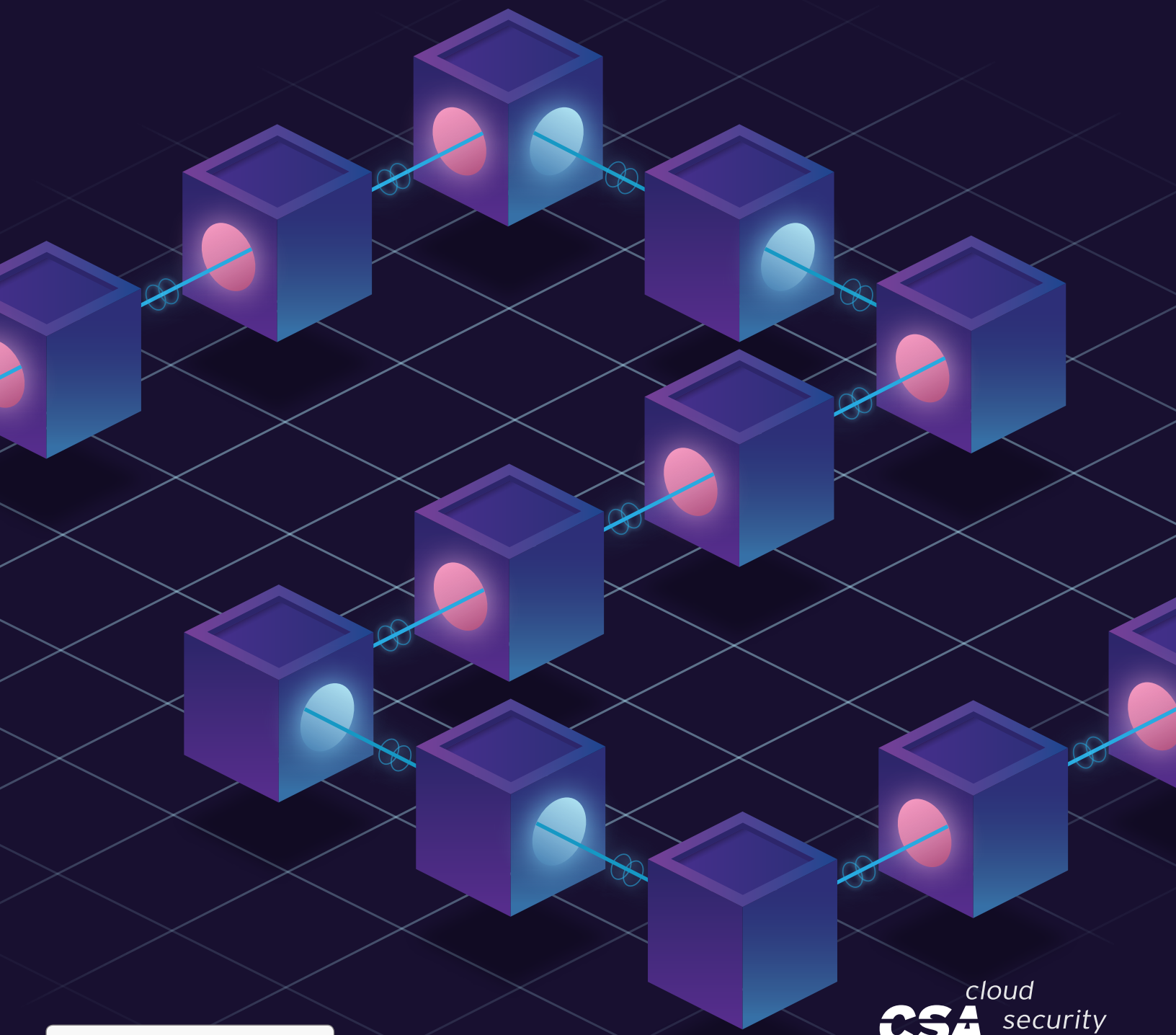
Beyond Cryptocurrency:

