

# EY Ops Chain

Industrializing the blockchain



Platform overview

Transformation

Features and  
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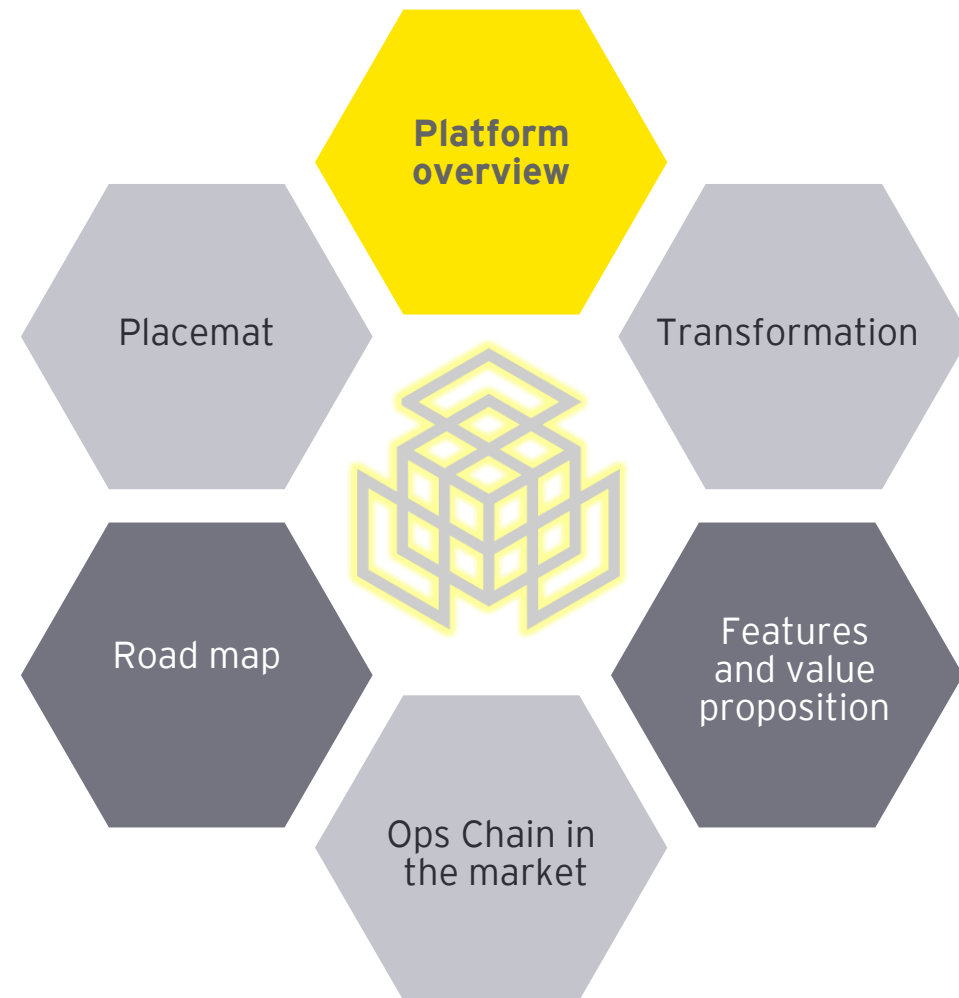
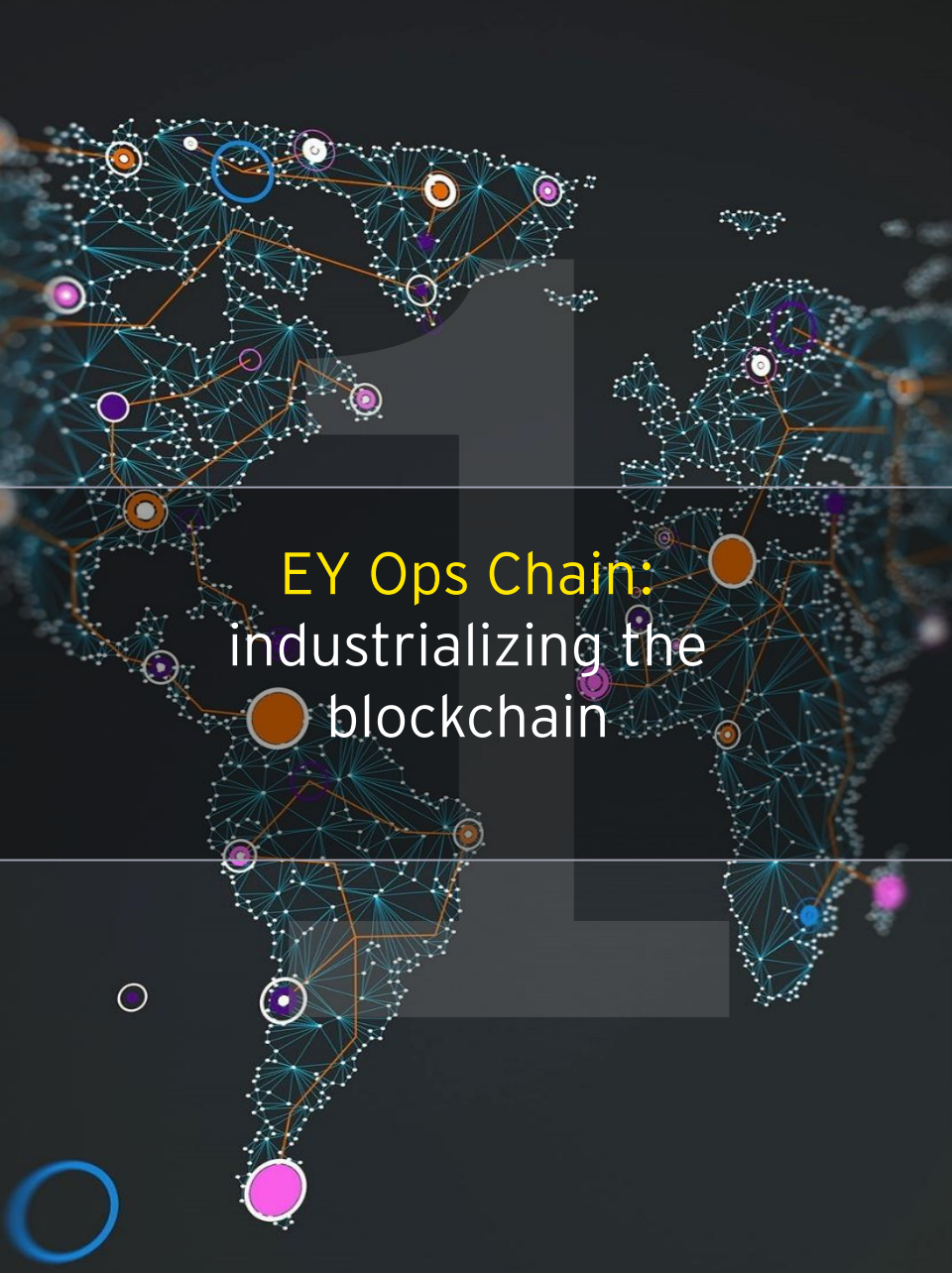
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# 1 Platform solutions overview

EY Ops Chain is a standardized framework to improve trust and efficiency in business processes and workflows in a private, permissioned blockchain compatible with Ethereum.



## 2 EY's Blockchain Technology Vision

Blockchain will do for networks of enterprises and business ecosystems what ERP did for the single company.



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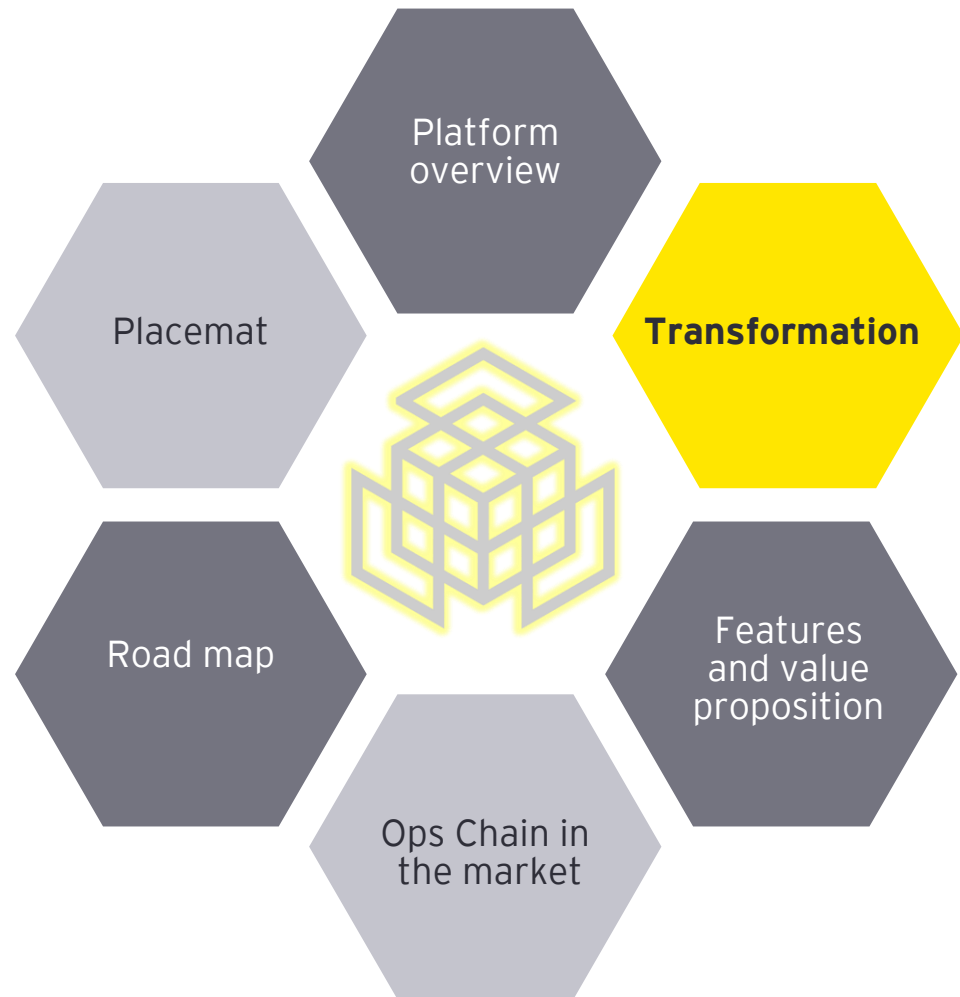
### 3 EY Ops Chain Solution Vision

A Smart Contract executing business transactions **privately** and **securely** on a blockchain infrastructure that will typically involve the exchange of fiat currency **tokens** for **asset**, **product** and **service tokens** in a multi-party ecosystem environment.





