Investment, Research and Innovation - Putting in Place the Enablers of Waste Management Development and Implementation in the UK

Dr Paul Davidson
SSPP Challenge Director
The Smart Sustainable Plastic Packaging Challenge 2019 - 2025

To deploy £60m of public funding alongside £149m of private money using a combination of:

- Early stage enabling research (~£8m)
- Collaborative R&D (~£12m)
- Large scale demonstrator projects (~£38m)

Supporting **bold, ambitious innovation** to bring about wholesale change in the UK’s ability to:

- Reduce
- Reuse
- Recycle
SSPP Portfolio

- 8 Funding Competitions
- 57 funded projects to date
- Collaborative/multi-disciplinary
  - Recycling industry
  - Packaging industry
  - Brand and retailers
  - Academia
  - Not for profit
- Balanced approach

![Diagram showing the SSPP Portfolio with various recycling methods and their respective funding amounts: Preventing and Reducing £4.5+ million, Refilling / Reusing £10.5+ million, Mechanical Recycling £28+ million, Chemical Recycling £8+ million, Organic Recycling £1.9+ million, Landfilling, Incinerating / EfW, Leakage.]

- § 8 Funding Competitions
- § 57 funded projects to date
- § Collaborative/multi-disciplinary
  - § Recycling industry
  - § Packaging industry
  - § Brand and retailers
  - § Academia
  - § Not for profit
- § Balanced approach
Prevention
Novel materials to prevent plastic waste

Notpla – a seaweed-derived coating as an alternative to the plastic laminates used on cardboard packaging

Xampla – a new plant-based, edible packaging film that could help to reduce the 855 billion single-use plastic sachets that become waste every year
Reuse and Refill
System change for refill / prefill

- Frictionless and compelling proposition for customers and the retail supply chain
  - Infrastructure
  - Finance
  - Benefits (especially carbon accounting)

- AND we need to change (deeply ingrained) habits

Hence we want target high frequency, high volume purchases e.g. fresh milk
What do customers want? The ‘Amazon Test’

- Convenience
- Value
- Esteem*

Must address at least one of these to be successful

Each part of the supply chain is effectively a customer - with a veto!

* Rough translation

- Expensive deposits?
- Downloading apps and signing up with bank details?
- Fiddly in-store dispensers?
- Washing containers at home?
- Remembering to bring containers shopping?
System change is really hard

Setbacks will happen. The big question is:
HOW WILL YOU RESPOND TO THEM?

Failed trial Failed trial Failed trial Failed trial Failed trial

DAY 1 DAY 100

“Aim for PROGRESS, not perfection.”

Scale up X Y Z

Pilot G H I

Pilot A B C

No more wasted resources on isolated trials
Prefill large-scale demonstrator: Reposit

A commercially, operationally, and environmentally scalable, data driven platform for the benefit of the stakeholders.

- **Brands** switch from single-use to standardised, smart, packaging-as-a-service
- **Retailers** sell products and facilitate return points
- **Consumers** use packaging-as-a-service, return it, reduce plastic & save money.

Return rate already over 70%
Large-scale demonstrator: Unpackaged
Making logistics work for refill

STANDARDISED, OPTIMISED FOR LOGISTICS

- Design and material choice ensure that vessels will withstand the supply chain (lifetime = 60+ cycles)
- Flat base on vessel and wide aperture opening to enable easy filling and washing

- Standardised vessels can be filled by manufacturers and suppliers in the same way
- Tamper-proof seal and standardised caps (readily available) for all vessels to ensure shelf life, freshness, safety and hygiene
- All vessels (in-store and online) can be cleaned at universal service centre

In-store vessel
14.4 L

Online vessel
3.25 L
Practical, logistics friendly in-store solution

ATTRACTIVE IN-STORE FIXTURE
Launched October 2023 with Aldi
Milk in refillable plastic

Abel & Cole launches first refillable plastic milk bottle

By Grace Duncan | 13 October 2023

Abel & Cole

Its Club Zero milk product will join its growing refillable range, using packaging that will save Abel & Cole 456,000 single-use plastic milk bottles.
Mechanical recycling – large scale demonstrators

Impact Recycling – Water based sortation of films

Fiberight – Recycling plastics from MRF reject streams

Berry Global – World first mechanical recycling plant for food-grade polypropylene
More on films and flexibles…

- Flexcollect – The UK’s largest pilot of kerbside plastic film collection
- Ceflex – SSPP is one of the larger contributor’s to this multinational supply chain initiative
Chemical recycling
Chemical recycling: large scale demonstrator

20kt/a large-scale demonstrator, Wilton UK
Open day 26th
Packaging Data Collection and Management
Packaging data will become increasingly important

A Circular Economy for Packaging Data

Open 3P is an Open Standard for packaging data

Developed over the last 2.5 years, it will improve the quality, granularity and availability of packaging data for the whole packaging value chain for EPR, UK Plastic Packaging Tax, LCA, ESG reporting and more.
Help is at hand

Just launched……

Secure Data Sharing
for the entire packaging value chain
What about preventing leakage?
“What gets measured gets done”

- Looking at potential for remote sensing and AI data processing to look for plastics aggregations and flows
- Potential to test effectiveness of policy interventions
- Assist with international agreements
THANK YOU

EMAIL: paul.davidson@iuk.ukri.org
www.ukri.org/smart-sustainable-plastic-packaging-challenge/
www.ukcpn.co.uk/SSPP