Government-based Cryptocurrencies

Srirath Gohwong
Faculty of Social Sciences, Kasetsart University, Thailand
E-mail: srirathg3@yahoo.com

Article History
Received: 31 May 2019 **Revised:** 26 August 2019 **Published:** 30 September 2019

Abstract
The objectives in this study were 1) to investigate the state of art of government-based cryptocurrencies, and 2) to discuss government-based cryptocurrency in sovereignty and control of government, government with her problems in possible unintentional failures and opportunism with third-party status, and information sharing. Documentary research was employed in this study. The findings revealed that government-based cryptocurrencies had a few interchangeable titles as follows: country-owned digital currency, national cryptocurrency, government-issued cryptocurrency/state-backed cryptocurrencies, and digital government backed cryptocurrency; the general characteristics of government-based cryptocurrencies were as follows: 1) The main objective of government-based cryptocurrencies was used against non-government-based cryptocurrencies, 2) Value and amount of currency were fixed by central bank, 3) Banning all or some existing non-government-based cryptocurrencies was conducted by government, 4) Government-based cryptocurrency could be invented by government or jointed venture, 5) The development of government-based cryptocurrency could be terminated by her government or by external entity's order on her government, 6) The classification of government-based cryptocurrency could be fully activated currency, non-activated currency, and pilot-project-based currency, and 7) Some governments used their valuables for backing up government-based cryptocurrencies. In addition, Information sharing with equity of public, private, and people sector; formulation about rule and regulation of trade with attractive tax rate for legalized cryptocurrencies; AI in public policy analysis; and the foundation of an autonomous public organization were suitable solutions of macro economy and public financial management for lessening two important problems-loss of sovereignty and control of government and government's unintentional failures and opportunism with third-party status.
Keywords: Government, Cryptocurrencies, Public Administration

Significance of problem
Cryptocurrency is one of the most interested topics in Public Administration since 2009. There are few studies about cryptocurrency in term of Public Administration such as four works of Srirath Gohwong in 2017 and 2018 (Gohwong, 2017a; 2018a; 2018b; 2018c) due to its complexity and novelty. In addition, cryptocurrencies have been invented by not only firms, hedge funds (such as Numerai of data scientists in 2016), and ordinary persons, but also governments since 2014 such as Thailand, Venezuela, Tunisia, Senegal, Iceland, the Republic of the Marshall Islands (Mason, 2017; (Gohwong, 2018c; Hayden P., 2018; Khatwani, 2018; O'Neal, 2018; Viewnodes, 2018). The foundation of government-based cryptocurrency is a very special case of cryptocurrency world because cryptocurrency is one of the outstanding evidence of my explanation about paradigm shift in Public Administration from state-based Public Administration to stateless-based Public Administration (Gohwong, 2018d). In general, all cryptocurrencies are invented by firms, hedge funds, and ordinary persons in order to be free from government due to their distrust on government's ineffective

management on public finance and macro economy. In addition, cryptocurrencies are also employed by criminals and terrorists for financing their illegal affairs in deep webs and dark webs (Gohwong, 2019). The emerging of government-based cryptocurrencies is like a big bang by dividing cryptocurrencies in half-government-based cryptocurrencies and non-government-based cryptocurrencies. The latter ones, invented by firms, hedge funds, and ordinary persons, are general well-known currencies such as Bitcoin (BTC), Ethereum (ETH), Ripple (XRP), Bitcoin Cash (BCH), Litecoin (LTC), Stellar (XLM), and Ethereum Classic (ETC). The state of the art and trend of non-government-based cryptocurrencies was fully investigated by me last year. (Gohwong, 2018a; 2018c) However, there is no theoretical study about the emerging of government's cryptocurrencies in term of Public Administration. Therefore, the objectives in this study were (1) to investigate the state of art of government-based cryptocurrencies, and (2) to discuss government-based cryptocurrency in three issues-sovereignty and control of government, government with her problems in possible unintentional failures and opportunism with third-party status, and information sharing.

Methodology

Documentary research with secondary data from various sources such as textbooks and online materials was employed in this study.

Reviews of Literature

All of the followings will be employed in the discussion, including sovereignty of nation state, bureaucratic supply with government failure and freeing market, paradigm of Public Administration, digital money in the cashless society, IT as an invisible jail, and information sharing.

First, sovereignty of nation state according to the Article 1-8 of the Convention on Rights and Duties of States (inter-American) at Montevideo on December 26, 1933 is the capacity of each state, run by her government, to do both her internal affairs (in its territory) and external affairs without any external intervention from other states (Convention on Rights and Duties of States, 1933).

