

ALLMetrics vs. AltMetrics on Higher Education

Mike MacKinnon

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Changes in Funding Dynamics

變動中的資金 (贊助)分配











State of the Union Address: January 12, 2016

"Let's make America the country that cures cancer once and for all."

讓我們一起努力,使美國成為永遠治癒癌症的國家





Vice President Biden's Memo

"Over the next year, I will lead a dedicated, combined effort by governments, private industry, researchers, physicians, patients, and philanthropies to target investment, coordinate across silos, and increase access to information for everyone in the cancer community,"

「接下來的一年,我將會領導一個專門的團隊,整合跨政府部門、私人企業、 研究人員、醫師、病患、公益團體等。

整合各單位對癌症的資源投入,並增加癌症社群資訊的透明化與取得管道」





Changes in Funding **Dynamics**

(NIH:美國國家衛生研究院)

NIH資金的大幅波動



research \$65M refocused on

ending AIDS

epidemic

\$3 billion no

longer being

spent on HIV

NIH drops special 10% set-aside for AIDS research

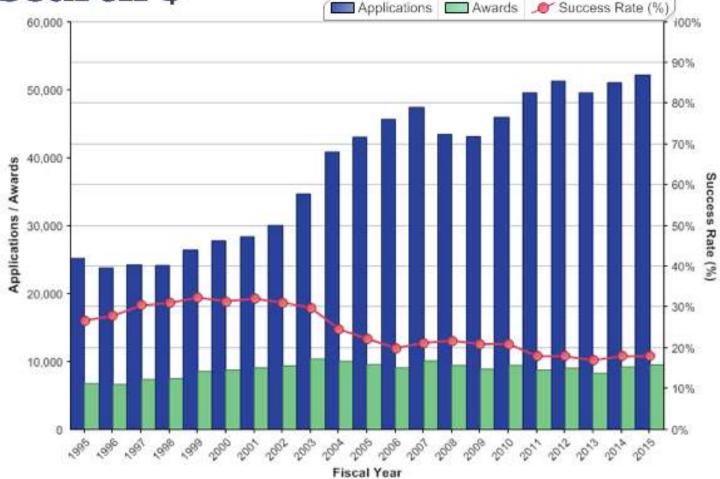
By Jocelyn Kaiser | Dec. 11, 2015

- 30億美元將不再投入HIV的研究
- 6千5百萬美元重新分配到AIDS疫情的控制



NIH: The Competition for

Research \$





NHMRC:爭取經費的競爭激烈\$\$\$



4,045 Applications



606 Funded

7 of 8
people do
NOT
get funded



Low Success Rates

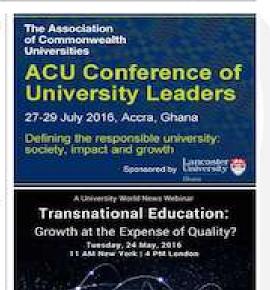
相當低的成功率

University World News



23 May 2010 Register to receive our free newsletter by small each week CEARCH Advanced Search Global Edition / News / World Round-up / Features / Commentary / World Blogs / Student View / Academic Freedom / Letters Special Reports / Special Editions / Africa Edition / Asia Hub / Transformative Leadership / Archives / HE Events / About / Contact

EURODEPE Horizon 2020: Surge in applications but low success rate Jan Petter Myklebust 19 June 2015 Issue No.372 # LOAD COM M Tarrett | Get | 12 Up to the end of February 2015, after 14 months, Horizon 2020, Solm us on. the EU Framework Programme for Research and Innovation 2014facebook 20, had received 45,000 applications. This represents a large surge in the number of applications. Follow Littler busibber. The success rate for applications was 14% to 15% on average,



有 14% to 15%

posted on this site are

News Feeds

ST who had the state of

billion (US\$7.5 billion) in the Horizon 2020 programme and is one World News to be the media

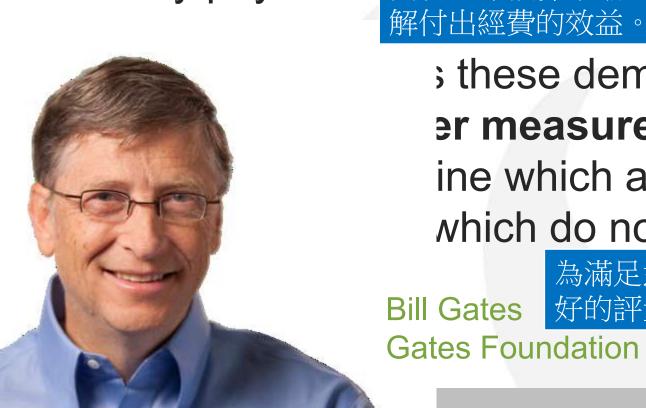
while in Framework Programme 7 (2007-13), the predecessor of

Horizon 2020, the success rate was between 19% and 22%. In



Given how **tight budgets** are around the world, governments are rightfully demanding effectiveness in the programs they pay for.