9 RELEVANT BLOCKCHAIN AND DISTRIBUTED LEDGER TECHNOLOGY USE CASES



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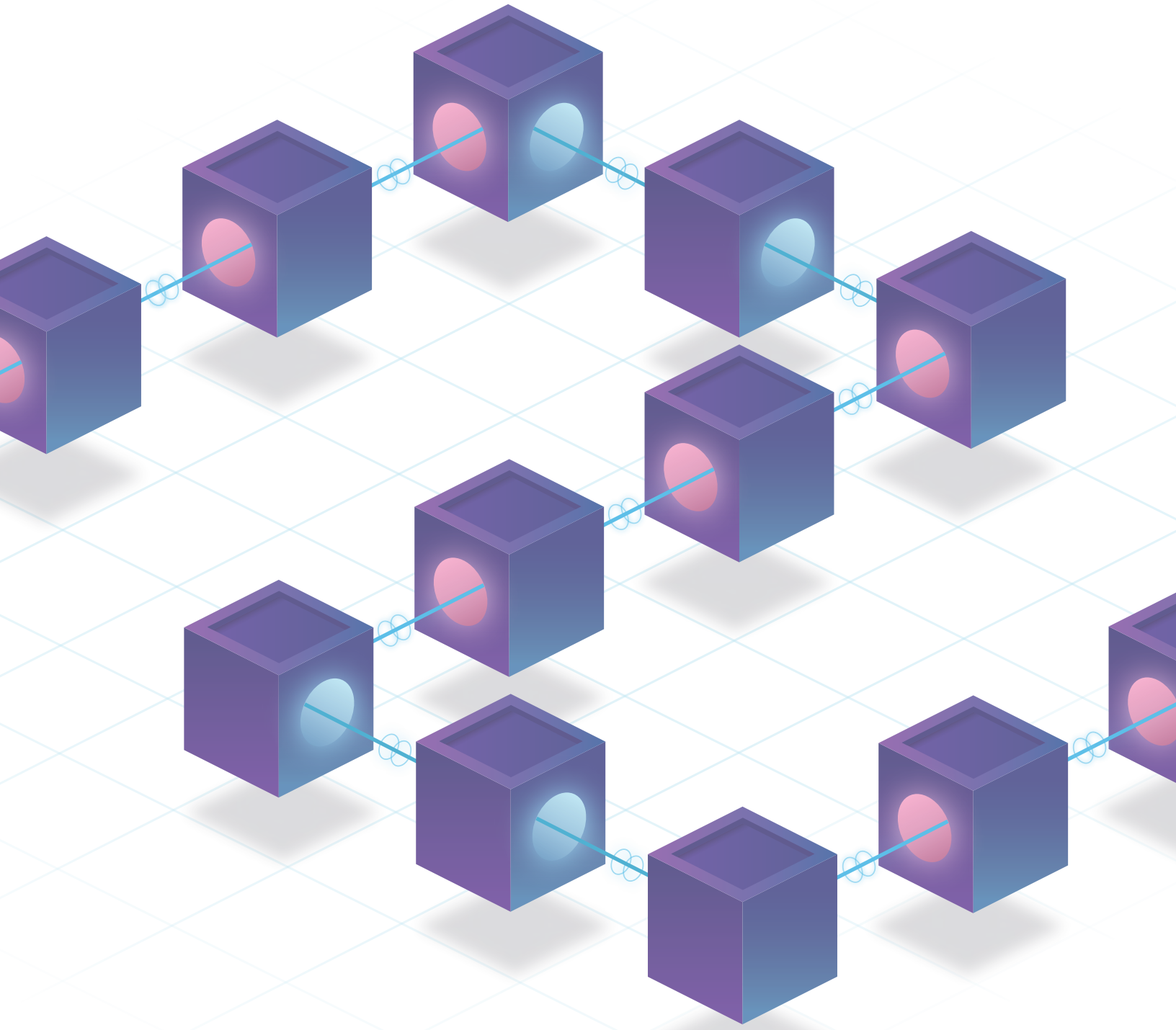
CSA cloud security alliance®



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Introduction

Thanks to the rise in popularity of Bitcoin cryptocurrency, the innovative technologies of Blockchain and other systems of distributed ledger technology (DLT) have proven their ability to increase security of data during transactions and provide immutable long-term data storage.

