Coffee Shop Strategy in using Blockchain to Overcome Supply Chain Obstacles in Indonesia

Toto Edrinal Sebayang, Dony Saputra, Didiet Gharnaditya, Eufedia Novchelie Budiman and
William Ignatius Ferardi
Management Department, Binus Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

Keywords: Coffee Shop, Blockchain, Qualitative, Interview.

Abstract: This study aims to analyze coffee shop strategy in using blockchain to overcome supply chain barriers. The method used in this research is qualitative with primary data obtained through interviews with 5 informants of coffee shop owners. Data were analyzed qualitatively with Miles and Huberman approach. The results show that blockchain technology can affect transparency and data management in overcoming coffee supply chain barriers.

1 INTRODUCTION

Blockchain is a new digital technology that allows distributed untrusted parties to conduct financial transactions without the use of intermediaries such as banks (Kamilaris et al., 2019). A blockchain (BC) is a distributed ledger of digital transactions that is maintained by a network of several computer units rather than a trusted third party. Individual transaction data files (blocks) are controlled by software platforms that allow the data to be sent, processed, stored, and represented in a human-readable format. Each block in the original bitcoin configuration has a header that includes a time stamp, transaction data, and a link to the preceding block. Every block generates a hash depending on its contents, which is then referenced in the heading of the next block. Every transaction is propagated over the blockchain protocol's network of machines and must be validated by all computer nodes.

The ability of a blockchain to maintain a consistent view and agreement among participants (i.e. consensus) is a vital characteristic, even if some of the members may not be honest. Blockchain technology is developed based on a distributed ledger of information. It is made up of numerous blocks, each with its own address information, as the name implies. Each block has its own identity and information (Buterin, 2016). The information from BC cannot be changed, erased, or updated (Chen et

al., 2019). If any information needs to be changed, a new block for adding information must be constructed. Traceability (Dutta et al., 2020) and auditing at any point in the supply chain (SC) become efficient and effective as a result of this specific and unique quality. According to (Hamda and Sastra, 2020), high transmission speed makes the system very efficient. When compared to the Traditional Supply Chain (TSC), the BC saves money and improves quality. Recently, a manufacturing company began implementing BC in order to boost Supply Chain (SC) performance.

According to the Indonesian Ministry of Agriculture (2020), coffee beans have become more expensive over the last decade. Coffee beans have become an increasingly important commodity in Indonesia as a result of increased demand and as a lifestyle item. With the abundance of coffee beans in Indonesia, Coffee shops have grown in popularity and importance, and they have evolved into a new way of life. Hence, the originality of coffee beans have become untraceable. With the advancement of blockchain technology, agricultural products become easier to trace it back to its origin (Kamilaris et al., 2019).

The aim of this study is to analyze the importance and barriers of blockchain technology to trace the originality of coffee beans.

115

2 LITERATURE REVIEW

In today's global market, SCM is critical for lowering operational costs (Laurence, 2019). Every producer wants to put their products in the hands of consumers at the lowest possible price. BC is regarded as a cutting-edge technology for cost reduction (Moleong, 2010) and quality improvement, and its intricacies would strengthen the SC. The incorporation of BC in SCM is elicited by (Muhajirin and Panorama, 2017). Their main focus was on improving the organization's performance and cost-effective output by safeguarding data and transactions, as well as the dispersed nature and transactions in peer-to-peer networks

In the case of food production, sustainability standards and certifications aid organic food and improve the food life cycle. These kinds of mishaps result in the development of new industrial and supply chain technology. The advantages of using BC are security, irreversibility, dispersedness, transparency (Musyafak et al., 2020), and accuracy (Narimawati, 2008). Pagano and Liotine (2020). All of these requirements will drive the integration of BC and SCM forward.

From the manufacturer to the end-users via retailer/supplier, BC helps to ensure transparency, security, traceability, and cost control. Customers and end-users are unaware of manufacturing processes, commodities movement on the production floor, and the dangers and suffering involved in manufacturing, transportation, and handling, among other things. The flow of data assists customers in gaining and regaining trust.

3 METHODS AND MEASUREMENT

Qualitative research method is data obtained without any quantification of data in the form of sentences or actions, which are then collected and analyzed. According to Sugiyono (2017) to be able to understand social reality from the perspective of the perpetrator, qualitative research methods are used.

In this research, the author uses a descriptive case study method. Descriptive research is research that can describe the state of the object in accordance with current conditions (Sugiyono, 2017). The unit of analysis in this study is individual coffee producers or executives who use blockchain technology. The time horizon used is a Cross Sectional study which is a study of several cases simultaneously in one time period (Wijaya and Darmawan, 2017).

