

# ALTERNATIVE USE OF BLOCKCHAIN

TEAM 4

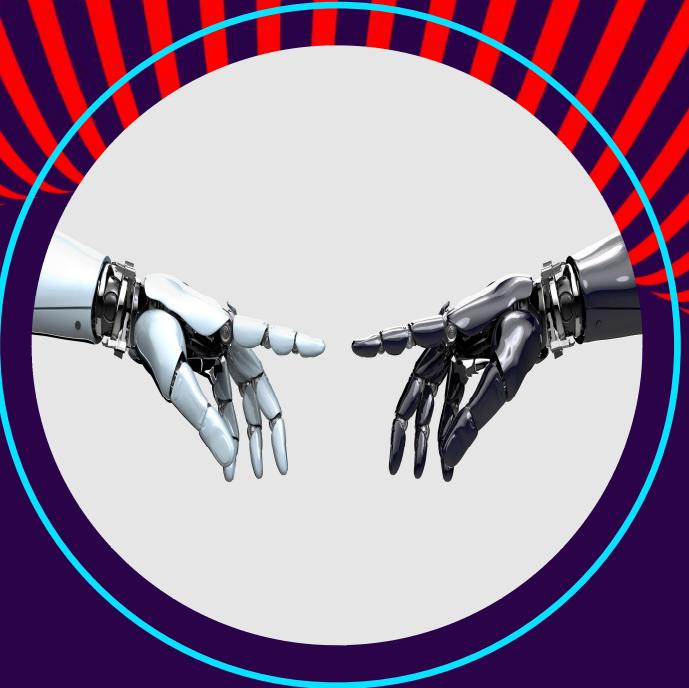


# INTRODUCTION

Blockchain – A term so synonymous with Cryptocurrency, it is barely understood by the world at large. The buck stops at “payment system” and is never explored beyond. Today, team 4 takes you to a journey for blockchain, preparing you to see how blockchain technology can revolutionize carbon markets, supply chains, and education systems.

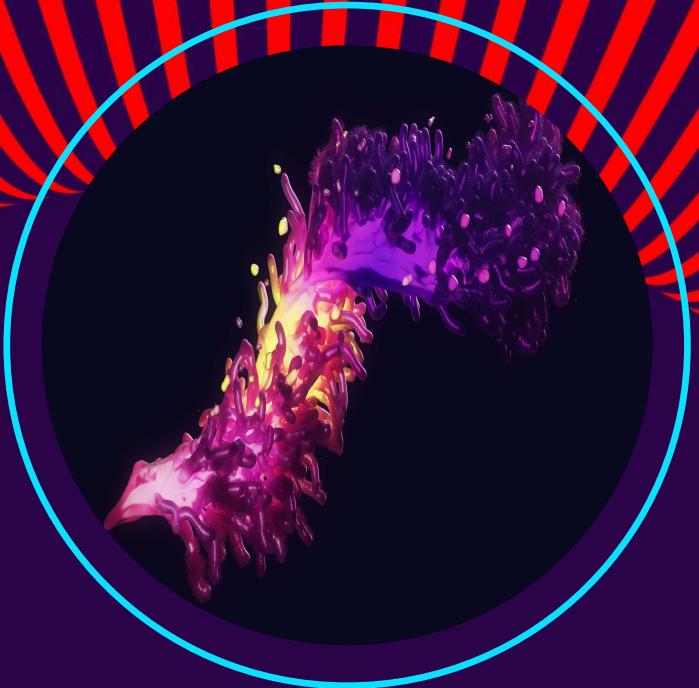
The concept of tokenization, verification, data integrity, smart contracts etc to name a few, the potential here being that no field can now resist the efficiency of block chain.

**The question is no more “Can we include this in Blockchain”  
but “How do include this in Blockchain”**



## THE JOURNEY SO FAR

Finance has come a long way, from the age of ink-stained ledgers maintained by quills, to modern blockchain technology. Traditional and even modern electronic ledger have proven themselves to be vulnerable to fraud, human error, inefficiency and slower speeds. As is with all revolutions, we now enter a phase of large scale blockchain usage, with centralized databases, ever evolving security and a never-before seen efficiency. This shift in not merely an upgrade to a software, but an entire transformation of the global financial systems.



# TRADITIONAL FINANCE VS BLOCKCHAIN

*IN TRADITIONAL FINANCE, YOUR MONEY GOES ON A SECRET ADVENTURE. IN BLOCKCHAIN, IT LEAVES A TRAIL LIKE HANSEL AND GRETEL—ONLY WITH FEWER BREADCRUMBS AND MORE CODE.....AND NO WITCH AT THE END.*

An overview of inefficiencies of traditional finance and how blockchain overcomes and takes an adaptive evolved step rather than just mitigation.

