

Sustainable Packaging 2025- 2035; Challenges and Opportunities



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About



- Who? Matthew Rogerson- The Pack Scout. I'm a strategic advisor, author, and sustainable packaging enthusiast who helps companies find commercial clarity in complex topics
- What? This report launched April 2025, to help guide companies through the challenges seen across the industry.
- To demonstrate use, I invited 217 packaging professionals to submit their questions ahead of report launch. Clear alignment shows alignment between what I see and what the challenges are.
- It's not a trend recap. It's a roadmap. It provides clarity, insight, and direction.



This is not a
pitch...
it's a map.

218 packaging leaders. 3 questions. Surprising insight.

- ✓ What are your peers struggling with?
- ✓ What they want to learn
- ✓ What the data tells us
- ✓ Answers... if you need them



Background

- ❖ What's the biggest barrier holding you back from sustainable packaging?
- ❖ What areas of insight would help you lead in packaging sustainably?
- ❖ What would you most like to learn from this webinar?

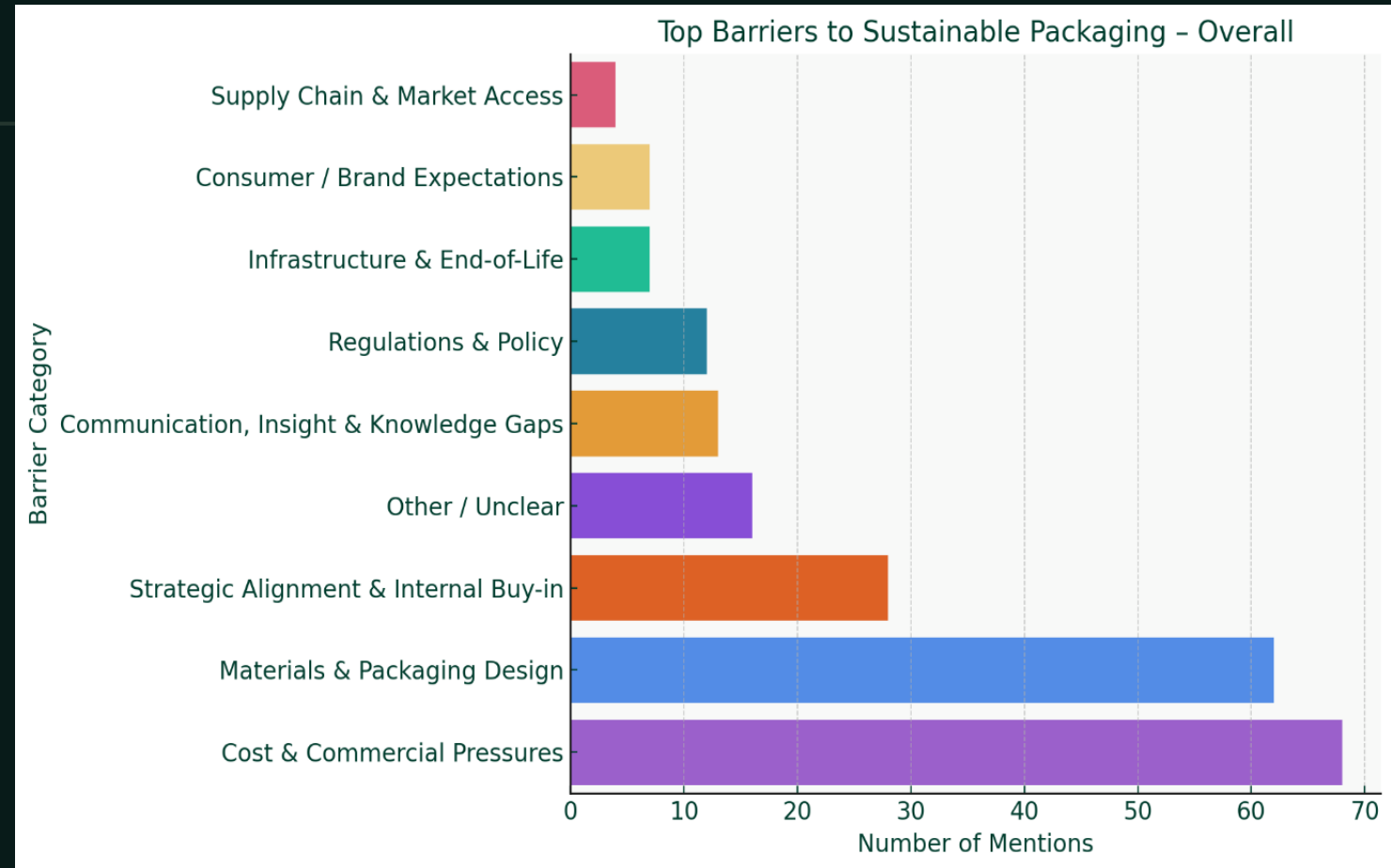
Responses were varied, complex and incredibly insightful. The good news is they are answerable and there are solutions today for almost every major challenge being faced.



