

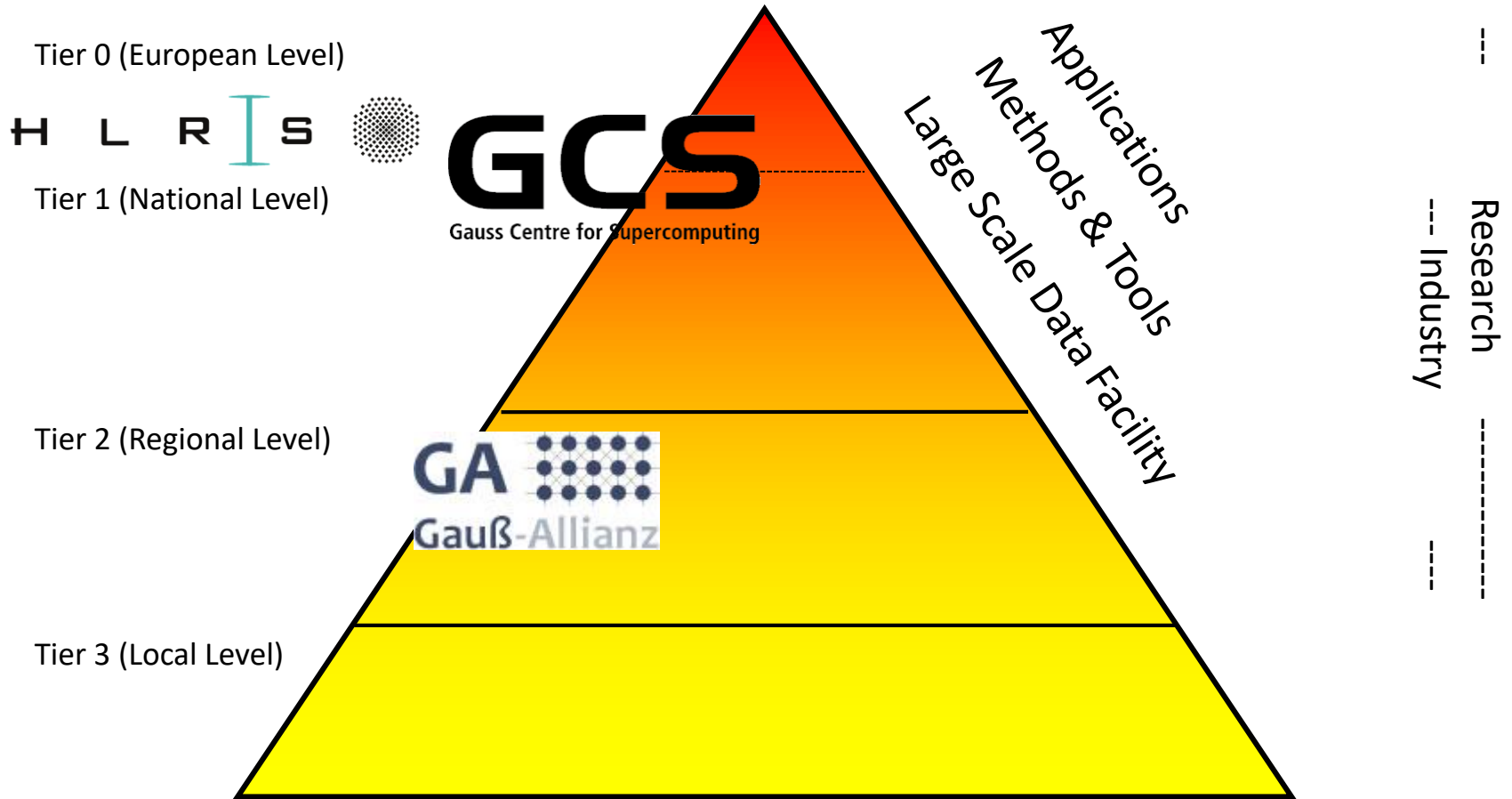
HLRS – a National Supercomputing Center for Research and Industry

