



UNIVERSIDAD  
COMPLUTENSE  
MADRID

Facultad de Informática

# **El impacto de la descentralización en la empresa: de Web2 a Web3**

Aula 1, Facultad de Informática  
24 de abril de 2024

## Jorge Ordovás Oromendía



Llevo más de 25 años desarrollando productos y servicios TI, desde 2018 liderando la propuesta de Blockchain y Web3 de Telefónica para B2B y B2C.

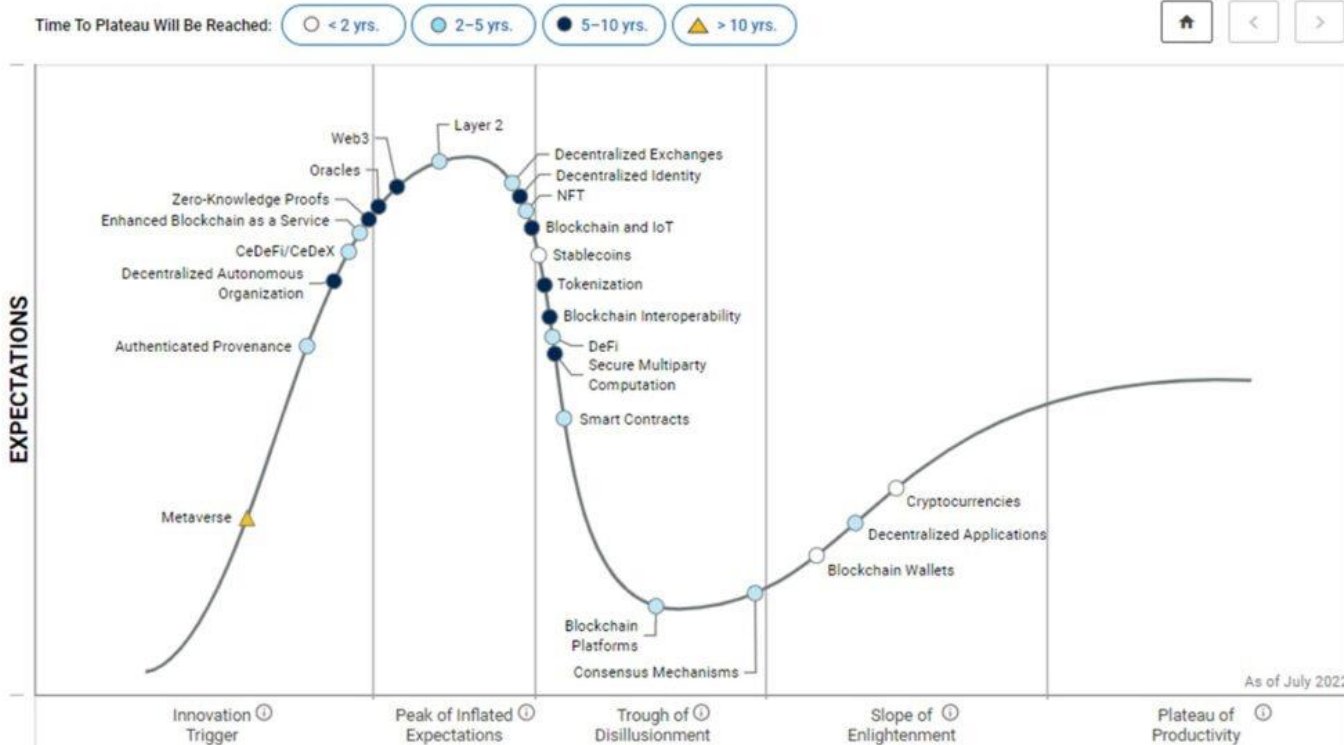
Cofundador de NevTrace, primer laboratorio Blockchain de España, fundado en 2015.

Director del Master en Blockchain de la Universidad Europea y profesor en distintas universidades y escuelas de negocio.

    @joobid

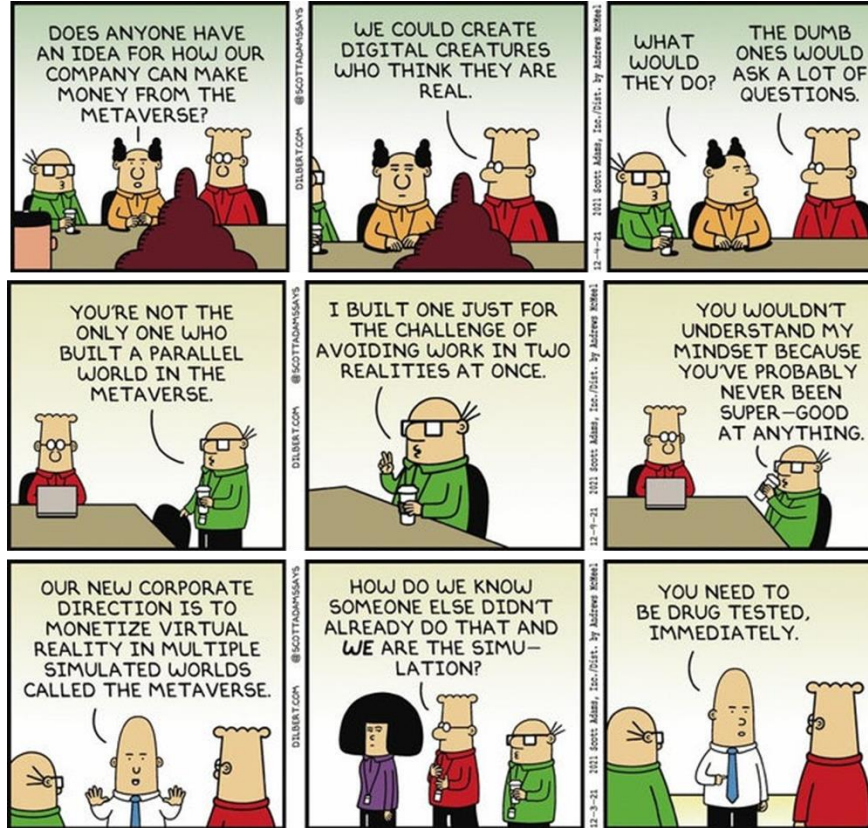
 <https://es.linkedin.com/in/jorgeordovas>

# El "hype cycle" de Blockchain



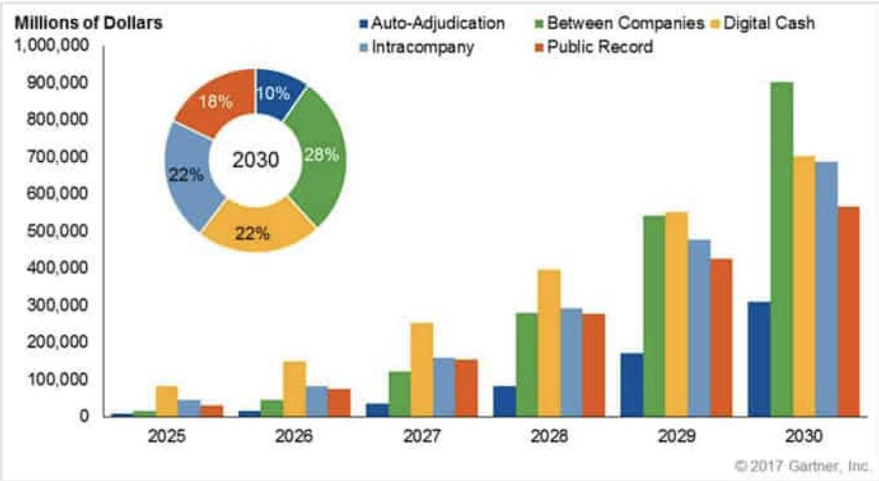
Hyper Cycle for Blockchain Business 2022 - Gartner

