EVERSE Network of Research Software Quality

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Research Software Quality

- Software is a critical part of our scientific process

  - From simulation and digital twins, to data acquisition and analysis of results - *software is vital to transform data into knowledge!*

  - The size of the software required to support recent experiments is growing

    - Our organisations are still evolving to recognise this increasing need for software

- Consequently, *software quality* really matters to us

  - Software has to be a good fit for its purpose

  - We strive to make our [software FAIR](#)

    - Findable; Accessible; Interoperable; Reusable

Why a Network…?

- There are many organisations that are concerned with aspects of software quality

    - RSE organisations, EOSC OA7, European Science Clusters, RDA, ReSA, etc.

- As a "problem/opportunity" we are still evolving and discovering best practices for managing software over its lifetime

    - From legacy codes written decades ago to our latest newborn project ideas

    - From million-line code bases relied on by many communities, to the scripts used to produce a final publication plot

- The scientific world can be slow to embrace best practices from industry

    - Which often need recontextualised to be effective in the scientific domain

- There is a body of practice emerging, and we believe that there is a lot to learn from each other

The Network and EVERSE

- EVERSE has the role to enhance software quality and to promote software to a first-class citizen in the research field

- We specifically conceived the network activity as something that EVERSE would foster to help shape software quality practices – specifically in Europe, but within the worldwide research context

  - Provide a connection between your community and EVERSE activities

    - E.g., the EVERSE Research Software Quality Kit, [RSQkit](#)

  - Help to shape software quality *policy* and *practice* based on your needs

  - Learn from the wider software industry and translate this practice to academic research software

  - Host events that showcase good practice, introduce tools, understand communities, provide training

Network Activities - Webinars

- We would like to host online presentations as part of the network

- There are many interesting topics around software quality, e.g.,

  - What did we learn from our EVERSE best practice survey?

  - How different communities address software quality matters in their workflows and pipelines?

  - In what way will upcoming technologies affect our software?

    - From hardware aspects, such as accelerators, to new languages, like Julia

  - Presentation and discussion on the latest content in, e.g., the EVERSE RSQkit and software quality pipelines

Network Activities - Tools Discovery and Training

- One of the continuing areas of evolution in software is in tools

  - From Makefiles to CMake, from CVS to git and social coding, …

- An EVERSE area of activity is in discovering new tools that help software quality

- We want to present these new tools as part of the network events, to help bring them to a wider audience and discuss how to use them most effectively (which is not always clear!)

- This forms part of a wider goal to promote tools and practice

  - Not only online, but at in-person events where we can have training sessions and network meetups and satellite events!

Network Goals – Policies and Task Forces

- Based on what we learn in the network, can we influence the policies around software quality?

- We have a brilliant opportunity to connect scientific needs to evolving policy decisions by providing input and comments

  - With the goal to have policy backed up by *practical measures* that allow us to meet them

- However, policy doesn't just drop from the sky

  - To help inform policy choices we could setup task forces that examine particular areas of software quality and provide informed inputs

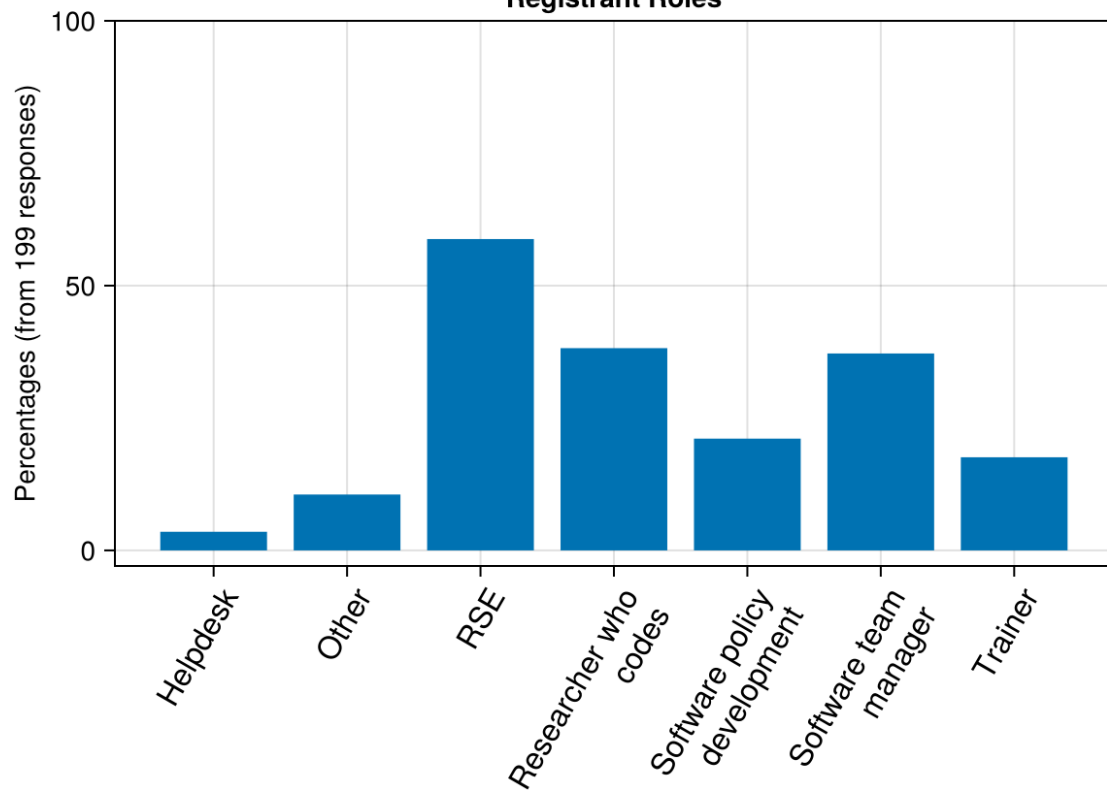- We hope for a strong interaction with the new EOSC-A Opportunity Area, OA7: Research Software

