Blockchain Use Cases

Smart Contracts and Industry Use Cases

Blockchain Market Size

Market Growth: The global blockchain technology market size was valued at USD 17.46 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 87.7% from 2023 to 2030.

Future Outlook: Gartner forecasts blockchain technology to drive a business value of $3.1 trillion by 2030, potentially influencing 10% to 20% of the global economic infrastructure.

Diverse Applications: While the financial sector accounts for over 30% of the blockchain market, various industries including manufacturing, agriculture, distribution, services, and the public sector witness rapid adoption.

HOW DOES BLOCKCHAIN WORK?
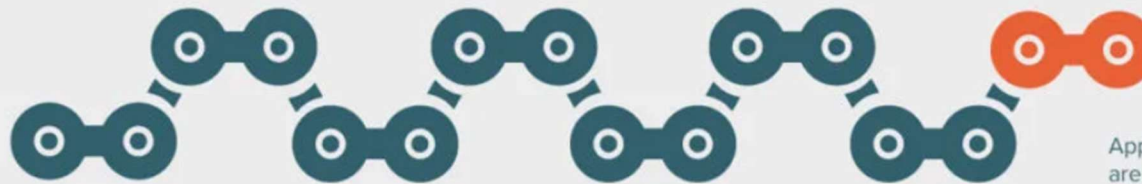
One party requests a transaction.
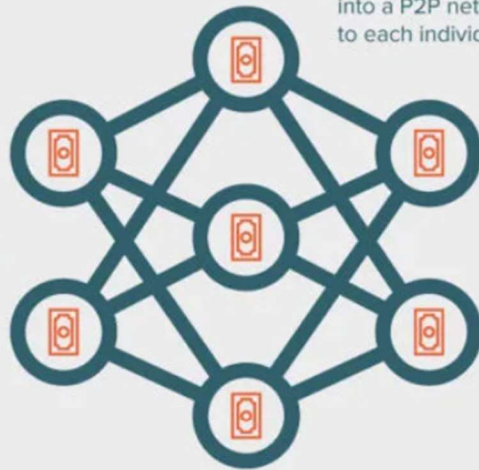
Requested transactions are funneled into a P2P network and broadcast to each individual computer (or node).

Individual nodes recieve the request and validate the transaction using an algorithm.

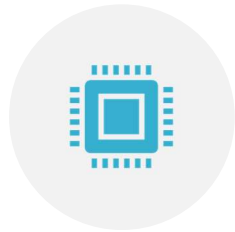Once the block is added to an existing chain, transactions are complete and permanent.

Approved transactions are represented as blocks and added to a public ledger.
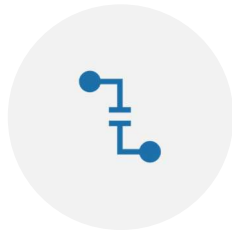
Smart Contracts

SELF-EXECUTION: AUTOMATICALLY ENFORCING TERMS WITHOUT INTERMEDIARIES.

CODE-BASED: TRANSPARENT TERMS TRANSLATED INTO CODE ON BLOCKCHAIN PLATFORMS.

DECENTRALIZATION: OPERATING ON DECENTRALIZED NETWORKS.

AUTOMATED EXECUTION: EXECUTING ACTIONS BASED ON PREDEFINED CONDITIONS.

VAST APPLICATIONS: USED IN FINANCE, SUPPLY CHAIN MANAGEMENT, REAL ESTATE, AND MORE, OFFERING EFFICIENCY, TRANSPARENCY, AND SECURITY.

SCs - How do they work?

