# Course Outline

1. Cryptocurrency and Block chain
2. Delving into BlockChain
3. Bitcoin and Block chain
4. Bitcoin Mining
5. Ethereum
6. Setting up private Blockchain Environment using Ethereum Platform
7. Hyperledger
8. Setting up Development Program using Hyperledger composer
9. Create or Deploy our private Blockchain on Multi chain
10. Prospect of Blockchain

IntelliPaat

# Prospects of the Blockchain

# Agenda

At the end of this session you will be able to:

- Understand Blockchain Essentials
- Define Various Use Cases of Blockchain
- Describe Blockchain and IOT
- Identify Blockchain Use Cases for Banking
- Explain Blockchain based Capital Market System
- Understand Blockchain in Government
- List Governments around the world are using Blockchain

# Blockchain Essentials

# Blockchain Essentials

Let us learn how Blockchain can revolutionize our world.

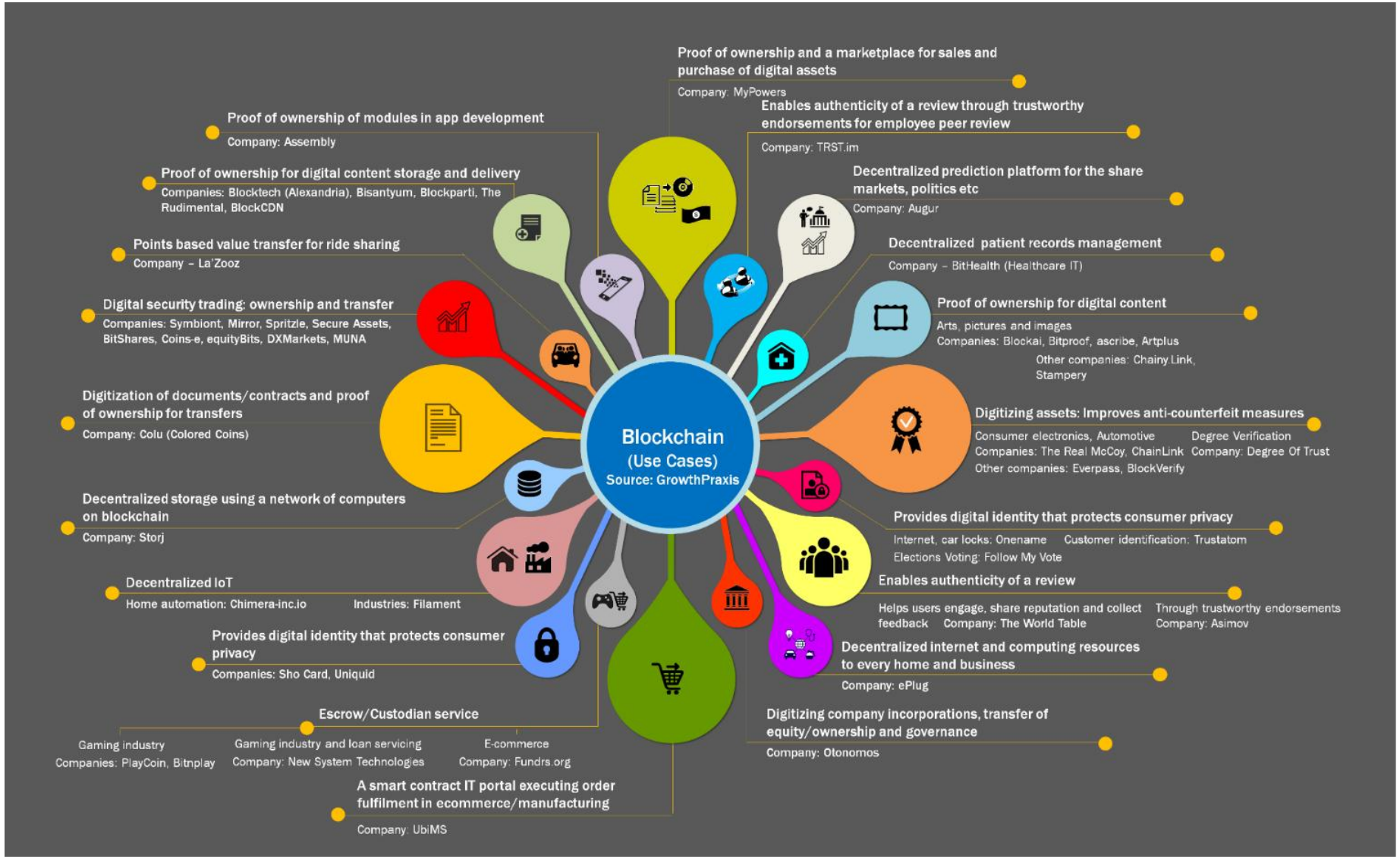
# How Blockchain will revolutionize our world?

- With blockchain, out of the blue, we have another digital medium for esteem where anybody can get to anything of significant worth
    - stocks, securities, cash, digital property, titles, deeds -- and indeed, even things like personality and votes can b moved, put away and oversaw safely and secretly

- Through the blockchain, we can go from redistributing riches to circulating worth and opportunity decently in any case, from support to grave

- This should be possible by securing rights through unchanging records like land titles, making a genuine sharing economy
  **The world of infinite possibilities**

# Selected Potential Blockchain use cases



# Various Use Cases of Blockchain

# Various Use Cases of Blockchain

Let’s unveil the potential of blockchain technology by discussing its practical use cases.

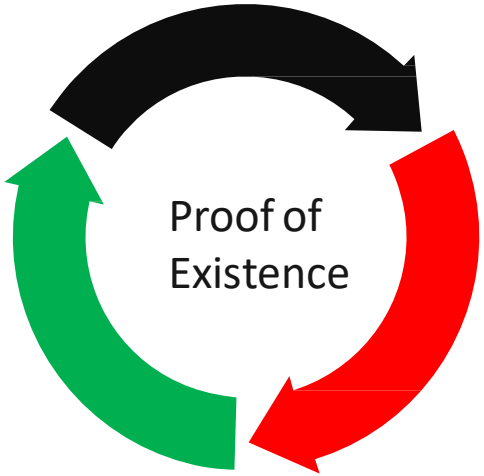
# Use Case: Proof of Existence

**Demonstrating data ownership without revealing actual data**

You can freely uncover the process and if strife emerges you can demonstrate you had the information that creates the process

**Document timestamping**

You can prove certain data exists at a certain moment of time




**Checking for document integrity**

Gives you the security that certified data can't be changed

# Proof of Existence

**Want this document certified by a decentralized proof of existence?**

We can embed the document's digest in the blockchain for you!

You'll need to pay **5 mBTC** to do so, to cover our costs. Please pay to the following address:

Please send **5 mBTC** or more to:

**1NtKjW3t9m6TSS3vektWvfRvzry4pxaPLX**

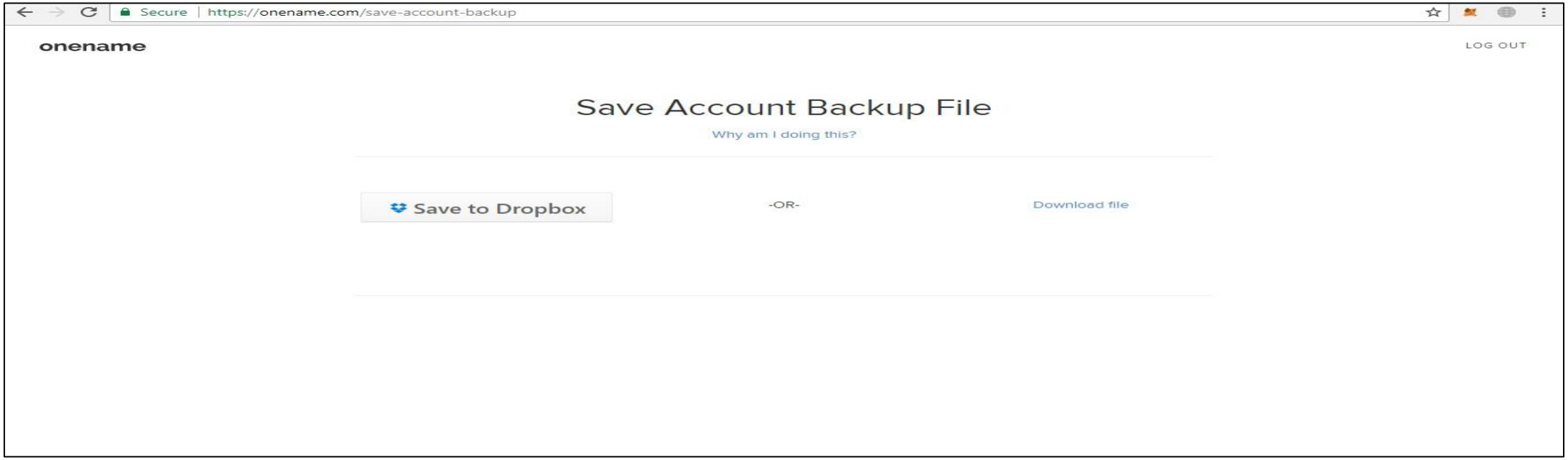
Waiting for payment... the page will refresh automatically when a payment is received.

