BORDERLESS BLOCKCHAIN: TECHNOLOGY POWERING NATIONAL STRATEGY

VISION FOR INTERNATIONAL COOPERATION

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SEPTEMBER 2018

Executive Summary

In 2015, the World Economic Forum predicted that 10% of global GDP would be stored using blockchain technology by 2027.[1] Today, in 2018, we have seen immense progress in the adoption of blockchain, the dominant distributed ledger technology (DLT), on enterprise level, as well as significant support for this innovation from governments globally. Innovations in and around blockchain are largely concentrated in the U.S. and Europe, however, Asia-Pacific region is predicted to dominate the space going forward due to its favourable environment for fintech developments.

The objective of this report is to the international community an overview of the latest developments in blockchain and demonstrate some of the possible State level applications. The benefits of the technology and approaches undertaken by governments around the world are also presented in the report. Ultimately, this report aims to recommend key focus areas of blockchain technology development around which Government's may consider focusing their strategy.

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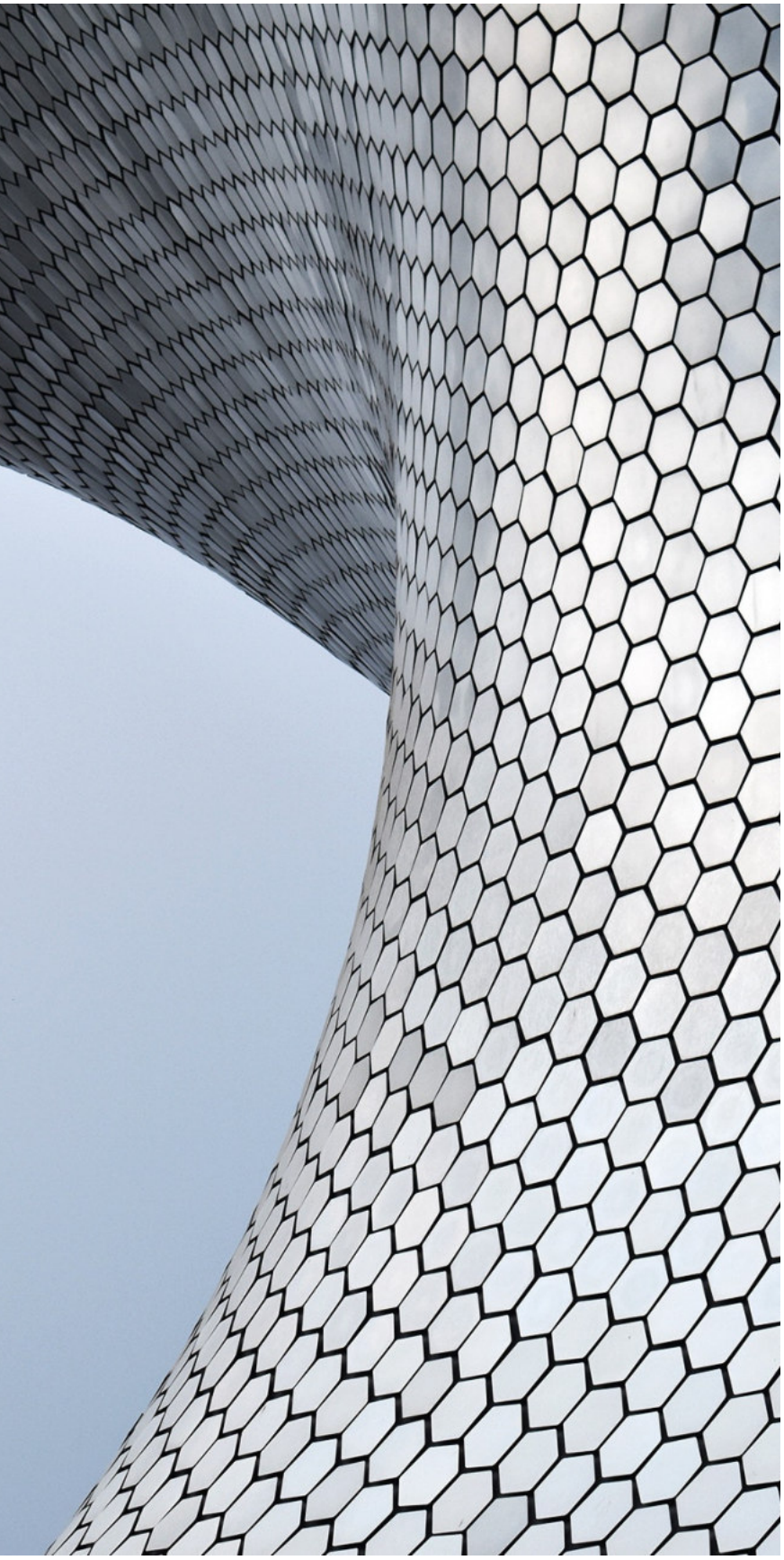

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INNOVATION AS THE PATH FORWARD

A transition to a more digital and connected world today is seen as imminent and the ability to adapt to these changes will be the decisive factor in the success of enterprises and governments alike. Robotics, artificial intelligence, internet of things (IoT) and other technological innovations are already woven into the fabric of our daily lives and are predicted to have a much more fundamental impact on the society going forward.[2] As such, it is critical for governments to understand the structural impact these technological advances are bound to have on our economy and society so they can adapt themselves to new circumstances and thrive rather than fail.

