



store, share, discover **research**

get more citations for all of the outputs of your academic research
over 5000 citations of figshare content to date

ALSO FOR INSTITUTIONS & PUBLISHERS

"figshare wants to open up scientific data to the world" **WIRED**

Social scientists, an increasing number of humanities colleagues, and artists use services like Figshare to share their research data, images or other digital objects.

Digital Science

A more collaborative approach to research

Digital Science is a company that looks to improve old research practices with new tools and technologies. CEO Daniel Hook believes that investing in, supporting and promoting businesses and innovations that make the research process more open and efficient is the key to enabling researchers to make a real difference. Is it possible that in the future we might see a collaborative research ecosystem that drives progress for all?

At ten years old, Digital Science – the company looking for innovative ways to make all parts of the research process more efficient and effective – is as relevant as ever. By addressing each stage of the research lifecycle, and investing in technologies that benefit every type of researcher, Digital Science are always looking for ways to revitalise the 'science ecosystem'.

Research Outreach interviewed CEO Daniel Hook, who told us more about who Digital Science are, the projects they support, and what the company can offer scientists, research institutions, industry and even policy makers.

What is the idea behind Digital Science?
When Digital Science was founded in 2010, the company was a spin off from

the Nature Publishing Group (Macmillan Publishers) and it had multiple layers. Firstly, at that time, the software that researchers, academic institutions, publishers, funders and industrial research organisations had available to them to do many research-related tasks was mostly home-built or niche. The team from Nature who started Digital Science had a vision to bring researchers the high-quality software tools that they deserved. Secondly, Digital Science was Nature's answer to the challenge of corporate innovation. Critically, it was created with a remit to try out new business models, even if those business models might disrupt its parent company.

Another facet of Digital Science, and possibly the most important one in terms of how the company operates

today, is that it was imagined as a company that would grow through investment in very early stage start-ups. Today, Digital Science is a vibrant mix of those companies that we've invested in over the last decade with deep domain expertise associated with the different products. Each company is both part of Digital Science and also preserves its own culture.

Digital Science invests in and supports 14 different software companies, each focused on a different aspect of research. Can you tell us more about the scope of services these different companies offer?

From the beginning, the idea was to cover as many of the key points around the research lifecycle as possible; from the lab bench to writing up a piece of

Today, Digital Science is a vibrant mix of those companies that we've invested in over the last decade.

research through to publishing and then to dissemination, evaluation, and impact. On that journey, over the last decade, we have learned a lot including what our chosen structure is good at nurturing and supporting and what we're not able to do well. That has meant making choices about which areas of the research lifecycle we focus on.

There are now two unifying themes behind what we're trying to do. Firstly, we try to help all researchers communicate their research more effectively. This could be helping them discover reference material through *Dimensions*, managing relevant references in *ReadCube Papers*, sharing research data and supplementary files on *Figshare*, or collaborative writing with *Overleaf*. More recently, we've enriched the writing environment by partnering with *Ripeta* to highlight parts of a manuscript that might not meet reproducibility standards and *Writefull* to help both native and non-native English speakers to write better English.

Our second unifying theme is about supporting decisions. We live in an age where context is becoming increasingly critical; the best decisions need the best

contextualising information. That was the reason for building *Dimensions* and for releasing it on Google Cloud's data warehouse, BigQuery, in 2020. *Altmetric*, *CCT*, *IFI Claims*, *Symplectic Elements*, *Scismic* and Digital Science's consultancy team are all involved in helping people make better decisions through capturing, analysing or using data at different points in the research cycle.

With your Catalyst Grant, you are looking for new software ideas to fund. What do you offer grantees and what does this cooperation look like?

Our Catalyst programme has received a wide-ranging set of proposals – from lab-automation tools and artificial intelligence approaches to just about every part of the research cycle and even a special blockchain prize. Several Digital Science investments have come either directly or indirectly out of the Catalyst programme, including *Overleaf*, *Ripeta*, *Scismic*, *TetraScience* and *Writefull*.

Following a decade of running Catalyst we've decided to hit pause while we look at refreshing the format. When we set up the grant there were few options available to early-stage founders, but in

the interim a number of similar grants have become available. As we have matured ourselves, we think we need a fresh approach. Watch this space...!

How might a scientist use these different smart tools on a day-to-day basis?

Although the name Digital Science does seem to suggest a science (or even a science, technology, engineering and medicine) bias, this is actually a misconception. Most of our tools and services are developed for researchers in general. We find lots of social scientists, an increasing number of humanities colleagues, and artists use services like *Figshare* to share their research data, images or other digital objects. We see use of *ReadCube Papers*, our reference management platform, by many types of researchers. While *Overleaf*, the collaborative writing platform, was originally written by mathematicians for technical writing, its user-friendly interface hides the underlying LaTeX language for those who are not used to it and has an increasing following across academia with more than six million active users.

Through *Overleaf* an author might experience *Writefull*, as they check

Quality Review of Research



Researchers

Check manuscripts in minutes
Improve your research transparency



Publishers

Improve peer-review
Streamline and scale quality checks



Institutions

Know your research, protect your reputation
Evaluate your policies in practice

Before publishing, an author can check their manuscript through *Ripeta* to see if it meets reproducibility guidelines.

their grammar with a tool that is aware of how scholarly writing works. Before publishing, an author might check their manuscript through *Ripeta* to see if it meets reproducibility guidelines. Many researchers will be *Symplectic Elements* users when they curate their scholarly record within their institution for their web profile page, while in *Elements* they will see the colourful *Altmetric* doughnuts, which can also be found on many publisher websites, that tell them about the non-scholarly attention associated with their work. *Dimensions* might help a researcher to locate a piece of research, find a collaborator or to understand a topic before deciding whether to attend that departmental colloquium.