The revolutionary software has also proven able to simplify transactions between entities—especially by rendering intermediary parties and manual systems unnecessary. Many private and public organizations, from airlines to universities to drug companies, have started testing proofs of concepts and creating prototypes based on blockchain technology that have the potential to phase out the manual, paper-based and other inefficient systems the organizations formerly used.

Blockchain technology is primarily associated with Bitcoin cryptocurrency at this point. However, many other business models are currently taking advantage of blockchain technology and other DLT properties without cryptocurrency features.

This publication details several use cases across discrete economic sectors of applications for DLT beyond cryptocurrency, as identified by our Blockchain/DLT working group members. Here we define relevancy as providing *potential* for any of the following:

1. Disruption of existing business models or processes;
2. Strong benefits for an organization;
3. Widespread application;
4. concepts can be applied in real-world scenarios.

Research Goals

CSA Global's aim with this documentation is to provide readers with ideas for exploring and generating new blockchain and DLT test cases in your own organizations.

Any future similar documentation by CSA Global will update ongoing development of the use cases identified here, in addition to any interesting new cases identified by Blockchain/DLT working group members.

Potential use case to study could be submitted by joining the Blockchain/DLT working group
https://cloudsecurityalliance.org/working-groups/blockchain/#_join

Levels of Deployment

To assist readers in distinguishing conceptual initiatives from higher levels of deployment, we classify the use cases detailed here into six levels of maturity:

	USE CASE LEVEL (UCL)	SCOPE/EXTENT OF DEPLOYMENT
1	UCL 1: CONCEPT	A conceptual use case is a well-formulated idea for a solution to a problem, usually presented in the form of a whitepaper.
2	UCL 2: PROOF OF CONCEPT	A use case in the Proof of Concept phase is undergoing the first realization testing the feasibility of a Concept (UCL 1). Answers the question “Is the Concept possible?”
3	UCL 3: PROTOTYPE	More functionally complete than the UCL 2, a prototype use case incorporates improvements made during UCL 2 phase. A Prototype is often used by the developing partners in the project and a few additional users.
4	UCL 4: PILOT	More complete still is a use case in the Pilot phase, which incorporates improvements made during Prototype testing. A select group of users conducts Pilot testing.
5	UCL 5: PILOT PRODUCTION	A use case in production refers to a Pilot that is functionally complete yet undergoing further development by select group of users.
6	UCL 6: PRODUCTION	Production is functionally complete. Tool has been implemented and is in use by users at large. [NOTE: It seems like a step is missing. “Production” would seem to be the last stage before Wide Use/Implementation, in which the Pilot has been tweaked and released.

Definitions

SECTOR(S)	Areas of industry or potentially impacted organizations
EXPECTED BENEFITS/ BUSINESS VALUE	Potential advantages to a company or entity resulting from implementing blockchain/DLT project
COMPANY	The company or group that is responsible for organizing and managing the use case being discussed
PROJECT DESCRIPTION	Summary of blockchain/DLT project
DATE	The date the Use Case Status was initiated
COUNTRY OF ORIGIN/ REGIONAL OPERATION	The country of origin of the use case cited; including the larger geographical coverage of the business entity
ECOSYSTEM	The participants involved in or affected by the use case being discussed; usually, the organizing entity, and its customers and partners that have a significant role in the business concept being evaluated
X STATUS	Current level of deployment, or Use Case Level/UCL, from theoretical model to working version of a business process: Concept (UCL 1), Proof of Concept, (UCL 2), Prototype (UCL 3), Pilot (UCL 4), Pilot Production (UCL 5), Production (UCL 6)
INDUSTRY/COMPANY CHALLENGES	Business challenges and opportunities a particular use case addresses; including efficiency, profit and loss, customer service methods, etc.
BLOCKCHAIN/DLT BENEFITS	Major and uncommon benefits related to specific use cases and their associated challenges and opportunities that need to be addressed
KEY FEATURES	Most important characteristics of a use case that highlight the potential usefulness of a product to its targeted users
KEY PERFORMANCE INDICATOR	Measurement(s) demonstrating whether a use case is a successful example of blockchain implementation
DISTRIBUTED LEDGER TECHNOLOGY (DLT) IMPLEMENTATION TYPE	DLT: Synchronized digital data distributed across multiple geographical sites or institutions without a central administrator or centralized data storage; Implementation Type: Public, Private, Federated/Consortium (Permissioned)
DLT CLASS	Blockchain or Non Blockchain
DLT TYPE/VERSION	**Blockchain:** Bitcoin, Ethereum, Hyperledger/Fabric, etc. **Non Blockchain:** Tangle: IoTA, Hashgraph, etc.
CRYPTOCURRENCY 1	Issued supporting DLT implementation
CRYPTOCURRENCY 2	Used as a medium of exchange
CLOUD SERVICE LEVEL	IaaS (Infrastructure as a Service), PaaS (Platform as a Service), SaaS (Software as a Service)
IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE	**Content Service Provider (CSP):** External provider or providers of IT service. **In-House:** Internally operated data center **Hybrid:** combination of CSP and In-House IT services **Location of Service Use:** as distinguished from location of service provider company