# El metaverso, la última frontera



# Expectativas de negocio en los próximos años

**Business value-add of Blockchain - \$176 billion by 2025, \$3.1 trillion by 2030**

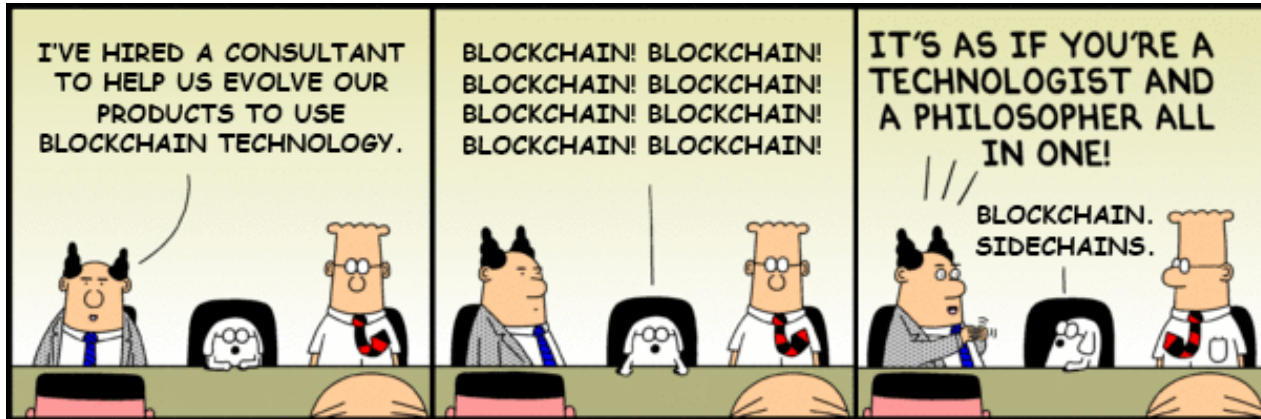


Source: Forecast: Blockchain Business Value, Worldwide, 2017-2030

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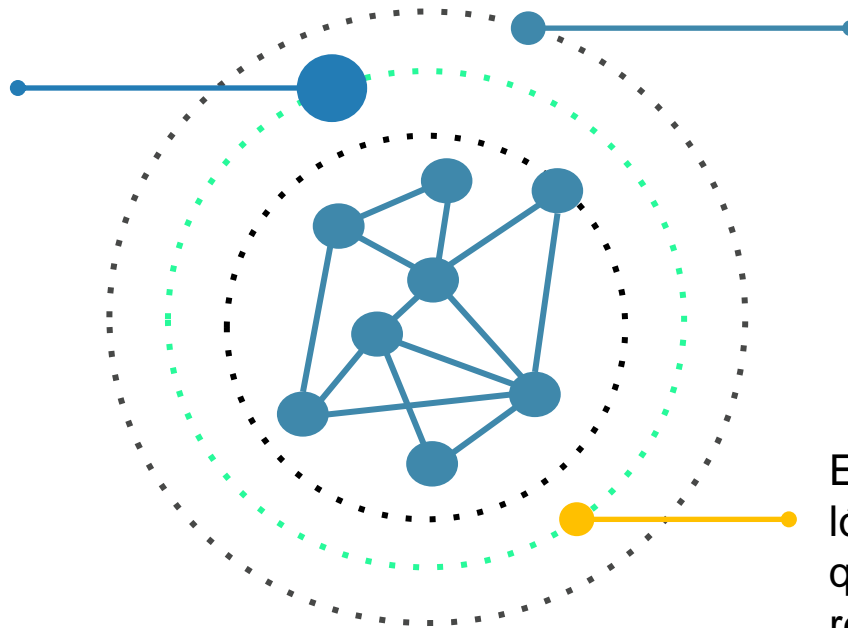


# Una tecnología con muy pocos expertos



# ¿Qué es Blockchain?

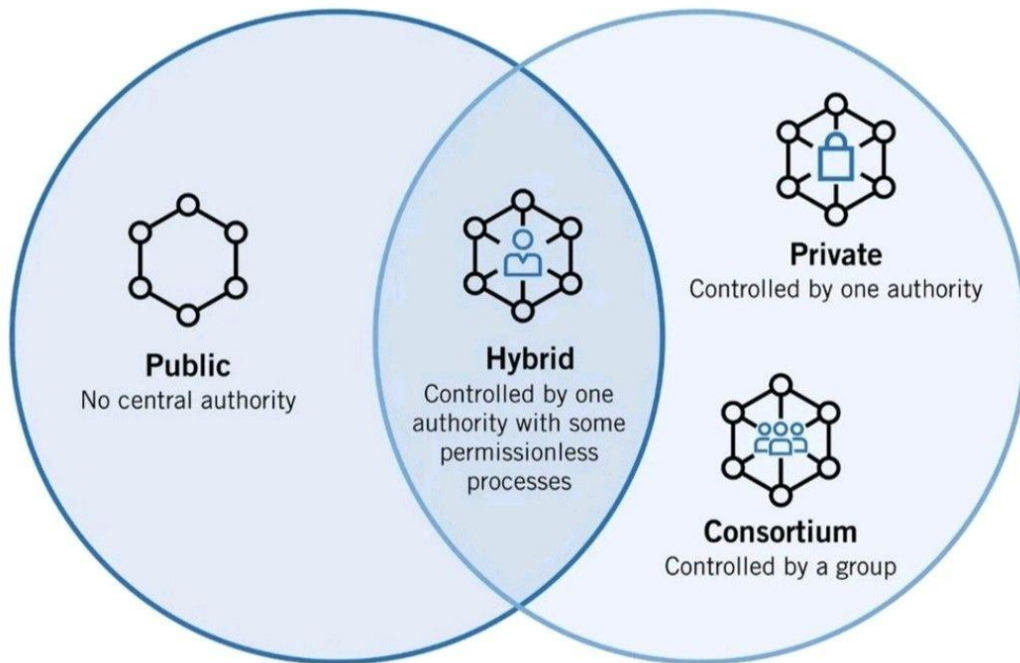
Blockchain es un registro descentralizado de información, que no puede modificarse una vez registrada



Los nodos de la red alcanzan un consenso sobre la información a registrar en cada momento

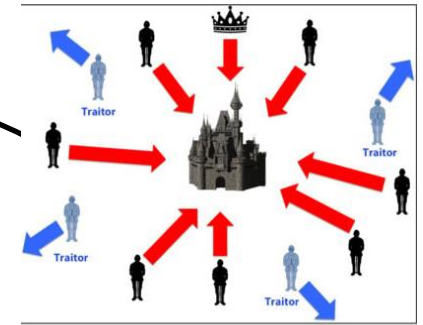
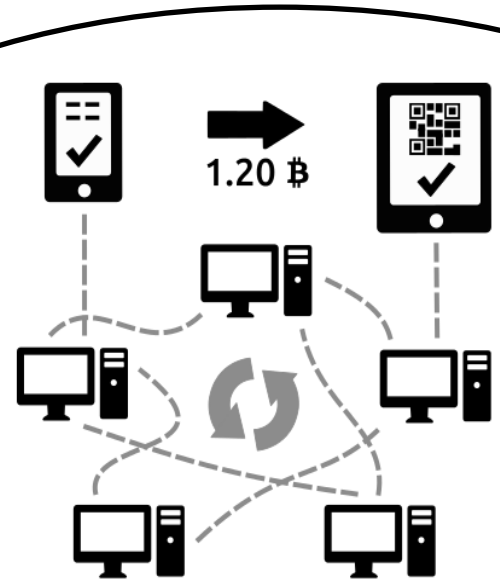
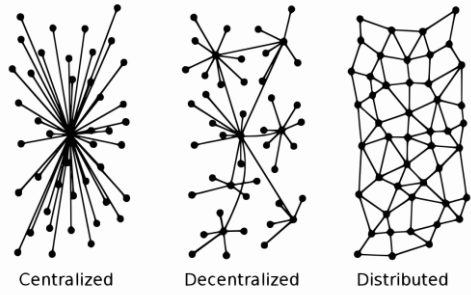
Es posible definir lógica de negocio que se ejecuta en la red (Smart contracts)

