

CASES IN SUSTAINABILITY

Volume 1

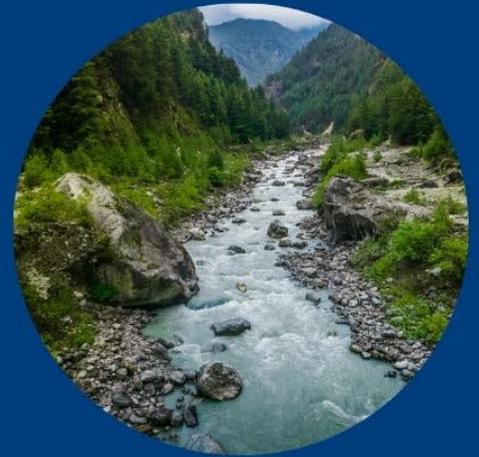
Firm-Level and Market-Based Approaches

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March 2026



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This casebook arises from the assignments submitted by students from the Master of Science in Strategic Analysis and Innovation programme. They were enrolled in the course “Strategic Sustainability” offered at the National University of Singapore (NUS) Business School.

Published by the School’s Centre for Governance and Sustainability (CGS), this casebook represents the culmination of students’ work in applying strategic sustainability concepts to real-world scenarios.

March 2026

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Preface

In an era of evolving consumer expectations, sustainability has emerged as a critical determinant of competitive advantage and long-term viability. As we progress through 2026, the imperative for organisations to reimagine their operational models and business designs has never been more pronounced.

The “Strategic Sustainability” course, which is part of the Master of Science in Strategic Analysis and Innovation programme offered at the National University of Singapore (NUS) Business School, equips students with the strategic frameworks necessary to navigate this dynamic landscape.

The cases featured in this report illustrate diverse approaches to business innovation across two dimensions: the nature of innovation (product-focused versus service-focused) and the strategic orientation (operational efficiency versus business model redesign). Students worked in teams to research and analyse real-world examples, with particular emphasis on Asian firms or global entities with significant Asian operations.

To give the cases a higher reference value, we organise them into two volumes. “**Volume 1 Firm-Level and Market-Based Approaches**” focuses on how firms embed sustainability considerations into the design of what they offer and how they tailor their offerings to the various markets. “**Volume 2 System-Level and Structure-Based Approaches**” examines how companies reimagine their overall business systems, value creation logic, and ecosystem partnerships to support long-term inclusive growth. Together, the volumes invite readers to compare approaches across sectors and to identify patterns that may be adapted to their own contexts.

In this volume “**Firm-Level and Market-Based Approaches**”, 12 cases are further organised into the framework below.

The businesses analysed can be categorised as follows:

	Product & Innovation	Service & Platform
Operational Model & Efficiency	Anker Innovations L’Oréal Unilever	Cathay Pacific Eternal (Zomato) Pang Donglai
Business Design & Circularity	HowBottle IKEA The Fashion Pulpit	AEON Malaysia Changi Airport Group Haidilao

We can understand corporate sustainability strategies through two interconnected lenses. Firstly, sustainability innovation distinguishes between product-centric approaches, where firms innovate through tangible goods, manufacturing processes, or physical infrastructure, and service-centric approaches, where innovation manifests through platforms, experiences, or intangible value delivery. **Product innovators** often focus on material efficiency, supply chain optimisation, and circular design principles, while **service and platform innovators** emphasise customer experience, operational agility, and ecosystem orchestration.

Secondly, companies' strategic orientation can take the form of operational excellence and business model transformation. **Operational model & efficiency** cases showcase organisations refining existing operations through incremental innovations, process improvements, and efficiency gains, whether in retail operations, logistics, or customer service delivery. In contrast, **business design & circularity** cases highlight firms fundamentally reimagining their business model through circular economy principles or disruptive service concepts that challenge industry norms.

These categories are not mutually exclusive. Operational innovators may pilot circular initiatives that eventually transform their business model, while business design innovators must master operational excellence to scale their concepts. This interplay underscores how comprehensive sustainability strategies require both depth (mastery within a domain) and breadth (integration across operational and strategic layers).

Our goal in compiling this collection is twofold. For industry professionals, we hope these cases spark new ideas for carving out and deepening your organisation's sustainability pathway, whether you are setting initial targets or refining an established strategy. For students and the wider public, we aim to provide real-life inspiration on how business strategies can incorporate sustainability. In all instances, the emphasis is on learning from practice—what has worked, what remains challenging, and what questions still need to be asked.

As 2026 unfolds with continued disruption across industries and geographies, may this casebook inspire thoughtful reflection on how strategic sustainability can drive meaningful value creation.

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EESG Analysis of Anker Innovations

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Product & Innovation

Operational Model & Efficiency

Company Overview

Anker Innovations Technology Co., Ltd. (hereinafter referred to as Anker Innovations), established in 2011, is a global smart hardware technology company with its headquarters in Changsha, China (Anker Innovations, 2025c). It emerged from the convergence of China's growing influence in the supply chain and opportunities presented by emerging global e-commerce platforms. Driven by its mission to "ignite possibilities through ultimate innovation" and its vision to "build a playground where makers inspire makers, to create a brand that the world desires", its revenue stands at US\$3.88 billion as of 2025 (Anker Innovations, 2025c; CompaniesMarket Cap, 2025).

The Company and Its Offerings

Anker Innovations focuses on consumer electronics and smart hardware, building a diversified brand portfolio spanning charging accessories (Anker), smart home (eufy), smart audio (soundcore), and renewable energy solutions (Anker SOLIX) (Anker Innovations, 2025c). The company positions itself as a leader for its core technological innovations. For instance, its flagship brand, Anker, integrated gallium nitride (GaN) technology into consumer electronics in the charging sector, driving miniaturised fast-charging across the industry (Anker Innovations, 2025f). Competitors such as Belkin and EcoFlow emphasise similar sustainability messaging, but Anker's GaN adoption and focus on renewable storage strengthen its positioning on energy efficiency, while its commitments on carbon-reduction targets remain less formalised than some peers. Its eufy brand delivers locally stored smart security solutions, whereas its soundcore brand developed coaxial acoustic architecture for the audio domain. In 2024, Anker Innovations invested RMB2.108 billion in research and development (R&D), with R&D personnel making up 53.08% of its workforce (PESTEL Analysis, 2025). Through continuous technological innovations, Anker Innovations has secured leading positions in global niche markets such as mobile charging and smart audio.

Anker Innovations distributes its products across more than 140 countries and regions, serving more than 200 million cumulative users (Anker Innovations, 2025c). The company's initial success selling charging cables on the United States Amazon website laid the foundation for its evolution into a global consumer technology brand.

Market Position

Anker Innovations' core market positioning can be summarised as that of a "technology-driven sustainable development leader". The company strengthens its technological advantages through embedding sustainable development within an environmental, social, and governance (ESG) system, and ongoing patent activity. In 2024, a total of 389 invention patent applications were filed (Anker Innovations, 2025c).

Competitors

Anker Innovations' competitors fall into two main categories: international high-end electronic accessory brands such as Belkin and Poly (formerly named Plantronics), and local Chinese brands in various regional markets. Anker Innovations places emphasis on product innovation and quality control, and builds market credibility through partnerships such as Apple's Made for iPhone/iPad/iPod (MFi) certification (Anker Innovations, 2025g). Moreover, Anker Innovations has advantages in terms of the speed of technological iteration and the breadth of its product line. Its GaN charging technology and solar energy storage solutions form significant technological entry barriers. Although regional brands have advantages in cost and localised services, they typically invest less in R&D and lack global supply chain and sustainable technology capabilities.

Corporate Governance

Structure

As a publicly listed company, Anker Innovations has established a contemporary corporate governance framework. The General Meeting of Shareholders functions as the highest decision-making avenue, with the Board of Directors responsible for strategic decisions and the Board of Supervisors providing oversight. The board comprises four specialised committees: Audit, Remuneration and Assessment, Nomination, and Strategy (Anker Innovations, 2025c). In 2024, independent directors constitute about one-third of the board, ensuring balanced and independent decision-making.

Figure 1: Anker Innovations' Corporate Governance Framework



Source: Anker Innovations, 2025c

The company has established an ESG Special Committee led by Chief Executive Officer (CEO) Steven Yang, integrating sustainable development goals into its top-level strategy. This is complemented by a highly localised network of international subsidiaries enabling global market penetration.

Figure 2: ESG Governance Architecture of Anker Innovations



Source: Anker Innovations, 2025c

Strategy

Against the backdrop of a constantly evolving global political and economic landscape and significant technological breakthroughs in generative artificial intelligence (Gen AI) in 2024, Anker Innovations views external uncertainties as strategic opportunities. It adopts ESG principles as a cornerstone, integrating them across various aspects, including R&D, operations, and supply chain management. This approach has enabled the company to build a solid foundation for growth. Anker Innovations also aims to enhance its capability assessment and knowledge management systems to create diverse career development paths and continuously attract and nurture highly innovative talent.

Sustainability Rationale and Corporate Strategy

Why Anker Innovations Pursues ESG and Sustainability

Anker Innovations' dual focus on consumer electronics and emerging technologies enhances the relevance of its sustainability practices. Currently, the company faces a triple challenge involving internal governance, external policies, and technological ethics. The intersection of these challenges highlights the complexity of its sustainable development trajectory. Anker Innovations pursues ESG and sustainability goals because it views sustainable development as central to long-term growth, resilience and corporate brand value. As a global smart hardware technology company with business in more than 140 countries, Anker Innovations integrates environmental protection, social value creation, and responsible governance into its overall strategy and operations. The company believes that technology and innovation should not only serve consumers but also make positive contributions to global sustainable development.

The company's ESG initiative stems from multiple core motivations. Firstly, technological innovation is the core driving force of Anker Innovations' sustainability rationale. The company regards technology as the key enabler of green

transformation, for example, by reducing carbon emissions, improving energy efficiency, and promoting the circular economy model. Secondly, Anker Innovations responds to the growing market and stakeholders' expectations, including investors' concern about ESG performance, regulatory requirements, and consumers' increasing demand for environmentally-friendly products. Thirdly, Anker Innovations follows international sustainability frameworks such as the Global Reporting Initiative (GRI) 2021 Standards, the United Nations Sustainable Development Goals (SDGs) and the Shenzhen Stock Exchange sustainable development reporting guidelines to ensure transparency, accountability and comparability of its ESG disclosure (Anker Innovations, 2025c). This reflects its belief that long-term corporate success depends on balancing profitability with social and environmental responsibility.

EESG Pillars and Initiatives

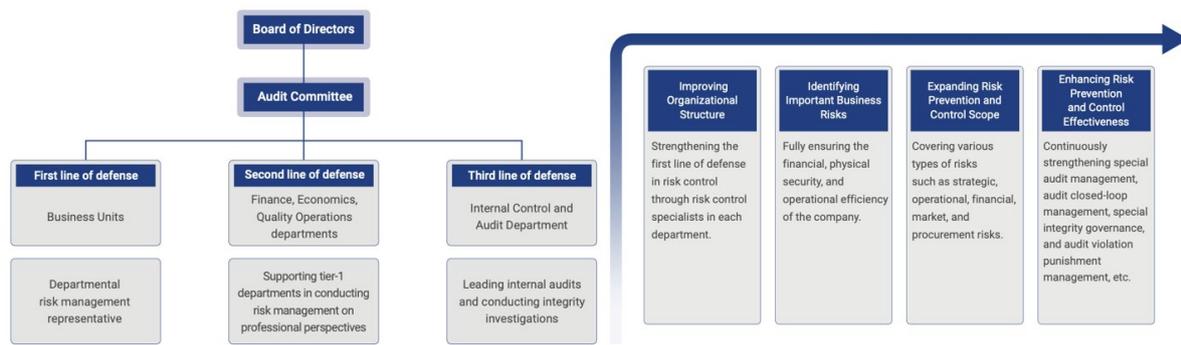
Economic

Anker Innovations' economic sustainable development strategy is committed to creating long-term value through innovation, operational efficiency, and stakeholder trust. The company's economic measures emphasise innovation-driven growth, responsible value creation, and transparent financial management.

Under the principle of "technology-driven green growth", Anker Innovations invests heavily in R&D to enhance its technical strength and create products with high performance and sustainability (Anker Innovations, 2025c). Its R&D strategy focuses on areas such as smart charging and power storage, smart home solutions and innovation, and smart audio and video systems, jointly building the foundation of its business ecosystem.

To ensure economic resilience, Anker Innovations implements a comprehensive risk management system that aligns with the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework and the International Organization for Standardization (ISO) 31000 standard (Anker Innovations, 2025c). The company adopts a company-specific three-line defence model, and manages operational, financial and strategic risks through coordinated oversight by business units, financial departments and internal audit teams. In addition, Anker Innovations promotes responsible investment and transparent corporate communication, maintaining close interaction with shareholders and investors through regular disclosures, performance briefings, and public reports.

Figure 3: Three-Line Defence Risk Management Framework and Implementation



Source: Anker Innovations, 2025c

Anker Innovations’ economic initiatives include establishing a sustainable supply chain mechanism to ensure that suppliers abide by ethical, environmental and social standards. Anker Innovations’ Supplier Code of Conduct specifies the requirements of environmental protection, fair labour and responsible procurement, reflecting the company’s belief that sustainable business practices begin with a responsible value chain (Anker Innovations, 2025b).

Figure 4: Implementation Strategy



Source: Anker Innovations, 2025c

Environmental

Anker Innovations’ environmental pillar aims to embed sustainability throughout its product life cycle, from raw material procurement, manufacturing, and production to packaging design, recycling, and waste management. The company’s environmental protection measures focus on green product innovation, carbon management, efficient resource use, and circular economy development (Anker Innovations, 2025c). For example, products from its Anker SOLIX brand were promoted as accelerating the transformation of household green energy (Anker Innovations, 2025e)

Under its Greener Products Management Structure, Anker Innovations has established a three-tier governance system for environmental innovation, consisting

of the Board of Directors, the ESG Ability Development Team (ADT), and the Product R&D Team (Anker Innovations, 2025c). This structure ensures that environmental design and sustainability goals are integrated into the whole product development process. The company follows five key approaches to ecological design: material innovation, energy efficiency improvement, circular design, carbon footprint reduction, and ecological cooperation.

Anker Innovations' ecological design and green material strategy follows the "4R1D" principle of sustainable design: Reduce, Recycled, Recyclable, Recovery, and Degradable (Anker Innovations, 2025c). The company gives priority to the use of bio-based materials and post-consumer recycled (PCR) materials, implementing sustainable packaging schemes and using Forest Stewardship Council (FSC)-certified materials. It aims to eliminate plastic components in packaging and promote energy-saving product design through GaN technologies such as PowerIQ™ and ActiveShield™ (Anker Innovations, 2025c).

Furthermore, Anker Innovations actively promotes a circular economy model by developing a comprehensive reverse-logistics system. Returned or end-of-life products are evaluated for reuse, repurposing or recycling, while non-reusable materials are processed responsibly through certified third parties. The company also advocates industry collaboration and encourages suppliers to adopt green manufacturing processes to minimise environmental impact. Through its "Trade-in for Eco-friendly Alternatives" programme, Anker directly encourages consumers to participate in sustainable development and to share responsibility across the product life cycle (Anker Innovations, 2025c).

Figure 5: The "4R1D" Principle of Sustainable Design Concept



Source: Anker Innovations, 2025c

Social

Anker Innovations' social initiatives focus on employee development, community engagement, and customer responsibility. The company strives to create a diverse,

inclusive, and empowering workplace to help employees achieve both professional and personal development. Its Talent Development System includes structured training programmes, mentorship schemes, open communication sessions such as TGIF management open days, and transparent promotion pathways to ensure fair career advancement (Anker Innovations, 2025c).

Anker Innovations' Employee Rights and Welfare Management Framework focuses on occupational health, safety, and work-life balance (Anker Innovations, 2025c). The company upholds fair labour practices, provides comprehensive benefits, and encourages employee participation in corporate governance through representative committees.

In the community, Anker Innovations actively engages in social responsibility programmes through initiatives such as the "AnkerCares" initiative and the "Running for TEGV" marathon, as well as partnerships with global non-governmental organisations (NGOs) such as Make-A-Wish and the Taronga Conservation Society (Anker Innovations, 2025c). These programmes emphasise educational equity, disaster relief, environmental conservation, and healthcare support.

Anker Innovations also highlights customer well-being and ethical business conduct. Through strict internal control systems, the company ensures product quality, privacy protection, and responsible marketing behaviour. For example, under its Integrity and Compliance in Operations approach, Anker Innovations enforces responsible advertising, data security, and transparent communication with consumers (Anker Innovations, 2025c). Together, these initiatives build trust with customers and communities while reinforcing the company's role as a socially responsible global brand.

Governance

Anker Innovations' governance pillar is built on the principles of transparency, accountability, and ethical conduct. The company ensures a clear separation of powers among the General Meeting of Shareholders, the Board of Directors, the Board of Supervisors, and the management team (Anker Innovations, 2025c).

Anker Innovations enforces strong anti-corruption and compliance frameworks, which is supported by internal audits and risk control systems. Transparency in information disclosure is a core value, and the company follows the Measures for the Administration of Information Disclosure by Listed Companies to maintain investors' confidence (Anker Innovations, 2025c).

A remarkable feature of Anker Innovations' governance system lies in its technology ethics governance system, which addresses the ethical challenges of artificial intelligence and data management (Anker Innovations, 2025c). This system includes a dual approval mechanism, which requires every new technology to undergo legal compliance and ethics reviews by the Legal Compliance and Data Middleware

Departments before launching. Moreover, there is an algorithm ethics review process that evaluates fairness, data privacy, and bias prevention measures in AI models.

This governance model ensures that innovation remains aligned with ethical standards and regulatory compliance, supporting Anker Innovations' commitment to responsible growth and stakeholder trust.

Sustainability Vision and Goals

Anker Innovations' sustainability vision is rooted in its belief that technology and innovation should be catalysts for positive environmental and social change. The company looks forward to a future in which technological progress and sustainable development advance together, creating long-term value for stakeholders and protecting the earth for future generations. Guided by the principle of "ignite possibilities through ultimate innovation", Anker Innovations aims to use its technical strength to improve energy efficiency, environmental responsibility, and social inclusion.

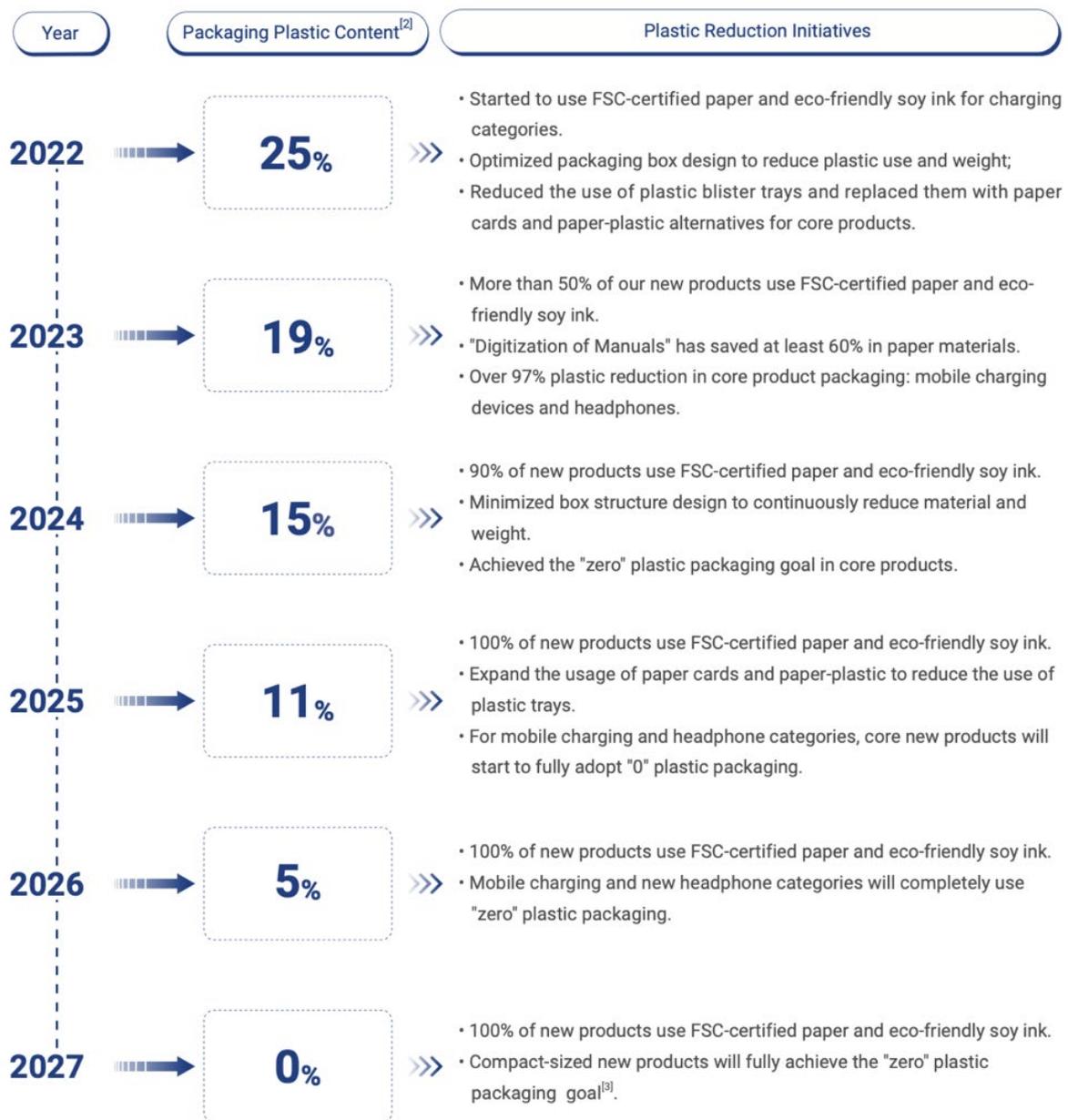
Anker Innovations' sustainability goals are highly consistent with the United Nations SDGs. For example, the company aims to promote renewable energy and energy-saving technologies in support of SDG 7 (Affordable and Clean Energy); advance ecological design and circular economy practices in support of SDG 12 (Responsible Consumption and Production); and contribute to SDG 13 (Climate Action) by encouraging low-carbon operations and carbon management initiatives (Anker Innovations, 2025c).

Ultimately, Anker Innovations' sustainability vision and goals reflect a coherent and forward-looking strategy to transform technological innovation into a driving force for sustainable growth. By integrating business objectives with global sustainable development frameworks and stakeholders' expectations, the company is committed to building a responsible and resilient enterprise, and achieving a balance between economic performance, environmental governance and social well-being.

Performance Outcomes and Metrics

Anker Innovations' 2024 sustainability outcomes demonstrate measurable progress across its environmental, social, and governance dimensions. Relative to its 2024 electricity consumption target, the company reduced electricity use by 357,977.66 kWh, leading to an electricity savings ratio of 2.5% (Anker Innovations, 2025c). However, the firm saw an increase in its total greenhouse gas (GHG) emissions from 7638.16 tCO₂e in 2023 to 10,068.34 tCO₂e in 2024, largely due to an increased number of employees and their travel-related emissions (under Scope 3).

Figure 6: Plastic Elimination Goals and Planning



Source: Anker Innovations, 2025c

Resource-efficiency outcomes were concentrated on material substitution and waste reduction. In September 2024, the company released six new products with housings built from PCR materials, and customised products include at least 75% PCR materials to meet customer needs (Anker Innovations, 2025c). In 2024, Anker Innovations conserved 331,200 plastic bottles and 3,763.96 kilograms of paper products, while recycling 4.51 tonnes of non-hazardous and office waste, including 332 units of electronic waste. The company had also replaced plastic and composite packaging components with paper-based and recyclable alternatives to reduce single-use plastic consumption.

Figure 7: Comparison of Anker Innovations' Product Packaging Materials



Source: Anker Innovations, 2025c

Anker Innovations maintained its TCO Certified status, which symbolises sustainable IT products, for two years running in 2023 and 2024 (Anker Innovations, 2025c). It also prepared 150 products for Climate Pledge Friendly certification in 2025 (ClimatePartner, 2025). These demonstrate adherence to life-cycle assessment standards from design and manufacturing through use and end-of-life management, as well as alignment with external carbon-accounting protocols.

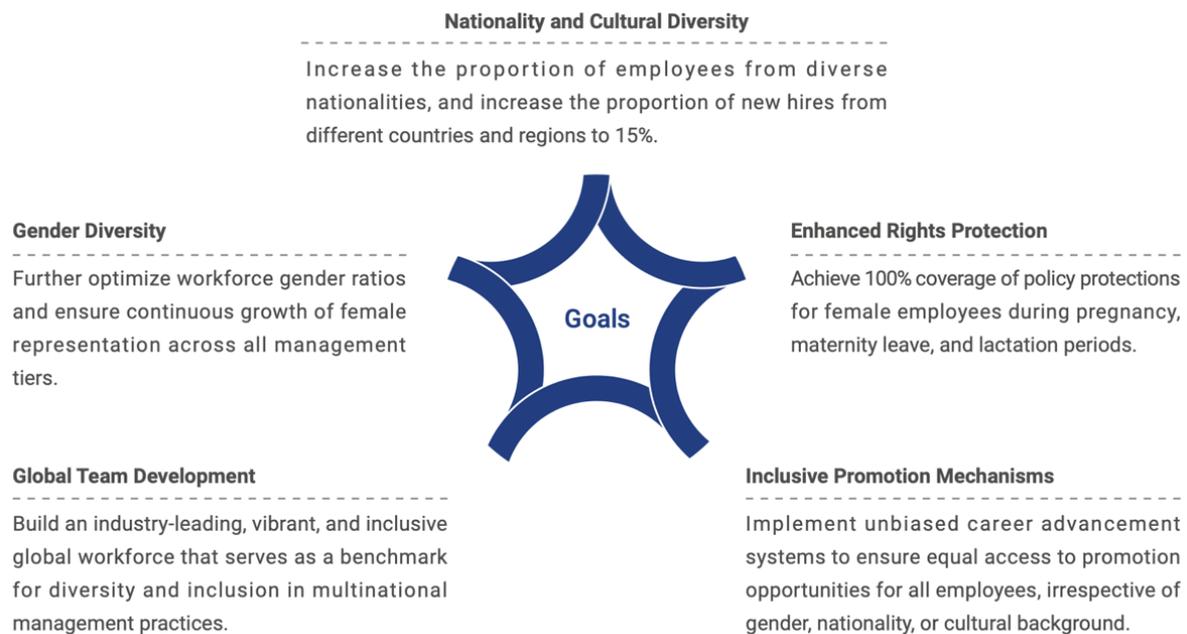
Figure 8: Carbon Labels and Certifications



Source: Anker Innovations, 2025c

Social performance indicators reflect continual investment in workforce development and supplier responsibility. Anker Innovations promotes employee participation in professional courses, seminars, and workshops to build skills and capabilities, prioritising personal growth (Anker Innovations, 2025c). The Anker Academy training platform supports employees in developing their skills by offering courses (Anker Innovations, n.d.) that enhance professional development and retention outcomes aligned with SDG 8 (Decent Work and Economic Growth). Gender distribution data show that women represent 41% of the overall workforce, and 19% of executive roles (Anker Innovations, 2025c).

Figure 9: Employee Rights, Welfare Objectives and Metrics



Source: Anker Innovations, 2025c

Supplier management was strengthened through ESG screening and compliance audits. In 2024, Anker Innovations reported that 100% of its domestic suppliers had signed the Supplier Code of Conduct (Anker Innovations, 2025c). To meet the requirements of overseas projects, suppliers also underwent 54 third-party social responsibility audits during the year, with all achieving a 100% pass rate. Follow-up reviews will be carried out according to supplier risk levels and progress on corrective actions, establishing a continuous and standardised monitoring system. Nonetheless, supplier-level data remain self-reported, and the limited number of independent audits constrains external validation of labour and human rights outcomes.

Governance performance outcomes focus on structural accountability and compliance effectiveness. The Board of Directors maintained an independent-director ratio of 33.33%, with ESG matters reviewed by the ESG Special Committee (Anker Innovations, 2025c). In 2024, the company achieved 100% employee coverage for training in risk management and internal control, business ethics, and anti-bribery and anti-corruption. Its products and services meet privacy and security regulations across design, development, and operations to ensure compliance. The company reported zero lawsuits related to administrative penalties, misconduct, or corruption (Anker Innovations, 2025c). However, the lack of quantified key performance indicators (KPIs) linking board oversight to ESG outcomes limits assessment of governance impact beyond formal compliance.

Overall, Anker Innovations' ESG performance exhibits verifiable progress in carbon efficiency, resource use, and social welfare, supported by partial third-party validation. Yet, the scope and depth of disclosed data, together with limited external assurance,

indicate a moderate level of transparency maturity. The results demonstrate concrete impacts rather than intentions, but also reveal gaps in full value-chain accountability and stakeholder comparability that would need to be addressed to align more closely with advanced sustainability reporting standards.

Stakeholder Perspectives

Anker Innovations' stakeholder management framework applies the principle of materiality through multi-party engagement across six defined groups: customers, employees, suppliers, investors, regulators, and communities. Stakeholder identification and prioritisation follow a process integrating survey responses, interviews, and periodic consultations, forming the basis of the company's double-materiality matrix. This approach aligns with GRI 2-29 and reflects an attempt to integrate stakeholder input into ESG target-setting using stakeholder-salience principles, where customers, employees, and regulators demonstrate high power and legitimacy, while investors exert both urgency and financial influence on ESG execution.

Figure 10: Anker Innovations' 2024 ESG Materiality Matrix



Source: Anker Innovations, 2025c

Customer stakeholders emphasise product safety, transparency, and environmental responsibility. Anker Innovations' response includes embedding eco-design principles into product development, increasing the recyclability of materials, and improving user

transparency through environmental labelling. Its internal Service Quality Management Process showed 91.19% qualified quality inspections and 0.11% customer complaint escalations in 2024 (Anker Innovations, 2025c). Investor expectations are primarily financial material, focusing on ESG risk management and disclosure consistency, which Anker Innovations addresses through publication of its ESG report under Shenzhen Stock Exchange guidelines and the incorporation of ESG KPIs into risk-control metrics (Anker Innovations, 2025c). Going forward, alignment with European Union (EU) Corporate Sustainability Reporting Directive (CSRD) standards and International Sustainability Standards Board (ISSB) climate-disclosure expectations will be required to maintain credibility in Western markets and ensure comparability with global peers.