SHIPPING

End-to-End Supply Chain Visibility

SECTOR(S)

Transportation

COMPANY

Maersk *(world's largest container shipping company)*

DATE

January 2018

COUNTRY OF ORIGIN/ REGIONAL OPERATION

Denmark/Global

EXPECTED BENEFITS/BUSINESS VALUE

- Reduced cost of processing transactions
- End-to-end visibility and reporting
- Reduced documentation workload
- End-to-end documentation
- Faster document processing
- Increased accuracy of document processing

PROJECT DESCRIPTION

In partnership with IBM, Maersk envisions a digitized and paperless shipping solution in which all parties can view cargo and approve its movement throughout transport.

STATUS

3-4

UCL 3 (Prototype) to UCL 4 (Pilot)

ECOSYSTEM

Importers, Exporters, Freight Forwarders, Ports and Terminals, Ocean Carriers, Customs Authorities, Transportation Management

INDUSTRY COMPANY CHALLENGES

- Inconsistent information across organizational boundaries and "blind spots" throughout supply chain hinder efficient flow of goods
- Complex, cumbersome, and costly peer-to-peer messaging
- Manual, time-consuming, paper-based processes
- High air courier expense
- Air courier delays
- Risk assessments lacking sufficient information; clearance processes subject to fraud
- The administrative cost of handling a container shipment is on par with the cost of its transport.

BLOCKCHAIN/DLT BENEFITS

- Fast access to end-to-end information
- Proven data security
- Single information source
- Verifiable authenticity
- Immutability of digital documents
- Efficient, cross-organizational workflows
- Improved risk assessment due to complete data
- Fewer manual interventions
- Lower administrative costs

KEY FEATURES

Smart Contracts

KEY PERFORMANCE INDICATOR

- Reduced administrative costs
- Fewer interventions due to lost/missing information
- Increased speed to problem resolution

DLT IMPLEMENTATION TYPE

Permissioned

DLT CLASS

Blockchain

DLT TYPE/VERSION

Hyperledger Fabric/1.0

CRYPTOCURRENCY 1

None

CRYPTOCURRENCY 2

None

CLOUD SERVICE LEVEL

SaaS

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

CSP/IBM/Denmark

REFERENCES

- "Maersk, IBM create world's first blockchain-based, electronic shipping platform" (*Computer World*, January 16, 2018): https://www.computerworld.com/article/3247758/emerging-technology/maersk-ibm-create-worlds-first-blockchain-based-electronic-shipping-platform.html
- "Digitizing Global Trade with Maersk and IBM" (*IBM Announcements*, January 16, 2018): https://www.ibm.com/blogs/blockchain/2018/01/digitizing-global-trade-maersk-ibm/

TICKETING

Automated Airline Ticket Sales

SECTOR(S)

Transportation, potentially Entertainment

COMPANY

S7 Airlines (PJSC Siberia Airlines)

DATE

July 2017

COUNTRY OF ORIGIN/ REGIONAL OPERATION

Russia/Eastern Europe

EXPECTED BENEFITS/BUSINESS VALUE

- Reduced documentation
- Faster document processing
- Improved accuracy of document processing
- Timely payment
- Fair ticket distribution (reduced scalping)
- Elimination/Reduction of counterfeit tickets

PROJECT DESCRIPTION

With financial support from one of the largest private banks in Russia, a Russian airline will sell tickets using blockchain technology. The airline is exploring the use of cryptocurrency for flight tickets, as well.

