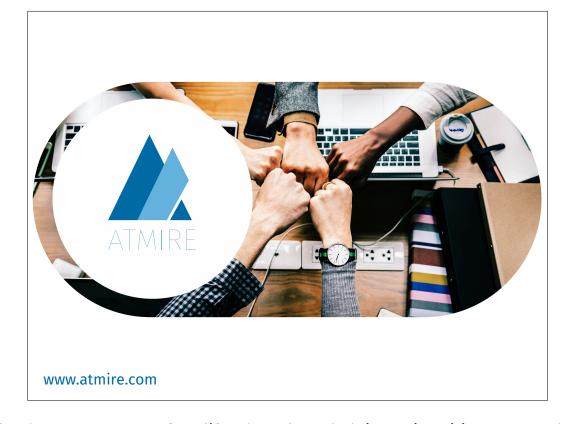


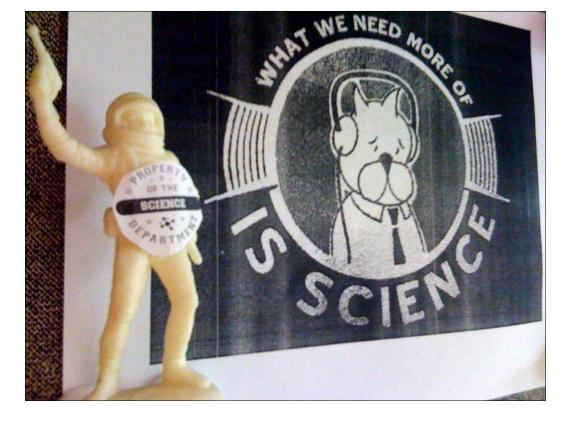
I am not sure if I totally agree with the organisers policy to save the best for the last. But given that you are all still here, it seems to be not such a bad policy after all.

All joking aside, I realise I'm the last thing standing between you and refreshing Belgian beers, so I will make this worth your time and attention.



My name is Bram Luyten, and for the past 13 years of my life, I have been helping universities, ngos and companies with sharing their research papers with the world, leveraging systems known in my field as "Institutional Repositories". We build these repositories with the Open Source software DSpace.

I do this together with a team of 28 other people of Atmire, a company I co-founded together with Lieven Droogmans and Ben Bosman. We are a spin-off of KU Leuven, and their repository Lirias was the first thing we ever made. I'm very proud of my Alma mater and since I want to respect our hosts for today, I'm just going to say that like ULB, KU Leuven is pretty awesome institution as well.



In my talk today, I will first give you my view on the trends and evolutions in Scientific communication that we operate in.



Then I will give you insight into the DNA of our specific open source community, the DSpace community.



And lastly, without getting too much into the technical details, I will share how we have embarked on the largest development endeavour in the history of the project, the deprecation of the two different UIs we had for DSpace, with the goal of replacing them with a new Angular based UI in DSpace 7.



Since it's been a very long day, I would already be happy if there is just a single idea you retain from my talk:



I believe that we, not meaning Atmire or the DSpace community, but everyone in this room, can speed up scientific progress by getting the most recent results of research QUICKER in the hands of MORE people.

Communicating results

How fast are we going today?