Russian Supercomputing Days, September 23, 2019, Moscow, Russia

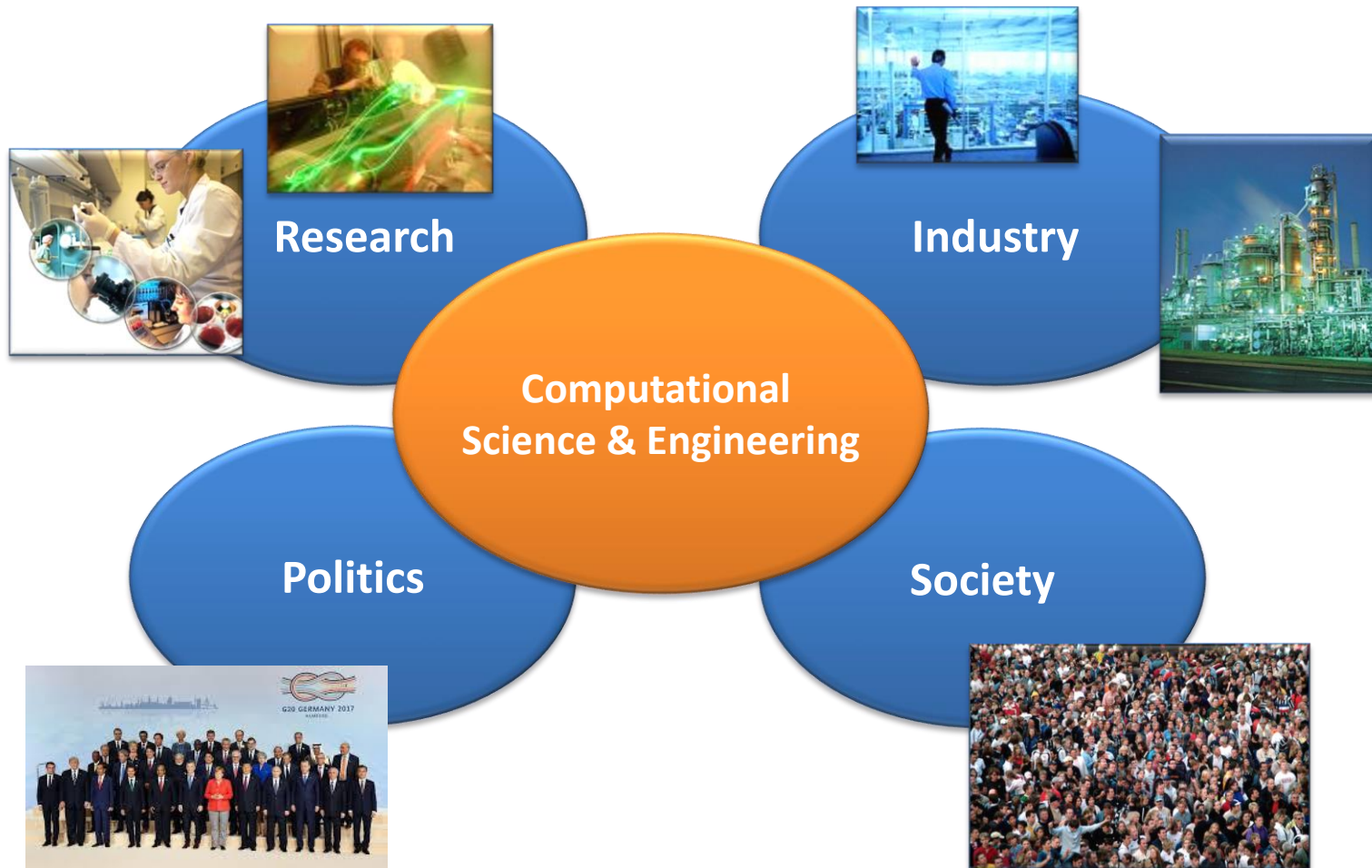
Prof. Dr.-Ing. Hon. Prof. Dr. h.c. Dr h.c. Michael Resch



