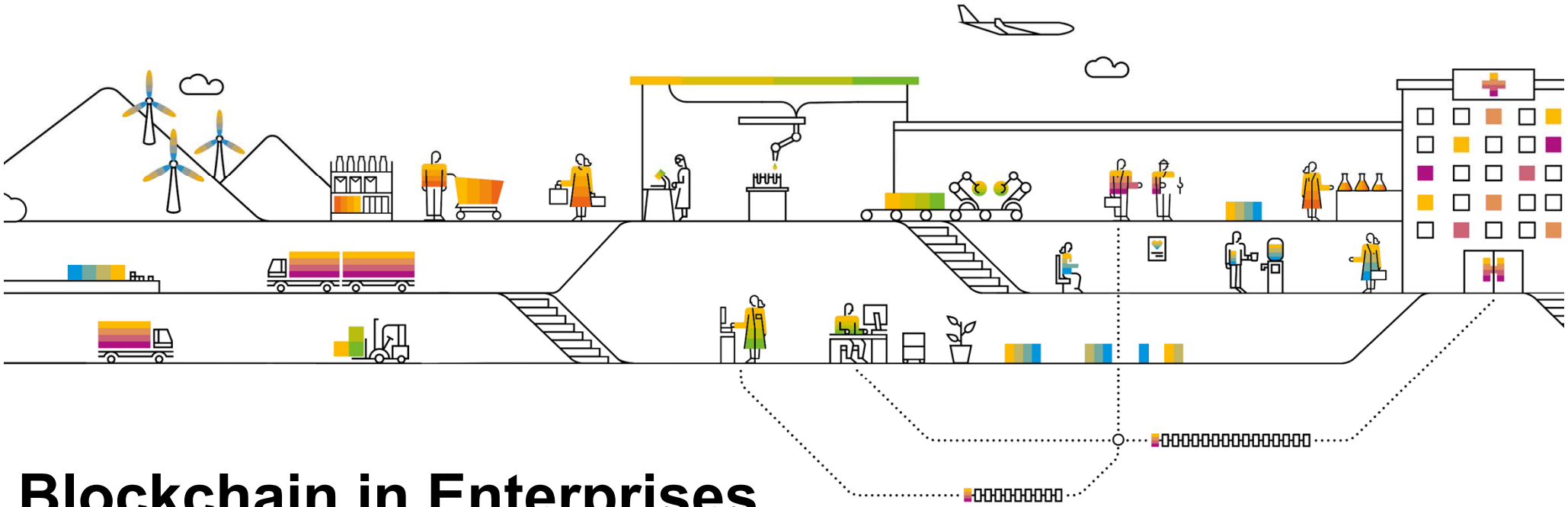

Blockchain in Enterprises

Digital Trust, Real Business Value

Dr. Sathya Narasimhan, Sr. Director, Blockchain Business Development and Product Management

September 2018

PUBLIC

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Enterprise Blockchain Applications & Implications for Accounting

- **Managerial Accounting:** Establishing a ‘single version of truth’
- **Financial Accounting:** Synchronized closing of books across trading partners
- **Taxation:** Traceability and compliance vs. Data driven policy making

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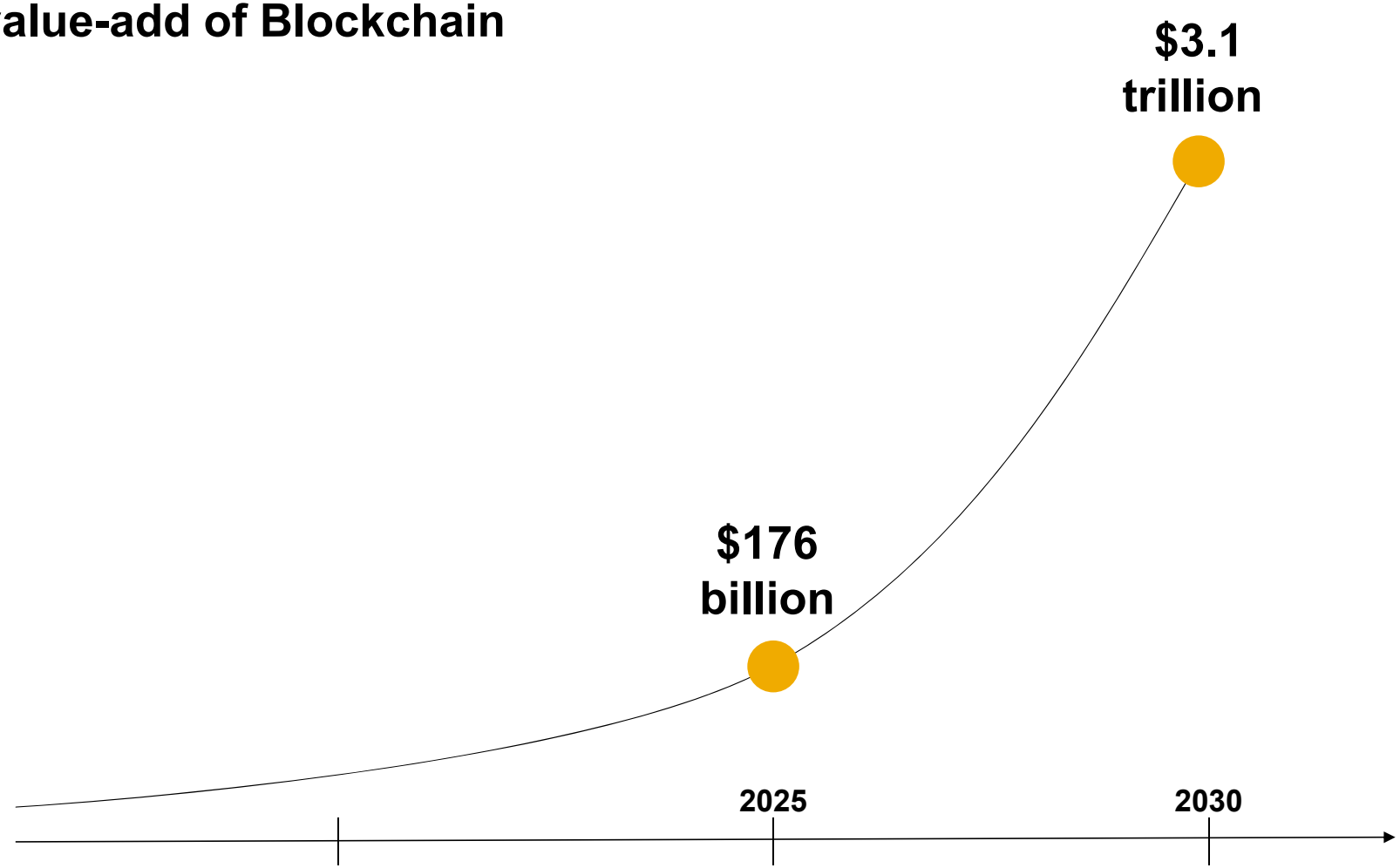
BLOCKCHAIN FUNDAMENTALS

