HELMHOLTZ

RESEARCH FOR
GRAND CHALLENGES

HIFIS – Software Services

Platform, Training and Support for a Sustainable Research
Software Development

Scientific Advisory Board Meeting 2021

Tobias Huste

HIFIS | HELMHOLTZ FEDERATED IT SERVICES

Software Services

What it is about?

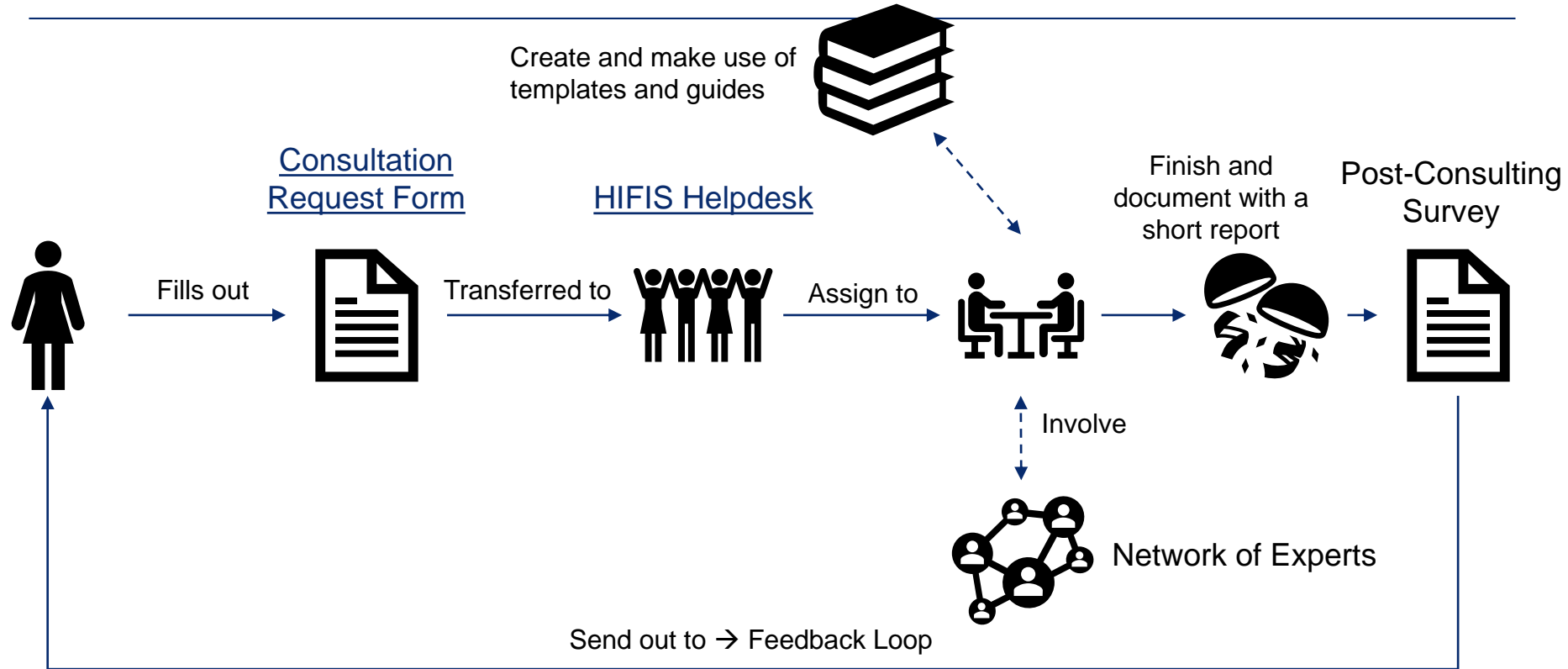| Consulting	Community	Education & Training	Technology
Provide concrete contact points for researchers in the event of questions and problems.	Build and foster communities to support the necessary cultural change in science when dealing with research software.	Courses, material and workshops for getting you started or boosting your software engineering practice.	Provide a sustainable, well integrated and easy to use technology infrastructure for research software development.

Consulting

- Free-of-charge software consulting for research groups within the Helmholtz umbrella

- Possible topics include, but are not limited to Licensing and Open Source, setting up new projects, code migrations etc.