German Pyramid-of-Performance Concept



Mission and Vision of HLRS



Issues

- Topics

- Engineering

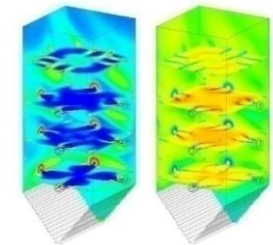
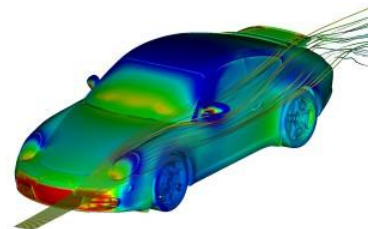
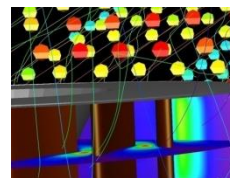
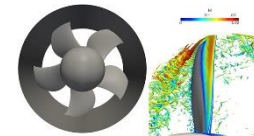
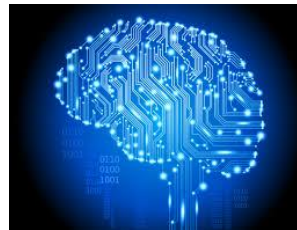
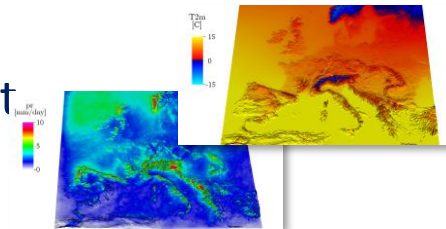
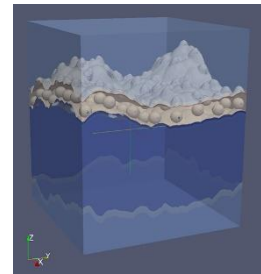
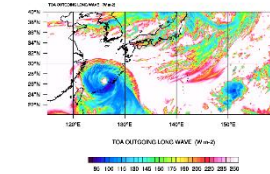
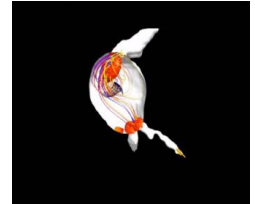
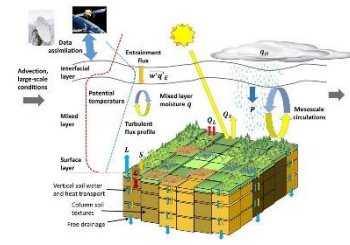
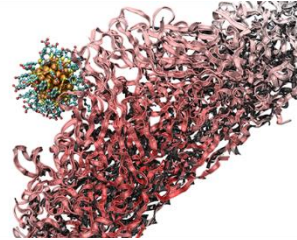
- Energy
 - Health & The Aging Society
 - Mobility in the 21st Century

- Global System Science

- Climate Change & The Environment
 - Smart Cities

- Technologies

- DA/ML/AI
 - Cyber Security
 - High Performance Computing
 - Green-IT



HLRS HPE “Hawk”