# Use Case: Record Keeping

- Data embedded and hashed into secure blockchains like Bitcoin create immutable and unforgeable data
- Projects like Tierion use the Bitcoin blockchain to create “blockchain receipts”
- All data can be verified through the Bitcoin blockchain without the need to trust a third party
- Factom is a similar project that also verifies and hashes data into Bitcoin’s blockchain


# Use Case: Identity

- Onename is a New York based startup that has created an ID system using the Bitcoin blockchain
- Its first service allows users to create blockchain IDs, which will soon be used to login to websites without the need for a password



# Use Case: UPROOV

# UPROOV- Your Mobile Trust Machine


01

"You Prove" instantly proves any photos, videos or sound recordings using our simple world first App

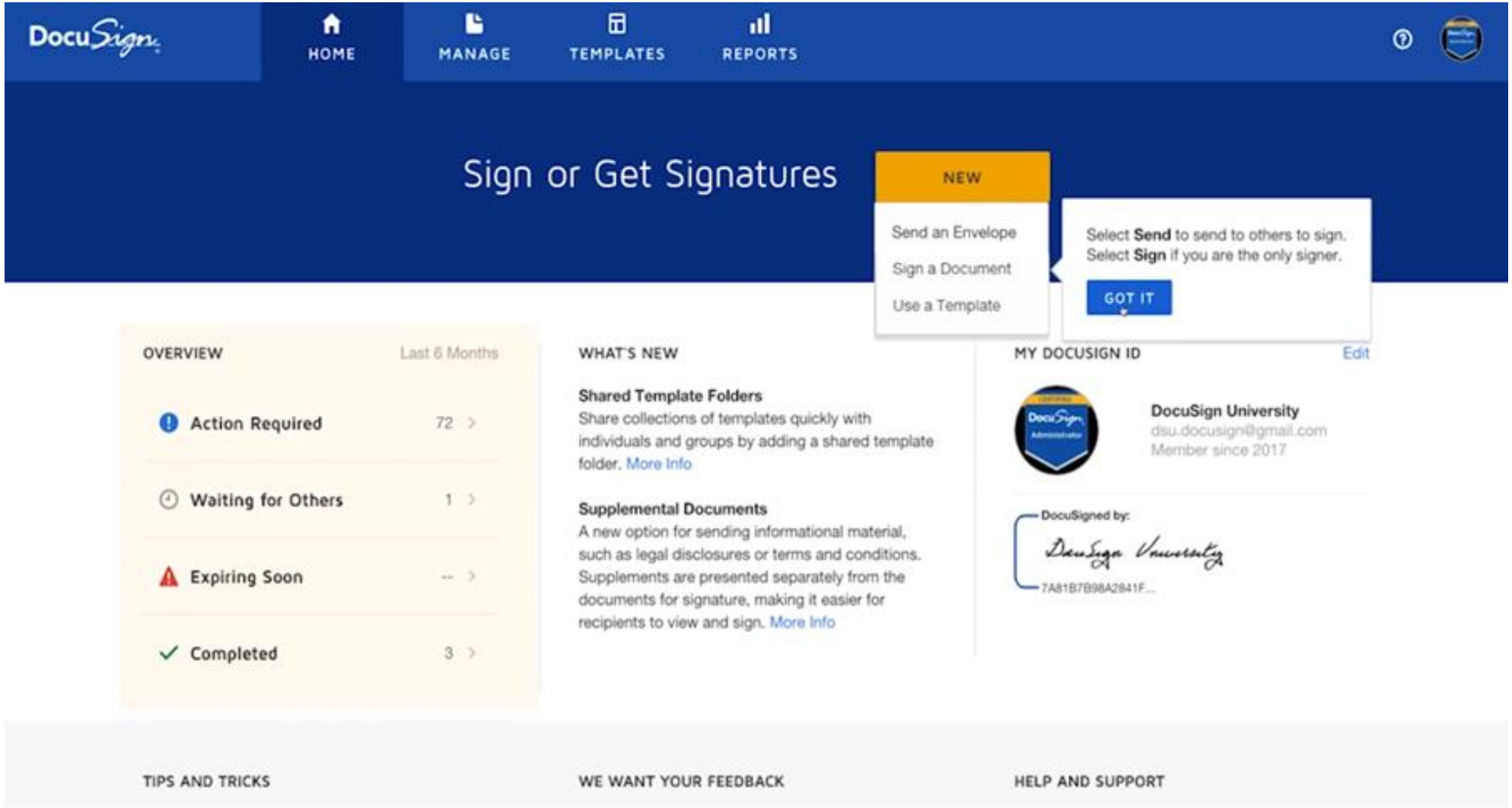
02

Data on recordings taken with Uproov are stamped into the Blockchain Ledger, which the Economist calls the Trust machine

03

Uproov removes any doubt or dispute about yours or others images, it time stamps to the nearest second and cannot be edited

# Use Case: Car Leasing and Sales- DocuSign



# Car Leasing and Sales: DocuSign(cont'd.)

1

To begin the process, a prospective customer chooses the car they want to lease after test- driving, evaluating their options, and completing any pre-approvals

2

That Đar's ideŶtitLJ is theŶ registered on the Bitcoin Blockchain – the secure ledger database used to record transactions over broadly-distributed computer networks

3

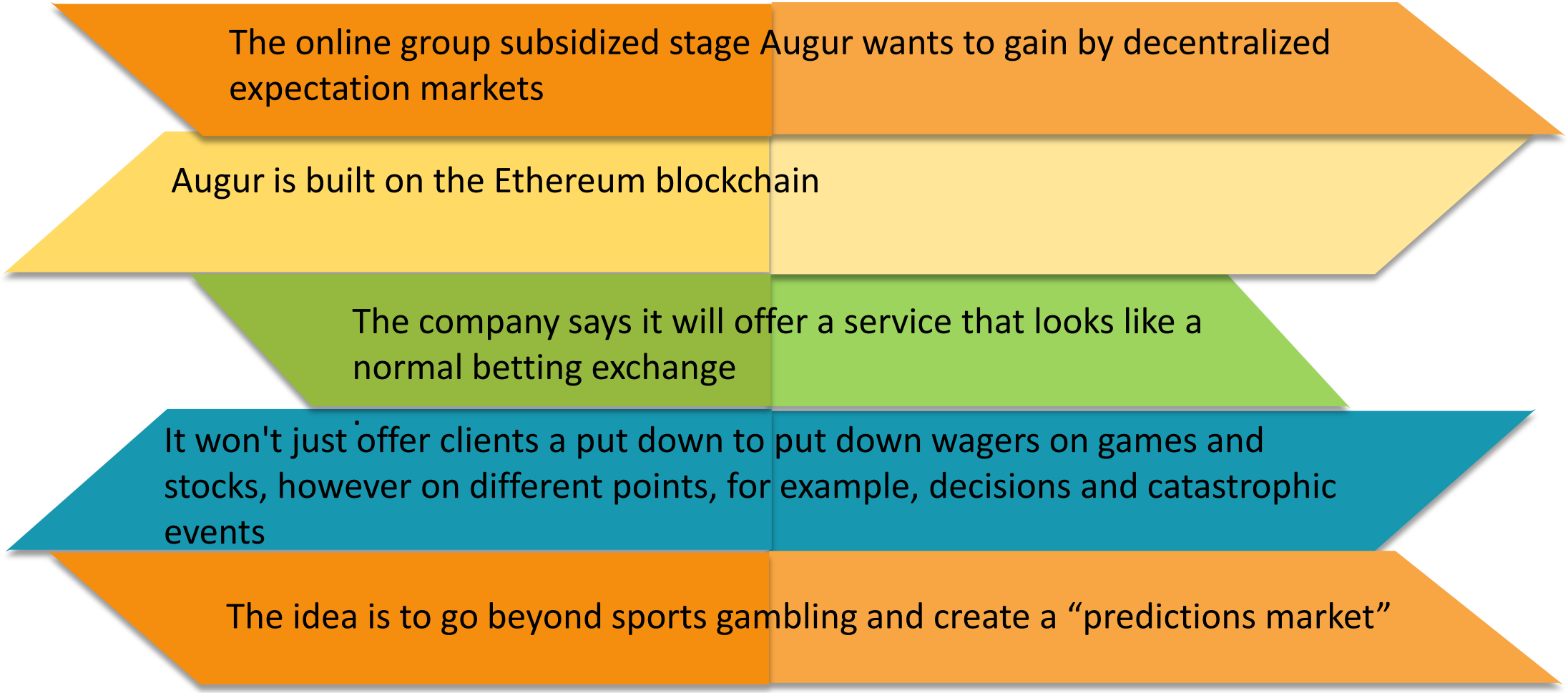
Frow̑ the dri|er's seat, the customer then chooses the lease options for the car – low, mid or high mileage, for example and DocuSigns the leasing contract right there and then

4

This is all in turn updated on the Blockchain

# Use Case: Forecasting- Augur

# Augur



# Use Case: Online Music- Problems

### Owning it

The first problem facing musicians comes down to the fact that no comprehensive database of music copyright ownership exists

### Getting paid

The second problem is payments. Listeners can access tracks immediately with a click, yet it can take years for royalties to reach those responsible for making the music

### Shining light into black boxes

Third, the mechanism by which royalties are calculated and paid is often opaque. Some revenue ends up in a “black box” beyond the reach of the artists and songwriters to whom it rightly belongs.

# Online Music: Solution

- Recently, a number of music industry projects have turned to Blockchain technology as a possible solution to these problems
- These include Mycelia, launched by singer, songwriter and producer Imogen Heap, and Dot Blockchain Music, launched by PledgeMusic founder Benji Rogers
- Then there's Ujo Music, Blokur, Aurovine, Resonate, Peertracks, Stem and Bittunes, which already claims users in 70 countries

# Use Case: Cloud storage

A cooperative storage cloud is a decentralized model of networked online storage where data is stored on multiple computers (nodes), hosted by the participants cooperating in the cloud

01

Enterprises that offer cloud storage often secure customers' data in a centralized server which can mean 01 increased network vulnerability from attacks by hackers

02

Blockchain cloud storage solutions allow storage to be decentralized, and therefore less prone to attacks that can cause systemic damage and widespread data loss

03

For the cooperative scheme to be viable, the total storage contributed in aggregate must be at least equal to the amount of storage needed by end users

04

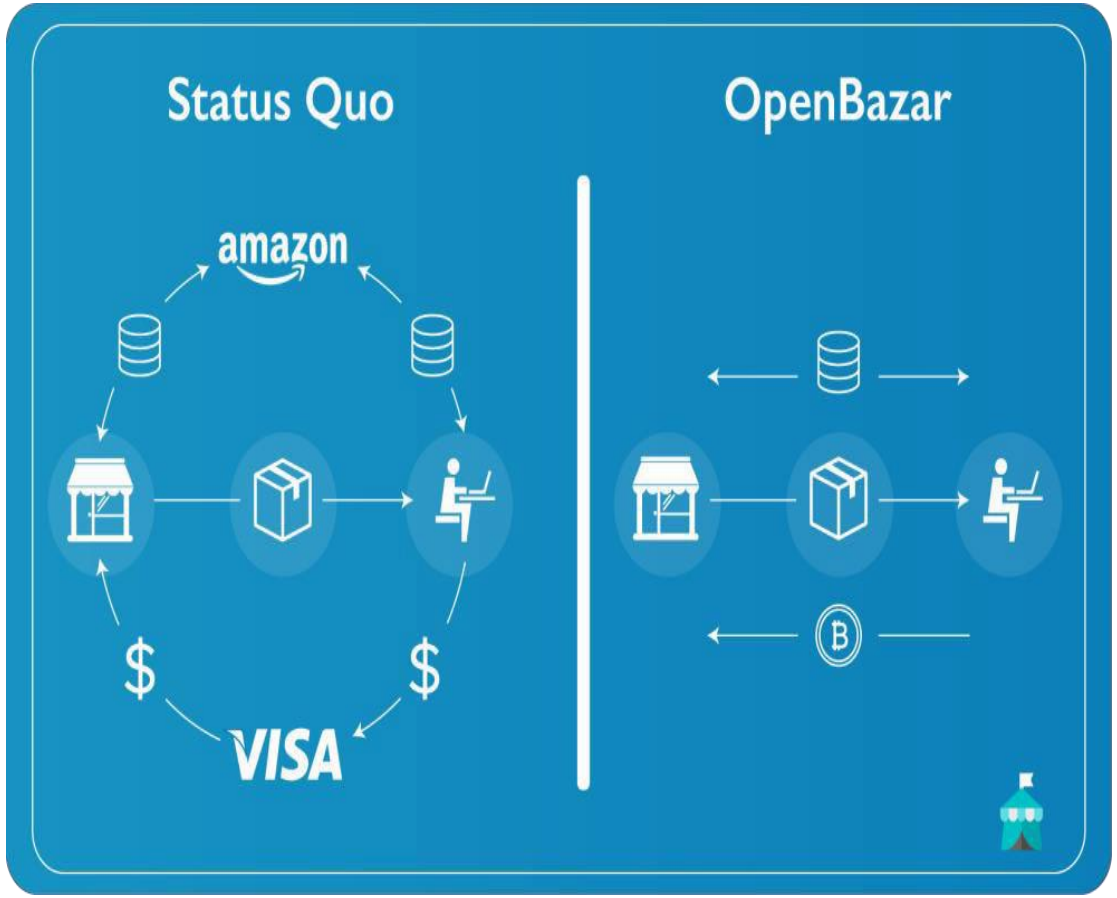
Each node in the cooperative runs specialized software which communicates with a centralized[citation needed] control and orchestration server, thereby allowing the node to both consume and contribute storage space to the cloud

