

bwHPC: Concept, Infrastructure and State-wide User Support

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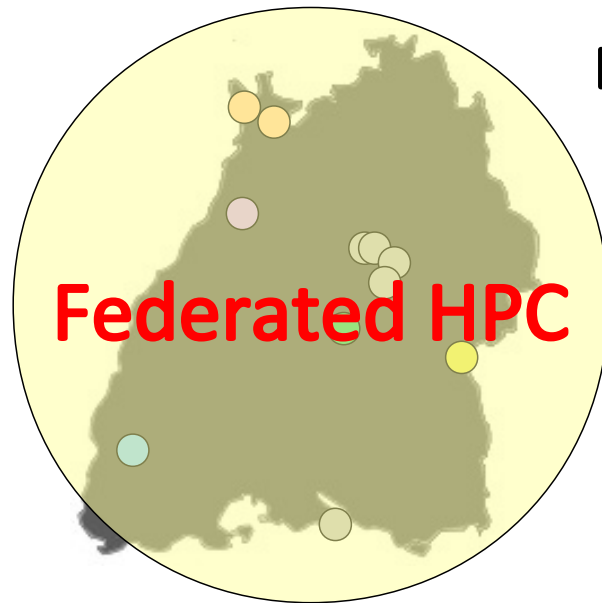
KIT
Karlsruher Institut für Technologie



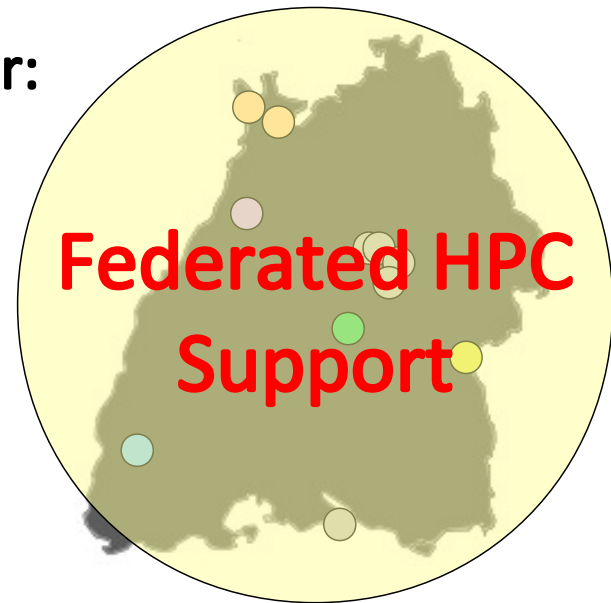
ulm university universität
uulm



What is **bwHPC**?
What is **bwHPC-S5**?
Where do I get / What kind of **Support**?