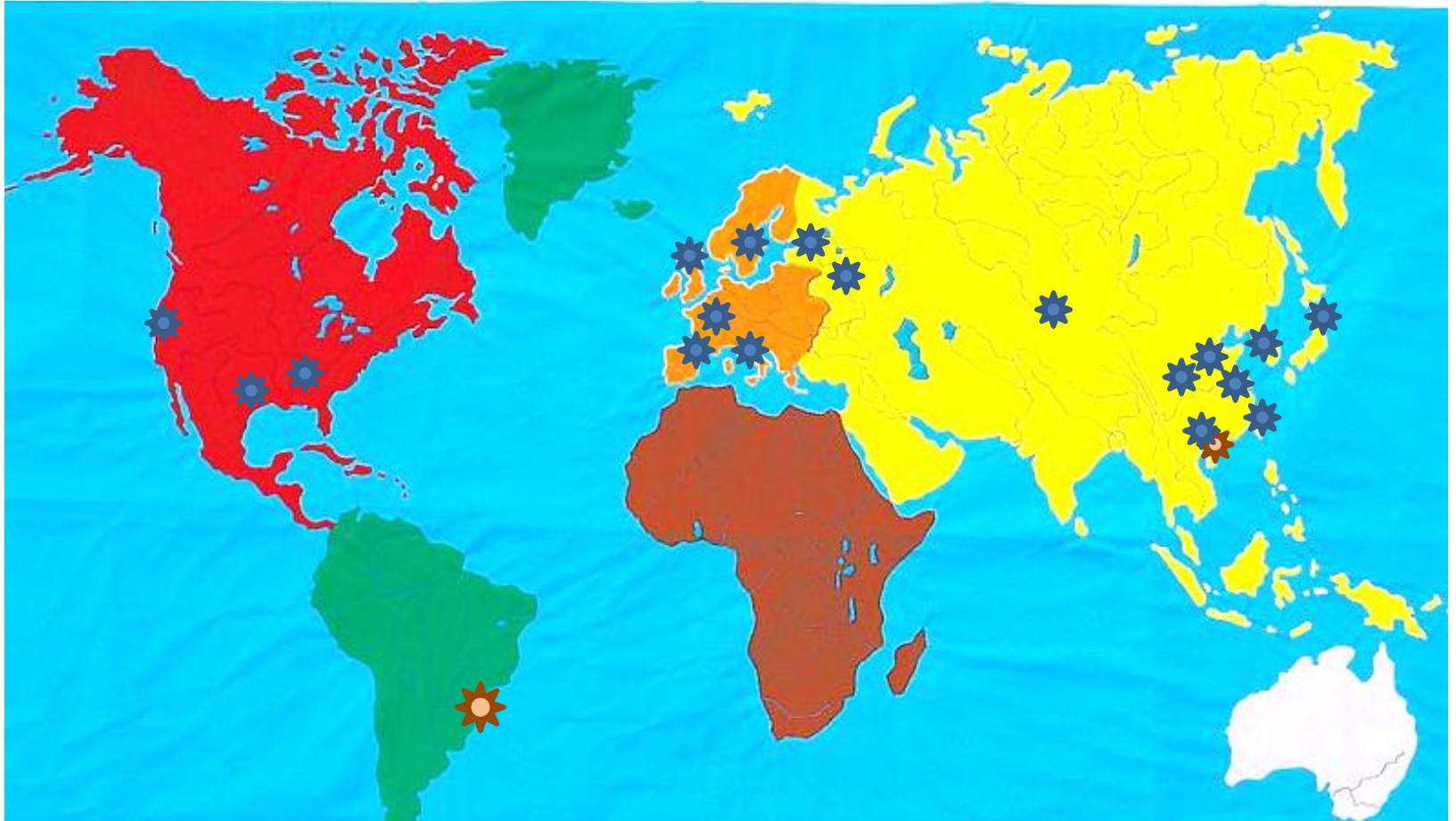
- HPE Apollo 9000 (2020 44M€)
 - 720.896 cores AMD Rome
 - 27,11 PetaFlops Peak
 - >2 PetaFlops Sustained
 - 746 TeraByte Main Mem.
 - ~26 PetaByte Disk



Future Challenges

- End of Moore's law but no end to power nightmare
- New architectures (Quantum Computing)
- Scaling programs and sustained performance
- Merging DA/ML/AI with Supercomputing
- New applications
- Finding well trained people
- National Strategies vs. International Research

