




There is more to research than just papers -
Alternative Research Outputs in Switzerland

Rachel Heyard – Center for Reproducible Science, UZH – 25.10.2023

Disclaimers and Cols

- Part of project funded by **swissuniversities** on "Strengthen the Interoperability and Reusability of Research Outputs" (SIRRO)
- The SIRRO project is a collaborative project of the **Swiss Reproducibility Network**
- I am **openly advocating for Open Science Practices** 
- All of this is work in progress – feedback and comments might be used in this research project

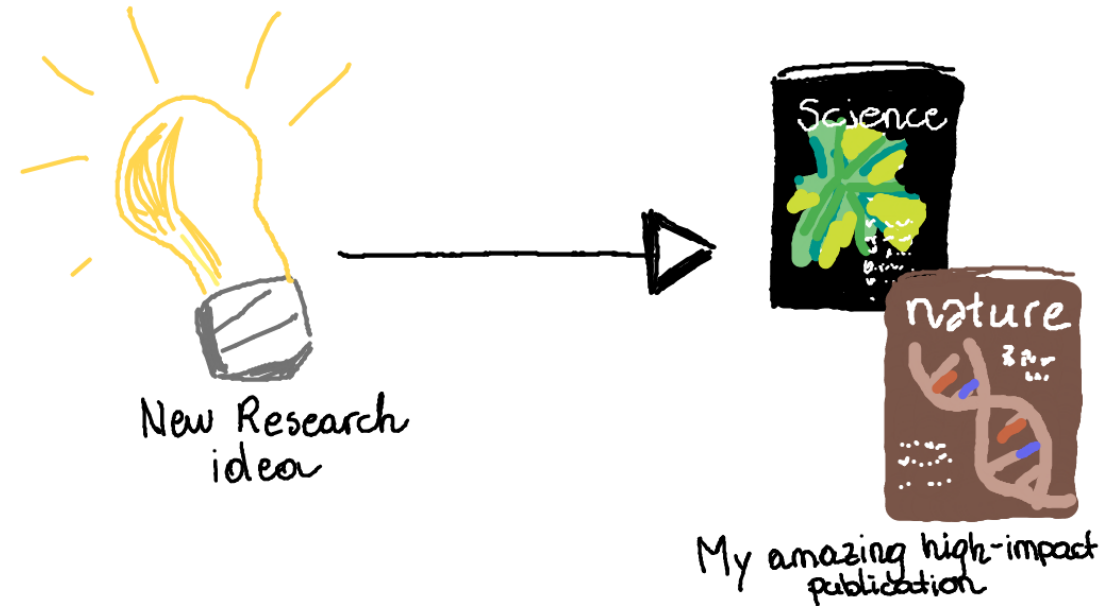
swissuniversities



Research is so much more than just papers

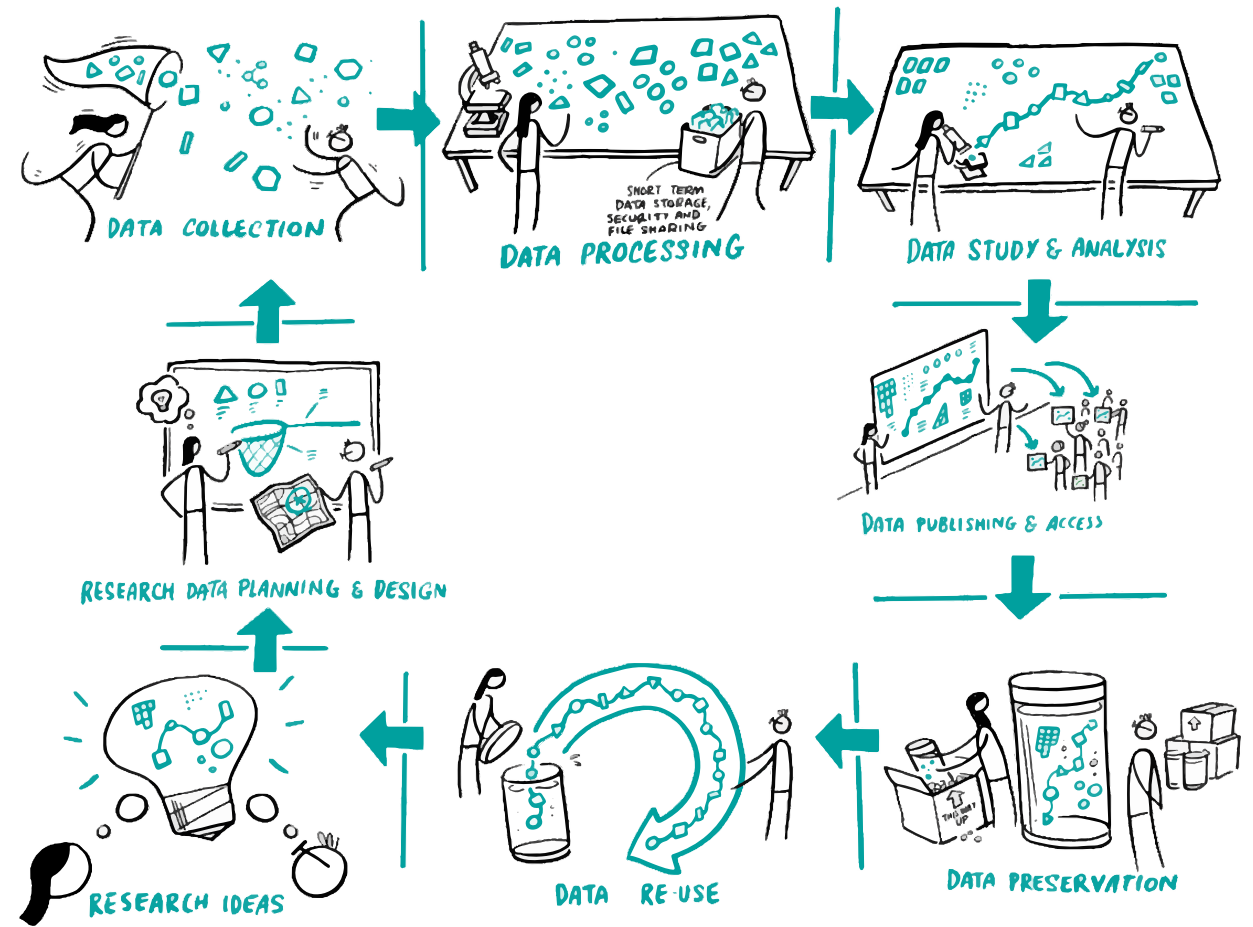
What we currently see (and value) does not