- **Initial References:**
  - Making a project HPC ready
  - Setting up and introducing Continuous Integration
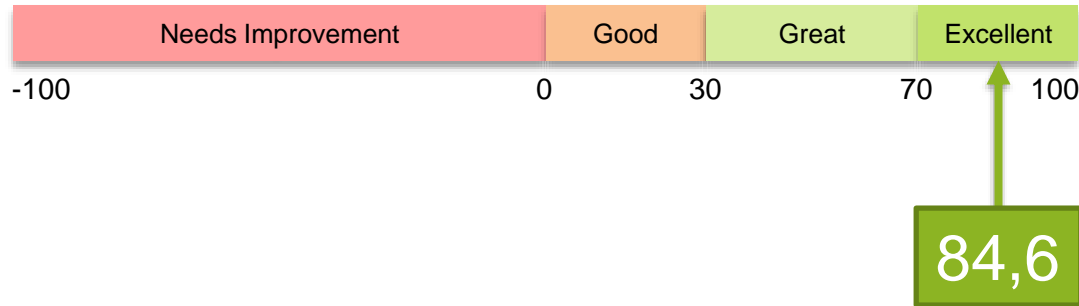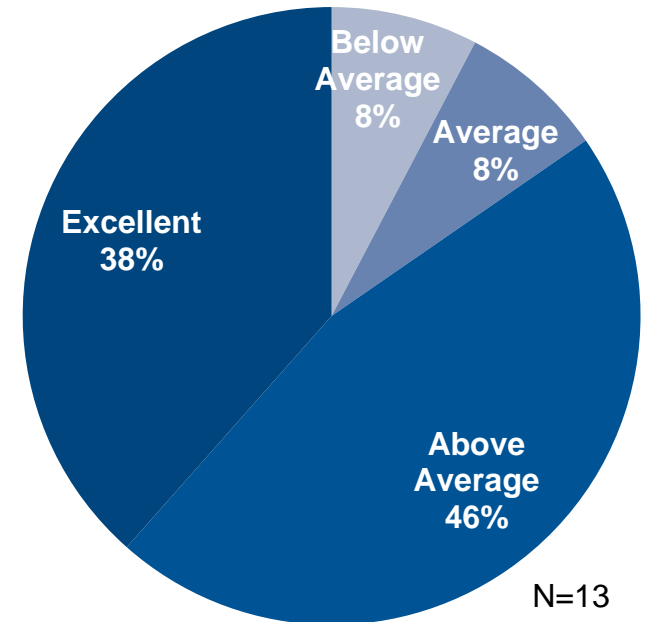 - Frequent requests about licensing and Open Source

Consulting
The Process

Create and make use of templates and guides

Consultation Request Form

HIFIS Helpdesk

Finish and document with a short report

Post-Consulting Survey

Fills out

Transferred to

Assign to

Involve

Network of Experts

Send out to → Feedback Loop

HIFIS

HELMHOLTZ

Consulting

Initial Feedback and Numbers

Net Promoter Score

Needs Improvement	Good	Great	Excellent

-100   0   30   70   100

84,6

Impact of the consultation on your project or work

Excellent 38%
Below Average 8%
Average 8%
Above Average 46%

N=13

Consulting
Some Verbal Feedback

In addition, it would be perfect to have the opportunity to work more intensively on smaller specific problems during the consultation (maybe including some coding).

For us, it would be perfect to have such a consulting service over a longer period of time, e.g. for 6-12 months with regular meetings.
[…]

Great idea and a great support especially since there is no other person programming in my research group.
Very happy that you came up with this!

- **Hacky Hours**
  - HackyHourHandbook: https://github.com/amandamiotto/HackyHourHandbook
  - Informal regularly scheduled catchup
  - Discuss software engineering related topics for accelerating their research
- Up until today in average **9.5** participants. 10 different centers joined. (→ Goal not met)
- The format and its orientation will be rethought during the summer break.

