

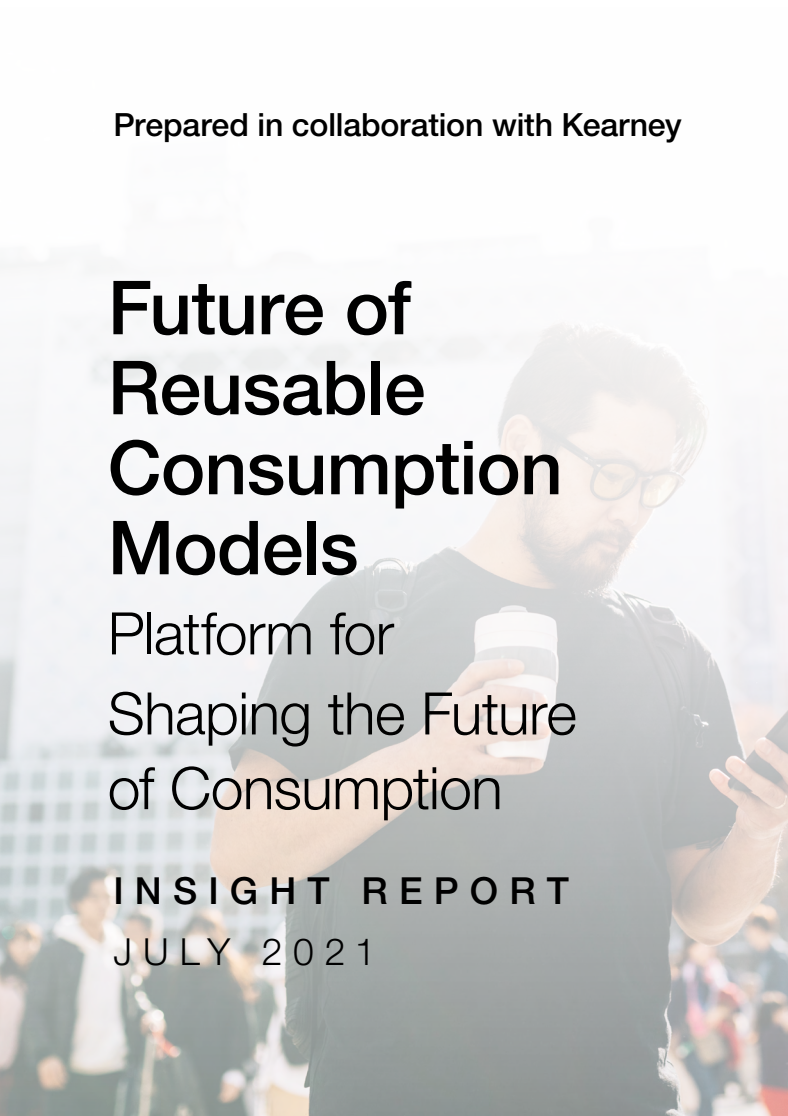
Prepared in collaboration with Kearney



Future of Reusable Consumption Models

Platform for Shaping the Future of Consumption

INSIGHT REPORT
JULY 2021



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Preface



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Even as the coronavirus pandemic has dominated global attention over the past year and a half, public awareness of another, far more enduring crisis – the degradation of our natural environment – has remained high. In fact, several studies have indicated that public concern about sustainability has held steady or increased during this period.

The worldwide pandemic has made people more attuned to humanity's relationship with its home planet. We believe this matters in terms of urgency of timing for private and public decision-makers, as consumers are becoming more open to – even insistent upon – products and services that tread more lightly on the Earth. Reusable consumer goods in particular are a source of increased momentum and excitement.

The shift from disposable consumer goods to reusables is still in its early stages, but there are already signs of progress. Producers face the prospect of rising costs for the generation of refuse. Consumers are increasingly aware that while recycling remains an important and worthwhile step, much more will be needed if we are to rectify the imbalances in our relationship with the natural world. We need to shift from merely “treating” or “handling” waste to simply never creating it in the first place.

This is the core principle of “reuse” – a production-and-consumption model in which consumer items are designed to be used several times before finally exiting the stream of commerce. It is hardly a new concept: for millennia, before mass industrialization, the reuse of everyday items was a standard feature of human life. Even in more modern economies, objects such as milk bottles, lunch boxes, coffee mugs and cloth shopping bags have served as everyday reminders that the reuse ethos has never entirely faded away.

Today, this model is undergoing a revival and an expansion, as governments and non-profits enter into partnerships with companies to demonstrate reuse models that are viable, practical and capable of generating significant added value across the economy.

In this context, to build a sustainable future for all stakeholders, the World Economic Forum's **Platform for Shaping the Future of Consumption** aims to advance responsible models of consumption that are equitable, promote societal well-being and protect the planet. The Platform's **Consumers Beyond Disposability** initiative brings together leading private- and public-sector actors committed to offering consumers sustainable and affordable alternatives to single-use products. The initiative focuses its efforts specifically on innovative reuse and durability-based solutions, and has been working to test and enhance the viability of those solutions. This **Future of Reusable Consumption Models** report is a vital deliverable of the overall initiative.

Developed in collaboration with Kearney, the report builds on proprietary research to create a framework for the viability of reuse systems and serve as a guide for the scaling of reuse. The project team of the Future of Consumption Platform would like to extend their appreciation and gratitude to all of the parties who have played a major role in developing this report.

We are confident that the report will contribute to the continued scaling and viability of reuse systems that accelerate our shift away from single-use packaging worldwide.

Executive summary

The 2020 edition of the *Living Planet Report* – a biodiversity index developed by the Zoological Society of London and the WWF – contains numerous alarming statistics about the troubled relationship between humankind and the ecosystems upon which we ultimately depend. Perhaps none expresses the fundamental imbalance as clearly as this: “To feed and fuel our 21st-century lifestyles, we are overusing the Earth’s biocapacity by at least 56%.”¹

Among the most tangible signs of this “footprint” upon nature are our ever-growing deposits of refuse, piled upon the land and strewn across the sea. This waste – much of it in the form of non-biodegrading plastics – represents a pollutant and a threat to wildlife and human species.

But it also represents a failure to derive sufficient value from our own means of production. These durable materials could indeed generate value through multiple uses over a period of months or years. Instead, they enter the economy for a single, brief usage – and then exit it just as quickly. And recycling – even with vastly improved recycling rates – cannot be relied upon to solve the problem.

There is a better way. The World Economic Forum’s Platform for Shaping the Future of Consumption seeks to advance responsible models of consumption that are better for people and planet. One of the focus areas of this platform is addressing environmental degradation caused by plastic pollution, through its Consumers Beyond Disposability initiative. The *Future of Reusable Consumption Models* report, produced in collaboration with Kearney, presents leading themes and findings that have emerged from the initiative.

The objective of this report is to give leaders in business, government, civil society and multilateral organizations a clear picture of an alternative plastic waste-reduction model, one that goes beyond the recycling of waste to its reuse – with the eventual result that a discarded item is no longer seen as “waste”, but rather as a still-useful object about to enter a new phase of value generation.

The first half of the report discusses the **three primary actors of systems change required**, which will dictate the pace and trajectory of the shift towards reuse: consumers; business; the public sector. Consumer calls for sustainable products will drive demand; private-sector capabilities will advance technological and business model innovation; and public-sector platforms will accelerate scale. In order for a reuse-centred

economy to take hold, however, some specific challenges facing each of these stakeholder groups must be overcome.

In the case of consumers, these are concerns about the convenience, affordability and safety of reusable packaging. For businesses, major challenges include: a lack of infrastructure; uncertainty about financial viability; and questions about how to attain adequate brand differentiation. Governments must contend with a lack of funding, while also updating incentives that currently reward high levels of recycling rather than waste reduction. In addition, the public sector still largely lacks standardized tools for assessing the economic, environmental and social benefits of reuse.

However, overcoming these barriers will be accelerated by the numerous opportunities for new value creation that reuse unlocks. Broadly speaking, reuse would shift value from the early stages of the production cycle (materials extraction, manufacturing) towards later stages (sales, marketing, return logistics), though it is important to note that manufacturers potentially have a great deal to gain from a movement towards reuse, including the potential of “manufacturing as a service” – developing and leasing reusable packaging to be reclaimed and recycled at the end of the product’s life cycle.

For consumers, reuse will generate value through a deeper sense of connection with brands, particularly those associated with admired principles of sustainability. In addition, reuse has four business-to-consumer models – summarized by the Ellen MacArthur Foundation – with different impacts on consumer needs for convenience: refill at home; refill on the go; return from home; return on the go. Our analysis indicates that at-home models (e.g. cleaning product refills) of reuse can be implemented with relatively little need for significant behaviour change from consumers, while on-the-go models (e.g. returnable beverage cups) will entail greater adjustments to consumption habits.

The private sector will not need to work alone in establishing reuse systems and educating consumers on their value. The public sector can help advance reuse models through third-party collaborations, the establishment of standards, incentives and subsidies, and the development of necessary public infrastructure.

The second half of the report presents the **Reuse Viability Framework**, a proprietary tool created by the Consumers Beyond Disposability initiative.

The framework is designed to address some of the most essential questions that business leaders and public-sector decision-makers have raised about reuse – namely, how to make reuse scalable and viable.

Drawing upon expert interviews and workshop discussions, as well as findings from investigative modelling and pilot collaborations, the framework breaks new ground in establishing the viability of reuse-centred production and consumption cycles. It is intended to serve as a diagnostic aid for companies and communities seeking to establish a reuse system, as a facilitator of informed dialogue within and among stakeholder organizations, and as a tool for measuring potential outcomes.

The framework details the various stakeholder groups in a reuse ecosystem, along with the market viability factors that determine their ability to succeed economically and operationally. How each stakeholder group experiences the viability factors creates a market readiness matrix, indicating where the system will experience scaling challenges. Ultimately, the system's behaviour across this matrix determines the potential for the reuse solution to demonstrate superior economic, environmental and social impact relative to single-use alternatives.

