

Leveraging Blockchain for More Sustainable and Efficient Supply Chains

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What is Blockchain?

- Blockchain is a database ledger that functions like a distributed network.
- Register blocks of cryptographically-secure, tamper-proof data through a process of consensus among members of a network. Offers near-frictionless cooperation between these entities, allowing them to transfer value or information without need of a central authority or intermediary.
- Potential to deliver significant productivity gains to multiple industries, from the financial sector to energy markets, supply chains, intellectual property management, the public sector, and beyond.

The Promise of Blockchain

- Fourth Industrial Revolution
- A foundational, general purpose technology? (steam engine, Internet)
- Heralding era of 'Internet of Value': democratization of value transfer with the elimination of intermediaries in solving double spending problem
- The « Perfect Storm »: a convergence of emerging NextGen technologies, including AI, IoT, robotics and others

13 Ways Blockchain Will Transform Supply Chain Management



The Problem: Challenges of Global Value Chains



SUPPLY CHAINS: ARTERIES OF GLOBAL TRADE THAT HAVE LIFTED MILLIONS OUT OF POVERTY ARE SLOWING DOWN.



7% OF THE GLOBAL VALUE OF TRADE ABSORBED IN DOCUMENTATION COSTS ALONE

- Non-tariff trade barriers suppress global trade by ~15% (World Economic Forum)

FRAUD IN GLOBAL TRADE IS \$600B



LACK OF TRANSPARENCY DUE TO INCONSISTENT OR NOT READILY AVAILABLE DATA; (II) A HIGH PROPORTION OF PAPERWORK; (III) A LACK OF INTEROPERABILITY; AND (IV) LIMITED INFORMATION ON THE PRODUCT'S JOURNEY IN THE CHAIN.

Implications for the way we do business: Drivers for Value Creation

A decentralized structure enables blockchain to operate with high efficiency, low cost, and a resistance to security breaches of a centralized database.

- Provide faster and more affordable payment and finance options
- Leverage distributed-ledger capabilities to remove third-party intermediaries, streamlining processes and promoting increased security across the value chain in multiple industries, with a focus on lowering the barriers to entry for small and micro-enterprises
- Paperless Trade?
- Provide solutions for increasing transparency across supply chains.

Bridging the Trade Finance Gap and Boost Inclusiveness

USD 1.5 trillion gap, SMEs and women entrepreneurs most impacted (International Trade Center)

- Bogged down by paper work (50% of applications rejected due to KYC, collateral info concerns)
- 52% indicate no solution has been implemented for document verification in trade finance operations (ICC Global Survey on Trade Finance)
- Blockchain can enable manufacturers to capture data-based insights that will help optimize their performance in ways that are more resilient to trade policy uncertainty.
- Via blockchain, the ability to represent unalterable identities on chain allows regulators to trust, and thus scale, pre-certification programs, which reduce reliance on frequent checks on goods and trading parties.
- By putting their transaction history on blockchain, firms can improve the ability of banks to do due diligence and risk assessment, thus opening the doors to additional financing



Streamlining and reducing paperwork

Source of trade uncertainty	Data needed	Blockchain characteristics related to this data
Border measures*	<ul style="list-style-type: none"> ● source of inputs ● production and transformation ● destination ● which required documents ● updating of documents 	<ul style="list-style-type: none"> ● transparency of transaction ● no central party holds all the data ● sharing of confidential data in a secure way ● secure data storage/transfer
Time	<ul style="list-style-type: none"> ● systems to process documents ● verification of documentation ● all documents ● ease of switching between regimes (EU-UK) 	<ul style="list-style-type: none"> ● simplification of verification ● no need for reconciliation
Regulatory compliance	<ul style="list-style-type: none"> ● auditable production history ● regulatory regime ● approvals from officials 	<ul style="list-style-type: none"> ● each partner owns and has visibility of data ● guarantee of verifications ● improved data quality (provenance of data) for effective risk management
Working capital	<ul style="list-style-type: none"> ● who are suppliers multiple levels away ● inventory stockpiling requests ● KYC data 	<ul style="list-style-type: none"> ● Transparency of trades ● Immutable record keeping ● Smart contracts and governance mechanisms, such as consensus before transactions

Source: Global Trade Strategy Forum r3, Can Blockchain Future-Proof Supply Chains? A Brexit Case Study, January 2019.



