

# Collaboration, Innovation, and Strengthening Human Resources of MSMEs in Supporting Food Security: A Bibliometric Analysis of Keyword Networks

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## Abstract

**Background:** Food security is an increasingly complex strategic issue, particularly in developing countries where MSMEs play a crucial role in the food supply chain. However, the literature on how collaboration, innovation, and strengthening human resources (HR) of MSMEs contribute to food security remains fragmented.

**Purpose:** This study aims to map the development of this theme through a bibliometric analysis based on keyword networks.

**Methodology:** Data were collected from internationally indexed publications and analyzed using VOSviewer software to identify clusters, conceptual interconnections, and research dynamics.

**Finding:** The analysis revealed four main clusters: (1) strengthening human resources and intellectual capital in supporting MSME performance, (2) cross-actor collaboration in the food supply chain ecosystem, (3) innovation and digital transformation in the MSME sector, and (4) food security, food safety, and the role of government.

**Limitation:** These findings confirm that food security is influenced not only by production capacity but also by the quality of collaborative networks, innovation adoption, and the competency of MSME HR.

**Originality:** This research contributes by mapping the current knowledge structure, identifying research gaps, and offering directions for future research related to the integration of MSMEs in strengthening national food security.

**Keywords:** bibliometrics, collaboration, innovation, human resources, MSMEs, food security, VOSviewer.