STATUS

5

UCL 5 (Pilot Production)

ECOSYSTEM

Customer, S7 Ticket Agents, S7 Airline, Alfa Bank JSC

INDUSTRY COMPANY CHALLENGES

- Inefficient document handling
- Slow payment processing time, with average settlements taking two weeks
- Excessive receivables investment

BLOCKCHAIN/DLT BENEFITS

- Automated document handling
- Automated contract fulfillment
- Reduction of documentation errors
- Increased transaction settlement time
- Reductions in costs and investments

KEY FEATURES

Smart Contracts

KEY PERFORMANCE INDICATOR

Pilot phase resulted in average payment settlement time reduced from 14 days to 23 seconds

DLT IMPLEMENTATION TYPE

Private

DLT CLASS

Blockchain

DLT TYPE/VERSION

Ethereum

CRYPTOCURRENCY 1

Ether

CRYPTOCURRENCY 2

None

CLOUD SERVICE LEVEL

IaaS

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

CSP/IT-Grad/Russia

REFERENCES

- "Russian Airline S7 Now Uses the Ethereum Blockchain for Flight Tickets" (*Crypto Coins News*, July 25, 2017): https://www.cryptocoinsnews.com/russian-airline-s7-now-uses-ethereum-blockchain-flight-tickets/
- "Russian Airline At Home in the Cloud" (*Computer Weekly*, March 29, 2017): http://www.computerweekly.com/news/450415777/Russian-Airline-at-home-in-the-cloud

INSURANCE

Automated Reinsurance

SECTOR(S)	COMPANY	DATE	COUNTRY OF ORIGIN/ REGIONAL OPERATION
Reinsurance	B3i Services AG	2017	Zurich, Switzerland/Global

EXPECTED BENEFITS/BUSINESS VALUE

- Reduce the administrative work of a reinsurance process the involves multiple counterparties
- Improve the trading of risk

PROJECT DESCRIPTION

This insurance consortium prototype automates processes involved in catastrophe reinsurance, including advancements that may remove administrative work by multiple parties—in particular, insurance brokers.

STATUS

UCL 3 (Prototype)

ECOSYSTEM

Importers, Exporters, Freight Forwarders, Ports and Terminals, Ocean Carriers, Customs Authorities, Transportation Management

INDUSTRY COMPANY CHALLENGES

- Intentionally missed as there was not a specialist from reinsurance sector that is able to provide inputs.

BLOCKCHAIN/DLT BENEFITS

- Transparency
- Real-time data
- Immutable records
- Fraud reduction
- Improved data security

KEY FEATURES

Smart Contracts allow for automated distribution and payment of premiums and claims in reinsurance transaction process

KEY PERFORMANCE INDICATOR

- Reduced cost of reinsurance processes
- Reduced cost of claims payments
- Automated distribution and payment of premiums and claims
- Operational risk reduction
- Less manual reconciliation
- 30% efficiency improvement
- increased efficiency by removal of intervening agents (insured, brokers, general agents, insurer, reinsurers)

DLT IMPLEMENTATION TYPE	DLT CLASS	DLT TYPE/VERSION
Private	Blockchain	Hyperledger Fabric

CRYPTOCURRENCY 1	CRYPTOCURRENCY 2	CLOUD SERVICE LEVEL
None	None	Unknown

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

Hybrid: In-House CSP with IBM-based hyperledger support

REFERENCES

- "Brokers Beware: Insurance Consortium Reveals Codex 1 Blockchain Prototype" (*Coin Desk*, August 29, 2017): https://www.coindesk.com/world-without-brokers-insurance-consortium-reveals-codex-1-blockchain

FINANCE

Nostro Bank Account Reconciliations

SECTOR(S)	COMPANY	DATE	COUNTRY OF ORIGIN/ REGIONAL OPERATION
Banking	SWIFT	January 2017	Belgium/Global

EXPECTED BENEFITS/BUSINESS VALUE

- Reduced administrative costs
- Improved security of data processing
- Improved security of data storage

PROJECT DESCRIPTION

As part of SWIFT's global payments innovation initiative, which seeks to deliver a new standard in cross-border payments, the company is exploring whether blockchain or DLT can be used by banks to improve reconciliation of their nostro databases in real time.

