

# COLLABORATIVE DATA ECOSYSTEMS:

How Telcos can make waves with  
new business and services





# Collaborative data ecosystems enable digital collaboration, innovation, and transformation

Collaborative data ecosystems are revolutionizing the way businesses interact and operate. They enable organizations to share data and leverage it to improve customer satisfaction, reduce supply-chain risks, and launch new products and services. As Esther Huyer, Director for Collaborative Data Ecosystems at Capgemini Invent, states,

“Sharing data in the structured environment of data ecosystems finally gives us the safe space to collaboratively find solutions to global and local challenges we cannot tackle alone.”



This approach not only increases productivity but also creates new business models and revenue opportunities. In fact, analysts estimate that the combined value of the national data economies of the EU27 countries alone will grow from €325bn in 2019 to over €550bn by 2025, representing 4% of the overall EU GDP.<sup>1</sup>

Moreover, collaborative data ecosystems not only bring economic benefits but also support reaching the “triple bottom line” (sustainability framework evaluating a company’s performance for social, environmental, and financial dimensions) and the ambitious targets set by COP26. Accurate data is crucial for ensuring that the triple bottom line - which represents the interest of both profit, people, and the planet - is an effective measure for delivering sustainable value. It gives organizations a complete, up-to-date picture of what’s happening across their many activities, which helps them to become more accountable and sustainable.

## KNOWLEDGE BOX:

### What are collaborative data ecosystems?

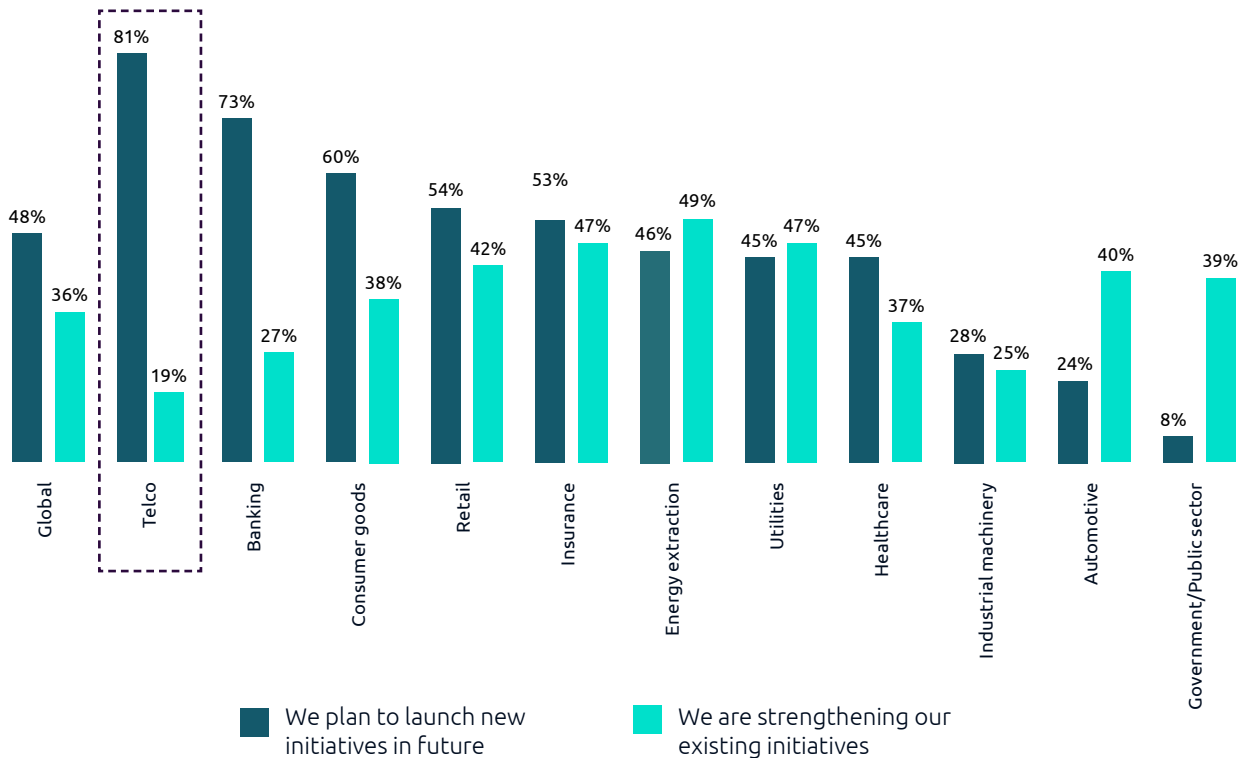
Collaborative data ecosystems are defined as partnerships between multiple institutions that share and manage data and insights to create new value for all participants that would not have been possible in the previous, siloed system. Sharing data in these systems is enabled and guided by regulatory, technical, and organizational building blocks, standards, and blueprints. They ensure the players’ sovereignty, protecting data rights like confidentiality and privacy, especially for end-consumers or citizens.

