

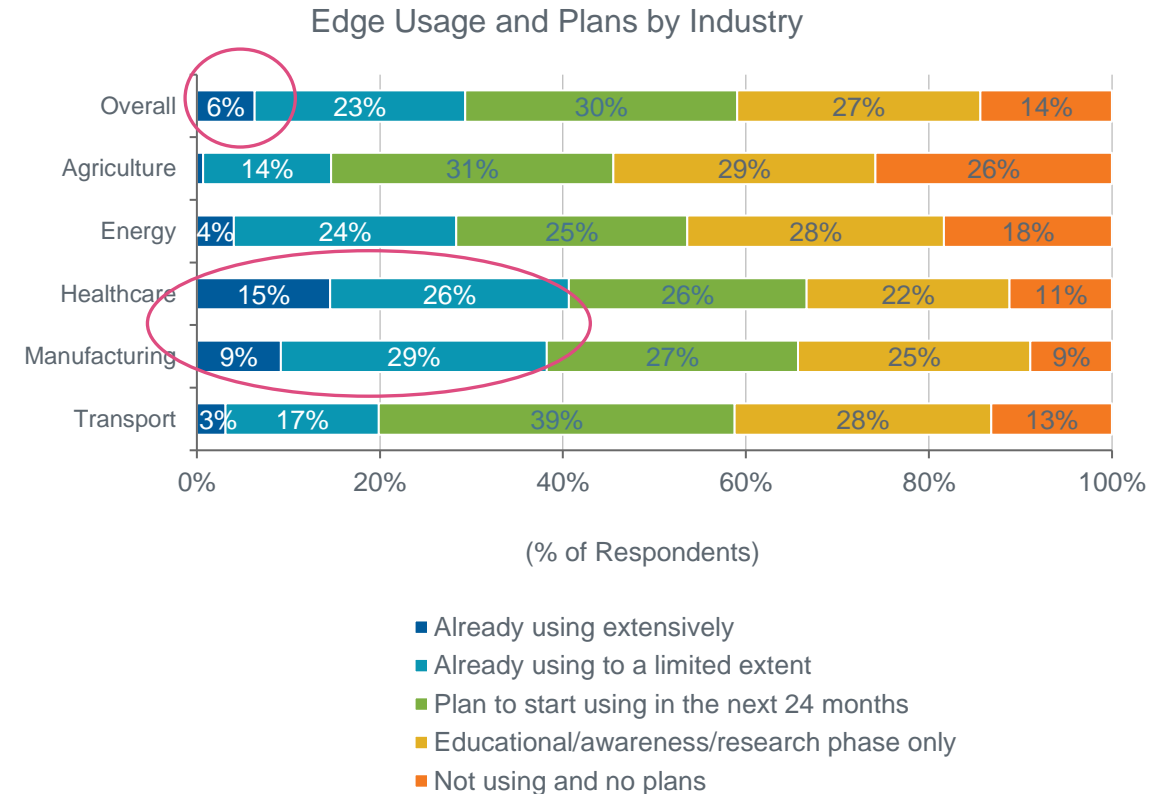


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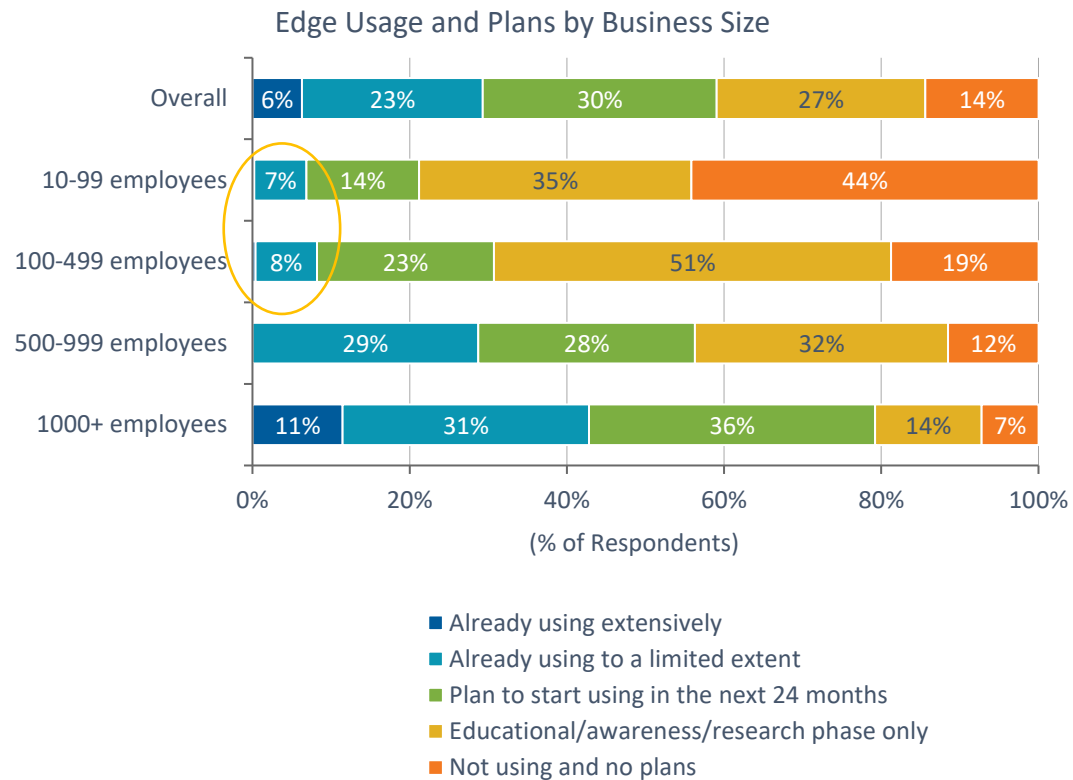
CEI Industry insights and market trends

- High familiarity with the technologies
- Convinced of the need
- Hundreds of use cases under development
- Cloud and IoT are already widely deployed
- Edge is a key enabler, but still immature