"Decentralized  
Finance (DeFi)" by  
Mansur Bestas  
(2023)



## KEY ISSUES IN TRADITIONAL FINANCE



Fraud



Inefficiency

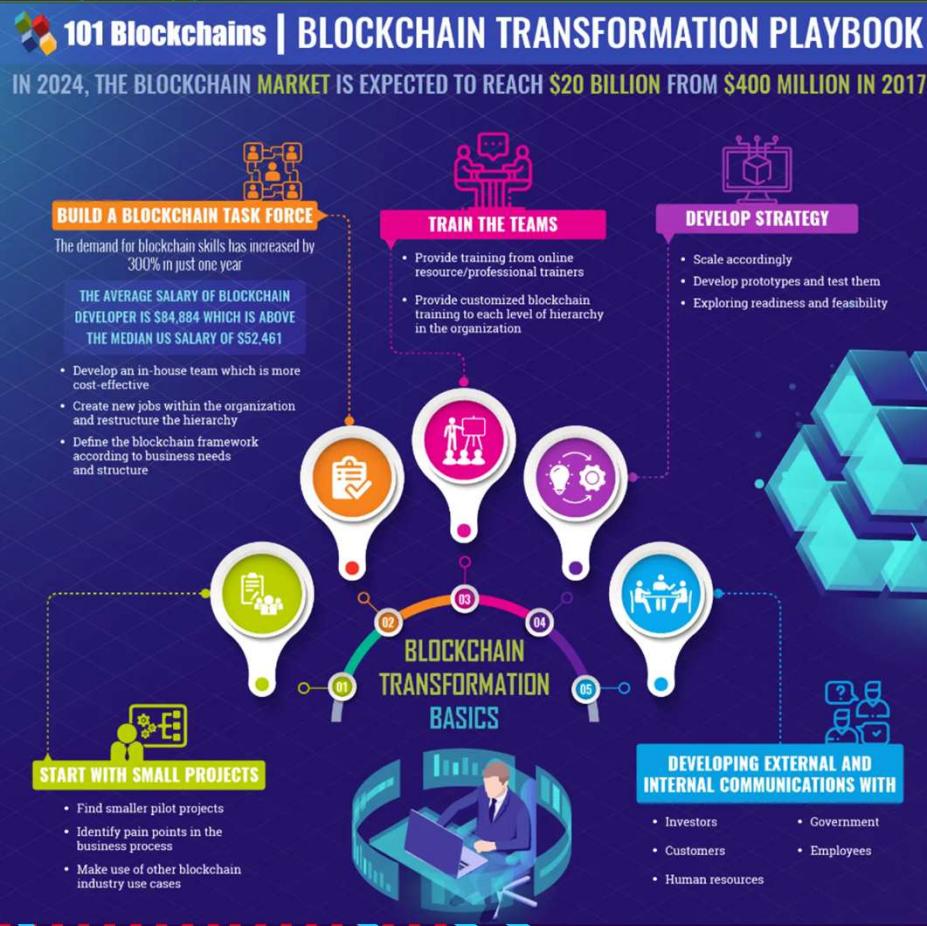


Cost savings



Slower verification

- Traditional finance often uses data silos prone to manipulation and opacity (Enron Accounting Scandal).
- Traditional Finance, and its centralised databases controlled by single entity are vulnerable to hacks and fraud (\$81M Bangladesh Bank heist).
- Traditional finance may have high fees due to brokers, banks & custodians. Manual processes slow down transactions and increase costs.
- SWIFT transfers may take days, whereas blockchain transfers take seconds/minutes.



From weeks to seconds, from opacity to transparency—  
Blockchain transforms the status quo — [Blockchain.com](https://Blockchain.com)

# HOW BLOCKCHAIN FIXES PROBLEMS



## Transparent & Data Integrity

The Blockchain's public/permissioned ledger counter this by being immutable and show real-time visibility enhancing history trust.



## Security & Fraud Prevention

Blockchain networks being decentralized with multiple nodes and cryptographic security prevents such attacks.

