

HE INFLUENCE OF BLOCKCHAIN ON THE CONSUMER: A SYSTEMATIC
LITERATURE REVIEW AND RESEARCH AGENDA

SAMY MANSOURI

Université d'Orléans, Vallorem EA6296

Ransford Asibu

Université d'Orléans VALLOREM EA6296

Joseph Kaswengi

University of Orléans

Cite as:

MANSOURI SAMY, Asibu Ransford, Kaswengi Joseph (2023), HE INFLUENCE OF BLOCKCHAIN ON THE CONSUMER: A SYSTEMATIC LITERATURE REVIEW AND RESEARCH AGENDA.

Proceedings of the European Marketing Academy, (117291)

Paper from the EMAC Regional Conference, Athens, Greece, September 27-29, 2023



The influence of blockchain on the consumer: a systematic literature review and research agenda

Abstract:

This research contributes to the literature on blockchain and highlights the relationship between transparency, traceability, and trust in the retail world, and supply chain. This paper affirms that trust appears to be the most delicate element of traceability and transparency. It also establishes that both transparency and traceability gear toward trust. By building a theoretical concept to test the impact of blockchain on the consumer, a better understanding of how traceability, and transparency can be combined to manage consumer trust has been provided. Moreover, this research has produced a wider knowledge of how these three blockchain concepts thus, transparency, trust, and transparency work together; the effects they have on each other, and their impacts on retail. Results from this research will offer new insights for managers of for-profit firms and retailers in the implementation of blockchain technology.

Keywords: Blockchain, Trust, Transparency

1. Introduction

After two decades of scandals such as the horse meat fraud in 2013 and the “Prêt à Manger” mislabelling in 2016, trust in the food industry has become essential for increasingly demanding consumers (Yacoub & Castillo, 2021). The World Health Organization (2022) reports that food pollution kills about 420,000 yearly and 600 million get sick. A lot has transpired in the food sector that exposed customers to a lot of risks, the reason for which consumers have trust concerns for products and demand more product information. Product information on labels is not enough for consumers. Consumers want more transparency and assurance about the products they buy (Zhang et al., 2022). Building a relationship of trust with the consumer is necessary for both the producer and the distributor. As a result, food product traceability, safety, and sustainability issues have become crucial concerns for actors within the supply chain (Gharehgozli et al. 2017).

In an era where the economy has transitioned from a traditional model to decentralized forms, one game changer that provides real-time tracking and tracing of items in the food supply chain is blockchain (De Filippi, 2017). Kamilaris et al (2019) defined blockchain as “a digital transaction ledger, maintained by a network of multiple computing machines that are not relying on a trusted third party. Individual transaction data files (blocks) are managed through specific software platforms that allow the data to be transmitted, processed, stored, and represented in human-readable form”.

While the concept of Blockchain is a relatively new phenomenon, we derive insights into key areas through which Blockchain influences the consumer. The following research questions have been analyzed: a) Does blockchain influence consumer behaviour, perceptions, and attitudes toward the retail sector? b) Does Blockchain matter in the retail sector, especially in food consumption? c) Do peer-reviewed literature highlight consumer-related influences of blockchain?

2. Method

This study followed a systematic literature review methodological guidance on previous studies through the Cochrane Collaboration approach (Higgins et al, 2019) following the recommendations of Liberati et al. (2009). The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement was used to guide this systematic literature

review (Moher et al., 2015). A search strategy made up of 2 digital libraries, namely Scopus and Science Direct was carried out. Keywords used for the search include “distribution blockchain”, “product blockchain”, “retail blockchain”, “store blockchain”, “blockchain sharing economy” and “blockchain consumer”.

3. Data

The result of the search within the title, abstract, and keywords of documents resulted in 786 articles, 647 from the Scopus database, and 139 from the Science Direct database. An initial screening of titles and abstracts was conducted by two reviewers using the first three inclusion criteria, which resulted in 155 articles. Further screening led to the exclusion of 129 articles due to non-conformity to inclusion and eligibility criteria. Next, a full-text assessment was applied to the remaining papers. Search results were aggregated to remove 11 duplicates and 6 articles that were not relevant to the research question. 9 articles were excluded due to full-text unavailability. In the end, 12 articles were included. Full-text review and 2 additional articles were identified through snowballing approach, making a total of 14 articles to be considered for systematic literature review.

