Blockchain/DLT: A game-changer in managing MNCs intercompany transactions

Distributed Ledger Technology (DLT) can transform MNCs' management of complex cross-border intercompany transactions

Highlights

- The cross-border intercompany transactions of a Multinational Corporation is complex and subject to various regulation, compliance and audit of Regulatory Authorities in each jurisdiction.

- Blockchain-based distributed ledger technology can be leveraged for documenting intercompany transactions to enhance end-to-end traceability and help MNCs to meet compliance and audit across their global network.

Executive Summary

The era of globalization has seen Multinational Corporations (MNCs) building inter-connected global supply chains with subsidiaries across many jurisdictions, transacting goods, services and financing with one another. These complex crisscrossing networks of intercompany transactions are subject to accounting, finance, transfer pricing, exchange controls and other regulations of each country in its global network. The external auditors in each location expect that each entity of the MNC has, inter alia, proper controls across the entire process, proper documentation on a contemporaneous basis, and the ability to account for the source and nature of each transaction, match it to its respective underlying financial flow, reconcile the numerous accounting accruals and payments, and trace the supporting documents. MNCs find it challenging to demonstrate the above as these intercompany transactions often involve different databases/accounting systems (that may be out of sync) and multiple teams across the MNC. Also, due to the practice of pooling some of the transactions and charging them out through central hubs or offshore shared services centers, there may be a loss of resolution and linkage of transactions due to aggregation and allocation. Furthermore, audits against the tax claims may occur many years later when staff members may have moved on, systems may have changed and supporting documentation and information could be challenging to locate.

A possible solution to overcoming these challenges in a MNC's management of complex intercompany transactions is to build a Blockchain-based distributed ledger to record information, links and relationships among transactions, entries and supporting documents on a contemporaneous basis, which runs parallel to existing systems without disrupting the MNCs' operations, but to complement it. The records on such a Blockchain ledger enable MNCs to trace transactions and supporting documentation end-to-end, transaction by transaction and reconcile accounting entries even years after they were incurred. This enhances the MNCs' capability to respond to audits efficiently and build trust from internal and external auditors given the immutable nature of the records. MNCs are further able to employ analytics on the end-to-end financial flows recorded on Blockchain to provide insights to the CFO, Treasurers and a dashboard overview of the transactions in real time that enhances overall finance controls. There can also be smart contracts built into the Blockchain to automate certain functionalities and to enhance governance and compliance on intercompany transactions.

These improvements by Blockchain/Distributed Ledger Technology (DLT) will not prevent audits from happening, human data entry error nor differences in legal interpretations of the regulations. However, Blockchain/DLT can be a powerful tool to document intercompany transactions to enhance end-to-end traceability, prevent information loss, and save time in reconciliation; thus, can help MNCs when being audited and improve the coordination and relationship with Authorities, and can be further empowered with smart contract capabilities. Therefore, Blockchain/DLT has the potential to be a Game-Changer in MNCs' management of

Accounting, Finance, Transfer Pricing, Exchange Controls and other Regulatory Compliance Requirements in intercompany transactions.

Challenges in MNCs' Complex Cross-Border Intercompany Transactions

In the era of globalization when Tom Friedman famously declared "The World is Flat"[1], MNCs have expanded globally in search of resources, more cost competitive factors of production, talents and markets. The division of labor between different locations and subsidiaries of such MNCs leads to a globally integrated enterprise, where functions, assets and risks are distributed all over the world based on the best comparative and cost advantages. Hence, the proliferation of buzz words such as "Offshoring", "Outsourcing", "Shared Services" and "Procurement Centers". Complex and highly connected intercompany supply chains result in a myriad of cross-border intercompany transactions among different entities, and the MNC which may involve hundreds of entities across the world.

Such intercompany transactional flows are estimated by the United Nations to be up to one third of World Trade[2]. Anecdotally, a single MNC such as Exxon Mobil Corporation, for instance, reported intercompany revenues of \$302.556 billion in 2009, \$371.92 billion in 2010, and \$506.521 billion in 2011[3] in its annual reports, representing about 49.35 percent, 49.25 percent, and 51.01 percent of total revenues before consolidation, respectively. Another example is GE whose intercompany transactions within just GE Capital (GE has many other divisions) was of the sizes \$105 billion for 2013, \$76 billion for 2014, and \$143 billion for 2015, respectively, as disclosed in GE's 2015 FORM 10-K[4].