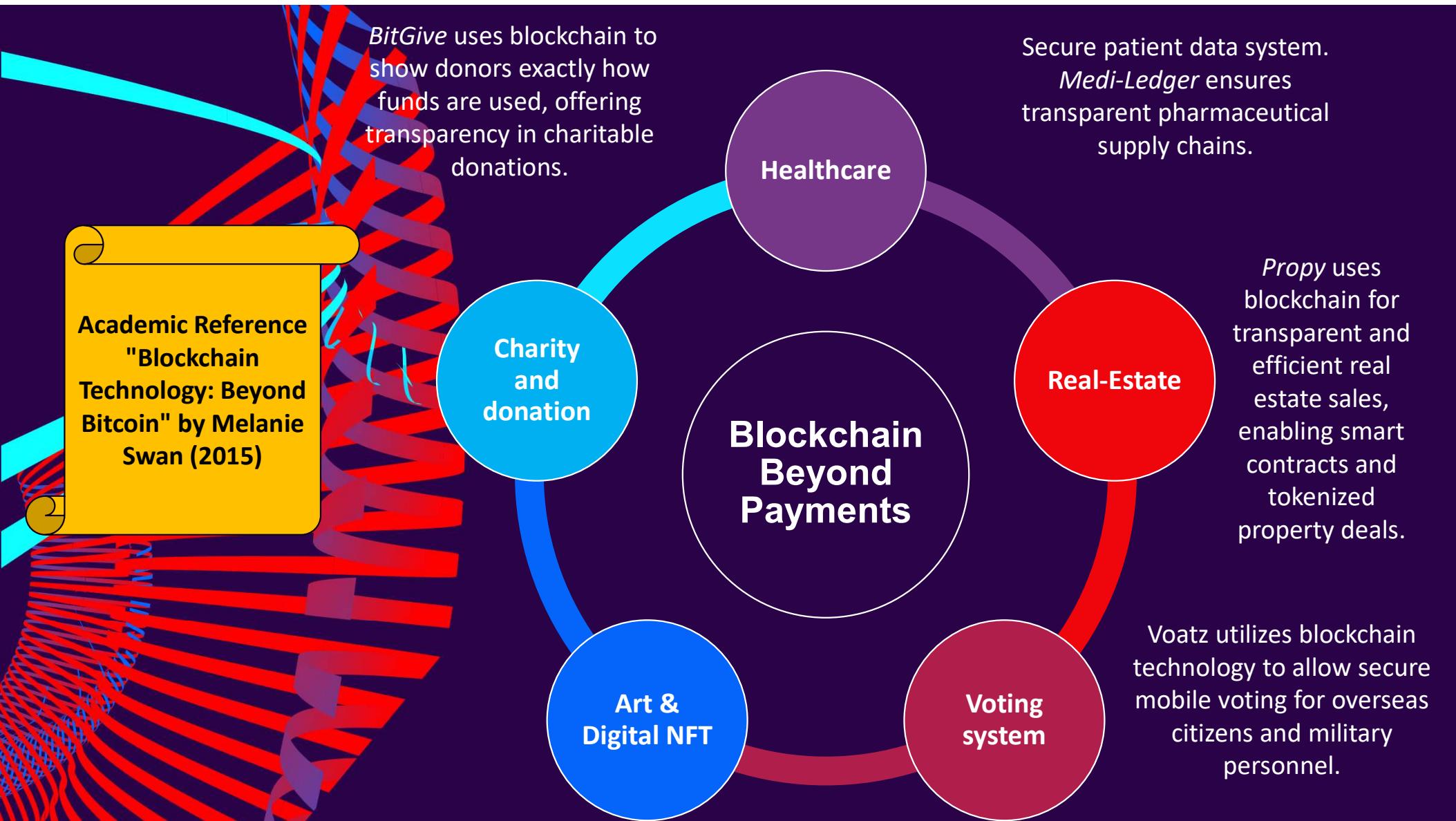


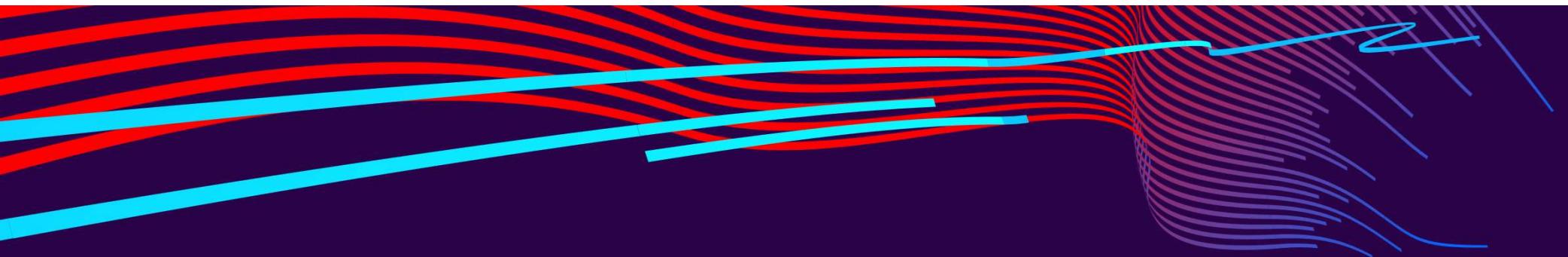
## Cost structure & Intermediary

Blockchain reduces intermediaries, cut costs for transaction. Peer-to-peer costs pennies, In 2022, a \$1 billion transaction on the Bitcoin network had a fee of only \$0.68, showcasing blockchain's cost efficiency.

## Transaction speed & Efficiency

Blockchain's smart contracts, automating verification & settlement may only take seconds or minutes with Oracles bringing real-world data to blockchain.





## AIRCARBON EXCHANGE



“Carbon credits are like the calories of the corporate world—  
everyone’s trading them, but nobody’s sure where they go”

An overview of our first case study - AirCarbon Exchange - transforming the traditional carbon market by tokenizing carbon credits



Carbon  
Credit  
creation



Tokenization  
of Carbon  
credits



Listing on  
ACX Trading  
platform



Trading and  
settlement



Redemption  
& Utilization



Report &  
Compliance



AIRCARBON EXCHANGE - ACX - PROCESS

## AIRCARBON EXCHANGE – UNIQUE FEATURES

**“Trading Carbon  
Credits on  
blockchain” :  
Erasmus University,  
2024**

Governance model , only authorized entities can mint and validate tokens integrated with community voting.

