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The twin transition in plastic packaging

Green & Digital

October 18th and 19th, 2023





Dominic Cakebread

Global Packaging Services Director

GlobalData Plc

Market and Consumer Trends in Packaging

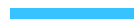




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Global Consumer Packaging Trends & Drivers, 2023 – 2027

A presentation for SACMI Green & Digital



Imola, 18 October 2023



Speaker



Dominic Cakebread

Director of Global Packaging Services

Dominic heads up GlobalData's international packaging operations. He has over 40 years' experience in international marketing research and consultancy, specialising primarily in the analysis and forecasting of packaging markets.

Dominic was closely involved in the design and creation of GlobalData's packaging market analyzers in 2011 and has undertaken consulting projects for most major packaging companies and some of their customers worldwide.





Agenda

1. Global Market Overview
2. Supply and Demand Trends
3. Inflation
4. Environment
5. Digitalization
6. Summary & Conclusions



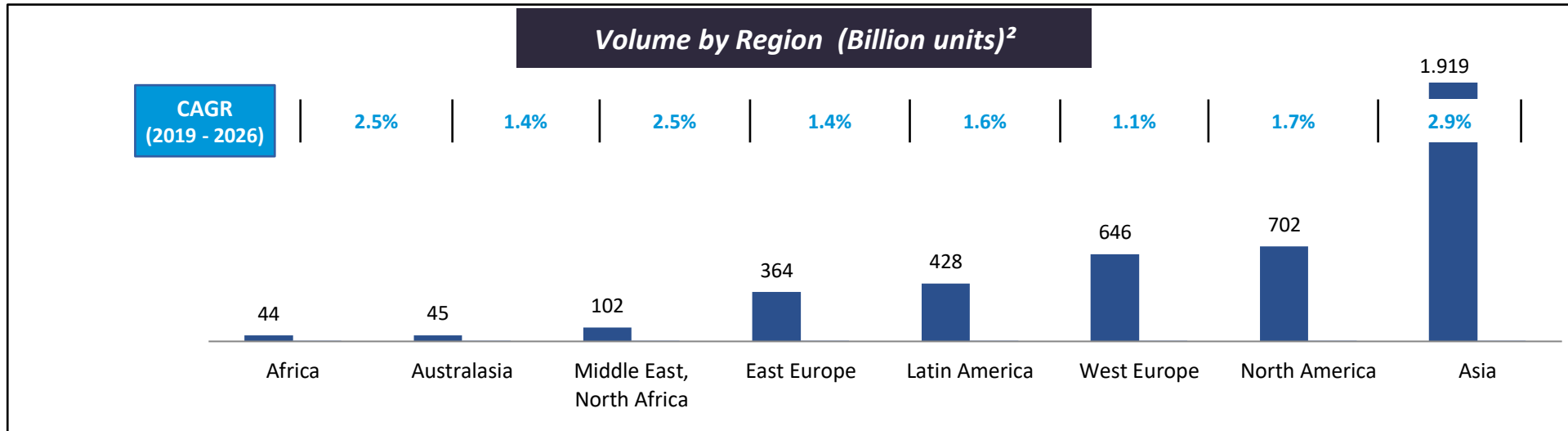
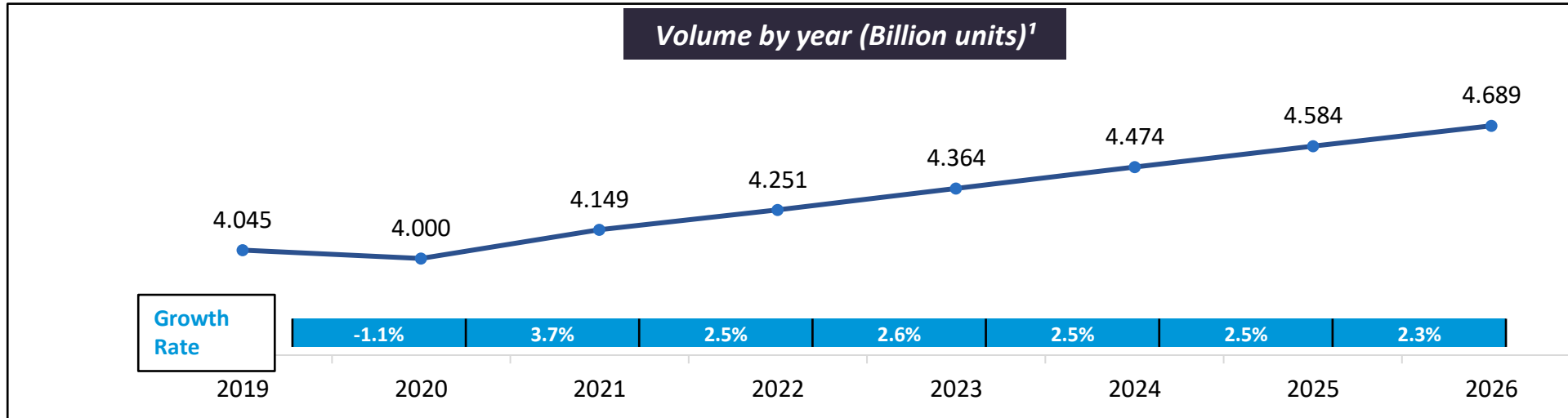


Global Market Overview

Global Market Overview - Consumer Packaging Market by Region



Asia leads in size and growth a post-pandemic market adjusting to the new normal

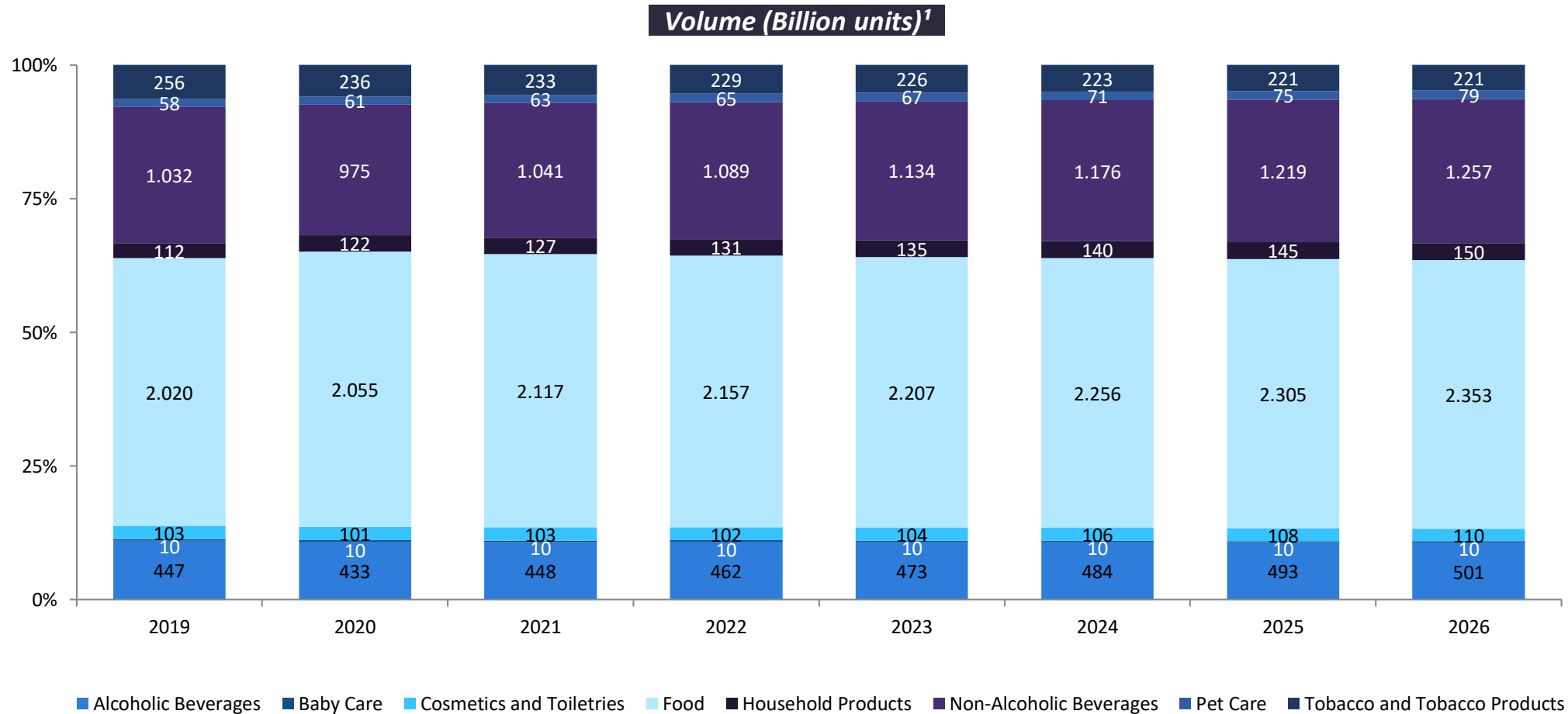


Source: [1] GlobalData Primary Packaging Market Analyzer

Global Market Overview – Consumer Packaging Market by Sector



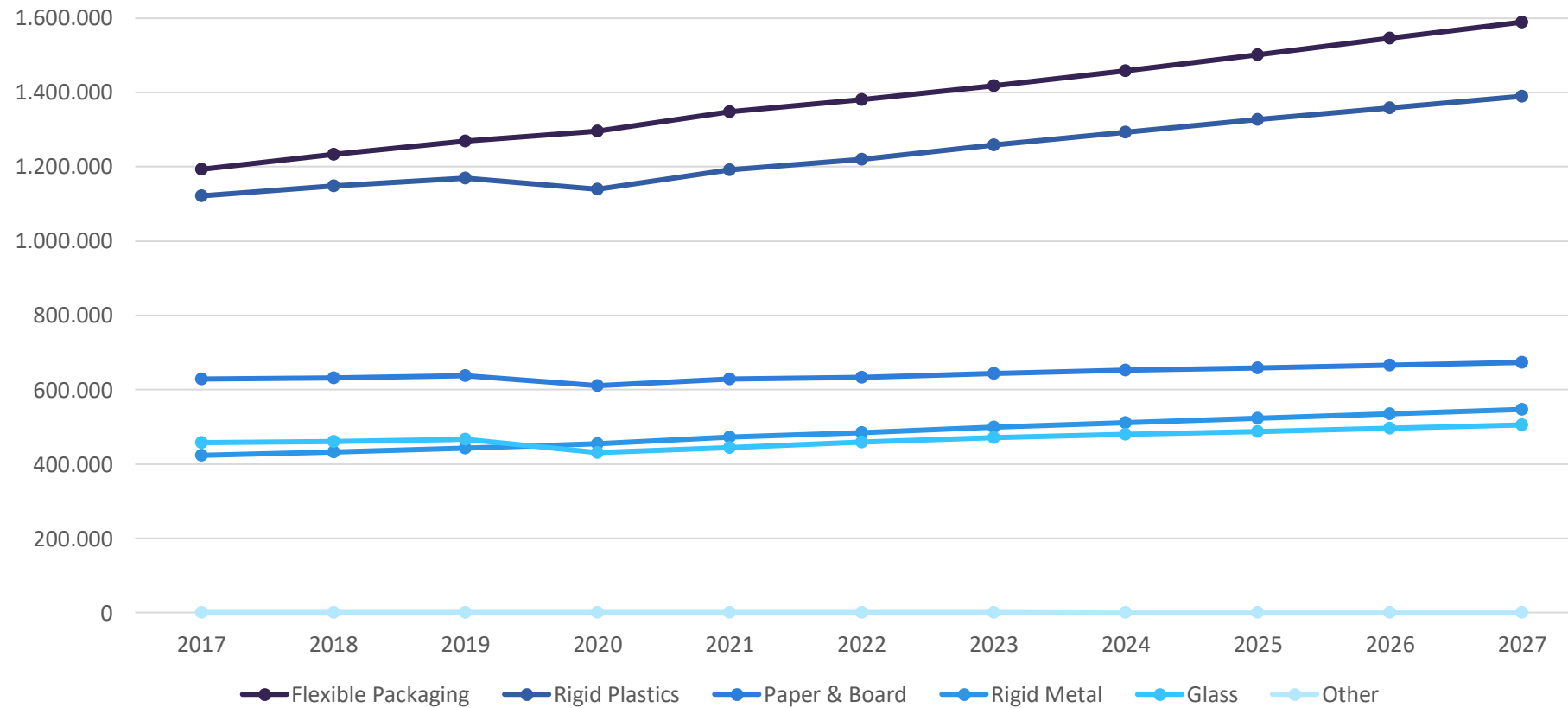
Food, alcoholic, and non-alcoholic beverages will continue to lead the way in market share through 2026