# STORJ: Decentralized Cloud Storage

- Storj is like an internet filesystem
- Information blocks are encoded and conveyed over an all inclusive appropriated set of capacity hubs utilizing block-chain calculation

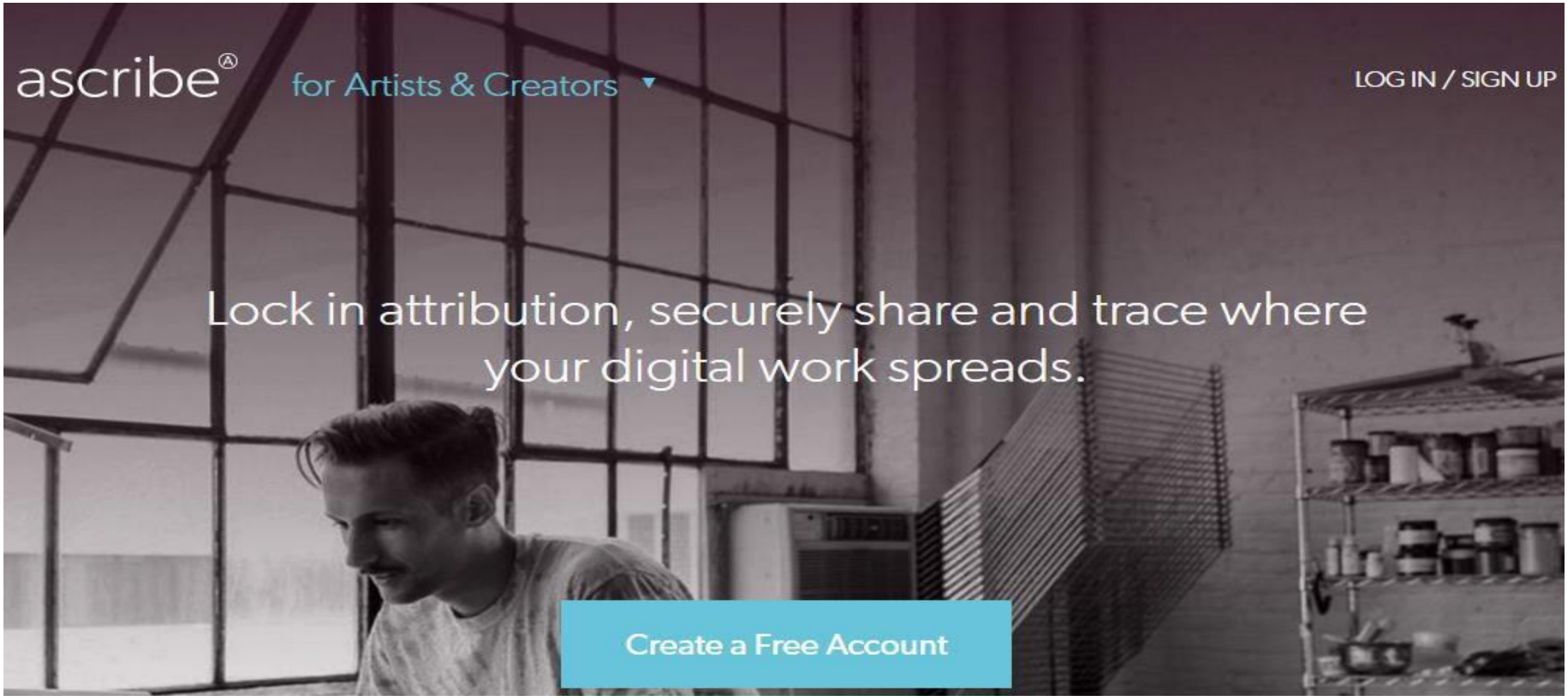
# Use Case: Retail- OpenBazaar

OpenBazaar is an alternate method to do online trade. Rather than going to a site, you download and introduce a program on your PC that specifically associates you to other individuals hoping to purchase and offer products and ventures with you. This distributed system isn't controlled by any organization or association - it's a group of individuals who need to take part in exchange straightforwardly with each other




It's like buying or selling with someone in person - except you're online

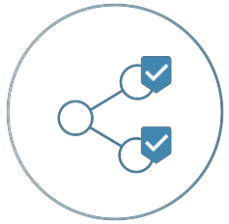
# Use Case: Ascribe(Secure your work)



# Ascribe provides following features

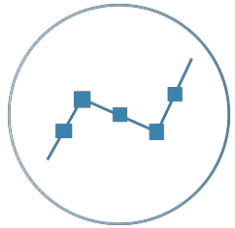
### Lock In Attribution

Make a perpetual and unbreakable connection amongst you and your inventive work. That connection – the record of proprietorship – can be always confirmed and followed



### Securely Share

Safely share your advanced substance with companions, family or fans. Transfering work is made as simple as sending an email



### Gain Visibility

Trace where and how your work spreads on the Internet. We show you all the sites your work has appeared on and its growth over time

### Certificate Of Authenticity

Each enrolled piece accompanies a COA, an implicit one of a kind cryptographic ID and the total proprietorship history. The COA can be confirmed whenever and printed out


### Limited Digital Editions

Create unique, limited editions, a first for digital content. Digital editions make it possible to own and transfer digital artwork just like you can with physical art

### License Your Work

Transfer, consign or loan your digital creations without losing attribution. Our easy-to-use platform comes equipped with clear legal framework and supports custom contracts

# Use Case: Ride Sharing

- Israeli startup La'Zooz wants to be the "anti-Uber"
- It makes its own proprietary digital currency — like bitcoin – which is recorded digitally using blockchain technology
- Instead of using a centralized network to call cabs, people use La'Zooz by finding other people traveling similar routes and exchanging coins for the rides
- These coins can then be used for future rides
- Users earn (or "mine") these coins by letting the app track their locations

# Use Case: Supply Chain Management

- Supply chains are basically a series of transaction nodes that link to move products from point A to the point-of- sale or final deployment

With blockchain, as products change hands across a supply chain from manufacture to sale, the transactions can be documented in a permanent decentralized record — reducing time delays, added costs, and human errors

Provenance is building a traceability system for materials and products

Hijro offers an alternative platform for lending into global supply chains

Skuchain builds blockchain-based products for the business- to-business trade and supply-chain finance market

# Supply Chain Management- Example

Ideal from issuance of the Letter of Credit to the last installment, appropriated record gives the genuinely necessary straightforwardness and productivity in the generally manual process stream

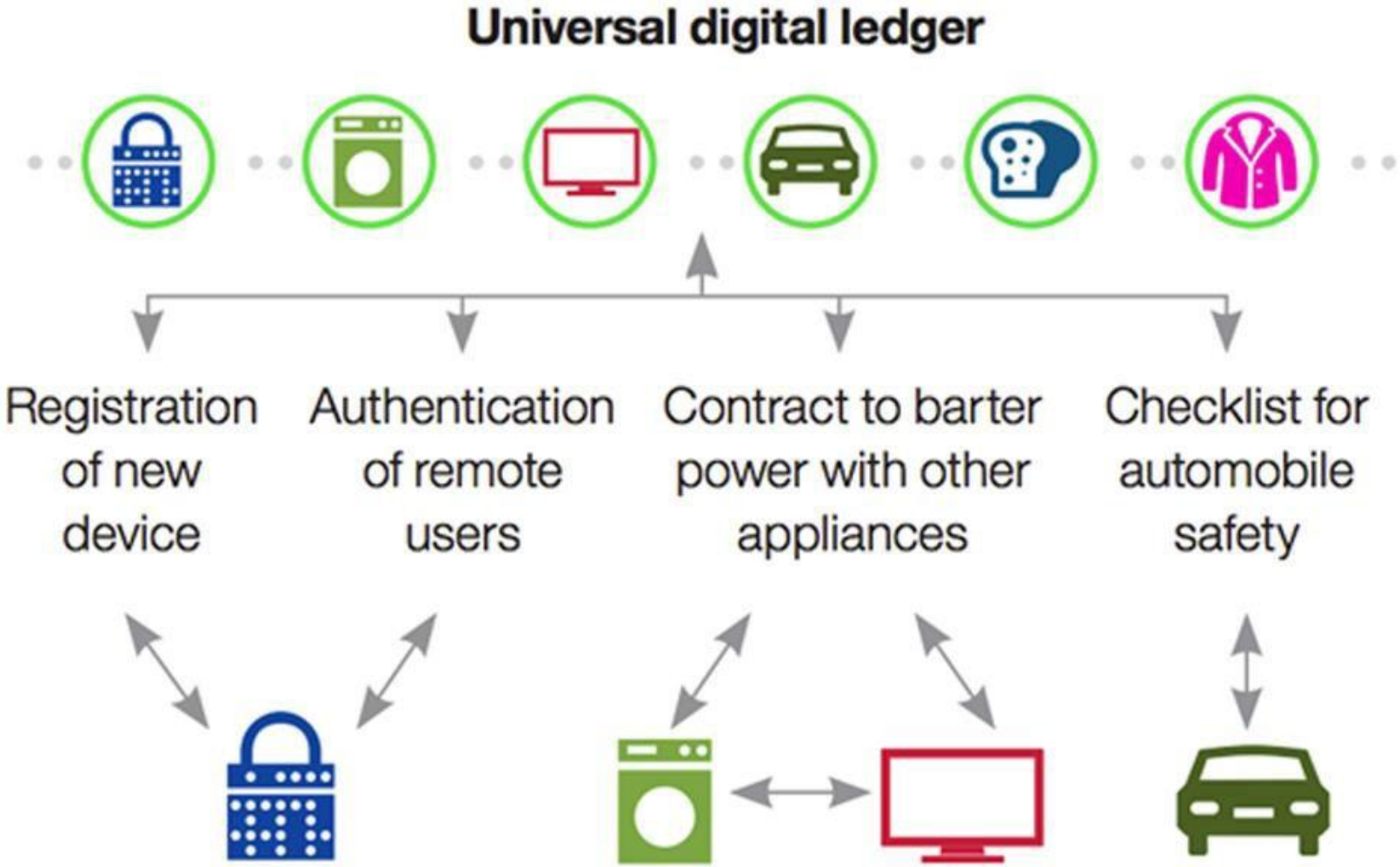

Supply Chain in Trade Finance

# Blockchain and IOT

# Blockchain and IOT

So far we have seen some the valuable pragmatic uses of Blockchain. How about we now perceive how Blockchain can be utilized with IOT.

