Creating Digital Trust with Blockchain in Multi-Party Collaboration

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Agenda

Introduction to Blockchain

SAP Cloud Platform Blockchain

Blockchain for Supply Chain

Bumble Bee Foods – Ocean to Table Traceability with Blockchain

Wrap Up

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]

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]

2500+
patents filed over last 3 years[4]

24+
countries currently investing in Blockchain[4]

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

4

What is Blockchain?

Composition of Existing Technologies

§ Decentralized peer-to-peer technology

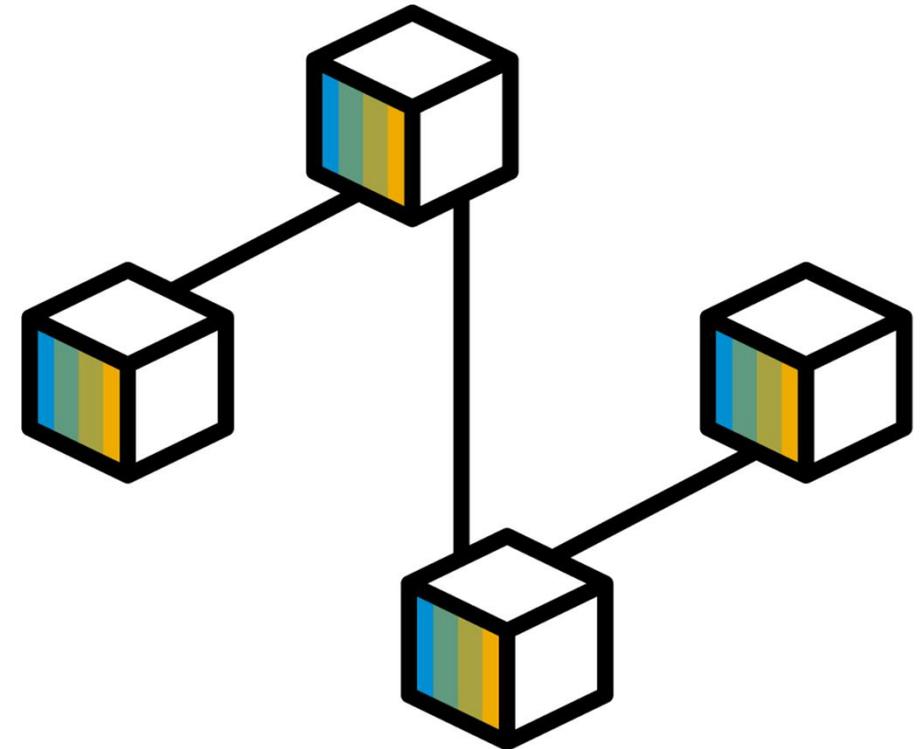§ Private / Public key cryptography + hashing algorithms

§ Consensus algorithm

Shared Information Storage
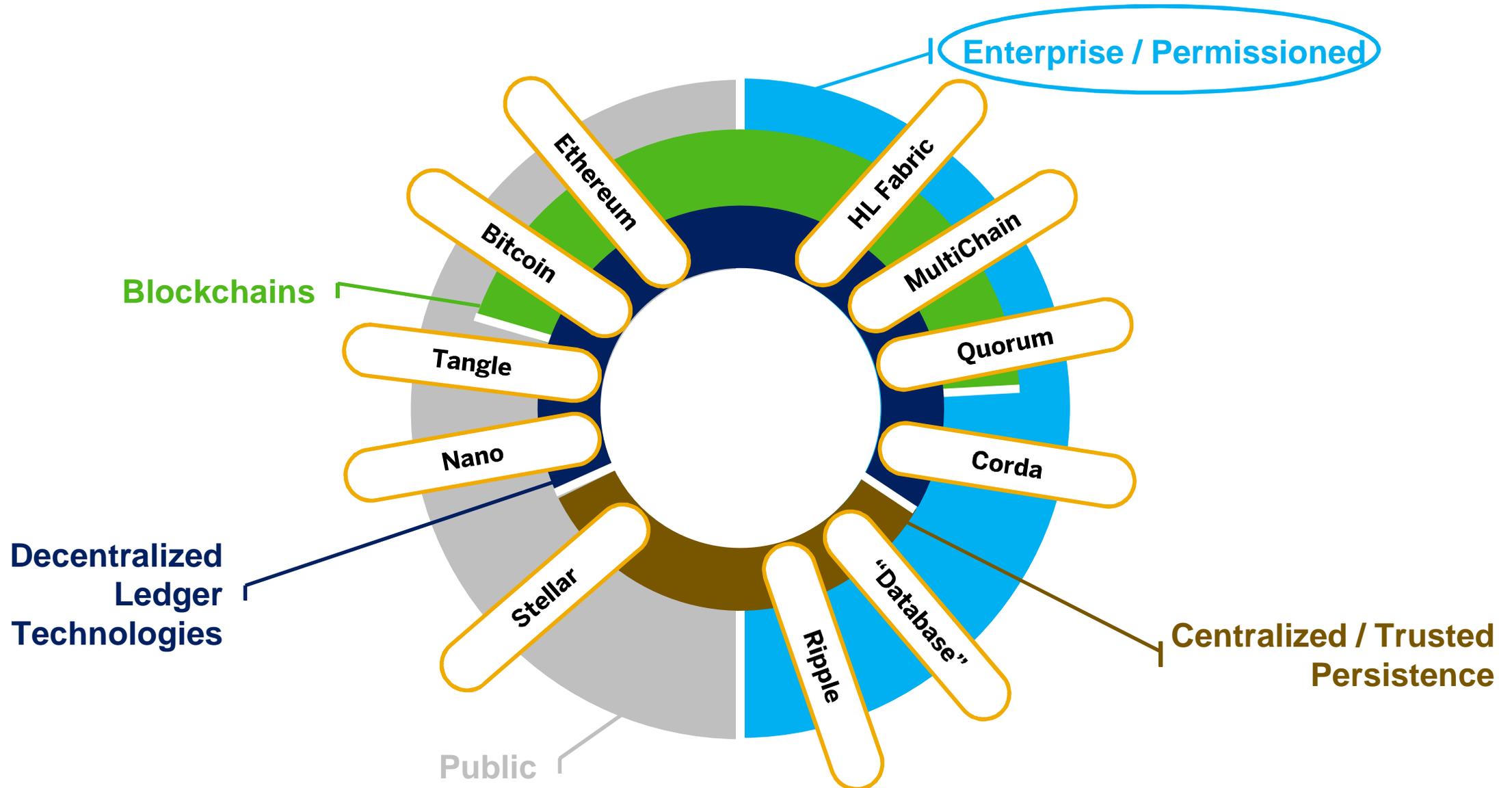
§ Distributed

§ Transparent

§ Immutable

Cryptographically Linked Blocks

Smart Contracts (depends on blockchain protocol)

§ Can represent a business contract and guarantees automation of business rule execution

Landscape of "Blockchain Solutions" – Not-exhaustive

Enterprise / Permissioned

Blockchains

Decentralized Ledger Technologies

Centralized / Trusted Persistence

Public

Ethereum
Bitcoin
Tangle
Nano
Stellar
Ripple
"Database"
Corda
Quorum
MultiChain
HL Fabric

Enterprise Blockchain - Business Value Drivers for Supply Chain

Multi-Company Collaboration	Time and Cost Reduction	Information Imbalance	Transparency & Auditability	Risk and Fraud Prevention	Security

