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# Delivering digital trust and accelerating direct collaboration



Cyberport

KSTP



#### **HKSIA** Blockchain Workshop 10-Sep-2021 Room 701, Trust Centre, 912 Cheung Sha Wan Road, Lai Chi Kok.

Time	Agenda
16:00	Introduction
16:10	Workshop I – Blockchain and Corda Basics
16:40	Workshop II – Capital Markets
17:10	Workshop III – Supply Chain
17:40	Workshop IV – Insurance
18:10	Workshop V – Q&A

'ANY OPINIONS, FINDINGS, CONCLUSIONS OR RECOMMENDATIONS EXPRESSED IN THIS MATERIALEVENT (OR BY MEMBERS OF THE PROJECT TEAM) DO NOT REFLECT THE VIEWS OF THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION OR THE VETTING COMMITTEE OF THE TRADE AND INDUSTRIAL ORGANISATION SUPPORT FUND."

Workshop Part IV

ALMHARME SCC

#### Delivering the power of 3 for trusted digital collaboration



## pwc



We are now at a turning point with the development of a "crypto-economy" where assets, both physical (e.g. real gold) and financial (e.g. stocks), are digitized and ownership in them is bought, swapped or traded without a centrally governed exchange.

Such a development creates profound business opportunities for those organizations ready to embrace the challenge.

#### **Evolution of Money**



### Decentralized Applications – dApps

Decentralized applications (dApps) are digital applications or programs that exist and run on a blockchain or P2P network of computers instead of a single computer and are outside the purview and control of a single authority.



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## **Capital Markets**





The current picture of capital markets...

Trust issues







Close loops

Infrastructure bottleneck

Untapped, complex and expensive !



**Design principles** 

**Promotes trust** 



**Enables movement of value** 

### New formation of capital markets

Corda allowed us to re-imagine capital markets



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#### Why do DA & DLT matter to Capital Markets?

Representing a broad range of assets in a Digital form combined with the use of DLT allows for **dematerialization**, and where applicable the **fractionalisation** of assets liberating them such that they can move freely across a broader audience, yet maintain **regulatory compliance**, governance and oversight expected of institutional grade capital market activity.

This facilitates a number of very compelling use cases;

- Enhanced Asset Lifecycle Management
- ✓ Increased Liquidity & Access
- ✓ New means to Capital Formation







## Industry trends: We see opportunities in Green Finance, Private Markets, and Real Estate

Green Finance	<ul> <li>Regulatory grants, green bond issuances by govt</li> <li>Strong pvt. sector participation</li> <li>USD 1.3 Th</li> <li>MAPA Private Equity AUM</li> <li>Represents ¼ of global PE market</li> <li>MERIE tokens issued in Mar 21</li> <li>STAN GROUP CONSTANTION</li> <li>Real estate tokens issued as part of employee incentives</li> </ul>			<ul> <li>Lack of data transparency/credibility</li> <li>GF: Lengthy, cumbersome data reporting process. Greenwashing</li> <li>PM: Siloed networks result in poor transferability</li> <li>RE: Lack of market data transparency increases risks for investors</li> </ul>	<ul> <li>Data sits on shared ledger, enables provenance and immutability, sharing of data in real time</li> <li>Peer-to-peer network infra. and need- to-know basis to ensure privacy of transactions</li> </ul>
Private markets				<ul> <li>High issuance and servicing costs</li> <li>Attributable to highly manual processes across syndication, asset servicing, and data reporting</li> </ul>	<ul> <li>Smart contracts automate workflows across entities and eliminate reconciliations</li> <li>Asset life cycle can be pre-coded into tokens, dramatically reducing costs</li> </ul>
				<ul> <li>Ltd. investor accessibility leading to illiquidity</li> <li>High minimum participation sizes reduce investor base</li> <li>Resulting in low liquidity for investors/issuers</li> </ul>	<ul> <li>Fractionalization brings down min.</li> <li>participation size, enabling greater</li> <li>investor participation, liquidity</li> </ul>