- Investigation how a Helmholtz Software Catalogue could look like

- Built on top of existing solutions

- Favorite: Research Software Directory of the Netherlands eScience center
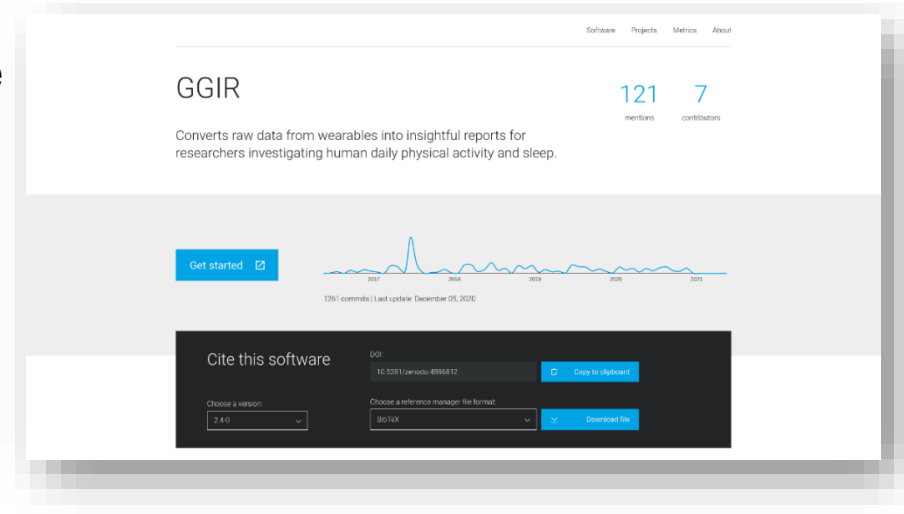
Community

Build Recognition

- Contributed to Community Activities like deRSE or SORSE

- Participate in the development of suitable KPIs for RSE

- *Research Forum Research Software* together with the Open
  Science Office

  - Attracted around 100 participants

  - Foster the implementation of software policies in the center

Education & Training

Course Portfolio

Basic
- First Steps in Python-Programming
- Project Management with GitLab
- Version Control using Git

Intermediate
- GitLab for Software Development in Teams
- Let us Make Your Script Ready for Publication

Advanced
- Using Containers in Science
- Test Automation with Python

- **19** workshops so far

- About **350** attendees from

  16 Helmholtz centers

- 2020 already

  outperformed

Number of Attendees per Center
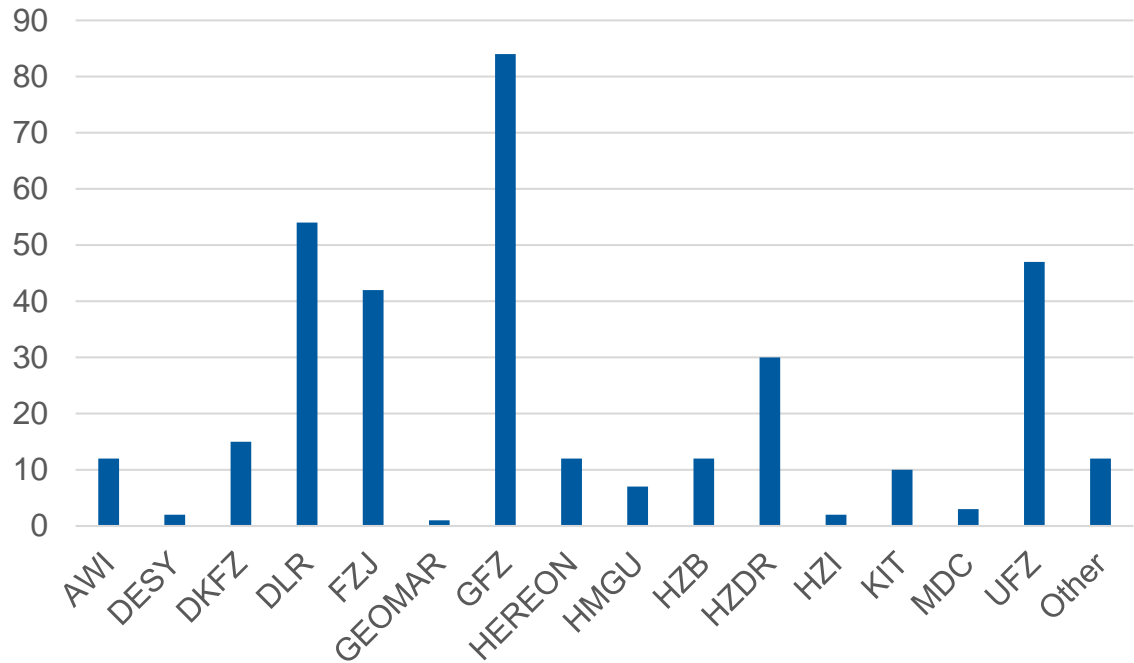
HELMHOLTZ

Technology

Provide a sustainable, well integrated and easy to use technology infrastructure for research software development.