# Tipos de redes de Blockchain

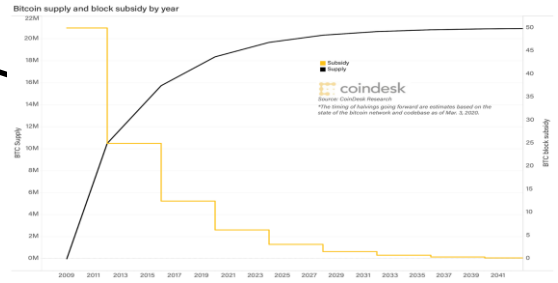
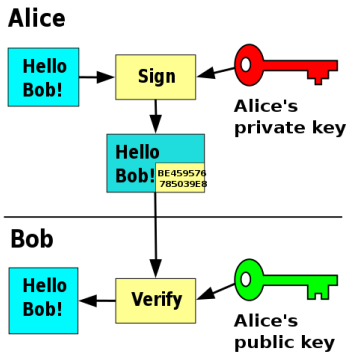




# Bitcoin, el origen de Blockchain



Uncoordinated Attack Leading to Defeat



PRISONER'S DILEMMA

	B	
	Betrays	Stays silent
Betrays	Each serves 2 years	A = free B = 3 years
Stays silent	A = 3 years B = free	Each serves 1 year

# Tecnologías de Blockchain en la empresa



Top Blockchain technologies used by the top 100 institutions – Blockdata (Oct 2022)

# Smart Contracts (Ethereum)



# Quorum



**Quorum:**  
Ethereum for enterprise  
applications

[jpmorgan.com/quorum](https://jpmorgan.com/quorum)



<https://alastria.io/>

# Hyperledger



## Distributed Ledgers



**HYPERLEDGER  
BESU**

Java-based  
Ethereum client



**HYPERLEDGER  
BURROW**

Permissionable smart  
contract machine (EVM)



**HYPERLEDGER  
FABRIC**

Enterprise-grade DLT  
with privacy support



**HYPERLEDGER  
INDY**

Decentralized identity



**HYPERLEDGER  
IROHA**

Mobile application focus



**HYPERLEDGER  
SAWTOOTH**

Permissioned & permissionless  
support; EVM transaction family

## Libraries



**HYPERLEDGER  
ARIES**



**HYPERLEDGER  
QUILT**



**HYPERLEDGER  
TRANSACT**



**HYPERLEDGER  
URSA**

## Tools



**HYPERLEDGER  
CALIPER**



**HYPERLEDGER  
CELLO**



**HYPERLEDGER  
COMPOSER**



**HYPERLEDGER  
EXPLORER**

## Domain-Specific



**HYPERLEDGER  
GRID**



**HYPERLEDGER  
LABS**

# Evolución en las tecnologías de Blockchain

BLOCKCHAIN 1.0  
(soluciones L1)



BLOCKCHAIN 2.0  
(PoS)



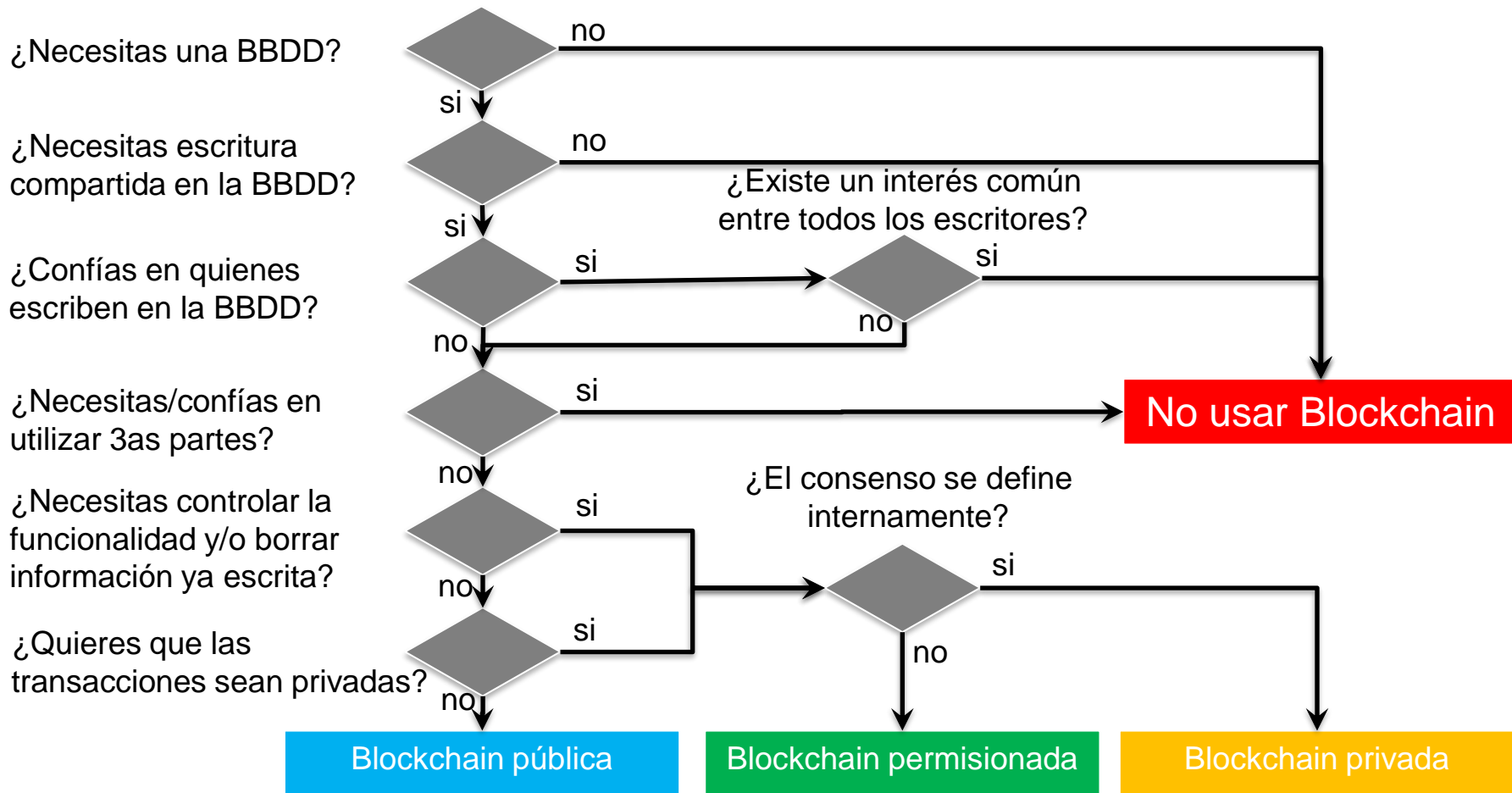
BLOCKCHAIN 3.0  
(soluciones L2)



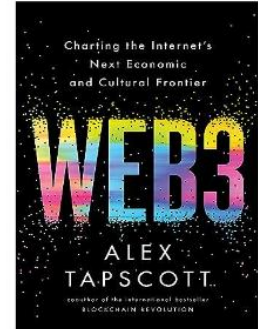
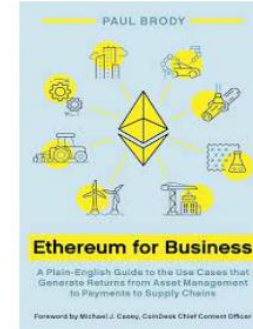
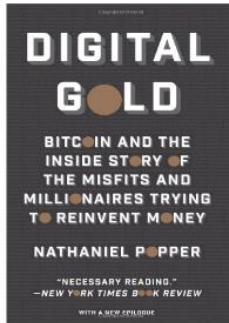
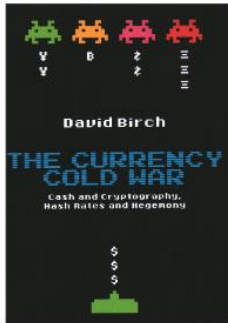
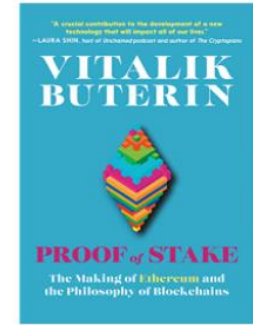
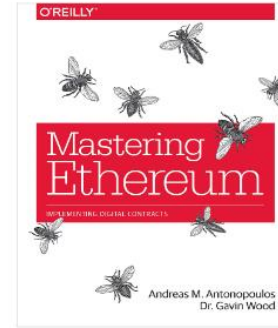
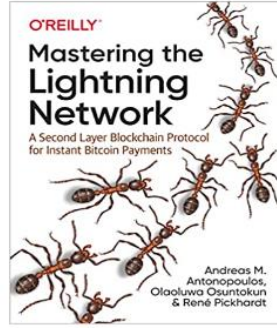
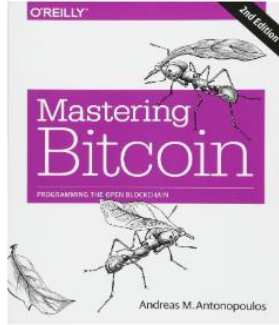
BLOCKCHAIN 4.0  
(appchains)