Optimize Processes

Peer-to-peer business network with fewer intermediaries

Trusted Ecosystem

Decentralized, tamper-proof and verifiable data shared by all parties

Data Integrity

Provability & automated business rules using smart contracts

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The Intelligent Enterprise
The foundation of a Digital Supply Chain

Network & Spend Management

People Engagement

Digital Core

Digital Supply Chain

Customer Experience

Intelligent Suite

Intelligent Technologies
AI
Machine Learning
Analytics
Blockchain
IoT

Cloud Platform

Digital Platform

Data Management
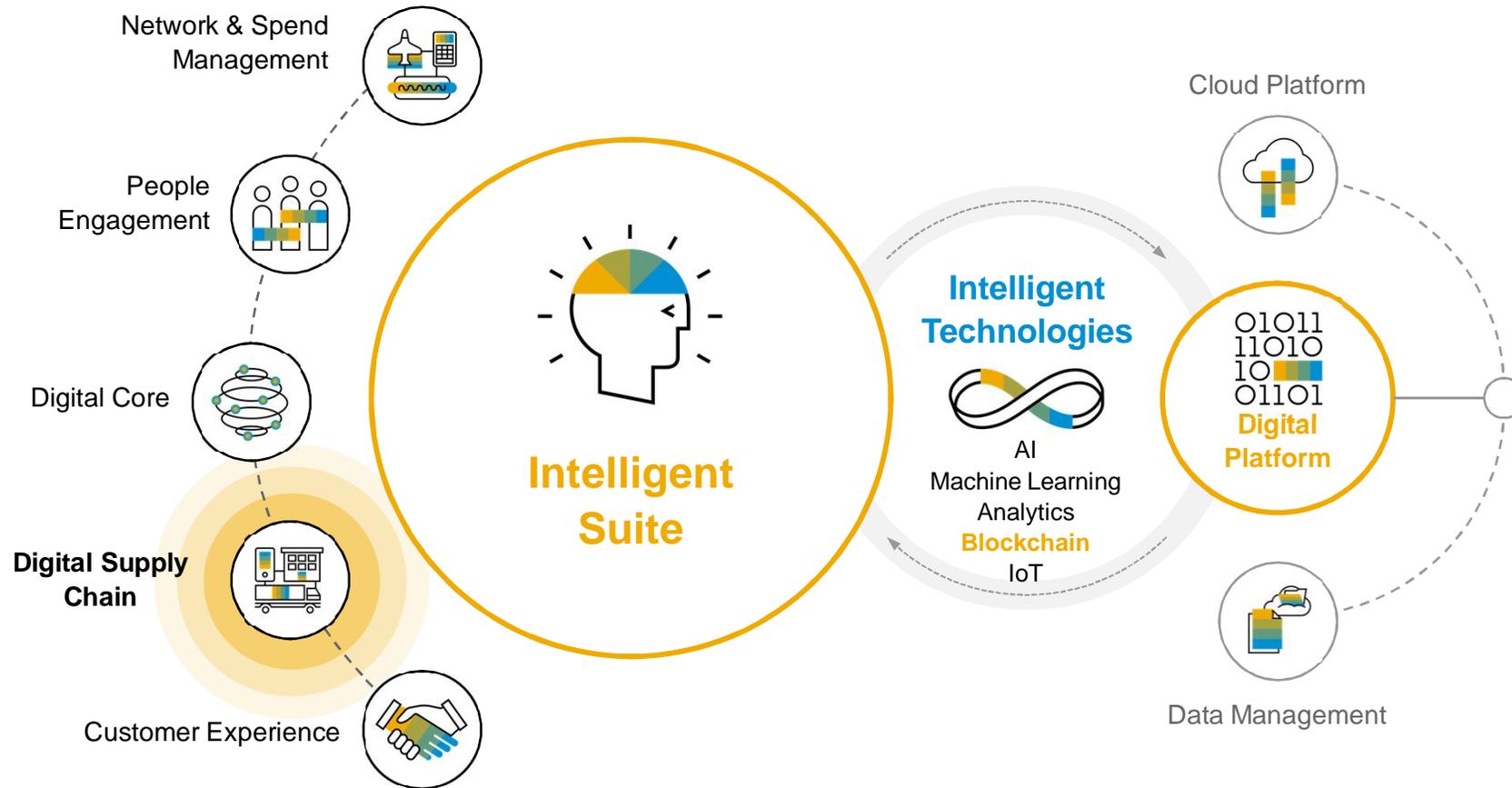
The Intelligent Enterprise
features **3 key components:**

1 Intelligent Suite

2 Intelligent Technologies

3 Digital Platform

Intelligent Enterprise – Role of Blockchain

Technology **+** **Business processes** **+** **Network**
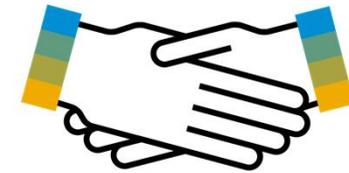
Focus on the needs and processes of the enterprise