## EY Ops Chain: industrializing the blockchain



## EY Ops Chain is a general platform focused on supply chain & business operations

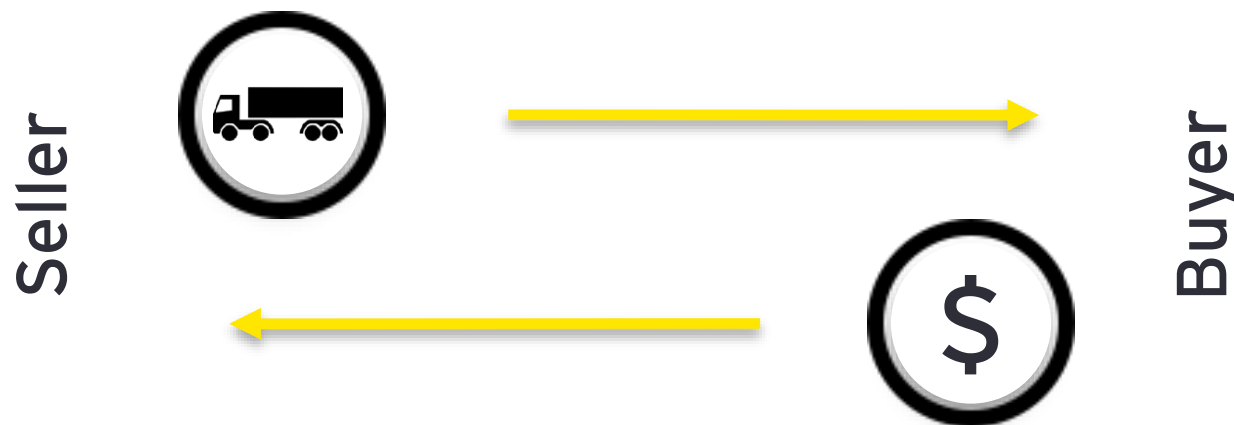
Take enterprise assets (real & virtual)



...and represent them as tokens in a blockchain.



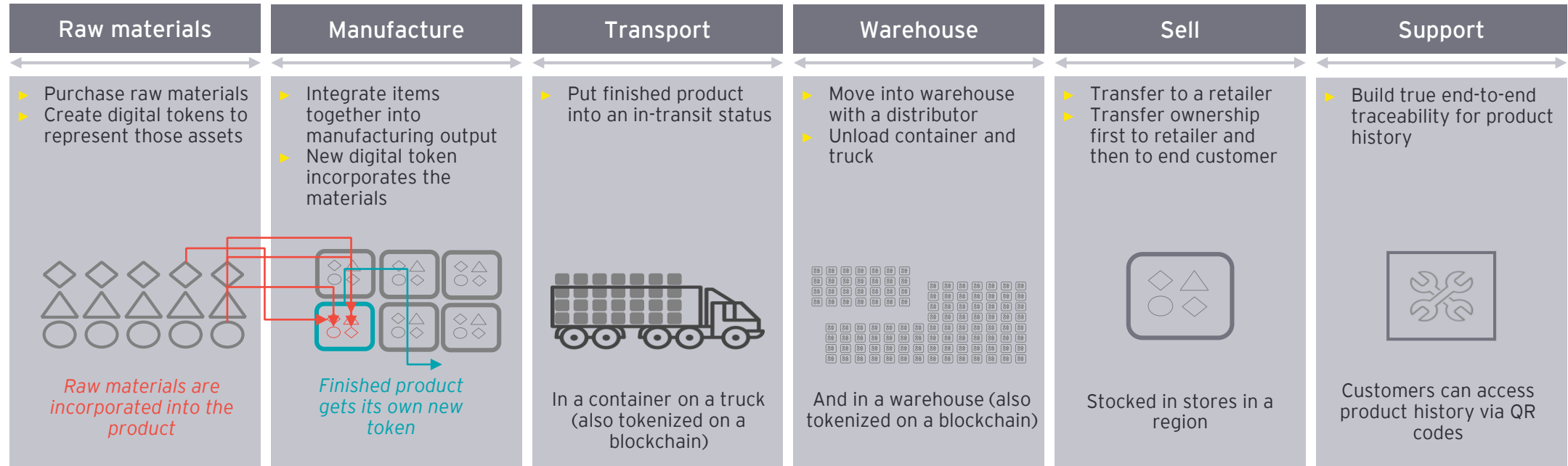
*Our goal with OpsChain is to model on the blockchain what companies are doing in real life - and then automate and accelerate:*



A seller (truck maker) is exchanging a physical product with a buyer. On the blockchain, it's an exchange of truck token for a set of financial tokens.



# EY Ops Chain enables end-to-end production process transparency through asset tokenization



## Benefits of asset tokenization

Lower raw material cost

Continuous traceability to manufacturing

Accurate in-transit inventories

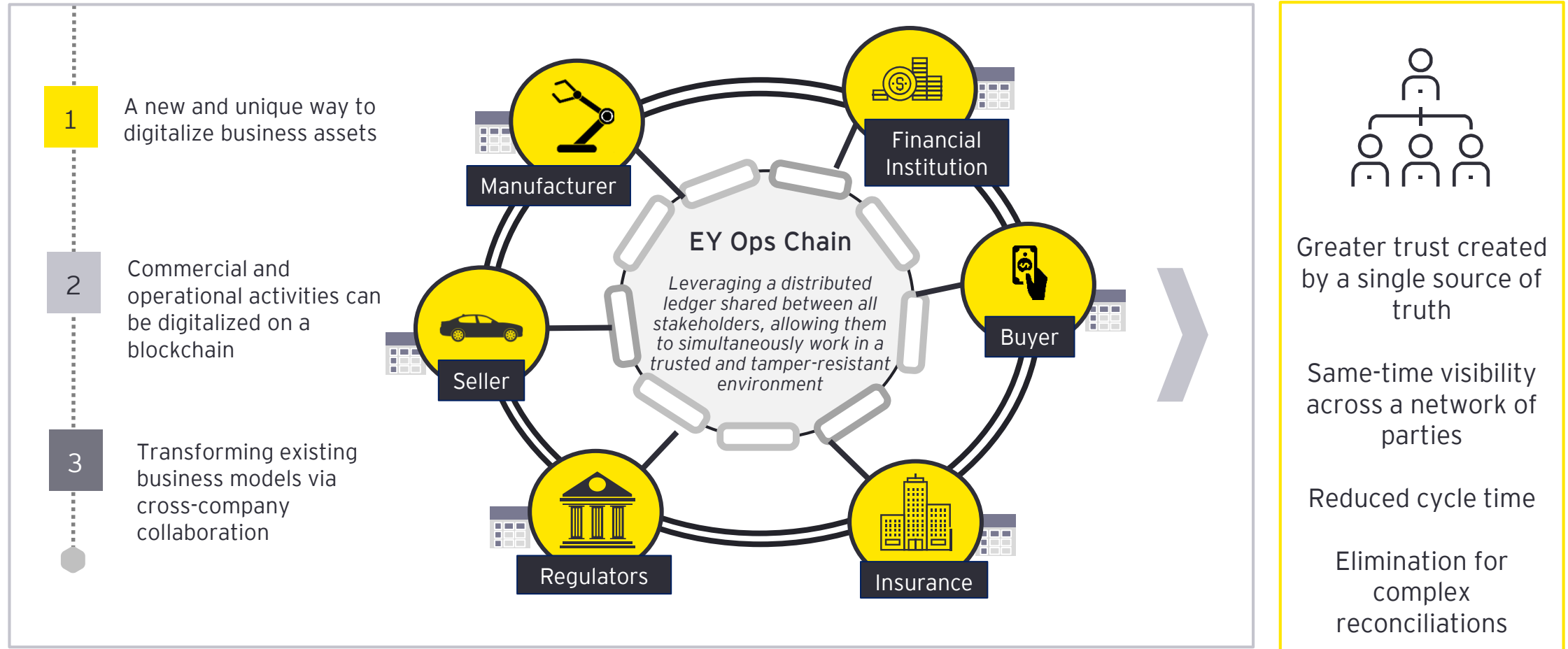
SKU-level optimization of warehouse inventory

Fewer stock-outs and excess inventory

Authenticity and entitlement

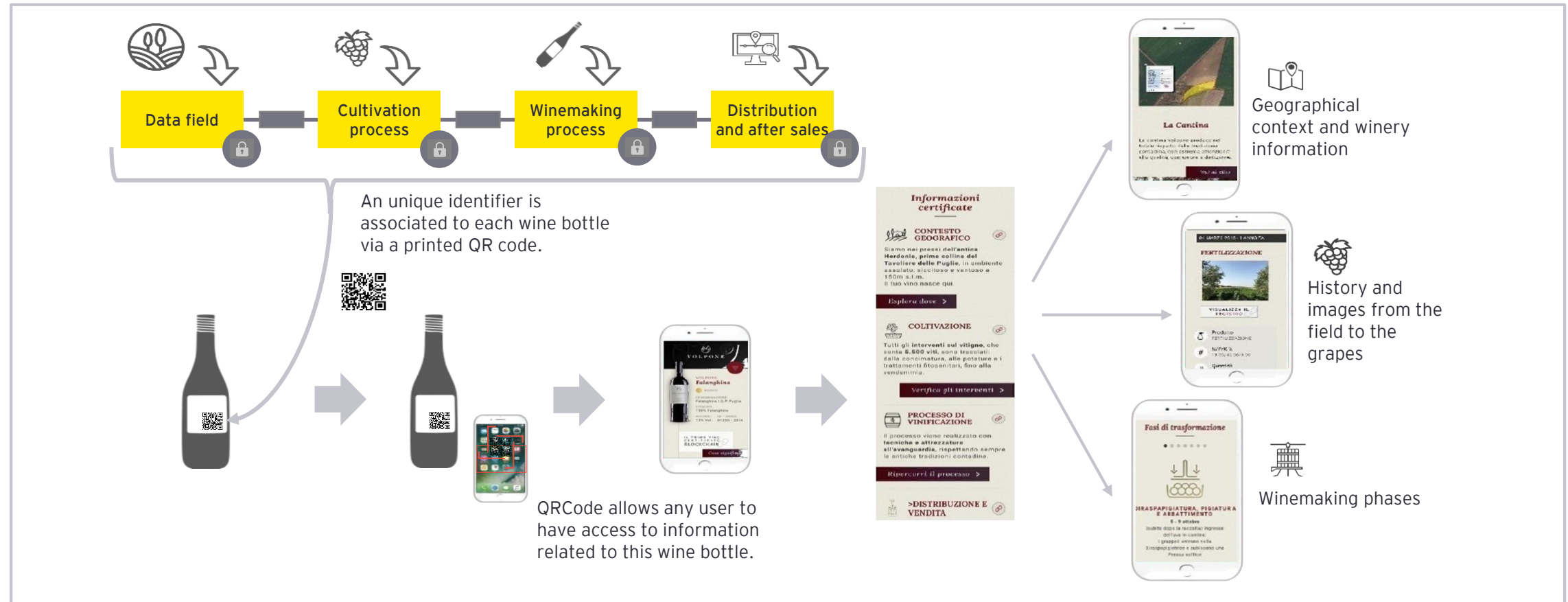
## 2 This allows organizations to accelerate and simplify business transactions