The Data Collection method applied in this research is using semi-structured interviews consisting

of 5 (five) owners or management teams at coffee shops that apply blockchain technology. Five informants have been selected based on their geographic location, demographics that include both male and female gender, psychographics, and having at least two years' experience using blockchain technology in their coffee shops for interviews. Data analysis technique used is inVivo coding with Miles and Huberman approach. InVivo coding consists of three steps such as data reduction, data display and data conclusion. Validity test used is source Triangulation and membercheck.

4 RESEARCH FINDINGS

Based on the informant's interview, it can be concluded that there are two main findings regarding the importance of blockchain application and its challenges. The benefit of applying blockchain for coffee shop owners is transparency, data management, and coffee quality as shown by the transcripts below:

"Yes, the benefit of applying blockchain in our coffee shop is for transparency from the date of the process, when is the roasting, what type of process, and who is doing it, so it is more transparent" (Informant 1, AS, Head of Marketing Blue Korintji)

"It helps the farmer because the farmer on data management on updating data based on what he has today, the farmer harvests. 100 kilos. Yes, he will report there. 100 kilos costs Rp. 5,000 or Rp. 10,000." (Informant 2, S, CEO Kopi Alam Kerinci)

"In terms of quality, it has a significant impact both before and after we use blockchain because we can detect the coffee, we want based on what we want" (Informant 3, PA, CEO Noka Coffee)

The challenges that come from applying blockchain for coffee shop owners are carrying out supply chain activities such as tracing which is the perpetrator of supply chain activities prior to using blockchain, the number of human and system errors that occur because data collected is not structured properly prior to using blockchain technology, and the inability to provide detail information as shown by the transcripts below:

"We don't just sell it randomly; the challenge is to trace the supply chain, although there's a barcode

from Kerinci to here." (Informant 2, S, CEO Kopi Alam Kerinci).

"Without the application of blockchain technology, if we did it manually, there could be a human and system error because it's not neatly arranged." We are now reserving a batch, and once it is clear, we will separate it into storage. We can now more easily assess the quality of the coffee beans." (Informant 3, PA, CEO Noka Coffee).

"Assisting farmers and every farmer's difficulty to provide detail information, imagine if President Obama drank the coffee and then gave 5 stars, right after the QR code came out, oh, he would conclude that apparently this coffee belongs to Mr. A. However, if President Obama would drink the same coffee from me again next week, and the coffee is not good and give it a one star, Obama would know that the coffee is not good, which would make me feel as an inferior farmer and thinking, wow, I did something wrong yesterday. If it's not delicious, then if it's not good, it means the farmer made a mistake in the process." " (Informant 3, S, CEO Noka Coffee)
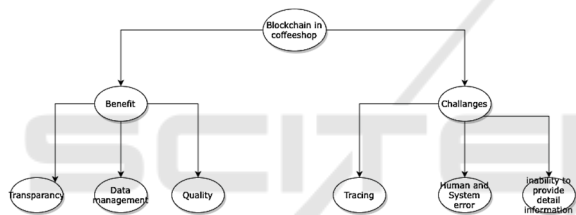

Figure 1: Model findings.

5 CONCLUSION

The driving criteria of BC were explored in this research in order to apply it with the SC and make it more resilient and sustainable. Several conclusions can be drawn based on the findings of a qualitative study using semi-structured interview and documentation techniques to examine the impact of blockchain technology on supply chain management which has an impact on coffee producers and coffee commodities in Indonesia such as:

- The function of applying blockchain in coffee shops is used as a tool to facilitate monitoring in supply chain activities, ensuring that all activities, including data management and the provision of high-quality coffee beans, go off without a hitch. Hence, to attract customers, coffee shops are adopting blockchain as a marketing branding technique.
- The importance of applying blockchain is transparency, data management, and coffee

quality are three elements influenced by blockchain in reducing supply chain hurdles.
- Coffee shops face challenges in carrying out supply chain activities such as tracing which is the perpetrator of supply chain activities prior to using blockchain, the number of human errors that occur because data collected is not structured properly prior to using blockchain technology, and the inability to provide information. Coffee beans of the highest grade in conformity with consumer expectations.

REFERENCES

Ayoub, H. F., & Abdallah, A. B. (2019). The effect of supply chain agility on export performance. Journal of Manufacturing Technology Management.