Smart contracts

Decentralized ledger

Security, transparency, preventing fraud and data tampering. Automated settlements and compliance.

Permissioned Blockchain

Community voting on policies

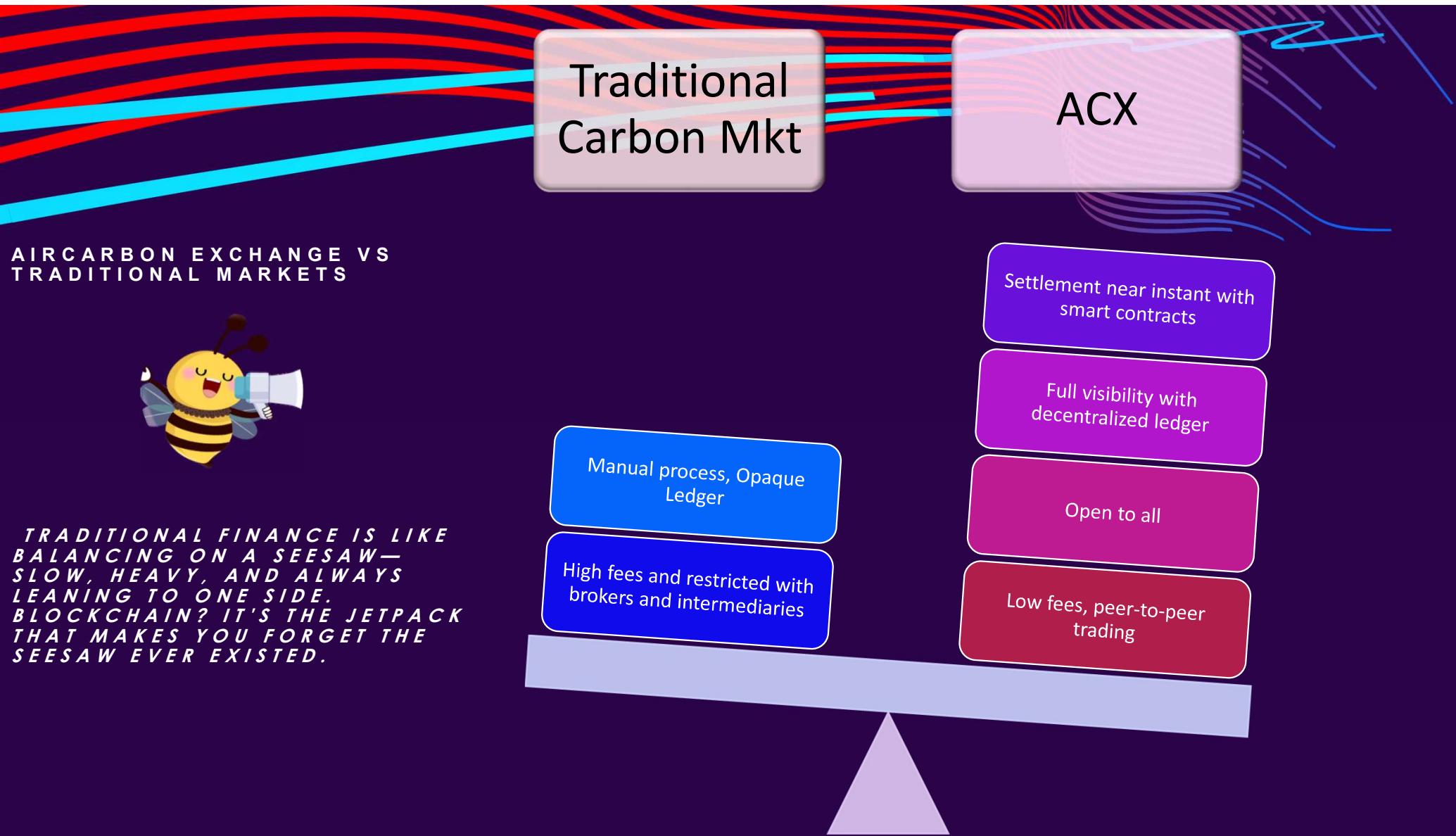
Oracle Integration

KYC/AML Checks & Reporting

Regulatory compliance, smart contracts ensure compliance. Oracle Keeps blockchain data aligned with real-world emissions data.

Access.  
Seamless transition for all participants.

Open marketplace





## IBM FOOD TRUST



“If traditional supply chains are the ‘Where’s Waldo?’ of food safety, then IBM Food Trust is like finding Waldo with a GPS”

An overview of our second case study – IBM Food Trust - a blockchain-based supply chain solution designed to increase transparency, enhance food safety, and improve efficiency in the global food ecosystem.

