

# WHAT IS NEW IN RESEARCH SOFTWARE ENGINEERING IN GERMANY?

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# Research Software Engineering in Germany



- Brief history
- de-RSE – Society for Research Software
- Outreach & community building
- Politics, policies & guidelines
- NFDI: National Research Data Infrastructure
- RSE + Computer Science
- Save the date: **deRSE24, 4-8 March 2024, Würzburg/Germany**

# Research Software Engineering in Germany

## Brief history of de-RSE (as of June 2020)



Software Sustainability Institute

### Launching the German RSE chapter "de-RSE"

Posted by s.hettrick on 19 January 2017 - 9:09am

Founders of the de-RSE chapter

By Martin Hammitzsch, GFZ Potsdam, Stephan Janosch, MPI CBG & Frank Loeffler, Louisiana State University

The days following the first conference of Research Software Engineers (RSEs) saw the launch of a German RSE chapter de-RSE. It was formed by RSEs working inside and outside Germany, and it will further the shared objectives of RSEs and become the collective mouthpiece for RSEs within the German science.



deRSE SOCIETY FOR RESEARCH SOFTWARE

POSITION PAPER #001 (06 May 2020)

### An Environment for Sustainable Research Software in Germany and Beyond: Current State, Open Challenges, and Call for Action

Hanning Assler<sup>1</sup>, Felix Bach<sup>2</sup>, Stephan Brackmann<sup>3,4</sup>, Frank Löffler<sup>5,6</sup>, Axel Lorenz<sup>7</sup>, Bernhard V. Strauß<sup>8,9</sup>, Gernot Strauß<sup>10,11</sup>, Alexander Stransky<sup>12</sup>, Gisa Wiedemann<sup>13</sup>, Frank Wegmann<sup>14</sup>, Franziska Wegner<sup>15</sup>, Michael Wegner<sup>16</sup>, Gerd Wegner<sup>17</sup>, Christian Wegner<sup>18</sup>, Christian Wiedemann<sup>19</sup>, Frank W. Wiedemann<sup>20</sup>, Hans-Joachim Wiedemann<sup>21</sup>, Hans-Joachim Wiedemann<sup>22</sup>, Maximilian W. Wiedemann<sup>23</sup>, Stefan W. Wiedemann<sup>24</sup>, Hans-Joachim Wiedemann<sup>25</sup>, Hans-Joachim Wiedemann<sup>26</sup>, Hans-Joachim Wiedemann<sup>27</sup>, Hans-Joachim Wiedemann<sup>28</sup>, Hans-Joachim Wiedemann<sup>29</sup>, Hans-Joachim Wiedemann<sup>30</sup>, Hans-Joachim Wiedemann<sup>31</sup>, Hans-Joachim Wiedemann<sup>32</sup>, Hans-Joachim Wiedemann<sup>33</sup>, Hans-Joachim Wiedemann<sup>34</sup>, Hans-Joachim Wiedemann<sup>35</sup>, Hans-Joachim Wiedemann<sup>36</sup>, Hans-Joachim Wiedemann<sup>37</sup>, Hans-Joachim Wiedemann<sup>38</sup>, Hans-Joachim Wiedemann<sup>39</sup>, Hans-Joachim Wiedemann<sup>40</sup>, Hans-Joachim Wiedemann<sup>41</sup>, Hans-Joachim Wiedemann<sup>42</sup>, Hans-Joachim Wiedemann<sup>43</sup>, Hans-Joachim Wiedemann<sup>44</sup>, Hans-Joachim Wiedemann<sup>45</sup>, Hans-Joachim Wiedemann<sup>46</sup>, Hans-Joachim Wiedemann<sup>47</sup>, Hans-Joachim Wiedemann<sup>48</sup>, Hans-Joachim Wiedemann<sup>49</sup>, Hans-Joachim Wiedemann<sup>50</sup>, Hans-Joachim Wiedemann<sup>51</sup>, Hans-Joachim Wiedemann<sup>52</sup>, Hans-Joachim Wiedemann<sup>53</sup>, Hans-Joachim Wiedemann<sup>54</sup>, Hans-Joachim Wiedemann<sup>55</sup>, Hans-Joachim Wiedemann<sup>56</sup>, Hans-Joachim Wiedemann<sup>57</sup>, Hans-Joachim Wiedemann<sup>58</sup>, Hans-Joachim Wiedemann<sup>59</sup>, Hans-Joachim Wiedemann<sup>60</sup>, Hans-Joachim Wiedemann<sup>61</sup>, Hans-Joachim Wiedemann<sup>62</sup>, Hans-Joachim Wiedemann<sup>63</sup>, Hans-Joachim Wiedemann<sup>64</sup>, Hans-Joachim Wiedemann<sup>65</sup>, Hans-Joachim Wiedemann<sup>66</sup>, Hans-Joachim Wiedemann<sup>67</sup>, Hans-Joachim Wiedemann<sup>68</sup>, Hans-Joachim Wiedemann<sup>69</sup>, Hans-Joachim Wiedemann<sup>70</sup>, Hans-Joachim Wiedemann<sup>71</sup>, Hans-Joachim Wiedemann<sup>72</sup>, Hans-Joachim Wiedemann<sup>73</sup>, Hans-Joachim Wiedemann<sup>74</sup>, Hans-Joachim Wiedemann<sup>75</sup>, Hans-Joachim Wiedemann<sup>76</sup>, Hans-Joachim Wiedemann<sup>77</sup>, Hans-Joachim Wiedemann<sup>78</sup>, Hans-Joachim Wiedemann<sup>79</sup>, Hans-Joachim Wiedemann<sup>80</sup>, Hans-Joachim Wiedemann<sup>81</sup>, Hans-Joachim Wiedemann<sup>82</sup>, Hans-Joachim Wiedemann<sup>83</sup>, Hans-Joachim Wiedemann<sup>84</sup>, Hans-Joachim Wiedemann<sup>85</sup>, Hans-Joachim Wiedemann<sup>86</sup>, Hans-Joachim Wiedemann<sup>87</sup>, Hans-Joachim Wiedemann<sup>88</sup>, Hans-Joachim Wiedemann<sup>89</sup>, Hans-Joachim Wiedemann<sup>90</sup>, Hans-Joachim Wiedemann<sup>91</sup>, Hans-Joachim Wiedemann<sup>92</sup>, Hans-Joachim Wiedemann<sup>93</sup>, Hans-Joachim Wiedemann<sup>94</sup>, Hans-Joachim Wiedemann<sup>95</sup>, Hans-Joachim Wiedemann<sup>96</sup>, Hans-Joachim Wiedemann<sup>97</sup>, Hans-Joachim Wiedemann<sup>98</sup>, Hans-Joachim Wiedemann<sup>99</sup>, Hans-Joachim Wiedemann<sup>100</sup>