#### Select use cases

- Lifecycle Management & Provenance
- Post Trade Process & Automation
- Cash / Collateral Management
- Liquidity Discovery & Optimisation
- Data Distribution & Management
- Settlement & Payments
- Digital Custody or Wallet





Learn more here

#### VALK

#### CHALLENGE

- Investment, trading and management of unlisted assets such as real estate, infrastructure, private companies and funds remain predominantly a manual process
- These processes involve countless file exchanges via emails and document storage on local servers, creating additional workload to investors
- Reducing time and resources dedicated to executing transactions and increasing risks and costs to asset owners

#### SOLUTION

- VALK is an end-to-end digital transaction solution that makes investment, trading and management of unlisted assets seamless, delivering transparency and liquidity
- Built as a white labelled platform, VALK automates the KYC/AML, investment management and trading processes while integrating into existing legacy systems
- VALK chose Corda Enterprise as it was built to the security, privacy and reliability standards that highly regulated industries require

#### RESULTS

80% Reduction in end-to-end time

**50%** Reduction in associated costs

**\$1b** Assets on platform

**450+** Financial institutions to connect with



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Application Builder:

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Platfor



## **Fragmos Chain**

#### CHALLENGE

- Uncleared over the counter (OTC) derivates are handled manually in the post-trade environment leading to frequent errors and data inconsistencies
- Commonly when a cash flow is calculated there are mismatched calculations between banks representing different prices for the same contract
- Institutions still settle post trade without a shared version of the truth and common communication standards, leading to expensive reconciliation costs taking hours or days to settle

#### SOLUTION

- Fragmos Chain is a management solution for the lifecycle of OTC derivatives contracts
- The solution automates the lifecycle of the contract, securely sharing information peer-to-peer to create a common version of the truth
- Fragmos Chain chose Corda Enterprise because of its privacy built to meet the requirements of highly regulated industries

#### RESULTS



Eliminates the need for expensive reconciliation processes

Contract risk can be assessed with the most up to date information



Increase in accuracy of bank exposure reports for regulators



Built to the Common Domain Model standards of ISDA



Application Bu fragmos chain Platform



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Learn more here

## Deon Digital – Smart Financial Instrument System

#### CHALLENGE

- Most participants of FMI marketplace have multiple variant of "golden record"
- Each silo systems contains inconsistent attributes of a security static data and corporate action events
- This leads to high costs associated in maintaining data scrubbing, reconciliation and delays

#### SOLUTION

- Deon creates Smart Financial Instrument System that allows the portability of security data exchange
- DATA & LOGIC of financial instrument are fully captured in the Smart Financial Contract(SFI).
- Standardized meta data published by issuer (including amendments and new events).
- Pluggable to participants core back end systems

#### RESULTS



Reduce costs associated with data reconciliation by 60%



Eliminates reconciliations and improves data sharing



Corda Flow framework enables automation of bonds

The Corda platform allows us to develop and implement a more efficient exchange of security universe data and logic in secured and efficient manner that is scalable and pluggable to any core back end system

**Dr Florian Herzborg** 

Cofounder and CTO



Company:





#### Platforr



Learn more <u>here</u>

## Digital currencies : The new evolution of capital markets

## **Basics of CBDC – closing the gaps of digital economy**



https://www.bis.org/publ/qtrpdf/r\_qt1709f.htm

## The characteristics of CBDC : Innovation at the core

Risk-free digital payment instrument – 24 x7

Balance sheet of central bank and stakeholders

Legal tender issued by central bank or monetary authority

Societal utility

Instant settlement – eliminates clearing

Programmability



## What is programmable money ?

- Digital form of money Money on its current form widely viewed as about act
- Money can take on diverse characteristics and parameter values.
- Overlay policy, business rules and workflow as money circulates
- Ability to design what money can be used
- Ability to design how money can be allocated and used
- Ability to wrap money as investment product and payment instrument