Network Vision - Community of Practice

- Software is about code, but it's also about people!

- We want the network to be a community of those who care about software quality

  - For their own projects and in the wider context of research

- So, we envisage the network as an evolving community of practice

  - People who "share a concern or a passion for something they do and learn how to do it better as they interact regularly"

- We think this is something worth striving for and there is much to be gained from it!

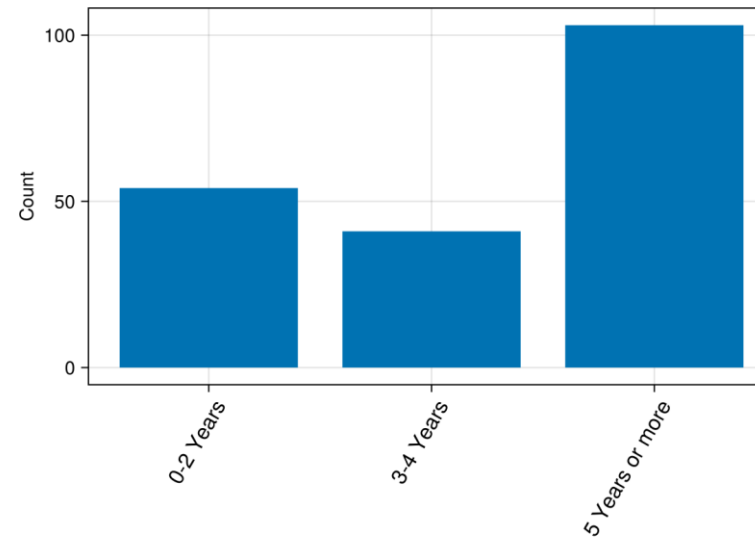- **We welcome everyone to join us, whatever their location or scientific affiliation**
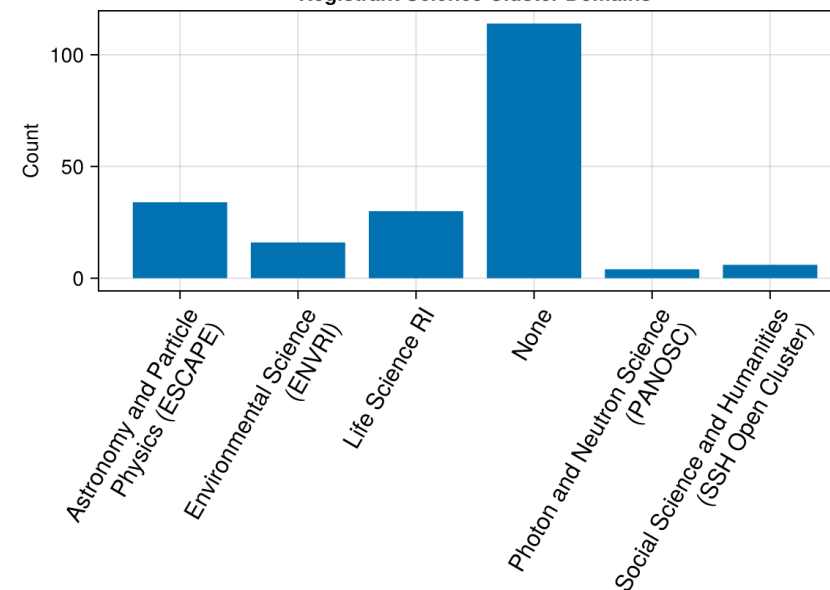
Who are we today?

EVERSE: European Virtual Institute for Research Software Excellence

Graeme Stewart and Marco Bartolini

Today - Learning about your needs!

- We outlined here some of our ideas about the Network

- It is certainly the case that we haven't thought of everything

- So, we would now like to hear from your side

  - What are your hopes for the network?

  - Where do you see it having the greatest impact?

  - What are the areas where your community needs the most support?

- To help do that we have an interactive and fun session on Slido, followed by an open Q&A