Abstract

Research software has become a central asset to academic research. It optimizes existing and enables new research methods, implements and extends research knowledge, and represents an essential research product in itself. Research software is often complex, difficult to learn, and requires significant resources to develop, maintain, and update. Research software is often not sustainable, and its development and maintenance are often not supported by the research community. This paper discusses the current state of research software in Germany and beyond, identifies open challenges, and proposes a call for action to create a sustainable research software environment. In particular, we recommend strategies and measures to create an environment for sustainable research software, with the ultimate goal to ensure that software research is well-supported and sustainable, and that software is recognized as a first-class citizen in research. This paper is the outcome of a workshop on Research Software Engineering (RSE) at the first International Conference of Research Software Engineers in Germany (ICRSE) in 2019, and a follow-up workshop on Research Software Engineering (RSE) in Germany in 2020.

Key words: Sustainable Software Development, Academic Software, Software Infrastructure, Software Training, Software Learning, Research Software


- Charitable status
- Generic board structure
- 4 regional chapters
- ~50 members
- Mailing list
- Rocket Chat



## Society

- [de-RSE.org](https://de-RSE.org)
- 6 board members
- ~70 formal members
- Larger community in chat & mailing list
- 9 [local/regional](#) chapters
- Initial meetings of German RSE groups

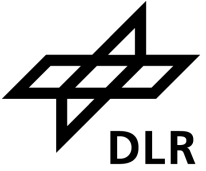
## Conferences

- 2020/21: participation in **SORSE**
- 2022: [RSE track & workshops](#) at GI's virtual Software Engineering 2022 
- 2023:
  - [deRSE23](#) (Paderborn, co-locating with SE23)
  - [un-deRSE23](#) unconference (Jena)





SOCIETY FOR  
RESEARCH SOFTWARE



- de-RSE is seen as a relevant partner & community in German academia!
- Community building is hard work!

