Mapping the adoption of digitalization in the food supply chain to improve traceability: A Scoping Review

Presented by:

Somia Bekkouche, Jihan Halimi, Tiziana de Magistris

Área temática :Sistema agroalimentario, cadenas de valor y asociacionismo
Sesión 2.06: Sistema agroalimentario y cadenas de valor
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Plan

1.
Introduction

Introduction

Traceability is crucial for food safety, quality, and fraud prevention.

Digital technologies (Blockchain, IoT, AI, Big Data) enhance transparency, efficiency, and sustainability

The EU promotes digital adoption via policies like Farm to Fork and the Digital Single Market.

2.
Objectives

Objectives

Identify Current Approaches

Explore innovations and technological developments in the European agri-food sector.

Assess Enhancement

Evaluate how digitalization improves traceability, efficiency, transparency, sustainability, resilience, and food safety.

Explore Influencing Factors

Understand factors affecting adoption and integration across the supply chain stages.

3.
Methodology

Methodology

Protocol registration

OSF
:https://doi.org/10.17605/OSF.IO/M34VE

Targeted Searches

Clarivate Web of Science™

AlcorZe

ProQuest

IEEE Xplore®

Data screening/ extraction

rayyan

covidence

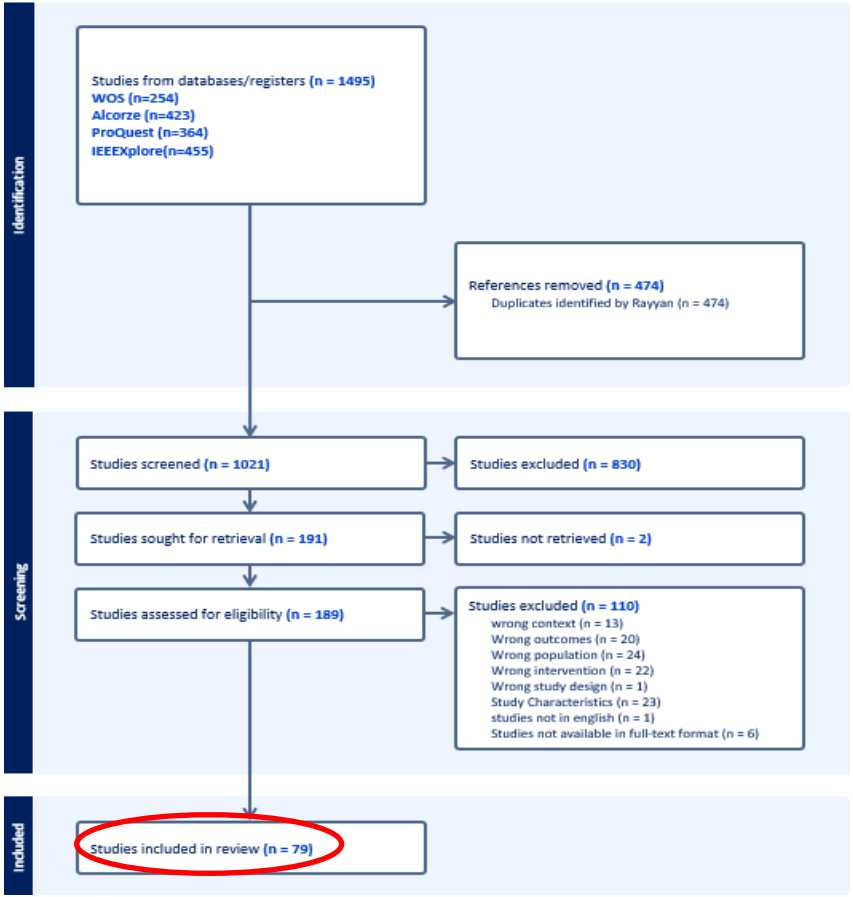
Inclusion Criteria

Focus	Studies focusing on the implementation and utilization of digitalization tools within the agri-food supply chain (food and beverages).
Type of Publication	Research articles and scholarly publications.
Language	Literatures available in English.
Keywords/Topics Covered	Studies covering topics related to the provided keywords, including: "digitalization tools", blockchain, RFID, IoT, “internet of things”, “QR code” and “traceability”.
Aspects of Agro-Food System	Literature addressing aspects of the agro-food system such as Agrifood system”, agri-food, “food supply chain”,” food industry”, and “food safety".
Location	Studies covering topics related to European countries