Not just automated money

## **Open finance network**







Digital currency is creating dynamic and vibrant digital economy

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## Trade & Supply chain

### Industry challenges

Even with digital initiatives, challenges remain around trust & privacy, efficiency, and siloed data



## Convergence of siloed data with Corda



## Industry pain points addressed with Corda

#### Efficiency



- Transactions are completed directly between the relevant parties
   with no intermediary and with digitized information
- Ability to operate 'smart contracts' which automatically trigger commercial actions based on defined criteria



- Each transaction is recorded sequel immutably finitely
- Provides an indelible audit trail for the life of an asset between parties
- **Traceability**
- Tracking goods and asset and where they are currently residing.

- Related asset information can then relayed to or from the new owner for possible action.
- Transparency
  - Lack of commercial transparency can sometimes lead to delays in commerce and a breakdown in relations.
  - Increase details of transactions against the commercial agreements to improve further trust



- Each transaction is verified within the network using independently verified complex cryptography
- Authenticity of the information can be assured

- Dramatically streamlined processes
- Remove time and cost from transacting
- Better verification of assets authenticity
  - Reduction of fraud and compliance costs
- Allows new financing opportunity
- Improve perfection of interest on trade assets
- Allow to reduce risk and offer increase trade finance facilities
  - Allow risk mitigation
- Permissionable, secured share trade related data between buyers, suppliers & financial institutions



## The future of digital trade will be a network of networks

**Trade Finance Business Network** Supply Chain **Business Network Payments Business** 

Network

#### Why Corda

Common identity, communication and data standards

Logistics

Business • Network

## Structured trade data can be trusted & verified

- Data remains private and shared on a need-to-know basis. Remain in control of your data
- A single node can participate in multiple business network, Flexible deployment options (on-prem, cloud)

## Corda is the blockchain for trade finance

Corda has >70% market share in the trade finance ecosystem



What use cases are best suited for Corda?

Criteria for shortlisting blockchain use cases for digital trade



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Data Sharing Across Parties

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Privacy Sensitive Environments



Complex Deployment Environments



Performance Sensitive Transactions



Regulated Business Environments

## Corda use cases and case studies for digital trade



## Use Case: Procure-to-Pay with Invoice Financing





## Use Case: Procure-to-Pay with Invoice Financing

DLT enables complex problem solving that is not achievable with traditional technologies

#### **Buvers**

47

- Get all documents in electronic forms without complex integration
- Automate the complex document verification process
- Keep all electronic records in a better organized manner
- Eliminate errors, fraud, and leakages

#### **Payment/Financing Banks**

- Compete on added values to customers rather than reducing fees
- Acquire mass customers all at once
- Offer differentiated lending services
- Eliminate collection risk



#### **Suppliers**

- Same day invoice approval
- DIY for approval & payment status
- Instant access to invoice financing
- Lower borrowing rate

- 100% auditability
- More complete audit with **Financial Transactional Data**
- Significant reduction of time &
- Increase ease of doing business

#### Use Case: Deep Tier Financing



## Use Case: Deep Tier Financing


### Use Case: Receivables Financing



# Use Case: Provenance and Track & Trace

Corda can ensure real-time traceability and data immutability across the entire Supply-Chain





Blockchain

Blockchain provides an immutable data trail for food traceability back to source



#### Internet of Things (IOT)

IOT devices and sensors monitor variables through each
 step of the supply chain journey, accessible via an Oracle



# Use Case: Corda eBL for Cargo Booking

#### **Drivers for Change**

- Need to offer **innovative value added cargo booking service** in a highly competitive industry to attract and keep customers
- Corda eBL can **augment existing features** of online BL draft visualization & approval
- **Digitization is essential** to reduce cost given the high volume and low margin business