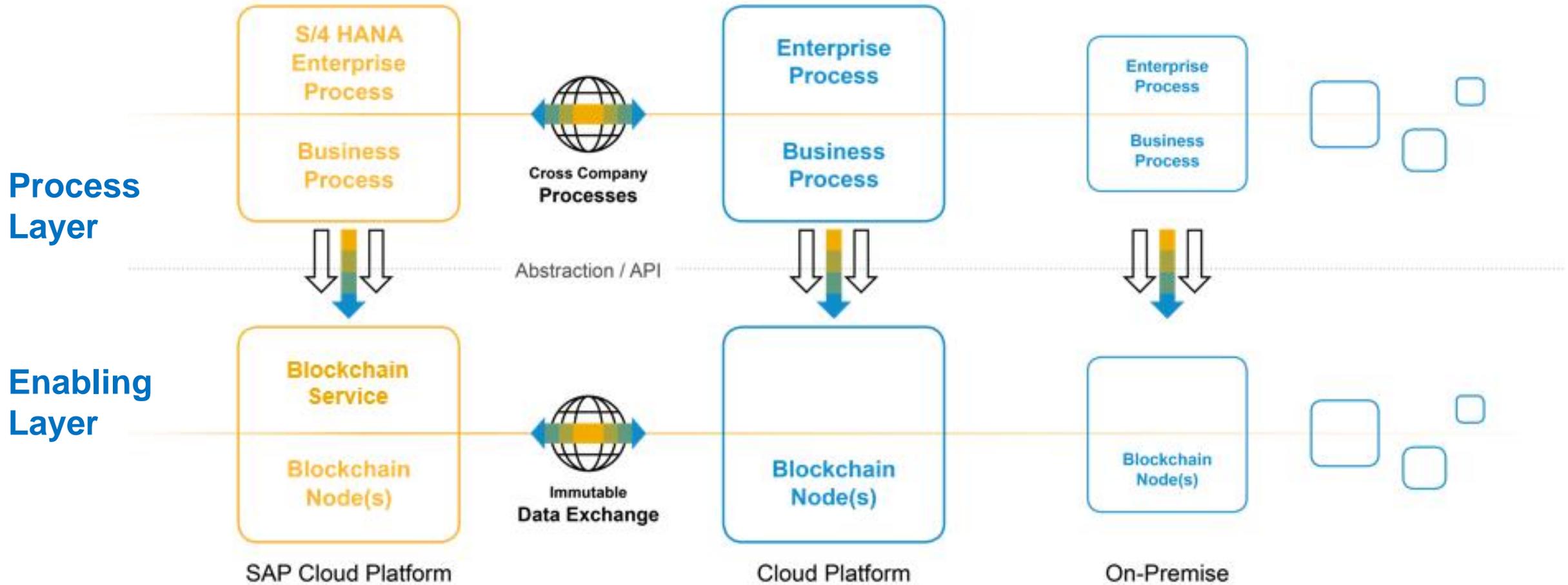Focus on the network of participants

Ø **Blockchain requires participants to think beyond organizational boundaries**

SAP Cloud Platform Blockchain

Enabling customers and partners to leverage Blockchain capabilities

Applications & Business Processes

Application Services

Event recording, verification, audit trail, provenance, analytics, identity

Enabling Services

S4/HANA Cloud SDK (incl. Blockchain), HANA Integration, REST Services

Platform Services

MultiChain, Hyperledger Fabric, Quorum

Ecosystem
Cross-company collaboration

SAP Cloud Platform

Network Extension
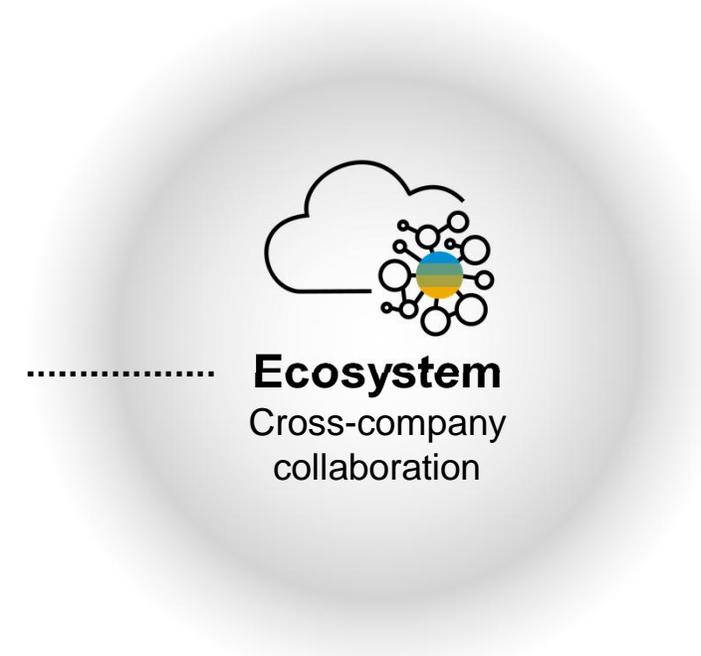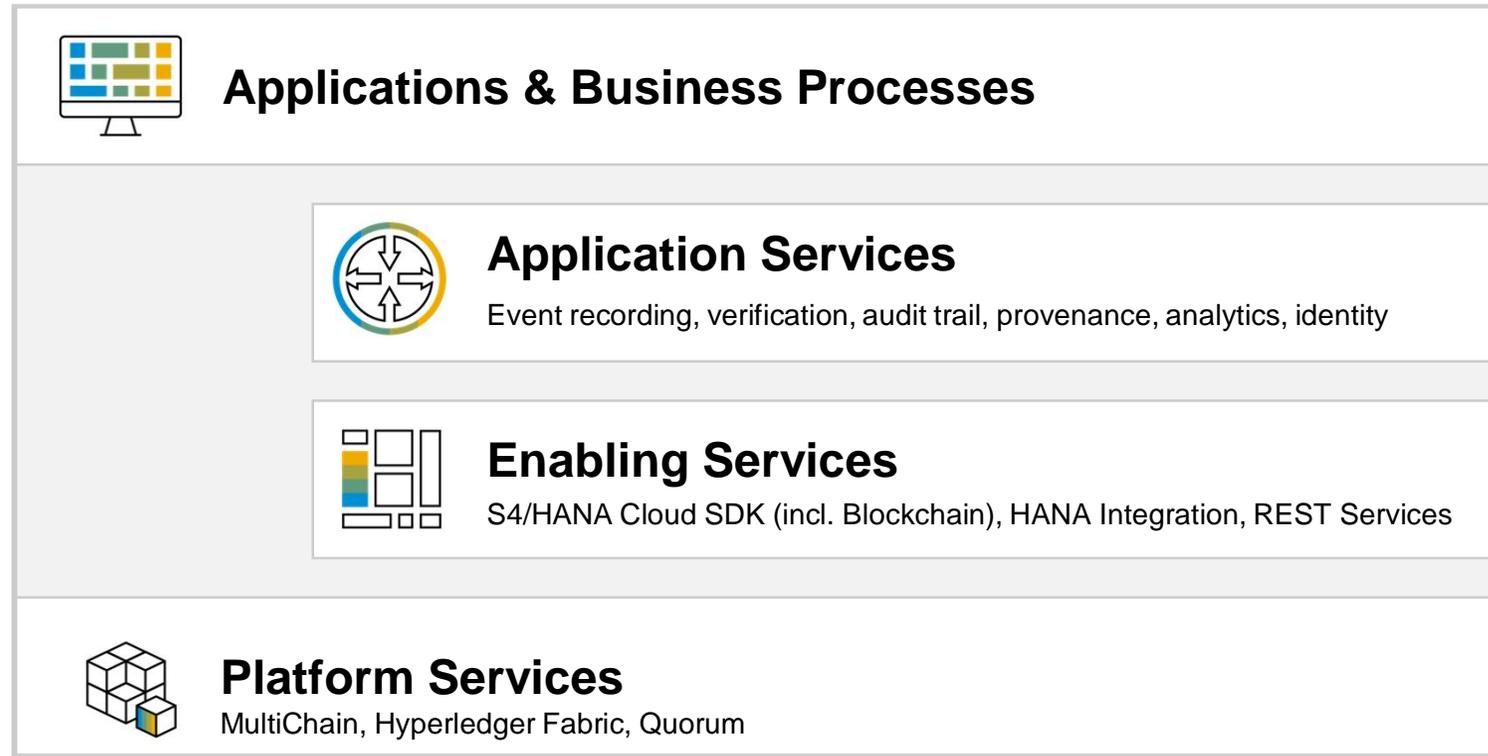
Blockchain Orchestrates Cross-Company Processes

Process Layer

Enabling Layer

S/4 HANA Enterprise Process

Business Process

Cross Company Processes

Enterprise Process

Business Process

Enterprise Process

Business Process

Abstraction / API

Blockchain Service

Blockchain Node(s)

Immutable Data Exchange

Blockchain Node(s)

Blockchain Node(s)

SAP Cloud Platform

Cloud Platform

On-Premise

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Sample List of Blockchain Use Cases Covered By SAP

Across different Lines of Business and Industries

Blockchain for Supply Chain
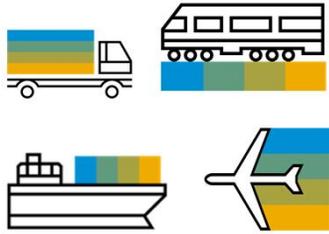
International Trade (PoC)
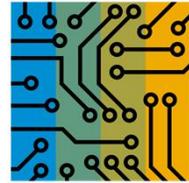
Safeguarding the Semiconductor Value Chain against Counterfeits (PoC)

Pharmaceutical Saleable Returns (SAP Information Collaboration Hub for Life Sciences, option for U.S. supply chain)

Farm to Consumer (SAP Logistics Business Network for Material Traceability – *Planned Innovation 2019, currently in Beta*)