4. Results

Our analysis of the literature reveals that the influence of blockchain on the consumer is still an emerging subject of study that has nevertheless shown remarkable development in recent years. It was established that blockchain affects consumers on a higher spectrum thus economically, psychologically, and socially. Economically, consumers contribute to economic growth and gain economic value (value for money). Psychologically, the thought processes of consumers have been shaped thanks to the availability of transparency, traceability, and trust in the blockchain system. Socially, blockchain has long-term effects on consumers’ quality of life.

Although this categorization cannot be regarded as complete, we have considered the four main aspects in which blockchain influences the consumer: blockchain adoption, consumer behaviour, and purchasing intentions; traceability and the consumer; transparency and the consumer; and trust and the consumer. This research provides a summary of key themes, blockchain-induced changes, and their effects on the consumer. On the theme of blockchain adoption, consumer behaviour, and purchasing intentions, this study showed that blockchain helps in reducing fraud and food risks and enhances product quality. Traceability is essential in preventing food-borne diseases, food-related incidents, and future food recall. Transparency provides assurance to the consumer, impacts consumers’ purchasing behaviour positively, and

lessens dangers and expenses. Trust influences the perception of the blockchain label leading to increased purchase intention.

5. Future research directions

Further, in view of the findings from this literature review on the relationship between trust, transparency, and traceability, we propose a conceptual framework to be tested in the future. The following research questions will be addressed: a) To what extent can blockchain technology (transparency and traceability) be used to manage consumer trust in the retail sector? b) To what extent does trust in the retail sector affect the value image of a brand and business performance?

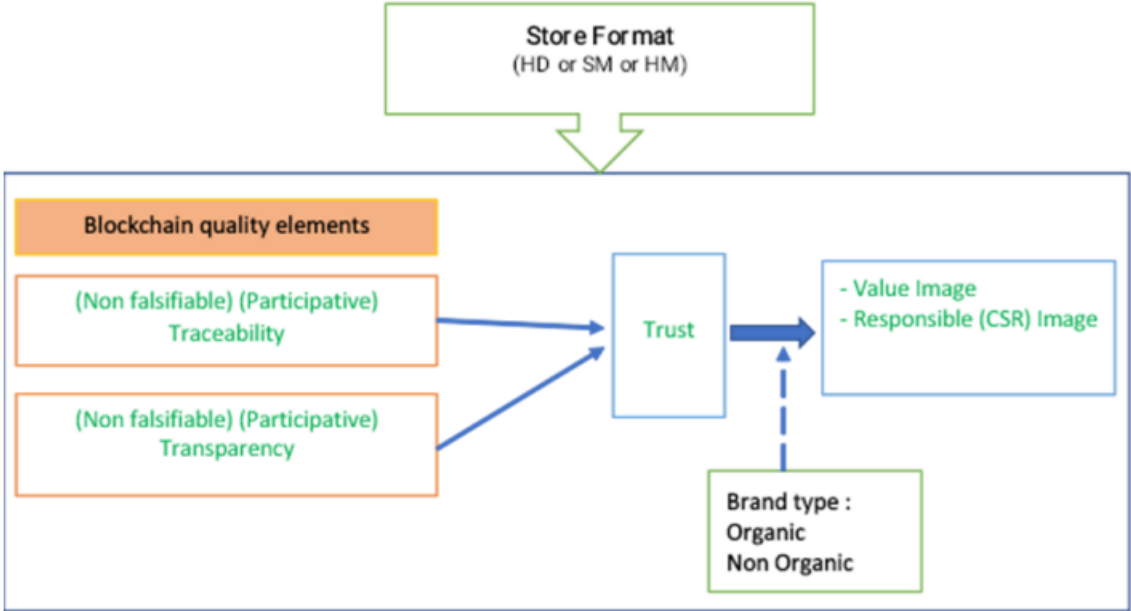


Figure 1. Conceptual framework

6. Conclusions

The paper highlighted that there is a fast-growing body of literature on the influence of blockchain on the consumer in terms of trust, transparency, and traceability. This research adopted the systematic literature review procedure (the PRISMA method) through the Cochrane Collaboration approach (Higgins et al, 2019) which produced approximately 790 articles ranging from a mixture of peer-reviewed articles, published articles, and journals as well as some systematically reviewed articles using two digital libraries namely Scopus and Science Direct. The selected 14 articles highlighted blockchain with respect to the consumer, traceability, transparency, and trust. Information from these articles ranged from the nature of

data consumers see covertly or overtly, the level of transparency they gain from supply chain actors as well as the trust concerns. Nurgazina, Jamilya et al. (2021), Commandré et al. (2021), Navas et al. (2021), and other researchers all posit that consumers are prioritized stakeholders in the global supply chain and hence enough information relating to the products offered to them should be made readily available.