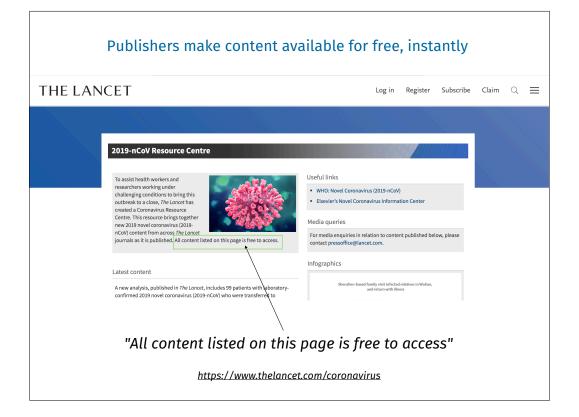


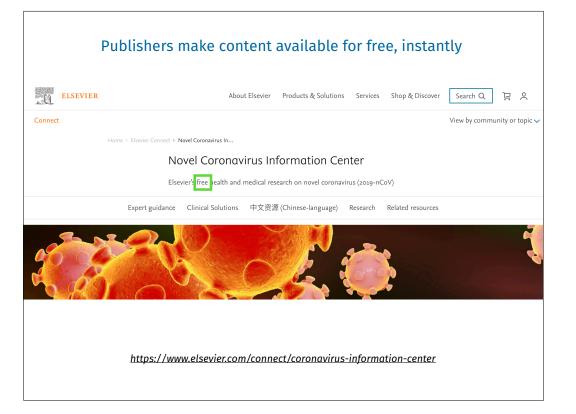
A quick reminder of the pre-internet model, where scientific publishers essentially operated like a newsstand. There were marginal costs associated with the actual printing of each issue of a journal, and getting them shipped to libraries.

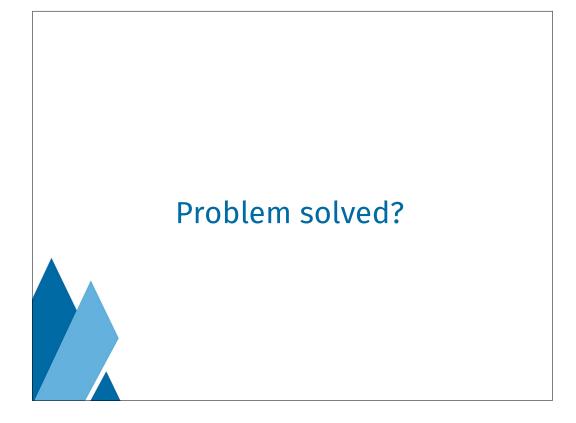
Authors submitted in their articles, they were not paid for this, nor did they have to pay for any publisher services.

Publishers covered their costs and made their margin on charging subscriptions to the libraries and individuals

Fast forward to today

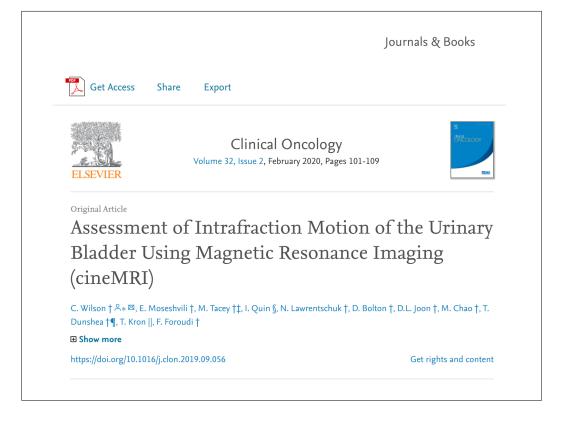




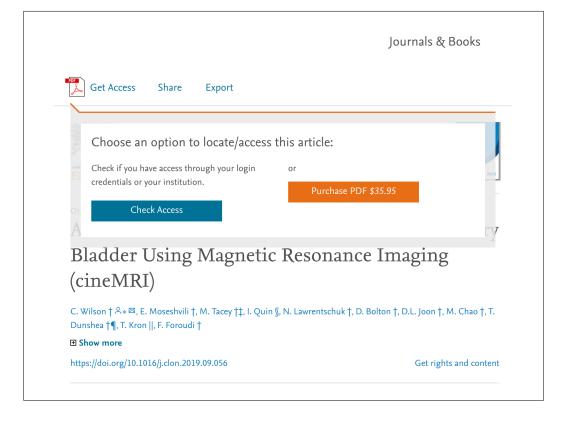


Can you raise your hand if you know someone who is diagnosed with the coronavirus?