Employees are identified as highly salient stakeholders, emphasising fair compensation, occupational safety, and career development. The establishment of Anker Academy and the implementation of the Safety Education and Training Management System directly respond to these expectations (Anker Innovations, 2025c). Engagement outcomes show high participation in training programmes and improved internal mobility, indicating responsiveness to workforce needs.

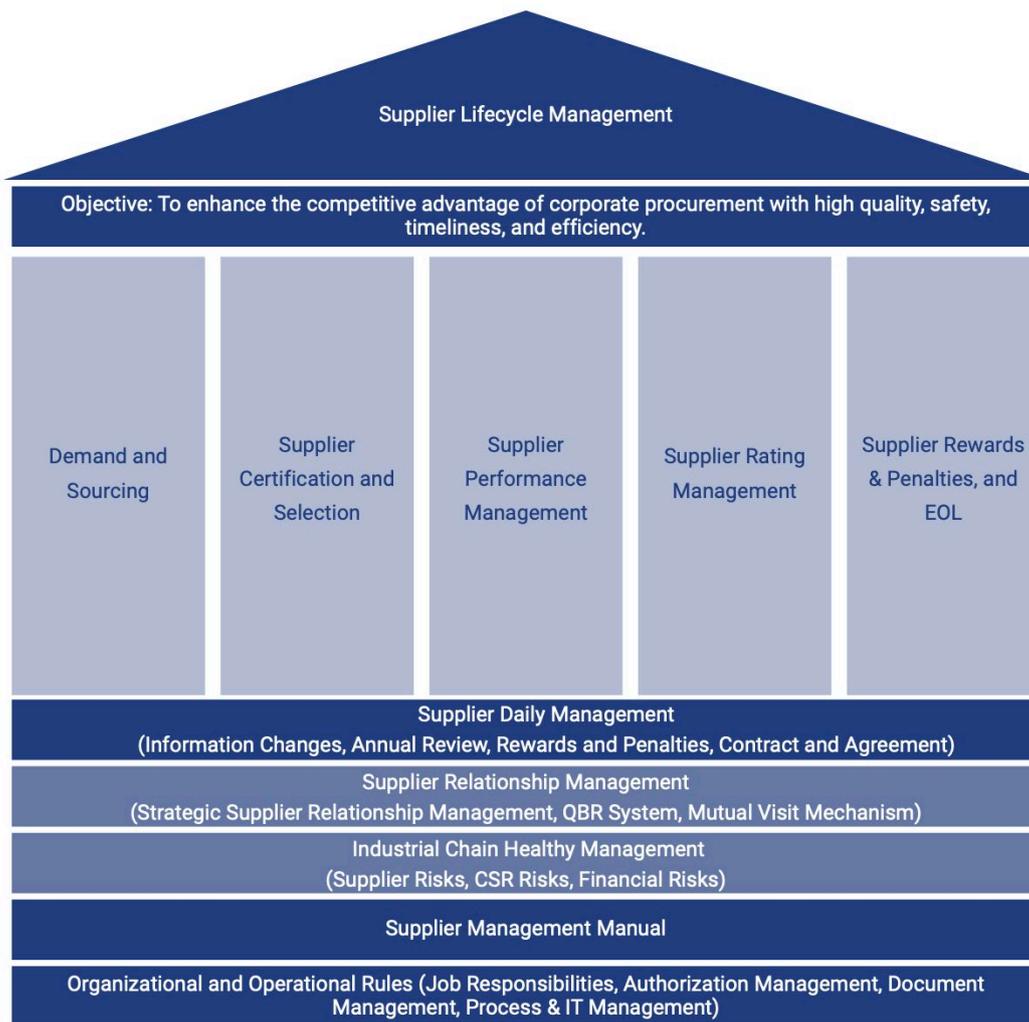
Figure 11: Employee Training Data from 2024



Source: Anker Innovations, 2025c

Suppliers represent a critical node in Anker Innovations’ sustainability delivery. The Supplier Code of Conduct outlines mandatory compliance with environmental and labour standards. The company will frequently assess supplier compliance, with violations potentially leading to compensation demands or contract termination (Anker Innovations, 2025b). Consequently, tensions persist between cost competitiveness and compliance requirements, especially among smaller upstream vendors.

Figure 12: Anker Innovations' Supplier Life-Cycle Management Framework



Source: Anker Innovations, 2025c

Regulators and industry bodies influence Anker Innovations' adherence to national policies on carbon neutrality and energy efficiency. The company's alignment with China's "Dual Carbon" targets and participation in local energy-transition programmes demonstrate regulatory responsiveness (Anker Innovations, 2025c). Community stakeholders, though lower in direct influence, are addressed through social welfare initiatives, including disaster-relief and educational programmes. In 2024, the company advanced its social responsibility via a three-pillar strategy combining products, technology, and funding, with total donations surpassing RMB10 million (Anker Innovations, 2025c).

Conflicts among stakeholder groups are evident in trade-offs between economic and environmental goals. Investor demand for profitability can constrain resource-intensive environmental projects, while customer demand for affordability may limit the adoption of sustainable materials.

Stakeholder governance is integrated through board-level oversight of ESG matters. However, engagement lacks independent stakeholder representation, and there is no formal mechanism for escalating criticism beyond compliance channels. The company's stakeholder governance structure demonstrates systematic engagement but remains management-directed rather than participatory.

In summary, Anker Innovations' stakeholder management demonstrates structured identification, clear responsiveness, and tangible engagement outcomes. Nevertheless, the approach remains primarily instrumental, aimed at operational risk management rather than the co-creation of a sustainability strategy. It supports compliance and disclosure objectives, but has not yet matured into a model of stakeholder-driven sustainability governance.

Challenges

On the path towards sustainable development, Anker Innovations faces not only internal limitations in the transparency and completeness of its ESG reporting, but also multiple external challenges in its operations. The power bank recall incident in 2025 (36Kr English, 2025) exposed Anker Innovations' weaknesses in product life-cycle management and can be viewed as an emerging-risk indicator. It highlights potential vulnerabilities in product life-cycle control and reinforces the need for proactive quality and safety governance. This was not only a product quality crisis but also a serious test of its commitment to SDG 12. If such incidents occur frequently, they could significantly undermine consumer trust in Anker Innovations' sustainable brand image, which will weaken its core strategy of promoting sustainable consumption through green products.

Secondly, external tariff policies constrain the economic feasibility of sustainable development. The trade tensions between China and the US over tariffs have added cost pressure to Anker Innovations. It forces the company to allocate more financial and managerial resources to passive supply chain adjustments (Zhang, 2025), such as establishing overseas warehouses and restructuring logistics networks. This may affect long-term investments in sustainable initiatives like the circular economy and low-carbon materials.

In addition, as Anker Innovations makes a high-profile move into the fields of AI and robotics (Anker Innovations, 2025d), it will face ethical issues such as data privacy and algorithmic bias. Without an effective framework for technological ethics governance, the company's social reputation could be damaged, reducing public trust and hindering the sustainable development of its new business sectors. This can also possibly trigger stricter regulations that limit its capacity for technological innovation.

Outlook and Recommendations

Trusted and Transparent Regulatory System

Anker Innovations should systematically establish a transparent regulatory system that covers its entire value chain. First, the company needs to develop a comprehensive mechanism for collecting environmental data from suppliers. By using digital platforms, the company can achieve real-time monitoring and aggregation of the supply chain's carbon footprint. This will also provide a solid data foundation for setting scientific carbon reduction targets.

In terms of data verification, Anker Innovations should actively promote independent third-party verification of key environmental indicators, including product carbon footprints, the proportion of recycled materials used, and the efficiency of waste management practices. Third-party verification not only increases the credibility of disclosed data but also helps the company identify areas for improvement in environmental management.

In addition, Anker Innovations can take advantage of digital technologies to innovate its information disclosure practices. For example, it could develop a product environmental footprint inquiry system that allows consumers to check products' carbon footprint and recycled content by scanning a QR code. This innovative approach will not only improve transparency but also strengthen consumer trust and engagement with the brand.

The establishment of such a systematic transparency framework will enable Anker Innovations to better respond to the growing investor and stakeholder demand for environmental information while supporting the company's sustainable development efforts.

Systematic Management of Product Life-Cycle Risks

To address the life-cycle management challenges revealed by product recall incidents, Anker Innovations needs to elevate circular economy principles to a core strategic level. The company should establish a comprehensive closed-loop management system that covers every stage of the product life cycle, including design, production, usage, and recycling. This includes product repairability, modular component architecture, and battery recovery pathways aligned with extended producer responsibility (EPR) principles and upcoming EU battery passport requirements.

During the product design phase, Anker Innovations should prioritise durability and disassembly. For instance, adopting modular designs can make maintenance and upgrades easier, while using standardised interfaces can facilitate component reuse. It is also important to avoid combinations of incompatible materials to improve recycling efficiency. This forward-thinking approach aligns with the innovation

capabilities demonstrated in the Red Dot Design Award (Anker Innovations, 2025a) and should be applied more broadly across its full product range, including charging devices, smart home products, and audio equipment.

At the manufacturing stage, Anker Innovations can draw on sustainable development practices developed in its “balcony energy storage” business (36kr Europe, 2025) to further advance clean production. This can be achieved by optimising production processes to reduce raw material consumption, improving energy efficiency, and gradually increasing the use of renewable energy at production sites. At the same time, the company should build a comprehensive waste management system to ensure that production waste is repurposed or reused as much as possible.

During the product usage stage, Anker Innovations can leverage its technological expertise in AI (Anker Innovations, 2025d) to develop intelligent product management systems. Through AI algorithms, the company can optimise energy consumption, extend battery life, and provide personalised maintenance reminders, thereby maximising product lifespan and minimising resource waste.

For the recycling stage, Anker Innovations could establish a recycling service network that supports online booking and door-to-door collection. The company could also set up branded recycling points in key cities and collaborate with retailers to launch product trade-in programmes, helping to close the product life-cycle loop and supporting its broader sustainability objectives.

Dual-Driven Governance Mechanism

To address the challenge of “formal compliance” in its governance system, Anker Innovations needs to establish a dual-driven governance mechanism that balances incentives and constraints.

In terms of incentives, Anker Innovations should embed key ESG performance indicators into executive compensation and board evaluation systems in a substantial way. Specifically, it is recommended to set measurable and trackable ESG targets, and these targets should be directly linked to annual performance evaluations and incentive allocations for management. Metrics may include Scope 1 to 3 emissions reduction progress, supplier ethical audit pass rates, circular material shares, and product end-of-life recovery rates. This mechanism would ensure that executives consider both economic outcomes and the environmental and social impacts when making decisions.

On the constraints side, as Anker Innovations expands strategically into emerging fields such as AI and robotics, it should further strengthen the independence and authority of its technology ethics committee to ensure that this committee can exercise oversight independently from business units. More ethics review checkpoints could be added throughout the product development process to ensure that ethical considerations are embedded from concept design through to mass production.

Conclusion

Anker Innovations demonstrates a structured integration of ESG into strategy, operations and governance, supported by measurable progress in carbon reduction, green material adoption, workforce development, and supplier compliance. The company aligns its initiatives with international frameworks and China's "Dual Carbon" policy, and operationalises ESG through governance systems, product eco-design practices, and stakeholder engagement processes.

Quantitative outcomes and selective third-party certifications strengthen credibility, though gaps remain in external assurance and participatory stakeholder governance. Tensions between innovation speed, cost competitiveness, and sustainability ambition indicate that Anker Innovations is in a transition phase from compliance-oriented ESG towards impact-driven sustainability. The company's continued scaling in AI and global expansion introduces exposure to ethical and regulatory risks, requiring enhanced life-cycle control, digital transparency, and enforceable ethical oversight mechanisms.

Overall, Anker Innovations exhibits a maturing sustainability model characterised by strategic commitment and operational evidence of progress, and is positioned to advance towards higher transparency, accountability, and stakeholder co-creation if the recommended governance and supply-chain assurance mechanisms are institutionalised.

Discussion Questions

1. To what extent can Anker Innovations maintain cost competitiveness in consumer electronics while fully integrating Scope 3 carbon disclosure and independent supplier ESG audits, and what governance mechanisms would ensure credible execution without weakening supply chain flexibility?
2. How can Anker Innovations institutionalise circularity beyond packaging reforms and trade-in programmes into core product architecture (durability, repairability, modularity) without compromising rapid product iteration or consumer demand for customisation?
3. As Anker Innovations expands into AI-driven products, how should its committees for technology ethics balance time-to-market pressures with ethical requirements relating to data privacy, algorithmic fairness, and hardware safety?

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Where Beauty Meets Responsibility: Strategic Reflections on L'Oréal's EESG Transformation

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Product & Innovation

Operational Model & Efficiency

Introduction

Company Overview

L'Oréal S.A., founded in 1909 and headquartered in Paris, is a leading global beauty group focused on skincare, makeup, haircare, and fragrance. Drawing on more than 110 years of expertise, the company operates in over 150 countries and regions, employing more than 90,000 people (L'Oréal Groupe, n.d.-a) and maintaining research and development (R&D) centres in the United States, Japan, India, Brazil and South Africa (L'Oréal Groupe, n.d.-d). These capabilities drive continuous growth through technology and sustainable innovation.

Corporate Mission and Vision

L'Oréal's business vision is to create the beauty that moves the world (L'Oréal Groupe, n.d.-a). To achieve this, the company focuses on scientific innovation, dedicated to developing high-quality, safe, and effective products to ensure that everyone can experience the beauty products in their own way.

In addition, L'Oréal seeks to promote sustainability through its sourcing, production, and packaging processes. It has also fostered a culture of diversity and inclusion to respect people from different backgrounds, genders, and cultures. Through these efforts, L'Oréal aims to make beauty a universal force for social progress.

Business Structure

L'Oréal's operations are organised into four core divisions, each targeting distinct consumer segments and market channels to form a complementary and stable global business footprint. The four major divisions are Consumer Products Division, Professional Products Division, L'Oréal Luxe, and Dermatological Beauty Division, covering cosmetics, salon, and dermatological brands (L'Oréal Groupe, n.d.-a).

Sustainability Goals

In response to growing global concerns over climate change, environmental degradation, and social inequality, L'Oréal recognised the need to transform its business model to align with international sustainability goals. In June 2020, L'Oréal announced a long-term commitment to sustainable development through its programme "L'Oréal for the Future", which outlines ambitious goals to be achieved by 2030. These include achieving carbon neutrality, ensuring that 100% of plastic packaging is either recyclable or made from recycled materials, and investing in social causes (L'Oréal Groupe, 2020a). This initiative could serve as a strategic investment in long-term competitiveness, as sustainability increasingly becomes a determinant of market trust and investor confidence.

Economic Dimension

Within the Economic, Environmental, Social and Governance (EESG) framework, L'Oréal's economic focus goes beyond immediate profit. Besides financial viability, it also looks at long-term resilience and business opportunities that arise from a sustainability strategy. Its economic dimension will be discussed in three aspects: investments and costs, market strategy, and risk management.

Investments and Costs

L'Oréal's principal economic investments for sustainability fall into three aspects: on-site or contracted renewable electricity, energy-efficiency retrofits, and low-carbon process equipment. These are capital-intensive but reduce future energy bills, lower exposure to carbon pricing, and cut Scope 1 and 2 emissions. Although the upfront costs (e.g., installing solar or wind capacity, retrofitting plants) are significant, such measures raise energy efficiency and produce net economic returns over time.

Moreover, supply chain resilience is supported by investments in eco-design and circular packaging. These packaging alternatives may lead to an increase in material costs per unit in the short term, but reduce long-term risks associated with fluctuating raw material prices. At the same time, they can lower compliance costs under the Extended Producer Responsibility (EPR) system common in Europe.

Furthermore, to inform procurement and product pricing decisions, L'Oréal's Sustainable Product Optimization Tool (SPOT) helps to link product life-cycle metrics to business decisions (L'Oréal Groupe, n.d.-e). Based on scientific methodology, SPOT measures the environmental impact of L'Oréal's products, thus helping the company to mitigate the risks of greenwashing. Finally, investments in traceable and sustainable feedstocks reduce L'Oréal's reliance on oil-derived plastics, thereby enhancing long-term supply security and stabilising raw material costs.

Market Strategy

The "L'Oréal for the Future" programme is part of a market strategy to create value for customers and stakeholders. From an economic standpoint, strong ESG credentials have significant potential to translate into pricing power and growth in market share. In the current beauty industry, customer perceptions of brand responsibility influence their purchasing decisions, while sustainable development leadership enhances brand trust and willingness to pay.

L'Oréal uses ESG performance to strategically access capital and secure favourable financing. L'Oréal's alignment with science-based targets and transparent ESG reporting enhances its access to capital markets, while high ESG performance attracts investors and lenders with sustainability mandates. As a "Triple A" performer in the Carbon Disclosure Project (CDP) ratings for Climate, Water, and Forests, and holder

of a Morgan Stanley Capital International (MSCI) ESG “AAA” rating, L’Oréal positions itself as a transparent and credible firm (L’Oréal, 2023).

To further align its capital structure with sustainability outcomes, L’Oréal issued a €3 billion sustainability-linked bond in 2022, one of the largest in the global beauty sector. The bond’s coupon rate is tied to achieving emission-reduction and recycled-packaging targets, thereby lowering financing costs if the goals are met (L’Oréal, 2023). By leveraging such mechanisms, L’Oréal converts its ESG leadership into tangible financial advantages.

Risk Management

The “L’Oréal for the Future” programme encompasses a comprehensive range of sustainable development initiatives. These initiatives serve as active mechanisms aimed at reducing various financial risks related to compliance, supply chain stability and brand reputation. The company’s commitment to achieving carbon neutrality by 2025 and transitioning to circularity by 2030 demonstrates a forward-thinking approach (L’Oréal Groupe, 2020a). In this increasingly stringent regulatory environment, predicting and even exceeding regulatory requirements positions L’Oréal ahead of its competitors. Taking proactive compliance measures can prevent the company from incurring penalties, taxes, potential non-compliance penalties, and the costs associated with sudden operational adjustments.

Achievements

The achievements of L’Oréal’s economic approach towards sustainability can be understood in terms of decarbonisation and efficiency, as well as enhanced revenue growth and market positioning.

Decarbonisation and Efficiency in Operations

L’Oréal has made notable progress towards its environmental targets, which have direct economic benefits by reducing operational costs. According to L’Oréal’s 2022 Universal Registration Document, the company had 60 industrial and distribution sites (including 22 factories) achieving carbon neutrality for Scope 1 and 2 emissions in 2022 (L’Oréal, 2023). Moreover, according to Figure 1, carbon dioxide emissions from industrial sites in 2022 fell 91% compared to 2005.

The data shows that this achievement is closely related to the economic investments mentioned earlier, such as the investment in renewable electricity and energy efficiency improvements. L’Oréal’s capital allocation strategy and its results show that achieving carbon neutrality is not only an environmental milestone but also an economic safeguard. By improving energy efficiency and replacing non-renewable resources, L’Oréal can avoid the fluctuations in the oil and gas market and reduce the

Risks of Greenwashing Accusations and Reputational Damage

The economic value derived from ESG credentials depends on maintaining a strong reputation. However, for this company with such a large, complex global supply chain, maintaining a consistent, high level of credibility is not an easy task. Although the SPOT measurement tool can reduce greenwashing risks, the complexity of global supply chains and product life cycles means that any mistakes in environmental claims can quickly lead to reputational and financial losses.

A 2022 investigation conducted by the Changing Markets Foundation revealed that L'Oréal misleadingly labelled an Elvive product as being packaged in a "100% recycled plastic bottle", while the fine print excluded the cap, which were not made from recycled materials (Changing Markets Foundation, 2022). Cases like this can cause people to question the authenticity of L'Oréal's sustainability plan and even significantly undermine consumers' loyalty to the brand. Economically, as the regulatory environment tightens, if L'Oréal fails to provide auditable data to support its claims, it will face financial risks from fines and lawsuits, thereby undermining the cost-saving benefits brought about by proactive compliance.

High Capital Expenditure and Uncertain Payback

The transition to a completely sustainable model requires high and continuous upfront capital costs in the early stage, while the payback is uncertain in the short term. This raises doubts about the imbalance between profitability and sustainable development. Although renewable energy deployment and energy-efficiency retrofits generate net economic returns over time, their substantial upfront costs place considerable strain on short-term financial performance, particularly for multinational firms like L'Oréal that need to retrofit numerous sites across diverse regulatory and energy markets.

Moreover, the biggest financial challenge in L'Oréal's sustainable development strategy lies in how to deal with emissions of Scope 3, which account for the majority of the carbon footprint of its entire value chain, including raw material procurement and logistics. Achieving decarbonisation in this area requires significant and complex capital expenditures. Pushing many external manufacturers and logistics providers, who are located in energy-intensive developing economies, to transform and adopt costly low-carbon technologies is an inherent economic obstacle. This may increase procurement costs for L'Oréal and could erode the economic benefits achieved through operational efficiency. From this perspective, the goal of decarbonisation could fall into a vicious cycle if there is insufficient financial support. Therefore, the company's challenges are not only technical, but also strategic and economic.

Summary for Economic Aspects

Economically, L'Oréal regards sustainable development as part of its capital strategy. It achieves operational decarbonisation and product redesign through capital

expenditure and green finance. At the same time, it relies on the SPOT assessment tool to ensure that investments can bring measurable cost reductions, risk mitigation, and market benefits over time. Overall, L'Oréal's economic sustainable development strategy meets environmental and social needs while providing strong financial guarantees. By reducing supply chain and reputational risks, the company ensures stability and brand integrity, thereby safeguarding and enhancing long-term financial performance. All of these provide a theoretical basis for L'Oréal's investments to achieve its long-term sustainability goals.

Environmental Dimension

L'Oréal's Sustainable Actions on Climate Action, Water Management and Biodiversity

In the context of intensifying global climate governance and the evolving sustainable development agenda, the environmental strategies of multinational enterprises have shifted from peripheral corporate philanthropy to core components of strategic competitiveness. L'Oréal has “glocalised” environmental efforts in Asia, which also align with its “L'Oréal for the Future” 2020–2030 framework.

In 2019, the company achieved carbon neutrality for all its factories, distribution centres, and research and development (R&D) facilities in mainland China; in 2022, its sites in North Asia achieved this feat, establishing the foundation for more operational decarbonisation (L'Oréal Groupe, 2022).

In collaboration with Alibaba, L'Oréal introduced “green parcels”, where the packaging was tape-free and 100% degradable (L'Oréal Groupe, 2020b). This helps to reduce waste and related emissions.

In India, its Baddi facility in Himachal Pradesh achieved a critical milestone in 2022, achieving carbon neutrality in Scope 1 and Scope 2 emissions through a comprehensive transition to electrification, diesel phase-out, and hydropower substitution (IANS, 2022). This achievement not only provided a replicable decarbonisation model for L'Oréal's global production network but also demonstrated strong policy alignment with India's sustainability goals, reinforcing the strategic congruence between corporate innovation and host-country policy frameworks.

In Japan, L'Oréal's sustainability initiatives become part of a cultural sustainability narrative construction. Its full adoption of Forest Stewardship Council (FSC)-certified paper, elimination of plastic cushioning materials in logistics, and partnership with TerraCycle to implement a nationwide empty-bottle collection system collectively supported a circular economy (Yamato Transport, 2024). Moreover, repurposing discarded lipsticks and eyeshadow pigments as wall paint for its Shinjuku headquarters exemplifies that environmental protection can be both scientific and

poetic. Through these actions, L'Oréal embedded environmental accountability within the symbolic capital of its brand identity.

In Southeast Asia and the Middle East, L'Oréal's multi-local initiatives, such as product double-stacking in trucks in Singapore that have reduced logistics-related emissions by up to 30% (Marketing-Interactive, 2020), a Leadership in Energy and Environmental Design (LEED) Silver-certified logistics hub in Thailand (Panee, 2020), "zero-waste-to-landfill" operations in Indonesia (Warta Ekonomi, 2025), and the recycling of 348 tons of waste in Saudi Arabia (Noureldin, 2025), collectively constitute efforts for a regionally networked low-carbon supply chain. These geographically distributed yet interconnected nodes reinforce systemic environmental resilience across logistics, warehousing, and production activities, reflecting a comprehensive model of adaptive sustainability governance.

Impact

Global performance metrics validate the strategic effectiveness of L'Oréal's environmental initiatives. Between 2019 and 2024, Scope 1 and Scope 2 greenhouse gas emissions declined by 51%, nearing its 2030 reduction target (L'Oréal, 2025). Meanwhile, its industrial waste recovery rate (reuse or recycle) in 2023 rose by 15% to attain 76% in 2024. These achievements have earned L'Oréal nine consecutive years of "Triple A" recognition from CDP, an indicator of robust environmental governance and operational discipline (L'Oréal Groupe, n.d.-c).

Challenges

Despite these achievements, structural and systemic constraints remain. The most salient contradiction concerns Scope 3 emissions, which increased by 9% in 2024 compared with 2019, diverging sharply from the company's target of a 28% reduction (L'Oréal, 2025). This reveals a strategic asymmetry in resource allocation: while L'Oréal has prioritised investments in its directly controlled operational domains (Scopes 1 and 2), it lacks hard enforcement mechanisms and incentive-compatible structures for its extensive upstream supply chain. Consequently, the company finds itself in a dual position of "internal decarbonisation excellence" coexisting with "external emission volatility".

Furthermore, the case of L'Oréal Paris hair care products in South Korea, with biodegradability rates reported below 70% (Jeon, 2024), illustrates the prioritisation dilemma in innovation strategy. Packaging innovations, such as refillable systems, have received disproportionate investment due to their visibility and rapid market diffusion, whereas improvements in formula biodegradability, central to environmental integrity, have progressed more slowly because of prolonged R&D cycles and limited consumer sensitivity to intangible ecological attributes. This dynamic may favour immediate commercial gains over enduring ecological benefits.

In terms of resource management, the industrial water recycling rate remains at 53%, far below the 100% by 2030 target, while consumer-end water use has increased by 5% since 2017 (L'Oréal, 2025). These outcomes highlight the challenges of high capital intensity in closed-loop water systems and the behavioural inertia of end-users, underscoring that sustainable transformation involves institutional and behavioural changes as well as technological ones.

Additionally, the stagnation of recycled packaging material use at 37% and the steep decline in sustainably-built retail outlets from 78% to 54% signal regressive outcomes (L'Oréal, 2025). Faced with intensifying market competition and cost pressures, premiums on recycled materials and the capital expenditure associated with green store retrofits have been deprioritised, exposing the strategic vulnerability of corporate environmental commitments amidst short-term financial constraints.

Opportunities

Despite the structural asymmetries identified in L'Oréal's environmental strategy, significant opportunities exist for the company to advance from incremental improvements towards systemic sustainability leadership.

Firstly, supply-chain transformation offers a pathway to deep decarbonisation beyond corporate boundaries. As regulatory frameworks such as the EU Corporate Sustainability Due Diligence Directive (CSDDD) and the Carbon Border Adjustment Mechanism (CBAM) reshape global trade dynamics, L'Oréal could leverage its purchasing power to institutionalise green procurement standards across Asia-Pacific suppliers. Establishing transparent traceability platforms and carbon-linked procurement incentives could transform compliance obligations into strategic advantages, positioning L'Oréal as a first mover in circular value-chain governance.

Secondly, biomass-based and biodegradable innovations represent a high-value technological frontier. The accelerating convergence of green chemistry, biotechnology and cosmetic formulation, exemplified by emerging research on renewable cosmetics derived from biomass, could enable L'Oréal to substitute petrochemical inputs with bio-based actives and packaging polymers. Strategic R&D partnerships with Asian research institutions and start-ups could shorten innovation cycles and reinforce the firm's brand narrative of "beauty with sustainability" (L'Oréal Groupe, 2024a).

Thirdly, digital sustainability ecosystems offer the potential to integrate consumers into the decarbonisation process. By embedding carbon-footprint labelling, refill tracking, and water-usage monitoring within digital platforms such as Alibaba and WeChat, L'Oréal can expand its "enterprise–platform–consumer" collaboration model. This approach would turn behavioural change into a measurable environmental asset while deepening consumer engagement and data-driven transparency.

Fourthly, green finance and impact investment mechanisms, including sustainability-linked bonds and supplier transition funds, could mitigate the capital-intensity barrier

of environmental retrofits. Partnering with regional development banks or sovereign funds would not only ease financial constraints but also institutionalise environmental performance as an investable metric, enabling a positive feedback loop between profitability and sustainability outcomes.

Finally, policy symbiosis and cross-sector alliances remain underused. Alignment with host-country green industrial strategies, such as China's "Dual Carbon" policy or India's renewable-energy transition, can yield benefits in regulatory goodwill, market access and reputational capital. Such alignment would allow L'Oréal to play a more active role in shaping the regional sustainability agenda.

Recommendations

To address the structural inefficiencies embedded within its environmental strategy, L'Oréal must transition from incremental optimisation to a systemic transformation paradigm that integrates supply chain governance, product innovation, resource stewardship, and green finance mechanisms.

At the supply chain level, the introduction and enhancement of a green procurement scorecard could directly link supplier carbon performance to procurement allocation, reinforcing accountability. Simultaneously, the continuation of a supply chain decarbonisation fund (L'Oréal (2024b) has a Solstice Fund), established jointly with financial institutions, could offer low-interest financing to small and medium-sized suppliers, converting external emissions pressures into incentive-compatible mechanisms within the value network.

At the product level, a product sustainability access framework should set an R&D baseline of at least 90% biodegradability for core ingredients, directly linking R&D team performance evaluations to the environmental lifecycle impacts of its products. This would embed ecological accountability at the core of innovation management.

For water resource governance, L'Oréal could adopt water conservation performance contracts, in which third-party service providers finance upfront water-loop retrofits and recover investments through shared savings, thereby alleviating capital constraints. Concurrently, it could promote a household water footprint programme, leveraging digital monitoring and incentive-based consumption models, aligning consumer behaviour with corporate water stewardship goals.

Finally, to counteract any withdrawal of environmental investment, the establishment of a "Strategic Resilience Fund" is crucial. By forming quantifiable environmental assets with long-term returns, L'Oréal can shift internal perceptions from viewing sustainability as a cost to recognising it as a strategic value driver.

To capitalise on these emerging opportunities, L'Oréal should consolidate its environmental strategy into an integrated Sustainability 3.0 framework centred on systemic governance, technological innovation, and financial resilience. This framework should link supplier carbon performance to procurement decisions, scale

up bio-based product innovation, embed digital consumer participation mechanisms, and expand access to blended green finance. This will turn environmental responsibility into a competitive advantage and enhance corporate resilience in the coming decade.