Global Market Overview – Trends in Consumer Packaging Materials

At global level packaging material trends show growth across the spectrum, Flexible packaging still leads, but is threatened by more stringent regulations and a need to innovate

Primary packaging and outers volume, Global Consumption by pack material, M Pack Units, 2017–27¹



Source: [1] GlobalData Packaging Market Analyzer

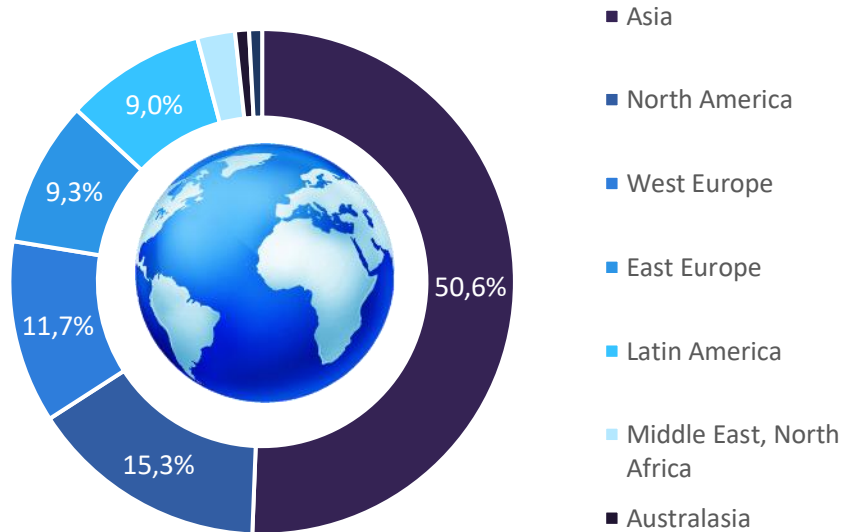


Global Market Overview - Flexible Packaging Trends

Emerging markets' impact through flexible packaging's cheapness and convenience is reflected globally



Flexible Packaging, Global Share by Region, M Pack Units, 2022¹



Flexible Packaging by Industry Sector, M Pack Units, 2017-2027¹

	2017	2020	2022	2027	CAGR 2017-22	CAGR 2022-27
Alcoholic Beverages	22	30	36	58	10.3%	10.2%
Baby Care	5,332	5,319	5,322	5,399	0.0%	0.3%
Cosmetics and Toiletries	43,170	45,386	47,115	52,104	1.8%	2.0%
Food	990,747	1,085,987	1,151,704	1,314,098	3.1%	2.7%
Hot Drinks	36,343	41,343	42,988	51,537	3.4%	3.7%
Household Care	36,103	39,704	42,206	46,401	3.2%	1.9%
Pet Care	11,582	13,254	14,344	16,755	4.4%	3.2%
Soft Drinks	66,256	62,359	74,457	100,735	2.4%	6.2%
Tobacco and Tobacco Products	3,774	2,972	2,747	2,628	-6.2%	-0.9%
Total	1,193,328	1,296,353	1,380,919	1,589,714	3.0%	2.9%

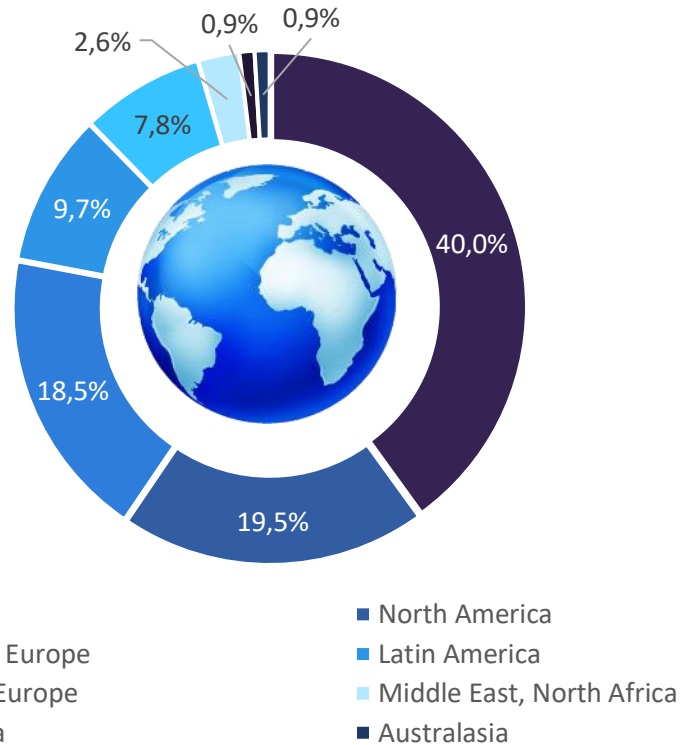
Source: [1] GlobalData Packaging Market Data, June 2023;

Global Market Overview - Rigid Plastics Packaging Trends

Asia leads the rigid plastics market, creating challenge for sustainability due to proliferation of single-use format



Rigid Plastic Packaging, Global Share by Region, M Pack Units, 2022¹



Rigid Plastic Packaging by Industry Sector , M Pack Units, 2017-2027¹

Industry	2017	2020	2022	2027	CAGR 2017-22	CAGR 2022-27
Alcoholic Beverages	8,463	8,804	8,428	9,496	-0.1%	2.4%
Baby Care	977	927	913	895	-1.3%	-0.4%
Cosmetics and Toiletries	40,270	40,134	41,018	44,761	0.4%	1.8%
Food	506,583	526,383	541,342	597,469	1.3%	2.0%
Hot Drinks	4,258	5,222	5,396	5,936	4.8%	1.9%
Household Care	16,588	18,227	19,493	21,960	3.3%	2.4%
Paints & Stains	1,711	1,880	2,009	2,370	3.3%	3.4%
Pet Care	2,444	2,666	2,814	3,097	2.9%	1.9%
Soft Drinks	540,580	534,933	599,025	703,666	2.1%	3.3%
Total	1,121,874	1,139,176	1,220,438	1,389,650	1.7%	2.6%

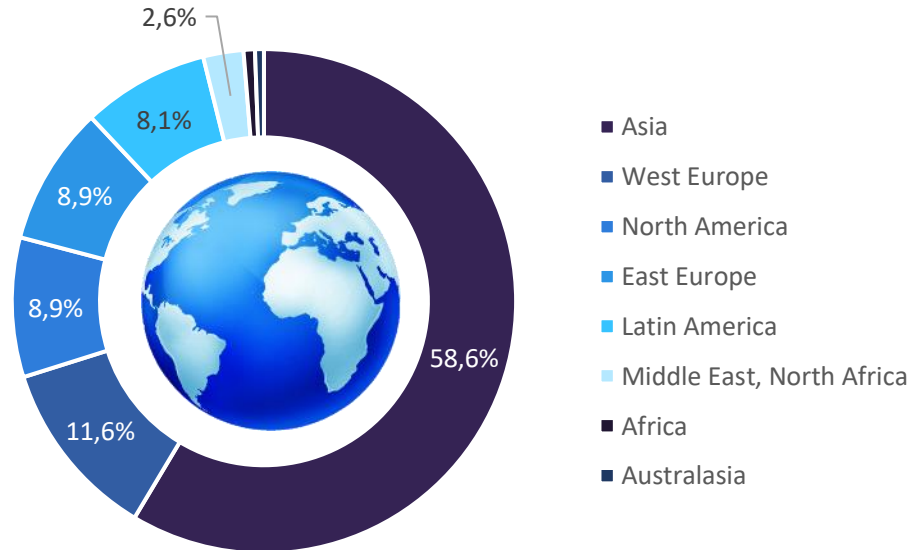
Source: [1] GlobalData Packaging Market Data, June 2023

Global Market Overview - Paper & Board Packaging Trends

Regionally, Asia is the definitive global market for the material



Paper & Board Packaging, Global Share by Region, M Pack units, 2022¹



Paper & Board Packaging by Industry Sector, M Pack Units, 2017-2027¹

Industry	2017	2020	2022	2027	CAGR 2017-22	CAGR 2022-27
Alcoholic Beverages	2,037	2,005	2,120	2,542	0.8%	3.7%
Baby Care	272	266	257	257	-1.1%	0.0%
Cosmetics and Toiletries	6,783	7,085	7,262	7,870	1.4%	1.6%
Food	263,007	272,936	283,560	314,336	1.5%	2.1%
Hot Drinks	19,369	22,644	23,453	26,978	3.9%	2.8%
Household Care	9,451	10,270	10,804	11,765	2.7%	1.7%
Pet Care	1,087	1,242	1,338	1,584	4.2%	3.4%
Soft Drinks	65,802	62,072	68,727	77,332	0.9%	2.4%
Tobacco Products	261,280	232,734	235,265	230,169	-2.1%	-0.4%
Total	629,086	611,253	632,785	672,832	0.1%	1.2%

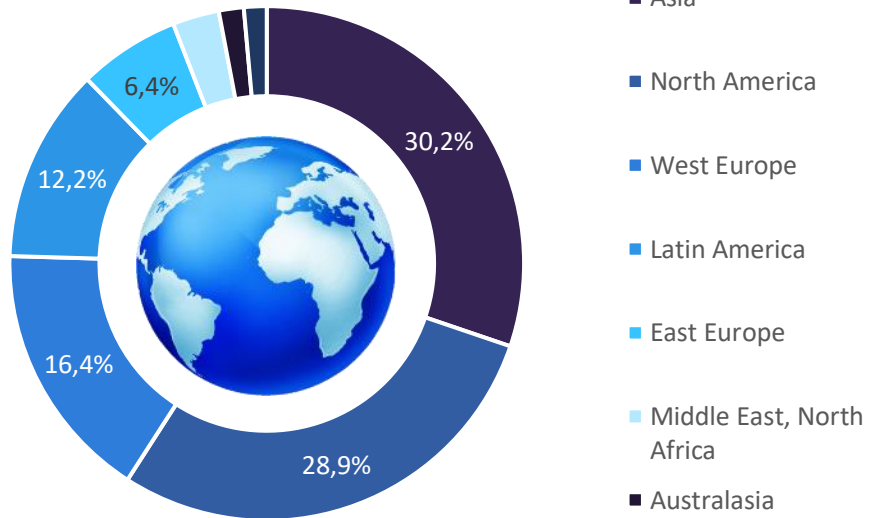
Source: [1] GlobalData Packaging Market Data, June 2023

