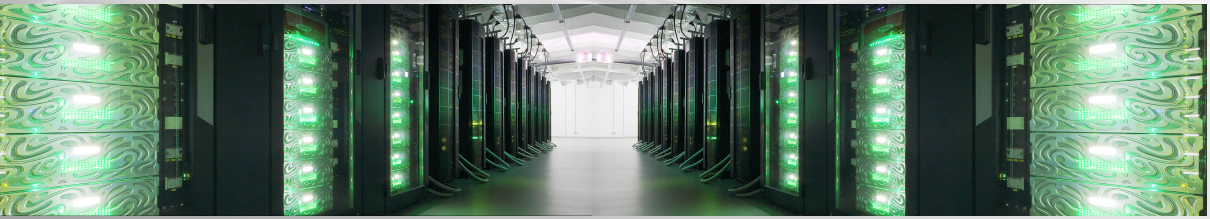
GWDG
Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen

The Role of Open Source in RSE, Research and Education

How to convince people to use FOSS software tools instead of commercial ones with paid support

Patrick Höhn (patrick.hoehn@gwdg.de)



November 13, 2026

deRSE Collaboration Workshop 2026

Table of Contents

1 Introduction

2 Overview

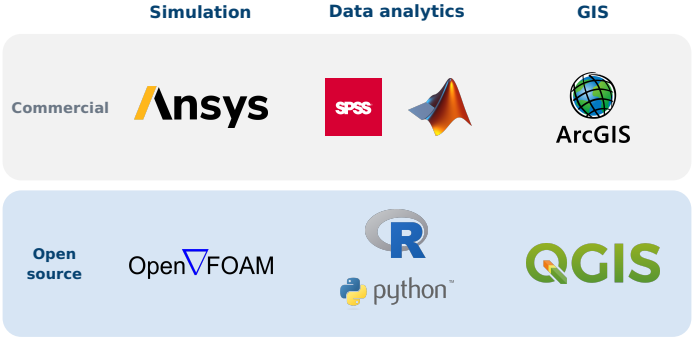
3 Discussion

4 Outcomes

The Problem

- Many researchers default to **proprietary** simulation software
- Often **not** because it is technically superior
- But because of:
  - Perceived support guarantees
  - Lack of awareness of mature FOSS alternatives
- This session explores the practical barriers to FOSS adoption, and what RSEs can do about it

Not Just Simulation



. . . and more

- This same pattern shows up in other kinds of research software too
- We start from the simulation-software angle, but the discussion is open to your domain

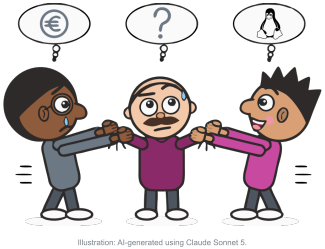
Session Format

- **Duration**: 90 minutes
- **Format**: open discussion round
- **Structure**: three discussion parts

Goals & Intended Outcomes

Commercial
paid licenses & support

Ansys
MATLAB
SPSS
ArcGIS



What would make you switch?

Open source (FOSS)
free to use, inspect & modify

OpenFOAM
QGIS
python
R

- Contribute to a better understanding of user needs to improve FOSS RSE code adoption
- Outline a strategy to promote FOSS RSE codes to researchers

What are we doing at GWDG?

- HPC:
  - National High Performance Computing and AI Center in Göttingen
  - Operates the Scientific Compute Cluster (SCC), the NHR systems Emmy & Grete, and CARO for DLR
  - User support, consulting, training & courses, and regular community exchange via GöHPCoffee
  - Upstreaming of software packages to spack
  - KISSKI AI services
- RSE / PE:
  - VI-HPS Workshop this month at GWDG
  - Active contributions to the OpenFOAM / preCICE community
  - Participation in DS^3 together with SUB
  - Performance Engineering of scientific codes

SUB GWDG Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen

HN Hochschule.digital Niedersachsen

DS³ Digital Science Support Space Lower Saxony

Software at GWDG

- Support of OpenFOAM as a core open-source CFD tool for its user community, alongside commercial tools like ANSYS
- Installed OpenFOAM (multiple versions), foam-extend, preCICE modules on HPC
- Co-host the **OpenFOAM Stammtisch** with WIKKI GmbH - a CFD/OpenFOAM networking event held at GWDG
- Regular application software sessions at GöHPCoffee
- Performance Engineering / Research Software Engineering projects
- Scientific Consulting

Part 1: Commercial vs. FOSS - An RSE Perspective

- What technical or functional differences do you actually observe in practice?
- Where does paid support actually provide *real* value, and where is it mostly *perceived* value?
- What makes a FOSS alternative “mature enough” to recommend to a research group?

Part 2: User Requirements for Research Software

- Support & response guarantees (SLAs vs. community support)
- Documentation and onboarding effort
- Validation, verification and certification needs
- Long-term maintenance and funding stability
- Licensing cost vs. staff/training cost
- Size and responsiveness of the user/developer community

Part 3: Strategies to Promote FOSS Adoption

- Lower the barrier to entry
  - Packaging, integration support, migration guides
- Build institutional trust
  - Local support networks, internal SLAs, communities of practice
- Raise awareness
  - Showcasing mature FOSS alternatives researchers may not know about
- What role should organizations like deRSE play?

Get Involved

- Discussion continues on GitHub before and after the session:
  - github issue link
  - Pad
- Bring your own examples - commercial tools you use, FOSS alternatives you know of, adoption stories (good or bad)