Gen Z Consumer Purchase Intention Towards Blockchain-enabled Traceable Coffee – A Study in Bangkok

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Abstract. As the use of blockchain technology in the food sector has soared in recent years, it is imperative to examine how consumers respond to this novel practice. For this purpose, this study aims to understand the factors influencing consumers' purchase intention for blockchain-traceable coffee. As a hub of coffee consumption in Southeast Asia, Bangkok has advanced in the application of QR code-based traceability in the coffee sector. Consequently, this research employs the Stimulus–Organism–Response (SOR) framework as a theoretical foundation to carry out a survey study, and specifically, consumer blockchain knowledge (BK) is treated as stimulus, consumer trust in blockchain (BT) is treated as organism and consumer purchase intention (INT) is regarded as response. An online survey was conducted from September to October 2025, and respondents were recruited by using a purposive sampling technique. For the statistical analysis, Hayes' PROCESS macro (model 4) was applied to analyze the mediating effect of trust in blockchain. The results revealed that BK significantly affect BT (β=0.503, p<.001), and BT significantly predict INT (β=0.815, p<.001). Although the direct effect of BK on INT is not significant (β=0.032, p=.458), the indirect effect of BK on INT was confirmed (β=0.410) with 95% bootstrapped confidence interval that zero did not exist [0.317, 0.503]. Thus, a full mediation of BI is exhibited. The results support the S-O-R logic, which holds that stimuli influence consumer behavioral responses by shaping their psychological states.

1 Introduction

Global coffee consumption continues to grow, especially in developing economies. The global coffee market has reached USD 269 billion [1]. Thailand has emerged as a dynamic market, contributed by the rising consumption and an expanding specialty coffee culture [2]. Beyond quantity, consumers are increasingly placing a higher value on quality-related signals such as ethical sourcing, authenticity and the transparency of the origin of the product.

On the other hand, the coffee supply chain remains fragmented, with multiple actors involved, ranging from farmers to retailers. In many cases, this fragmentation results in information asymmetry, which occurs when consumers lack reliable information about

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product origin and production processes [3]. Such imbalance can undermine trust and hinder informed decision-making.

Blockchain technology offers a promising solution by providing a decentralized, immutable, and transparent ledger [4, 5]. Through QR-code interfaces, consumers can access detailed information about sourcing, processing, and distribution. This technological capability has the potential to enhance transparency and rebuild trust. Nevertheless, adoption depends not only on technical features but also on how consumers perceive and trust the system [6].

Although blockchain has been widely discussed in food supply chains [7], empirical research on its application in coffee remains limited. Moreover, the psychological mechanism linking blockchain knowledge to behavioral outcomes is underexplored, particularly in emerging markets.

Generation Z is a critical consumer segment in Bangkok. As digital natives, they rely heavily on mobile technologies and digital information when making purchasing decisions. Their preference for transparency and authenticity makes them particularly relevant for studying blockchain-enabled traceability.

Consequently, the primary objective of this study is to investigate the relationships between blockchain knowledge (BK) and consumer trust in blockchain (BT), consumer trust in blockchain (BT) and purchase intention (INT), and blockchain knowledge (BK) and purchase intention (INT). In particular, the mediation effect of consumer trust in blockchain is examined.

2 Literature Review

2.1 Stimulus-Organism-Response Model

The Stimulus–Organism–Response (SOR) model, introduced by Mehrabian and Russell [8] and extended by Donovan and Rossiter [9] explains how environmental stimuli influence internal psychological states, which subsequently shape behavioral responses. The model has been widely applied in consumer research due to its ability to capture the process through which external factors translate into actions.

In this study, blockchain knowledge represents the stimulus, as it reflects consumers' exposure to and understanding of the technology. Trust in blockchain represents the organism, capturing internal cognitive and affective evaluations. Purchase intention represents the response, reflecting behavioral outcomes.

The application of SOR to blockchain contexts is particularly relevant because blockchain introduces complex technological information that consumers must interpret. Unlike traditional stimuli such as store atmosphere, blockchain involves abstract concepts such as decentralization and immutability. Therefore, the role of psychological interpretation, especially trust, is even more critical.

Consumer trust is a central construct in consumer behavior and plays a key role in reducing perceived risk and uncertainty [10]. Blockchain technology enhances trust by improving transparency, reducing reliance on intermediaries, and providing verifiable information to consumers [4].

Purchase intention reflects the likelihood of a consumer purchasing a product and is widely used as an indicator of behavioral response in marketing research.

2.2 Blockchain Knowledge and Consumer Trust

The theory of information asymmetry [3] suggests that when consumers lack reliable information, trust in the market decreases. Blockchain technology addresses this issue by providing transparent and tamper-proof information.

