

Stakeholder Mapping and Requirements Identification for Improving Traceability in the Halal Food Supply Chain

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Abstract : Traceability systems are important in the agri-food and halal food sectors for monitoring ingredient movements, tracking sources, and ensuring food integrity. However, designing a traceability system for the halal food supply chain is challenging due to diverse stakeholder requirements and complex needs. Existing literature on stakeholder mapping and identifying requirements for halal food supply chains is limited. To address this gap, a pilot study was conducted to identify the objectives, requirements, and recommendations of stakeholders in the Kuwaiti halal food industry. The study collected data through semi-structured interviews with an international halal food manufacturer based in Kuwait. The aim was to gain a deep understanding of stakeholders' objectives, requirements, processes, and concerns related to the design of a traceability system in the country's halal food sector. Traceability systems are being developed and tested in the agri-food and halal food sectors due to their ability to monitor ingredient movements, track sources, and detect potential issues related to food integrity. Designing a traceability system for the halal food supply chain poses significant challenges due to diverse stakeholder requirements and the complexity of their needs (including varying food ingredients, different sources, destinations, supplier processes, certifications, etc.). Achieving a halal food traceability solution tailored to stakeholders' requirements within the supply chain necessitates prior knowledge of these needs. Although attempts have been made to address design-related issues in traceability systems, literature on stakeholder mapping and identification of requirements specific to halal food supply chains is scarce. Thus, this pilot study aims to identify the objectives, requirements, and recommendations of stakeholders in the halal food industry. The paper presents insights gained from the pilot study, which utilized semi-structured interviews to collect data from a Kuwait-based international halal food manufacturer. The objective was to gain an in-depth understanding of stakeholders' objectives, requirements, processes, and concerns pertaining to the design of a traceability system in Kuwait's halal food sector. The stakeholder mapping results revealed that government entities, food manufacturers, retailers, and suppliers are key stakeholders in Kuwait's halal food supply chain. Lessons learned from this pilot study regarding requirement capture for traceability systems include the need to streamline communication, focus on communication at each level of the supply chain, leverage innovative technologies to enhance process structuring and operations and reduce halal certification costs. The findings also emphasized the limitations of existing traceability solutions, such as limited cooperation and collaboration among stakeholders, high costs of implementing traceability systems without government support, lack of clarity regarding product routes, and disrupted communication channels between stakeholders. These findings contribute to a broader research program aimed at developing a stakeholder requirements framework that utilizes "business process modelling" to establish a unified model for traceable stakeholder requirements.

Keywords : supply chain, traceability system, halal food, stakeholders' requirements

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