- represent the research life cycle
- credit all research participants
- facilitate high quality research



Research is so much more than just papers

A more accurate representation of the research process is circular!



Scriberia 

My vision of an open, reproducible, inclusive and diverse future for science, where

- we value all types and parts of research as **equally important**
- give visibility to all contributors of research: research software engineers, data stewards
- the evaluation and incentive system values research culture



Moving away from publication-based research evaluation

- In 2013 (!10 years ago!), the **San Francisco Declaration on Research Assessment (DORA)** suggest to abandon the impact factor
- In 2015, the **Leiden Manifesto** lists 10 principles to responsibly evaluate research(ers)
- In 2022, a **Coalition for Advancing Research Assessment (CoARA)** is established wanting to reform research assessment
- In 2022, the DORA spin-off project **Tools to Advance Research Assessment (TARA)** presents building blocks for impact

Let's change
what we value
in research.



Coalition for Advancing Research Assessment

Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

SIRRO Research question: What types of (open and) alternative research outputs are produced and documented?

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Research output types recorded by SNSF:

- Scientific publications: contribution to science journal, book, contribution to book, proceeding, ...
- Collaboration: Exchanges on approaches, research infrastructures, exchange of personnel, ...
- Use-inspired outputs: Expert/reviewer activity, Licenses, Patents, Software, Start-ups, ...
- Public communications: Radio/print media, video/film, podcasts, ...
- Academic events: Posted, talk, ...
- Awards
- Datasets
- Knowledge transfer: performances, exhibitions, workshop, ...

The screenshot shows the SNSF Data Portal website. The header includes the SNSF logo, the text "Swiss National Science Foundation", and the "Data Portal" title. Navigation links include "SNSF Key Figures", "Data Stories", "Grant Search", "Datasets", and "About". The main content area is titled "Datasets documentation" and contains a sub-header "The SNSF makes the data published in Grant Search available for download." Below this, there is a grid of 12 cards, each representing a different dataset type. Each card has a title, a brief description, and two download options: "Download CSV" and "Download XLSX".

Dataset Type	Description	Download Options
Grants	Details of the projects funded by the SNSF	Download CSV, Download XLSX
Grants including scientific abstracts	Details of the projects funded by the SNSF, including project summaries and scientific abstracts	Download CSV, Download XLSX
Persons	Details of the people involved in the projects	Download CSV, Download XLSX
Output data: Scientific publications	Details of scientific publications in the context of the funded projects	Download CSV, Download XLSX
Output data: Use-inspired outputs	Details of use-inspired output in the context of the funded projects, for example software or start-ups	Download CSV, Download XLSX
Output data: Public communication	Details of different types of public communication in the context of the funded projects, including media relations, books and events	Download CSV, Download XLSX
Output data: Collaboration	Details of scientific collaborations in the context of the funded projects	Download CSV, Download XLSX
Output data: Academic events	Details of academic events in the context of the funded projects, i.e. events organised by the grant holder or contributions to other events	Download CSV, Download XLSX
Output data: Awards		
Output data: Datasets		

Research question: What type of (open and) alternative research outputs are produced and documented?

Since late 2011, SNSF grantees have to upload/list all research outputs produced - six months after project completion.

We included **16'677** funded projects in our analysis, based on inclusion criteria:

- Project started after 2013 and finished before 2023
- Project is completed and funded through a funding scheme that is not OA book or publication grant
- Project recorded at least one output

Possible biases:

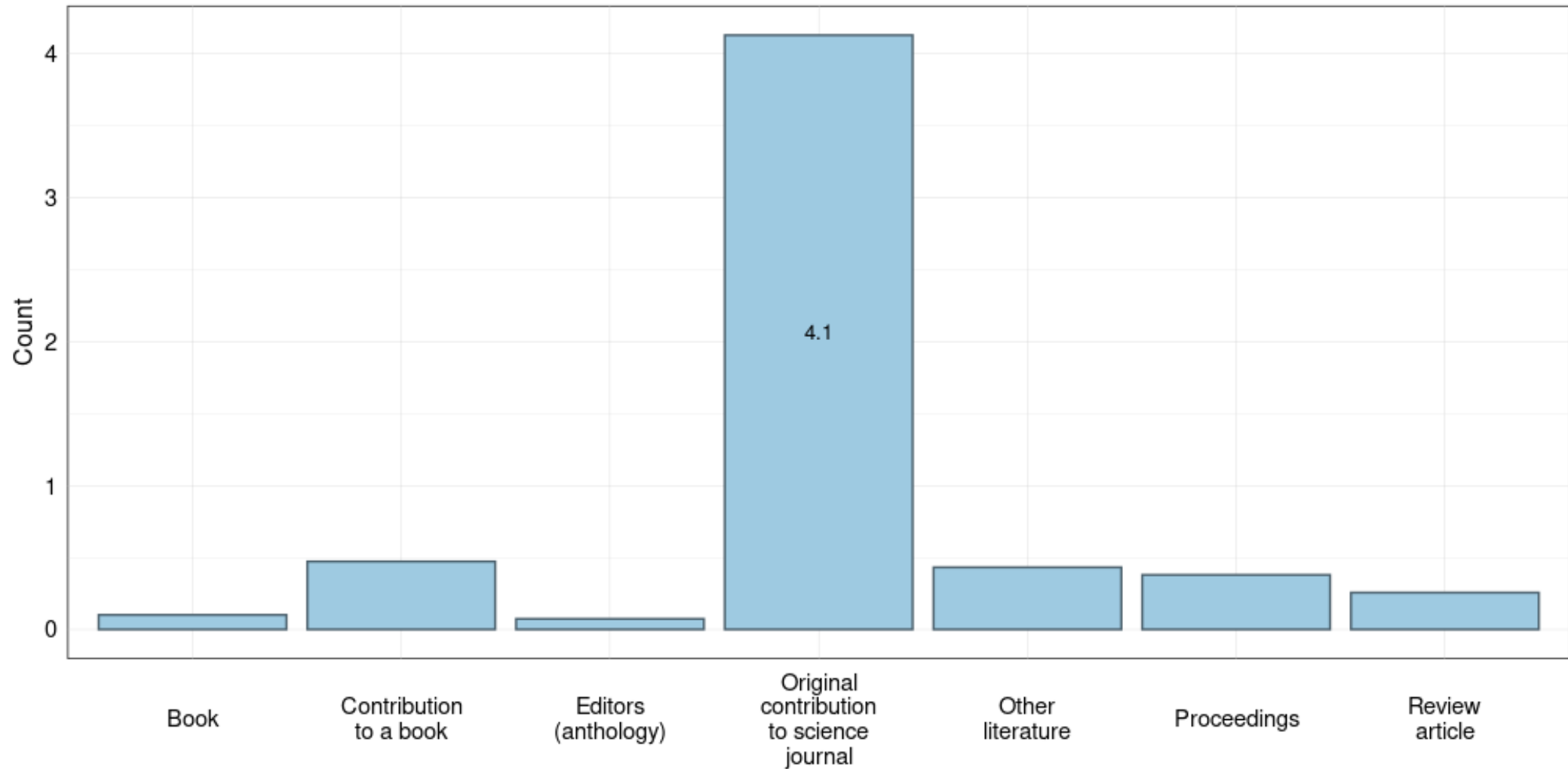
- Self-reported:
 - Data might not be complete, or outputs were wrongly assigned to projects
- Only SNSF grantees.
- Only type of outputs preselected by the SNSF are recorded

Traditional output: Scientific publication

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Average count of publication types produced by all included project

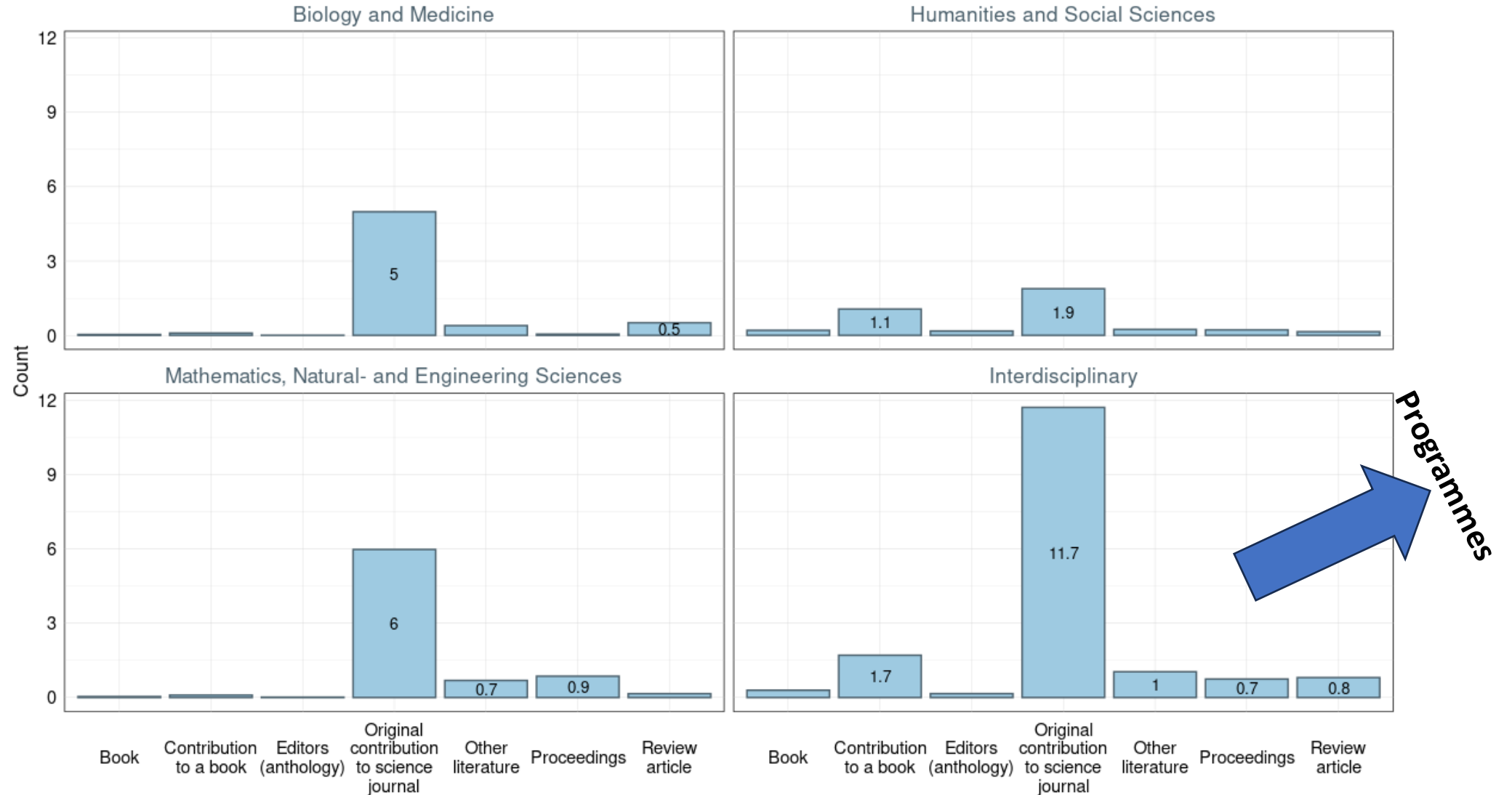
Completed projects of all funding instruments, fields, years, with at least one output