STATUS

2

UCL 2 (Proof of Concept)

ECOSYSTEM

Corporate Financial Institutions, SWIFT

INDUSTRY COMPANY CHALLENGES

- Gaps in data and problems with data correlation
- Lack of data centralization and integration
- Cost of exceptions and investigations

BLOCKCHAIN/DLT BENEFITS

- Liquidity savings
- Optimized real-time position management
- Real-time visibility of account entries
- Monitoring intraday expected and available balances
- Operational savings through increased efficiency for Nostro reconciliation

KEY FEATURES

Real-time visibility of end-to-end information for account owners and account servicing institutions utilizing nostro accounts

KEY PERFORMANCE INDICATOR

- Liquidity savings
- Operational cost savings

DLT IMPLEMENTATION TYPE	DLT CLASS	DLT TYPE/VERSION
Private	Blockchain	Hyperledger Fabric/1.0

CRYPTOCURRENCY 1	CRYPTOCURRENCY 2	CLOUD SERVICE LEVEL
None	None	IaaS

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

CSP/IBM/Belgium

REFERENCES

- "SWIFT launches Blockchain Proof of Concept In Hyperledger" (*Blockchain News*, January 12, 2017): http://www.the-blockchain.com/2017/01/12/swift-launches-blockchain-proof-of-concept-in-hyperledger/
- "Swift launches blockchain proof of concept" (*Fintech Futures*, April 25, 2017): http://www.bankingtech.com/698881/swift-launches-blockchain-proof-of-concept/
- "IBM launches blockchain ecosystem on Hyperledger Fabric" (*Fintech Futures*, December 7, 2017): http://www.bankingtech.com/667661/ibm-launches-blockchain-ecosystem-on-hyperledger-fabric/

PHARMACEUTICAL INDUSTRY

Drug Supply Chain Security Act (DSCSA) Compliance

SECTOR(S)

All sectors suffering from counterfeit and pirated products entering their supply chains; e.g. drug makers, wholesalers, pharmacies, hospitals

COMPANY

MediLedger Project

DATE

September 2017

COUNTRY OF ORIGIN/ REGIONAL OPERATION

USA

EXPECTED BENEFITS/BUSINESS VALUE

- Ensure authenticity and legality of goods
- Improved security of supply chain (track-and-trace) through detection and removal of counterfeit, stolen and contaminated products from product supply chain
- Simpler reconciliation of exceptions
- Improved speed and accuracy of investigations and product recalls
- Compliance with FDA regulations

PROJECT DESCRIPTION

Several large pharmaceutical companies are creating blockchain tools to manage their supply chains in hopes of preventing counterfeit drugs from entering the supply chain and ending up in consumer hands.

3-4 STATUS

UCL 3 (Prototype) to UCL 4 (Pilot)

ECOSYSTEM

Manufacturers, packagers, wholesale distributors and even third-party logistics providers

INDUSTRY COMPANY CHALLENGES

- Improving drug security (GTIN/serial number authenticity)
- Establishing product identifiers and quality barcodes
- Achieving the interoperability required by DSCSA regulations

BLOCKCHAIN/DLT BENEFITS

- Eliminates need for manual drug verification
- Reduces administrative costs

KEY FEATURES

Distributed database and data consensus

KEY PERFORMANCE INDICATOR

Fewer counterfeit drugs throughout supply chains

DLT IMPLEMENTATION TYPE

Yet to be identified

DLT CLASS

Blockchain

DLT TYPE/VERSION

Parity Ethereum

CRYPTOCURRENCY 1

None

CRYPTOCURRENCY 2

None

CLOUD SERVICE LEVEL

SaaS

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

MediLedger partnership of Chronicled (creator of blockchain technology) and LinkLab (consulting group using Quorum)/

REFERENCES

- "Big Pharma Turns to Blockchain to Track Meds" *(Ledger* by *Fortune*, September 21, 2017): http://fortune.com/2017/09/21/pharma-blockchain/

FOOD SAFETY

End-to-End Safety and Reliability

SECTOR(S)

Grocery stores, Supermarket chains and Hypermarkets

COMPANY

Consortium of leading global food supply chain companies in partnership with IBM

DATE

August 2017

COUNTRY OF ORIGIN/ REGIONAL OPERATION

USA/Global

EXPECTED BENEFITS/BUSINESS VALUE

- Reduction in product losses
- Improved food safety for end users
- Preservation of brand loyalty

PROJECT DESCRIPTION

A group of food retailers are working with IBM to discover how blockchain technology can make the global food supply safer by improving food traceability.