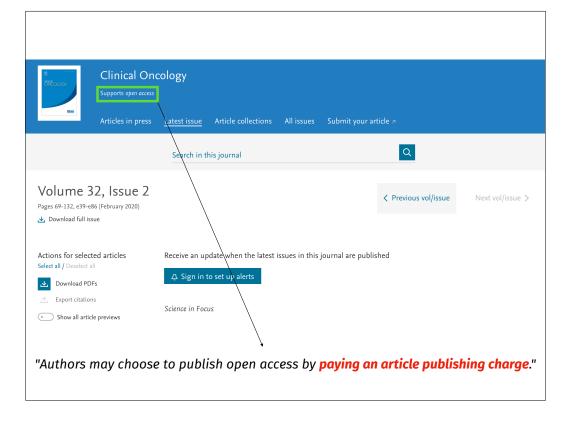
Can you raise your hand if you know someone who has cancer?



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You are asked to pay close to \$40 for this article



Even though, the Journal states that it "supports open access".

Supporting open access in the context of this journal really means that they put the choice with the author: If the author wants people to download their article for free, they need to pay a fee that often goes into the thousands of dollars.

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So it's not even on a journal by journal clear cut case. It's often article by article.

Research on a respiratory epidemic virus with limited fatalities like corona should be open & "free". But the latest research on the cancer that is killing your uncle, father or aunt shouldn't? I don't get that.



Luckily an increasing bigger number of disciplines are embracing **preprint** culture, where results are shared quicker, through preprint servers instead of journals.



With more and more funders strongly backing the Plan S initiative, that wants to get rid of embargo periods all together, it basically looks like we are really on the way where open access will become the norm, rather than the exception.

However I don't want to be naive: Open Access itself is not a silver bullet that addresses the costs of scientific research (including communication) and global equality in the scientific community.



In this whole ecosystem, institutions, their leadership and librarians increasingly also take leadership on the stewardship of their scientific output.

Stephen Hawking's expanding universes thesis breaks the internet

Demand for 1966 PhD work, made freely available for the first time, crashes Cambridge's repository website

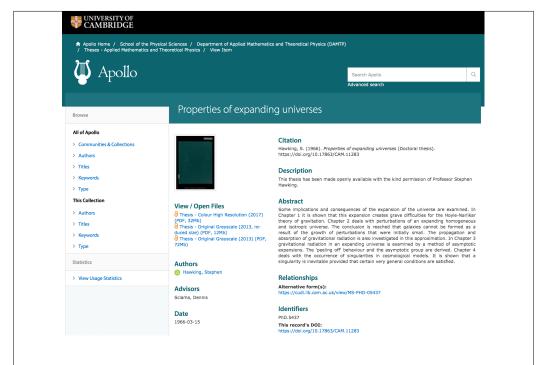


▲ Prof Stephen Hawking's 1966 doctoral thesis, Properties of Expanding Universes, has become the mostrequested item in Apollo, Cambridge's open access repository. Photograph: Felix Clay/The Guardian

Stephen Hawking's 1966 doctoral thesis has broken the internet after becoming available to the general public for the first time.

Demand for the thesis, entitled Properties of Expanding Universes, was so great on Monday that it caused Cambridge University's repository site to go down. The site was still inaccessible at 7.30pm on Monday.

Student theses is an area where increasingly more and more is being made available through repositories.



https://repository.cam.ac.uk



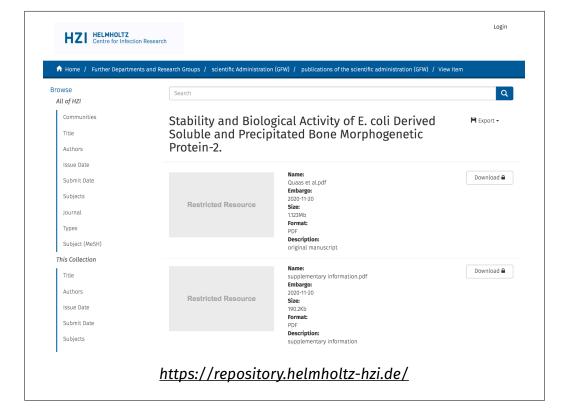
Institution doesn't mean "academic" institution. The idea is catching on in any type of place that is either producing results with public funding, or sees other benefits in making content easily and quickly available.