The value-add of Blockchain



Gartner Report „Forecast: Blockchain Business Value, Worldwide, 2017 – 2030” (ID: G00325744)

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Blockchain in numbers

83%

of life science leaders believe Blockchain will be adopted within 5 years[1]

>50%

of companies in consumer products, life science, healthcare, tech and media already deploying Blockchain solutions[4]

Over **$1,4bln**

investments over the past 3 years[4]

2500+

patents filed over last 3 years[4]

24+

countries currently investing in Blockchain[4]

71%

of business leaders using Blockchain believe it plays a key role in advancing the technology and reestablishing industry standards[2]

90+

central banks engaged in DLT discussions worldwide[4]

Market cap of public Blockchain assets breaks

$100bln[3]

1. Finds Survey from The Pistoia Alliance , 20.09.2017
2. Blockchain Technology: use cases, statistics, benefits , 20.09.2017
3. Coindesk. State of Blockchain Q2 2017 , 20.09.2017
4. Deloitte. The future is here , 20.09.2017

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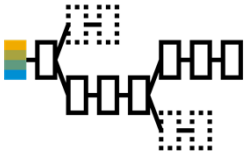
What is Blockchain?

Bitcoin

Cryptocurrency encryption techniques are used to verify the transfer of funds; operating independently of a (central) bank.

Blockchain

Architectural concept that enables the decentralized, secure, direct, digital transfer of values and assets.



Distributed Ledger Technology

Distributed ledger consensus of replicated, shared digital data spread across multiple sites, countries, or institutions. No central administrator or centralized data storage.

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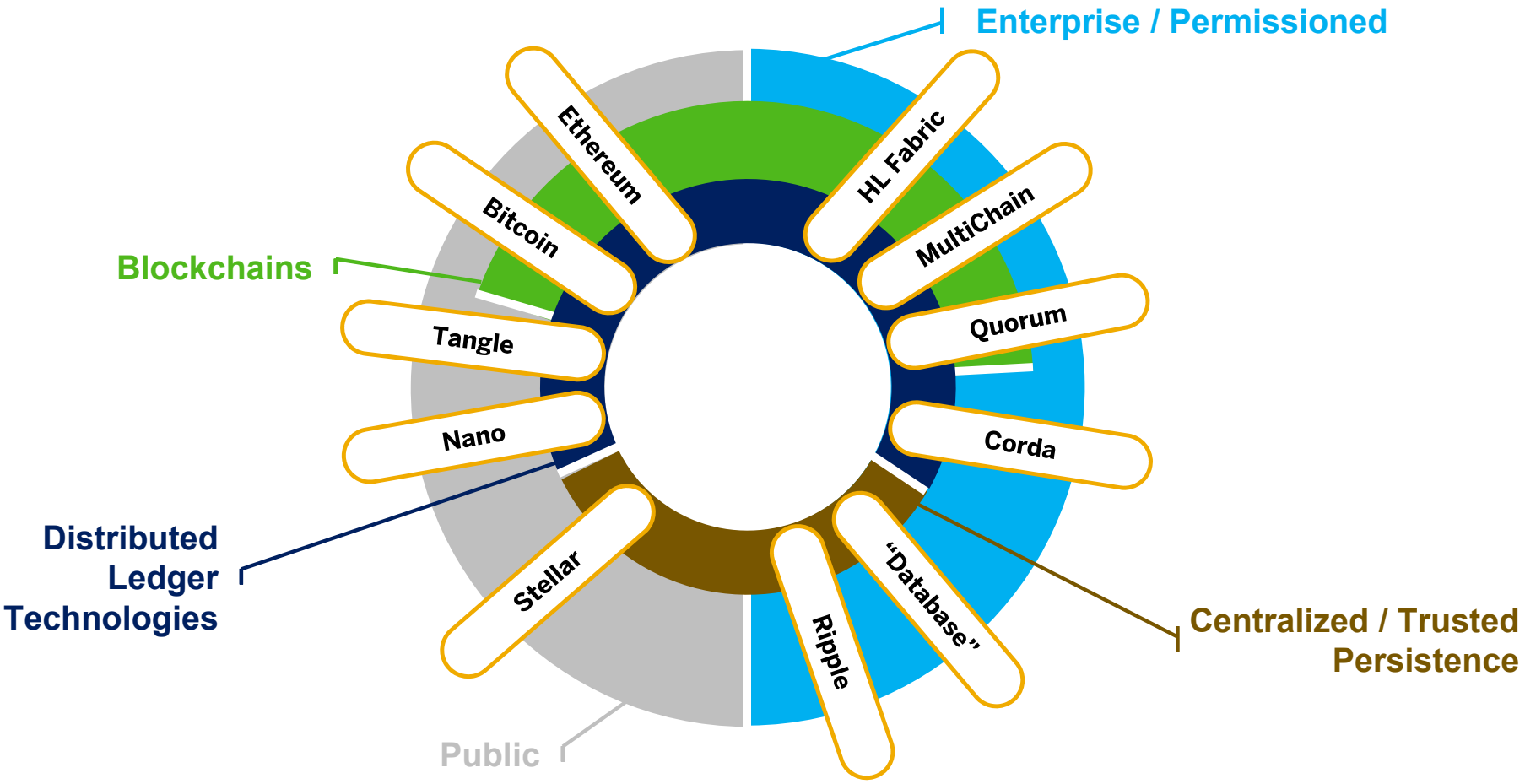
Landscape of “Blockchain Solutions” – exemplary and non-exhaustive