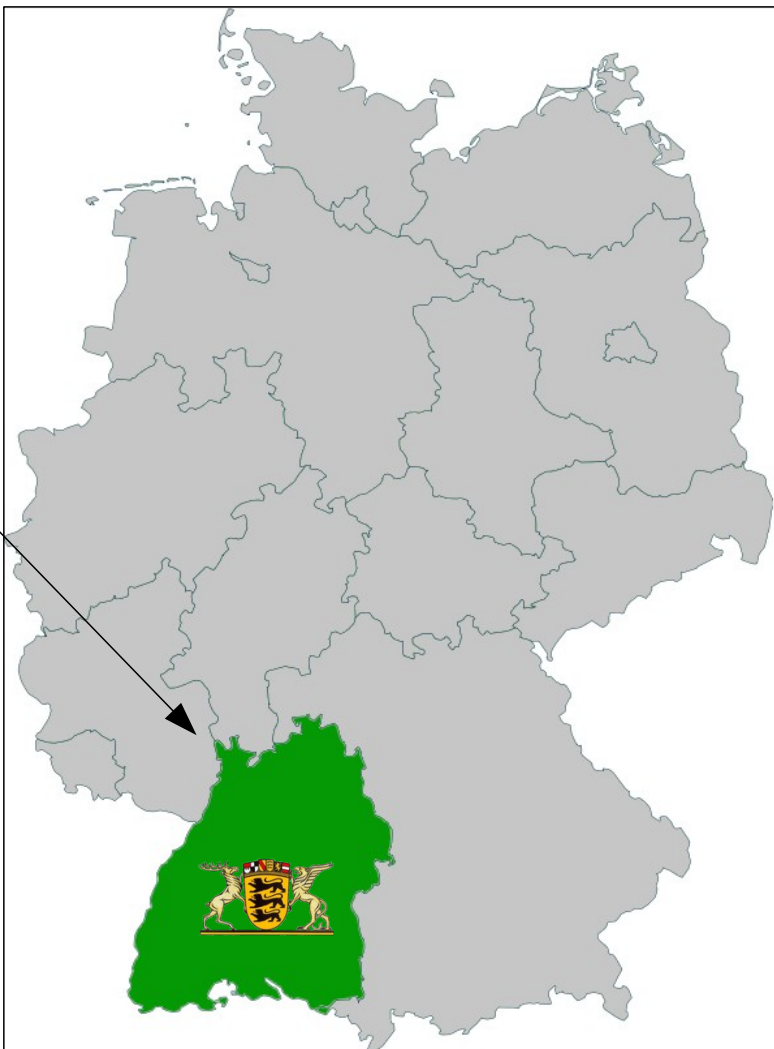


Brief answer:



1. bwHPC

What is bwHPC/bwHPC-S5?



bw = Baden-Württemberg

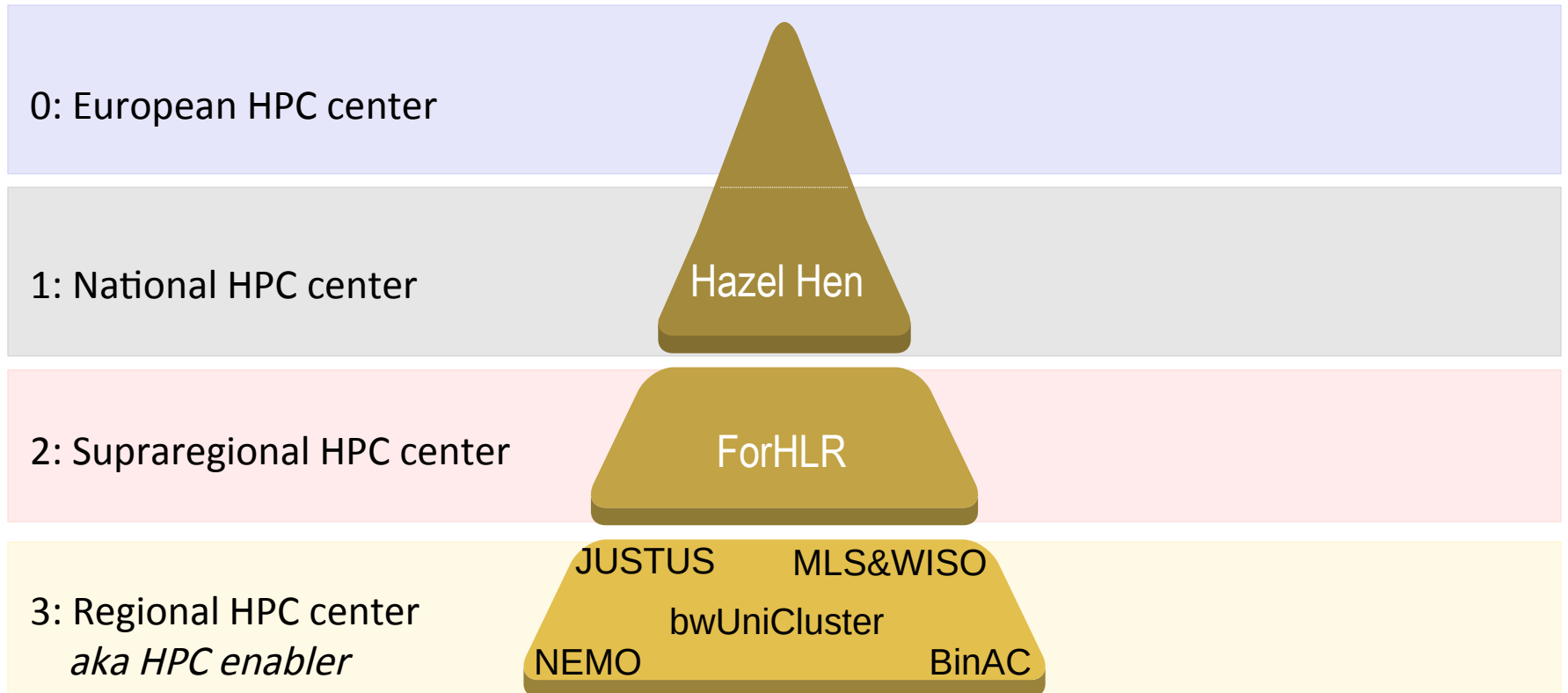
bwHPC = Initiative for implementing high performance computing cluster and data federation and corresponding support infrastructure

