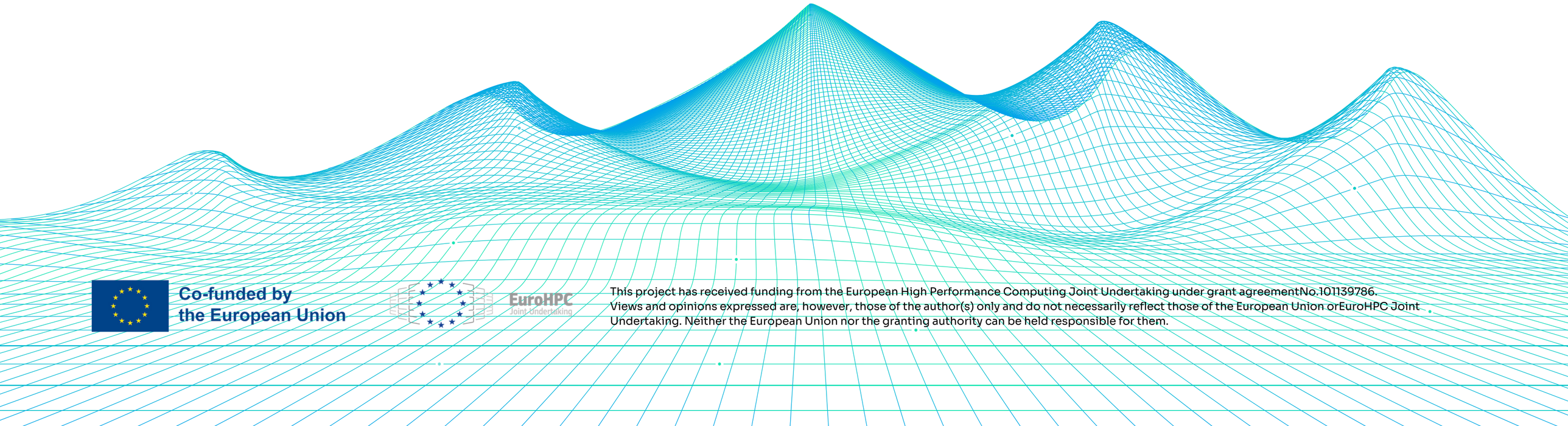
EPICURE

Unlocking European-level HPC Support



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EuroHPC Joint Undertaking

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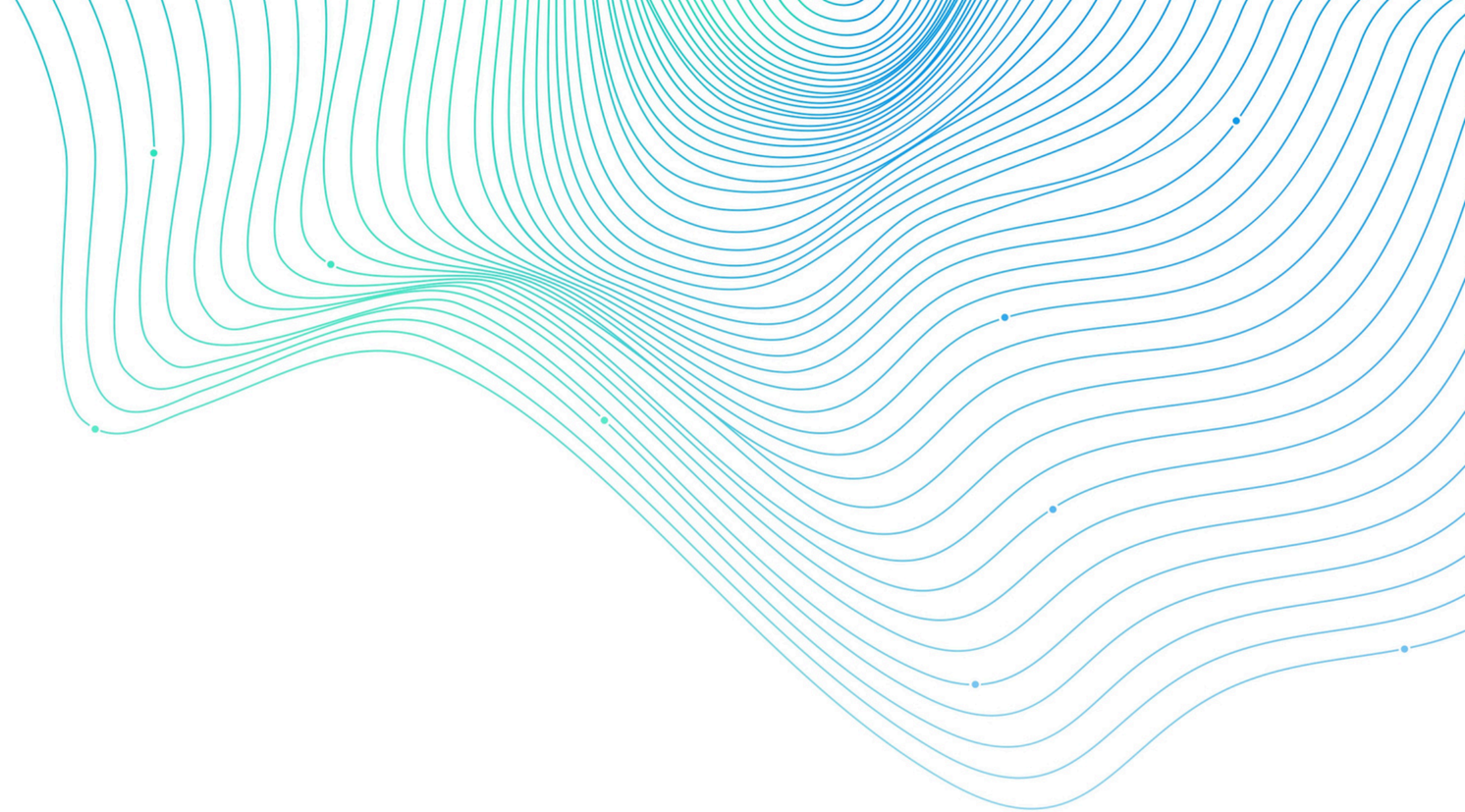

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Context

HPC has enabled technologies with a positive impact on society:

- More **precise** climate and weather modelling;
- Reduced healthcare **research costs** through simulation;
- **Planning** and yield prediction of renewable energy resources;
- Train **larger** and more **complex** Artificial Intelligence models.

The installation of supercomputers in multiple countries reflects a commitment to HPC's technological potential:

- **EuroHPC JU** has been instrumental in elevating European supercomputing.

EuroHPC systems

5 Petascale

KAROLINA

VEGA

MELUXINA

DISCOVERER

DEUCALION

5 Petascale

LEONARDO

LUMI

MARE NOSTRUM 5

2 Future Exascale

JUPITER

AICE RECOQUE

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Mission

EPICURE draws on the **experience** and **knowledge** of the current and future EuroHPC supercomputer hosting organisations to provide better user support:

- Adequate code installation and porting to different architectures (**Level 2**);
- Intra- and inter-node optimisation, focusing on accelerators and scalability (**Level 3**).

Knowledge exchange through the organisation of hardware-specific **training sessions**, **hackathons**, **webinars**, and **workshops** in several EU countries:

- Promotes sharing of expertise among hosting organisations;
- Provides users with a wide knowledge pool.

Main goals

To establish a four-year operation of a distributed European-wide high-performance computing application support service bringing together Application Support Teams (ASTs);

To reach a large pool of EuroHPC users;

To develop a European HPC Application Support portal;

To contribute to the development and improvement of the European HPC Application Support Service;

To collaborate with the Centers of Excellence to develop an HPC-skilled workforce.