Traditional output: Scientific publication

Average count of publication types produced by all included project depending on field

Completed projects of all funding instruments, years, with at least one output

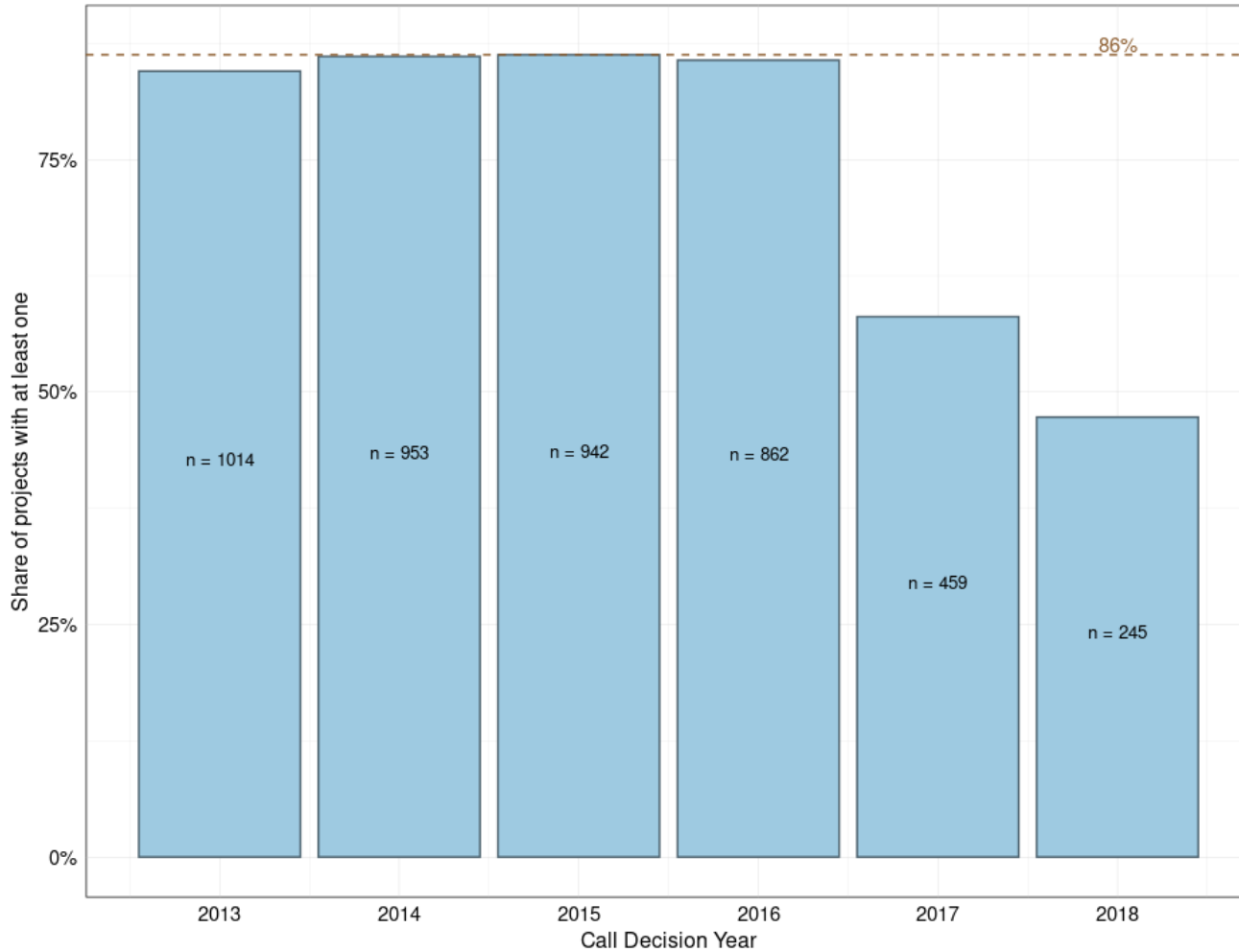


Research needs **collaborations**, right?