Analysis of the Reuse Viability Framework generates six dimensions of a truly successful, large-scale, system-wide reuse paradigm:

- **1. Delivery-model efficiency:** Shared reuse systems and short-distance logistics loops enable scalable economics across most major categories.
- **2. Consumer experience:** Consumers have access to a variety of reusables that compete with disposables on convenience, user experience and other measures of customer satisfaction.
- **3. Technology advancement:** Technologies such as QR codes and radio frequency identification (RFID) are deployed to create value-adding services, increase container lifetimes and standardize back-end processes.



- 4. Regulation:** Regulation pairs reuse incentives with comprehensive policies such as quantitative reuse targets and extended producer responsibility measures.



- 5. Cultural shift:** A widespread cultural shift moves consumers and institutions towards reusables and away from disposables.



- 6. Demonstration of impact:** Reusables demonstrate improvement on all leading economic, environmental and social impact metrics relative to disposables via common reporting standards.

The report concludes with a consideration of three potential scenarios for the development of a reuse economy by 2030. The scenarios are drawn from proposals already on offer from national governments, leading non-governmental organizations (NGOs) and multinational bodies.

In one scenario, based on proposals from France and the European Parliament, 10–20% of plastic packaging could be reusable by 2030, equating to 50% of annual plastic ocean waste. In two other scenarios, derived from proposals from governments and leading NGOs, systemic change could result in 20–40% or even 40–70% of plastic packaging becoming reusable, depending on the product categories being reused and specific regions that could mainstream reuse. Attainment of any of the three scenarios – especially the third – would mark a significant achievement to provide consumers with viable alternatives to single use.

In the end, the *Future of Reusable Consumption Models* is a statement of aspiration and hope – but one that is rooted in rigorous, market-informed methodologies. The need for a more reuse-centred economic model is urgent and grows more so with each passing year. It is up to all stakeholders – both public and private – to answer the call.

We are proud to present this report to you in the spirit of shared progress towards a more sustainable future.



1

Introduction: creating a waste-free future



One of the most basic needs of any society is a convenient way to manage waste. For most of human history, this has largely been a process of returning to nature items derived from nature itself: food scraps, broken pottery and worn-out clothing made of simple materials such as leather, cotton or wool. But as with countless other aspects of human civilization, the Industrial Revolutions that began in the late 18th century transformed our relationship with material waste. There was now vastly more of it, and it increasingly consisted of materials foreign to the planet's digestive system – notably plastics.

It has become increasingly clear that the continual increase in waste material – whether in the form of solid refuse or industrial emissions – represents a growing threat to our ecosystems and economies.

Even with a sudden temporary drop in carbon-dioxide emission in 2020 due to the COVID-19-related economic downturn, the year still saw a record-breaking level of carbon dioxide (CO₂) in the atmosphere – 418 parts per million – due to the massive concentrations of human-made greenhouse gas already present in the atmosphere.² Then there is solid waste, which has grown from 23 gigatonnes (yes, that is 23 billion tonnes) in 1990 to 78 gigatonnes in 2020 – and a projected 127 gigatonnes by 2050. This expansion of our refuse footprint far exceeds global population growth and can be understood only in the context of a disposable-goods system that combines short-term use and long-term environmental harm.

Half of all global plastic production is for single-use applications. To get a sense of just how ephemeral a “single use” can be, consider that the average working life of a disposable plastic shopping bag

is all of 15 minutes. What happens to all of that plastic waste? A report by the World Economic Forum and the Ellen MacArthur Foundation pegs the share of plastic packaging that gets recycled at only 14%; while just 2% is “effectively recycled” – that is, converted into an equally useful item. Most recycled plastic is “downcycled” into something less useful than before, and is recycled only once before heading to a landfill or the ocean.³

All too often, then, waste remains as waste. It gathers in ever-increasing quantities on the land, in the sea and in the atmosphere. Recent publications by the World Economic Forum and the Ellen MacArthur Foundation also show that “the best research currently available estimates that there are over 150 million tonnes of plastics in the ocean today. In a business-as-usual scenario, the ocean is expected to contain 1 tonne of plastic for every 3 tonnes of fish by 2025, and by 2050, more plastics than fish (by weight).”⁴

As these alarming statistics imply, our accumulations of waste come at a cost to our fellow species. To see how the profusion of waste might contribute to ecological degradation, it is worth remembering that all forms of non-biodegradable waste removal harm the environment in some way. Take the most common disposal method, landfill, which accounts for about 37% of all refuse disposal. At the colossal scales demanded by industrialization and urbanization, landfills emit greenhouse gases and pollute air, soil and ground water.

Running a close second to landfills is simple open dumping onto the land or water; about 33% of the world's refuse is still handled this way. This method – if it can be called that – is inherently polluting and

causes lasting damage to ecosystems worldwide. The third most-common approach (used on about 11% of waste) is incineration, which can generate toxic pollutants and emissions.

A status quo that relies on these three disposal methods is clearly unsustainable. It is also growing more costly – not only for the environment, but also for the companies generating waste material. New public policies increasingly seek to shift the cost burden of waste on to manufacturers and producers.

Underneath it all lies a fundamental question: **Why do we have to generate so much waste in the first place? Instead of devoting resources to waste removal and treatment, why not go the extra conceptual step to waste *elimination*?**

It is a question that has been becoming more important in recent years; it is addressing a future in which waste no longer stays as waste, but is reabsorbed into the productive cycle and repurposed. In such a future, the “linear” waste economy – in which a product’s existence follows a direct, finite, one-way line from manufacture to usage to landfill – is replaced by a “circular economy” in which items are reused or recycled indefinitely.

In the familiar triptych of “reduce, reuse, recycle”, reduction of potential waste is the ultimate aim. Recycling, while certainly an improvement upon simply throwing items away, doesn’t go far enough in extracting value from each manufactured item. As noted above, we are simply not recycling enough plastics, and effective recycling rates are lower still. These low recycling levels are a global phenomenon. In a 2019 study for the government of Indonesia – a vast G20 nation that has had to

contend with high levels of plastics pollution on its shorelines and waterways – the World Economic Forum found that recycling would manage only about 42% of all plastics used in 2040.⁵

Reuse – in which products are used multiple times with little change – is the objective towards which producers and policy-makers should be aiming, and it is the subject of this report. This paradigm is still in the early stages of evolution: as of 2019, only 1.9% of all plastic packaging was reusable for those organizations that are EMF’s Global Commitment Signatories.⁶ While waste-minimization and product durability are common themes of this model, reuse-driven value chains may vary to fit an immense array of products and functionalities.

Any shift towards reusable consumer goods will depend on the choices and actions of the three driving forces of our economy: consumers, the private sector and the public sector (including international organizations and NGOs as well as government bodies). Each of these groups has a unique role to play in making reuse a reality.

This report will address all of these actors, and examine the stake each has in ensuring the success of a reuse-centred consumption paradigm. It will look at this challenge from a systems-change perspective, noting the unique roles and capabilities of each player. Furthermore, this report will address the question of the financial viability of reuse programmes – a topic that has been the source of uncertainty for many executives and public officials in the past. Finally, the document will also illustrate the potential for the future of reuse and outline a path to systemic change.



2

Mega-forces shaping the future of reuse



A reuse system can never grow to the necessary scale to produce long-lasting systemic change without engaging consumers, business and government. These three stakeholders are the most powerful drivers for accelerating the shift towards

reuse systems. This section of the report will look at each of the three stakeholder groups in turn, as a vital driving force, because they are certain to have an increasingly transformative effect on mainstreaming reuse systems.

2.1 Changing consumer preferences – “It needs to be done”

The most fundamental driving force of all – the one that makes the others possible – is a profound shift in consumer sentiment in favour of more sustainability-oriented options. If each of the driving forces could be distilled into a simple declarative statement, the operative one here would be: *“It needs to be done.”*

Such is the sense of insistent urgency among a growing number of consumers worldwide – even as a global pandemic has dominated news coverage and public awareness. In the spring of 2020 – as COVID-19 was just beginning to spread around the world – a Kearney Earth Day survey of US consumers discovered that 48% of all respondents said the pandemic had already made them more concerned about the environment, and 55% said it made them “more likely to purchase environmentally friendly products”.⁷ A Yale study conducted around the same time found “several indicators of public engagement [on climate change] actually reaching record levels”.⁸

Natural ingredients, greener products and sustainability-oriented brands are all benefiting from clear upticks in consumer demand, preference and willingness-to-pay. The Kearney Earth Day survey found the majority of consumers saying that over the following 12 months they would be likely to bring reusable shopping bags to stores (59%) and carry reusable travel mugs, water bottles or straws for drinks on the go (57%).⁹

Buyers are insisting on reduced packaging, increasing use of recycled materials, and other measures that would have been considered “fringe” only a few years ago. They are changing their behaviour to consider the environmental impacts, as seen in such practices as buying in bulk, declining the offer of plastic utensils at restaurants or cafés, and opting for minimal-packaging shopping practices such as container refills.

There is good reason to believe that this consumer emphasis on greater sustainability is here to stay and will accelerate the shift towards reuse. However, certain variables could either heighten or mitigate that emphasis. One particularly noteworthy

variable is convenience – time-stressed customers will place a premium on it, and the pace of adoption for reuse systems will depend to no small degree on the success of efforts to make product disposal and reuse as friction-free as possible.

2.2 Corporate innovation and advances in technology – “It can be done”

It is one thing for consumers to want more pro-sustainability options. To actually generate those options in the marketplace, our second driving force needs to come into play – technological change, driven by private-sector innovation. In response to consumers’ insistence that “It needs to be done”, the business world’s inspiring ethos is: “*It can be done.*”

The word “can” is especially apt here, because the business sector plays an important role as a market validator of what is possible, practical and achievable. If the private sector were simply to say, “*It cannot be done*”, any hopes for reuse would not get far.

Fortunately, the “can-do” spirit of business has a clear upper hand when it comes to reuse-related technologies. Renewable energy is now below fossil-fuel prices (less than 2 cents per kilowatt-hour); and material and digital innovations enabling reuse are on the rise. The focus of patents for reuse and refill innovations can be seen in global patent filings: nearly a quarter of these (23%) were for food containers and kitchen utilities; 20% for cleaning

products; 19% for refillable cosmetics and personal-care containers; 16% for manufacturing and monitoring systems; 11% for beverage containers; and the remainder for a mix of purposes.¹⁰

Another important technological advance is the emergence of sophisticated traceability technologies, which can store a product’s material composition, trace its journey and facilitate recovery. One especially intriguing example of this tech is a “material passport” for buildings, allowing structures to be used as material banks that can be cannibalized for usable parts at the end of their useful life, or as they undergo renovation.

