Breaking the '**cycle of inertia**' in food supply chains

Introduction: Research overview

This research explores the structural dynamics causing 'inertia'—the persistent resistance to change—within the animal-based meat supply chain (SC), and aims to understand the meat SC structure and behaviour using systems thinking to propose innovative interventions to break the '**cycle of inertia**'.

In this context, 'inertia' = The inability of stakeholders to act and address sustainability challenges associated with meat production and consumption.

Why the research is needed?

This research addresses the need to meet global dietary and nutritional demands sustainably while mitigating the environmental and health impacts of meat production and consumption.

The 3 key challenges:

1. **Overconsumption and unequal distribution of protein:** Global protein consumption exceeds the average daily requirement of 50g per capita (with significant inequalities across regions).
2. **Meat is highly resource-intensive:** Meat production challenges the ability to achieve the UN SDGs, particularly SDG1, SDG2, SDG3, SDG6, and SDG13.
3. **Lack of perceived urgency:** Stakeholders in the food SC show a 'lack of urgency' in addressing the 'diet-environment-health' trilemma to avoid potential public and industry repercussions.

Systems-level innovative interventions are needed to break the '**cycle of inertia**' in meat SCs and facilitate the transition towards a sustainable and resilient food system.

Research questions

1. What underlining meat SC system structure and interlinkages lead to the emergence of the 'cycle of inertia'?
2. How to efficiently and innovatively intervene in meat SC systems to mitigate the associated sustainability ramifications?

Methodology

This study involves a **three-phase approach** to understand the meat SC system and inspire innovative interventions for sustainability.

Data was collected through literature synthesis, expert interviews, and a focus group.

Phase 1: Conceptual framework development

- Identified system structure and conceptualised intervention strategies.
- Review of existing literature to determine key drivers and impacts of meat production and consumption.
- Interconnections were explored to uncover drivers of 'inertia.'

Phase 2: Data collection and analysis

- 12 expert interviews were conducted across industry, academia, government, and NGOs.
- Data analysis informed the system structure and intervention strategies.
- Causal loop diagrams were used to map variables, parameters, and their structural interrelations and feedback mechanisms to validate system dynamics.

Phase 3: Model structure refinement

- A unified framework of innovative intervention strategies was proposed for breaking the '**cycle of inertia**' and to mitigate negative impacts of meat production and consumption.

Results

The underlying structure of the meat food system reveals **6 key subsystems** that dictate the '**cycle of inertia**' preventing sustainability:

Social | Institutional | Value chain | Cultural | Economic | Environmental

Reducing the sustainability impact of meat is a complex problem due to the imbalance between reinforcing loops (26) and balancing loops (14). Delays in balancing loops lead to low awareness of sustainability challenges, contributing to the '**cycle of inertia.**'

The proposed system model motivated **6 innovative strategies** for intervention by governments, public bodies, NGOs, industry, academia, and civil society, categorised into **3 main action stages**:

- Engaging or 'Getting people involved'
- Encouraging or 'Giving the right signals'
- Enabling or 'Making it easier'

Adopting these strategies according to scale and context can help break the '**cycle of inertia.**'

Conclusion

By exposing the structural drivers of inaction and proposing strategic leverage points, the study empowers policymakers, industry leaders, and civil society to initiate a transition towards a sustainable and resilient food future.

Find out more about the research by reading the full article here.

The article:
Breaking the cycle of inertia in food supply chains: a systems thinking approach for innovation and sustainability.

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