Shaping the future of digital business | Partners: Microsoft Azure | Decoding blockchain-enabled digital ecosystems | Factsheet

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Decoding blockchain-enabled digital ecosystems

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What are blockchain-enabled digital ecosystems?
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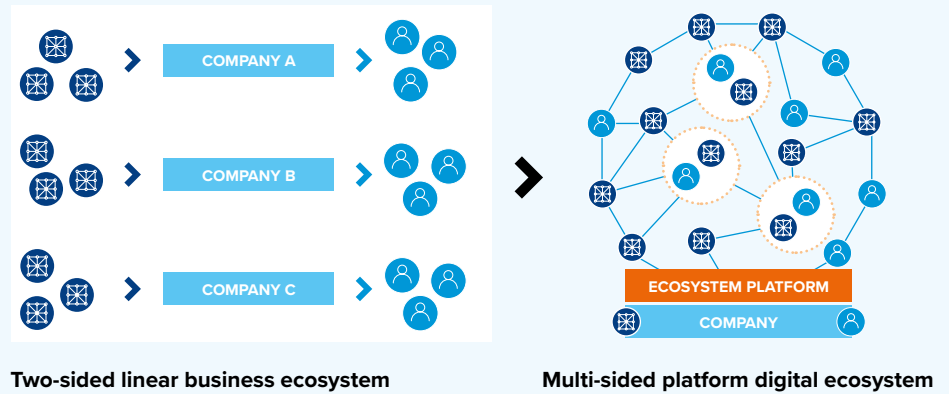**From the first days of commerce, businesses have created, operated, and participated in ecosystems to exchange value. However, this value was often linear and usually analog. In today's digital world, new requirements are essential to operate within those business ecosystems. Why? Digital ecosystems are different because they embrace the complexity of endless connections to be self-organizing, dynamic, and adaptive. In practice they exceed the sum of their connections.**

Shaping
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Decoding
blockchain-
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ecosystems

Factsheet

Why ecosystems are vital to your digital transformation

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Examples of digital ecosystems include platforms like Uber and Airbnb. These show the reinvention of existing business models into a multi-sided platform business. This model is so pervasive it's reflected in the top 10 companies world-wide based on market capitalization. Shifting to this rapidly growing digital space is becoming a key requirement to continue to deliver value with existing and new business models. Implementing a digital ecosystem with digital technologies like blockchain, artificial intelligence, IoT, and 5G fundamentally enables the redefinition of customers, value, and creating new ways to exchange that value. Blockchain is being used by many leading organizations to aid the adoption of digital ecosystems.

Blockchain provides compelling capabilities that enable the interaction between people and things that may – in time – render existing models either ineffective or obsolete.

Two-sided linear business ecosystem

Multi-sided platform digital ecosystem

Blockchain-enabled digital ecosystems defined

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A blockchain-enabled digital ecosystem is a value network that harnesses the unique capabilities of blockchain such as: data self-sovereignty, tamper-resistant data, peer-to-peer data collaboration, and distributed governance.