Secure Bidding in Procurement

Guarantee Network
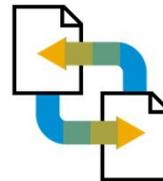
Bonded Loans

Secured Authorization Procedures in Public Sector

Disaster Operations

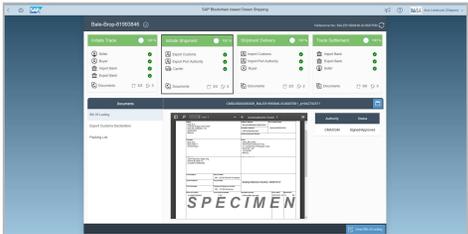# International Trade is fraught with inefficiencies

- International trade in most instances is still dependent upon slow, paper-based processes

- Shippers and Consignees spend considerable time and resources, and incur costs on resolving discrepancies and disputes

- Fraud, document loss or falsification, demurrage and finance costs are issues that business partners deal with frequently
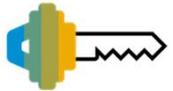
SAP launched a Proof of Concept initiative for using blockchain technology to provide supply chain transparency and visibility to streamline the international trade process with real-time view of the current state of the trade using shared, tamper-proof, and verifiable trade documents.
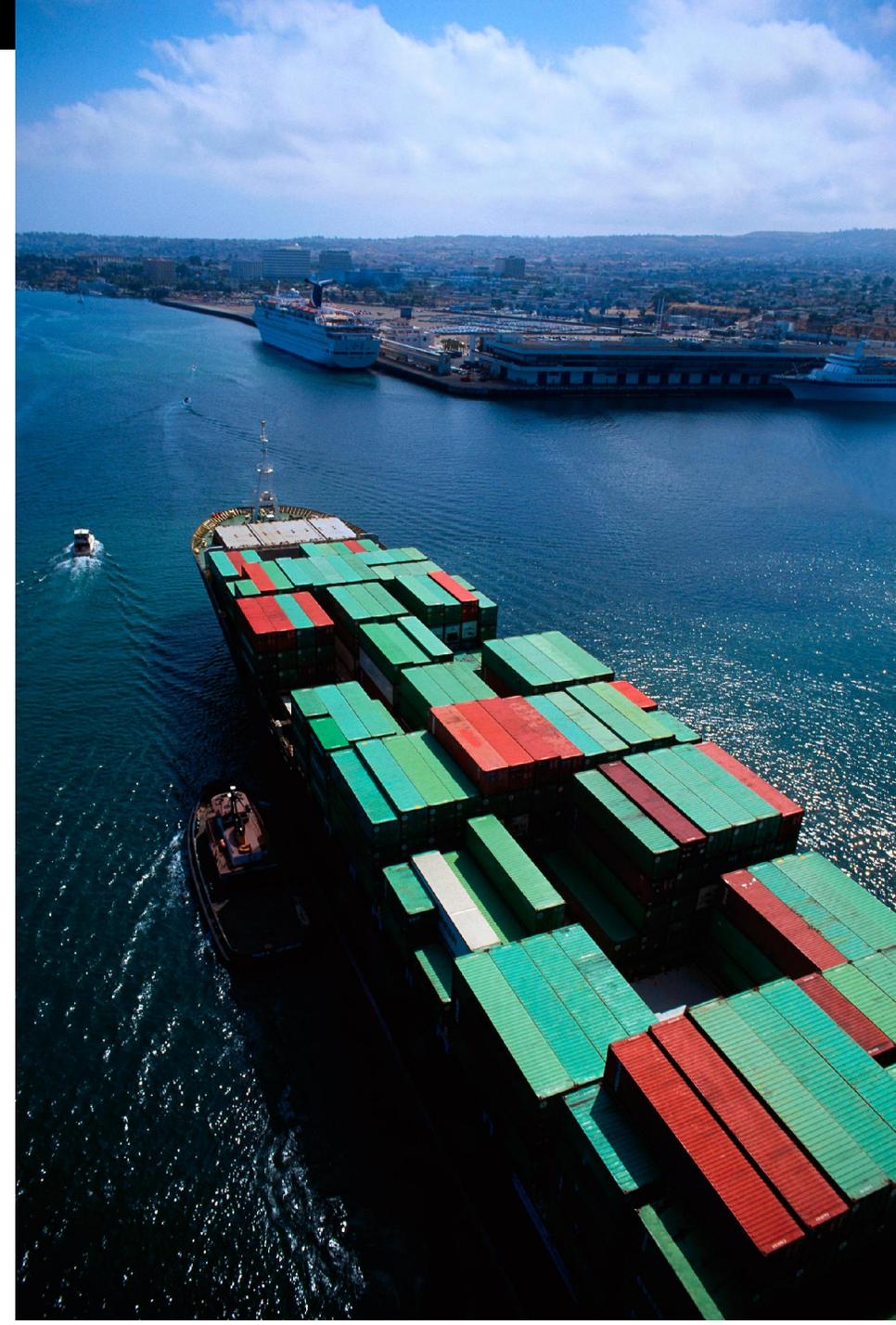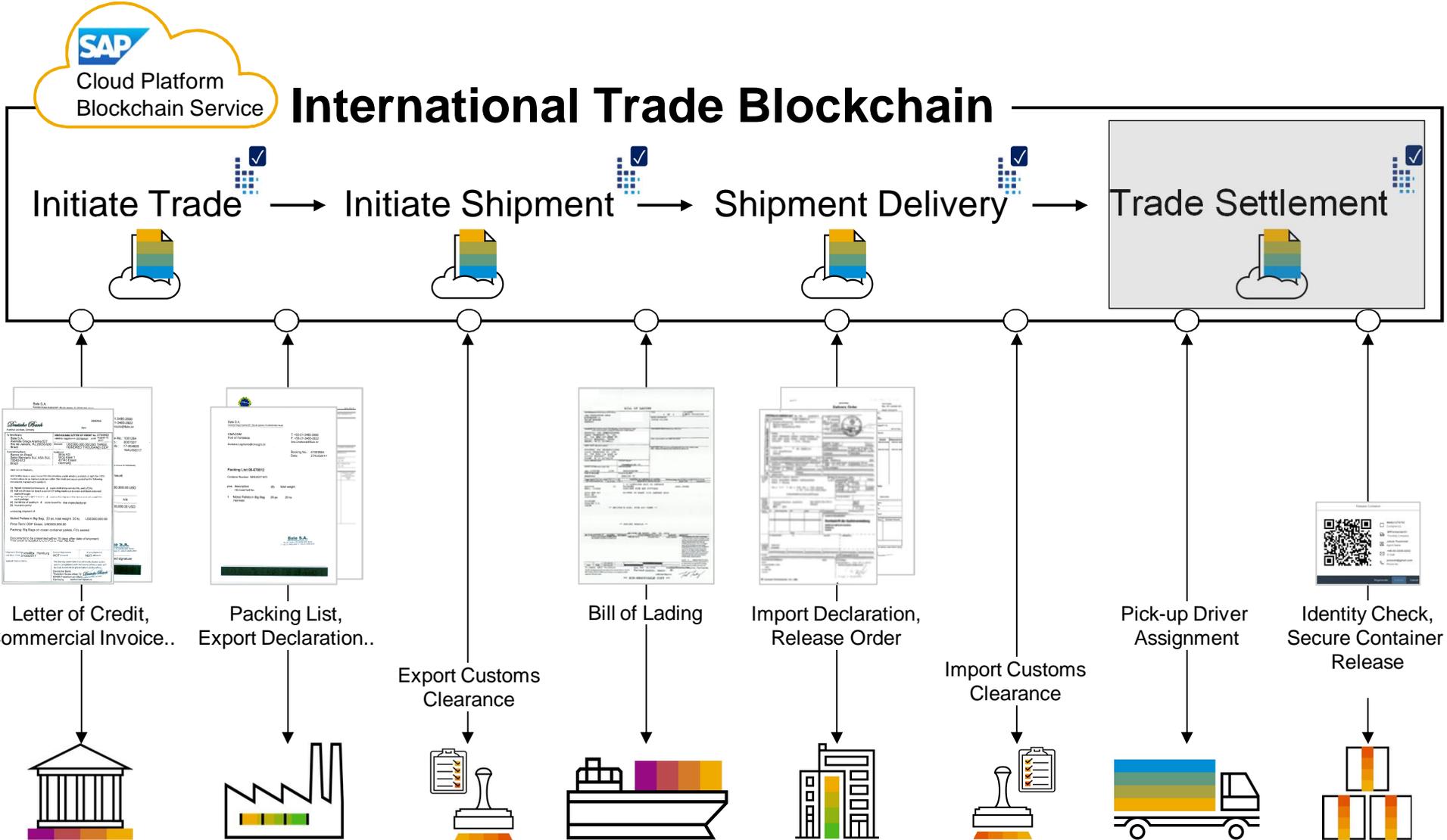
International Trade Blockchain PoC