Biggest Barriers?

- Cost and Materials nearly 2 / 3
- Alignment and lack of clarity
- Knowledge Gap / Regulation
- Least impact; infrastructure, consumer and customer behaviour, supply chain

Overall, not a lack of vision but economic and technical realities of delivery.



Further segmentation – Type, Geography, Revenue

- ✓ Brands: Materials, Cost, Strategic Alignment
- ✓ Converters: Cost, Materials, Strategic Alignment
- ✓ Associations: Strategic Alignment

Brands overwhelmingly driven by Materials, **Solve** these and significant bottleneck removed.

Converters by cost. Innovating without a roadmap – progress **expensive, risky and difficult to scale**

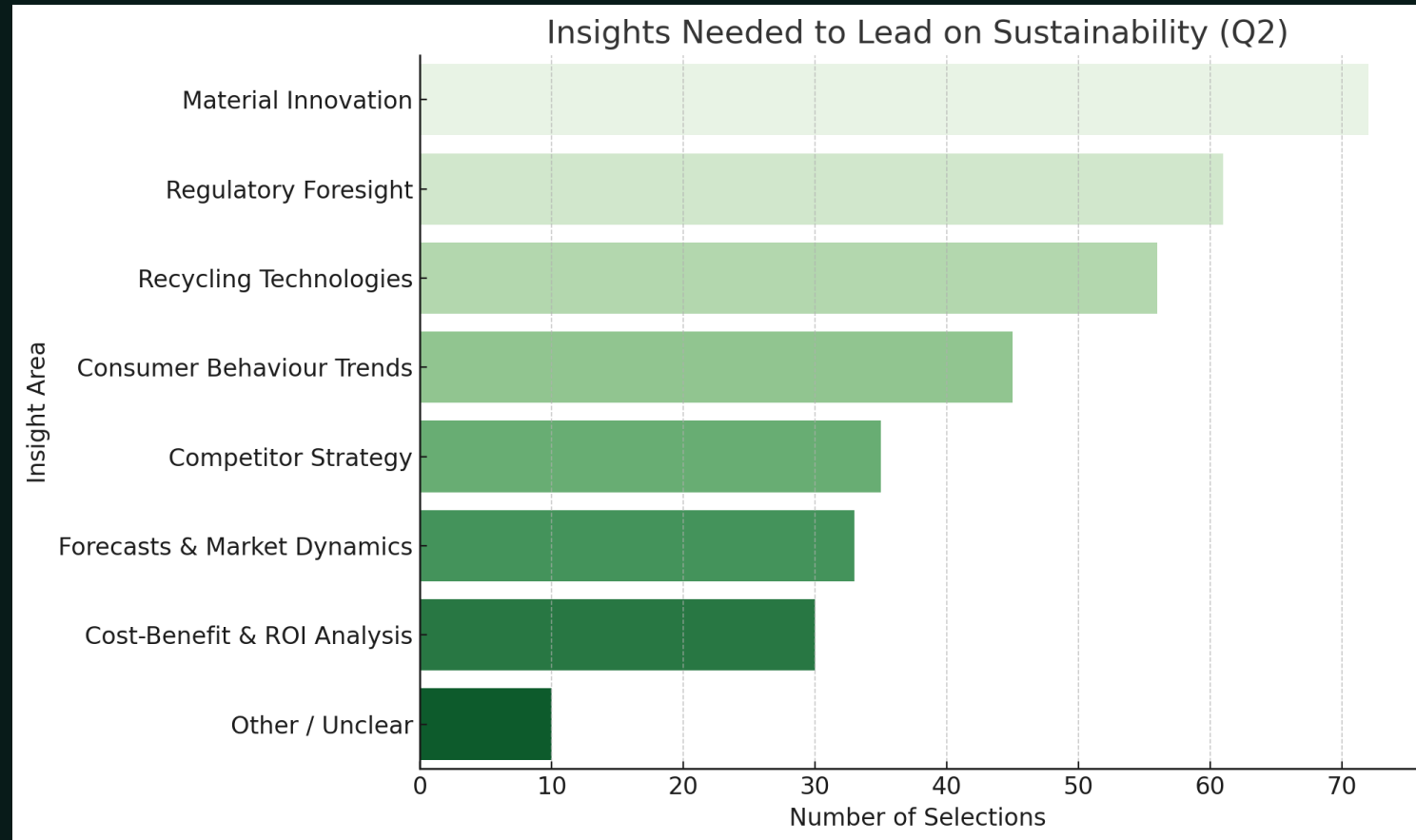
Row Labels	Association / Research	Brand Retailer	Converter or Supplier	Grand Total
Communication, Insight & Knowledge Gaps	1	4	8	13
Consumer / Brand Expectations		1	6	7
Cost & Commercial Pressures	1	33	34	68
Infrastructure & End-of-Life	1	3	3	7
Materials & Packaging Design		43	19	62
Other / Unclear		4	12	16
Regulations & Policy	1	6	5	12
Strategic Alignment & Internal Buy-in	2	12	14	28
Supply Chain & Market Access		1	3	4
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Grand Total	6	107	104	217