Which tools would you recommend to industry professionals or funders? Many of Digital Science's tools work just as well for industry professionals and funders as for academic institutions and publishers. For collaborative technical document writing, the *Overleaf* platform offers a great experience that many researchers love. For industrial partners, it is often the case that they have enhanced security requirements and for those cases, we have an installed version of *Overleaf* that they can deploy inside their firewall.

Dimensions is our flagship product and brings together data on publications, citations, awarded grants, clinical trials, policy documents, patents and datasets in a fully linked information system. Data and analyses can be accessed through the *Dimensions* web interface and API or through our recently launched integration with Google BigQuery, which makes the data even more accessible via a range of business intelligence tools. It is also well-positioned for funders wishing to do portfolio analyses – looking, for example, at the outcomes of their programmes or making strategic decisions about which areas of research need funding.

ReadCube Papers is another Digital Science product that is well known in industrial circles. It is a great solution if you want to share scholarly publications

between research colleagues in a copyright compliant manner. Finally, no question of this nature would be complete without mention of the *CCT Grant Tracker*. A more recent addition to Digital Science, the CCT team provides a highly configurable grant application workflow management system for many of the world's top funders.

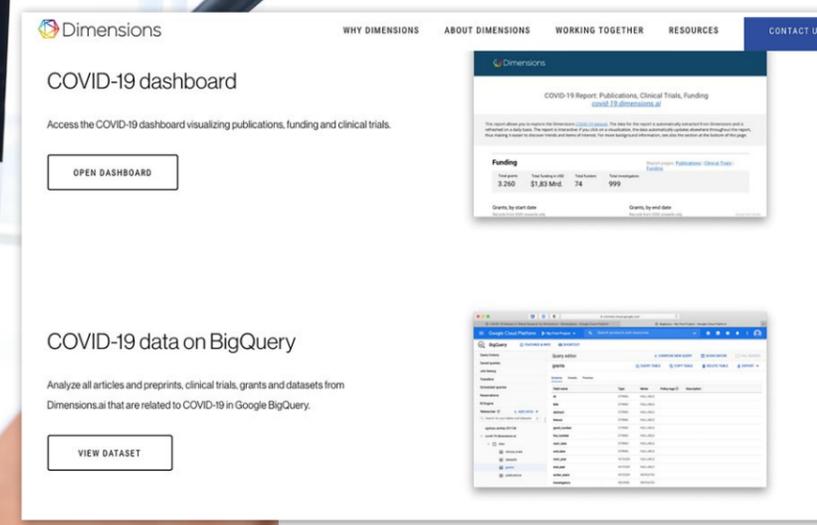
You also offer consultancy to higher education institutions (HEIs), for example helping with REF2021. How exactly can HEIs benefit from your services?

Digital Science's consultancy team takes on projects for HEIs as well as for funders, industry organisations and policy makers. The projects that we take on are varied – from simple data analyses to more complex, computationally intensive models that use a wide range of data to formulate insights for our clients and partners. We have also delivered surveys, report writing, training to build both analytical and technological capability within organisations, assessed organisational readiness for technology change, assisted research strategy formulation, co-authored reports and academic papers, and even carried out custom development for some projects.

We've developed a few really interesting relationships with HEIs around the world. One of our most interesting and impactful projects was to look at the role of gender



Thought Leader



Through *Dimensions*, researchers can discover reference material.

in collaborative research environments in one client institution. That work allowed the institution in question to make changes in their hiring policies, so as to improve gender balance in a way that didn't disrupt existing successes.

Based on all the experience and exposure to emerging research questions from HEIs, the consultancy team is sometimes able to bring these ideas together in one of our free-to-read *Digital Research Reports* (for example, [this report on COVID-19](#)), which showcases the various aspects of our team's capabilities.

Tell us about some projects you are most proud of.

One recent project that springs to mind is the work that we did in collaboration with our sister company *Springer Nature*, the *Association of Universities in the Netherlands*, the *Dutch Consortium of University Libraries* and the *National Library* to develop a classification for the

UN's Sustainable Development Goals (SDGs). Sustainability is such an important topic and to be able to do something that has such broad applicability and use is always a real pleasure. The direct outcome of the project was a detailed analysis of how open research has societal impact in relation to the SDGs. A side-effect of the project is that we were able to develop a categorisation scheme in *Dimensions* to allow an SDG-centric view on global research.

Do you have any final tips for researchers?

Use *Dimensions*! I have to say that. The job of the researcher is becoming more complex. Today, every researcher is asked to be a mini entrepreneur, but often without any training in entrepreneurship, technology, managing people or any of the other skills that seem to be increasingly critical. Some will say that it's always been that way, but now, on top of all of that, researchers are

Dimensions allows scientists to understand the level of development of a specific field – such as research regarding COVID-19.

expected to be data scientists as well. They are expected to make evidenced decisions not only in their research but also professionally: which post doc to hire, which research areas to invest in, who to collaborate with.

While the free version of *Dimensions* allows researchers to address these key questions to help support their work, the institutional version of *Dimensions* allows researchers and administrators to do much more subtle analysis. For example, you can use *Dimensions* to understand the level of development of a specific research field: is it embryonic with just a few researchers working in the field at a small number of institutions? Has it reached an expansion phase where many people are becoming interested? Has it moved from theory to translation? *Dimensions* can give very rapid insights into complex questions such as these.

Many of Digital Science's tools work just as well for industry professionals and funders as for academic institutions and publishers.



W: digital-science.com
 @DigitalSci
 @DigiScience
 @Digital Science