Source: UNLOCK-CEI Survey, March 2023

CEI Complexity Puts Solutions out of reach of smaller companies



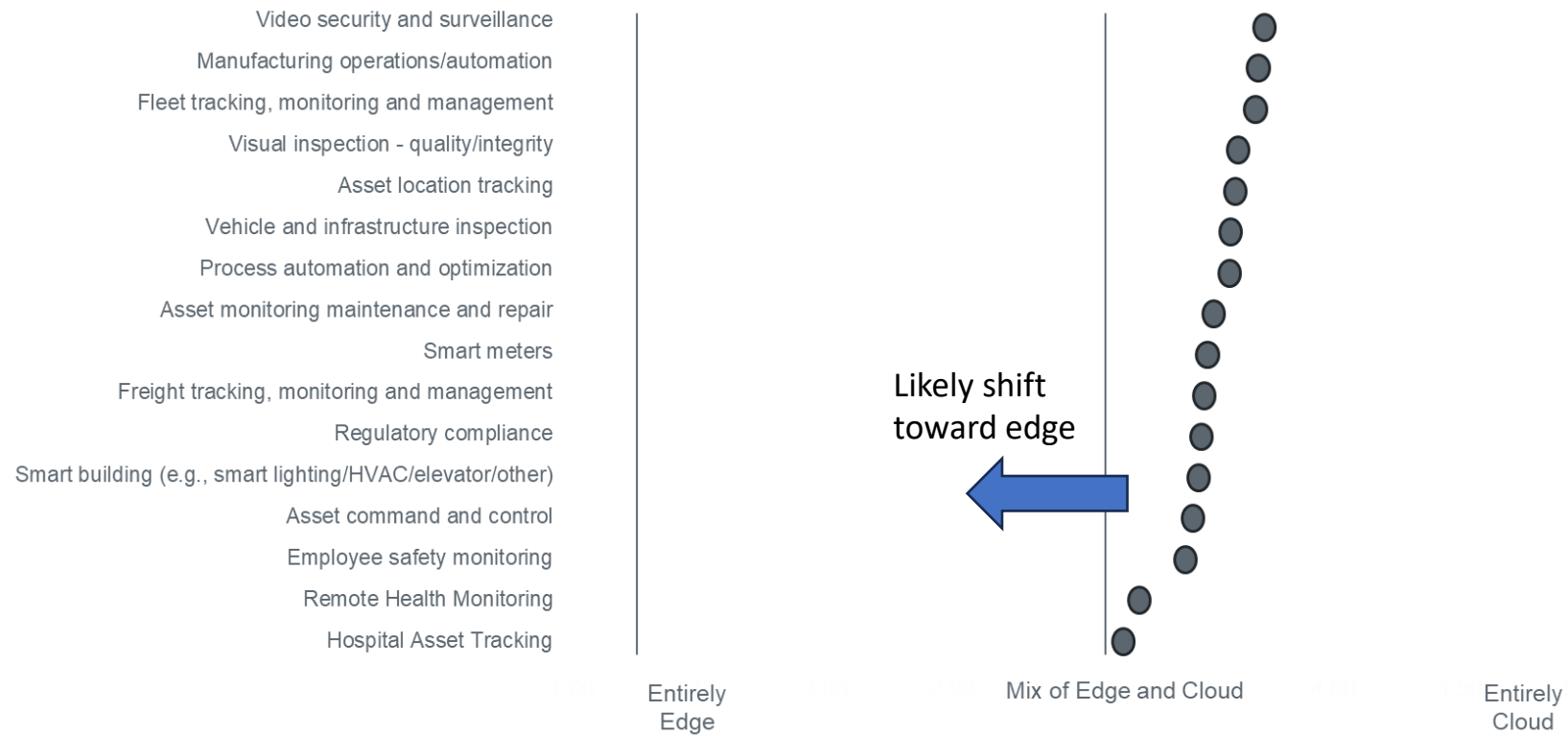
A Need for Simplicity

- **Edge adoption is modest**, especially among smaller companies
 - Projects are still far **too complex** (one of the top barriers to IoT in the survey)
 - That complexity requires extensive skills and funding, and often requires expensive consultants and solution developers.