Forcing same-time visibility of material custody and ownership across the value chain

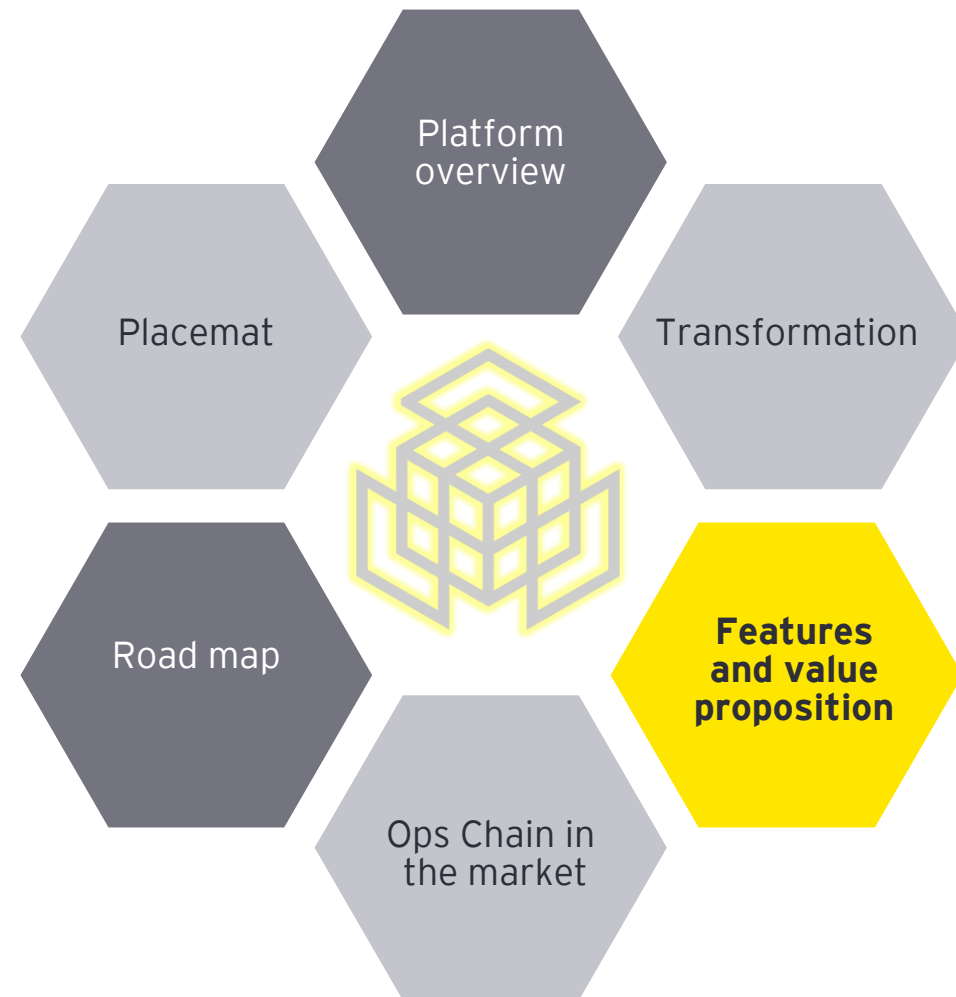


# Asset tokenization enhances authenticity and can unlock insights into product location and storage conditions

Tokenizing bottles of wine to ensure provenance (in production)







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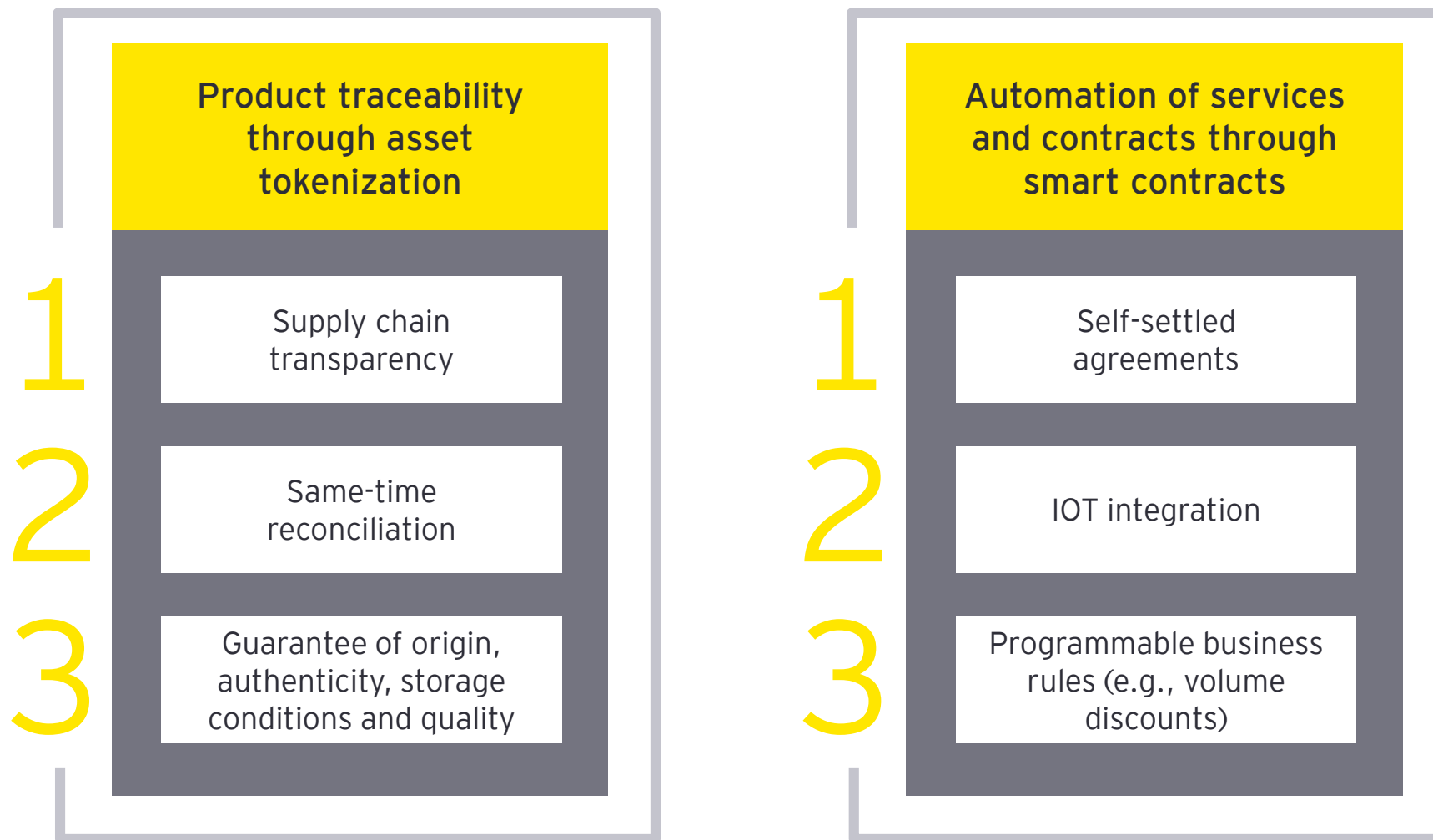
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### 3 EY Ops Chain features overview





# 3 Product traceability through asset tokenization



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### 3 What is asset tokenization?

Digital representation of an asset (good or service) that can be divided or transferred

This digital twin can be traced throughout the asset's life, along with commitments that users made.

**This results in greater visibility:**



3

# Asset tokenization reconciles any token movement with the same discipline as banks, a powerful asset for supply chains

EY Ops Chain leverages a blockchain to force reconciliations across all parties.

1

On a blockchain with tokenization, inventory moves must be balanced between locations.