Summary for Environmental Aspects

L'Oréal's EESG practices in Asia provide an instructive case for examining environmental governance within globalised corporate structures. Its accomplishments affirm the efficacy of a "global-local" integration model in driving operational efficiency and brand value. Yet, the persistent challenges it faces reveal a deeper governance dilemma rooted in the misalignment between the boundaries of control and responsibility in transnational value chains.

In the coming decade, competition within the beauty and personal care industry will depend less on technological superiority or product differentiation, and more on the capacity to construct resilient governance frameworks that balance short-term financial imperatives with long-term ecological commitments. Only by advancing from an "excellent operator" to an "ecological enabler" can L'Oréal—and by extension, its industry peers—navigate the complex tides of sustainable transformation.

Social Dimension

L'Oréal has implemented different policies for the social sectors. Internally, it has the "Share & Care" programme (L'Oréal Groupe, n.d.-g) for employees, designed to lay a common foundation among the countries where L'Oréal operates. This programme was created to promote four key areas: protection, health, balance and workplace. Externally, L'Oréal has set commitments for respecting human rights across different nations, in line with the United Nations Guiding Principles on Business and Human Rights (L'Oréal Groupe, 2025).

In the Asia-Pacific region, including Singapore, L'Oréal worked with local educational institutions to support youth talent development (L'Oréal Groupe, 2024a), while its Southeast Asia headquarters in Singapore serves as a hub for its business operations and social initiatives.

Community Support and Social Inclusion

Family violence cases occur in Singapore. A 2023 speech by Sun Xueling, Singapore's Minister of State for Social and Family Development, noted that self-reported prevalence of domestic violence ranges from 3% to 20% (Ministry of Social and Family Development, 2023). Back in 2021, L'Oréal Singapore implemented a programme called #YouDeserveBetter, in partnership with United Women Singapore (UMS). The

programme aims to increase the awareness of domestic violence as well as encourage survivors to speak up and expand their influence (Lim, 2021).

In addition, L'Oréal has also applied an inclusive sourcing programme across the world (L'Oréal Groupe, n.d.-b) to benefit socially vulnerable communities that may be excluded from labour markets. This is an effective method to help local economies in developing regions, as companies from certain areas may be less competitive compared to international businesses. In 2024, the programme helped over 106,000 people across 69 countries gain access to work (L'Oréal Groupe, n.d.-b), boosting local businesses and the brand's reputation.

Educational Focus

Aside from community support, L'Oréal has also invested in local educational institutions (L'Oréal Groupe, 2024a). For instance, it started the L'Oréal Brandstorm competition programme in 2024 with the Singapore Management University (SMU) and Singapore University of Social Sciences (SUSS). Through the competition, training and mentorship, the experience aims to help university students improve their innovation and business analytical skills. This can help local students become more competitive in the job market while L'Oréal itself can access innovative ideas that may benefit its business operations. Therefore, this is a win-win situation for both sides. Meanwhile, L'Oréal has also worked with the National University of Singapore (NUS) on strategic research in green sciences and sustainable innovation. Such educational collaborations show how L'Oréal integrates corporate social responsibility with innovation.

Challenges

However, despite these benefits, certain challenges and criticisms also exist regarding L'Oréal's operations. For example, translating its global commitments into measurable goals locally may be difficult in the local communities due to cultural gaps, especially in Asian countries. Due to the lack of standardised regulations and policies, it is also difficult for L'Oréal's management to ensure consistent labour standards and working conditions throughout the supply chain, as well as to ensure that community outreach programmes reach all market tiers in Asia. L'Oréal should strengthen its due diligence across operational areas to ensure such incidents do not occur in the long term.

Opportunities

Despite the challenges, there are still potential opportunities for L'Oréal's future operations. They represent valuable chances for innovation and business transformation.

Firstly, through improving supply chain transparency with new AI technologies, L'Oréal can not only reduce ethical risks but also position itself as a leader in promoting sustainability and responsibility within the beauty industry.

Secondly, consumers across different Asian countries are showing increased interest in social inclusion and sustainable development. This lays a good foundation for L'Oréal to expand its social impact. As discussed earlier, through cooperation with local communities and educational institutions in Singapore, L'Oréal can promote education and gender equality while increasing brand loyalty and creating shared value. In the long-term, these programmes can be extended to other countries to further strengthen L'Oréal's regional influence.

Last but not least, these strategies can also help L'Oréal attract investments in ESG sectors, as well as government partnerships to ensure long-term reputational and financial benefits. To sum up, by transforming risks into opportunities, L'Oréal can bring its business to a higher level.

Recommendations

It becomes clear that many of L'Oréal's operational issues are due to the difficulty of tracking every single part of its supply chain. This uncertainty increases the possibility of incidents that may damage the company's reputation, reduce profits, and ultimately make it less competitive in the market.

One recommendation is for L'Oréal to strengthen its internal monitoring systems. Specifically, the company should develop a more transparent digital tracking system using blockchain technology or advanced artificial intelligence (AI) tools to monitor partner behaviours in real time. This would enable the management team to detect irregular behaviours at an early stage. Once any unethical behaviour is identified, L'Oréal can intervene before the incident escalates.

Secondly, instead of setting the same regulatory standards for all global operations, L'Oréal should set a standardised code of conduct that applies specifically to the Asian market. This will make regulations more localised and easier for local suppliers and partners to understand. This can be an effective way for consistent labour and sustainable business development across different regions.

Last but not least, an effective way for L'Oréal to avoid scandals is to enhance its partnership with local non-governmental organisations (NGOs) across different nations in Asia to expand its social inclusion programmes stated above. These collaborations can also serve as platforms for third-party audits and reporting. This can also enhance the brand's accountability and transparency in its long-term operations.

To sum up, early preventive measures are necessary for L'Oréal to maintain accountability, its reputation, its market position and sustainable growth for the future.

Summary for Social Aspects

Overall, from the discussions above, L'Oréal is continuously increasing its involvement and influence in the social sectors of various Asian countries through areas such as community support, social inclusion, and educational collaborations with leading local universities.

However, media reports of child labour in its supply chain (ElShamy & Cox, 2024) reflect the fact that there remains room for improvement. At the same time, these challenges can also be viewed as potential opportunities for L'Oréal to evolve into a more innovative and responsible business that benefits more people. Through using the latest technologies and cooperation with different partners, the company can reinforce its position in the beauty industry and become a benchmark for socially responsible companies worldwide.

Governance Dimension

Governance Architecture

L'Oréal operates under a dual governance structure, with its leadership team comprising the Board of Directors and the Executive Committee. The company believes that an active board and a committed leadership team are essential to ensuring the success of the enterprise.

Board of Directors

The Board of Directors is primarily responsible for determining the company's strategic direction, ensuring and overseeing its implementation, while also ensuring the company's operation and management. As of April 2025, L'Oréal's Board of Directors comprises 17 members from four different countries, with females constituting 40% of its composition. Drawing from diverse backgrounds and professional expertise, the directors bring multifaceted international perspectives to the company. L'Oréal's Board of Directors operates through four specialised committees: the Strategy and Sustainable Development Committee, the Audit Committee, the Human Resources and Remuneration Committee, and the Nominations and Governance Committee. (L'Oréal, 2025).

Executive Committee

The Executive Committee is tasked with managing the company's activities in accordance with strategic guidelines. The committee members are primarily responsible for L'Oréal's global operation divisions, functional departments, and geographic regions. As of March 2025, L'Oréal Executive Committee comprises 19 members, including 6 women (L'Oréal, 2025).

ESG Integration

Launched in 2020, the “L’Oréal for the Future” programme has been embedded into L’Oréal’s governance system, with a Strategy and Sustainability Committee established within the Board of Directors. Through corporate governance, L’Oréal upholds its principle of “dual excellence” and remains committed to fulfilling its social and environmental responsibilities. In 2024, 97% of the energy used in L’Oréal’s factories and operational sites came from renewable sources (L’Oréal, 2025).

As the world’s leading beauty company, L’Oréal believes that it must do more. To address Scope 3 emissions, it partnered with Chenavari Investment Managers to launch initiatives such as the Solstice Fund (L’Oréal, 2024b). L’Oréal provided an initial investment of €50 million to help suppliers, particularly small and medium-sized enterprises (SMEs) to gain easier access to financing for decarbonisation (L’Oréal Groupe, 2024b)). This enhances ESG integration in its value chain.

Ethics and Corporate Culture

Jean-Paul Agon, Chairman of the Board of L’Oréal, stated that L’Oréal is built upon “strong values and solid ethical principles” (L’Oréal Groupe, 2023). The shared goal of the Board of Directors and all employees is to maintain L’Oréal’s position as a global model enterprise.

Nicolas Hieronimus, Chief Executive Officer (CEO) of L’Oréal, stated that ethical culture is one of L’Oréal’s pillars (L’Oréal Groupe, 2023). The Code of Ethics embodies the company’s leadership culture. Strict adherence to the Code of Ethics safeguards L’Oréal’s operations as it implements strategic priorities and undergoes transformation.

Ethical Principles

L’Oréal’s Code of Ethics comprises four core principles: Integrity, Respect, Courage, and Transparency. The Code aims to communicate the company’s expectations to the public and ensure accountability for its commitments and responsibilities. Integrity is essential for building and maintaining strong relationships; courage encourages employees to speak up and address ethical issues promptly; respect enables L’Oréal to ensure a positive impact on stakeholders; and transparency compels L’Oréal to act with sincerity (L’Oréal Groupe, 2023).

Ethics Programmes and Initiatives

L’Oréal maintains channels for reporting ethical concerns. Reports can be submitted through management channels or via the company’s dedicated “Speak Up” platform to the Ethics, Risk and Compliance Department (L’Oréal, 2025). This provides both internal and external stakeholders with an opportunity to report concerns, with confidentiality guaranteed.

L'Oréal established "Ethics Day" over a decade ago to express the Group's ethical commitment and recognise the importance of the four core ethical principles for both the organisation and its employees. Held annually in October, Ethics Day is an event open to all employees, enabling them to submit questions on ethics to the CEO, members of the Executive Committee, and country managers (L'Oréal Groupe, n.d.-f). Senior executives will address the most voted-on questions and recurring themes. Employees raised thousands of questions during the 77 Ethics Day events held globally, significantly contributing to both employee well-being and the company's sustainable development. For management, Ethics Day presents an ideal opportunity for transparent communication with employees, enabling them to identify areas for improvement and promptly develop both short-term and long-term action plans.

Risk Management

Internal Control and Risk Management System

L'Oréal operates in an ever-changing environment, where shifts in the broader landscape inevitably expose the company to risks, a challenge shared by other businesses as well. While the existence of risks is unavoidable, their materialisation could adversely impact the firm's business activities, financial position, and future sustainable development, particularly its reputation and image. Therefore, to ensure its sustainable growth, L'Oréal continuously strives to anticipate risks that may arise across its various business sectors.

L'Oréal's risk management primarily focuses on identifying, assessing, and controlling risks that may impact its operations (L'Oréal, 2025). The internal control system applies to the parent company and its consolidated subsidiaries, serving four primary purposes. First, it must achieve economic objectives in compliance with existing laws, regulations and the Group's Code of Ethics. Second, it must adhere to the development direction established by the General Management Team. Third, it must ensure the Group's assets and reputation are protected and valued. Finally, it must guarantee the reliability of the Group's financial information and that all financial statements are true, fair, and accurate.

Challenges

L'Oréal possesses a robust governance framework. However, given that the company operates in over 150 countries and regions, coordinating corporate governance standards, implementing a unified code of ethical conduct, and ensuring governance transparency remain challenging.

Corruption Challenges

L'Oréal's global scale, while a key factor in its success, also exposes the company to higher corruption risks. Countries vary in their approach to managing corruption, and certain forms of corruption can be difficult for employees to recognise. What may be considered a normal exchange of gifts could be deemed corrupt if the gift's value is excessive.

Global Consistency and Local Implementation Challenges

L'Oréal operates in countries with diverse cultural, legal, and regulatory environments, making consistent governance a significant challenge. Differences in interpretations of ethical standards and whistleblowing mechanisms across nations present numerous challenges when implementing unified policies. While ensuring global consistency in corporate standards, companies must account for cultural variations. A single standard may be suitable for some nations but requires subtle adjustments in others.

Opportunities

As the world's largest beauty company, L'Oréal has achieved the maturity and comprehensiveness in its governance structure expected of an industry leader. However, opportunities remain for further refinement to ensure long-term relevance. With the evolving challenges and goals of global sustainability, the company must enhance its governance mechanisms to swiftly address policy changes and safeguard the interests of the company, consumers, employees, and stakeholders.

Recommendations

First, given its extensive business presence across more than 150 countries and regions, L'Oréal could explore strengthening coordination between global and local governance models. For instance, establishing regional governance centres in areas such as Asia-Pacific, North America, and Europe could help bridge the gap between the strategic direction set by headquarters and local execution. While ensuring policy consistency, making subtle adjustments to accommodate diverse cultural and political contexts could enhance overall corporate governance.

Moreover, L'Oréal could consider linking governance performance to long-term impact. It could start by increasing the weighting of EESG factors in performance evaluations for senior management, thereby strengthening incentive and penalty mechanisms for sustainable corporate governance.

Summary for Governance Aspects

Both the Board of Directors and the Executive Committee comprise diverse members in terms of gender, geographic origin, and professional background. This enhances the diversity and quality of decision-making and governance. In addition, L'Oréal's emphasises an ethical culture that significantly influences both corporate operations and leadership decision-making. This governance approach will enhance consumer and investor trust, and position L'Oréal as a responsible employer.

Conclusion

This study highlights a central thesis: when sustainability is truly embedded in a company's operational logic, it ceases to be a peripheral compliance issue and instead becomes the core axis of corporate strategy. L'Oréal's approach extends far beyond branding or regulatory responses. It represents a profound redefinition of the relationship between growth, value, and responsibility within the global beauty sector.

Economically, a clear value loop has emerged between decarbonisation, circular design, and ESG-related financing. This has led to stronger pricing power, improved energy and compliance efficiency, and lower financing risk premiums. Environmentally, the company has achieved substantial progress in Scope 1 and 2 emission reductions and packaging circularity, yet Scope 3 mitigation and formula biodegradability remain structural bottlenecks. Socially, L'Oréal's inclusive sourcing, community partnerships, and educational programmes in Asia demonstrate genuine commitment and influence, though transparency gaps and implementation disparities across regions persist. In terms of governance, the dual-level structure, ethics codes, and dedicated oversight mechanisms form a solid institutional foundation. However, the key challenge ahead lies in achieving deeper synergy among global goals, local execution, and executives' incentives.

This research suggests that L'Oréal has laid the groundwork for transforming sustainability into a foundation of resilience and competitive advantage. However, deeper breakthroughs depend on systemic implementation beyond corporate boundaries, integrating carbon metrics into procurement and financing mechanisms, establishing stricter eco-design thresholds, mobilising consumers through digital tools, and reinforcing the linkage between EESG performance and executive key performance indicators (KPIs).

In summary, L'Oréal is transitioning from vision to execution, turning sustainability into a core part of the organisation. If this process advances with transparency and consistency, L'Oréal is poised to evolve from an excellent operator into an ecosystem enabler, setting a new paradigm of sustainable beauty where aesthetics and the planet, profit and responsibility, coexist and reinforce one another.

Discussion Questions

1. Is L'Oréal's economic sustainability model a replicable blueprint for other industries, or is its effectiveness constrained to the unique dynamics of the cosmetics sector?
2. What are the potential risks and limitations of whistleblowing mechanisms in multinational corporations, and how can L'Oréal enhance its credibility and protection measures?
3. In what ways could L'Oréal maximise the effects of technology and local partnerships to further enhance its social inclusion and ethical sourcing goals in Asia?

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Unilever's Sustainability Strategy for Plastics and Packaging Transition in Southeast Asia

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Product & Innovation

Operational Model & Efficiency

Unilever in Southeast Asia

Unilever PLC is one of the world's largest fast-moving consumer goods (FMCG) companies, with an extensive business presence in over 190 countries, and a reported turnover of €60.8 billion in 2024 (Unilever, 2025). Its product range includes Beauty and Wellbeing, Personal Care, Home Care, Foods, and Ice Cream. This report zooms in on Unilever's sustainability approach in Southeast Asia, a region that has been severely impacted by plastic pollution (United Nations Environment Programme, 2019).

The pollution situation has highlighted structural challenges in regional environmental governance. To address this problem and broader sustainability issues, the firm announced the Unilever Compass Strategy in 2020. Under this strategy, the company committed to making all of its plastic packaging reusable, recyclable, or compostable by 2025, and to reducing its use of virgin plastic by 100,000 tonnes (Hindustan Unilever Limited, n.d.). It later revised its goals to reduce its virgin plastic footprint by 30% by 2026, compared to a 2019 baseline, and achieved a reduction of 23% in 2024 (Unilever, 2025). In 2024, 57% of its plastic packaging was reusable, recyclable or compostable.

Unilever has advanced packaging innovation and circular economy development through various projects and collaborations, which will be elaborated in the following sections.

Unilever's Plastics Circularity Strategy

Unilever's three-tier approach for tackling its plastic footprint includes packaging design, system development, and disclosure.

Packaging Design

The first step in addressing plastic waste is to reconsider packaging design. Some of the major changes include reducing packaging material, eliminating unnecessary plastic components, and moving towards mono-material designs that are more easily recyclable (Unilever, 2024a). A major focus has been the use of post-consumer recycled (PCR) content, which relates to the goal of virgin plastic reduction and achieving 25% recycled plastic in packaging. Notable examples include Dove's removal of plastic outer wraps for selected beauty bar packs, the brand's shift towards fully recycled bottles, as well as Sunsilk's recyclable refill pouches.

Even though these initiatives indicate progress, there is a slight criticism that the company's business model remains largely reliant on plastic, with innovation primarily targeting recyclability rather than significant plastic reduction or a shift to reuse-based systems.

Table 1: Unilever’s Actions for Plastic Packaging Circularity

Strategy	Description	Example
Reuse	Eliminating single-use packaging through refillable or reusable models	Pilot programmes of refill stations for brands like Sunsilk
Recycle	Designing all packaging to be effectively recyclable in practice	Dove bottles are designed for recyclability; use of mono-materials
Reduce	Removing unnecessary packaging and weight	Removing plastic overwraps; concentrating products (e.g. laundry capsules)
Replace	Using alternative, more sustainable materials	Limited application; focus remains on recyclable plastics over material substitution

Source: Authors

System Development

Unilever participates in Extended Producer Responsibility (EPR) programmes across the region to help strengthen waste collection and recycling infrastructure, particularly with partners in Southeast Asia. In Indonesia, the company works with Waste4Change to develop waste management education in schools (Bahraini, 2022), while in India and Indonesia, it has partnered with Veolia to improve plastic waste collection and processing (Veolia, 2018). Unilever is also engaged in multi-stakeholder initiatives such as the Plastic Pacts Network and the Alliance to End Plastic Waste. However, a closer examination reveals an important caveat: many of these projects remain fragmented and operate mainly as pilots. Their limited integration and lack of nationwide scale constrain their potential impact, exposing the challenges in moving from these siloed initiatives to a truly circular packaging system.

Disclosure

Unilever utilises major international sustainability disclosure frameworks such as the Global Reporting Initiative (GRI), the International Sustainability Standards Board (ISSB) standards, and Task Force on Climate-related Financial Disclosures (TCFD) recommendations. As a signatory to the Ellen MacArthur Foundation’s Global Commitment, the company reports annual metrics on the proportion of recycled plastic in its packaging, plastic reduction, and packaging weight (Ellen MacArthur Foundation,

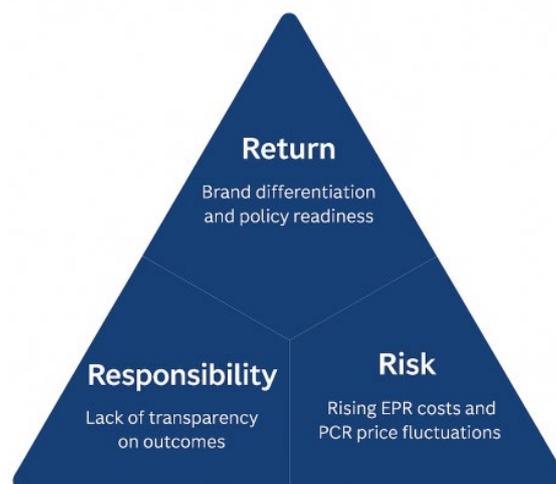
2023). Although the reporting process is comprehensive, a key issue persists: progress reports predominantly prioritise input metrics, such as expenditures and tonnes of plastic collected, over outcome metrics that verify a reduction in plastic leakage into the environment. While Unilever reports strong progress in operational activities, tangible environmental results are proving harder to measure.

Critical Analysis: From Compliance to Impact

Reassessing the Economics of Circular Responsibility

The 3R model (return, risk, responsibility) for sustainable literacy can be applied to Unilever’s sustainability actions. Investments in recyclable packaging would bring returns such as a strong competitive advantage, making the economic case for sustainability. Sustainable actions will also help the firm to control risks related to EPR costs and price fluctuations for raw materials. Another motivation to pursue sustainability is to fulfil a company’s responsibility to society. Across its reports, the company frequently outlines its initiatives for reducing or recycling plastics, yet stronger evidence is needed to showcase the initiatives’ impact.

Figure 1: 3R Model Applied to Unilever’s Case



Source: Authors

Embedding Accountability in ESG Governance

Although Unilever has established a clear environmental, social, and governance (ESG) governance framework, gaps remain in the strength of its accountability system. The Board holds regular meetings with the Corporate Responsibility Committee to oversee progress on sustainability matters (Unilever, 2025). However, Unilever’s sustainability performance is not strongly linked to the executive remuneration, with

most incentives tied to financial metrics and a smaller portion linked to sustainability outcomes, as indicated in its disclosure on directors' remuneration (Unilever, 2025). This weak linkage reduces incentives for senior leadership to prioritise long-term sustainability goals.

Beyond that, Unilever's recent sustainability disclosures have focused on project expenditures and quantities more than achievements. The International Federation of Accountants (2021) emphasised that independent review and reliable indicators are key factors for credible sustainability reporting. The European Union's (EU) directive on corporate sustainability reporting (European Union, 2022) further highlights the importance of the double materiality principle, which requires organisations to evaluate how sustainability issues affect them financially and how their activities affect people and the environment. Therefore, by introducing a complete accountability system and ensuring the continuation of external assurance, Unilever could enhance its accountability for sustainable development.

Transparency and Inclusion across the Circular Chain

The data transparency across Unilever's packaging value chain, from production to recycling, is not consistent. This entire process involves multiple participants: resin suppliers, converters, retailers, consumers, and recyclers. Because these actors operate independently, information among them is often asymmetric. The World Economic Forum (2016) notes that limited waste-data collection capacity makes it difficult for enterprises and governments to accurately determine how much plastic waste is converted into PCR and re-enters the recycling system. As a result, informal waste workers, such as scavengers and individual garbage collectors, often remain unregistered and excluded from formal reporting systems. Circle Economy et al. (2025) highlight that informal waste workers contribute significantly to waste collection and recycling, but typically receive low wages and lack formal protection. If their contributions are not taken into account, recycling rates would be overestimated, and policies may be based on incomplete or distorted data. These issues not only affect the accuracy of Unilever's circularity reporting but also raise concerns about fairness and social inclusion within its value chain. This highlights the need for Unilever to enhance data transparency and traceability across its circular system.

Figure 2: Flow of Unilever's Plastic Packaging Materials across Production, Consumption and Recycling Stages



Source: Authors

Applying AI to Circular Systems: Gains and Gaps

To enhance efficiency and visibility in Unilever's waste management processes, the use of artificial intelligence (AI) has been increasingly encouraged. For instance, computer-vision tools can improve the identification of plastic types and significantly increase sorting accuracy. Sensors can also generate data streams by tracking collection volumes and timing, thereby enabling more optimised planning. The combination of these technologies, while helping Unilever better trace material flows within the system, also brings challenges. A large amount of energy is required to operate AI networks, which may even offset environmental benefits. Misclassification errors caused by algorithmic biases can lead to distorted data, while the use of precise location tracking tools also poses privacy and security concerns. These risks demonstrate that AI is a double-edged sword that must be used reasonably.

Overall, Unilever demonstrates a form of "structural imbalance" within its plastic recycling system. From an economic perspective, the company has established relatively stable mechanisms for returns and risks management, yet its performance remains uneven in areas related to responsibility. At the governance level, Unilever's ESG framework is relatively comprehensive but its accountability system can be further improved. In terms of data credibility and transparency, information asymmetry is a major barrier to achieving social justice and system credibility. From a technical perspective, the double-edged sword of AI brings efficiency but also poses risks associated with energy consumption and information deviation. When these four perspectives are considered together, a critical assessment reveals that Unilever's system is built on a basic structural foundation but suffers from insufficient synergy. Only through true integration and mutual reinforcement across economic, governance, social, and technological levels can the company gradually move towards a mature circular responsibility system.

Impact Assessment

Impact Logic Chain

A theory of change can be applied in evaluating how Unilever fosters the transition away from plastic packaging. Strategic resources are systematically mobilised, generating actions, feedback, and system-wide outcomes. This sequencing of "input, activity, output, outcome and impact" aligns with contemporary sustainable management frameworks. The impact logic chain shows how Unilever balances trade-offs between risks and benefits, aiming to create long-term value.

Input – Strategic Commitment and Resource Mobilisation

At the input stage, Unilever highlights strategic commitment and resource mobilisation towards the plastic circularity strategy. This begins with the allocation of financial, technological, and organisational capital to create circular packaging systems. Key

factors include investment in research and development (towards material innovation), partnerships with local governments and NGOs, as well as a corporate governance structure that integrates sustainability goals into decision-making. Such investments allow a strategic use of resources to balance accountability, profitability, and risk.

Activity – Operational Pathways and Institutional Mechanisms

Once resources are in place, they are translated into operational practices supported by institutional mechanisms. Examples include implementing EPR programmes, collaborating with recyclers and logistics partners, and launching campaigns to change consumer behaviour. These function not as isolated projects but as procedural tools that reshape the flow of materials, incentives, and information throughout the value chain (Ellen MacArthur Foundation, 2021). The activities highlight that sustainability performance depends equally on managing external networks and internal efficiency.

Output – Performance Signals and Data Transparency

Activities then produce measurable outputs, such as certified volumes of collected plastic, rates of refill-model adoption, percentages of PCR materials, and enhanced traceability of packaging flows. These figures serve two purposes. Operationally, they are “touchstones” for verifying progress. Institutionally, they form a “language of accountability” that supports reporting frameworks, such as the Global Reporting Initiative (GRI) and the International Sustainability Standards Board (ISSB). At this stage, performance metrics function as signalling tools, communicating the company’s intent and capabilities to stakeholders even before broader ecological or social changes emerge.

Outcome – Capability Formation and Normative Shifts

Continuous outputs accumulate into structural outcomes across three interrelated areas: organisational learning, market adaptation, and shifts in stakeholder norms. Design teams integrate life-cycle thinking into the core product development process; procurement adopts recyclability criteria in supplier evaluation to prioritise sustainable sourcing; consumers internalise new circular-disposal behaviour through targeted interventions. These outcomes thus mark a transition in which institutionalised sustainability moves from experimental pilots to everyday governance logics.

Impact - Systemic Transition and Societal Integration

Unilever’s operational scale positions the company as both an industry leader and a system influencer. Its actions affect ecosystem resilience, waste management infrastructure, and the discussion on circular economy policies. Unilever can also help institutionalise a circular economy mindset in the Southeast Asia consumer goods sector.

However, achieving meaningful impact requires full strategic alignment across metrics, mechanisms, coordination, incentives, and other supporting elements. The authors of this paper, therefore, call for a more adaptive, feedback-based system that would allow companies (not only Unilever) to have more reflexivity. Furthermore, creating a logic chain built on reflexivity supports deeper, long-lasting progress in environmental, economic, social, and governance performances.

Environmental Impact: From Efficiency to Systemic Resilience

From an environmental impact standpoint, Unilever's current sustainability efforts have demonstrated measurable progress. Unilever (2025) reported that about 21% of its packaging in 2024 was recycled plastic, close to its 25% by 2025 goal. While the redesign of operations and supply chain engagement has led to environmental gains, these improvements come with a caveat. Relative efficiency improvements could happen alongside an increasing overall material use in absolute terms.

In some parts of Southeast Asia, limitations in local recyclable classification and collection systems mean difficulties in achieving in-region circularity. This will undermine Unilever's circularity efforts. Its environmental impact is thus limited by external pressures such as infrastructure gaps, policy inconsistencies, and fluctuating consumer participation. According to Benn et al. (2021), achieving an environmentally successful circular initiative requires interaction with multiple systems, including public, private, and civil society, rather than solely focusing on in-firm efficiency and initiatives. Hence, Unilever would need to go beyond achieving firm efficiency to fostering systemic resilience in terms of the environment.

Economic Impact: Circularity as Strategic Hedging and Value Creation

Sustainability has evolved into both an economic safeguard and a way for value creation. By building regional recycling and refill systems, Unilever protects itself from rising risks, including increasing virgin plastic prices, stricter carbon pricing rules, and the growing influence of EPR policies. These investments incorporate environmental risks into the firm's cost structure, transforming external pressures into long-term competitive benefits. In adopting the International Financial Reporting Standards (IFRS) S2, which focuses on climate-related risks and opportunities (International Sustainability Standards Board, 2023), Unilever assures investors that its sustainability-related spending is measurable and accountable.

Besides, strong ESG ratings in regional indices can signal to the market that Unilever's environmental leadership brings reputational and credit-related advantages. Beyond investor perceptions, improvements in product design and increased use of locally sourced materials can boost operational efficiency and greater supply chain resilience.

However, these benefits are not distributed equally. Scaling up collection and recycling networks requires a significant initial investment, while policy enforcement remains inconsistent across ASEAN nations. As a result, profitability varies from one market to another.

Smaller recyclers often face obstacles when trying to secure financing or technical support, exacerbating what is called the “circularity finance gap”. In practice, global consumer brands such as Unilever tend to reap reputational and investor-related rewards for their sustainability efforts, while local players take on most of the operational and financial risks. This imbalance creates a kind of economic impact debt at the corporate level, masking underinvestment in regional infrastructure.

Moreover, Unilever’s public reports emphasise in-firm savings, but seldom disclose how the wider system benefits from its initiatives. This is a challenge that is not unique to Unilever but reflects broader limitations in sustainability accounting and reporting practices (Christensen et al., 2021).