PREDEFINED CONTRACT: CONTRACT TERMS ARE ESTABLISHED

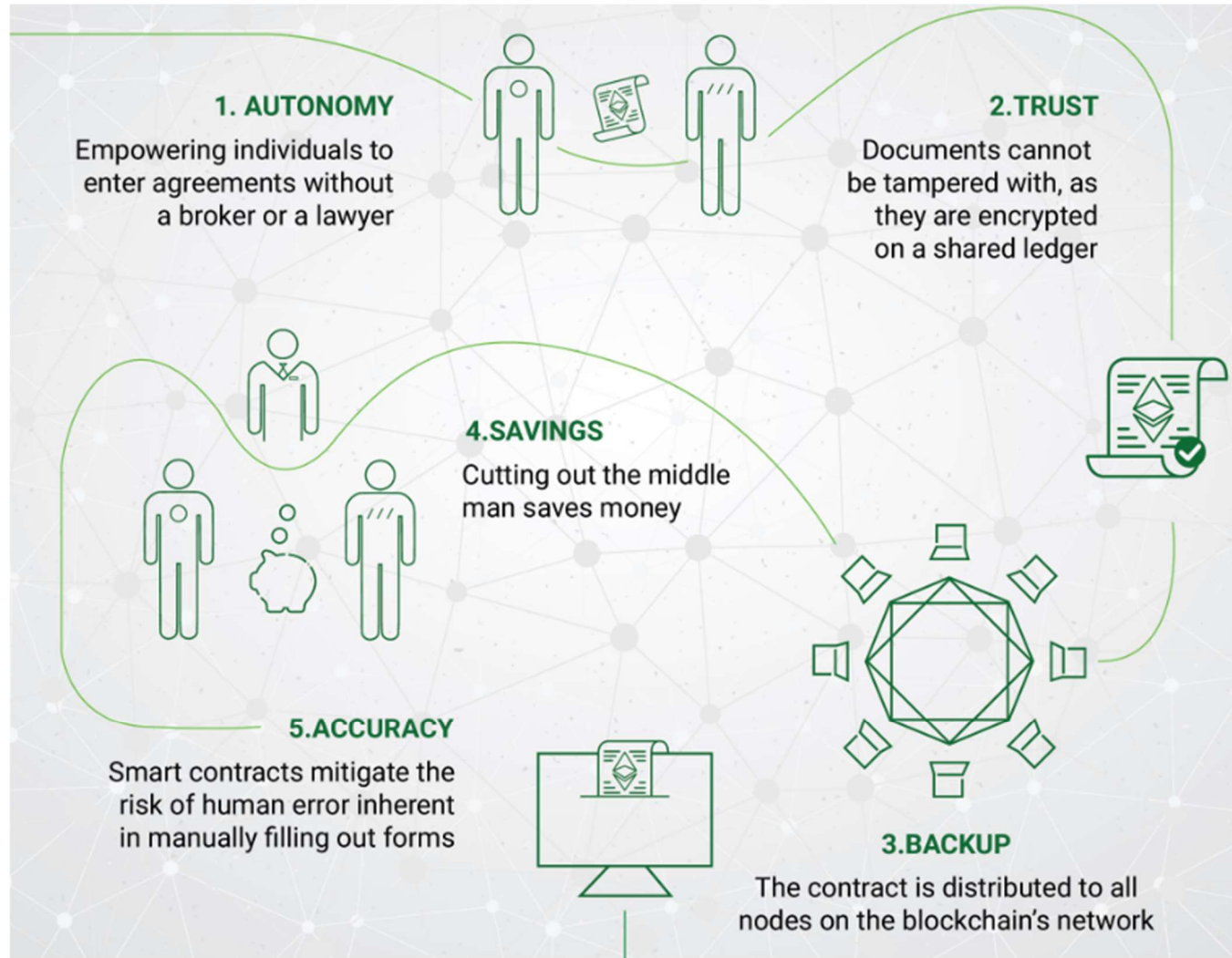**EVENT(S)**: EVENT TRIGGERS EXECUTION

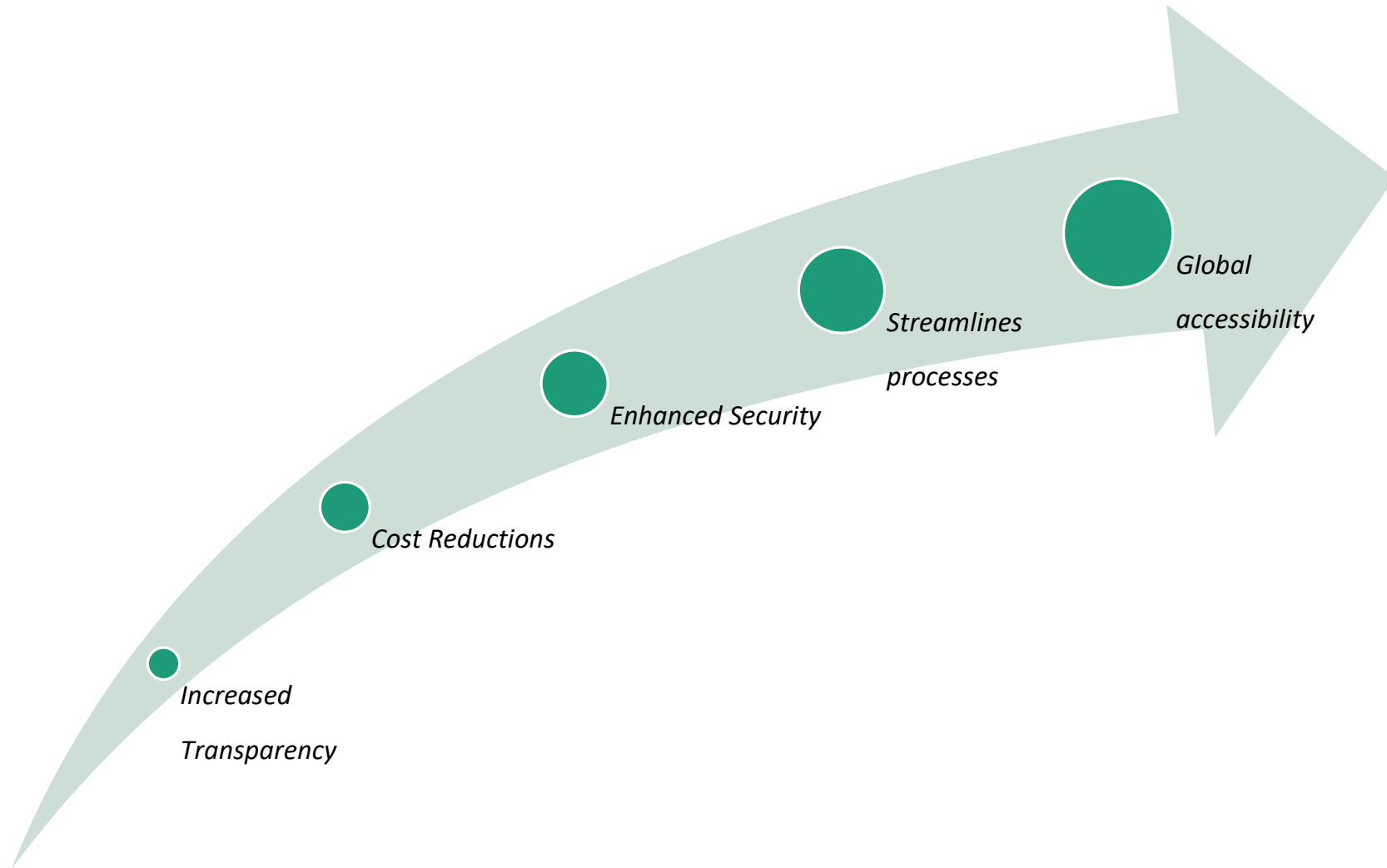**EXECUTION**: THE CONTRACT POLICY IS AUTOMATICALLY EXECUTED, ASSETS ARE RELEASED TO THE PARTIES

SETTLEMENT: THE TRANSACTION IS SETTLED, ALL DETAILS ARE RECORDED ON THE BLOCKCHAIN

Smart Contracts - Benefits

Blockchain Benefits Finance Industry

Increased
Transparency

Cost Reductions

Enhanced Security

Streamlines
processes

Global
accessibility

Decentralized Finance

DeFi stands for "decentralized finance" and refers to the ecosystem comprised of financial applications that are being developed on top of blockchain systems.