<u>由於全球預算緊縮,政府機構更應該了</u>



these demands, we remark tools ine which approaches which do not."

為滿足這些需求,我們需要更 Bill Gates 好的評量工具...

Gates Foundation Annual Letter 2013



NHMRC, Australia 2016 Changes

2.11 CV-CP: Conference Participation

NHMRC:

澳洲國家衛生醫藥研究中心

2.12 CV-CE: Community Engagement

Please provide details of any community engagement that you have been involved in within the last five years. The Statement on Consumer and Community Participation in Health and Medical Research has been developed because many consumers and researchers recognise the contribution that consumers can make to health and medical research and their right to do so.

2.13 CV-P: Patents

In this section, please provide details of any patents for which you contributed more than 20% of the development efforts. Entries will be listed in reverse chronological order (i.e. the most recent first).

2.20 CV-Pub: Publications

Program Grant applications require details on all your publications for the last five years. This information can be uploaded using a tab delimited file using Microsoft Excel® or by exporting your Enginee® Library as an .xml file. Further details on how to do this can be found on the CV-PU: Publication Uploads page in

Your publications will be grouped together by the type of publication and the listed in reverse chronological order.

https://mro.unimelb.edu.au/sites/default/files/public/grants/nhmrc/program-cv-and-profile-requirements.pdf





Taiwan Research Priorities







歐洲研究評量指南

European Research Measurement Guidance via

HEFCE Report, UK

英格蘭高等教育撥款委員會



The Metric Tide



Report of the Independent Review of the Role of Metrics in Research Assessment and Management

July 2015



Why this report?

- •對於高等教育與研究經費投入需要審慎評估的壓力越來越大
- •機構、學生、職員、研究資源之間的競爭漸趨激烈與白熱化
- •「Big Data」(大數據) 的累積、取得、分析、應用變的重要
- •「metrics」(學術指標)的產生與應用一直存在著許多爭議與誤解
- •「Peer review」(同儕評鑑)還是最主流且最受到支持的學術評估 方式,即使該方式存在許多限制與瑕疵
- 不正確的指標與評量方式,將導致錯誤的獎助政策



Recommendations

- •研究社群應發展出更有效評量學術產出的量化工具
- •在機構管理的層級,HEI主管應該提供較為明確的評估與管理原則,包括量化指標的規則
- 研發主管需熟悉這些量化指標的評量規則與相對應學 科的應用方式
- 人力資源與人事升遷的規則與管道,其評量的標準與 決策方式需要更為明確
- 個別研究者應了解不同學術指標的限制

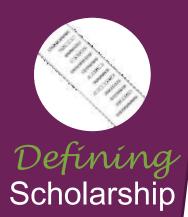


補充計量僅只於補充嗎?

- 研究者不應太著重於計量工具之間的連貫性或是書目計量與補充計量的不同,而是去了解不同計量工具之間的差異,以及這些計量工具如何讓您的學術發表能有更廣泛的學術影響力。
- •現代化的「Metrics」學術指標,提供了更完整的學者 社群的回饋,能更明確的定位出研究者、研究項目與 贊助經費的關係,並且更可能發掘出有潛力的研究者 或研究項目。

PLUM

Opportunity to Redefine: How Scholarship is Measured



傳統學術計量指標來自期刊引用統計

Scholarly Measure

Elastic ice shells of synchronous moons: Implications for cracks on Europa and non-synchronous rotation of Titan

Peter M. Goldreich a.b., Jonathan L. Mitchell a.b.

Abstract

A number of syndromous moons are thought to harbor water occurs beneath their souter less shells. A subsurface occuss frictionally decouples the shell from the interior. This has led to proposeds that a weak tidal or atmospheric torque might cause the shell to rotate differentially with respect to the syndromously rotating interior. Applications along these lines have been made to Europe and Titan. However, the shell is coupled to the occur by an shartle torque. As a result of countrifugal and tidal forces, the norm would assume as ellipseidal shape with its long axis aligned toward the parient planet. Any displacement of the shell away from its equilibrium position would induce strains thereby increasing its elastic energy and giving rise to an elastic testing in togus. In the investigation reported on here, the shallet torque is compared with the tidal torque arting on Europe and the atmospheric torque acting on Titan.