Social Impact: From Inclusion to Empowerment

Unilever’s efforts have produced benefits that extend beyond its core operations. By partnering with local cooperatives, community groups, and NGOs, the company has supported informal waste-picker activities in regions such as India, Indonesia, and Vietnam (Kuo, 2025; Unilever, 2024b). For many workers who were previously excluded from formal labour systems, this has translated into more stable income opportunities, access to basic safety equipment, and training in waste segregation and collection. This aligns with the Brundtland Report’s foundational vision that environmental protection and poverty reduction must go hand in hand (WCED, 1987).

Additionally, Unilever’s model does not view inclusivity as a peripheral or purely charitable objective. Instead, it directly links the creation of livelihoods with environmental goals, showing how social value can emerge as a by-product of circular innovation. However, many waste collectors still do not have access to social insurance, health protection, or collective bargaining rights. Short-term improvements in living standards have not yet translated into lasting empowerment. If global raw material prices decline or corporate procurement priorities shift, workers’ position within the supply chain may quickly erode. Gender inequality persists as another unaddressed disparity. Women constitute a significant portion of the informal waste workforce, yet they continue to face limited access to training opportunities and occupational safety measures. This situation has resulted in a noticeable gap between public commitments to inclusivity and the lived realities on the ground.

To enhance its social impact, Unilever needs to move towards true empowerment by integrating capacity building, access to microcredit, and contract stability into its engagement with suppliers and waste collectors. The goal should be to transform waste management cooperation into an entrepreneurial approach, rather than merely temporary assistance.

Governance Impact: From Disclosure to Embedded Accountability

Governance provides the institutional foundation for Unilever’s sustainability impact and determines whether its circular packaging initiatives can evolve from compliance to strategic integration. The company has aligned its disclosure practices with global reporting frameworks, such as GRI, TCFD, and the ISSB’s IFRS S1 and S2 standards. Third-party verification has enhanced the credibility of the data, reduced the risk of “greenwashing”, and increased investor confidence. This transformation from voluntary narratives to structured indicators reflects the broader shift in corporate governance from symbolic reporting to performance-based accountability.

Despite these advancements, there are causes for concern. Most of its sustainability data tends to be aggregated at the headquarters level, with limited detailed analysis of business operations in the ASEAN region. Regional subsidiaries tend to follow centrally defined targets rather than co-developing locally relevant indicators, which limits responsiveness to national policy contexts. Moreover, there is asymmetry in verification practices. Environmental data is more likely to undergo external review, while social indicators, gender-related data, and supply chain details are less consistently audited. For more embedded accountability, Unilever would need to integrate sustainability targets more deeply into the core governance architecture of its regional operations.

Overall Sustainability Impact – Bridging Impact and Disclosure

Unilever has shown tangible advancement in some environmental indicators, such as the proportion of recycled plastic in packaging and the amount of virgin plastic. By contrast, social outcomes such as suppliers’ income growth and community inclusion rely largely on self-reported data with limited field validation. This points to a disclosure-credibility gap, where real-life complexity exceeds the maturity of corporate reporting systems. Rather than discrediting Unilever’s achievements, this pattern reveals a transitional stage in corporate sustainability practice. Unilever shows a strong willingness to disclose extensive data even where verification remains incomplete. This contributes to the establishment of measurable norms in the region and signals an evolution from narrative-based to evidence-based accountability.

However, the persistence of optimistic reporting is also evident, whereby performance is framed through global standards but substantiated unevenly across dimensions and geographies. Unilever’s environmental performance appears relatively well-documented, but, as mentioned earlier, the social and governance pillars still depend largely on internal validation, indicating an imbalance that constrains full stakeholder comparability.

Taken together, Unilever’s circular plastic and packaging initiatives offer lessons for the region. Its development trajectory reflects a larger transformation in Southeast Asia, where sustainability is shifting from an aspirational vision towards demonstrable

practice. For Unilever, sustainable development would mean contributing to its own and the region's circular future.

Strategic Recommendations

Unilever's sustainability strategy provides a useful reference point for how companies can engage with sustainability in practice, while also revealing areas for further improvement. Hence, strategic recommendations for Unilever focus on shifting from a compliance-centred approach towards a more impact-based approach. The recommendations are organised around the following areas: impact-based governance, supply chain traceability, market incentive mechanisms, social inclusion transition, reporting model transformation, and technology and innovation integration. Collectively, these recommendations are referred to as Project Plastic Impact Commitment (PIC), which aims to strengthen Unilever's commitment to delivering measurable plastic-related impact in Southeast Asia.

Impact-Based Governance

Project PIC aims to reduce greenwashing risks, increase investor confidence, and strengthen accountability within Unilever's leadership structures. To promote plastic circularity in Southeast Asia, stakeholders could align on policy- and market-driven incentives across the value chain (Leudi et al., 2025). Similarly, within Unilever, the inclusion of sustainability-related KPIs could be expanded in executive and senior management performance assessments. This would help shift sustainability from a reporting obligation towards an actively managed dimension of corporate performance. In doing so, accountability for sustainability outcomes becomes more closely integrated into core governance and strategic decision-making processes.

Supply Chain Traceability

To address gaps related to waste tracking and limited supply chain traceability, it is recommended that the use of QR codes and similar digital tools be expanded beyond consumer information functions towards end-to-end tracking purposes. Such systems could support more accurate monitoring of plastic waste flows while also enabling incentive mechanisms for collectors and recyclers. This recommendation aligns with findings by Weerasinghe and Patni (2023), who highlight the challenges faced by regional conglomerates (like Unilever) in complying with EPR requirements. Enhancing digital traceability can help maximise the effectiveness of collection and recycling programmes. AI could also support anomaly detection and improve end-to-end traceability of plastic waste flow. Pilots could start in higher-impact markets, such as Indonesia, which could provide feasibility and effectiveness for broader roll-out.

Market Incentive Mechanisms

The authors recommend that Unilever look at long-term PCR procurement contracts, as well as investments in expanding PCR markets through infrastructure. As these markets mature, Unilever's reliance on virgin plastic would be lessened. This approach represents a higher level of involvement compared to current market development efforts, as it entails Unilever sharing operational risks with recyclers to help address the widely discussed circularity-finance gap. As discussed in the impact assessment, these initiatives are aimed at securing a long-term competitive advantage.

Social Inclusion Transition

To enhance social inclusion efforts, this paper recommends further formalisation of waste pickers through access to training, health insurance, personal protective equipment (PPE), and related protections. Ensuring that these benefits reach workers would require offering more favourable contracts to cooperatives. Pilot runs of this model in smaller markets, such as The Philippines, would allow for more assessment of economic impacts while mitigating risks. The feasibility of scaling this approach across other Southeast Asian markets would depend on demonstrated outcomes and overall economic impact for the firm.

Reporting Model Transformation

To integrate the proposed initiatives, this paper recommends transforming the reporting model from one centred primarily on inputs to one focused on demonstrated impact. Under this approach, stakeholders would gain access to information on both successful outcomes and shortcomings, reinforcing accountability. The revised reporting dashboard would continue to disclose inputs, such as sustainability initiatives, while placing greater emphasis on impact indicators. In particular, for Project PIC, reporting would prioritise reductions in plastic leakage and social benefits for waste pickers, which constitute the central focus of these recommendations.

Technology and Innovation Integration

As shown in the previous recommendations, this paper suggests the utilisation of AI. However, given the energy intensity associated with AI deployment, this approach must be accompanied by energy-efficient models. Data centres supporting these systems should be powered by renewable energy sources. To build on this, AI usage should be disclosed transparently, including associated energy consumption and emissions.

Implementation and Risks

Implementation of the recommendations could take place in phases, remain adaptive to feedback, and be tailored to differing market conditions. As discussed earlier, market variation poses a persistent challenge for large conglomerates such as Unilever.

Phased Timeline

Given that the recommendations involve a big change in how sustainability is managed within the company, this paper suggests a phased execution aimed at eventual scaling across Southeast Asia. For a long-term strategy that is potentially capital-intensive, a structured and risk-mitigating implementation is essential. Accordingly, expansion to additional Southeast Asian markets would be contingent on demonstrated success in pilot countries. This approach is consistent with project management principles, as identifying and documenting interdependencies among activities can enhance efficiency under resource constraints (Project Management Institute, 2021). During the initial phase (month 0-3), the focus would be on alignment and system setup, including the establishment of KPIs, partnerships with recyclers and cooperatives, engagement with public authorities where feasible, and AI training. Certain enabling activities, such as the deployment of renewable energy to support AI infrastructure, may be sequenced for later stages to avoid constraining early efforts. The sequencing of activities is therefore critical, as the approach prioritises economic viability alongside sustainability objectives. Balancing financial resilience and accountability is necessary for generating durable sustainability outcomes (Dyllick & Muff, 2016).

While sequencing and economic considerations are central to the implementation logic, this paper does not advocate halting the initiative in the absence of immediate success during pilot phases. Instead, a data-driven approach is recommended to enable timely pivots and strategic realignment when necessary. This adaptability would be supported by the development of an impact dashboard. Beyond its role in external communication, such a dashboard would function as an internal management tool, guiding decision-making throughout the execution.

The proposed timeline, therefore, consists of four phases: months 0-3 focused on strategic alignment and setups; months 3-12 for pilot testing; months 12-24 for scaling successful initiatives; and a long-term phase beyond month 24 centred on maintenance and continuous adaptation. This disciplined, phased approach is intended to mitigate risk while allowing flexibility in response to evolving stakeholder expectations and policy environments.

Table 2: Sample Implementation Roadmap

Timeline	Actions	Expected Outcomes
Month 0-3	<ul style="list-style-type: none"> - Strategic alignment (definition of KPIs) - Partnerships with recyclers, cooperatives, government (if possible) - AI training - Set-up for impact dashboard rollout 	<ul style="list-style-type: none"> - Stakeholder buy-in - Company-wide KPIs - Redefined KPIs for executives/leadership - AI-trained staff and tools - Impact dashboard development (target: first report for month 6)
Month 3-12	<ul style="list-style-type: none"> - Pilot testing of new QR codes on products - Pilot testing for social inclusion programme - Monthly internal feedback assessment of pilot tests - Limited rollout of impact dashboard (not fully public) 	<ul style="list-style-type: none"> - New, improved tracking system - First dashboard report available to some stakeholders (within firm, investors, not fully public) - Data gathering on any implementation difficulties
Month 12-24	<ul style="list-style-type: none"> - Transition to renewable energy sources for AI usage - Scaling up projects throughout Southeast Asia (social + traceability) 	<ul style="list-style-type: none"> - 50% of AI operations in Project PIC running on renewable energy - Tracked packaging rolled out for each country - 50% worker formalisation by month 24 for the first three countries - > 80% of original KPIs achieved

Month 24+	<ul style="list-style-type: none"> - Continuous monitoring for long-term impact - Adaptations to changing market and policy conditions (realignment if needed) - Annual reviews available to the public, bi-yearly for other stakeholders, quarterly for within the firm - Continued transition to renewable energy for AI use - Community education, focus on fostering participation with consumers 	<ul style="list-style-type: none"> - Annual assessment for strategy adaptation or adjustment. - Trust scores improvement among stakeholders - 70% of AI operations in Project PIC running on renewable energy - Growth in consumer awareness for Unilever's push for plastic impact and their own role
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Monitoring and Risk Countermeasures

Regular monitoring is needed to assess data, provide feedback, and better adapt the strategy.

Certain risks are to be monitored, and countermeasures are proposed.

Table 3: Risks and Countermeasures

Risk	Countermeasure
Data Authenticity	Quarterly or biannual third-party audits linked to dashboard figures and executive leadership KPIs.
Policy Uncertainty	Grow in-firm awareness through quarterly and annual reviews, alongside partnerships with governments for developing EPR standards.
High Implementation Costs	Phased rollout to mitigate cost risks; partnerships with governments, NGOs or other companies to support market and cooperative development.
Scalability Challenges	Adoption of a continuous feedback-loop model, allowing rapid adaptation from initial implementation through post-24-month scaling.

Environmental Criticism	Transition to renewable energy use for AI operations, coupled with constant monitoring of overall environmental impacts under Project PIC.
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Conclusion: Navigating the Path from Ambition to Verifiable Impact

Unilever’s approach to plastic management in Southeast Asia has reached an inflection point. While the company has made progress in redesigning packaging and strengthening recycling initiatives, this analysis suggests that a genuine circular transition remains constrained by structural barriers. The current focus on technical solutions within a linear growth paradigm has not yet sufficiently engaged with the system-level issues posed by the regional plastic pollution crisis. Progress will remain limited unless the focus shifts from incremental improvements towards systems change.

True sustainability leadership requires moving beyond compliance to a redefinition of value creation itself. For Unilever, this means viewing informal waste workers as partners within the value chain and systematically tracking progress through independent third-party verification rather than relying primarily on self-reported measures. The aim must shift from reducing plastic use towards designing systems that eliminate waste. Achieving this transition will require unprecedented cooperation across sectors to develop the systems and policies necessary to enable a circular economy.

Corporate responsibility is entering a new phase, in which success is assessed not by the magnitude of commitments made, but by the extent to which resulting impacts can be verified. Unilever can help lead this charge by linking executive compensation to social and environmental measures, and by treating transparency as a source of competitive advantage rather than merely a compliance obligation. Given its scale, resources, and brand influence, the company has the capacity to catalyse significant changes. Its legacy will depend on its willingness to prioritise systemic restructuring and to help develop a circular future for the region.

Discussion Questions

1. How can Unilever accelerate the transition from incremental improvements to measurable systems change in its plastic management strategy?
2. What steps might Unilever take to foster cross-sector cooperation that enables a circular economy in Southeast Asia?
3. How can Unilever meaningfully integrate informal waste workers into its value chain, ensuring both social inclusion and improved waste management outcomes?

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HowBottle: Turning Waste into Worth in China's Fashion Ecosystem

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Product & Innovation

Business Design & Circularity

Introduction

Company Background

HowBottle is a sustainable lifestyle brand founded in China in 2017 that focuses on “creating functional products for an active lifestyle by upcycling plastic waste” (HowBottle, n.d.-a; Ollo Collection, 2025). The company upgrades and reprocesses waste materials such as discarded plastic bottles into lifestyle items like bags that are both aesthetically pleasing and functional, with a business model based on circular economy principles and design-driven sustainability (HowBottle, n.d.-b). By using recycled polyethylene terephthalate (rPET) instead of traditional fossil fuel-based raw materials, it reduces reliance on fossil-based inputs at the material sourcing stage (Daccache, 2021).

After several years of development, HowBottle has grown from a start-up team into a certified B Corporation, joining a global network of over 8,000 businesses that commit to high social and environmental standards (HowBottle, n.d.-b). This certification demonstrates the brand’s outstanding performance in areas such as resource conservation and community engagement (Daccache, 2021). The brand has also promoted the idea that sustainable living can be both creative and visually appealing through collaborations with well-known enterprises such as Corona, Coca-Cola, and China Aerospace Corporation (Lawson, 2020; SocialBeta, 2022).

HowBottle’s environmental, social, and governance (ESG) practices are centred on circular production and social co-creation. In the environmental aspect, it seeks to reduce emissions through using recycled materials and developing more closed-loop supply chains (HowBottle, n.d.-b). In the social aspect, it promotes the implementation and commercialisation of sustainable concepts through public education and cultural communication activities (Faculty of Social Sciences, 2021). In the governance aspect, it faces a common problem among small sustainability-focused enterprises: relatively insufficient public information disclosure compared with larger listed firms (Setyaningsih et al., 2024). For HowBottle, the main sustainability challenge lies in balancing feasibility and credibility in its product design and technologies, while controlling costs and gradually increasing transparency to strengthen external trust (Orton, 2017).

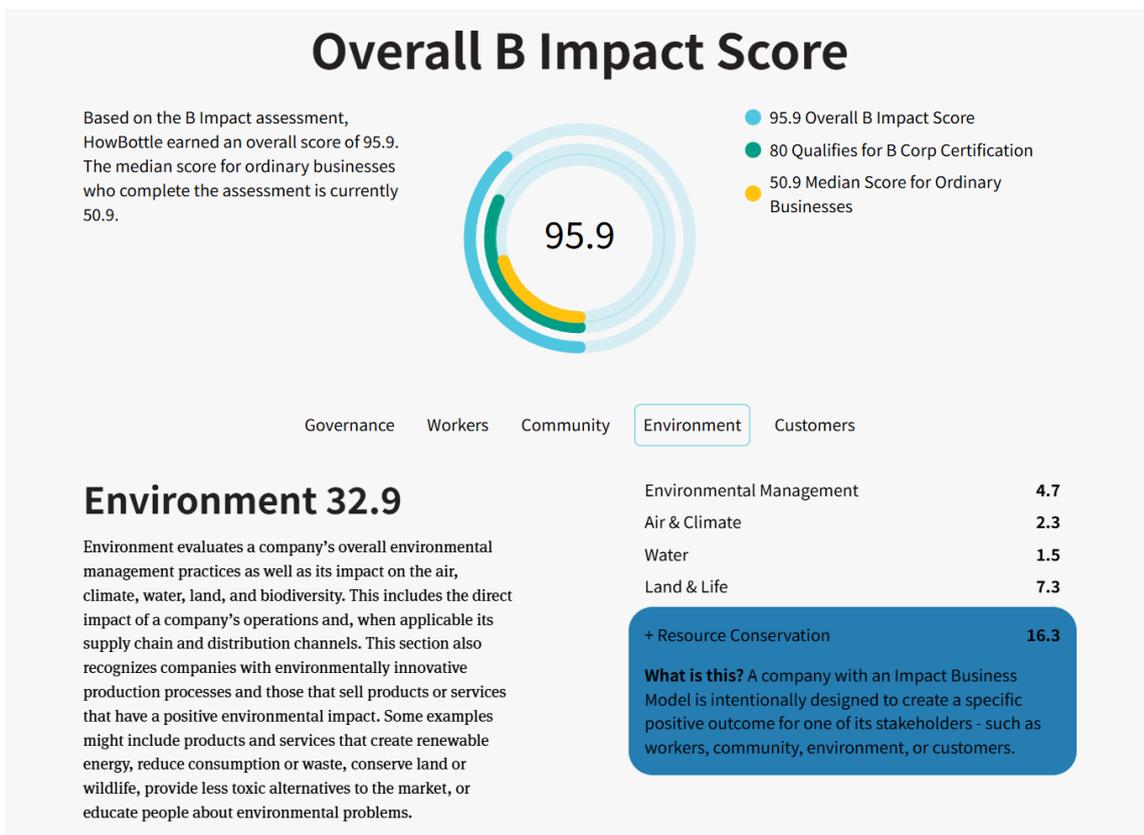
This study focuses on HowBottle as a research case because it represents a notable sample of China’s new generation of sustainable enterprises (Gui, 2025). It not only emphasises environmental responsibility but also promotes social transformation through cultural innovation. Unlike many sustainable brands that originated in Western markets such as Europe and the United States (US), HowBottle is rooted in the Chinese consumer market, which is characterised by high resource consumption and rapid growth (World Economic Forum, 2018). Its model responds to the increasingly severe plastic pollution problem in China while reflecting youth cultural trends that integrate sustainability into everyday lifestyles (Gui, 2025). Therefore, examining

HowBottle provides a valuable lens for understanding how design thinking, circular supply chains, and cultural communication can work together to catalyse more systemic sustainable change in an emerging economy like China.

Impact on Environment

HowBottle demonstrates comparatively strong sustainability performance within its segment. As seen in Figure 1, the company achieved a B Impact Assessment score of 95.9 as of 2025, significantly higher than the median score of 50.9 for companies that complete the assessment (B Corporation, n.d.-b). The environmental dimension scored 32.9 points, with “Resource Conservation” accounting for 16.3 points, while “Air & Climate” and “Water” scored lower at 2.3 and 1.5 points, respectively.

Figure 1: HowBottle’s B Impact Score



Source: B Corporation, n.d.-b

Disposable Plastic Bottle Waste

Disposable plastic bottles are one of the most representative types of urban solid waste. Globally, about one million plastic bottles are sold every minute, most of which are used only once and then discarded (United Nations Environment Programme,

2020). Their slow degradation leads to long-term pollution of soils and water bodies, threatening aquatic ecosystems and public health (Rikhter et al., 2022).

The entire life cycle of plastic bottles is associated with significant environmental burdens. Their raw materials come from the extraction and processing of petrochemical resources, the production process consumes large amounts of energy and releases carbon emissions, and once discarded, plastics are difficult to degrade and will accumulate over time, posing continuous threats to soils, water bodies, and ecosystems (Rikhter et al., 2022). Although incineration can reduce their volume, it simultaneously releases greenhouse gases and harmful aerosols, resulting in more complex environmental impacts.

In China, this issue is particularly pressing. China produces more than 26 million tons of plastic waste annually, mainly from household garbage and industrial solid waste, including a large volume of PET bottles (Dong et al., 2024). The geographical distribution of plastic waste is highly uneven: output in densely populated and highly industrialised eastern coastal regions is much higher than in central and western regions. Meanwhile, rapid growth in e-commerce and express delivery has further increased pressure on recycling systems through the massive use of disposable packaging. Although the government has introduced policies such as the “Plastic Restriction Order” and “Garbage Classification” (Guo et al., 2021), the overall recycling rate of plastic waste in China remains about 30%, lower than rates above 50% reported in some European countries (Dong et al., 2024).

Against this background, the HowBottle brand directly responds to the plastic bottle challenge. Guided by the core concept of “creating functional products for an active lifestyle by upcycling plastic waste”, the brand applies circular economy methods by using discarded plastic bottles as raw materials in production, thereby helping to alleviate plastic waste. HowBottle indicates the number of plastic bottles used for its products, making carbon reduction more concrete and encouraging consumer engagement with environmental action (Daccache, 2021). This approach indirectly reduces the risk of plastic leakage into rivers and oceans, thereby contributing to United Nations Sustainable Development Goal (SDG) 6 (Clean Water and Sanitation) by supporting the protection of water resources and marine environments (United Nations, n.d.). However, the company has not yet disclosed data on water consumption and wastewater discharge within its production processes, which limits the extent to which its contribution to this goal can be fully assessed.

Supply Chain

rPET as Core Material

From a supply-chain perspective, plastics generate around 1.7 Gt CO₂ equivalent annually, exceeding aviation emissions (Rikhter et al., 2022), while PET, polyethylene (PE), and polypropylene (PP) dominate production and together consume an

estimated 4% to 8% of global oil and gas for plastic production (World Economic Forum, 2016).

A more sustainable alternative is rPET. Between 2000 and 2018, China recycled 78 million tonnes of PET bottles, cutting 233 million tonnes of emissions (Ma et al., 2020). Each kilogram of PET recycled saves 1.5 kg of fossil fuel and avoids 3.2 kg of emissions. However, only about 5% of China's recycling facilities currently use advanced bottle-to-bottle recycling technology, and most recycling remains open-loop. Globally, Life Cycle Assessment (LCA) data remains skewed toward Europe and the US, with limited insights into Asia's distinct energy structure (Goedkoop, 2014). This gap underlines the need for China and other Asian economies to promote closed-loop supply chains.

HowBottle uses rPET as its core raw material, transforming plastic bottles into garments through a "bottle-to-clothing" cycle (Daccache, 2021). This practice advances SDG 12 (Responsible Consumption and Production) by reducing dependence on virgin resources and promoting efficient resource use. The company aims to establish a closed-loop system from eco-design to recycling, reducing reliance on petrochemical materials at the source. Throughout the product life cycle, carbon emissions for recycled polyester are approximately 42% lesser than those for traditional polyester (China Daily, 2025). This model achieves a systematic closed loop from design to reuse, providing a replicable and self-reinforcing circular supply chain model for the Chinese market (HowBottle, n.d.-b).

Material Sourcing and Processing

HowBottle's main raw materials are discarded plastic bottles and abandoned fishing nets (HowBottle, n.d.-b). The core idea is to make full use of these materials to support more sustainable production. One HowBottle jacket recycles about 13 plastic bottles, while a backpack requires around 24 bottles and fabrics from tents used in earthquake relief missions (Zhou, 2021). This choice of raw materials allows HowBottle to realise the possibility of circular regeneration at the starting point of its supply chain, aligning with the resource waste issue mentioned earlier.

At the material processing stage, bottles are cleaned, crushed and melted, with the polyester fibres spun for fabric production (KimEcopak, 2024). This process usually involves energy consumption and emissions, which are reduced through HowBottle's integrated production chain that bypasses the pelletisation process (HowBottle, n.d.-b). Some production stages are completed in collaboration with partner factories, forming a cross-regional green manufacturing network (HowBottle, n.d.-c).

Product Design

Beyond material substitution, HowBottle shapes brand identity through narrative design. The company notes the number of plastic bottles used in each product,

reinforcing consumers' intuitive perception of environmental value (Daccache, 2021). At the same time, the brand collaborates with well-known companies, promoting its philosophy through storytelling and co-branded projects. Through this approach, HowBottle extends sustainability from production processes to meeting consumers' expectations for meaningful products, aligning with the issue of consumer habits mentioned earlier.

Packaging and Logistics

Public information on HowBottle's packaging and logistics is limited. The company applies minimalist and recycled principles at its packaging stage. Its packaging uses corrugated cardboard boxes and biodegradable kraft paper, avoiding plastic (Commercial Waves, 2024). Regarding transportation, the brand's lightweight, simple designs and increased proportion of local suppliers from 27% to 49%, help to reduce its carbon footprint. Although the brand operates on a small scale with a limited number of employees (Commercial Waves, 2024), it strives to minimise environmental impacts at every stage.

Benchmarking

To evaluate HowBottle's environmental performance in an industry context, a benchmarking analysis (Table 1) was conducted, comparing it with two leading international sustainable fashion brands Allbirds and Patagonia. Both companies are recognised global pioneers in integrating sustainability into business models and offer comparable product categories such as textiles and lifestyle goods. This comparison provides a reference for assessing HowBottle's progress and areas for improvement in aligning with international best practices for sustainable value chains.

Table 1: Benchmarking Overview

Feature	Allbirds (Footwear/Apparel)	Patagonia (Outdoor Apparel)	Howbottle (Recycled Bags/Apparel)
Primary Environmental Focus	Carbon footprint reduction and material innovation	Activism and corporate accountability	Plastic waste upcycling
Core Materials Strategy	Wool, tree fibre, and sugar cane	Organic and recycled materials	rPET plastic bottles
Key Environmental Goal	75% sustainably sourced natural and recycled materials	Eliminate virgin petroleum-based materials by 2025	Convert existing plastic waste into

	by 2025		high-value products
Overall B Impact Score (as of 2025)	96.5 (Environment score: 35.7)	166 (Environment score: 40.4)	95.9 (Environment score: 32.9)

Source: Table created by the authors. (Allbirds, n.d.; B Corporation, n.d.-a; B Corporation, n.d.-b; B Corporation, n.d.-c; HowBottle, n.d.-b; Patagonia, n.d.-b)

Carbon Management and Environmental Disclosure

Allbirds demonstrates a high level of rigour and transparency in its carbon management practices. In 2024, the company reported an average per-product carbon footprint of 5.54 kg CO₂ equivalent (Allbirds, 2024), a 22% reduction from 2023. In 2020, it labelled products with their carbon footprint and had also outsourced its carbon footprint calculator, reflecting a mature governance structure for environmental data transparency and accountability.

Patagonia seeks to embed carbon reduction in its supply chain, which accounts for 97% of its total carbon emissions in 2019 (Patagonia, 2019). According to the Higg Materials Sustainability Index, version 3.7, using its recycled polyester can avoid emissions by approximately 50% compared with virgin polyester, significantly lowering supply-chain carbon intensity (Patagonia, n.d.-a). However, while Patagonia’s environmental commitment is long-standing, its per-product LCA disclosures are limited, making cross-comparisons of product-level carbon data less straightforward.

For HowBottle, emissions reduction arises primarily from material substitution, contributing to SDG 13 (Climate Action). However, unlike its international peers, HowBottle is currently only publishing its B Impact Score and aggregate recycled material volumes, without providing detailed LCA disclosures or per-product CO₂ equivalent data. Strengthening quantitative transparency would enable the brand to substantiate its climate-related contributions and align more closely with global carbon management standards.

Material Strategy

Allbirds emphasises the use of natural and renewable materials, positioning material innovation as a key driver of sustainability. Its product lines utilise natural alternatives like wool, tree fibre, and sugar cane (Allbirds, n.d.). The company also invests heavily in research and development (R&D) for next-generation low-impact materials. This strategic focus demonstrates how Allbirds integrates sustainability into product design and supply-chain innovation.

HowBottle also places strong emphasis on material choice, adopting an approach centred on upcycling post-consumer waste. As mentioned earlier, its core material,

rPET, comes from discarded plastic bottles and recovered fishing nets, helping to divert plastic from landfills and marine ecosystems while converting waste into higher-value consumer products. HowBottle's advantage lies in its direct waste-to-product transformation, demonstrating a practical application of circular economy principles in a developing-market context (HowBottle, n.d.-b).

Patagonia focuses on replacing virgin petroleum-based inputs with organic and recycled alternatives, including organic cotton, recycled polyester, and recycled nylon (Patagonia, n.d.-b). Patagonia's strategy highlights how large-scale firms can leverage material substitution to reduce fossil fuel dependence, an approach smaller brands like HowBottle can emulate as they scale.

Product Life Cycle and Post-Use Management

A comprehensive assessment of environmental impact must consider the entire product life cycle, extending beyond material sourcing and production to include distribution, consumer use, and post-use recovery. Allbirds demonstrates leadership in third-party verified life-cycle assessment. However, Allbirds' efforts to establish closed-loop recycling or product take-back programmes remain limited, suggesting room for greater circularity.

Patagonia exhibits one of the industry's most advanced approaches to product longevity and circular use. Through initiatives such as repair services, using only renewable or recycled materials in its products, and investing in regenerative organic agriculture as a source of raw materials, the company actively extends product lifespans and reduces its carbon footprint (Patagonia, 2019). Patagonia's integrated approach demonstrates that true circularity involves not just sustainable inputs but also long-term consumer engagement and reverse logistics.

HowBottle currently focuses on the upstream phase of the circular economy (HowBottle, n.d.-b). While this approach successfully closes part of the material loop, public information on product retrieval or end-of-life recycling remains limited. Strengthening downstream efforts would allow HowBottle to evolve from a partial to a full-cycle circular business model, enhancing resource efficiency and waste minimisation.

Impact on Social

HowBottle seeks to bridge the gap between environmental awareness and action, transforming sustainability from a concept into everyday practice. The brand recognises that the problem lies in creating value for young consumers and fostering engagement (Sprintbase, n.d.). Therefore, it achieves this through experiential design and narrative strategies.