What insight is needed?

- 1. Material Innovation
- 2. Regulatory foresight
- 3. Recycling Technologies
- 4. Consumer Behaviour Trends

Companies don't just need technical information.
They're looking for strategic guidance.

- ❖ **Material Innovation** – drives operational transformation. Match sustainability and performance needs. Scalable?
- ❖ **Regulatory foresight** because non-compliance = product delays, reputational risk, or lost business.
- ❖ **Recycling technologies** – beyond front end focused. Increasing pressure to understand, improve, and align with end-of-life systems. Vital to connect packaging formats with real-world recovery systems.
- ❖ **Consumer behaviour**. Customers are redefining what they expect from brands, and those expectations are evolving fast.



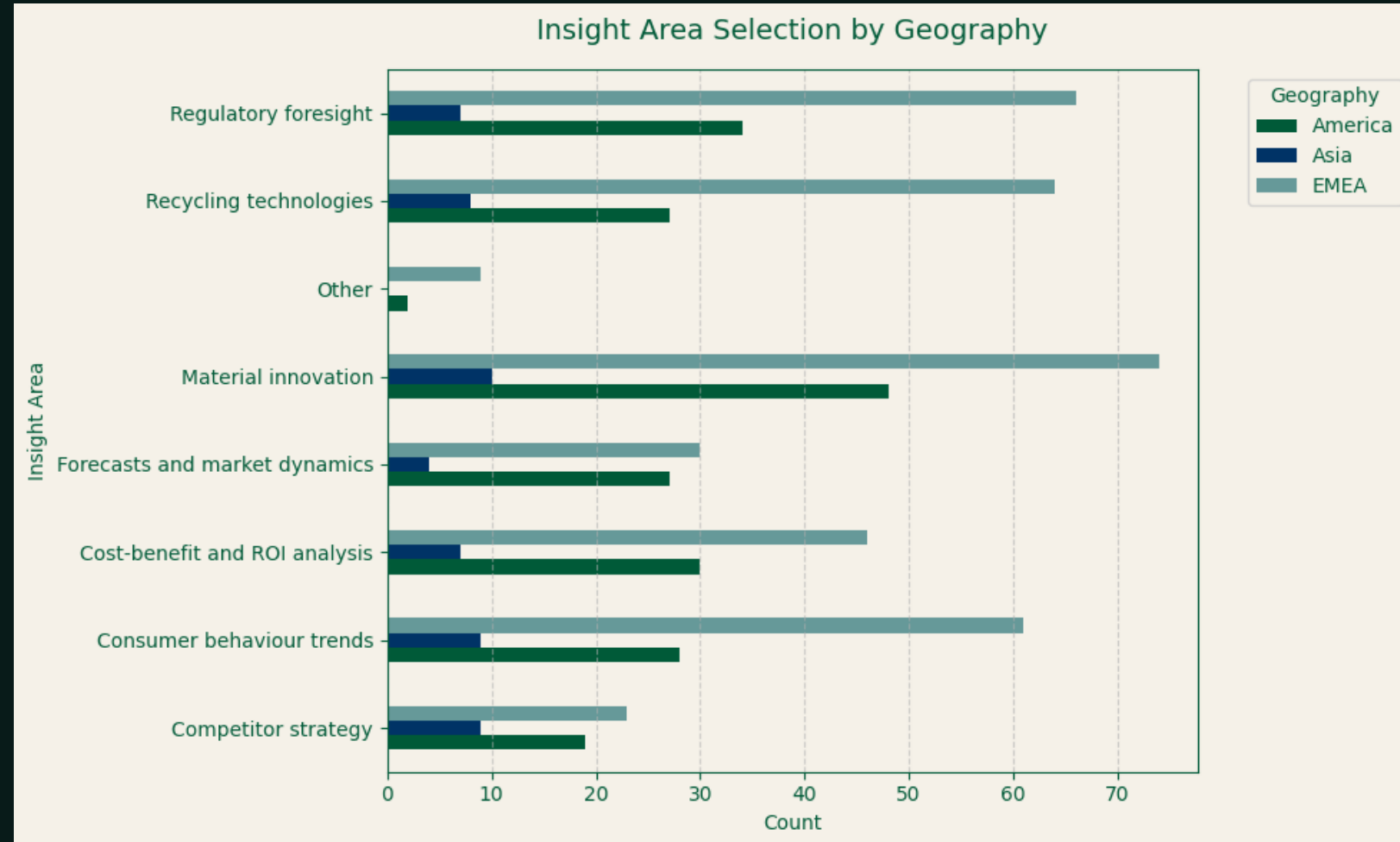
Regional Differences

Europe

Regulatory foresight and Material lead.
Multiple incoming regulations – what is road ahead? Drives material selection.

North America

Same top 2. Less centralized legislation, companies driven by consumer expectations, brand positioning, and retailer requirements — but must also comply with global regulation to trade globally.