Data  
Onboarding



Tokenization  
of  
Information



Blockchain  
tracking



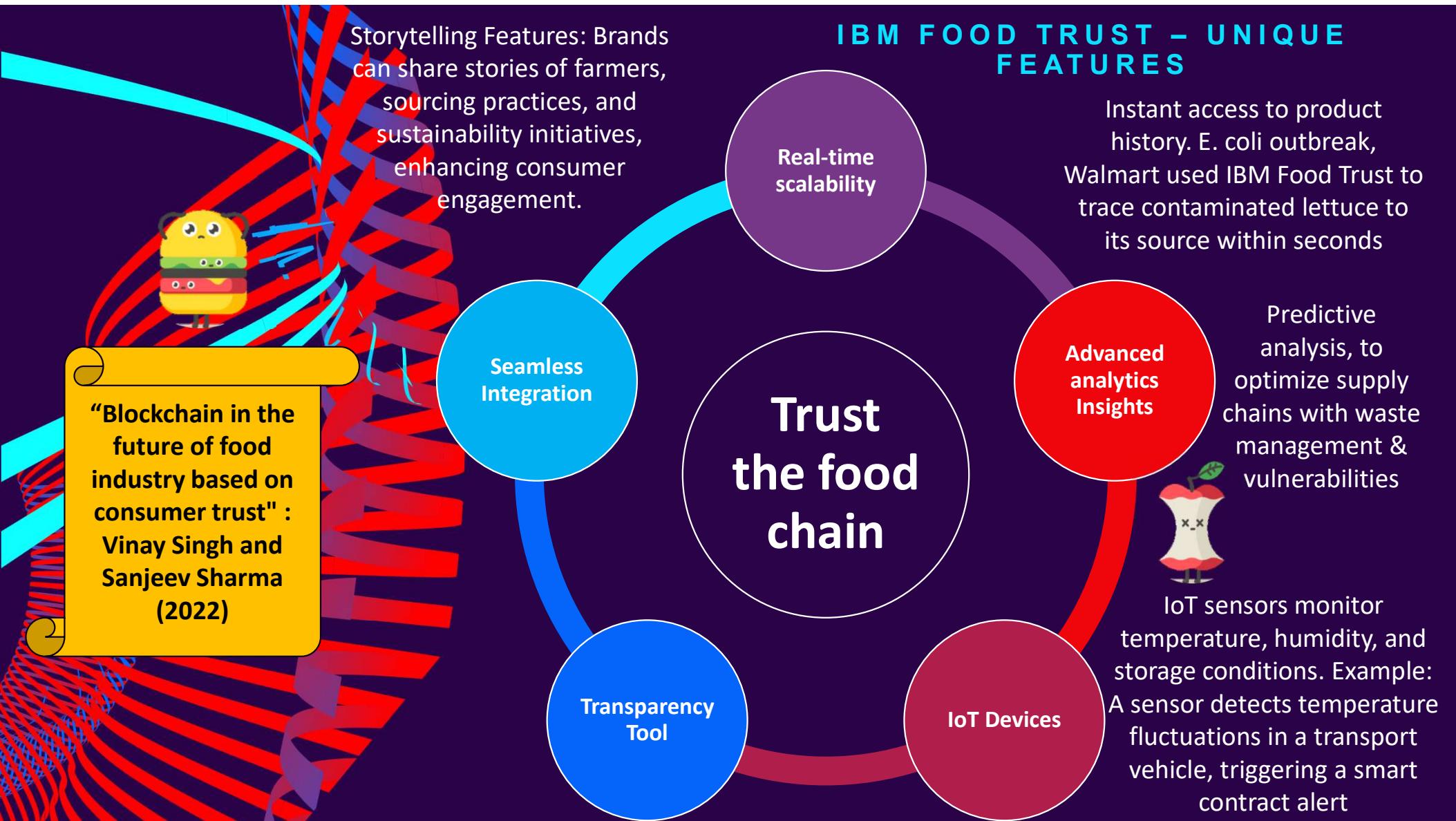
Smart  
Contract



Verification  
&  
Engagement



IBM FOOD TRUST – PROCESS





IBM Food  
trust

Traditional

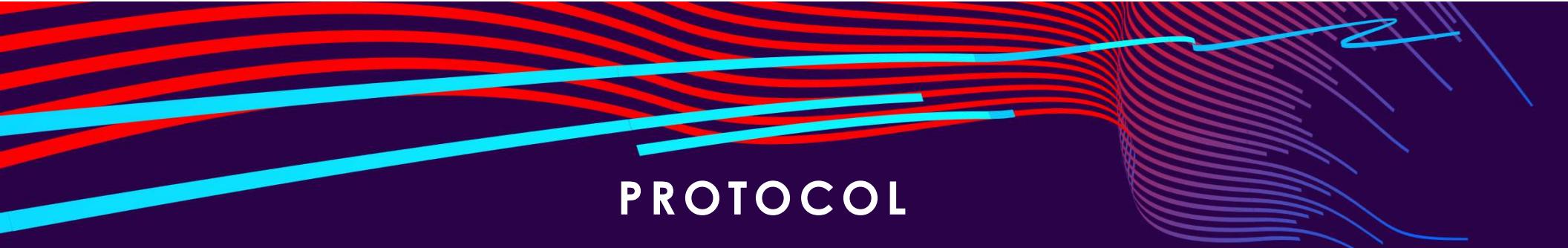
Blockchain  
automation, instant  
transactions

Smart contracts  
reduce manual  
processes

QR codes provide  
comprehensive  
product history

Non-traceability &  
Costly Recalls

Data Fragmentation  
& Fraud



# PROTOCOL

Team 4 presents our brainchild, a blockchain-based protocol designed to securely issue, verify, and store academic credentials, offering transparency, security, and global scalability solution;

## EduTrust Scale

### Where Academic Credentials Meet Global Standards





## EDUTRUST SCALE: THE VISION

Our vision for **EduTrust Scale** is to create a global standard for secure, verifiable, and universally recognized academic credentials. By leveraging blockchain technology, we aim to eliminate credential fraud, uncertainty, streamline verification. The protocol will provide scalable solutions region wise, converting the local academic credentials and suit it better to our needs.