TAMPERPROOF
Process & Ownership Trail

SAP Cloud Platform Blockchain Service

International Trade Blockchain

Initiate Trade → Initiate Shipment → Shipment Delivery → Trade Settlement

DIGITAL
Data, Documents, Transactions

Letter of Credit, Commercial Invoice..

Packing List, Export Declaration..

Bill of Lading

Import Declaration, Release Order

Pick-up Driver Assignment

Identity Check, Secure Container Release

Export Customs Clearance

Import Customs Clearance

SECURE
Partner Access

Global Issue of Food Quality and Waste

- 1 in 10 people fell sick every year due to poor quality food and 420,000 people die each year from foodborne diseases[1]

- The supply chain complexity makes it difficult to quickly respond to product recalls

- 30% of the food produced is spoilt or wasted[2], yet a global population expected to grow to 9.8 billion by 2050[3]
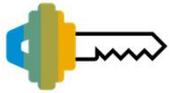
SAP launched Farm-to-Consumer blockchain initiative with 13 customers to improve material provenance and traceability by providing a decentralized platform to enable data sharing across the supply chain network and improve end-to-end visibility.

[1] World Health Organization
[2] Food and Agriculture Organization of the United Nations
[3] United Nations Department of Economic and Social Affairs

# Farm-to-Consumer Blockchain Co-Innovation Proof of Concept

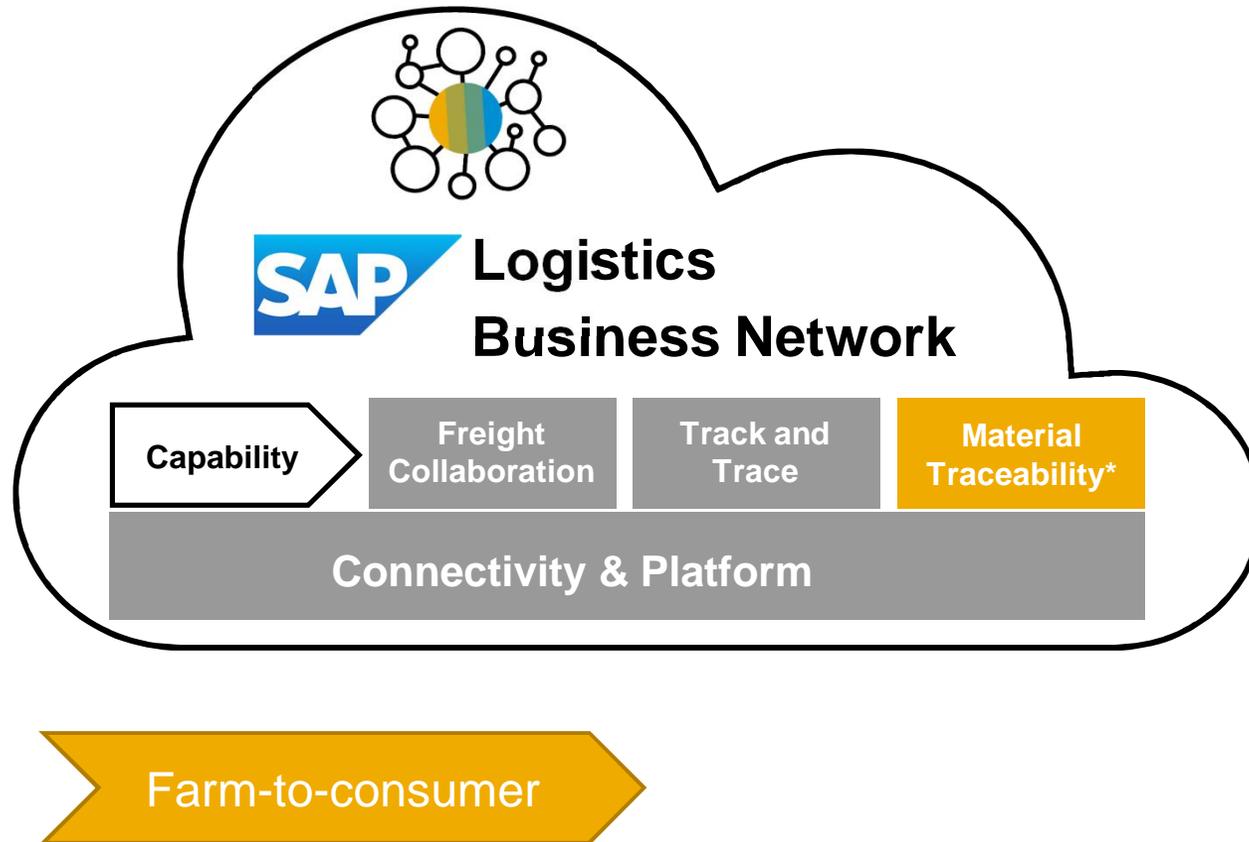Transparency of food genealogy across the entire supply chain

Business Goals:

§ **Reduce food waste**

§ **Streamline recalls and reduce amount of product to be recalled**

Technology Goals:

§ **Prove applicability of Blockchain through a joint proof of concept across the supply chain**

§ **Augment SAP traceability solutions like SAP Global Track and Trace cloud network with Blockchain**
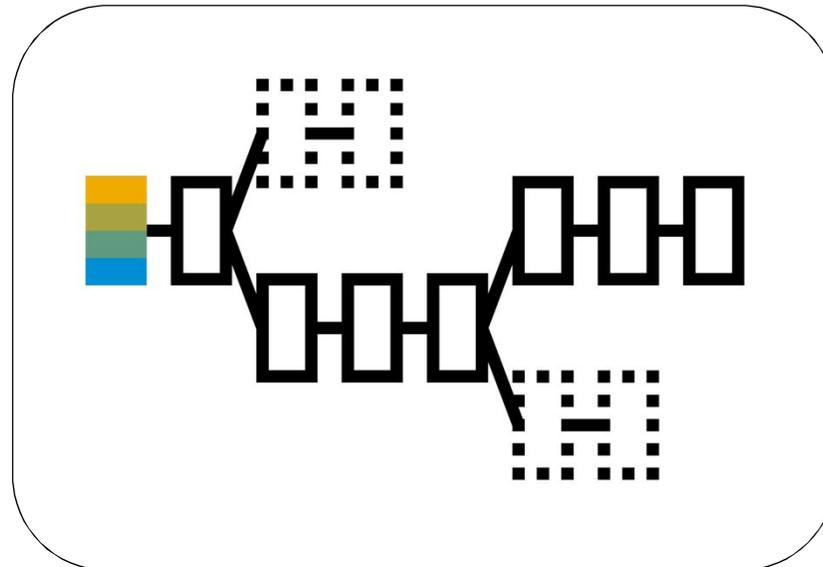
SAP Logistics Business Network, Material Traceability*