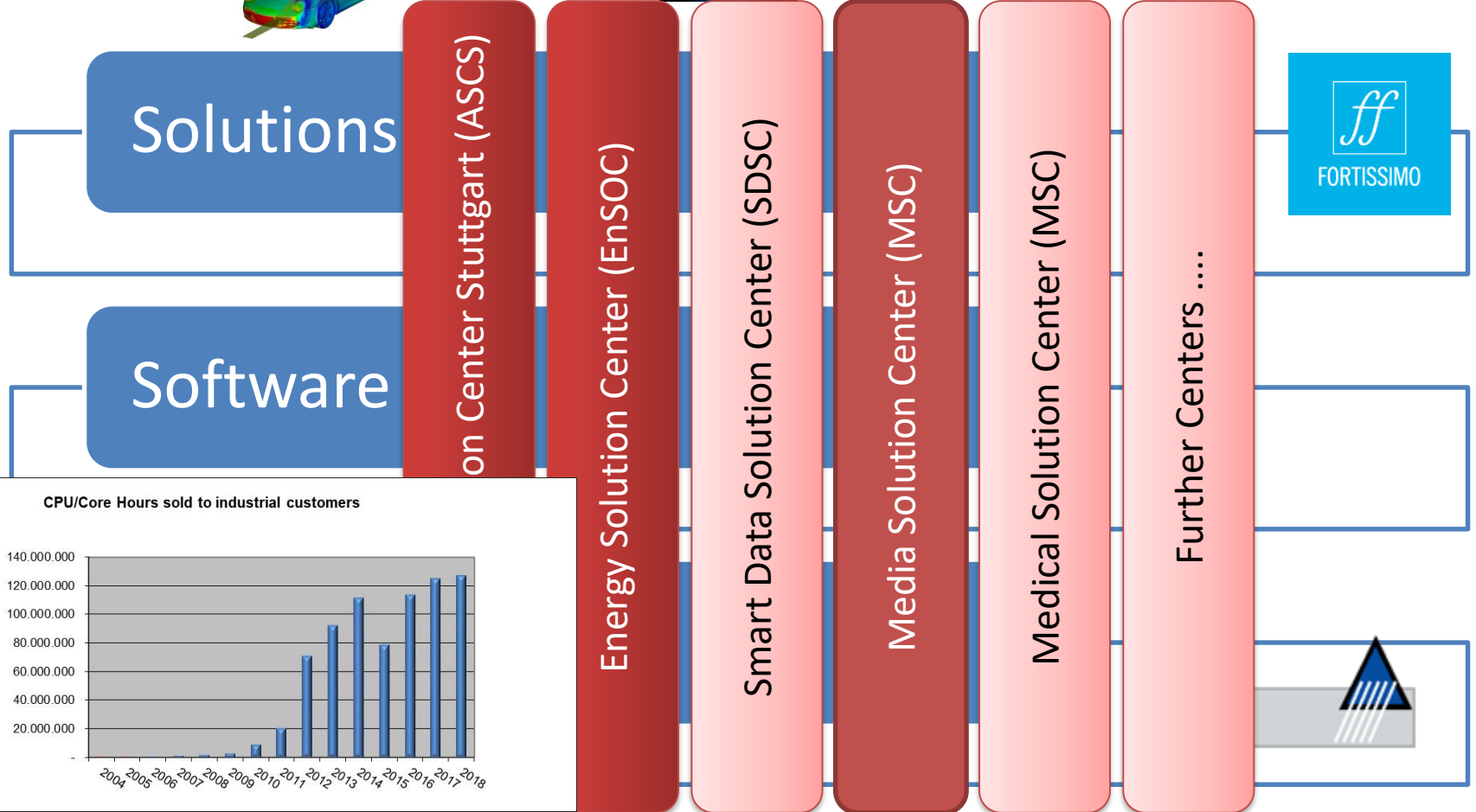
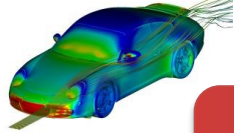
Co-Operations



DA/ML/AI

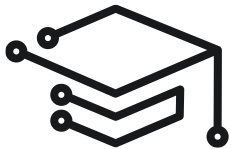


Industrial Concept



Training

- Bringing training to industry
- In-service modular concept
- Target group oriented