 - The labor-intensive nature makes costs very high.
 - High costs makes the continuum off-limits to smaller companies.

Edge Usage and Plans by Business Size (Source: UNLOCK-CEI Survey, March 2023)

Edge-cloud compute requirements across use-cases

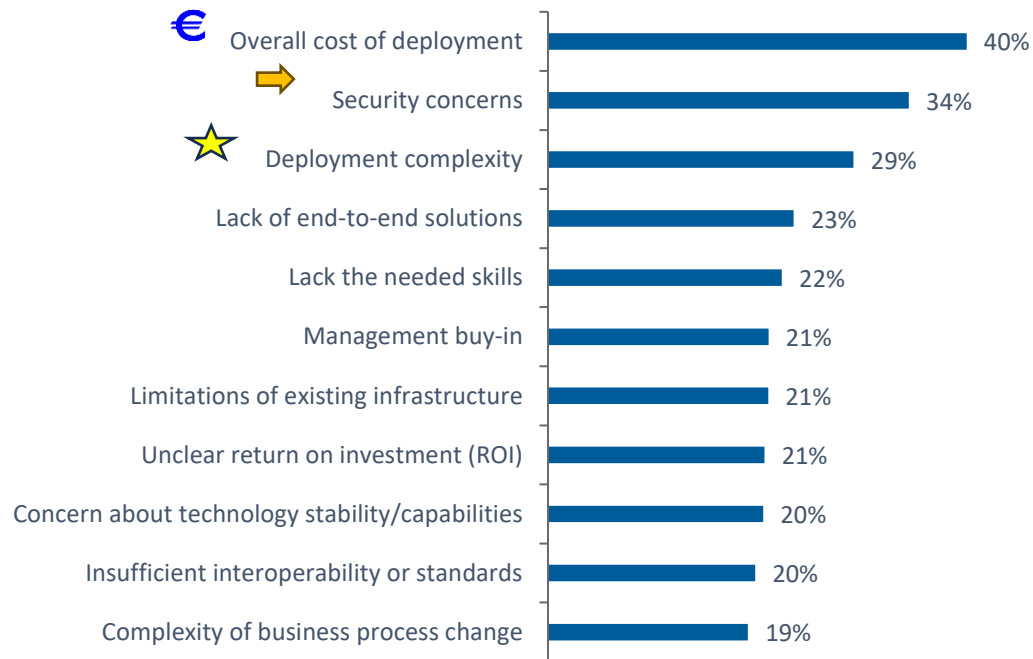
Edge and Cloud Infrastructure Usage for Selected Use Cases