Learning outcomes

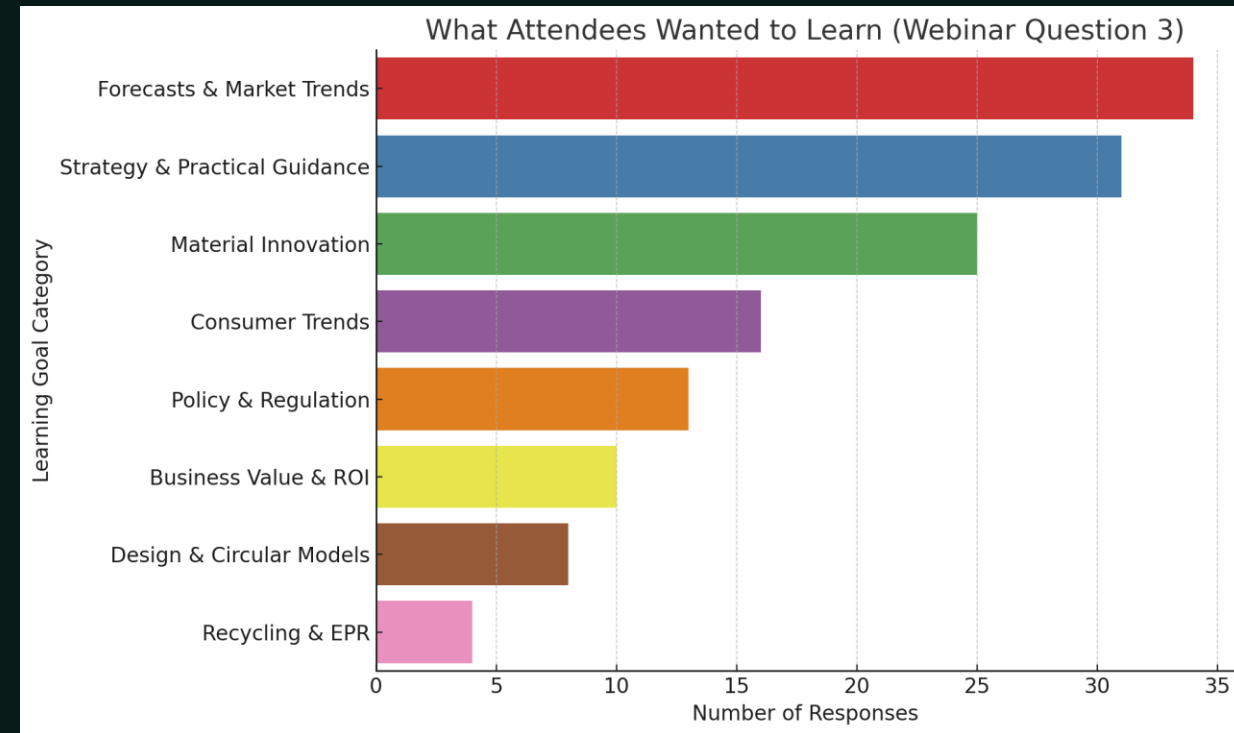
1. FORECASTS & MARKET TRENDS

2. STRATEGY & GUIDANCE

3. MATERIAL INNOVATION

64% WANTED TO KNOW TOP 3.

GUIDANCE ON WHERE TO GO AND
HOW TO GET THERE.



Summary of industry's questions

WHAT DO THESE QUESTIONS TELL US?

- Where are we headed?
- What works?
- What should we invest in?
- What will future regulation demand?
- How do we design for impact?

All addressable with insight,
alignment and tools (like the report).

Taking each major question in
turn...

Challenge #1 — Cost & Commercial Pressure

“Too expensive” “Too risky” “Can’t justify”

Initial investment is higher. **CapEx and Raw Materials start high.** However – **scale will reduce price, energy and resource use while leading regulatory compliance.** Switching materials can unlock waste incentives, and consumer sales growth. Time is the main hurdle. Almost every sustainable material pays off significantly... after about 6 years. **Extending leadership window and ROI demands** for shareholders will pay **dividends** to those willing to wait.

Material	2025 Cost (USD/ton)	Projected 2035 Cost (USD/ton)	Annual Cost Change (%)
Virgin Plastic (PET, PE)	\$1,444	\$1,942	+3%
Recycled Plastic (rPET, rPE)	\$1,600	\$1,296	-2%
Bioplastic (PLA, PHA)	\$2,000	\$1,228	-5%
Paper-based Packaging	\$1,300	\$1,062	-2%
Molded Fiber (Pulp)	\$1,400	\$1,095	-2.5%
Aluminum	\$2,500	\$2,895	+1.5%
Recycled Aluminum	\$2,200	\$1,629	-3%
Steel	\$1,500	\$1,660	+1%
Recycled Steel	\$1,400	\$1,150	-2%
Mycelium-based Packaging	\$2,500	\$1,412	-5%
Seaweed-based Packaging	\$2,800	\$1,468	-6%
Cellulose-based Packaging	\$2,200	\$1,349	-4%
PHB (Polyhydroxybutyrate)	\$2,500	\$1,462	-5%
