

DUBAI BLOCKCHAIN POLICY BRIEF

مجالس دبي للمستقبل
DUBAI FUTURE COUNCILS

التعاملات الرقمية
Blockchain





Context of Blockchain in Dubai

Over the last 40 years, Dubai has succeeded in transforming into a global city and regional business and tourism hub. It has established an international reputation as an economic and investment center, attracting thousands of international companies that establish their regional headquarters in the Emirate's many free zones.

Underlying this economic growth has been a strong and productive Government sector that has embraced technology and committed to excellence and digital city transformation. Today, Dubai is amongst the world's leading smart cities in its adoption of new technology and pioneering of innovative smart pilots. Recognizing the potential impact of the Blockchain technology on city services, Dubai launched a city wide Blockchain strategy in October 2016 with the objective of becoming the first Blockchain powered city by 2020.

The Blockchain strategy is based on three pillars:

- **Government Efficiency:** Implement Blockchain technology in applicable government services to enhance efficiency and achieve paperless transactions
- **Industry Creation:** Support the creation of a Blockchain industry through empowering startups and businesses
- **Local and International Thought Leadership:** Lead the global thinking on Blockchain technology and become the hub for Blockchain education and skills

Challenges in Implementing Blockchain

The Blockchain space might be the fastest growing area of innovation in the entire technology sector today. Along with huge potential to disrupt business and government operations, it presents many challenges which government entities and private sector participants in Dubai faced during the conception, development, and piloting of their envisioned Blockchain use cases.

Conflicting interests

For some government and private sector entities, invitations to join Blockchain networks conflict with their own plans to launch networks or with the numerous other opportunities to join or co-found new networks. This leads to inefficiencies and duplicated efforts, but the silver lining in this case is that ideas, use cases, and networks can compete against each other so that the best may prevail and force the rest to join, in a natural selection of the fittest.

Intellectual property

As Blockchain is still a nascent technology, research is always ongoing on its different elements and breakthroughs are not only probable but expected. When everyone is betting on Blockchain to be the next internet, intellectual property suddenly becomes of grave importance to entities in the Blockchain space. This creates its own plethora of complexities when entities try to cooperate on Blockchain use cases, or even whole networks forming and innovating in this space.

Interoperability

With numerous Blockchain networks forming and with the lack of established standards for Blockchain technologies, interoperability may become a barrier for the smaller networks to merge and form larger and possibly higher-value networks. Although there are efforts to provide technical solutions for interoperability, they all present their own challenges. This also contributes to the hesitation companies and government entities are going through when deciding where to invest in Blockchain and which technology to bet on.

Business models

Blockchain use cases and networks that do not have a clear (and somewhat proven) business models right from the start, such as the mining model, struggle to convince parties to join them. However, this is even more complicated as Blockchain business models that actually work are quite a rare find. In fact, as of today, there is no proven model for monetizing Blockchain networks and incentivizing their members other than mining, which may not be practical for different Blockchain networks and use cases.

Privacy and confidentiality

Privacy and confidentiality are key subjects when it comes to Blockchain. Information on the Blockchain is immutable by design, hence, the decision of what information makes it to the Blockchain is critical. Even in a private Blockchain network that implements Zero Knowledge Proofs, where no information is actually stored on the Blockchain, the volume of transactions by itself may be confidential information between competitors in the same network. This can be another obstacle for Blockchain network formation, especially for industry networks that would naturally include competitors.

Security

Private Blockchains lose some of the security aspects inherent in fully trustless public Blockchains. In a closed loop of trusted nodes, a security breach of one of the nodes might compromise the whole network. This elevates the importance of infrastructure security and key management and presents a key area for standardization and enforcement across all participants.

Smart Dubai Office and Blockchain Policy

H. H. Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and the Ruler of Dubai, set forth his vision to make Dubai the happiest city on earth. To achieve that goal, Dubai has embarked upon a comprehensive smart city initiative, led by the Smart Dubai Office (SDO) and its constituent establishments, the Smart Dubai Government Establishment (SDGE) and the Dubai Data Establishment (DDE).

The Smart Dubai Office oversees and facilitates Dubai's city wide smart transformation. It aims to empower, deliver and promote an efficient, seamless, safe and impactful city experience for residents and visitors. The office is committed to a collaborative and agile approach to Dubai's smart city transformation by empowering strategic partnerships with the public and private sectors and academia.

