

# “The EuroQCS Project”

Hybrid HPC-QC systems across Europe

Quantum computing @ CINECA








Funded by  
the European Union

**AQTIVATE**



**EuroHPC**  
Joint Undertaking

The EuroHPC JU has selected six sites across the European Union to host and operate the first EuroHPC quantum computers in:







-  Czechia
-  France
-  Germany
-  Italy
-  Poland
-  Spain





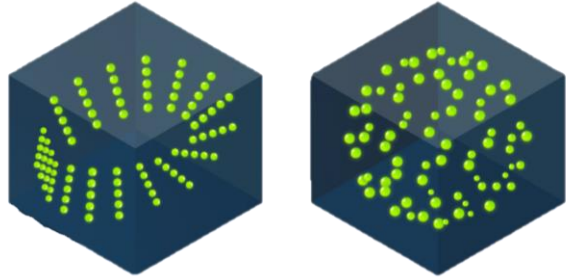
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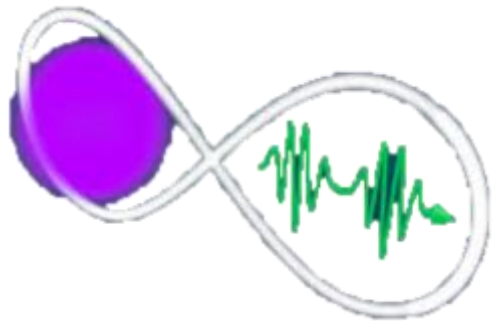
-  Czechia
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# EuroQCS

