GAINS
Generative AI for Networks and Sustainability

Italian applied research to bring Generative AI to Telco and Cloud network operations with measurable sustainability KPIs and replicable results in industrial contexts.

Scientific objective

Build an AI-based automation and decision support system that integrates heterogeneous sources and telemetry to generate standardized and sustainability-optimized deployments, complete with documentation and predictive monitoring.

La nostra Proof of Concept

Agent-based Control Plane with Augmented Generation Retrieval and human control over sensitive actions, structured on three agents:

- Network Monitor: anomalies, efficiency KPIs, predictive trends on consumption and emissions

- Network Orchestrator: Policy-aware configurations and deployment procedures, reducing manual errors

- Knowledge Manager: self-updating technical and procedural documentation, consistent with processes and SLAs

Industrial replicability by design

Modularity and separation of duties for independent upgrades, easy integration with existing infrastructures, validation on realistic model scenarios with functional and stress tests.

Project data in summary

- Programma RESTART, Spoke 7 Green and Smart Environments, finanziato NextGenerationEU

- Duration: 8 months, TRL 1 to 4

- Output 10 deliverables and 4 milestones up to end-to-end evaluation of the proof of concept

- Core team of 8 researchers | RESTART ecosystem with 135 industry and research partners

- Stakeholders and academic impact:
AI, networking, and sustainability researchers and groups, the RESTART community, and telco and cloud providers interested in reproducible evaluation protocols, attributable metrics, and real-world technology transfer.

Results and materials

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