One example, and perhaps the most notable, of such transformative innovation is the internet itself. We have now become used to sharing information through a decentralised online platform that is internet. However, when it comes to transferring value, such as money, we still make sure to rely on central authority, in this case financial establishments (usually banks). Even digitally native value transfer instruments such as PayPal require integration with a bank account or a credit card, thus relying on centralised infrastructure.[3]

Blockchain technology, which the World Economic Forum refers to as one of the technological breakthroughs bound to have the most impact on the society, now offers the possibility of value transfer online without reliance on any central authority.

Blockchain records the transaction, establishes identity and creates contracts, thus diminishing the importance of financial service providers. These contracts on the Blockchain - smart contracts, are self-executing and self-enforcing agreements which are governed by the explicit terms and conditions laid out by the transaction participants. Hence, not only money, but content, shares, property rights or any other form of value can be transferred with the use of blockchain technology.

As WEF's Global Agenda Council on the Future of Software and Society predicts, approximately 10% of global gross domestic product (GDP) would be stored on the blockchain enabled by smart contracts.

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BLOCKCHAIN EXPLAINED

Blockchain is a decentralised software mechanism that enables the creation and sharing of a digital ledger of data among a network of independent parties. The technology is set to bring disintermediation to nearly all industries, from Insurance to Energy, Healthcare, Real Estate, Financial Services and Supply Chain.[4] Blockchain or other Distributed Ledger Technology (DLT) systems allow for recording and tracking of assets and transactions without the presence of a central trusted authority, such as a bank or tech giants like Facebook or Google.

"The technology is set to bring disintermediation to nearly all industries."

Essentially, a blockchain can be understood as a distributed database that maintains a shared list of records, which are called blocks and each contain the history of every prior block with a complete timestamped transaction data.

In the network, everyone can see this shared transaction ledger and complex algorithms drive consensus among those users, ensuring that transaction data cannot be tampered with after verification, thereby reducing the risk of any fraud.

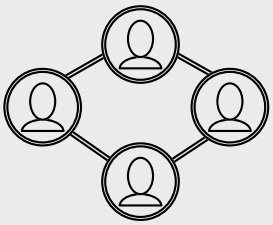
Distributed Ledger Technology further facilitates peer-to-peer exchange of data, assets and currencies through rules-based smart contracts in a more efficient, transparent and cost-effective manner.[5] Smart contracts execute automatically once their terms are met, without the need for human intervention, and are considered as one of the most revolutionary elements of blockchain technology and the enabler of real world usability.

Blockchain platforms can be public, such as Bitcoin, with a large distributed network open for anyone to participate and maintained by the community. They can also be permissioned, with large distributed networks where the role of the users is controlled by a central party, or private where only authorized parties participate in sharing and validating information.

Some of the benefits of Blockchain technology

Immutability of the ledger means that the information cannot be altered. Reduces transaction fraud.

INTEGRITY



Allows two parties to cooperate directly, without the intervention of a third party. Removes counterparty risk and enables business model innovation.

DISINTERMEDIATION

Enables complete end-to-end traceability and verification of information, thus creating an environment of extreme audibility, in turn eliminating corruption and abuse of the system.

TRACEABILITY

Users are able to own and keep complete control of all their personal information and transaction history.