2

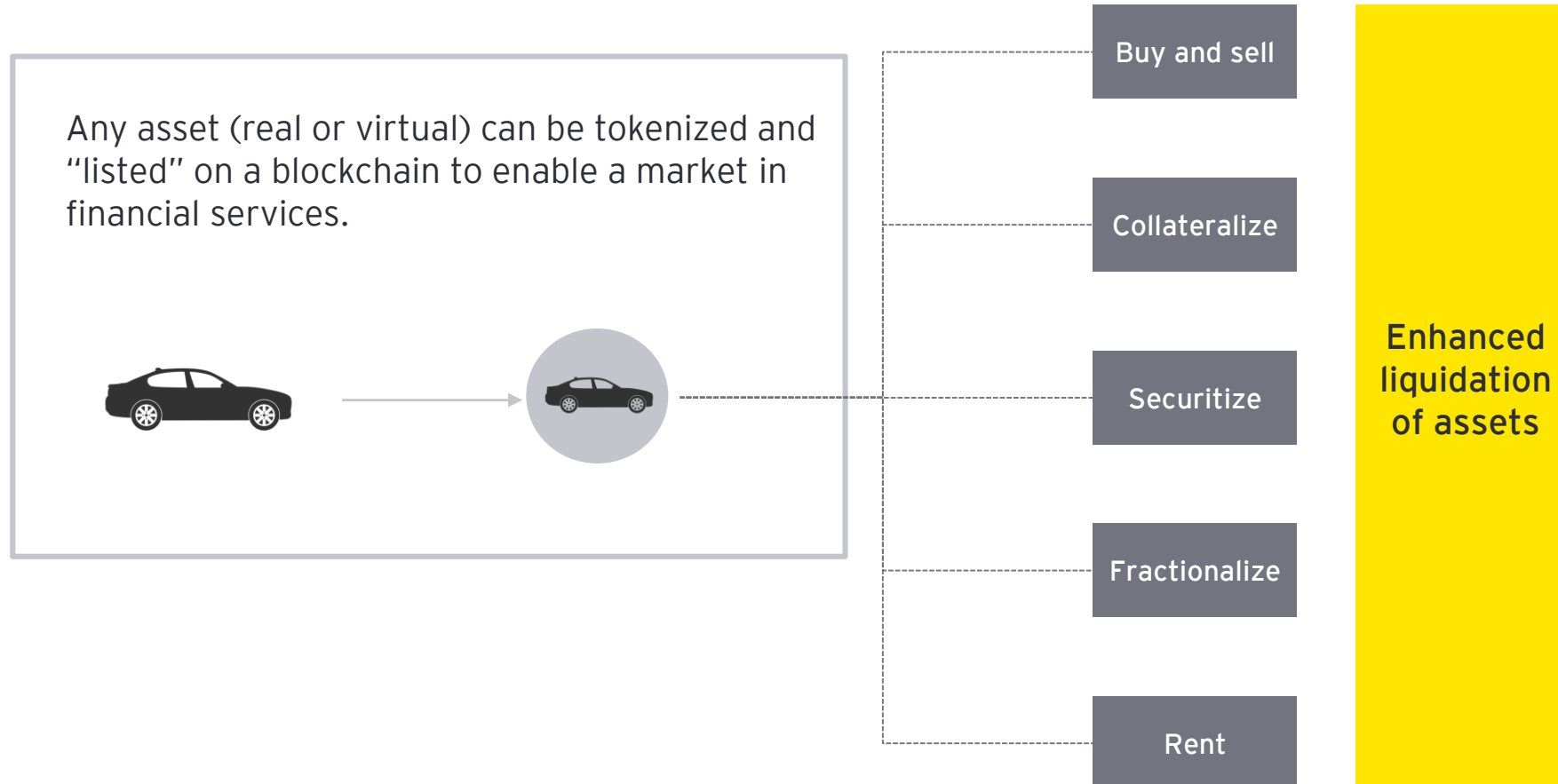
In order to add inventory to a warehouse, it must come from somewhere: in this case, In-Transit inventory.



Using tokenization on a blockchain means that inventory movements between locations are handled with the same precision as bank transfers.

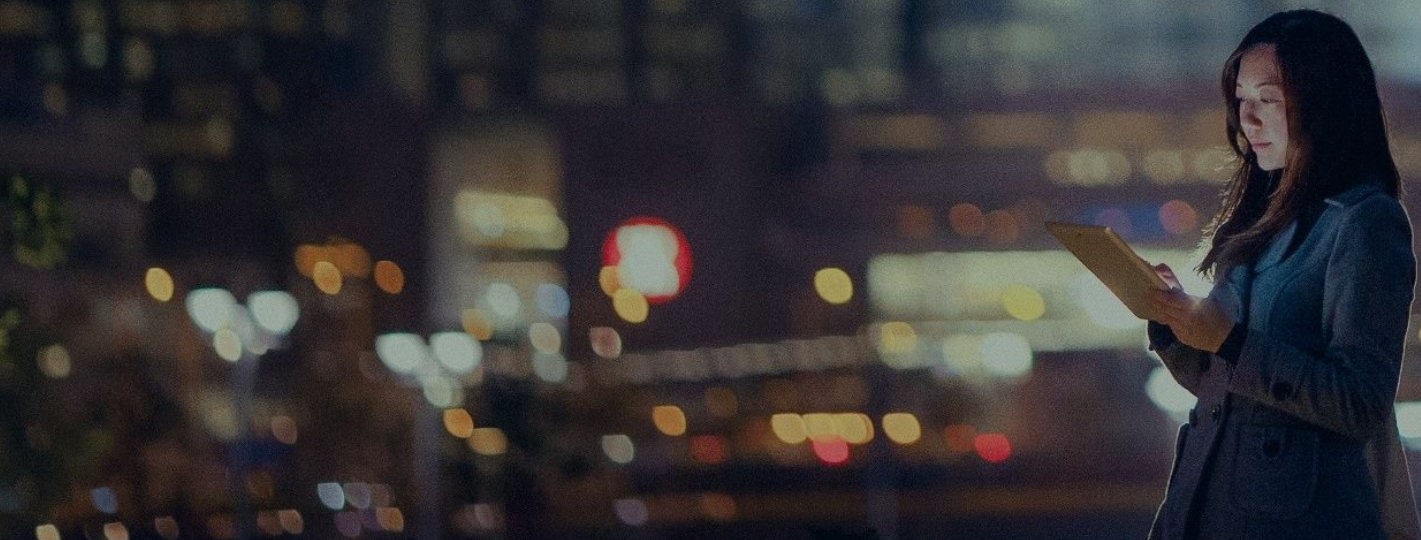
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Once you tokenize an asset, you can do more than just buy or sell that asset – you can deliver complex financial services





# 3 Automation of services and contracts through smart contracts – features



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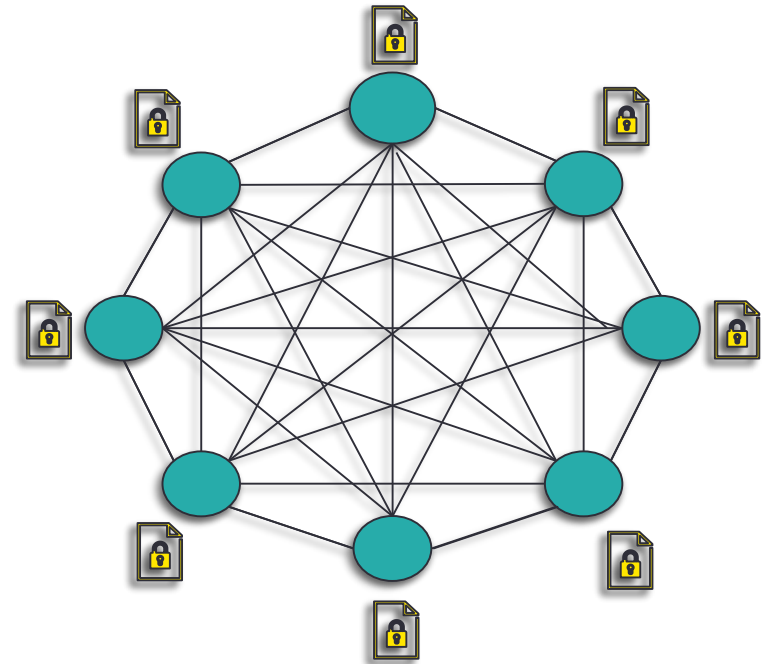




## Traditional, centralized ledgers can only input values, but cannot automatically enforce business rules

Smart contracts are self-executing encoded business rules that build automatic workflow onto a blockchain

- ▶ Communicate with external parties (e.g. emails to banks, insurers)
- ▶ Store information (e.g. membership records, tokens)
- ▶ Perform calculations (e.g. interest, foreign exchange translations)

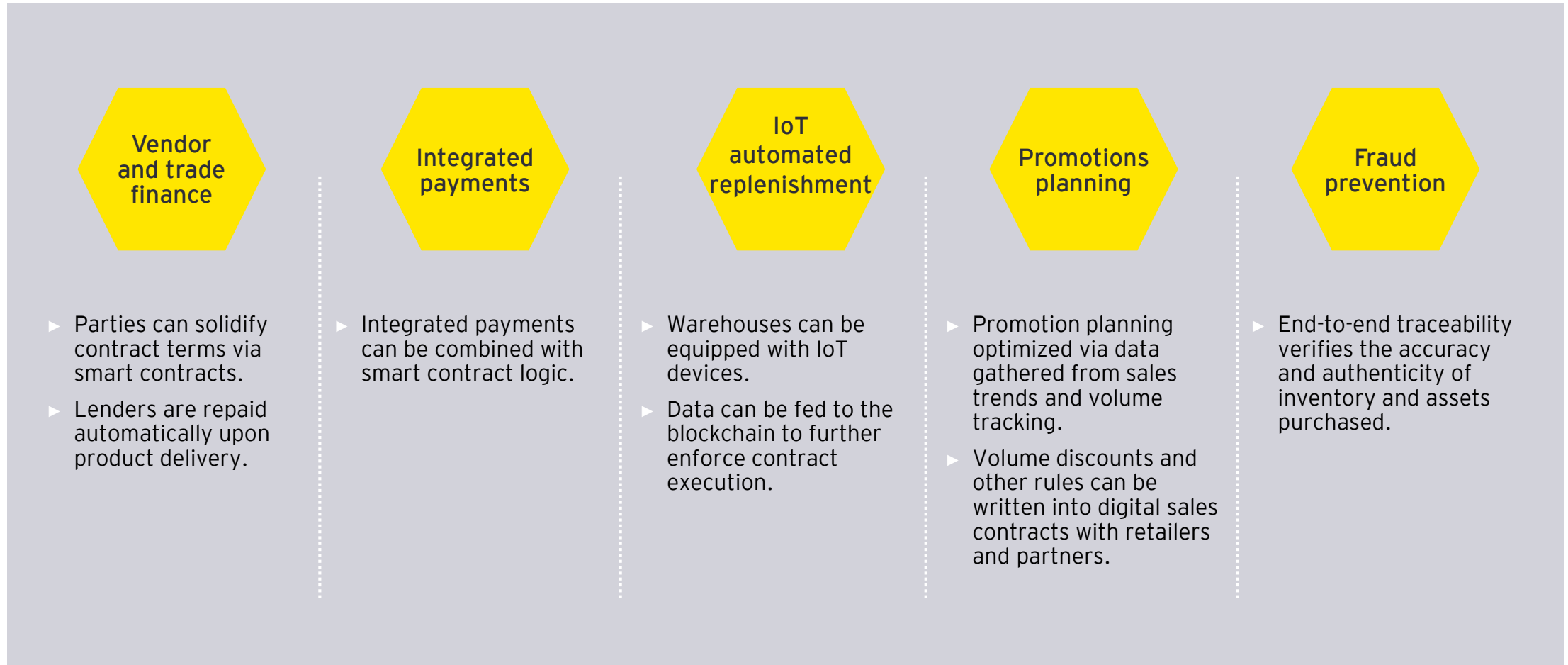


Smart contracts automatically guarantee an agreement will be executed when predefined conditions are met