<sup>1</sup>The European Data Market Monitoring Tool (June 2020) Final Study Report

# Are you planning to increase your organization's engagement with data ecosystems?

Sector view, multiple selections

FIGURE 1: SECTORS' AMBITIONS TO ENGAGE WITH DATA ECOSYSTEMS



Source: Capgemini Data Ecosystem Survey, N=750 organizations, April-May 2021

Capgemini's research indicates that the majority of organizations across all sectors, around 48%, are planning to launch new or join existing data ecosystem initiatives to reap the associated benefits.<sup>2</sup> However, Telcos have been slow to jump on board, with only a few initiatives launched so far. This highlights the need for Telcos to take action. Yet, the study also found that Telcos have expressed the strongest ambitions in launching or joining data ecosystem initiatives by 2024, showing that they are ready to make a big impact in this field.

Traditionally, Telcos have focused on utilizing data from their customer management systems to improve internal operations, from network optimization to predictive churn analysis or price optimization. For example Telco companies have harnessed data from customer management systems to streamline internal operations, such as using customer service call logs to identify

common issues and implement targeted staff training. Telcos also have significant experience in creating insight for third parties, typically from the observation of the footfall and movement of terminals on their network, commonly used in applications such as urban and commercial planning.

However, the true potential lies in utilizing this data to collaborate with others and gain new insights that could not be created otherwise. This data can then be used as an asset and enabler for creating innovative products and services in external data ecosystems. As Telcos adopt this ecosystem approach, they can shift from viewing data management as a cost to incorporating it into their business model or even making it the core of their business. This increase in data ecosystem maturity and its associated benefits is illustrated in figure 1.

“By breaking up internal data silos and instead opening up to the external world, Telcos get a holistic overview of the potential of their data, whether for their own application, or enabling collaboration with others”