Edge and Cloud Infrastructure Usage by Use Case (Source: UNLOCK-CEI Survey, March 2023)

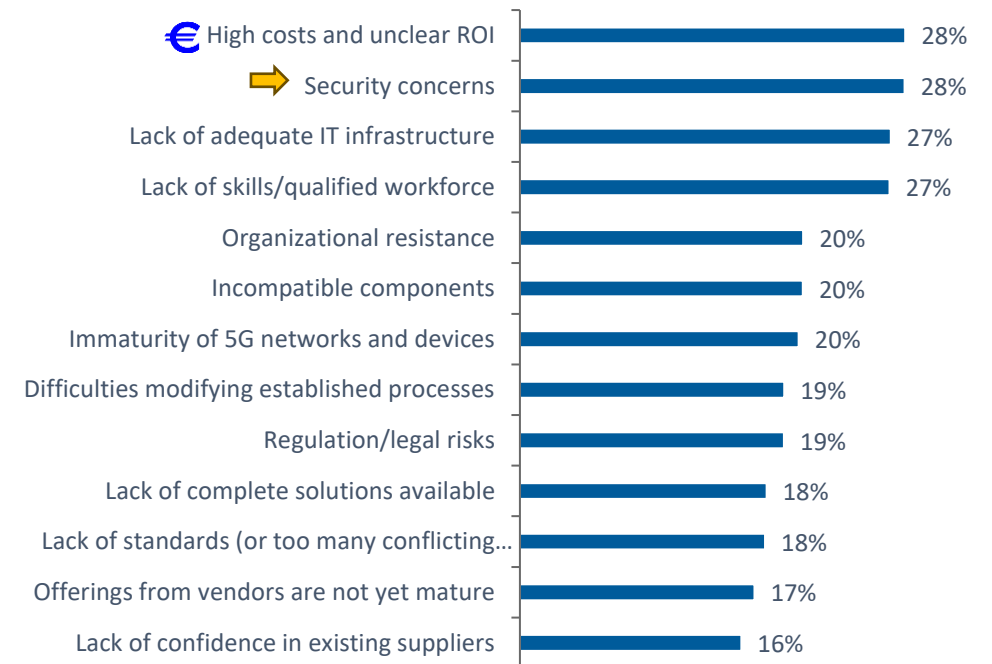
Many challenges hold back CEI

IoT Challenges



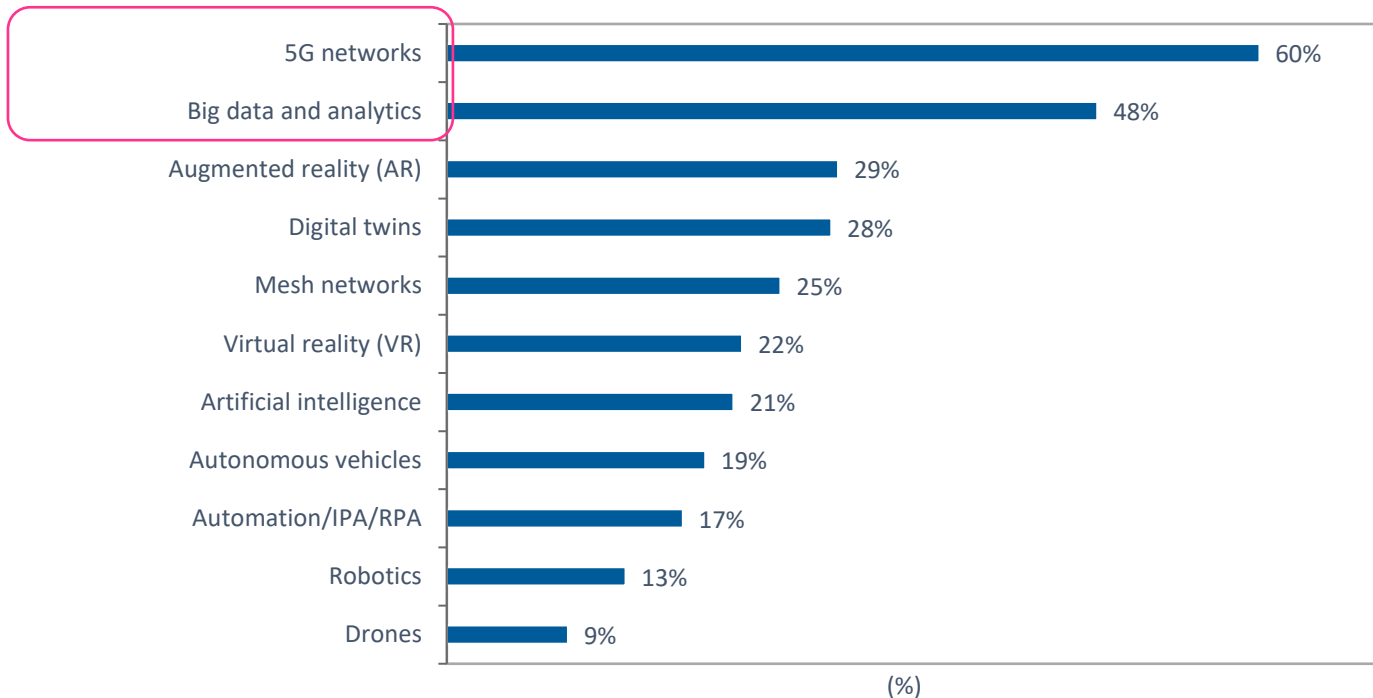
Challenges Holding Back IoT (Source: UNLOCK-CEI Survey, March 2023)

Edge Challenges



Edge Challenges (Source: UNLOCK-CEI Survey, March 2023)

Key Technologies Associated with CEI Projects



Technologies Associated with CEI Projects (Source: UNLOCK-CEI Survey, March 2023)

What do companies say?

*“5G is crucial to enabling many new cutting-edge use cases, but key features are **still in development** and not yet widely available”.*

*“CEI solutions **require continued advancement** in mobile networks, analytics, applications and devices.”*

*“We need to include analytics and automation on-device, but had **little visibility within the ecosystem.**”*

Key Gaps Need to Be Filled

- **Edge orchestration tool:** There is a need for enhancement in terms of interoperability, security and automation for effective management of distributed solutions.
- **Edge standards :** needs for simplification and harmonization of edge standards
- **Connectivity and 5G networks:** Public 5G network coverage remains incomplete, and advanced 5G services are slow to arrive.
- **Skills:** There is a need for upskilling and reskilling in terms of CEI technologies and in relations with complementary technologies such as AI.
- **Industry-specific use-cases:** Because the continuum is fragmented across hundreds of use cases, much work is needed to enable European organizations to leverage these technologies for their unique purposes.
- **Commercialization and scale:** European companies will need to scale aggressively in a fiercely competitive global market through large scale industry policy.
- **Concrete business cases:** Companies need justified business cases to adopt edge and ROI is yet unclear.



- The fragmented nature of the CEI solution market continues to require **extensive continued investment across many different use cases**. Support is needed to move solutions toward commercial feasibility.



- Support for establishment of common **open standards and open-source technologies** as a strategic asset to ensure Europe's digital sovereignty, innovation capability, and competitive edge in the global technology landscape.



- **Accelerate upskilling and reskilling** regarding CEI technologies, incl. new approaches such as micro-training and joint industry-research short courses.



- Support **scaling from medium to large markets** is needed. Setting up and **promoting international collaboration** can facilitate the scale-up. In particular it is recommended to work with international bodies to develop global standards and protocols, ensuring European solutions are compatible worldwide.



- Continue to build the legal and policy framework while **balancing the need for legal clarity** with the need for flexibility, speed and global competitiveness.