## Future changes 🗨️

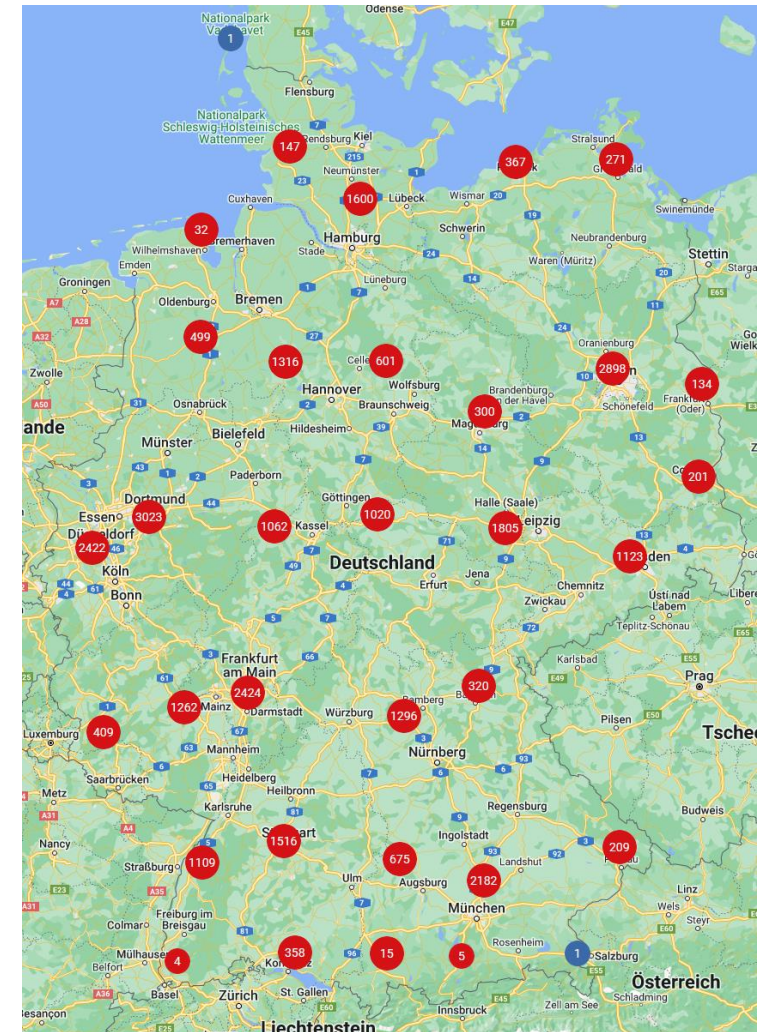
- Happen with and for the community ➡️ [de-RSE Unconference!](#)
  - Extended board structure?
  - Better online community infrastructure?
  - Regular exchange between RSE (Group) Leaders?
  - Increasing value for members?

# Research Software Engineering in Germany

## Outreach & community building

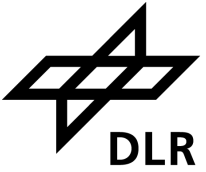


- Fragmented research community ==  
Fragmented RSE community?
- Conferences, unconferences, monthly community call
- Software awards:
  - [Helmholtz Incubator Software Award](#) (2023)
  - [campusSOURCE Award](#) (2022)
- Online community (platform change)
-  **HIRSE\_PS**
  - Helmholtz Innovation project
  - Community building & networking
  - Seminars & events (open to all!)
  - Claire Wyatt (community manager)
  - [www.helmholtz-hirse.de](http://www.helmholtz-hirse.de)



# Research Software Engineering in Germany

## Politics, policies & guidelines



de-RSE – Society for Research Software:

- *Public Money Public Code* [endorsement](#) (FSFE)
- *Software Heritage* [testimonial](#)
- [Participation](#) in consultation for *Research Data Act*
- *Position papers* (in progress):
  - RSE Groups in Germany
  - RSE Education Resources



# Research Software Engineering in Germany

## Politics, policies & guidelines



- Deutsche Forschungsgemeinschaft (2022):  
[Guidelines for Safeguarding Good Research Practice](#)
  - **Quality assurance:**
    - “The source code of publicly available software must be persistent, citable and documented.”
    - “Software programmed by researchers themselves is made publicly available along with the source code” and an “appropriate license.”
  - **Authorship:**
    - “An author is an individual who has made a genuine, identifiable contribution to [...] software.”
  - **Publication:**
    - “In addition to [text] publication, authors may also consider [...] software repositories [...].”
  - **Archival:**
    - “Researchers back up [...] the research software used, by adequate means according to the standards of the relevant subject area, and retain them for an appropriate period of time.”



# Research Software Engineering in Germany

## Politics, policies & guidelines



- Helmholtz Association of German Research Centres (2022):  
[Helmholtz Open Science Policy](#) (binding for funded projects)
  - Detailed **research software management** procedures by 2025
  - Basic indicator for **citable research software publications** (2023)
  - Helmholtz **quality indicator** for research software publications by 2024

**HELMHOLTZ**

# Research Software Engineering in Germany

## NFDI: National Research Data Infrastructure



- **Goals:** Accessibility, interoperability, usability of research data
- Disciplinary consortia
  - Software as cross-cutting topic originally disregarded
- de-RSE is a member of the NFDI association
- RSE as topic distributed over (cross-cutting) sections, e.g.
  - WG “[Research Software Engineering](#)” in Section *Common Infrastructures*
  - WG “Research Software Metadata” in Section *(Meta)data, Terminology, Provenance*
- Proposal for a common [Research Software Directory](#) in NFDI Basic Services
  - nfdi.software



# Research Software Engineering in Germany

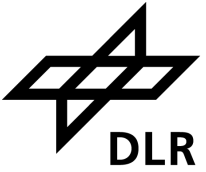
## RSE + CS



- Memorandum of understanding with the Society for Computer Science
- Common working group  
“Research Software Engineering”
  - Interface between Software Engineering Research & Research Software Engineering
  - Focus on RSE Research



Save the date!



**deRSE24 | Würzburg | 4-8 March 2024**



What is new in Research Software Engineering in Germany?



# Thanks!



de-RSE – Society for Research Software:

- [de-rse.org/en/](https://de-rse.org/en/)

Mailing list:

- [de-rse.org/en/join.html](https://de-rse.org/en/join.html)

Mastodon:

- [mastodon.social/@de\\_rse](https://mastodon.social/@de_rse)