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What is Blockchain?

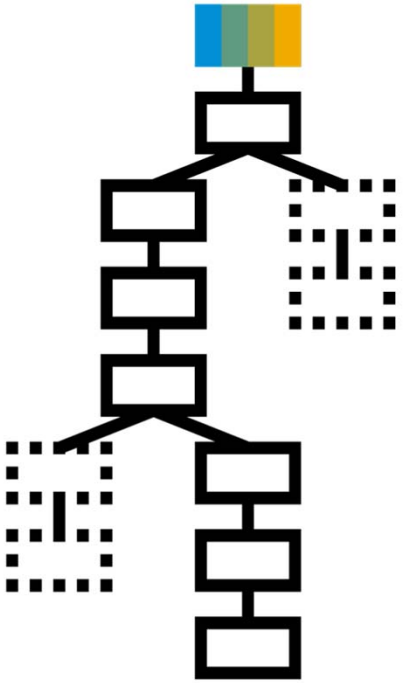
Composition of Existing Technologies

- Decentralized peer-to-peer technology
- Private / Public key cryptography + hashing algorithms
- Consensus algorithm

Information Storage

- Distributed
- Transparent
- Immutable

Cryptographically Linked Blocks



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Overview: Smart Contracts in Blockchains

A **smart contract** is a piece of code embedded in the Blockchain and being executed by each validator.

It can represent a **business contract** and guarantees **automation of business rule execution**.

Smart contract is a new concept and creates challenges:

- Code is Law philosophy is not the same as human interpretation of law
- Decentral code execution requires a new development paradigm
- Execution of Smart Contracts in VMs increases complexity of the blockchain platform
- Security issues in Smart Contracts can result in much higher being published in public blockchains

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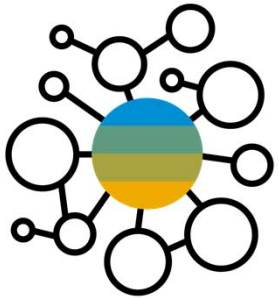
Blockchain deployment options

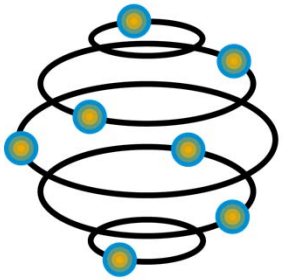
Public



Permissionless Blockchain

Open for everyone to participate and read/write.

Consortium



Permissioned Blockchain

Access and permissions controlled by pre-selected set of nodes

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Blockchain Value Drivers for Business

Process Optimization

Multi-party collaboration on single version of truth

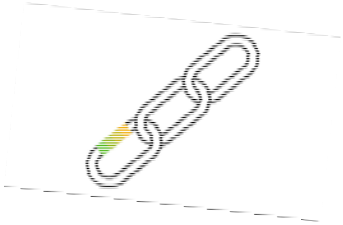
Time & Cost Reduction

Peer-to-peer network without intermediaries

Transparency & Auditability

Undeniable history due to immutability of records

Risk & Fraud Minimization



Provability & automated business rules (smart contracts)

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BLOCKCHAIN IN SAP CONTEXT

SAP Unique Approach & Capabilities

Combining the Digital Core with Business Networks with an Open and Standards-based approach

Business Process
Centric & System of Record

Business Networks
Experience & Pedigree

SAP Cloud Platform
Blockchain

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Identification & Verification of Sellable Returns

Purpose

Help secure the health of patients by fighting fraudulent activities

Legal requirement

Drug Supply Chain Security Act demands companies to both identify and verify sellable returns

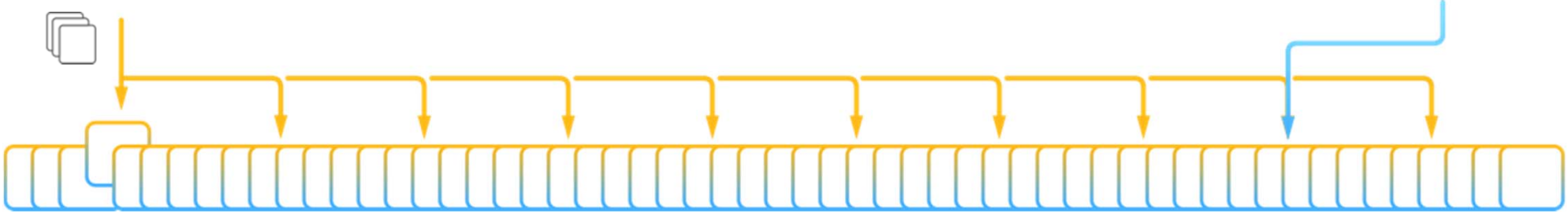
Business Challenge

2-3% of total sales are sellable returns (58.7 million units a year)