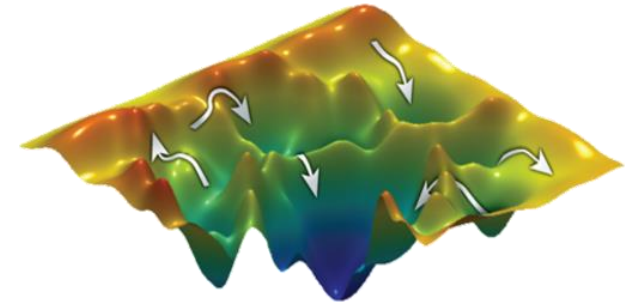


**EuroQCS  
Italy**

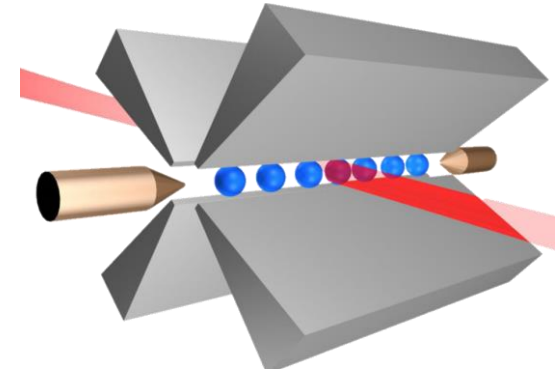


**EuroQCS  
France**

# EuroQCS

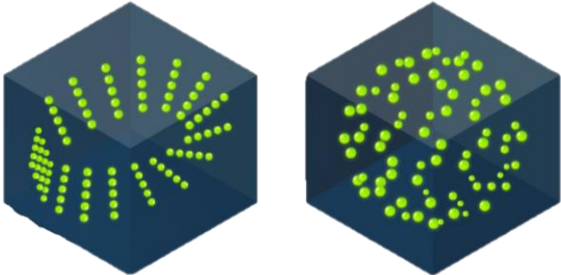


**EuroQCS  
Spain**

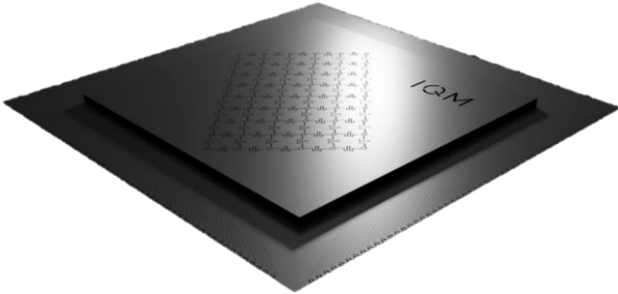


**EuroQCS  
Poland**

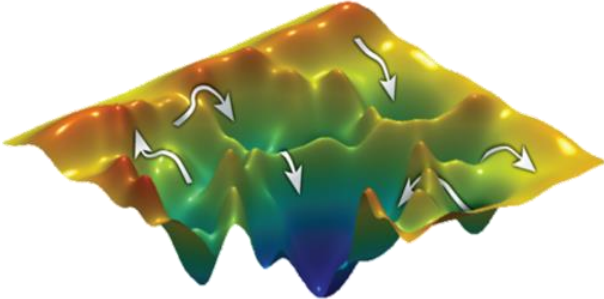
