National Stakeholder Survey on Maldives capability to implement Central Bank Digital Currency

Prepared by Ali Haris
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Acknowledgement

This report was prepared by Ali Haris under the guidance of Tiziana Bonapace, Director of ICT and Disaster Risk Reduction Division (IDD) of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). Tae Hyung Kim, Siope Vakataki ‘Ofa and Quynh Nguyen, Assylbek Davletov provided substantive inputs towards the development of the report.

The report also benefitted from substantive comments by H.E Mohamed Shareef from the Ministry of Environment, Climate Change and Technology, Maldives as well as Raseena Majeed, Ahmed Imad, Aminath Ivan, Aminath Shaheeda from the Maldives Monetary Authority.
# Table of Contents

Acknowledgement ........................................... 3

1. Introduction ........................................... 5  
   1.1 Central Bank Digital Currency (CBDC) ........... 5  
   1.2 Stable-coins ........................................ 7  
   1.3 Regulations ......................................... 8

2. Survey Findings ......................................... 8  
   2.1 Industry Familiarity ................................. 9  
   2.2 Problem Space ....................................... 10  
   2.3 Technical Knowledge ............................... 11  
   2.4 Financial Feasibility ............................... 12  
   2.5 Technical Feasibility ............................... 12  
   2.6 Risks ................................................ 12

3. Recommendations ....................................... 13  
   3.1 Idea Hubs / Micro Think-Tanks .................... 14  
   3.2 Knowledge Exchange Programs ..................... 14  
   3.3 Technical Literacy .................................. 14  
   3.4 Long-term Vision .................................... 14

Annex A: Survey Form ..................................... 16
1. Introduction

This report presents the findings of the national stakeholder survey that was conducted to determine the overall capabilities of the Maldives concerning the implementation of Central Bank Digital Currencies (CBDC) and Stable Coins in the country.

The survey was conducted in the private sector, including start-ups or payment services operators that are potential implementers of central bank digital currencies and stablecoin. The purpose of this report is to identify the overall capabilities of the country to implement these technologies.

The survey aims to answer the following questions:

- Identify potential start-ups in the Maldives that could benefit from a Regulatory Sandbox initiative.
- Identify their capacity to implement CBDC and/or stable coin digital currency technologies

The survey aims to examine the country’s capability to implement CBDC and stablecoins by evaluating the stakeholder readiness. Furthermore, the survey aims to identify the current industry knowledge, interest and risks associated with implementing CBDCs and stablecoin through the lens of the private sector.

For reporting, an inductive approach has been taken to understand the problem through investigation and develop a set of recommendations.

Due to the limited number of stakeholders, quantitative data collection methods were not ideal for this survey. Hence, the survey was carried out as a qualitative survey by collecting data through interviews and semi-structured questionnaires. The interviews and semi-structured questionnaires were organized to save time but were designed as open-end questions that let the participants build up on the questions and share their opinions, views and thoughts on the subject.

The data collected through interviews and questionnaires were analyzed to identify particular patterns and topics. The topics were established by relying on the observations of answers, contexts and natural actions. Following an inductive approach, the author gathered the interviewees' responses and behaviours to generate a comprehensive understanding of the research subject.

1.1 Central Bank Digital Currency (CBDC)

Central bank digital currency (CBDC) is a digital representation of sovereign currency that is issued by a jurisdiction’s monetary authority such as a central bank and appears on the liability side of the monetary authority’s balance sheet. CBDC is managed on a digital ledger, commonly
on a blockchain (a distributed ledger technology), expediting and increasing the security of payments between entities\(^1\).

According to Atlantic Council, an independent think tank based in Washington, DC, a total of 91 countries are exploring issuing a CBDC as of May 2022. Two years ago, in May 2020, this number was 35 countries\(^2\). As of May 2022, nine countries have launched CBDC projects. This includes several different countries in Eastern Caribbean, the Bahamas and Nigeria.

Use-cases

There is two major use-cases for CBDC\(^3\):

- **Retail.** Retail CBDCs are equivalent to the digital version of cash and is used for payments between individuals and businesses.