STATUS

UCL 1 (Concept)

ECOSYSTEM

Dole, Driscoll's, Golden State Foods, Kroger, McCormick and Co., McLane Co., Nestlé, Tyson Foods, Unilever, Walmart

INDUSTRY COMPANY CHALLENGES

- Strengthen consumer confidence
- Improve food traceability by providing reliable information about origin and condition of food products (For example, it took more than two months to identify the farm source of contamination in a recent incidence of salmonella in papayas)
- Tracking and addressing food safety problems and distributing information about safety issues

BLOCKCHAIN/DLT BENEFITS

- All players along supply chain, from growers/producers to retailers have access to reliable information about origin, location and condition of food products
- Food contamination issues can be traced quickly; and removed and recalled efficiently
- Information about food contamination can be distributed efficiently, with supporting supply chain data

KEY FEATURES

Database accessible at all points of distribution chain, including producers, wholesalers, transporters, retailers, etc.

KEY PERFORMANCE INDICATOR

Reduction of time identifying origin of food contamination.

DLT IMPLEMENTATION TYPE

Federated/Consortium (Permissioned)

DLT CLASS

Non-blockchain

DLT TYPE/VERSION

Hyperledger/Fabric

CRYPTOCURRENCY 1

None

CRYPTOCURRENCY 2

None

CLOUD SERVICE LEVEL

SaaS

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

Chronicled, a San Francisco-based company, that created the blockchain tools for MediLedgerUSA

REFERENCES

- "IBM Announces Major Blockchain Collaboration with Dole, Driscoll's, Golden State Foods, Kroger, McCormick and Company, McLane Company, Nestlé, Tyson Foods, Unilever and Walmart to Address Food Safety Worldwide" (*IBM News Release*, August 22, 2017): http://www-03.ibm.com/press/us/en/pressrelease/53013.wss

EDUCATION

Verification of Identity and Academic Credentials

SECTOR(S)	COMPANY	DATE	COUNTRY OF ORIGIN/ REGIONAL OPERATION
Education, Public	University of Melbourne, Australia	October 2017	Australia

EXPECTED BENEFITS/BUSINESS VALUE

- Reduction in use of false certifications and fraudulent credentials

PROJECT DESCRIPTION

A public university in Australia is attempting to issue recipient-owned academic credentials that remain private and unchangeable via blockchain technology in order to provide reliability and security for both recipients and verifiers.

3 STATUS

UCL 3 (Prototype)

ECOSYSTEM

Learning Machine Technologies, MIT Media Lab

INDUSTRY COMPANY CHALLENGES

- Prevention of academic credential fraud

BLOCKCHAIN/DLT BENEFITS

- Ledger stores single confirmation point of academic credentials via distributable "tickets" containing certificate data

KEY FEATURES

- When certificate is issued, data is compressed into hash and logged on blockchain
- Issuer provides a link to their credentials in the certificate
- Verifier validates signature of issuer and certificate data; also ensures certificate status has not expired or been revoked.
- A wallet (IOS- and Android-based) contains issued certificate and evidence required to verify

KEY PERFORMANCE INDICATOR

None yet available

DLT IMPLEMENTATION TYPE	DLT CLASS	DLT TYPE/VERSION
Public	Blockchain	Bitcoin with Roadmap to Ethereum

CRYPTOCURRENCY 1	CRYPTOCURRENCY 2	CLOUD SERVICE LEVEL
None	None	N/A

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

Learning Machine Technologies in partnership with MIT Media Lab/Australia

REFERENCES

- "University of Melbourne to issue recipient-owned blockchain records" (University of Melbourne Newsroom, October 9, 2017): http://newsroom.melbourne.edu/news/university-melbourne-issue-recipient-owned-blockchain-records?_ga=2.100100759.802664920.1507651467-1328473086.1507651452
- "Australian University Tests Blockchain In Bid To Back Up Academic Credentials" (*Coin Desk*, October 10, 2017): https://www.coindesk.com/australian-university-tests-blockchain-bid-back-academic-credentials/
- Blockcerts: The Open Standard for Blockchain Credentials: https://www.blockcerts.org/