Consumers with higher levels of blockchain knowledge are more capable of understanding how the technology works and why it can be trusted. This understanding reduces uncertainty and enhances confidence in the system. Empirical studies indicate that blockchain-based transparency increases trust, particularly when consumers are familiar with the technology [6, 11].

Thus, blockchain knowledge can be seen as a cognitive resource that enables consumers to interpret technological signals and develop trust.

H1: Blockchain Knowledge Influences Consumer Trust in blockchain

2.3 Consumer Trust and Purchase Intention

Blockchain systems provide secure, immutable, and transparent information, which can enhance consumers' confidence in product authenticity. Trust plays a critical role in consumer decision-making by reducing perceived risk and increasing willingness to act.

Studies show that blockchain-enabled traceability significantly enhances consumer trust, which in turn drives purchase intention [12, 13]. When consumers trust that the information provided is accurate and reliable, they are more likely to make a purchase.

Within the SOR framework, trust represents the internal psychological mechanism that connects external stimuli to behavioral outcomes.

H2: Blockchain-based trust influences Purchase Intention

2.4 Blockchain Knowledge and Purchase Intention

Consumers with higher blockchain knowledge are more likely to recognize the value of traceability systems. This awareness can reduce technology-related anxiety and increase perceived benefits.

However, knowledge alone may not directly lead to purchase intention. Instead, its effect may operate through trust, as consumers must first believe in the reliability of the system before acting on it [14].

H3: Blockchain Knowledge Influences Purchase Intention

3 Research Method

3.1 Model Specification

To align with the framework of Stimulus-Organism-Response (SOR), relationships among blockchain knowledge (BK), trust in blockchain (BT), and purchase intention (INT) are modelled as follows:

$$BT_i = \alpha_1 + \beta_1 BK_i + \varepsilon_1 \quad (1)$$

$$INT_i = \alpha_2 + \beta_2 BT_i + \beta_3 BT_i + \varepsilon_2 \quad (2)$$

Where:

BK refers to blockchain knowledge (stimulus)
BT refers to trust in blockchain (organism)
INT refers to purchase intention (response)

All constructs in the model (BK, BT, and INT) are treated as latent reflective variables, measured on a five-point Likert scale and treated as continuous variables in the analysis. The model is analysed using the OLS-based Process Macro model 4, which assumes the dependent variable is continuous. Within the S-O-R framework, BK serves as the external stimulus, BT functions as internal cognitive evaluation, and INT represents behavioural response. In addition, BT serves as a mediator between BK and INT.

3.2 Data collection

The online survey was conducted in Bangkok during September and October 2025, and data were collected using purposive sampling, as our target respondents were consumers who had previously used a traceable feature, such as a QR code. 350 questionnaires were distributed, and 270 were ultimately returned, providing comprehensive, valid information for data analysis.

3.3 Data analysis

For statistical analysis, Hayes' PROCESS macro [15] was used to assess the extent to which BT mediates the relationship between consumer blockchain knowledge and purchase intention. In particular, the indirect effects were assessed using a bootstrapping technique with 5000 samples (Hayes, 2017). Statistical significance was determined based on bias-corrected 95% confidence intervals (CI). When the CI does not include zero, a significant indirect effect is confirmed. Therefore, t-values are not reported for the indirect effect.

4 Results

Table 1 exhibited the results of the mediation test by using Process Model 4. First of all, the direct relationship between BK and BT ($\beta = 0.503, p < .001$), and BT and INT are significant ($\beta = 0.815, p < .001$). However, the direct effect of BK on INT ($\beta = 0.032, p = .458$) is not significant.

More importantly, the mediation effect was assessed by using a bootstrapping technique with 5000 samples. The results reveal a significant indirect effect of BK on INT through BT, as the 95% confidence interval does not include zero ($\beta = 0.410$, *95% CI [0.317, 0.503]*). This means that trust in blockchain fully mediates the impact of blockchain knowledge on purchase intention.

The findings support the stimulus–organism–response framework, indicating that consumers' blockchain knowledge indirectly affects their purchase intention for traceable coffee by influencing their trust in blockchain technology. It implies that although consumers understand blockchain technology, they tend to convert their thoughts into a real purchase if they feel trust.

Table 1. Mediation Analysis Using PROCESS Model 4

	Path	β	SE	t-value	p-value	95% CI (LLCI, ULCI)	Result
H1	BK → BT	0.503	0.0397	12.657	***	[0.425, 0.581]	Supported
H2	BT → INT	0.815	0.0529	15.414	***	[0.711, 0.919]	Supported
H3	BK → INT	0.032	0.0435	0.743	.458	[-0.053, 0.118]	Not significant
Indirect Effect	BK → BT → INT	0.410	0.0478	—	—	[0.317, 0.503]	Significant
Mediation Type	—	—	—	—	—	—	Full mediation

*Note: N = 270; *** significant at .001 level; t-values and p-values are reported for direct effects only; indirect effects are evaluated using bootstrapped confidence intervals (5,000 resamples).*

5 Discussion and Conclusion

The results show that blockchain knowledge does not directly affect consumers' intention to purchase traceable coffee. Instead, its effect functions via consumer trust. It implies that knowing only about blockchain technology is not enough to facilitate consumer buying behaviour; rather, whether knowledge can enhance consumers' trust in this advanced technology and system matters most.