### TRANSPARENCY SECURITY

Instant & verifiable academic records accessible to students, institutions & employers.

Immutable records, secured on a de-centralized blockchain preventing tampering and fraud.  
Using a replication of SHA 256 algorithm .

### ANALYTICS

Advanced analytics for premium subscription, where an oracle driven data analysis will give employers and institutions their choice of students. IBM Learning Credential Network and Blockcerts

### TRAINING

The platform will showcase a training/demo version for students and universities as a starting platform.

# NEED FOR EDUTRUST SCALE



## Verification

With the rise of diploma mills, and false student credentials, EduTrust introduces unforgeable academic credentials which goes both ways.

## Storage

Data may sometimes be lost due to mismanagement, or human error, EduTrust ensures lifelong, immutable access to credentials.

## Globalisation

As students and professionals move across borders, seamless and rapid credential verification is crucial for higher education admissions and job applications.

## Lifelong Learners

In an era of micro-credentials, bootcamps, and online certifications, EduTrust Scale can integrate all forms of learning into a single, universally recognized ledger.

## Emerging Tech

EduTrust Scale offers a decentralized, tech-forward approach. The training version will contain a EOA, externally owned account to transact and learn contracts.



### Layer 1: Settlement Layer (Blockchain Infrastructure)

Hyperledger Fabric RAFT for trust less execution.

SHA-256 hashing secures academic credentials on-chain.

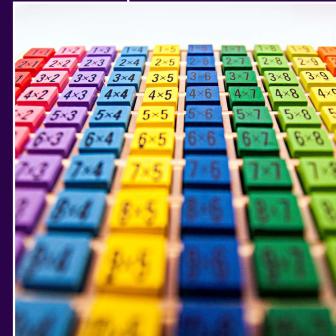
Arweave for decentralized off-chain storage.

Merkle Trees enable verification without exposing full data.

ERC-4337 Account Abstraction for gas optimization & transaction efficiency.



## DESIGN LAYER



### Layer 2: Asset Layer (Tokenized Credentials & On-Chain Identity)

ERC-721 / ERC-1155 tokens for individual and batch credential issuance.

W3C Verifiable Credential (VC) standards integrated into metadata.

Zero-Knowledge Proofs (ZK-SNARKs) enable selective data disclosure.

Revocation Registry Smart Contracts prevent unauthorized credential use.



### Layer 3: Protocol Layer (Smart Contracts & Trustless Verification)

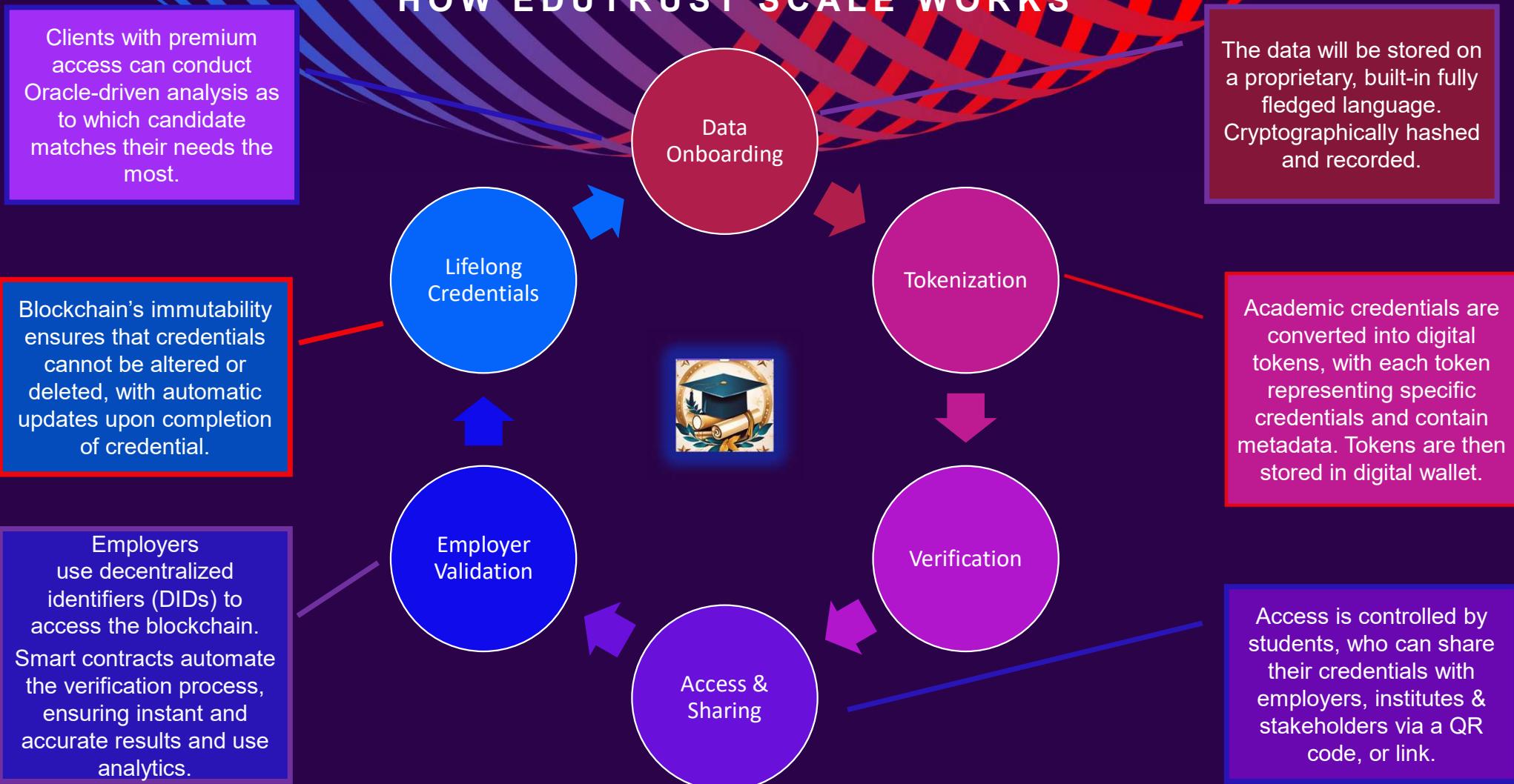
Decentralized Identifiers (DIDs) linked with Ethereum Name Service (ENS).