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Expected outcomes

- **Publish** best practice guidelines on how to code applications that use EuroHPC supercomputers adequately;
- **Create** a publicly available knowledge pool with the resources of training and webinar activities;
- **Provide** the community with optimised codes of various scientific domains;
- **Foster** an educated HPC user community;
- **Provide** a wide range of support services across all EuroHPC JU centers.

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Support services

Meet our Support Services

Code Enabling and Scaling

Enabling and scaling user codes on EuroHPC supercomputers.

Performance Analysis

Analysing the performance of HPC applications.

Benchmarking

Benchmarking and evaluating EuroHPC systems performance.

Code Refactoring

Restructuring application code to improve maintainability.

Code optimization

Optimising software efficiency and resource usage.

Support levels

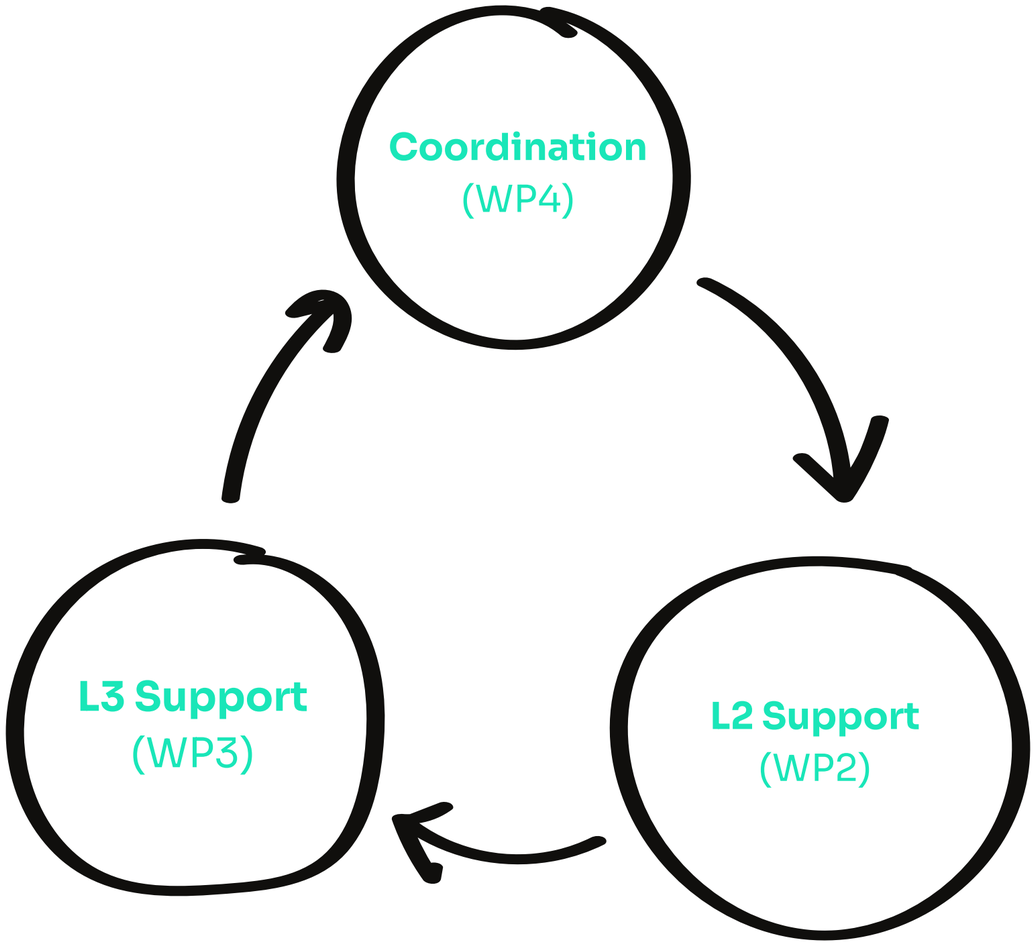
2nd Level Support | Code Porting, Enabling and Scaling

Work limited to 1-2 months with a focus on compilation improvements, vectorisation and scalability analysis.

