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Internet of Things (IoT) in halal food supply chain: A discussion in the realm of Maqasid al-Shari'ah

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Abstract

The soaring demand for halal products and services is commendable, but it warrants the use of technology to increase the efficiency of business operations while maintaining halal integrity. The Internet of Things (IoT) is the technology being recommended to achieve such aims. While IoT offers numerous features to enhance efficiency, its adoption by smallholder companies remains limited. Many obstacles hinder IoT's widespread acceptance, including cybersecurity challenges. Building on an initial work, this chapter therefore aims to examine the perception of smallholders in the halal food supply chain toward IoT, and discuss whether IoT in the scope of the halal food supply chain is in compliance with the Maqasid al-Shari'ah from experts' perspectives. The findings indicate that while smallholders recognize the benefits of IoT, concerns regarding data security and cost hinder

widespread adoption. Nonetheless, IoT holds significant potential to assist the industry, including smallholders, in upholding halal integrity throughout the supply chain. © 2026 Elsevier Inc. All rights reserved.

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Food supply chain; Halal integrity; Halal practitioner; Internet of things (IoT); Maqasid al-Shari'ah

Indexed keywords

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Engineering main heading

Efficiency

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