Bio-based Polymers (PEF, Starch-based)	\$2,300	\$1,398	-4.5%

Challenge #2 Design and Materials



There is no silver bullet. Fit for purpose, lightest footprint and impact and must be made at speed and scale without loss of quality.

Can not reach 2035 sustainability goals with 1990s machinery. Key is to stay high up waste hierarchy, and to do switch in stages and have an infinite focus.

Material	Pros	Cons
rPET	Widely recycled, reduces virgin plastic use	Quality degradation, limited availability
Paper / Fibre	Renewable, consumer-friendly	Barrier limitations, not always recyclable
Aluminium	Infinitely recyclable, strong barrier	High energy cost, CO2 in production
Glass	Inert, reusable, premium	Heavy, fragile, energy-intensive
Mono-material PE / PP	Recyclable, DPP-aligned	Functional limits compared to multi-materials
PLA (Corn-based)	Compostable (industrial), familiar to consumers	Not recyclable, industrial composting needed
PHA	Biodegradable in marine and soil environments	Expensive, early-stage production scale
Seaweed Film	Edible potential, innovative biogenic material	Low scale, limited barrier performance
Starch-based Bio	Biobased, low-cost, compostable	Brittle, poor water resistance, infrastructure gaps

Challenge #3 Strategic Alignment / Internal Buy in

Collaboration is key, wider the better – especially inside the company.

25% all projects that fail could have been avoided altogether by including person with right experience.

What is our goal? How can each team support this?

Sustainability is an operations driven goal. Must be allowed to lead.

Procurement, Marketing, and other associated teams to support.