Such breakthroughs are only the beginning. Far more is still to come, and the likelihood is that companies will first accelerate innovation in such relatively familiar areas as “at-home” programmes that evoke older commercial models such as milk and newspaper deliveries. Other reuse models will gain scale with more time; more investment; and more familiarity among consumers and sellers alike.

2.3 Government actions and initiatives – “It is incentivized”

And yet, even robust customer sentiment and business innovation will not be fully sufficient to ensure the scalability of reuse systems. A potent third driving force will be required – namely, public-sector actions and incentives. In fact, the catchphrase for this driver is, “*It is incentivized*”, since it is within the unique power of government to establish effective inducements for pro-sustainability consumer choices and business innovation.

There are numerous governmental incentives underway worldwide to spur the transition to reuse-centred models, including a growing body of regulations enforcing circular-economy principles. These include such measures as quotas that mandate higher percentages of sustainable products within a given market.

Among the most visible reuse policies are plastic shopping bag bans, now in effect in several nations and subnational jurisdictions worldwide, including Italy, the UK, China, Australia, South Africa and several US states and municipalities.

As will be discussed in more detail elsewhere in this report, another role of the public sector is to help enact the public-private partnerships that will be crucial to building momentum towards reuse models. Public-private partnerships will create unique levers for overcoming scale barriers such as financial viability and behavioural change in favour of reuse.

One example of a public-private partnership that is already proceeding along such lines is the Plastic Pact Network, organized by the Ellen MacArthur

Foundation. This venture unites businesses and governments in the effort to reduce plastic waste and pollution at source, bringing together key stakeholders to implement geography-specific circular economy solutions. The Ellen MacArthur Foundation also organizes the New Plastics Economy Global Commitment, under which public and private signatories drive target setting and progress tracking for businesses reducing plastic waste.

Corporate signatories to the commitment include companies that represent 20% of all plastic

packaging produced globally. More than 15 financial institutions (with a total of over \$2.5 trillion in assets under management) have signed on, and five venture capital funds have pledged a total of more than \$200 million to create a circular economy for plastic.¹¹

In addition, governments from national down to community level can serve as platforms to build scale for pro-reuse measures, by facilitating the development of physical infrastructure, innovation incubators and other resources that the public sector is optimally suited to establish and support.



Common challenges to overcome

In order to make large-scale reuse a reality, both private and public organizations will need to invest in new capabilities to overcome the

distinctive barriers facing each driving-force group: consumers, the private sector and the public sector.

The first barrier: hindrances to the growth of pro-reuse consumer behaviour

Private-sector and public-sector stakeholders will need to address the conditions that limit consumers' access to reuse systems, or that otherwise dissuade the mass consumer behaviour changes that reuse would depend upon.

Convenience and affordability: There are other ways in which public-private partnerships could spur further consumer acceptance of reuse programmes. As noted in this report, we have begun to see reuse models that are both convenient and affordable. Establishing and publicizing such models – ideally in a broad range of sectors – would go a long way towards entrenching consumer acceptance of reuse systems.

Packaging safety: A potential dissuading factor is consumer concern about packaging safety in the context of COVID-19 and its aftermath. Addressing this may require some consumer education, delivered by business and regulatory bodies (either separately or collaboratively) on packaging and COVID transmission.

One way to achieve this would be by testing and piloting reuse programmes to ascertain viable consumption models and spread awareness of their feasibility. This could be carried out by public-private partnerships at city or national levels. In addition, consumers could receive incentives from the public sector (such as tax breaks) and private sector (rewards programmes, reduced pricing) to further stoke interest in reusables.



The second barrier: factors that could prevent businesses from developing pro-reuse practices and technologies

Among the most important audiences that private-sector reuse advocates will face is their fellow business leaders. Whether on their own or in tandem with public-sector partners, companies seeking to advance reuse models will need to actively confront some barriers to the business community's participation. Three barriers in particular warrant attention: insufficient infrastructure; uncertain financial prospects; and inadequate brand differentiation.

Insufficient infrastructure: Current systems are established around a linear delivery model. The public sector has an especially important role to play in developing the infrastructure needed to build a more reuse-centred marketplace, while private-sector entities can help by establishing value-chain partnerships.

Financial viability: A lack of scaled precedents (so far) makes business cases difficult to develop for this new model, so stakeholders (especially

retailers) are reluctant to make these investments. This is not an insuperable obstacle – after all, the greatest business successes of our time have resulted from entrepreneurs boldly going where very few others had even thought to look (think Apple, Microsoft, Google, Amazon – the list goes on). Nonetheless, private-sector and public-sector actors (including think tanks and universities) could help by establishing credible, well-substantiated holistic viability-modelling tools to generate useful insights on scalability.

Brand differentiation: Industry-wide packaging standardization, using shared infrastructure, is often identified as an essential means of achieving scale for reuse systems. However, such standardization can come at the cost of brand differentiation. A potentially significant role for public-private partnerships might be to generate designs and processes for scalable infrastructure that allows for sufficient levels of differentiation. System stakeholders may also differentiate not only through packaging, but also through non-material means such as digital experiences, particularly for direct-to-consumer offerings.

The third barrier: limitations on governments' ability to encourage and incentivize pro-reuse market conditions

The primary barriers to constructive government action are a lack of funding, misaligned incentives and a lack of standardized tools to assess the effectiveness of reuse programmes.

Funding challenge: This is probably the most significant of challenges, particularly at a time when national, subnational and local governments are under acute fiscal pressure. Yet the public sector response to the COVID-19 pandemic has demonstrated that – when humanity faces a life-threatening issue – adequate funding can be found. One important capability that could unlock this problem is the passage of tax incentives or other policies that reward forward-leaning businesses and penalize laggards.

An example is extended producer responsibility (EPR) policies, which seek to tally the environmental costs of products throughout their life cycle. As summarized by the OECD – which has reported seeing a trend towards the expansion of such policies – under EPRs, “producers are given a significant responsibility, financial and/or physical, for the treatment or disposal of post-consumer products”.¹²

Such plans are increasingly shifting the cost of discarded products onto manufacturers. Introduced in Sweden in 1990, the EPR concept has been adopted in varying forms by regulators in Europe, Asia, North America and South America, and it seems destined to gain momentum in years to come. Singapore is set to debut an EPR for electronic waste and packaging materials this year, and the UK plans to do so for packaging in 2023.

Incentive misalignment: Part of the problem is that many municipal systems reward high levels of recycling, as opposed to outright waste reduction. Since elevated levels of reuse – and, therefore, reductions in single-use waste – would likely bring down recycling rates somewhat, this incentive structure could actually serve as a disincentive to the development of reuse processes. A basic fix would be to realign the system to place a higher value on waste prevention and reduction – though it's worth emphasizing that reusables will still need appropriate recycling systems at the end of their useful lives.

Standardized tools: Metrics and tools for understanding the economic, environmental and social benefits of reuse are currently lacking. Here, again, is a clear opportunity for public-private partnerships, incorporating expertise from business, government, academia, NGOs and think tanks; such partnerships could co-develop a rigorous set of standard measurement frameworks and tools that serve the needs of corporations, investors, innovators and regulators alike.

As noted in the Introduction, only 1.9% of all plastic packaging was reusable as of 2019 from organizations that were EMF Global Commitment signatories.¹³ If we are to make reuse a standard component of our productive economy, both private and public organizations will need to invest in new capabilities to overcome the barriers facing each group: consumers, the private sector and the public sector. Overcoming these barriers will be accelerated by the numerous opportunities for new value creation that reuse unlocks.

3

New value-creation opportunities



This section of the report will explore how reuse creates value for the three crucial constituencies introduced in the previous section. It will consider the following factors: (1) how reuse shifts economic value from linear systems; (2) new value delivered to consumers; and (3) the role of public-private partnerships.

These new value-creation opportunities represent powerful means of addressing the challenges facing the creation and scale-up of reuse systems. They also offer a preview of the kinds of broad-scale economic, environmental and social benefits that we might be able to look forward to as these systems expand.

3.1 Shifting economic value

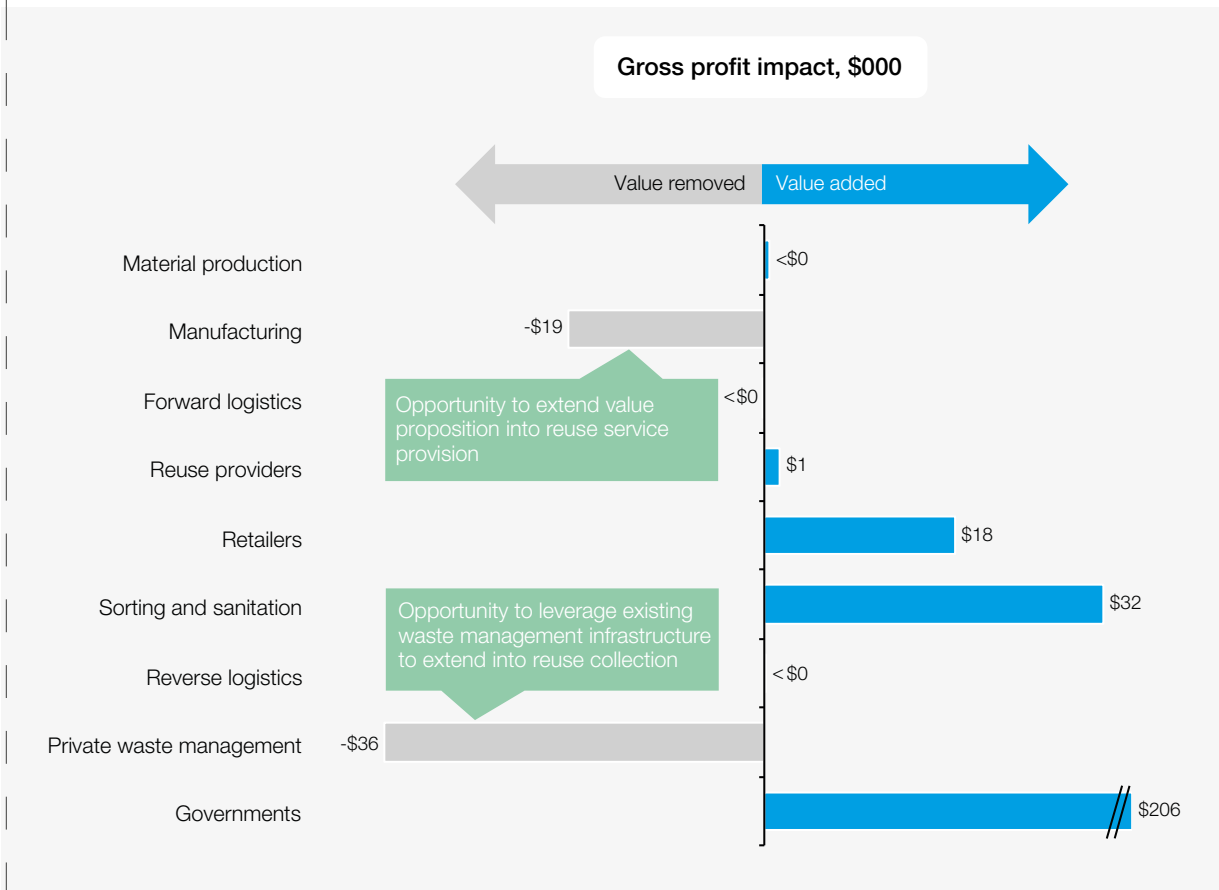
New reuse business models will create new markets that shift value within systems, transferring value from the opening stages of the product life cycle and substantially adding value to the subsequent stages.