Transparency	Accessibility	Reliability	Reusability

- Everything we implement is shared as Open Source software
  - https://gitlab.com/hifis/ansible
- Infrastructure as code → Remove manual components, Transparently visible for Helmholtz employees
  - https://gitlab.hzdr.de/hifis-software-deployment/
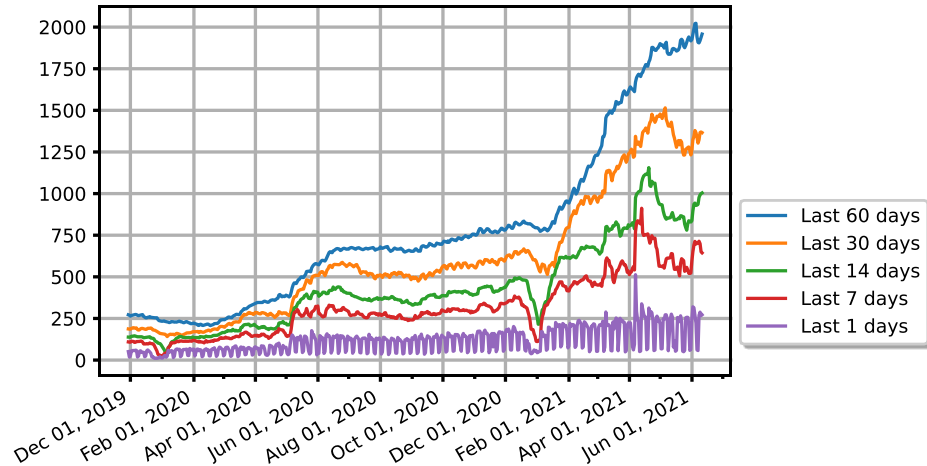
Technology

Helmholtz GitLab – Statistics (As of 2021-06-11)

Helmholtz GitLab – Statistics (As of 2021-06-11)

