

FACTSHEET

BLOCKCHAIN INNOVATION

Blockchain, a distributed ledger technology (DLT), is designed to solve trust in digital asset transactions without a central administrator. It has been identified to have the ability to multiply returns and disrupt industries¹ (such as supply chains) if implemented.

However, blockchain's nascent state and lack of large-scale successful use cases outside the fintech sector has hampered mainstream adoption. Its relative newness means end-user companies have a lack of established business models on how to work together using blockchain's trusted environment². This has resulted in the industry showing signs of siloed, specialised, blockchain solutions rather than interoperable network blockchains³, which would deliver the most benefit to users. There is also a lack of methods for companies looking to be early adopters to find other like-minded partners.

To address these issues and help scale up blockchain technology to reap economies of scale, transform industry supply chains, encourage interoperability and avoid fragmented products, IMDA will:

- 1) Catalyse development of the Singapore blockchain ecosystem through engagement platform(s). These platforms will function as the nexus for Singapore's blockchain community; and
- 2) Seed blockchain trials through Blockchain Challenges

Call for Blockchain Ecosystem Engagement Partner(s)

Collaboration across multiple companies is cited as one of the key external challenges towards wider adoption⁴. This may be due to a lack of technical standards or codified blockchain business models applications. PWC and Accenture studies suggest one solution

¹ ["Banking is Only the Beginning: 42 Big Industries Blockchain Could Disrupt"](#), CBInsights, Aug 2018

² ["Survey Finds a Surprising Barrier to Blockchain Adoption"](#), MarketWatch, Aug 2018

³ ["Blockchains are Verticalizing, so We Need Interoperability"](#), Forbes, Feb 2018

⁴ ["Is Collaboration Crucial to Blockchain Adoption in Fintech?"](#), ETHNews, Jun 2017

is for industries to come together as consortiums⁵ or technology-based partnerships⁶ to overcome this.

To kickstart this process, IMDA is putting up seed funding for industry player(s) to implement engagement platform(s) to grow the blockchain ecosystem in Singapore through community engagement initiatives. The engagement platform could serve as a digital nexus for blockchain special interest groups, business ecosystems, solutions providers and other related services providers.

The engagement platform put in place must:

- (1) Develop guide(s) on blockchain adoption to help enterprises navigate their way through their blockchain journey;
- (2) Develop a directory listing of the Singapore blockchain ecosystem (e.g. platform and tool providers, blockchain business networks, special interest groups, etc) to enable interested companies to reach out to and engage with other parties; and
- (3) Connect with other global blockchain communities (e.g. China, Silicon Valley, Zug)

Interested partners may apply at <https://www.imda.gov.sg/blockchain-challenge> and are to be submitted **by noon, 31 Jan 2019**.

Blockchain Challenges

IMDA issued its first Blockchain Challenge in March 2018 to invite DLT development, with proposals required to offer potential DLT solutions to business challenges. Proposals were required to have collaboration partner(s) to generate a working pilot prototype with.

The first batch of seven proposals who will now develop their prototypes further have been shortlisted. They must develop their minimum viable product or proof-of-concept within a year, with successful projects receiving prizes of \$50,000 (for Enterprise) or \$100,000 (for Transformation). For more information on the projects please refer to **Appendix A**.

⁵ [“What It Takes to Build Your Blockchain”](#), PwC, 2018

⁶ [“Accenture Technology Vision 2018”](#), Accenture, 2018

Wireless@SG Blockchain Challenge

Encouraged by responses, IMDA is announcing the second Blockchain Challenge – which will utilise the Wireless@SG programme (W@SG). Companies are invited to submit blockchain proposals on how to innovate on either operational efficiency and/or business model innovation for W@SG. The proposals may either be targeted at IMDA as the programme owner, or any of the Wireless@SG operators (M1, MyRepublic and SingTel) participating in this initiative.

Interested participants may apply at <https://www.imda.gov.sg/blockchain-challenge>. Entries are to be submitted **by noon, 31 Jan 2019**.

About Infocomm Media Development Authority (IMDA)

The Infocomm Media Development Authority (IMDA) will develop a vibrant, world-class infocomm media sector that drives the economy, connects people, bonds communities and powers Singapore's Smart Nation vision. IMDA does this by developing talent, strengthening business capabilities, and enhancing Singapore's ICT and media infrastructure. IMDA also regulates the telecommunications and media sectors to safeguard consumer interests while fostering a pro-business environment. IMDA also enhances Singapore's data protection regime through the Personal Data Protection Commission. For more news and information, visit www.imda.gov.sg or follow IMDA on Facebook [IMDAsg](#) and Twitter [@IMDAsg](#).

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List of Selected Proposals for Blockchain Challenge

- **Cargo Community Network Pte Ltd:** Air Cargo Billing, Costing and Reconciliation on Blockchain
- **Distributed Ledger Technologies (DLT) Pte Ltd:** dtlledgers Business Blockchain - Extended Supply Chain for Electronics Manufacturing
- **GroupM Singapore Pte Ltd:** GroupM Zilliqa Programmatic Ad Blockchain Alliance
- **LegalFAB Private Limited:** Blockchain-Enabled Authentication for the Legal Industry
- **Tradechain Pte Ltd:** GENIE: Enabling Supplier Financing
- **VeriTAG Pte Ltd:** Food Safety on Blockchain
- **Vuulr Pte Ltd:** Transforming the Monetisation of TV & Film Rights using the Blockchain

Air Cargo Billing

Company and Partner(s):

- Cargo Community Network Pte Ltd
- Singapore Airlines Limited
- SATS Ltd
- Alliance 21 Pte Ltd
- Bollore Logistics Singapore Pte Ltd

Use Case and solution:

The airline currently bill its freight agents on a bi-monthly basis, as there is typically a time lag between shipment departure and invoice preparation. This billing lag is due to the complexity in collating information required to compute charges for each shipment. Reconciliation also presents challenge as there is no single source of truth between the parties.

