

CIRCULAR ECONOMY

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CIRCULAR ECONOMY

Leading Circularity in Travel & Tourism

OVERVIEW

THE CIRCULAR ECONOMY is a restorative industrial economic model, in which the economy should work as a self-sustaining ecosystem. Materials, components, and products are considered 'nutrients' that should be used for as long as possible, and then fed back into the cycle.

As an economic system, a circular economy can help tackle global challenges such as climate change, biodiversity loss, waste, and pollution¹ through a restorative model inspired by the natural world.

Adopting a circular economy mindset and practices enhances the pursuit of sustainability in the Travel & Tourism sector by:

- **Designing out waste**
- **Increasing reuse and durability**
- **Circulating any waste into new products**
- **Boosting resilience and economic performance**
- **Helping regenerate nature and biodiversity**

INTRODUCTION

Through the continued growth of Travel & Tourism prior to the COVID-19 pandemic, the sector supported one in 10 jobs globally and accounted for 10.3% of global GDP in 2019. As the sector looks ahead, the challenge is to find ways to support recovery through sustainable Travel & Tourism growth whilst delivering against climate targets.

With a global population of 8.6 billion people forecast by 2030², the planet's natural resources are being depleted at an accelerating rate with warnings about shortages and exhausted resources in our lifetime. Indeed, while produced capital per person doubled from 1992 to 2014, the stock of natural capital per capita declined by nearly 40%³.

A transition to a new economic model is mandated by the ecological and physical boundaries of the Earth and the need to address 45% of global greenhouse gas emissions⁴. Without an accelerated transition to a new framework, it will be impossible to meet the Paris Agreement targets.

The **Circular Economy** is a restorative industrial economic model in which the economy works as a self-sustaining ecosystem, considering materials, components, and products as 'nutrients' that are used for as long as possible, and then fed back into the cycle. A circular economy takes insights from living systems and draws from a number of related schools of thought, including **biomimicry** (mimicking nature⁵), **industrial ecology** (the balance between industrial processes and environmental sustainability⁶) and '**cradle to cradle**' (designing products to become other products at their end of life⁷). The Ellen MacArthur Foundation states, "A circular economy is one that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles"⁸. However, developing a circular economy approach within the Travel & Tourism sector is complex.

The circular economy not only allows for better **ecological stewardship**, it also boosts **economic performance** compared to today's prevailing economy that follows a take-make-waste linear model that depletes stocks and degrades living systems⁹. According to McKinsey¹⁰, 80% of the US\$3.2 trillion worth of materials used in the fast-moving consumer goods industry is not recovered. Research by Accenture Strategy shows that circular business practices could unlock US\$4.5 trillion of lost economic growth by 2030 and as much as US\$25 trillion by 2050¹¹. Such a shift would boost job creation¹² and economic resilience¹³ worldwide – including in the Travel & Tourism sector.