Supercomputing Akademie



HPC Basics



Parallel Programming



Simulation



Visualisation



Performance Optimization



Cluster Cloud & HPC



Economy & Ecology

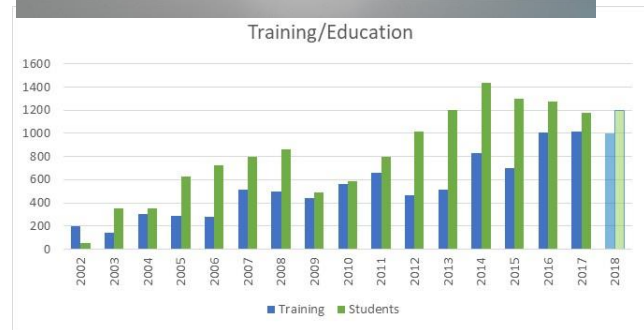


Data Analysis

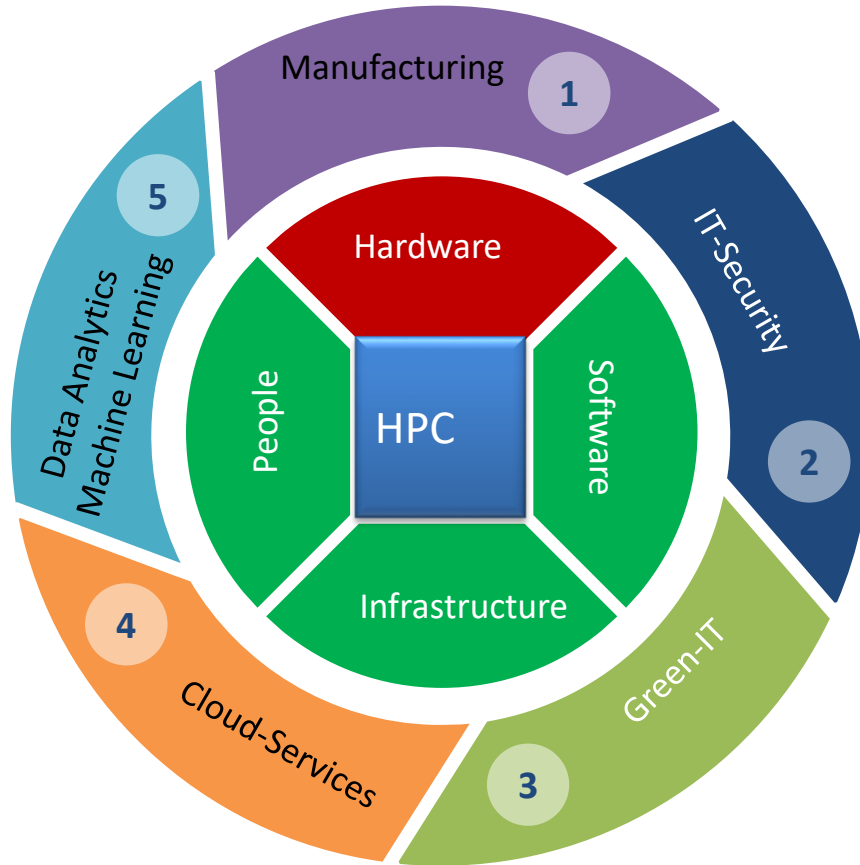
MoeWE - Modular Training As Experts in High-Performance Computing



