SEANERGYS
ENERGY EFFICIENT EXASCALE

JÜLICH Forschungszentrum | JÜLICH SUPERCOMPUTING CENTRE

SEANERGYS AT JSC
SOFTWARE FOR EFFICIENT AND ENERGY-AWARE SUPERCOMPUTERS

Integrated European software suite for HPC/AI centres to:
- Optimise resource utilisation
  → Improve the throughput of HPC/AI systems
- Reduce the energy used for real-world workload mixes
  → Generate more R&D results for a given energy budget
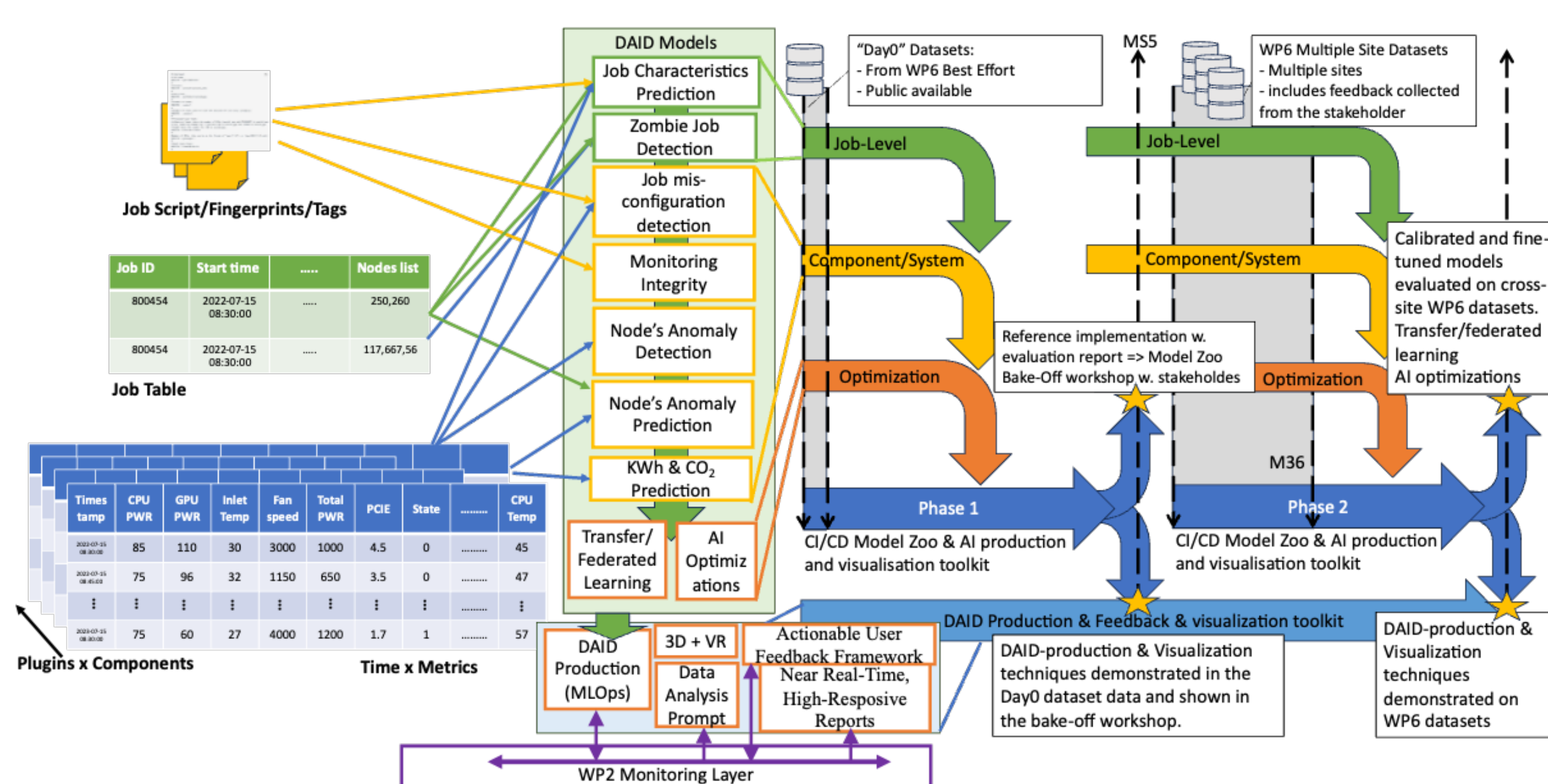
The suite will comprise three main components:

CMI - comprehensive monitoring infrastructure

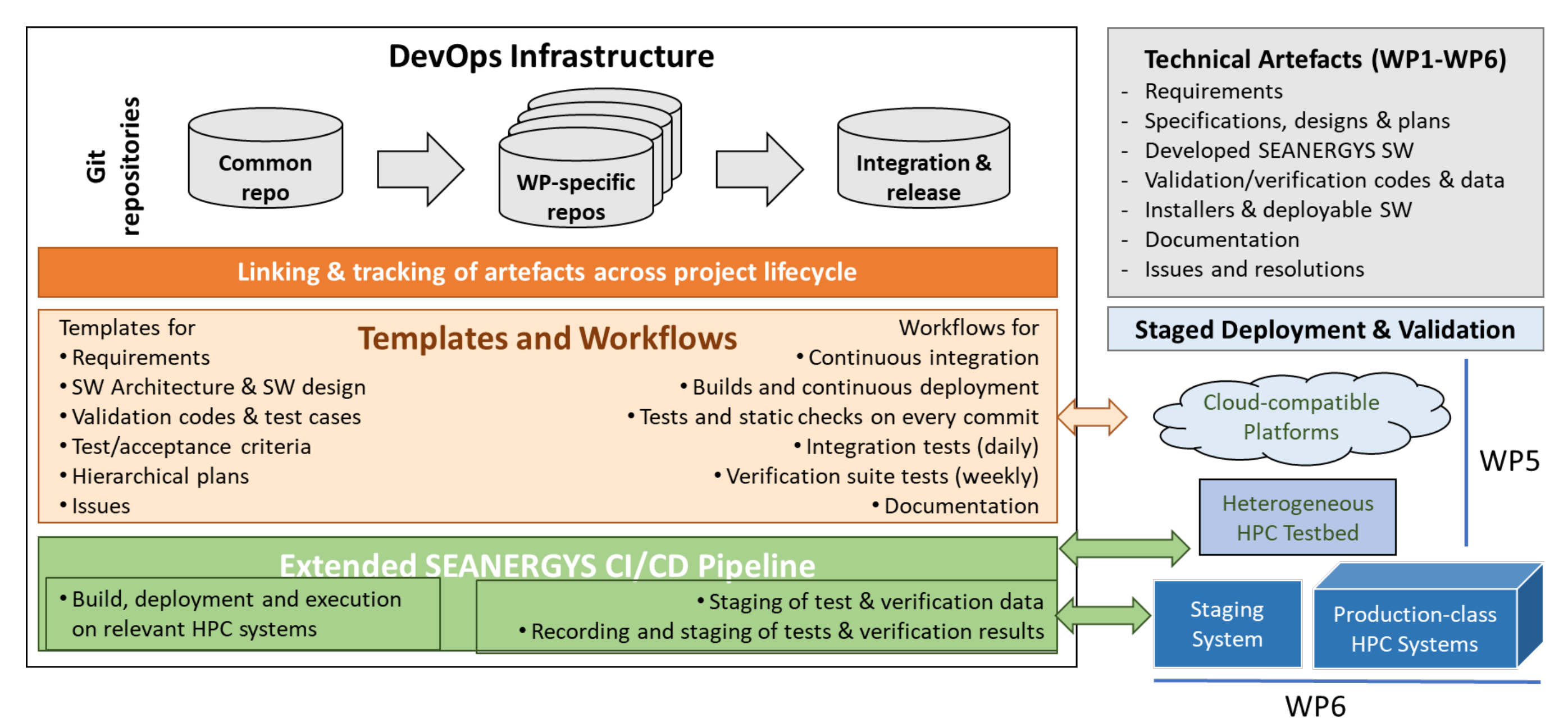**AIDAS** - artificial intelligence data analytics system

DSRM - dynamic scheduling & resource management system

16 partners, 7 countries, 4 years; with JSC coordinating

WP3 - Data Analytics Framework (AIDAS)

WP4 - Dynamic Resource Management (DSRM)

- React to changes in application and system conditions and operating environment
- Balance improvements of key operational metrics:
  - energy efficiency of relevant workload sets
  - system utilisation and/or throughput per unit energy
  - response times
- Enable power management for jobs/workflows/systems
- Support advanced DSRM techniques using predictive data:
  - rigid, moldable, and malleable jobs
  - co-scheduling of complementary workloads

The DSRM will be developed from an existing solution, either:

flux or **slurm** workload manager

WP5 - CI/CD and Code Quality Assurance

Also create training material on DevOps, development life cycle, coding, and QA and provide tutorials for onboarding.

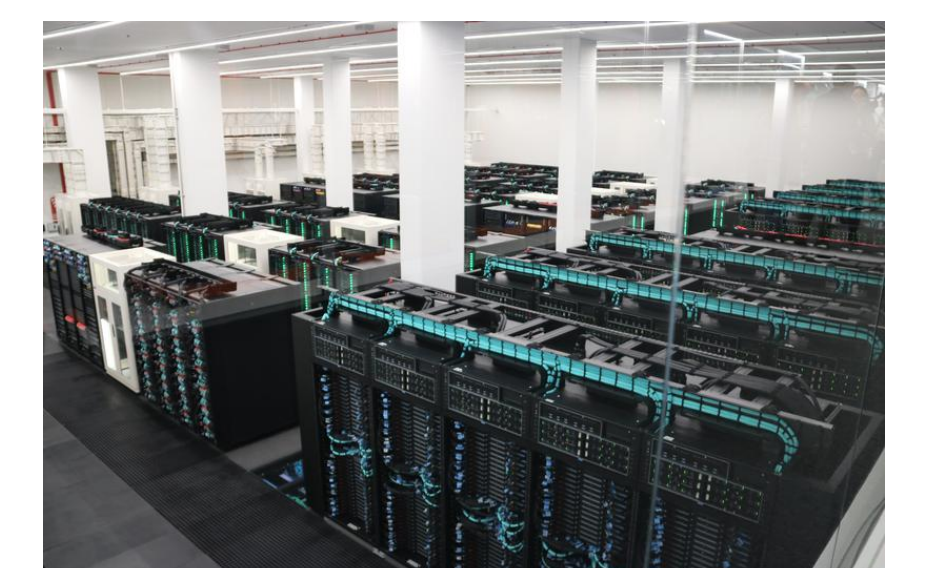## WP6 - Installation, Acceptance, and Evaluation

A key commitment of SEANERGYS is to deploy the software suite on production systems, including (but not only):

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Hosting sites will define acceptance tests to evaluate the suitability and robustness before installation.

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EuroHPC Joint Undertaking

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