, Нидерланды), О.В. Кириллова (директор Учебно-консультационного центра «Школа НЭИКО», президент Ассоциации научных редакторов и издателей, г. Москва).

Принципы взаимодействия Российского экспертного совета по отбору контента в информационные ресурсы (Russian Content Advisory Board) и Экспертного совета по отбору контента (CSAB) БД Scopus



1	USA	6148	11	IND	412
2	GBR	4760	12	ITA	411
3	NED	2111	13	BRA	335
4	DEU	1613	14	POL	294
5	CHN	593	15	CAN	281
6	FRA	521	16	AUS	270
7	ESP	475	17	KOR	212
8-9	CHE	434*	18	EGY	182
	RUS		19	TUR	172
10	JPN	427	20	CZE	162

Elsevier Journals: supporting research

- **Research impact:** supporting research impact, research outcomes
- **Citation metrics:** comprehensive, current, and transparent
- **Address reproducibility:** roll out STAR METHODS
- **Enhance trust:** roll out Open Peer Review
- **Enhancing trust:** detecting plagiarism, statistical errors, image manipulation
- **Support data re-use:** Mendeley Data, Data articles, Data linking
- **Leverage technology:** knowledge transfer, knowledge generation

Example: Russian Academy of Medical Sciences

SciVal

[Home](#) [Overview](#) [Benchmarking](#) [Collaboration](#) [Trends](#) [Reporting](#) [My SciVal](#) [Scopus](#)

Hide tags

[Summary](#)[Awarded Gr](#)[2011 to 2015](#)[no subject area filter selected](#)[Societ](#)

Institutions and Groups

Russian Academy of Medical Sciences

[+ Add Institutions and Groups](#)[X Remove all entities from this section](#)

Researchers and Groups

Publication Sets

Countries and Groups

Research Areas

Overall research performance

 Download page as PDF [Export](#)

Publications

3,827

Citations

18,730

Authors

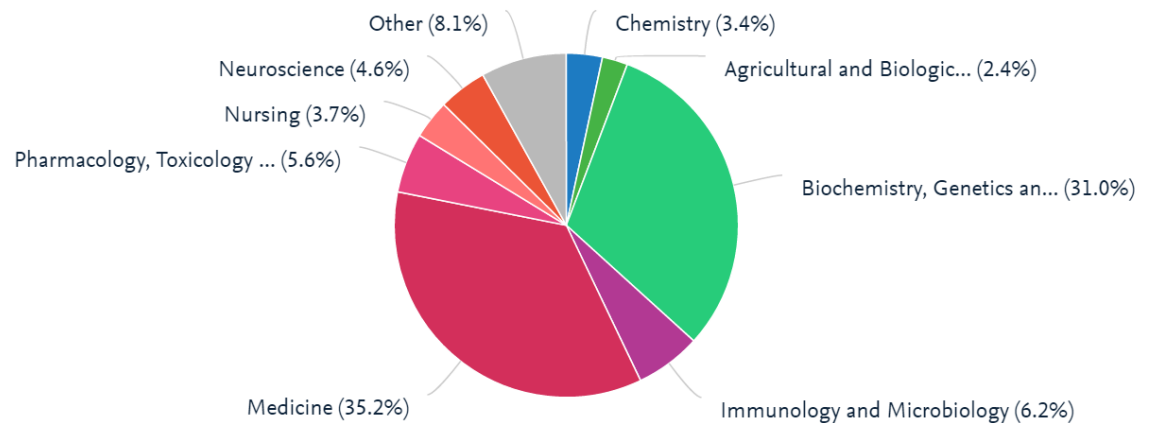
4,787

Field-Weighted Citation Impact

0.75

Citations per Publication

4.9

[View list of publications](#)

Example: State Research Center of Russian Federation (1)

SciVal

[Home](#) [Overview](#) [Benchmarking](#) [Collaboration](#) [Trends](#) [Reporting](#) [My SciVal](#) [Scopus](#)

Hide tags

2011 to 2015

no subject area filter selected

Institutions and Groups

State Research Center of
Russian Federation - Institute of
Physics and Power Engineering

[+ Add Institutions and Groups](#)[X Remove all entities from this section](#)

Researchers and Groups

Publication Sets

Countries and Groups

Research Areas

[Summary](#)[Awarded Grants](#)[Collaboration](#)[Published](#)[Viewed](#)[Cited](#)[Economic Impact](#)[Societal Impact](#)

Overall research performance

[Download page as PDF](#) [Export](#)