OXFAM, WHO, The World Bank, Different agencies of the united nations, all run repositories



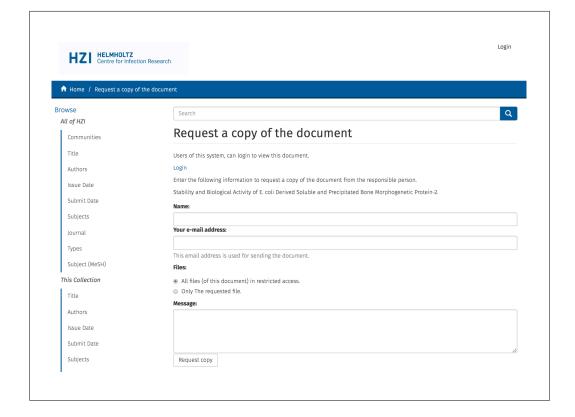
The sharing goes far beyond traditional text materials. This dataset has multiple terabytes of data, neatly split into 17GB zipfiles, accessible to anyone who wants it.



Due to the reward and promotion mechanisms, most, if not all research is still being submitted to journals, preferably with high impact factors.

However, versions of these papers can already be made available through repositories in a very early stage.

Even though you see restricted resource and an embargo period in this example, look what happens when you click the Download button.



Individual researchers always have the freedom to share their work, in any stage, with a colleague in the field. So this "Request a copy" mechanism, is an effective, technological feature around this concept.

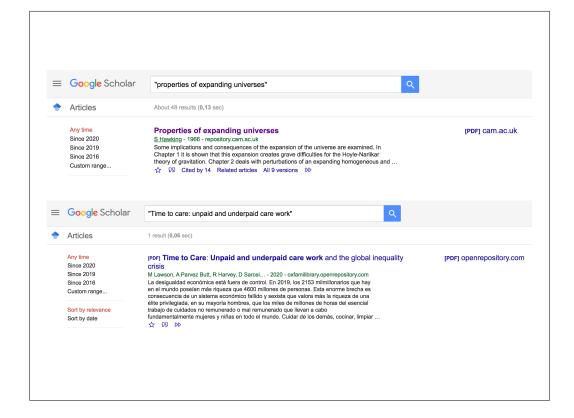
Even though the general embargo applies, you can easily get a copy sent to you straight from the author after approval.

And I haven't gotten to the best thing.

The best thing?

No need to remember the urls to these sites !!!!

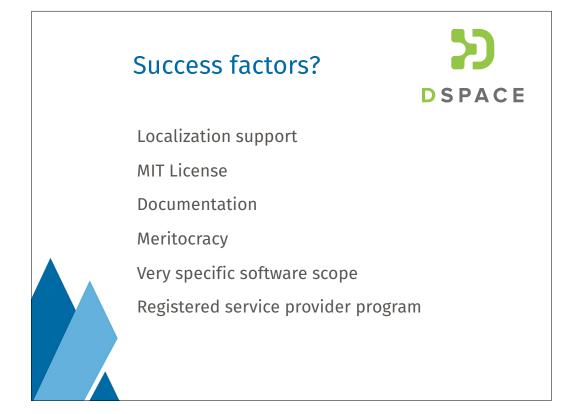




You don't even have to know the repositories exist.

The repositories are the infrastructure on which Google Scholar relies to show you those PDF links on the right side. Even though you sometimes have to click that "All X versions" link in order to see the repository version.





With an installation base between 2000 and 3000 repositories, depending on how you count, DSpace is the most widely adopted repository solution.

According to me, these are some of the critical success factors that contributed to the success.