References

Anderson, J. D., Schubert, G., Jacobson, R. A., Lau, E. L., Moore, W. B., Sjogren, W. L., Sep. 1998. Europa's Differentiated Internal Structure: In-George from Four Colls. Proceedings of the College Structure: In-

ressler, P. E., Greenberg, R., Hoppa, C., Holfenstein, P., McKwen, A., Puppalardo, R., Tufts, R., Ockert-Bell, M., Sallivan, R., Greeley, R., Belton, M. J. S., Denk, T., Clark, B. E., Burns, J., Veverka, J., Jan. 1998. Evidence synchronous rotation of Europa. Nature 391, 368.

Ghatak, A., Mahadevan, L., New. 2003. Crack Street: The Cycloidal Wake of a Cylinder Tearing through a Thin Sheet. Physical Review Letters 91 (21), 215507.

Griseley, R., Sullivan, R., Coon, M. D., Geissler, P. E., Tufus, B. R., Head, J. W., Pappalardo, R. T., Meore, J. M., Sep. 1998. Terrestrial Sea Ice Morchalters.

Greenberg, R., Hoppo, G. V., Tufia, B. R., Geissler, P., Riley, J., Kadel, S., Oes. 1999. Chaos on Europa. Icarus 141, 263–286.

Groenberg, R., Weidenschilling, S. J., May 1984. How fast do Galilean satellites

Journal Impact Factor 3.161

Europa's Differentiated internal
Structure. Inferences from four
Califor Internal
(1) Remove of Annual Structures
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Citation 計量指標的來源

Thomson Reuters → JCR/Web of Science

- –Journal Impact Factor (JIF)
- -Eigenfactor

Elsevier → Scopus

- –SCImago Journal Rank Indicator (SJR)
- –Source Normalized Impact per Paper (SNIP)

Google Scholar

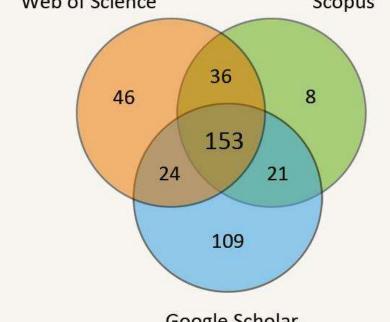
-Google Journal Metrics





No Single Tool – Captures all Citations 沒有一個單一的工具

可涵蓋所有的引用數據 Web of Science Scopus



Google Scholar

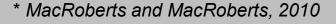
Citations of a book in Bar-Ilan, J. (2010) Citations to the "Introduction to informetrics" indexed by WOS, Scopus and Google Scholar. Scientometrics, 82(3), p.504



Citation Based Metrics

- Self-citations 自我引用
- Citations added because of pressure by editors
- Negative citations 負引用
- Only about 30% of influences are cited*
- "Informal" influence isn't measured through citations 非正式的影響方式無法藉由引文評估
- Secondary sources 第二手資料
- Review articles "take" citations away from reviewed articles
- Matthew effect the rich get richer 馬太效應- 大者恒大





網路世代: 幾乎生活中離不開 網路 2015

by 2020

3.4B

internet users

doubling to

7.6B

10-13B

connected devices

growing to

10-13B

80%

of data was created in the last 18 months

10x

more created

\$1.6T

e-commerce sales

\$3.5T



Examples: Scholarly Data Exhaust





















Google+



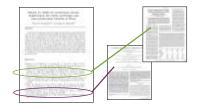


















研究成果的各種形式

- Articles
- Blog posts
- Book chapters
- Books
- Cases
- Clinical Trials
- Conference Papers
- Data Sets
- Figures
- Grants

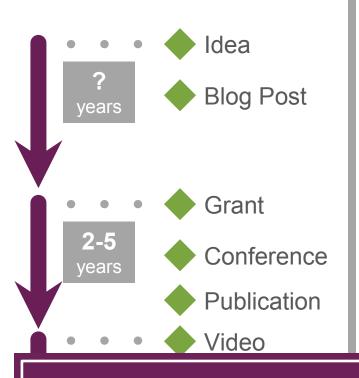
- Interviews
- Letters
- Media
- Patents
- Posters
- Presentations
- Reports
- Source Code
- Theses / Dissertations
- Videos
- Web Pages