SAP Advanced Track & Trace for Pharmaceuticals

AmerisourceBergen · AMGEN · Boehringer Ingelheim · gsk · McKESSON · MERCK · novo nordisk

Scanning System



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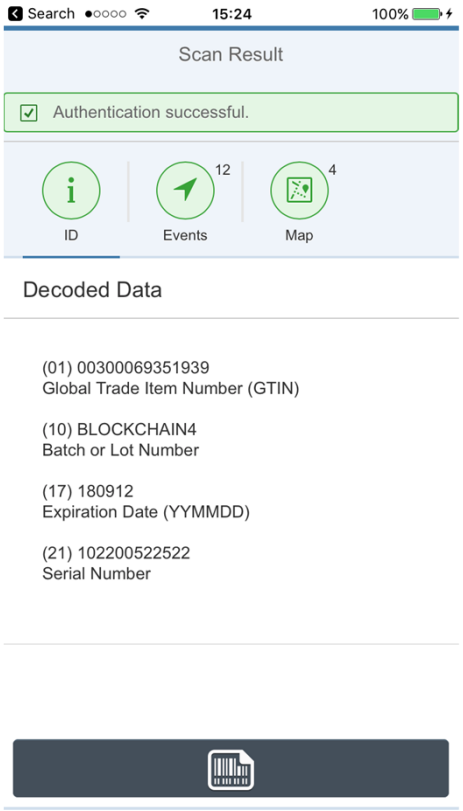
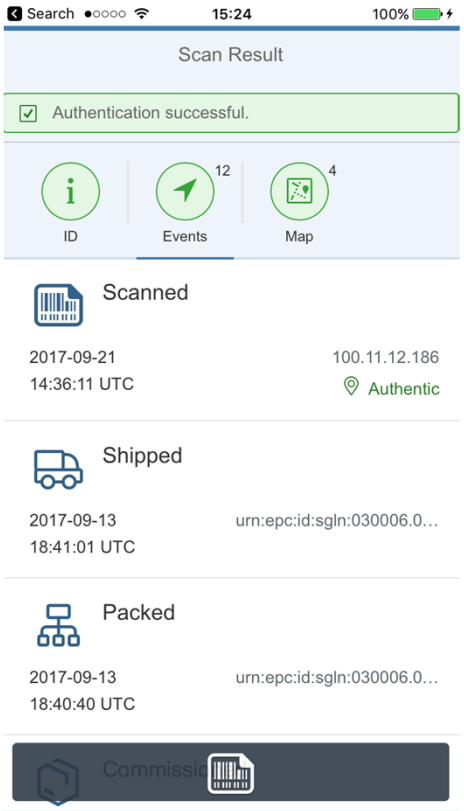
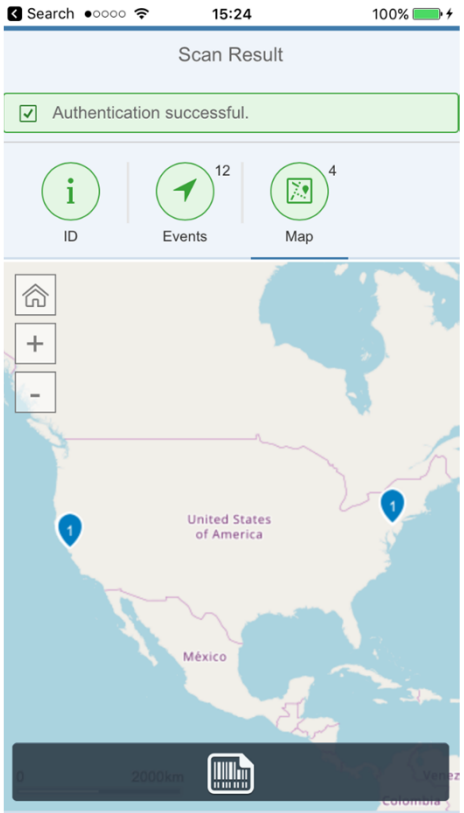
Supply Chain Provenance: POC application example