The reuse paradigm relies upon new business models that shift value around a system. It tends to add most cost and value towards the end of a container's life cycle (in sales, returns and refills) and away from the beginning (material extraction, manufacturing).

This shift creates opportunities for companies that can take advantage of new value pools – e.g. new-material production and manufacturing, sanitization, refilling, branding and retail. For the private sector, then, reuse shifts (rather than removes) value as it scales upwards. For the public sector, reuse creates value as it diminishes the need for costly waste-management programmes.

[For example, a scenario model of scale for the generic return-on-the-go cup mentioned above yielded insights conducted for economic impact.](#)

FIGURE 1 Scenario model – returnable cup, New York City



KEY POINTS

At this scale point, governments, sorting/sanitization and retailers are receiving the most added value

Manufacturers of disposables and private waste management responsible for disposing of them bear the burden of lowered demand

Source: Kearney scenario analysis, 2021

As the Figure shows, the value shifts away from certain stakeholders as reuse expands. However, the net economic value of large-scale reuse is ultimately positive – eventually creating significant potential sources of income even for those companies and sectors that are initially disadvantaged by it. Reuse creates value for the overall economy in various ways, including a reduction in the amount of waste that must be managed by government agencies, and the emergence of lucrative new markets for sorting and sanitization.

A reuse-centred distribution system creates an array of new markets and opportunity areas, which will only become more numerous and productive as the reuse model takes hold worldwide.

A. Opportunities in manufacturing: While reuse diminishes value in this phase of the product life cycle under the scenario above, the manufacturing sector potentially has much to gain from a shift towards reuse. One intriguing possibility is the emergence of “**manufacturing as a service**” – developing and leasing reusable packaging to be reclaimed and recycled at the end of the product’s life cycle. Then there are the potential value gains that manufacturers could reap from material innovation in durability and reusability features, as well as in the technologies related to material traceability and digital services.

B. Opportunities in private waste management: This is another sector that loses value in the

reusable-cup scenario above, but that could gain significant value from the development of large-scale reuse systems. One new source of value for this industry would reside in its currently existing collection networks, which could be used to offer the “reverse logistics” at the heart of the reuse model. Waste-management companies could also apply their current infrastructure to the potentially lucrative work of sorting and sanitizing reusable goods.

C. Opportunities for brands and retailers: Reuse offers a host of new market opportunities for branding and retail. It generates rich possibilities for consumer-loyalty development, through lengthened product engagement. Companies can also personalize and customize goods and services at a new level of precision, including through in-store engagement via embedded container RFID chips.

D. Opportunities for system enablers: Such enablers can serve the various phases of the reuse system. For example, there will be a market for companies to build reuse and refill systems into property infrastructure, such as apartment complexes or neighbourhood community centres. There will also be a need for “smart boxes” and other durable packaging to aid in the transport of reusable goods. Reuse also opens possibilities for new services provided via existing transport networks, such as ride-sharing and food-delivery services.

3.2 Delivering new consumer value

A reuse-centred approach to consumption would deliver value for consumers in a variety of ways. Among the most marked trends in consumer behaviour in recent decades is the willingness to pay a premium for brands that reflect the purchaser's personal values, such as animal welfare, fair trade, sustainable resource usage and local sourcing. Relatedly, many consumers have come to express an expectation of deepened engagement with their favourite brands, particularly through social media.

Reuse would offer countless opportunities for such forms of branding and engagement. It calls upon consumers to carry durable containers, often emblazoned with the producer's logo. It gives consumers new touchpoints at which to engage with the company, such as at refill or cleaning stations. It is to be expected that savvy brands will quickly learn how to maximize the relationship-building value of these and other stages in the reuse cycle.

It is increasingly clear that convenience is emerging as an important consideration driving consumers towards reusables. Reuse systems are highly convenient for some categories – such as bulk food – while they are challenging for others. For categories well-suited to reuse, new models can already improve upon the convenience of disposables. Early uptake will be driven by models – such as refill-at-home – that can deliver such improved convenience for consumers with infrastructure that is already available. For the more challenging categories, sizable incentives or other circular solutions are required.

Proponents of reuse need to take a serious look at how to shape the way consumers think about convenience. After all, using an item once and then simply throwing it away is undeniably more “convenient” than taking the additional steps needed to perpetuate its useful life.

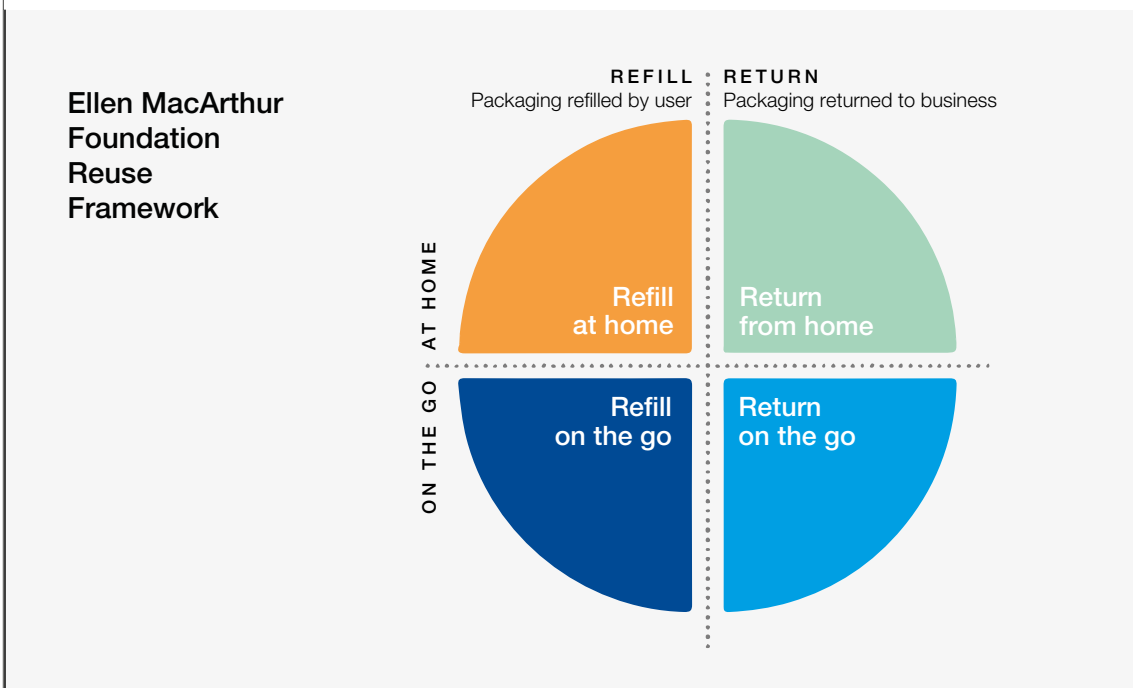
The good news is that we have positive precedents for such a mass mind-shift. As recently as the 1960s and 1970s – well within the living memory of many adults – littering was common behaviour in the US and other developed nations. Today, it is virtually a taboo act – despite the sheer “convenience” of simply dropping to the ground anything one no longer needs. This shift in mindset was the result of a concerted effort to educate the public on the costs of such behaviour. A project of similar intent and scale will be needed if we are to establish reuse as a broadly acceptable solution.

The Ellen MacArthur Foundation (EMF) has made the point that “reuse presents an innovation opportunity to change the way we think about packaging from something that's simply as inexpensive and light as possible to viewing it as a high value asset that can deliver significant benefits to users and businesses”.¹⁴

To better understand that value proposition, EMF has developed its own “Reuse Framework” that helps us understand the diversity of reuse system modalities – and the strategies that may be most viable for rolling out each reuse model to consumers.

[The Ellen MacArthur Foundation organizes reuse modalities into four main categories:](#)¹⁵

FIGURE 2 The four reuse models



Source: Ellen MacArthur Foundation (2019): *Reuse: Rethinking Packaging*.

Examining each of these four modalities through the Reuse Viability Framework reveals different scaling implications.

A. For refill at home, the barriers to expansion are relatively low. Delivery of refills and packaging can use existing direct-to-consumer channels; what little change is required in consumer behaviour is often welcome. One factor to watch out for: refill from home often relies on disposable packaging, which can limit waste-reduction potential.

B. For return from home, the needs are more fundamental. Although consuming and returning from home is often a welcome behaviour change for consumers, reuse providers need systems to handle the logistics of return and cleaning of products in order to deliver the solution viably, and those systems often have yet to be built. Addressing that challenge, and thereby giving consumers the access they need, is the top priority for this modality.

C. For refill on the go, which has relatively ambitious demands, consumer behaviour

change is critical. This system can add significant travel time and education requirements for consumers to engage. However, bulk dispensing systems can be straightforward to set up for providers willing to dedicate shelf space and make them accessible.