Consumer Awareness and Behavioural Change

HowBottle contributes to social sustainability by encouraging consumers to move from awareness to practice. A nationwide survey across 29 provinces found that plastic-reduction behaviour in China is primarily driven by economic savings and emotional satisfaction, rather than environmental knowledge alone (Wang et al., 2024). Consumers often reduce disposable plastics to save money, and positive recognition reinforces this behaviour. This reveals a gap where people agree with plastic reduction but do not always act on it, making practical education as important as explanation (Jia et al., 2024).

HowBottle addresses this by marking the number of PET bottles diverted from waste, making environmental impact tangible and personal. This straightforward approach encourages sustainable behaviour without pressure. Rather than separate corporate social responsibility (CSR) campaigns, HowBottle integrates environmental messaging into consumption, such as collaborations with lifestyle brands for events and collections that promote circular design (Commercial Waves, 2024). This aligns with the view that consumers are essential to closing the circular economy loop (Vidal-Ayuso et al., 2023).

This model effectively engages HowBottle's main audience: urban, educated youth and young workers (China Daily, 2025). This is because it aligns environmental behaviour with identity-building and emotional satisfaction. While this approach drives engagement among younger and urban populations, it limits broader social sustainability due to accessibility gaps beyond affluent city groups. To expand green consumption from urban lifestyle segments to wider society, supportive policy instruments such as deposit-refund systems and public education initiatives are needed to enable wider social diffusion (Laubinger et al., 2022).

Collective Cultural Shift through Sustainable Design

HowBottle promotes a cultural shift towards sustainable lifestyles. The brand integrates environmental concepts with design, fashion, and functionality, influencing consumer mindsets and reshaping consumption culture in China (China Daily, 2025). It uses minimalist aesthetics to turn recycled plastic into fashion items, making environmental protection an integral part of identity expression (Gui, 2025; Ollo Collection, 2025). This marks the expansion of sustainability from corporate responsibility to social and cultural practices.

HowBottle reinforces this shift through education and experiential activities. It collaborates with various companies to organise workshops and exhibitions, enabling consumers to engage with recycling and reprocessing processes (Commercial Waves, 2024). These initiatives raise public awareness of responsibility and support long-term sustainable development. Through these interactions, HowBottle builds a community

sharing sustainable values, elevating environmental protection from individual actions to collective culture.

The brand also expands its influence through collaborations, notably with Corona, a lifestyle brand focused on marine conservation (SocialBeta, 2022). On World Ocean Day 2022, they launched the “Remodelling for This Moment” campaign, turning recycled fishing nets and plastic bottles into items, including vests and bags. This shows HowBottle’s balance of ecological and social benefits, fostering shared cultural values around environmental protection.

HowBottle drives change at social and cultural levels, moving the public from passive acceptance to active practice, and from linear consumption to circular value (China Daily, 2025). By combining design aesthetics, community participation and collaborations, the brand creates a model blending commercial appeal with social impact (Faculty of Social Sciences, 2021). This approach offers a replicable path for sustainable cultural development.

Social Innovation

HowBottle represents a notable example of social innovation in entrepreneurial and youth empowerment. Founded in 2017 by female entrepreneurs in China, the company embodies the emerging group of young Chinese founders using design and circular economy principles to address local environmental challenges (Gui, 2025; Ollo Collection, 2025). HowBottle creates market value by delivering social value. Its B Impact Assessment score of 95.9, well above the global median 50.9, indicates above-average integration of social and environmental performance into its core operations and governance (B Corporation, n.d.-b).

HowBottle exemplifies social innovation through a systemic approach. It connects a waste-management problem (PET bottle surplus), an economic opportunity (rPET-based fashion aligned with China’s green-consumption movement), and a social inclusion outcome (community involvement in the green economy). Unlike global brands such as Allbirds or Patagonia, which rely on technological advantages and extensive resources, HowBottle, as a young brand with limited scale, primarily drives impact through social mobilisation (Commercial Waves, 2024). Scalability remains the key constraint for HowBottle. Its growth hinges on strategic partnerships with larger firms to extend circular practices across the full value chain.

Governance

HowBottle exhibits the typical characteristics of early-stage social innovation enterprises, including limited transparency in governance. Public information focuses on brand concepts and collaborations, with no disclosed management structure or annual reports. The only third-party information comes from B Corporation certification, which shows sub-scores of 3.1 in Mission & Engagement, 4.3 in Ethics &

Transparency, and 2.5 in Mission Locked (which means the company is designed to create a positive outcome for one of its stakeholders) (B Corporation, n.d.-b). While these sub-scores offer some indication of responsible practices, they provide limited analytical value without access to underlying evaluation criteria or audit details. External observers can view the scores but lack insight into specific strengths or weaknesses, hindering the evaluation of internal governance structures.

Small sustainable brands commonly face constraints in governance disclosure due to limited resources, representing a structural issue rather than negligence (Setyaningsih et al., 2024). Public disclosure can impose additional costs or risks. However, for HowBottle, balancing feasibility with credibility will be an essential task ahead.

Impact on Economics

The economic, environmental, social, and governance (EESG) model expands the traditional ESG framework by including an economic dimension. While ESG evaluates non-financial performance, EESG positions sustainability as a value-creating system beyond mere compliance. The economic element ensures initiatives remain viable, scalable, and capable of generating long-term shared value for business and society.

HowBottle's economic impact derives from upcycling waste in a circular economy model. By sourcing rPET instead of virgin polyester, the company diverts plastic waste from landfills and lowers greenhouse gas emissions. This produces a positive environmental externality (Kenton, 2025) as well as generates economic returns.

At the meso-level, HowBottle's bottle-to-clothing model supports the development of a recycling-driven fashion value chain in China, channelling consumer spending into greener supply networks and supporting economic development. China's green fashion market reached US\$1.95 billion in 2023 and is expected to grow at a 9% compound annual growth rate from 2023 to 2028, signalling strong demand for circular and sustainable apparel brands like HowBottle (China Daily, 2025).

Looking Ahead

Current Challenges

Despite its strong sustainability credentials, HowBottle faces several structural and operational challenges that are common among early-stage social innovation enterprises in the circular economy. The most immediate constraint is cost competitiveness. HowBottle's products are priced higher, making its products less accessible to price-sensitive consumers. Limited consumer awareness of sustainable materials' intrinsic value means many view these prices as unjustified (Gui, 2025). This reflects a broader market education gap where Chinese consumers support sustainability in theory, but price remains the dominant purchase driver.

A second challenge concerns consumer perception and credibility. The proliferation of greenwashing in China's market has eroded public trust in sustainability claims (Du, 2015). The low trust will not work in HowBottle's favour. Building transparent communication on operational processes and social impacts is essential to maintain credibility and consumer confidence (CAP Enterprise 2025).

Finally, HowBottle must navigate the tension between scaling commercially and preserving mission integrity. As it expands product categories and collaborations, maintaining sustainability standards and transparent governance becomes increasingly critical. Rapid scaling without formal structures may dilute the brand's social impact or lead to a drift from its core mission (CAP Enterprise 2025).

Future Roadmap

To respond to these challenges, HowBottle's future development can follow four interconnected directions: product innovation, partnerships, community engagement, and digital transformation. The company is already diversifying its product portfolio by exploring and launching pet products and household goods (Commercial Waves, 2024). This expansion reduces dependency on a single material and spreads production costs across a broader base. By embedding modular and durable design principles, HowBottle can further extend product life cycles, showing that sustainability can be both practical and aspirational.

HowBottle can continue to collaborate with large corporations and institutions that share its sustainability philosophy. Its previous collaborations with Corona and China Aerospace Corporation illustrate the potential of integrating circular design into mainstream industries (Lawson, 2020). Strengthening such alliances would secure stable material supplies and reduce processing costs through shared infrastructure. Such partnerships also enhance brand legitimacy and visibility, reinforcing the idea that sustainable living can be creative, stylish, and accessible.

Consumer education remains essential to increase public awareness and long-term loyalty (Khan, 2025). HowBottle can deepen engagement by turning awareness into active participation. Collaborations with schools, youth groups, and cultural spaces can amplify this, fostering shared ownership in the circular economy and shifting individual behaviour towards collective learning.

Digital technology underpins HowBottle's next stage of evolution. The company has already begun to integrate Web3 and blockchain, enabling transparent transactions, cashback, and cryptocurrency rewards for customers (HowBottle, n.d.-d). Moving forward, technologies such as blockchain, artificial intelligence (AI), and data analytics can enhance transparency and operational efficiency (Al Aina & Faisal, 2024). By adopting these tools, HowBottle can build trust among stakeholders and progress towards data-based ESG reporting.

In conclusion, HowBottle's future success depends on balancing creativity with credibility. Through continuous design innovation, cross-sector partnerships,

educational outreach, and digital integration, the company can address cost pressures and consumer scepticism while expanding its cultural and economic influence. These strategic directions reinforce HowBottle's role as a creative brand redefining modern consumption and a social enterprise shaping China's circular economy.

Discussion Questions

1. What potential supply chain vulnerabilities does HowBottle's use of rPET from plastic bottles and fishing nets create?
2. What low-cost transparency steps could small brands like HowBottle adopt?
3. Compare HowBottle's social innovation approach to Allbirds and Patagonia. What unique advantages does its approach offer for replication in emerging markets?

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IKEA: Assembling a Greener Future

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Product & Innovation

Business Design & Circularity

Company Overview & Analysis

IKEA is a global furniture and home furnishings retailer founded in Sweden in 1943 by Ingvar Kamprad. Initially focused on selling stationery and wallets, it added furniture in 1948, gradually developing a diversified product portfolio which includes items like chairs, sofas, kitchenware, and children's products (IKEA Singapore, n.d.-b). As of 2025, IKEA operates close to 500 stores in 63 markets (IKEA Global, n.d.-b).

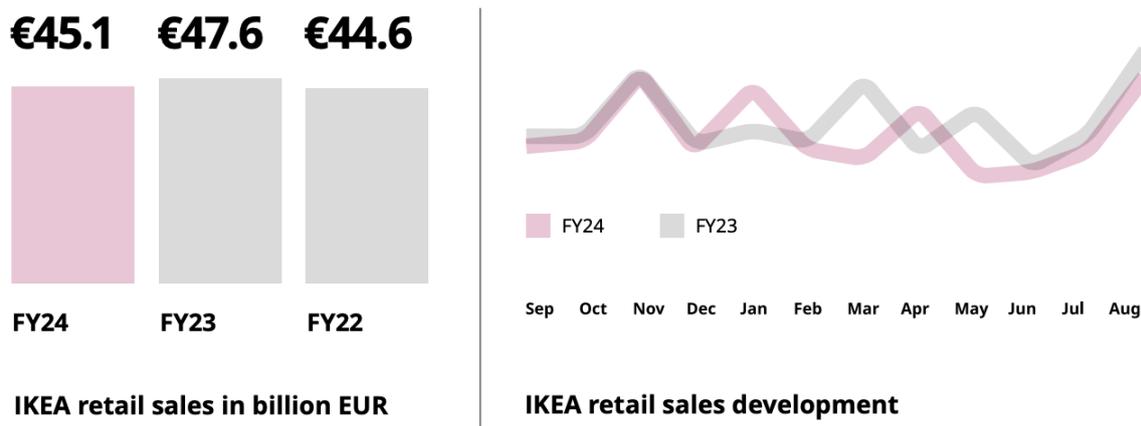
From the perspective of product and value creation, IKEA's business is far more than just affordable furniture. Its current product line includes approximately 9,500 home furnishing items, as well as food and beverage offerings, including in-store restaurants and Swedish food supermarkets (Inter IKEA Systems B.V., 2025b). IKEA in Sweden is primarily responsible for overall product design and iteration, with approximately 2,550 new, updated, or improved products launched in Fiscal Year (FY) 2024. On the supply chain side, IKEA collaborates with approximately 800 home furnishing suppliers in over 50 markets and over 140 global food suppliers.

As part of the Inter IKEA Group, IKEA Supply conducts worldwide sourcing and distribution, while IKEA Industry manufactures key product categories in-house. Notably, IKEA defines the value chain broadly. Beyond raw material sourcing, production, and transportation, it also encompasses store retail, customer transportation to stores, in-home product use, and end-of-life disposal or recycling. In other words, the company does not focus solely on the point of sale, it considers the full product life cycle.

Financially, FY2024 showed a mix of pressures and expansion. IKEA's retail sales for the year reached approximately €45.1 billion (excluding sales tax), a year-on-year decrease of roughly 5.3%, or 4% at constant exchange rates (Inter IKEA Systems B.V., 2025b). The company attributes this decline primarily to proactive price cuts, sacrificing revenue per product to maintain its "affordability" positioning.

However, its offline presence did not shrink. In FY2024, IKEA opened 56 new sales locations, including three traditional large stores, eight small stores, and 44 Plan and Order locations (Inter IKEA Systems B.V., 2025b). IKEA emphasises that the value of the franchise model lies in the financial stability it provides while allowing franchisees to explore new markets, store formats, and ideas. This means the company is more focused on long-term sustainable development than on the revenue performance of individual stores.

Figure 1: IKEA's Retail Sales from FY2022 to FY2024



Source: Inter IKEA Group, 2024

Figure 2: IKEA's Consolidated Income Statement

In millions of EUR	FY24	FY23
Sales of goods	25,061	27,443
Franchise fees	1,348	1,406
Other income	129	212
Total revenues	26,538	29,063
Cost of goods sold	21,048	23,824
Gross profit	5,490	5,239
Operational cost	3,151	2,993
Total operating income	2,339	2,246
Financial income and expense	326	-300
Result before tax	2,665	1,946
Income taxes	-466	-307
Net income	2,199	1,639

Source: Inter IKEA Group, 2024

Sustainability Initiatives

Economic

Miljövänlighet is a Scandinavian concept of environmental friendliness which includes, amongst other things, recycling and reusing materials. Sweden's Ministry of Education and Research promotes sustainability as part of its education system, ensuring that young Swedes are taught from an early age to explore the ecological, social and economic domains of sustainability (Ministry of Education and Research, 2021). This includes ideas for designing for long-term use and for the collection, recycling and reuse of products at the end of their life cycles. These actions pave the way for increasing the lifespan of products by enabling multiple ownership. Thus, it is not surprising that Sweden has one of the lowest waste generated per capita, as compared to other European nations (European Environment Agency, 2025). IKEA, one of the most successful businesses in the nation, reflects this concept deeply in the way it conducts business.

The Circular Business Model

Traditional consumption follows a linear model, taking from the environment, making the product, and disposing it at the end of use. The problem with this approach is that most of the materials are non-renewable or harmful to the environment, generating significant amounts of waste and emissions.

Recent consumption trends increasingly support ecological health and long-term value creation by encouraging the extension of product life through community sharing, second-hand markets and repair initiatives. A common misconception is that sustainability is not economically viable. In fact, Sweden has good examples of how this can be turned into an industry. Eskiltuna, a city near Stockholm, is home to the 5,000-square-metre ReTuna Återbruksgalleria shopping mall that only sells second-hand items (Ball, 2025). Shops in the two-storey complex receive donated items, which are then either repaired or upcycled for resale. This has captured media attention from news agencies across the world for its innovative and purposeful appeal. The fact that ReTuna has been operating for over 10 years since 2015 shows that its circular economy operations have been lucrative and sustainable.

IKEA has emulated such efforts, launching a buyback and resale programme in its stores in 2021, as it works towards making its business more sustainable. This programme was first launched in the United States (US) as a pilot, before being rolled out globally (El-Bawab, 2021). The programme allows customers to return gently used furniture in exchange for store credit, and the furniture will be resold in its existing state at discounted prices.

In Singapore, IKEA has been supporting the elimination of waste and optimal use of resources by partnering with online platform Carousell to make zero-waste more

accessible to the public (Kow, 2022). Apart from in-store showrooms, items could also be sold through Carousell's platform, which is well-known locally as a marketplace for scoring second-hand deals.

Another source that makes up IKEA's resale or "as-is" section comes from display pieces or discontinued items (IKEA Canada, n.d.). When IKEA changes store campaigns and refreshes designs, the existing displays are removed and marked down. This gives consumers a chance to purchase pieces in good condition at lower prices.

Figure 3: Showroom Section for Pre-loved Items in IKEA Tampines, Singapore



Source: Kow, 2022

According to IKEA's 2024 Sustainability Report, its buy-back resale initiative has been tremendously successful, with over 495,000 products returned across 28 markets worldwide (Inter IKEA Systems B.V., 2025b). For a giant in the furniture industry, contributing to the circular economy in this way can have a massive impact. This extends not only to the materials directly saved in product manufacturing, but also to reductions in packaging, emissions from transportation, and energy used in storage facilities.

Seeing food waste as a potential resource, IKEA announced an investment and partnership with Vanguard Renewables to pilot a food waste recycling programme in 2025 (Mirza, 2025). Food waste collected from its kitchens and customer leftovers can be collected and transformed into clean energy and biodegradable products like renewable natural gas and fertiliser for agricultural use. In 2024, Forbes valued the bioenergy market at US\$44 billion (Wood Mackenzie, 2024), indicating substantial commercial interest in the sector. Recognising this opportunity, IKEA and its franchisee, Ingka Group, view food waste valorisation as a strategic way to participate in this growing sector.

Interestingly, IKEA's unique practice of having customers build their own purchases has created "The IKEA Effect" (Norton et al., 2012). Research suggests that people who build their own items tend to value them more, are willing to pay more, and will use them for longer periods. This behaviour contributes, perhaps unwittingly, to sustainability goals by increasing product lifespans.

Design for Re-use

A key factor in IKEA's success in pursuing circularity lies in its design principles (IKEA Global, n.d.-a). It makes a deliberate effort to use eco-friendly materials that are renewable, recyclable, repairable, or biodegradable. Design and development begin with sustainability in mind, ensuring that products and parts have the potential to achieve full circularity.

Many of IKEA's products are modular, allowing them to be adapted for various uses or to have parts replaced easily after years of wear and tear (IKEA Global, n.d.-a). For example, extendable beds can be made larger to meet changing needs, such as those of a growing child. Some bookcases have snap fittings instead of nails, which enable easier disassembly and reassembly into various configurations. Some chairs come with screw-in legs to reduce the need for other parts and can be replaced easily when necessary. Some sofa systems comprise sections that can be combined in several ways to suit differing home layouts.

Using renewable and recycled materials in its products creates potential for post-consumer recycling. IKEA's foresight has led it to invest in materials engineering, including approaches for handling challenging materials. For example, ceramics are notoriously difficult to recycle as they are durable and heat-resistant (IKEA Global, n.d.-f). Defective or used ceramics can be ground and incorporated into new materials, which are then formed into new products. This helps to reduce waste and unlocks new uses for the products after they are retired.

Figure 4: IKEA's SILVERSIDA Series, Made from Recycled Ceramics



Source: IKEA Global, n.d.-f

The furniture chain's move towards more environmentally friendly packaging was also a strategic move. Its packaging materials made from mushrooms can be compostable, but also reusable if kept dry (Steffen, 2019). This makes the material an eco-friendlier alternative to Styrofoam.

As one of the world's largest furniture retailers, IKEA's exploration of alternative materials signals to other businesses, such as green start-ups, that there is a market for materials innovation. This stimulates fresh demand in the economy that entices more global sustainability efforts. By working with start-ups who are experts in their fields, IKEA can continue to focus on its business and supply chain, leveraging its network partners to accelerate progress and co-deliver impactful opportunities.

Effect of Extended Producer Responsibility

The circular economy is highly reliant on effective collection systems. Without it, valuable materials are lost to landfills or incineration. Therefore, collection is the gateway to circularity. Sweden introduced the Extended Producer Responsibility (EPR) framework back in 1994 for items like packaging, electronics, batteries, and tyres (Smart City Sweden, n.d.). Meanwhile, Singapore's National Environment Agency (NEA) introduced the mandatory Packaging Reporting scheme in the 2020s, where companies need to submit data on the types and quantities of their packaging as well as their 3R plans (National Environment Agency, 2025). While IKEA supports EPR by collecting used packaging and products through in-store channels and take-back services, it is an expensive and labour-intensive endeavour. Therefore, the company is incentivised to prolong product life through eco-friendly product design and quality control.

Environmental

IKEA recognises that its operations across manufacturing, logistics, and product consumption have a significant impact on the planet. The company's approach to environmental sustainability is grounded in the belief that businesses must thrive within the limits of the planet's resources. Global challenges such as climate change, biodiversity loss, and material scarcity have pushed IKEA to transform its entire value chain into a low-carbon and resource-efficient model.

At the core of this transformation is the "People & Planet Positive" strategy, which aims to make IKEA climate positive and fully circular by 2030 (Inter IKEA Systems B.V., 2020). This vision is guided by the company's Democratic Design philosophy, ensuring that products are not only affordable and functional, but also produced with a minimal environmental footprint. Environmental sustainability is therefore not treated as a peripheral corporate social responsibility (CSR) initiative, but as a core strategic driver embedded in every aspect of IKEA's business, from renewable energy investment and responsible sourcing to product design and customer engagement.

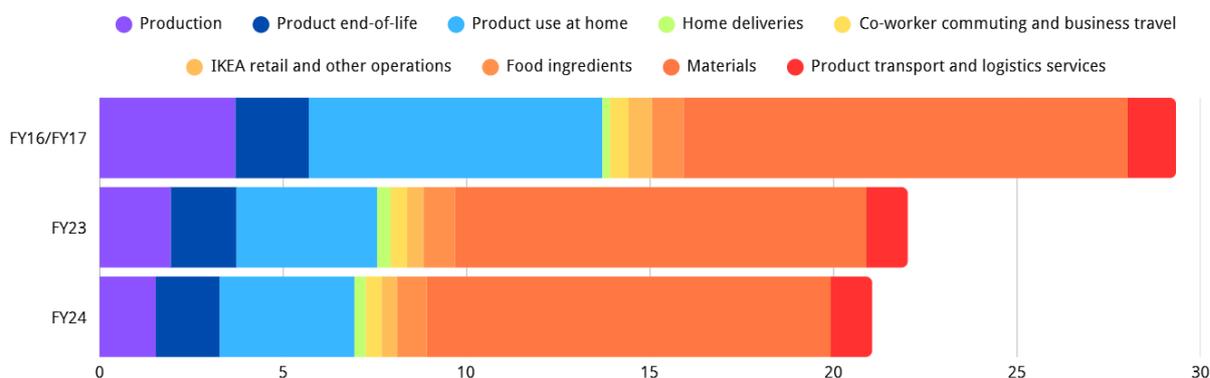
Climate & Energy Transition

IKEA's Climate Agenda

IKEA's climate agenda represents the company's long-term commitment to become climate positive by 2030, aiming to halve greenhouse gas emissions across its value chain by then. It also aims to achieve net-zero emissions before 2050 (Inter IKEA Systems B.V., 2020).

In June 2024, IKEA announced a strengthened climate agenda, reflecting the urgency of the global climate crisis and aligning its pathway with the 1.5°C target of the Paris Agreement (IKEA Global, 2024). The updated agenda includes more ambitious and science-based targets which have been validated by the Science Based Target initiative (SBTi). These targets require the IKEA value chain to cut down absolute greenhouse gas emissions by 50% by FY2030 compared with a FY2016 baseline (Inter IKEA Systems B.V., 2025a), covering production, transportation, and product use phases.

Figure 5: Climate Footprint at Each Stage of the IKEA Value Chain (Million Tonnes CO₂ Eq)



Source: Figure created by the authors, with information from IKEA Climate Report FY24 on page 9 (Inter IKEA Systems B.V., 2025a)

Note: FY2017 is used as the baseline year for product transport and logistics services instead of FY2016, as this was the first year with complete and standardised global logistics emissions data following updates to IKEA's greenhouse gas accounting methodology.

Efforts in reducing emissions

Materials used in IKEA's products remain the largest contributor to the company's overall climate footprint. In FY2024, emissions from materials were about 2% lower than in FY2023 (Inter IKEA Systems B.V., 2025a), reflecting ongoing efforts to

integrate more recycled inputs, optimise material efficiency, and design products with reduced environmental impact.

The food business also demonstrated tangible climate improvements. Emissions linked to food ingredients decreased by approximately 6% year-on-year, largely due to the continued expansion of plant-rich meals and a gradual reduction of red-meat offerings (Inter IKEA Systems B.V., 2025b). In FY2024, roughly 36% of the main meals served in IKEA stores operated by Ingka Group were plant-based, up from about 30% in the previous year. A key example was the introduction of PANNBIFF, a half-plant and half-beef product launched in Sweden to encourage more climate-friendly eating habits (IKEA Newsroom, 2024).

Figure 6: IKEA'S PANNBIFF



Source: IKEA Newsroom, 2024

Figure 7: Energy-Saving SOLHETTA LED Bulbs



Source: IKEA Singapore, n.d.-a

Energy consumption by customers using IKEA products at home represents the second-largest share of the company's total emissions. Compared with FY2023, there was a 4% reduction in emissions in FY2024, partly due to a 2% improvement in energy efficiency within the lighting range and a 9% reduction in emissions from home appliances (Inter IKEA Systems B.V., 2025b). Lower overall sales volumes of lighting and appliances also contributed to this reduction.

Manufacturing operations showed the most significant progress, with a 21% drop in climate impact in FY2024 compared to FY2023 (Inter IKEA Systems B.V., 2025b). The proportion of renewable electricity in production increased from 71% to 75%, and the overall renewable energy share grew from 48% to 52%. These improvements were driven by IKEA's initiative to achieve 100% renewable electricity in 13 key production countries, collectively accounting for the majority of its manufacturing electricity demand. By the end of FY2024, 491 factories and suppliers, representing about 44% of direct suppliers, had transitioned to fully renewable electricity. Reduced production volumes during the reporting period further contributed to the overall decline in emissions.

Energy Efficiency in Operations

IKEA's operational energy strategy focuses on expanding renewable energy use while improving the efficiency of its buildings and logistics systems. In markets where Power Purchase Agreements (PPAs) are not yet available, the company relies on Energy Attribute Certificates (EACs) and continues to invest in on-site renewable generation (Inter IKEA Systems B.V., 2025a). For example, the Fengxian Distribution Centre in China installed 1,700 square metres of rooftop solar panels, covering roughly 30% of its electricity demand, and similar systems have been deployed in other markets such as Dubai.

Since completing the shift to only selling LED lighting for its lighting products from FY2015, IKEA has achieved about a 90% improvement in lighting energy efficiency compared with the FY2016 baseline, greatly reducing energy use across its lighting products sold (Inter IKEA Systems B.V., 2025a). Cooling and refrigeration systems have also been upgraded, with more facilities adopting lower global warming potential (GWP) refrigerants and electric heat-pump systems to replace fossil-fuel-based heating methods. In logistics, route optimisation and partnerships with carriers such as the Zero Emission Maritime Buyers Alliance (ZEMBA) support the transition towards biomethane and electric-powered transport (Inter IKEA Systems B.V., 2025a). Together, these actions strengthen energy efficiency across IKEA's global operations and contribute to its long-term net-zero ambition.

Resource & Circular Efficiency

Packaging

Packaging is another important part of IKEA's environmental footprint, particularly in relation to plastic use and transport emissions. IKEA has already eliminated plastic packaging in new product ranges and is working towards removing all remaining consumer-facing plastic packaging by FY2028 (IKEA Global, 2021). To support this transition, IKEA is developing alternatives made from paper, renewable cellulose, and other bio-based materials. For example, IKEA has been testing mushroom-based packaging, developed from mycelium and agricultural waste, which can fully biodegrade after use (Steffen, 2019). These changes are expected to significantly cut waste and emissions associated with single-use plastics.

Beyond material substitution, IKEA's redesign of packaging has also produced measurable climate benefits across logistics operations. In FY2024, IKEA continued to replace paperboard with corrugated cardboard, a shift that enhances recyclability and reduces material use per product unit. The improved weight-to-volume ratio of corrugated cardboard packaging also contributes to lower transportation emissions.

Waste Management

IKEA applies a “waste hierarchy” approach—prioritising prevention, reuse, and recycling—to minimise material loss throughout its value chain.

Several waste-reduction initiatives were expanded. For instance, the VÄXELBRUK project upcycles used employee uniforms into new textiles and accessories (Inter IKEA Systems B.V., 2024a), while waste IT equipment is refurbished and resold instead of being discarded (Inter IKEA Systems B.V., 2025b). IKEA's long-term target is to achieve zero waste to landfill across all retail and industrial operations.

Figure 8: IKEA's VÄXELBRUK Project



Source: Inter IKEA Systems B.V., 2024a

Food and Water

Food and water efficiency are also integral to IKEA's environmental strategy, given the company's dual role as a global food provider and a large-scale facility operator.

IKEA's "Food is Precious" initiative reduces restaurant food waste through digital tracking (IKEA Global, 2017), while its "Drop It" initiative promotes circular water systems and efficient fixtures to lower water consumption (Inter IKEA Systems B.V., 2025b).

Nature & Ecosystem Regeneration

Agriculture and Regenerative Practices

IKEA recognises that agriculture is one of the most resource-intensive and climate-sensitive sectors in its value chain. In response, the company has been advancing regenerative agriculture practices, such as farming methods to restore soil health, enhance biodiversity, and sequester carbon. In FY2024, IKEA and the World Wide Fund for Nature (WWF) continued to collaborate on projects in India and Pakistan that promote climate-smart cotton farming, achieving significant reductions in greenhouse gas emissions and water use compared with conventional methods (Inter IKEA Systems B.V., 2025b).

Biodiversity

In FY2024, IKEA introduced its first Biodiversity Agenda which rests on three pillars:

Reducing negative impacts on nature from sourcing and operations.

Contributing to resilient ecosystems through restoration and habitat protection.

Enabling societal action with partners and communities.

The company is developing science-based biodiversity indicators aligned with frameworks such as the Science Based Targets for Nature (SBTN) and the Taskforce on Nature-related Financial Disclosures (TNFD) (Inter IKEA Systems B.V., 2025b). As part of its practical commitments, IKEA collaborates with WWF and local partners on ecological restoration projects, such as restoring European eel habitats and protecting wetlands near key production regions (Inter IKEA Systems B.V., 2025b). These actions demonstrate how IKEA integrates biodiversity management into its broader business strategy, recognising that long-term prosperity depends on a thriving natural environment.