Global Market Overview - Metal Packaging Trends

Asia, North-America, and Europe drive the metal packaging market



Rigid Metal Packaging, Global Share by Region, M Pack units, 2022¹



Metal Packaging by Industry Sector M Pack Units, 2017-2027¹

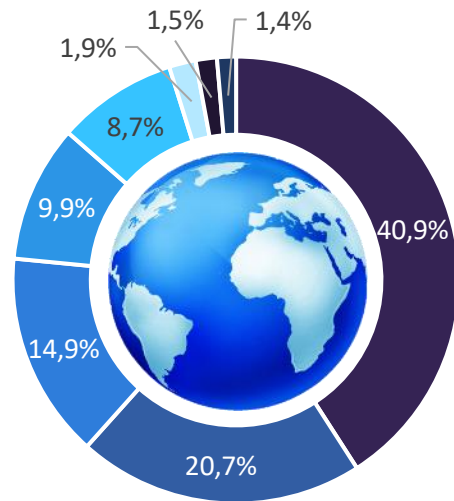
Industry	2017	2020	2022	2027	CAGR 2017-22	CAGR 2022-27
Alcoholic Beverages	139,623	160,165	172,154	194,525	4.3%	2.5%
Baby Care	1,136	1,122	1,116	1,115	-0.4%	0.0%
Cosmetics and Toiletries	4,098	4,182	4,368	4,994	1.3%	2.7%
Food	95,764	97,286	101,026	111,088	1.1%	1.9%
Hot Drinks	3,850	4,753	4,951	5,615	5.2%	2.5%
Household Care	2,719	2,918	3,087	3,366	2.6%	1.8%
Pet Care	3,414	3,975	4,360	5,120	5.0%	3.3%
Soft Drinks	168,165	175,572	188,447	214,950	2.3%	2.7%
Tobacco Products	314	283	262	247	-3.6%	-1.2%
Total	419,083	450,256	479,771	541,020	2.7%	2.4%

Source: [1] GlobalData Packaging Market Data, June 2023

Global Market Overview - Glass Packaging Trends

Emerging consumption-heavy regions are playing a key role in glass's opportunity today and the future

Glass Packaging, Global Share by Region, M Pack Units, 2022¹



- Asia
- West Europe
- Latin America
- North America
- East Europe
- Africa
- Australasia
- Middle East, North Africa

Glass Packaging, by pack type, millions of pack units, 2017-2027

Pack Type	2017	2020	2022	2027	CAGR 2017-22	CAGR 2022-27
Bottle	402,780.6	372,226.2	399,232.3	437,611.4	-0.2%	1.9%
Bubble Top	0.4	0.2	0.2	0.2	-11.4%	1.1%
Cup	4.0	4.9	5.9	7.9	7.9%	6.0%
Demijohn	6.3	6.0	6.5	7.0	0.5%	1.5%
Jar	51,859.3	55,964.9	58,521.5	65,870.2	2.4%	2.4%
Other Pack Type	26.3	24.2	24.3	25.5	-1.6%	1.0%
Specialty Container	2,433.7	2,238.8	1,769.7	1,205.9	-6.2%	-7.4%
Glass Total	457,111	430,465	459,560	504,728	0.1%	1.9%

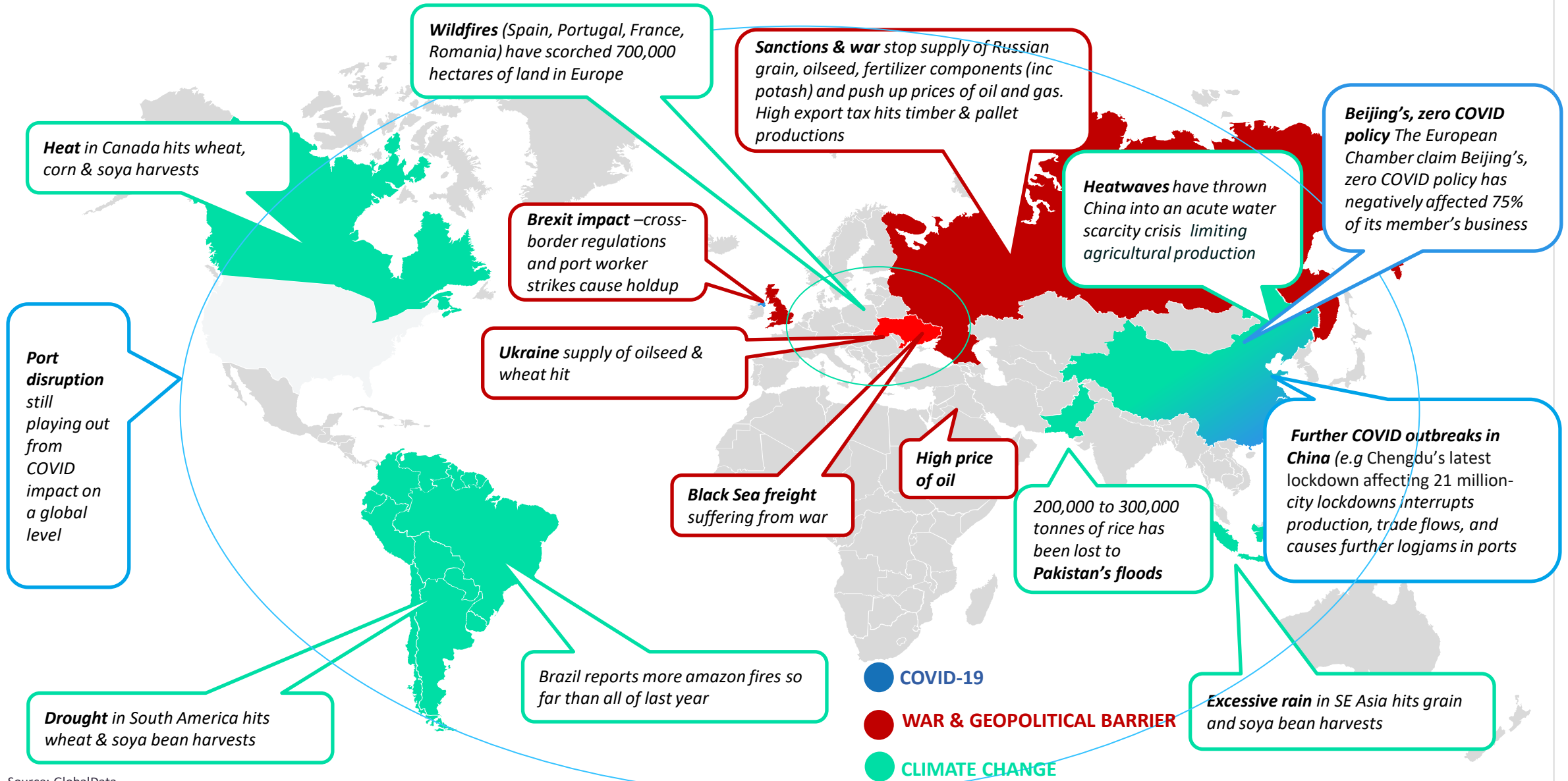
Source: [1] GlobalData Packaging Market Data, June 2023



