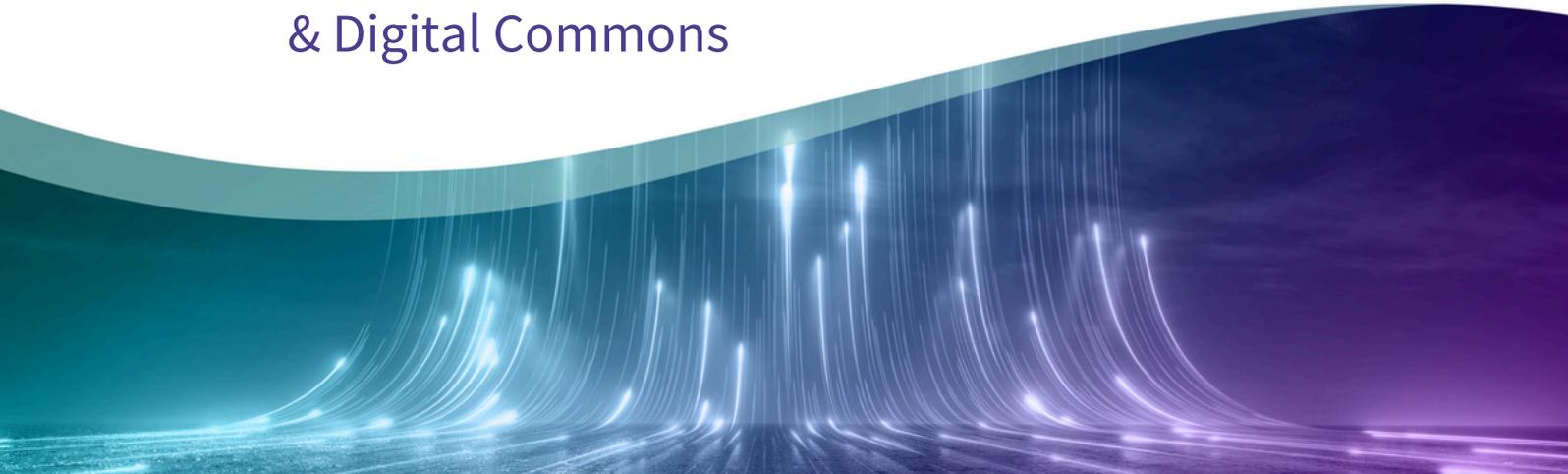


Municipal and Regional Data Usage

Policy Brief

Part 1: Technical Infrastructure & Digital Commons



Technical Infrastructure & Digital Commons

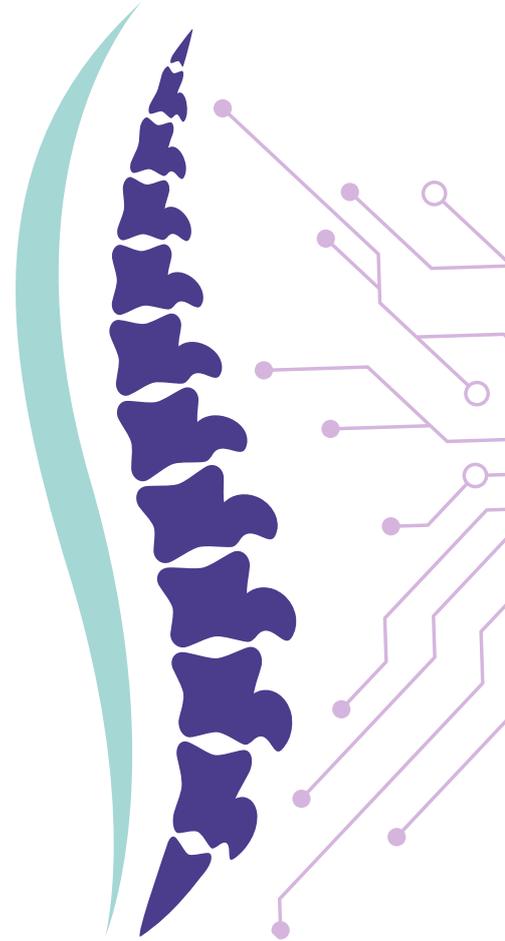
Why It Matters

Digital technologies form the backbone of modern municipal services.