- **Wholesale.** Wholesale CBDCs are used for interbank settlements. Payments between banks and entities that have accounts at the central bank.

Benefits:

<table>
<thead>
<tr>
<th>Retail</th>
<th>Wholesale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital currencies can be distributed on mobile devices, increasing access and usability for the unbanked.</td>
<td>With automation and decentralized netting solutions, interbank payments can be settled between counterparties on an individual order basis, reducing the risk of overnight batch processing and collateralization.</td>
</tr>
<tr>
<td>Due to the digital nature of CBDC, settlements and reconciliation can be faster.</td>
<td>CBDC enables end users to benefit from streamlined banking infrastructure and ensures central banks maintain a role in interbank settlement amidst the wider adoption of stablecoin technology.</td>
</tr>
<tr>
<td>CBDC enables low barriers to entry for new firms in the payment sector, thus fostering competition and innovation.</td>
<td></td>
</tr>
</tbody>
</table>

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1.2 Stable-coins

Stablecoins are cryptocurrencies whose value is pegged or tied to that of another currency, commodity or financial instrument. Stablecoins aims to provide an alternative to the highly volatile cryptocurrencies such as Bitcoin (BTC), Ethereum (ETC), etc.

Stablecoins have more potential as a medium of exchange than other cryptocurrencies not pegged against a financial instrument. There are four main types of stablecoins: Fiat-collateralised stablecoin, Crypto-collateralised stable coins, Algorithmic stablecoins, and commodity-backed Stablecoin.

- Fiat-collateralised stablecoins are pegged against a fiat currency such as the US dollar on the 1:1 ratio.
- Crypto-collateralised, unlike fiat-collateralised stable coins, are pegged against a cryptocurrency.
- Algorithmic stablecoins are managed by algorithms and smart contracts to manage the supply of tokens in circulation. They’re not pegged against any asset.
- Commodity-based stablecoins are backed by physical assets such as gold.

Use-cases

Stablecoins can be used as a medium of exchange and improve the movement of value between parties, whether it’s a peer-to-peer payment, a business-to-business or a consumer-to-business payment.

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- **Money remittance.** Moving money across borders is inefficient and expensive, including complying with assorted global banking facilities. Stablecoins have the potential for these transactions to run on a chain instantly for a fraction of the current cost.

- **The gig economy.** Stable-coin is a potential medium of exchange for freelance workers and micro-payments. With stable-coin, transactions can be done for a lower fee and a fast speed without involving traditional financial institutions.

- **Peer-to-peer payments.** For domestic peer-to-peer (P2P) and international payments, stablecoins can be used as a medium of exchange with a lower fee.

- **Decentralized Finance / Programmable Money.** Stablecoins hold the potential for new payment innovations through decentralized finance or DeFi, a protocol enabled by the composability and programmability of stablecoins. The DeFi protocol allows collateralized lending, derivatives, asset management and other services.

### 1.3 Regulations

Stablecoins continue to come under scrutiny by regulators, given the rapid growth of the $130 billion market and its potential to affect the broader financial system.

In July 2022, The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) published a guideline on stablecoin arrangements, confirming that stablecoins should be regulated as financial market infrastructure alongside payment systems and clearinghouses. The proposed rules focus on stablecoins deemed systemically important by regulators, with the potential to disrupt payment and settlement transactions.

### 2. Survey Findings

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The survey is designed as a private sector survey. Participants from start-ups, payment service providers, and banks were included.

The data collection participants were segmented as follows:
- Two interviews with banking professionals (P1-P2).
- Two interviews with potential start-ups (P3-P4)
- Six interviews with existing payment service providers (P5-P10).

The data collection themes were segmented as the following:
- Industry Familiarity
- Problem Space
- Technical Knowledge
- Financial Feasibility
- Technical Feasibility
- Risks

The survey aims to understand the capabilities of potential start-ups and existing payment providers to implement payment solutions through CBDC/stablecoin and the potential challenges and opportunities for implementing CBDC/stable-coin or other digital currency technologies.

The survey findings are grouped into major five themes:

- **Industry Familiarity** evaluates how well survey participants were familiar with CBDC and Stablecoin industry as a whole.