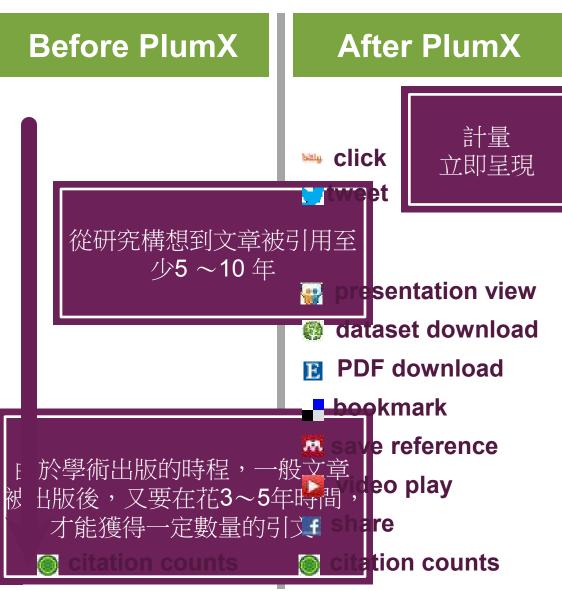


Metrics timeline:

From Idea to Impact



從研究構想開始到發表到同儕評 被 鑑的期刊,至少需時 2~5年







What impact has our research had in the past 12 months? 過去12月,我們的研究產生了哪些影響?



How do we arm our researchers to better compete for funding? 我們如何幫助我們的研究者、學者獲得更好的機會取得研究經費?



Can we measure non-STEM, non-article research?我們能夠量化 non-STEM的發表以及非傳統文章的發表形式?



Open Access and Scholarly Publishing



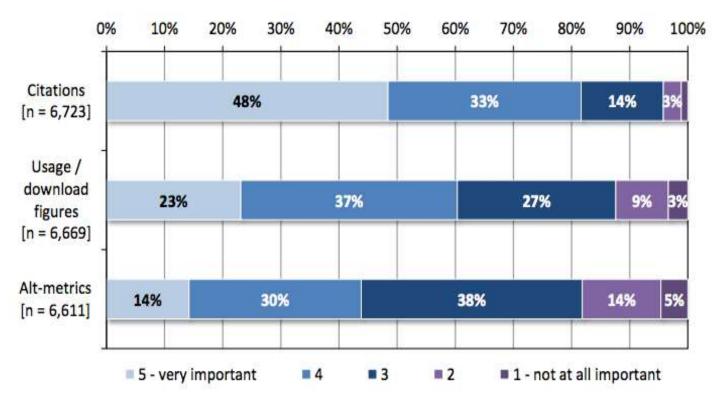
Article-level metrics

Definitions provided:

Q20

How important do you think each of the following types of article metric will become for assessing the value of research over the next ten years?

Alt Metrics



Taylor and Francis Open Access Study – June 2014



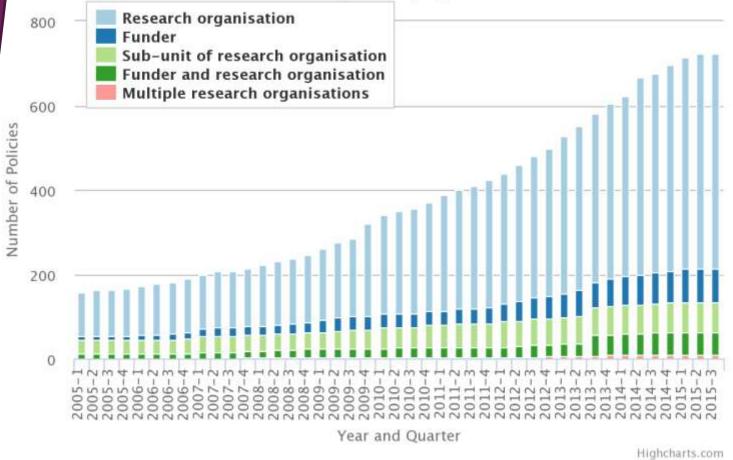




Access & Catalysts for Change

Open Access 寄存趨勢 Open Access Mandates Increasing





http://roarmap.eprints.org/





Open Access & Catalysts for Change

Open Access 獲得全球

關注

Science

- How We Work

BILL & MELINDA GATES FOUNDATION OPEN ACCESS POLICY

Home News Journ

Latest News ScienceInsider Science

SHARE The Competitiveness Council or

In dramatic

In dramatic 'immediate' by 2020



By Martin Enserink | May



In what European scien member states today a papers should be freely ministers of science, in **Brussels**. But some ob

The OA goal is part of a concept which also inc government, which cur wide support for Open Research and Innovation

"We probably don't rea and huge," Moedas said The Bill & Melinda Gates Foundation is committed to information sharing and transparency. We believe that published research resulting from our funding should be promptly and broadly disseminated. We have adopted an Open Access policy that enables the unrestricted access and reuse of all peer-reviewed published research funded, in whole or in part, by the foundation, including any underlying data sets.