# ¿Usar Blockchain? ¿Cuál?



# Lecturas recomendadas

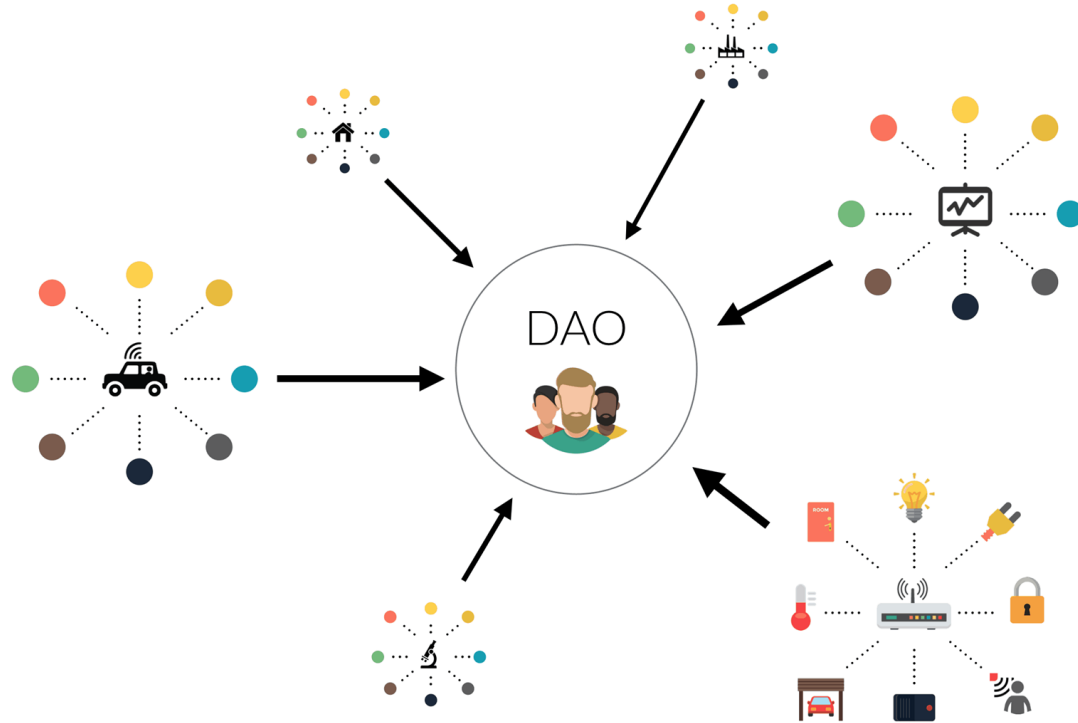




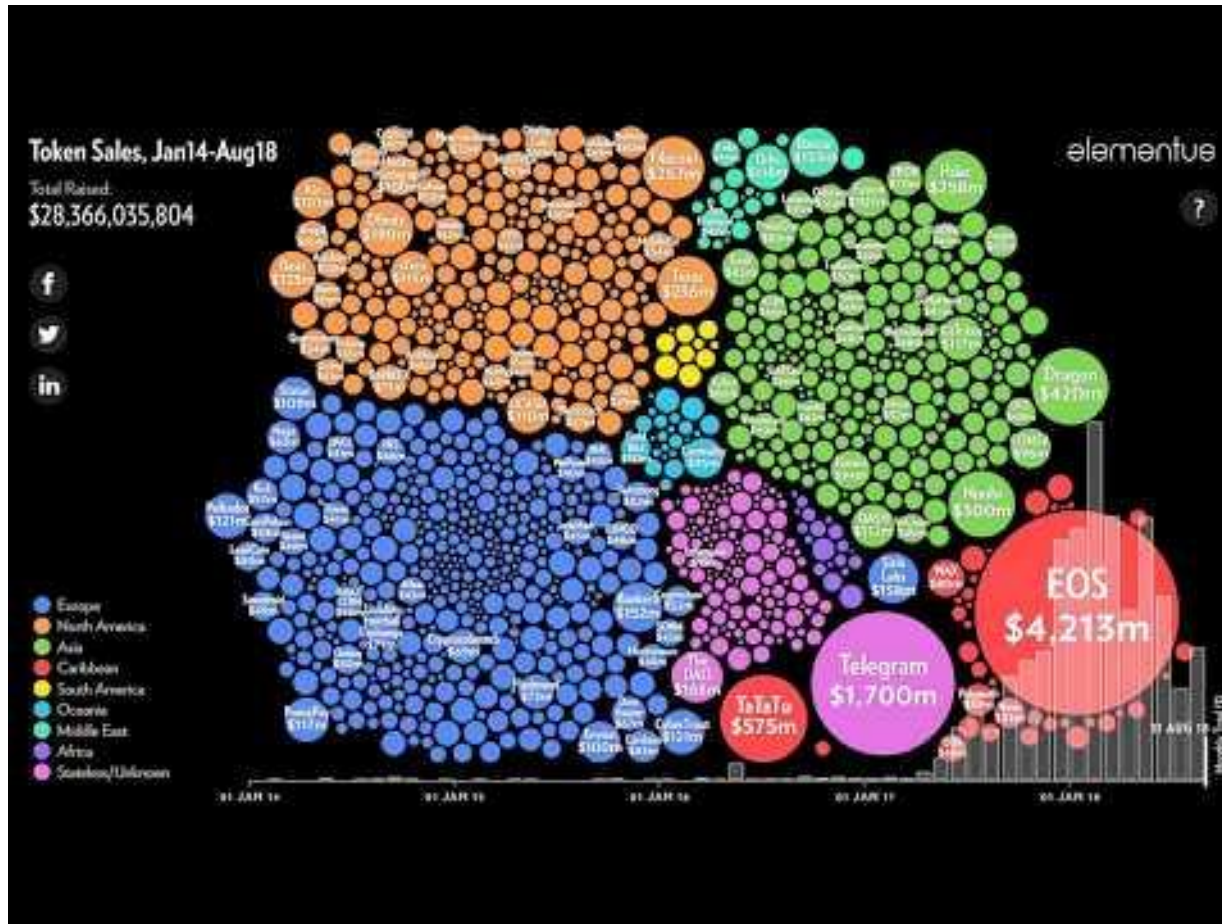
# **CASOS DE USO DE BLOCKCHAIN**

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# VC descentralizado (The DAO)



# VC descentralizado bis (Initial Coin Offering)



# DeFi (Decentralized Finance)

**Access Layer**  
Low-friction entry points for users to access web3

**Wallet / Browser**  
brave METAMASK WalletConnect Onramp Phantom coinbase | Wallet rainbow MoonPay wyre

**Aggregators**  
General / Discovery: DappRadar, RabbitHole  
DeFi-Specific: Zapper, ZERION, DeBank

**Web2**  
reddit, DISCORD

**Use Case Layer**  
User interface for interacting with infra / protocol layer

**Gaming**  
Axie Infinity, illuvium, Decentraland

**Content / Social**  
Context: rally, Mirror

**NFT**  
OpenSea, Rarible, Mintbase

**Financial Services**  
UNISWAP, Matcha

**Infrastructure / Category Primitives**  
Interoperable building blocks that are highly reliable at doing one specific task; can be combined to create applications

**Secure**  
OpenZeppelin, CERTIK

**Store**  
arweave, STORJIO, IPFS, Filecoin

**Analyze**  
Covalent, Dune Analytics, Chainalysis

**Communicate**  
XMTP [matrix], SWARM

**Govern**  
sybil, boardroom, snapshot, Tally

**Identify**  
Spruce, ENS, UNSTOPPABLE DOMAINS

**Transact**  
Buy / Sell: Curve, Set, UNISWAP  
Borrow / Lend: AAVE, Compound, CREAM  
Stake: LIDO, Staked  
Insure: Risk Harbor, Nexus Mutual  
Market Makers: WINTERMUTE, AMBER