# Blockchain and IOT



# Autonomous Decentralized Peer-to-Peer Telemetry

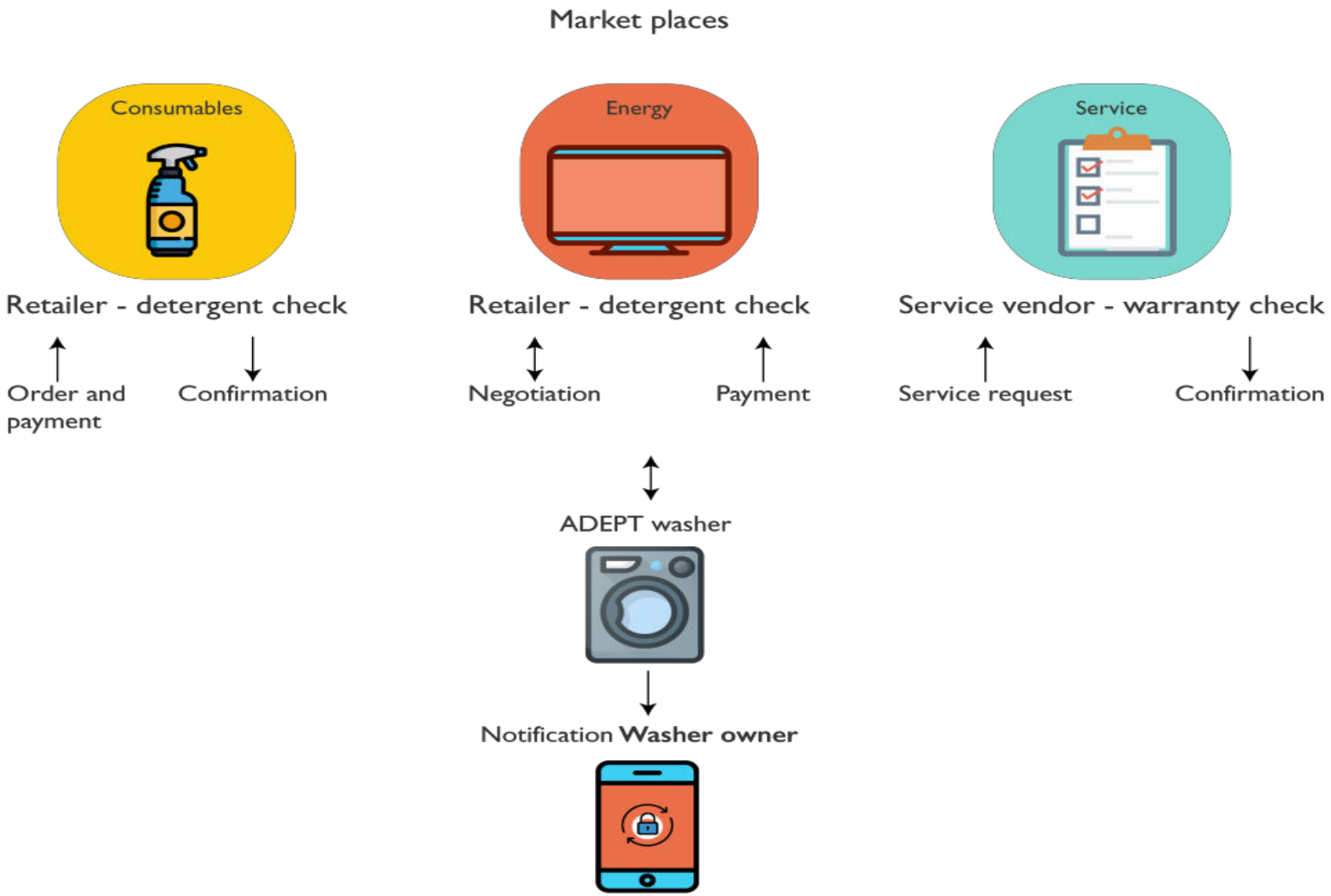
IBM and Samsung have been taking a shot at an idea known as ADEPT, which utilizes blockchain-type innovation to frame the foundation of a decentralized system of IoT gadgets

With ADEPT, a blockchain would fill in as an open record for a monstrous measure of gadgets, which would never again require a focal center point to intercede correspondence between them

Without a focal control framework to recognize each other, the gadgets would have the capacity to speak with each other self-rulingly to oversee programming updates, bugs, or vitality administration

# The ADEPT use case

The ADEPT washer participated autonomously in the consumable, energy and service marketplace

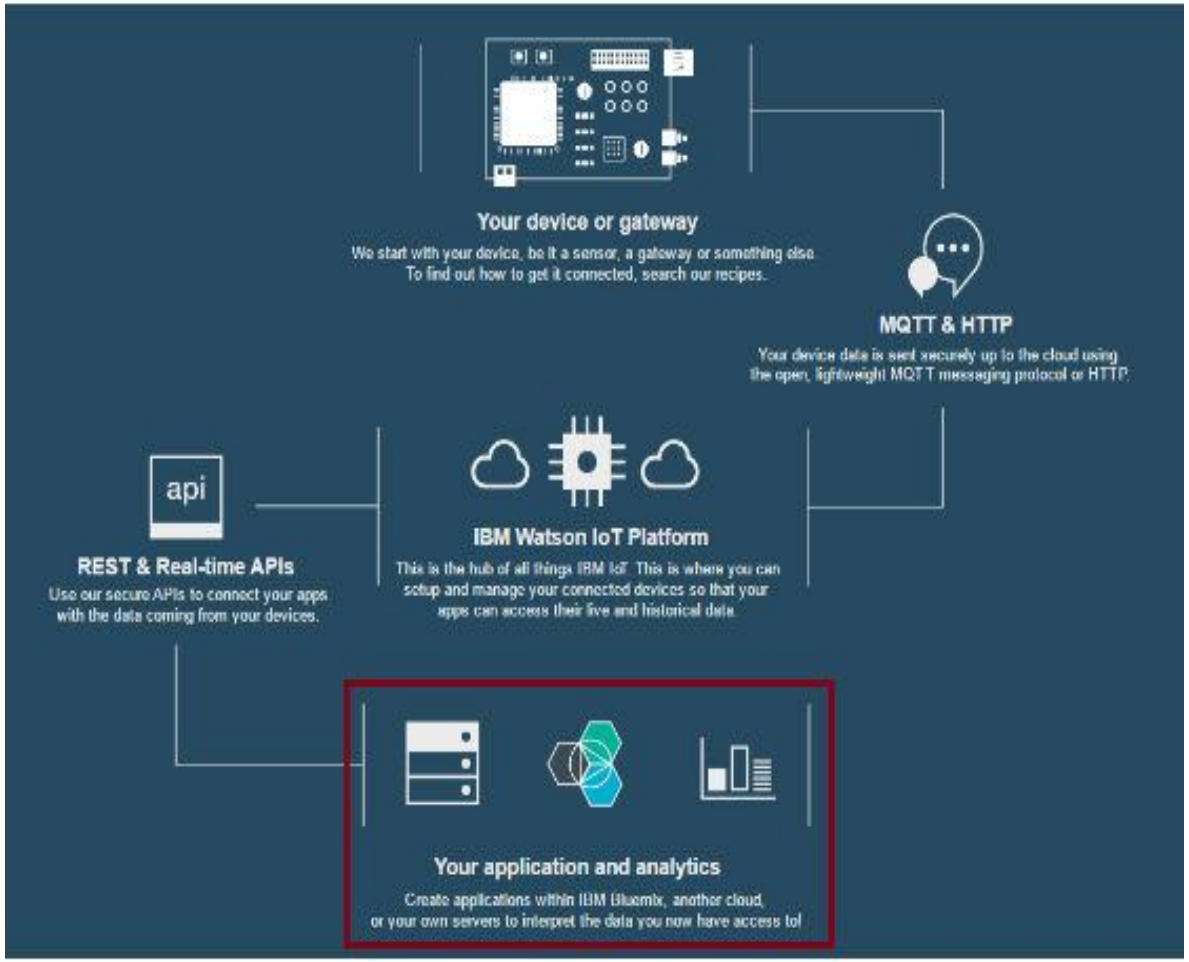


# IBM Watson IOT

IBM Watson IoT Platform empowers IoT gadgets to send information to private blockchain records for consideration in imparted exchanges to alter safe records

Blockchain conveyed replications permit your business accomplices to access and supply IoT information without the requirement for focal control and administration

All business accomplices can check every exchange, counteracting question and guaranteeing each accomplice is considered responsible for their individual parts in the general exchange



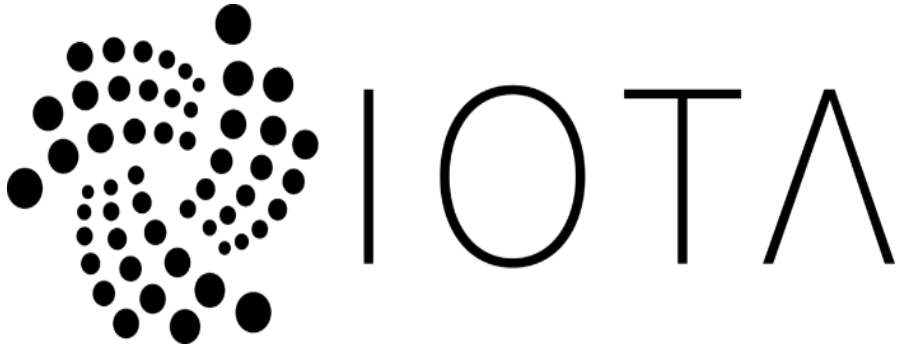
# IOTA

IOTA is a revolutionary new transactional settlement and data integrity layer for the Internet of Things

