APS 1012: Managing Business Innovation & Transformational Change
University of Toronto

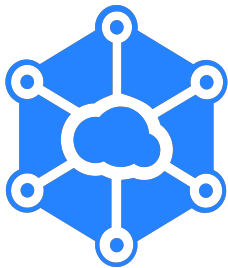# Analysis of Disruptive Blockchain Technologies Across a Spectrum of Industries

December 14, 2018
Team 3 Project Executive Summary

Executive Summary

This report aims to explore the innovative transformation potential of blockchain technology. Various blockchain technologies are explored. The analysis includes an explanation of the underlying technology, current project status, target market, critical review of the project and key takeaways and way forward.

The first analyzed technology is Ripple by Ripple Labs. Ripple aims to disrupt the technologies used to facilitate transfer of funds between financial institutions, specifically cross-border fund transfer. SWIFT which is the most popularly used technology for this purpose requires manual effort and takes days to settle. Ripple claims to do with within seconds.

Key challenges with Ripple include most of their technology isn't implemented yet and doesn't even have technical specifications in the form of peer reviewed white paper. Their token is based on a deflationary asset model which goes against modern economic principles where capitalistic free markets are inflationary in nature. Also, the company behind Ripple has too much control over the Ripple network in the form of withheld supply. The way forward for the company includes immediate investment in the unfinished products and launch something that demonstrates the end to end solution for cross border payments. They should also include experts in economics and world finance to review their deflationary asset model and the withheld supply.

Another technology analyzed in this report is Storj. Storj is a platform built using the Ethereum blockchain technology to offer data as a service (DaaS) to customers. Today, key players in the DaaS market including Google, Microsoft, Amazon and DropBox use a cloud-based architecture to hosts their clients' data. This type of architecture is vulnerable to security, privacy and availability problems. Storj aims to use the unused storage space of many computers around the world to host customers data. Customers' data is encrypted and distributed among many machines to achieve decentralization.

Storj has invested in designing an excellent user experience to invite people to try the new technology and invest. Among the issues, the company need to address are reducing prices and adding new features to compete with the big players and gain market share.

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The Ethereum blockchain is one such blockchain that is analyzed as well. Essentially, Ethereum is a blockchain development platform from which all other blockchains technologies are built upon. Ethereum is fully decentralized, which means that it does not have a central governing body, but instead relies on the a worldwide network of nodes ran on volunteer computers. This makes it corruption as well as tamper proof, it also ensures that the system always remains on with no downtime. The decentralized nature of the system also ensures that there is no central point of failure. The main strength of Ethereum lies in its ability to allow users to create and distribute "smart contracts." A "smart contract" is a electronic fully autonomous contract with a precoded series of instructions which only execute when all the requirements are met. The strength of smart contracts means that it is a viable replacement in all industries which relies on physical contracts. Currently, Ethereum is rapidly growing its network but has issues with scalability. In order to become viable as a contract replacement, Ethereum needs to be able to process hundreds of times what it is currently capable of processing.

IBM Blockchain platform is analyzed as a representative of permissioned enterprise blockchains that do not rely on an inbuilt cryptocurrency. As a result the IBM Blockchain does not suffer from issues such as withheld supply. IBM's established business connections combined with their strong brand and history as a company with computer expertise has enabled the accelerated development of this platform and its quick uptake through partnerships with well known companies, large conglomerates and governments. However, IBM should take care that in their quest to provide a blockchain solution for every industry they do not let their platform become bloated or differentiated into too many smaller products.

ShipChain blockchain is in line with the objective of the technology as it appears to provide a secure (encrypted) public ledger, unique securities, decentralized databases, no single points of failure, multiple node redundancy with progress integrity, and correct credential verification to prevent corruption or fraud. The commercial market it seeks to penetrate is an outdated monster of potential. This will require relentless burdens with new policy reform and integration amongst dominant share owners. The competition will only accelerate as the sustainable and radical innovation curves begin adoption and internalization. ShipChain is believed to have a strong early mover's advantage with their: strong market and customer understanding,monitoring patent applications and upcoming trends, benchmarking activities amongst small to large scale industry, optimizing their value chain, establishing product platforms on existing blockchain

environments, forming strategic alliances with trucking and logistics, acquiring top industry talent and developing distributed networks of experts, and importantly building a climate of social and environmental trust.

CargoCoin uses free, smart contracts from the Ethereum blockchain to facilitate trade in the transportation industry and information technology sector, with aspirations to decentralise global trade and transport. Its immediate focus in 2019 is to facilitate and optimize interactions between all transaction parties in the $12 trillion shipping industry, at low cost, in real time. A five year plan has been established by CargoCoin's experienced team to expand into intermodal transport. CargoCoin is the innovation that will disrupt the stagnant shipping industry by bypassing the middlemen and banks involved in transactions. Currently, its adoption has been delayed due to Ethereum's scalability issues and lack of awareness from the industry. In order for CargoCoin to create sustained value to the industry, these issues will need to be addressed.