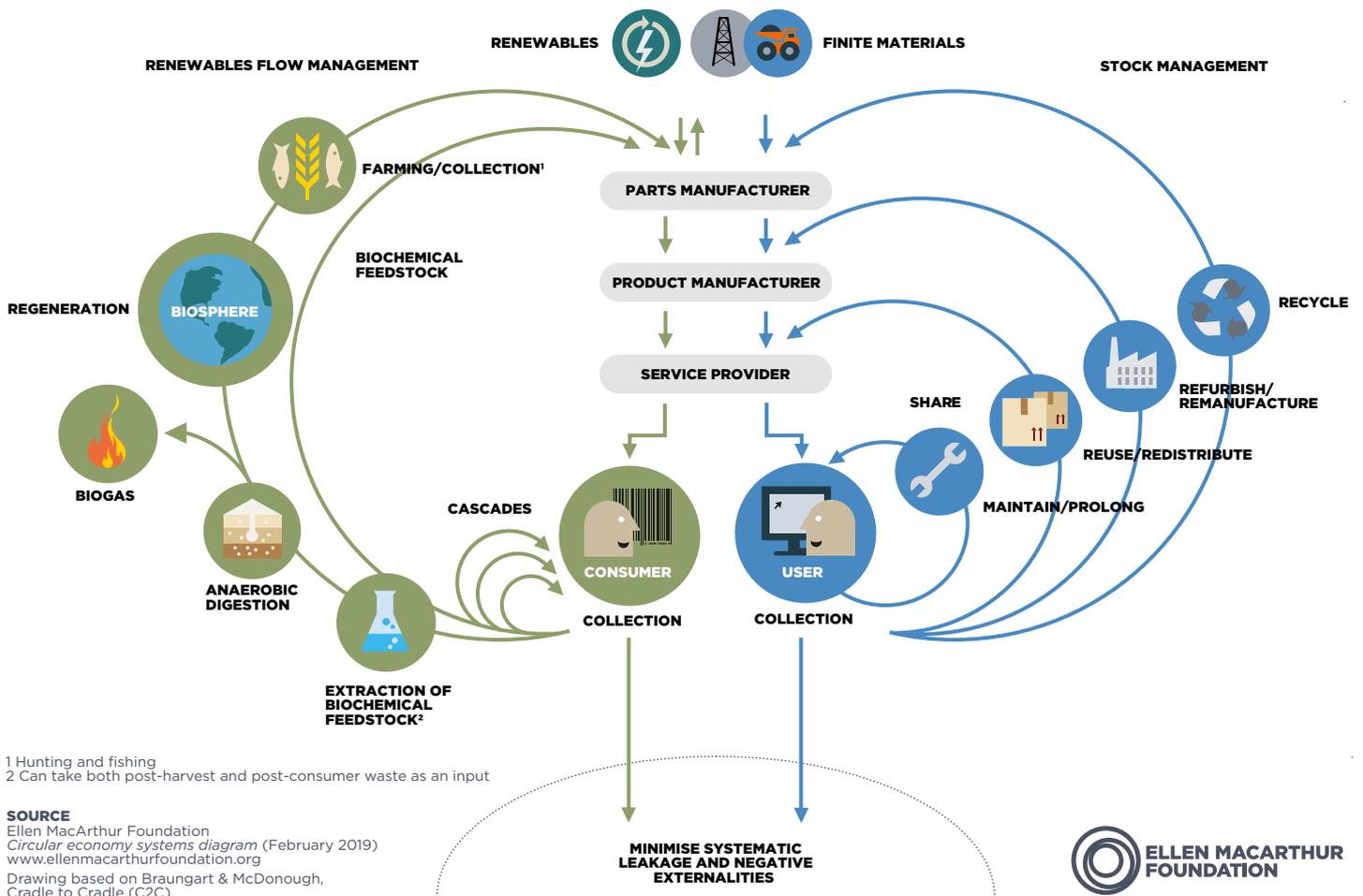
"Companies can boost their competitiveness by reducing dependence on scarce resources and generating new, innovative services that grow revenues."

Peter Lacy, managing director, Accenture Strategy¹⁴

To better understand circularity, the **Butterfly Model** provides a graphical representation of material flows in the economy (Figure 1). The central column (the 'body' of the butterfly) represents the prevailing linear model, with extracted materials entering the system at the top and exiting the economy in the form of waste. To prevent materials from leaving the system, materials, components, and products should be circulated in loops (the 'wings' of the butterfly).

Strategies to circulate biodegradable, nature-safe materials are highlighted on the left 'wing', called the Biological Cycle (in green), while the strategies to circulate everything else are shown on the right, called the Technical Cycle (in blue). The closer the loops are to the 'body' of the 'butterfly', the more valuable they are, as less energy and resources are needed to keep materials in use.

