SPECTRUM Technical Blueprint and Strategic Agenda: Europe's Roadmap to Exabyte-Scale Scientific Infrastructures

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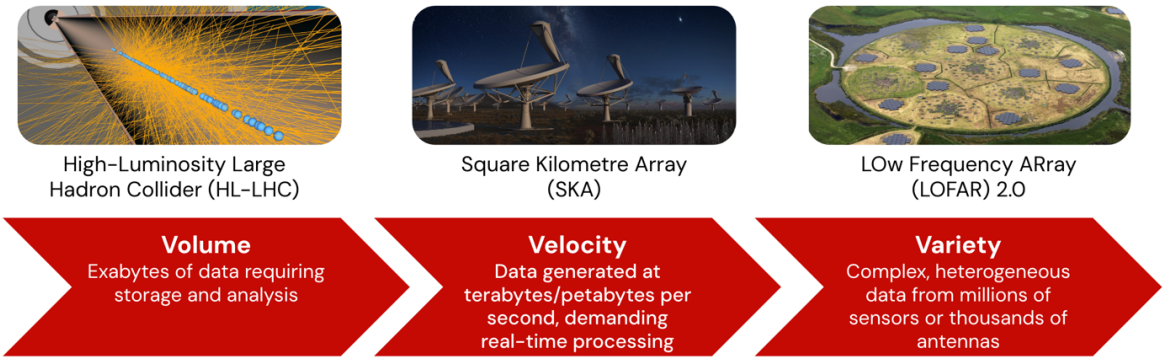
This presentation introduces the public draft of the SPECTRUM Technical Blueprint and the Strategic Research, Innovation and Deployment Agenda (SRIDA) for European data-intensive scientific infrastructures. The Technical Blueprint focuses on the technical capabilities, while the SRIDA defines the strategic and policy framework for a unified European compute and data continuum. Both documents are grounded in detailed requirements gathered from the High-Energy Physics and Radio Astronomy communities, including the exabyte-scale data challenges of the High-Luminosity Large Hadron Collider (HL-LHC), the extreme computational demands of the Square Kilometre Array (SKA), and the distributed processing needs of LOw Frequency ARray (LOFAR).

The SPECTRUM project proposes a comprehensive framework to address the fragmentation of Europe's current computing landscape through an integrated, scalable architecture. The SRIDA complements this by outlining concrete priorities, implementation pathways, and policy recommendations for policymakers, infrastructure providers, and research communities. Together, they define the technical capabilities and governance structures required for seamless workload portability across heterogeneous infrastructures, while preserving sovereignty and minimizing environmental impact.

The presentation highlights the key architectural elements, strategic priorities, and implementation routes identified through community-driven analyses. As the project is currently in its open consultation phase, feedback from the advanced computing community is actively sought to ensure the final Technical Blueprint and SRIDA effectively address Europe's research infrastructure needs.



The Exascale Challenge: A New Era for Science
High-Energy Physics (HEP) and Radio Astronomy (RA) are entering the Exascale era, driven by next-generation instruments.

For more information: www.spectrumproject.eu