It also stands for the movement that promotes the use of decentralized networks and open-source software to create multiple types of financial services and products. I.e.:

- Creating monetary banking services (e.g., issuance of stablecoins)
- Providing peer-to-peer or pooled lending and borrowing platforms
- Enabling advanced financial instruments such as DEXs, tokenization platforms, derivatives and predictions markets.

Tokenization of Assets

The process of tokenization creates a bridge between real-world assets and their trading, storage and transfer in a digital world. The corresponding basis is built by using the Blockchain technology. Tokenization can turn almost any asset either real or virtual, into a digital token.

Payment: Fiat currencies/stablecoins/CBDCs, Cryptocurrencies, Corporate points.

Financial Products: Real Estate, equities, certificates, fixed income.

Precious metals, consumables, collectables (unique objects).

Intangibles: IP, royalties, copyrights, trademarks, licenses, patents.

DeFi Infrastructure

Chainlink Labs is a Web3 services platform that works to enhance smart contracts by connecting them to off-chain data sources. The company is the developer of Chainlink, an enterprise-grade oracle infrastructure that helps financial institutions connect their existing systems to major blockchain networks.

Finance Use Cases

Posting Derivatives Collateral

Tokenized Collateral Network (TCN) is an application enabling investors to utilize assets as collateral. Transfer collateral ownership without moving assets in underlying ledgers — while remaining invested — starting with money market funds.

Finance Use Cases

Advanced digital identity management

IBM's "Trusted Identity" solution employs decentralized authentication and advanced due diligence, granting users control over their data access.

Civic offers password-less multi-factor authentication for mobile and web apps. Utilizing blockchain, it securely stores encrypted biometric data, ensuring secure logins. Notably, users can revoke their identity from the blockchain, thwarting potential threats.