As of January 1, 2015 our Open Access policy will be effective for all new agreements. During a two-year transition period, publishers will be permitted to apply up to a 12 month embargo period on the accessibility of the publication and its underlying data sets. This embargo period will no longer be allowed after January 1, 2017.

Our Open Access policy contains the following elements:

- Publications Are Discoverable and Accessible Online. Publications will be deposited in a specified repository(s) with proper tagging of metadata.
- 2. Publication Will Be On "Open Access" Terms. All publications shall be published under the Creative Commons Attribution 4.0 Generic License (CC BY 4.0) or an equivalent license. This will permit all users of the publication to copy and redistribute the material in any medium or format and transform and build upon the material, including for any purpose (including commercial) without further permission or fees being required.
- Foundation Will Pay Necessary Fees. The foundation would pay reasonable fees required by a publisher to effect publication on these terms.
- 4. Publications Will Be Accessible and Open Immediately. All publications shall be available immediately upon their publication, without any embargo period. An embargo period is the period during which the publisher will require a subscription or the payment of a fee to gain access to the publication. We

補充計量的優勢

•更廣泛

- 呈現更廣泛的學術影響力,而不只是在科學界

•更多元

更著重在彰顯研究者、研究機構本身的影響力,而非 只是在發表的文章。研究者≠文獻

•更快速

- 研究產出的效益與影響力可以更快的被估量

•更公開透明

- 取得與觀察這些數據與指標,比以往更加簡便與容易



Altmetrics 獲得廣大的支持與迴響

Whether altmetrics can or should replace A citation counts is not the question that sa needs to be asked. Some research has shown that some metrics can be an indicator of future citations, but the relationship is questionable because of En the different contexts of each metric and Pa has also been shown to vary widely by discipline (Costas, Zahedi, and Er Woulters, 2015b; Jobmann et al., 2014). Re The guestion that we should ask is how tic we can evaluate the different metrics available to us, how individual scholarly communities can best use the data, and how we can influence the consideration of many different impacts of research beyond traditional citation counts. funding agencies requirements, thus making a strong case for the relevance of IRs in

assessment process.

http://www.against-the-grain.com/2016/04/v28-1-altmetrics/ Tuesday, May 24th, 2016 Latest News Journal Info Articles Resources v28 #1 Academic Publishing: Tradition, Change, and Opportunities v28 #1 February 2016 Table of Contents 4 v28 #1 Altmetrics: Documenting the Story of

Research

April 1, 2016 __ hindsl __ Full Text Articles, Subscribers Only

by Lauren B. Collister, PhD (Scholarly Communications Librarian, University Library System, University of Pittsburgh)

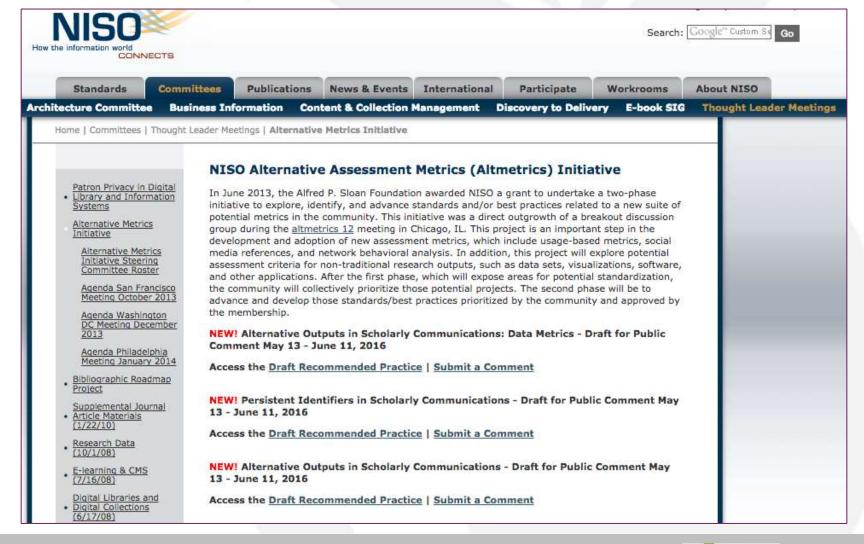
and Timothy S. Deliyannides, MSIS (Director, Office of Scholarly Communication and Publishing and Head, Information Technology, University Library System, University of Pittsburgh)