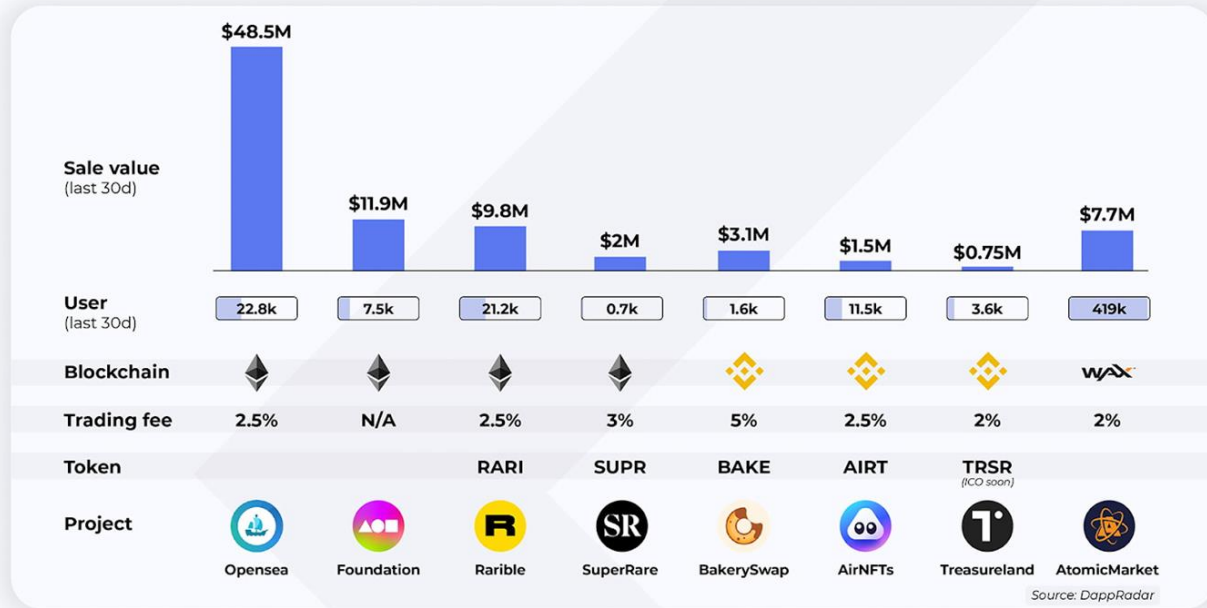
**Protocol Layer**  
Underlying main blockchain architecture

**L1s & Scaling Solutions**  
Bitcoin, Ethereum, SOLANA, AVALANCHE, COSMOS, BINANCE SMART CHAIN, OPTIMISM, polygon

**Bridge**  
Synapse, ANY SWAP, Hop

# Coleccionables en formato NFT (Non-Fungible Tokens)

## TOP NFT MARKETPLACES



# NFTs como estrategia de marca y fidelización



**Starbucks** starts NFT-based loyalty program.



**Tiffany & Co.** crafts jewel-encrusted pendants for CryptoPunks NFT owners.



**Budweiser** purchases beer.eth ENS name and debuts multiple NFT collections.



**DraftKings** opens marketplace focused on mainstream NFT accessibility.



**Reddit** mints 5 million collectible avatar NFTs.



**Nike** makes NFT platform .Swoosh for digital sneakers.



**Nickelodeon** bases NFT collectibles on *Rugrats* and *Hey Arnold!* characters.



**TIME** introduces NFT initiative TIMEPieces.



**Adidas Originals** creates NFT collection *Into the Metaverse*.



**Porsche** launches NFT collection and virtual experiences centered around the iconic Porsche 911.



**Gucci** showcases collectible NFTs in art exhibit called *The Next 100 Years of Gucci* and partners with Yuga Labs' metaverse project.

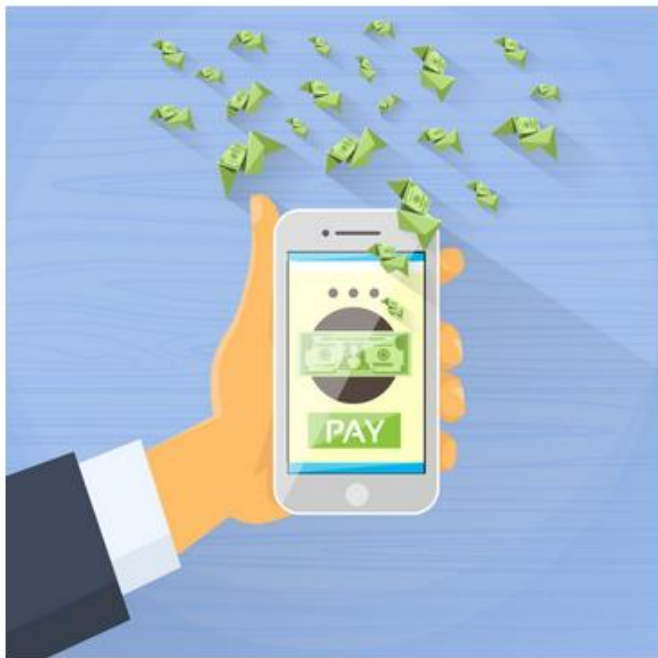


**Louis Vuitton** lets players collect NFTs in a self-branded mobile game.

# Pagos internacionales

## Santander Becomes the First U.K. Bank to Use Ripple for Cross-Border Payments

May 26, 2018 | Monica Long



Today Santander announced that they are the first U.K. bank to introduce Ripple's blockchain technology to facilitate international payments through a new app. They are rolling it out as a staff pilot, with the intention to expand the technology at a later date.

## MoneyGram Eyes Launch of Non-Custodial Digital Wallet

Chloe September 27, 2023

6.8K



MoneyGram International, Inc., a leading global financial technology company, has unveiled its plans to introduce its own non-custodial digital wallet, which is scheduled to debut in Q1 2024.

The non-custodial digital wallet will redefine cross-border payments, allowing customers to utilize stablecoin technology to seamlessly move from fiat to digital currency, to fiat again. Also, users will be able to seamlessly send digital assets to other users in the wallet.



# Bonos corporativos

## Santander Confirms Fiat-backed Token Project on Ethereum Blockchain

4787 Total views 629 Total shares



Santander, a part of the Spanish Santander Group is now using the Ethereum Blockchain to develop a public digital cash system using the Ethereum Blockchain. Santander officials confirmed this project which will make the bank the first to use an existing public Blockchain for issuing digital currency.



# Euro digital

**CincoDías** EL PAÍS ECONOMÍA

Compañías Mercados Economía Mi Dinero Fortuna / Cotizaciones f t in

**ACTUALIDAD** ¿Qué laboratorio y qué medicamento facturan más en la farmacia? »

**APERTURA** El Ibex abre con una caída del 0.13% hasta los 7.114 puntos »

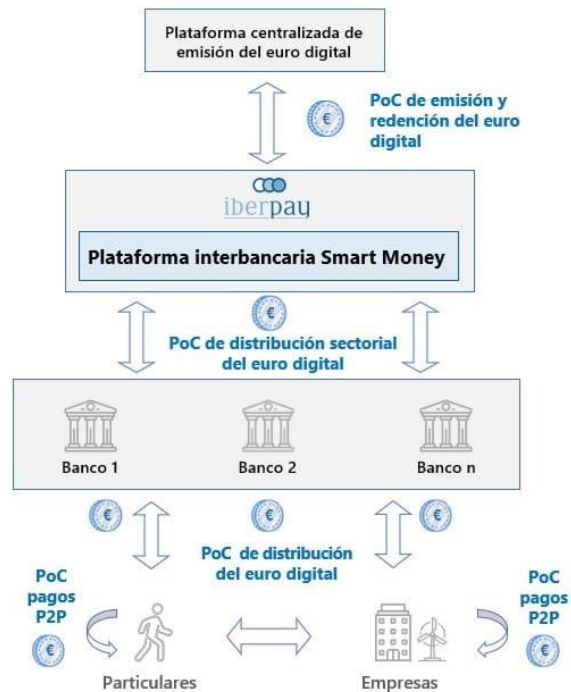
## Compañías

PAGOS ONLINE »

### Los cinco grandes bancos se lanzan a por el 'euro digital'

En los próximos días el consejo de administración de Iberpay, compañía española de servicio de pagos en la que participan las principales entidades financieras del país, pondrá fecha para realizar las primeras pruebas para operar con dinero digital, según apuntan varias fuentes financieras.