IDENTITY

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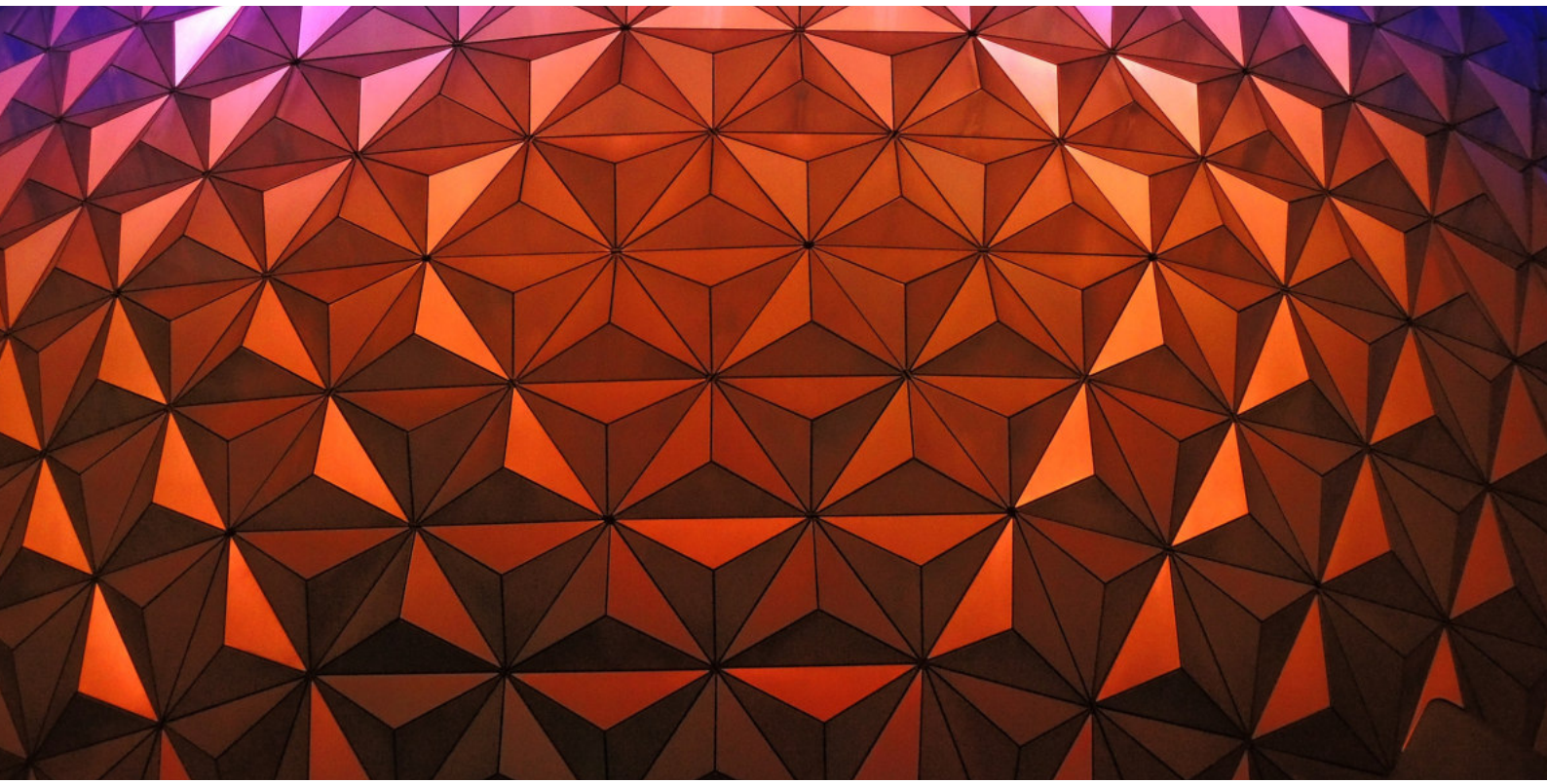

INTERNATIONAL COMMUNITY'S ROLE IN THE PARADIGM SHIFT

As more ideas, concepts and frameworks emerge, blockchain technology will continue to improve and become more widely applicable. As a result, it is critical at this stage for all nation states to evaluate their position in this fast-paced environment of change and innovation; assess their strengths and weaknesses and find the clearly defined angle for leveraging the power of blockchain technology on national and international scale.

The Government's position, as the enabler of change in the country, must be that of an intermediary promoting the usability and acceptance of the technology, along with creating welcoming environment for open debate.

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Recommendations

Working with representatives from the legal profession to adapt and issue laws and regulations that would facilitate expedited development of the technology due to faster and more comprehensible procedural guidelines. Most importantly, this undertaking will have to take into consideration the requirements of the representatives of local technology businesses.

Driving open debate with leading industry players and local business representatives.

Providing education on the potential benefits of Blockchain technology to local businesses and the population at large.

Working closely with foreign governments on coordinating standardisation.

Widening communication channels between local technology leaders and the diaspora to identify common vision and facilitate collaboration moving forward.

Setting out frameworks and promoting acceptance of Blockchain technology by the legislators and regulators is especially critical in enabling adoption of the technology by enterprises. For local businesses to innovate and foreign businesses to transfer their innovation to the country, the Governing body must lay foundations for establishing an international Blockchain hub, similar to Signapore's Fintech sandbox.[6] Naturally, this push must be supported by all other stakeholders, including investors and innovators.

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Next Steps

Having analysed the latest industry developments we have identified the following key steps that would allow for broader cooperation and create a level playing field for the adoption of blockchain technology.