in IRs which can help to

he institution and meet the



NISO on Altmetrics





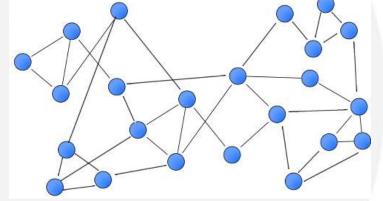
Plum Analytics: Approach to Metrics

PlumX:因應大數據時代而產生

- •Built for Scale Our goal is to track all the world's researchers, all of their output, and metrics for each. 我們的目標是希望可以追蹤全球的研究者、學術產出以及彼此之間的計量
- >18 Million Researchers Worldwide 全球至少有**1,800**萬個研究者
- >120 Million Scholarly Articles 1億2千萬筆研究產出

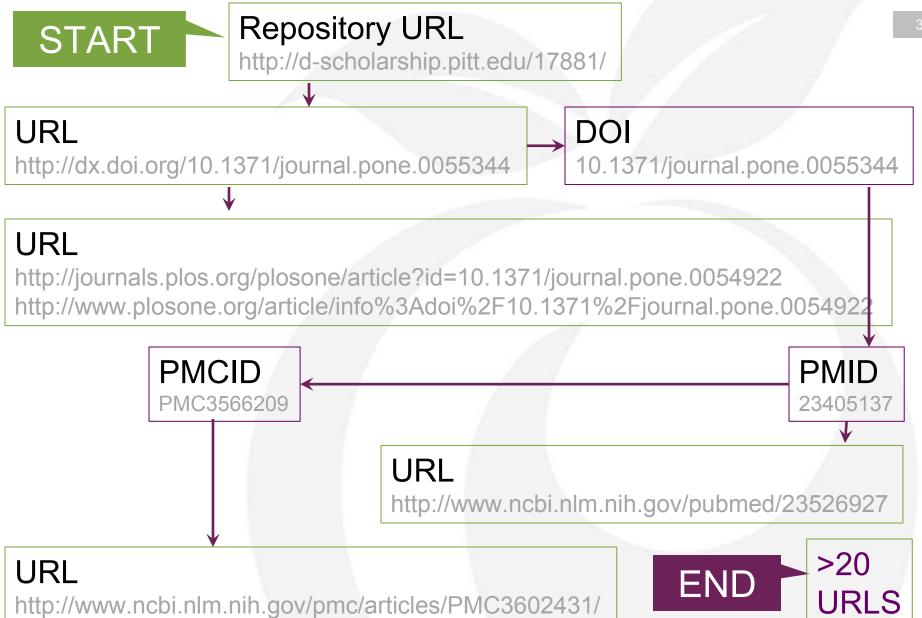
Map artifacts → people → groups

比對研究產出一研究者一群組



35







PlumX Metrics 的計量來源(部分,非全部)

- a Amazon
- Bit.ly
- CrossRef
- Delicious
- Oryad
- dSpace
- **E** EBSCO
- ePrints
- Facebook
- figshare

- Github
- 9 Goodreads
- Google+
- Medwave
- Mendeley
- PLOS
- PubMed Central
- Reddit
- Research Blogging

- Scopus
- SlideShare
- SourceForge
- Stack Overflow
- Twitter
- USPTO
- Vimeo
- w Wikipedia
- Worldcat (OCLC)
- YouTube



PLUMX Metrics Categories



(blog posts, comments, reviews, Wikipedia links)



USAGE 使用率 (clicks, downloads, views, library holdings, video plays)



SOCIAL MEDIA 網路社群

(+1s, likes, shares, tweets)



CAPTURES 擷取 (bookmarks, code forks, favorites, readers, watchers)