Second, bureaucratic supply with government failure and freeing market are two different key concepts that affect government's domain. They have basic intellectual roots from various sources as follows: Classical Economics, Neoclassical Economics, Public Choice, and Organizational economics or Institutional Economics (such as Principal-agent theory and Transaction cost economics). Public services provision by government agencies has played a big role in state monopoly of every country before 1980s. State monopoly has no market test for government agencies to survive that leads to the following problems-agency loss from opportunism due to very few successful monitoring, difficulty of valuing public goals, difficulty in contestability of public service provision, inflexible rule and regulation, and inefficient employment of limited resources (Wiseman, 1989; Osborne and Gaebler, 1992; Ricketts, 1994; Schick, 1996; Peters, 2001; Weimer and Vining, 2005; Kotler and Lee 2006; Parkin, 2014).

Third, paradigm of Public Administration in this study, based on my work in 2018, consists of two paradigms as follow: state-based Public Administration (with lots of conventional area of study such as nationalization, privatization, citizen participation, participative management, New Public Management, public reform, Nicholas Henry's paradigm, Artificial Intelligence and Public Policy Analysis, and Digital Weapon) and stateless-based Public Administration (with lots of contemporary area of study like cryptocurrency, blockchain, Deep Web, Dark Web). They continually interact with each other. (Gohwong, 2017b; 2017c; 2018d; 2019)

Fourth, digital money in the cashless society is a type of electronic money heavily used in cashless society. It broadly consists of third party-based money (or conventional fiat currency like Thai Baht, Euro, US dollar, Yuan in various forms-debit cards, credit cards, PromptPay, PayPal) and third party-free money (or cryptocurrencies like Bitcoin, Ethereum, and Ethereum Classic. Cryptocurrency is the money created by coding or programming. Its amount is more than a thousand currencies. Its material is electromagnetic. Its core technologies are blockchain and cryptography whereas its supportive technologies are, for instance, IoT, AI, cloud computing. Now there are two key groups of creators or inventors in the cryptocurrency market-governments and non-government creators (such as firms, hedge funds, and ordinary people) (Gohwong, 2017a; 2018a; 2018b; 2018c).

Fifth, IT as an invisible jail is a must for every subscriber of this kind of technology. Whenever you use your own devices (such as PC, Laptop, Cell phone) with/without Internet connection, you already reveal your personal data in your device (via log file, for example) or in the computer network or Internet (via IP address and MAC address). Therefore, privacy of every subscriber is just a page of history. From my study about IT as the modern invisible jail in both theoretical level (such as The Stack) and practical level (such as cryptocurrency and Amazon Go) in 2017, this phenomenon should be called as Centralization of Things (CoT) in which strongly focus on absolute control toward digital entities (such as data, information, and knowledge) of people by human or AI. (Gohwong, 2017a; Laudon and Laudon, 2019).

Last, information sharing is the heart of IT and its application in any forms such as cashless society, blockchain, cryptocurrency, and e-government. For Public Administration, information sharing among public agencies is one of the discussed topics that has continuously evolved since Minnowbrook I in 1968. In Minnowbrook I, information systems, called software system in that time by Orion F. White, Jr., was employed for setting up information systems as rational solutions for public agencies (such as environmental problems of cities) by collecting and interpreting data from external sources such as citizens. It is also used for setting up databases for the authorized officer in order to revise policies and rules (White, 1971). In Minnowbrook II, information sharing was much more aggressive than Minnowbrook I by considering Public Administration as a “design science”-the Herbert A. Simon-based Public Administration which mainly focus on decision-making with massive application of information systems, decision-making and Public policy, and AI (Shangraw, Jr. and Crow, 1989; Gohwong, 2015). Last, in Minnowbrook III, information sharing is much more complex than both Minnowbrook I and Minnowbrook II by extending its boundary to both internal (among public agencies) and external (non-governmental parties such as firms, NGOs, universities, ordinary people) in order to provide any public services and fix any serious public problems (Pardo, Gil-Garcia, and Luna-Reyes, 2010).