SDO realizes the potential benefits of adopting Blockchain as an enabling technology for the Government of Dubai. These benefits include efficiency, transparency, trust, integrity and further supports Emirate's transformation into a paperless government as set out in the Dubai Paperless Strategy. Hence, SDO has been working to develop a Blockchain policy to support government entities and private sector participants in implementing Blockchain technology and forming value-creating Blockchain networks.

Policy Overview

A good policy in the Blockchain space needs to be as technology agnostic as possible and permissive in a way that stimulates innovation while containing risks and mitigating the challenges that impede Blockchain adoption and network formation.

Instead of dictating approaches and solutions, which no one at this point in time can fixate, a policy can provide guidance and stimuli for participants to agree on an approach to move forward and test. As such, a Blockchain policy can give priority in network formation to industry governing bodies or can stimulate the formation of such bodies that can drive network formation. Additionally, it can identify the areas that network participants need to openly address.

However, one foundational element that can be directly addressed through a policy and that can have a profound effect on Blockchain implementation is identity management. Having a trusted source for issuing digital identities for entities and individuals can play a significant role in driving adoption and facilitating interoperability between Blockchain networks, and this is not exclusive to private Blockchains.

In other areas, policy can provide the general guiding principles, such as requiring that no data gets stored in clear on the Blockchain, specifying the minimum security standards that networks need to adopt, and addressing the key laws and regulations that the networks need to uphold while providing support and guidance on the laws and regulations that are not yet ready for a fully-digital age.

Approach to Policy Development

The approach to develop Dubai's Blockchain policy consisted of 4 main phases:



1. **Input Gathering and Benchmarking:** Gathering input from multiple sources, including the experience of government entities and private sector participants in implementing Blockchain use cases and the challenges they faced, in addition to conducting a global survey of Blockchain policy development and implementation approaches by governments and organizations.
2. **Policy Needs Workshops:** Conducting workshops with government entities, private sector participants and start-ups to gather policy needs and options for Blockchain policies. In total, 3 workshops were conducted with 68 attendees representing 20 government and semi-government entities, 12 banks, and 14 start-ups.
3. **Blockchain Policy:** Development of the Blockchain policy, based on the findings from the input gathering and benchmarking step. The policy was grouped into 3 focus areas:
 - a. Network Governance, focusing on the formation of value-creating Blockchain networks.
 - b. Network Operations, focusing on the sustainability of the formed Blockchain networks.
 - c. Foundational Capabilities, focusing on the underlying technologies and services enabling Blockchain networks.

The policy option were evaluated based on guiding principles developed in alignment with the overall strategies of Dubai. These guiding principles include:

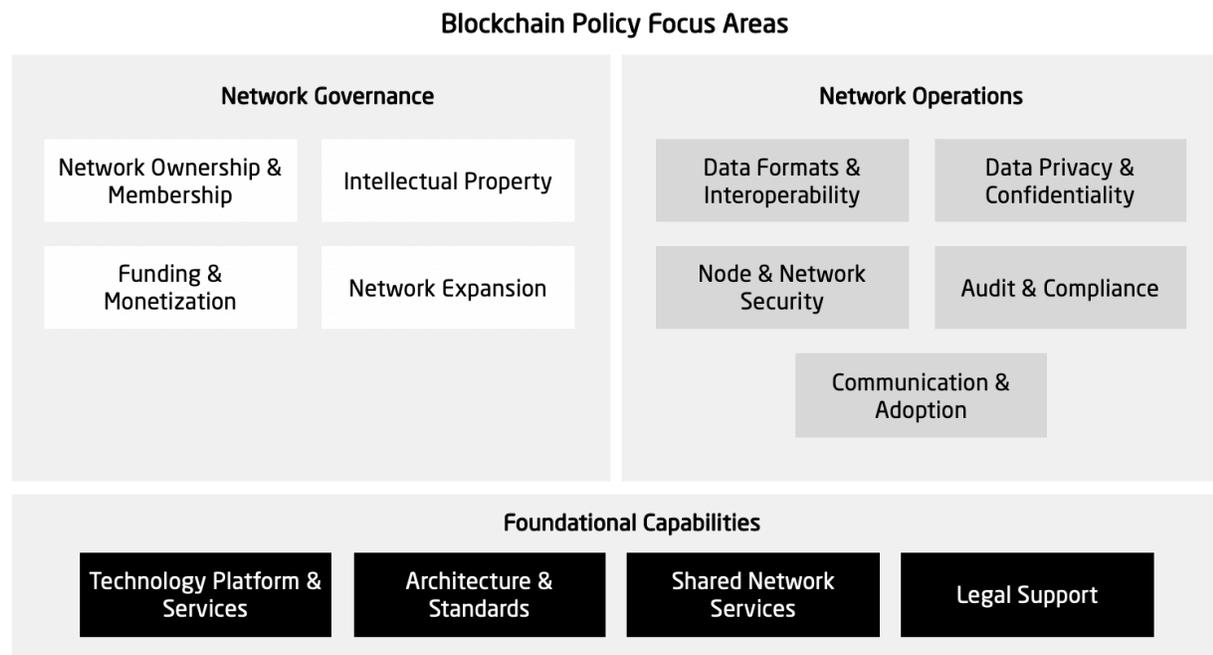
1. **Fostering Innovation:** The policy shall guide entities in their Blockchain implementation but shall do so while fostering innovation and evolution of Blockchain solutions rather than restricting it.
2. **Enabling Efficiency:** The policy shall enable efficient implementation and on-boarding of Blockchain networks in terms of time and costs, especially for government entities.
3. **Driving Adoption:** The policy shall promote collaboration across the government entities and private sector to boost the value of Blockchain networks and shall enhance ease of adoption.
4. **Technology Agnostic:** The policy shall not restrict or enforce any particular technology but provide flexible guidelines in alignment with Dubai needs, global practices and maturity of the technologies.

5. **Complying with Regulations:** The policy shall ensure compliance with existing laws, regulations, and standards in addition to supporting compliance with sector-specific regulations.
6. **Security & Privacy First:** The policy shall ensure that security and privacy come first when making design and implementation decisions, especially that it is intended for government Blockchain networks which are sensitive.

Key Highlights of the Dubai Blockchain Policy

The Dubai Blockchain Policy sets out the rules applicable to Dubai government entities, Blockchain networks and private sector participants in relation to the deployment and usage of Blockchain in government transactions or use cases. It also provides private sector entities with guidance in relation to the deployment and usage of Blockchain in private sector transactions.

The policy consists of 3 core sections:



1. **Network Governance:** The policy tackles the concept of forming value-creating Blockchain networks and requires these networks to develop on-boarding and off-boarding procedures. It positions SDO as a key enabler for Blockchain network formation across the government of Dubai, as SDO will take on the role of the approver for government Blockchain network concepts and it will assign network operators to lead these networks. This serves to address the identified challenges of having conflicting interests among entities and establishing sustainable business models for Blockchain networks.

2. **Network Operations:** The policy tackles the privacy, confidentiality and security risks that are associated with the implementation of Blockchain and requires entities to comply with the published regulations and standards in this regard by the competent authorities, namely the Dubai Data Establishment and the Dubai Electronic Security Center, who will continue to update and publish data and security related regulations and standards that support the implementation of Blockchain. This serves to address the identified challenges related to privacy, confidentiality and security. Moreover, the policy tackles the audit and compliance of entities implementing Blockchain and the ways to increase awareness and communication and drive adoption. It also highlights the role of SDO in regards to the implementation of the policy and its regular review and updates.

3. **Blockchain Foundational Capabilities:** The policy tackles the foundational capabilities required to set up and operate Blockchain services including Blockchain platform selection, architecture and standards, data formats and interoperability, intellectual property rights, smart contracts and shared network services such as digital identity services. It positions SDO and competent authorities across Dubai, including the Dubai Electronic Security Center, as the endorsers and certifiers of Blockchain platforms and supporting services and technologies. This serves to address the identified challenges of technology selection and interoperability across different networks and the intellectual property concerns.

Expected Outcomes

The policy is intended to provide the underlying foundation to promote the adoption of Blockchain technology in Dubai wherever applicable and feasible. It is positioned not to be overly prescriptive and constraining while providing the right level of intervention and guidance for innovative yet risk-aware implementations of Blockchain use cases.