Ansgar Schlautmann, Head of Telco at Capgemini Invent Germany

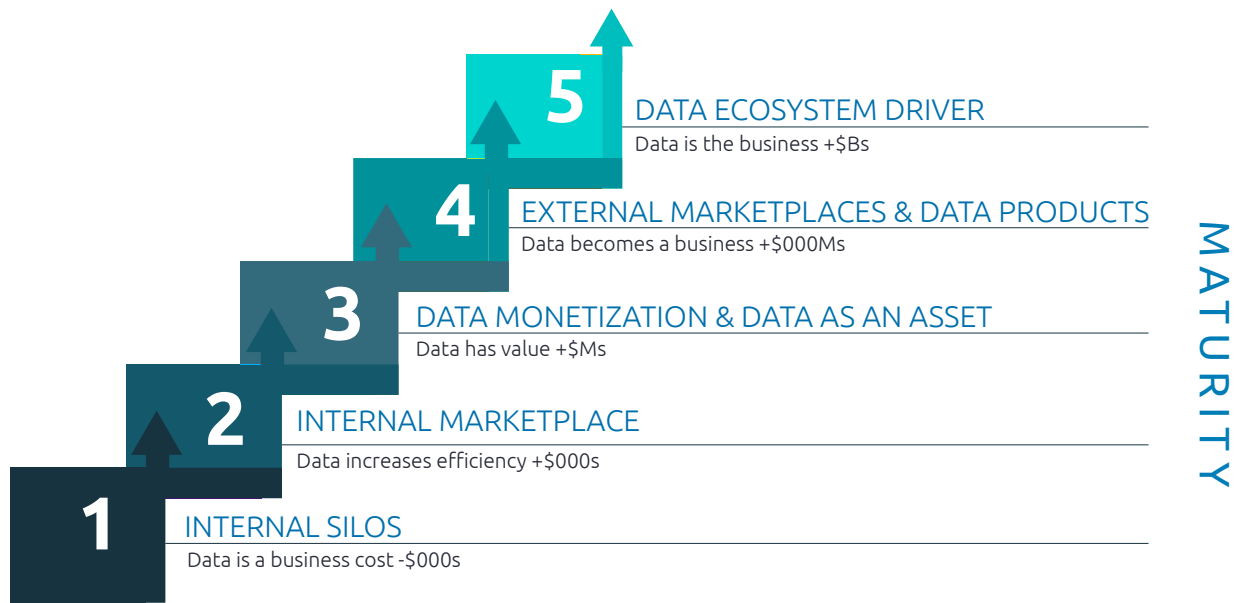
<sup>2</sup> Capgemini Research Institute (2021) Data Sharing Masters

Once we look at data from this perspective, Telco organizations can simultaneously show characteristics of maturity at multiple stages, depending on how their data strategy is designed and executed. For many Telco operators the main challenge may still be to move beyond stage 1, where data is not easily accessible across the organization but is trapped in internal silos. With a well-designed data ecosystems strategy and implementation of data governance, quality management and technological enablement organizations can venture into the higher

stages, where data starts being recognized as an asset, better insights can be generated internally, and the innovation process can be empowered by external data, too.

Full exploitation of data is accomplished when stage 4 is reached, which is when an organization becomes an ecosystem driver and actively shapes its own and others' data usage and insight.

**FIGURE 2: THE BENEFITS OF INCREASED COLLABORATIVE DATA ECOSYSTEM MATURITY**





# Telcos have everything it takes to sit in the driver's seat of this transformation

Telcos have the potential to be major players in the world of collaborative data ecosystems, and now is the time for them to take advantage of this opportunity. With their existing capabilities, customer base, and data assets, Telcos can leverage their strengths to lead the way in digital transformation, just as they have before. As Francesco Bonfiglio, CEO of the Gaia-X Association, points out: The new role of Telcos should be to sit in the driver's seat for digital transformation. But now they need to take a decision whether [...] they take a lead in a new model [...].

Despite their past successes in driving digital transformation through such connectivity offerings as wireless and cloud technology, Telcos are facing new challenges. Their physical assets, such as data centers, are perceived as a cost factor rather than a value-generating resource in recent years. Many Telcos have not been able to translate their collected data into business outcomes. Therefore, their services are mostly seen as a commodity today. This trend is further driven by increasing competition from hyperscalers like Google, Amazon Web Services and Azure.

However, Telcos have a competitive advantage thanks to their extensive customer base and data collection. With 150 million SIM cards registered in Germany alone, Telcos collect some of the largest amounts of data through their telecommunications transport network, including mobile phone usage, call detail records, network equipment, server logs, and billing. This data will only continue to grow with the rapid expansion of the Internet of Things (IoT) and the increased connectivity provided by 5G.

Furthermore, Telcos have strong customer relationships with small and medium-sized enterprises across all sectors, providing them with an excellent starting position to become participants in collaborative data ecosystems. By understanding the needs and priorities of their customers, Telcos can offer data-sharing services across various sectors, such as manufacturing, automotive, logistics, transport, health, and more. For example, Telcos can provide smart city solutions by connecting citizen data with data from utility companies and transport and mobility providers.





