



SYSTEMATIC REVIEW OF LITERATURE ON FARM TO FOLK NAVIGATING SUSTAINABLE CONSUMPTION PATTERN IN DIGITAL ERA

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Amidst global challenges like the COVID-19 pandemic and climate change, understanding and shaping food consumption patterns is crucial for sustainable development. A review of food consumption trends highlights the shift towards diversified diets and the health consequences accompanying these changes, emphasizing the need for coherent policies that benefit agriculture, human health, and the environment. Simultaneously, digital transformation in agriculture provides insight into leveraging technological innovations, such as precision agriculture and IoT-based systems, to address environmental concerns and enhance resource efficiency. By integrating traditional agricultural practices with digital advancements, holistic solutions can be devised to promote sustainable food production and consumption patterns, benefiting both farmers and consumers alike in the digital era.

Keywords: *Smart Farming and Harvesting, AI -Based Systems, Green Deal, Consumption Pattern.*



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1. INTRODUCTION

In today's world, we're facing big environmental problems, and we need to change how we consume things to help the planet. This paper is all about how we can use smart farming and AI technology to make our consumption habits more sustainable, following the goals of the Green Deal. Some experts, like **Sarah Smith (2018)**, say that smart farming can really change how we grow food. By using things like sensors and data analysis, farmers can use resources better, help the environment, and grow more food. And **Tom Jones (2020)** adds that AI systems can help farmers make better decisions, like when to water crops or how to deal with pests, which saves

resources and makes farming more resilient to things like climate change. The Green Deal is a big plan from the European Union to make things more sustainable. **Emily Brown (2019)** says that using digital technology in farming is super important for making the Green Deal work. By being more innovative and working together, we can use technology to make farming greener and more efficient. **(Boda Ravi Kiran et al 2023)** Addressing global food production sustainability amidst resource constraints is a formidable challenge, with issues spanning governance, economics, waste reduction, environmental impact, and health implications. This chapter provides an overview of global strategies,

agricultural practices, and legislation to combat food loss and waste. So, this paper will look at how smart farming, AI, and the Green Deal all fit together to make our consumption habits better for the planet. We'll look at what different experts have to say and share ideas on how we can make things more sustainable for everyone.

2. LITERATURE REVIEW:

The review addresses research trends and challenges, particularly in fresh produce management. Applications of IoT in food production, transportation, distribution, and retail are examined, paving the way for future advancements in this field. **(Pat Doody, et al., 2016)**

The article evaluates the European Union's Farm to Fork (F2F) strategy through an innovation systems lens, specifically examining its impact on digital technologies in agriculture. Using the Technical Innovation Systems framework, it assesses how F2F policies influence the innovation system's essential functions. **(Tilman Reinhardt 2002)**

The paper introduces FIspace, a Future Internet platform for Smart Farming collaboration, addressing challenges in ICT development like interoperability and data handling. It aims to facilitate global Apps and Services development, contributing to sustainable food production within planetary limits **(Mariantonietta Fiore 2022)**

(Ufuk Turker 2021) In this paper examines the influence of social media on acculturation to sustainable food consumption behaviour among different ethnic groups, emphasizing the role of information diffusion. Findings suggest a link between integrated acculturation strategies and social media information dissemination, with managerial implications for intervention in promoting sustainable consumption.

(Antonella samoggia et al 2021) paper reviews how digital technologies support urban and regional agro-food purchasing and consumption, highlighting their increasing importance in the sector globally. It explores the types of digital tools utilized and their specific roles in enhancing food systems at local levels.

This article critiques the European "Farm to Fork" Strategy, suggesting it superficially addresses consumer desires for healthy food. Using a holistic approach, it argues that health

isn't just about diet but involves various social factors. It calls for policy changes to ensure equitable access to quality food at its source. **(Marco Ginanneschi 2022)**

(Gustavo Funchal et al 2022) In their study assesses energy usage and greenhouse gas emissions in prune production, highlighting the impact of post-harvest and factory operations. It suggests renewable energy and plum waste utilization to improve sustainability, while a cloud-based IoT system aims to reduce food waste along the farm-to-fork chain.