1. Cooperation with an interdisciplinary and diverse group of technology stakeholders in forming the Blockchain & Innovation Council.
2. Identification of locally relevant business opportunities.
3. Creation of supportive regulatory environment.
4. Public support of enterprises leading Blockchain technology implementation.
5. Coordinated standardisation both locally and internationally.

CASE STUDIES

China: Belt and Road initiative

Asia-Pacific region being home to forward-looking regulatory environments suggests that a lot of Blockchain innovation will happen here going forward. As one example, China has explicitly made Blockchain a pillar of its economic development strategy and is open to being flexible with its regulation.

One of the most interesting and relevant developments has been The Belt and Road Blockchain Consortium – One Belt, One Road, One Chain. Powered by the digital Belt and Road Blockchain, the consortium facilitates transnational digitisation of trade facilitation and financial services by reducing the cost of resolving cross-border electronic identity (E-ID) disputes along the Belt and Road.[7] The consortium aims to bring all members of the Belt and Road initiative, thus creating a mutually beneficial environment of collaboration and international coordination.

To further deploy and innovate in the Blockchain space, Hong Kong's central bank is set to go live in Q3 2018 with a blockchain-backed trade finance platform set to connect 21 banks, including HSBC and Standard Chartered. The launch of the central bank's blockchain system will be one of the first and largest examples of a government-led project aimed at bringing cutting edge technology to the $9tn global trade finance industry.[8]

Similarly to Dubai, Hong Kong's approach is around extreme reduction of paperwork and time efficiency maximisation, only in this case specifically tailored towards routine trade finance and supply-chain finance transactions. The aim is to additionally reduce manpower necessary for the completion of the process, as well as to add a layer of trust and auditability into the system. As the platform processes and confirms the credentials of the parties involved, this will drastically simplify the detection of fraud.

Australia: National Blockchain Platform

Australia is focusing on utilising blockchain smart contracts to allow businesses to carry out transactions. The Australian National Blockchain (ANB) project pilot is currently in development by the Commonwealth Scientific and Industrial Research Organization (CSIRO), the law firm Herbert Smith Freehills and IBM.

The pilot programme, which is expected to launch in Q4 2018, intends to bring together regulators, banks, law firms and local businesses, with the ultimate aim of allowing all Australian businesses to leverage the power of digitised contracts, exchange data and confirm authenticity and status of legal contracts.

The research scientist leading many of the developments in the country, Dr. Mark Staples, states that distributed ledger technology is a "significant opportunity for Australia to create productivity benefits and drive local innovation." [9]

Australian National Blockchain is another step towards the 'internet-of-things' vision where all electronic devices are connected to the internet and businesses are able to maximse use of the converging technology by using smart contracts to make business transactions safer and more streamlined. [10]

"significant opportunity for Australia to create productivity benefits and drive local innovation."

Dubai: Blockchain As Key To The 'Smartest City' Vision

As Dubai marches towards becoming the World's Smartest City it's embraced the Blockchain technology as a critical element of this agenda. Dubai established the Global Blockchain Council to explore, discuss current and future applications, and organize transactions through the Blockchain platform.

The Council's aim will be to highlight the effects that large scale deployment of Blockchain technology will have on the future of business and finance sectors. As transactions on Blockchain can only go through if all the members approve, the technology is set to limits the chances of fraud and money laundering, as the digital currency cannot be forged or damaged and can be moved across borders with ease. [11]

The council consists of 46 members, all of which are potential key players in the Blockchain industry, including government entities, international companies, leading UAE banks, free zones, and international Blockchain technology firms.

The practical implementation is imminent as Dubai wants all visa applications, bill payments and license renewals, which account for over 100 million documents each year, to be transacted digitally using blockchain by 2020. Savings resulting from Blockchain technology adoption are estimated by Smart Dubai to amount to 25.1 million man-hours, or $1.5 billion in savings per year for the emirate. Much of this enhanced productivity will stem from moving to paperless government.[12]

Additionally, to even further enhance transparency and auditability across the emirate, The Dubai Land Department (DLD) has created the Blockchain system that records all real estate contracts — including lease registrations, and links them with the Dubai Electricity & Water Authority (DEWA), the telecommunications system, and various property-related bills.[13]

OUR NETWORK

ENTERPRISE ETHEREUM ALLIANCE

Ethereum Enterprise Alliance (EEA)

J.P.Morgan

Quorum (by JPMorgan Chase)

Ethreum Foundation

THE BITCOIN FOUNDATION

Bitcoin Foundation

IBM

IBM Blockchain

MATTEREUM

Mattereum

EOS (Block.One)

Imperial College London

Centre For Cryptocurrency Research, Imperial College

Microsoft

Microsoft

مؤسسة دبي للمستقبل
DUBAI FUTURE FOUNDATION

Dubai Future Foundation

GET IN TOUCH

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