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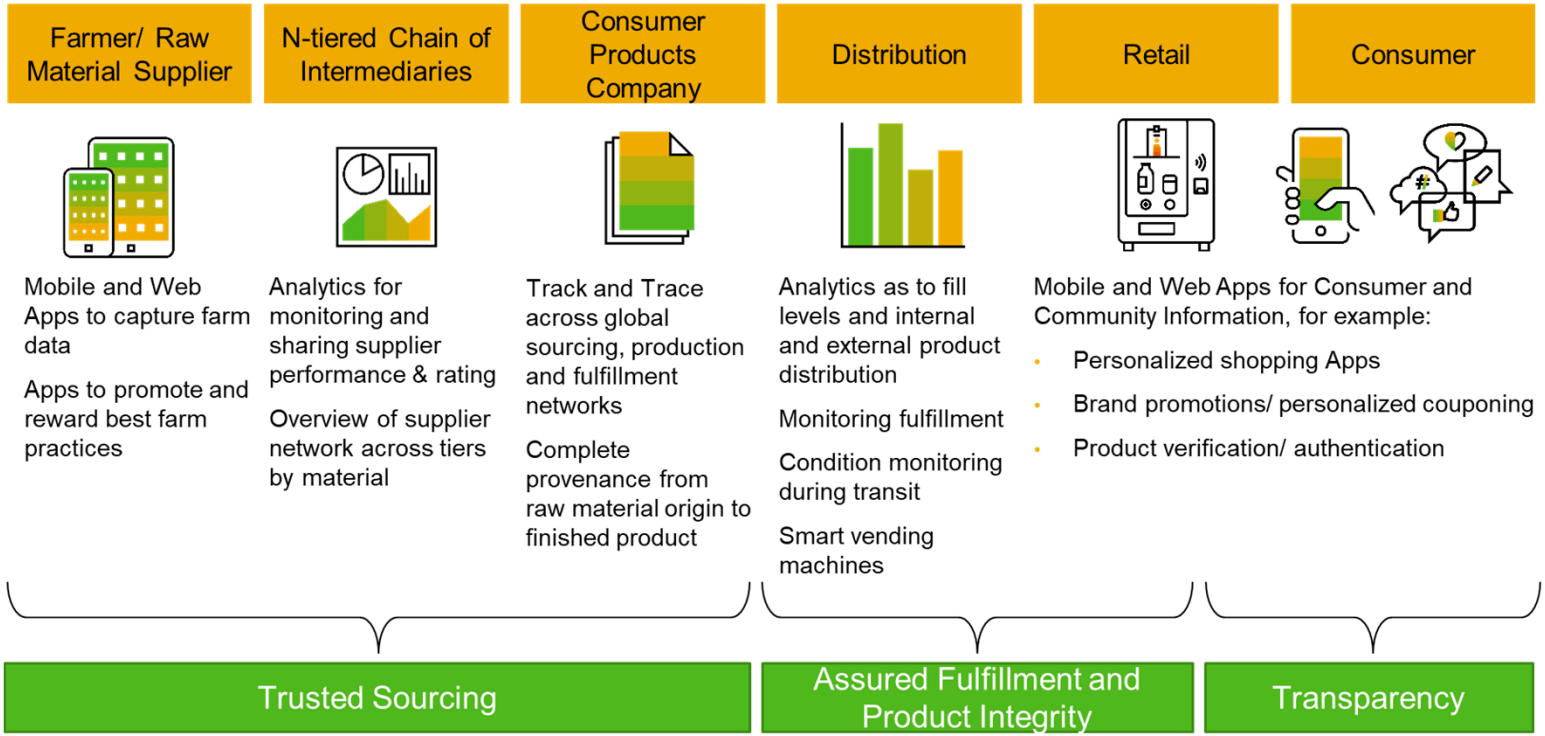
Farm to Consumer

End-to-end blockchain-based traceability solution for the agri-food sector



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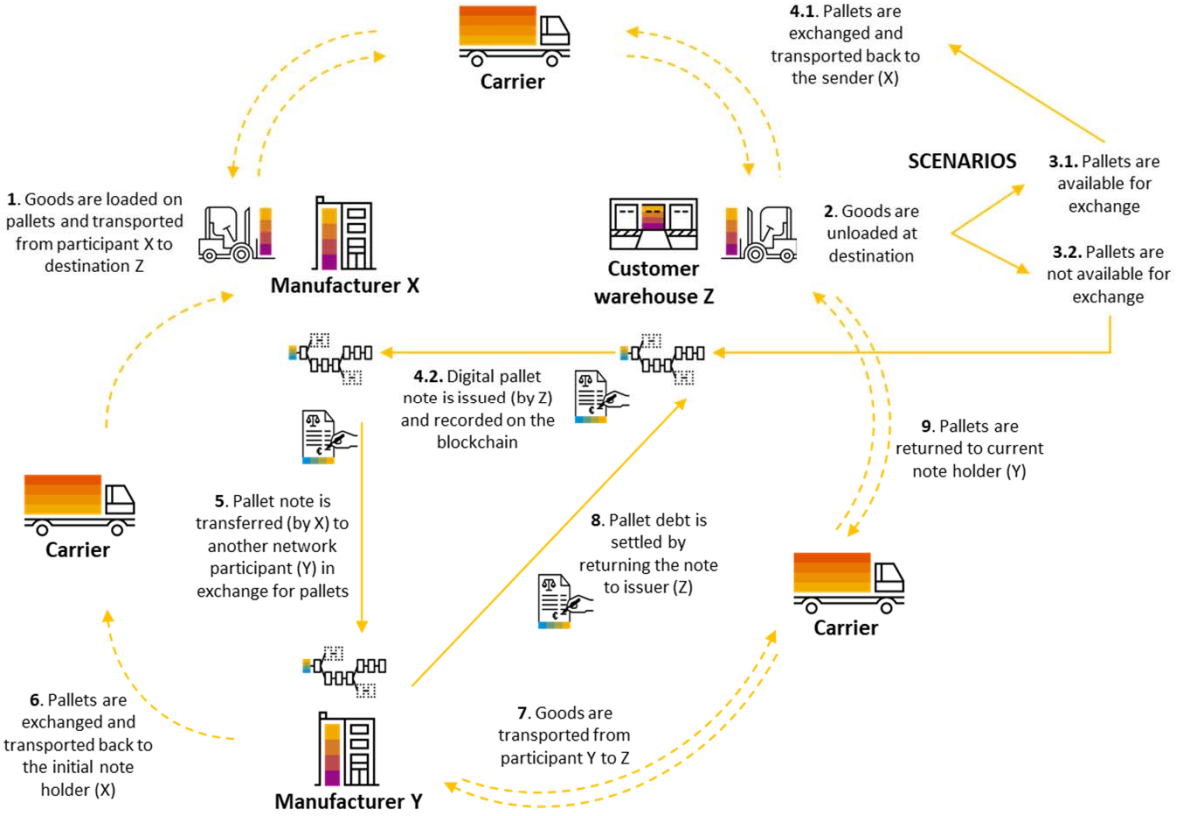
Digital Pallets Receipt