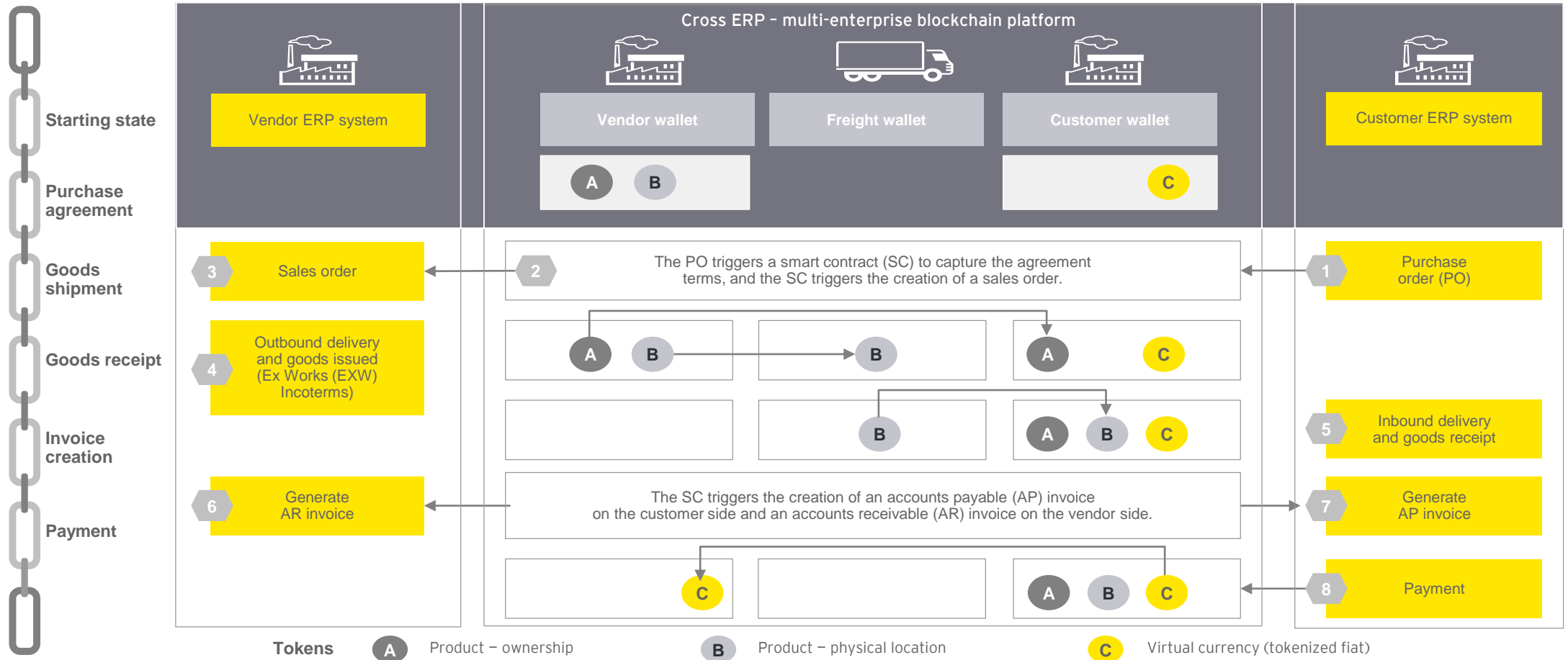


## Using Smart Contracts, EY Ops Chain enables automation of business services and contracts between parties



### 3 How smart contracts and product tokenization fit together

Smart contracts trigger events to transfer tokens between accounts.



## How will smart contracts help your business?

### Upgrading internal processes ...

- ▶ Integrate both payments and operations on a single ecosystem
- ▶ Automate existing processes
- ▶ Eliminate obsolete and redundant tasks (reconciliation by third parties, etc.)

### ... to work in a refined business environment

- ▶ Improve efficiency (disintermediation, reduction of time spent, etc.)
- ▶ Enhance quality (e.g., risk management, processing of claims and settlements)

3

# EY Ops Chain benefits overview

Value proposition



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# 3 Delivered value across supply chain network

## Immediate benefits to enterprises

1

Increased visibility into inventory tracking and business transactions across the supply chain



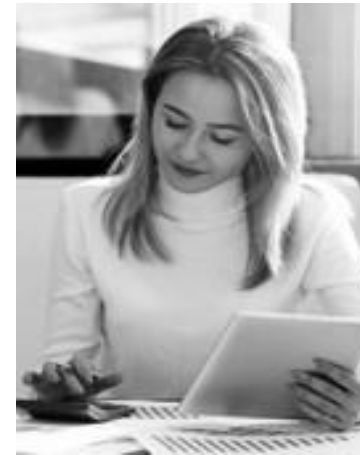
2

Forced reconciliation of inventory and financial transactions across different entities



3

Simplified audits and compliance reporting



4

One single version of the truth accessible at the same time to all authorized stakeholders



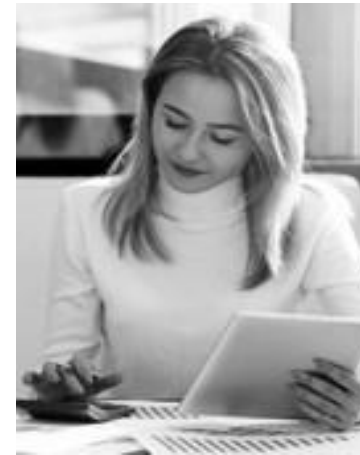
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Confidence in product authenticity, quality and counterfeit detection



6

Easy interaction with certified information through technology (e.g., scan QR code with mobile device)



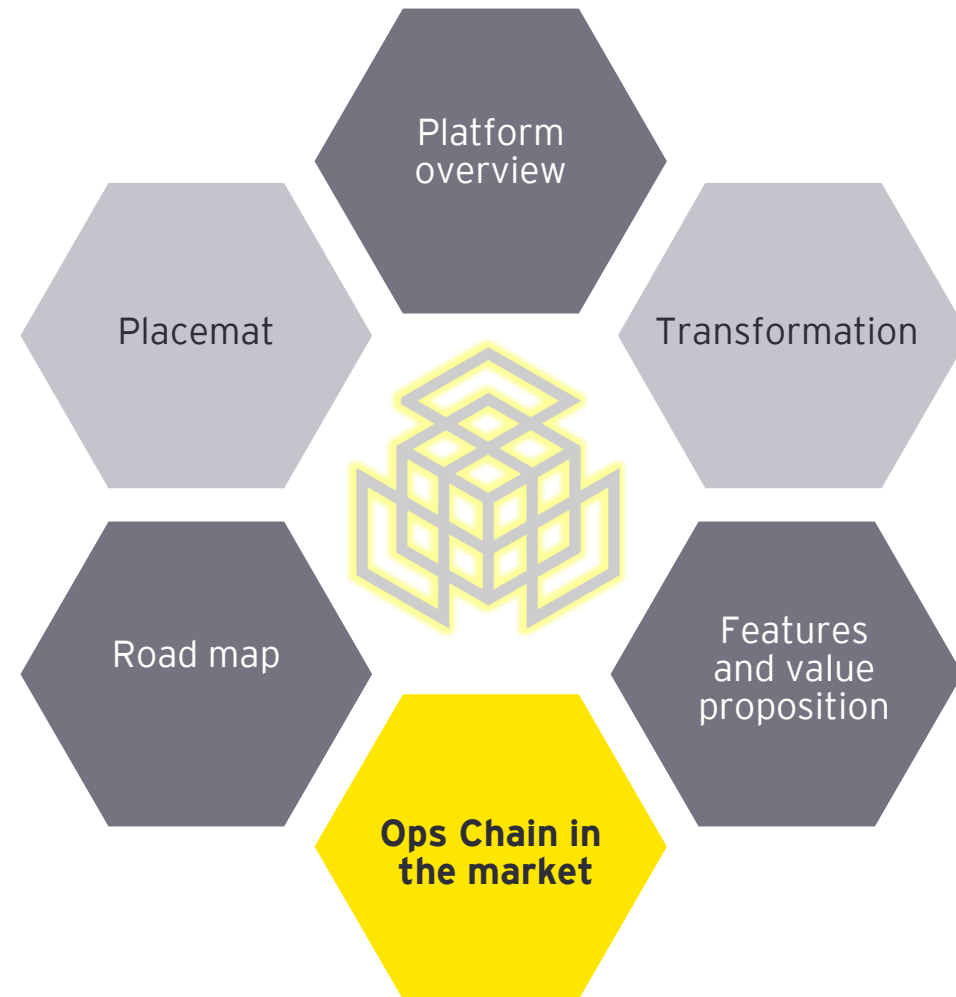
## Transforming existing business models via cross-company collaboration

An unprecedented inclusive environment allowing competitors to trustfully share and collaborate on a single network