References

- Astill, J., Dara, R. A., Campbell, M., Farber, J. M., Fraser, E. D., Sharif, S., & Yada, R. Y. (2019). Transparency in food supply chains: A review of enabling technology solutions. *Trends in Food Science & Technology*, *91*, 240-247.
- Aung, M. M., & Chang, Y. S. (2014). Traceability in a food supply chain: Safety and quality perspectives. *Food control*, *39*, 172-184.
- Balzarova, M., Dyer, C., & Falta, M. (2022). Perceptions of blockchain readiness for fairtrade programmes. *Technological Forecasting and Social Change*, *185*, 122086.
- Benzidia, S., Makaoui, N., & Subramanian, N. (2021). Impact of ambidexterity of blockchain technology and social factors on new product development: A supply chain and Industry 4.0 perspective. *Technological Forecasting and Social Change*, *169*, 120819.
- Bordel, B., Lebigot, P., Alcarria, R., & Robles, T. (2019). Digital food product traceability: using blockchain in the international commerce. In *Digital Science* (pp. 224-231). Springer International Publishing.
- Bumblauskas, D., Mann, A., Dugan, B., & Rittmer, J. (2020). A blockchain use case in food distribution: Do you know where your food has been?. *International Journal of Information Management*, *52*, 102008.
- Casado-Vara, R., Prieto, J., De la Prieta, F., & Corchado, J. M. (2018). How blockchain improves the supply chain: Case study alimentary supply chain. *Procedia computer science*, *134*, 393-398.
- Centobelli, P., Cerchione, R., Del Vecchio, P., Oropallo, E., & Secundo, G. (2022). Blockchain technology for bridging trust, traceability and transparency in circular supply chain. *Information & Management*, *59*(7), 103508.

- Commandré, Y., Macombe, C., & Mignon, S. (2021). Implications for agricultural producers of using blockchain for food transparency, study of 4 food chains by cumulative approach. *Sustainability*, *13*(17), 9843.
- De Filippi, P. (2017). What blockchain means for the sharing economy. *Harvard Business Review*, *15*(03).
- Dwyer, R. E. (2007). Expanding homes and increasing inequalities: US housing development and the residential segregation of the affluent. *social problems*, *54*(1), 23-46.
- Gharehgozli, A., Iakovou, E., Chang, Y., & Swaney, R. (2017). Trends in global E-food supply chain and implications for transport: Literature review and research directions. *Research in transportation business & management*, *25*, 2-14.
- Gusenbauer, M., & Haddaway, N. R. (2020). Which academic search systems are suitable for systematic reviews or meta-analyses? Evaluating retrieval qualities of Google Scholar, PubMed, and 26 other resources. *Research synthesis methods*, *11*(2), 181-217.
- Hawlitsek, F., Notheisen, B., & Teubner, T. (2018). The limits of trust-free systems: A literature review on blockchain technology and trust in the sharing economy. *Electronic commerce research and applications*, *29*, 50-63.
- Hawlitsek, F., Notheisen, B., & Teubner, T. (2018). The limits of trust-free systems: A literature review on blockchain technology and trust in the sharing economy. *Electronic commerce research and applications*, *29*, 50-63.
- He, Y., Chen, L., & Xu, Q. (2021). Optimal pricing decisions for a global fresh product supply chain in the blockchain technology era. *International Journal of Logistics Research and Applications*, 1-18.
- Hew, J. J., Wong, L. W., Tan, G. W. H., Ooi, K. B., & Lin, B. (2020). The blockchain-based Halal traceability systems: a hype or reality?. *Supply Chain Management: An International Journal*, *25*(6), 863-879.
- Higgins, J. P., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (Eds.). (2019). *Cochrane handbook for systematic reviews of interventions*. John Wiley & Sons.
- Hughes, L., Dwivedi, Y. K., Misra, S. K., Rana, N. P., Raghavan, V., & Akella, V. (2019). Blockchain research, practice and policy: Applications, benefits, limitations, emerging

research themes and research agenda. *International Journal of Information Management*, 49, 114-129.

Kamble, S. S., Gunasekaran, A., & Gawankar, S. A. (2020). Achieving sustainable performance in a data-driven agriculture supply chain: A review for research and applications. *International Journal of Production Economics*, 219, 179-194.