bwHPC-S5 = User and IT support for bwHPC and data federation

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Cooperated activities

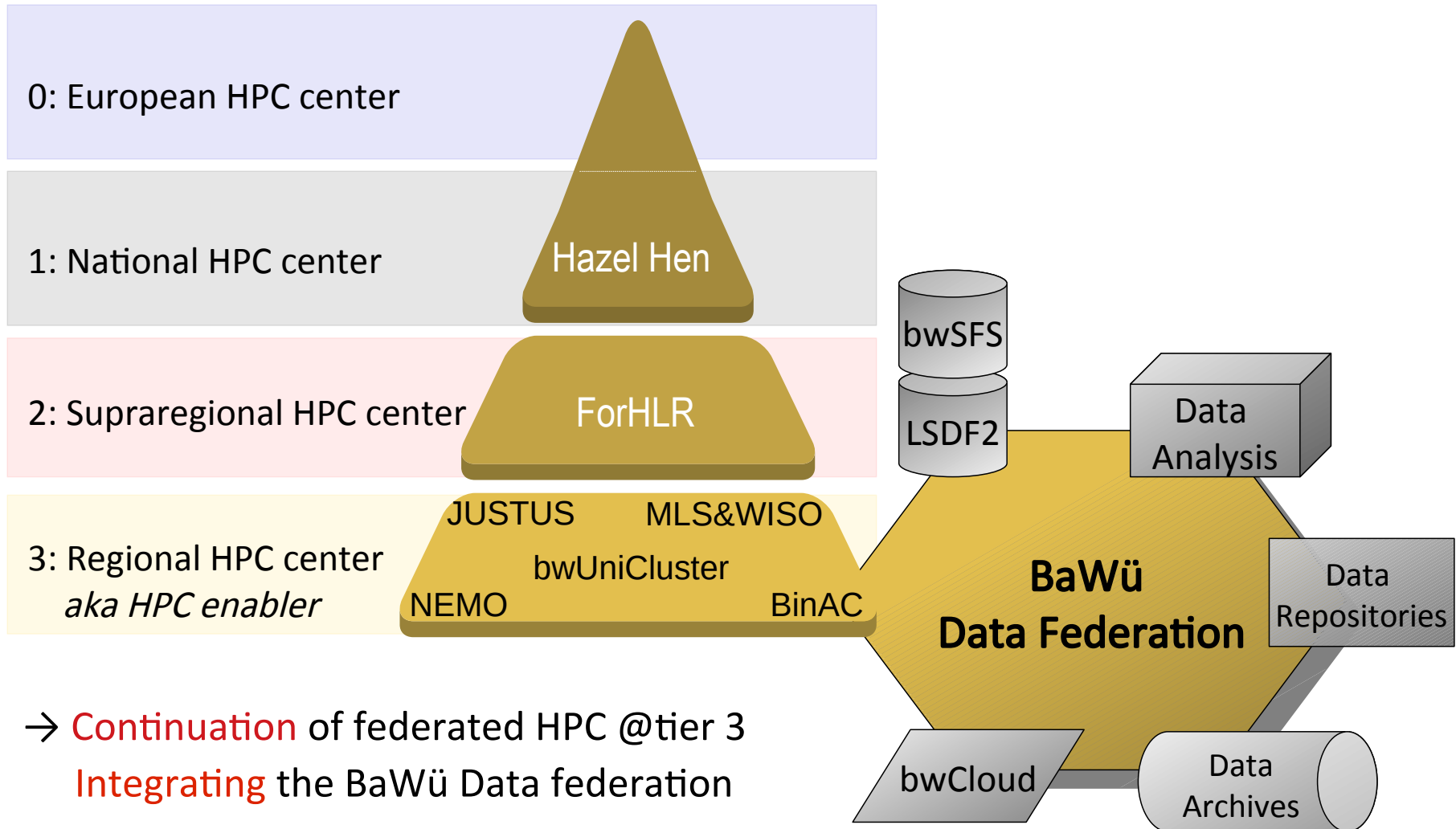
bwHPC (2013-2018)



