2020

Open access instead of paywalls

Based on a decision by the National Research Council in 2017, all publications produced in SNSF-funded projects will be available in digital format without any charges as of 2020. Science, the economy and society at large stand to benefit.

It isn't just the research that's expensive, its findings are also far from free. University libraries pay hundreds of thousands of francs per year to prestigious publishers for their scientific journals. All in all, the Swiss higher education institutions paid 70 million francs for such licences in 2017. This paywall hampers the spread and application of new knowledge.
Despite the fact that a significant share of scientific publications are government-funded, it is the private publishing companies that reap the commercial benefits. For the SNSF, an absurd state of affairs to say the least. "Research results funded with public money belong to the public," says Matthias Egger, the President of the National Research Council. All SNSF projects are therefore obliged to offer open access (OA) to the scientific articles and books produced in the scope of the project.

"Research findings funded with public money belong to the public."
Matthias Egger, President of the National Research Council of the SNSF

From 50 % to 100 %

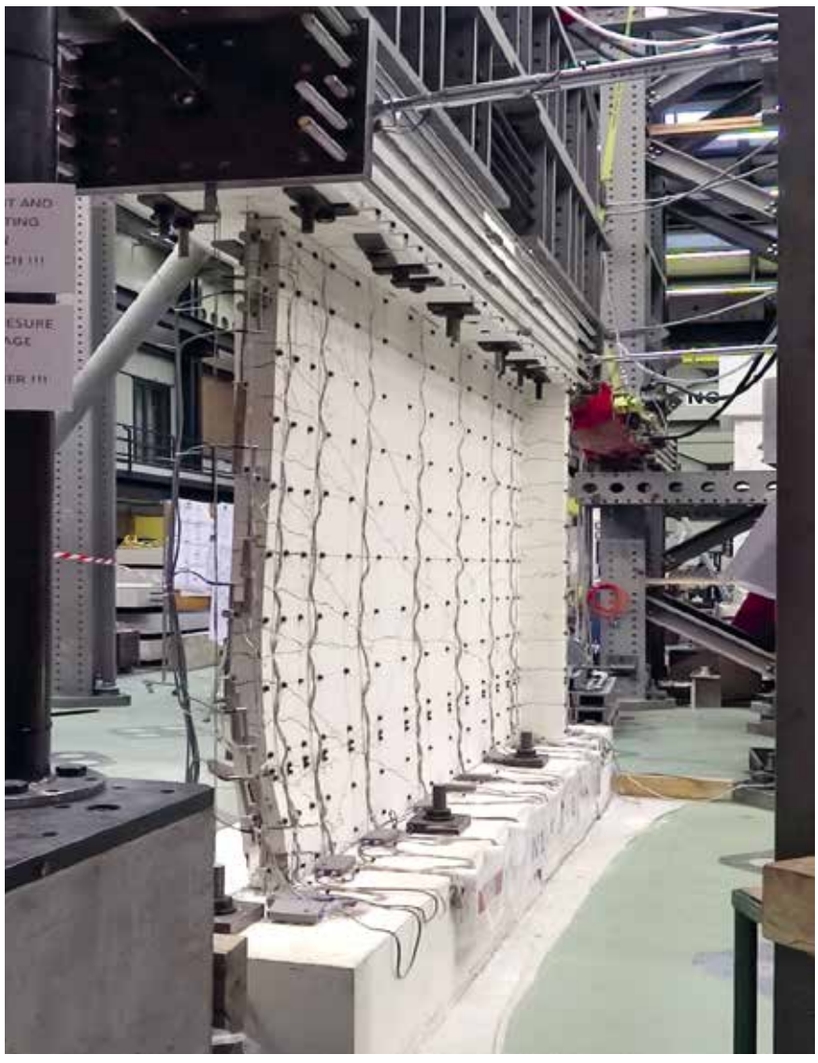
Only 50 % of publications currently meet the open access requirements of free, unrestricted availability in digital form. But, based on a decision by the National Research Council, the SNSF wants to change this to 100 % of publications by 2020. Matthias Egger sees many advantages: "The researchers themselves stand to benefit the most from open access: their results will gain greater visibility. And they will be able to access their colleagues' work without any restrictions. It will be a step forward for science." What is more, thanks to open access, the private sector and society at large will be able to rapidly retrieve and utilise a wealth of scientific knowledge.

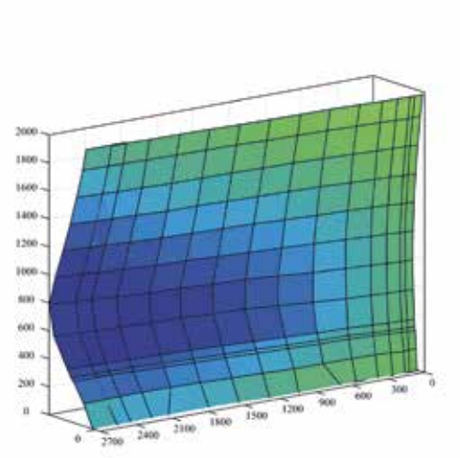
Gold and green road

How do researchers meet the open access requirements? Either they publish their results in OA journals or OA books that are immediately freely accessible. This is the gold road. Or they publish their results in a journal with a paywall first, then place them in a public database after six months. Books are subject to an embargo period of 12 months. This is the green road.
In the case of gold-road publications, the authors often contribute to the production costs. The SNSF has already been covering the costs of OA articles for some time. Since April 2018, it has also covered the costs of OA books and will start doing this also for book chapters as of October 2018. As of this date, applicants will also be able to apply for SNSF support via the online platform *my*SNF.