Finding

The findings were shown in the followings:

First, government-based cryptocurrencies had a few interchangeable titles such as country-owned digital currency (Mason, 2017), national cryptocurrency (Mason, 2017; Hayden P., 2018; Khatwani, 2018; Viewnodes, 2018), government-issued cryptocurrency / state-backed cryptocurrencies (Town, 2018) and digital government backed cryptocurrency (Khatwani, 2018). In addition, digital money (Gohwong, 2017) and state-issued digital currency, central bank-issued digital currency (CBDC) (O’Neal, 2018), both interchangeable, were a comprehensive word that included both types of digital money-third party-based money (or conventional fiat currency) and third party-free money (and cryptocurrencies).

Second, the general characteristics of the usage of government-based cryptocurrencies were as follows (Gohwong, 2017a, 2018a, 2018c; Hayden P., 2018; Khatwani, 2018; O'Neal, 2018; Town, 2018; Viewnodes, 2018):

1) The main objective of government-based cryptocurrencies was used by any governments as a critical mechanism against non-government-based cryptocurrencies;
2) Value and amount of each government-based cryptocurrency were centralized by central bank of each country as same as each fiat currency (such as Thai Baht, Yuan, Euro, US Dollar);
3) Banning all or some existing non-government-based cryptocurrencies in the crypto market was used by government as a strategy for promoting the usage of government-based cryptocurrencies because it forced non-government-based cryptocurrencies' holders to move from their non-government ones into government-based ones. China was a very good example for this policy;
4) Government-based cryptocurrency could be invented by government (such as "eDinar" of Tunisia, also known as Digicash and BitDinar, invented by La Poste or La Poste Tunisian (LPT)-a public agency; "Petro" or "Petromoneda" in 2018 and "Petro Gold" in the near future of Venezuela), or jointed venture between local firms and international firms for inventing government-based cryptocurrencies for one local government or a set of governments in a regional area such as eCFA or CFA frac of Senegal was invented by her local bank Banque Régionale de Marchés (BRM) and eCurrency Mint Limited, an Ireland-based startup, in 2016. If it was successful, this government-based cryptocurrency would expand its coverage area into other member states of West African Economic and Monetary Union (WAEMU) such as Cote d'Ivoire, Burkina Faso, Benin, Togo, Mali, Niger and Guinea-Bissau, or joint venture between government and firms such as "sovereign (SOV)" of the Marshall Islands was invented by island's government and Neema, an Israeli fintech startup;
5) The development of government-based cryptocurrency could be terminated by her government or by external entity's order on her government. For example, Estcoin of Estonia was terminated by the order of European Union.
6) The classification of government-based cryptocurrency could be conducted by level of activation as follows: fully activated currency (such as "Petro" of Venezuela, "eCFA" of Senegal, "Sovereign (SOV)" of the Marshall Islands; "Emcash" of Dubai, United Arab of Emirate), non-activated currency (such as Estcoin of Estonia), pilot-project-based currency (such as "Project Ubin" of Singapore; "Inthanon or TokenBaht" of Thailand; J-Coin of Japan, E-krona of Sweden, Cryptoruble of Russia).
7) Some governments used their valuables for backing up government-based cryptocurrencies. For example, "100 million Petros" of Venezuela was backed by country's oil and mineral reserves.

Discussion

There are three issues from finding for discussion as follows: sovereignty and control of government, government with her problems in possible unintentional failures and opportunism with third-party status, and information sharing.
First, government-based cryptocurrency is a type of cryptocurrency, owned by government. It is used by government as a solution for fixing loss of control on internal affairs in her territory from non-government-based cryptocurrency. With government-based cryptocurrency, each government can increase her sovereignty by easily monitoring data of users such as personal data (e.g. name and location of people and/or firms), amount of money in account(s), transaction(s) about payment and money transfer. In addition, it is much easier for government to collect tax from people and firms. Furthermore, it would reduce the problem of illegal affairs in deep webs and dark webs such as human trafficking, drug trading, arms trading, tax avoidance, terrorist financing. All above-mentioned advantages about greater control of government, as my study about IT as an invisible jail in 2017, could

be possible if every government determines that all blocks in the chain must be only undeletable and on-chain. The problem of stateless control will be partly reduced (Convention on Rights and Duties of States, 1933; Gohwong, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2018d, 2019; Laudon and Laudon, 2019). However, the better solution is what I have proposed in my two previous works about cryptocurrency and deep web, the application of AI in public policy analysis such as Neural Network and Genetic Algorithm, and the foundation of an autonomous public organization for monitoring and controlling these advanced technologies (such as deep webs, dark webs, cryptocurrency, blockchain, IoT, and AI) with partnership with private sector and people sector in form of self-directed team under starfish organization-based structure. Both AI and this public organization would lessen the borderless area of cryptocurrencies and the usage of illegal cryptocurrencies (Gohwong, 2018c; 2019).

