



Chapter 7

Evolving Agri–Food Supply Chain Through Digitalisation: Challenges and Responses for Operational Sustainability


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ABSTRACT

This study investigates the transformative impact of digitalisation on the agri-food supply chain (AFSC), with a focus on operational sustainability. Through a comprehensive bibliometric analysis of 438 documents from the Web of Science (WoS) and SCOPUS databases, key research streams within AFSC literature are identified. The study highlights how digitalisation enhances efficiency, traceability, and sustainability, while also presenting challenges such as technological barriers and cybersecurity risks. Complementing the literature review, 24 interviews were made with AFSC members and stakeholders (including raw material producers, processors, manufacturers, retailers, logistic service providers and trade associa-

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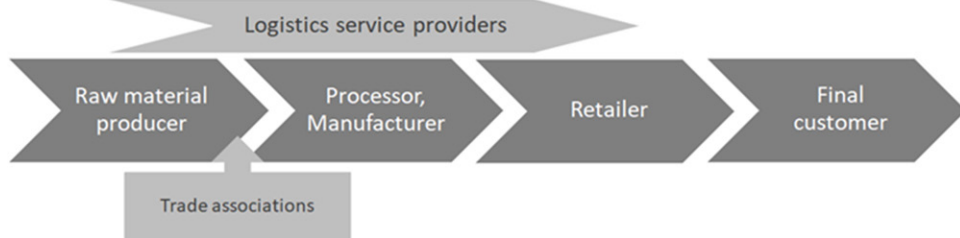
tions) to provide practical insights into the adoption and impact of digital solutions. The findings underscore the necessity for tailored digital strategies across different AFSC sub-sectors, emphasizing the role of digitalisation in improving operational resilience and sustainability.

INTRODUCTION

The agri-food supply chain (AFSC) is undergoing a transformative evolution driven by digitalisation changes. This chapter presents a comprehensive review of the AFSC literature, elucidating the intertwined relationship between digitalisation techniques and operational sustainability. The study aims to contribute to both academic discourse and practical applications by uncovering research streams within the AFSC and delineating how digitalisation supports these domains. Leveraging bibliometric analysis tools such as Biblioshiny and VosViewer, the research methodology involves a meticulous examination of scholarly works indexed in Web of Science (WoS) and SCOPUS databases, resulting in a dataset of 438 documents for analysis. Next to a bibliometric analysis, for exploratory reasons, qualitative research was conducted. We interviewed 24 actors in the AFCS to reveal their attitude to and experience with digitalisation as well as their responses to the opportunities and challenges concerning the AFCS in the recent years.

In our understanding the AFSC is built like Figure 1 shows and can be represented at many subsectors (e.g., dairy, meat, pastry ...etc.) (FAOSTAT, 2022) bringing diversity into the discussion.

Figure 1. Interpretation of the AFSC structure.



Source: Jám bor & Nagy, 2022

The bibliometric analysis unveils a diverse array of research streams within the AFSC literature, shedding light on the multifaceted challenges and opportunities presented by digitalisation. As the primary step of the study the comprehensive exploration of the AFSC literature stand in focus. The bibliometric approach is considered as a systematic literature review method. The aim of the bibliometric

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