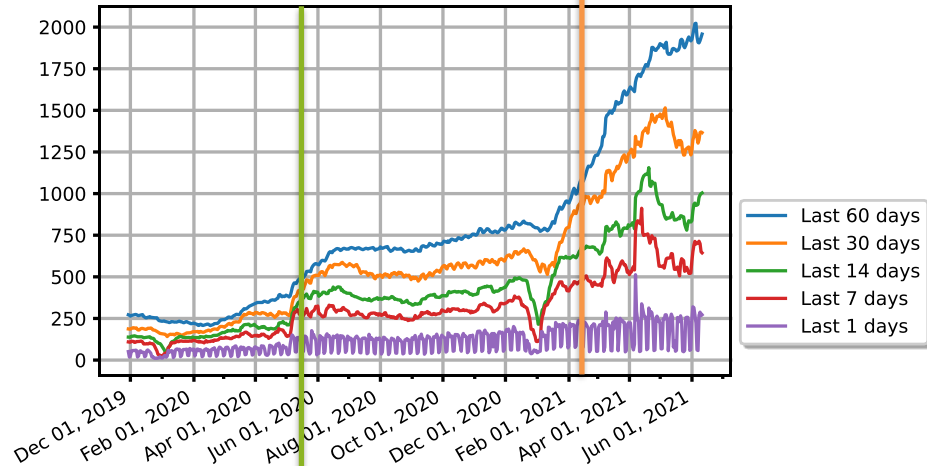# Technology

Helmholtz GitLab – Statistics (As of 2021-06-11)
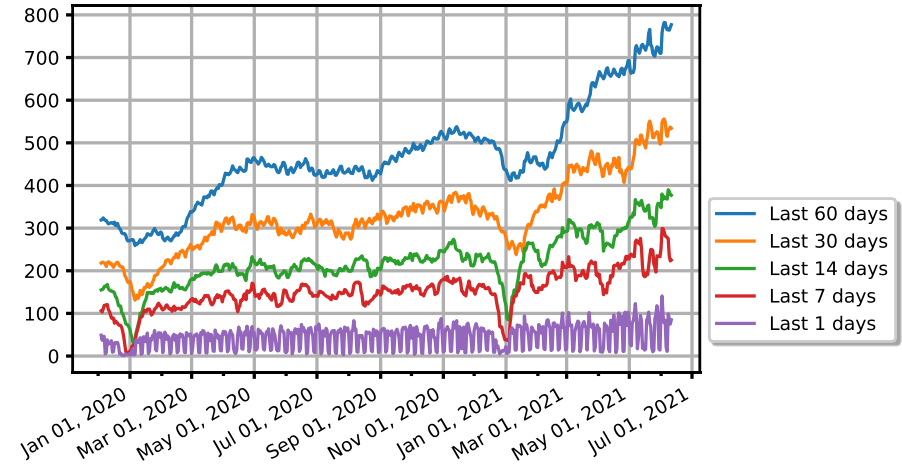
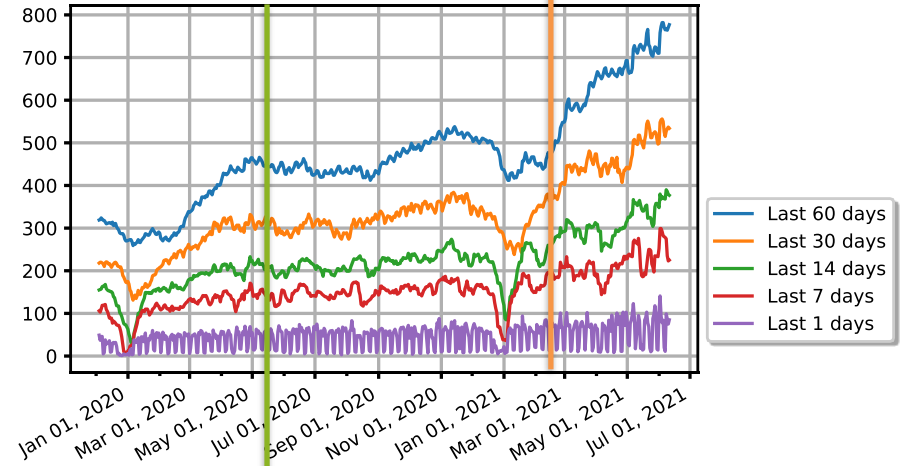Relaunched as Helmholtz GitLab and announced on hifis.net

Number of Active Users

Connected the Helmholtz AAI.

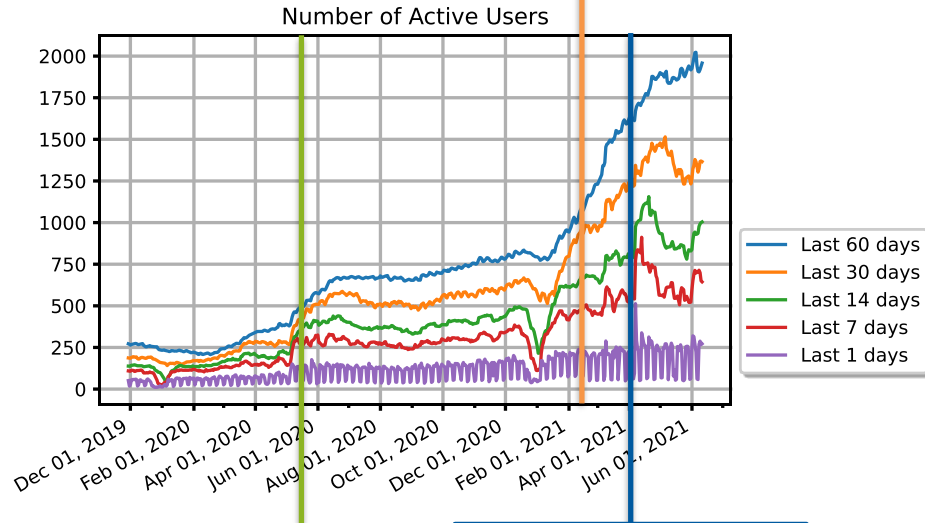Relaunched as Helmholtz GitLab and announced on hifis.net

Number of Active Projects

Connected the Helmholtz AAI.