Manufacturing Use Cases
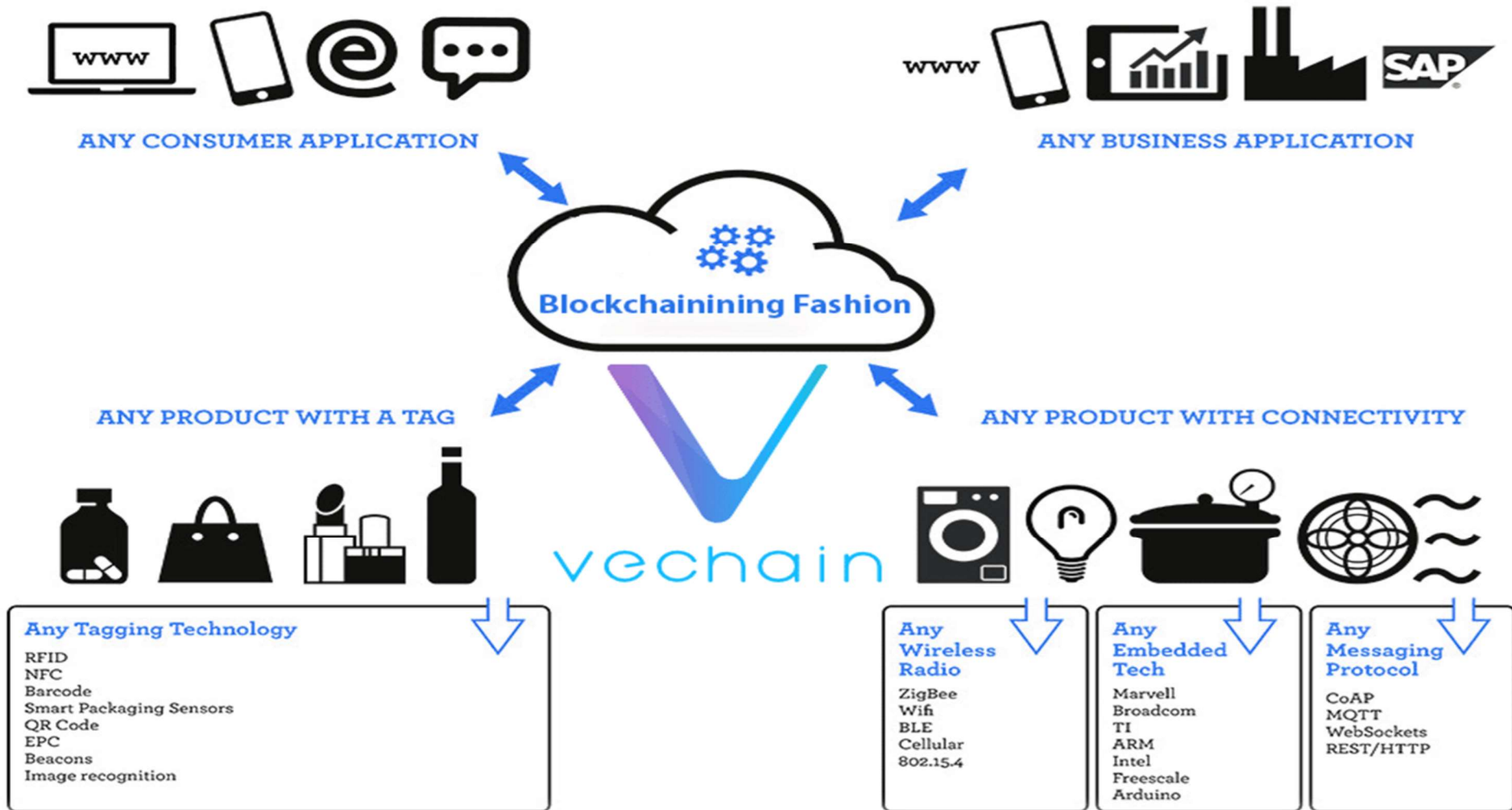
Manufacturing Use Cases

Product provenance tracking ensures transparency, authenticity, and quality control by:

Example: American Tire Distributors – TORQATA.
(Demand-driven supply chain)

ATD

| Traceability Solutions | Quality Assurance | Compliance and Regulation | Supply Chain Optimization | Consumer Confidence |

Retail Use Cases

Walmart faced supply chain challenges despite its leadership status. - It tackled data discrepancies in freight carrier payments with blockchain. - Walmart Canada's initiative began due to immense data volumes and operational complexities. - An analysis revealed the root cause: incompatible information systems. - Blockchain automation overcame manual reconciliation, starting with a pilot involving Walmart Canada and Bison Transport. - DL Freight network rollout reduced invoice disputes from 70% to less than 1%.

Retail Use Cases

QR Code Authentication: QR codes with unique identifiers help authenticate products, enhancing consumer trust and brand protection.

NFC Tags and RFID Technology: These technologies embed digital markers into products, allowing for verification of authenticity and tracking throughout the supply chain.

Authentication Apps and Platforms: Dedicated apps and platforms provide tools for consumers to verify product authenticity in real-time. Example: Certilogo.

Healthcare Use Cases

Blockchain technology significantly benefits patient records management:

Secure Data Storage: Blockchain encrypts and decentralizes patient records, making it difficult for unauthorized parties to access or tamper with sensitive medical information.

Integrity of Clinical Trial Data: Blockchain's immutability ensures the integrity of clinical trial data, enhancing the reliability of research outcomes.

Example: Medicalchain offers secure storage and sharing of medical records, empowering patients to control their health data.