Thus, this study highlights the role of trust as an essential psychological mechanism bridging technology information (e.g. sourcing, manufacturing, delivering) and behaviour. Only when consumers believe this technology can ensure transparency, traceability, and privacy will they view it as credible and reliable; thereby, they tend to show a higher intention to buy traceable coffee.

Further, full mediation supports the SOR framework that blockchain is an effective stimulus that shapes consumers' internal psychological evaluation, and purchase intention reflects consumers' behavioural response. This path confirms that the consumer psychological process is vital to translating technology-related information into consumer behaviour.

6 Implications

First of all, instead of focusing on consumer education about blockchain technology, firms should focus on communication channels that could build and empower consumer trust. In this context, credibility, authenticity and transparency should be emphasized in the communication process.

Second, regarding consumer trust, firms should present blockchain information in a user-friendly way, meaning that QR codes, information on origin, planning, processing, and delivery, as well as farmer profiles, should be clearly presented and easily understood. This might make consumers feel comfortable and confident.

Last but not least, for coffee brands, once blockchain technology is adopted, it is suggested that they reposition themselves as sustainable brands. This will not only translate

their trust into action but also create their competitiveness by differentiating themselves in the market and reinforcing consumers' perception of sustainable coffee.

References

1. International Coffee Organization. (2024). Trade statistics and market reports. https://www.ico.org
2. Nation Thailand. (2025). Coffee consumption surges as Thai market defies economic slump. Nationthailand; null. https://www.nationthailand.com/business/economy/40053517
3. G.A. Akerlof, The market for “lemons”: Quality uncertainty and the market mechanism. Q. J. Econ. **84**, 488–500 (1970). https://doi.org/10.2307/1879431
4. S. Saberi, M. Kouhizadeh, J. Sarkis, L. Shen, Blockchain technology and sustainable supply chain management. Int. J. Prod. Res. **57**, 2117–2135 (2019). https://doi.org/10.1080/00207543.2018.1533261
5. A. Kamilaris, A. Fonts, F.X. Prenafeta-Boldú, The rise of blockchain technology in agriculture and food supply chains. Trends Food Sci. Technol. **91**, 640–652 (2019). https://doi.org/10.1016/j.tifs.2019.07.034
6. M. Garaus, H. Treiblmaier, The influence of blockchain-based food traceability on retailer choice: The mediating role of trust. Food Control. **129**, 108082 (2021). https://doi.org/10.1016/j.foodcont.2021.108082
7. R.M. Ellahi, L.C. Wood, A.E.-D.A. Bekhit, Blockchain-driven food supply chains: A systematic review. Appl. Sci. **14**, 8944 (2024). https://doi.org/10.3390/app14198944
8. A. Mehrabian, J.A. Russell, An approach to environmental psychology (MIT Press, Cambridge, 1974).
9. R.J. Donovan, J.R. Rossiter, Store atmosphere: An environmental psychology approach. J. Retail. **58**, 34–57 (1982).
10. N. Pappas, Marketing strategies, perceived risks, and consumer trust in online buying behaviour. J. Retail. Consum. Serv. **29**, 92–103 (2016). https://doi.org/10.1016/j.jretconser.2015.11.007
11. M. Mazzù, R. Pozharliev, A. Andria, A. Baccelloni, Overcoming the blockchain technology credibility gap. Psychol. Mark. **40**, 1791–1807 (2023). https://doi.org/10.1002/mar.21855
12. D.C. Duong, H.T. Nguyen, N.V.T. Ngo, V.T. Bui, M.N. Tran, Perceived blockchain-related information transparency and organic food purchase intention. Br. Food J. **127**, 1131–1152 (2024). https://doi.org/10.1108/BFJ-06-2024-0610
13. T.H. Nguyen, K.M. Nguyen, Fostering consumer sustainability trust using blockchain-enabled reviews. Int. J. Logist. Res. Appl. 1–26 (2025). https://doi.org/10.1080/13675567.2025.2574470
14. X. Lin, S.-C. Chang, T.-H. Chou, S.-C. Chen, A. Ruangkanjanases, Consumers’ intention to adopt blockchain food traceability technology. Int. J. Environ. Res. Public Health. **18**, 912 (2021). https://doi.org/10.3390/ijerph18030912
15. A.F. Hayes, Introduction to mediation, moderation, and conditional process analysis, 2nd ed. (Guilford Press, New York, 2018).