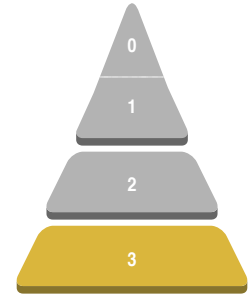
Uniqueness of bwHPC? **Coordinated and federated HPC @tier 3!**

bwHPC 2.0 (2018 - 2025)

Baden-Württemberg's implementation strategy for HPC,
Data intensive computing & Large Scale Scientific Data Management



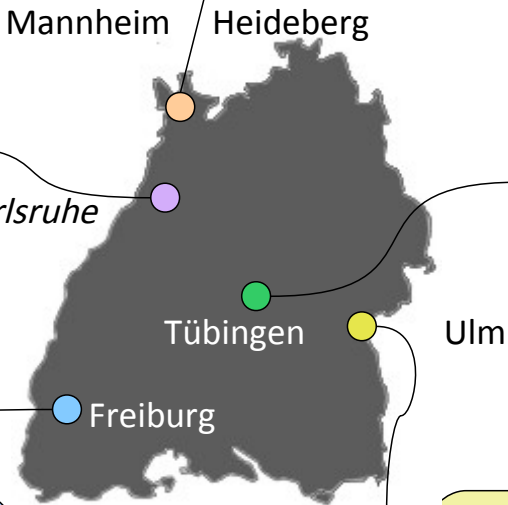
Clusters @ Tier 3



bwForCluster MLS& WISO
(10/2015):
Economics & Social Science,
Molecular Life Science

bwUniCluster
(02/2014):
General purpose,
Teaching & Education

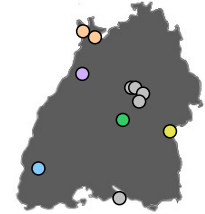
bwForCluster BinAC
(11/2016):
Bioinformatis,
Astrophysics,
Geosciences



bwForCluster NEMO
(09/2016):
Neurosciences,
Micro Systems Engineering,
Elementary Particle Physics

bwForCluster JUSTUS
(12/2014):
Computational Chemistry,
Quantum Sciences

bwUniCluster



■ Shareholders:

- Freiburg, Tübingen, KIT, Heidelberg, Ulm, Hohenheim, Konstanz, Mannheim, Stuttgart, and HAW BW e.V. (an association of university of applied sciences in Baden-Württemberg)
- Baden-Württemberg's ministry of science, research and arts (MWK)

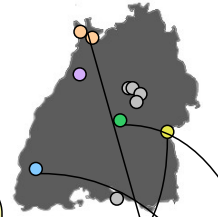
■ Access:

- For all members of **shareholder**'s university in BW
 - For all members of the universities of applied sciences in BW
- How?** → Entitlement → Registration → Questionnaire → Login
(Details: 2. Talk today)

■ Usage:

- Free of charge
- For general purpose, teaching & education
- For technical computing (sequential & weak parallel) & parallel computing

4x bwForClusters



- Shareholders
 - German Research Society (DFG)
 - Baden-Württemberg's ministry of science, research and arts
- Access (*Details: 2. Talk today*):
 - All university members in Baden-Württemberg
 - How? → Entitlement +
Compute Project Proposal →
Registration → Login
- Usage:
 - Free of charge
 - **Approved** Compute Project Proposal **to only 1 bwForCluster matching cluster's subject fields**

bwForCluster JUSTUS
(12/2014):
→ JUSTUS 2 (2019/20)
Chemistry, ...

bwForCluster MLS& WISO
(10/2015):
*Economics & Social Science,
Molecular Life Science, ...*

