

The BitViews project: a new method for aggregating usage data, a new route to universal Open Access

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Very recently I returned to the field of open access/academic publishing after a 15-year hiatus. What I found was largely disheartening: same problems, same discussions, same lack of substantial progress.

Why?

Puzzling contradiction: the librarianship environment is extraordinarily fertile in terms of production of **ideas** (evidence: this conference), but is almost sterile in terms of **solutions**.

What can explain this dichotomy?

Non-exhaustive list of possible causes:

1. Peculiar position of librarians whose objective is to provide valuable services to their academics and students, but who are ultimately responsible to (and are controlled by) University administrators;
2. Ideas can be produced **locally**, but solutions required multi-agent, multi-national **coordination**.
3. Pressure to publish is less intense for librarians than for academics => freedom to explore.
4. Decision-making power is outwith librarians' remit and rests with University management and policy-makers.
5. Commercial publishers are few, wealthy, single-minded, and ruthless lobbyists. Librarians are

legions, dispersed, resource-poor, serve conflicting interests, with little influence on policy-makers.

The distinction between ideas and solutions **matters.**

Ideas are for **debate**, solutions are for **implementation**. Ideas are continuously improvable, solutions are binary (either they work or they do not).

Cost-benefit analysis does not apply to ideas, but is fundamental for solutions.

What is BitViews and what problem(s) is it a solution for?

Problem 1: Currently there is no mechanism that provides **aggregated, worldwide, reliable, and validated data on online usage** of scientific, scholarly, and medical **peer-reviewed outputs**.

Problem 2: **Individual incentives** to deposit accepted peer-reviewed articles in Institutional Repositories are **very weak**. Result: **no universal open access** to academic, scientific, and medical knowledge.

BitViews' solution to (technical) Problem 1 provides also the indirect solution to (incentive-related) Problem 2.

How?

Assume that BitViews can aggregate online usage data for all peer-reviewed research papers in a consistent, validated, and auditable fashion.

What impact would this have on Open Access?

Our claim: The free availability of online usage data provides the **missing incentive** for academic authors **to want to deposit** their peer-reviewed materials on open access IRs.

The reason is simple: as soon as views are counted, views count **to authors**.

Objection:

“What methods or regulations could there be to stop unscrupulous authors gaming the system, with bots viewing their research outputs, or the system simply entrenching the status quo with well-known, well-connected authors receiving far more views than novel, ground-breaking papers from (most likely) younger, less well-known authors?”

I wish to dissect this objection in detail, not because it is particularly interesting, but because it both summarizes neatly a number of misconceptions and shows why the ideas vs solutions dichotomy is relevant.

1. Gaming: existing systems (e.g., COUNTER) already remove efficiently obvious hits by bots, malicious crawlers, etc. Efficient \neq 100%: on a **worldwide** basis, attempts to “game the system” are mere **noise**.
2. Objection assumes that online usage data are not already available. They **are** and they are being **monetized** by commercial publishers in pursuit of easy profits.
3. Even if it is counterfactually assumed that authors would significantly game the system and that online usage data were not already collected and available, would this **cost** not be miniscule compared to the massive **benefit** of universal Open Access?

What is BitViews?

Background. PIRUS:



PIRUS had to overcome three types of obstacles:

- (a) *Technical*: very large volume of data;
- (b) *Organisational*: need of a central clearing house (cch);
- (c) *Economic*: allocation of costs of running the system.

Why did PIRUS fail?

Because publishers did not want to buy into the project.

Why?

Because:

1. measuring usage attaches value to post-prints in institutional repositories, which publishers do not own. Publishers had no incentive to support a metric they could not monetise.

2. Publishers understand that data about who views their content are valuable. They have long since perceived the market value of online access

data and have been busy acquiring companies that manage the process (Elsevier's purchases of Atira/PURE [August 2012], bepress [August 2017], Plum Analytics [February 2017], Aries [August 2018]) or collect open access material (Elsevier's purchase of SSRN [May 2016]).

A new way of aggregating online usage data: BitViews.