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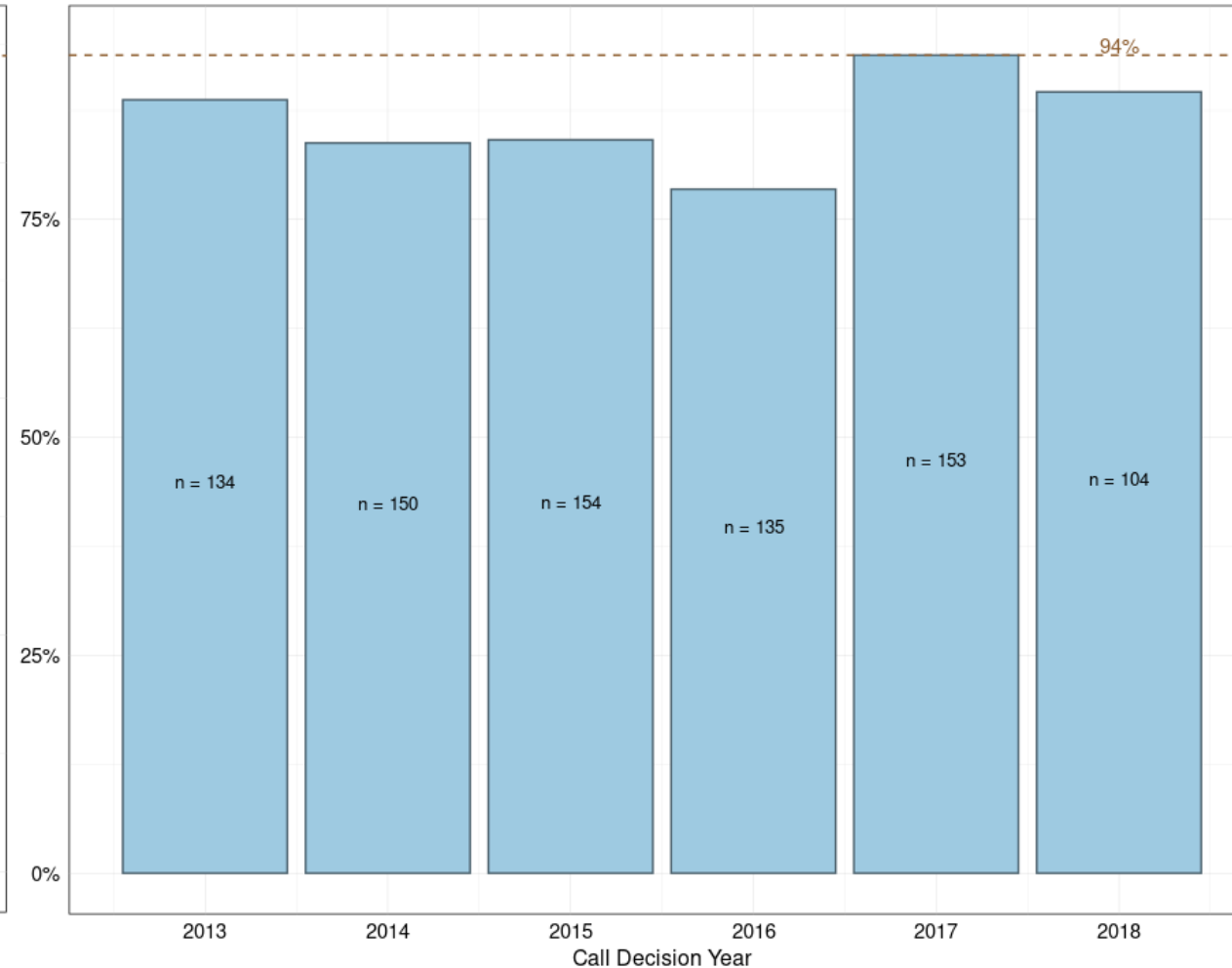
Collaborations established during Project Funding projects

Of type 'in-depth/constructive exchanges on approaches, methods or results' or 'Industry/business/other use-inspired collaboration'