# All the selected Hosting Entities



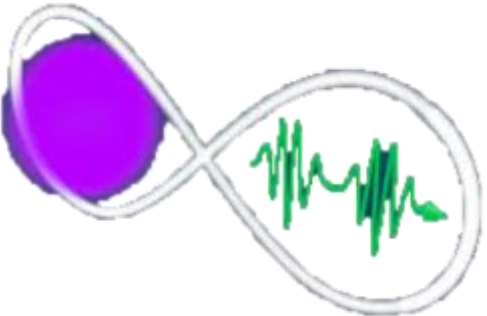
**EuroQCS  
Italy**



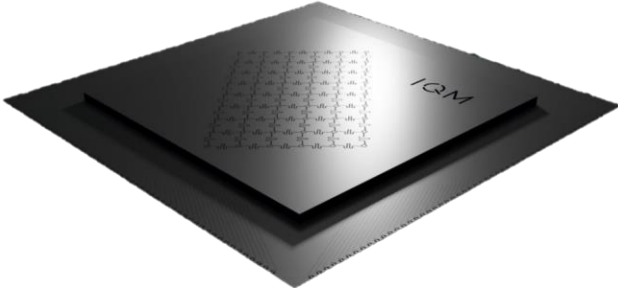
**LUMI-Q**



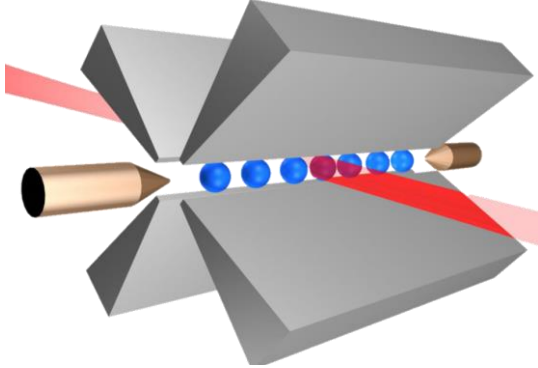
**EuroQCS  
Spain**



**EuroQCS  
France**



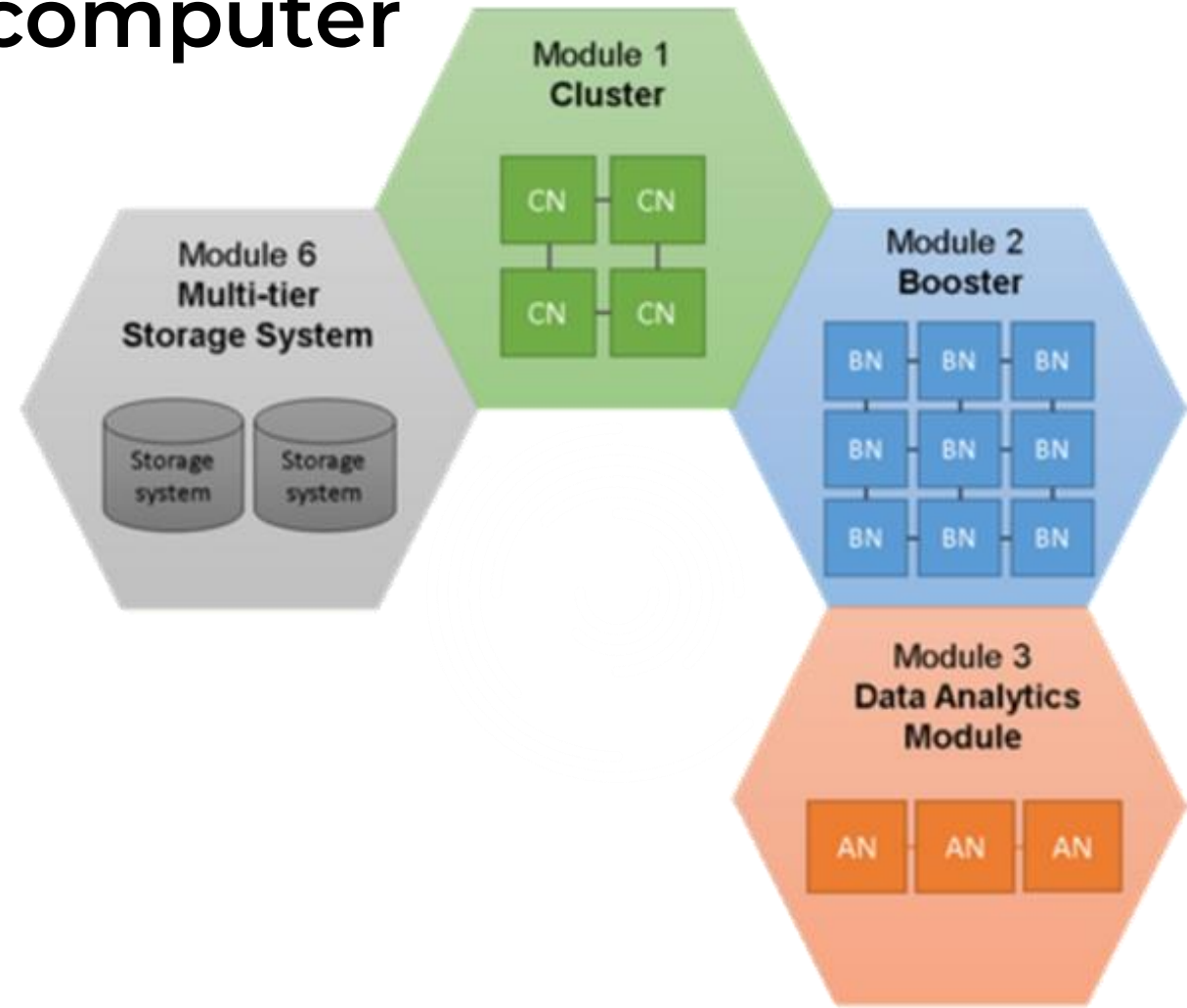