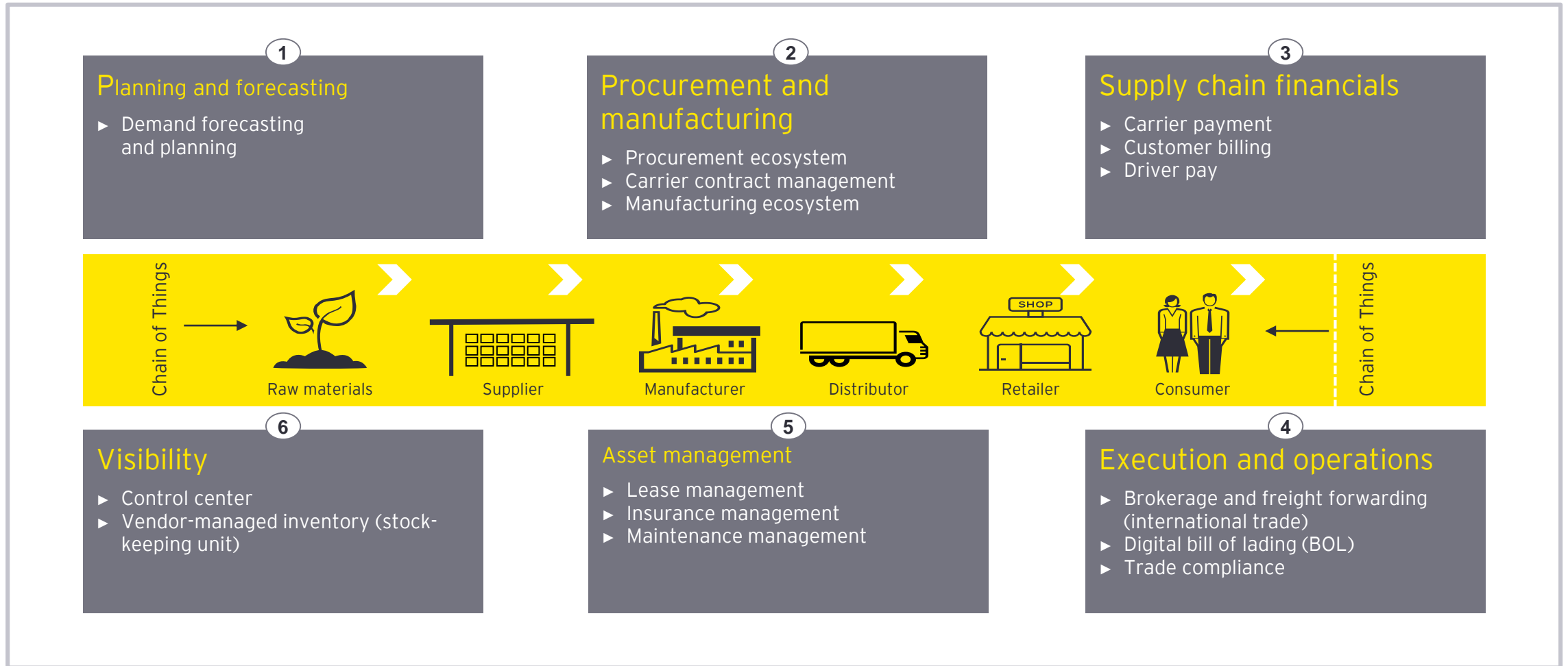




## EY Ops Chain: industrializing the blockchain



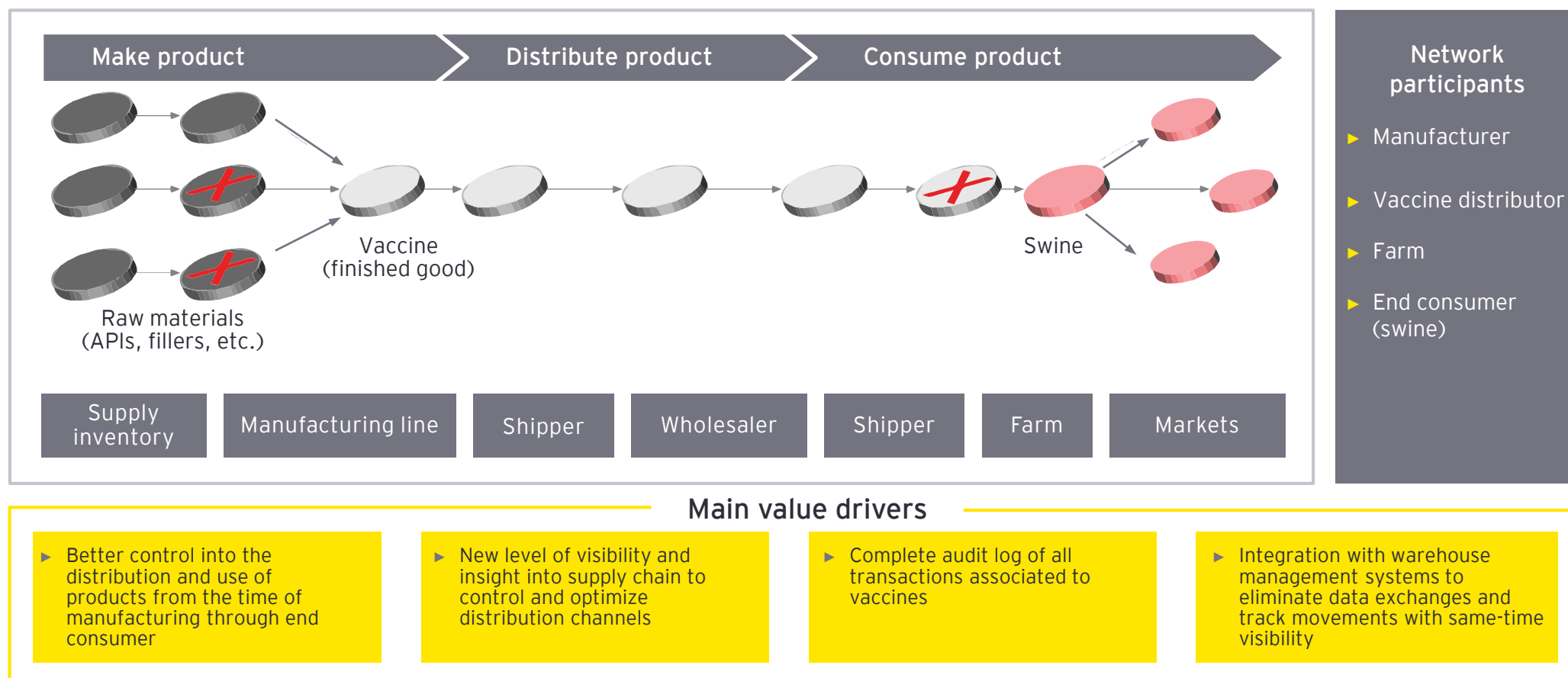
# Blockchain opportunities across a supply chain ecosystem



# Creating transparency in the supply chain for drugs and services

Global pharmaceutical company – Animal Health Division

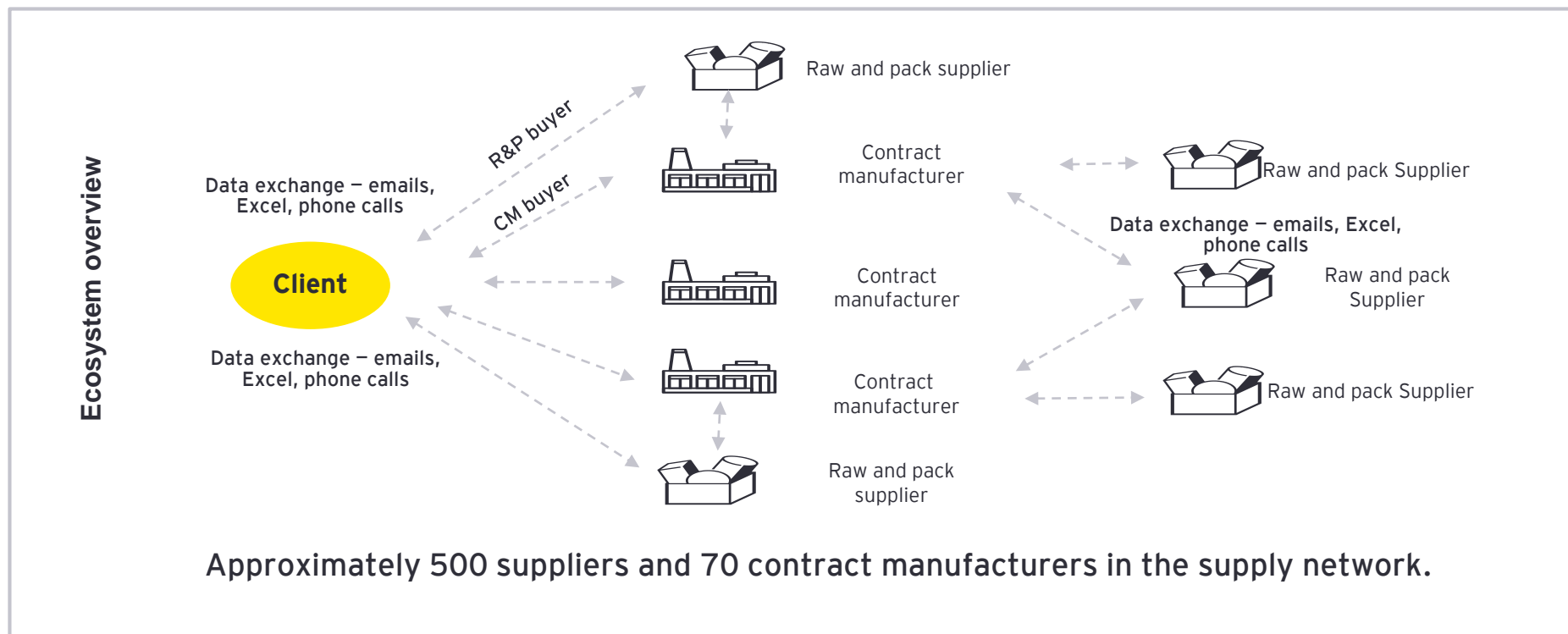
Tracking tokenized vaccines from manufacturer through the time it is administered to animals, providing transparency into animal and food supply chains