#### Solution Benefits

- Shippers that utilize cargo booking platforms can use Corda eBL to instantly book cargo space and obtain their eBL and enable the peer to peer transfer of title document
- Interoperability across business networks makes it easier for carriers/FFs/NVOCCs to offer other value added services within their portal in future



#### **Future-State Diagram**



# Use Case: Corda eBL for Trade Compliance & Customs Clearance

#### **Drivers for Change**

- Increased regulation and trade compliance requirements due to rising trade fraud scandals are accelerating need for an end-to-end digital compliance solution
- **COVID 19** and business continuity efforts driving all parties to push for a fully digital, **paper-less solution**
- Enhance trade compliance solutions like Single Windows, eclearing

#### **Solution Benefits**

- Expedite clearance process / accelerate the velocity of trade
- Digitization of key critical document to streamline operational efficiency
- Increased profit margins through lower operational costs
- Offer innovating trade compliance solutions to your clients

#### **Current-State Diagram**



# Use Case: Corda eBL for Trade Finance

#### **Drivers for Change**

- Fully digitize trade by enabling direct transfer of title document between corporates and banks to unlock financing
- Reduce cost (couriers, paper, people) and risk (lost, damaged, fraudulent) eBLs)
- Need for product and **offering differentiation** in trade finance solutions to get an edge in the market

#### **Solution Benefits**

- Buyers can collect goods from the port faster and avoid potential demurrage costs
- Sellers can avoid the use of LOIs and get paid faster
- No costly or time-consuming integration with competitive third-party platforms

#### Current-State Diagram



#### **Future-State Diagram**



# Use Case: Corda eBL for Delivery vs Payment

#### **Drivers for Change**

- Fully digitize trade in a single platform by enabling direct transfer of title document between trading partners
- Reduce cost (couriers, paper, people) and operational risk (lost, damaged, fraudulent BLs)
- Need for product and offering differentiation in **procurement** solutions and commodity trading

#### Solution Benefits

- Safe and instant release of the eBL against payment
- Sellers get paid faster, buyers get their goods on-time
- **Removes costly reconciliation**, payment follow-ups, data input, need for tracking via spreadsheets and emails
- eBLs can be transferred to commodity trading, procurement, payment, networks **without bespoke integration**

# Current-State Diagram

Seller

#### **Future-State Diagram**

Manual tracking process



# Use Case: Custody Transfer

#### Background

- Custody transfer refers to the transactions involving transporting physical substance's possession from one party to another, including transfer of title
- The process involves multiple standards, contractual agreements, regulations and taxation
- The process also involves various tools such as precision measurement systems, quality systems, calibration devices, and automation
- Loss and/or unaccounted for transfers, which matters more when commodity prices are low

#### **Business Drivers for Change**

- Improve accuracy of reporting
- Integrate different parties, solutions, contracts
- Enhance online monitoring and observation systems
- Log calibration time and link to transaction
- Log of spare parts and maintenance schedule

#### **Current Solution Overview**



#### **Solution Benefits**

- Improve measuring and related systems planning and end of life process
- Tamper proof custody transfer historical trail
- Integrate different parties, solutions, contracts
- Automate checking and transactions related to standards, contractual agreements, regulations and taxation

# Use Case: Contract management

#### Background

- Paperwork and contracts are abundant throughout the mining lifecycle from exploration to closure, creating multiple challenges to different teams within each party/company
- Such contracts and agreements impact revenues, accounting reporting, obligations and traceability. Hence, any solution needs to address operational, accounting, financial and legal concerns
- Contracts are complex and not standardized due to wide range of products and services

#### **Business Drivers For Change**

- Minimising errors and unnecessary delays
- Reduce amount of paper in processes
- Increase compliance with standards and regulations
- Reduce contract cycle times
- Improve in revenue and revenue reporting
- Improve transparency across processes