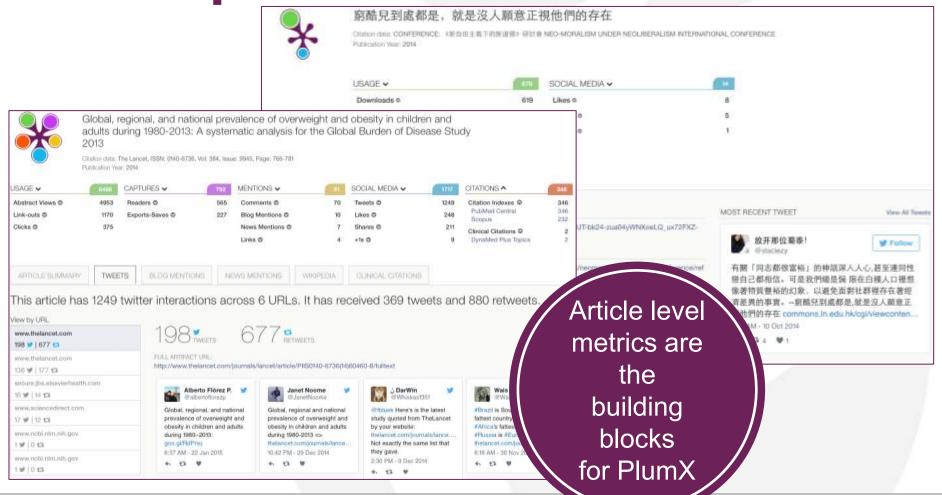


CITATIONS 引用

(PubMed Central, Scopus, patents)



5 Categories in Action – Examples



Clinical Citations





Metrics How You Want Them



Broad Metrics – Full Story



How are you *Telling the Story* of Research?



What impact has our research had in the past 12 months?

過去12個月我們的研究產生了哪些影響



How do we arm our researchers to better compete for funding? 如何能夠更強力地支持我們的研究者爭取到研究經費呢



Can we measure non-STEM, non-article research? 我們如何評估非STEM或非以文章形式發表的研究呢



Case Study:

Saint Mary's College Custom Rubric

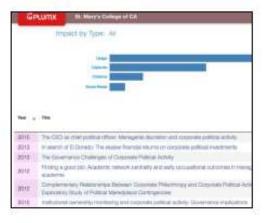
Standard Journal Metrics



Newer Journal Metrics



Alt Metrics







Standard Journal Metrics



Cabell's International

- Journal acceptance rate
- Cabell's Classification Index (CCI) reports the influence of a journal in a particular discipline

WorldCat

· Reported holdings / ownership from libraries and institutions worldwide

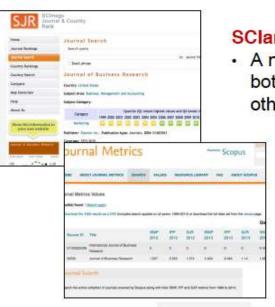
Journal Citation Reports

 Journal Impact Factor, a widely recognized measurement from Thomson Reuters, developed to rank and compare journals based on the times a typical article is cited.





Newer Journal Metrics



SClamgo Journal Rank (SJR)

 A newer measure of journal influence, SJR measures both article citation counts, but also the influence of the other journals that those citations are in.

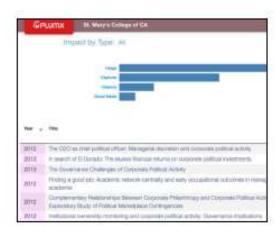
SNIP

 One of the newest metrics, SNIP Indicator (Source Normalized Impact per Paper) aims to compare typical citation metrics but compared within the field only.





