Abstract

Assessing Adoption Challenges of Blockchain Technology in Agri-Food Supply Chain [†]

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Abstract: The Agri-Food Supply Chain (AFSC) faces several barriers in developing economies, hindering the adoption of blockchain technology. However, the adoption of these technologies can transform traditional supply chains by incorporating transparency, traceability, transaction records, and enhanced security. This paper aims to evaluate the barriers impacting the adoption of blockchain in the AFSC and provide insights to improve performance and facilitate their effective implementation in emerging economies. Therefore, a comprehensive literature survey was conducted to identify the barriers, which were further validated through experts' opinions. The integrated interpretive structural modeling (ISM) and decision-making trial and evaluation laboratory (DEMATEL) technique were then employed to develop a structural model and determine the cause–effect relationships between the identified barriers. The study revealed several key barriers affecting the adoption of blockchain technology in the AFSC of developing economies. These barriers were analyzed using the ISM and DEMATEL technique, which provided insights into their interdependencies and impact on each other. The results offer a comprehensive understanding of the barriers and their causal relationships. This study provides unique insights for the agri-food sector to improve performance by addressing the identified barriers. The results can guide agri-food managers, blockchain technology service providers, and the government in formulating strategies and policies to effectively adopt blockchain technologies in the AFSC.

Keywords: blockchain technology; Agri-Food Supply Chain (AFSC); developing economies; barriers; ISM; DEMATEL

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