Counted according to https://gitlab.hzdr.de/help/api/users.html#get-user-activities-admin-only

Technology

Helmholtz GitLab – Statistics (As of 2021-06-11)

Counted according to https://gitlab.hzdr.de/help/api/users.html#get-user-activities-admin-only
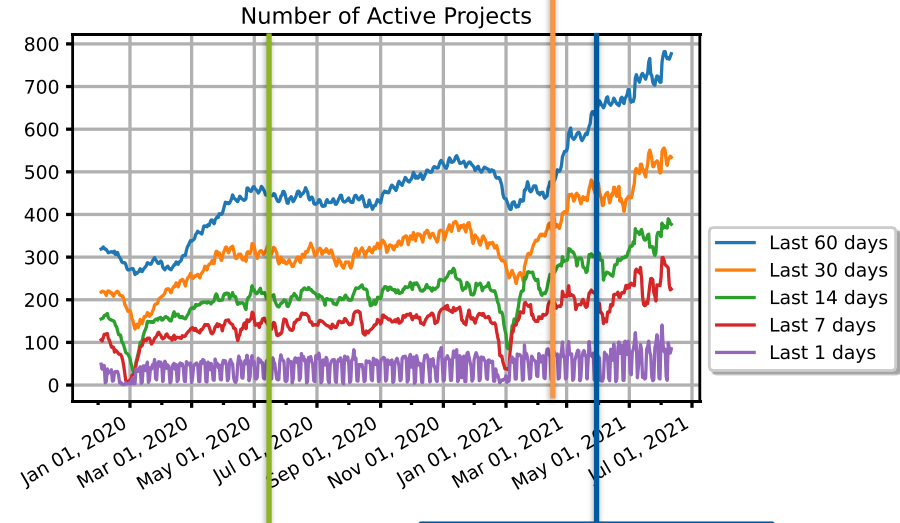
Status Quo: Continuous Integration – HIFIS Survey 2020

Which Continuous Integration service do you use to automate building and testing your code?
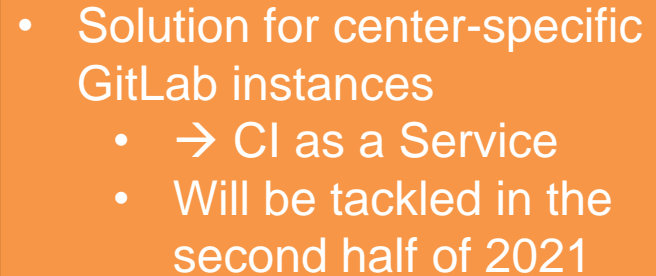
None	Travis CI	Jenkins	GitLab CI	Circle CI	Atlassian Bamboo	Jetbrains TeamCity	Other CI Services
53.29	13.15	15.65	28.57	0.91	0.23	0.0	4.76

https://hifis.net/report/2020/11/27/survey-technology.html#continuous-integration
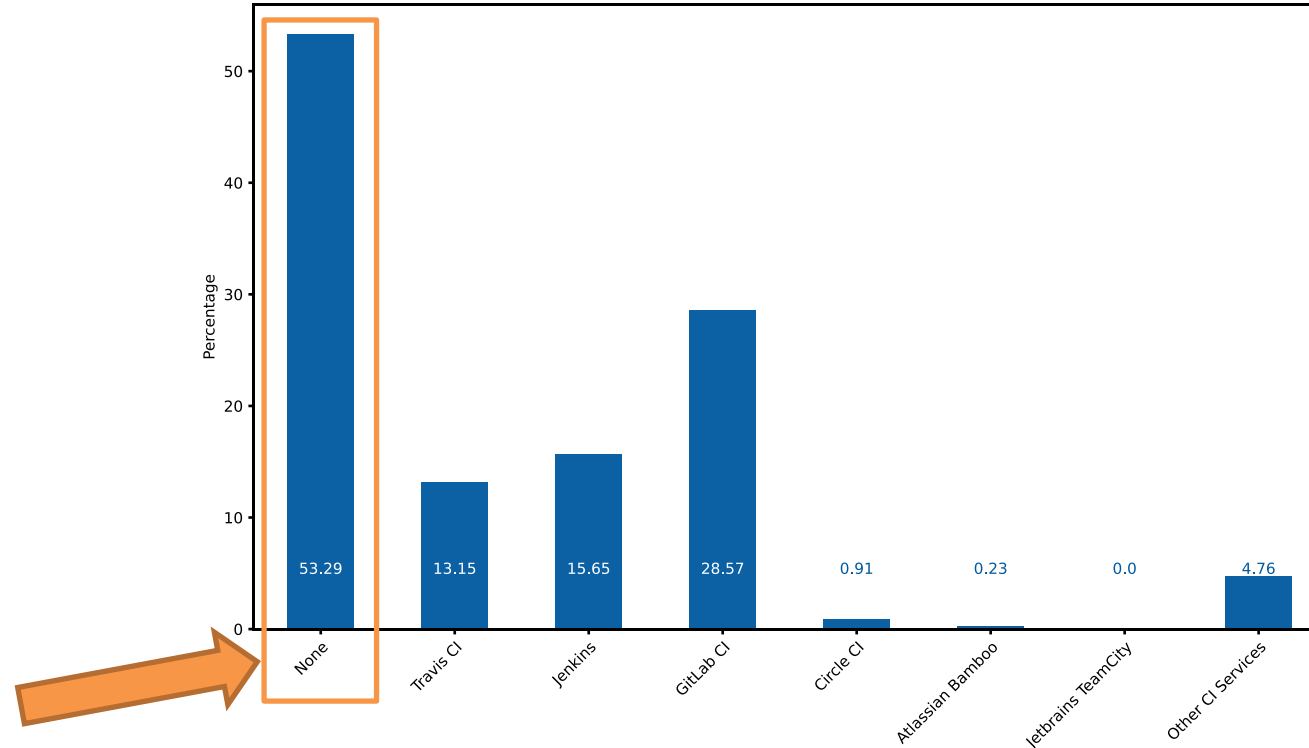
Continuous Integration – HIFIS Survey 2020