D. Finally, the return-on-the-go modality faces challenges in engaging consumers, due to the need for consumer travel and education, and the overall complexity of providing access. The need here is for long-term investment to build the infrastructure, perhaps with an early emphasis on certain targeted categories that offer particularly good odds of consumer uptake, such as takeaway coffee.

Stepping back to look at reusables, it is becoming increasingly clear that they have great potential to deliver new value for consumers, even in terms of convenience – a crucial advantage in the bid to gain the support of time-pressed, overstretched consumers. In recent years, several innovative start-ups have emerged to push the boundaries on improving convenience in reusability.

Loop, a subsidiary of **TerraCycle**, has established partnerships with such leading US retailers as Kroger, Walgreens and Carrefour to allow customers to borrow handsomely designed brand-name packaging, which is fully recyclable after 20 to 100 uses. In its return-from-home and on-the-go models, the company will professionally clean and reuse the container once the customer is finished with it. As of December 2020, Loop had enlisted more than 100 brands globally and offered more than 400 products.¹⁶

The Chilean start-up **Algramo** has recently broken into the US market with its innovative refill-on-the-go distribution model. After a one-time container purchase, a customer may refill a range of liquid cleansers from dispensing machines at participating stores. Producers signing on to the programme include such market heavyweight brands as Clorox and Pine-Sol. Algramo even launched a pilot in April 2021 with Walmart Chile to provide refill stations for branded in-house products.

It is not only start-ups that are driving the shift to reuse. In Brazil, **Coca-Cola** offers a discount on customers' next purchases when they buy products in refillable bottles; this reportedly ensures a return rate of 90%. Retailers store the empty bottles and return them to Coca-Cola upon delivery of a new order. Then Coca-Cola brings the bottles back to a facility where the paper labels are washed off and the bottles cleaned, refilled and rebranded with a fresh label.¹⁷ **PepsiCo** is also active on the reuse front; according to the company, its SodaStream business estimates it will save 78 billion single-use bottles by 2025 from entering the waste cycle (PepsiCo estimates, 2021).

For other examples of new reuse models taking off, **MIWA** is implementing reusable capsules, and **Muuse** has created reusable drink and meal containers for cafés.

One market factor working in reusables' favour is consumers' rising level of experience with e-commerce payment and delivery systems, which align closely with reusable-distribution models. The UK saw 250% year-on-year growth of food deliveries in 2020; it is not difficult to see how such

purchases – which often involve simply scanning an RFID chip – could serve as a basic model for return-and-refill orders.¹⁸

What seems clear is that customers are increasingly expecting high-convenience transactions, with minimal friction. Reusables can offer this – though perhaps more readily for some modalities and sectors than for others, at least for now. Regardless, the opportunities for reusables to deliver new value to consumers are plentiful.

3.3 Role of public-private partnerships

The private sector need not work alone in bringing about the reuse revolution – public-sector (government, NGOs, international organizations, academia) collaboration significantly lowers the barriers to scale-up.

The public sector can serve as a platform to scale reuse, whether as a third-party facilitator (such as through the development of public infrastructure) or as a participant in public-private partnerships to encourage innovation. Diverse players interested in advancing reuse have consistently highlighted the need for more clarity on what makes such solutions viable – and the public sector is in a unique position to provide that clarity.

One fact to clarify about reuse is that, while reuse providers require some time to scale up their systems in order to achieve gross profitability, they can still operate viably at a smaller scale. Higher levels of scale bring countless other benefits, from

a retail boost for first movers to improved brand recognition. However, reuse providers need not work in isolation to build scale – the public sector can be an indispensable ally. That allyship can take several forms as discussed below.

A. Third-party facilitation and collaboration:

In one model, the public sector provides a crucial platform for third-party facilitation and government enablement. One way in which this can occur is when private companies and reuse providers partner with governments to develop enablers such as innovation platforms and financial incentives.

Collaboration is making reuse more accessible, as shown across a growing range of case studies. Public-private partnerships are proving to be an especially powerful form of such collaboration, as exemplified in EMF's Plastics Pact Network.

Local governments have also sought to influence consumer behaviour through public-education programmes. **MIWA** set up an education platform called **Minimum Waste**, which features physical venues where citizens can learn more about reducing waste and buying reusable products. The city of **La Rochelle, France**, launched a communication campaign designed to reduce and prevent waste. The programme involves “10 simple gestures” for citizens, including reusing and repairing belongings, rejecting disposable water bottles and buying in bulk.

In major markets in Asia and Europe, city-level consortiums are moving forward on local circular models. In **Seoul, Share Hub** serves as a community of city government agencies, companies and residents who can exchange knowledge, present initiatives and connect with resources to advance circular solutions. In **Munich, Halle2** serves as a reuse lab that convenes local stakeholders to share knowledge, innovate and sell products.

B. Standardization: The public sector can also draw upon its unique power to act as a trusted authority on standardization. In Canada, a series of container-deposit laws helped define beverage-container standards to facilitate bottle return, reuse and recycling. National standardization in Germany has allowed for the creation of a highly effective bottle-return system, which yields a consumer return rate of 99%. Reusable-bottle deposits are €0.08–€0.15 (\$0.10–\$0.18), which are refunded to the consumers upon return. Another European standardization effort, the Euro Pool Group, serves as a lessor of standard pallets and crates for the continent's food supply chain.

C. Incentivization: Governments can provide incentives to encourage businesses and consumers to embrace reuse methods. For example, the Urban Infra Revolution Project in Lappeenranta, Finland, is a project that tests circular-economy technologies and business models in the urban construction and engineering sectors. Another example is ReLondon, a London partnership to “transform the city into a leading low-carbon circular economy”.

ReLondon is a partnership between the mayor of **London** and the city's boroughs to improve waste management and create a circular economy in one of Europe's largest cities. In 2016, it produced a pioneering “circular economy route map” showing practical actions and collaborations across the city; an updated version is expected by the end of 2021. ReLondon also offers grants and consulting advice to businesses seeking to implement circular practices, and even has what it calls a “matchmaking service” to introduce circular experts to investors and partners who can help magnify their impact.

D. Redistribution of value across local, regional, national or even international systems. Two especially powerful redistribution levers are government subsidies and tax incentives. The latter, for example, may be used to either reward reuse or create disincentives for single-use

consumption. Taxes collected through a \$0.07 single-use cup tax could generate more than \$100 million in New York City alone, which could then be distributed via subsidy to reuse-system participants.

Arcata, California, implemented a \$0.25 charge for customers using disposable foodware, and a \$0.25 discount for customers who bring reusable foodware to food vendors. The **Belgian region of Flanders** subsidizes municipality-led waste-prevention initiatives and second-hand shops.

Another value-distribution mechanism is the development of enabling systems and infrastructure. Governments can engage on this front through regulation, public investment, grant funding for infrastructure and technology, and infrastructure-sharing. What makes such public-

sector infrastructure efforts so important is that many aspects of the reuse system – such as refill and cleaning stations – do not currently add competitive value, and therefore need to be shared across the whole system.

Closed Loop Partners is a New York City-based investment firm and innovation centre focused on building the circular economy. In addition to being an early investor in refill pioneer Algramo (see above), Closed Loop Partners' Center for the Circular Economy has convened collaborations to test emerging reusable packaging models. Their **NextGen Consortium**, in partnership with Starbucks, McDonald's and other leading food-service brands, conducted market tests of new reusable-cup models at cafés in the San Francisco Bay Area.¹⁹ Their **Consortium to Reinvent the Retail Bag**, in partnership with CVS Health, McDonald's, Target and Walmart, recently announced reusable-bag solutions that will be piloted in the US.²⁰

E. Public infrastructure: Finally, governments can use public infrastructure to maximize the viability of reuse systems. For starters, they can use their public spaces to drive adoption of reuse. For example, Copenhagen is planning to require reusable cups at large public events in the city, such as parades, carnivals and festivals.

Many cities are positioned to supply storage space for reuse systems, such as in vacated industrial facilities. Such depots – which are currently often underused – can reduce the burden on private-sector providers to invest in additional infrastructure themselves.

As these and numerous other examples suggest, the public sector's role in building reuse systems is highly varied and derives much of its power from collaboration with the private sector. Public-private collaboration creates unique levers to overcome scaling barriers such as financial viability, infrastructure needs or behaviour change.

This section of the report has dealt with what our experts have identified as three of the core realities that must inform any attempt at large-scale reuse networks: a clear understanding of the value shifts that such networks entail; the importance of new consumer value; and the extraordinary potential of public-private partnerships to ignite successful reuse models. To better understand how this new value is created, we next turn to a proposed framework that can help all market participants see the various incentives and disincentives at play in the development of reuse-based economies.

Reuse Viability Framework: a model for scaling reuse



Most modern industries are built on a linear value chain: a product is produced, delivered, used and disposed of. Not only have consumers come to rely on this linear model, but industry stakeholders – from raw materials producers to logistics providers to brands – have built their operations around it. As societies – including consumers, governments and public bodies – call for a shift away from disposable packaging, consumer industries must tackle unprecedented change.

This change is highly interdependent with other stakeholders, including competitors and consumers themselves. Building reuse systems is complex. Stakeholders interested in advancing reuse solutions have consistently highlighted the need for more clarity on what makes such solutions viable and scalable.

The **Consumers Beyond Disposability** initiative has set out to demystify the question of viability and provide simple tools that enable practitioners to answer these critical questions and guide decision-making. The **Reuse Viability Framework** serves as a foundational piece of work and pioneering step towards understanding reuse viability. The framework was developed through a rigorous testing process, including:

- Discussions with more than 50 Consumers Beyond Disposability stakeholders across 25-plus organizations, including interviews and a collaborative workshop.
- Vetting with Kearney experts in circular economy, consumer industries, strategic operations and business-model innovation.
- Exploratory modelling on a specific use case to pressure-test the dimensions of the framework and better understand the drivers of viability.
- Piloting reuse models, in collaboration with Loop.

The framework can be used to spur change across several applications:

- As a diagnostic, indicating where an organization is facing opportunities or obstacles on the path towards establishing a reuse system.
- As a facilitator of unbiased dialogue within an organization and across value-chain partners.
- As a measurement tool to understand outcomes and impact related to reuse.