[1] Friedman, T. L. (2005). The world is flat: A brief history of the twenty-first century. New York: Farrar, Straus and Giroux.

[2] UNCTAD has dealt with these issues in several of their annual World Investment Reports (WIR), with estimates of about 1/3 of world trade being intra-firm and possibly as much as 80% of world trade being within Global Value Chains (both intra-firm and inter-firm trade). The 2013 edition of WIR provides a detailed analysis. For a short intro, here is a link to the press release: http://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=113.

[3] Available at http://corporate.exxonmobil.com/en/company/multimedia/publications/overview

[4] Available at https://www.ge.com/ar2015/assets/pdf/GE_2015_Form_10K.pdf.

The crisscross of goods, services and financing transactions and the corresponding financial billings is complex enough. However, this complexity is often accentuated by offshoring, outsourcing, centralized procurement and pooling of costs before they are charged out, in multiple regional hubs. This results in:

- The financial billing and payment flows becoming separated from the underlying service flow;
- Such costs being aggregated and charged out by centralized teams at one or more global or regional hubs; and
- The country and centralized teams draw information from, read and write data, store documents and bills using different accounting and finance systems and databases across the MNC.

Internal Stakeholders Require Control, Documentation and Oversight

The size and complexity of these intercompany flows pose a challenge to CFOs, Treasurers, financial controllers and internal auditors of MNCs. They must anticipate cash-flow, exercise control and institute proper governance over such flows. And more broadly, they must gain sufficient confidence that the accounting entries are accurate as they meet the external auditors' requirement that the statutory accounts are "true and fair". Shareholders via the Audit and Risk Committees of the Board of Directors also demand that the MNCs' management and the relevant functions (e.g., finance, accounting, internal audit, treasury) appropriately monitor, forecast, manage or otherwise exercise control over intercompany operations and financial flows throughout the MNC.

External Finance, Accounting, Transfer Pricing, Central Bank and Other Regulators May Audit Each Entity and Each Leg of the Transactions

Each entity of the MNC group in every jurisdiction is subject to its local authorities' regulations, compliance rules and audit. Finance, Accounting, Transfer Pricing, Banking Regulatory and exchange control rules and auditors in each location expect each entity to have proper controls, the ability to account for the source and nature of each transaction, match it to its respective underlying financial flow, and trace end-to-end for its supporting documentation. All this is subject to external audits by the statutory account auditors, the revenue authorities and banking/capital control regulators.

Starting with Transfer pricing[5], the arm's length principle applies across all such intercompany transactions of MNCs and is a major source of disputes between MNCs and country authorities. Next, local statutory accounting rules, International Financial Reporting Standards (IFRS Standards) or Generally Accepted Accounting Principles (GAAP), also requires that CFOs and financial controllers exercise proper control over their financial flows and verify that their accounts are true and fair[6]. Further, those countries with capital controls, such as China and India, require traceable and auditable invoices and documentation from Treasury to provide evidence of appropriate remittance of foreign exchange[7]. Upon audit, often several years after the initial transactions, each entity in a jurisdiction often has to adduce and demonstrate to their local auditors:

- Supporting documents and information showing, inter alia, the nature and source of transactions and calculations of the financial flows;
- That proper oversight, controls and record retention had been exercised in the process; and
- That all transactions are conducted at arm's length with proof of benefit to recipient entities for transfer pricing or in accordance with the relevant Financial Accounting or Capital Control Regulations.

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[5] Transfer pricing rules generally require that the pricing or margin of transactions between related entities within an MNC group have to at arm's length as if they were transaction as independent parties. The complication arises because such rules apply to all types of intercompany transactions and each country administers its own rules and conducts its own audits.