It's based on a new distributed ledger architecture, the Tangle,which overcomes the inefficiencies of current Blockchain designs and introduces a new way of reaching consensus in a decentralized peer-to-peer system

Even infinitesimally small Nano payments can be made through IOTA

IOTA is the missing puzzle piece for the Machine Economy to fully emerge and reach its desired potential

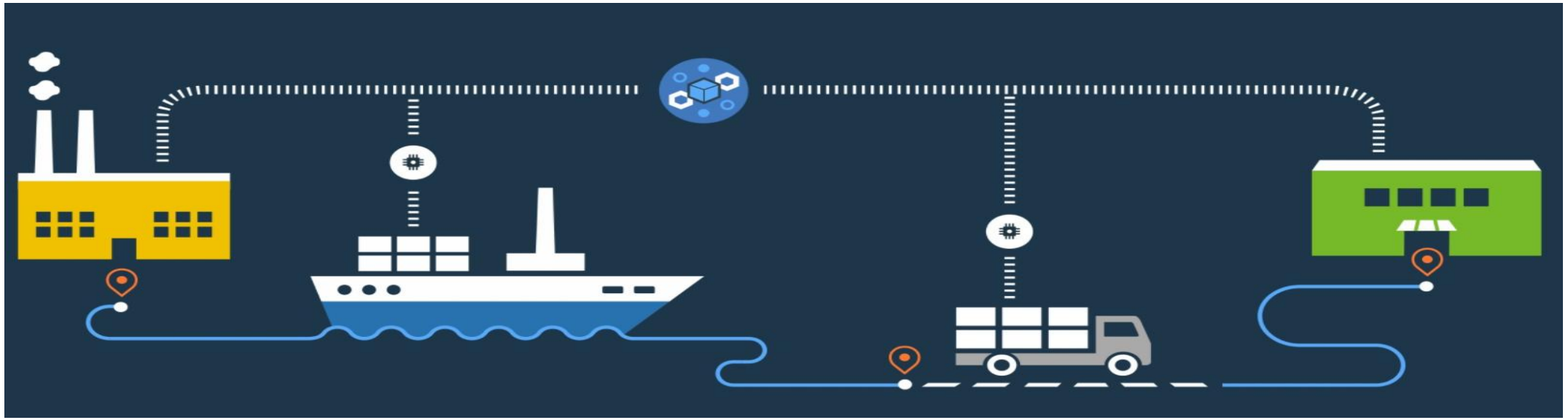


# Freight Transportation

Moving cargo is a mind boggling process including diverse gatherings with various needs

An IoT-empowered blockchain can store the temperatures, position, landing times, and status of transportation compartments as they travel through the framework

Permanent blockchain exchanges guarantee that all gatherings can believe the information and make a move to move the item rapidly and effectively



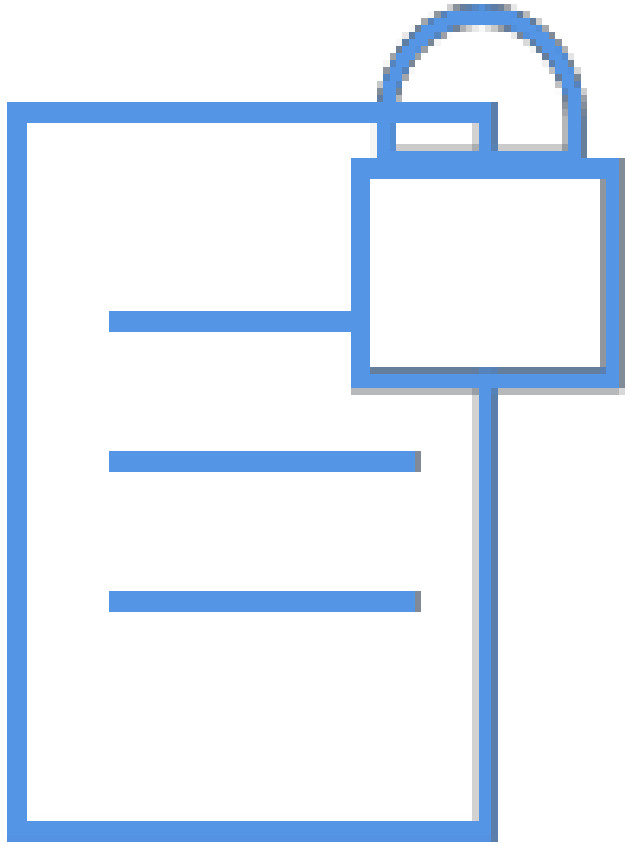
# Log Operational Maintenance Data

IoT gadgets track the condition of security basic machines and their upkeep in your association. From air ship motors to lifts

Blockchain accommodates an alter free record of the operational information and the subsequent upkeep

Outsider repair accomplices can screen the blockchain for precaution support and record their work back on the blockchain

Operational records can likewise be imparted to government substances to check consistence.



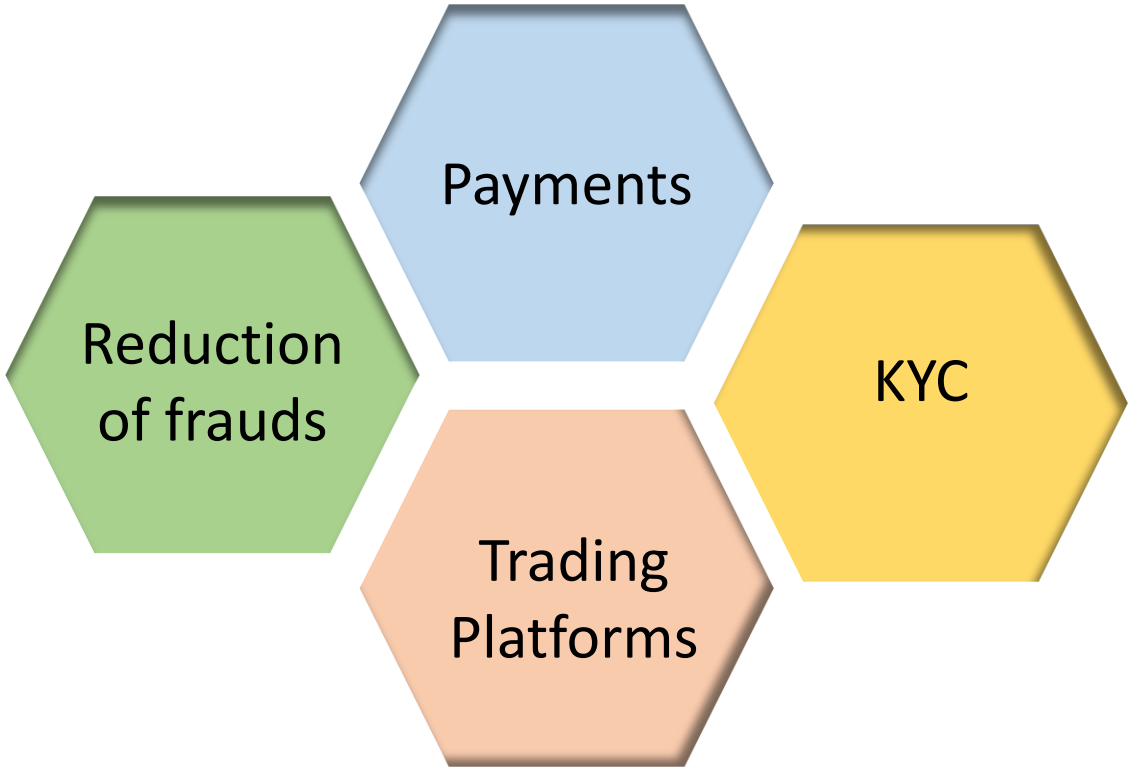
# Blockchain Use Cases for Banking

# Blockchain Use Cases for Banking

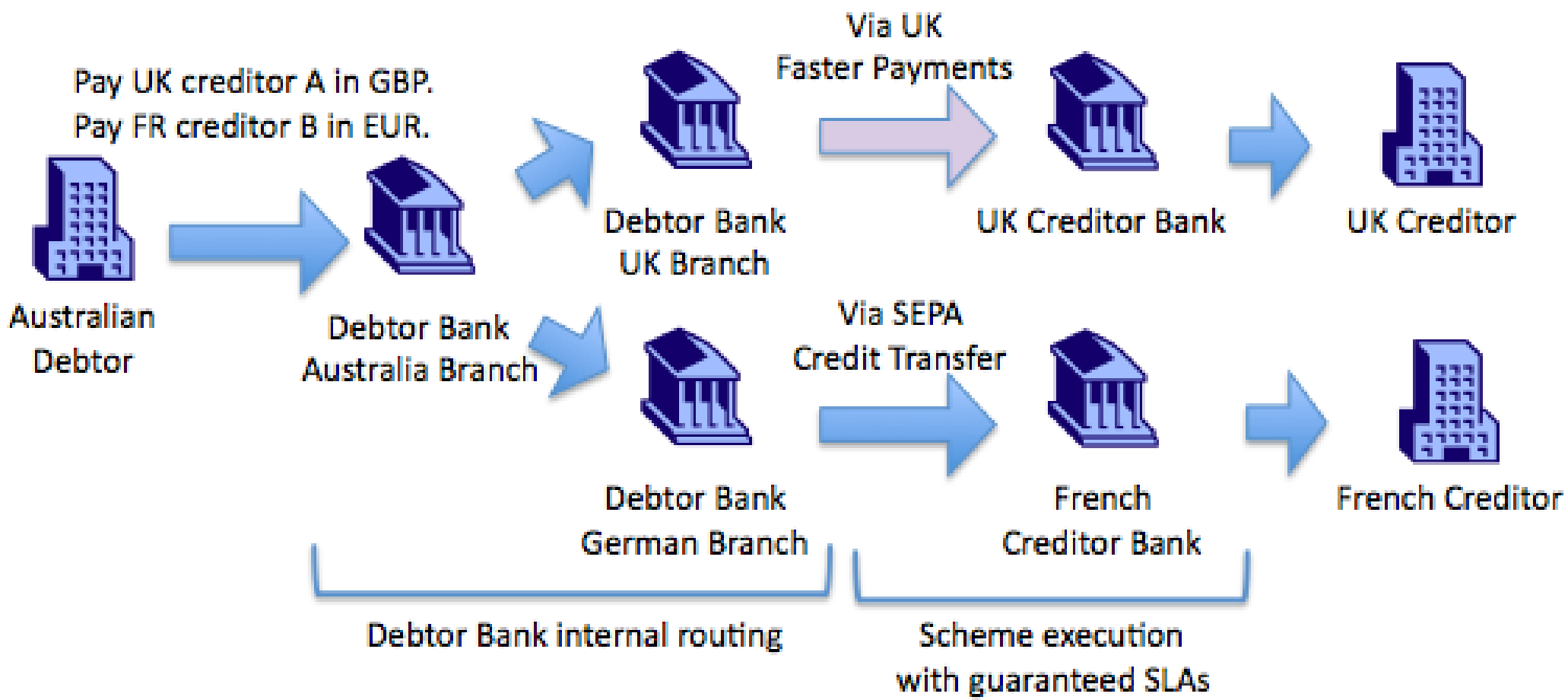
How about we perceive how Blockchain helps in saving money area?