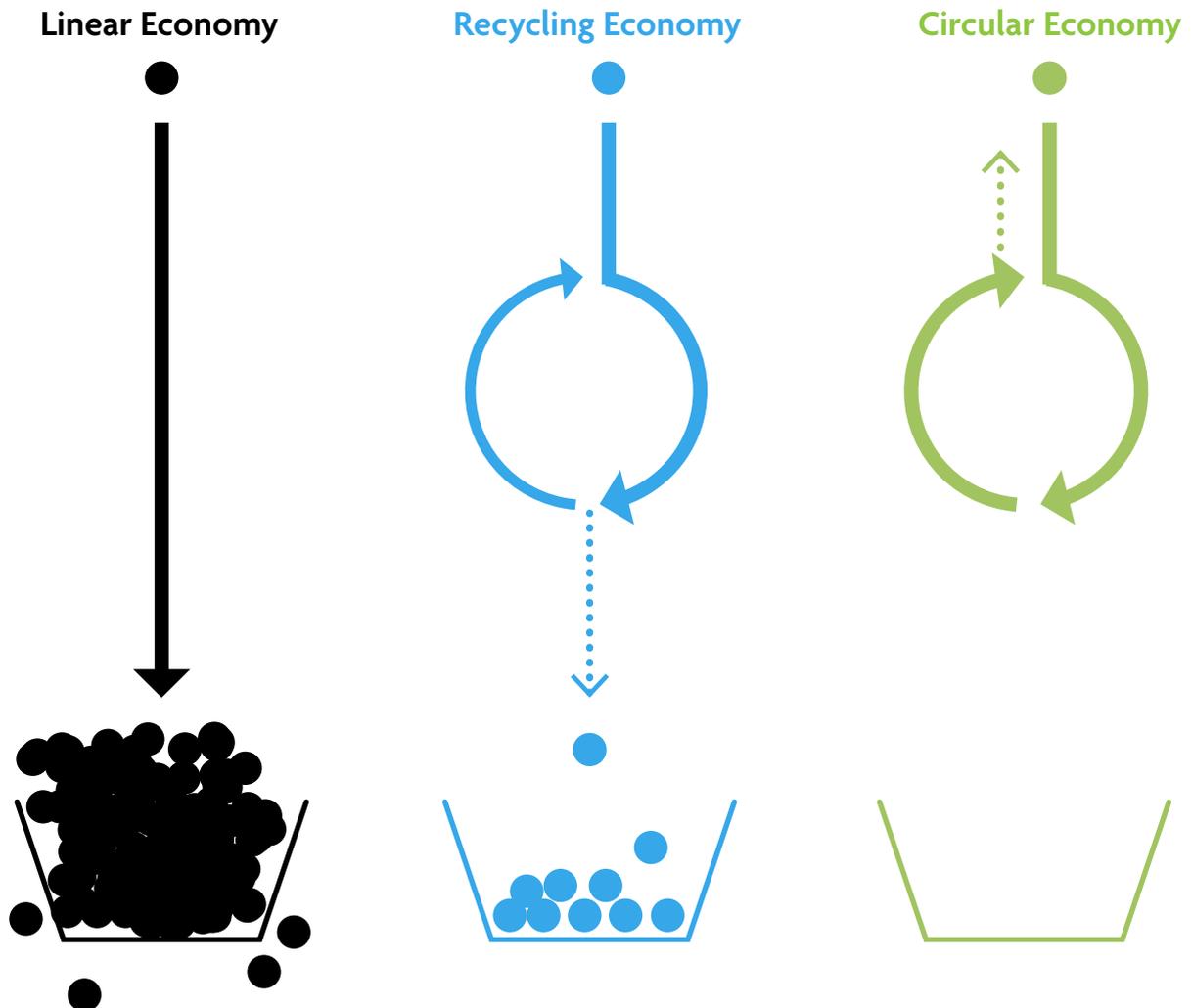
Figure 1: The Circular Economy 'Butterfly' Model¹⁵



THE CIRCULAR ECONOMY IS NOT THE RECYCLING ECONOMY

A common misconception is that the circular economy is mainly predicated on recycling and other forms of waste valorisation. In reality, 80% of the potential ecological and economic benefits happen upstream, namely during the design phase⁶.