They present unprecedented opportunities for:

- **improving citizen services**
- **optimizing resource allocation**
- **enhancing decision-making**
- **building resilient communities**

Strategic technology choices today **enable municipalities to maintain autonomy** over their digital infrastructure while participating in a global ecosystem of innovation. Digital commons, open standards, and community-controlled infrastructure provide pathways for municipalities to build **sustainable, interoperable systems** that can adapt to future technological developments while **servicing local needs**. This approach enables long-term flexibility and reduces dependency on single providers while fostering innovation that **benefits the entire community**.

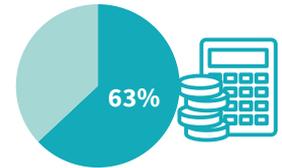


Core Technical Infrastructure

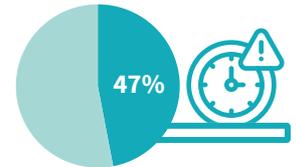
Key infrastructure Challenges
(EIB Survey 2024-2025)

Digital Commons as Public Infrastructure

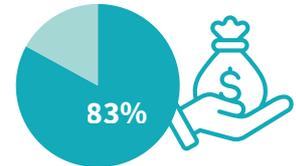
- **Treat digital resources like physical infrastructure:** Build transparent, open, widely accessible digital systems under municipal public control, similar to bridges and roads
- **Three-layer approach:** Implement foundation-supported initiatives, community-business collaborations and community cooperative models
- **Municipal digital commons examples:** Deploy open-source cloud solutions, platform cooperatives for local services, and collaborative data pools for community benefit
- **Establish collaborative governance ecosystems:** Define stakeholder relationships, roles, and decision-making frameworks first, then design structural governance rules and processes, before implementing technical systems. This ensures community members, administrators, and users are meaningfully included throughout the entire development process



Municipalities cite financing difficulties



Report regulatory delays as obstacle



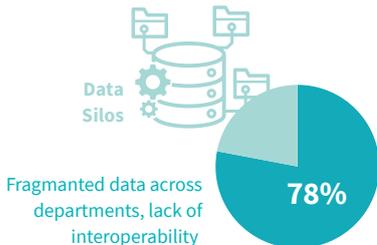
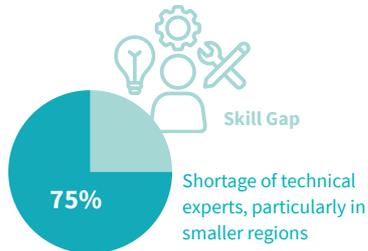
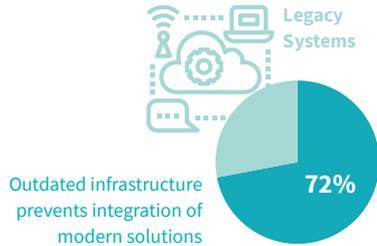
Rely on EU grants for investments



Plan investment increases (2025)

Technical Data Barriers in European Municipal Infrastructure

(EIB Survey 2024-2025)



