

# Advanced Technology Watch – Technology Focus on Blockchain

## What is blockchain?

Blockchain technology is a **digital, distributed ledger of transactions or records**. Blockchain allows new transactions to be added to an existing chain of transactions using a secure digital or cryptographic signature. Blockchain is designed to be an **incorruptible, decentralised network with enhanced security properties, allowing data and transactions to be immutable**. The technology gained attention because it provides a **highly secure environment to immutably store and share data**.

### All Blockchain ledgers have common features:



#### Distributed

Allows transactions to be stored on a network of participants



#### Decentralised Consensus

Eliminates the role of a designated administrator to approve, clear and settle transactions on the ledger



#### Transparency

Blockchain-based time-stamping of a date and location

## Controversy

Few emerging technologies that rose to prominence in the last 10 years have been subject to **as much interest, expectations and misunderstanding** as Blockchain.

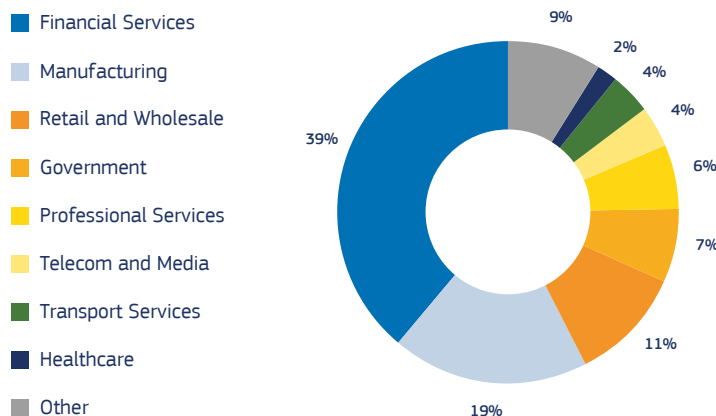
Overinflated expectations led to negative perceptions that still linger to this day and have made some organisations lose interest in **the potential and opportunities** that Blockchain holds.

However, it still presents clear opportunities for the private and public sector.

The arrival of **BaaS (Blockchain-as-a-Service)** has allowed companies to easily develop and deploy their own Blockchain apps with the Blockchain infrastructure developed and maintained by a separate vendor. The potential of BaaS has already been recognised by some of the world's largest software companies. At a time when budgets and appetite for innovation are limited, BaaS removes some of the adoption hurdles and enables fast deployment.

## The explosion in activity and interest pushed companies across industries to experiment with Blockchain and that was reflected in Blockchain spending across Europe

### Total Blockchain spending % value by industry, Europe, 2020



Source: IDC Worldwide Blockchain Spending Guide, August 2020

Note: "Others" include the following industries: Resource Industries, Education, Construction, Personal and Consumer Services and Utilities.

The financial sector is the largest sector with close to 40% of total Blockchain spending in Europe. The massive size of the sector is no surprise, considering the cryptocurrency origin of the technology and the fact that finance was the first industry to embrace Blockchain technology.

The manufacturing and retail/wholesale were the first industries to experiment with and adopt Blockchain after the financial sector. These industries rely on sourcing products, parts and ingredients by leveraging a network of suppliers that span the globe.

European governments have recognised the potential that the Blockchain technology is offering by providing a more secure and efficient way to store and retrieve sensitive information.

### Drivers of adoption

Optimise cost

Build business resilience





Recovery accelerator

Fast-track digital transformation initiatives

For more information, read the Advanced Technology Watch Report Technology Focus on Blockchain here:

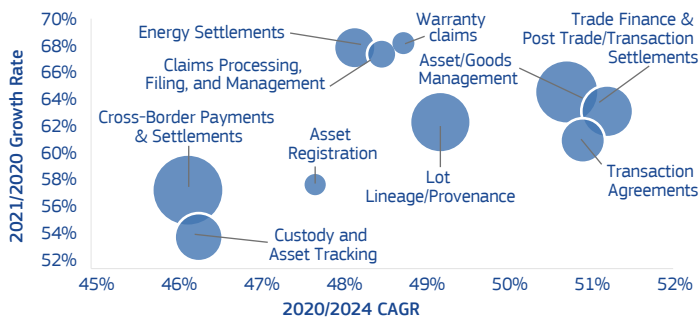
<https://ati.ec.europa.eu/reports/technology-watch/technology-focus-blockchain>

# Many European companies recognise the benefits of responsible data sharing, but Blockchain still represents a small portion of total ICT spending on new technologies

Scarcity of Blockchain talent	Legislation	Blockchain fatigue	Interoperability
 <ul style="list-style-type: none"> <li>Blockchain was the <b>most sought after skill</b> in the hard skills category with a very lopsided ratio of supply and demand.</li> <li>A certain concentration of Blockchain talent is needed to <b>advocate for the technology and explain its relevance</b>. Otherwise, resistance to change can remain high.</li> </ul>	 <ul style="list-style-type: none"> <li>Legislation often must play <b>catch up to rapid technological change</b>.</li> <li>The legislative <b>grey area</b> creates <b>uncertainty</b> and makes companies more hesitant to adopt.</li> <li>Particularly important to EU countries is <b>data privacy, specifically the General Data Protection Regulation (GDPR)</b>.</li> </ul>	 <ul style="list-style-type: none"> <li>There is a sense of Blockchain fatigue on Board level:</li> <li>There is <b>significant pressure</b> from Chief Executive Officers and Chief Information Officers to <b>deliver on their digital transformation strategies</b>.</li> <li>One of the reasons why Blockchain implementation cannot deliver fast return on investment is that it is dependent on the <b>network effect</b>.</li> </ul>	 <ul style="list-style-type: none"> <li>Creating interoperability between different networks presents a <b>great technological challenge</b>.</li> <li>Different Blockchain platforms differ in several crucial aspects: <b>consensus mechanism, governance structure, smart contract functionality and privacy policy</b>.</li> <li>Beyond that Blockchain platforms do not have the <b>strong incentive</b> to assure interoperability.</li> </ul>

## The most popular use cases are related to financial transactions, supply chain management and management of sensitive information

Top 10 Blockchain use cases in Europe by spending growth



Source: IDC Worldwide Blockchain Spending Guide, August 2020  
 Legend: The bubble size represents the spending value by use case in 2020  
 CAGR: Compound Annual Growth Rate.

Popular use cases make great use of Blockchain's ability to bring securely and immutably stored information, inspire trust in stakeholders and increase data exchange between them.

Many of the core features of Blockchain – transparency, single source of truth, incorruptibility of stored information, auditability – make it a perfect ally for variety of initiatives that bring environmental and social benefits.

Blockchain-based solutions can provide an immutable system and fully auditable system to record carbon footprint of products or the impact of environmental protection initiatives. It can also be used to record the positive effect sustainability initiatives can have on the environment.

## About the Advanced Technologies for Industry (ATI) project

The ATI project – funded by the European Commission – supports the **implementation** of Europe's new growth strategy with a systematic monitoring of **technological trends** and reliable, **up-to-date data** on advanced technologies.



The **Advanced Technology Watch Reports** explore the futuristic, upcoming technologies that are on the horizon of technology development today and that are characterised by high speed of evolution and a significant disruptive potential.

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