[6] True and fair view in auditing means that the financial statements are free from material misstatements and faithfully represent the financial performance and position of the entity e.g. see https://www.frc.org.uk/FRC-Documents/Accounting-and-Reporting/True-and-Fair-June-2014.pdf

[7] See for instance, the Rules and Regulations of the State Administration of Foreign Exchange at http://www.safe.gov.cn/wps/portal/english/Regulations

However, the above described pooling and handling at the Hubs may cause loss of information, resolution and linkage of data at each step of transactional process. In addition, turnover of Hub personnel, system changes and deletion of data could mean that centralized processes are prone to a single point of failure. Even if the information or document can be traced, the manual gathering and analysis process is inefficient and costly.

Furthermore, the time-lag between the actual transaction, the financial billing and payment cycle and the time of transfer pricing, accounting and foreign exchange control authority audits could be as far apart as years. People move and systems change in the meanwhile. This exacerbates the potential for lost information and linkages.

Fundamentally, the internal and external auditors have concern on trusting a MNC's operationsand require assurance through evidence that control is exercised, the arm's length principle of accounting and exchange control rules have been adhered to, and that the billings and payments were done accurately. Auditors therefore ask for precise account reconciliations and accurate records of supporting documents. If the MNC is not able to trace and demonstrate compliance with the above transfer pricing and regulatory rules, the MNC will have to expend considerable resources defending audits and be subject to transfer pricing adjustments or even penalties for violating foreign exchange controls. In short, there is a "trust gap" between the auditors and the MNC, and bridging this gap with the current processes across different systems around the world is expensive for MNCs.
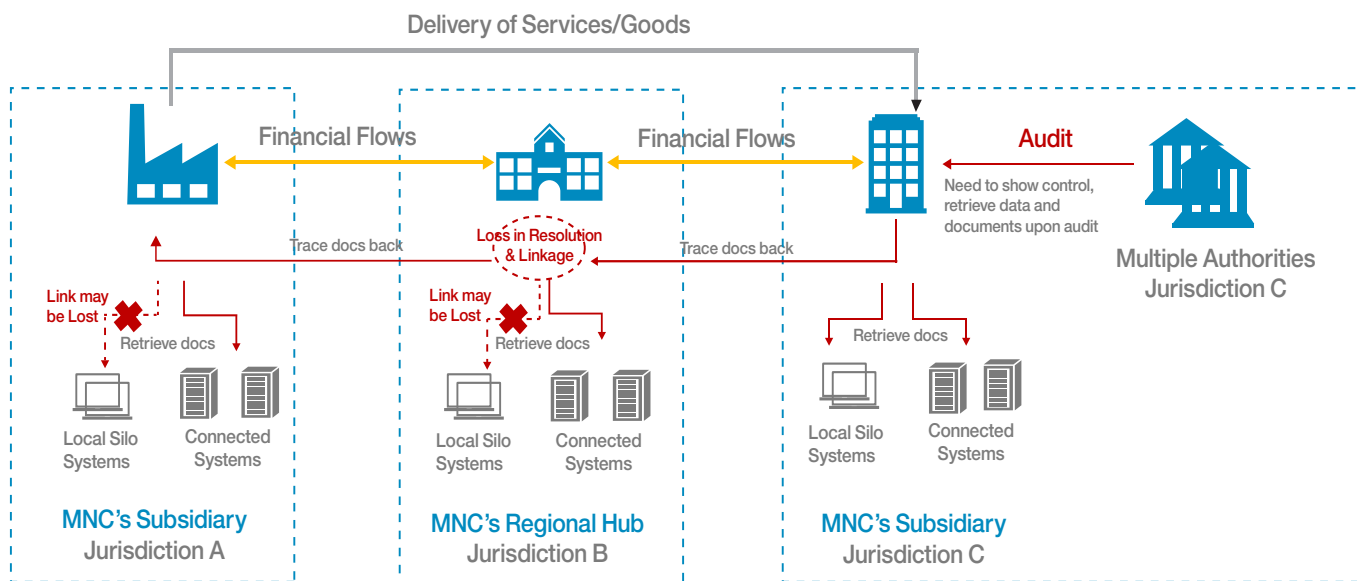
Loss of Data Resolution and Linkage in Process, Causing Problems When Being Audited

Overview of Challenges

In essence, the shortcomings in the current practice may lead to loss of information lineage and visibility resulting in a loss of financial controls and an increased incidences of audit disputes:

- Loss of Data Lineage: Different systems across various jurisdictions that are not integrated, centralized processing and time-lag between transaction and time of audit may cause loss of links or resolution.
- Inefficiency and High Cost: Manual gathering, tracking and reconciliation means control and audit responses are resource intensive and inefficient.
- Single Point of Failure: Dependency on individuals and silo systems that are prone to staff leave/turnover, data erasure and system changes/crashes.
- Manual Monitoring and Intervention across multiple jurisdictions/entities needed to effect changes and ensure each entity in each jurisdiction comply.
- Lack of Trust with Authorities: MNCs must keep records for years (frequently for 10 years or more), and prove immutability and provenance to external auditor/authorities.

Blockchain/Distributed Ledger Technology for MNCs' Management of Intercompany Transactions

Blockchain/Distributed Ledger Technology (DLT) is a decentralized ledger distributed among participating parties, recording immutable transactions and/or data from diverse set of sources block by block which are linked one by one in sequence[8]. Cryptographic technology is utilized to assure that records in the ledger are tamper-proof, so that the ledger provides a trusted financial audit trail and becomes the single source of truth. It fosters a new generation of transactional applications that establish trust, provenance, accountability and transparency in a distributed manner without relying on a trusted party to maintain the ledger for the participants.

Although Blockchain started with Bitcoin, its potential has since been recognized far beyond Bitcoin. It enables global businesses to transact with less friction and more trust, and brings great potential to transform global businesses across many industries. Public Blockchain/DLT, like Bitcoin or Ethereum, enable all participating parties to manage the same shared ledger without a trusted party, and has been reshaping the public domains. However, public Blockchain is not suitable in the enterprises environment as much higher efficiency, stronger control and privacy is demanded within an enterprise network[9]. Alternatively, permissioned Blockchains, such as Hyperledger Fabric led by IBM, have been developed for the enterprise environment which can process large volumes of transactions and have strong participant controls and strict privacy controls over the transactions/data. In particular, Hyperledger Fabric brings into practice that transactions are shared only with related parties, rather than with all parties in the public Blockchain; hence, removing the privacy concern.

Blockchain/DLT for MNCs' Intercompany Supply Chains?

An MNC's intercompany supply chain, by nature, consists of multiple companies across multiple jurisdictions performing different roles such as supplier, manufacturer, service provider, licensee, agent and trader, etc.[10] For example, General Motors Company (GM) has its global headquarters in Michigan, United States, manufactures cars and trucks in 35 countries, distributes millions of vehicles and financial services globally, and has 19,000 dealers in over 125[11] countries . An MNC's intercompany supply chain involves millions of intercompany transactions every day:

- Some entities procure raw materials, others manufacture parts to be shipped and assembled by other subsidiaries in other locations, and marketing entities manage dealerships and sales outlets in destination countries. This is supported by global management, finance, legal, human resources, intercompany and other support functions and financed by global or regional treasury centers.
- Each entity of the MNC will be subject to regulation and audit by Authorities in each jurisdiction in the areas of transfer pricing, accounting, foreign exchange and other regulations.

[8] See for example, "The Future of Blockchain" report by the World Economic Forum available at https://www.weforum.org/communities/the-future-of-blockchain
[9] See for example, "Is the Blockchain Prepared for Enterprise?" available at https://www.designnews.com/iot/blockchain-prepared-enterprise/25912681256416
[10] As described by the OECD Roundtable on Corporate Responsibility in "Supply Chains and the OECD Guidelines for Multinational Enterprises" available at http://www.oecd.org/investment/mne/45534720.pdf. See also "Global value chains in a changing world" by the WTO available at https://www.wto.org/english/res_e/booksp_e/aid4tradeglobalvalue13_e.pdf
[11] GM's official website https://www.gm.com

From an internal point of view, the capabilities of a Blockchain-based distributed ledger technology can benefit MNCs by addressing the problems in current intercompany processes described in the preceding section:

- Blockchain/DLT is useful for keeping provenance and lineage of data, and for building trust among participants.
- Its decentralized and distributed nature makes it secure against a single point of failure which impairs central databases storing intercompany transactions.
- It also has the capability of smart contracts, i.e. encoding business and control logic to enable automatic verification and processing.