# Telco's solid base: What we can learn from Telco and other significant data-sharing initiatives

In the US, communication service providers, such as Vodafone and Orange, are creating an innovative initiative called [Telco Data Space](#) for secure data sharing and processing. It includes a secure platform that connects participants through a unified structural element called the IDS Connector, a standard promoted by the International Data Spaces Association (IDSA). The connector ensures that each stakeholder maintains sovereignty over their data. Thanks to the data being shared, project participants can then deploy applications that would be otherwise not possible. One of the participants, for example, Ilkanotis, that specializes in AI-driven decision making, is providing the project with several AI-powered models, enabling Cloud Service and Infrastructure Providers (CSPs) to leverage data as an enterprise asset. Another value-added service called TwinX, by Tata Consultancy Services, enables participants to run risk-free business simulations via a digital-twin-based simulator that uses organizational data, augmented by the knowledge of historical events and context. These examples showcase how CSPs can provide services to customers in multiple markets in a collaborative data ecosystem.

In Europe, Deutsche Telekom has introduced the [Data Intelligence Hub](#) (DIH), a secure marketplace for data, data analysis tools, and algorithms connecting multiple companies and industries. This powerful platform effectively connects providers and users of data and analytics solutions and can be used as a secure infrastructure for storing and processing data. The DIH is the first to meet the strict security standards of the IDSA. Participating companies are provided with a holistic market overview of free and purchasable data that can be turned into new business ideas. Available analysis specialists and tools further help to transform a company's existing unstructured data into business-relevant insights. Lastly, participants can offer their own data for sale to generate additional revenue while maintaining data sovereignty.

As we have illustrated in figure 1, the Telco industry has high ambitions for data ecosystems, but has yet to provide large scale, visible results. To learn about the opportunities, it helps to look at more matured data ecosystems, such as Catena-X, which is one of the pioneering industrial lighthouse projects of Gaia-X, the European initiative for a federated secure data infrastructure. It aims to create a secure and standardized data-based ecosystem for companies across the entire automotive value chain, from OEMs to small and medium enterprises. Participants retain sovereignty over their data, that is, they maintain control over it by selectively deciding who is involved in the data exchange, how, when, and where. They also decide on the terms of usage: when, for how long, and for what on the licensing. In return, participation is rewarded with increased resilience, enhanced innovative capacity, and additional revenue opportunities.

## KNOWLEDGE BOX:

### **Gaia-X is a concept for safe data ecosystems in Europe and beyond**

- Supports innovative collaboration across industries to aggregate and drive value from data
- Use of synergies to jointly develop new solution concepts
- Creation of common (and sustainable) standards in product development
- Unified data compliance securing a safe data ecosystem based on current European standards
- Simplifies access to trusted, state-of-the-art IT infrastructure, enabling software engineering teams to boost productivity



# Telcos as drivers of transformation in collaborative data ecosystems

As the digital landscape continues to evolve and transform industries, the need for interconnecting businesses across sectors becomes increasingly important. Here's what Francesco Bonfiglio, CEO of the Gaia-X Association, has to say about this: "Telcos, with their extensive experience in back-end collaboration and interconnecting networks, are uniquely positioned to play a crucial role in the development and success of collaborative data ecosystems."

Smart Ecosystems use ICT in an integrated and holistic, collaborative, and sustainable approach across vertical segments, to cater to the needs of citizens, organizations, and other important stakeholders; while maximizing its triple bottom line (see Figure 3).