Figure 2: From Linear to Circular





INSPIRING CIRCULAR ECONOMY CHANGES IN THE TRAVEL & TOURISM SECTOR

The Travel & Tourism sector recognises that climate-driven degradation and disruption to cultural and natural heritage will negatively affect the sector, harm the attractiveness of destinations for travellers and residents alike, and reduce economic opportunities for local communities. As such, the circular economy should be integral to every business in its pursuit of sustainability. The circular economy is our best alternative to the linear economy, keeping resources in use for as long as possible, extracting the maximum value from them while in use, and then recovering and regenerating products and materials at the end of each service life. The Travel & Tourism sector is making good strides in this direction, with many positive examples of circular economy initiatives/projects undertaken by members of WTTC and the broader sector.

At the level of Travel & Tourism companies, there are numerous examples of business-led initiatives. In addition, the collaborative or sharing economy, with examples like Airbnb, is offering new insights into models that reflect elements of circularity:

- **The Global Tourism Plastics Initiative**, led by the **United Nation's (UN) Environment Program** and the **UN World Tourism Organization**, in collaboration with the **Ellen MacArthur Foundation**, unites the sector through a vision to address the root causes of plastic pollution¹⁷. It enables businesses, governments, and other tourism stakeholders to lead by example in shifting towards a circular economy in plastics. To date, the plastics industry continues to grow globally, with plastic waste and packaging causing major landfill issues and damage to marine ecosystems. While the recycling of plastics persists as a technical, economic, and environmental challenge, recycled plastic is less carbon intensive at 20-50% lower greenhouse gas emissions. To address this challenge, companies, such as Heng Hiap Industries, Malaysia created an ocean plastic brand in 2017 that converts ocean bound plastic to upcycled-finished goods^{18,19}.
- **Marriott, Hilton, IHG, and Iberostar**, are leading hospitality brands eliminating single-use toiletry bottles from their hotel rooms. Research shows that bulk dispensers and larger pump bottles can reduce up to 95% of toiletry-related plastics from hotel waste streams, with cost savings of up to 70%²⁰. According to Marriott, this move alone is expected to reduce the company's annual amenity plastic usage by 30%²¹. In the case of Iberostar, not only toiletries but also all single-use plastics were eliminated from rooms in 2020; an achievement they seek to expand towards a zero-waste-to-landfill goal by 2025²². Iberostar created a dedicated 3R Department (Reduce, Reuse, Recycle) tasked with eliminating the concept of waste from hotel operations.
- Beyond plastics, **Hilton**²³ pledged to reduce its food waste by 50% by 2030, while **Accor Hotels**²⁴ and **Costa Cruises**²⁵ also set aggressive targets for food waste, powered by value chain optimisation technologies such as Winnow²⁶. Reducing food waste remains critical, with global food waste estimated at 1.6 billion tonnes per year (enough to feed two billion people) and responsible for 3.3 billion tonnes of CO2 emissions²⁷. Hospitality food waste, specifically, contributes 12% of total food waste²⁸, costing the industry more than US\$100 billion per year.