3rd Level Support | Code Optimisation

Handling large-scale workloads for 2 to 6 months, focused on performance improvements that require code modifications, such as inter-node optimisations, GPU porting and scalability improvements.

Technical Distribution



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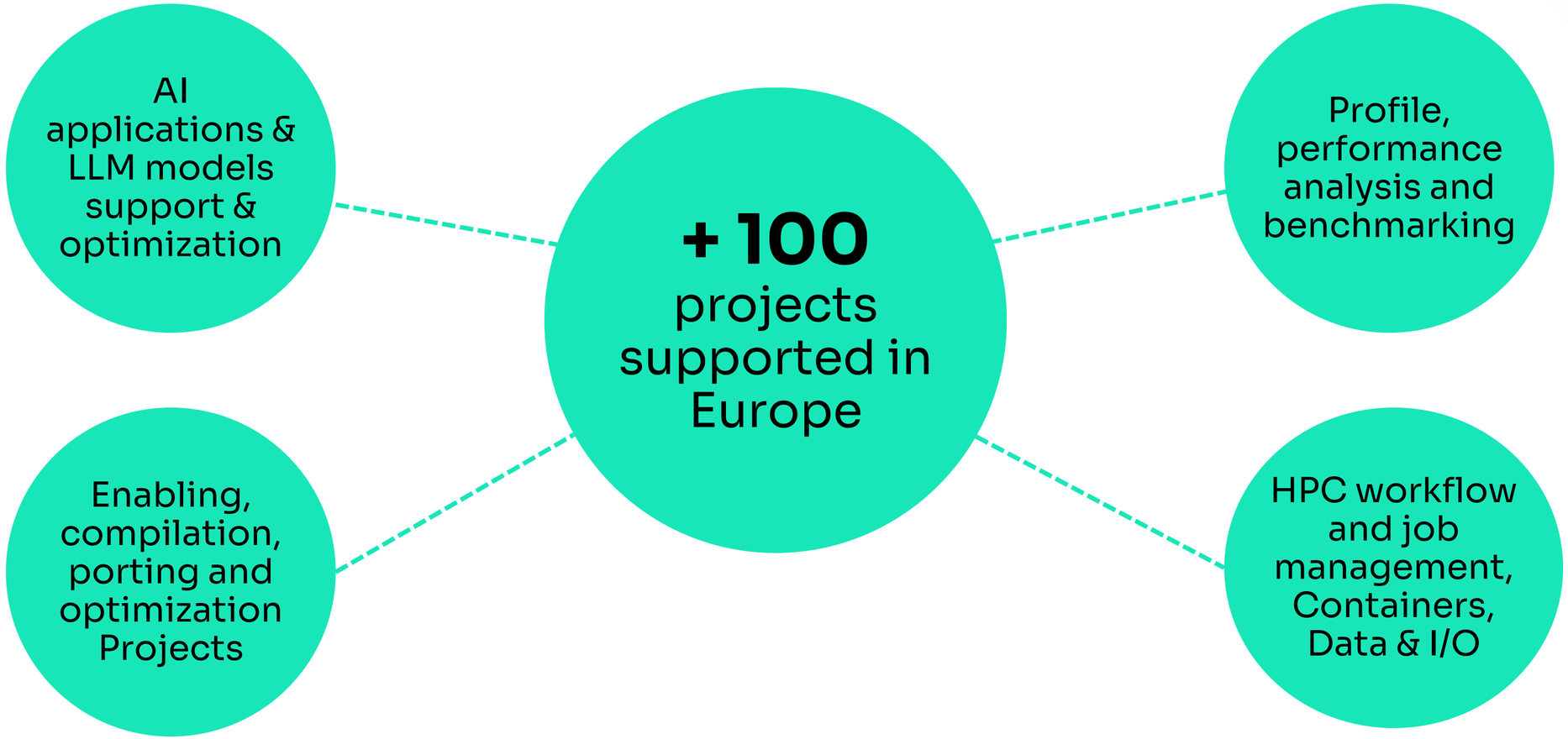
Key achievements in support