Collaborations established during non-fellowship Career projects

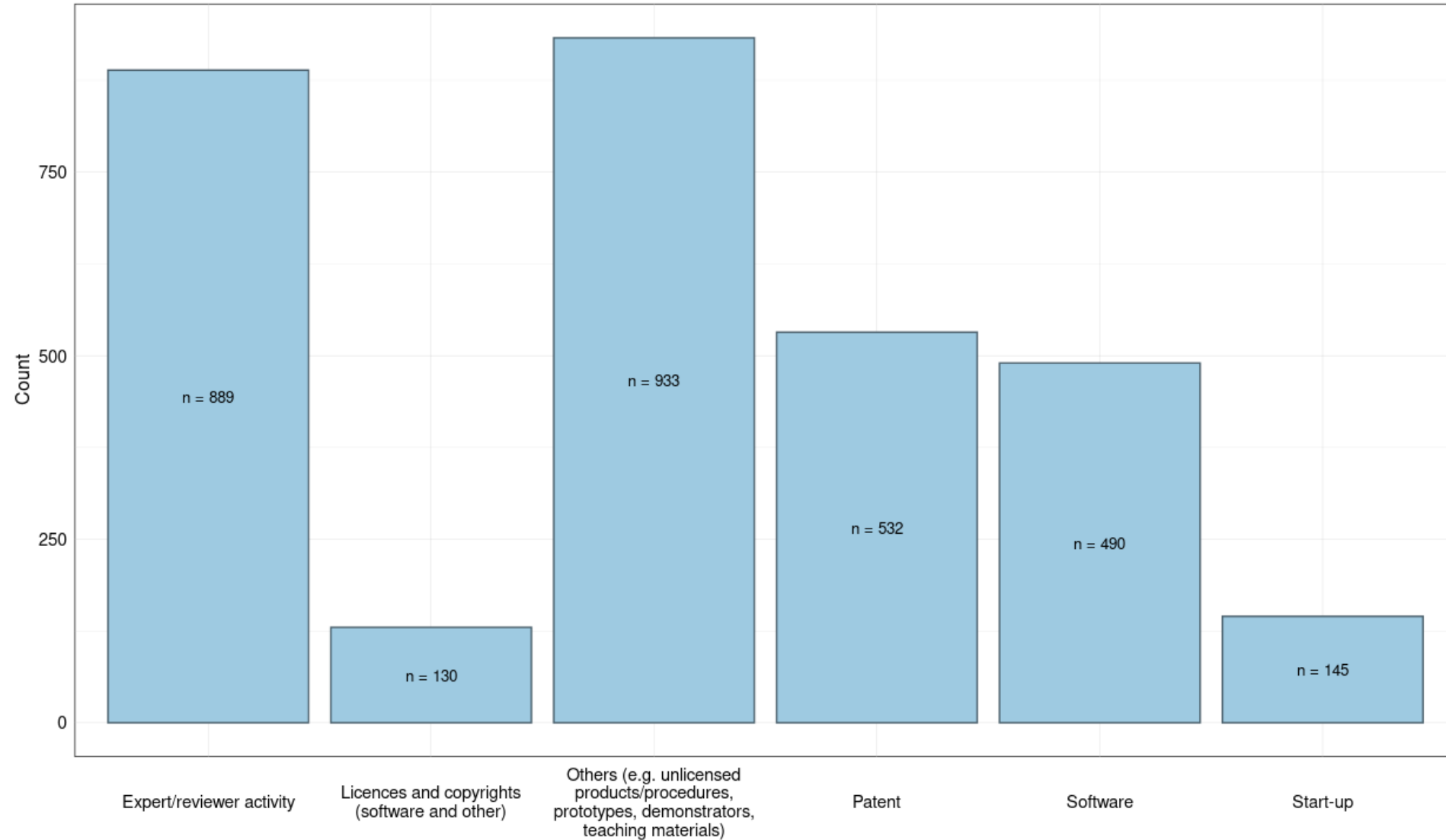
Of type 'in-depth/constructive exchanges on approaches, methods or results' or 'Industry/business/other use-inspired collaboration'



What are **use-inspired output**?

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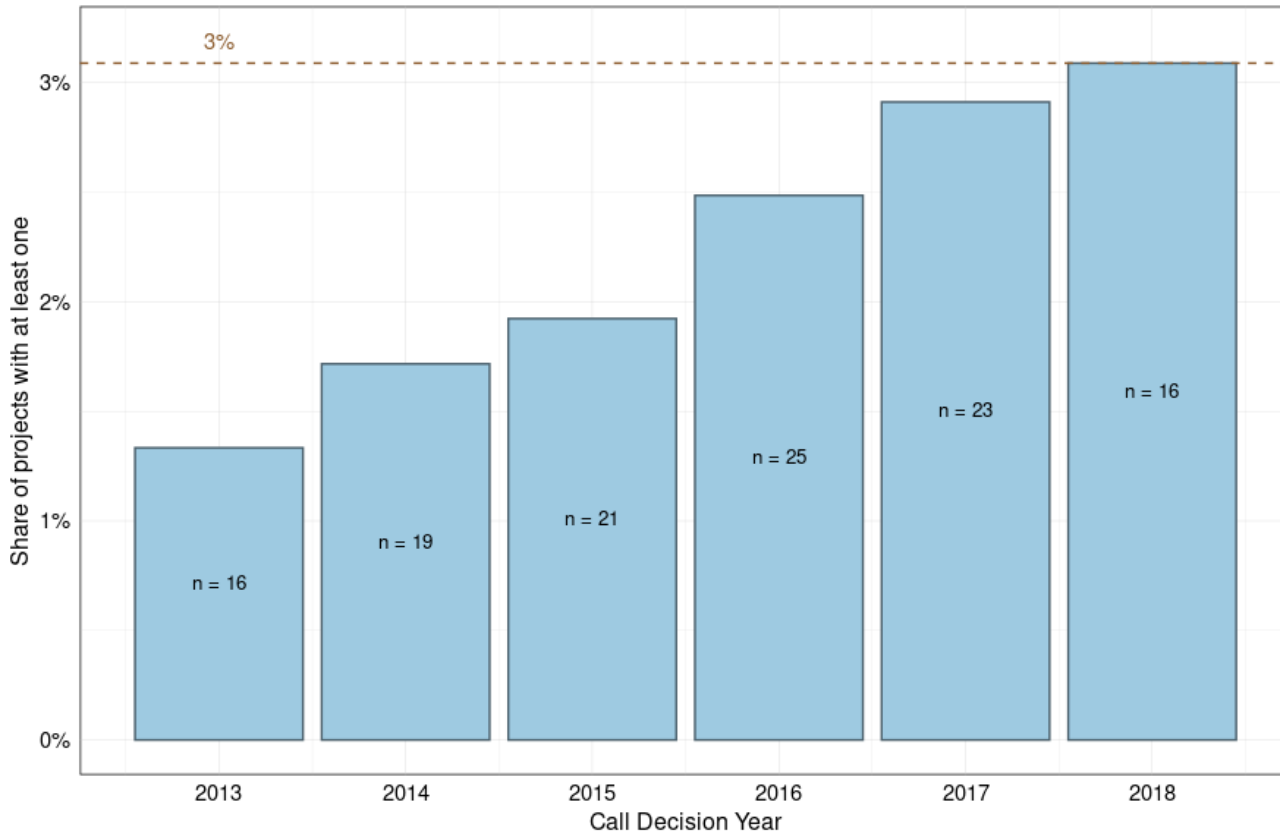
Count of use-inspired output types produced by all included project
Completed projects of all funding instruments, fields, years, with at least one output