Forestry and Certification

Forests form the backbone of IKEA's material base, as wood is one of its most important raw materials. All wood used in IKEA products is either certified by the Forest Stewardship Council (FSC) or recycled, verified through internal audits and third-party assessments (Inter IKEA Systems B.V., 2025b). The company upholds strict standards to prevent deforestation and forest degradation across all high-risk commodities—including soy, palm oil, beef, leather, coffee, cocoa, rubber, and sugarcane.

Beyond certification, IKEA actively invests in forest restoration and conservation. Initiated in 1998, its "Sow a Seed" project in Sabah, Borneo, has restored 18,500 hectares of degraded rainforest, planting over two million seedlings from about 85 native species as of 2021 (Inter IKEA Systems B.V., 2024c). In Europe, IKEA co-owns and manages forest land in Poland, Romania, and the Baltic states, where regenerative forestry models focus on mixed-species planting, soil-carbon retention, and long-term ecosystem stability.

Social

Social Responsibility Initiatives

IKEA recognises how its business depends on the people connected to its value chain. Accordingly, the company places strong emphasis on human rights, diversity, inclusivity, safety, and employee well-being while empowering local communities, showing IKEA's commitment to improving quality of life across the ecosystems it influences.

IKEA has targeted its focus on building its social responsibility initiatives around achieving several United Nations (UN) Sustainable Development Goals (SDGs), such as SDG 1 (No Poverty), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice and Strong Institutions) (Inter IKEA Systems B.V., 2025b).

Impact of IKEA Social Responsibility Initiatives

Employee Diversity, Empowerment, and Gender Equality

IKEA aims to have a balanced gender representation of 50/50 across all levels and countries in which it operates (IKEA US, n.d.). In 2024, the company reported meeting its gender balance goal with 51.4% of employees and 48% of managers being women (Inter IKEA Systems B.V., 2025b). Ingka Group reflects similar progress, with 54% of employees and 50% of managers being women.

To further enhance its commitment, IKEA introduced a framework in 2019 to ensure gender-equal pay across all Ingka Group operations and joined the Equal Pay International Coalition (EPIC) to drive consistency and accountability of its gender-equal pay initiatives (IKEA US, n.d.). A report made by IKEA Ireland stated that in 2024,

male employees earned 6.5% more than female employees on average (IKEA Ireland, 2025). However, the median pay gap was 2.4%, suggesting comparatively minor differences across roles. The report also mentioned that the upper quartile had a higher proportion of male co-workers of 52.56%, indicating gender disparities in the highest-paid roles.

Promoting gender diversity at the managerial level has helped IKEA to achieve greater creativity and innovation due to richer perspectives within teams. Younger employees are more motivated when representation is reflected in leadership roles, reinforcing the company's role as a model for inclusivity and diversity. Gender-diverse leadership correlates with stronger business performance and improved workplace satisfaction (Dixon-Fyle, 2020).

However, some challenges persist in IKEA such as the lingering pay disparities in certain markets and the under-representation of women in senior leadership. Therefore, to ensure long-term progress, continued transparent reporting and active support programmes can help IKEA to address these challenges.

Employee Safety and Well-being

When discussing workforce matters, it is essential to consider the fundamental value of human life. IKEA reported an increase in lost-time accidents, with 134 accidents in 2022, 88 in 2023, and 94 in 2024. The frequency of these incidents also rose, from 3.6 (2023) to 3.9 (2024) incidents per working hours (Inter IKEA Systems B.V., 2025b). However, the company stated there is no single explanation for this increase. It is important for IKEA to urgently investigate the cause of these incidents and remain fully transparent when reporting both findings and corrective actions to prevent future occurrences. Protecting workers' lives is central to its business sustainability, as ensuring safety is always preferable to bearing the cost of workplace injuries or fatalities.

Moreover, IKEA is committed to understanding and improving the well-being of workers across its business ecosystem. For example, the company has launched an online spot check tool and collaborates with Responsible Trucking to assess drivers' working conditions, including wages, working hours, access to facilities, and union rights (Inter IKEA Systems B.V., 2025b).

In 2024, the company started a three-year partnership with The Mission to Seafarers, a leading international seafarer welfare charity. Through its IKEA Way (IWAY) code of conduct, the company introduced new requirements to further protect seafarers' labour rights. These enhancements include addressing crewing levels, limits on continuous working periods (no more than 11 months onboard), ensuring safe and secure conditions, and mandating training for vessel managers on supporting crew members' mental well-being (Inter IKEA Systems B.V., 2024b). Such initiatives can improve employee retention and reduce turnover by demonstrating that the company prioritises worker safety and well-being.

Local Community Engagement, Development, and Education

In Europe, IKEA engaged with 30 local communities and organised 40 activities focused on biodiversity improvement, educational programmes, joint circular economy projects, and financial donations (Inter IKEA Systems B.V., 2025b). These community involvement initiatives have raised awareness about the importance of implementing ESG principles, particularly through education within the communities.

Regarding support for local enterprises, IKEA Social Entrepreneurship partnered with 11 social businesses, collectively employing 10,000 people to produce products for IKEA stores, providing support through collaboration and employment (IKEA Social Entrepreneurship, 2025). The company supports 104 local enterprises across 21 countries through an accelerator programme and direct assistance. For example, in Malaysia, IKEA collaborated with Biji-Biji to stimulate the growth of local enterprises. In India, the company partners with social businesses such as Responsibility of People and Environment (ROPE) and Spun, working closely to build IKEA's MÄVINN social business collection (Inter IKEA Systems B.V., 2025b). These initiatives provide opportunities for local enterprises to expand their businesses, strengthen social enterprise ecosystems, and improve quality of life.

Moreover, the company extends its support to communities in India and Indonesia. In India, IKEA sponsors educational, medical, and extracurricular activities for local children through partnerships with organisations such as New Generation Trust and the Shanti Bhavan School, including donating laptops to facilitate online learning (Inter IKEA Systems B.V., 2025b). In Indonesia, IKEA collaborates closely with the YCAB Foundation to support local schools, including a special needs school in Bandung, through donations of chairs, desks, and computers.

Additionally, IKEA extends its community support to Shanghai, Brazil, and Mexico through efforts such as fundraising for children's well-being, providing school hygiene supplies, and partnering with local organisations to assist people with special needs (Inter IKEA Systems B.V., 2025b). In the US in 2024, IKEA co-workers donated their household essentials to newly arrived refugees and distributed clothing, blankets and IKEA Frakta bags to approximately 600 immigrants (Inter IKEA Systems B.V., 2025b), showing support to them.

Updating Family Friendly Policy

IKEA collaborated with the United Nations Children's Fund (UNICEF) to further children's rights and involve youth in developing climate-resilience solutions within its business operations (Inter IKEA Systems B.V., 2025b). UNICEF evaluated and benchmarked Inter IKEA Group's employment policies to ensure alignment with global child rights standards. Importantly, the company strictly banned child labour in all supplier and subcontractor factories. The company's standard requires that children

be protected from any work that could harm their growth, development, or access to proper education.

In updating its child safeguarding policy, IKEA ensures that all information and engagement involving children are handled responsibly. Specifically, the company does not engage in direct marketing or target social media content towards children (Inter IKEA Systems B.V., 2025b). This approach helps to ensure the protection of young audiences from inappropriate exposure and to respect their rights.

These protective measures are part of IKEA's broader effort to ensure its products, especially family-sensitive items like furniture and household appliances, are designed and marketed in a way that safeguards children rights. As a result, IKEA's products and practices are environmentally responsible and family-friendly, helping protect children from negative impacts within its value chain.

AI and Data Protection Update

As the adoption of artificial intelligence (AI) continues to accelerate globally across industries, IKEA has proactively updated its data and digital technology practices to address ethical and human rights considerations. In response to evolving regulations, such as the European Union (EU) Declaration on Digital Rights and Principles and the UN Global Digital Compact, the company has developed internal guidelines for employees on the responsible use of AI (Inter IKEA Systems B.V., 2025b). Through these initiatives, IKEA aims to recognise the advantages and disadvantages of AI, and implement safeguards that promote ethical usage and concrete AI governance.

Governance

Purpose and Scope

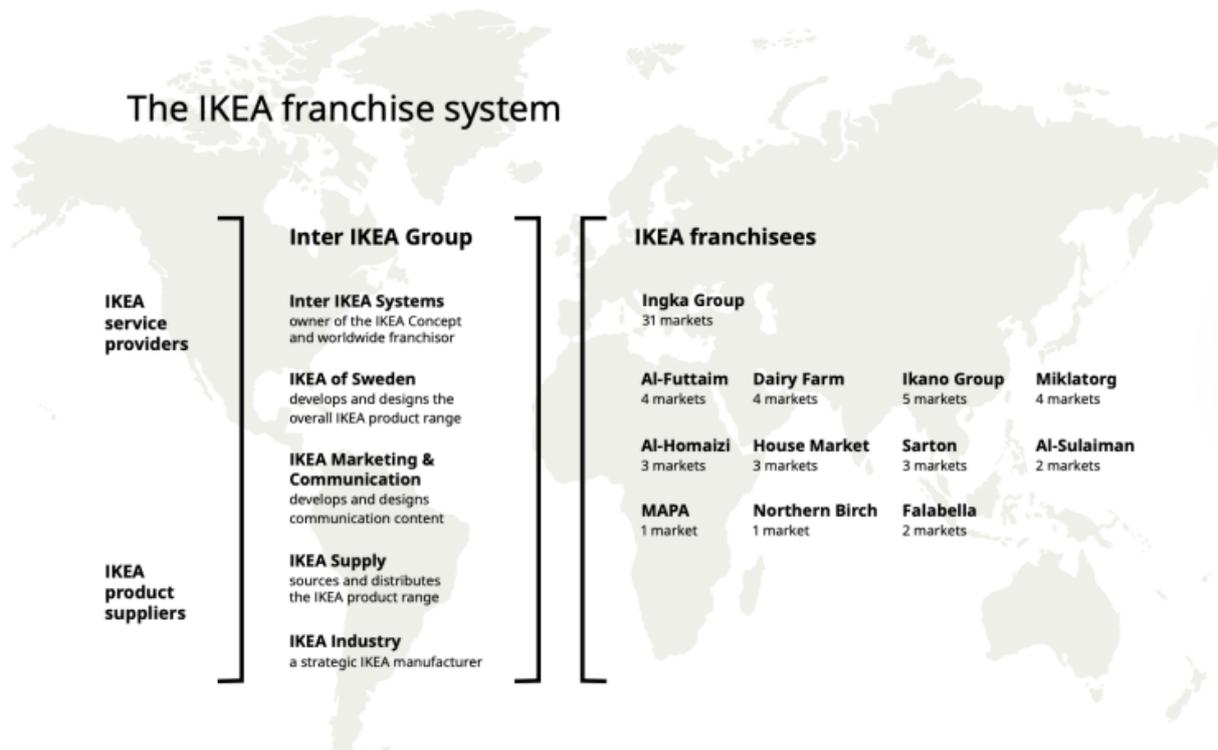
In this context, governance is more than just a company charter or board of directors. It is a specific coordination system that defines who sets the direction of sustainability, who drives implementation, who provides follow-up and accountability, and who discloses data. The analysis focuses on two questions. First, what is the structure of IKEA's sustainability agenda team and what are the respective powers and responsibilities of each unit? Second, within IKEA's "multi-franchise and global brand" structure, how does IKEA's headquarters coordinate independent market operators to implement its sustainability strategy consistently?

IKEA's External Governance Structure

IKEA's corporate structure differs from that of traditional multinational retailers. Inter IKEA Group is responsible for the overall IKEA brand concept, product development, supply framework, and licensing model. Physical retail operations across markets worldwide are operated independently by multiple franchise groups. As of 31 August

2024, IKEA had 12 franchise groups covering 63 retail markets, employing approximately 216,000 people (Inter IKEA Systems B.V., 2025b). However, this “centre and franchise” structure presents governance challenges: because stores are independent legal entities, coordination and communication costs are high.

Figure 9: The IKEA Franchise System



Source: Inter IKEA Systems B.V., 2025b

Collaborative Governance Across the Franchise System

IKEA is not a centralised, single legal entity; it relies on regional franchisees. The company states that the Strategic Sustainability Council ensures it maintains a unified stance across the IKEA franchise system by aligning and monitoring IKEA’s sustainability goals and key outcomes, while respecting the independence of individual franchisees (IKEA Global, n.d.-d). This effectively acknowledges the legal reality of franchise independence while establishing a mechanism—a committee chaired by the Chief Executive Officer (CEO)—to address disagreements and establish a unified voice. Moreover, the 2024 Sustainability Report clearly describes the Sustainability Management Team’s responsibilities: the team is responsible not only for strategy and policy but also for supporting the integration of sustainable practices across the franchise network and tracking performance across the value chain (Inter IKEA Systems B.V., 2025b).

The Strategic Sustainability Council is supported by representatives from Inter IKEA Group and franchisees, and led by the CEO of Inter IKEA Group (IKEA Global, n.d.-

d). IKEA’s Sustainability Working Group, comprised of experts from Inter IKEA Group and franchisees, aims to translate broader concepts into concrete, actionable action plans and standards. It focuses on IKEA’s three priority themes, which are healthy and sustainable living; climate, nature and circularity; and fair and equal (IKEA Global, n.d.-e).

The Sustainability Management Team, led by Inter IKEA Group’s Chief Sustainability Officer (CSO), consists of sustainability managers from each of the three core business units: Retail Concept, Range, and Supply (IKEA Global, n.d.-d). This team is responsible for developing the overall sustainability strategy, drafting group policies, coordinating internal and external communications, and rigorously monitoring the sustainability performance of Inter IKEA Group, its franchise system, and the entire value chain. Its role leans towards playing an internal supervisory body, helping internal business teams integrate sustainable requirements into daily operational processes. It also transforms abstract concepts such as carbon reduction, human rights, and recycling into operational goals that can be implemented as key performance indicators (KPIs), ensuring the organisation can advance the process of sustainable development.

Table 1: IKEA Sustainability Co-Governance Structure

Governance Body	Key Members/ Composition	Main Responsibilities	Coordination & Control Role
Strategic Sustainability Council	<ul style="list-style-type: none"> - Chaired by the Inter IKEA Group CEO - Hosted by Inter IKEA Systems B.V. - Senior leaders from Inter IKEA Group - Leaders from different IKEA franchise groups 	<ul style="list-style-type: none"> - Sets IKEA’s overall sustainability direction (climate, circularity, human rights) - Aligns sustainability objectives and key results across all franchisees - Follows up on progress and expectations at the group level 	<ul style="list-style-type: none"> - Ensures all franchise companies share a unified position despite being legally independent - Prevents each local retailer from creating its own weaker standard - Escalates misalignment at the CEO level instead of leaving it to local negotiation

Sustainability Working Groups	<ul style="list-style-type: none"> - Cross-functional experts from Inter IKEA Group - Experts from individual franchisees or local retail organisations 	<ul style="list-style-type: none"> - Translate high-level ambitions into concrete action plans, standards and timelines - Focus on IKEA's core themes: healthy and sustainable living; climate, nature, circularity; and fairness and equal 	<ul style="list-style-type: none"> - Bridge strategy and operations in different markets - Convey local constraints (cost, infrastructure, regulations) to central decision-makers - Create playbooks for franchisees
Sustainability Management Team	<ul style="list-style-type: none"> - Led by the CSO of Inter IKEA Group - Sustainability managers from core business areas (Retail Concept, Range, and Supply) 	<ul style="list-style-type: none"> - Develops IKEA-wide sustainability strategy and policies - Coordinates internal and external sustainability communication - Monitors and reports sustainability performance across Inter IKEA Group, the franchise system, and the entire value chain 	<ul style="list-style-type: none"> - Embeds sustainability targets (decarbonisation, circularity, human rights) into day-to-day operations and KPIs - Supports franchisees in integrating these requirements in practice - Acts as an internal watchdog for delivery, not just messaging

Source: Table created by the authors with information from IKEA Sustainability Governance webpage and IKEA Sustainability Report FY2024 (IKEA Global, n.d.-e; Inter IKEA Systems B.V., 2025b)

Compliance and Accountability System

Governance in ESG is not just about the committee structure; the most crucial aspect is whether there is an effective compliance and accountability system. IKEA has implemented relatively specific mechanisms in this area. First, IKEA has established codes of conduct and compliance requirements for different entities. Group employees are subjected to the Inter IKEA Group Code of Conduct. Franchisees are subjected to IKEA's code of conduct for franchisees, while suppliers and service providers are subjected to IWAY (Inter IKEA Systems B.V., 2025b). IWAY is IKEA's code of responsibility for suppliers, covering working conditions, environmental impact, and business integrity, and is treated as the minimum standard for the entire IKEA supply chain (IKEA Global, n.d.-c).

Figure 10: Inter IKEA Group Suppliers and Service Providers Actively Working with IWAY

IKEA supplier type ²	Number of production and service units ³ FY24	Description	IWAY Basic requirements fulfilled (% of all suppliers)			
			FY21	FY22	FY23	FY24
Home furnishing suppliers	1,317	Manufacture IKEA home furnishing products	99	99	99.8	99.8
Transport and distribution suppliers (often referred to as partners and service providers) ⁴	503	Transport IKEA products from suppliers to, and between stores and distribution centres	97	99	99.8	99.8
Food suppliers	453	Provide the food and ingredients for the IKEA bistros, restaurants, and Swedish Food Markets	99	99	99.9	99.7
IKEA Components	1,079	Provide components and materials used in IKEA home furnishing products to IKEA suppliers and sub-contractors	98	99	99.9	99.9
IKEA global media productions	8	Provide pulp, paper, and print services for global media productions ⁵	94	95	99.5	100
Critical sub-contractors	5,135	Critical home furnishing sub-contractors where compliance towards IWAY Must has been verified	80	89	71 ⁶	63.1 ⁷

¹ To create one competence centre for purchasing the supply of raw materials and components; as of 1 September 2021, the purchase of direct material IKEA owned factories of IKEA Industry is led by IKEA Components.

² The table does not include local suppliers to IKEA franchisees.

³ Some suppliers and service providers have multiple production and service units. IWAY applies on a unit level.

⁴ Air freight is not used for standard product transport.

⁵ This figure doesn't include digital suppliers.

⁶ The FY23 result is lower compared to FY22 as a number of verifications have recently expired and are in the process of being reviewed.

⁷ The result is lower in FY24 compared to FY23 due to the increased number of critical sub-contractors.

Source: Inter IKEA Systems B.V., 2025b

IKEA emphasises its internal “Raise a Concern” mechanism, encouraging employees to proactively report misconduct when they discover it—whether directly to the individual involved, via a supervisor or HR, or through a formal reporting platform (Inter IKEA Systems B.V., 2025b). The company considers reporting channels a part of its “speak-up culture”, extending beyond basic legal compliance requirements. Notably, this is not just lip service as IKEA discloses quantitative data. 140 concerns related to Inter IKEA Group were reported in FY24, up from 129 in FY23, with 33 of these cases leading to internal investigations (Inter IKEA Systems B.V., 2025b). The most common

categories involved workplace and human resources issues (such as harassment and discrimination) and business ethics concerns (such as conflicts of interest and bribery).

Moreover, IKEA has integrated “respect for human rights” into the core agenda of its Strategic Sustainability Committee, placing it on equal footing with priorities such as its circular business model and decarbonisation goals (IKEA Global, n.d.-d). These initiatives demonstrate IKEA’s concrete governance practices. The reporting channel provides an effective feedback mechanism, ensuring smooth communication between employees and management. In addition, the company’s willingness to disclose this sensitive data demonstrates that IKEA puts its sustainability values into practice.

Furthermore, IKEA has extended its governance to its information disclosure system. Starting in FY26, it will report in accordance with the EU Corporate Sustainability Reporting Directive (CSRD), using a “double materiality” approach (Inter IKEA Systems B.V., 2025b). This will cover both the financial impact of sustainability issues and the impact on people and the planet. This means that sustainability data will be placed under the same regulatory framework as financial reporting and will continue to be subject to legal accountability.

Conclusion

By adopting a circular approach and designing for a greener future, IKEA has enabled longer product lifecycles. Its commitment towards using eco-friendly materials is also exemplary for industry. IKEA has made breakthroughs in using recycled content, though further research into material innovation remains necessary. This area is an emerging priority in global sustainability efforts that IKEA continue to invest in.

From an environmental perspective, IKEA shows a strong commitment to sustainability through its “People & Planet Positive” strategy and science-based climate goals. The company has made progress in reducing emissions, expanding renewable energy use, and promoting circularity. However, material-related emissions remain high, and supply-chain transparency needs further strengthening. To maintain its leadership, IKEA should continue investing in low-carbon materials and strengthening supplier collaborations to accelerate its transition towards a fully circular and climate-positive business.

From a social responsibility perspective, IKEA demonstrates a strong commitment to sustainability by achieving its target of 50/50 gender balance, partnering closely with local communities, and continually improving employee protection and satisfaction. Despite significant progress, the company should strengthen its efforts to reduce lost-time incidents by implementing more transparent review and reporting processes. Ongoing improvements and open communication can further align IKEA’s actions with its reputation for responsible and transparent business practices.

From a governance perspective, IKEA’s corporate structure differs from that of traditional multinational retailers. IKEA tends to institutionalise sustainability issues

and incorporate them into a multi-tiered governance system. The Inter IKEA Group plays a unique role in ESG governance through its organisational structure, overseeing aspects such as retail concepts, product lines, and supply chains. Through the coordinated efforts of internal and external organisations, IKEA defines its sustainability direction and progressively advances its sustainability performance and outcomes.

Discussion Questions

1. How effective are IKEA's packaging innovations (e.g., plastic phase-out, mushroom-based materials, corrugated cardboard) in balancing functionality, cost, and environmental benefit, and what unintended consequences might arise?
2. With AI and data use expanding, what specific governance structures and safeguards should IKEA prioritise to ensure that digital innovation supports, rather than undermines, its environmental and social sustainability goals?
3. How does IKEA's multi-layered sustainability governance structure help it coordinate sustainability efforts across legally independent franchisees, and where might this structure create challenges or gaps in accountability?

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The Fashion Pulpit: Impact of Sustainability in the Fashion World

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Product & Innovation

Business Design & Circularity

Introduction

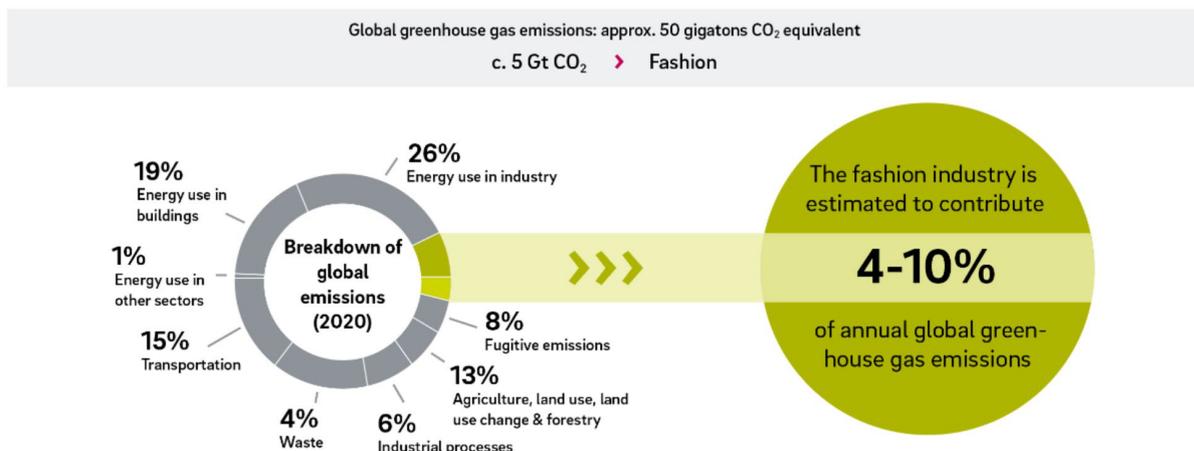
Fashion Industry and Sustainability Context

The global fashion industry is one of the most resource-intensive sectors in the world. It is responsible for an estimated 10% of global greenhouse gas emissions (Federowski & Rosenthal, 2022) and nearly 20% of global wastewater (United Nations, 2019). The rise of fast fashion has further shortened product life cycles and intensified clothing waste, with approximately 92 million tonnes of garments discarded each year globally (United Nations Environment Programme, 2025).

In Singapore, the issue of textile waste has become increasingly visible. The country's high consumption patterns, limited land space, and dependence on imported apparel make fashion sustainability a growing concern. In 2024, the National Environment Agency (NEA) reported that only 3% of textile and leather waste was recycled, with the remainder either incinerated or sent to landfills (National Environment Agency, 2025). The statistics indicate an urgent need for circular solutions that encourage consumers to reduce, reuse, and recycle.

In this context, the concept of circular fashion, which extends a garment's lifespan through reuse, repair, and recycling, has gained global traction. Clothing-swap platforms are changing consumption habits by promoting sharing instead of ownership. Within this transformation, The Fashion Pulpit (TFP) stands out as Singapore's pioneer in sustainable fashion and a model of community-based circular economy.

Figure 1: Global Fashion Industry Share of Greenhouse Gas Emissions



Source: Federowski & Rosenthal, 2022

Company Overview

Founded in 2018 by Filipino designer and social entrepreneur Raye Padit, The Fashion Pulpit began as a small-scale clothes-swapping initiative before evolving into Singapore's first physical space dedicated to circular fashion and upcycling (Saini, 2025). The concept was born from a desire to reduce fashion waste and make sustainable fashion accessible to everyone. The name "Pulpit" symbolises a platform for advocacy, a space where people can share, learn, and connect through fashion and sustainability. Guided by a vision to make sustainable fashion accessible, inclusive, and enjoyable, the enterprise empowers individuals to extend the lifespan of fashion items through swapping, upcycling, and conscious consumption.

The Fashion Pulpit provides members with the opportunity to exchange pre-loved garments instead of purchasing new ones. Members subscribe to monthly or annual plans, contribute quality clothing, and receive swap credits to redeem other items. This process reduces textile waste and fosters a culture of shared responsibility in mindful consumption. Rooted in the principles of inclusivity, community, and sustainability, TFP aims to redefine the relationship between fashion and environmental awareness through collaboration and creativity.

Beyond its core swapping activities, the company operates as a social enterprise that generates revenue from membership fees, educational workshops, and partnerships with corporate and non-profit organisations. It regularly organises upcycling and repair classes, sustainability talks, and fashion reuse events (The Fashion Pulpit, n.d.-d). In 2024, TFP has 1,515 active members and collected 11,933 kg of garments (The Fashion Pulpit, 2025). Through its inclusive and community-driven model, it has become one of the leading advocates for sustainable fashion in Singapore's circular economy.

Sustainability Strategy and EESG Integration

As a mission-driven social enterprise, The Fashion Pulpit integrates sustainability into every aspect of its operations rather than treating it as a separate initiative. Although it is a private start-up and not subject to mandatory reporting requirements, the organisation voluntarily aligns its business model and impact practices with the United Nations Sustainable Development Goals (SDGs) (United Nations, n.d.) and the Global Reporting Initiative (GRI) standards. Its sustainability approach focuses on embedding economic resilience, environmental responsibility, social inclusion, and ethical governance into its daily decisions.

From an economic perspective, TFP shows how a circular business model can generate both financial and social value. Its membership-based swapping system provides a steady income from subscription fees. The model also promotes responsible consumption by encouraging members to view clothing as a shared

resource. Through collaborations with local artisans, designers, and educators, the enterprise supports green entrepreneurship and inclusive growth, contributing to SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation and Infrastructure) within Singapore's sustainable fashion ecosystem.

From an environmental perspective, TFP promotes circular fashion by extending the lifespan of garments and reducing textile waste. The company's swap system and repair workshops collectively help to lower the carbon and material footprint associated with fast-fashion consumption. These efforts are consistent with SDG 12 (Responsible Consumption and Production) and GRI 306 (Waste), reflecting a clear commitment to resource efficiency and waste reduction.

On the social front, TFP creates inclusive spaces where individuals, schools, and organisations can engage in sustainability learning. Its events and collaborations foster community interaction and empower individuals, particularly women and young consumers, to adopt conscious fashion choices. Through partnerships with local artisans and non-governmental organisations (NGOs), the organisation supports SDG 8.

In terms of governance, TFP upholds transparency and accountability through regular communication of its environmental and social outcomes to the public. While the above provides a strategic overview of TFP's sustainability approach, the following sections will explore how these initiatives contribute to broader economic, environmental, social and governance benefits, demonstrating the tangible impact of sustainability in practice.

Economic Dimension

The Fashion Pulpit shows how fashion can prosper in a circular economy model. Instead of a linear "take-make-dispose" approach that is prevalent in the fast-fashion industry, TFP is built on a clothing-swap system supported by subscriptions and complementary services. Members pay monthly fees to access a shared wardrobe of pre-loved clothes, supplemented by revenue from workshops, upcycling events, and collaborations with local designers (The Fashion Pulpit, n.d.-d). This structure enables the enterprise to balance financial sustainability while advancing environmental and social aims.

Economic Value Creation and Industry Alignment

The enterprise creates economic value in three ways. First, the recurring revenue business model guarantees stable revenues as opposed to the lump sum retail transactions. Second, by offering consumers an alternative to fast fashion, TFP can decrease the financial burden of frequent clothing purchases and expand the range of

fashion styles. Third, its operations support the local economy by promoting green entrepreneurship and working with independent designers and artisans.

The positioning of TFP is in line with the general trends in the fashion industry at large. The resale and rental market is expected to expand, supported by the McKinsey State of Fashion 2025 report, which predicts that the consumer market will need affordability, sustainability, and flexibility (Balchandani et al., 2024). In this situation, TFP is an example of a niche yet progressive business model that meets market needs and ecological urgency. This is typical of a circular business model that extends the product lifecycle and moves away from the usage of virgin resources (Ellen MacArthur Foundation, 2017).

Challenges and Strategies for Economic Resilience

Nevertheless, TFP is subject to several economic threats as well. To begin with, there is the issue of scalability due to the relatively small consumer base in Singapore and the cultural stigma that might prevail regarding second-hand clothing. In addition, high urban operating costs, including rent and staffing, can place pressure on long-term financial sustainability unless offset by digitalisation or strategic alliances. Finally, there is an ongoing need to balance affordability for members with operational sustainability.

To enhance its economic resilience, TFP may seek innovations that are consistent with global circular-economy developments. By incorporating technology in its business model, TFP can build regional or global membership networks, going beyond Singapore and thus expanding the business. Furthermore, collaborations with retailers that have undertaken circular projects can help to diversify revenue streams and entrench TFP better within Singapore's fashion economy.