El documento añade que "este modelo estaría centrado en la emisión de tokens por Iberpay, desde una cuenta común sectorial, cuyos fondos, que serían propiedad de la compañía, actuarían como respaldo del dinero digital emitido, que sería, a su vez, distribuido, en su caso, a los clientes por las entidades financieras".



<https://www.iberpay.es/es/iberpay/iberpay/euro-digital/>

# CBDC (Central Bank Digital Currencies)

## Chinese digital currency stocks surge amid new efforts to promote e-CNY

Reuters



A sign indicating digital yuan, also referred to as e-CNY, is pictured at a shopping mall in Shanghai, China May 5, 2021. REUTERS/Aly Song

SHANGHAI/SINGAPORE, April 24 (Reuters) - Chinese digital currency-related stocks jumped on Monday in a weak broader market, amid the latest measures that China is taking to promote the use of its own central bank digital currency (CBDC), the digital yuan.

Changshu, a subordinate city to Suzhou in the eastern Jiangsu province, will pay civil servants and other state sector employees salary in digital yuan from May, state media Securities Times reported on Sunday.



## Progress on the investigation phase of a digital euro – third report

*The European Central Bank (ECB) and the euro area national central banks launched the investigation phase of the digital euro project in October 2021. The investigation phase aims to address key issues relating to the design and distribution of a digital euro. This report sets out the progress made during the investigation phase of the digital euro project and elaborates on a third set of design and distribution options that were recently endorsed by the ECB's Governing Council.*

*A collaborative approach is key to the preparation and eventual success of a digital euro. The ECB has been engaging extensively with external stakeholders, including the European Commission, the European Parliament and euro area finance ministers. A regular dialogue on a digital euro also takes place with market stakeholders through the Euro Retail Payments Board (ERPB), so that all sides of the market, including banks, payment service providers (PSPs), consumers and merchants, can provide their views on the design and distribution options identified by the Eurosystem.*

<https://www.reuters.com/markets/currencies/chinese-digital-currency-stocks-surge-amid-new-efforts-promote-e-cny-2023-04-24/>

[https://www.ecb.europa.eu/paym/digital\\_euro/investigation/governance/shared/files/ecb.degov230424\\_progress.en.pdf](https://www.ecb.europa.eu/paym/digital_euro/investigation/governance/shared/files/ecb.degov230424_progress.en.pdf)

# Stablecoins “privadas”



## Introducing the PayPal stablecoin, PYUSD1

1 USD : 1 PYUSD on PayPal

Rolling out now! PayPal USD is backed by secure and highly liquid assets. Buy, sell, hold, and transfer it in our app and on our site. Or use the convert feature to buy the cryptos we support. Fees apply.<sup>2</sup>

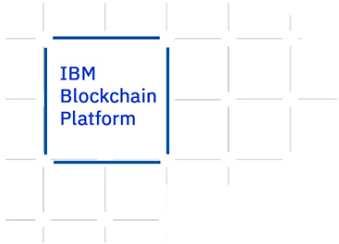
[More about PayPal USD →](#)



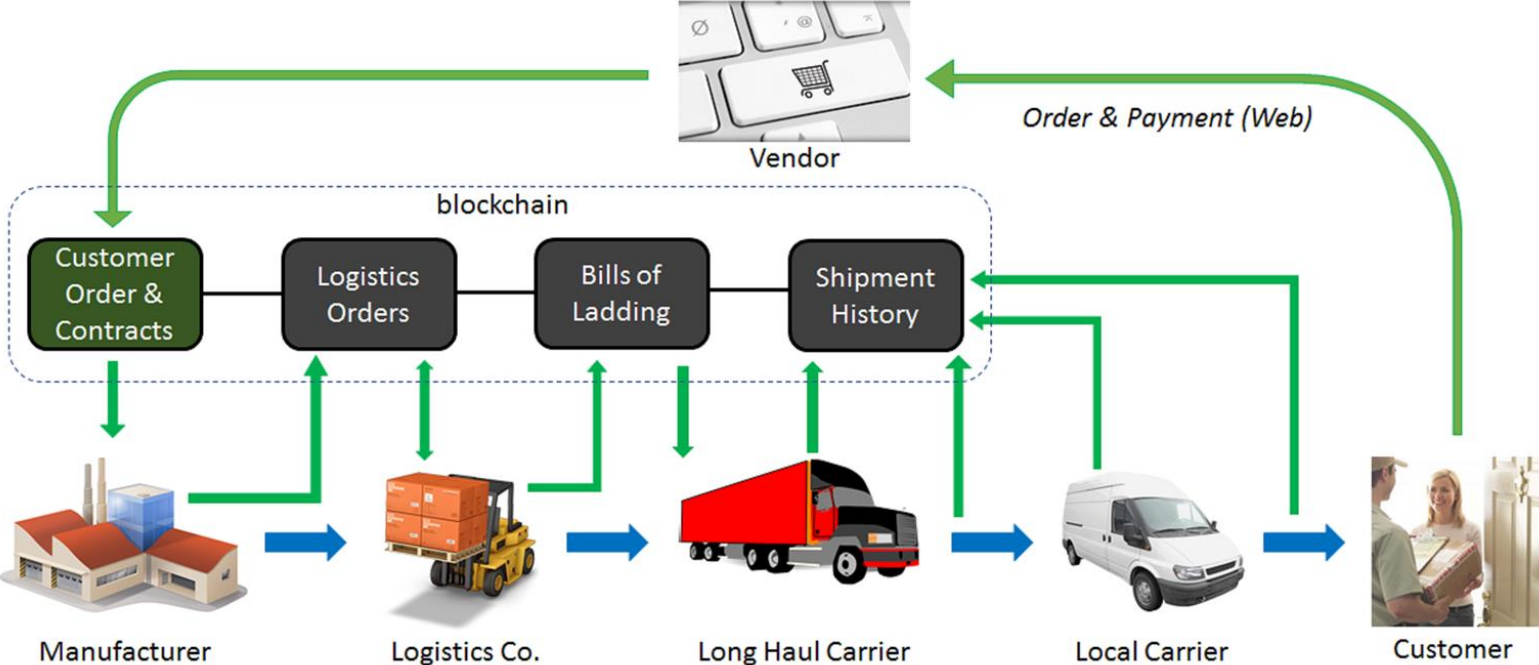
**Send. Receive. Transfer.**

Make your crypto move.