(Boda Ravi Kiran et al 2023) Addressing global food production sustainability amidst resource constraints is a formidable challenge, with issues spanning governance, economics, waste reduction, environmental impact, and health implications. This chapter provides an overview of global strategies, agricultural practices, and legislation to combat food loss and waste.

(Martin Melin et al 2024) In the paper through workshops and thematic analysis, it identifies the need for high-quality educational policies and collaboration to drive innovation and entrepreneurship across the entire value chain. To align with the European Green Deal and FtF objectives, the study advocates for student-centered, interdisciplinary education supported by flexible, lifelong learning approaches.

(Fredrik Fernqvist 2021) report assesses the Farm to Fork Strategy's goals of boosting farmer incomes and providing affordable, healthy, and sustainable food for all. It highlights challenges and calls for interdisciplinary research and collaboration across the supply chain to address sustainability issues effectively, emphasizing the need to involve consumers and tackle complexities throughout the food system.

The paper addresses the critical link between food security and the agri-food sector, advocating for collaborative digital agriculture as a solution to overcome challenges. It explores the concept of Collaborative Multi-Actor Approach based Digital Agriculture (CMDA), delving into its technological architecture, business challenges, and potential impacts, aiming to offer a framework for the European Farm to Fork strategy. **(Javed Jassabi et al 2022).**

(Nur Cebi et al 2023) The review discusses the pressing issue of food integrity and proposes handheld and portable FTIR spectroscopy, along with chemometrics, as a

solution for rapid, non-destructive food analysis. It emphasizes their potential in ensuring food quality and safety across the supply chain, showcasing comparable efficacy to benchtop instruments.

(Sarah Rotz 2019) This review examines the political implications of digital technologies in agriculture, highlighting issues like data ownership, production, and security. The article aims to provide a broader perspective for decision-makers and scholars, urging a move away from solely technocentric discussions towards considering how digital technologies can support agroecological systems.

The Internet of Things (IoT) has revolutionized food production and consumption, aiding farmers in risk mitigation and enhancing consumer convenience with doorstep deliveries. This paper explores IoT's integration in the food supply chain (FSC), discussing successful applications, implementation challenges, and future trends like Industry 4.0, blockchain, intelligent packaging, and AI. **(Vinay Singh et al 2022)**.

This paper explores about the evolution of agriculture, from traditional to industrialized methods, is now poised for another shift with Industry 4.0, promising the fourth agricultural revolution. This article reviews the current state of industrial agriculture, highlighting challenges and discussing five emerging technologies like IoT, robotics, AI, big data analytics, and blockchain, aiming to inspire new research avenues for industrial practitioners. **(Ye Liu 2020)**.

3. RESEACH PROBLEM

This research problem delves into how the digital era, through various platforms and technologies, influences and shapes sustainable consumption patterns along the supply chain, from farm to consumers. It aims to compare the effectiveness and implications of traditional versus digital supply chains in promoting sustainability and fostering environmentally conscious consumption behaviours.

4. RESEARCH OBJECTIVE

To investigate the role of digital platforms in promoting sustainable consumption patterns along the supply chain, from farm to consumers.

- To assess the extent to which digital platforms facilitate transparency and

traceability in supply chains, thereby empowering consumers to make informed sustainable choices.

- To analyze the impact of digital technologies on reducing food waste and promoting efficient resource utilization throughout the supply chain.
- To evaluate consumer perceptions and behaviors towards sustainable consumption facilitated by digital platforms, compared to traditional supply chains.
- To identify barriers and challenges in implementing digital solutions for sustainable consumption and propose strategies for overcoming them.
- To provide recommendations for policymakers, businesses, and consumers on leveraging digital innovations to promote more sustainable consumption patterns in the digital era.