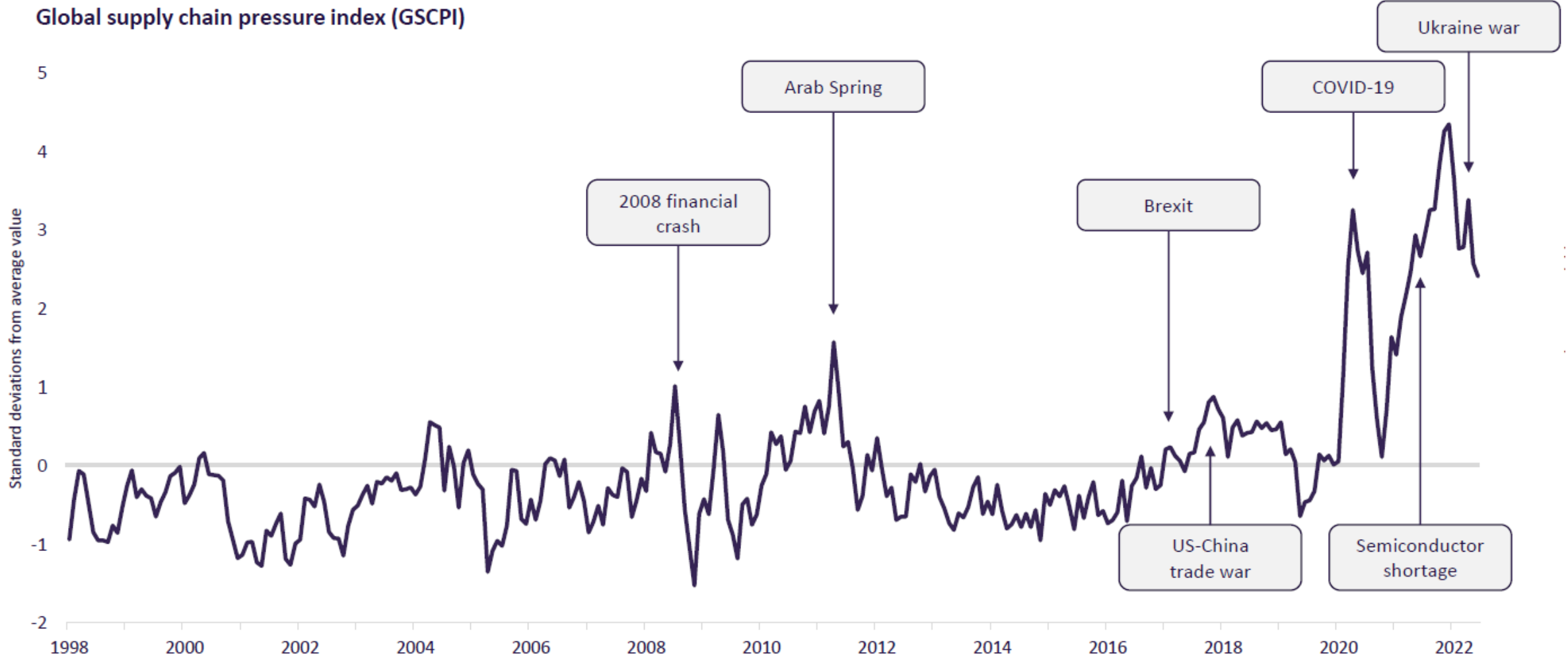


Supply & Demand Challenges

The Perfect Storm – 2022/3 plagued by droughts, war, COVID and political turmoil



The speed of shocks is speeding up, making supply chain management even tougher



Three key drivers impacting the current trends the global packaging industr

Key Industry Drivers



Cost



Sustainability



Efficiency



Key Industry Trends

THE ESSENTIALS

1. Inflation

- Inflation rate
- Disposable income
- Interest rates

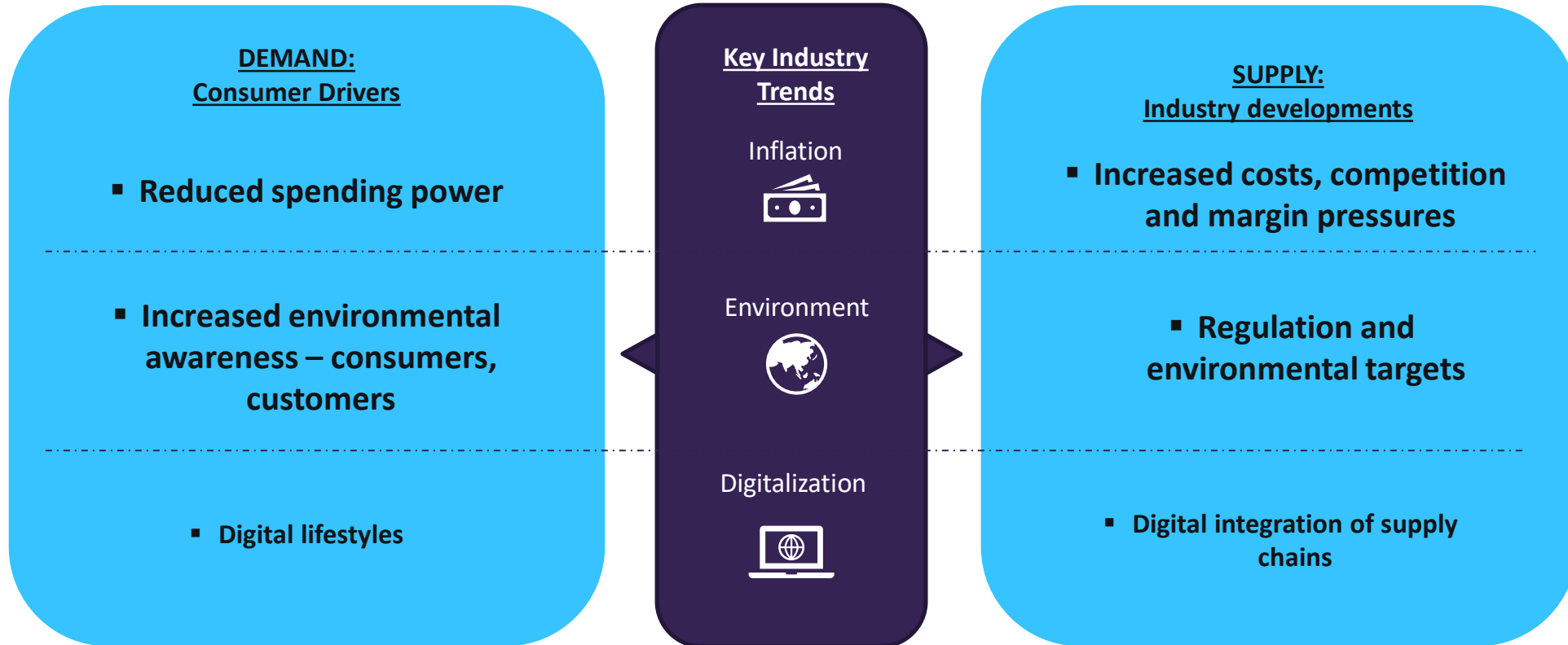
2. Environment

- Environmental policies
- Climate change

3. Digitalization

- Technological awareness
- Innovation level

Both consumer and supply-side developments affected by these three trends



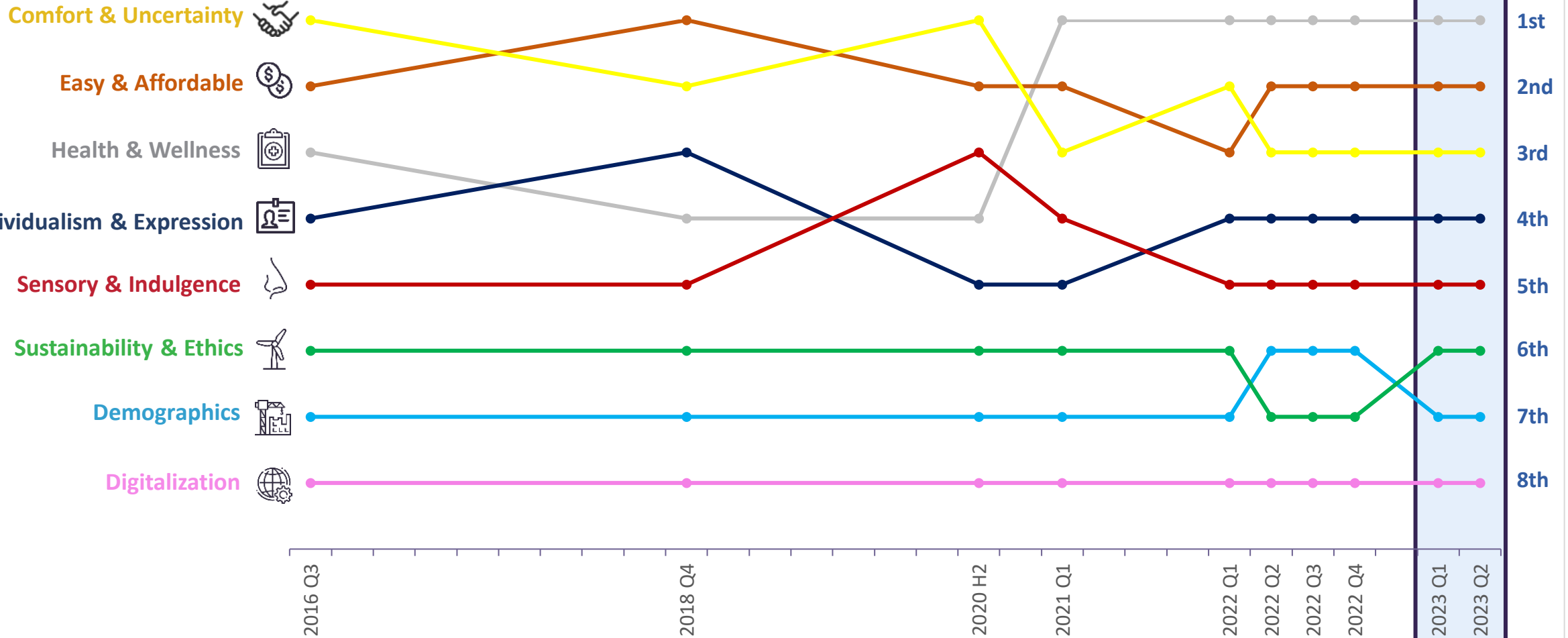
Inflation



Easy & Affordable is the second most influential GlobalData theme in 2023



Global: How influential are the following when making a purchase? 2016-23



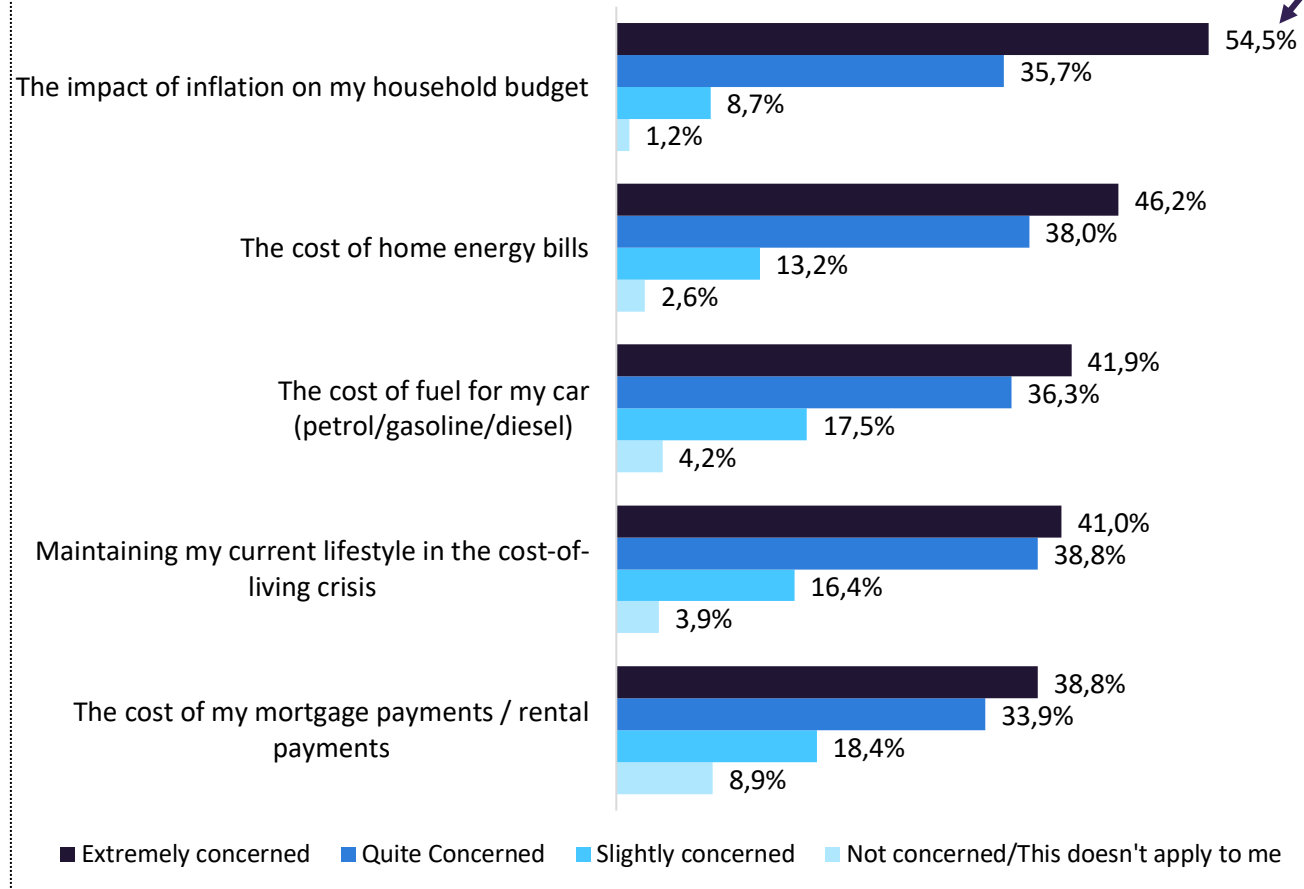
www.globaldata.com

Source: GlobalData's Global Consumer Surveys from 2016-23. Data from all years is relevant to purchases across the FMCG space, except 2023, which is relevant to health and beauty purchases only. Ranking is based on the percentage of respondents saying they 'always' make purchasing decisions based on this factor.

Rising costs and inflation have become consumers' key concern



Global: "How concerned are you about these aspects of your personal finances?"², Q1 2023



53% of global consumers are **EXTREMELY CONCERNED** about the impact of inflation on their household budget.

- Cost-conscious consumers are increasingly seeking cheaper alternatives, impacting the sales of various packaged goods.
- Packaging costs are rising - COVID-19, energy and commodity prices, supply chain disruptions, and the Russia-Ukraine war.
- Manufacturers' challenge: pass on increased costs to consumers or to absorb these costs, potentially reducing profit margins?
- To remain competitive, manufacturers must optimize packaging design, explore alternative materials, and offer affordable products *or* what consumers see as better value-for-money.
- Shorter global supply chains and increased localization are gaining popularity to mitigate the impact of rising energy prices for transportation and storage.

