Barriers and Key Enablers of Achieving a Fibre-based Packaging Recycling Target of 90% in Europe

A producer case study investigating the barriers and key enablers in regard to increasing cellulose fibre-based recycling rates within the packaging industry

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Abstract

This study explores the **key hurdles** and **facilitators** of reaching a **90% recycling target** for **fibre-based packaging** in **Europe** using the **Grounded Theory** approach, through qualitative interviews with **industry professionals**. The research reveals critical factors, including **recycling infrastructure, collection and sorting systems, paper product recyclability, and public awareness**. The need for expanding **Paper for Recycling** (PfR) collection, especially in underutilized regions such as **Eastern Europe**, and refining **source-separated collection methods** to mitigate contamination, are emphasized. The potential benefits of **automated sorting systems** is underscored, notwithstanding the economic threshold faced by smaller facilities. The study reveals the **challenges** of recycling **complex packaging materials** and underlines the necessity to eliminate **mineral oil hydrocarbons** from printing inks or to employ **functional barriers** for **reutilizing recycled paper fibres** in **food packaging**. **Public awareness** and **consumer behaviour** are identified as vital enablers for recycling efforts. Furthermore, the need for **industry cooperation**, **adherence** to **guidelines**, and **designing** for **recyclability** emerge as crucial for reaching recycling objectives. This research suggests that overcoming these challenges and leveraging identified enablers can aid policymakers and stakeholders in establishing a **circular economy** via enhanced paper recycling efforts.

Introduction

- Transition to a **Circular Economy** (CE) and the emphasis on **reuse** and **recycling**.
- **Disparities** in **recycling rates** among countries showcase potential areas for improvement.
- Current overall recycling rate in Europe: **81.5%**

Research Question:

"What are the barriers and key enablers of reaching the fibre-based packaging recycling target of 90% in Europe?"

Theory

- **Collection Systems**
  - Source Separated / Commingled
  - Eastern Europe
  - Contamination
- **Sorting Systems**
  - Composite Materials
  - Automated Sorting Systems
- **Recyclability of Products**
  - Mineral Oil Hydrocarbons (MOH)
  - Composite Materials
- **Public Awareness**
  - Awareness and Knowledge
  - Consumer Willingness to Separate

Methodology

- **Grounded Theory** Qualitative Research
- **Purposive Sampling** of fibre-based packaging **industry experts**
- **Open** Coding – **Axial** Coding – **Selective** Coding
- Continuous Comparison and Memoing

Discussion & Conclusion

- **Enhance Infrastructure**
  - Automated sorting technologies.
  - Establishment of **paper recycling** infrastructure in **Eastern Europe**.
- **(Re)design Packaging for Better Recyclability**
  - Incorporate **eco-design criteria** and explore innovative packaging solutions like easy **lamination removal**.
- **Collaborate with Industry and Regulators**
  - Harmonise packaging **design** guidelines
- **Educate Consumers**
  - Increase **public awareness** about the environmental impact of packaging waste and **improper separation**.
  - Incorporate **symbols** in packaging design to inform consumers about correct **disposal** and **recycling**.
- **Invest in Research and Development**
  - Assess the technical and economic feasibility of industrial-scale recycling of **composite** materials

Results