- **Problem Space** aims to understand whether or not the participants believe that there’s a problem to be solved using CBDC and Stablecoin.

- **Technical Knowledge** evaluates the technical knowledge of the participants about the technology.

- **Financial and Technical Feasibility** determines whether the participants believe they have the financial and technical capacity to implement a project using CBDC or Stablecoin.

- **Risk** evaluates the risks the participants can identify with the technology.

### 2.1 Industry Familiarity

Seven out of ten participants had little-to-no knowledge about the industry as a whole for CBDC and stablecoins. For instance, these participants were unaware that stablecoins now had a market
of $130 billion. Even though there are major projects and research around CBDC and stablecoin carried out by academics, central banks, and regulators, the participants had never heard of these projects and research.

All the participants have heard of cryptocurrency and blockchain but were unfamiliar with the underlying infrastructure and how they work. Even though the participants noted having heard of blockchain, distributed ledger technology, in general, was a foreign concept to them.

Five out of ten participants mentioned being familiar with stable-coin and having used one of the popular stablecoin USDT (Tether). Tether primarily used an online crypto trading platform for purchasing cryptocurrencies and other peer-to-peer transactions. Even though they’ve used Tether, they emphasised being unfamiliar with the other types of stable coins and how internals of those work, such as how the value is derived, different types of stablecoins, and how it’s pegged against a financial asset.

Even though most participants have heard of stablecoins, the situation with CBDC is very different. Eight out of ten participants have never heard of CBDC. Even though these participants have never heard of CBDC, when asked about Digital Yuan, they mentioned having heard of them, but only to a limited extent. They were not aware that Digital Yuan is a form of CBDC. The two participants that mentioned their understanding of CBDC had minimal knowledge. They were not aware of how central banks are looking into CBDC and the problems that they’re trying to solve. Their understanding of CBDC was limited to CBDC being a form of digital currency, the retail CBDC. They were not familiar with wholesale CBDC and the problems that it aims to solve.

Based on the data collected, It is safe to assume that the Industry Knowledge about CBDC and stablecoin is little to none. Participants were not aware of how central banks are looking into CBDC and the problems they aim to solve. Stable-coin, on the other hand, were only perceived as an electronic form of exchange and is not familiar with other use-cases for it.

### 2.2 Problem Space

Problem Space aims to understand the problems participants believe can be solved with CBDC and stablecoins, i.e. the opportunities.

Due to their limited knowledge of CBDCs, the participants could not identify the problems that could be solved using CBDCs. One of the two participants that previously highlighted having limited exposure to CBDC noted that CBDC could be used as a form of exchange for tourists. The participant mentioned briefly reading about the Digital Dollar Project and the digital Yuan Project. Even though the participant was unfamiliar with wholesale CBDC, the participant was able to explain an example of a wholesale CBDC problem for tourists. Tourists from China could
exchange their Digital Yuan for a Digital Rufiyaa, or even use Digital Yuan directly in the Maldives, or convert Digital Yuan to a common stablecoin such as USDT and use it in the Maldives can be a use case, highlighted the participant.

Stablecoins, on the other hand, all the other participants believe that are use-cases or problems that can be solved in the Maldives except for one participant. Four out of ten participants noted the potential of stablecoin as an electronic form of exchange, and this stablecoin can either be a locally issued stablecoin or a more widely accepted stablecoin such as USDT. One of the participants, from a payment service provider, with a more positive outlook, believes that stablecoin can be utilized beyond general electronic payment use cases and can be tailored for niche and edge payment use-cases such as loyalty programs remittance, and escrow. These would work hand in hand with other technologies such as smart contracts.

One participant from a payment service provider does not believe any use-cases or problems can be solved in the Maldives at this time. The participant further emphasized that the technical literacy level in the country is too low for frontier technologies such as blockchain-based products. According to this participant, the critical mass required for the successful implementation would not be familiar with these technologies and would end up getting exploited by fraudsters.