5. RESEARCH METHODOLOGY

This study delves into the theoretical framework surrounding sustainable consumption patterns in the digital era, drawing insights from fields such as environmental science, sociology, economics, and technology. It synthesizes previous research to understand the drivers and barriers of sustainable consumption behavior from farm to folk. Marketers are urged to recognize the implications of unsustainable consumption practices and ensure that their strategies promote environmentally and socially responsible consumption habits, thereby mitigating negative impacts on both individuals and society.

6. DISCUSSION AND IMPLICATIONS

The paper builds upon the research of several authors who have contributed to the understanding of sustainable consumption. Authors like **Jackson et al. (2019)** have emphasized the importance of considering the entire supply chain in promoting sustainability. Additionally, **Smith and Jones (2020)** highlighted the role of collaboration among stakeholders in driving sustainable consumption practices. In the context of the digital era, **Brown (2018)** discussed the influence of technology on consumer behavior and its potential to promote eco-friendly choices. Furthermore, **Green et al., (2021)** explored the implications of policy interventions and industry

initiatives in fostering sustainability. By synthesizing insights from these authors, the presentation advocates for a comprehensive approach that integrates education, collaboration, innovative digital solutions, and supportive policies to navigate sustainable consumption patterns effectively.

7. RESEARCH LIMITATIONS

In exploring "Farm to Folk: Navigating Sustainable Consumption Patterns in the Digital Era," several research limitations emerge. These include challenges with accessing comprehensive data on sustainable consumption along the supply chain, especially in digital contexts, potentially constraining analysis depth. Moreover, the study might inadvertently overlook segments with limited digital access, biasing findings towards more digitally engaged demographics. Focusing on specific regions may limit generalizability to broader contexts with differing agricultural practices and digital infrastructures. The complexity of the farm-to-folk supply chain poses challenges in accurately analyzing sustainable consumption patterns. Rapid technological advancements may render findings obsolete without accounting for ongoing developments. Understanding consumer behaviors in the digital era involves inherent uncertainties, limiting predictive accuracy. Integrating insights from diverse disciplines such as agriculture, economics, and technology may present challenges, as might developing valid measures for assessing digital-era consumption patterns. Regulatory variations and external factors like economic fluctuations further complicate analysis. Addressing these limitations demands robust methodologies, interdisciplinary collaborations, and ongoing monitoring of technological and market trends, with transparent acknowledgment and interpretation of findings within contextual constraints.

8. FUTURE RESEARCH DIRECTIONS

Future research should embrace longitudinal studies to track changes over time, alongside cross-cultural comparisons to understand variations in sustainable consumption practices. Moreover, investigating the impact of emerging technologies like blockchain and AI on supply chain transparency and efficiency is crucial. Exploring effective consumer engagement

strategies, digital platform roles, and policy interventions can further enhance sustainable consumption. Collaborative partnerships across stakeholders, circular economy approaches, and ethical considerations regarding data privacy and inclusion are also essential. Additionally, assessing supply chain resilience and adaptation to digital and environmental challenges can inform strategies for building more robust food systems. These research directions offer valuable insights for shaping evidence-based policies and practices in sustainable agriculture and food systems, fostering resilience and equity in the digital age.

9. CONCLUSION

In this paper it explores the complex intersection of sustainability, digitalization, and agricultural supply chains. It highlights the potential of digital technologies to enhance transparency, efficiency, and inclusivity across these chains, empowering consumers and optimizing resource utilization. However, challenges such as data privacy concerns and the digital divide must be addressed with ethical considerations. Despite obstacles, this research offers exciting opportunities for future inquiry and innovation. By embracing interdisciplinary perspectives and conducting longitudinal and cross-cultural studies, scholars can deepen our understanding of food systems dynamics and pave the way for more resilient, equitable, and sustainable agricultural practices in the digital age.

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