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

Kittipanya-Ngam, P., & Tan, K. H. (2020). A framework for food supply chain digitalization: lessons from Thailand. *Production Planning & Control*, 31(2-3), 158-172.

Kshetri, N. (2021). Blockchain and sustainable supply chain management in developing countries. *International Journal of Information Management*, 60, 102376.

Kumar, N., Upreti, K., & Mohan, D. (2022). Blockchain adoption for provenance and traceability in the retail food supply chain: a consumer perspective. *International Journal of E-Business Research (IJEER)*, 18(2), 1-17.

Kwary, D. A. (2018). A corpus and a concordancer of academic journal articles. *Data in brief*, 16, 94-100.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of internal medicine*, 151(4), W-65.

Miranda-Ackerman, M. A., & Azzaro-Pantel, C. (2017). Extending the scope of eco-labelling in the food industry to drive change beyond sustainable agriculture practices. *Journal of environmental management*, 204, 814-824.

Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., ... & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*, 4(1), 1-9.

Montecchi, M., Plangger, K., & Etter, M. (2019). It's real, trust me! Establishing supply chain provenance using blockchain. *Business Horizons*, 62(3), 283-293.

- Navas, R., Chang, H. J., Khan, S., & Chong, J. W. (2021). Sustainability transparency and trustworthiness of traditional and blockchain ecolabels: A comparison of generations X and Y consumers. *Sustainability*, *13*(15), 8469.
- Nurgazina, J., Pakdeetrakulwong, U., Moser, T., & Reiner, G. (2021). Distributed ledger technology applications in food supply chains: A review of challenges and future research directions. *Sustainability*, *13*(8), 4206.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International journal of surgery*, *88*, 105906.
- Pazaitis, A., De Filippi, P., & Kostakis, V. (2017). Blockchain and value systems in the sharing economy: The illustrative case of Backfeed. *Technological Forecasting and Social Change*, *125*, 105-115.
- Song, S. Y., & Kim, Y. K. (2018). Theory of virtue ethics: do consumers' good traits predict their socially responsible consumption?. *Journal of Business Ethics*, *152*, 1159-1175.
- Tan, T. M., & Salo, J. (2023). Ethical marketing in the blockchain-based sharing economy: Theoretical integration and guiding insights. *Journal of Business Ethics*, *183*(4), 1113-1140.
- Tan, T. M., Salo, J., Ahokangas, P., Seppänen, V., & Sandner, P. (2021). Revealing the disintermediation concept of blockchain technology: How intermediaries gain from blockchain adoption in a new business model. In *Impact of globalization and advanced technologies on online business models* (pp. 88-102). IGI Global.
- Treiblmaier, H., & Garaus, M. (2023). Using blockchain to signal quality in the food supply chain: The impact on consumer purchase intentions and the moderating effect of brand familiarity. *International Journal of Information Management*, *68*, 102514.
- Tsolakis, N., Niedenzu, D., Simonetto, M., Dora, M., & Kumar, M. (2021). Supply network design to address United Nations Sustainable Development Goals: A case study of blockchain implementation in Thai fish industry. *Journal of Business Research*, *131*, 495-519.
- Vivaldini, M. (2021). Blockchain in operations for food service distribution: steps before implementation. *International Journal of Logistics Management*, *32* (3), 995–1029.

Westerlund, M., Nene, S., Leminen, S., & Rajahonka, M. (2021). An exploration of blockchain-based traceability in food supply chains: On the benefits of distributed digital records from farm to fork. *Technology Innovation Management Review*, 11(6).

World Health Organization. (2022). "Food safety," World Health Organization, World Health Organization, (accessed April 24, 2023), [available at <https://www.who.int/news-room/fact-sheets/detail/food-safety>].

Wu, X. Y., Fan, Z. P., & Cao, B. B. (2021). An analysis of strategies for adopting blockchain technology in the fresh product supply chain. *International Journal of Production Research*, 1-18.

Xu, Q., & He, Y. (2021). Optimal information disclosure strategies for a retail platform in the blockchain technology era. *International Journal of Production Research*, 1-12.

Yacoub, G., & Castillo, M. (2022). Blockchain in your grocery basket: trust and traceability as a strategy. *Journal of Business Strategy*, 43(4), 247-256.

Yang, L., Zhang, J., & Shi, X. (2021). Can blockchain help food supply chains with platform operations during the COVID-19 outbreak?. *Electronic Commerce Research and Applications*, 49, 101093.