Blockchain-based solution for Efficient Pallet Exchange



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Blockchain in Asset Management

Tracking assets along their lifecycle

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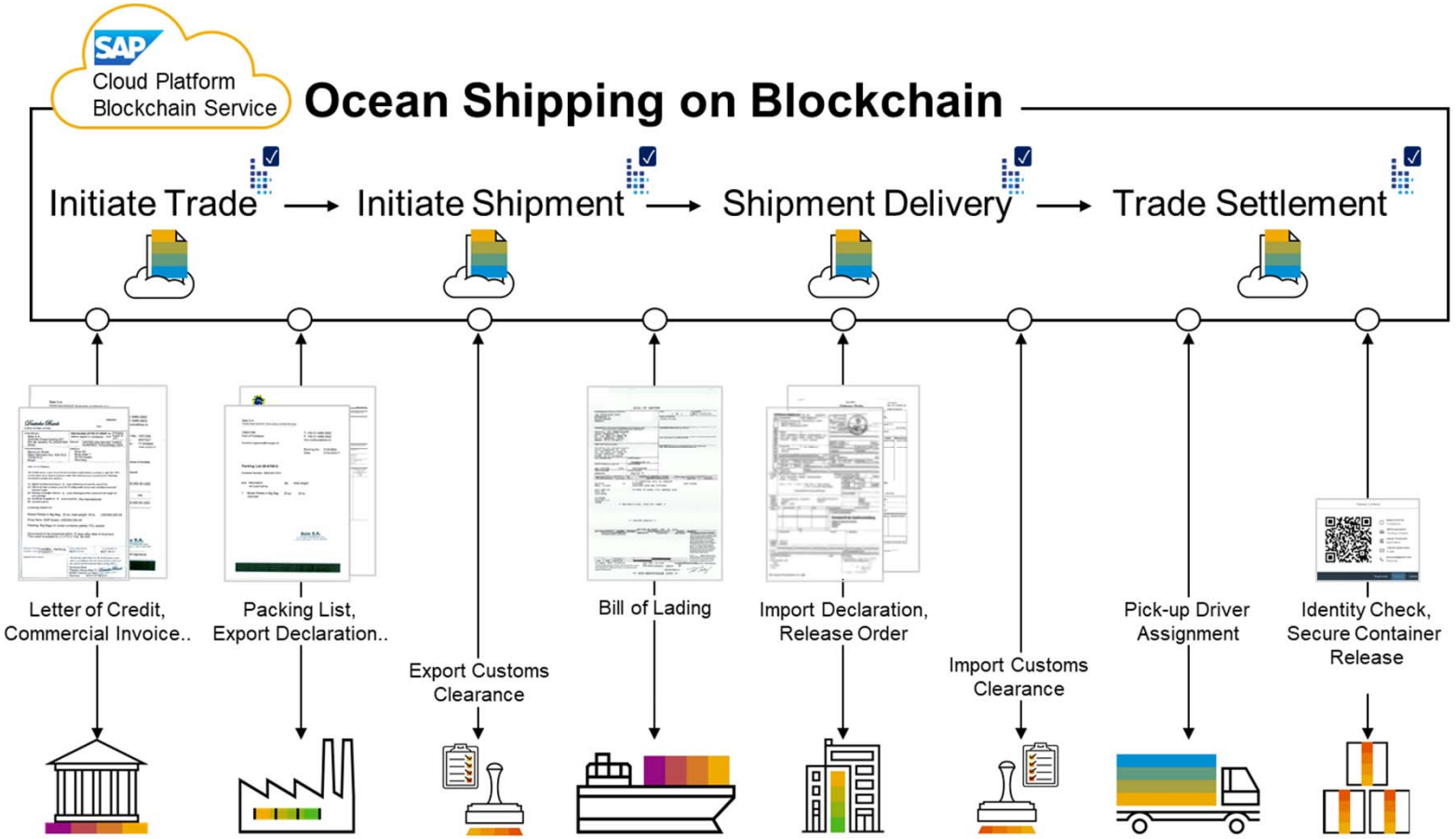
Blockchain for International Trade