Second, government with her problems in possible unintentional failures and opportunism with third-party status could happen from not only inefficiency of government in macro economy and contestability in the age of unreason with very fast change, but also opportunism in government as third party or intermediate among users in economic system. For inefficiency of government, in the age of unreason like information era, using a correct algorithm or a correct set of algorithm for predicting all changes of monetary world is impossible. The difficulty of algorithm selection is that it seldom know when any policy-makers should change his/her algorithm(s) due to dynamic change of problems under chaos. Putting a square peg in a round hole in public policy making lead to inefficiency of government in economic system. For opportunism in government, though government uses undeletable blockchain and on-chain proofing, it is impossible to get rid of opportunism or corruption in the provision and management of government-based cryptocurrency. Government-based cryptocurrency should be deactivated or terminated by government as soon as it is possible. In addition, there are 2,139 cryptocurrecies on April 2019. It stands for users has much more choices. Furthermore, the emerging of privacy-based cryptocurrency like Bytecoin, Verge, Zcash, Zcoin, Monero, MoneroC, Monero Gold, MoneroV, Monero Classic, Monero-Classic, Monero 0, Monero Original with Virtual Private Network (VPN), CryptoNote and CrytpNight, Zero-knowledge proof, and secret-centric Web Browser for Deep Webs and Dark Webs like TOR and I2P strongly increase the severity of opportunism.

Therefore, government should strongly focus on public policy formulation about rule and regulation of trade with attractive tax rate for legalized cryptocurrencies. In addition, for legalized currencies, profit-making affairs and system maintenance should be responsible for by founder team whereas proofing or consensus of blockchain should be done by users or miners. This measure will lessen the usage of illegal cryptocurrencies. (Handy, 1989; Wiseman, 1989; Osborne and Gaebler, 1992; Ricketts, 1994; Schick, 1996; Peters, 2001; Weimer and Vining, 2005; Kotler and Lee 2006; Parkin, 2014; Finn, 2017; Mason, 2017, Tulchinsky, 2018; CoinMarketCap, 2019).

Last, information sharing has totally changed from knowledge and understanding of Public Administrators in Minnowbrook I (1968) and II (1988), because the findings confirm that knowledge and understanding of Public Administrators in Minnowbrook III (2008) was correct. In the era of blockchain and cryptocurrency, partnership for sustainable development needs the equity of status among public sector, private sector, and people sector. Public sector, or government here, does not dominate the creation and/or collection, dissemination or sharing, and verification of data anymore, especially economy, money production and maintenance, and public financial management. Information sharing among three sectors with blockchain technology will reduce the problems of loss of control by government and opportunism in money provision and maintenance (White, 1971; Shangraw, Jr. and Crow, 1989; Pardo, Gil-Garcia, and Luna-Reyes, 2010; Gohwong, 2015).

Conclusion

Government-based cryptocurrency is an innovative topic for the field of study like Public Administration in the era of blockchain and cryptocurrency. In this study to investigated the big picture of government-based cryptocurrencies, and discuss it in three issues-sovereignty and control of government, government with her problems in possible unintentional failures and opportunism with third-party status, and information sharing. Information sharing with equity of all sectors (public, private, and people sector), formulation about rule and regulation of trade with attractive tax rate for legalized cryptocurrencies, the application of AI in public policy analysis, and the foundation of an autonomous public organization for monitoring and controlling these advanced technologies were suitable solutions for macro economy and public financial management.

References

CoinMarketCap. 2019. **CoinMarketCap: Cryptocurrency Market Capitalizations**. Retrieved from coinmarketcap.com/.

Convention on Rights and Duties of States (inter-American) on December 26, 1933. Retrieved from avalon.law.yale.edu/20th_century/intam03.asp.

Finn, E. 2017. **What Algorithm Want: Imagination in the Age of Computing**. Cambridge: MIT Press.

Gohwong, S. 2015. "The investigation of AI application in the Public administration's literature." **RSU International Journal of College of Government** 2 (1): 8-14.

Gohwong, S. 2017a. "The state of the art and trend of cashless society in Thailand." **Asian Political Science Review** 1 (2): 65-72.

Gohwong, S. 2017b. **Digital Weapons**. (A paper presented in the 3rd National and International Conference on Education Research and Social Development, Rangsit University, on 28 April 2017).