Chainlink CCIP enables multi-chain cross-university verification.

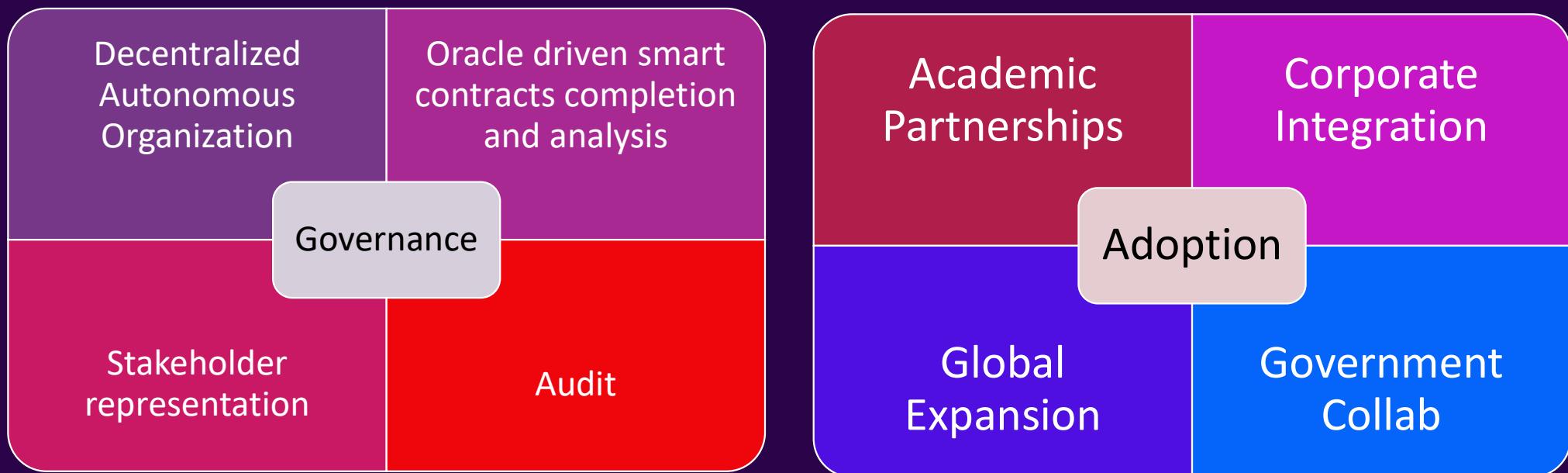
On-chain credential indexing via The Graph's Subgraph API