**Euro-Q-  
Exa**



**EuroQCS  
Poland**

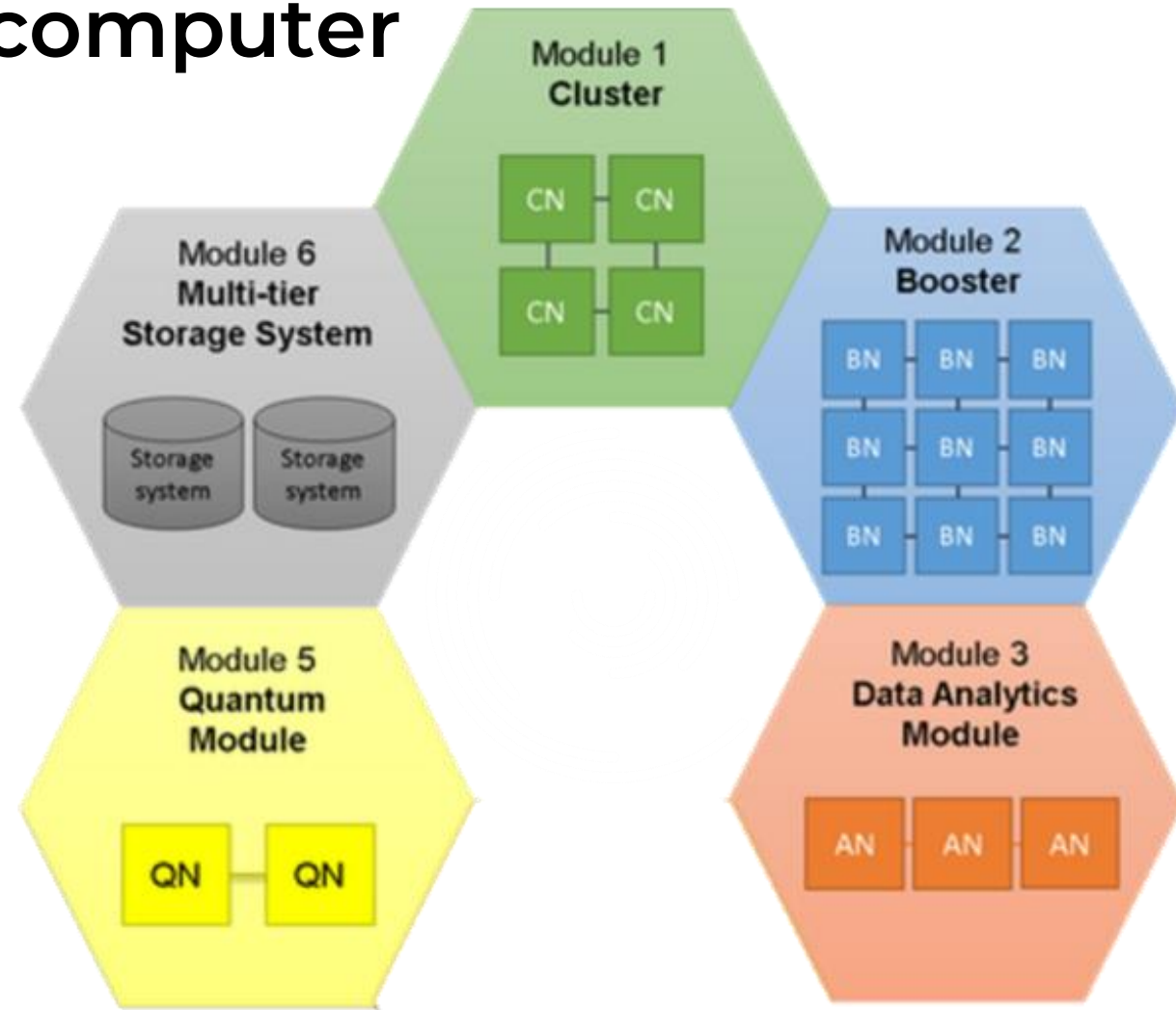
# Leonardo: A Modular Supercomputer

- First half 2023: Leonardo
  - Fourth most powerful supercomputer in the World
  - 255+ petaflops (peak performance)
  - Modular Supercomputing Architecture (MSA)