# Blockchain Use Cases for Banking

**In banking there are many existing and developing use cases to implement blockchain: Following are the use cases we will be discussing:**



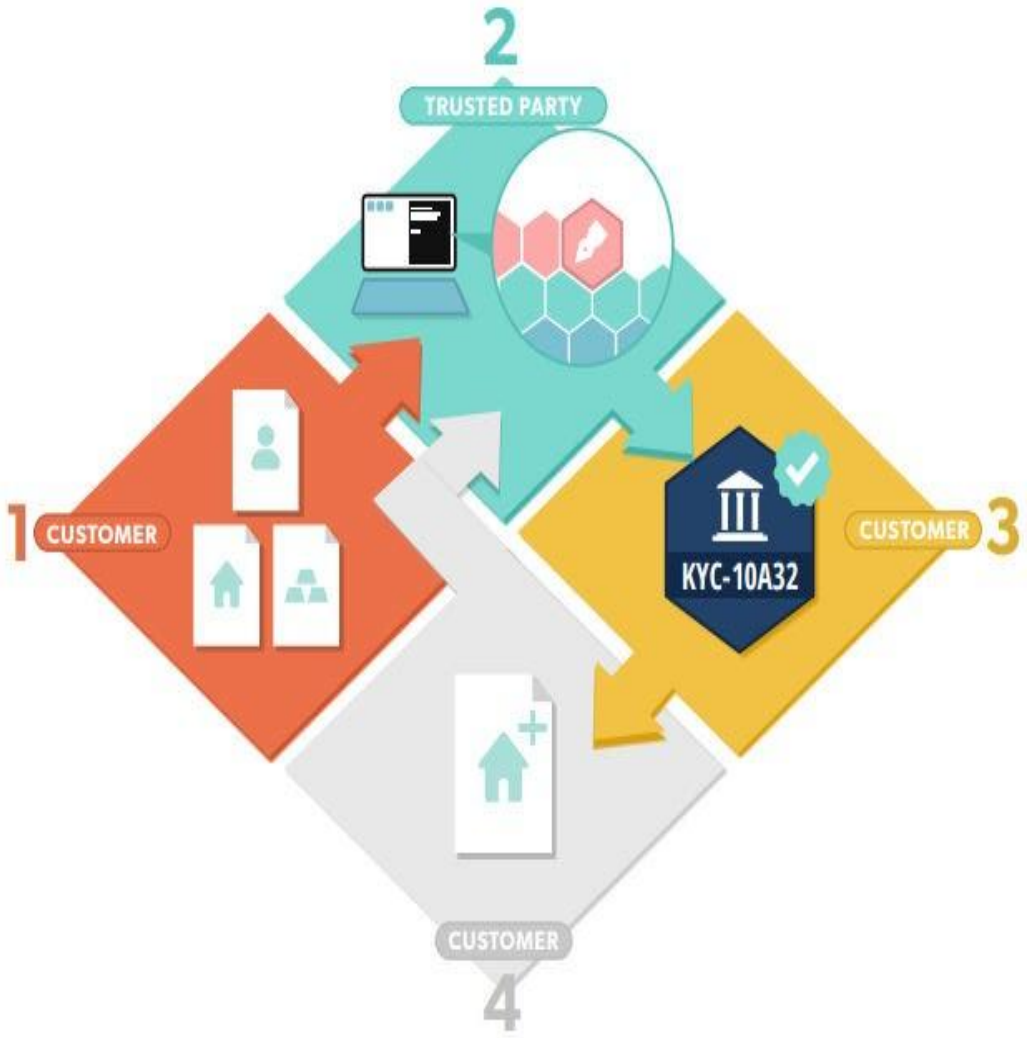
# Blockchain Use Cases for Banking: Payments



# Blockchain Use Cases for Banking: KYC

- By creating consistence stages and KYC forms over blockchain innovation, banks can decrease operational expenses in these divisions as well as increment the productivity of consistence forms and build up a nearer association with the budgetary controller
- KYC once-performed ,the record will be available as reference for other future transactions as well
- KYC of a new customer can be put on a blockchain which can then be used by other banks and other accredited organisations without the need to ask the customer to start the KYC process all over again
- As data stored on a blockchain is irreversible, it would provide a single source of truth thereby minimising the risk of duplication or error
- There is also the advantage for the customer that they only have to supply KYC documents once

# Performing KYC



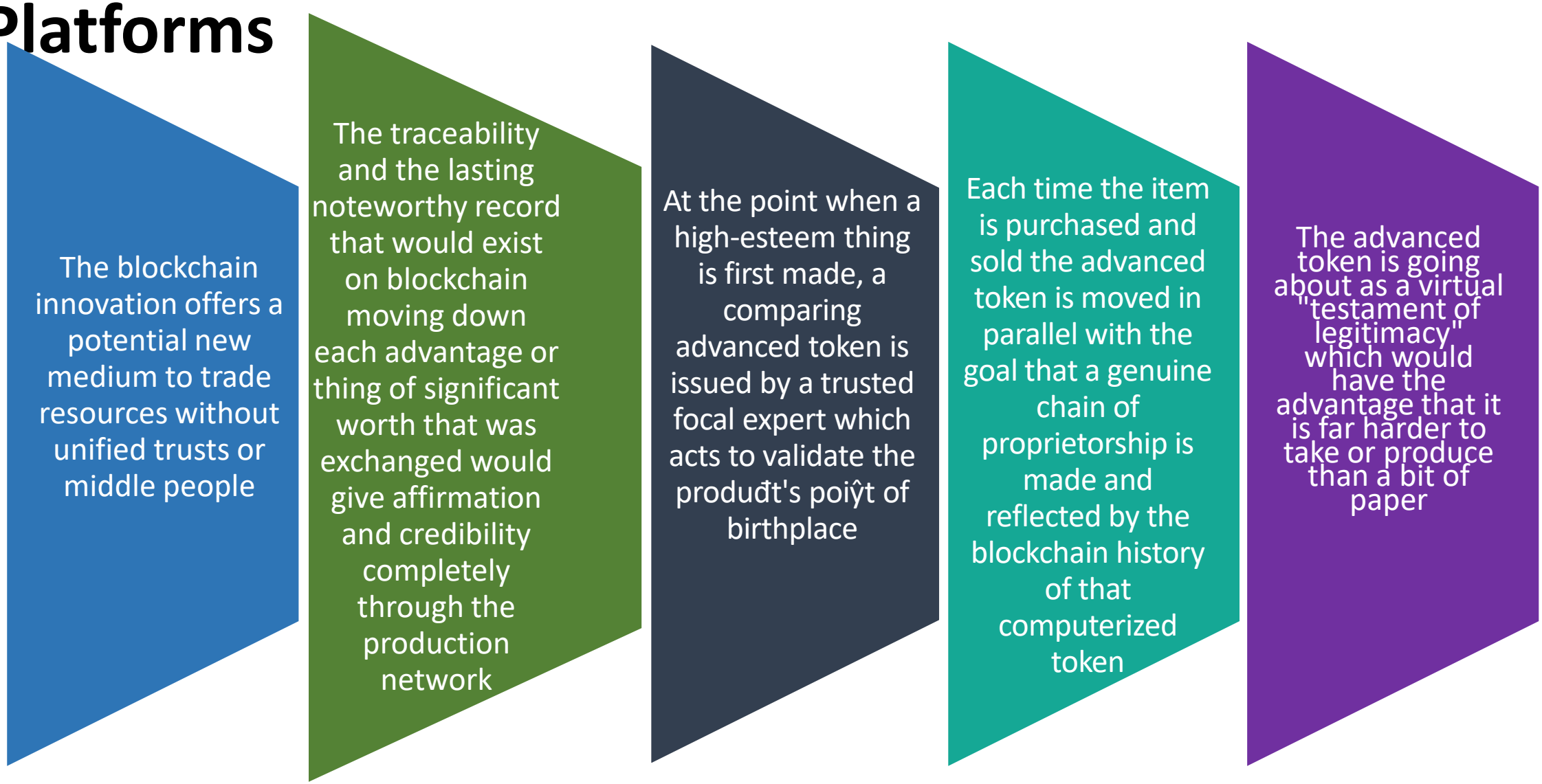

1. **Acquisition of Personal Information**
   The Private documents are selectively shared by a customer with a trusted regulator, government entity or licensed partner

2. **Title Validation of Personal Information**
   The trusted party reviews and verifies the authenticity of the documents, then produces a digital signature from the documents' cryptographic proofs, which is then notarized onto public blockchain

3. **KYC Token Issuance**
   The A cryptographic token is generated for the customer which can be used to verify the authenticity of the trusted party's signature, the documents and thus the validity of each step of the KYC process

4. **Ongoing Updates**
   With As some documents become obsolete or invalid, a workflow is introduced and updates are timestamped into a public blockchain to prove the validation of these documents by a trusted party