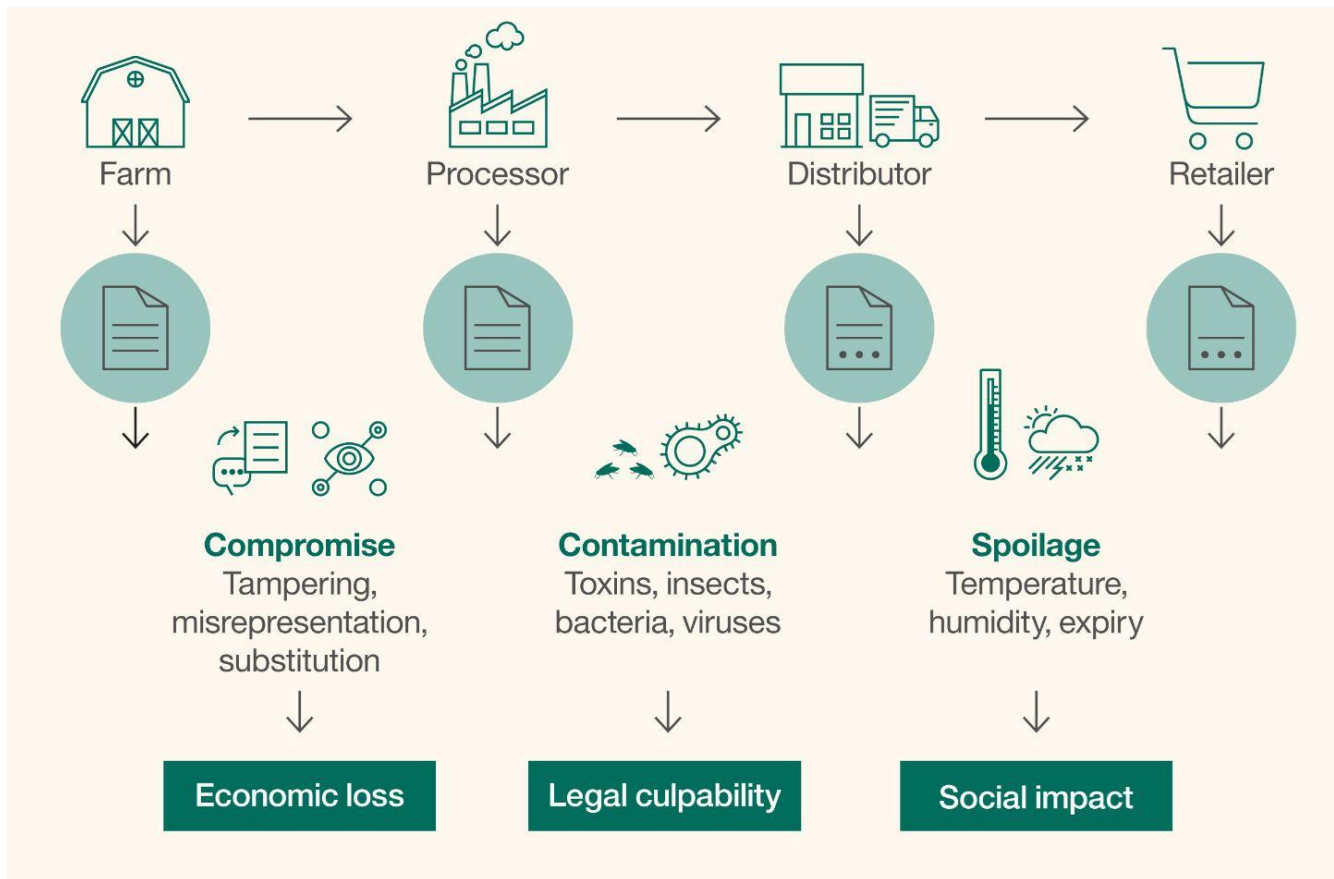
# Blockchain-as-a-service



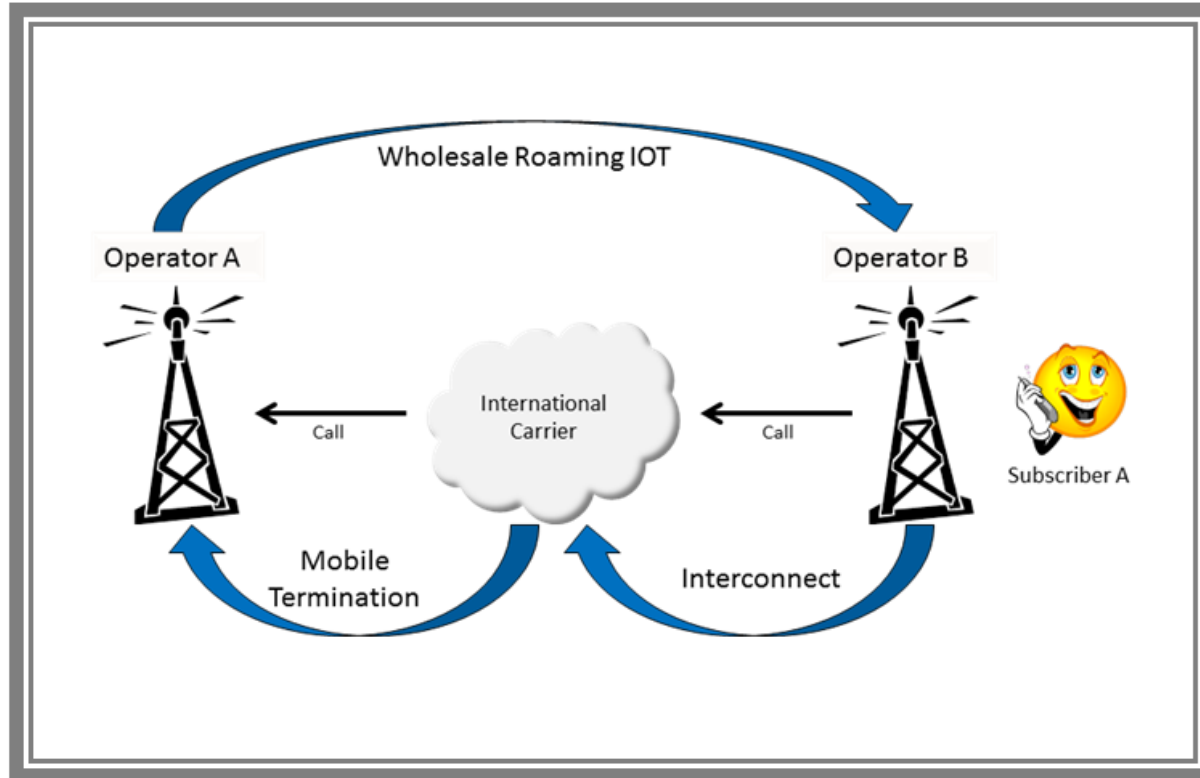
# Logística



# Trazabilidad



# Telecomunicaciones

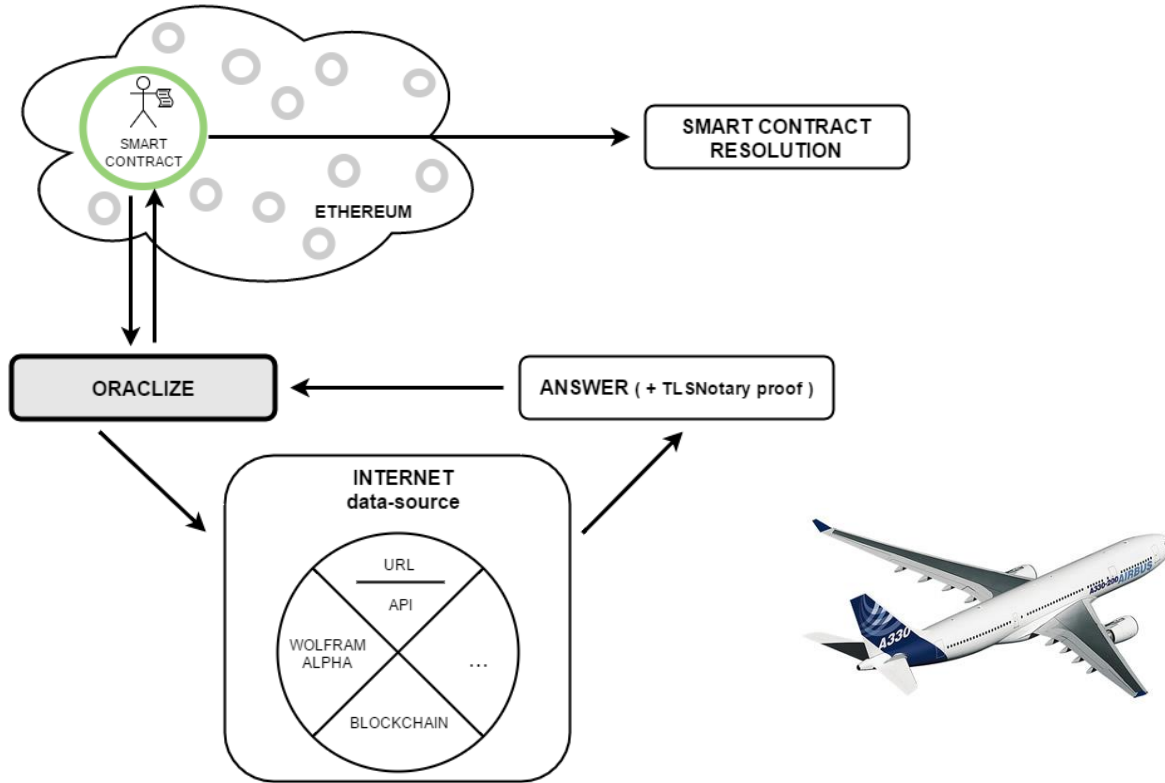


# Internet of Things

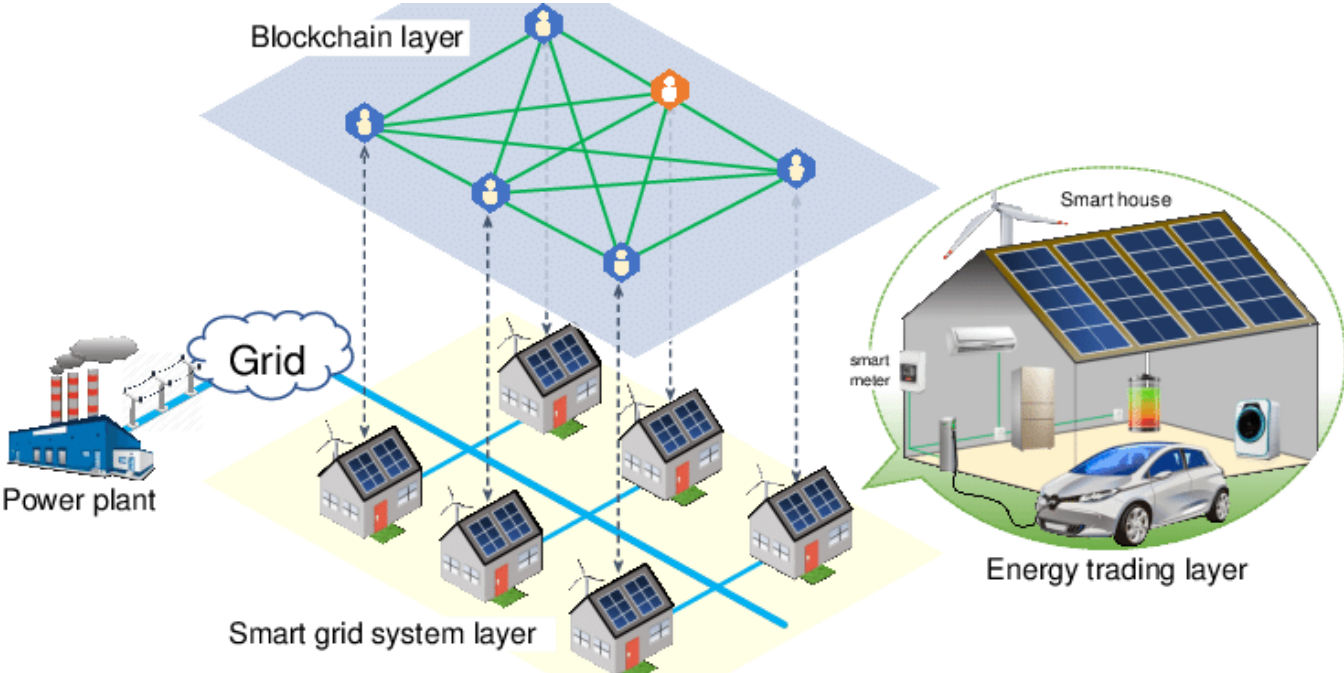




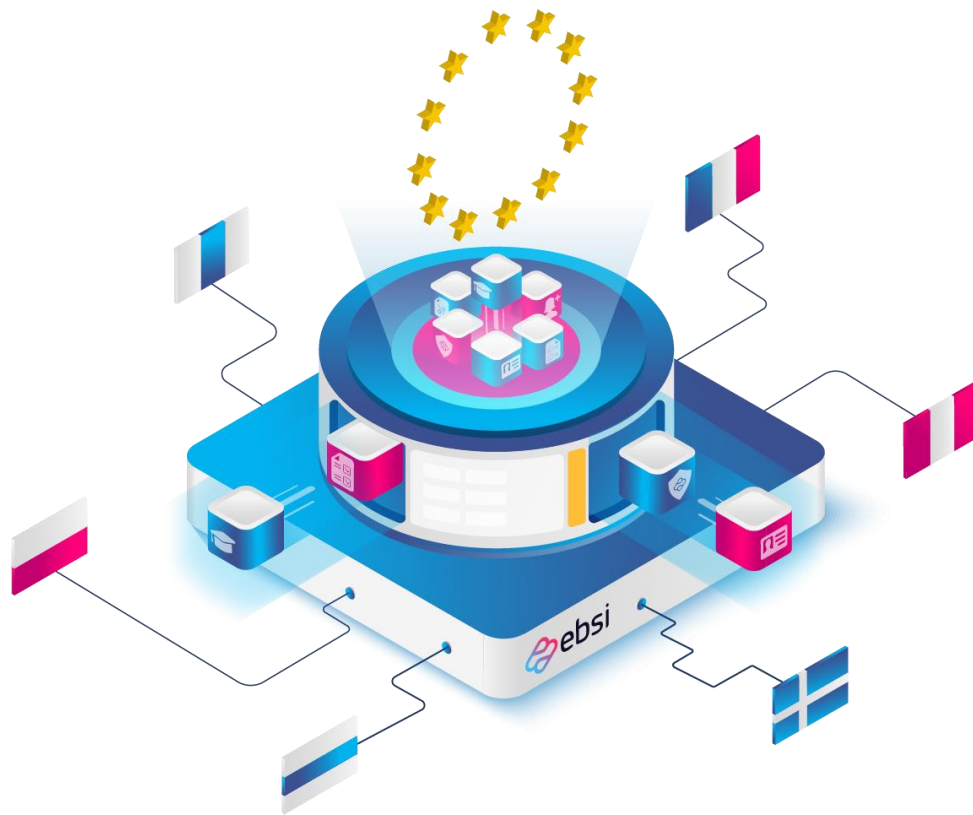
# Oráculos



# Energy Smart grids



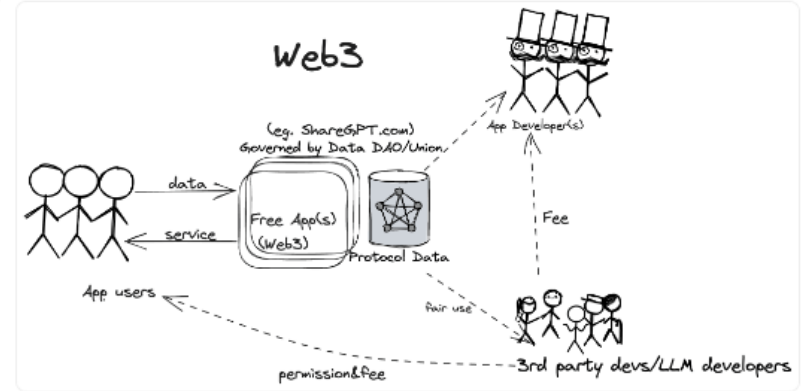