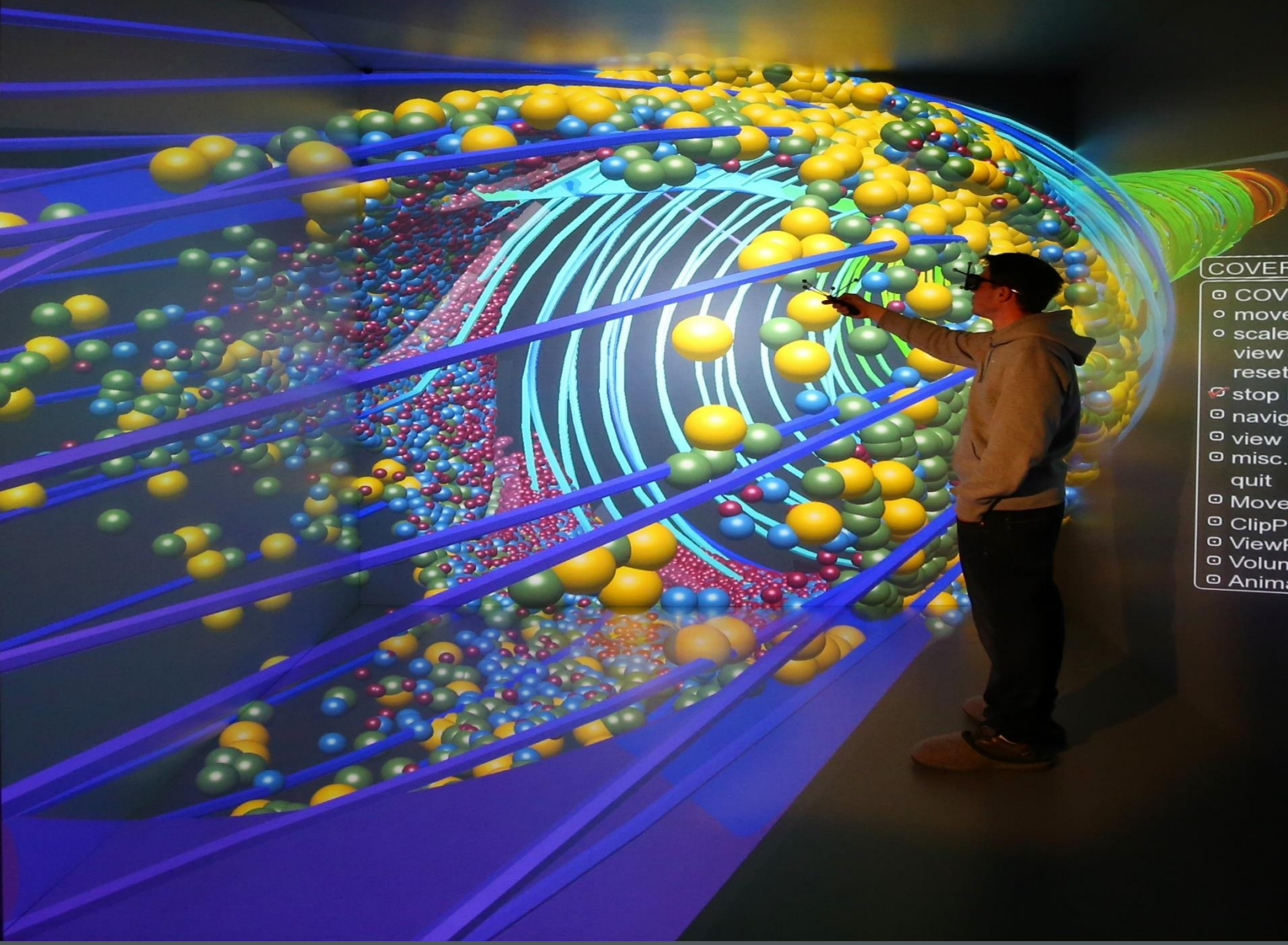
GEFORDERT VOM MINISTERIUM FÜR
SOZIALES UND INTEGRATION
BADEN-WÜRTTEMBERG
AUS MITTELN DES
EUROPÄISCHEN SOZIALFONDS
SOWIE VOM MINISTERIUM FÜR
WISSENSCHAFT, FORSCHUNG UND KUNST
BADEN-WÜRTTEMBERG