Inflation is causing consumers to seek alternative packaging options and choices

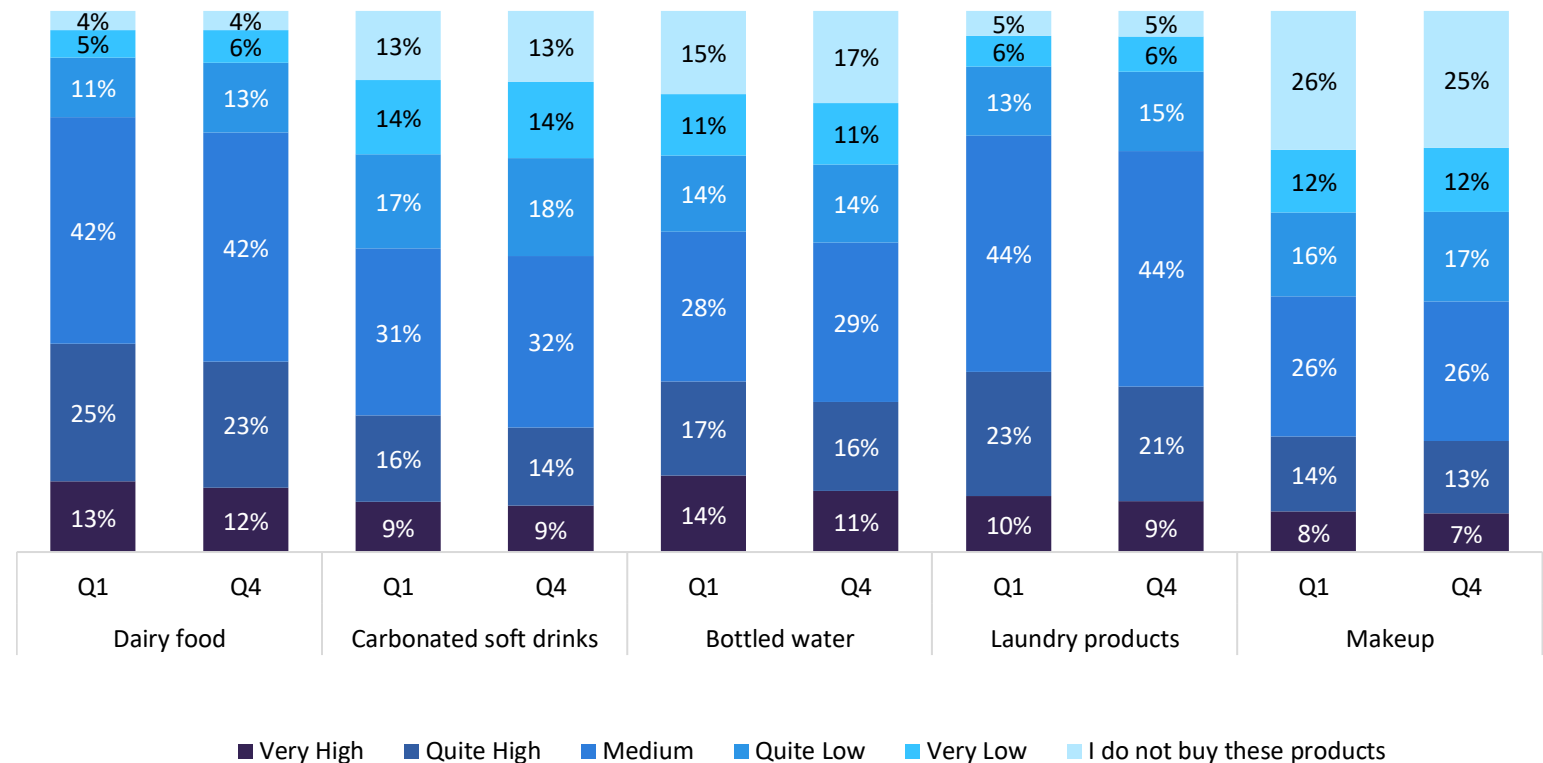


- Consumer spend in key categories for the packaging industry has been moderating since 2022.

- Switching to cheaper alternatives, reducing volume, switching brand or store, looking for deals – all are consumer strategies being employed to tackle cost-of-living concerns.

- Packaging design optimization has a role to play:
 - Alternative materials
 - Weight reduction
 - Smaller pack size options
 - Increased convenience

Global: How would you describe your spend on the following products in the last 3 months?²



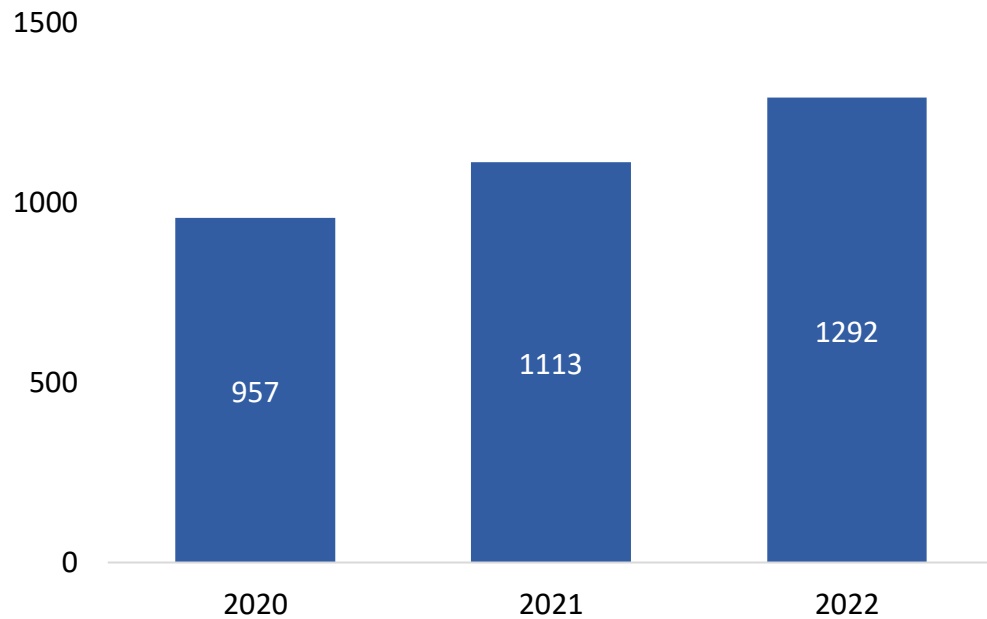
www.globaldata.com

Source: [1,2] GlobalData 2022 Q4 global consumer survey; *comparing very high, quite high, and medium spending combined

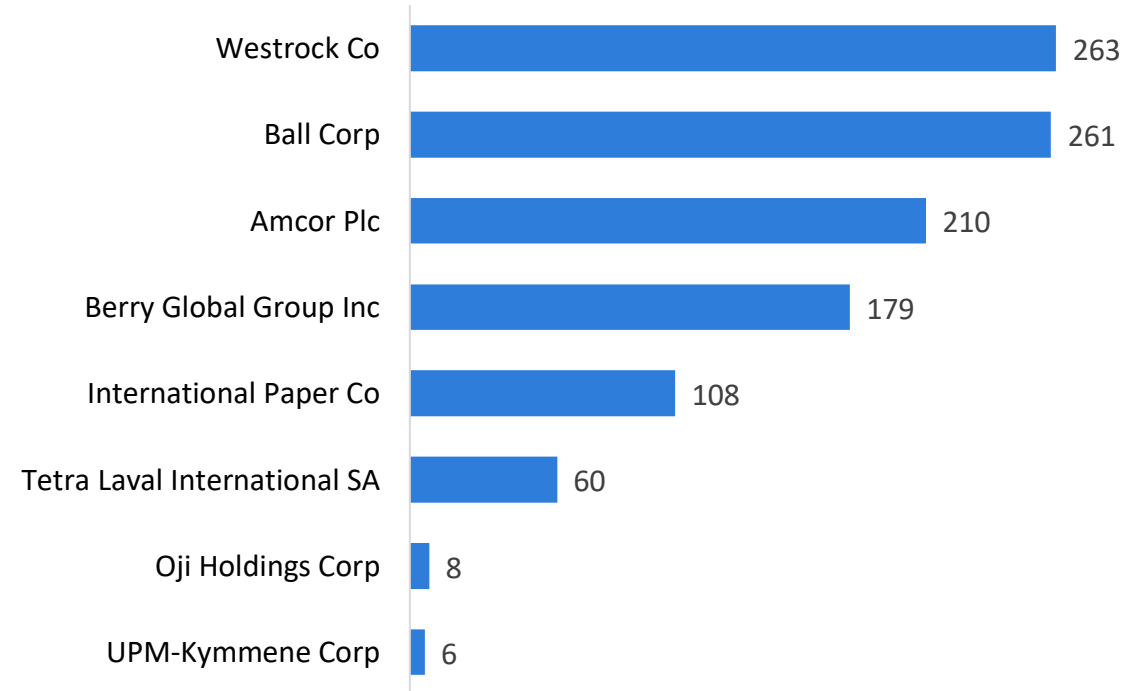
The industry's drive for cost savings and efficiency is reflected in hiring trends



The number of 'Cost Saving'-related jobs posted by packaging companies has grown since 2020¹



Some of the largest packaging companies posted >100 'Cost-Saving'-related jobs (2020 – 2022)²



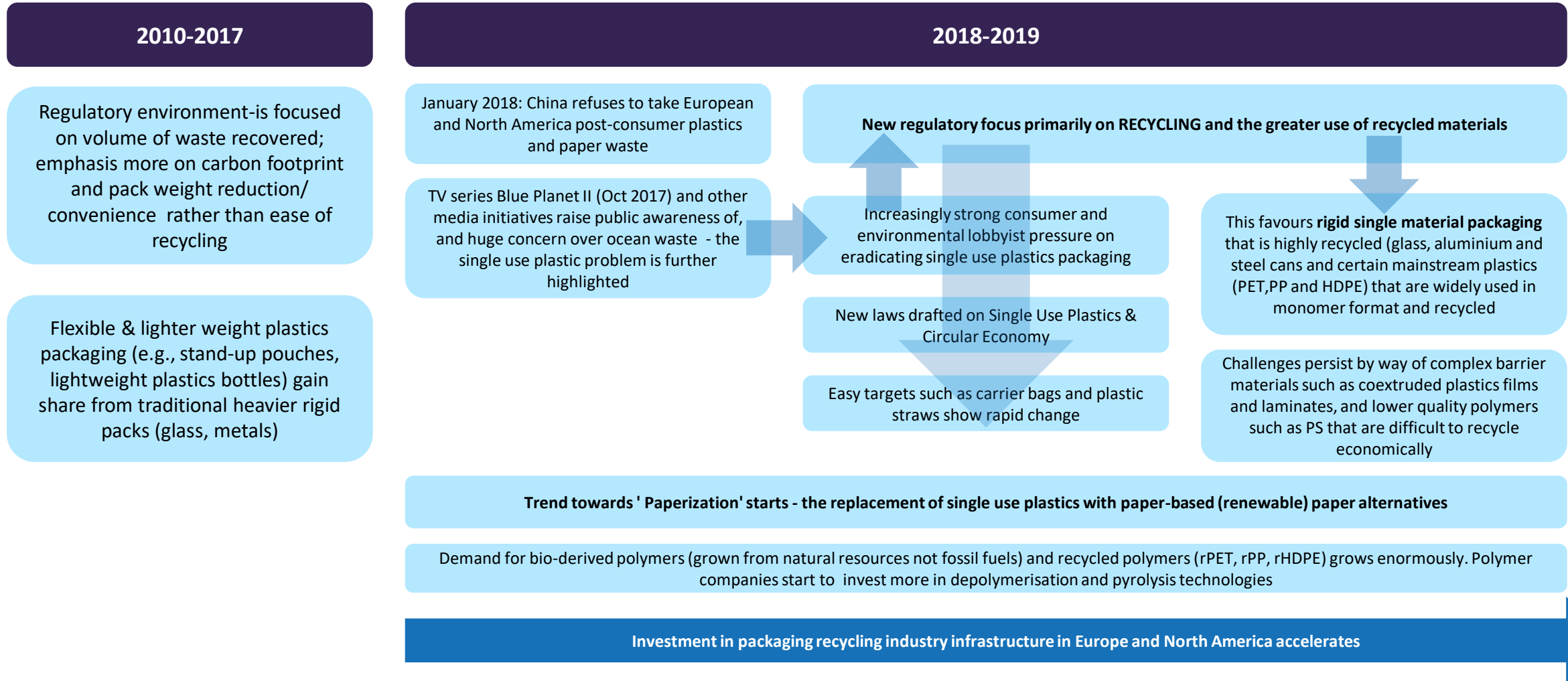
Source: [1,2] GlobalData's Jobs Analytics Database; accessed February 7, 2023

Environment



The packaging regulatory environment has changed significantly since 2018

Even before the Covid-19 pandemic regulatory change in packaging was expanding and changing with a renewed focus on single use plastics, refilling, recycling and better waste disposal.



www.globaldata.com

Regulations continue to expand with more stringent targets and broadening scope



After of a brief respite during the Covid years, the focus is now very much upon improving recycling and increasing reuse

2020-2022

Covid 19 closures have strong impact on channel demand - severe reduction in food service/on-premise, with some compensation in food retail and e-Commerce as home delivery booms

Supply chain issues and shortages of materials which started during the pandemic, start to accelerate as economies recover and oil and gas demand and prices accelerate; this impacts all packaging materials

In beverages, initially causes a drop in demand for glass (widely used in food service), beverage cans and glass gain as retail and e-tail demand growth replaces some on-premise demand. Smaller cans replacing larger kegs.