4.
Results

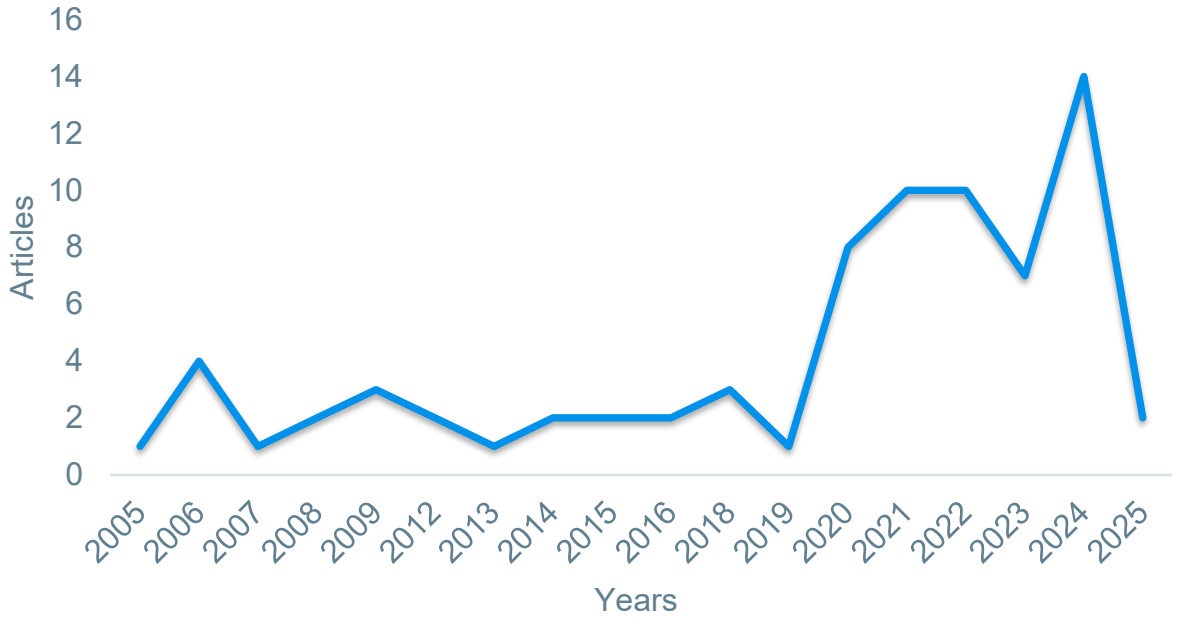
Results

PRISMA flow diagram of study selection



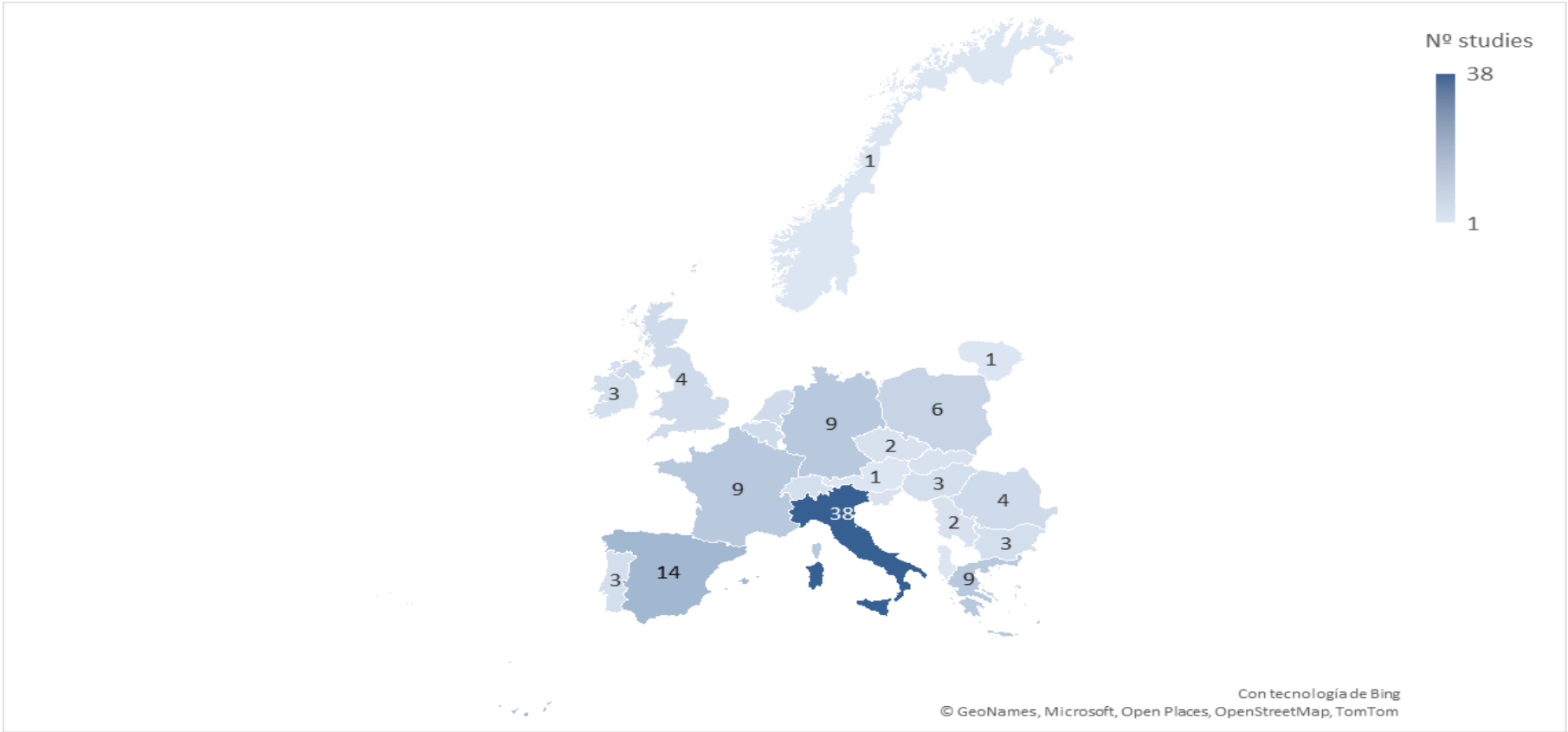
Results

Number of publications per year



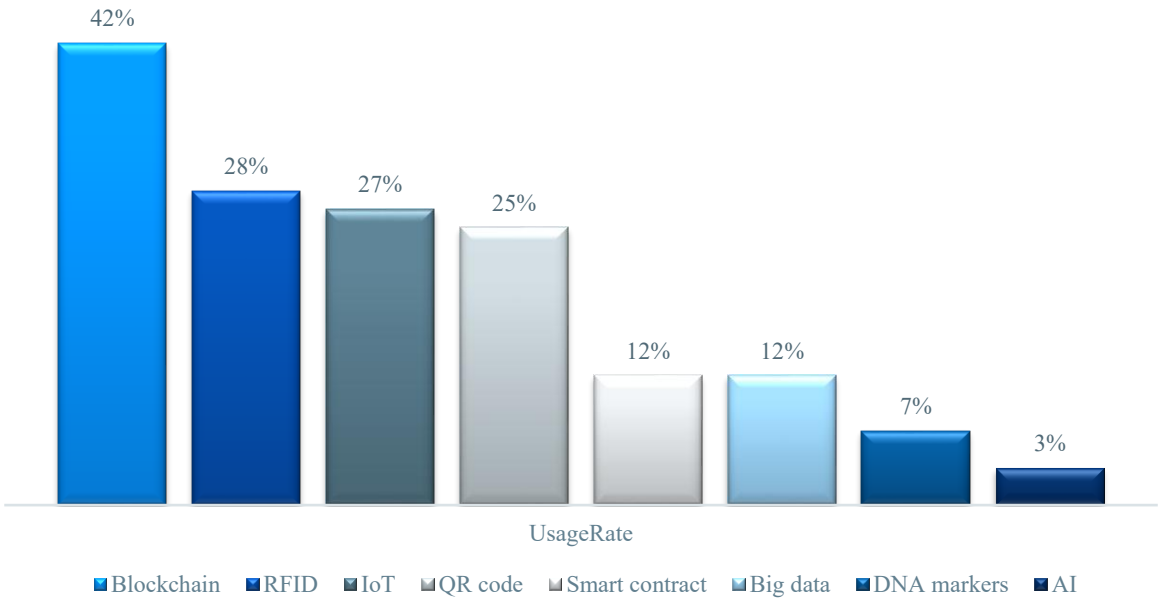
Results

Distribution of studies per country' study



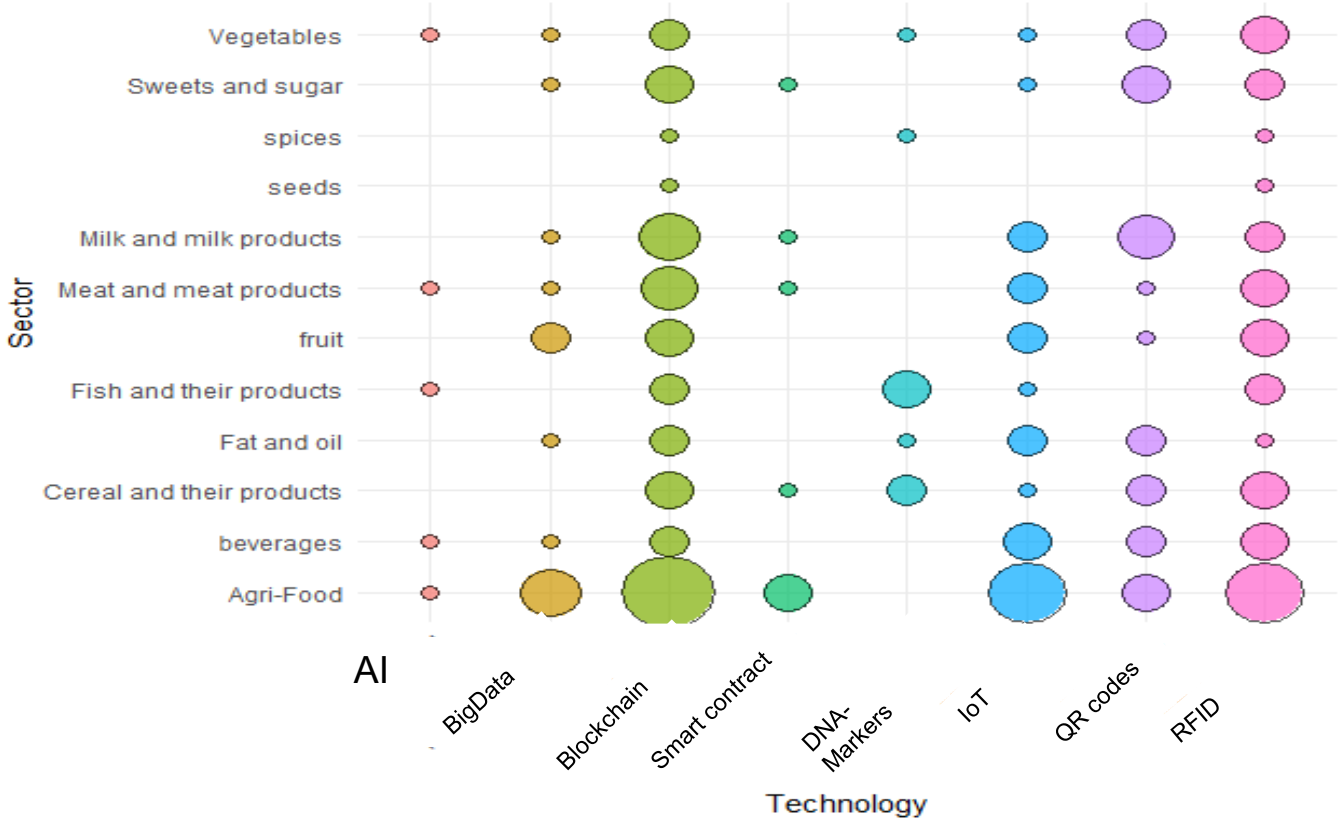
Results

Distribution of digital technologies across studies



Results