bwForCluster BinAC
(11/2016):
*Bioinformatis,
Astrophysics, ...*

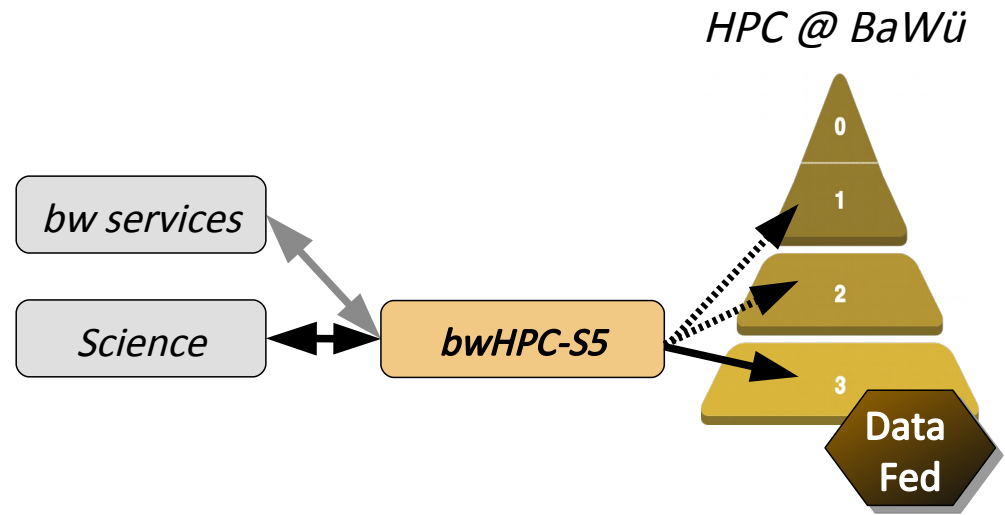
bwForCluster NEMO
(09/2016):
*Neurosciences,
Micro Systems Engineering,
Elementary Particle Physics, ...*

2. bwHPC-S5

Scientific Simulation and Storage Support Services (bwHPC-S5)

■ Goal?

- Bridging Science & HPC
- Bridging HPC tiers and Large Scale Scientific Data Facilities (LS²DM)
- Embedding services

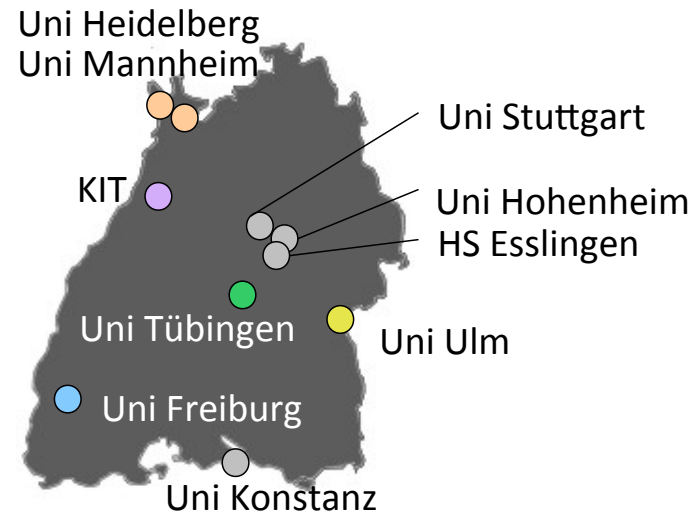


■ Where are these Competence Centers?

→ Organised by 8 Universities

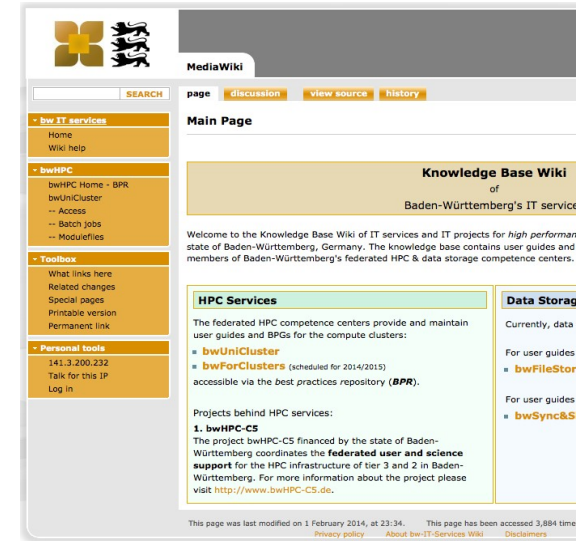
■ Who ?