Data Architecture & Standards

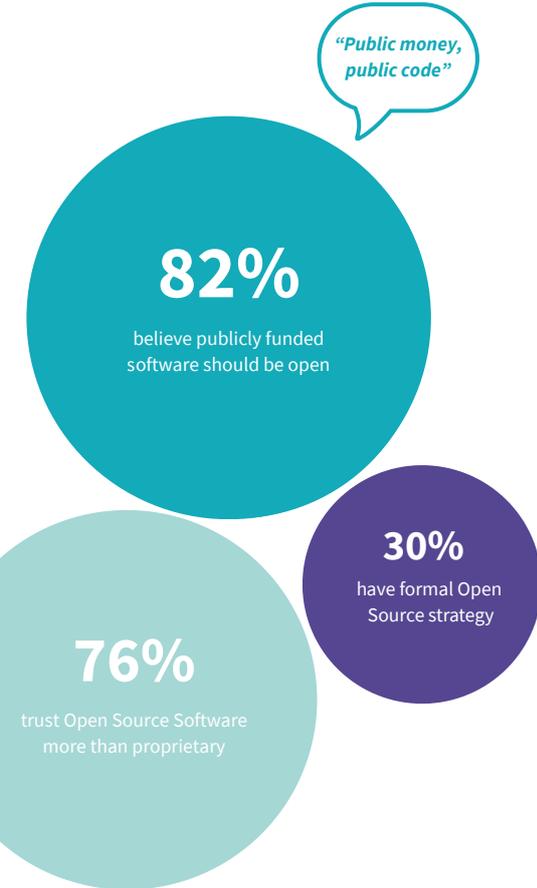
- **Use state-of-the-art data management methodology:** Apply proven approaches for planning, designing, implementing, deploying, and maintaining transparent and scalable municipal data systems that ensure long-term sustainability and accountability
- **Layered data processing:** Establish input, transformation, entity, and output layers with automated quality checks, well-documented semantics, and secure API access to ensure data actually means what users think it does
- **Interoperability first:** Maintain consistent workflows while enabling technology switching through open standards
- **Data portability:** Ensure citizens and organizations can easily transfer their data between different municipal systems and service providers, enhancing user freedom and preventing vendor lock-in
- **Democratic standard-setting:** Engage stakeholders in collaborative standard development rather than top-down implementation

Cloud Infrastructure & Data Sovereignty

- **Strategic cloud adoption:** Leverage hybrid approaches that reduce capital investment while maintaining control over sensitive municipal data through certified providers with transparent service agreements
- **Future-proof security:** Protect sensitive data against evolving technological capabilities through advanced encryption and data protection methods that can adapt to new security challenges
- **Municipal data control:** Give municipalities greater control over data generated/collected in their territory while balancing free data flow with confidentiality requirements
- **Create regulatory standards for decentralized dataspace:** Enable secure data sharing while preserving corporate data control through clear frameworks that facilitate interoperability without requiring centralized data storage



Source: Linux Foundation Europe
“Open Source Maturity in Europe 2024”;
Interoperable Europe (Signalen case study)



Innovation Ecosystems & Community Media

- **Support local innovation:** Provide open data access to all interested parties. Complement this with targeted capacity-building programs, procurement preferences, and technical assistance specifically for cooperatives, social enterprises, and steward-owned businesses to help them effectively utilize the data
- **Reduce technological lock-ins:** Establish input, transformation, entity, and output layers with automated quality checks, well-documented semantics, and secure API access to ensure data actually means what users think it does
- **Use Open Source Software:** Prioritize open-source solutions over proprietary software from large tech companies that are subject to non-EU control
- **Strengthen local information ecosystems:** Support and strengthen community-based information networks, local media initiatives, and citizen journalism to enhance information resilience
- **Two-way innovation:** Learn from global Digital Public Goods while contributing municipal innovations to international networks

About This Policy Brief

This policy brief was developed through the Data for All project, in partnership with all project partners. The recommendations presented here emerged from the cited sources, academic literature, EU policy frameworks, and hands-on implementation experience across participating municipalities. While grounded in documented research and verified data, these recommendations represent our synthesized understanding of how municipalities can successfully navigate digital transformation while maintaining democratic control, technological sovereignty, and ethical standards in data governance.

Sources

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- EU Data Strategy & Data Governance Act frameworks
- European Commission & Swedish Roadmap: Data governance and management strategies
- Expert Interview: Data Management Implementation (David Lingier, June 2025)
- Gstrein, O.J. (2023): "Data Autonomy: Recalibrating Strategic Autonomy and Digital Sovereignty" (including expert interview, June 2025)
- Muscat, S. (2024): "A Green Compass for Human-Centric International Digital Policy" (Heinrich Böll Foundation)
- Open Government Data Culture (data.gv.at)



Interreg
North Sea



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