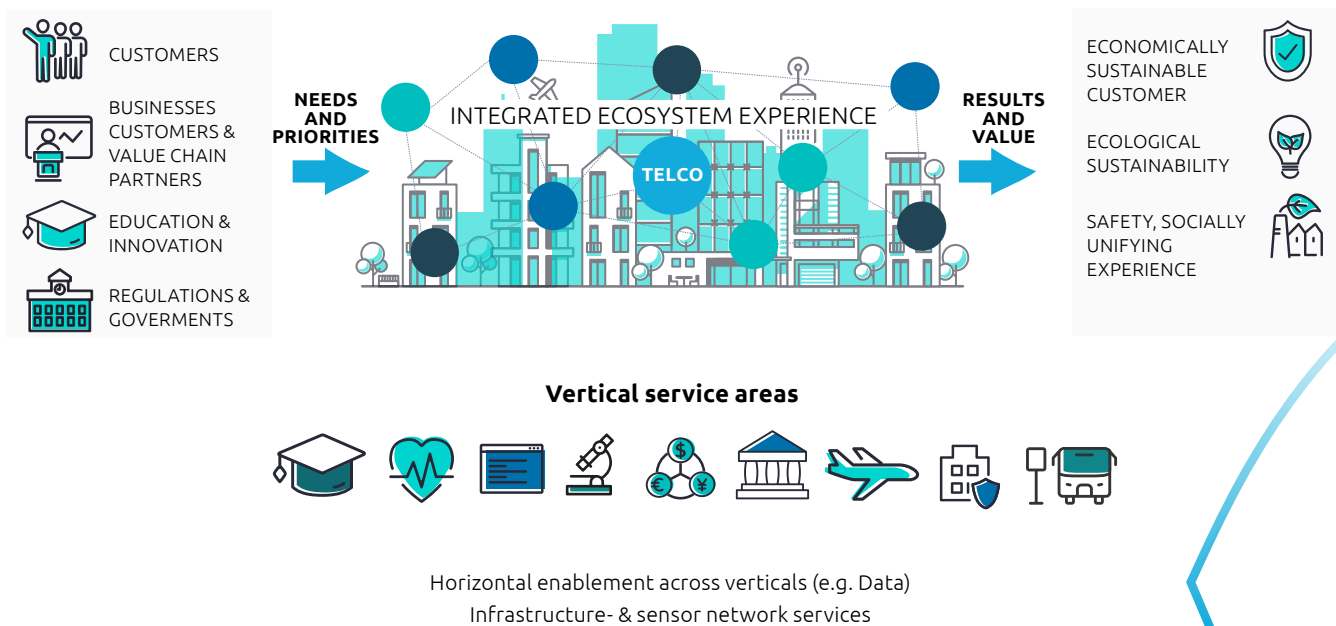


FIGURE 3: ECOSYSTEM AND STRATEGY STEERING

Telcos can fill but are not limited to the following three essential roles within collaborative data ecosystems:

1. **Providing value-added services** such as data analysis tools and best practice applications, to ecosystem partners. This enables Telcos to move from being mere enablers to value-adding providers. It can also be a new business model for them.
2. **Delivering marketplaces:** Telcos can also act as marketplace owners, connecting companies and encouraging them to share data on their platforms. With an increasing number of participants and available datasets, a network effect is generated, leading to even more potential data ecosystem participants and users of provided services.
3. **Identity provider:** Telcos can act as identity providers, offering secure access and connectivity to data spaces for all participants and components. This ensures collective trust in the ecosystem and is crucial for its success.

Overall, Telcos have a unique position in the digital world and the potential to fill essential roles within collaborative data ecosystems, moving from enablers to value-adding providers and creating new businesses and services.

#### **These are our key Learnings from existing data ecosystem initiatives:**

- There is a wide variety of data-sharing initiatives with different fields of application, and these initiatives have sector-agnostic challenges.
- Developing a data ecosystem is a time-consuming process that requires trust, vision, and strategy, as seen in major initiatives like the Telco Data Space. This includes finding the right partners, establishing a common governance, understanding the technological base, and scaling it across multiple partners.
- Diversity is a major value driver: data ecosystems thrive on the diversity of their participants and the diversity of services and data they provide.
- Diversity drives innovation: new services and business models develop out of a new application of current assets.
- Standards such as Gaia-X's support ensuring data sovereignty in data ecosystems and connect companies and organizations alike.
- The fastest way to engage is to join data ecosystems that exist already, as this enables organizations to learn from previous experiences and use established frameworks.
- Is it also the easiest way? That depends! Explore with us current data ecosystem endeavors and how our data ecosystem framework helps you develop your strategy, matching it against current initiatives, pros, cons, and estimated time to market.
- Find a common cause and problem, start with a minimum viable common ground, and quickly accelerate the data ecosystem growth – good example: the Data Spaces Support Center



“Being a driver of a data ecosystem is the key to unlocking its full potential. Companies that lead in creating and shaping data ecosystems reap the benefits of new revenue streams, access to valuable data and insights, and the ability to drive innovation and growth for themselves and their partners.”

