# European Telco Cloud Thematic Roadmap: Strategies for Digital Sovereignty and Infrastructure Development

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## Executive Summary

The “New Telco Cloud Thematic Roadmap” outlines a strategic framework for advancing Europe’s cloud and edge computing capabilities, emphasizing the need for investment in next-generation technologies. It highlights the importance of collaboration among European industries to enhance digital sovereignty, ensuring that data processing remains secure and compliant with EU regulations. The roadmap identifies key priorities, including the establishment of open standards, fostering interoperability, and promoting sustainable practices in data center operations. It also addresses the challenges posed by market fragmentation and the dominance of non-European providers, advocating for a unified approach to develop a competitive European cloud ecosystem. The initiative aims to support various sectors, including telecommunications, healthcare, and smart cities, by leveraging innovative technologies and fostering a collaborative environment for data sharing and application development.

## Characteristics

* The Telco Cloud Thematic Roadmap emphasizes the development of a converged network and computing infrastructure to enhance the European telecommunications sector’s cloud capabilities.
* It advocates for strategic investments in next-generation cloud and edge technologies, focusing on digital sovereignty, sustainability, and interoperability.
* The roadmap outlines the importance of open standards and specifications to foster collaboration among European cloud service providers and ensure competitive offerings.
* It highlights the need for a robust cybersecurity framework to protect sensitive data and maintain trust in cloud services.
* The document stresses the significance of local data processing and the establishment of data spaces to enhance data control and privacy for European citizens and businesses.

## Actors

| Category | Actor |
| --- | --- |
| Political Actors | European Union; European Commission; EU Member States; European Council; European Parliament |
| Research and Innovation Actors | European Institute of Innovation and Technology; Digital Innovation Hubs; Universities; Researchers |
| Economic Actors | Telecommunication Companies; Digital Companies; Private Sector Representatives |

## Main Themes

| Category | Subcategory |
| --- | --- |
| Digital Transformation & Strategy | Digital Infrastructure; Digital Platforms |
| Technology & Innovation | Artificial Intelligence; AI Ethics |
| Data & Governance | Data Governance; Data Protection; Data Privacy |

## Practical Applications

* The European Alliance for Industrial Data, Edge and Cloud has established a thematic roadmap focusing on the development and implementation of next-generation European cloud and edge technologies.
* The European Commission’s Code of Conduct for Energy Efficiency in Data Centres aims to inform and encourage data centre operators to reduce energy consumption through best practices.
* The Climate Neutral Data Centre Pact is a self-regulatory initiative targeting climate neutrality for data centres by 2030.
* The IPCEI on Next-Generation Cloud Infrastructure and Services (IPCEI-CIS) aims to create innovations for the computing continuum from edge to cloud, supporting the development of European cloud and edge technologies.
* The Data Spaces Support Centre project is working to create building blocks for technology and business-related topics in data spaces.
* The Catena-X initiative focuses on creating a data space for the automotive sector to foster data sharing along the supply chain.
* The European Open Science Cloud (EOSC) initiative aims to provide a collaborative environment for scientific research data sharing.
* The GAIA-X initiative is working towards establishing a federated data infrastructure in Europe.
* The establishment of the European Cloud Industrial Alliance (EUCLIDIA) aims to promote the development of cloud services and data spaces.
* The development of open source reference implementations and APIs is being promoted to enhance interoperability and reduce vendor lock-in in cloud services.
* The creation of a Federated Cloud Marketplace is underway to provide a one-stop shop for cloud-edge applications and infrastructure from compliant providers.
* The establishment of a European Competence Centre for Open Source is proposed to support the development and adoption of open source technologies across the EU.
* The implementation of a roadmap for EU innovative data encryption technologies, including quantum-safe and privacy-enhancing encryptions, is being pursued to protect sensitive data.
* The development of a dynamic application lifecycle orchestration engine is being prioritized to manage applications across the edge-to-cloud continuum effectively.
* The promotion of serverless computing models is being encouraged to enhance application development efficiency and reduce infrastructure management burdens.

## Commitments

* By 2030, deploy 10,000 climate-neutral, highly secure edge nodes across the EU.
* Achieve a reduction of greenhouse gas emissions by 55% by 2030.
* By 2025, 80% of all generated data is expected to be processed at the edge.
* By 2030, ensure that 100% of key public services for citizens and businesses are available online.
* By 2030, ensure that 100% of European citizens have access to electronic health records.
* By 2030, ensure that 80% of citizens have access to a digital ID solution.