## HOW EDUTRUST SCALE WORKS



# GOVERNANCE AND ADOPTION MODEL

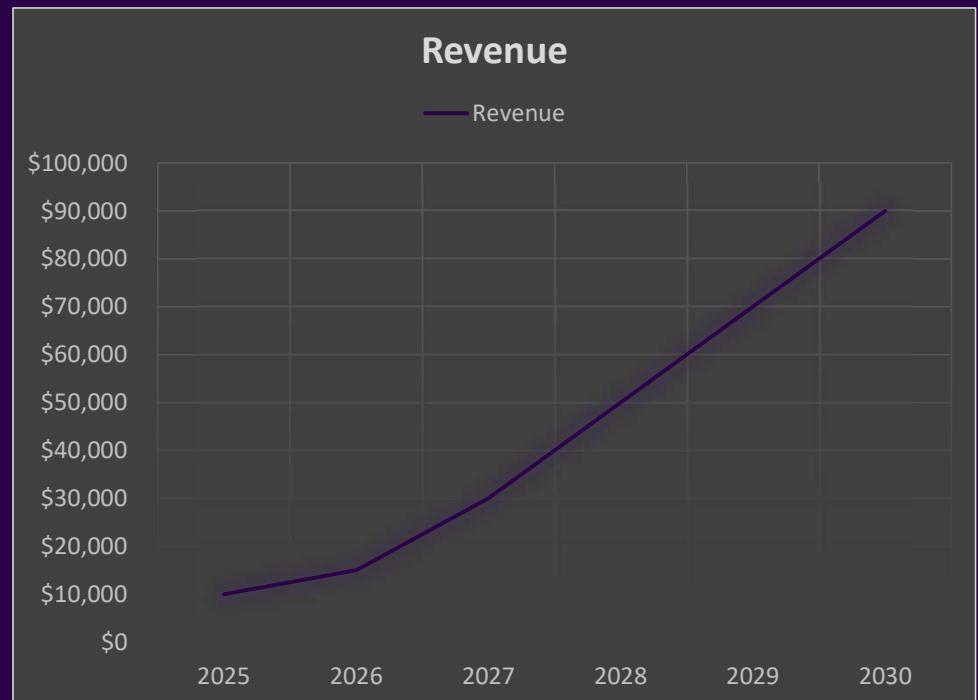


# TRACTION

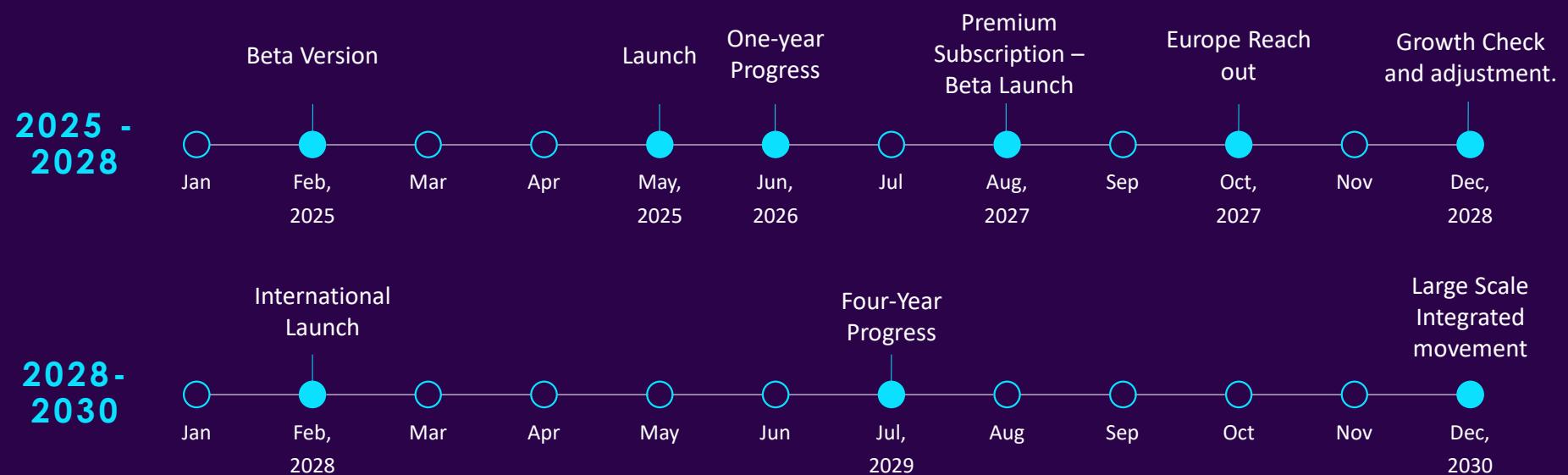
Forecasting for success

## Key metrics

	CLIENTS (EST)	ORDERS	GROSS AVENUE	NET REVENUE
2025	10	5000	\$10,000	0
2026	20	6000	\$15,000	\$4000
2027	30	8000	\$30,000	\$10,000
2028	50	>10000	\$50,000	\$40,000
2029	70	>15000	\$70,000	\$65,000
2030	90	>18000	\$90,000	\$86,000



# SCALABILITY



# FUNDING



## University

*Covers 6 months of server costs.*



## Angel Investments

*Supports initial platform development, including premium version.*



## Angel Investors

*Later stage investments, for international scaling*



## Second Phase Investment

*Post-2028 Investments for continental expansion.*



## CONCLUSION

Blockchain transforms traditional systems by addressing fraud, inefficiency, and high costs through transparency, speed, and cost efficiency. From supply chains to carbon trading and academic credentialing, blockchain's potential is limitless. EduTrust Scale exemplifies innovation, paving the way for a secure, efficient, and inclusive future.

# OUR TEAM

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# THANK YOU