→ Experts from 10 Universities

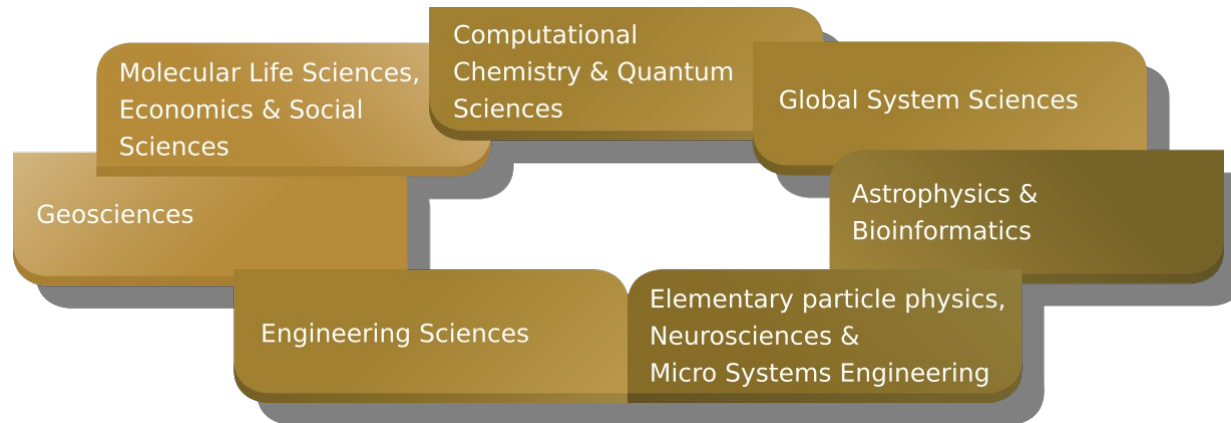


bwHPC-S5: What kind of support?

- Seminars and workshops
 - coordinated by 10 BaWü universities
- Documentation + **best practices repository** → Wiki
- HPC and Data Competence Center:
 - Coordination of **Tiger Teams**
 - Help concerning:
Code/workflow adaptation, porting and parallelisation
 - Identify of user key topics
 - Help to access tier 2 (ForHLR) and 1 (Hazel Hen)
 - Establish state-wide experts pool
- Providing/maintaining:
 - Community specific & HPC generic software and tools,
 - Data management tools for using e.g. **bwDataArchive** or **SDS@hd**



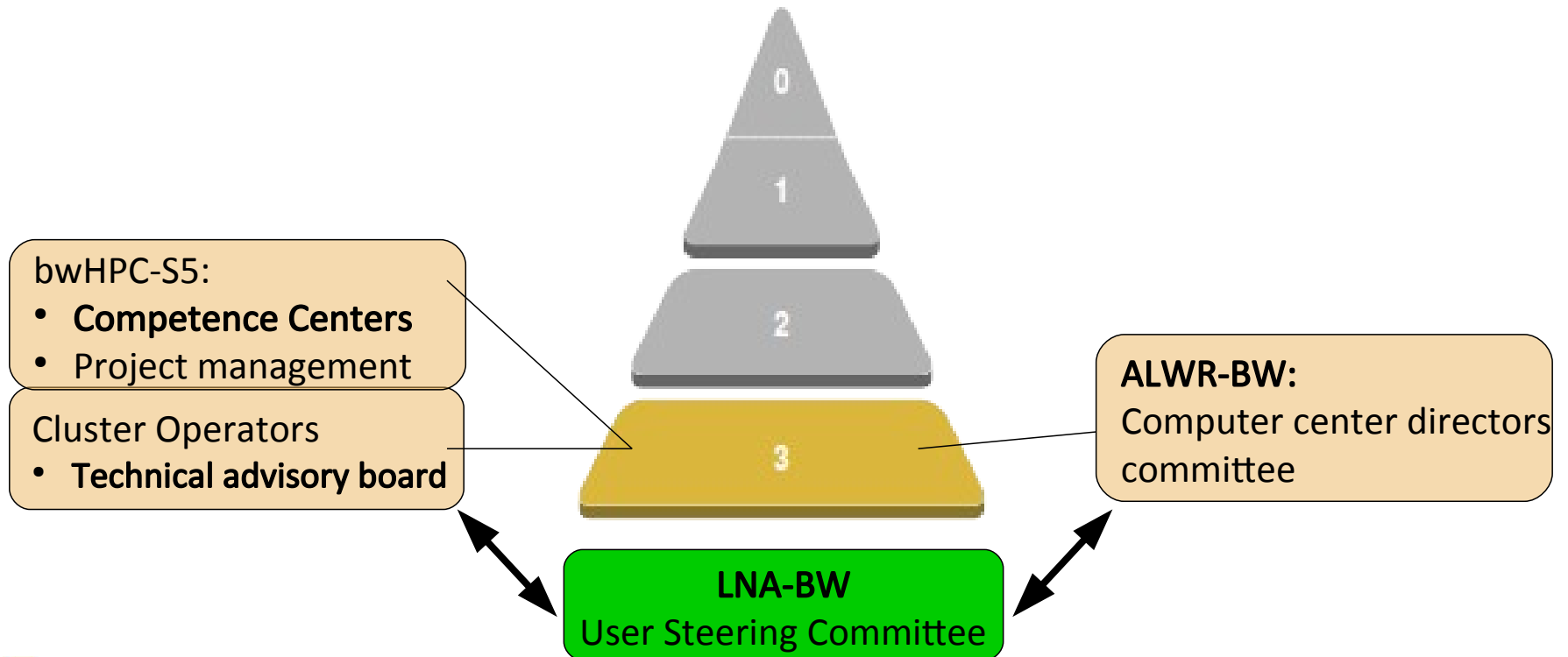
How to get support?