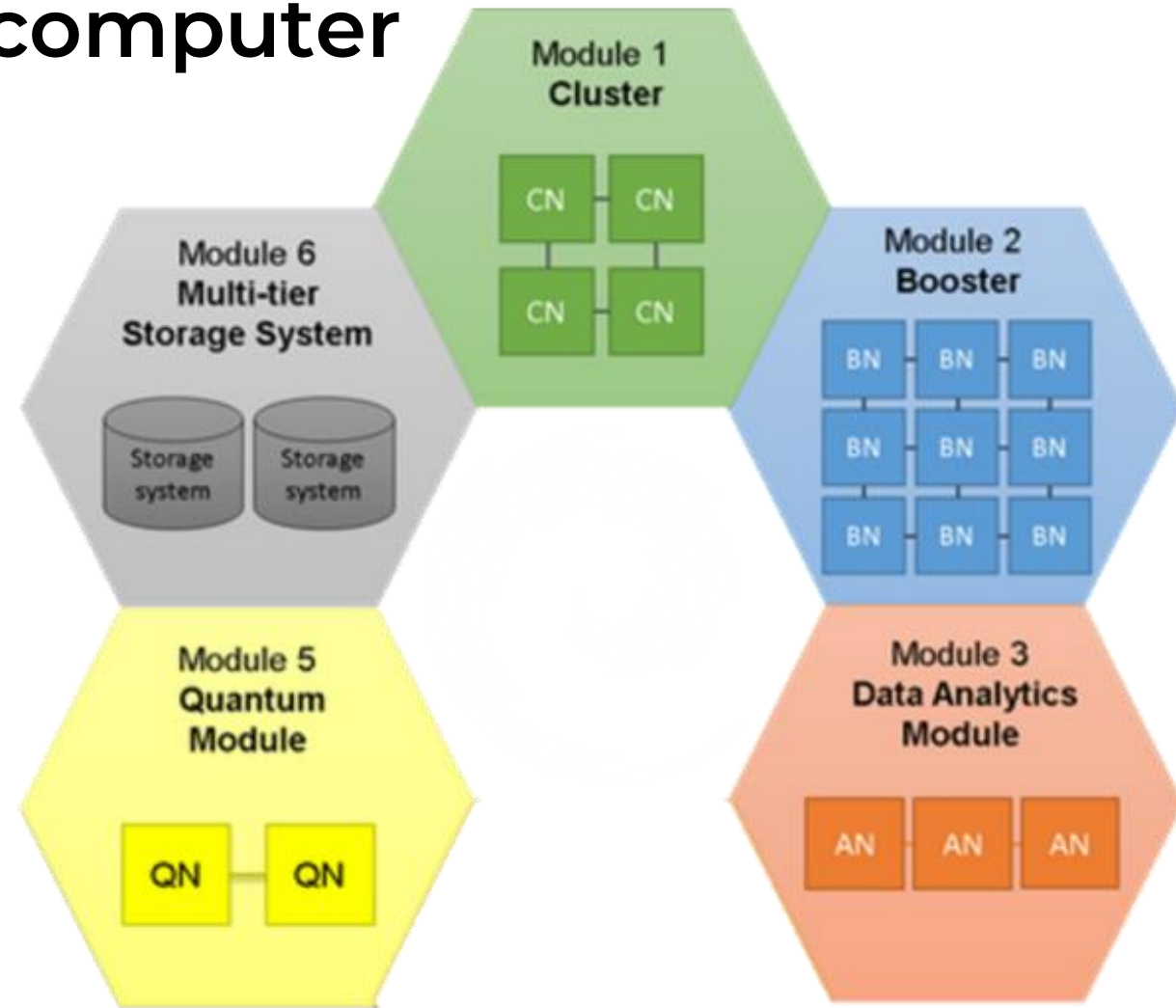
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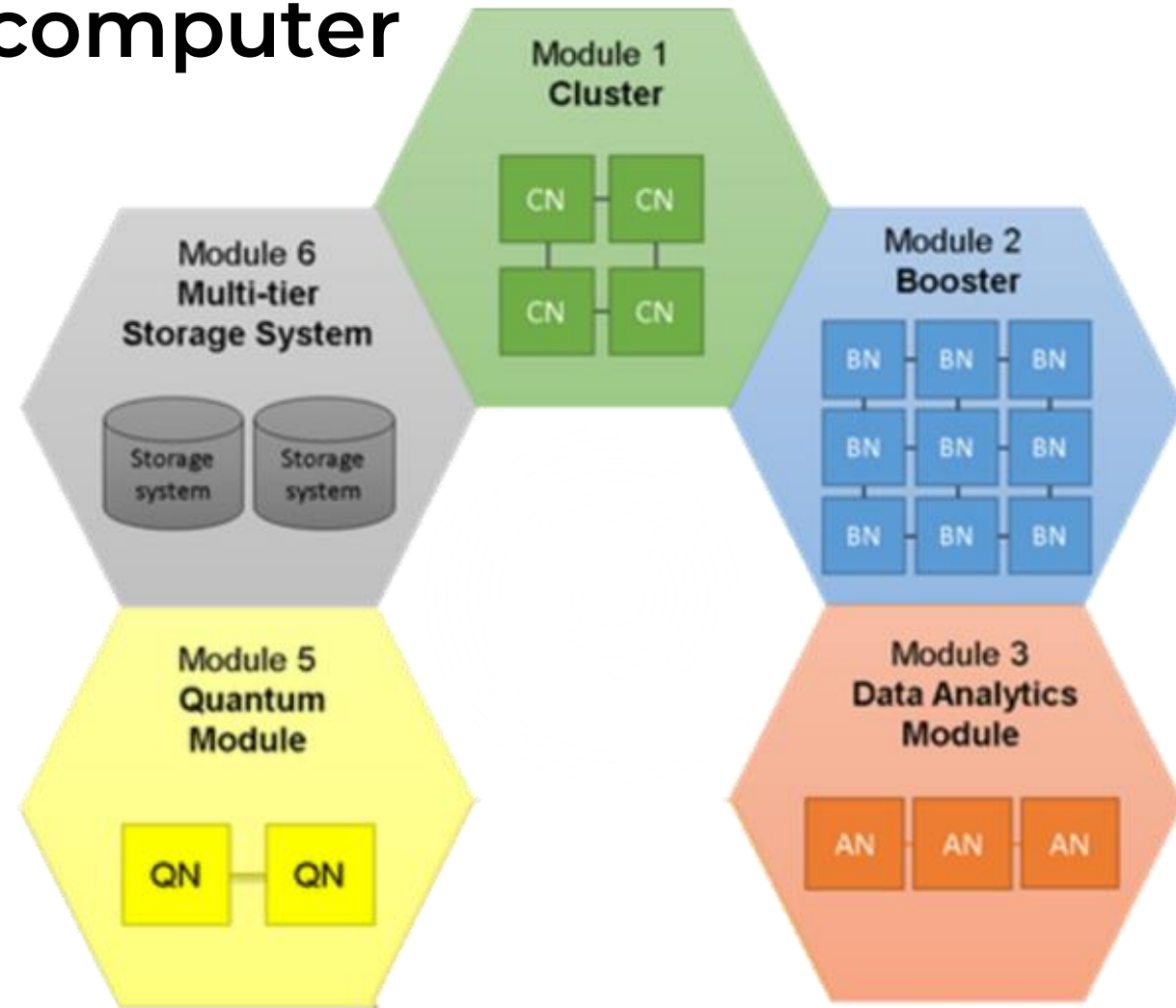
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