- **Carnival Corporation**²⁹ launched its Operation Oceans Alive³⁰ campaign to support circularity efforts by continuing to reduce non-essential single-use items, including plastic cups, lids, cutlery, straws, toothpicks, sweetener packets, butter foils, and many others. Additionally, Carnival continues to install food waste biodigesters³¹ throughout its fleet, with 32% of the company's fleet equipped with these by 2020.
- **American Express** collaborated with marine conservation group Parley for the Oceans, pledging to launch a credit card made from ocean plastic³². In its recent Environmental, Social, and Governance Report³³, **American Express Global Business Travel** committed to stretching sustainability goals. These include a focus on the circular economy to help advance an industry-level shift towards a low-carbon future with sustainable aviation fuels and emerging decarbonisation solutions.
- With estimates revealing that people engaging in Travel & Tourism activities can use almost double the water, about 300 litres per day³⁴, compared to when they stay at home, **Premier Inn's** 300-room hotel at Abu Dhabi International Airport began recycling greywater. As a result, it is saving 24% of its water per month, a total of 735,000 litres or 60 litres per guest, per month.
- The **QO Amsterdam luxury hotel** was conceived and designed in accord with circular economy principles. One third of the concrete used in its construction came from the demolition of a nearby building and the carpets are made entirely from locally sourced discarded fishing nets. The hotel has a self-sustaining aquarium that grows fish for food³⁵, whose waste provides an organic fertiliser for vegetables in the hotel's greenhouse while the plants purify water needed by the fish³⁶.
- **Alaska Airlines** and **Virgin Atlantic** have been leaders in addressing the complex challenge of airplane cabin waste, estimated at 6.1 million tons³⁷ per year. Alaska's *Fill Before You Fly*³⁸ campaign encouraged passengers to bring their own reusable water bottles on board. In addition, Boxed Water, a less-plastic-intensive alternative that sends a strong message of change to both suppliers and other airlines, replaced single-serve plastic water bottles. Similarly, Virgin Atlantic replaced some in-flight plastic water bottles with CanO Water aluminium cans and stepped up its efforts to recycle them. In addition to recycling as much cabin waste as possible, Alaska collects coffee grounds for composting wherever airports allow it³⁹.
- **San Francisco (SFO) International Airport** was the first to prohibit the sale of plastic water bottles in 2016, by which time the sales of bottled water at the airport had reached 10,000 bottles per day. High-end, attractive refilling stations were installed for an enhanced passenger experience, with some offering regular, sparkling, and hot water. In 2021, SFO expanded its policy to prohibit sales of all plastic bottles; sodas and juices must now be sold in recyclable aluminium and glass or compostable containers.
- **OrcaTec** is working towards the reduction of single-use plastics on the Galapagos Islands⁴⁰, where 1.2 million plastic cups are disposed of annually. Specifically, OrcaTec introduced the 'Iguana Cup', a reusable cup made of polypropylene that can be used up to 400 times and is dishwasher safe and 100% recyclable, to cut this drastically. Consumers are thus better empowered to make conscious choices in favour of the environment, with over 50 coffee-to-go-sellers on the Galapagos Islands already offering the cup.
- **Green Grow Food** supports nature-based, local, circular solutions and a plastic-free future⁴¹. Its Vegan Gourmet Mushroom Meal Box, for instance, is a way to commercialise circular economy produce while empowering urban and rural communities, farmers, and individuals to be food self-sufficient. It is also developing a fungi-based material that will provide a sustainable solution for packaging and reduce waste. The company uses bio-waste from the food industry, like spent coffee grounds or brewery and distillery grains, along with innovative renewable and sustainable energy solutions, like wasted residual heat, to grow the mushrooms sustainably⁴².

At the level of destinations, in the cities of Copenhagen and Rotterdam and regions of Pomorskie and Venlo in Europe, and the cities of Beijing, Dailan, Shanghai, and Tianjin and region of Mount Emei Scenic Area in China, the circular economy is part of a more general local plan to encourage the transition towards circular economy⁴³. For example, tourism operators in the Venlo region were the first in the world to embrace the principles of cradle to cradle⁴⁴, working with other businesses (e.g., agro-food companies) and the local community to create an attractive living and working environment. The tourism industry of Krabi, Thailand⁴⁵ adopted a nothing-left-behind approach, working with tourism stakeholders to co-create green culture and behaviours to drive the circular economy in practice.

At the level of individual tourists, the circular economy concerns the role of traveller as consumer⁴⁶. Tourists are co-producers, co-performers, and co-creators of tourism experiences and therefore their choices and activities can move the Travel & Tourism sector towards a circular economy. Indeed, some tourism experiences relate directly to circularity, such as voluntourism efforts, e.g., beach clean-up^{47,48}.





