14th Jan 2026 Snack Series Session 9 Summary –

The Where of Waste

Context

The Where of Waste session convened stakeholders from industry, government, and international partners to explore how waste mapping can underpin circular economy ambitions and the strategic management of critical materials. The discussion sat at the intersection of materials security, digital infrastructure, regulation, and industrial capability, with a particular emphasis on understanding waste streams as future resource flows rather than end-of-life liabilities.

The session aimed to build shared understanding, test emerging approaches, and inform a collaborative ecosystem that could attract funding, guide policy alignment, and enable long-term value creation across supply chains.

Key Discussion Points

1. Waste Mapping as Strategic Infrastructure

Waste mapping was positioned as a foundational capability for the circular economy, enabling visibility of material flows, regional processing needs, and compliance reporting. Participants highlighted its role in informing network design, supporting digital product passports, and enabling traceability for critical materials across lifecycles.

2. Policy and Regulatory Landscape

The group examined a rapidly evolving regulatory environment, including extended producer responsibility, mandatory digital waste tracking, and emerging circular economy standards. These frameworks were seen as both a compliance burden and a strategic lever to drive better data, transparency, and accountability across supply chains.

3. Technology Enablement and Limits

Technologies such as machine vision, robotics, sensors, and distributed ledgers were discussed as important enablers of efficiency and traceability in waste management. However, it was acknowledged that these tools primarily optimize existing systems rather than fundamentally altering material flows without corresponding changes in design, incentives, and operating models.

4. Data Quality, Granularity, and Modelling

A central theme was the challenge of inconsistent, incomplete, and heterogeneous waste data. The discussion emphasized the need for imposed standardization, contextual validation, and dynamic network modelling to create actionable insights. Digital twins and increased granularity, including component and elemental-level data, were highlighted as critical to unlocking higher-value recovery pathways.

5. Business Value and Behavioural Change

Improved waste data was consistently linked to tangible business value. Better visibility enables organizations to internalize value, redesign operations, and shift behaviours from disposal-centric models toward repair, reuse, and strategic recovery. Data-driven insights were seen as catalysts for changing operating models, not just reporting outcomes.

6. Supply Chain Optimization and Material Retention

Aggregated waste intelligence across geographies can reveal opportunities for closer coupling between waste generators and processors, more efficient logistics, and better placement of processing infrastructure. The discussion underscored the strategic importance of retaining critical materials domestically or within allied networks to support resilience and national priorities.

7. Capability Gaps in UK Recycling

Significant gaps were identified in domestic capability for high-grade metal and materials recycling. Economic factors such as energy costs and export-favourable logistics currently incentivize material leakage, undermining circularity, industrial competitiveness, and long-term materials security.

8. Defence and Long-Life Asset Challenges

The defence sector was discussed as a complex but high-impact use case for circularity. Long platform lifecycles, legacy data gaps, and contractual constraints complicate the adoption of digital product passports and bills of materials. Aligning incentives and contracts was identified as essential to enabling recovery and reuse at end of life.

Key Findings

- Waste should be treated as a strategic resource flow, not an operational afterthought.
- Data standardization and modelling can create a “single version of the truth” even in imperfect systems.
- Regulatory pressure is accelerating digitalization but must be matched with economic and operational incentives.
- Granularity matters: higher-resolution data unlocks higher-value recovery and strategic material insights.
- The UK faces structural recycling capability gaps that pose economic, environmental, and security risks.
- Circularity at scale requires coordinated action across policy, technology, contracts, and behaviour.

Strategic Call to Action

To progress from insight to impact, the ecosystem should align around a shared ambition to treat waste intelligence as national and industrial infrastructure. This requires:

- Building a collaborative waste-mapping ecosystem that integrates data, policy, and industrial capability across sectors and borders.

- Elevating waste data from compliance to strategy, using it to inform investment decisions, supply chain design, and material security planning.
- Driving system-level change, not just technological optimization, by aligning incentives, contracts, and operating models with circular outcomes.
- Prioritizing strategic material retention, particularly for critical and defence-relevant materials, through coordinated policy and industrial action.
- Focusing future collaboration on high-impact material streams, where capability gaps and strategic risks are most acute.

The session reinforced that circularity is not a single intervention but a long game of alignment. Waste stream analysis provides the map, but leadership, collaboration, and intent determine the destination.