Challenge #4 — Regulatory Foresight & Policy

Challenge – fragmented, fast moving policies. Compliance will take time, can not be rushed

Green claims directive –Now. Claims substantiated penalty 4% revenue fine. Built to last.

PPWR – Active. 12 August 2026 applicable. 2030 all packaging must be recyclable economically viable way. >2040 minimum % recycled content. All products for sale in EU, not limited to EU manufacture.

Sunrise 2027 – 1D barcode → QR Code

DPP – by 2030 full product lifecycle will need to be on product

Table 3.4 Regional regulatory outlook

Region	Key Regulations	Observations	Impact
Europe	PPWD, Single-Use Plastics Directive, Circular Economy Action Plan	Leading in regulatory development; strong focus on circular economy	● High
North America	EPR, State-level bans on single-use plastics	Mixed regulatory landscape; increasing state-level initiatives	● Medium
Asia	Plastic Waste Management Rules (India), Various national policies	Rapidly developing regulations; significant focus on reducing plastic pollution	● High
Latin America	National policies on plastic bags and recycling	Emerging regulatory frameworks; growing awareness and action	● Medium
Africa	Plastic bag bans, EPR in some countries	Early-stage regulatory development; growing momentum	● Medium

Challenge #5 — Infrastructure & Circularity

Good design meets bad systems. Circular packaging efforts fail without matching collection, sorting, and recovery infrastructure.

Recycling infrastructure must match material choices or system will break down.
Business as usual = 30% recycling by 2035 (13.5% today)

SO?

1. Align material to infrastructure
2. Design for recycle frameworks inform material decision.
3. Digital product passport to improve reporting and traceability.
4. Biggest “win” educate consumers. 76% recycled material not reaching MRF USA, EU varies but still high.
5. Multiple cities, through coordinated infrastructure, education, and policy reduced landfill and boosted recovery rates.

SHARE OF PACKAGING DESIGNED FOR RECYCLABILITY

Packaging Format Category	Currently Recyclable Globally ¹	Currently Recyclable Nationally ¹	BUSINESS TO CONSUMER AND TO RETAIL ONLY		ALL PACKAGING (INCL. BUSINESS TO BUSINESS)	
			Share of Packaging Designed Following U.S. Pact Design for Recyclability Guidance	Weight by MT of all B2C/ B2Retail Packaging	Share of Packaging Designed Following U.S. Pact Design for Recyclability Guidance	Weight by MT of All Packaging
PET Bottle	Yes	No	90%	928,000	92%	1,570,000
>A4 mono-material PE flexibles in B2B context	Yes	No	54%	13,300	95%	496,000
HDPE Bottle	Yes	Yes	85%	293,000	87%	392,000
>A4 mono-material PE flexibles in B2C context	No	No	98%	156,000	99%	224,000
PP Other Rigid	Yes	No	49%	154,000	53%	203,000
<A4 PE flexibles	No	No	68%	132,000	75%	184,000
Other	N/A	N/A	0%	9,970	0%	168,000
HDPE Other Rigid	Yes	No	52%	36,400	79%	160,000
PET Thermoforms	No	No	74%	127,000	51%	132,000
<A4 multi-material flexibles	No	No	0%	19,900	0%	58,400
Other PET Rigid	No	No	25%	14,500	53%	52,300
PP Bottle	Yes	No	62%	9,750	79%	32,900
<A4 PP flexibles	No	No	10%	5,990	27%	30,700
Other >A4 flexibles	No	No	26%	15,300	27%	17,700
PS rigid	No	No	0%	2,330	0%	3,940
PE Tubes	No	No	58%	2,870	60%	3,050
PVC rigid	No	No	0%	135	0%	234
Other <A4 mono-material flexibles	No	No	0%	40	0%	40

¹These plastic packaging formats are based on the results of the Ellen MacArthur Foundation's Recyclability Assessment.