From an external point of view, an MNCs' intercompany supply chains are important components of the global supply chain, and are connected with many external parties. Taking GM as an example again, GM has 900 inbound and outbound logistics providers, and its operations are supported by another 19,000 indirect suppliers across a variety of services[12]. Generally, when an MNC's employees are on business travel, transportation companies like airlines, taxi companies and Uber, hotels and restaurants are all connected to the MNC's intercompany supply chain and generate transaction flows into or out from it. From this external point of view, Blockchain/DLT then naturally comes into the picture: It is possible to imagine a future of extended chains of internal parties of MNCs and external parties, including authorities and other enterprises connected in the global network of enterprise Blockchains, where MNCs and other enterprises would operate much more efficiently, become much less costly and have stronger trust. Considering the business travel example mentioned above, when an MNC's employees make payments for hotels/taxis/restaurants, the transactions are recorded in the external party's Blockchain, then linked into the MNC's Blockchain and can be retrieved quickly upon audit a few years later to answer external auditors' queries. This removes the troublesome reimbursement for the MNC's employees, and keeps the provenance of these costs for future tax claims/audits. A Blockchain/DLT-powered global supply chain would be a long-term vision, but a Blockchain/DLT-powered intercompany supply chain for MNCs can be a realistic starting point, not only benefiting the MNC at present, but also conforming to the trend of the times.
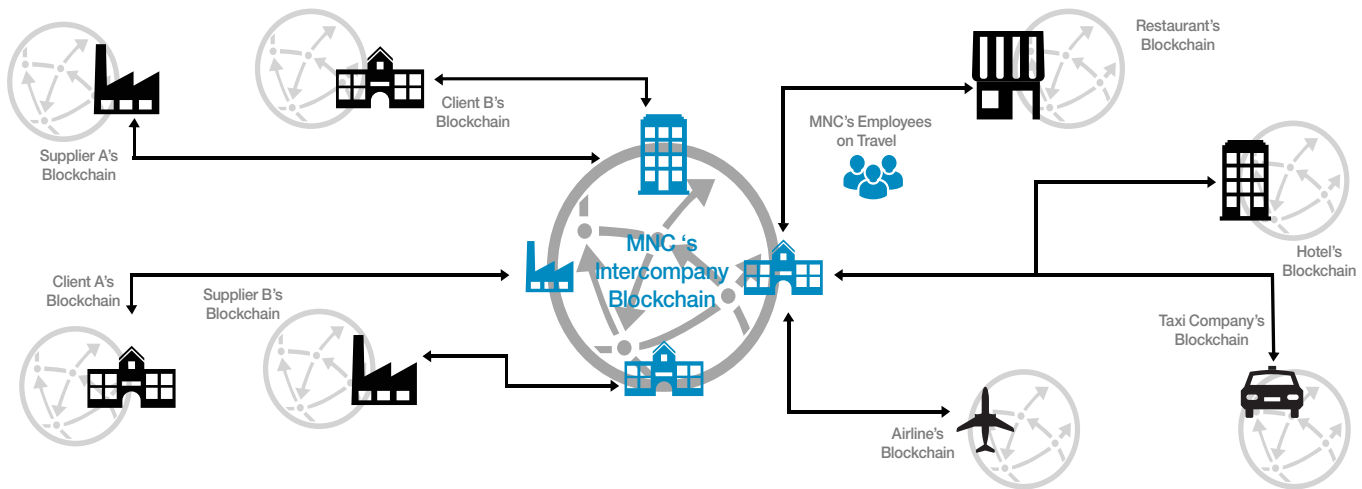
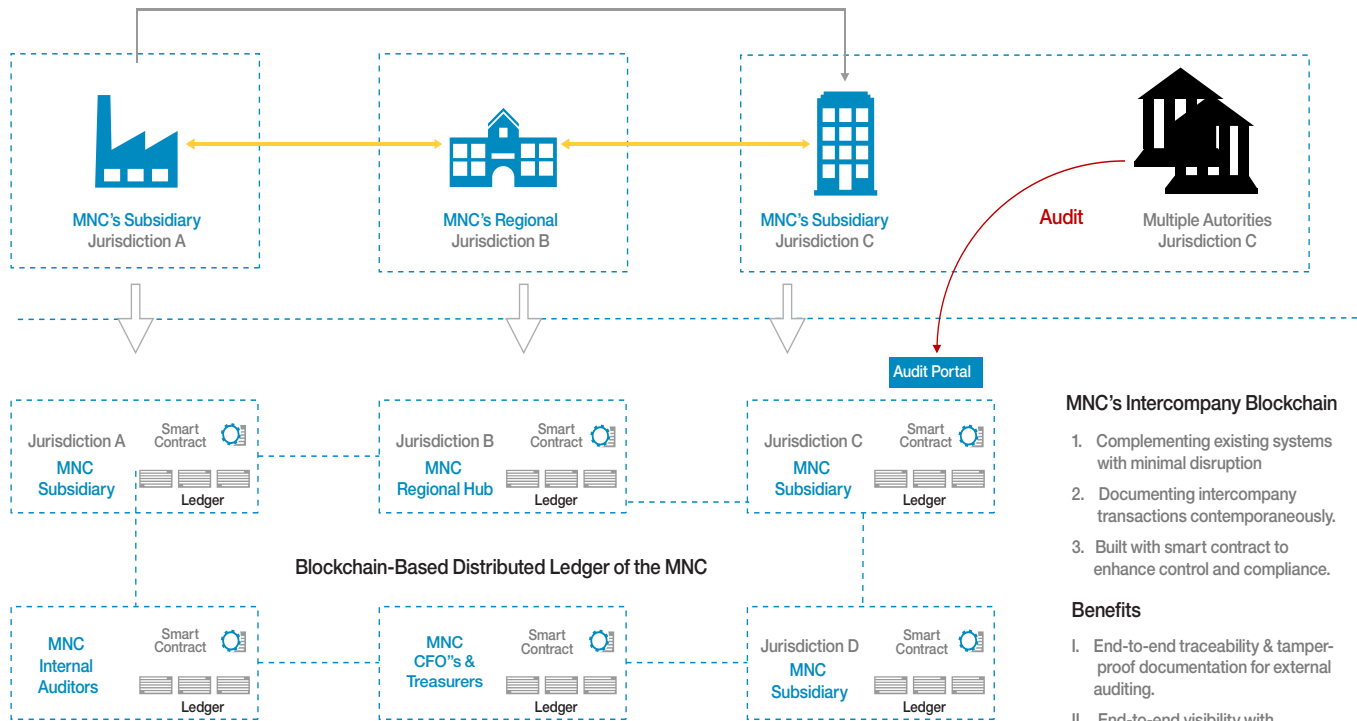Envision a Future of Connected Networks of Enterprises' Blockchains