Alt Metrics







Impact Rubric St. Mary's College

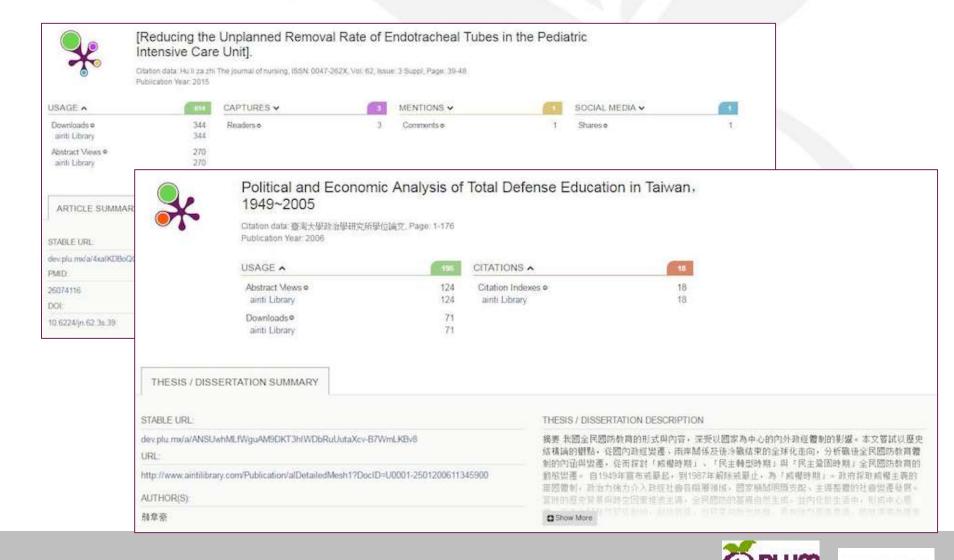
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GENERAL INFORMATION	YEAR		HOLD	RARY DINGS	(CABELL'S)/B OOK RATING	CCI REPORT	JOURNAL IMPACT FACTOR	JOURN AL BANKI	SNIP	CITATIONS	USAGES	MEI	SMOITH	GLOBAL	ESPONSIBL	DISCIPLINE	PEDAGOGY	PRACTICE	COMMENTS
LAST 5 YEARS (20	010-2011	, 2011-2012, 2012-2013, 2013-2014, 2	2014-2	015) - F	PUBLICATIONS	AND OTHER A	ARTIFACTS												
Peer-reviewed journal article	2016	Kolhede, E. and Gomez-Arias, J.T. (2016). Segmentation of Infrequent performing arts consumer. Arts and the Market. 6 (1), 83-110.	3	325	70%	Qualified: Management and Marketing	Dat	not reported	not reported	not reparted	25	not	reported		00	×	, e	elf-	
Peer-reviewed case study	2012	Bluhm, C.T., Vradelis, M., Asaravala, C., U. C., Threlleld, B. & Gomez-Arias, I.J. I. (2012) TM: Rep: Tread with 5" """ (1" strur also.). Jumal of the link vision. Northern VisiCase (Studer 1816), 33+41.		325	25%	High: Accounting; Economics and Fapragements; Marketing	Date of the contract of the co		0.003	not reparted	484	not	reported	×		апту Гер	ořt	5 -	
Peer-reviewed c se study	0	Bluhm, D.T., Vradelis, M., Asaravala, J. P. Gomez-Arias, D. Z. II. and J. Adwith cabucin doubland the hiernational Academy for Case Studies, 18 (5), 35-		325	25%	High: A sounting; oc omics di minance; Management;	ter	ne	3.009	not reported	484	not	reported	×	•	ter			
Peer-reviewed academic journal article	2011	Genin, L., Gomez-Arias, J.T., & Kellhede, E. (2011). From a great books liberal arts education to an integrated marketing program of study. Fleviev of Business Research, 11(3), 13-26.	20	204	22%	not reported	hot reported	O seported	reported	ny reparted	nat repaited	not	reported	(ua	lita	tįv	e)	
Peer-reviewed academic journal article	2010	Gomez-Arias, J.T., Mendez-Naya, J. & Mendez-Naya, L. (2010). Export subsidies and countervailing preferential trade agreements. Journal of International Business and	12	122	1854	not reported	notreported	not reported	not reported	not reported	nat reported	not	reported	×		×			
OLDER THAN 5 YE	ARS (/	older than 2010) - PUBLICATIONS	AND	OTHER	RARTIFACTS														
OLD LITTING		Genin, L. & Gomez, T. (2009). Beyond																	
Peer-reviewed academic journal	2003	monelization: Creating value through online social networks, International	В	27	50%	Qualified: Management;	notreported	not	not	not reparted	nat	not	reported			×			



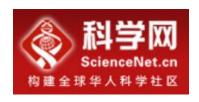


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1) Integration of Plum Print and EBSCOhost full-text databases







Comparison and analysis of top 10 exercise android Apps in mainland China.





Journal

Yanling Wang; Liu Sun; Yahong Xu; Qian Xiao; Polun Chang; Ying Wu; Studies in Health Technology & Informatics, Aug2015; 216 1024-1024. 1p. (Journal Article) ISSN: 0926-9630



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4. 3D CPR Game Can Improve CPR Skill Retention.





Academic Journal

Jia Li; Yimin Xu; Yahong Xu; Peng Yue; Liu Sun; Ming Guo; Shuqin Xiao; Shu Ding; Yanyan Cui; Shulan Li; Qiuying Yang; Polun Chang; **Ying Wu**; Studies in Health Technology & Informatics, Aug2015; 216 974-974. 1p. (Journal Article) ISSN: 0926-9630



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5. Development and Usability Evaluation of the Mobile Delirium Assessment App Based on Confusion Assessment Method for Intensive Care Unit (CAM-ICU)





Meihua Ji; Ying Wu; Polun Chang; Xin Yang; Fangyu Yang; Shuang Xu; Studies in Health Technology & Informatics, Aug2015; 216 899-899. 1p. (Journal Article) ISSN: 0926-9630



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Academic

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