Every researcher in Helmholtz should have seamless access to CI resources.
→ 2 approaches needed

- Continuous Integration in the Helmholtz GitLab
  - Available to everyone by default
  - GPUs and different CPU architectures are available as well

- Solution for center-specific GitLab instances
  - → CI as a Service
  - Will be tackled in the second half of 2021

Technology

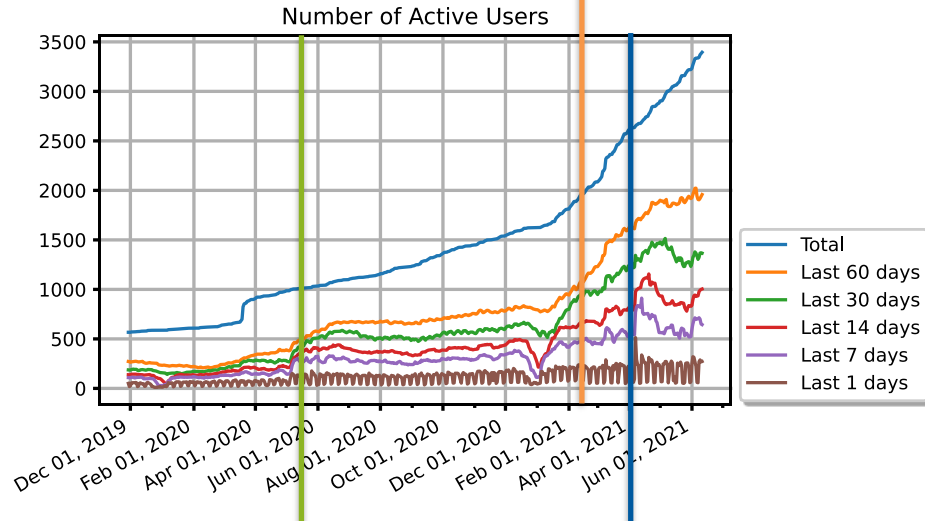## Continuous Integration – Number of Jobs Per Day
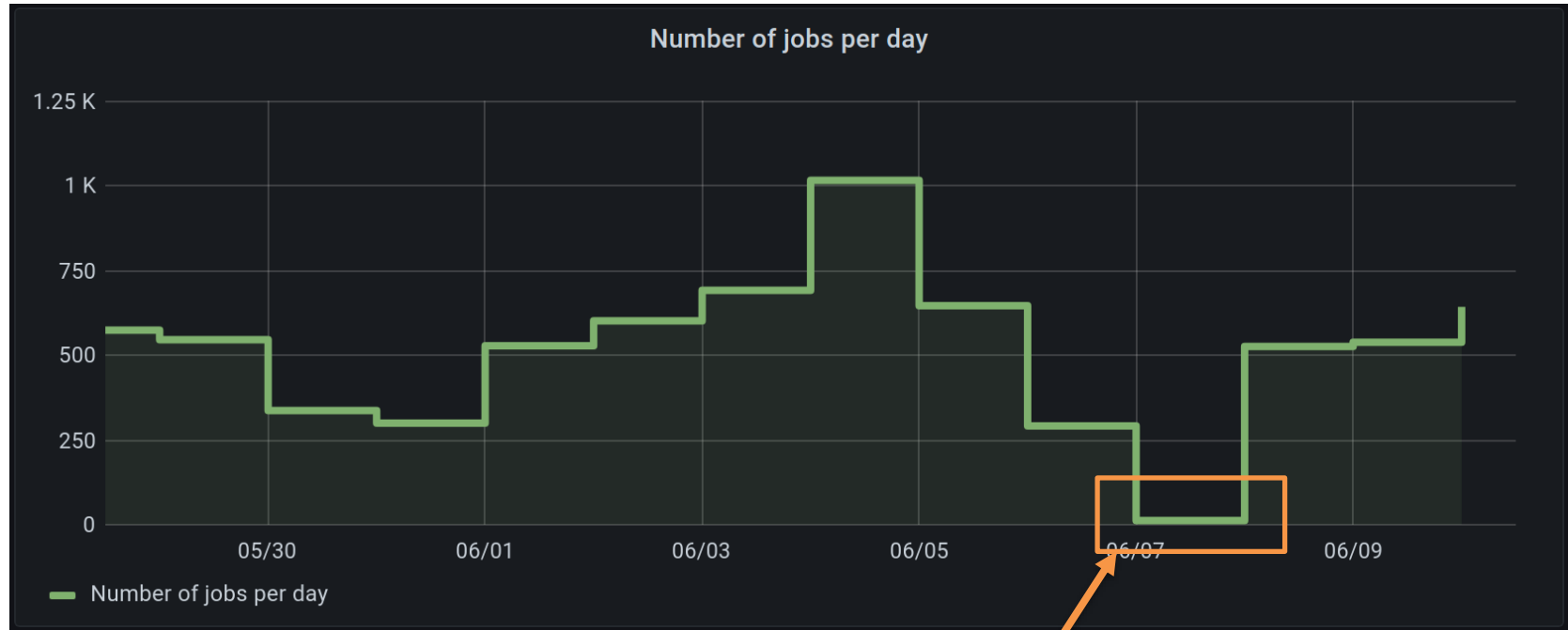
Monitoring Issues

