Title: Impact of internet of things-based traceability systems on frozen halal food supply chain

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Abstract: This study introduces the Internet of Things-based Traceability System (IoT-BTS) as a moderator in cold supply chain management (CoSCM) and examines its role in enhancing halal integrity and expanding cold chain standards. The study models both the direct and moderating effects of IoT-BTS on CoSCM and perceived halal integrity. Data were collected from logistics service providers and manufacturing firms involved in the production and handling of food products within CoSCM. The sample was selected using a stratified random technique, comprising 102 companies. The study reveals significant relationships between CoSCM and perceived halal integrity, including cold chain distribution channels, inventory systems, packaging and labelling, transportation, and IoT-BTS. IoT-BTS is identified as a critical moderator influencing perceived halal integrity in relation to cold transport and inventory systems. However, the study also finds that IoT-BTS has not yet fully leveraged cold chain distribution channels, packaging, and labelling processes to enhance perceived halal integrity.

Key words: Halal integrityFrozen foodcold supply chain managementinternet of things-based traceability systemslogistics service providershalal logistics

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