*Kai Broek, Senior Manager at Capgemini Invent Germany*



# Our five-step roadmap to confidentially build mature collaborative data ecosystems in telco organizations:

## 1. **Strategize the ecosystem:**

For Telcos to fully leverage the potential of data sharing within collaborative data ecosystems, it's crucial to start by formulating a clear strategy. This begins with identifying the opportunities and respective strategies that align with the organization's goals and objectives, specifically on data-sharing and its role in the ecosystem. Telcos should ask themselves questions like: Why do we want to engage in an ecosystem? What is in it for us? Who will lead and govern this effort? And do we have the processes in place to acquire external data and what will we do with it? By answering these questions and adopting a more constructive posture, Telcos can confidently explore the potential of collaborative data ecosystems and create plans that align with their goals.

## 2. **Govern the ecosystem:**

To concretize the main components of a data ecosystem, namely vision and trust, it is essential to define and orchestrate data governance across the three dimensions: people, processes, and technology. This facilitates the sharing of high-quality and trusted data for new insights and better information. Key questions are: does everyone in my organization know when and how and with whom to share data? Who is in charge for which data? These questions help to understand, where there are gaps in the governance. Without a proper governance, that ensures a high data quality and accessibility and clear rules for usage and sharing, no data can cross company borders for mutual value creation.

## 3. **Find the right technology stack for your needs:**

Rapid advances in privacy and security tools have created solid solutions for sharing and combining data in ways that respect both trust and privacy principles. Solutions such as data virtualization, federated learning,

confidential computing, homomorphic encryption, and blockchain create the flexibility to achieve the type of ecosystems that align with the organization's use case goals. Telcos must study and identify the capabilities they need, how processes must be transformed, and which technology serves them best. How can we effectively evaluate and select the most suitable technology stack from the available options, ensuring a balance between privacy, security, and operational efficiency for our specific use cases would be a key question.

## 4. **Build and operate the ecosystem:**

With the strategy, design, and trust questions addressed, the next step is implementation, in terms of both technology and organizational transformation. Many companies are still in the midst of moving to cloud technology, and these efforts must be accelerated to ensure the foundational elements are in place for data sharing. In parallel, Telcos can begin to think about how they will eventually scale use cases, measure success, and foster a data-sharing culture. Key questions to consider include: Do we have the tools in place to acquire, process, and analyze external data?

## 5. **Scale the ecosystem**

Scaling is everything in terms of ecosystems, that's why scaling data collaboration across multiple domains, ensuring data interoperability and security through innovative technology, is imperative. Hence, it is important to federate and share data across domains and to protect data and deliver built-in traceability. A key question would be: What strategies can we implement to successfully scale data collaboration across multiple domains, while maintaining data security, interoperability, and traceability throughout the process?



## About Capgemini Invent

As the digital innovation, design and transformation brand of the Capgemini Group, Capgemini Invent enables CxOs to envision and shape the future of their businesses. Located in more than 36 offices and 37 creative studios around the world, it comprises a 10,000+ strong team of strategists, data scientists, product and experience designers, brand experts and technologists who develop new digital services, products, experiences and business models for sustainable growth.

Capgemini Invent is an integral part of Capgemini, a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of over 350,000 team members in more than 50 countries. With its strong 55-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2021 global revenues of €18 billion.

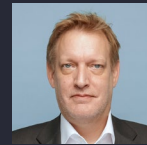
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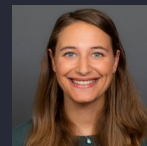
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