Environmental Dimension

TFP's most noticeable and effective contributions are its environmental contributions. In Singapore, textile and leather waste in 2024 were around 211,000 tonnes, of which only 5,000 tonnes were recycled (National Environment Agency, 2025). This is a grim statistic. By providing clothing swap and upcycling services, TFP can help decrease the number of clothes headed for landfills.

The core of TFP's environmental model is a set of principles of a circular economy focused on reuse, repair, and recycling. The enterprise supports the rate of utilisation per garment, which in turn decreases the need to produce new garments. According to research conducted by the Waste and Resources Action Programme (WRAP), extending the active lifespan of 50% of clothing by just nine months can shorten carbon, water, and waste footprints by 4-10% (Waste and Resources Action Programme, 2017). TFP puts this observation into action through the establishment of

community-based mechanisms that can enable every garment to have an extended life.

Environmental Impact and Consumer Awareness

In addition to directly cutting waste, TFP's activities lead to a reduction in carbon emissions indirectly through decreasing the need to produce new clothes. The environmental impacts of fast fashion are enormous, with fabric production alone representing a significant source of greenhouse gases and water consumption on a global scale (Ellen MacArthur Foundation, 2017). The traded goods at TFP are a manifestation of evaded resource mining, production, and distribution emissions. Additionally, workshops and educational events enhance this effect through raising consumer awareness of the environmental costs of fashion, and encouraging behavioural change.

Challenges and Pathways to Environmental Accountability

Despite these contributions, there are still environmental challenges. To begin with, swaps can make garments last longer, but not every fabric can be reused or upcycled. This implies that there is a certain amount of waste that cannot be avoided. Additionally, the impact of TFP is limited by its community-based model. Although it plays an important role in Singapore, its role is small in comparison with the output level of the global fast-fashion industry. Lastly, the environmental benefits may be compromised if operational practices, such as energy-intensive shopping areas, are not monitored.

TFP may consider adopting impact-measurement frameworks in the quest to improve its positive environmental impact. The metrics that would be published transparently, including the number of garments that were diverted from disposal or the amount of carbon saved, would not only quantify the benefits but also increase credibility among the stakeholders. Reporting could be aligned with indicators related to circularity. Moreover, TFP could highlight how its efforts fit into national sustainability plans such as Singapore's Zero Waste Masterplan.

Social Dimension

Social sustainability offers a human-first approach to sustainable development. At its core, it aims to respect and maintain human rights by combating discrimination, promoting solidarity, and contributing to human well-being (United Nations Global Compact, n.d.). Sustainable development cannot be truly achieved without social sustainability. When attained within a business, social sustainability can unlock new

markets, improve productivity, and be the source of innovation (United Nations Global Compact, n.d.)

The fashion industry, specifically fast fashion, creates a myriad of challenges in achieving sustainability. Alongside environmental impacts, concerns over human rights violations and inequalities remain widespread (World Benchmarking Alliance, 2023). These issues cannot simply be addressed with environmental reforms, and the growing demand for fast fashion creates barriers to a more sustainable future. To address these issues, one must create accessible solutions that cater to the complexity of the industry's problems.

As a company that aims to create a more sustainable fashion industry, TFP seeks to foster social sustainability through its efforts. It hopes to “create a purpose-driven economy around sustainable fashion and conscious consumerism” (The Fashion Pulpit, n.d.-c). By offering an affordable and collaborative alternative to fast fashion, TFP not only extends the lifespan of garments but also transforms consumption habits through education, participation, and community building.

This section explores how TFP fosters social sustainability through inclusivity, partnerships, and behavioural transformation. It analyses how its circular model leverages environmental responsibility to create community and long-term shifts in consumer behaviour towards sustainable living.

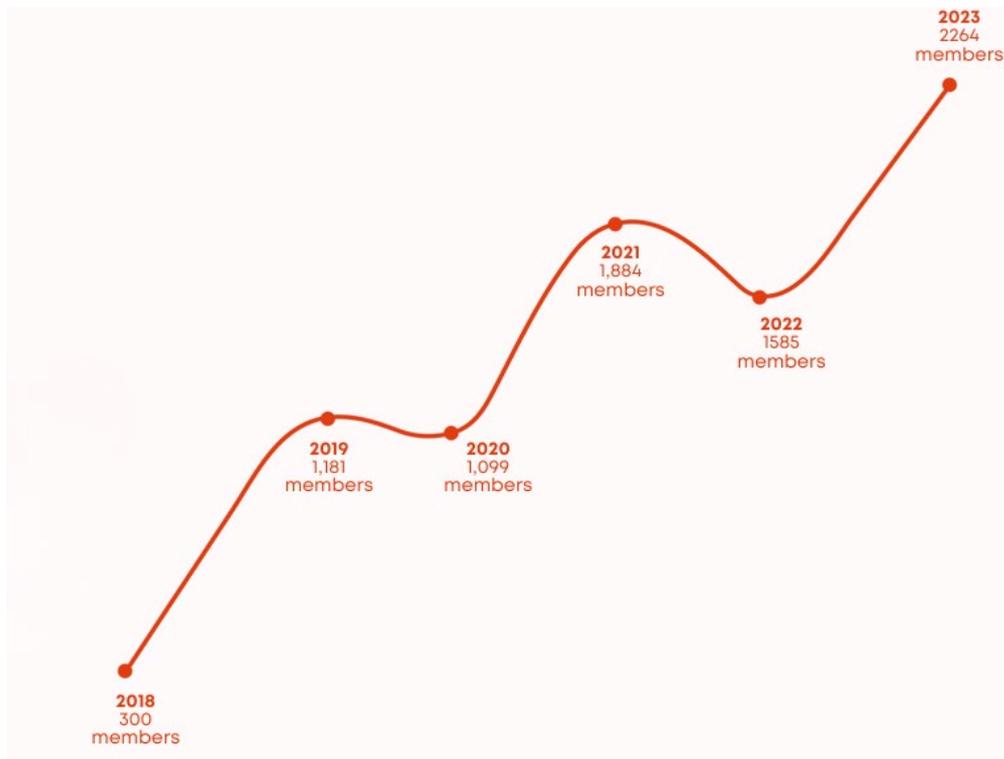
Social Impact of TFP

Community Building and Inclusivity

TFP is more than just a fashion initiative; it builds a community with a shared responsibility for sustainable living and conscious consumerism (The Fashion Pulpit, 2024). Since its inception in 2018, the brand has gained over 6,000 members (The Fashion Pulpit, 2024). With inclusivity as a core purpose, TFP's platform caters to individuals of different ages, careers and backgrounds, and creates a judgement-free space to enjoy fashion (The Fashion Pulpit, 2024). It also conducts a series of community-building activities, including swap events and fashion shows, to promote sustainable fashion (The Fashion Pulpit, n.d.-d).

Through its community-led model, TFP contributes to SDG 11 (Sustainable Cities and Communities) by building a conscious community that values collective well-being over individual consumption. TFP understands that sustainability is also about creating safe spaces of expression and building communities. This changes its members from passive consumers to active contributors to both TFP and society.

Figure 2: Membership Analytics



Source: The Fashion Pulpit, 2024

Education and Awareness Raising

Beyond clothes swapping, TFP also promotes environmental education. By partnering with organisations, TFP conducts workshops that encourage companies and their employees to adopt sustainable fashion practices such as mindful consumption, swapping, and recycling clothes, while fostering a culture of sustainability within the organisation (The Fashion Pulpit, n.d.-d). In turn, TFP gains credibility, resources, and wider visibility across sectors. The company also hosts a series of educational workshops that teach consumers about upcycling, altering, and caring for clothes, complemented by educational blog posts, podcasts, and a YouTube channel (The Fashion Pulpit, n.d.-b). These educational platforms not only teach practical skills but also instil agency and demonstrate that living sustainably is fashionable and fulfilling.

Accessibility and Affordability of Sustainable Fashion

Eco-friendly options in most industries are often inaccessible because of premium pricing (Simon-Kucher, 2024). This often encourages people to turn to less sustainable, cheaper alternatives, namely fast fashion. While creating TFP, founder Raye Padit discovered that most people want to do good and can adopt sustainable shopping habits when these are accessible. Consumers turning to fast fashion is not

an indication of disliking sustainable products, but rather them being unaffordable, as affordability often outweighs ethical concerns (Zaborek & Nowakowska, 2024).

TFP was created as an affordable alternative, with student memberships starting at S\$12 per month. By serving as a realistic lifestyle choice for everyday consumers, the platform reduces sustainable elitism, which is the idea that sustainable living is a luxury rather than a necessity accessible to everyone (Valderrama, 2022). In doing so, TFP reduces economic barriers to sustainable fashion and contributes to SDG 10 (Reduced Inequality).

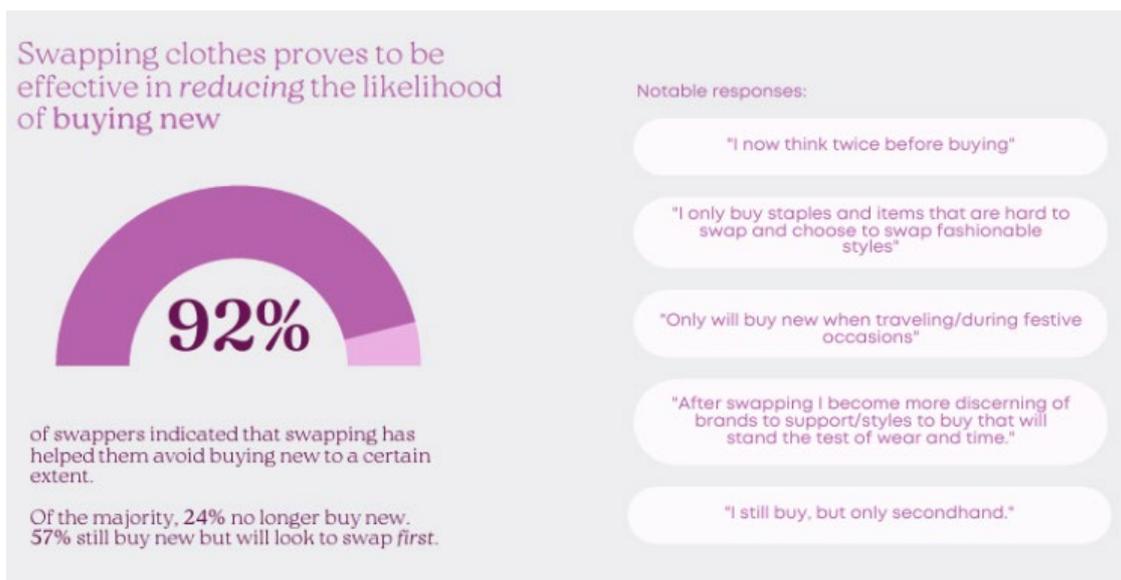
Social Value Creation and Stakeholder Engagement

TFP's social impact is driven by its ability to build relationships, work with and prioritise its stakeholders. In alignment with Freeman's (1984) stakeholder theory, TFP leverages these relationships to create social value across multiple levels of society. Aside from its members and corporate partnerships, TFP also partners with other social enterprises.

Through its Circular Fashion Hub (CFH), TFP has built a network of local designers and brands with a shared vision of improving the fashion industry's impact on the environment and people (The Fashion Pulpit, n.d.-b). It is also a member of *raiSE* Singapore, a not-for-profit association of social enterprises that champions organisations creating meaningful change through business (*raiSE* Singapore, n.d.).

By integrating stakeholder voices into its model, TFP sustains a long-term social impact that extends beyond fashion.

Figure 3: Social Impact of TFP



Source: The Fashion Pulpit, 2022

Recommendations for Strengthening Social Sustainability

Despite its strong community presence and partnerships, TFP still faces several challenges in growing its social influence. TFP's brand awareness is limited to individuals who are already interested in ethical consumption, and it has yet to reach mainstream consumers. Moreover, though TFP offers a more affordable alternative to fast fashion, its membership and event fees can unintentionally ostracise low-income individuals from the conversation, raising concerns about accessibility and inclusivity.

For TFP to continue making a social impact in Singapore's fashion industry, it must be able to address its limitations and challenges. The following recommendations are proposed:

Expand Partnerships to Educational Institutions

TFP can partner with local schools and universities to raise awareness of sustainable fashion practices among students and the youth. Education plays a key role in building a more sustainable world and a generation of learners who can address complex sustainability challenges (UNESCO, n.d.). This demonstrates that education is pivotal in TFP's goal of cultivating lasting behavioural change.

Bridge the Gap

To make circular fashion more accessible and address sustainability elitism, TFP could collaborate with NGOs to offer subsidised memberships for low-income individuals. By reducing economic barriers, TFP can witness an uptick in memberships and be one step closer to reshaping the fashion industry.

Impact Measurement Frameworks

To measure the success of its social contributions, TFP can adopt a Social Return on Investment (SROI) model (Social Value International, n.d.). When the right frameworks are implemented, TFP can quantify community engagement and behavioural change. This will allow TFP to continuously improve its social impact and value.

By transforming individual environmental consciousness into collective action, TFP has created a unique selling proposition that ensures continued success in its effort to redefine fashion. However, to scale its impact, the brand will need to strengthen its partnerships, increase accessibility, and implement measurement models that align with its goals. By doing so, TFP can strengthen its efforts in transforming the fashion industry into one of collaboration and care, and continue to be a source of innovation in Asia's circular economy.

Governance Dimension

Governance refers to the systems, structures, and leadership mechanisms that ensure organisations operate ethically, transparently, and accountably. In the context of sustainability, governance determines how effectively environmental and social goals are translated into strategic actions and measurable impact. It includes aspects such as leadership commitment, decision-making frameworks, stakeholder engagement, transparency, and reporting. Strong governance enables an organisation to move beyond symbolic sustainability commitments and ensure that its environmental and social initiatives are credible, consistent, and impactful.

The governance dimension is therefore critical in shaping the impact of sustainability. It provides the foundation for responsible decision-making, risk management, and long-term value creation. Without sound governance, sustainability efforts may become fragmented, inconsistent, or even susceptible to greenwashing. Through effective governance, businesses can embed sustainability into their core strategies, ensuring that environmental protection and social well-being are integral to how success is defined and achieved.

The Impact of Governance on the Environment and Society

From an environmental perspective, governance ensures accountability for sustainability outcomes such as carbon reduction, waste management, and resource efficiency. When leadership integrates environmental considerations into decision-making through clear policies and measurable targets, it drives systems that deliver tangible ecological benefits.

Socially, governance ensures that sustainability initiatives are inclusive and community-driven. Good governance upholds ethical labour practices, diversity, and stakeholder participation, creating transparency and trust across all levels of operation (UNESCAP, n.d.). In this way, governance acts as the link between sustainability ambitions and real-world transformation by embedding fairness, accountability, and shared responsibility into business practice.

Governance and Sustainability at The Fashion Pulpit

TFP, a Singapore-based upcycling and clothing-swap platform, provides a compelling example of governance-led sustainability impact within the fashion industry. It champions circular fashion by extending garment lifecycles and reducing textile waste. While it lacks a formal Environmental, Social, and Governance (ESG) board, its governance model is values-driven, transparent, and participatory.

Figure 4: The General Idea of Circular Fashion



Source: Khuble, n.d.

At its core, TFP's governance relies on founder leadership and community accountability. The founder's personal commitment to ethical consumption sets the tone for the organisation's culture and operations. Actions, such as holding swap events and partnerships, suggest guidance by circular economy principles. Transparency is central: the organisation openly communicates its goals, environmental rationale, and progress through community channels, ensuring stakeholders understand the impact of their participation.

The environmental benefits of this governance approach are significant. Through consistent oversight and engagement, TFP diverts garments from landfills, reduces textile waste, and minimises the carbon footprint associated with fast fashion. Socially, its governance promotes inclusion and empowerment. By fostering a participatory community where individuals contribute to sustainability efforts, TFP educates consumers about mindful consumption, builds environmental awareness, and cultivates collective ownership of sustainability outcomes.

Strategic Analysis of Governance Impact

From a strategic perspective, TFP demonstrates how informal governance can still create measurable sustainability impact when driven by strong values and leadership. Its participatory governance model aligns closely with stakeholder theory, which emphasises that organisations should balance the interests of all stakeholders, such as customers, community, and the environment, rather than prioritising profit alone.

The model's strength lies in its alignment of governance and mission. Every operational decision reinforces its sustainability purpose, creating coherence between intent and action. This alignment has built a loyal customer base and enhanced the brand's reputation as a leader in sustainable fashion within Singapore. Moreover, its

governance fosters resilience and adaptability, allowing it to expand through partnerships and community-driven initiatives without losing authenticity.

However, the absence of formal governance structures presents strategic limitations. Without a defined ESG committee or reporting metrics, the organisation's sustainability claims may be difficult to quantify or benchmark. As sustainability reporting frameworks gain traction, TFP risks being overlooked by institutional partners or investors seeking verifiable impact data. The governance model's reliance on founder leadership also raises succession and scalability concerns.

Recommendations for Strengthening Governance

To enhance its governance and amplify sustainability impact, TFP can adopt several strategic measures grounded in best practices for ESG management and circular economy governance.

Establish a Sustainability Governance Committee

Creating a small advisory group to oversee ESG strategy, performance tracking, and stakeholder engagement would provide continuity and accountability beyond founder leadership.

Develop Measurable Impact Metrics

Introducing key performance indicators (KPIs) for waste reduction, carbon savings, and community engagement would allow TFP to align its impact measurement with internationally recognised standards such as the GRI (Global Reporting Initiative, n.d.). Quantifiable metrics will help verify sustainability performance and attract potential investors or collaborators.

Implement Stakeholder Reporting Mechanism

Publishing an annual or biannual sustainability report can strengthen transparency and credibility. Regular disclosures can promote stakeholder trust and demonstrate commitment to ethical and responsible governance.

Capacity Building

Providing training for staff and volunteers on sustainability governance principles ensures that operational decisions align with long-term ESG objectives. Building internal capacity creates a culture of accountability and shared ownership of sustainability outcomes (UNESCO, n.d.).

Strategic Partnerships

Collaborating with educational institutions, NGOs, and policymakers will allow TFP to scale its environmental and social impact while enhancing data credibility. Partnerships also position TFP as a contributor to national sustainability initiatives, such as Singapore's Zero Waste Masterplan, and help shape sustainable fashion policies in alignment with SDG 12 (Responsible Consumption and Production).

Together, these recommendations would strengthen TFP's governance systems, ensuring long-term accountability, measurable impact, and alignment between sustainability objectives and operational decisions.

Risks and Challenges

While TFP demonstrates a strong commitment to sustainability through its circular business model, several risks and challenges may constrain its long-term impact on the environment and society. These challenges arise primarily from limitations in scale, behavioural change, and the absence of measurable impact frameworks that link governance, operations, and sustainability outcomes.

Limited Scale and Measurable Environmental Impact

A key challenge lies in the limited scale of TFP's operations relative to the size of the fashion industry. Although the enterprise successfully reduces textile waste through clothing swaps and upcycling, its impact remains localised to a small urban community. The number of garments saved from landfills, the reduction in carbon emissions, and resource conservation benefits are not systematically measured or verified. Without quantitative data, such as carbon saved, garments diverted, or water conserved, the environmental benefits risk being perceived as symbolic rather than transformational. This lack of measurable outcomes also limits TFP's credibility in sustainability reporting and its ability to attract partners or funding aligned with verified impact.

Behavioural and Cultural Barriers to Sustainable Consumption

From a societal perspective, the success of TFP's sustainability impact depends on shifting consumer behaviour from fast fashion to conscious consumption. However, cultural and behavioural inertia remains a major obstacle. In Singapore, second-hand or upcycled clothing is still associated with stigma or perceptions of lower value. This restricts the inclusiveness of TFP's model and slows the diffusion of sustainable fashion habits. Furthermore, participation is concentrated among eco-conscious consumers already predisposed toward sustainability, limiting the brand's capacity to foster broader social transformation. Overcoming these cultural barriers requires

large-scale education, marketing, and partnerships, which are initiatives that demand resources and long-term commitment.

Social Accessibility and Inclusion Risks

Although TFP promotes affordable fashion alternatives, economic accessibility remains a challenge. Membership and event fees can exclude lower-income groups, potentially undermining social inclusivity, which is one of the cornerstones of sustainability. If circular fashion is accessible only to middle-income or educated urban consumers, the social impact of reducing inequality or promoting inclusivity (SDG 10) becomes limited. This may create what scholars call “sustainability elitism”, where sustainable choices are perceived as privileges rather than accessible lifestyle options.

Absence of Standardised Impact Measurement and Reporting

TFP’s lack of a formal impact measurement framework poses a governance and transparency risk that directly affects sustainability. Without clear metrics, progress cannot be benchmarked or communicated effectively to stakeholders, hindering opportunities for collaboration with policymakers, corporations, or international organisations. Transparent reporting and impact verification are increasingly critical for maintaining credibility and ensuring that sustainability initiatives lead to measurable environmental and social benefits.

Risk of Mission Drift with Growth

Finally, as TFP scales or partners with larger entities, it faces the risk of mission drift, where commercial goals overshadow sustainability impact. Expansion through online platforms or collaborations with mainstream retailers could introduce pressures to prioritise revenue over environmental integrity or community engagement. Maintaining governance structures that safeguard the organisation’s mission will be crucial to prevent the dilution of purpose.

In essence, TFP’s sustainability impact is constrained not by intent but by scale, measurement, and cultural context. Environmental outcomes remain localised and under-measured, while social influence is limited by behavioural resistance and accessibility barriers. Addressing these challenges requires stronger governance mechanisms, impact measurement tools, and partnerships that can extend the reach, inclusivity and credibility of circular fashion in Singapore’s sustainability landscape.

Recommendations and Conclusion

In conclusion, TFP illustrates how governance and circular business models can generate meaningful sustainability impact. Through its clothing-swap system, upcycling initiatives, and educational workshops, TFP demonstrates how fashion can transition from a linear take-make-dispose model towards a more regenerative, community-based approach. However, to strengthen and scale its environmental and social impact, TFP needs to embed stronger governance structures and measurable accountability.

First, the introduction of a formal impact measurement framework is essential. Quantitative indicators for waste diversion, carbon savings, and community engagement will allow TFP to transform qualitative achievements into verifiable data. Second, enhancing inclusivity and accessibility is critical for long-term impact. Collaborating with NGOs and educational institutions can help TFP reach diverse communities and address perceptions that sustainable fashion is a privilege rather than a shared responsibility. Third, digitalisation presents an opportunity to scale impact while maintaining efficiency. Expanding into online swapping and resale platforms can extend TFP's reach regionally and strengthen its contribution to the circular economy.

Finally, establishing a sustainability advisory board would formalise governance, guide impact measurement, and safeguard TFP's mission as it grows. This aligns with Freeman's (1984) stakeholder theory, which emphasises that sustainable value is created when businesses balance the needs of multiple stakeholders, such as community, customers, and the environment, rather than focusing solely on profit. We believe that the strategies mentioned above would allow TFP to evolve from a niche community initiative into a model for measurable, inclusive, and scalable sustainability, demonstrating that effective governance is the foundation of lasting environmental and social transformation.

Discussion Questions

1. How does TFP translate its vision of sustainable fashion into concrete business practices and strategic actions?
2. How can TFP's circular fashion model remain financially viable while continuing to deliver meaningful social impact?
3. How can TFP develop a clear system to measure, evaluate, and communicate its sustainability impact to the public?

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Cathay Pacific: Bridging Sustainability and Aviation

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Loh, L., & Ang, H. M. (Eds.). (2026). *Cases in sustainability (Vol. 1: Firm-level and market-based approaches)*. Centre for Governance and Sustainability, NUS Business School.

Service & Platform

Operational Model & Efficiency

Introduction

Cathay Pacific Airways Limited, founded in Hong Kong in 1946, stands as a leading global airline and a key player in Asia's aviation industry. As Hong Kong's flagship airline, Cathay Pacific operates a diverse business portfolio covering premium travel, cargo, low-cost travel, and lifestyle services. In recent years, the company has placed sustainability at the core of its business strategy, recognising that long-term growth must align with environmental stewardship, social well-being, and sound governance.

In 2024, Cathay Pacific completed what it terms a two-year rebuilding journey after the COVID-19 pandemic, with a view to achieve 100% restoration of pre-pandemic flight capacity (Cathay Pacific Airways Limited, 2025b). The airline has adopted a holistic sustainability strategy, with the following focus areas: governance, climate change, circular economy, biodiversity, safety, community, and people. Through its "Greener Together" approach, Cathay Pacific collaborates with governments, customers, and industry partners to build a sustainable aviation ecosystem. The company has pledged to achieve net-zero carbon emissions by 2050, with interim targets including a 12% improvement in carbon intensity by 2030 and for 10% of its jet fuel to be derived from sustainable aviation fuel (SAF) by 2030 (Cathay Pacific Airways Limited, 2025b).

Cathay Pacific's sustainability efforts are also aligned with several United Nations (UN) Sustainable Development Goals (SDGs), including SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land) (Cathay Pacific Airways Limited, 2025b). This case study examines its economic performance and sustainability challenges, exploring how corporate responsibility and profitability can coexist in the modern aviation landscape.

Cathay Pacific's Sustainability Strategy

Economic Dimension

Cathay Pacific's approach to economic sustainability integrates profitability with long-term resilience and responsible stewardship. The airline's economic strategy extends beyond financial returns to ensure that growth benefits all stakeholders, including investors, employees, and the wider Hong Kong community.

Value Creation

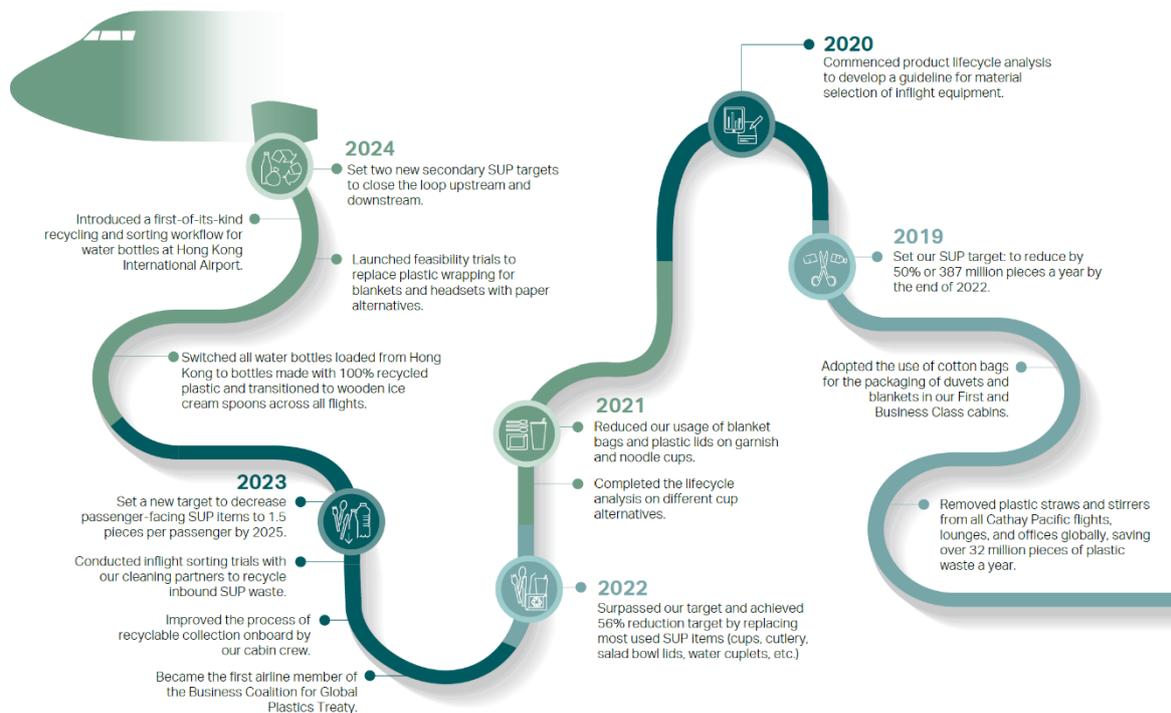
The airline achieved a net profit of HK\$9.9 billion in 2024, showing two consecutive years of strong profitability after pandemic-related losses. Over HK\$100 billion has been allocated for long-term investments in next-generation, fuel-efficient aircraft, which aim to reduce operating costs while minimising carbon emissions (Cathay Pacific Airways Limited, 2025a). Cathay Pacific collaborates with over 6,800 suppliers

worldwide, with an economic impact extending across multiple regions and industries. Through its sustainable procurement policy and supplier assessment system known as CISQAS (Costs, Innovation, Satisfaction, Quality, Assurance of Supply, Safety/Sustainability), the company promotes ethical sourcing and alignment with environmental, social, and governance (ESG) standards throughout its supply chain (Cathay Pacific Airways Limited, 2025b).

Circular Economy

A central pillar of Cathay Pacific’s economic sustainability is the adoption of circular economy principles, which seek to decouple growth from resource depletion and waste generation. Cathay Pacific has been taking steps to reduce single-use plastics. In 2024, all water bottles loaded from Hong Kong were replaced with 100% recycled plastic, and a new recycling and sorting workflow was introduced at Hong Kong International Airport to remanufacture used bottles into new ones, demonstrating a circular model of resource recovery. Over 6,850 kg of plastic bottles were recycled that year (Cathay Pacific Airways Limited, 2025b). Cathay Pacific also conducted feasibility trials for recycled-paper alternatives to plastic packaging and deployed reverse-vending machines that reward recycling with mileage redemption. These initiatives are intended to reduce reliance on virgin materials and landfill disposal, while also enhancing cost efficiency and brand value. The measures illustrate how Cathay Pacific applies circular economy principles to integrate resource efficiency within its economic strategy.

Figure 1: Cathay Pacific’s Single-Use Plastic Reduction Journey



Source: Cathay Pacific Airways Limited, 2025b

Environmental dimension

Cathay Pacific contributes to environmental sustainability through initiatives addressing climate change and promoting biodiversity conservation.