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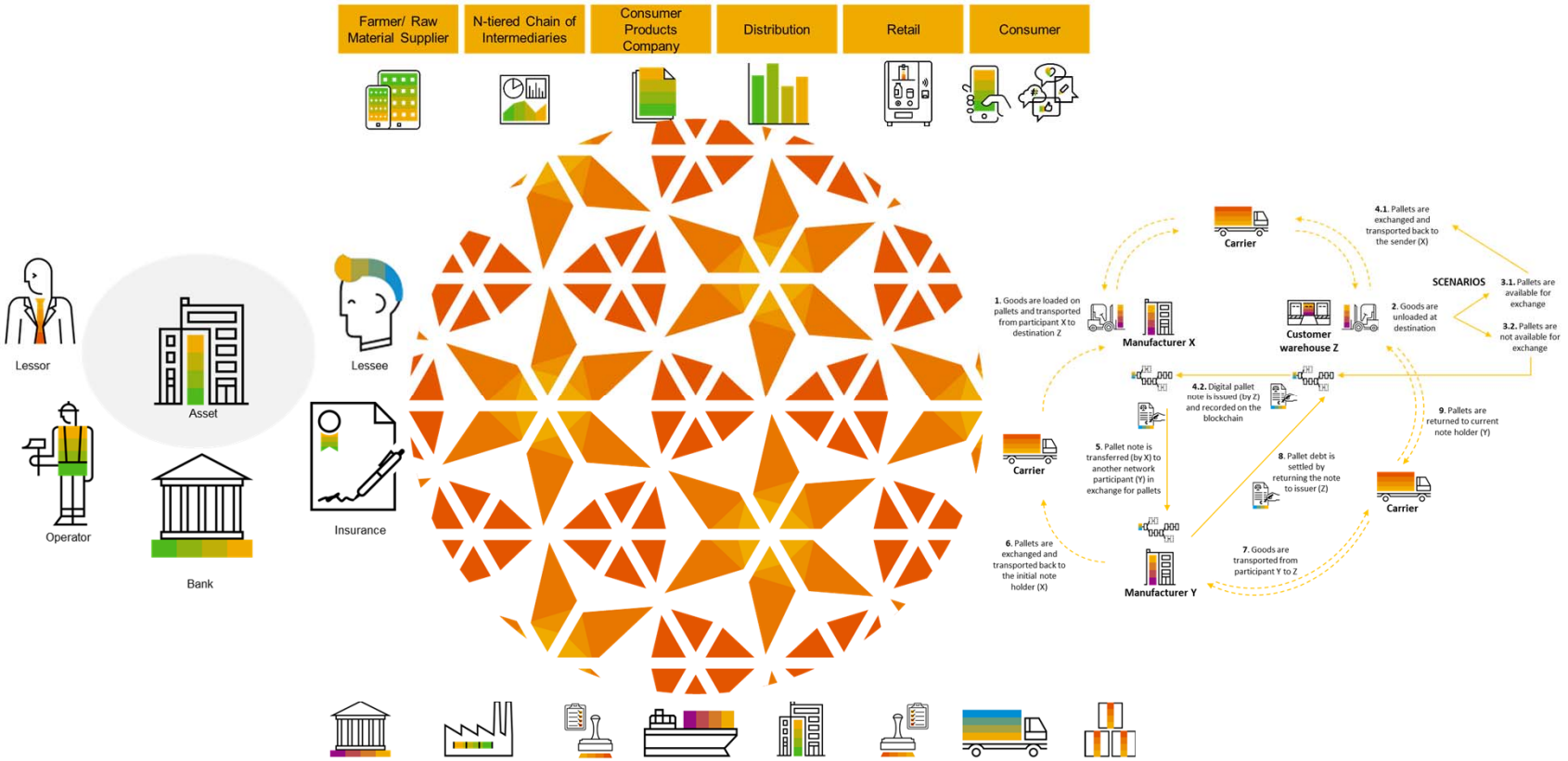
Programmable Economy: Blockchain Powered Network of Networks



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SAP Blockchain Customer Program

Strong traction globally

Key industries represented

- **Consumer Products**
- **Pharmaceuticals**
- Automotive
- Agriculture
- Telecom
- Retail
- Logistics
- High-tech
- Aerospace & Defense
- Industrial Machinery
- Energy & Utilities
- Public Services

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SAP and the Blockchain Eco-System in the Absence of Standards

Premium Member

Founding Member
and Vice-Chair

Member

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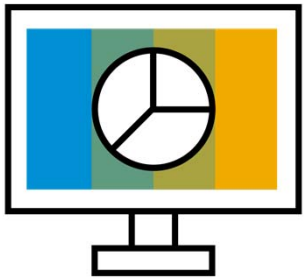
Blockchain Horizons: It's Time For You To Lead!

1



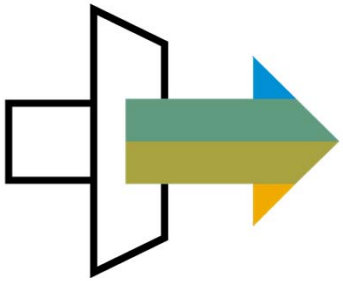
Optimize

Enhance the core with emerging technology

Traceability

Financial Reconciliation

2



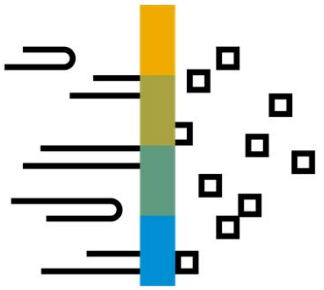
Reimagine

Disrupt and create new business **processes**

'Uptime Model'

e-bill of Lading

3



Revolutionize

Disrupt and create entire businesses and **markets**

Trade Management

'Outcome as a Service'