Logistics Business Network

| Capability | Freight Collaboration | Track and Trace | Material Traceability* |

Connectivity & Platform

Farm-to-consumer

Trace material provenance from raw material batch origin to finished product across an n-tiered material value chain with a state-of-the art technology approach

§ Decentralized platform to enable data sharing across the supply chain network and improve end-to-end visibility

§ Alert your supply chain partners in case of a product issue

§ Integrate with your business backend systems

§ Leverage capabilities of SAP Cloud Platform Blockchain as a Service

* beta program

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Wrap Up

Blockchain Traceability Project *Objectives*

§ Started our journey to optimize our supply chain and expand our industry leadership around traceability and sustainability

§ Ultimate goal to provide consumers with full transparency

§ Find a strategic partner to implement best-in-class blockchain technology

Blockchain Traceability Project _Challenges_

§ Technical limitations with implementing a solution in the remote islands of Indonesia

§ We don't own a single piece of the supply chain from catch to finished goods

§ How do we get the fishers, suppliers, and 3rd party manufacturing companies to participate (share data)

BUMBLE BEE SEAFOODS

Blockchain Traceability Project *Roll-out*

§ Evaluated several vendors and selected SAP as our strategic partner

§ Implemented SAP Blockchain Platform and SAP Cloud Analytics

§ Kick-off > Sept 2018; Pilot > Dec 2018; Production > Feb 2019

BUMBLE BEE SEAFOODS

Blockchain Traceability Project _Solution_

§ QR Code on our Fair Trade Natural Blue Anova yellowfin tuna from Indonesia

§ Consumer mobile app to display traceability, sustainability, Fair Trade information, and recipes

§ Supplier dashboard in pilot on SAP Cloud Analytics
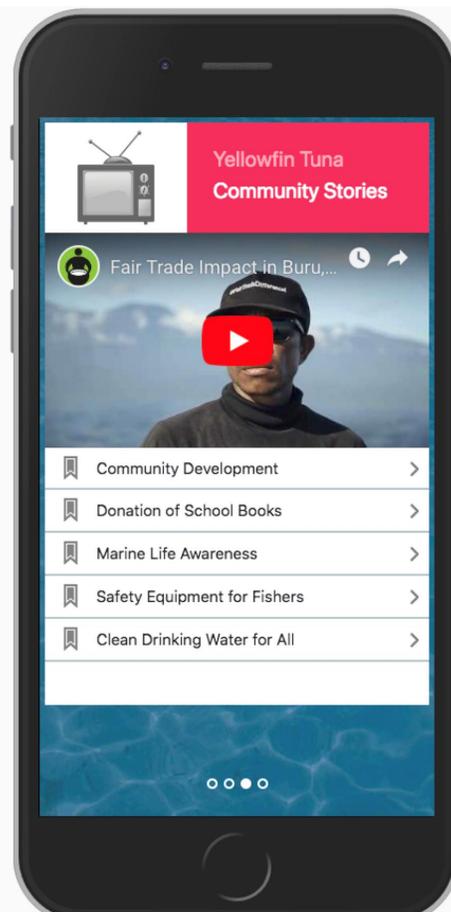
§ Lab Results reference information on the blockchain
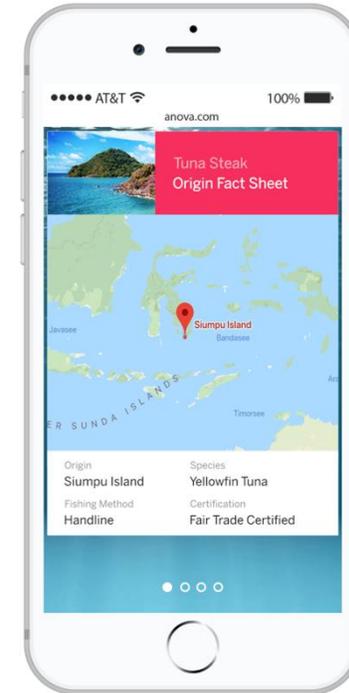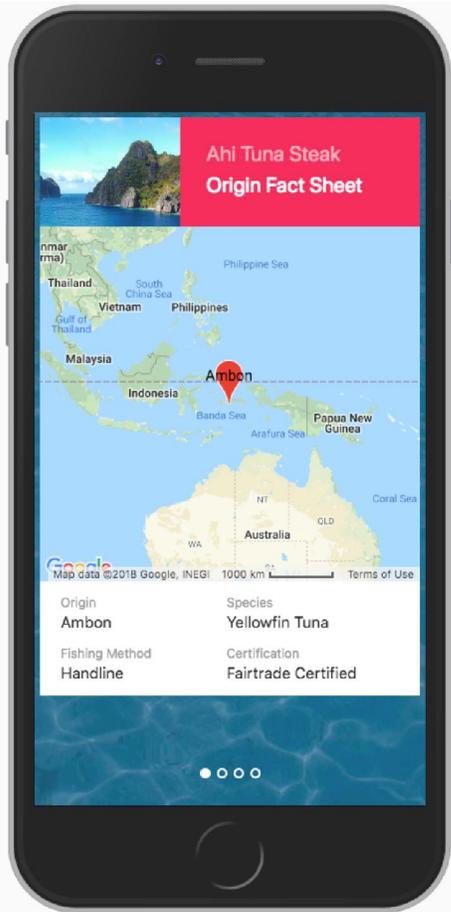
Where the tuna was caught?

What was the fishing method?

**What was the species?**

Was it fair-trade?
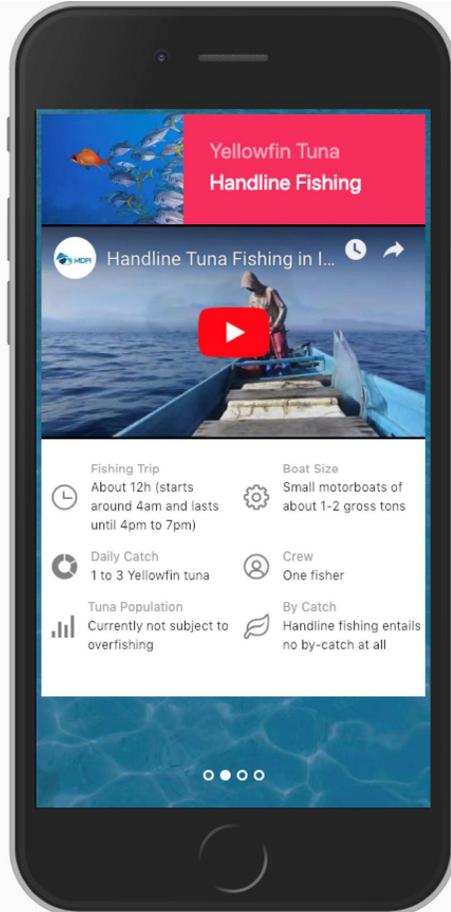
Details about the trip to show that the tuna was caught in a sustainable way (e.g. no overfishing, small boats, handline fishing which entails no bycatch)

Community stories and benefits from fair-trade:

- **Story 2: donation for school books: so children can go to school and do not have to work**