- Scientific specific support?
 - Choose your Competence Center → contact via [email](#), [trouble ticket](#)
 - Wiki: [Best Practice Guides](#)
- Extensive Support needed?
 - [Tiger Team Support](#)
- Cluster specific support?
 - Choose your cluster → [email list of cluster](#), [trouble ticket](#), [telephone](#)
- Complaints / Policy issues?
 - [email](#) or [trouble ticket](#) @ project management
 - Contact your university member of the [LNA-BW \(User Steering Committee\)](#)

Governance

bwHPC: Governance



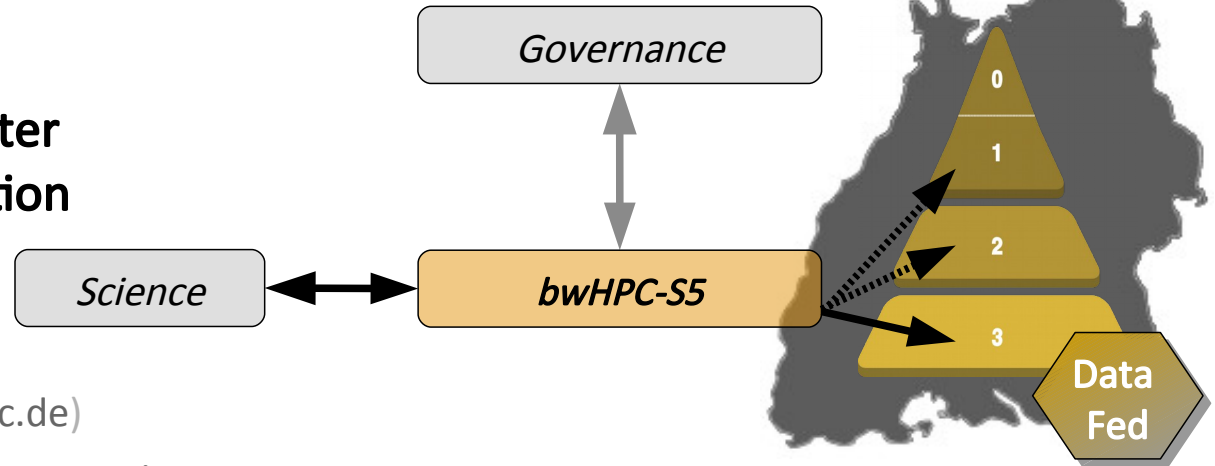
- Set bwHPC access formalities
- Assessment of bwHPC workload
- Regulation of bwHPC cluster expansion
- Assignment of science communities to science clusters and data facilities
- Representation of HPC users interests concerning:
resource demands, HPC technologies and software licences, adjustment of resource quota

Summary

Summary

■ bwHPC:

→ bwUni- & bwForCluster
+ BaWü Data Federation



→ **bwHPC-S5** (www.bwhpc.de)

= Support & Service integration, User Support

- Training courses
- User and Best Practice Guides (www.bwhpc.de/wiki)
- HPC and Data software maintenance & Code migration / optimisation aid
- HPC and Data innovation evaluation

→ **Governance**

- LNA-BW (user steering committee)
- Competence Centers

Thank you for your attention!

Questions?