Belu, M. G. (2019). Application of Blockchain in International Trade: An Overview. The Romanian Economic Journal.

Buterin, V. (2016). The Business Blockchain. John Wiley & Sons, Inc.

Chen, J., LV, Z., & Song, H. (2019). Design of personnel big data management system based on blockchain. Future Generation Computer Systems 101. Dobrovnik, M., Herold, D. M., Fürst, E., & Kummer, S. (2018). Blockchain for and in Logistics: What to Adopt and Where to Start. Logistics.

Dutta, P., Choi, T.-M., Somani, S., & Butala, R. (2020). Blockchain technology in supply chain operations: Applications, challenges, and research opportunities. Transportation Research Part E.

Hamda, D., & Sastra, A. A. (2020). A To Z Memulai Dan Mengelola Usaha Kedai Kopi . Jakarta: PT AgroMedia Pustaka.

Ikhawana, A. (2018). Supply chain management of coffee commodities. MATEC. Web Conference.

Irawan. (2021). Mantap! Noka Coffee Luncurkan Kopi Berbasis Teknologi

Blockchain. Diambil kembali dari Saibumi: https://www. saibumi.com/artikel-103771-mantap-noka-coffee-lunc urkan-kopi-berbasis-teknologi- blockchain.html

Kamilaris, A., Fonts, A., & X. Prenafeta-Boldú, F. (2019). The rise of blockchain technology in agriculture and food supply chains. Trends in Food Science & Technology.

Kelompok Tani. (2018). Profil Alko Alam Kerinci. Diambil kembali dari Kopi Alam Kerinci: https://kopialamkerinci.com/profil-alko-coffee-kerinci/

Laurence, T. (2019). Blockchain for dummies. John Wiley & Sons, Inc.

Miles, M. B., & Huberman, A. M. (1994). An Expanded Sourcebook: Qualitative Data Analysis. London: Sage Publications.

Moleong, L. (2010). Metodologi penelitian kualitatif. Bandung: Remaja Rosdakarya.

Moleong, L. (2016). Metodologi Penelitian Kualitatif Edisi

Revisi. Bandung: PT Remaja Rosdakarya.

Muhajirin, & Panorama, M. (2017). Pendekatan praktis: metode penelitian kualitatif dan kuantitatif. Yogyakarta: Idea Press.

Musyafak, A., Susanti, A. A., Putra, R. K., & Widaningsih, R. (2020). Outlook Kopi. Pusat Data dan Sistem Informasi Pertanian Seketariat Jenderal - Kementrian Pertanian.

Narimawati, U. (2008). Metodologi Penelitian Kualitatif dan Kuantitatif, Teori dan applikasi. Bandung: Agung Media.

Pagano, A. M., & Liotine, M. (2020). Technology in Supply Chain Management and Logistics Current Practice and Future Applications. Elsevier.

Panggabean, E. (2019). Buku Pintar Kopi. Jakarta: PT AgroMedia Pustaka. Ramachandra, M. (2010). Web-Based Supply Chain Management and Digital Signal

Processing: Methods for Effective Information Administration and

Transmission. IGI Global.

Sakaran, U., & Bougie, R. (2017). Metode Penelitian untuk Bisnis: Pendekatan Pengembangan-Keahlian. Jakarta Selatan: Salemba empat.

Sugiyono. (2013). Metodelogi Penelitian Kuantitatif, Kualitatif Dan R&D. Bandung: Alfabeta.

Sugiyono. (2015). Metode Penelitian Kuantitatif Kualitatif dan R&D. Bandung: Alfabeta.

Sugiyono. (2017). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta, CV.

Sugiyono. (2018). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.

Thiruchelvam, V., Mughisha, A. S., Shahpasand, M., & Bamiah, M. (2018).

Blockchain-based Technology in the Coffee Supply Chain Trade: Case of Burundi Coffee. Journal of Telecommunication, Electronic and Computer Engineering.

Wijaya, D. A., & Darmawan, O. (2017). Blockchain Dari Bitcoin Untuk Dunia. Jasakom.

Yadav, S., & Singh, S. P. (2020). Blockchain critical success factors for sustainable supply chain. Resources, Conservation & Recycling.

Kamilaris, A., Fonts, A., & Prenafeta-Boldú, F. X. (2019). The rise of blockchain technology in agriculture and food supply chains. Trends in Food Science & Technology, 91, 640-652.

Yadav, S., & Singh, S. P. (2020). Blockchain critical success factors for sustainable supply chain. Resources, Conservation and Recycling, 152, 104505.