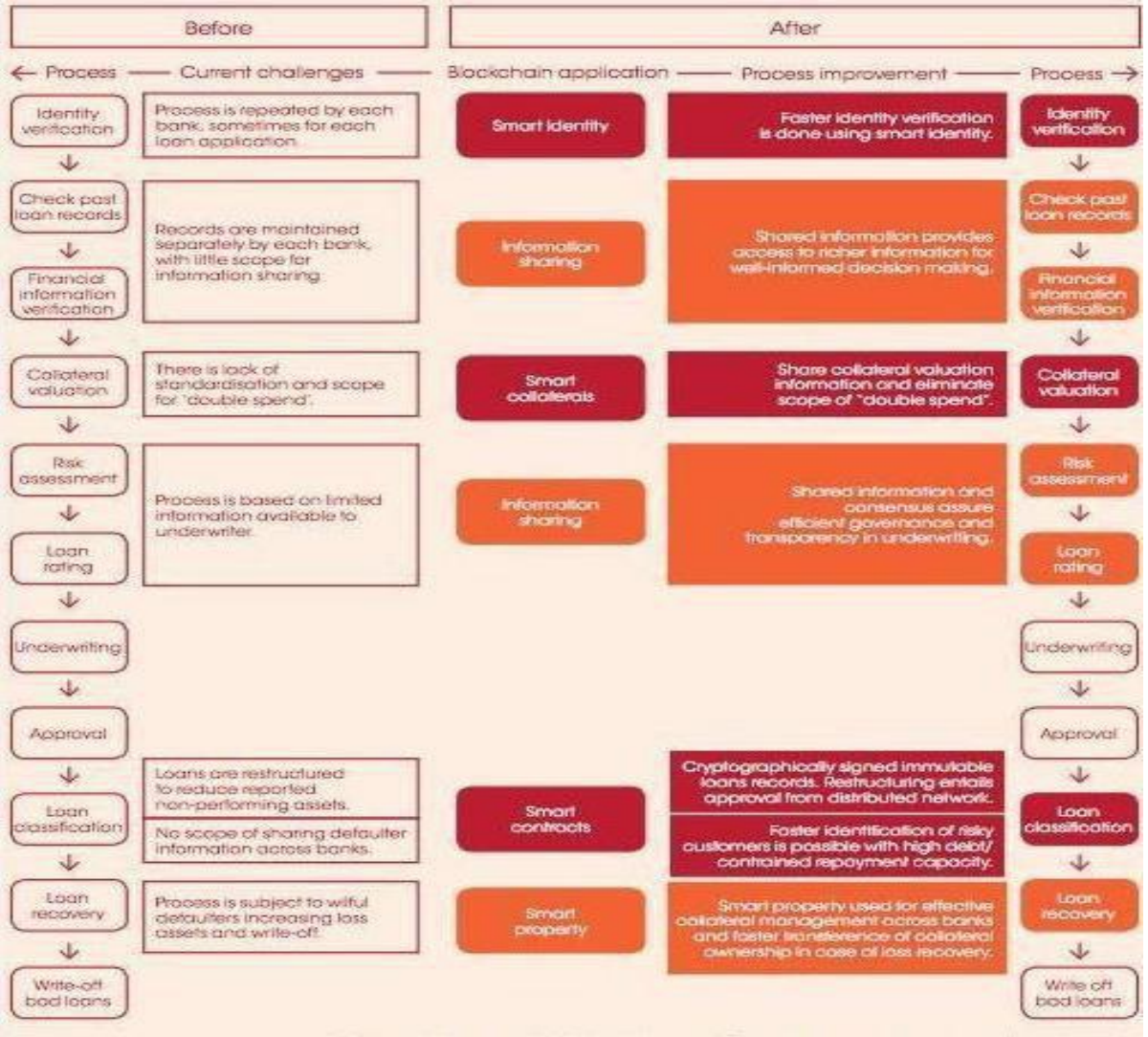
# Blockchain Use Cases for Banking: Trading Platforms



# Blockchain Use Cases for Banking: Reduction of Fraud

- Currently, the majority of banking systems are built on a centralized database, which makes them more susceptible to cyber-attacks as all information is stored locally in one place
- Also, many banking systems are outdated and are, therefore, more vulnerable to new forms of cyber-attacks
- By building new banking systems on top of blockchain technology, the chance for fraud and data theft can be reduced substantially as the distributed ledger technology secures records
- As blockchain is checked at every step of a transaction by independent miners, with all data being open and publicly available, there is a real-time analysis of every bit of data during the transaction
- It stores, encrypts and verifies every single bit of data in a transaction
- Therefore, should any data breach or fraudulent activity occur, it would be made immediately obvious to all parties who have permission to access the transaction data on the ledger

# The Modified Loan Management Process



# Blockchain based Capital Market System

# Blockchain based Capital Market System

Let’s now understand how Blockchain could be used in Capital Markets

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# Blockchain based Capital Market System

**Issue with the current Capital markets:**

- Capital markets have built up a complex worldwide system of interconnected banks and middle people that empower the tremendous worldwide stream of capital crosswise over fringes
- With every exchange going through different go-betweens each keeping up their own particular information storehouses there is duplication of information section, superfluous compromise mistakes, wasteful utilization of capital and postponements to settlement
- This costs cash and makes more serious hazard

> **Blockchain has the potential to radically address these issues, with the potential for the imination of intermediaries and reduction in settlement times**

# Why Blockchain seems promising in Capital Markets

Distributed ledger technology could reduce banks' infrastructure

"Has the potential for modernizing, streamlining and simplifying the siloed design of the financial industry infrastructure with a shared fabric of common information

"SETL is to work with Computershare on a joint initiative to establish securities ownership registers using distributed ledger technology for Australia"

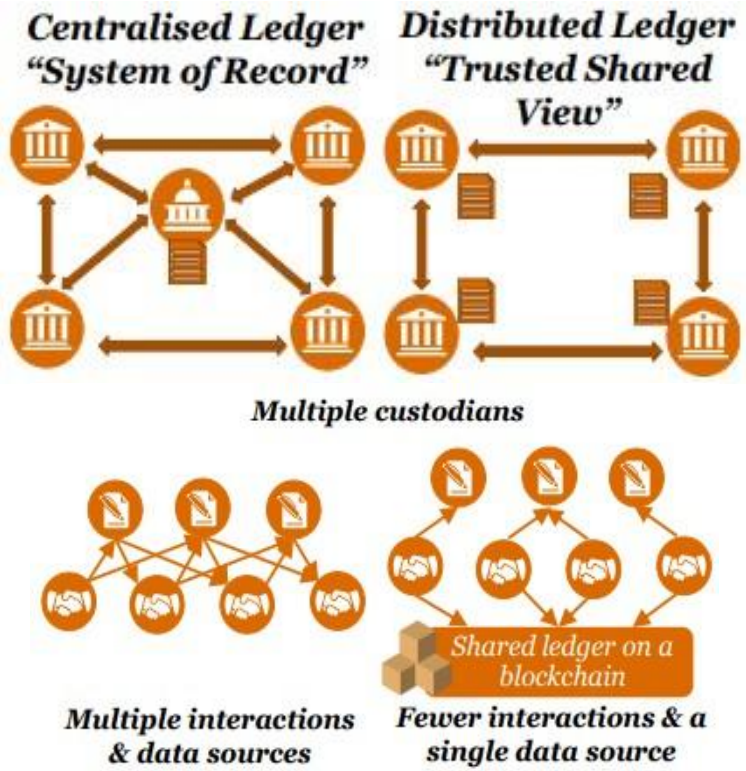
Over $1 billion invested in blockchain companies since the technology's creation in 2009, with a 59% increase in the last year

# How Blockchain could be applied in Capital Markets

Many of our clients are exploring blockchain's potential to disintermediate, increase speed and reduce cost whilst increasing resilience in their businesses. Here are some examples of blockchain's business applications...

**Settlements:**
By removing intermediaries and providing a trusted and shared view of permissioned data, blockchain could:

- Reduce costs (e.g. fewer reconciliation errors)
- Speed up settlement (e.g. faster validation)
- Increase resilience (e.g. no single point of failure)
- Improve transparency (e.g. easier to monitor)



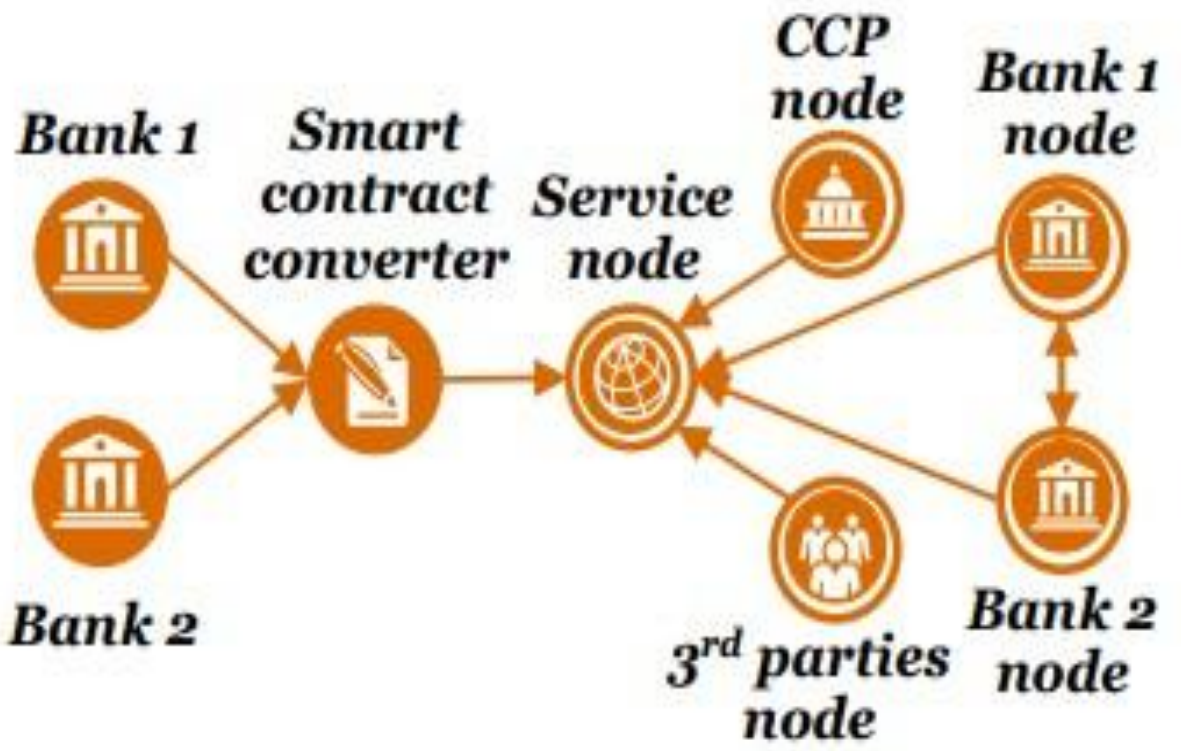

**Collateral Management**
By enabling faster settlement and a shared, trusted view of asset information, blockchain could:

- Solve new collateral requirements
- Allow you to tap into unused assets
- Cut operational complexity and costs
- Increase flexibility

# How Blockchain could be applied in Capital Markets...

**Confirmations:**
By creating a smart contract on a blockchain confirmed lifecycle contracts could be automated, enabling:

- Increment trust and straightforwardness (e.g. with a brilliant normal information source)
- Decrease costs (e.g. decreased information section duplication and compromise blunders)
- Decrease operational hazard
- Better estimation of unexpected hazard



# Blockchain in Government

# Blockchain in Government

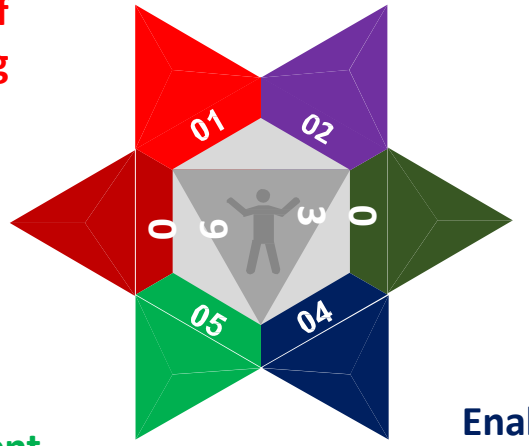
Let’s See how government is helped by blockchain across the globe.