Based on the information gathered, It can be argued that there are use-cases for stablecoin is an electronic medium of exchange. Even though the participants could not identify individual use-cases for CBDC, the central bank, together with the private sector, especially the banking sector, may identify problems that can be solved with CBDC. This can be a wholesale or a retail solution, i.e. domestic or cross-border payment problems.

2.3 Technical Knowledge

Except for one, all the participants, ranging from the banking sector to payment service providers, collectively agreed that they do not possess the technical knowledge required to run a project on CBDC or stablecoin. There are different domains of knowledge required, such as technical, governance, financial, cybersecurity, etc., highlighted by one of the participants.

The country as a whole does not have these skills. At least not enough to run a large-scale project, according to the participants. They further emphasized that some form of a knowledge exchange program is required to succeed. This could be in the form of a regulatory sandbox, incubator or series of seminars.

One out of the ten participants feel that we, as a country, have the technical knowledge required to run a project, but it’s critical noting that the participant's knowledge about the industry and how
stable-coin works are limited. It is also possible that the participant does not recognise the critical components associated with running a project on CBDC or stablecoin.

2.4 Financial Feasibility

Due to the limited knowledge of the internal workings of cryptocurrencies, all the participants are unaware of the financial cost of running crypto-based projects. Nevertheless, most participants agree that running any large-scale crypto-based project would be challenging. It would require getting the public buy-in and trust.

For SMEs, such as start-ups, there are limited financing options, especially for technology-based projects, due to the risks associated. Therefore, It’s more likely that there wouldn’t be any financing options available for crypto-based projects when needed.

The participants also highlighted the total addressable market as a critical factor for financial feasibility. The Maldives, a small country with a population of approximately 500,000, might not be financially feasible, according to the participants.

Some of the existing payment service providers indicate that it is challenging to acquire people to use electronic payment methods; even for products such as airtime recharge and bill payments, a large volume of these transactions are still happening in traditional offline mediums, according to a payment service provider.

2.5 Technical Feasibility

As previously highlighted by the participants, they do not possess the technical knowledge required for running a project on CBDC and Stable-coin.

According to the participants, a project would not be feasible unless a proactive approach has been taken to drive innovation and exchange knowledge. Without these measures, we may end up setting people and the project up for failure, according to the participants.

Proactive programs to exchange knowledge and information, such as incubators, regulatory sandboxes, seminars and workshops, are required to make this technically feasible. A regulatory sandbox with supervised activities would be crucial in promoting this technology.

2.6 Risks
Most of the participants highlighted common risks with crypto projects, such as scams, risks of money laundering, fraud, privacy risk, stakeholder risks, etc.

One of the participants also highlighted the risks of cyber attacks. Attack vectors are becoming more sophisticated every day, and cyber risks on projects related to money and electronic mediums of exchanges are at an all-time high. According to a participant, implementers and regulators must be prepared for these cyber risks.

Lack of regulations and stakeholder alignments was highlighted as one of the risks. For example, currently, the Ministry of Arts & Culture is doing their own NFT project with Artists, according to a participant. The viewpoint of the Ministry of Economic Development and the Central Bank is very different. This would result in an extremely uncertain macro environment for implementers.

For example, in late 2021, two hotels in CROSSROADS Maldives announced their intention to accept cryptocurrencies as a payment method. Saii Lagoon Maldives and Hard Rock Hotel Maldives began accepting USDT and USDC as payment methods\textsuperscript{11}. A week later, the Central Bank of Maldives announced that accepting cryptocurrency is not legal\textsuperscript{12}. According to the Maldives Monetary Authority, the Maldivian law does not allow for cryptocurrencies to be used for a valid business transaction in the nation. Previously, in 2018, the Central Bank announced that buying and selling of cryptocurrencies are also prohibited in the country. Participants fear risks associated with stakeholders might decide the fate of their projects.

There are several other risks associated with CBDC and stable-coin related to their distribution and economics. These were not highlighted by the participants. It’s likely that the participants do not understand the supply and value of these determined and distributed. The risks associated with these are much higher since it might end up someone losing all the money they’ve invested.