# Servicios públicos descentralizados (EBSI)



# De Web2 a Web3



Liang 良peaceuscn @liang · 18m



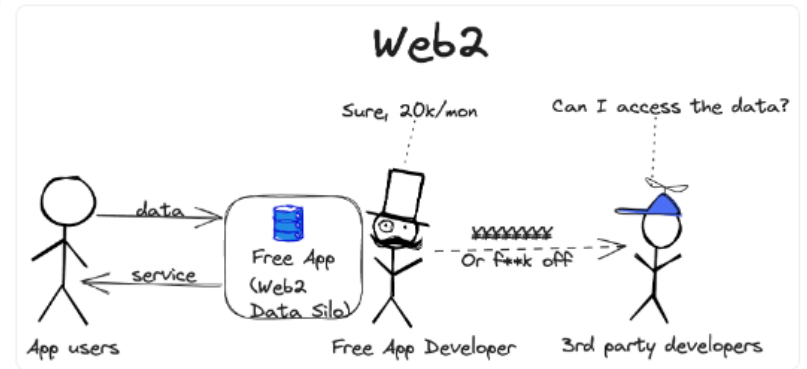
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1



3

# Redes sociales descentralizadas



**Bluesky**

@Threads

# ¿PREGUNTAS?

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    @joobid

 <https://es.linkedin.com/in/jorgeordovas>