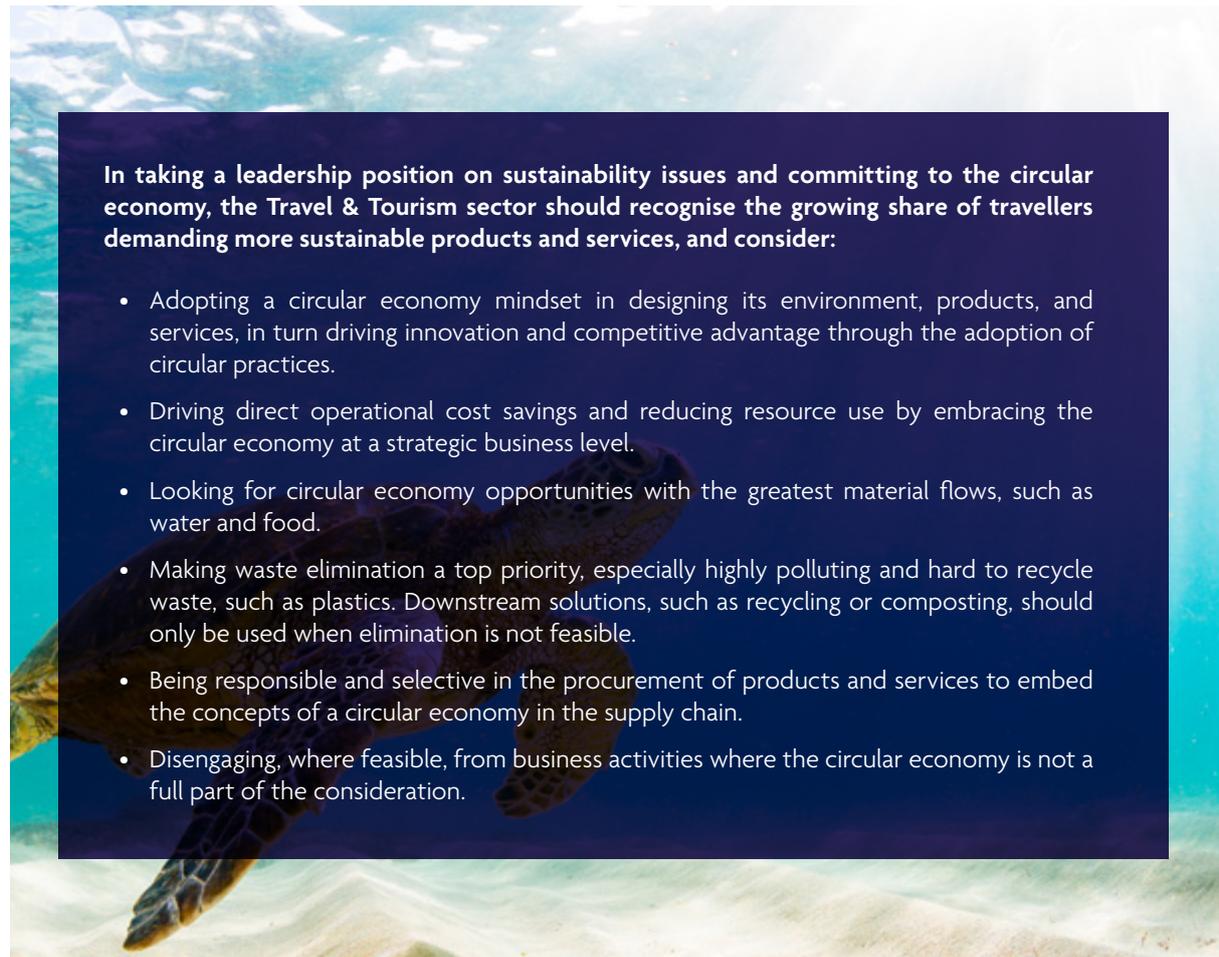
CONCLUSION + ACTION PLAN

THE CIRCULAR ECONOMY offers new ways of doing business in the Travel & Tourism sector. It is an alternative to the current linear economic model of extraction, use, and disposal and serves to maintain the value of products, materials, and resources inside the economy thereby reducing waste generation and improving sustainability. The implications of the transition towards a more circular economy include new business models and practices. It also presents opportunities for increased collaboration between the producer and the end-user but also between the private and public sector⁴⁹. The public sector, in particular, can promote more sustainable consumption behaviours, providing the required infrastructure and facilitating investments, for example in electric vehicle charging points in New Jersey at tourism destinations⁵⁰ or a biorefinery in Salento, a tourist area located in the southeast of Italy⁵¹.