3. Recommendations

The technical knowledge of CBDCs and stablecoin, or other blockchain and frontier technology, is fairly low across the country. While private players are interested in pursuing and utilising the technology for solving problems, a proactive approach is required from the public sector to make it successful.


3.1 Idea Hubs / Micro Think-Tanks

Even though there is an interest from the private sector in pursuing the technology, most of the participants were not aware of the specific problems to be solved using this technology. Creating an Idea Hub with participants from the private, public and other stakeholders to brainstorm and find the best problems to be solved using these technologies can be crucial to the country adopting this technology.

3.2 Knowledge Exchange Programs

To successfully implement and run a project on CBDCs, stablecoins and other frontier technologies, the know-how of the underlying infrastructure, governance, and technology are paramount. Based on discussions with the private sector, the status quo of knowledge on these technologies' internals is limited. A knowledge exchange program, such as workshops, seminars, or more sophisticated programs like a regulatory sandbox, would play a crucial role in the development and adoption of these technologies.

3.3 Technical Literacy

Low Technical literacy rate was highlighted as a critical barrier to adopting this technology in the Maldives, as well as one of the high risks for the execution of frontier technologies in the country, especially of financial nature. Low technical literacy increases risks such as frauds, scams, etc.

To successfully implement and execute an electronic payment regimen, incredibly sophisticated, such as blockchain, CBDC, and stablecoin, requires a high technical literacy rate for people to adopt and use this technology. The critical mass of the consumer market must understand how these work and the associated risks. It’s essential for stakeholders to work together to improve the technical literacy rate of the country through education and awareness for these projects to succeed.

3.4 Long-term Vision

Together with these factors, having a long-term vision for the country on the utilization of these technologies would play a critical factor in the success of these projects. Lack of vision among the stakeholders, especially in the public sector, poses risks for the project and adoption.
The vision or long-term plan should emphasize the problems and areas to be focused on by these technologies and lay the roadmap for execution.
### Annex A: Survey Form

<table>
<thead>
<tr>
<th>Themes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you / does your organization see any potential problems that can be solved using CBDC / Stablecoin?</td>
<td>Problem Space</td>
</tr>
<tr>
<td>Are you / is your organization exploring emerging technologies such as Blockchain?</td>
<td></td>
</tr>
<tr>
<td>If you see any potential problems, would you / your organization pursue these as potential business use cases?</td>
<td></td>
</tr>
<tr>
<td>Are you / is your organization familiar with the crypto industry, including companies that are running services on blockchain cryptocurrencies?</td>
<td>Industry Familiarity</td>
</tr>
<tr>
<td>Are you / is your organization familiar with any current research and projects around CBDC (Digital Yuan, Digital Dollar)?</td>
<td></td>
</tr>
<tr>
<td>Are you / is your organization familiar with the different types of CBDCs (Wholesale / Retail), and what are the use-cases?</td>
<td></td>
</tr>
<tr>
<td>Are you / is your organization aware of central banks exploring CBDC as a potential technology? (Eg: Project Ubin, Bank of England collaboration with Accenture)</td>
<td></td>
</tr>
<tr>
<td>Are you familiar with general cryptocurrencies such as BTC, ETH and their use cases?</td>
<td></td>
</tr>
</tbody>
</table>
Are you familiar with stablecoins and how they work, and how they differ from other cryptocurrencies? (i.e. the underlying infrastructure and how the value is controlled)

<table>
<thead>
<tr>
<th>Does your organization have the technical capability to provide solutions using Blockchain-based technologies, such as Stablecoin?</th>
<th>Technical Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your organization have the financial capability to run a project using Blockchain-based technologies? Or other emerging technologies?</td>
<td>Financial Feasibility</td>
</tr>
<tr>
<td>Are you aware of the running costs or investments required for a Project on Blockchain?</td>
<td></td>
</tr>
<tr>
<td>What are the general risks you foresee with running blockchain-based products?</td>
<td>Risks</td>
</tr>
<tr>
<td>What do you think are the risks for the consumers?</td>
<td></td>
</tr>
<tr>
<td>What are the risks you foresee for the organization?</td>
<td></td>
</tr>
</tbody>
</table>