As vaccine roll-out spreads globally and travel and on-premise demand returns, there is stronger demand for glass, especially as outlets restock, and initially businesses prefer to commit to smaller pack size purchases (risk and cash)

Russia's invasion of Ukraine in February 2022, accelerates pricing volatility and drives large rises in inflation and declining disposable income in most western economies

Renewed focus in packaging on costs and efficiency with high material prices and rising labour costs - driving trends toward further automation

Expansion of DRS and Closed Loop systems begin to become more widespread as means of improving recycling rates and the quality of the recycled materials for reuse in many countries

Paperization spreads - food service packaging beginning to transform. Multi-material packaging moves more to board-only based pack to avoid use of single use plastics

Refocus of the flexible packaging industry on barrier films that can be more easily recycled (e.g. monomers and aqueous based coatings/ink)

In the background, significant regulatory change continues to be enforced with stricter recycling targets and also more emphasis on reusable and refillable packaging

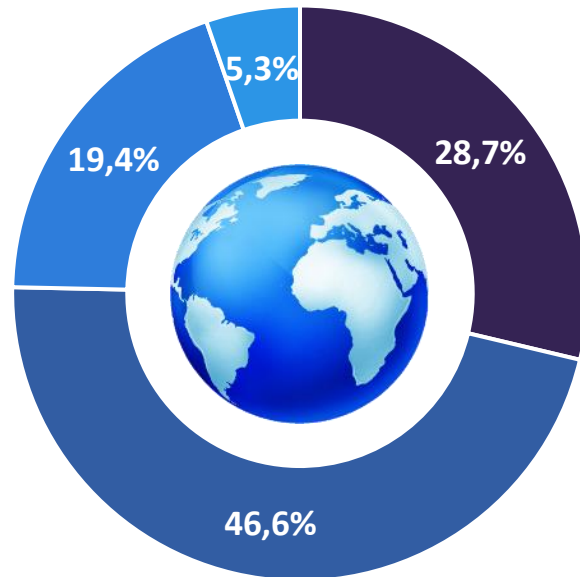
Consumer & regulatory pressures are key factors driving packaging change

Pressure from consumers and regulators is forcing packaging companies to improve their offerings' sustainable credentials



Pressure from consumers

How influential is "environmentally-friendly packaging"? ¹



- Essential
- Nice to have
- Not necessary
- Don't know / Not sure

Pressure from regulators

Regulation types and examples

Regulations transfer the costs and responsibility of recycling from society to businesses

- The UK's Extended Producer Responsibility scheme
- The EU's Packaging and Packaging Waste Regulation

Taxation targets packaging – especially plastic - waste

- The UK's Plastic Packaging Tax (PPT)
- The EU's Green Deal

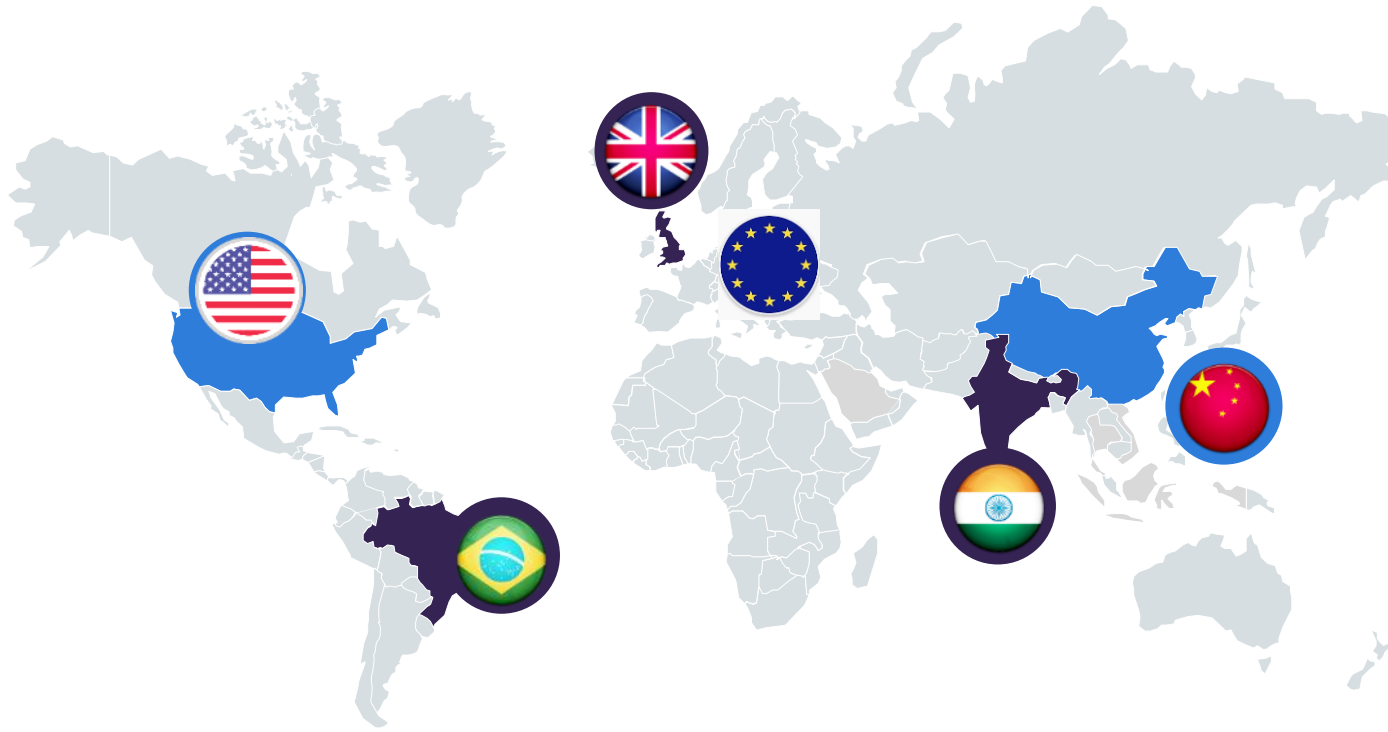
Labelling for transparency

- Product certification information has value in demonstrating safety and ethical/sustainable commitments

Packaging regulations and legislative is also spreading across the globe

The global regulatory landscape is fragmented and complex; common themes however are waste reduction, recycling, and accountability

Regulatory Examples by Country



- **US states like California**, and cities such as Seattle and San Francisco, **implement local laws** to reduce packaging waste in the absence of federal law.
- **UK's Extended Producer Responsibility (EPR) scheme** and recycling programs hold producers and importers accountable for packaging waste disposal.
- **Brazil's National Solid Waste Policy** requires producers to be responsible for the disposal of their packaging waste, aiming to increase waste recycling.
- **India's Plastic Waste Management Rules** and single-use plastic ban focus on reducing plastic packaging waste.
- **China's National Sword Policy and National Solid Waste Management Law** regulate packaging waste disposal and encourage recycling programs.
- **European Union** – Proposed revisions to Packaging and Packaging Waste Directive

Deposit Return Schemes are increasingly being deployed to improve recycling

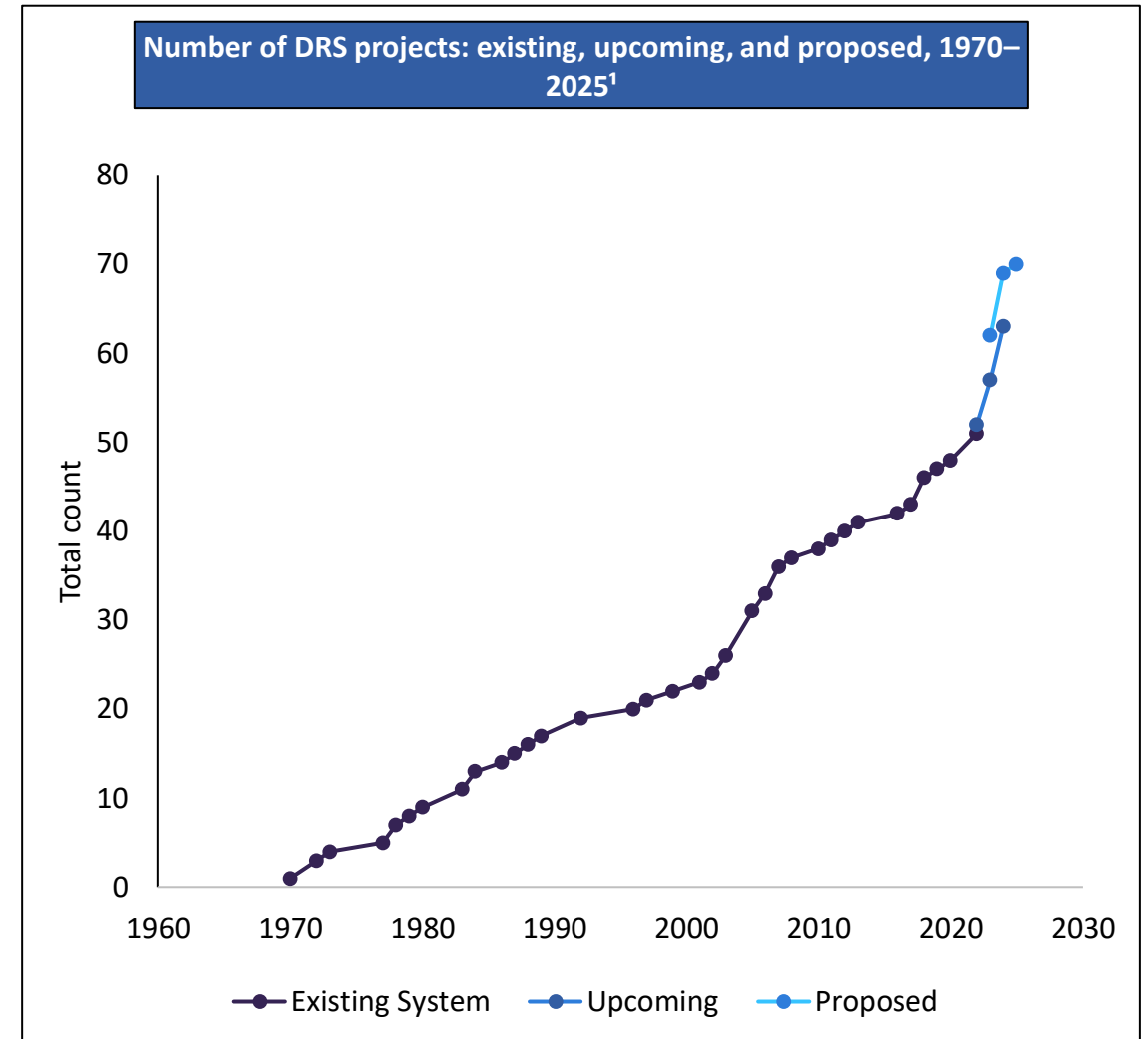
DRS has become increasingly popular globally as more countries and regions recognize the value of incentivizing consumers to recycle beverage containers.