[12] General Motors: The new law of supply & demand, by Christopher Ludwig, December 29th, 2016, http://automotivelogistics.media/intelligence/general-motors

What Blockchain/DLT Can Bring to MNCs' Management of Intercompany Transactions?

Blockchain-based distributed ledger technology can bring capabilities to an MNC on top of traditional hubs and intercompany Enterprise Resource Planning (ERP) architecture of governing and complying with the regulations applicable to intercompany transactions. It enables distributed governance and compliance without disrupting an MNC's daily operations.

MNCs can build Blockchain-based distributed ledgers as an additional 'shadow ledger' parallel to existing systems to record information, links and relationships among transactions, events and supporting documents. It can connect all the involved MNC's subsidiaries, accounting, finance and intercompany departments, and internal auditors. External auditors and regulators in each jurisdiction can be connected to the

distributed ledger, but through the local entities of the MNC on a permissioned access basis that is safe and secure. This will enable distributed compliance to audits where each entity (Node) of the MNC in each location across all the jurisdictions worldwide can retrieve immutable transactional records and links to documents from the ledger to prove control and provenance to the local auditors. Such a Blockchain-based distributed ledger can also enable distributed governance by building Smart Contracts with decision rules into the process at each stage which can ensure that each node and step of the process complies with certain rules, including changes in accounting and regulatory rules or rate changes. For example, if an accounting or foreign exchange rate rule changes, such smart contracts can affect the change at the precise time the change goes into effect for multiple entities across the MNC without manually having to cascade such changes to each entity globally.