Bonus – Consumer Behaviour

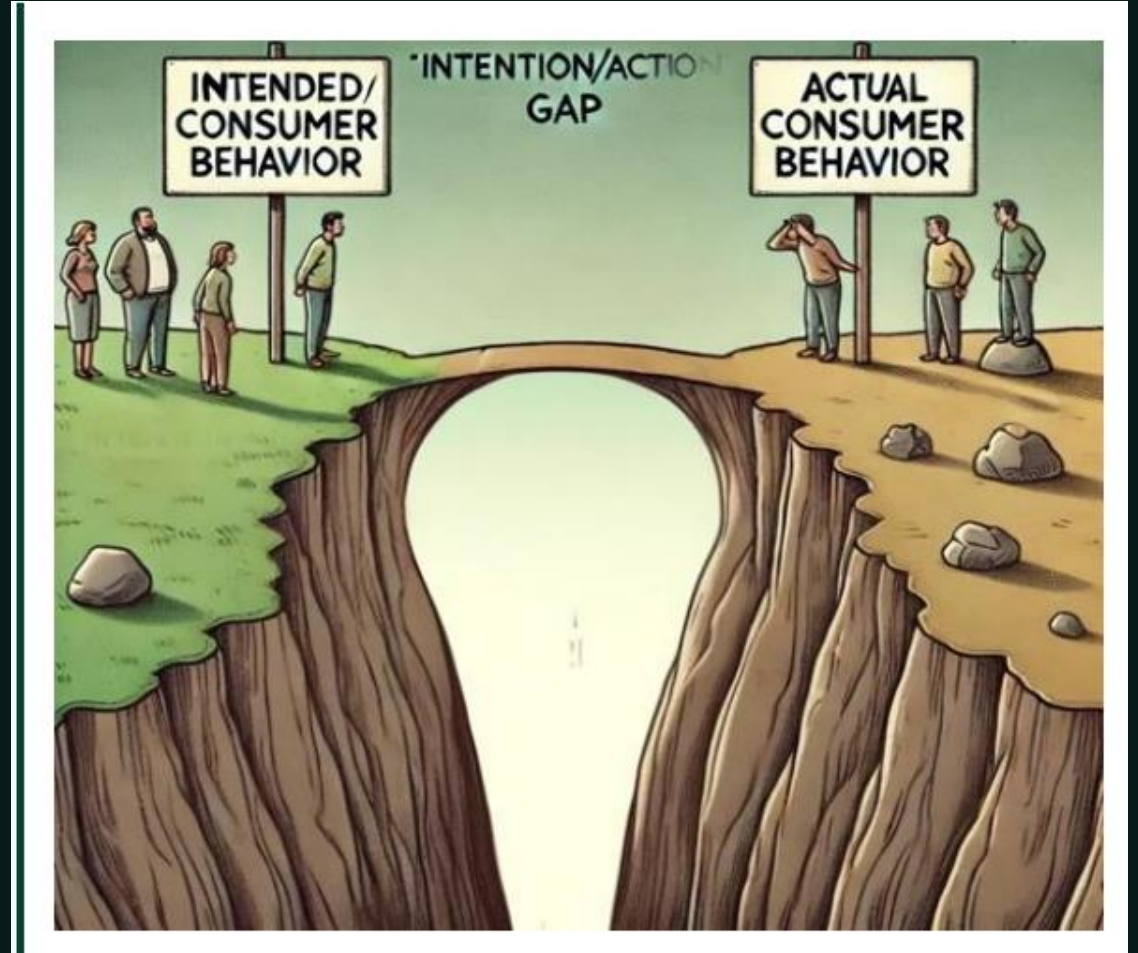
Despite expressed commitment to sustainable packaging, actions often fall short.

Consumers thwarted by access, knowledge and habit

Businesses not trusted due to claims

What to do?

- ❖ Customer-Centric – its not about you.
- ❖ Transparent, verifiable claims
- ❖ Transfer of ownership – we only buy when we experience using whatever it is.
- ❖ Modalaties – use them all to ensure message is received
- ❖ Make it valuable, our brain will want to keep it if not seen as redundant information.



Refillables, Digital Tools & DPP

Many companies are underprepared. Implementing these systems requires design, data and compliance mindset.

Reuse / Refill will require behaviour change, education and access , much the same as recycling.

Leaders will: design for reuse, integrate QR codes and implement traceability and accountability. There is a checklist that sets out how businesses can be prepared.

Map your portfolio against reuse potential and begin digital labelling pilots now. Early adoption allows smoother compliance and stronger consumer engagement.