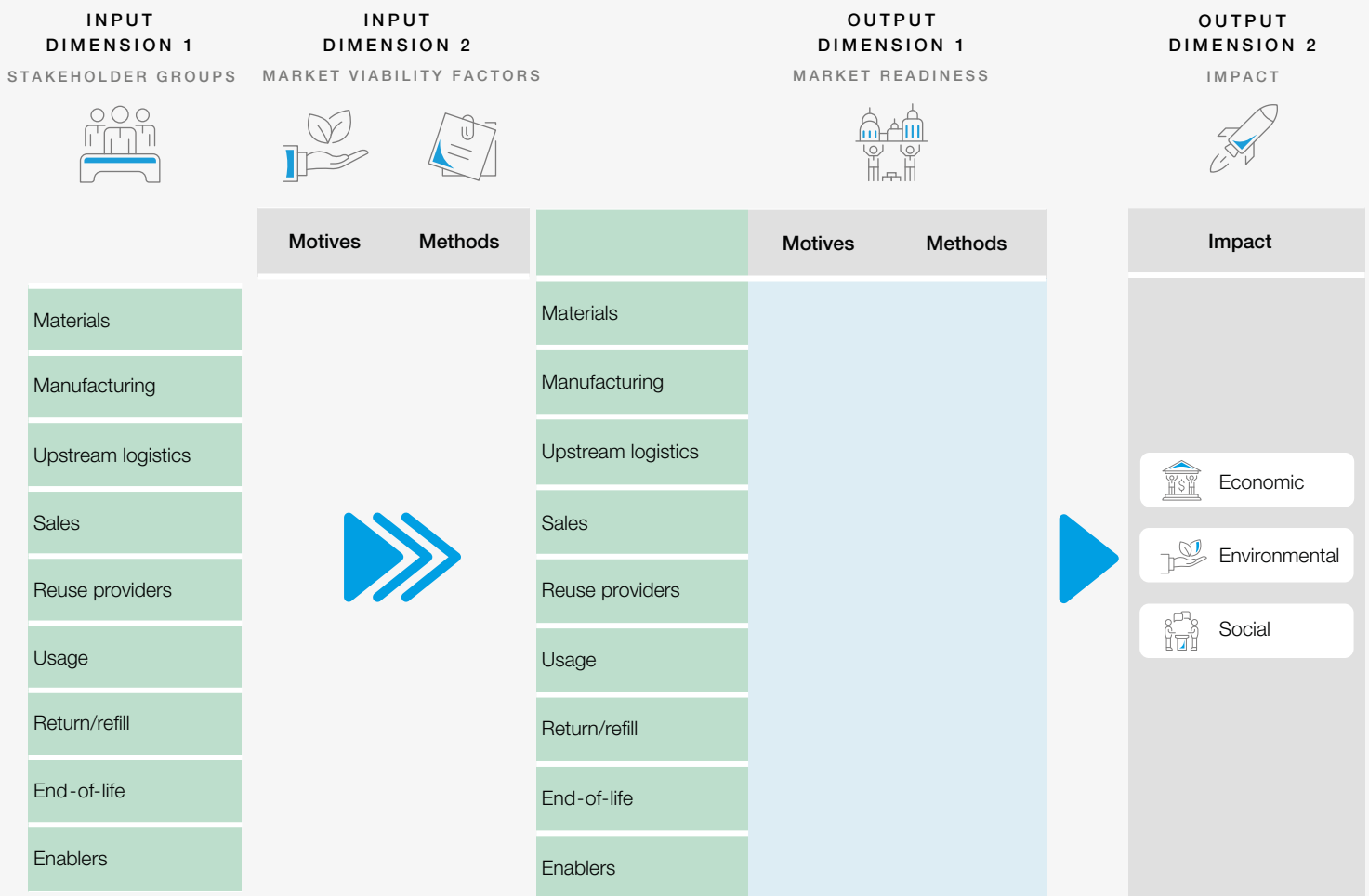
4.1 Framework dimensions

The viability framework follows a simple logic. Whether from the perspective of a consumer, brand owner, retailer, logistics provider, municipal government or any other key stakeholder, reuse systems must: (1) **establish market viability** – the system must succeed economically and operationally; (2) **demonstrate impact** – the system must improve environmental and social outcomes relative to disposable alternatives at a viable level of scale.

The visualization below depicts this logic, across the four dimensions of the framework, and the components or factors within each of the dimensions.

- **Input Dimension 1:** Stakeholder groups comprised of nine such groups
- **Input Dimension 2:** Market viability factors made of two factors
- **Output Dimension 1:** Market readiness of each stakeholder group across each market viability factor, including both favourable and unfavourable conditions
- **Output Dimension 2:** Impact of the system determined by the state of play across this market readiness matrix

FIGURE 3 Reuse Viability Framework



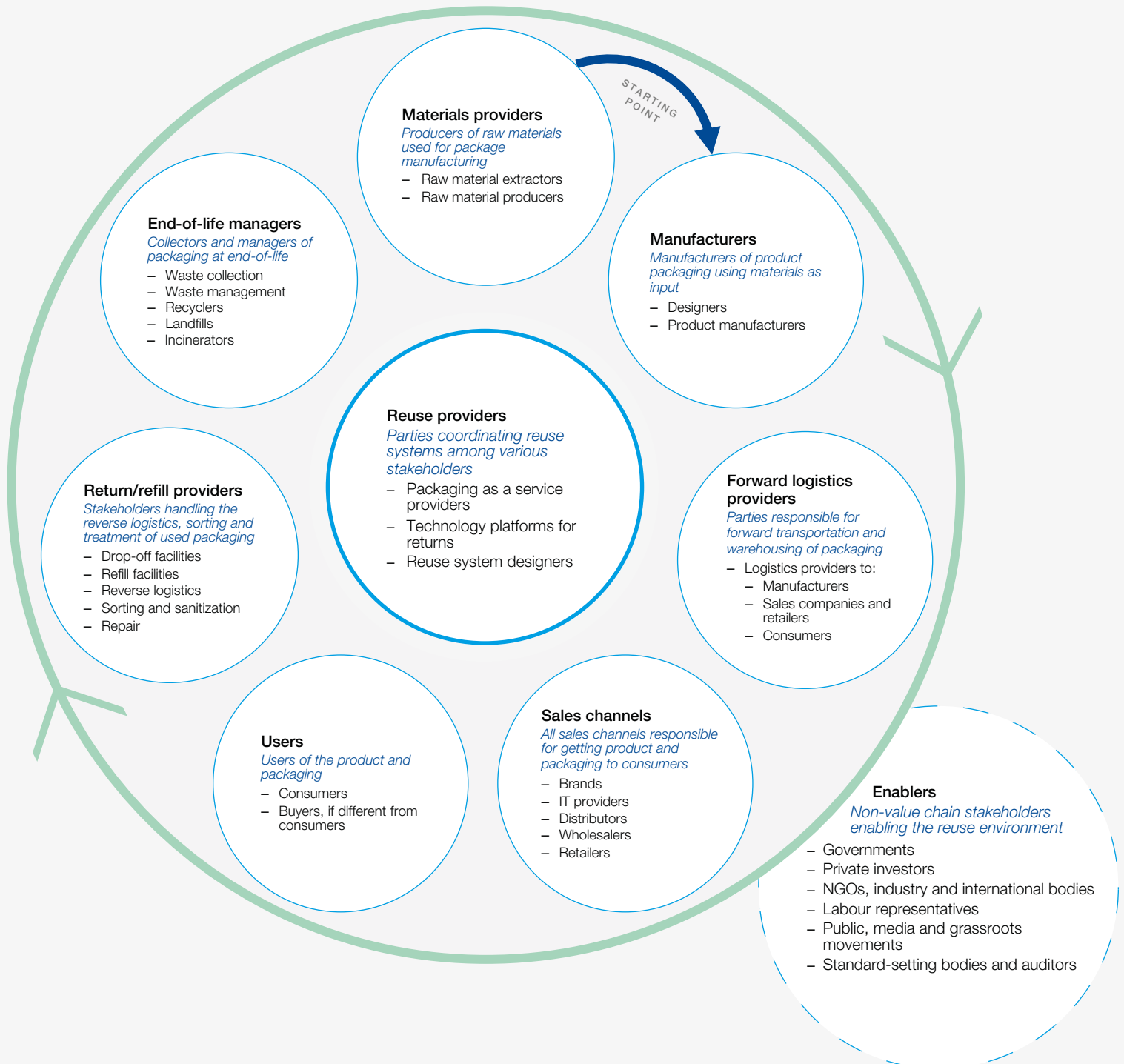
The following sections will go into detail on each dimension of this framework.

Input Dimension 1: Stakeholder groups

The framework communicates systemic viability, and therefore must consider all relevant players in the ecosystem. The nine key stakeholders are

illustrated below as a circular system, with inputs beginning to flow from materials providers.

FIGURE 4 Stakeholder mapping



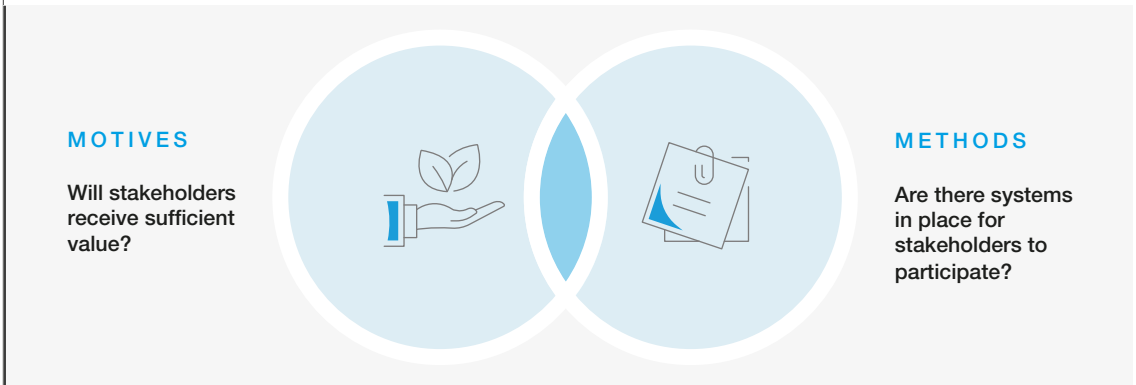
The selection of stakeholders that are ultimately involved in any given system is dependent upon the solution itself. For example, a system may not involve any reverse logistics at low scale – e.g. relying on retailers to clean reusable food containers on site – until it is viable to transport the containers to central cleaning facilities.