#### **Current Solution Overview**



#### **Solution Benefits**

- Automate obligations and variable considerations in contracts
- Link transaction and revenue to the performance obligation throughout contract lifecycle
- Combine and/or append contracts

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# Insurance

# Corda DLT components that solve insurance industry challenges

Identity: Trust who you are doing business with

- Personal identity
- Corporate identity
- Counterparty due diligence
- Verifiable credentials



- Verifiable and shareable governance and compliance checks e.g. KYC /AML
- Verifiable proof of insurance & coverage

- Shared truth
- Shared business logic
- Shared data
- Shared network



**Data exchange:** 

Single source of the truth

Auditable information exchange: Risks, policies, claims, accounting, contract status, payment status • Automatically execute business processes

Automation:

Smart Contracts

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No touch, or low touch, claims

Automated endorsement/

mid-term adjustments

IOT / Sensors

automation

- Traditional banking rails
- On ledger value payments

**Payments:** 

Execute on, or off-chain

value transfer

- Tokenization
- CBDC



 Simplified & reconciled premium collection & claims payments

#### Intercompany Workflow | Strict Privacy | Immutable | Connected | Scalability

# Vision: Connected eco-system breaking down industry silos and more

**Need:** Vast amounts of data shared, bi-directionally, right across the insurance value chain causing tremendous frictional costs and negatively impacting customer experience. Additionally, the future of risk management requires closer proximity of carriers & customers e.g. Usage based insurance, IoT, parametric



# Dimensions of friction in insurance

- Customer interaction: Connect the end customer, with broker, insurers, reinsurers (vertical integration)
- Inter-company: Data alignment across industry (horizontal integration)
- Intra-company: Reducing friction within a company (internal integration)
- Inter-industry: Connecting with non-insurance networks





# Multi-national Insurance: Top 3 P&C Insurer in NorAm – Production

#### **The Problem**

Multinational insurance is complex and requires huge amounts of data to be shared across many participants. Coordinating and reconciling this takes time and is a significant cost, one which is passed on to the customer. 10,000s data points.

- Collection of Schedule of Values (SoV)
- ➢ KYC − 100's of counterparties
- Policy issuance 150+ policies
- Policy endorsements 100's
- Premium & claims 100s payments
- Co-insurance administration

#### Goals:

- Improved customer service: Delivery improved customer outcomes by streamlining communication between all parties
- Contract certainty: Complete clarity on coverage in place and premium payments made
- Reduce frictional costs: Eliminate
  reconciliations and unnecessary processing
- Cashflow: Speed up payments, increase in working capital, and reduce credit risk



Improved customer outcomes, satisfaction and stickiness.

Efficient, **trusted data exchange** with the client Up to **90% reduction** in processing & **\$10m p.a. savings.** 

Elimination of reconciliations & re-work



tamper-proof audit-trail



### Healthcare Insurance: US Healthcare Insurer 600k patients – Production



#### **The Problem**

Medical care provision and insurance coverage are challenged by unconnected systems, manual process and paper, leading to slow processing, reconciliations and errors. These result in poor customer experience and high expense costs, no to mention fraud potential.

- Sharing of medical records difficult & slow
- Challenging to secure personal data
- Challenges to verify insurance coverage
- Lack of visibility into treatment, medication provenance and care delivery
- Claims & deductible payments

#### Goals:

- Secure consent: Patient records secured and exchanged with patient consent
- Access: Seamless portability and interoperability of health data from multiple sources and platforms
- Verified care: Care providers and suppliers qualifications verified in real-time
- Supply provenance: Transparency on medication production & supply
- Automatic payments: Immutably linked to the patient, policy and care provision

#### Corda solution secures patient records, provides transparency on coverage and speeds up payments



# Motor Insurance Claims: Ledgertech & Bharti AXA India - Production



The motor insurance claims process in India is fragmented, complex and dominated by manual processes and handovers. Bharti AXA handles hundreds of thousands of claims every year:

- Heavily manual and time-consuming
- Lots of paperwork, phone calls and emails
- High costs, low margins
- Poor customer experience

#### Solution:

The Ledgertech application used by Bharti AXA integrates and streamlines the motor claims process end-to-end.

