Blockchain in Energy & Industry: A Growing Intersection
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Blockchain in Energy & Industry: A Growing Intersection
TURN INFORMATION INTO CAPITAL
**Flow of Info**

**Flow of Goods**

**Flow of Money**

**BRACKETS®** platform for smart contract governance and execution throughout the purchase cycle

**Popcodes®** (Proof of Provenance codes) identity preservation and real-time track-and-trace technology

**Inventory Management & Trading Services. LLC (IMT)** that turns procurement contracts into blockchain based security interests
Tiers 1&2 flow

- Supplier
  - Order Commit
  - Ship Components
  - Shipment Notification (ASN)
  - Invoice
  - Payment

- ODM/CM
  - Supplier PO
  - Order Commit

- Buyer
  - PO
  - Ship Goods
  - Invoice
  - Payment

- Blockchain

**BRACKETS® platform for smart contract governance and execution throughout the purchase cycle**
**Popcodes®** (Proof of Provenance codes) identity preservation and real-time track-and-trace technology
Case Study: A Milk Supply Chain

Truck driver generates popcode for milk take from farmers, does test and then takes title. Transaction is recorded on blockchain.

Consumer scans code to see entire history and when checking out takes ownership of the milk carton which is then also recorded on blockchain.
Inventory Collateralized on a 3rd Balance Sheet

1. **Contract Assignment**: Ship from Seller to T2 Supplier

2. **Skuchain Platform**: IMT takes title & governs the trade

3. **The legal framework to interface with the blockchain**: IMT takes title & governs the trade

Buyer

Strong Balance Sheet

Investment grade & Risk-mitigated Returns

Corporation Treasury

Financiers

Other

Skuchain Platform

The technology framework to interface with the blockchain
NTT DATA AND SKUCHAIN ESTABLISH PARTNERSHIP TO BRING BLOCKCHAIN TO ENTERPRISE SUPPLY CHAINS

- Internet gave birth to e-commerce, Blockchain provides the foundation for collaborative commerce
  - Enterprises are able to work together to unlock gains while also expanding their control across the supply chain.
- Numerous friction points hampering international commerce solved
  - Complicated and opaque mechanics of trade, paperwork, manual processes and divergent standards.
  - Imperfect and asymmetric information due to unavailability of data from parties in cross-border transactions.
- Skuchain and NTT DATA will combine Skuchain’s blockchain-based EC3 platform with NTT DATA’s iQuattro platform
  - Creates an integrated Blockchain IOT platform
  - Captures the value hidden in large supplier base.
  - Enables secure logistics management, cash flow relief and collaborative inventory planning.
  - Marketed by Skuchain and NTT DATA in Japan and other markets for deployment across global supply chains.
  - Includes Skuchain’s Popcodes® app and Skuchain’s Brackets® smart contracts app.
  - Integrates one click supplier onboarding.
  - Turns inventory from an illiquid balance sheet burden into blockchain asset for cash flow relief and reduced COGS.
- Underpinning all of this is Skuchain’s Zero Knowledge Collaboration® technology
  - Privacy preserving collaboration allows precision planning and turns firewalled information silos into capital.
- Skuchain and NTT DATA have completed a pilot with a large Japanese company and their supply chain in China using Skuchain’s Popcodes® track and trace system. Additional pilots featuring smart contract governance and inventory financing are underway.
1. Create an open source core infrastructure

2. Focus infrastructure on industry needs

3. Support market participants in building decentralized apps on the infrastructure
1: Create an open source infrastructure

Blockchain (core and additional functionalities)

- Coal
- Gas
- Nuclear
- Hydro
- Wind
- Solar
- DERs
- Dist. Networks

Application

Blockchain infrastructure

Device interface

- Certificates of Origin
- Transactive Energy
- EV Management

- Proprietary
- For profit
- “Easy”

- Open source
- Not-for-profit
- “Difficult”
2: Focus infrastructure on application needs

EWF Affiliates as of Jan 24, 2017
3: Support market participants in building decentralized apps

Potential blockchain applications in energy

Disruptive platforms (total = 52)

- Transactive energy: 26
- P2P Trading: 17
- Distributed generation: 9

Additional use cases
- RMI: 27
- GSy: 30
- PWC: 20

Process improvement (total = 55)

- Billing: 13
- Sales & Marketing: 9
- Automation: 7
- Metering and data transfer: 6
- Mobility: 6
- Communication: 5
- Grid management: 5
- Security: 4

Source: DENA / ESMT survey of 70 German energy sector executives – Nov 2016
3: Support market participants in building decentralized apps

An example of process improvement: certificates of origin today (1/2)

certificates of origin today

Renewable Generator

Qualified Reporting Entity

Certificate Tracking System

Annual Audit

REC Certification Entity

Trading & Ownership Tracking

OTC Markets

Broker Aggregator

Redemption, Retirement, & Reporting

REC Exchange

REC Buyer

2a
3: Support market participants in building decentralized apps

An example of process improvement: certificates of origin with blockchain (2/2)

- Lower transaction costs
- Faster execution (minutes - not weeks)
- Reduced working capital requirements
- Reduced labor
- Increased transparency
- Increased cyber-security
Thanks!
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Investments:
- 2015: $5m seed (FENBUSHI CAPITAL), $7.6m (FILAMENT)
- 2016: $3m (TEPCO)
- 2017: $3m pre-ICO (Powers Ledger), $3m (LO3 ENERGY)

Partnerships:
- 2015: Hyperledger, IBM, Samsung
- 2016: LO3 ENERGY, ConsenSys, Siemens
- 2017: LO3 ENERGY, LO3 ENERGY, LO3 ENERGY

Key Events:
- 2016: $2.5m private coin offering (LO3 ENERGY)
- 2017: $34m ICO (Powers Ledger), $34m ICO (Conjoule), $4.5m ICO (Conjoule), $3m pre-ICO (LO3 ENERGY)
A re-imagined energy marketplace for consumers
By 2040, 1 billion households and 11 billion smart appliances could actively participate in interconnected electricity systems.

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