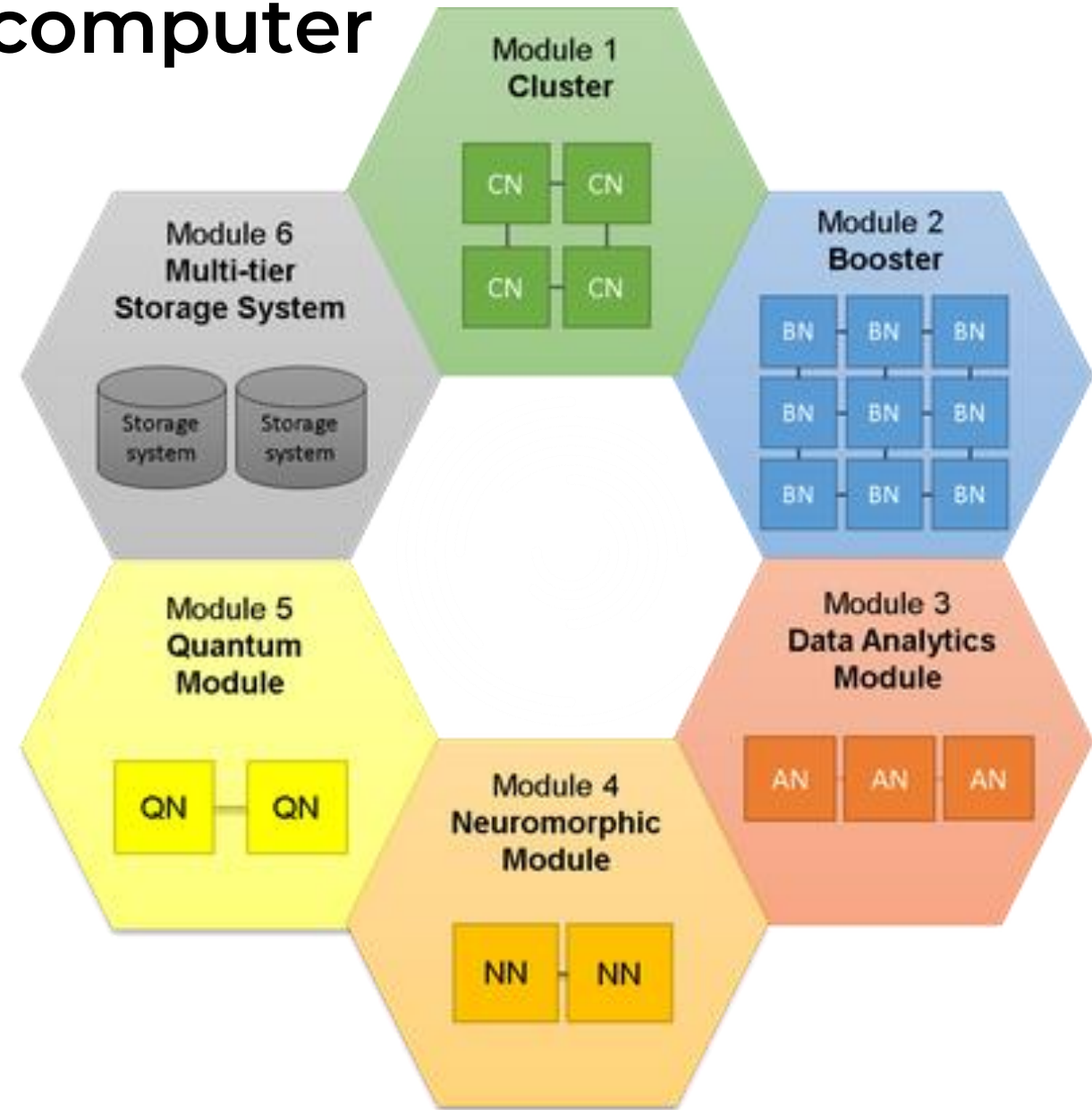
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- End 2026: QM Improvement 2
  - 500 qubits digital/analog QC