Distribution of digital technologies across industry sector



Results

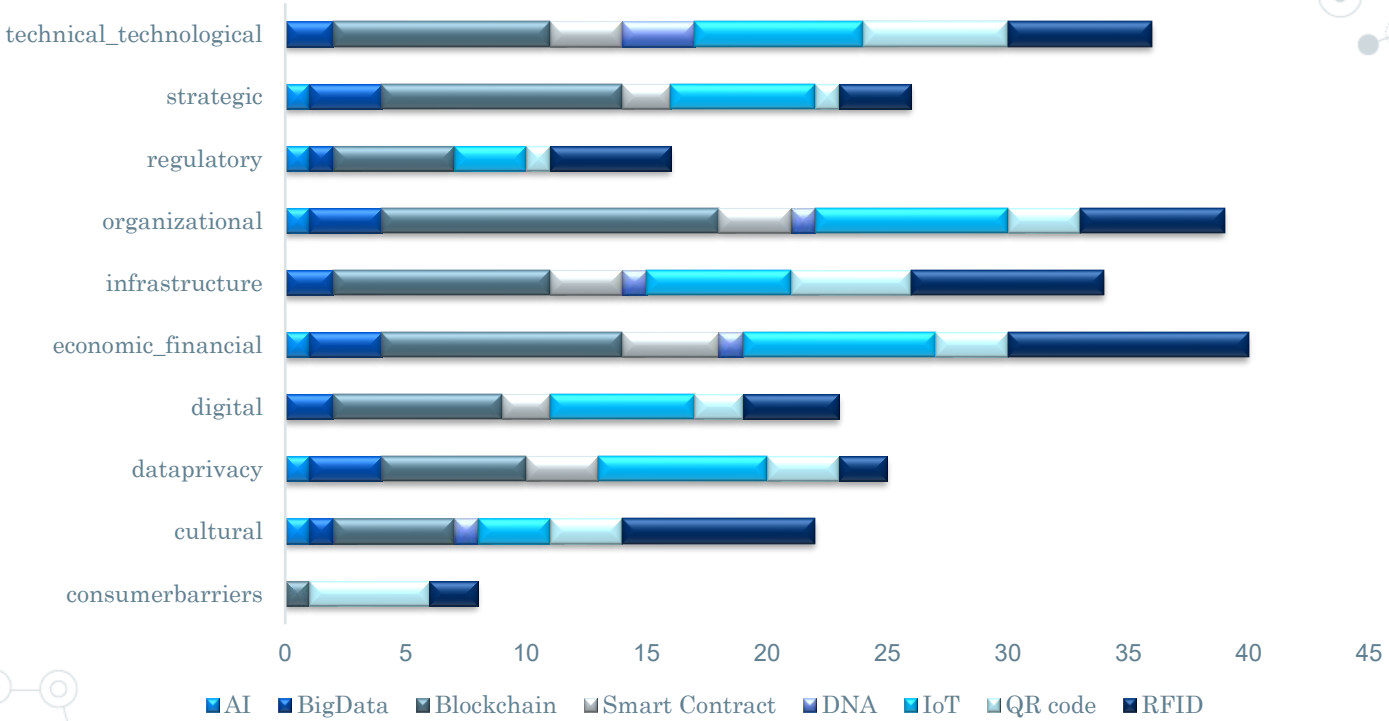
Digital technologies' adoption level

Results

Connections between digital technologies and outcomes

Results

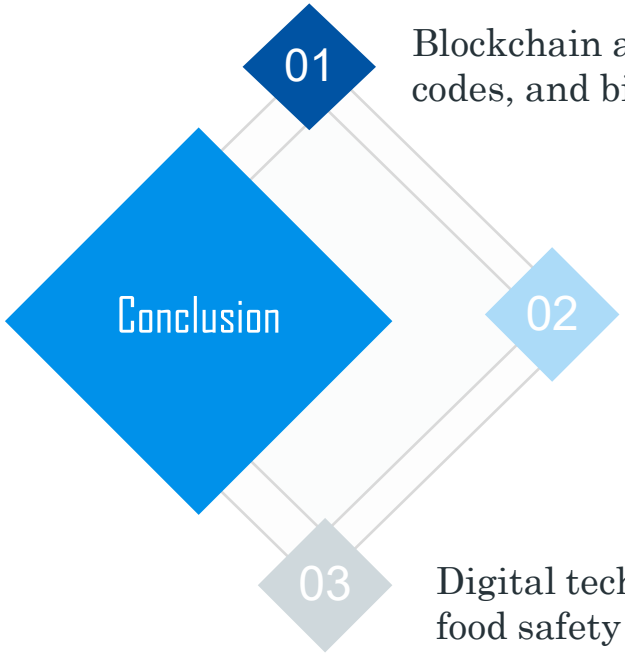
Most frequent barriers by technology



Results

Digital technologies' barriers across supply chain stages

5.
Conclusion



Blockchain and RFID lead adoption across agri-food sectors, while IoT, QR codes, and big data show growing use.

The main challenges to the adoption of technologies are financial and technical hurdles, organizational and regulatory resistance, and dependence on consumer uptake.

Digital technologies enhance traceability, efficiency, sustainability, and food safety in the EU agri-food supply chain.

Recommandation

To better understand how rules, standards, and incentives influence cooperation, trust, and investment in digital systems, future research should focus on longitudinal case studies that track developments over time and cross sector comparisons. This will help to improve both policymaking and industry practices.

THANKS

Somia Bekkouche
sbekkouche@cita_aragon.es

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