Bringing it all together

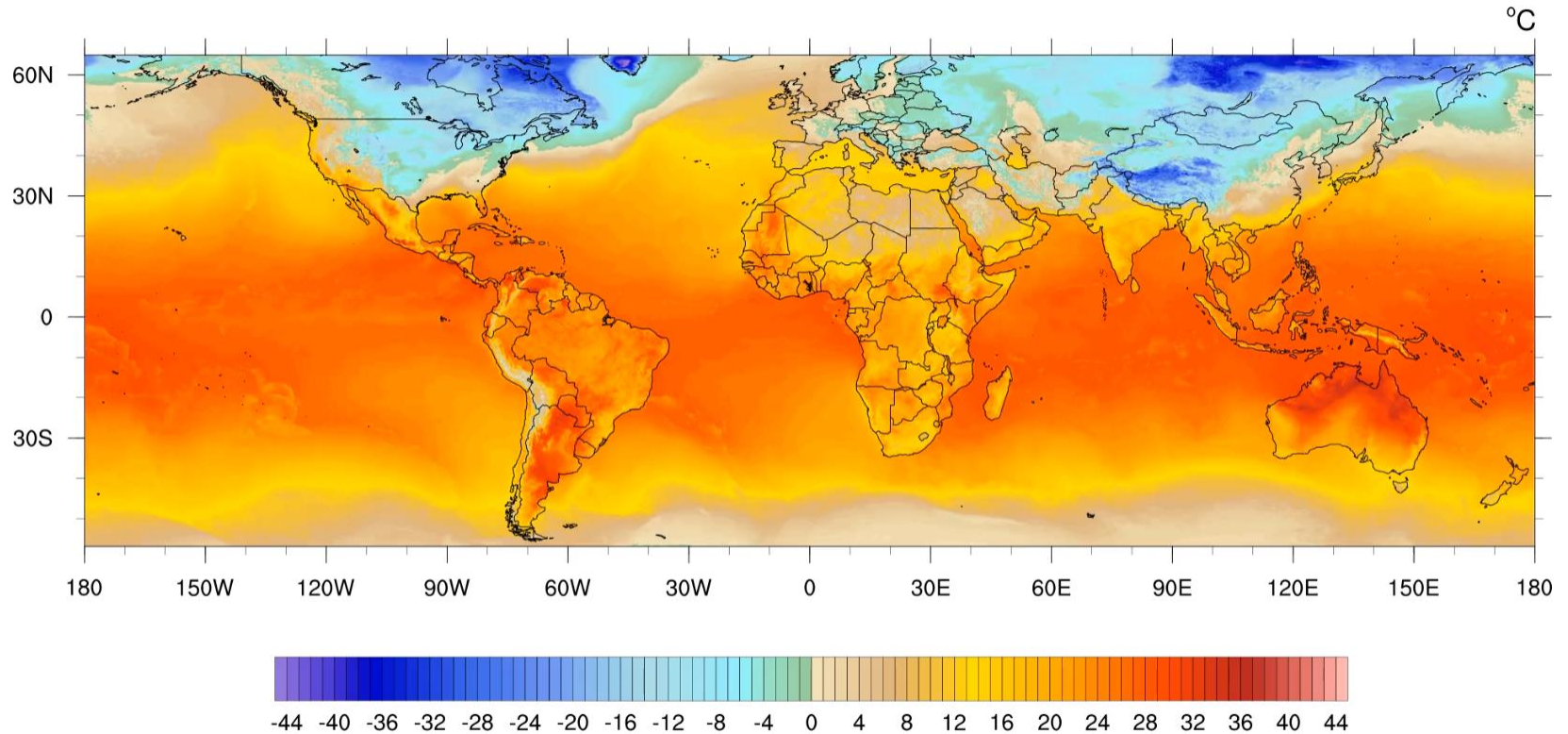


Applications



- COVER ☰
- COVISE...
 - move world
 - scale world
 - view all
 - reset view
 - stop headtracking
 - navigation...
 - view options...
 - misc...
 - quit
 - Move Objects...
 - ClipPlane...
 - ViewPoints...
 - Volume...
 - Animation...

2-m temperature@ 2015-03-01_00:00:00

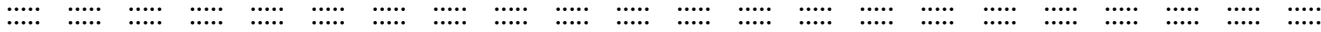


2-m temperature during February and March 2015 @ 3 km horizontal resolution

VIRTUAL REALITIES REAL CHALLENGES

REALLABOR
STADT:QUARTIERE4.0

Frühzeitige gestaltende Bürgerbeteiligung
für eine nachhaltige Entwicklung
Baden-Württembergs



Questions