HELMHOLTZ

Summary

- All 4 pillars in operation with successful offers and well-received services

- Provide added value through integrations and a useful environment

- We are able to build upon the initial experience

- Building recognition for Research Software Engineering on all levels is still fundamental

HELMHOLTZ

Technology

Helmholtz GitLab – Statistics (As of 2021-06-11)

Number of Active Users

Relaunched as Helmholtz GitLab and announced on hifis.net

Connected the Helmholtz AAI.
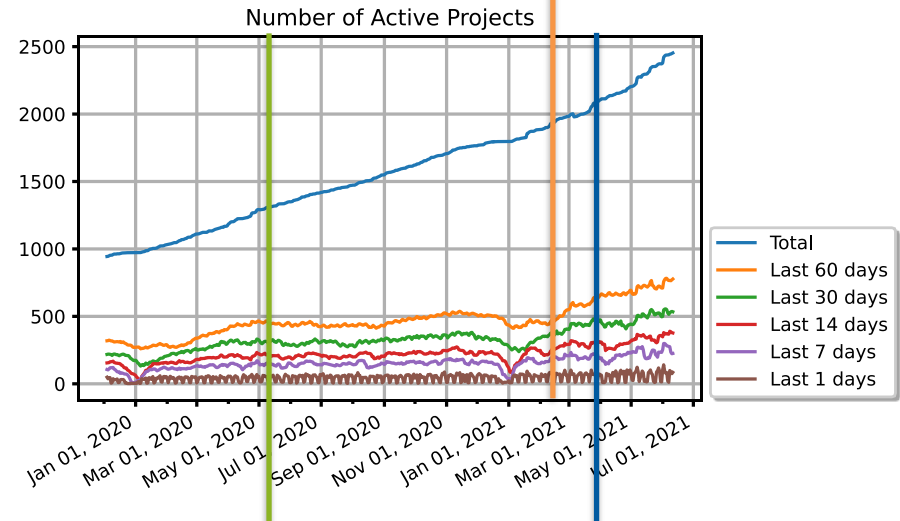
Helmholtz Cloud portal made available.

Number of Active Projects

Relaunched as Helmholtz GitLab and announced on hifis.net

Connected the Helmholtz AAI.

Helmholtz Cloud portal made available.

Legend: Total, Last 60 days, Last 30 days, Last 14 days, Last 7 days, Last 1 days