Positives:

- **Effective in achieving high recycling rates** for different types of beverage containers, including glass bottles, PET bottles, and beverage cans.
- **Glass bottles have consistently high recovery rates** where DRS has been implemented.
- **PET bottles have seen significant increases in recovery rates**; some countries achieving recovery rates of over 97%.
- **DRS impact on consumer behavior**, in combination with technological/materials innovation, is aiding development of **a more genuinely circular economy**.

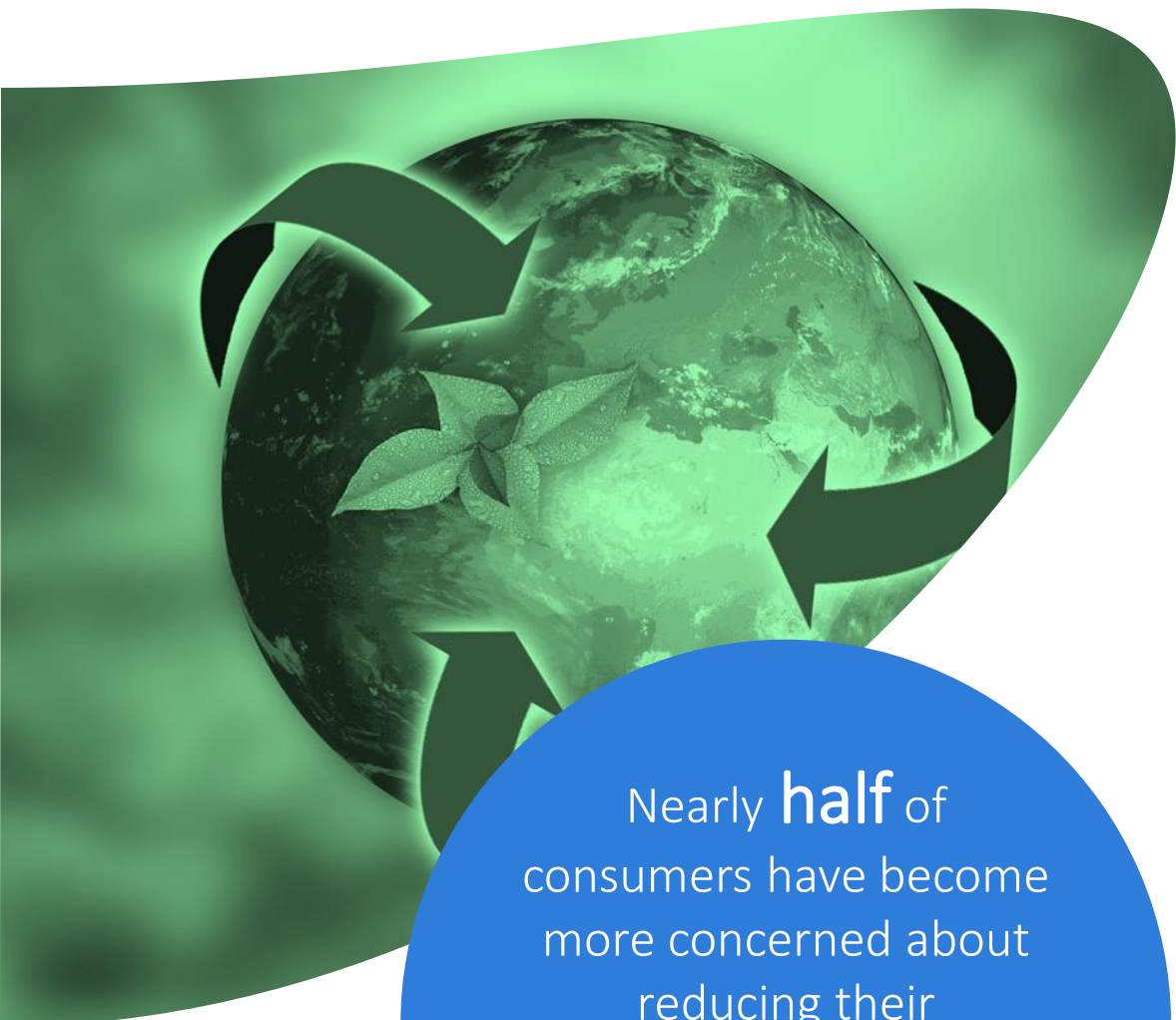
Concerns:

- **Running costs** and risk of passing on to the consumer.
- **Potential conflicts over funding** and uptake between DRS systems and existing curb-side recycling schemes.
- **DRS could benefit certain pack types**, such as plastics, at the expense of other types already achieving higher recycling rates.

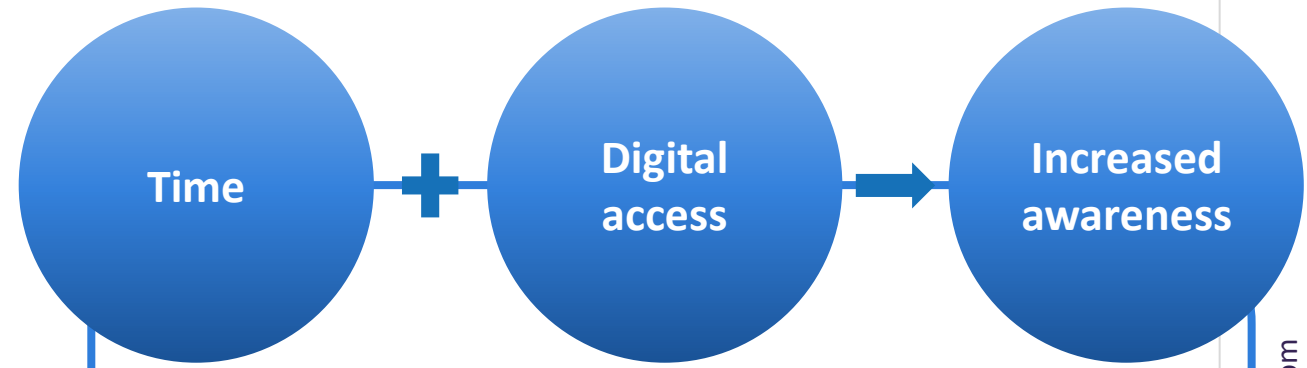


Sustainability continues to be top of mind for consumers

The stronger focus on sustainability issues means it needs to be a key driver of innovation going forward



Nearly **half** of consumers have become more concerned about reducing their environmental footprint since COVID-19



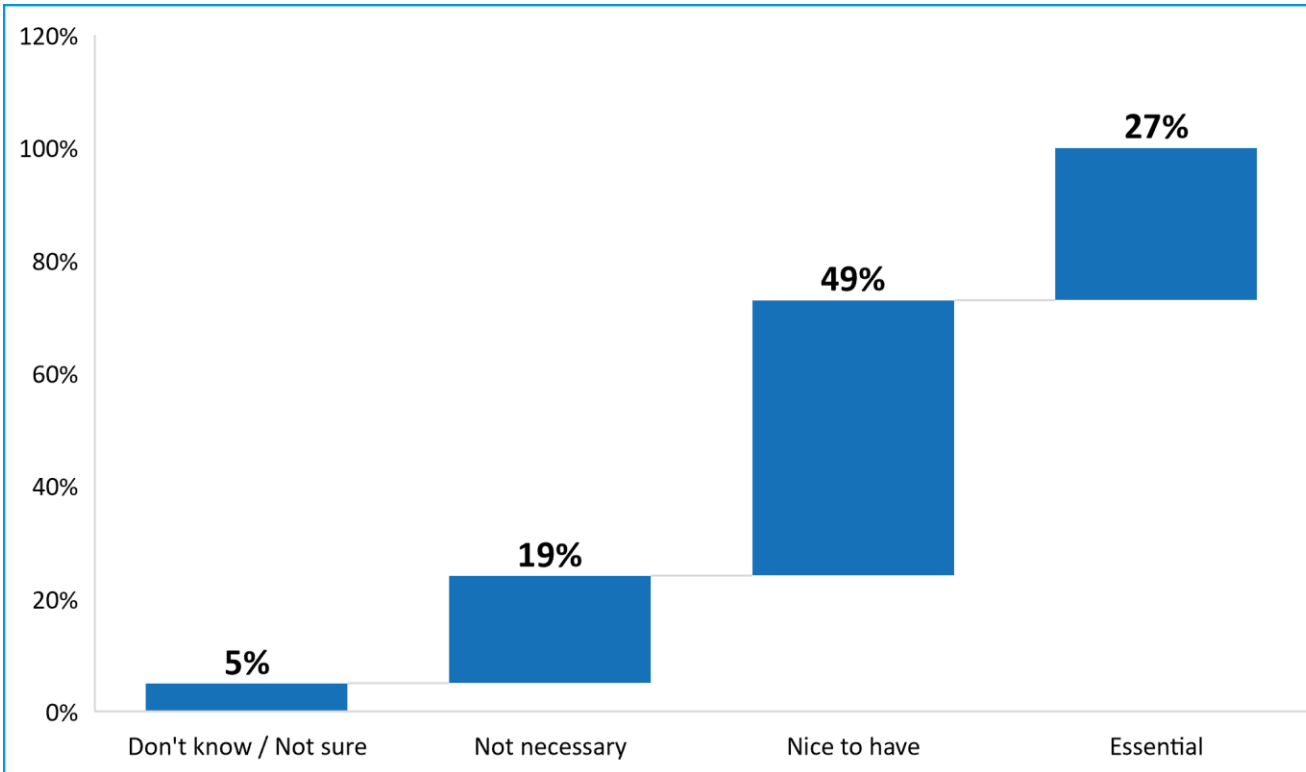
Sustainability is still toward the top of the consumer agenda and will return to front of mind post the pandemic.

Indeed, lockdown restrictions has led some consumers to the opinion that they can lead more sustainable lives without detriment to their standard of living. For example, travelling less through work or no longer purchasing coffee in disposable coffee cups on a daily basis.