- Online real-time damage reporting, with digital "proof of loss" photo evidence
- Online recommendation is made to the customer of approved repairers
- Authenticated, tamper-proof data sharing is enabled on blockchain with regulators and other insurers in respect of the customer's no-claims credits



Improved customer outcomes, satisfaction and stickiness.

Efficient, **trusted data exchange** between parties Complete damage assessments in **minutes, rather than days** 

**Double digit percentage reduction** in operating costs



# Intra-company Reconciliation: Top global insurer Germany – Deployment



#### **The Problem**

Group entities of large enterprises transact with each other on a daily basis for funding, risk transfer, lending, premium ceding & claims payments. In addition, shared management, facilities and services costs, tax allocations, and dividends are reconciled weeks if not months after the actual transaction:

- Limited transparency: What risks are written
- Time lag: Periodically closings (quarterly)
- Reconciliations: Manual efforts intensive
- Credit risk and capital tide up: Counter party credit risks & capital tied up

#### Goals:

- Transparency: On risks written in each BU, & assets and liabilities
- Cost saving: Reduction in manual work to close ledgers at period end
- Reconciliation: Reduce the reconciliation work & write-offs between ledgers
- Communication: Streamline the communication between multiple parties involved and cash-flow
- Cash flow: Faster settlements reducing credit risks

#### Corda solution delivers transparency, efficiency and speed across multiple business units

Transparent, efficient and trusted data exchange between business units

**Reduction in reconciliations** & re-work



*Efficient cash flow* and counterparty credit risk

# Captive Management: Top 3 P&C Insurer in NorAm - Production

#### **The Problem**

Management of captives requires agreement on premium allocation split, distribution of invoices, cash flow management, and reconciliations:

- · Cash flow payments are delayed
- Accounting & reconciliations are complicated
- Average time to process payments across 40 offices = ~40 days:
  - The fastest execution ~7 days
  - The longest takes over 90 days to complete

#### Goals:

- Timing of Payments: Accelerate the captive reinsurance payments from insurer to clients captive
- Reconciliation: Reduce the internal effort to reconcile invoicing, direct premium payment, and the assumed premium activity their captive
- Communication: Streamline the communication between multiple parties involved in the multinational program, and improve the visibility in the cash-flow



#### Corda solution reduces costs, enables improved customer service and provides market differentiation



30+ apps moving(ed) from Ethereum & Hyperledger to Corda



# What our ecosystem is saying about Corda in Insurance

As we move closer to production, Corda Enterprise provides the participants on our insurance network ecosystem with the robust features needed to run securely in corporate IT environments.

> Markus Tradt, Chief Technology Officer, B3i

> > B3i<sup><1</sup>

For a business transaction only the people who are involved in that transaction get to say it's right or it's wrong. Corda really abstracts the validation of business logic away from the idea that it's committed into the blockchain. That's the separation of the contract versus the notary and that model is what we needed to solve the privacy requirement.

Jamie Steiner Business Development, Guardtime



There are very few what we consider true enterprise blockchain platforms in the market and Corda is the prominent one for the insurance industry.

Chris McDaniel President, The Institutes RiskStream Alliance

> The Institutes RiskStream Collaborative<sup>\*\*</sup>



# With the most valuable insurance eco-system in the market.....



# ...there's much, much more that can be done with Corda.

#### Near Term (1-3 years)

Theme: Replicating existing business processes & integrating with legacy systems

#### Medium Term (3-5 years)

Theme: Transforming business processes and deploying new products. Legacy systems being marginalised

#### Long Term (>5 years)

Theme: Blockchain is "normalised" & seamless interaction across industries





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# Thank you

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