This project explores the use of blockchain in the air cargo billing process between airlines and agents. Each shipment will have attributes updated by the participants based on their authority. The shipment chain created will provide the immutable single source of truth for shipment charge computation, which can be trusted by both the airline and the agent. Smart contracts will be built in where billing is initiated once a shipment has departed, based on the information updated in the shipment chain.

Blockchain Network for Electronics Supply Chain

Company and Partner(s):

- Distributed Ledger Technologies (DLT) Pte Ltd
- Schneider Electric East Asiatic Japan Pte Ltd
- STMicroelectronics Asia Pacific Pte Ltd
- Flextronics Manufacturing Singapore Pte Ltd

Use Case and solution:

The electronics manufacturing industry has a long value chain, with many different organisations involved at different stages of the product manufacturing life cycle. These organisations may not be aware that their products are being used by other organisations, as part of the assembly and manufacturing processes. This lack of visibility can be a challenge for organisations as they may not have access to critical information from product suppliers in other parts of the chain (e.g. late delivery,

product defects). As such, companies may be slow to detect and react to issues in their supply chain, which may negatively impact profitability and market share of their products.

This project enables relevant supply chain information from each manufacturer to be captured and shared between them via blockchain. It aims to enhance transparency and trust between manufacturers throughout the process, and helps in the early detection of any manufacturing issues from product suppliers.

Programmatic Alliance on Blockchain

Company and Partner(s):

- GroupM Singapore Pte Ltd
- Zilliqa Research Pte Ltd
- MediaMath Singapore Pte Ltd
- The Rubicon Project Singapore Pte Ltd

Use Case and solution:

Programmatic advertising refers to the automated buying, selling, placement and optimization of digital advertising. In this industry, only a fraction of the money that advertisers spend reaches the publisher. This has various reasons such as paying intermediaries in the programmatic advertising value chain, or ad frauds that manipulates advertisers into spending their ad budget wrongly.

Smart contracts through blockchain seek to facilitate advertising without the involvement of middleman, and enhancing trust between advertisers and publishers. GroupM is working with Singapore-based blockchain platform Zilliqa for its high-throughput blockchain technologies (called sharding) to develop and scale a possible solution.

Authentication of Documents in Legalisation Processes

Company and Partner(s):

- LegalFAB Private Limited
- Singapore Academy of Law
- Dentons Rodyk & Davidson LLP
- Rajah and Tann Singapore LLP
- Xfers Pte Ltd

Use Case and solution:

Authentication refers to the process or action of proving or showing something to be true, genuine or valid. In the legal context, proof of such authentication is commonly achieved through the administering of an oath, affirmation or caution, or through a notarial act (This is commonly referred to as the process of commissioning and notarising of a document.) In Singapore, these functions are performed by Commissioners for Oaths and Notaries Public respectively.

The solution showcases the ability to securely share, sign (e.g. notarise, commission, legalise), authenticate and validate legal documents whilst maintaining the privacy and security of the documents, and end-users on a distributed ledger.

Supply Chain Financing

Company and Partner(s):

- Tradebchain Pte Ltd
- Finaqe Group Pte Ltd
- Blockchain Solutions Pte Ltd
- Guardtime Pte Ltd

Use Case and solution:

Finaqe is an established specialist in connecting growing businesses to a wide range of lenders to raise funding. Its existing business engagements, business processes, workflows, supporting document submission and production clients are mostly manual and require regular human intervention. To address concerns from lenders on perceived credit risks from borrowing entities, Finaqe relies on heavy physical paperwork and documentation.

To this end, Finaqe partnered Tradebchain to streamline processes and reduce lenders' concern through the use of blockchain. The technology can assure users of the integrity and transparency of transactions across parties. Blockchain Solutions Pte Ltd is the technology partner developing the prototype using its Guardtime Keyless Signature Infrastructure.

Enabling Safety of Food Products in the Supply Chain

Company and Partner(s):

- VeriTAg Pte Ltd
- Fassler Gourmet Pte Ltd
- Leong Guan Food Manufacturer Pte Ltd
- Tan Seng Kee Foods Pte Ltd

Use Case and solution:

Food safety, trust and transparency are critical factors in China's food supply chain. In order to improve the current marketability and brand equity for merchants and Singapore's trade to China, VeriTAg is looking to further enhance its current QR system with the blockchain.

Blockchain's ability to heighten the level of transparency, authenticity, provenance tracking and immutable data capture - via the use of blockchain network and QR code tags - can provide a single, shared source of truth across the life of every single product. This will address safety concerns by Chinese consumers that goods exported by Singapore are authentic and have not been tampered with. VeriTAg is also developing a token economy for its platform that will be used solely for platform and business development to ensure long-term sustainability.

Blockchain-Enabled B2B Marketplace for Film & TV Content

Company and Partner(s):

- Vuulr Pte Ltd
- Content Owners/Originators
- Content Distributors/Brokers
- Broadcasters/OTTs/Telcos/Advertisers

Use Case and solution:

The film and TV content industry currently transacts content rights offline, with middlemen taking commissions; and this offline trading process is often manual, slow and costly.

This solution aims to transform how broadcasters and content owners buy and sell the content. It helps to connect buy- and sell-side of the content industry, as well as sponsorship of content by advertising brands. By implementing a digital framework for film and TV contents, it helps to resolve three digitisation issues: unique IDs (“barcodes for content”), metadata (the information in an onscreen guide) and avails (the contractual availability status of content rights).