Gohwong, S. 2017c. **Soft Digital Weapons as Predator Insects**. A paper presented in the 4th International Conference on Security Studies, Town in Town Hotel, on 20 July 2017).

Gohwong, S. 2018a. "The State of the Art of Top 20 Cryptocurrencies." **Asian Administration and Management Review** 1 (1): 1-10.

Gohwong, S. 2018b. **The State of the Art of Privacy-oriented Cryptocurrencies**. A paper presented in the 5th International Social Sciences and Business Research Conference at Università della Svizzera italiana Lugano on 30 May 2018).

Gohwong, S. 2018c. "The State of the Art of Cryptocurrencies." **Asian Administration and Management Review** 1 (2): 1-16.

Gohwong, S. 2018d. **Paradigm of Public administration**. A paper presented in the 13th National Graduate Conference at Chiang Mai University on 24-25 December 2018).

Gohwong, S. 2019. **Deep Web: A residual of e-Public Administration**. A paper presented in the 3rd Asian Social Sciences and Business Research Conference at Beijing on 11-14 March 2019).

Handy, C. 1989. **The Age of Unreason**. London: Business Books.

Hayden P. 2018. **List of Countries Issuing Their Own National Cryptocurrencies**. Retrieved from itradeico.com/2018/07/list-of-countries-issuing-their-own-national-cryptocurrencies/14049.

Khatwani, S. 2018. **List of Countries That Have Plans to Roll out Their Own Cryptocurrencies**. Retrieved from coinsutra.com/national-cryptocurrencies/**.**

Kotler, P. and Lee, N. 2006. **Marketing in the Public Sector: A Roadmap for Improved Performance**. New Jersey: Wharton School Publishing.

Laudon, K. and Laudon, J. 2019. **Essentials of MIS**. Harlow: Pearson Education.

Mason, B. 2017. **The Next Cryptocurrency Evolution: Countries Issue their Own Digital Currency**. Retrieved from www.kitco.com/commentaries/2017-10-23/The-Next-Cryptocurrency-Evolution-Countries-Issue-their-Own-Digital-Currency.html**.**

Osborne, D. and Gaebler, T. 1992. **Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector**. New York: Addison-Wesley.

O'Neal, S. 2018. **State-Issued Digital Currencies: The Countries Which Adopted, Rejected or Researched the Concept**. Retrieved from cointelegraph.com/news/state-issued-digital-currencies-the-countries-which-adopted-rejected-or-researched-the-concept**.**

Pardo, T., Gil-Garcia, J., and Luna-Reyes, L. 2010. "Collaborative Governance and Cross-Boundary Information Sharing: Envisioning A Networked and IT-Enabled Public Administration." In R. O'Leary, D. Van Slyke, and S. Kim (eds.). **The Future of Public Administration Around the World: The Minnowbrook Perspective.** Washington DC: Georgetown University Press, pp. 129-139.

Parkin, M. 2014. **Economics**. Essex, England: Pearson Education Limited.

Peters, B. 2001. **The Future of Governing**. Kansas: University Press of Kansas.

Ricketts, M. 1994. **The Economics of Business Enterprise: An Introduction to Economic Organisation and the Theory of the Firm**. New York: Harvester Wheatsheaf.

Schick, A. 1996. **The Spirit of Reform: Managing the New Zealand State Sector in a Time of Change**. Wellington: State Services Commission.

Shangraw, Jr., R. and Crow, M. 1989. "Public Administration as a Design Science." **Public Administration Review** 49 (2): 153-158.

Town, S. 2018. **The Beginning of the End for Fiat Currency: Government-Issued Crypto Gaining Traction Worldwide**. Retrieved from cryptoslate.com/the-beginning-of-the-end-for-fiat-currency-government-issued-crypto-gaining-traction-worldwide/**.**

Tulchinsky, I. **The Unrules: Man, Machines and the Quest to Master Markets**. West Sussex: John Wiley & Sons.

Viewnodes. 2018. **National Cryptocurrencies: An Innovation No One Really Wants**. Retrieved from hackernoon.com/national-cryptocurrencies-an-innovation-nobody-wants-4666ce099da5**.**

Weimer, D. and Vining, A.R. 2005. **Policy Analysis: Concepts and Practice**. New Jersey: Pearson Prentice Hall.

White, Jr., O. 1971. "Administrative Adaptation in a Changing Society." In F. Marini (ed.). **Toward a New Public Administration**. Scranton: Chandler, pp. 59-83.

Wiseman, J. 1989. **Cost, Choice and Political Economy**. Hant: Edward Elgar.