The Swiss standard as of 2024

The SNSF's new open access policy goes hand in hand with the national strategy pursued by the Swiss higher education institutions. In 2017, they decided that all publicly funded publications must be freely accessible by 2024. Open access will soon be the standard mode of publication, in Switzerland and the world over.





Photograph of a warped wall made of reinforced concrete and a diagram based on the points of measurement. Katrin Beyer deposits the experimental data in public archives.

Open data, of course

Researchers who receive money from the SNSF now also need to make their research data available. How this requirement can be met is exemplified by Katrin Beyer and Florian Altermatt. They have been part of an open data culture for years.

Can the reinforced concrete withstand the displacement forces that pressure it? In a large laboratory at EPF Lausanne, Katrin Beyer and her team are investigating how the walls of buildings get warped during earthquakes. Each series of experiments generates several hundred gigabytes of data: photographs, videos, measurement data, reports.

Progress accelerated

Since starting the experiments in 2010, Katrin Beyer, professor for earthquake engineering, has published a multitude of such data. "In our field, we collaborate closely with other universities. Therefore it makes sense to allow open access to the data, particularly if they were generated in costly and time-consuming experiments." Working together, research teams will be able to improve earthquake protection more rapidly.

"Our research becomes more visible, is cited more frequently, and has a bigger impact."

Katrin Beyer, earthquake researcher, EPF Lausanne

And for Beyer, there is a another reason why publishing the data seems the right thing to do: "Our research is funded by the tax payer. So the data belong to the public."

Data management from day one of the project

Her view is shared by Florian Altermatt, SNSF professor for community ecology at the University of Zurich and team leader at the Swiss federal research facility Eawag in Dübendorf. Altermatt already started storing his research data in public archives ten years ago. His research interests include biodiversity patterns in rivers and measuring such biodiversity based on environmental DNA (eDNA).

His team are under clear instructions: from day one of the project, all research data must be continually managed and edited. This ensures that all members of the team have access to them – even ten years after the project, when the undergraduate or doctoral student is no longer around. "Publishing the existing data is the logical next step; it doesn't cost much and can be done in next to no time," says Florian Altermatt.

Katrin Beyer's team also edit the data so that they can be used by internal researchers who were not involved in the experiment. Thanks to this systematic data management, publishing is easy and cheap. According to Beyer, it probably doesn't account for more than 1% of the project costs. "And we also have the benefit of an external backup."

Visible and understandable

In general, Katrin Beyer's experience of freely accessible data has been very positive: "Our research is made more visible, cited more frequently and has a bigger impact." Florian Altermatt also considers higher visibility to be an advantage. "According to our records, our datasets are accessed between 20 and 80 times."

Both of them appreciate the fact that open data lends their research greater credibility. In the words of Florian Altermatt: "Other researchers are able to follow my measurements and examine the results. So I don't need to worry."

Protecting young researchers

And the limits of openness? Neither Beyer nor Altermatt use data that are considered sensitive for legal or ethical reasons. For such data, the open access commitment does not apply. For Altermatt it is vital that young researchers only make their data available, once they have published their master thesis or dissertation. "Otherwise someone else could overtake my team member and, if worst comes to worst, damage their career." He also acknowledges the risk of suboptimal data analyses by third parties resulting in claims that are not backed up by the data.

"According to the records, our datasets are accessed between 20 and 80 times."

Florian Altermatt, biologist, University of Zurich and Eawag Dübendorf

Katrin Beyer mentions the problem of ever-increasing amounts of data. "We are currently making high-resolution images of the concrete walls; this generates several terabytes with each series of experiments. It is not possible to store so much data in the archives we have used until now." Databases with a larger memory are therefore needed.

But after all is said and done, both researchers still firmly support an open data culture. They are in no doubt that it is an integral part of science today. This is precisely what the SNSF hopes to achieve with the new requirement.

Open Research Data

Successful start

Since October 2017, applicants for project funding have had to include a data management plan in their application. What information do data management plans provide?

Ayşim Yılmaz: In the data management plan, applicants describe how they administer, secure and publish their project data.

How do you feel about the results achieved so far?

We are very satisfied with the way things are going. The majority of applicants have submitted a plan, in most cases one that has been thought through in order to meet requirements.

A successful start in other words.

Yes, even though there have understandably been some questions regarding implementation: how do I manage my data? How much time will it take me? In which archive should I make the data available?

And have you been able to answer all the questions so far?

No. For example, the next few years will show which archives are recommendable for individual disciplines. This is a question that is best answered by the researchers themselves. The SNSF and the researchers will share their experiences, so we can think of it as a joint learning curve.

Have you heard any critical voices?

Some researchers only see the additional work, but not the advantages. In a few cases, the principle of open data as such has been criticised. These people fear that it might have a damaging effect on their research. But on the whole, the feedback has been positive. Most researchers felt that the requirement made sense and that the SNSF was right in forging ahead in this area.

What financial support do the researchers receive for data management?

We pay up to 10,000 francs per project, or even more on request. This amount fully covers the costs of editing and archiving the data.

Ayşim Yılmaz is responsible for open research data at the SNSF. She is head of the Biology and Medicine division.