Criteria	Yes/No	Action
Material Recyclability		
Is the material mono-material (e.g., PET, HDPE)?	Yes/No	If No, explore alternatives.
Is the packaging compatible with existing recycling streams?	Yes/No	Work with recyclers to align.
Does the material include recycled content?	Yes/No	Aim for >30% recycled content.
Reuse Potential		
Can the packaging be reused in a circular system?	Yes/No	Redesign for durability.
Is the design adaptable for refillable models?	Yes/No	Collaborate with reuse platforms.
Renewable Material Use		
Is the material sourced from renewable resources (e.g., FSC paper, bio-based plastics)?	Yes/No	Prioritize certified suppliers.
Is the material biodegradable or compostable?	Yes/No	Ensure compatibility with standards.

In Good Company? Most Common Questions

Top Barriers

- ✓ Cost & commercial pressure
- ✓ Material and design complexity
- ✓ Strategic misalignment
- ✓ Lack of information or roadmap
- ✓ Regulatory uncertainty (EPR, DPP, PPWR)
- ✓ Infrastructure gaps
- ✓ Internal resistance
- ✓ Mismatch between goals and reality
- ✓ Consumer behaviour

Top Insights Sought

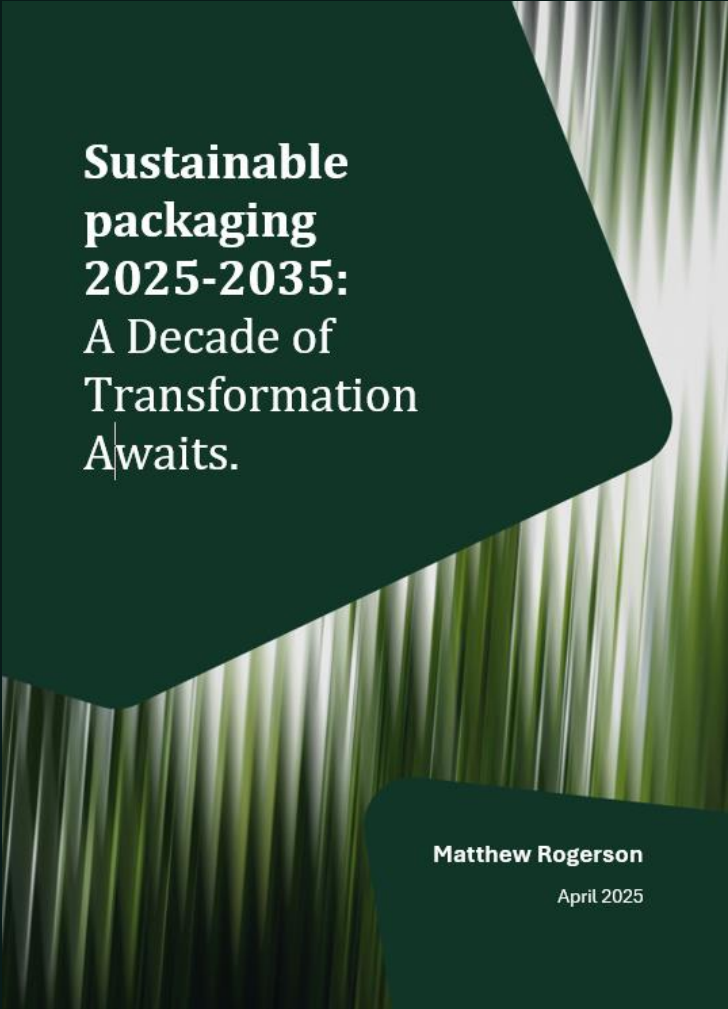
- ✓ Material innovation: what works, where, and when
- ✓ Regulatory foresight: what's coming, how to prepare
- ✓ Recyclability & circularity best practices
- ✓ Practical guidance for design and strategy
- ✓ Market forecasts and business case tools
- ✓ Clear ROI models for sustainable investments
- ✓ Real-world use cases and sector benchmarks



5 Next Steps

Regardless of your role or region, here are 5 actions to improve your sustainability journey

1. Map your biggest friction points across teams
2. Align your formats with infrastructure and policy
3. Start digital traceability pilots (QR/DPP)
4. Create a behaviour-led comms strategy
5. Use external tools like this report, roadmaps and decision trees to drive internal clarity



**Sustainable
packaging
2025-2035:**
A Decade of
Transformation
Awaits.

Matthew Rogerson

April 2025

Questions?

Sustainability challenging
companies up and down the
value chain, globally.

Here to help guide you and
address the ones that are
challenging you – let's tackle
them together.

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