Medicalchain™

Healthcare Use Cases

Blockchain enhances drug traceability in healthcare:

- Enhanced Supply Chain Transparency
- Counterfeit Prevention

Example: The MediLedger Network ensures drug provenance tracking, enhancing regulatory compliance and supply chain transparency.
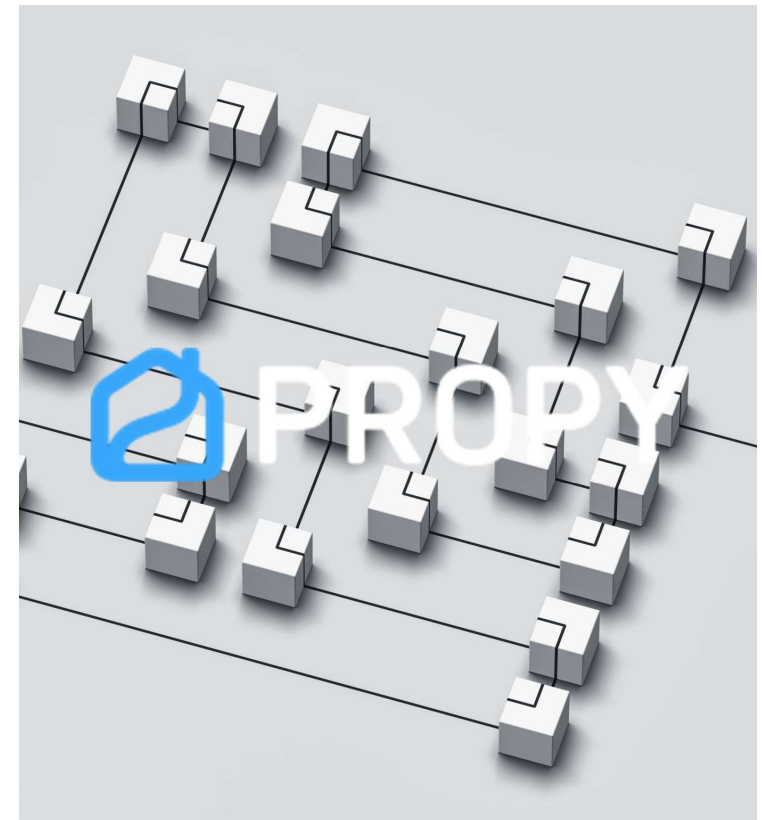
Construction/Real Estate Use Cases

*Blockchain significantly benefits property title transfers:*

Simplified Transactions*: Secure and immutable ledgers streamline transactions, reducing paperwork and expediting transfers.*

Enhanced Transparency*: Decentralized storage ensures transparency in contract management, promoting trust and reducing disputes.*

Example: Propy leverages blockchain for cross-border property purchases, ensuring transparent ownership records.

Construction/Real Estate Use Cases
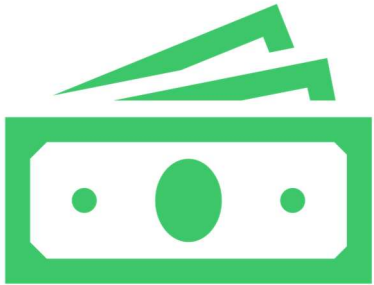
Transparency in Funding Allocation: *Provides an immutable ledger for tracking funds allocation and usage in real-time.*

Tracking & Tracing: *Combined with IoT devices for construction materials provenance.*

Summary

Blockchain Impacts by Industry:

- Finance: Faster, secure transactions, fraud reduction, enhanced transparency.

- Cybersecurity: Enhanced data security, decentralized protection, improved identity management.

- Supply Chain Management: Traceability, counterfeit reduction, efficient tracking.

- Healthcare: Secure data sharing, integrity assurance, streamlined processes.

- Manufacturing: Process optimization, quality control, efficient supply chain.

- Real Estate: Simplified transactions, transparent contracts, reduced fraud.

- Energy: Transparent trading, dispute reduction, peer-to-peer energy trading.

- **Etc..**