

EXCELLERAT CoE: The European Centre of Excellence for Engineering Applications

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The EXCELLERAT Centre of Excellence (CoE) is a central point for engineering stakeholders seeking expertise in High-Performance Computing (HPC). EXCELLERAT partners focus on data management, analytics, visualization, simulation-driven design, and co-design for Exascale computing, addressing complex engineering challenges and driving innovation in the development phase.

EXCELLERAT aims to advance HPC in engineering, addressing challenges in aerospace, automotive, energy, and manufacturing. Through the EXCELLERAT Service Portal, it provides tools to optimize simulations, integrate data analytics and visualization, and apply AI and Machine Learning to engineering solutions.

The EXCELLERAT Service Portal serves as a central hub for HPC tools, services, and expertise, driving user engagement and generating revenue. The goal is to build long-term industry collaborations, secure partnerships, and create a self-sustaining platform to commercialize research outputs, offering valuable support to the HPC and engineering community.

Key services of the EXCELLERAT Service Portal include:

- **HPC-Driven Engineering Applications:** Specialized software and use cases that improve simulation scalability, accuracy, and efficiency for industrial applications.
- **Workflow Optimization:** Tools for streamlining pre-processing, simulation, and post-processing in extreme-scale HPC environments.
- **Technology Integration:** Using AI/ML to enhance predictive capabilities, reduce computational costs, and provide access to cutting-edge HPC infrastructure.
- **Collaborative Ecosystem:** Connecting European researchers, industries, and HPC providers to facilitate technology transfer.
- **Knowledge and Training:** Tailored training programs, consulting services, and resources to build expertise and support HPC adoption in industry.

By offering these services, EXCELLERAT highlights its role in driving HPC innovation in engineering, fostering collaboration across Europe, and ensuring a sustainable future for both research and industry.

REFERENCES

EXCELLERAT P2. <https://www.excellerat.eu/>. (2025)

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