Key elements of a circular economy business model have been identified⁵², most of which are relevant to the Travel & Tourism sector:

1. **Value proposition**, which includes the transformation of products into services.
2. **Customer segments**, i.e. the capability to meet the demands of all types of customers.
3. **Channels**, i.e. effectively communicating with customers also through digitisation.
4. **Customer relationships**, i.e., production on demand and social marketing.
5. **Revenue streams**, which include less-traditional payment for usage.
6. **Key resources**, with a focus on better-performing materials.
7. **Key activities**, which include better process control and improved design.
8. **Key partnerships**, with all the actors along the value chain.
9. **Cost structure**, which must consider the incentives offered to customers,
10. **Take-back system**, to encourage return and reuse.
11. **Adoption factors**, internal (e.g. corporate culture) or external (e.g. socio-economic issues).

While the circular economy concept is a relatively new paradigm for Travel & Tourism, it is part of the sector's pursuit of sustainability. Given its connections, through supply chains across economic sectors, global reach and scale, the sector has a significant multiplier effect and can encourage circular flows among its suppliers and customers⁵³. Digitising value chains can help enhance traceability and transparency while supporting the circular economy⁵⁴. For example, Quick Response (QR) codes and radio-frequency identification (RFID) systems allow companies and consumers to see a product over its lifespan, increasing visibility of materials and products from clothing to reusable cups⁵⁵ and bags⁵⁶. By applying the circular economy principles, Travel & Tourism companies can both accelerate their own sustainability credentials as well as create a more sustainable experience for travellers and other stakeholders⁵⁷. The adoption of more circular thinking can help the move towards sustainable development, in line with Goal 12, Responsible Consumption and Production, of the United Nations Sustainable Development Goals⁵⁸.



Given Travel & Tourism's unique connection to people and destinations, it is vulnerable to the impact of unsustainable development. For the sector to continue to deliver sustained prosperity and advance the betterment of people and planet, it will need to pursue sustainability across all activities, products, and services. By acting to protect people and planet over the long-term, the Travel & Tourism sector can create and sustain shared value, making its fullest contribution to fulfilling the Sustainable Development Goals and a world where *'no-one will be left behind'*⁵⁹.

The adoption of a circular economy mindset and actions can support the pursuit of sustainability in the Travel & Tourism sector by eliminating waste, recirculating resources into new products, and helping regenerate nature while addressing important societal needs. In turn, the pursuit of a circular economy can advance prosperity, jobs, and business resilience in the Travel & Tourism sector as part of its sustainability journey and ambitions.

ADDITIONAL RESOURCES

The **Ellen MacArthur Foundation**^{60, 61} is a leading, pioneering advocate for a circular economy. Its website is full of valuable resources.

The **Circular Economy Alliance**⁶² is a platform for knowledge fusion, education, research, and acceleration of the circular economy, featuring a solid online knowledge centre.

The **Platform for Accelerating the Circular Economy (PACE)**⁶³ was created in 2018 by the World Economic Forum and is now hosted by the World Resources Institute.

The **Circular Economy Club**⁶⁴ is a network fostering circular economy training and practice.

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WTTC promotes sustainable growth for the Travel & Tourism sector, working with governments and international institutions to create jobs, to drive exports and to generate prosperity. Council Members are the Chairs, Presidents and Chief Executives of the world's leading private sector Travel & Tourism businesses.

Together with Oxford Economics, WTTC produces annual research that shows Travel & Tourism to be one of the world's largest sectors, supporting 334 million jobs and generating 10.4% of global GDP in 2019. Comprehensive reports quantify, compare and forecast the economic impact of Travel & Tourism on 185 economies around the world. In addition to individual country fact sheets, and fuller country reports, WTTC produces a world report highlighting global trends and 25 further reports that focus on regions, sub-regions and economic and geographic groups.

To download reports or data, please visit: wttc.org

ENDNOTES

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