Publications

455 ▼

Citations

2,194

Authors

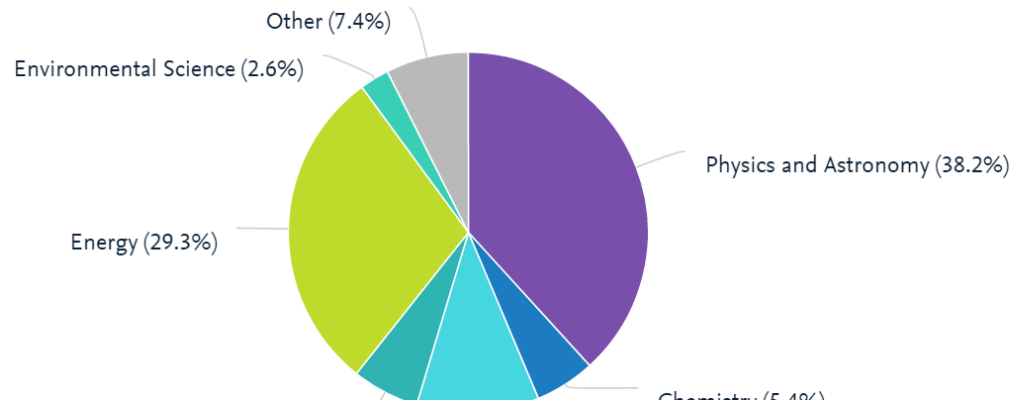
405 ▲

Field-Weighted Citation Impact

0.55

Citations per Publication

4.8

[View list of publications](#)

Example: State Research Center of Russian Federation (2)

SciVal

Home

Overview

Benchmarking

Collaboration

Trends

Reporting

My SciVal

Scopus ↗

Philippe Terheggen



Hide tags

2011 to 2015



no subject area filter selected



ASJC

[Data sources](#)

Institutions and Groups



State Research Center of
Russian Federation - Institute of
Physics and Power Engineering

[+ Add Institutions and Groups](#)[X Remove all entities from this section](#)

Researchers and Groups



Publication Sets



Countries and Groups



Research Areas



Summary

Awarded Grants

Collaboration

Published

Viewed

Cited

Economic Impact

Societal



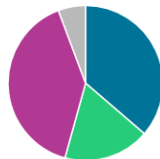
Overall

Top collaborating Institutions

Collaboration

Shortcuts

Publications at the State Research Center of Russian Federation - Institute of Physics and Power Engineering, by amount of international, national and institutional collaboration



Metric

Publications

Citations



International collaboration

36.3%

165

1,880

Only national collaboration

18.0%

82

155

Only institutional collaboration

40.0%

182

145

Single authorship (no collaboration)

5.7%

26

14

Example: State Research Center of Russian Federation (3)

SciVal

[Home](#) [Overview](#) [Benchmarking](#) [Collaboration](#) [Trends](#) [Reporting](#) [My SciVal](#) [Scopus](#)

Hide tags

Institutions and Groups

 State Research Center of
Russian Federation - Institute of
Physics and Power Engineering[+ Add Institutions and Groups](#)[X Remove all entities from this section](#)

Researchers and Groups

Publication Sets

Countries and Groups

Research Areas

% of publications in top 10

% of publications in top 19

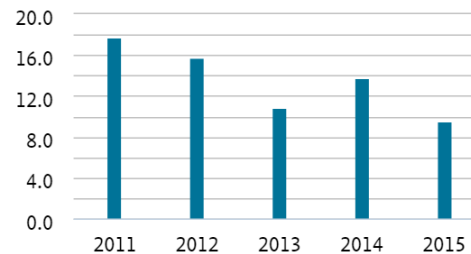
2011 to 2015

no subject area filter selected

Views per Publication

Export

Shortcuts



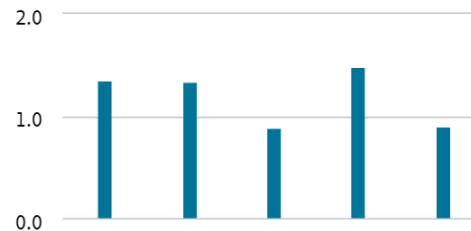
13.7

average number of Scopus views per publication at the State Research Center of Russian Federation - Institute of Physics and Power Engineering

Field-Weighted Views Impact

Export

Shortcuts



1.20

Field-Weighted Views Impact of the State Research Center of Russian Federation - Institute of Physics and Power Engineering