

Asking for RSE's input to recommendations for the developers of research software

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<https://www.allianzinitiative.de/handlungsfelder/digitale-werkzeuge-software-und-dienste/>

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Background

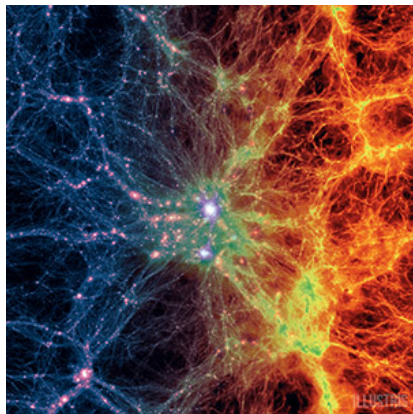
“Alliance of German Research Organizations”
represents universities, Max-Planck-, Fraunhofer-, Leibniz-
and Helmholtz institutes, DFG and others

Priority initiative “Digital Information”

Working group “Digital tools: software and
services” (2018-2022)
was: ad-hoc working group “Scientific soft-
ware” (2016-2017)

Aims:

- ▶ Increase awareness on importance of software use and development in the scientific process
- ▶ Identify open issues
- ▶ Provide recommendations to the various stakeholders in scientific software development



www.illustris-project.org

Research software: central component of scientific work

- ▶ Simulation: models + algorithm development
 - ▶ Generation, processing, analysis and visualization of research data
 - ▶ Control of devices and experiments.
- ⇒ Need transparency, traceability, accessibility and reproducibility of research results

FAIR Principles for software:

Findable, **A**ccessible,
Interoperable, **R**eusable

The “Handreichung” (Feb. 2018)



<https://doi.org/10.5281/zenodo.1172988> (english)

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Paper copies at conference desk

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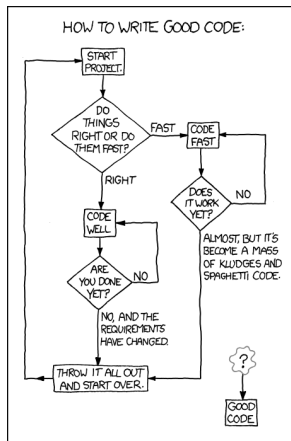
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Target Audience: Senior researchers and research managers at universities, non-university research institutes, funding organisations and infrastructure facilities, as well as developers and users of research software.

Aims: provide information about the topic of research software, presenting challenges and possible solutions on the following three levels:

1. Development of research software
2. Use of research software
3. Provision of research software as a service to the research community

Responsibility of Developers



xkcd.com

- ▶ Research software engineers
- ▶ Academic software developers

- ▶ Adhere to best practice standards for coding, packaging, documentation, validation
- ▶ Care about interoperability
- ▶ Re-use well established components
- ▶ Networking, communication, qualification
- ▶ Critical self-assessment

Planned deliverable

Detailed recommendation document specifically for the organization of the software development process in science.

- ▶ Aimed at: research software engineers, scientists creating software; leading scientists, project leaders
- ▶ Collect recommendations for sustainable strategies for design, development and documentation of code, licensing and juridicial aspects
- ▶ Describe general principles, provide references & links to available detailed information
- ▶ Discuss ways to organize transition from current practice
- ▶ On the way of developing the document: identify various obstacles to be communicated to other stakeholders

What is your take on this ?

Structure: Work in Progress

- ▶ Einleitung
 - ▶ Spezifik der Softwareentwicklung an wissenschaftlichen Einrichtungen
 - ▶ Ziele
 - ▶ Akteure
- ▶ Planung und Strukturierung von Softwareentwicklungsvorhaben
 - ▶ Wie definiert sich "gute Software"?
 - ▶ Softwaredesign
 - ▶ Projektmanagementmethode
- ▶ Moderne Werkzeuge für die Softwareentwicklung
 - ▶ Projektmanagementwerkzeuge
 - ▶ Quellcodeverwaltung Öffentlich/nicht öffentlich
 - ▶ Continuous Integration / Build Tools
 - ▶ Teamkommunikation
 - ▶ Dokumentation
- ▶ Veröffentlichung/Verbreitung von Software
 - ▶ Rechtliche Aspekte
 - ▶ Rechte an Software
 - ▶ Lizenzierung
- ▶ Realisierung in der institutionellen Praxis
 - ▶ Qualifikation des verantwortlichen Personals
 - ▶ Infrastrukturentwicklung
 - ▶ Verstetigung
- ▶ Referenzen