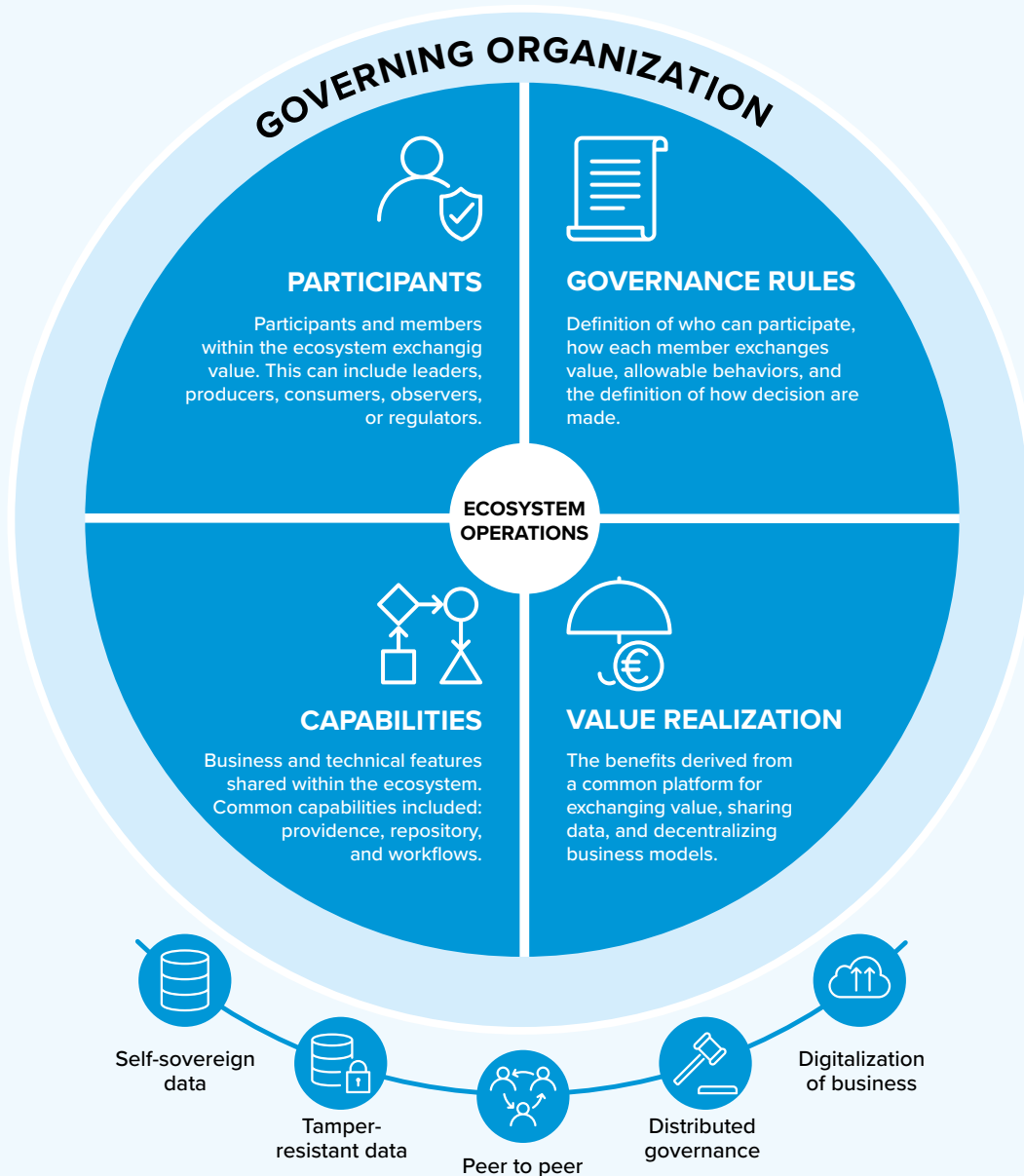| SELF-SOVEREIGN DATA	TAMPER-RESISTANT DATA	PEER TO PEER DATA COLLABORATION	DISTRIBUTED GOVERNANCE	DIGITALIZATION OF BUSINESS
■ Self-sovereign identity ■ Data confidentiality and privacy	■ Cryptographically signed ■ Irrevocable transactional records ■ Data hashing ■ Zero knowledge proofs ■ Anonymization of data	■ Shared ecosystem DB ■ Common data exchange and standards ■ Interoperability ■ Availability ■ Quality and robustness	■ Distributed business terms and condiitions (T&C) ■ Smart contracts ■ Decentralized autonomous organization (DAO)	■ Tokenization of assets ■ Digital twins ■ Decentralized solutions (DApps) ■ Decentralized consensus

Digital Ecosystems Framework

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Using the Microsoft Digital Ecosystems Framework offers a frame of reference to describe an existing ecosystem or be the basis for creating a new one. Each aspect of the framework provides a common model for effectively architecting your digital ecosystem.

These blockchain-enabled digital ecosystems are being created across most industries. Recently, GE Aviation's Digital Group (GEAD) noted that a blockchain-enabled ecosystem has unique qualities that would help the company address inefficiencies, potential fraud, regulatory compliance, and utilization of aircraft engine parts. A recent article in Strategy + Business revealed that using blockchain in the aviation industry could boost industry revenue by as much

as 4 percent annually, or USD 40 billion, according to PwC analysis. Analysts also found that it could reduce maintenance, repair and overhaul costs by about 5 percent annually (USD3.5 billion).