SUPPLY CHAIN

Logistics Management for Buyers and Sellers

SECTOR(S)

Supply Chains

COMPANY

Skuchain in partnership with NTT Data

DATE

January 2018

COUNTRY OF ORIGIN/ REGIONAL OPERATION

USA and Japan/USA

EXPECTED BENEFITS/BUSINESS VALUE

- Trackable flow of goods
- Bank-grade traceability of physical assets

PROJECT DESCRIPTION

Aiming to empower collaboration across all partners in individual global supply chains, Skuchain connects buyers and sellers in real time via blockchain technology and internet ofthings (IoT) innovations, while also ensuring data privacy and security.

STATUS

UCL 2: Proof of Concept

ECOSYSTEM

Skuchain, NTT Data

INDUSTRY COMPANY CHALLENGES

- Managing the complexity of global supply chain logistics
- Reliable traceability at all nodes along transport
- Improve supply chain efficiency and quality control

BLOCKCHAIN/DLT BENEFITS

- End-to-End Track and Trace technology to monitor goods at all nodes on supply chain
- Reliable tracking of invoicing, financing, records management, etc.
- Collaboration among multiple parties
- Reduction of stock wastage
- Increased efficiency and control over movement and sale of products

KEY FEATURES

Smart Contracts

KEY PERFORMANCE INDICATOR

None yet available

DLT IMPLEMENTATION TYPE

Federated/Consortium (Permissioned)

DLT CLASS

Blockchain

DLT TYPE/VERSION

Hyperledger Fabric/1.0

CRYPTOCURRENCY 1

None

CRYPTOCURRENCY 2

None

CLOUD SERVICE LEVEL

SaaS

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

CSP/ Skuchain /USA

REFERENCES

- "Skuchain uses blockchain and IoT for new supply chain platform" (Global Trade Review, January 24, 2018): https://www.gtreview.com/news/fintech/skuchain-uses-blockchain-and-iot-to-launch-supply-chain-platform/

REAL ESTATE

Transaction Recording

SECTOR(S)	COMPANY	DATE	COUNTRY OF ORIGIN/ REGIONAL OPERATION
Real Estate	Cartório de Registro de Imóveis (Real Estate Registry Office of Brazil)	April 2015	Based in USA with partners and advisors worldwide

EXPECTED BENEFITS/BUSINESS VALUE

- Improved transparency
- Easier contract management
- Expedited transactions
- Improved storage and access to land title records

PROJECT DESCRIPTION

This pilot program of a US-based startup and a Brazilian real estate registry aims to efficiently record detailed information about properties and owners that will not be susceptible to fraud, corruption and damage.

STATUS

UCL 4 (Pilot)

ECOSYSTEM

Ubiquitous

INDUSTRY COMPANY CHALLENGES

- Simplify and optimize the sale process and the expedient exchange between the parties
- Information sharing in a safe and clear fashion

BLOCKCHAIN/DLT BENEFITS

- Greater accuracy and immutability of property ownership data

KEY FEATURES

Detailed records of real estate information, including property addresses, owners and zoning classifications

KEY PERFORMANCE INDICATOR

Efficient transition from paper-based records to immutable computer-based data

DLT IMPLEMENTATION TYPE	DLT CLASS	DLT TYPE/VERSION
Public	Blockchain	Ubitquity Platform Blockchain/Version 1.1, Colu's API (alpha)

CRYPTOCURRENCY 1	CRYPTOCURRENCY 2	CLOUD SERVICE LEVEL
None	None	SaaS (Ubitquity)

IT SERVICE/SERVICE PROVIDER/LOCATION OF SERVICE USE

CSP using Ubitquity API

REFERENCES

- "Blockchain Land Registry Tech Gets Test in Brazil" (*Coin Desk*, April 5, 2017): https://www.coindesk.com/blockchain-land-registry-tech-gets-test-brazil/