# Directed buy – contract manufacturing management

## Leading consumer products and retail company



### Network participants

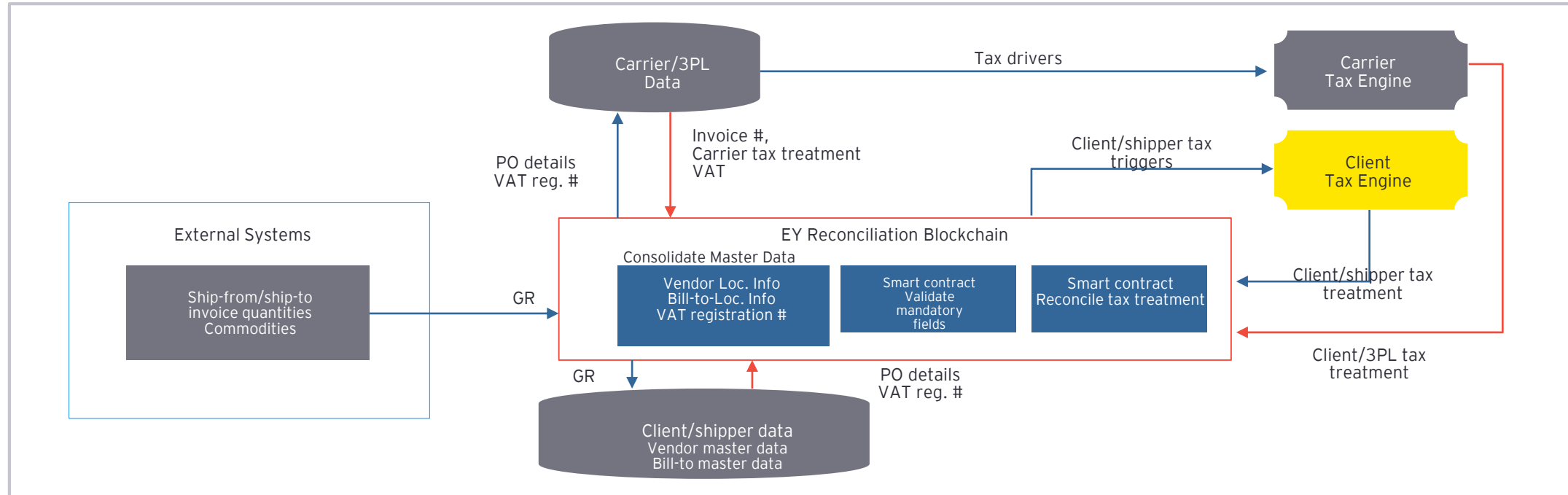
- ▶ Customer
- ▶ Raw and pack supplier
- ▶ Contract manufacturer

### Main value drivers

- ▶ Significant reduction of value leakage across the contract manufacturing and supplier network
- ▶ Elimination of the price verification process
- ▶ Visibility of transaction across the entire contract manufacturing and supplier network
- ▶ Full cost pass through of raw and packaging pricing each time

# Indirect tax reconciliation for freight service invoices

## Leading industrial company



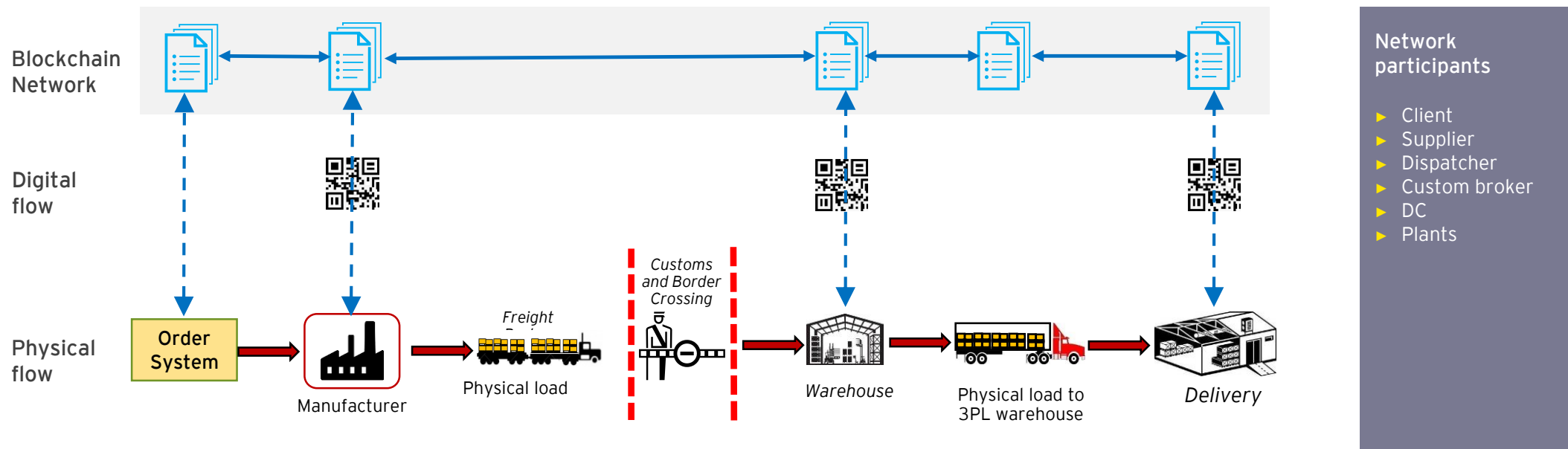
### Main value drivers

- ▶ Single source of truth to use for tax determination
- ▶ Elimination of most peer-to-peer (P2P) invoice processes (scanning, posting, troubleshooting)
- ▶ Reduced risk of tax recovery due to tax discrepancies
- ▶ Globally scalable solution across all regions and countries

# End-to-end visibility and tracking

## Leading auto manufacturing company

EY Ops Chain is used to track service parts orders and inventory across the manufacturer, logistics provider, third-party warehouse and the client's system.



### Main value drivers

► Platform for all stakeholders to get end-to-end visibility in near real-time, track inventory, and reduce reconciliations

► A dynamic work flow engine can be created and allow any ecosystem members to define their own workflow

# Product inventory tracking and management

## Leading transportation and logistics company

EY Ops Chain is used to streamline the collection, access, tracking and management of essential order and product information such that the data can be readily accessed and shared securely with a complete audit log of activities.



### Challenges

- ▶ No real-time integration of data across stakeholders and systems
- ▶ Redundancy of the data and processes across legacy systems
- ▶ Multiple supply and value chain partners involved in the end-to-end value chain processes
- ▶ Lack of real-time traceability of the products and shipments across the supply chain network

### Network participants

- ▶ Customer's command center
- ▶ Cross-dock/terminal location
- ▶ Third-party carriers
- ▶ Customers