- **Story 4: safety equipment for fishers e.g. gloves for handline fishing**
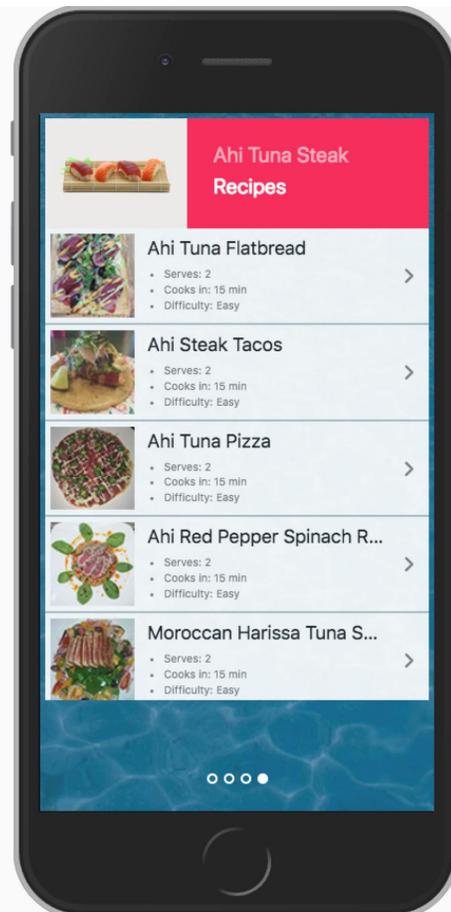
Recipes

Catch Data Analysis of the Supplier -FRANS, KOMANG HATAWANO, KOMANG NAMSINA, KOMANG NANALI, KURNIA

Catch Date

2018 ————————●———————— 2019

○ 2018 ▾ Aug ▾ to 2018 ▾ Nov ▾

Suppliers 🔍

- ☑ All
- ☑ FRANS
- ☑ KOMANG HATAWANO
- ☑ KOMANG NAMSINA
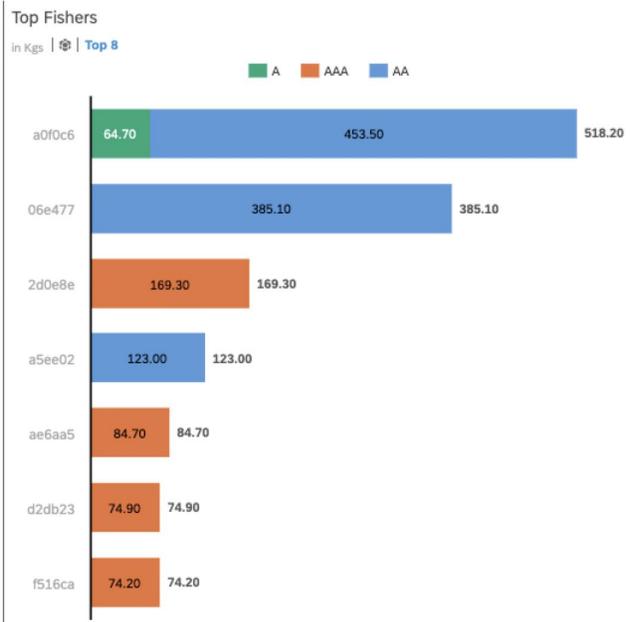- ☑ KOMANG NANALI
- ☐ KOMANG WAILIHANG
- ☑ KURNIA

Landing Site 🔍
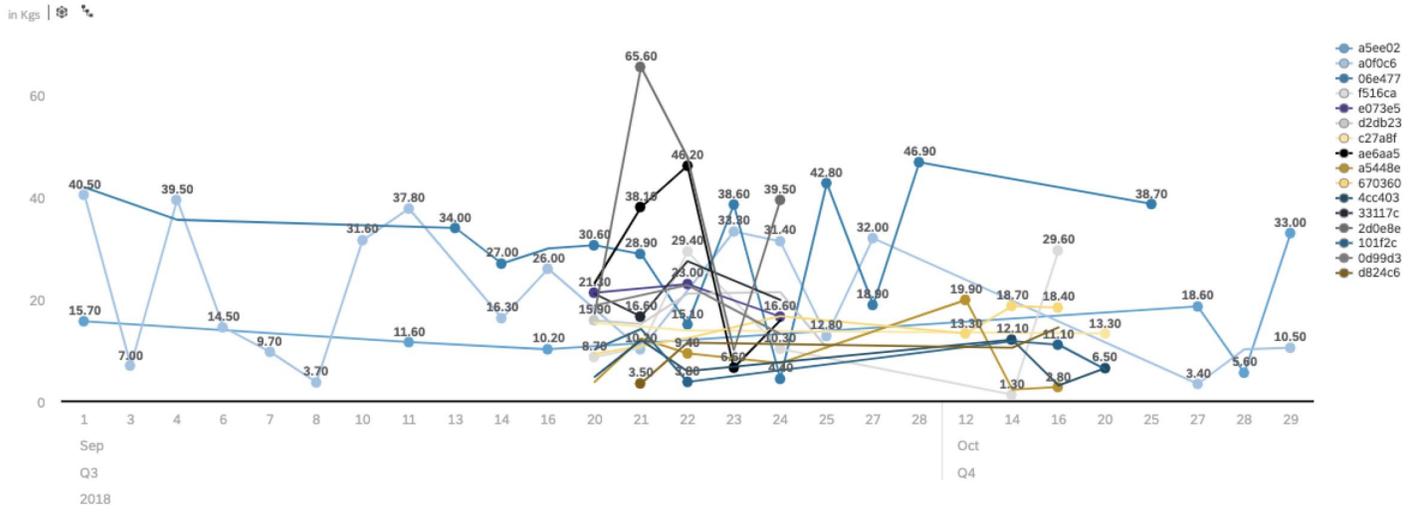
- ☑ All
- ☑ BAJO: SANANA UTARA
- ☑ HATAWANO
- ☑ NAMSINA
- ☑ NANALI

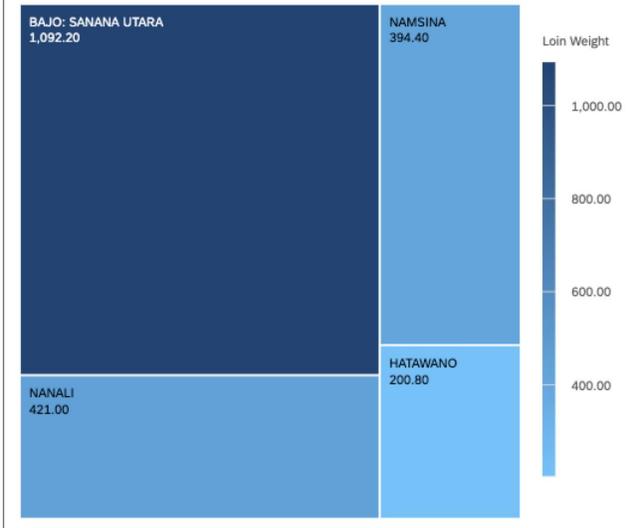Show Inactive Values (1)