Ultimately, GEAD designed a blockchain-enabled ecosystem platform to enable trustworthy transactions across the entire aviation industry. Now there is transparency throughout the aviation supply chain, and any GEAD partner can track and audit their products along the supply chain. The solution also provides customers with the ability to authenticate the quality of products. Control of the supply chain has been tightened, reducing the incidence of counterfeit products.

GOVERNING ORGANIZATION

PARTICIPANTS

Participants and members within the ecosystem exchangig value. This can include leaders, producers, consumers, observers, or regulators.

GOVERNANCE RULES

Definition of who can participate, how each member exchanges value, allowable behaviors, and the definition of how decision are made.

ECOSYSTEM OPERATIONS

CAPABILITIES

Business and technical features shared within the ecosystem. Common capabilities included: providence, repository, and workflows.

VALUE REALIZATION

The benefits derived from a common platform for exchanging value, sharing data, and decentralizing business models.

Self-sovereign data

Tamper-resistant data

Peer to peer

Distributed governance

Digitalization of business

Recommendations

Building a blockchain-enabled digital ecosystem is hard. But bringing together diverse stakeholders across many companies may be even harder. Here are some practical recommendations to get started:

> **Demystify blockchain for business and technical leaders.** Blockchain is in full hype mode and there are many misconceptions about what the technology can provide to businesses. Conduct an educational and envisioning workshop(s) with key leaders to show them its potential. Be prepared to articulate blockchain in business terms, where blockchain has driven clear business results.

> **Toss the abstract buzz words**. Abandon words like "trust system" and "decentralization" that are both abstract and completely removed from any sort of value statement that the organization's leaders care about. Talk instead about where blockchain can solve challenges or open new opportunities for your business.

> **Look for new forms of value exchange.** Don't just focus on existing B2B relationships but balance that with identifying new business models. Remember, value isn't just monetary, it can include: compliance risk, reputation, information, and other nonmonetary exchanges. In some cases, these aspects can be equally – or more – valuable parts of a digital ecosystem.

> **You don't need to have all the ideas.** Gain inspiration from other companies within or outside of your industry. This can be their transformation journey lessons or even adaption of specific use cases that are transferable to your industry.

> **Create a compelling vision.** Blockchain ecosystems require a structure and roadmap that will support and anticipate current and future participants' needs.

> **Blockchain is only a component of the ecosystem.** The number and density of connections between people, organizations and things is increasing almost exponentially. While blockchain provides a vital component of a digital ecosystem there are other crucial technologies.

> **Blockchain-enabled digital ecosystems are largely inconstant.** Independent research on over 70 digital ecosystems that use blockchain found them to be fragmented, complex implementations, so they can be confusing, misleading, and difficult to analyze.

> **Be deliberate with a business model.** Blockchain-enabled digital ecosystems tend to vary in purpose, legal model, economics, and organization. And most consortiums are still in development. Three common models include:
> - **Founder-led.** A single company defines, architects, builds, owns, and operates the solution. This is usually picked for either speed to market considerations, compliance needs, or competitive advantage considerations.
> - **Partnership-driven.** An exclusive group of companies that share decision making authority as a joint venture. Ecosystems in this model have a mutual financial incentive for success.
> - **Industry-driven.** Governed by elected representatives that is designed to be a non-bias ecosystem focused on a specific industry that capitalizes on the capability of many companies.

> **Avoid low value and relevance quick hits.** Getting lulled into moving quickly while sacrificing relevance to your business is a big mistake. Building a digital ecosystem requires a clear understanding of how data evolves and what it integrates with across the end-to-end process.

> **Get out of the lab.** Executives are quickly mentioning blockchain fatigue from all the POCs that show the legitimacy of the technology but not the relevance to their business. Have a plan to rapidly move from POC stage to controlled pilot in a represented production environment is essential.

Next steps

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Blockchain can be a powerful addition to your company's digital arsenal. However, as with any technology, a deliberate business strategy is required to understand how and when these technical capabilities can be applied to your business.

Stay in touch

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