MNC's Intercompany Blockchain

1. Complementing existing systems with minimal disruption
2. Documenting intercompany transactions contemporaneously.
3. Built with smart contract to enhance control and compliance.

Benefits

I. End-to-end traceability & tamper-proof documentation for external auditing.

II. End-to-end visibility with resolution preserved for CFOs, Treasurers, & Internal Auditors.

An illustration of Blockchain/DLT for MNC's Intercompany Transactions

IBM is Pioneering Blockchain Use in MNCs' Management of Intercompany Transactions

IBM has a long history of over one hundred years accompanied with a significant track record of successful enterprise computing products, such as Mainframe, ATM, PC, Watson, and many others[13]. Now IBM is pioneering in Blockchain technology and its enterprise applications.

IBM has Deep Blockchain Expertise and Leading Edge Technology

IBM has been pioneering and leading developments of Blockchain/DLT for enterprises and is one of the premier members of the Hyperledger Project (Linux Foundation) which involves 120 large corporations all over the world. IBM's talents and technology, coupled with its suitable business environment, make it highly conducive to test and implement Blockchain technology. By drawing on IBM's deep expertise in industries and business processes, information technology, data and an ecosystem of partners and alliances, IBM is helping clients with business transformations across various industries.

IBM has been a leading contributor to the Hyperledger Project by leading the high-profile open source project Hyperledger Fabric since 2015. Based on this project, IBM has already announced enterprise production-ready Blockchain services, which enable customers to build and host Blockchain networks, quickly and securely. IBM Blockchain is the first commercial deployment of Hyperledger Fabric v1.0, enabling users to build a blockchain network in hours instead of weeks, run highly secure blockchain networks for regulated industries and easily manage decentralized network across members.

IBM has successfully launched a number of Blockchain solutions since 2016, covering Financial Services Sector, International Trade and Supply Chain, and Healthcare. In the supply chain industry, for instance, Maersk and IBM unveiled the first Industry-Wide Cross-Border Supply Chain Solution on Blockchain on 5 March 2017 in collaboration with Maersk, the global leader in transport and logistics.[14] In China, IBM announced the Yijian Blockchain Technology Application System built in a partnership between IBM and Hejia, a

Chinese supply chain management company, which seeks to eliminate some of the financing problems faced by the country's pharmaceutical retailers[15].

IBM is Pioneering Blockchain Use in Intercompany Transactions by Leveraging Its Extensive Domain Knowledge in Finance, Accounting and Managing Cross-border Intercompany Flows

IBM has operations in and deals with complex Finance, Accounting, Transfer pricing and Regulatory rules in over 170 countries, and has significant intercompany transactional flows. It also has had numerous MNC clients all over the world and an extensive track record in helping MNC clients integrate internal and acquired entities with varied accounting IT processes and IT systems. These services to MNCs has been augmented with IBM's own experiences of managing complex intercompany supply chain with millions of transactions across goods, services and financial transactions. IBM understands the intercompany supply chains of itself and of many other MNCs very well, and recognizes that the existing practice is not the way forward when dealing with intercompany transactions in majority of MNCs.

With the business need, talents and technology, IBM is pioneering again, by implementing and testing Blockchain/ DLT in its own business environment to find the best practice in solving intercompany supply chain problems of MNCs. Meanwhile IBM is also working with Fortune 500 MNCs for realizing this Blockchain solution on Hyperledger Fabric.

IBM Center for Blockchain Innovation (ICBI) in Singapore

The IBM Center for Blockchain Innovation (ICBI) in Singapore is a part of IBM Research and the center is a joint collaboration with the Economic Development Board (EDB) of the Government of Singapore. Focused on the development of applications and solutions based on enterprise blockchain, cyber-security and cognitive computing, IBM provides world class expertise to design, build and run the Digital Blockchain Ecosystem in Singapore.

Click here to book a visit to the IBM Centre for Blockchain Innovation.

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[13] https://en.wikipedia.org/wiki/IBM
[14] https://www-03.ibm.com/press/us/en/pressrelease/51712.wss
[15] http://www.coindesk.com/ibm-amps-china-blockchain-new-supply-chain/

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