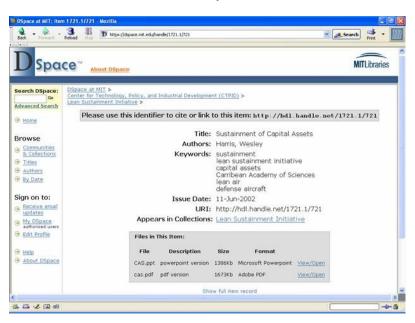
Already in very early versions of the software, there was attention for localisation. This definitely added to the success in non-English speaking countries including Taiwan, China, Japan. In some of these countries, the MIT license has allowed local forks of DSpace to flourish. In China, there's one of these around aptly named "CSpace".

The documentation also sets it apart from other solutions, especially closed source ones, that often don't have their documentation publicly available.

I'm not sure whether the meritocratic aspects of the community, where any developer who has a good idea and code for some improvements, can get it in, is unique. But it definitely helps to empower people and to grow the contributor base.

DSpace does not want to be a tool that can do everything. It's power lies in ingesting and exposing metadata and associated digital assets. Together with the fine grained access control challenges that come with it, it does this very well. It is software people like to use, which is in essence, the key aspect of uptake and growth.

2002 - JSPUI



2007 - XMLUI Contributed



JSPUI (Java Server Pages)

- Difficult to extend
- Monolithic interface

XMLUI (Manakin Framework)

- Modular design
- Multiple interface
- Metadata in native formats

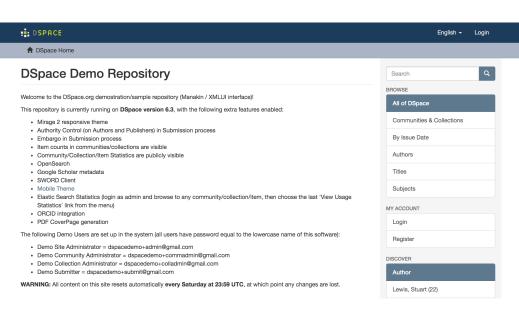




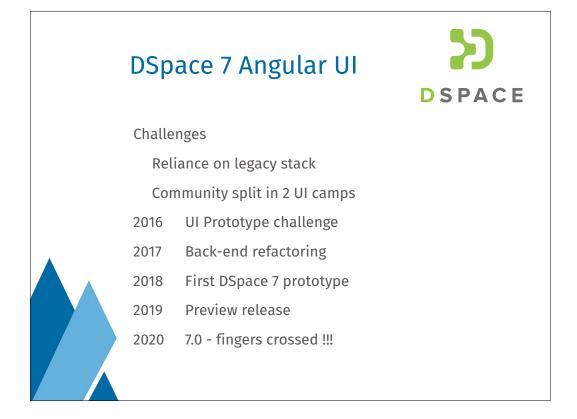


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2020 - XMLUI



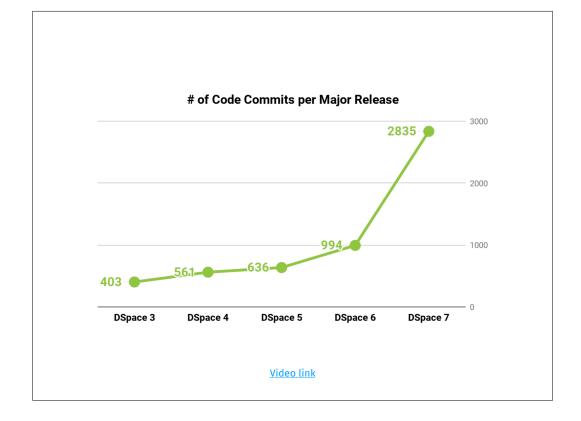




Historically, DSpace has had an almost annual release cycle for major versions, where it basically combined a slate of improvements of whatever contributors could get finished before feature freeze deadline.