# How will blockchain transform Government?

**Inefficiency and lack of transparency and accountability are endemic to government operations. Blockchain can enable a more free, fair and accountable governance. Blockchain can provide the following:**

Provide transparency and accountability in an effort to eliminate waste, fraud, or misappropriation of finding

Facilitate in providing aid to programs, states or other nations and ensure said funds reach the intended recipients




Enable a more streamlined and accurate auditing process

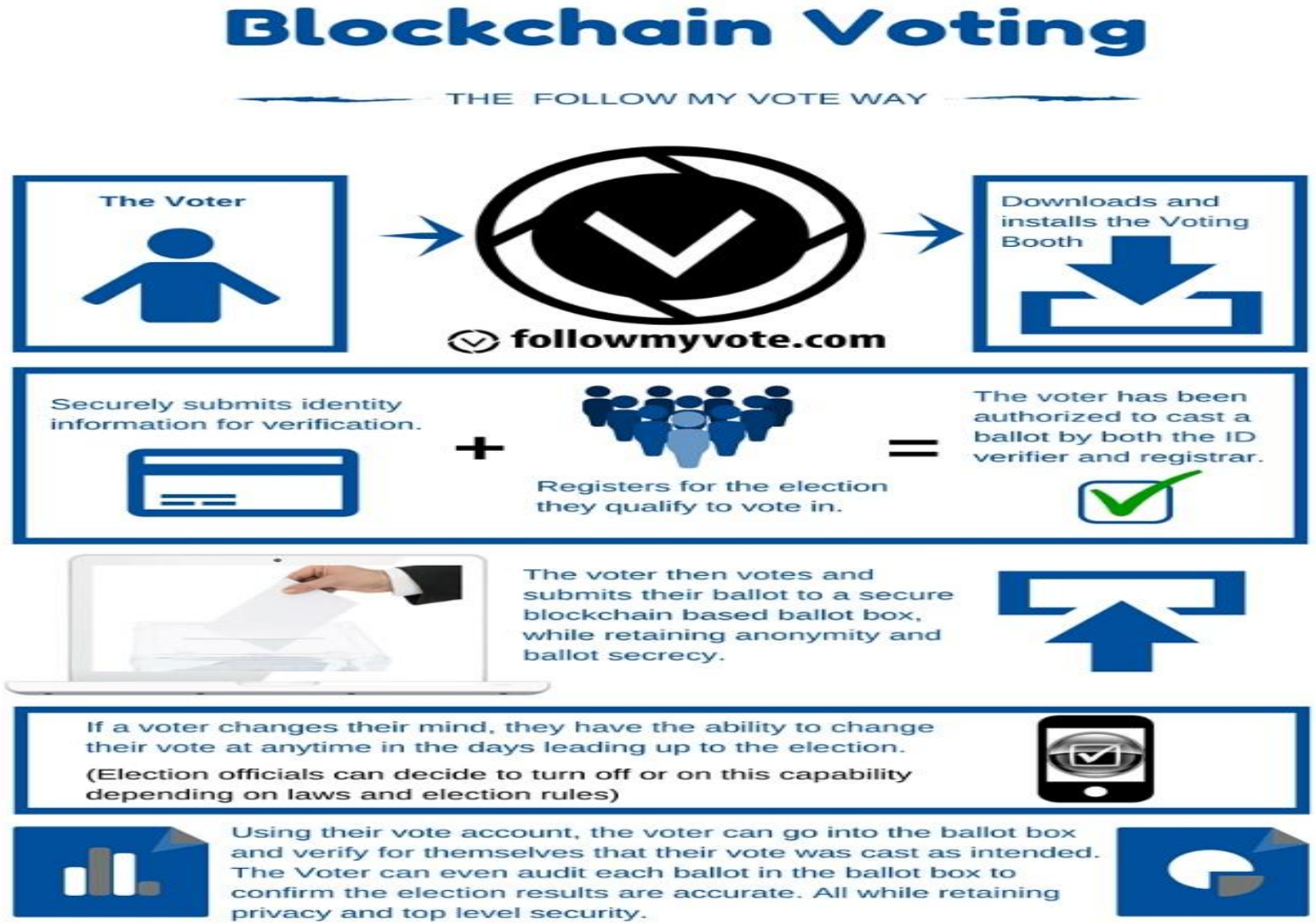
Provide a digital ledger system for things such as property, taxes, public services and utilities

Supply chain management and auditing for the military

Enable open and fair elections, by ensuring the integrity of the system and its results

# Online Voting: Securing Elections using Blockchain

# Follow My Vote



# Registering Land

**The arrangement is to utilize the innovation to make the subtle elements of land exchanges noticeable to all gatherings – banks, merchants, government authorities, purchasers and dealer**


- Lessen danger of manual blunders
- Make Secure process for exchanging records
- Verify identity of users

# Real Estate

**Pain points for buying and selling property include: a lack of transparency during and after transactions, copious amounts of paperwork, possible fraud, and errors in public records to name just a few**

Blockchain offers a way to reduce the need for paper-based record keeping and speed up transactions

- Real estate blockchain applications can enable record, to track, and exchange arrive titles, property deeds, liens and so forth and guarantees the reports are precise and evident
- Ubitquity offers a stage for monetary organizations, title, and home loan organizations and expects to secure archives, while upgrading straightforwardness and lessening costs

# Devising Public Policy

- Data sharing, creation and cooperation through blockchain application
- An online arrangement gathering through which government can work together with residents in the detailing of approaches
- This might likewise incorporate choices like, distributing spending plans over all segments, settling on impose sections, concocting social welfare designs, improving framework, instruction framework arranging and so on

Benefits:

- Governments could profit by gathering bits of knowledge and proposals from nationals
- A synergistic approach for feasible administration arrangements would prompt better strategy results
- Straightforwardness made by blockchain based voting crosswise over various selections of arrangements might prompt respectability in the Governance

# Governments around the world are using Blockchain

# Governments around the world are using Blockchain

> We should take a gander at how governments around the globe are making the main strides in receiving appropriated record innovation with different Blockchain activities

# Georgia – Blockchain Land Registry

The government of Georgia is utilizing blockchain to enroll arrive titles and approve property-related government exchanges.

A hand crafted blockchain framework has been coordinated into the advanced records arrangement of the National Agency of Public Registry (NAPR), and tied down to the Bitcoin blockchain through a disseminated computerized timestamping administration

The advanced timestamping administration enables the legislature to confirm and sign a record containing a subject's fundamental data and verification of responsibility

The framework will help arrive title straightforwardness, diminish the commonness of misrepresentation, and acquire noteworthy time and cost funds the enrollment procedure

# Estonia –Identity management, e-voting, (E.H.R.)

Estonia citizens and e-residents are issued a cryptographically secure digital ID card powered by blockchain infrastructure on the backend, allowing access to various public services

On a blockchain platform, citizens can verify the integrity of the records held on them in government databases and control who has access to them

Nasdaq successfully completed a trial in Estonia that will enable company shareholders to use a blockchain voting system

Estonia is also adopting blockchain technology to secure the country's 1 million health records

Every update and access to healthcare records is registered on the blockchain, preventing medical fraud

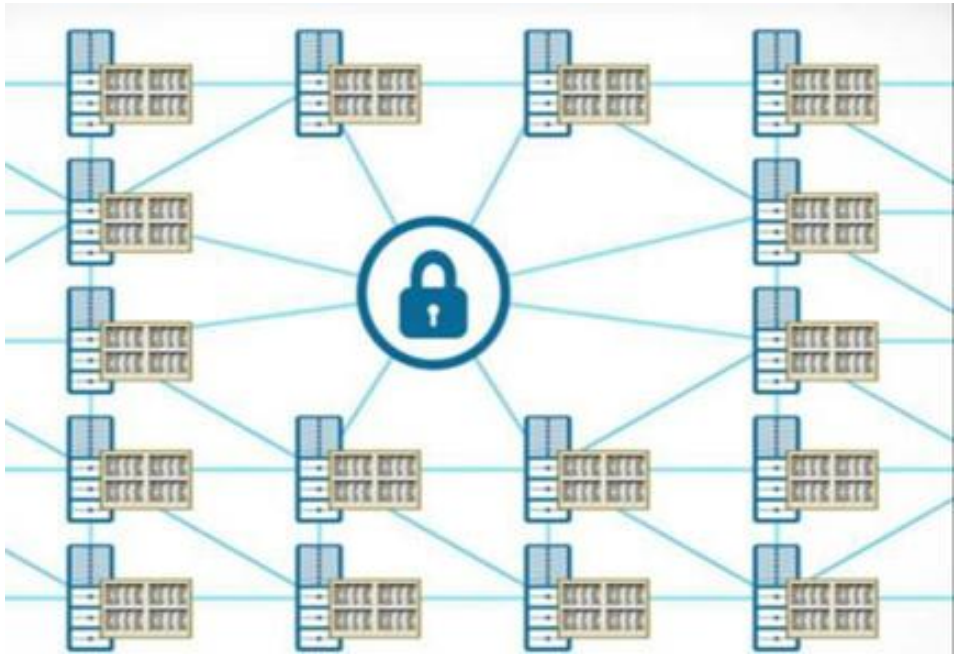
# Delaware, USA – Smart contracts, public archives

- Blockchain innovation will be utilized to store contracts and other corporate information on a circulated record, enabling organizations and offices to store their archives in more than one area
- This will keep them more secure and permit mechanized access by constituents, investors and representatives
- The utilization of blockchain implies the records are can be repeated in various areas, giving better calamity recuperation and sparing the cost of off-site physical capacity

# Dubai Plans Digital Passports Using Blockchain Tech

The Dubai government has partnered with UK start-up ObjectTech to bring blockchain-based security to the emirate's airport

- According to the start-up, the system combines biometric verification and blockchain technology, and will use a “pre-approved and entirely digitized passport” to authorize passengers' entrance into the country
- The system will further verify individuals through a three-dimensional scan via a short tunnel as they walk from the aircraft to claim their baggage
- the digitized passport will incorporate a feature called 'self-sovereign identity' for privacy protection, which it claims allows passengers to control which parties can view their passport information



# There are a Plethora of Use cases of Blockchain

Understanding which use cases you should pursue requires business understanding and technology knowledge, including:

- Your business procedure and process
- The gatherings that must connect to convey advantage
- Innovation supplier scene
- Administrative limitations and prerequisites

# There are a Plethora of Use cases of Blockchain

> Blockchain is an energizing new innovation with colossal potential to disturb and move forward various ventures.

# Thank You

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