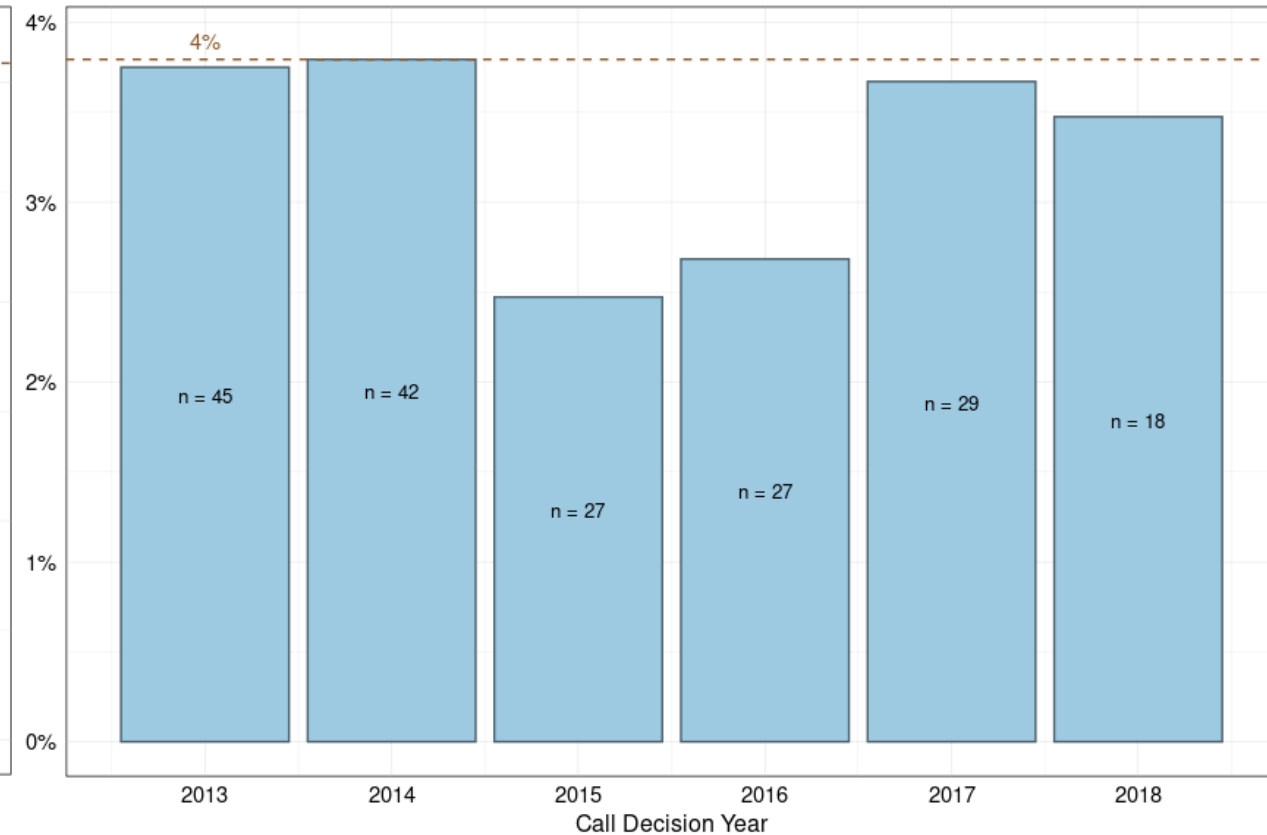
Use-inspired output: Software, Patents and Start-ups

