

**STRATEGIC FORECAST:  
THE BLOCKCHAIN GOVERNMENT**

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## Introduction

In 2008, a circulated white paper by a pseudonym Nakamoto (2008) discussed about the alternative of processing electronic payments without financial institutions but to use peer-to-peer network distribution. It can store the payment transactions and be validated through agreed consensus (also known as ‘smart contracts’) among the actors (also known as ‘nodes’). This started the idea of blockchain. Later in the journey, it is apparent blockchain is not only applicable for payment transactions because smart contracts can contain any rules of agreement. Its peer-to-peer nature has been a disruptive technology allowing direct transactions between two parties, hence it can dismiss the intermediary role of trusted third party.

A lot of these intermediary roles are provided by the government. As remarked by Charalabidis et al. (2021, p. 3), governments put serious efforts to create automation and sophisticated digital services for citizens and businesses, but they keep facing major issues of providing **open and trustworthy information, interoperability in systems and processes, and service quality and speed**. This paper will discuss blockchain exploration by governments across the globe, whether it can answer the major issues of public services, then it will be concluded by the forecast analysis of blockchain government.

## The Blockchain Government

In a basic blockchain concept (Ølnes et al., 2017), a confirmed transaction will be put in a block that is added and locked to the previous chain of blocks. This transaction will be copied to every node hence it will be very difficult to be hacked. This concept is well applicable when dealing with public data to ensure data privacy and hinder corruption allegation.

Observing from global trend, United Nations e-Government Survey reported ten of twelve leading countries in e-Government have explored “frontier technologies” such as artificial intelligence, blockchain and big data (The Department of Economic and Social Affairs of United Nations, 2020). Since the blockchain concept was researched and adopted by private sectors, many governments were also starting to look at the technology’s potentials.

Jun (2018) is listed efforts by the governments to explore blockchain under three separate tables of public service projects, voting systems and digital currency. Below chart will summarize those categories into one consized table to do comparative analysis. To note, most of the projects are pilots, applicable in selected cities or states and be partially implemented, tested, or merely considered/discussed.

Regions	Countries	Public Service Projects	Voting System	Digital Currency
		Based on Blockchain		
North America	USA	Health data, stock trading, record keeping, birth certificate	Yes	Yes
	Canada	-	-	Yes
Central & South America	Honduras	Land title registry	-	-
	Barbados	-	-	Yes
Asia	China	Social security fund, mortgage valuation, asset custody, blockchain city	-	Yes
	Kazakhstan	Favored regulation	-	-
	Singapore	Cross-border interbank payments	-	Yes
	India	-	-	Yes
	Japan	-	-	Yes
Australia & Oceania	Australia	Parliamentary group, Clearing House for trade	Yes	-
Middle East	Dubai (UAE)	Document management, council establishment, digital passport, shipment	Yes	-
	UAE & Saudi Arabia	Cross-border payments	-	-
Europe	Estonia	e-ID, e-Health, e-Residency	Yes	Yes
	France	Securities trading	-	Yes
	Georgia	Land title registry	-	-
	Russia	Document management, public health	Yes	Yes
	Sweden	Land title registry	-	Yes
	Switzerland	Digital identity	-	Yes
	Ukraine	Auction system	Yes	Yes
	UK	Welfare payment, payment system	Yes	Yes
	Denmark	-	Yes	Yes
	Spain	-	Yes	-
	Germany	-	-	Yes
	Netherland	-	-	Yes
	Africa	Ghana	Land title registry	-
Tunisia		-	-	Yes
Senegal		-	-	Yes
South Africa		-	-	Yes

It can be observed most of the leading countries that conduct blockchain testing are developed countries. Nine countries or 32.1% of all twenty-eight countries are in the pilot of voting system, which will be more than doubled when being compared to 71.4% or twenty countries that develop digital currency. In term of projects (excluding voting system and digital currency), Europe (except UK), Australia and Africa regions tend to develop blockchain for public services while UK and Greater Asia tend to develop blockchain for payment or financial

matters. Notably, USA and China seem to do blockchain testing for both public services and financial sectors.

These twenty-eight countries represent approximately 14.4% of all countries in the world, hence the global issue is how to make blockchain research and development can be more accessible to many other nations because it may be the solution of public sector's major issues that can be explored as follows. First, the core idea of blockchain addresses **open and trusted information**. If the transaction meets smart contract criteria, it will be stored in all nodes and considered trustworthy. Second, **interoperability** is also the core concept of blockchain because of its distributed peer-to-peer network will enable collaboration and integration between nodes. Lastly, **speed** remains as challenge in the blockchain. Charalabidis et al. (2021) remarked that blockchain's speed of seven transactions per second will not meet central bank requirement of processing millions of transactions. Fortunately, more advanced algorithms are being researched now to improve blockchain performance (Jun, 2018).

## Conclusion

Previous chapter has pointed out blockchain projects by many countries and its potential to overcome major issues in public services, but it is important to note blockchain remains as an evolving technology. Comparing blockchain to central bank which had been around since the seventeenth century and assume pivotal role to maintain the stability of a country's currency (Bordo, 2007), the technology still needs the learning curve. It has huge potentials compared to any other technology because of its social consensus mechanism (Jun, 2018, p. 2). Previously, consensus is being done by the humans but in blockchain, it can be done by algorithm that defined by the humans. It has introduced new kind of interaction between machines and the humankind, and may shift the public governance from as we know today. To conclude, this paper agrees with Ølnes et al. (2017, p. 363) about two positionings for the government in response to the future of blockchain government. First, "**governance by blockchain**" in which public services to adopt blockchain for their own processes. Second, "**governance of blockchain**" which means government will determine blockchain's rule of the game. In short, government needs to assess what kind of control it wants to impose to this technology. Choosing one above the other is not about what's right or wrong, but it is about the technology adaptation that differs between countries' needs. The end in mind should be the same, it is to achieve better public service quality while protecting the citizens from harm.

## References

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