Input Dimension 2: Market viability factors

Market viability refers to the system's ability to succeed economically and operationally. At a given level of scale, there are two conditions that each

system participant must meet to participate in a reuse ecosystem as illustrated below.

FIGURE 5 Market viability factors



Additionally, each of these components is driven by several subfactors, each with different levels of importance to different stakeholders. While what follows is not an exhaustive list, these were identified as the most important subfactors to consider for each viability factor.

Motives refer to the various incentives stakeholders can have to invest in or take part in a reuse system, including intangible elements of organizational and individual behaviour change. The most important subfactors are:

1. **Mission** – does the system align with the stakeholder's stated or implicit mission, and is the stakeholder confident the system will deliver its intended impact? This dimension is particularly relevant for organizations that draw significant value from their mission – for example, the value a reuse system can provide to an environmental NGO is to advance a mission of waste reduction.
2. **Financial return** – does the system reduce costs or generate more revenue than current disposable alternatives? This dimension typically involves a per-sales unit financial equation (is this container more profitable to make, deliver and reuse?), which can also be affected by reputational effects, the ability to develop relationships with customers and value-chain partners, and levels of employee engagement.
3. **Product experience** – does this system have a positive impact on the stakeholder's experience of the product? How convenient is this system to deliver and use relative to disposable alternatives? This is particularly important for consumers, who are largely driven by convenience. This can also include the degree of change required to shift to this new system from the current system.

4. **Cultural norms** – what impact do cultural factors have on uptake of this system? These include community pressures from local or regional populations.

Methods refer to the operational and systemic elements that allow stakeholders to engage. Even a system with the most motivated stakeholders will fail if those parties do not have the means to access the system. Important elements include:

1. **Technology** – is the technology required to deliver this system available and feasible to implement? Whether for material production, back-end system development or user experience, technology can often require significant investment. This dimension assesses such a need.
2. **Infrastructure** – is the infrastructure required to deliver this system available and feasible to implement? This infrastructure could be as small as drop-off receptacles for used containers or as broad as development of new supply-chain relationships.
3. **Regulation** – does current or future regulation enable this reuse system? While many jurisdictions do not have regulations that explicitly affect reuse systems, others are developing increasingly sophisticated rules for handling waste. This dimension helps assess whether a system will be challenged or accelerated.
4. **Trust** – what level of trust does this stakeholder have in the system? This trust extends across many layers – for example, the trust an organization has in its suppliers and partners to deliver on agreements, or the trust a consumer has in the brand. It could also be driven by precedent, or trust that a system will work due to past examples.

Output Dimension 1: Market readiness

Putting the Reuse Viability Framework into action can generate a heatmap (see below) that illustrates major stakeholder nodes and what conditions they are experiencing at the current level of scale. The gold colour in the heatmap represents unfavourable conditions for reuse, grey implies neutral conditions, while blue represents favourable conditions for reuse for the specific stakeholder group related to a specific market viability factor. Note that each stakeholder node is made up of many more stakeholders, each potentially experiencing very different conditions.

The map allows stakeholders to quickly identify the major pressure points (in gold) that may be holding a system back from expanding (i.e. those that are

“unfavourable”). Once these pressure points are identified, different players can work collaboratively to enable the system – essentially working to turn the heat map blue or “favourable”. Then, as the system is enabled to expand further, the colours may change and present new growth opportunities.

Alternatively, an organization can use this to assess one node of the value chain – including its own – to get a clearer picture of the challenges and opportunities a single stakeholder may face.

FIGURE 6 Example return-on-the-go cup system heatmap

		MOTIVES	METHODS
Raw material producers – disposable	》》》	Unfavourable	Not yet present or neutral
Raw material producers – reusable	》》》	Favourable	Favourable
Manufacturers – disposable	》》》	Unfavourable	Not yet present or neutral
Manufacturers – reusable	》》》	Favourable	Favourable
Logistics providers	》》》	Not yet present or neutral	Favourable
Reuse providers	》》》	Favourable	Not yet present or neutral
Retailers	》》》	Favourable	Unfavourable
Consumers	》》》	Not yet present or neutral	Not yet present or neutral
Reverse logistics	》》》	Favourable	Favourable
Sorting and sanitization	》》》	Not yet present or neutral	Unfavourable
Waste management	》》》	Not yet present or neutral	Favourable
Governments	》》》	Favourable	Unfavourable

A glance at the **Motives** column will show that material producers and manufacturers of disposable cups would be opponents of a shift towards reusables, with those that develop reusable cups winning out. Another winner is reverse-logistics providers, which are tapping into a new market. However, considerable investment is needed to overcome institutional inertia and habitual consumer behaviour.

When it comes to **Methods**, those that already have established operations – producers of raw materials for reusables, reusables manufacturers and logistics providers – have an advantage.

- Unfavourable
- Favourable
- Not yet present or neutral

Output Dimension 2: Impact

The reuse system must also demonstrate that it improves economic social and environmental outcomes relative to disposable alternatives at a viable level of scale. Consumers Beyond Disposability focuses on nine metrics – three each pertaining to economic, social and environmental impacts.

Economic impact metrics

- **Cost** – can this stakeholder afford to make, deliver or participate in the system? Consumer affordability of the product is critical for system health, but each stakeholder must also be able to bear the system's costs.
- **Revenue** – does the value this system brings to the stakeholder outweigh the costs? While operating at a loss may be feasible for system stakeholders temporarily, a reuse system must generate net value to ensure economic sustainability.
- **Growth potential** – does the system show potential for sustained value generation over the long term? Systems with long-term growth potential will attract investment and will be likely to benefit from economies of scale.

Environmental impact metrics

- **Material waste** – how much waste is generated by the end of a container's life? For a reusable container, component materials are divided over its lifetime reuses, meaning highly durable containers effectively produce no waste over a product lifetime.

- **Greenhouse gas emissions** – How much greenhouse gas is emitted throughout a container's life cycle? This includes emissions from production, machinery, infrastructure and other sourcing activities; processing; transportation; and end-of-life management.
- **Water usage** – How much water is used throughout a container's life cycle? This includes water use in production, manufacturing and sanitization activities – the last of which are unique to reuse models.

Social impact metrics

- **Employment** – does this system create worthwhile jobs? New service opportunities open up with reuse – including retail support, reverse logistics and sanitization – which can add considerably to the number of people needed to support them.
- **Public health** – does this system generate any public health risks, or replace potentially risky alternatives? Reusable packaging must remain safe to human populations throughout its life cycle, and the process of recycling or disposal must not add risk of harm.
- **Community impact** – does this system have a positive impact on the communities affected by its operations? For example, implementation of a reusable system could improve access to consumer products for underserved communities. Conversely, operations necessary for delivering this solution could significantly displace communities and limit access to affordable products.



Putting the framework together

In order to more fully discern the north star towards which everyone should be pointing their compasses, listed below are some of the dimensions of a truly successful systems-change approach to reusability. A truly successful, large-scale, system-wide reuse paradigm would include the following:

- **Delivery-model efficiency:** Shared reuse systems and short-distance logistics loops enable scalable economics across most major categories. Shared, centralized infrastructure efficiently delivers reusables at scale.
- **Consumer experience:** Consumers have access to a variety of reusables that compete with disposables on convenience and other measures of customer satisfaction. Consumers are provided with superior user experiences over disposables.
- **Technology advancement:** Technologies such as QR codes and RFID are deployed to create value-adding services, increase container lifetimes, standardize back-end processes and further enable scale.
- **Regulation:** Regulation pairs reuse incentives with comprehensive policies such as quantitative reuse targets and extended producer responsibility measures.
- **Cultural shift:** A widespread cultural shift moves consumers and institutions towards reusables and away from disposables.

- **Demonstration of impact:** Reusables demonstrate improvements on all prime economic, environmental and social impact metrics relative to disposable. Common reporting standards and definitions are established for reuse accounting.

Reusables' share of overall packaging should not be the only metric by which progress is evaluated. The real aim here must be the development and deployment of reusables that can demonstrate improvement over disposables across all main environmental and social impact metrics. In designing reuse systems, considerations should include:

- 1. Product design** – including efforts to remove packaging entirely, improve the number of reuse cycles in a container's lifetime, the container weight and capacity relative to alternatives, and the recyclability of the container.
- 2. Consumption behaviour** – including consumer treatment of the container and responsible disposal behaviour.
- 3. Value-chain organization** – including design of the value chain to reduce environmental impacts such as greenhouse gas emissions and water usage.

The Reuse Viability Framework represents a model for understanding the myriad factors that might influence consumers, businesses and government agencies to shift towards or away from a reuse-centred consumption system. The next section turns to the sheer potential of those models – what we can expect if the bedrock realities of reuse are successfully taken into account.



5

Scenarios for a better future: possibilities of a reuse-driven approach to waste



Before concluding, this report offers an assessment of possibilities – and a call to action.

In recent years, government agencies, multinational bodies and NGOs have generated proposals outlining the path to a more reuse-based system. Between diverse stakeholders calling for varying ambition levels for highly complex systems, it is no wonder that there is little alignment over a unified ambition level for reuse. We have analysed many of these, and have emerged with three broad scenarios that synthesize the landscape and capture the potential of reuse by 2030.

Our call to colleagues in the private sector is to consider these scenarios, actively imagine the business opportunities they offer and take tangible action towards realizing those opportunities.

The following figure outlines three potential reuse scenarios. The likelihood of each will depend on achieving a certain level of system change. While business is obviously a crucial element of any reuse-related system, it is hardly the only one. Consumers, government agencies and NGOs will also have essential roles – and all will need to rise to the occasion. Below the figure, additional insights are offered on what a successful systemic shift towards reuse might look like.