The major focus has been on recycling, but refilling is becoming more prominent



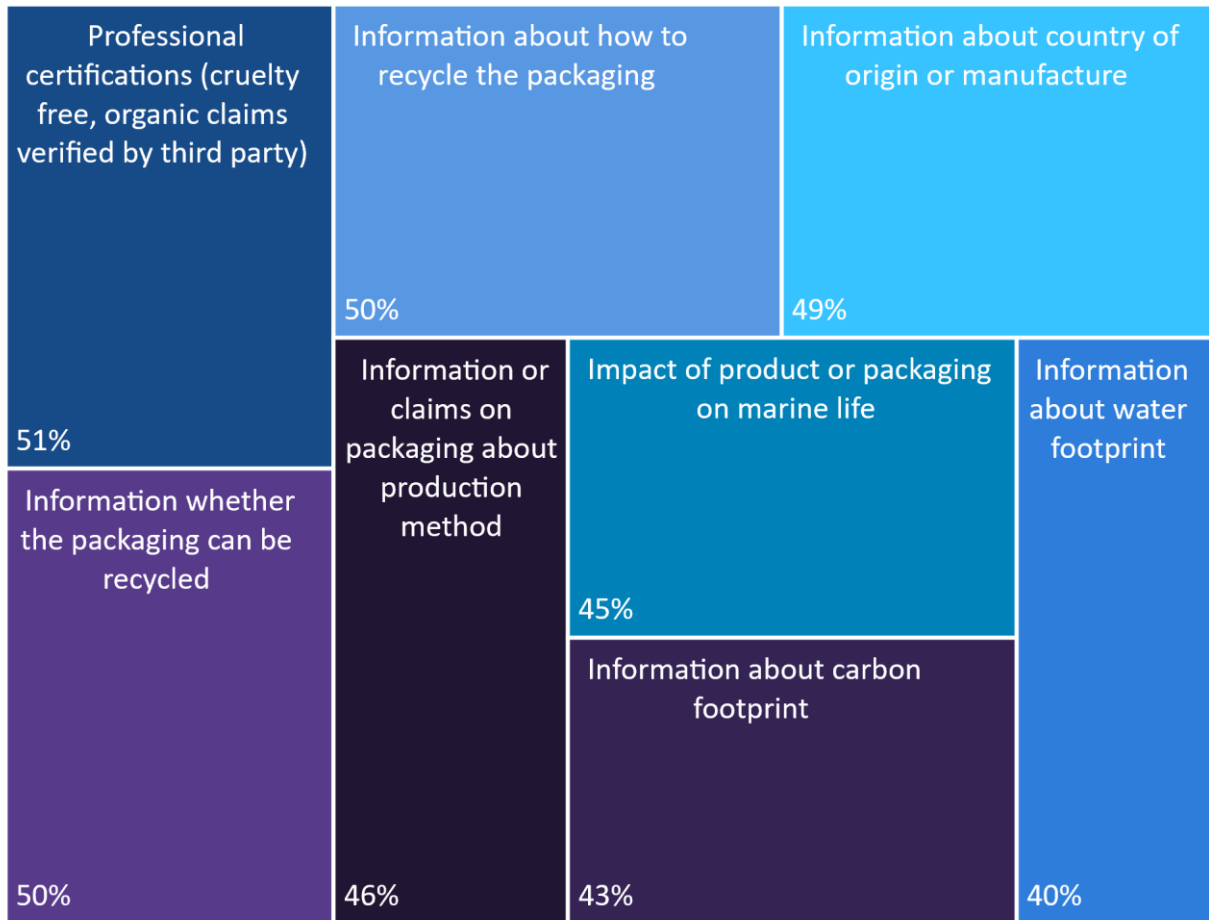
Global: "Which of the following features do you actively look for when making a purchase?"
Recyclable packaging," 2022



The **EU Plastics Strategy** creates regulatory incentive to increase refill-ability. **Coca-Cola** has responded with a new filling line at its facility in Lüneburg, northern Germany dedicated to refillable, returnable glass bottles.



Post-pandemic consumers are also seeking greater transparency from brands



50% of consumers consider it essential to know whether a product's packaging can be recycled and how to recycle it.

A theme throughout is the demand from consumers for clear and accessible information about environment impact, how responsible that packaging product/manufacturer is, and how the user can “do their bit” to ensure the impact of their usage is minimal and sustainable.

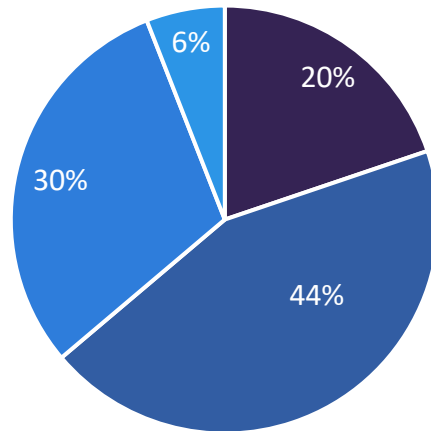
Digitization



Consumers continue to embrace digitally-activated product packaging for its assorted potential usage benefits



Which of the following features do you actively look for when making a purchase?² High-tech¹



■ Essential ■ Nice to have ■ Not necessary ■ Don't know / Not sure

41% of global consumers express a preference for digitally advanced products.¹

64% see high-tech features as essential or a “nice-to-have” when selecting purchases.¹

Packaging is the essential delivery system for such elements. Activations with consumer appeal include traceability, condition/quality assurance, promotional content, etc.

Digitalization – Some examples of packaging Innovation at the consumer interface



Smart cans

Coca-Cola's smart cans with built-in temperature sensors for product quality and safety.



Smart track and trace

PepsiCo's recyclable smart packaging with digital tracking and traceability systems for sustainability and consumer insights.



QR and NFC for transparency

Nestle's use of QR codes and NFC technology for consumer engagement and product transparency.

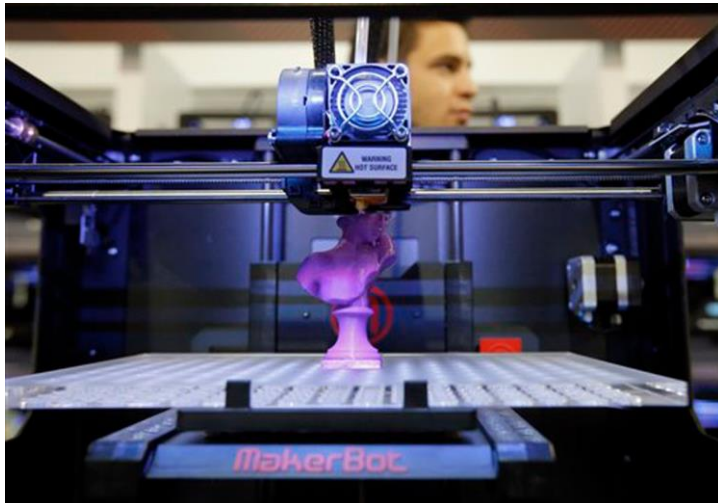
Digital technology is ubiquitous - impacting many aspects of packaging at same time

AI and related technologies can bring improvements to packaging development and recycling effectiveness



3D and 4D Printing

Innovative methods of packaging production



Robotics and Artificial Intelligence (AI)

Underpins automation of waste recovery facilities



Optical Sorting Technology

Underpins automation of waste recovery facilities

- Designed with customer needs in mind
- Ultra-compact
 - Easy to install and maintain
 - Flexible and future-proof
 - Fully upgradable
 - Reduced operational risks
 - High availability



The increasing use of automation and robotics offers many benefits...



DS Smith automates warehousing at its Kemsley paper mill with AGVs

By utilizing an array of sensors and AI software, AGVs can navigate industrial facilities without serious risk of collision. This makes them effective logistics robots because they can autonomously execute the monotonous task of transferring products from one point to another.

Increased automation and robotics benefits:

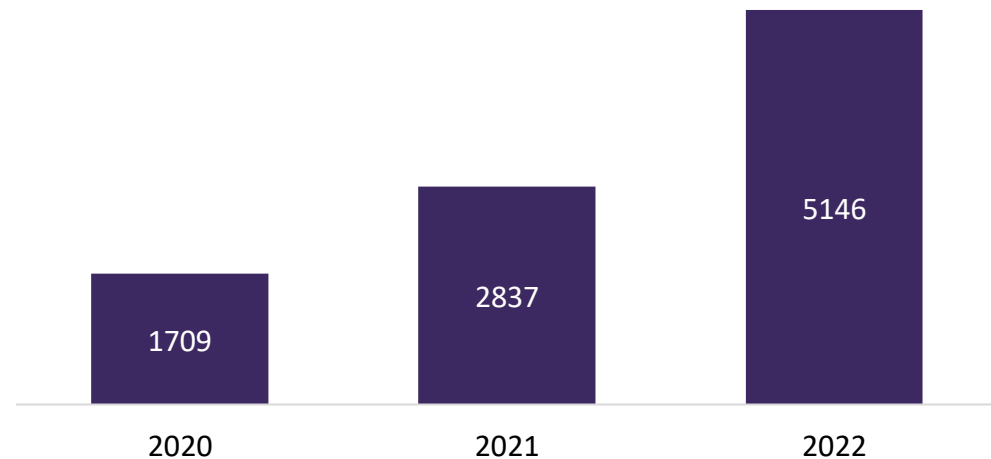
- Can contribute to improving supply chain efficiency and reduce labor availability/cost issues
- Increased resilience to disruption (e.g., pandemics, etc.)
- Enhanced quality control via robotic inspection capabilities and real-time monitoring via cameras, vision systems, etc.
- ESG – e.g., integrated use of IoT, computer vision, and robotics in recycling processes - automatically sorting glass, metal, and plastic bottles into appropriate recycling containers.
- Fully automated production lines for new sustainable packaging will increase their cost-effectiveness versus traditional packaging.

...but it can also create some challenges for the industry

- Margin pressures, and competitive and more complex markets.
- Managing and integrating large amounts of data effectively to streamline processes and increase efficiency.
- Protecting against growing cybersecurity concerns and maintaining customer trust.
- Balancing online and physical distribution channels in the face of increasing e-commerce and direct-to-consumer sales.
- Understanding customer preferences and maintaining a flexible supply chain to adapt to demand fluctuations.

A 60% increase in "digitalization" mentions in 2021 compared to 2020 shows the growing importance of digitalization in the packaging industry.

The number of Digitalization related jobs posted by packaging companies has grown steadily since 2020¹



Summary & Conclusions



Summary & Conclusions

Key Industry Drivers



Cost



Sustainability



Efficiency

Key Industry Trends

1. Inflation

THE ESSENTIALS

2. Environment

3. Digitalization

Key Take-Outs

Reduced consumer spending power
Increased industry costs, competition and margin pressures

Increased environmental awareness
Regulatory challenges
New materials

Digital lifestyles
Digital integration of supply chains
Robotics
Interactive packaging



Summary & Conclusions





Contact Us

For any questions or further enquiries please contact:

dominic.cakebread@globaldata.com

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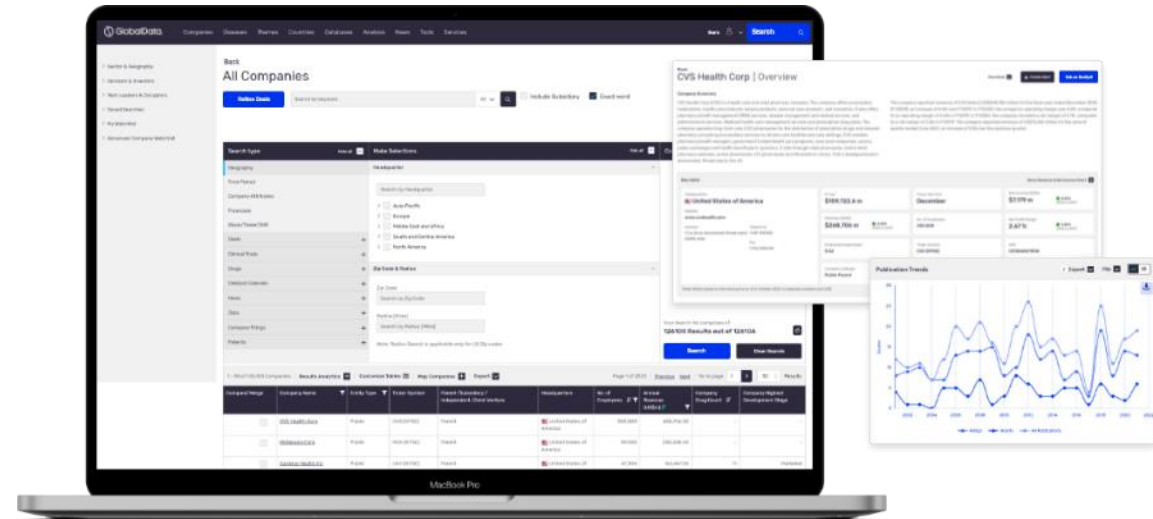


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