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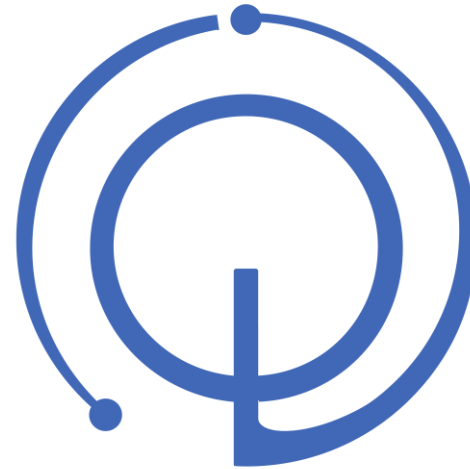


# Cineca Quantum Computing Lab

Teaching, Outreaching  
and Dissemination



European and National  
projects



QUANTUM COMPUTING LAB

Quantum Computing  
Resources

Cloud QC



PASQAL

HPC QC  
Emulation



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QUANTUM COMPUTING LAB

Quantum Computing Resources

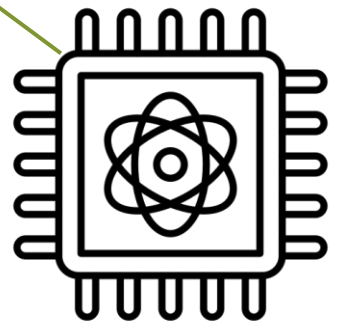
Cloud QC

D:WAVE  
The Quantum Computing Company™

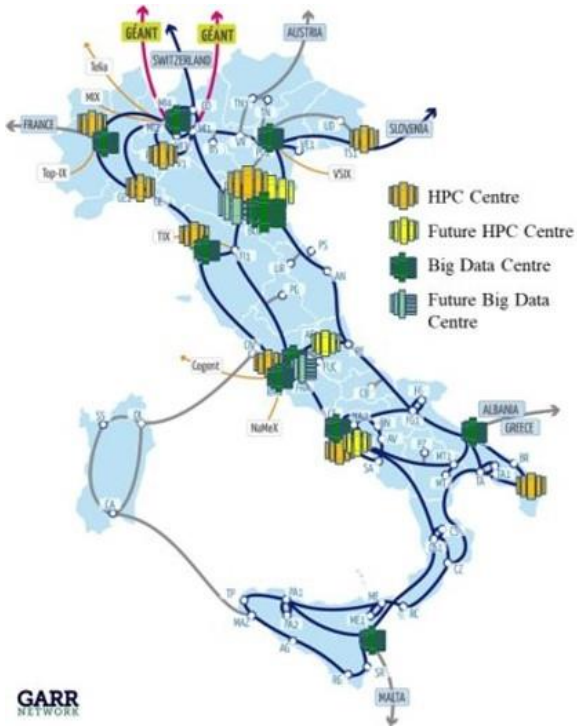


PASQAL

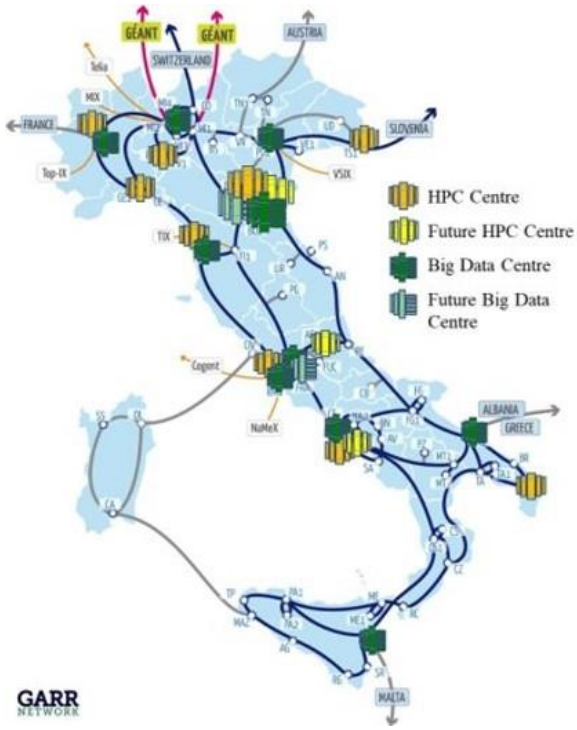
Hybrid HPC-QC System



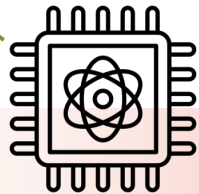
# Italian and European QC Environment



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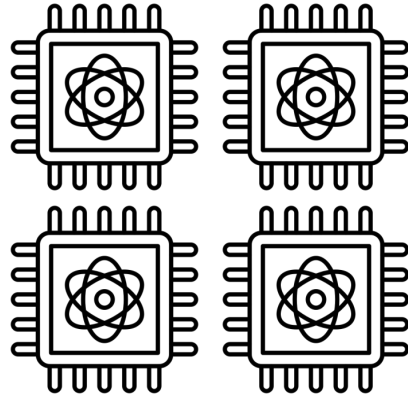
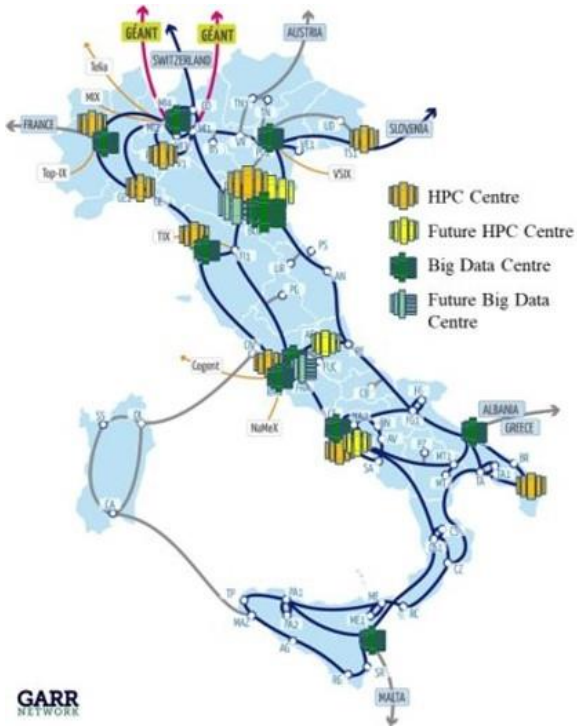


**EuroHPC**  
Joint Undertaking



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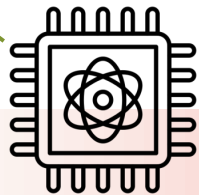
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QUANTUM  
COMPUTING  
AND  
SIMULATION  
CENTER