Blockchain: A solution in Supply Chain Simplification and Transparency

Traceability, auditability, transparency

- Cost efficiency
- Reduce fraud
- Enforcing sustainability and safety standards


Food and Agribusiness

Pharmaceuticals

Blockchain retail and consumer initiatives grow in number

Select blockchain initiatives (2017 – 2018)

Date	Summary	Select Retail/Consumer Players	Select Other Players
Apr'18	Verified jewelry sourcing		
Apr'18	Food and safety tracking	  	 
Mar'18	Tracking beer shipments		 
Aug'17	Food safety and tracking	  	



Challenges in achieving scale

- Industry standards
 - Multiple entities and ledger technologies
 - Ensure interoperability and scalability of DLTs
- **Regulatory and Governance challenges**
 - **Role of public authorities**
 - **Role for Consortia**
 - **Importance of public-private dialogue**
- Implementation Costs
 - Integration with existing systems/operations

Challenges in achieving scale: Regulatory Uncertainty

- Highly regulated sector, yet regulatory silence on blockchain and smart contracts
- Multiple or fragmented mandates within and across jurisdictions
- Lack of guidelines are crowding out investors and hinder market creation for new business models
- Liability and disputes resolution: procedures for handling disputes, wrongdoings and transaction reversals are nonexistent or inconsistent and legally uncertain.
- Most blockchain platforms in the power sector are currently being tested only for behind-the-meter applications as part of regulatory sandboxes

Regulatory
and
governance
challenges



A public-private
perspective on
blockchain governance



Public policy perspective: Key regulatory challenges

- **Cross-jurisdictional harmonization:** Technology global; regulators limited
- **Security and data privacy**
 - Visible security breaches call in question system's security
 - GDPR compliant? How are the data stored on chain vs off chain and how are they managed? Protections to ensure privacy and reliability?
- **Identity management and KYC requirements (AML):**
 - Well-designed DLTs could improve compliance with anti-money-laundering and know-your-customer (KYC) requirements
- Clear classification of digital assets and treatment of tokens
- **Liability and legal recourse, jurisdiction** over a transaction executed on the chain
- Clarify legal framework and **licensing of Prosumers**, to clarify their status in the energy system and the legal obligations placed, beyond simple financial constraints (burden of reporting obligations as an energy supply company).
- **Governance of a peer to peer platform?**

No single regulator or country can address all these issues alone

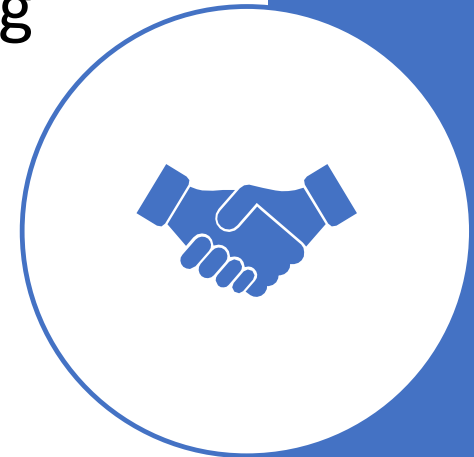
Early Responses from Policymakers

- ✓ Regulatory reactions varied, but no jurisdiction has recognized ‘legal tender.’
- Europe: EU opts for ‘balanced’ approach, active monitoring
 - Launch of EU Blockchain Observatory Forum in February 2018, European Blockchain Partnership, launch of INATBA in April 2019
 - Balance between safety in transactions and unnecessary complexity of regulation.

‘Wait and see’ approach prevails, buys regulators time to observe how blockchains evolve, focus on specific use cases

Moving Forward: The importance of public-private dialogue

- Computer code cannot not operate in isolation from a legal framework
- Regulations creates legal certainty, allowing entrepreneurs to innovate without fear of transgressing the law
- Regulators are hard-pressed to keep up with the technology's unpredictable nature
- Need for a collaborative effort, experimental phase of blockchain requires both business and regulators to learn fast and maintain flexibility
- Work on specific use cases to better formulate policy
- Initiatives for engagement can be advanced:
 - Regulatory Sandboxes
 - Industry-led public private partnerships to set standards



<https://www.eublockchainforum.eu/reports>

https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/blockchain+report

Thank you!