There is a feasible low-cost solution to the technical problem that beset PIRUS:

1. Dispense with a central clearing house with which each IR interacts.
2. Instead use a **blockchain** to distribute the work across repositories and ensure COUNTER compliance without needing a central body.

As the name suggests, BitViews does to online usage data what BitCoin does to money transfers: each piece of research has an account which is increased every time the research is viewed/downloaded.

Use of the COUNTER system ensures that most malicious hits are discounted.

[Unlike BitCoin, BitViews does not require mining and therefore is not energy-intensive.]

Imagine a world where online usage data of refereed, accepted postscript are aggregated on a worldwide basis and freely available on a searchable public ledger (provided by BitViews).

Notice that making this a reality is up to libraries and libraries alone. Conversely, relegating BitViews (or similar mechanism) to a mere “idea” or aspiration is the responsibility of libraries and libraries alone.

Who would suffer and who would benefit from the existence of BitViews?

Any system that shifts value from proprietary articles to open-access postscripts damages the profitability of publishers.

What would happen to journal rankings (a major determinant of pricing and hence profits) if impact by (article) citations were replaced/supplemented by impact by (post-print) views/downloads?

Even if the latter is proxied by the very imperfect measure of *article views*, the results can be impressive.

Example: emergency medicine journals from an African perspective. Replace citations with Africa-based views/downloads.

Journal	Rank by citations	Rank by views
<i>Resuscitation</i>	1st	6th
<i>Annals of Emergency Medicine</i>	2nd	11th
<i>Int'l Journal of Emergency Medicine</i>	20th	4th

Conclusion: Highly profitable commercial publishers are unlikely to push for more usage-based impact measures.

If online usage data are valuable, then profit-maximizing publishers would want to keep ownership and prevent non-monetised dissemination.

Exhibit A: The standard Elsevier journal subscriptions contract states (section 2.4):

*“Elsevier will make usage data reports on the subscriber's usage available to the librarians/administrators employed by the Subscriber for **internal use only**. Such reports may be accessed by vendors or other third parties **only with permission of Elsevier** and for the purpose of usage analysis of the subscriber.”*

Why do you librarians accept such preposterous clauses for the data **you** generate and **pay for**?

Exhibit B: University of California's contract with Elsevier states:

"The Subscriber reserves the right to collect, analyze, and make results of such analysis available to both internal and external constituencies of usage data compiled by Elsevier and made available to the Subscriber."

Inescapable conclusion (“know your enemy”):

Commercial publishers have never been, are not, and will never be supportive of a free public ledger recording and disseminating online usage of refereed accepted postprints.

Yes, but what about the **users**?

“To be more relevant to the conference user focused theme, the authors could more clearly describe the use need that is being addressed, how current existing and

predominately centralized approaches fall short of meeting user needs, and more specifically how the BitViews tool addressed the perceived user need.”

What would a world where online usage data of refereed, accepted postscript are aggregated on a worldwide basis and freely available on a searchable public ledger do for **users**?

Let's turn the question around:

How would users use BitViews?

The collective creativity of the Web would be unleashed: provided with a free database of usage events, different communities would search and utilize the data in different ways.

For example, editors/publishers of OA journals instead of

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African Journal of Emergency Medicine

Volume 6, Issue 3, September 2016, Pages 125-131

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Original Research Articles

Bedside ultrasound training at Muhimbili National Hospital in Dar es Salaam, Tanzania and Hospital San Carlos in Chiapas, Mexico

Formation en échographie au chevet du patient à l'Hôpital national Muhimbili à Dar es Salaam, Tanzanie et à l'Hôpital San Carlos au Chiapas, Mexique

Teri A. Reynolds ^{a, b, c, d, e}, Jeanne Noble ^b, Gehres Paschal ^c, Hendry Robert Sawe ^a, Aparajita Sohoni ^d, Sachita Shah ^e, Bret Nicks ^f, Victor Mwafongo ^a, John Stein ^g

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Introduction

In resource-rich settings, bedside ultrasound has rapidly evolved to be a crucial part of emergency centre practice and a growing part of critical care practice. This portable and affordable technology may be even more valuable in resource-limited environments where other imaging modalities are inaccessible, but the optimal amount of training required to achieve competency in bedside ultrasound is largely unknown. We sought to evaluate