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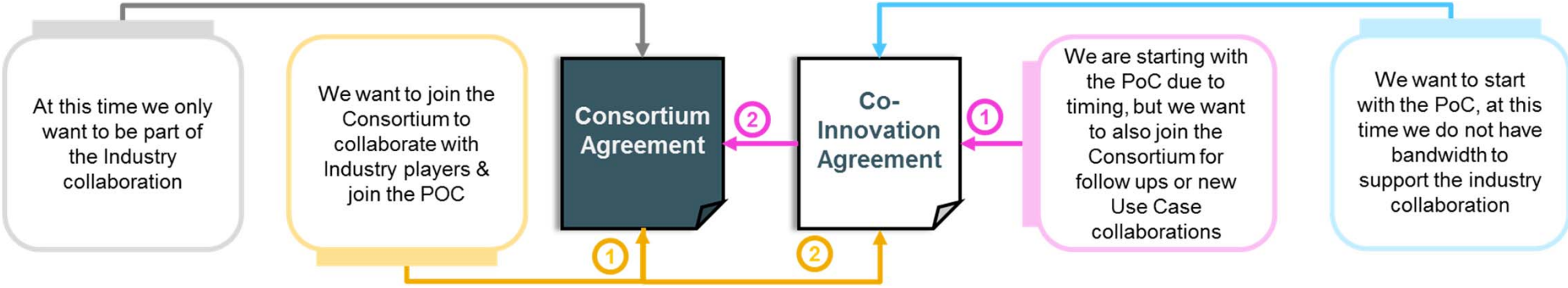
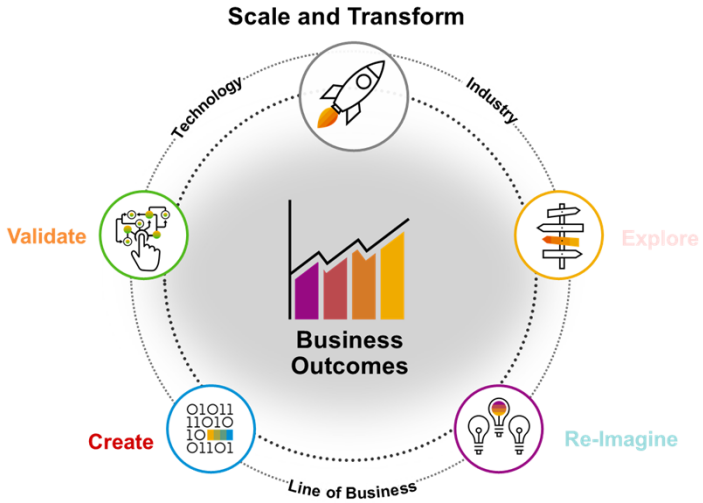
Engagement Model: SAP Innovation Services





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Enterprise Blockchain Applications & Implications for Accounting

- **Managerial Accounting:** Establishing a ‘single version of truth’
- **Financial Accounting:** Synchronized closing of books across trading partners
- **Taxation:** Traceability and compliance vs. Data driven policy making

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Thank you.

Contact information:

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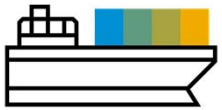
Sr. Director, Blockchain Business Development & Product Management
650-690-0918

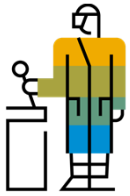
Appendix

Blockchain Use Cases Covered By SAP –
Across Different Lines of Business and Industries

Secured Authorization Procedures in Public Sector



Ocean Liner Shipping (e-Bill of Lading)



Asset Management (Digital Twin)

End of Lease in Real Estate

Trusted Digital Credentials

Secure Bidding in Procurement

Guarantee Network

Bonded Loans

Drug Supply Chain Security

Disaster Operations

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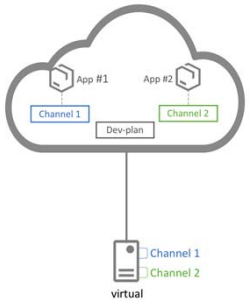
Hyperledger Fabric on SAP Cloud Platform

Hyperledger Fabric is a blockchain framework implementation hosted by The Linux Foundation, SAP is Premier Member

Hyperledger Fabric is an enterprise scale blockchain framework with several components
Our offering: Based on their scenario, customers can choose the corresponding plans.

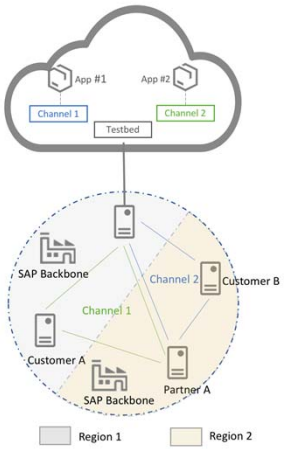
Developer Story

- Sandbox for chain code development and testing
- Ability to move to productive setup



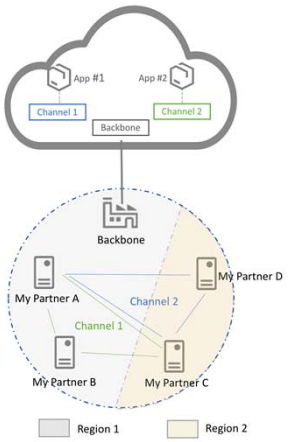
Try the Landscape Testnet

- Easy entry and low barrier to get started
- Explore business process between companies
- Cross-datacenter setup



Build Your Network

- Dedicated network for industry or process specific purposes
- Cross-datacenter setup



https://help.sap.com/viewer/b45fb6803f784c0496b5ae7cd771e186/BLOCKCHAIN/en-US/83b5a7cc81a64d98a05db0fe75fead1b.html

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Characteristics of High-Potential Use Cases for Blockchain

Consider blockchain if (most of) the prerequisites are fulfilled:

- ✓ **Multi-party scenario** (3 or more participants, preferably across companies/industries, e.g. consortia)
- ✓ **Participants on eye level** (otherwise the dominant party might insist on a central server)
- ✓ **Shared repository** (with joint data model/formats/semantics, standardization/harmonization are key)
- ✓ **Multiple writers** (otherwise a master/slave replication could suffice)
- ✓ **Certain need for mutual control** (for the blockchain network generates trust)
- ✓ **Intermediaries to be made obsolete** (be careful not to get rid of middlemen that add huge value)
- ✓ **Need for transparency** (to reduce risks, avoid fraud, be compliant to legal regulations, etc.)
- ✓ **Transfer of digitals assets** (otherwise you need a unique link from real world objects to their digital representations)

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