One of the things that happened in this fashion over the years, is that an institution contributed an alternative to the standard JSPUI, an XML User interface based on the Apache Cocoon framework. Even though this new UI had advantages over JSPUI, it did not provide feature parity with JSPUI from the start. This resulted in the community essentially getting divided across two UI camps.

With a codebase over 10 years old, doing bigger refactoring and transitions required a different approach. In order to avoid introducing a THIRD UI, we knew feature parity with the best bits of both JSPUI and XMLUI were essential and that we had to get as many people on board as possible. That's why an elaborate UI prototype challenge was used as a method, to have in-depth discussions on the pro's and cons, enabling stakeholders to fully align on the final selected candidate: Angular.



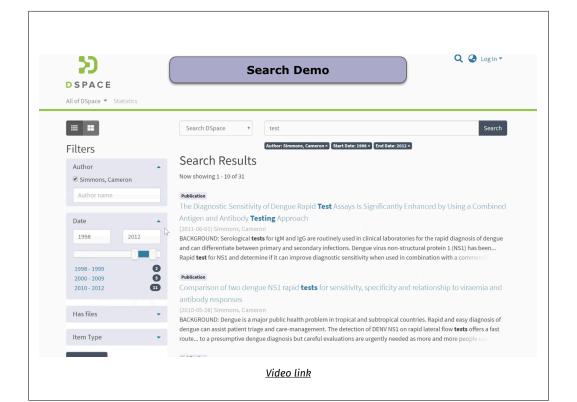


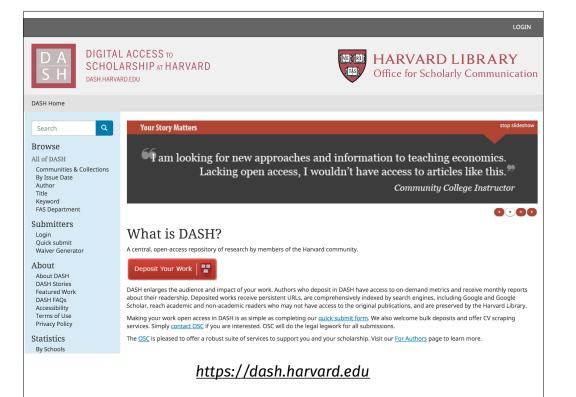
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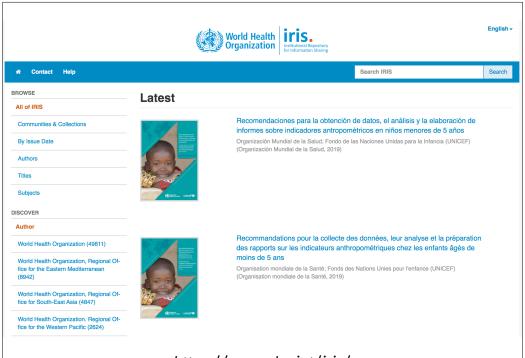
Science - carmyarmyofme https://flic.kr/p/7TdUAZ
OAI Conference group picture

Day 2: technology - nickharris1 https://flic.kr/p/defQrY newsstand - robzand https://flic.kr/p/9cxLbM

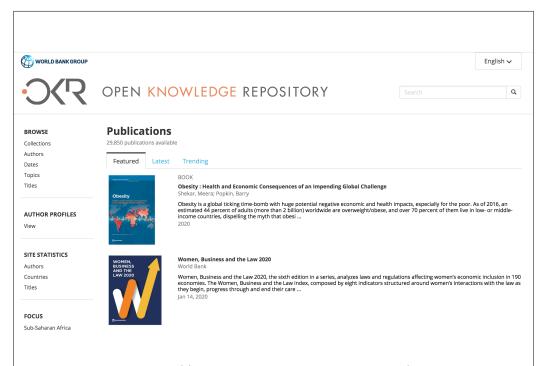
Repository screenshots courtesy of the respective repositories and their institutions







https://apps.who.int/iris/



https://openknowledge.worldbank.org/

