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Joint Undertaking

EuroHPC JU Research & Innovation

Call for Proposals

Centres of Excellence and Lighthouse Codes

Call for Proposals open for submission



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- **Centres of Excellence and HPC Lighthouse Codes for HPC Applications**
Call ID: *HORIZON-JU-EUROHPC-2026-COE-LH-01*
 1. Community Centres of Excellence
 2. Transversal Centres of Excellence
 3. Lighthouse Codes
- **Horizon Europe Research and Innovation Action**
- **Budget up to EUR 60M total budget (50% EU funding rate)**

Call Timeline



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Lighthouse codes – Scope and Objectives



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Leadership in HPC applications

Lighthouse Codes will provide globally competitive HPC application software in areas with high impact on the European HPC ecosystem.

Drive innovation

By integrating cutting-edge capabilities into production-grade software and by enhancing scientific and engineering productivity, Lighthouse Codes will enable scientific discovery.

Create Impact

I. promoting best practices in software development, optimization, and interoperability;
II. aligning with scientific grand challenges (e.g. fusion energy, development of high-capacity/low-cost batteries, AI-driven genomics-based personalized treatments or AI-driven cybersecurity).

What is a “Lighthouse Code”?



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Large User Community

Demonstrated through appropriate KPIs



Professional Development

Policies and processes for development, substantial involvement of HPC software engineers



Systematic Documentation

Documentation for users and developers (APIs)



Globally Competitive Scalability

Available across multiple supercomputing architectures



Long-term Stewardship

Commitment to development beyond grant period (demonstrated by a LoC)



Ownership and Licensing

The consortium can demonstrate control and competence to further develop the code with a clear licensing policy

Key actions for Lighthouse Codes



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Identify Lighthouse Codes

1

Proposals clearly identify and describe the Lighthouse Code to be developed or consolidated which must either already exist or, in exceptional and well-justified cases, be a state-of-the-art reimplementation of functionality of existing code. Each proposal may include only one Lighthouse Code. If an entirely new Lighthouse Code is proposed, it must be based on existing applications with high impact, for example in science and technology, and demonstrate a credible potential to meet the Lighthouse Code criteria within the project's duration.

2

Develop & Deliver

Proposals should focus on the development, consolidation, or expansion of a Lighthouse Code with clearly demonstrated scientific, technical, or societal impact.

Key development activities



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Code Consolidation, Development & Optimization

Rewrite, transform or consolidate multiple codes with existing large user communities and high scientific impact into one, potentially new Lighthouse Code.



Feature Enhancement

Implement new functionalities to extend capabilities.



Architecture Adaptation

Port codes to new HPC architectures including accelerator-based platforms.



Exascale/AI Readiness

Improve scalability and efficiency for next-generation computing.

Transversal Centres of Excellence



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Bridge Technical Gaps

Transversal CoEs will increase the adoption and broader dissemination of state-of-the-art HPC software development tools, technologies, and best practices among HPC application developers.

They will serve as technical hubs providing specialised technical support for HPC application developers in cross-cutting areas.

Provide Technical Support

CoEs will play a strategic role in enabling the next generation of HPC applications by providing critical expertise and support to European HPC application developers.

Foster Ecosystem Collaboration

CoEs will provide advanced training on commonly used HPC development tools and technologies, with close collaboration with the AI Factories, EuroHPC Academy and existing EuroHPC training activities. Proposals are expected to contribute substantially to the EuroHPC's training portfolio, ensuring accessibility and knowledge transfer across European HPC/AI communities.

Key Actions for Transversal CoEs



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1

Identify Targeted Technical Areas

Proposals must address one specific, well-defined and coherent transversal technical area that supports HPC application development.

2

Pool Expertise & Services

Focus on pooling European expertise and resources to provide technical assistance and services to HPC application developers and advanced users.

These transversal technical areas include, but are not limited to:

- Application profiling and performance optimization
- Application deployment and delivery
- Application portability
- Co-design and cooperation with HPC vendors and architects
- Automated testing, validation, integration and delivery of applications and code

Community Centres of Excellence



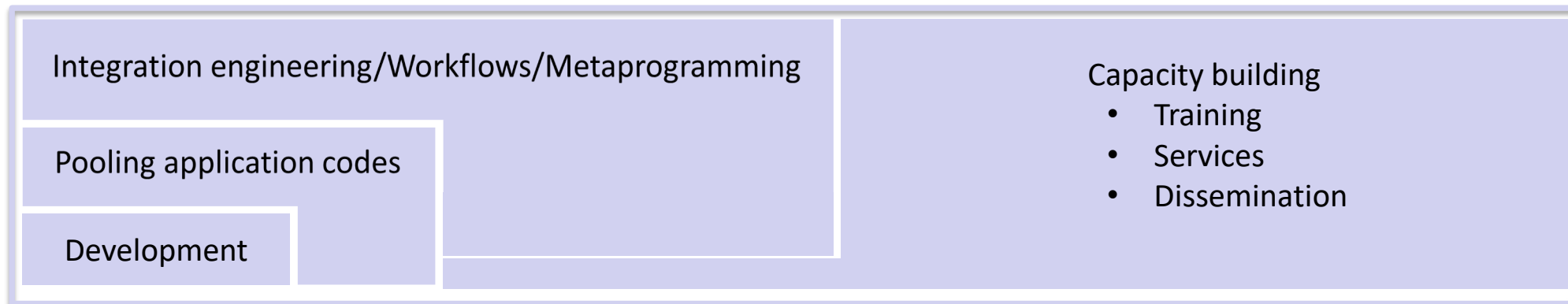
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Advancing Workflow and Code Performance

Community CoEs will support the use, integration and adaptation of HPC application codes and workflows towards exascale and post-exascale including advanced AI capabilities.

Community Engagement

Community CoEs should be driven by user needs and specifically target European users beyond the CoE consortium to create wider impact.



Key actions for Community CoEs



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1

Identify targeted applications & user communities

Identify a coherent set of HPC codes and workflows with high impact on identified user communities. The collection of codes and workflows should be meaningfully linked and address the diverse needs of the target user community.

2

Deliver highly scalable, optimized workflows and codes with a user-driven approach

Address frontier technical HPC/AI challenges including load balancing, resilience, and heterogeneity. Engage with AI-driven developments to ensure applications are fit for the AI and post-exascale era. Provide services to users built around developed workflows based on identified community codes.

3

Capacity building

Contribute to overall training and skills development activities, in collaboration with relevant initiatives (e.g. NCCs) with an inclusive approach towards underrepresented regions and communities.



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30 SEPTEMBER 2025
1 OCTOBER
DENMARK