### Main value drivers

- ▶ Increase transparency into whereabouts of shipments

- ▶ Ability to more easily manage assets across ecosystem

- ▶ Full auditability of activities

- ▶ Same-time chain of custody auditing

- ▶ Increased security and data accuracy





## EY Ops Chain: industrializing the blockchain

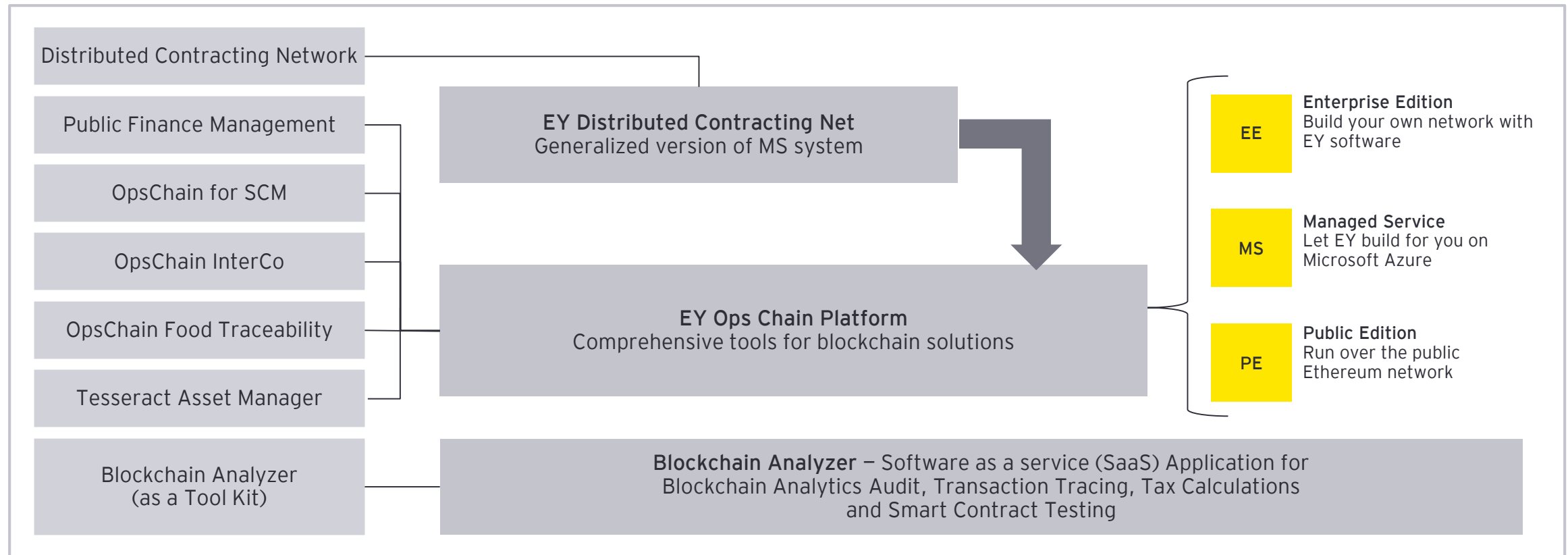


# Our road map expands capabilities through integration with EY's blockchain product suite

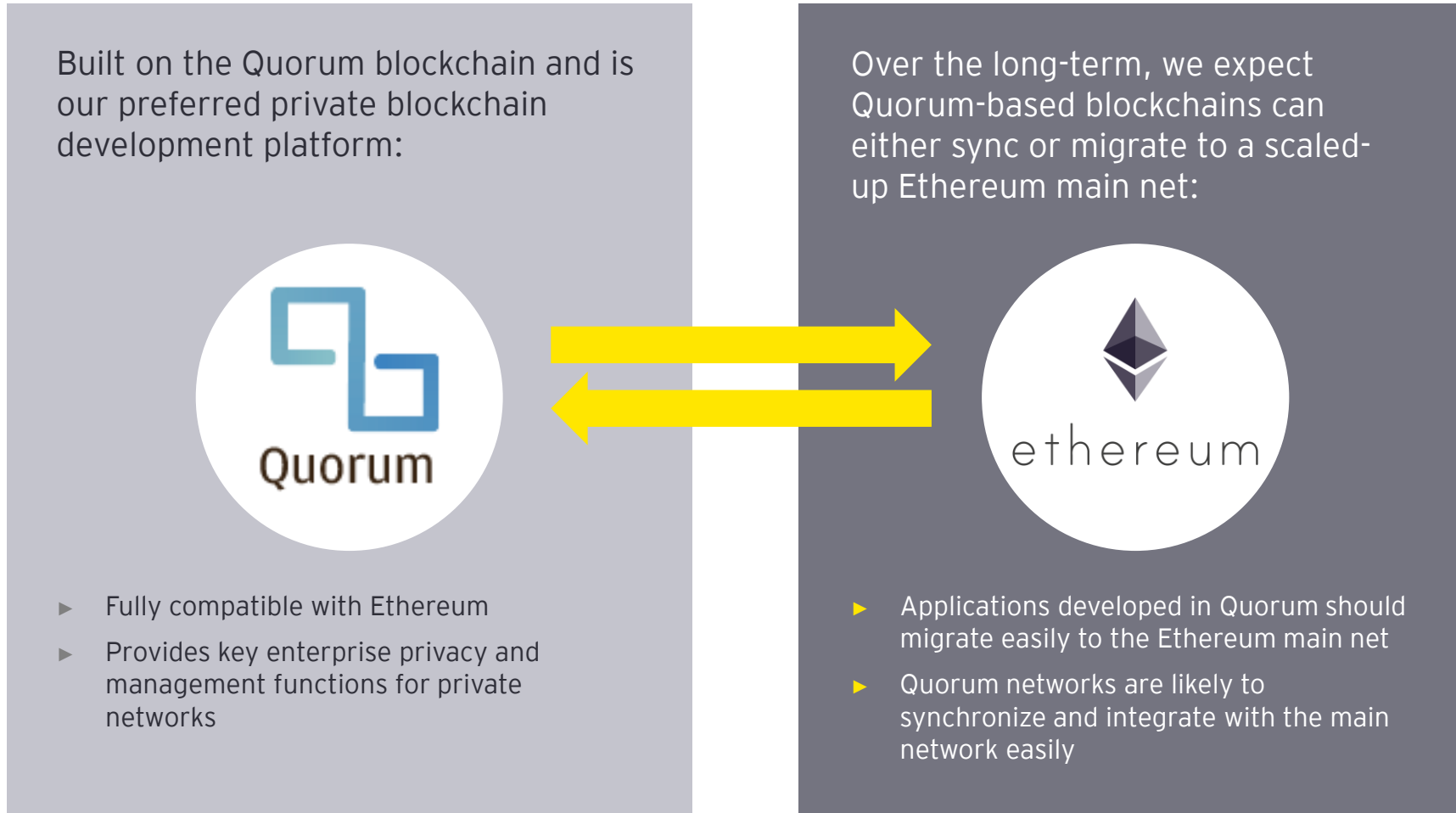
EY has **seven** major blockchain solutions that we are developing internally:

Our goal is to converge these solutions over time into two basic platforms: **EY Ops Chain** and the **Blockchain Analyzer**.

EY Ops Chain has **three** configurations:



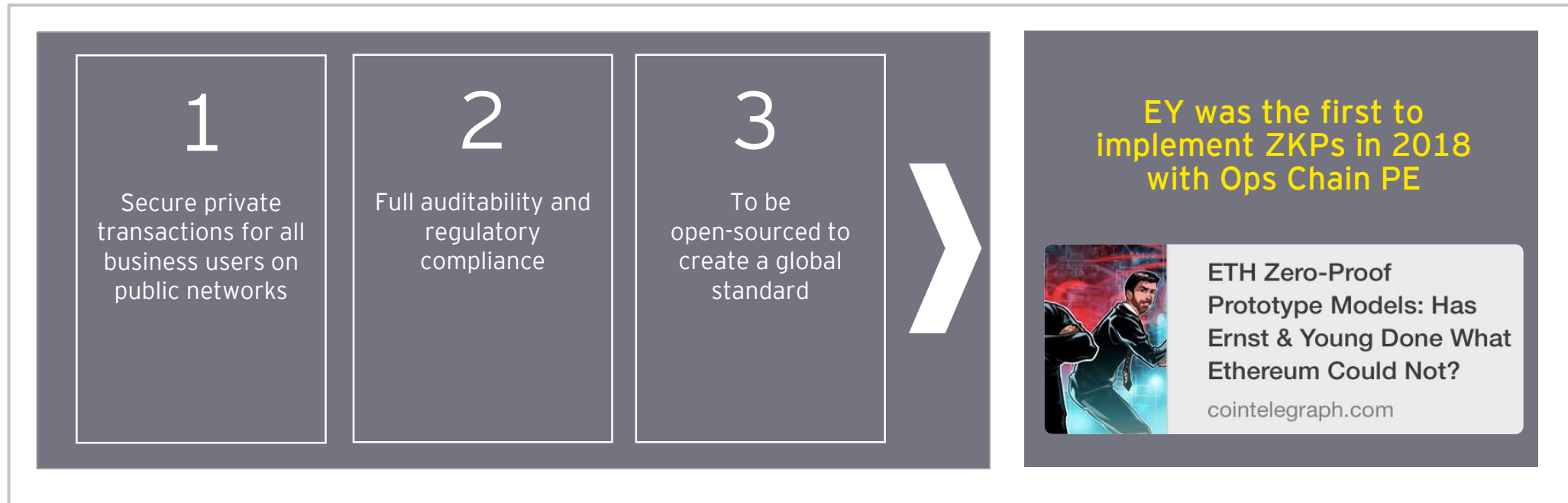
## EY Ops Chain is built on a platform and architecture strategy that looks out more than a decade





## EY Ops Chain will enable organizations to transact privately on the Public Ethereum Blockchain

Zero Knowledge Proofs (ZKPs) Cryptography will allow secure, private transactions over public blockchains.



With ZKPs we can have the privacy needed by enterprises and governments delivered on shared, open access public infrastructure.



# Ops Chain: industrializing the blockchain

## How do modern enterprises manage a multi-tiered, global supply chain?

### How do we:

- ▶ Seamlessly integrate digital contracts, seamless inventory and logistics information, pricing and invoicing, and payments?
- ▶ Provide accurate visibility into data, increase revenue and profitability, and prevent fraud?

**74%** of CPR companies experience transparency and visibility issues

**94%** of consumers state that it is important for them to have transparency into the products they consume

**25%** reduction in transaction cost and time by eliminating overhead and third parties

### Business context:

- ▶ Enterprises are struggling to manage large, extended supply-chain networks that cross continents and have many tiers.
- ▶ There is a burden on one trusted centralized party to reconcile transactional data when dealing with multiple parties in various geographies exchanging many physical goods and documents in shared processes.

### What is EY Ops Chain?

EY Ops Chain is a blockchain solution enhancing end-to-end tracking of products, inventory traceability, settlement and automatic execution of multiparty agreements between untrusted organizations.

### Value proposition

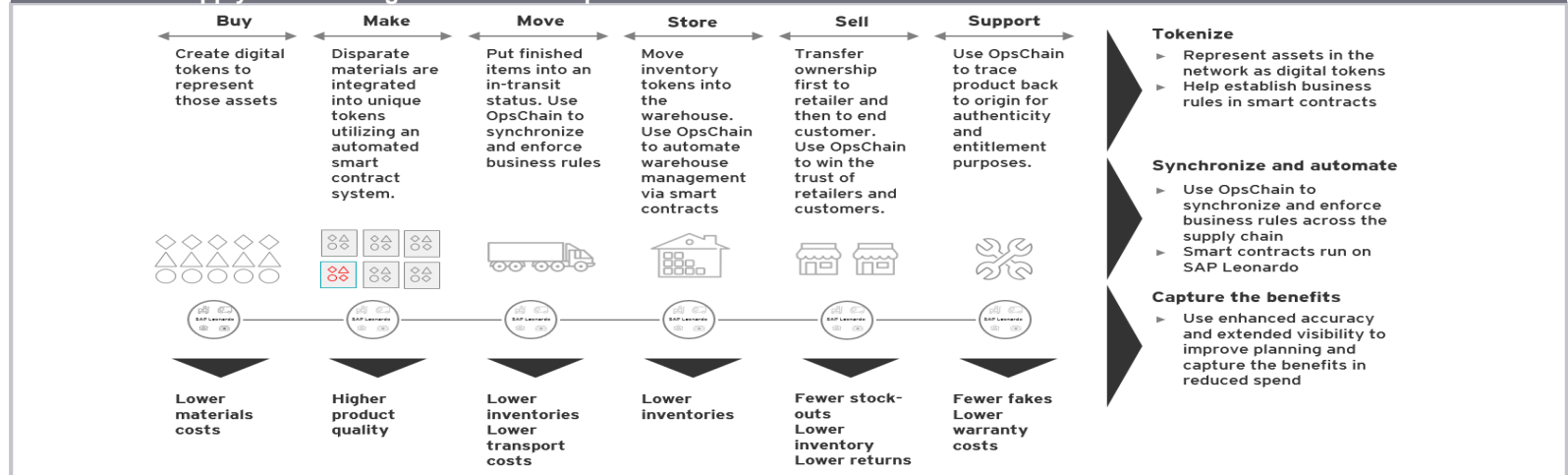
Product traceability	Clearly track the movement and condition of goods as they shift hands along the supply chain. Asset tokens are unique and dynamic
Smart contracts/automated business rules	Automate contract execution and management. Reduce any or all reliance on legal parties or other third parties
Inventory tracking and management	Increase revenue and profitability, and stop fraud before it hits the customer, all while enhancing inventory management capabilities

### Key features

Asset tokenization	Same-time contract execution	Enhanced inventory forecasting
Increased transparency	Enforced business rules	Same-time reconciliation
Traceable ownership info	Automated replenishment	SKU-level optimization

### How it works

#### Future-state supply chain management with EY Ops Chain





## 6 Ops Chain Platform: Key contacts

### Ops Chain Platform Team



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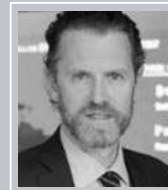
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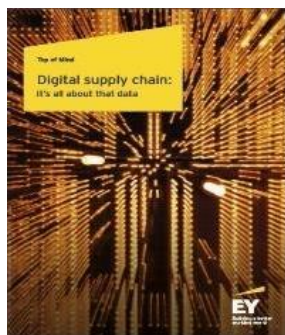


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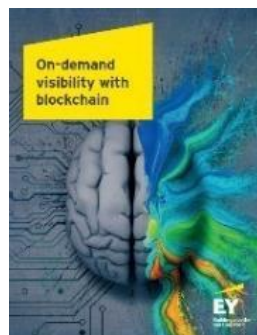


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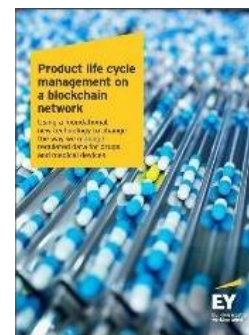
# EY blockchain in supply chain thought leadership



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