FIGURE 7 | Three potential reuse scenarios

	SCENARIO 1	SCENARIO 2	SCENARIO 3
Share of reuse, 2030, by sales unit	10–20%	20–40%	40–70%
Public ambition setting by 2030	<ul style="list-style-type: none"> – European parliament (2030) – French government (2027) 	<ul style="list-style-type: none"> – Romanian government (2025) 	<ul style="list-style-type: none"> – Deutsche Umwelthilfe – Greenpeace – We Choose Reuse (select categories, 2025) – Zero Waste Europe (select categories)
Plastic packaging shifted to reusables ¹	7–13 million tonnes	13–26 million tonnes	26–46 million tonnes
Reusables as % of annual plastic ocean waste ²	45–90%	90–185%	185–320%
Reusables as % of annual plastic landfill waste ²	10–25%	25–50%	50–85%

¹ Assumes sales units converted to reuse are representative of overall packaging weights

² 2030 baseline, assuming 3.3% CAGR in line with global municipal waste management growth forecast from 2016–2022 off 2015 for ocean plastics and 2013 for landfill plastics

Sources: Kearney analysis, World Economic Forum, Euromonitor, BIS, Resource Recycling, Greenpeace, Rethink Plastic, We Choose Reuse, legifrance.gouv.fr, Deutsche Umwelthilfe, Zero Waste Europe, Science Magazine





Scenario 1: This scenario is based on proposals from France and the EU Parliament. Under this scenario, 10–20% of all packaging is reusable. In terms of ecological gains, somewhere between 7 million and 13 million tonnes of plastic packaging would now be reusable, representing 45–90% of annual plastic ocean waste or 10–25% of annual plastic landfill waste.

Scenario 2: Derived from targets set by the government of Romania, this scenario calls for reusables to make up between 20% and 40% of packaging. It shifts 13 million to 26 million tonnes of plastic packaging to reusables, equivalent to 90–185% of plastic ocean waste and 25–50% of plastic landfill waste. Furthermore, the Ellen MacArthur Foundation identified that reuse provides an economically attractive opportunity for at least 20% of plastic packaging.²¹




Scenario 3: This scenario reflects standards from such leading NGOs as Greenpeace, Deutsche Umwelthilfe, We Choose Reuse and Zero Waste Europe. Here, somewhere between 40% and 70% of all packaging would be reusable. Between 26 million and 46 million tonnes of packaging would now be in reusable form. Reusables would equal anywhere from 185% to 320% of annual plastic ocean waste, and 50–85% of plastic landfill waste. This also would likely reduce overall recycling rates, as reuse displaces single-use waste that would otherwise have been recycled. Achieving this scenario would result in not only the most significant reduction of waste, it would also do the most to provide consumers with viable alternatives to single-use items.

FIGURE 8 | Scenario 2 reuse conversion illustration

The graphic below illustrates what could happen in modelling this level of reuse across different categories and regions. At least initially, the highest potential for reuse is in Europe and the Asia-Pacific region, with the personal-care and home-care sectors standing out as especially ripe for transition. The skincare industry – a vast sector projected to reach \$200 billion worldwide by 2026²² – may already be a high-potential target for reuse efforts, not only in Europe and the Asia-Pacific region, but in North America as well.

		NORTH AMERICA	EUROPE	ASIA-PACIFIC	REST OF WORLD
 Beverages	Soft drinks (incl. bottled water)	Medium	High	High	Medium
	Alcoholic drinks	Medium	High	Medium	Medium
	Hot drinks	High	High	High	High
 Food	General food packaging	Medium	High	High	Medium
	Dairy	Medium	High	Medium	Medium
	Confectionery	Medium	High	High	Medium
	Savoury snacks	Medium	High	High	Medium
	Rice, pasta and noodles	High	High	High	High
	Ice cream and frozen desserts	Medium	High	Medium	Medium
 Personal care	Haircare	High	Very High	Very High	High
	Bath and shower	High	Very High	Very High	High
	Oral care	Medium	Medium	Medium	Medium
	Skincare	Very High	Very High	Very High	High
 Home care	General home care (e.g. cleaning)	High	Very High	Very High	High
	Laundry care	High	Very High	Very High	High
Overall reuse share		17–24%	22–27%	21–27%	17–27%

- Metric: % of plastic packaging deployed for reuse by 2030
- Modalities: Return and refill, at home and on-the-go
- Method: By sales units

-  High potential: target 40%+ average reuse share
-  Medium potential: target 25–40% average reuse share
-  Average potential: target <25% average reuse share

Source: Expert interviews, Kearney scenario analysis



It is worth emphasizing that any of these scenarios would represent extremely valuable progress over the present status quo. The plastic waste problem has grown too large for us to simply “recycle our way out of it”. The sooner we can make meaningful advance towards reuse, the better.

Not that it will be easy, of course. As noted throughout this report, there are many stakeholders with interests in how, when and even whether to embrace a reuse-driven consumption model. In a market this complex, there is not yet agreement over which ambition level to target.

The benefits of a unified, system-wide approach are plain to see. By achieving a high degree of scale, a reuse programme attains a level of value that a low-scale approach simply cannot match. For example, consumers in a small-scale reuse market are often expected to trade away convenience or pay a premium for it – an approach with dubious prospects for success. But, at a larger scale, consumers are no longer compelled to sacrifice convenience or quality of experience. They now gain measurable advantages over and above the “feel-good” factor of supporting a reuse model for its own sake.

Indeed, at numerous points in the reuse system – from delivery to regulation to the advancement of technology – the advantages of a large-scale model over a small one are stark, and could spell the difference between near-term success and protracted underperformance with regard to the adoption of reuse systems.

To achieve the most ambitious scenarios, we call upon the public and private sectors to collaborate on the development of reuse systems that can meet the needs of both our economy and our shared ecology.

This exploration of potential outcomes for various reusable consumption models offers an exciting glimpse of what may be achievable. But the variance between the projected outcomes for small-scale and large-scale adoption are worth bearing in mind for anyone seeking meaningful gains in overall sustainability.

Large-scale systems may be more difficult to achieve at the front end of the process, but their advantages – in terms of consumer acceptability, delivery and impact – are well worth the added complexity. Mechanisms that can encourage a larger-scale approach – such as public-private partnerships – are therefore of great potential value.

The world has begun moving towards a reuse model, but has not had the means to evaluate the potential viability of such a shift. What this paper offers is a tool for doing exactly that, as well as a summary of the scenarios that could result at various stages of system-wide progress. Again, though, specific outcomes will depend on the willingness and ability of all market participants to take tangible steps towards making reuse a reality.

Conclusion

This report is issued with the knowledge that progress is indeed possible. Whether it actually occurs is, of course, up to all of us – as business executives, as public-sector leaders, as innovators, as consumers and as citizens. The shift towards a reuse model of consumption described in this document offers a potentially powerful way for society to regain crucial lost ground in the preservation of the ecosystems we share with other species.

The reuse movement is gaining momentum, and **Consumers Beyond Disposability** is committed to bringing about further innovation and partnership. As noted in the report, a major step in this process will be the continued development and introduction of compelling, real-world examples of successful reuse networks. The more of those that can be generated, across a variety of settings and contexts, the sooner the reuse paradigm will achieve critical mass.

That moment may seem distant to some right now – just as recycling and composting were once considered eccentric, and electric cars were written off as science fiction. When it comes to sustainability, attitudes and assumptions about just what is “viable” are changing rapidly, and reuse may well prove to be among the most potent manifestations of that shift.

With capability building across both the private and public sectors to address barriers to scale, we are hopeful that the coming years will usher in a new age of consumer access to reuse models of consumption. This would be a truly historic moment in history – as important in its own way as any of the industrial revolutions. And it will have come not a moment too soon.



Appendix

FIGURE 9 External targets – reuse share of packaging

TARGET	SOURCE	GEOGRAPHY	CATEGORIES	TARGET YEAR	MATERIALS	METHODOLOGY
10%	European Parliament	EU (non-binding)	Not specified	2030	Not specified	By weight
	French Government	France	Not specified	2027	Not specified	By packaging unit
30%	Romanian Government	Romania	All packaged goods	2025	Not specified	By sales unit
40%	Deutsche Umwelthilfe	EU	All sales packaging	2030	Not specified	Not specified
50%	We Choose Reuse	EU	Takeaway containers and cutlery	2025	Not specified	Not specified
	Greenpeace	Global	All sales packaging	2030	Not specified	Not specified
70%	Zero Waste Europe	EU	Beverage packaging	2030	Not specified	Not specified

Other related targets:

80% overall consumption reduction target by 2030 for food containers, cups and other items (packets, wrappers, wipes) – Rethink Plastic

90% reuse quota for transit packaging globally by 2030 – Greenpeace

The Ellen MacArthur Foundation identified that reuse provides an economically attractive opportunity for at least **20%** of plastic packaging²³

FIGURE 10 Metric calculation

METRIC	CALCULATION	ESTIMATIONS
Plastic packaging shifted to reuseables	Reuse share multiplied by plastic packaging production in select categories	<ul style="list-style-type: none"> – 2020 global municipal plastic waste volume baseline, projection to 2030 based on 2016–2022 estimated waste management volume CAGR – Containers and packaging subset estimated from US percentage, 2017 – Category breakdown estimated from US packaging revenue, 2018 – Sales units converted to reuse assumed representative of overall packaging weights converted – % of plastic waste generation relative to plastic production estimated from global packaging sector breakdown, 2015 – Total plastic packaging production in select categories estimated by sector plastic packaging waste over waste conversion rate
Reuseables as % of annual plastic ocean waste	Plastic packaging shifted to reuseables divided by annual plastic ocean waste	<ul style="list-style-type: none"> – 2015 ocean plastic waste baseline, projection to 2030 based on 2016–2022 estimated waste management volume CAGR

FIGURE 11 | Selected features of reuse scaling



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Proprietary Research and Research Partners

This report draws on rich insights from proprietary research conducted by our research partners for the purpose of this project, including:

- In-depth interviews with 50+ senior leaders from business, civil society and government, and two workshops for insight validation
- Workshops and interviews with 15+ Kearney experts in circular economy, consumer industries, strategic operations and business-model innovation
- Patent scrape analysis evaluating patent applications across categories and regions, leveraging raw data sets, led by Kearney
- Scenario modelling and data analysis using public studies and databases, led by Kearney
- Excerpts from global research on reuse models done by the Ellen MacArthur Foundation

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