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may show where and when an article was viewed/downloaded:

The screenshot displays the ScienceDirect article page for the African Journal of Emergency Medicine, Volume 6, Issue 3, September 2016, Pages 125-131. The article title is "Bedside ultrasound training at Muhimbili National Hospital in Dar es Salaam, Tanzania and Hospital San Carlos in Chiapas, Mexico". The authors listed are Teri A. Reynolds, Jeanne Noble, Gehres Paschal, Hendry Robert Sawe, Aparajita Sohoni, Sachita Shah, Bret Nicks, Victor Mwafongo, and John Stein. The article is available as an open access PDF. A world map is shown with red dots indicating validated views, with a red circle highlighting the map. The map shows a high concentration of views in Africa and South America, with some views in Europe and Asia. The page also includes a table of contents, a list of recommended articles, and a section for article metrics.

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It is crucial to realise that making the BitViews database freely available to all can be done by libraries **now** without the collaboration of publishers and/or of university administrators.

Each of you **already** has, or can have, online usage data:

BitViews simply aggregates the data, requiring virtually no recurring effort/cost from you.

Inevitably, as soon as views/downloads data are validated according to transparent criteria and are collected on a worldwide basis, the data provide the “raw material” that can be used to construct discipline-specific non-citation impact metrics.

[Some of the data would not represent a valid index of research impact/value, but they would be noise swamped by the much larger volume of proper signals of impact/value.]

What has this got to do with **Open Access**?

As soon as peer recognition and esteem depend (also) on usage, it is in each researcher's *individual interest* to ensure maximum visibility, which can be achieved only by depositing postprints in institutional repositories, free from the shackles of readership-decimating paywalls.

BitViews: the obstacles ahead

Technical obstacles.

Difficulties to be sorted: integration with COUNTER, making BitViews a plug-and-play application working with the various platforms used by Institutional Repositories, etc.

Doable, if enough libraries pool their resources.

Economic obstacles.

The same reasons that made leading publishers sink PIRUS apply *a fortiori* to BitViews.

BitViews turns **proprietary** online access data currently owned by commercial publishers into **open data**, freely available to anyone.

BitViews **reduces** the role of peer-reviewed articles (owned by oligopolistic corporations) to purveyors of citations, and **increases** the value of peer-reviewed postprints (a public good freely available to anybody) as carriers of scientific and scholarly knowledge. **Consequence:**

Commercial publishers will **not** join BitViews with their platforms, at least initially.

Would this non-participation not sink BitViews as it did for PIRUS? We think not – and for two main reasons.

1. online access data produced by commercial publishers are (partially) available.
2. in the medium term the initial refusal by commercial publishers to join the network of BitViews-compliant repositories will come under increasing pressure from both librarians and academic authors.

Another significant economic obstacle to the success of the BitViews project is the **free rider curse**. Who is to incur the miniscule but positive set-up costs of BitViews?

Doable, if enough libraries accept to share the set-up cost.

Social obstacles.

The key postulate of the BitViews project is that, once robust, validated, and aggregated online access data are available, it will be in academic authors' *own interest* to ensure the widest dissemination of their peer-reviewed papers by depositing their postprints in institutional repositories.

This presupposes a successful information campaign: none of the potential benefits of BitViews will materialize unless **university and research librarians** are prepared to play a fundamental role in this information campaign.

BUT ...

The endorsement and promotion of a project like BitViews require also a subtler change in attitude.

The experience of the Open Access enterprise in the last 20 years is instructive: supporting OA as “a good thing” and expecting the key actors to take appropriate actions (against the vested interests of multinational corporations) is **not** a path to rapid success.

Instead ways ought to be found that make it in academic authors' *own personal interest* to open the access to their own research output.

Fact: in the UK, 25% of 100s of millions of £ spent by the Govt on research support will be allocated on the basis on non-citation based “*impact*”.

When views (online usage) are counted properly (thanks to BitViews/COUNTER), views count.



When views count, authors want to be viewed.



For authors to be viewed, they have to make their own research outputs visible.



The best way to make peer-reviewed papers visible is to deposit them on **Open Access** repositories.