Results for project funding

Software produced during Project Funding projects

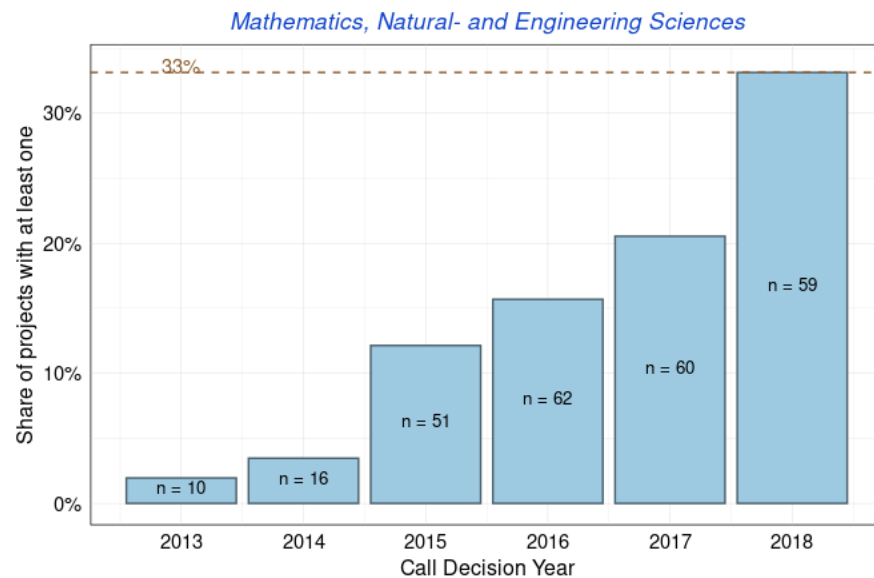
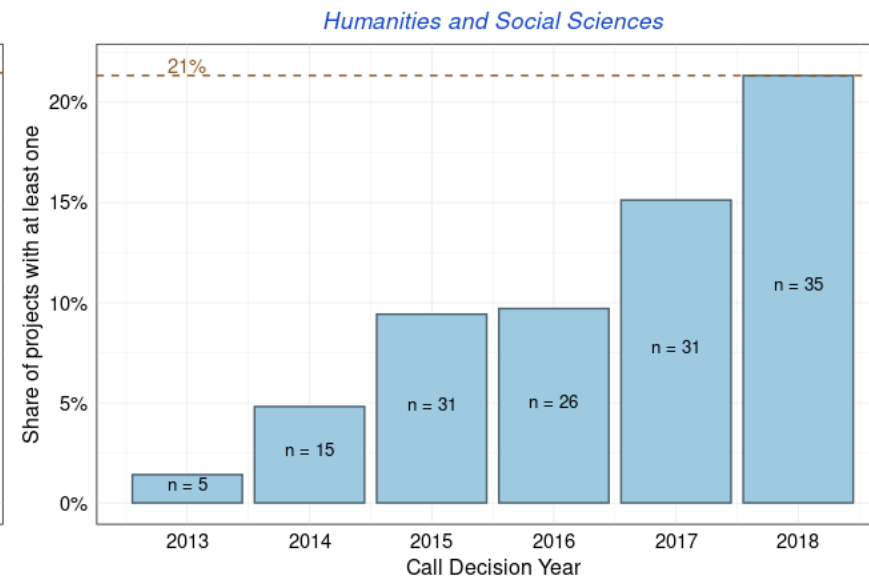
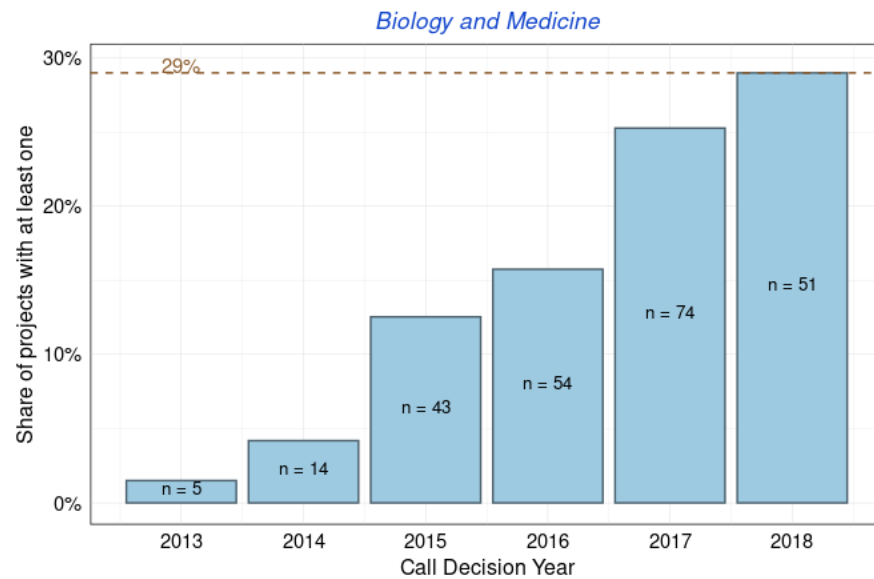


Patents or start-ups established during Project Funding projects




Dataset are on the rise *Results for project funding*

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What do these **very** first results tell us?

- Swiss researchers already produce diverse outputs 
- Differences between fields and career stages must be better understood \implies *aim of the SIRRO project*
- The SNSF output list might be outdated and needs more regular updates

What is missing in the SNSF data?

- Still very much focused on prestige – awards, collaborations, patents – and less on simply being a good researcher:
 - Boring paper revisions
 - Supervising PhD and Master Students
 - Teaching and producing open educational material
 - Preregistration – applying best practices of reproducible research
 - ...
- Change the focus from the **research output** to the **research process**

Thank you

- To the SNSF for making their output data openly available
- To the SIRRO team, and especially **Manuel Pfister**



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