Main areas of the projects supported

ENVIRONMENT & CLIMATE

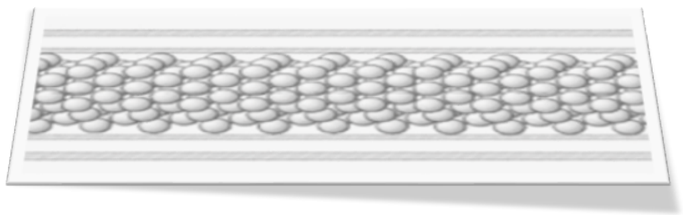
Anthropogenic Stressors and Future Changes of the North West European Shelf ecosystem
(EHPC-REG-2023R02-047)

IZUM on Vega

ENERGY

From methane and iron nanoparticles to "Turquoise" H2 and carbon nanotubes: simulating the whole catalytic process inside a reactor
(EHPC-EXT-2023E01-036)

CINECA on Leonardo



HEALTH & MEDICINE

Developing a Heart Language Foundation Model
(EHPC-DEV-2025D04-139)

LuxProvide on MeluXina

Testimonials

Anthoni-Alcaraz Torres
ICN2

“This EPICURE hackathon allowed me to install and run a system on the ARM partition on Deucalion, as well as generate my first PR on the EasyBuild GitHub repo.”

Ana Margarida Sousa
UMinho / INESC TEC

“The hackathon provided tools and knowledge that can further enhance my research, highlighting the importance of energy efficiency in AI training.”

Bernardo Malaca
CNCA / Deucalion

“EPICURE events are a great opportunity for interaction between users and support teams. Users can share their needs, helping us improve the Deucalion platform.”

Nuno Lopes
IPCA

“The hackathon was a great opportunity to engage with experts and receive support in preparing software for HPC systems, helping me improve my skills in application development.”

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Support access

Need to optimise your code on EuroHPC supercomputers?

Who’s eligible?

Having a EuroHPC JU allocation project is required!
Don’t have one yet? We can help you apply!

Ready to optimise?

You can request EPICURE support.

Do you need a EuroHPC allocation? Check the EuroAccess Calls!

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European HPC Application Support Portal

A strategic platform designed to support European researchers and facilitate access to EPICURE services and EuroHPC resources.

- Guidance for **accessing EuroHPC JU systems** and navigating application procedures;
- Simplified form to **request EPICURE's technical support** via the portal;
- **Training for HPC users**, including hands-on workshops, webinars, hackathons and wide range of supporting materials;
- **Technical knowledge base** with best practice guidelines and how-to guides to improve EuroHPC application performance;
- **Git repository** with code examples, tools, and projects related to EuroHPC systems.

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Consortium

CSC

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

CINECA

VSB TECHNICAL UNIVERSITY OF OSTRAVA | IT4INNOVATIONS NATIONAL SUPERCOMPUTING CENTER

KTH VETENSKAP OCH KONST

IZUM
Institute of Information Science, Maribor, Slovenia

LUX PROVIDE
NEXT-LEVEL INSIGHTS WITH SUPERCOMPUTING

INESC TEC

CYFRONET

DTU Technical University of Denmark

Jožef Stefan Institute
Ljubljana, Slovenia

Universiteit Antwerpen

SOFIA TECH PARK

INES

GENCI
HPC at the service of knowledge

JÜLICH
Forschungszentrum

EPICURE

Thank you!

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Follow us

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