

Pioneering the future of **transmission electron microscopy**

Research and innovation at the nanoscale relies on the seamless use and exchange of instruments and data. And yet, today TEM crucial components are not interoperable.

HOW COULD WE EXPAND THE HORIZON OF TEM?

The EU-funded **IMPRESS project** aims to answer this question by introducing a revolutionary concept: the **interoperable platform**, composed of **standardized hardware and software interfaces** and multifunctional components.

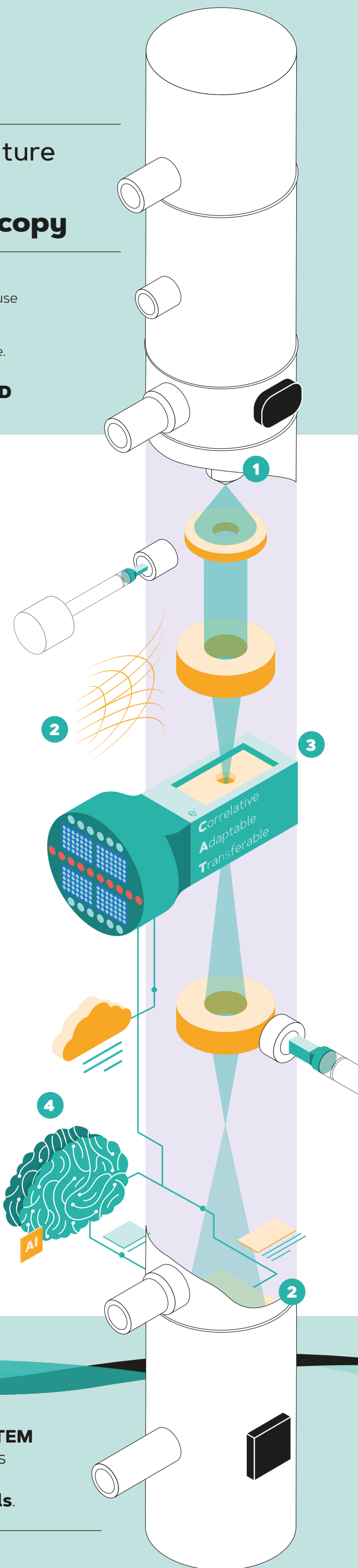
Based on an **innovative modular cartridge concept and open designs**, it will create solutions that can be **transferred interchangeably** along the microscope column, between microscopes and across instruments.

We refer to our innovative **modular and standardized cartridge** concept as **e-CAT**.

Further innovative developments will be integrated with the new cartridge-based platform, in order to make them available to the whole range of users' needs.

- 1 Electron sources** with enhanced beam properties.
- 2 Optics and detectors** for advanced imaging and spectroscopy.
- 3 Sample environment** for multifunctional experiments.
- 4 AI based software** for simulation and automation.

Expanding the horizon of **TEM** to innovative arrangements via a new generation of **instrumentation and tools**.

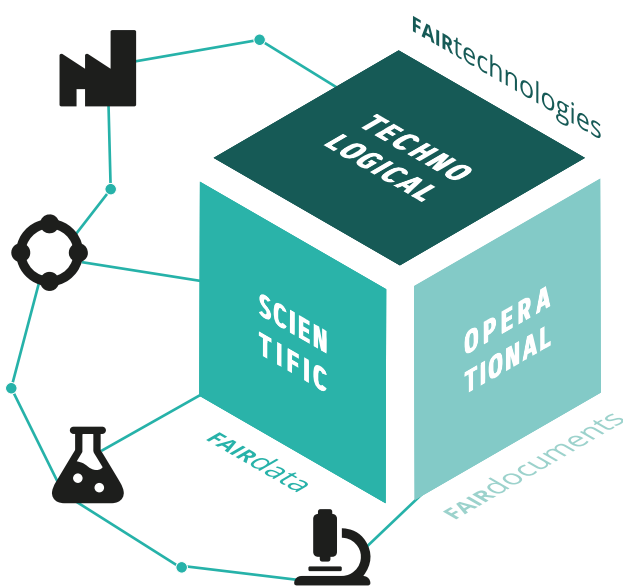


FAIRcube

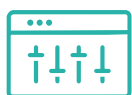
IMPRESS Open Knowledge and Innovation Hub for TEM

A dynamic space to manage and share information and data in an accessible repository based on FAIR principles and aligned with the European Open Science Cloud (EOSC) ecosystem.

The FAIRcube approach will drive research and innovation, providing a foundation for IMPRESS to collaborate with scientific communities working in cutting-edge fields.



Main aims of the IMPRESS project



To customize TEM components along the column and across different microscopes.



To integrate TEM components with other instrumentation in all sectors of application.



To make TEMs flexible and adaptable to a diversity of multimodal experiments.



To promote progress by creating the first Open Knowledge and Innovation hub for TEM.



The core of the project is to co-develop an interoperable platform based on interchangeable components that can be readily customized by users from different scientific communities.

The IMPRESS Consortium brings together 19 Partners



6 Research & Technology Organizations



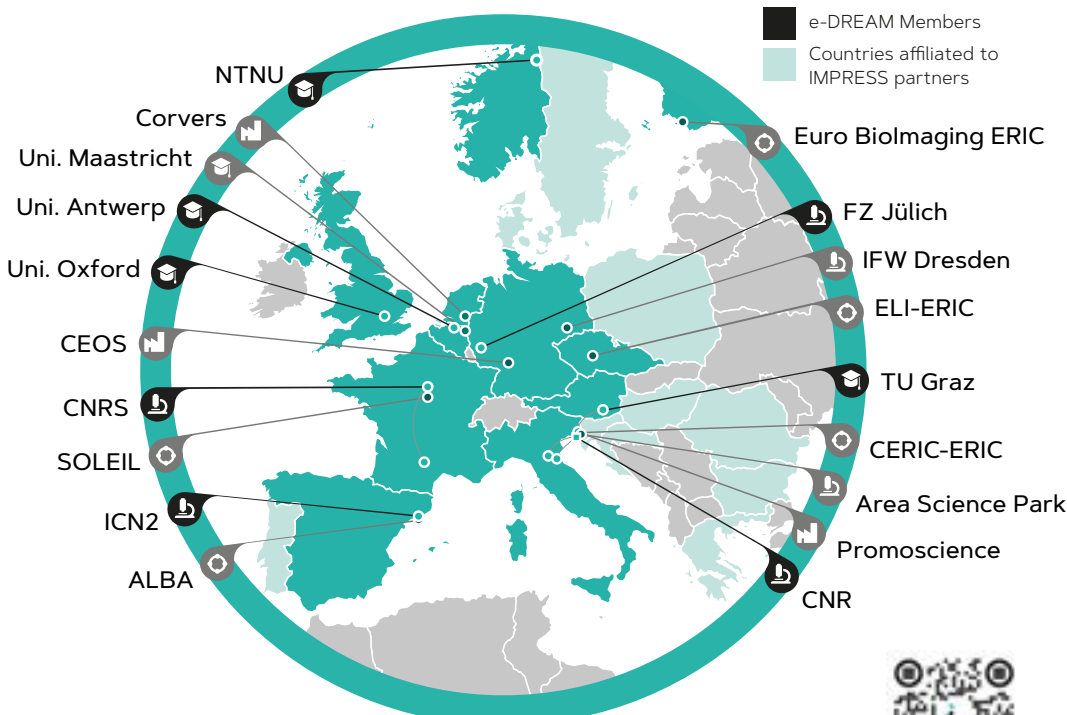
5 Research Infrastructures



5 European Universities



3 Small and Medium-sized Enterprises



Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.



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