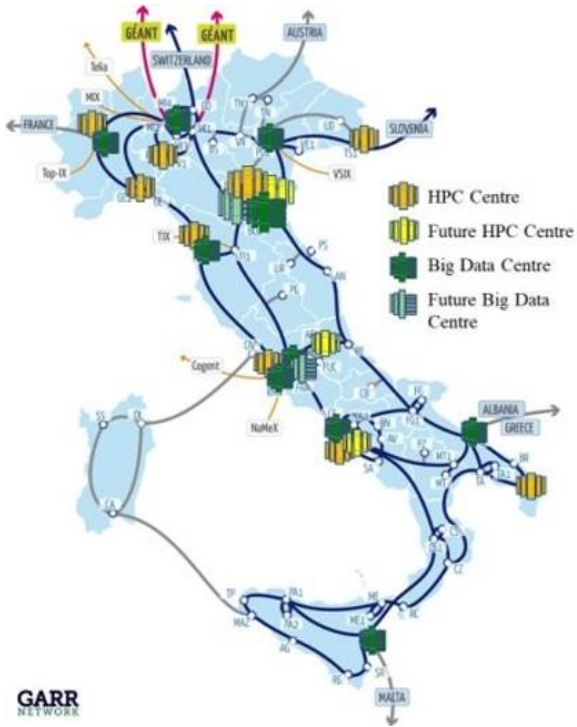


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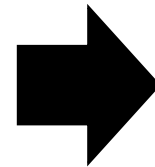
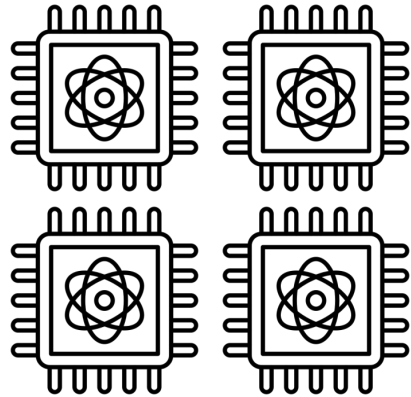


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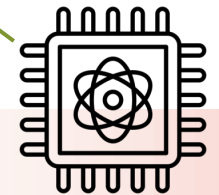
**ICSC**  
Centro Nazionale di Ricerca in HPC,  
Big Data and Quantum Computing



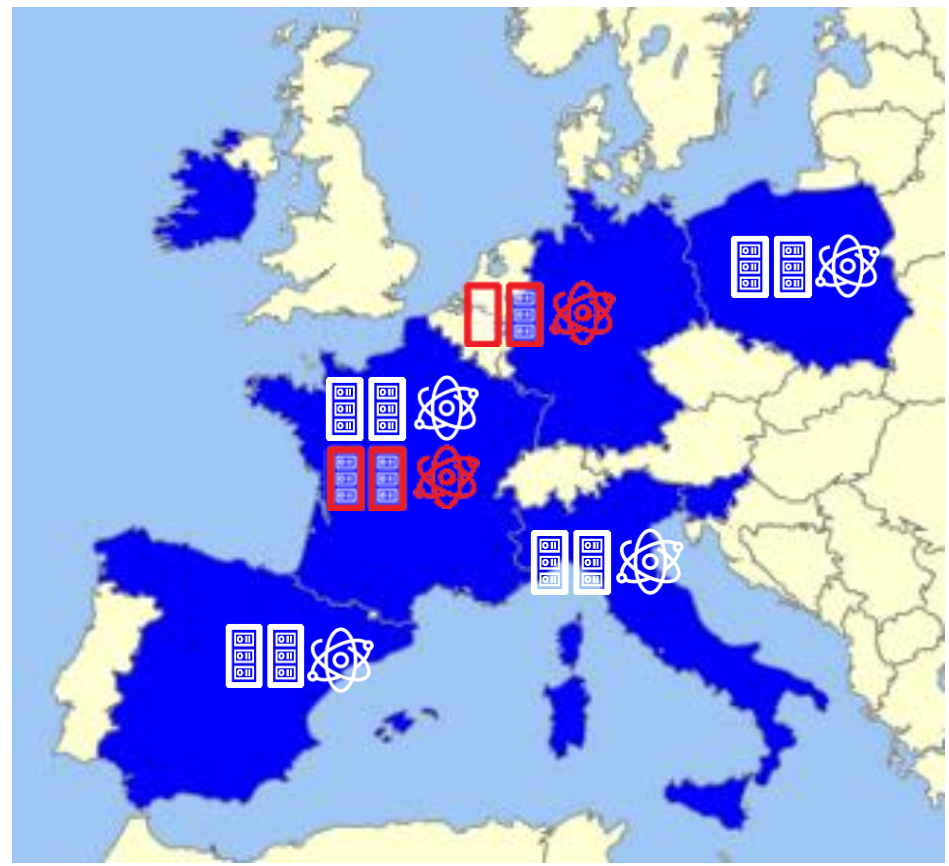
QUANTUM  
COMPUTING  
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**EuroHPC**  
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**<HPC|S> EuroQCS**



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Thank  
you!