527.10 Kgs
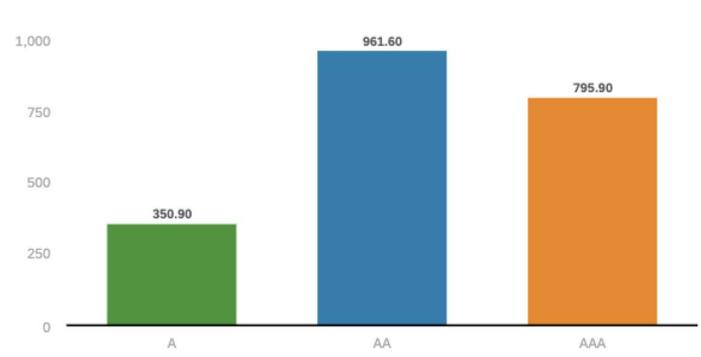Average Catch per site

2,108.40 Kgs
Loin Weight

Top Fishers
in Kgs | Top 8

Legend: ■ A   ■ AAA   ■ AA

Fisher	A	AA / AAA	Total
a0f0c6	64.70	453.50	518.20
06e477		385.10	385.10
2d0e8e		169.30	169.30
a5ee02		123.00	123.00
ae6aa5		84.70	84.70
d2db23		74.90	74.90
f516ca		74.20	74.20

Catch Distribution of Fishers
in Kgs

Legend: a5ee02, a0f0c6, 06e477, f516ca, e073e5, d2db23, c27a8f, ae6aa5, a5448e, 670360, 4cc403, 33117c, 2d0e8e, 101f2c, 0d99d3, d824c6

Data points: 40.50, 39.50, 15.70, 7.00, 14.50, 9.70, 3.70, 31.60, 27.00, 37.80, 34.00, 11.60, 16.30, 10.20, 26.00, 8.70, 30.60, 21.30, 15.90, 16.60, 65.60, 38.10, 28.90, 29.40, 3.50, 10.40, 46.20, 23.00, 9.40, 15.10, 33.30, 38.60, 31.40, 39.50, 16.60, 10.30, 42.80, 12.80, 46.90, 32.00, 18.80, 29.60, 19.90, 18.70, 18.40, 13.30, 12.10, 11.10, 13.30, 6.50, 1.30, 3.80, 18.60, 3.40, 5.60, 38.70, 33.00, 10.50

X-axis: 1 3 4 6 7 8 10 11 13 14 16 20 21 22 23 24 25 27 28 12 14 16 20 25 27 28 29
Sep Q3 2018 | Oct Q4

Grade of the Fish Caught

Grade	Value
A	350.90
AA	961.60
AAA	795.90

How much of the catch was Fairtrade

- Fairtrade: 74.29%
- Non-Fairtrade: 25.71%

Catch Distribution over Landing Sites

Site	Loin Weight
BAJO: SANANA UTARA	1,092.20
NAMSINA	394.40
NANALI	421.00
HATAWANO	200.80

Loin Weight scale: 1,000.00 / 800.00 / 600.00 / 400.00
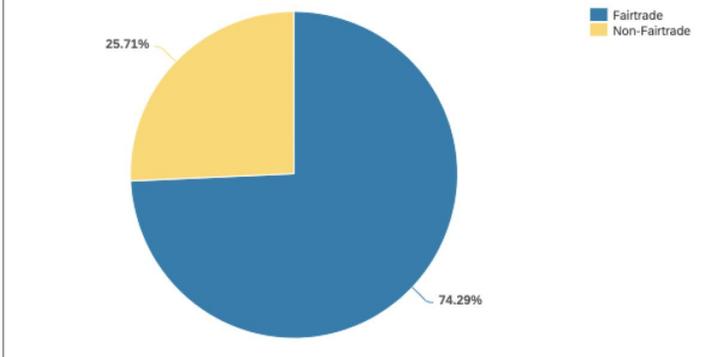
Blockchain Traceability Project _Outlook_

- § Onboard new Indonesian fish supplier on SAP Blockchain
- § Deploy SAP Cloud Analytics supplier dashboard
- § Pilot Lab Results documents via SAP blockchain technology with several strategic retailers
- § Continue evaluation of IoT technologies and applicability
- § Implement other Bumble Bee brands on SAP Blockchain
- § SAP Ocean to Table product solution

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In Summary

1. Blockchain enables real-time view of the end-to-end supply chain improving **transparency and visibility**

2. By automating end-to-end, cross-company processes, blockchain increases **supply chain efficiencies** and reduces **costs**

3. Blockchain ensures product **safety,** verifies **authenticity**, and promotes **sustainability**

Blockchain for Supply Chain Sessions

Session#	Date/Time of Activity	Location	Session Title	Session Type	Presenter
ASUG82553	Tuesday, May 7 12:00 - 12:40	330A	Creating Digital Trust with Blockchain in Multiparty Collaboration	ASUG Presentation	Ganesh Wadawadigi SAP; Tony Costa Bumble Bee Foods LLC
DS86376	Tuesday, May 7 03:00 - 03:20	Digital Supply Chain DS120	Support a Counterfeit-Free Pharmaceutical Supply Chain with Blockchain	Demo Session	Carol Mackenzie, SAP
PL86054	Tuesday, May 7 03:00 - 03:20	Platform and Intelligent Technologies PL846	Use Your Company's Data to Enable the Intelligent Enterprise	Ask the Expert	Christian Schuerings SAP; Christian Schuerings SAP
ASUG83946	Wednesday, May 8 11:00 – 11:40	Roundtable 3 (220E)	How Blockchain Can Help Take Chemical Companies to the Next Level	ASUG Roundtable	Stefan Guertzgen SAP
CU86057	Wednesday, May 8 11:00 – 11:20	Platform and Intelligent Technologies PL854	Enhance Transparency by Unlocking the Business Potential of Blockchain	Small Theater Presentation	Carol Ebels SAP
PL86313	Wednesday, May 8 01:00 – 01:20	Digital Supply Chain DS122	Accelerate Innovation by Disrupting Manufacturing with the Industrial IoT	Small Theater Presentation	Kevin Hunter SAP
ASUG84432	Wednesday, May 8 04:00 – 04:40	TBD1	The Power of Blockchain: Solving Complex Business Problems	ASUG Presentation	Nitin Singh SAP; Pravin Lewis SAP
NE89591	Wednesday, May 8 05:30 – 05:50	Network and Spend Management NE511	Streamline Intergroup Credit Management with Blockchain Technology	Demo Session	Dr. Sathya Narasimhan SAP
DS89590	Thursday, May 9 11:30 – 11:50	Digital Supply Chain DS122	Add Blockchain Trust to International Trade	Demo Session	Ganesh Wadawadigi SAP
PL91513	Thursday, May 9 12:00 – 12:20	Platform and Intelligent Technologies PL846	Enhance Transparency by Unlocking the Business Potential of Blockchain	Ask the Expert	Carol Ebels, SAP
ASUG84342	Thursday, May 9 02:00 - 02:40	310B	Blockchain Services and Use Cases: SAP Cloud Platform	ASUG Presentation	Sathya Narasimhan, SAP; Nagesh Caparthy, SAP
DS89589	Thursday, May 9 02:30 – 02:50	Digital Supply Chain DS121	Bring Trust and Transparency into the Food Supply Chain with Blockchain	Demo Session	Eric Somitsch SAP
ASUG83211	Thursday, May 9 03:00 – 03:40	310F	SAP Leonardo Industry Innovation Kits: Innovation Made Just for You	ASUG Presentation	Merlijn Ekkel SAP
PE89594	Thursday, May 9 03:00 – 03:40	People Engagement PE403	Kindle New Business Models with Blockchain Technology	Interactive Session	Artiona Bogo SAP
DS86397	Thursday, May 9 04:30 – 04:50	Digital Supply Chain DS120	Safeguard Your Manufacturing Value Chain with Blockchain	Demo Session	Helena Chong SAP

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Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:
http://info.asug.com/2019-ac-slides

Q&A

For questions after this session, contact us at
Ganesh.Wadawadigi@sap.com
and
Tony.Costa@BumbleBee.com

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