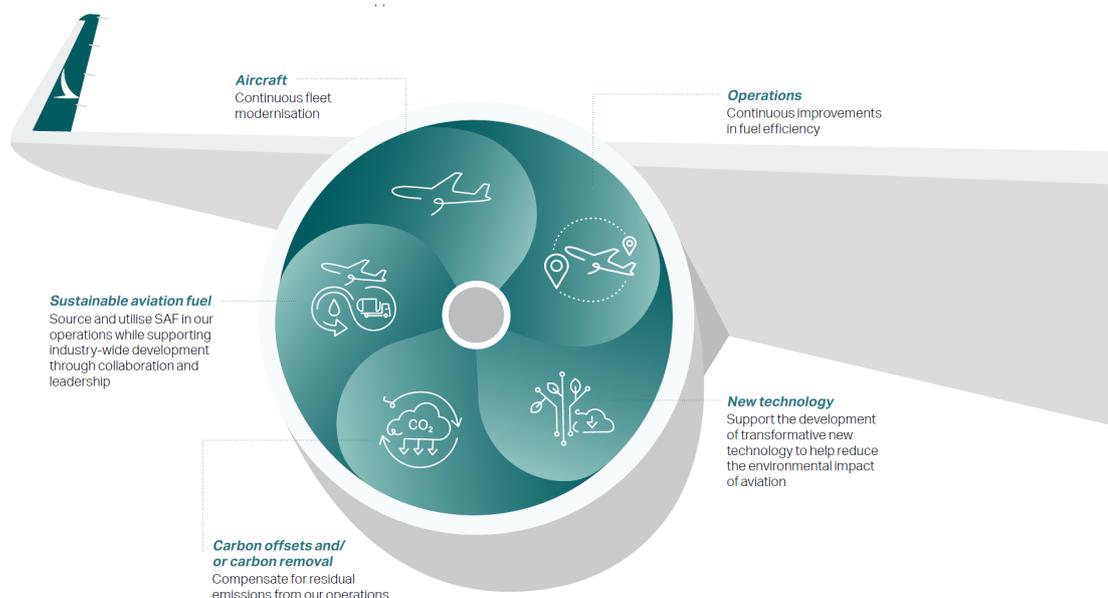
Addressing Climate Change

Cathay Pacific has publicly committed to achieving net-zero carbon emissions in its operations by 2050, in alignment with the Paris Agreement goals and the International Civil Aviation Organisation (ICAO)'s Long-Term Aspirational Goals. The company has set four near-term targets as follows (Cathay Pacific Airways Limited, 2025b):

- Achieve 10% use of sustainable aviation fuel (SAF) for Cathay Pacific operating flights by 2030.
- Improve carbon intensity by 12% by 2030, based on a 2019 baseline.
- Offset 10% of carbon emissions from employee duty travel on Cathay Pacific flights using SAF.
- Reduce ground emissions by 32% by 2030 and 55% by 2035, based on a 2018 baseline.

Cathay Pacific aims to achieve these targets through a five-pillar strategy.

Figure 2: Cathay Pacific's Five-Pillar Strategy



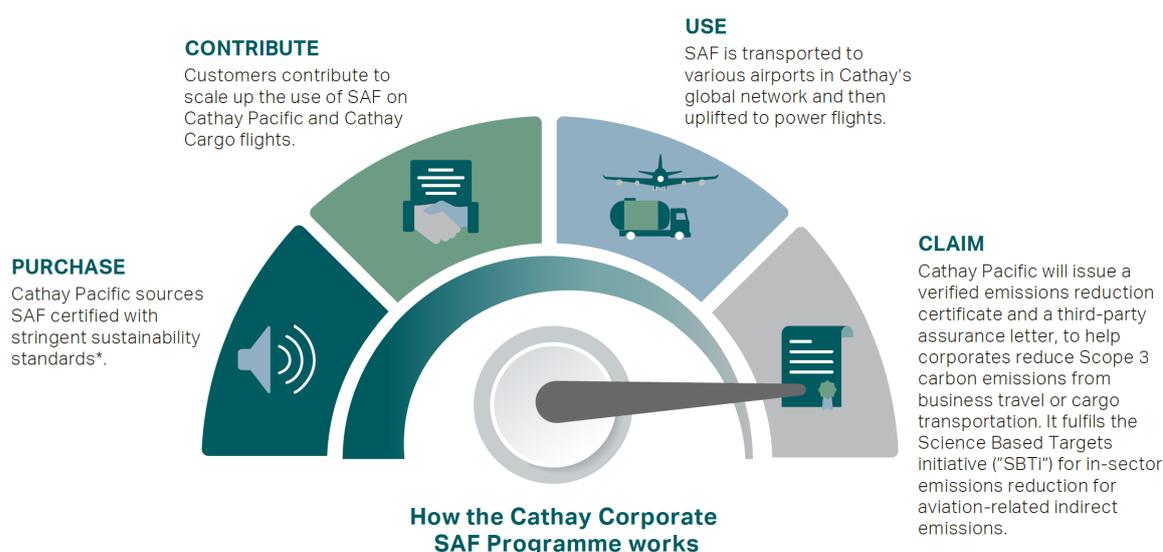
Source: Cathay Pacific Airways Limited, 2025b

Sustainable aviation fuel (SAF)

Since 2014, Cathay Pacific has invested in SAF production. The airline has gradually increased its use of SAF at multiple international locations, including Amsterdam Airport Schiphol and London Heathrow Airport in 2024. In that year, it reported the use of 6,884 tonnes of SAF in Cathay Pacific flights, which represents a more than five-fold increase compared with 2023 (Cathay Pacific Airways Limited, 2025b). Cathay Pacific continues to work towards scaling up SAF usage at additional locations. It was also among the first customers to collaborate with Airbus to incorporate SAF into delivering flights from Airbus facilities, which has reportedly reduced about 562 tonnes of CO₂ emissions to date (Cathay Pacific Airways Limited, 2025b).

Cathay Pacific also co-initiated the Hong Kong Sustainable Aviation Fuel Coalition, which brings together stakeholders such as the aviation industry, SAF producers, corporate users, and policymakers to advance SAF development and adoption. In 2022, the airline also launched the Cathay Corporate SAF Programme, allowing corporate customers to reduce the carbon footprint of business travel and airfreight by contributing to SAF use.

Figure 3: Overview of Cathay Corporate SAF Programme



* Such as the EU Renewable Energy Directive, Roundtable on Sustainable Biomaterials ("RSB") or International Sustainability & Carbon Certification ("ISCC") system.

Source: Cathay Pacific Airways Limited, 2025b

Aircraft

Cathay Pacific is in the midst of refreshing its aircraft fleet by introducing more modern and fuel-efficient aircraft. Next-generation aircraft such as A320neo, A321neo, A330neo, and B777X incorporate advanced design and aerodynamics technologies, which can improve fuel efficiency by up to 25% compared with past generations of

aircraft. In 2024, Cathay Pacific added 12 such next-generation aircraft to its fleet and plans to introduce an additional 93 aircraft in subsequent years (Cathay Pacific Airways Limited, 2025b).

Operations

Cathay Pacific uses a digital flight planning system that factors in environmental and air traffic conditions to optimise flight routes to reduce fuel consumption and emissions. After landing, the aircraft employs the Reduced Engine Taxi-Out process, which uses only one engine during taxiing to minimise fuel use and emissions (Cathay Pacific Airways Limited, 2025b). Cathay Pacific also ensures that its aircraft undergo regular engine core washing to improve fuel efficiency. Additional measures under exploration include aerodynamic devices and drag-reduction modifications.

Cathay Pacific has implemented initiatives to reduce its carbon footprint from non-aircraft operations. Building facilities have been upgraded to improve efficiency, including replacing fluorescent lights with LED lights and installing solar-power generation systems at the Airline Store Building. Cathay Pacific is also modernising its ground service vehicles to an electric fleet. All private vehicles operating on the ramp side have already been changed to electric vehicles.

New Technology

Cathay Pacific is a founding member of the Global Sustainable Transport Innovation Alliance, which comprises 41 other institutions and enterprises. This platform facilitates the sharing of knowledge and ideas for sustainable transport innovation, including SAF research. Cathay Pacific is also working closely with the Civil Aviation University of China via a Memorandum of Understanding to explore new SAF technologies (Cathay Pacific Airways Limited, 2025b).

Carbon Offsets

Cathay Pacific has introduced a voluntary carbon offset programme, Fly Greener, which allows customers to offset the carbon footprint of air travel and air cargo. Funds collected through the programme are used to support verified carbon offset projects, such as those with Gold Standard accreditation. In 2024, the programme has accumulated and offset 54,492 tonnes of carbon emission. Cathay Pacific participates in various carbon emissions schemes, including the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), the European Union Emissions Trading System, and the United Kingdom Emissions Trading System, fulfilling reporting and carbon offset requirements for these schemes (Cathay Pacific Airways Limited, 2025b).

Protecting Biodiversity

Proper Animal Handling

Cathay Cargo has attained the International Air Transport Association (IATA) Centre of Excellence for Independent Validators (CEIV) Live Animal Certification, which reflects its commitment to ensuring proper and safe handling of live animals during air transport (Cathay Pacific Airways Limited, 2025b).

Combatting Illegal Wildlife Trade

Cathay Pacific has developed a Sustainable Development Cargo Policy that references the Convention on International Trade in Endangered Specific of Wildlife Fauna and Flora (CITES) to combat illegal wildlife trade. Embargoes have also been established on various animals and wildlife products (e.g., shark fin, rhino horn, ivory) in accordance with CITES regulations, to prevent animal cruelty and protect biodiversity (Cathay Pacific Airways Limited, 2025b).

Sustainable Food Value Chain

Cathay Pacific avoids unsustainably sourced food items as stipulated in its Sustainable Food Policy. For example, Cathay Dining has prioritised the provision of sustainable seafood, reportedly purchasing around 351 tonnes of certified sustainable, traceable seafood in 2024. Since 2024, the airline has been serving cage-free shell eggs. Cathay Pacific is also exploring plant-based food options as alternatives to animal-based proteins to reduce carbon emissions. In 2025, it introduced a food waste segregation and warewash system to recycle food waste from inbound flights to Hong Kong (Cathay Pacific Airways Limited, n.d.). The food waste has the potential to be converted into renewable energy, potentially supporting up to 8,000 households annually.

Social Dimension

Cathay Pacific's people strategy involves employee engagement, material well-being, diversity, equity, and inclusion (DEI) moves, tighter safety management, and visible community pipelines.

Fostering a High-Performing and Inclusive Workforce

Cathay Pacific continued its post-pandemic rebuild in 2024, growing to over 30,000 employees, including around 7,000 new joiners, signalling long-term investment in human capital. Organisational culture remained a focus, with the Cathay Culture Journey reinforcing the values of "Thoughtful, Progressive" and "Can-do," and the

inclusive “Plus One” travel policy, which allows all eligible staff to nominate a travel companion regardless of marital status. Training expenditure totalled HK\$698 million in 2024, with an average of 166 hours per employee. Programmes include the Career Accelerator and multiple leadership development courses (Cathay Pacific Airways Limited, 2025b).

Engagement and Recognition

Cathay Pacific implemented recognition programmes, such as Work Well Done and the Niki and Betsy Awards, to acknowledge employee contributions. Long-service awards were presented to more than 1,500 employees as an appreciation to their loyalty (Cathay Pacific Airways Limited, 2025b).

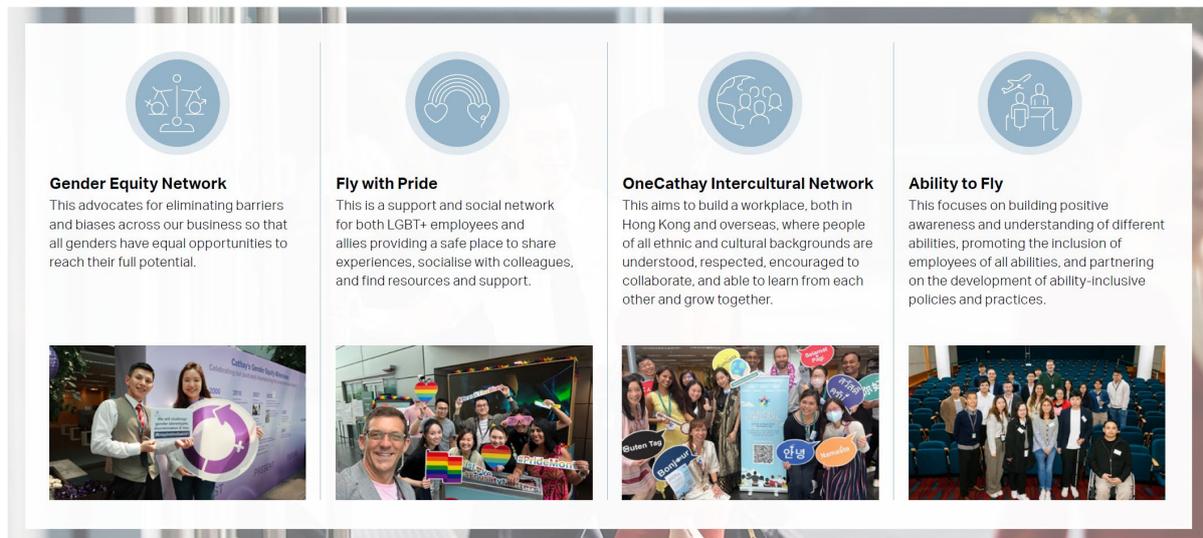
Wellbeing and Mental Health

The Wellbeing@Cathay programme was refreshed across five areas: physical, mental, occupational, social/environmental, and financial well-being. In addition to a 24/7 employee assistance hotline, the company issued a Critical Incident Stress Management Guide and engaged more than 100 leaders in mental health first aid and psychological support (Cathay Pacific Airways Limited, 2025b).

Diversity, Equity and Inclusion (DEI)

Four Employee Resource Groups (ERGs) support underrepresented groups to ensure their needs are adequately represented. The ERGs include the Gender Equity Network, which advocates for gender equality; Fly with Pride, a support network for LGBT+ employees; OneCathay Intercultural Network, which advocates for a positive workplace culture across all ethnicities and cultures; and Ability to Fly, which promotes ability-inclusive policies. Cathay Pacific aims to limit representation of a single gender in senior management to no more than 65% by 2025 and at the Board level, to no more than 70% by 2027. As of 2024, women held 30% of senior roles and 24% of Board seats. Cathay Pacific also launched an Inclusive Language Guide and strengthened family-friendly policies, including 14 weeks of paid primary-caregiver leave, nursing support, airport childcare, and Menstruation and Menopause Guidelines (Cathay Pacific Airways Limited, 2025b).

Figure 4: Cathay Pacific’s Employee Resource Groups



Source: Cathay Pacific Airways Limited, 2025b

Labour and Human Rights

Cathay Pacific’s Human Rights Policy and Modern Slavery and Human Trafficking Statement set standards for the Group and its partners. The Supplier Code of Conduct prohibits child and forced labour, protects freedom of association, and requires fair pay. In 2024, the policy was widened to cover occupational health and safety risks across suppliers (Cathay Pacific Airways Limited, 2025b).

Safety, Health and Operational Integrity

Safety remains a fundamental priority. In 2024, Cathay Pacific completed its first risk-based IATA Operational Safety Audit (IOSA). The Fatigue Risk Management System (FRMS) was enhanced through the use of data analytics, and the Group conducted 173 safety, security, and quality audits. The Total Recordable Injury Frequency Rate (TRIFR) declined to 9.67 per 200,000 hours in 2024. Additional measures include a comprehensive Alcohol and Other Drug Programme and strengthened controls following a contractor fatality in 2023. Passenger operations continue to implement High Efficiency Particulate Air (HEPA) filtration, rigorous sanitisation, and infectious-disease protocols, while cargo terminals introduced artificial intelligence (AI)-enabled lithium-battery screening to mitigate fire hazards (Cathay Pacific Airways Limited, 2025b).

Community and Future Talent

Cathay Pacific participates in community work with an emphasis on youth, sports, arts, and culture. The “I Can Fly” flagship programme marked its 20th anniversary in 2024, providing around 300 students with aviation-related training and experience over six

months, and expanded into the Greater Bay Area. Other initiatives included a Community Flight for over 180 participants, a Strive and Rise open day for 600 students and mentors, and the Cathay Hackathon, which engaged about 300 young technologists. The Asia Miles Good Deeds programme enabled charitable packages valued at approximately HK\$6.22 million, while partnerships such as United Nations Children’s Fund (UNICEF) Change for Good, along with direct donations and travel discounts, contributed around HK\$8.2 million in support of community initiatives (Cathay Pacific Airways Limited, 2025b).

Governance Dimension

Cathay Pacific regards sound corporate governance as a cornerstone of its sustainable development strategy. The company is committed to achieving long-term value creation through integrity, transparency, and accountability. Governance practices are embedded across operations to ensure that sustainability objectives are aligned with corporate goals and stakeholder expectations. Guided by a comprehensive framework, the Board of Directors provides strategic oversight, while management ensures that environmental, social, and governance (ESG) factors are integrated into daily operations. By establishing clear reporting lines and ethical standards, Cathay Pacific ensures responsible decision-making and effective risk mitigation. This approach supports business resilience, climate and social objectives, and stakeholder trust. Through continuous evaluation and enhancement of governance practices, the company maintains high standards of corporate responsibility and contributes to sustainable aviation development.

Board and Leadership Structure

The Board of Directors is responsible for the company’s sustainability strategy and overall performance. Oversight of ESG matters is delegated to the Sustainability Leadership Group, chaired by the Chief Executive Officer and comprising senior executives from key business units. Meetings are held regularly to assess priorities, approve policies, allocate resources, and monitor progress. The group ensures that climate action, circular economy, and social inclusion remain central to the agenda. Concurrently, the Board Risk Management Committee monitors ESG and climate-related risks, while the Audit Committee supervises compliance and anti-corruption practices (Cathay Pacific Airways Limited, 2025b). This division of responsibilities connects governance oversight with strategy execution, ensuring that sustainability is fully embedded in business planning and long-term corporate value creation.

Execution Loop

Cathay Pacific builds a clear hierarchical governance system to maintain strategic coherence and accountability. Decision-making authority flows from the Board to

executive managers and functional teams, with each level having defined responsibilities, reporting obligations, and performance indicators linked to sustainability targets. This top-down structure ensures the effective implementation of Board decisions. At the same time, upward feedback channels allow operational risks to be conveyed to the Board, informing decision-making.

Beyond formal hierarchy, Cathay Pacific emphasises a continuous loop between strategy, execution, and evaluation. Sustainability initiatives are tracked through measurable key performance indicators (KPIs), and progress reports are submitted quarterly to both the Sustainability Leadership Group and the Board. Challenges encountered during execution are used to improve policymaking and adjust goal setting, making governance adaptive and forward-looking.

Ethical Culture and Corporate Conduct

Integrity and ethics are the core of Cathay Pacific's governance culture. The company implements a comprehensive Code of Conduct, supplemented by systems including the Whistleblowing Policy, Anti-Bribery, and Human Rights Policy. All employees are required to complete regular ethics and compliance training to reinforce expected standards of behaviour. Cathy's "Speak Up" platform provides a confidential, 24/7 channel for both employees and external partners to report concerns (Cathay Pacific Airways Limited, 2025b). Violations reported are reviewed through established investigation procedures. This mechanism promotes transparency and fairness across all levels of the company, maintaining the integrity and reputation of the enterprise. Through a combination of policies, training, and supervision, Cathay Pacific reinforces stakeholder trust and ensure that business is conducted in a responsible and sustainable manner.

Risk Management

Cathay Pacific's enterprise risk management (ERM) mechanism is aligned with ISO 31000 and Committee of Sponsoring Organisations (COSO) principles. ESG and climate-related risks are incorporated into strategic planning and corporate decision-making. The entire system consists of three lines of defence: business units manage risks, the group risk department is responsible for overall supervision, and the internal audit conducts independent review (Cathay Pacific Airways Limited, 2025b). In 2024, Cathay Pacific identified two emerging risks: inappropriate AI governance and supply-chain disruption. In addition, Cathay Pacific complies with international data protection regulations and has obtained ISO 27001 information security certification (Cathay Pacific Airways Limited, 2025b). The company plans to regularly conduct cybersecurity training and incident-response exercises to enhance its organisational resilience and enhance preparedness for evolving risks, supporting long-term sustainable development of the company.

Figure 5: Emerging ESG-related risks

EMERGING RISKS	DESCRIPTION	MITIGATING ACTIONS
<p>INAPPROPRIATE AI GOVERNANCE</p> 	<p>Inadequate governance over the use of artificial intelligence which results in a failure to meet business objectives, ethical standards or regulatory obligations.</p>	<p>Management oversight in defining Cathay's vision and strategy for the deployment of AI and advanced technologies. Guidelines on responsible use of AI were also published, and processes for conducting AI impact and risk assessments were established.</p>
<p>SUPPLY CHAIN DISRUPTION</p> 	<p>Supply chain disruptions leading to operational disruptions or service deterioration.</p>	<p>Prudent selection and due diligence of supply chain partners supplemented with ongoing monitoring and close collaboration to ensure early identification of potential supply chain risks.</p>

Source: Cathay Pacific Airways Limited, 2025b

Responsible Supply Chain and Human Rights

Cathay Pacific's governance philosophy is also reflected in its global supply chain. The Supplier Code of Conduct sets requirements on environmental compliance, fair employment practices, and the prohibition of forced and child labour. The "Know Your Partner" due diligence policy screens and continuously monitors third parties for integrity and compliance issues (Cathay Pacific Airways Limited, 2025b). The company's human-rights practices are consistent with regulations such as its Modern Slavery Policy and international labour standards. Regular training is conducted to strengthen employees' awareness of identifying and resisting human trafficking. In addition, the company has established a good accountability mechanism within its supply chain, reflecting Cathay Pacific's commitment to responsibility towards stakeholders.

Cathay Pacific's Sustainability Performance

Economic Results

Cathay Pacific's 2024 performance reflects a strong post-pandemic recovery and sustained growth momentum. The company reported total revenue of HK\$104.4 billion, up from HK\$94.5 billion in 2023 and nearly double that of 2022 (Cathay Pacific Airways Limited, 2025a). This rebound demonstrates the airline's ability to capture travel demand recovery while embedding sustainability principles in its operations.

Operating expenses amounted to HK\$91.2 billion. Staff expenses rose to HK\$16.8 billion, showing significant reinvestment in human capital and operational capabilities. Cathay Pacific posted a net profit of HK\$9.9 billion in 2024. Payments to governments totalled HK\$1.3 billion in taxes, and HK\$8.3 billion was distributed to capital providers through dividends and finance charges (Cathay Pacific Airways Limited, 2025a).

Environmental Results

In 2024, Cathay Pacific recorded total scope 1 and 2 emissions of 14.1 million tonnes of CO₂, representing a 22% increase from 2023. This increase mainly reflected the restoration of flight capacity following recovery from the pandemic. Nonetheless, emissions remained lower than pre-pandemic levels, which exceeded 18 million tonnes in 2019 (Cathay Pacific Airways Limited, 2025b).

Cathay Pacific also reported its Scope 3 emissions, which totalled around 9.4 million tonnes of CO₂e. The company has committed to working with suppliers and partners to reduce emissions across its value chain, with a particular focus on investment-related activities and fuel- and energy-related processes, which constitute the largest contributors to Scope 3 CO₂ emissions.

Figure 5: Cathay Pacific’s Scope 3 Emissions in 2024

SCOPE 3 CATEGORY	APPLICABILITY	METHOD	TONNES OF CO ₂ e
Category 1: Purchased goods and services	Yes	Spend-based data	705,410
Category 2: Capital goods	Yes	Spend-based data	775,436
Category 3: Fuel- and energy-related activities*	Yes	Fuel-based and supplier-specific data	3,092,249
Category 4: Upstream transportation and distribution	Yes	Spend-based data	177,472
Category 5: Waste generated in operations	Yes	Waste-type-specific data	8,176
Category 6: Business travel	Yes	Fuel-based and distance-based data	1,015
Category 7: Employee commuting	Yes	Average data	21,555
Category 12: End-of-life treatment of sold products	Yes	Waste-type-specific data	7
Category 15: Investments	Yes	Investment-specific and average data	4,680,717
Total Scope 3 emissions			9,462,035

* Data verified by Deloitte

* Note: Category 8, 9, 10, 11, 13 and 14 are excluded due to the insignificant contribution to total scope 3 emissions of these activities. Assumptions and conversion factors are applied where primary data are not available to calculate scope 3 indirect emissions.

Source: Cathay Pacific Airways Limited, 2025b

Despite higher overall emissions, Cathay Pacific demonstrated progress in its carbon offsetting and carbon emission abatement. Cathay Pacific’s investment in SAF

produced measurable results, with SAF-derived carbon emissions abatement reaching 19,247 tonnes of CO₂ in 2024, which was more than seven times the amount in 2023. Total voluntary carbon offsets also reached 54,492 tonnes of CO₂ in 2024, more than twice the amount in the previous year. The company also showed progress in its recycling efforts, processing 2,970 tonnes of materials in 2024 compared with 1,939 tonnes in 2023 (Cathay Pacific Airways Limited, 2025b).

Social Results

Cathay Pacific reported improved outcomes across several social indicators in 2024. Employee sentiment strengthened markedly, with the People Engagement Index reached 81% in 2024 from 64% in 2023, and the Team Net Promoter Score increasing from -15.1 to +41.6, indicating higher perceived pride and advocacy. Cathay Pacific achieved zero accidents resulting in serious injuries or fatalities, zero work-related fatalities, and zero passenger fatalities. It also reported no incidents of non-compliance with health and safety regulations and voluntary codes (Cathay Pacific Airways Limited, 2025b).

Governance Results

Governance performance in 2024 remained strong across several areas. Cathay Pacific reported no instances of corruption, conflicts of interest, money laundering, or insider trading. All Cathay Pacific Airways crew members were also provided with anti-human trafficking training in 2024. However, the company recorded six cases of discrimination or harassment and two privacy breaches (Cathay Pacific Airways Limited, 2025b).

Challenges Faced by Cathay Pacific

After the pandemic, Cathay Pacific has entered a renewed growth phase. The airline is rebuilding capacity, restoring profitability, and scaling its workforce. However, the recovery has also introduced new pressures across the sustainability agenda. The four challenges below summarise the main challenges Cathay Pacific is likely to face in the coming years.

Cost and Supply of SAF

Global supply of SAF remains limited and expensive. IATA estimates that global SAF production in 2024 was only around 1 million tonnes, which is equivalent to roughly 0.3% of global jet fuel production (International Air Transport Association, 2024). SAF also typically costs several times more than conventional jet fuel. In other words, although Cathay Pacific has committed to “net zero” and “carbon reduction”, it must operate within a market where SAF is both costly and not yet reliably available at scale.

Rising Climate Compliance Costs

As flight capacity in Asia recovers, passenger yields are declining. Cathay Pacific reports that passenger revenue per available seat kilometre fell from about HK\$0.654 to about HK\$0.560 within a year, a drop of roughly 14% (Cathay Pacific Airways Limited, 2025a). Operational risks further compound this pressure. For example, in 2024, the A320neo fleet of HK Express, a Cathay subsidiary, encountered engine-related problems that required temporary grounding of aircraft, lowering utilisation and increasing costs (Cathay Pacific Airways Limited, 2025a). Geopolitical tensions have also forced airlines to avoid certain airspace, resulting in longer routes, high fuel consumption, and additional operational expenses.

At the same time, the cost of operating long-haul flights is rising due to increasingly stringent climate policies. Under the European Union's (EU) ReFuelEU Aviation regulation, airlines will be required to use a minimum 2% SAF blend from 2025 onward, with mandated percentages increasing over time (European Commission, n.d.). The EU Emissions Trading System (EU ETS) is also phasing out free allowances, with near-full auctioning expected by around 2026. As a result, Cathay Pacific must purchase allowances to cover its carbon emissions on European routes, and EU's carbon prices have often exceeded €60 per tonne of CO₂.

These factors create a two-sided squeeze. As market competition intensifies, downward pressure on ticket prices is increasing. At the same time, rising climate-related compliance costs, particularly on long-haul Europe routes, coupled with operational risks that may compress profit margins. These dynamics place commercial performance and sustainability objectives in direct tension, creating a structural conflict for the airline.

Ensuring Safety for an Expanding Workforce

Cathay Pacific added approximately 7,000 new employees in 2024, bringing its total headcount to more than 30,000 (Cathay Pacific Airways Limited, 2025b). This rapid expansion is necessary for route restoration, but it also introduces operational pressures. A large proportion of the airline's cabin crew, ground staff, and frontline personnel are still relatively new, and may lack extensive experience in handling disruptions, managing fatigue, or executing safety-critical procedures.

Although Cathay Pacific has recorded strong workplace safety outcomes to date, the more significant challenges lie ahead in whether such performance can be maintained when flight hours continue to rise and schedules tighten. Fatigue is both a workforce well-being concern and a direct flight-safety issue. Sustaining a high level of safety performance during ongoing expansion will therefore remain a critical test for the airline.

Disclosure, Credibility and Board Accountability

From 1 January 2025, Hong Kong Exchanges and Clearing Limited (HKEX) had phased in climate disclosure requirements aligned with the International Sustainability Standards Board's (ISSB) International Financial Reporting Standards (IFRS) S2 framework (Hong Kong Exchanges and Clearing Limited, 2024). As a listed company, Cathay Pacific will be required to disclose Scope 1 and Scope 2 greenhouse gas emissions, describe board-level climate governance, and present climate scenario analysis in a manner that is consistent and comparable for investors.

This means that ESG reporting will no longer be promotional or voluntary in nature, but a regulated disclosure. Fuel consumption, actual SAF refuelling volumes, internal carbon-pricing assumptions, and other climate metrics must now align strictly with reporting requirements. Cathay Pacific's Corporate SAF Programme will also come under detailed examination. If emissions reductions are overstated or counted more than once, this may be seen as "paper decarbonisation", and regulators may consider it as a greenwashing issue.

Conclusion

Cathay Pacific, Hong Kong's flag carrier, has developed a comprehensive sustainability strategy that spans the economic, environmental, social, and governance (EESG) dimensions. Its initiatives—from pioneering SAF adoption in Hong Kong to expanding circularity by closing the loop on single-use plastics—not only mitigate environmental impact but also create long-term economic and social value. Overall, Cathay Pacific exemplifies how sustainability-driven transformation can shape the future of aviation in Asia. This commitment is reflected in its inclusion in sustainability indices, such as the Hang Seng Corporate Sustainability Index with an AA rating in 2024, as well as its recognition as one of the Most Improved Enterprises in the S&P Sustainability Yearbook (China) 2024 (Cathay Pacific Airways Limited, 2025b). Cathay Pacific was also named a winner in Airline Ratings' 2025 Sustainability Awards under the Full Service Carriers category. While significant challenges remain in its pursuit of sustainability, these accolades validate Cathay Pacific's sustainability model, illustrating that profits and sustainability can co-exist.

Discussion Questions

1. How can Cathay Pacific enhance its governance and risk management systems to ensure better alignment between sustainability goals and day-to-day operational performance?
2. How effectively has Cathay Pacific integrated sustainability principles into its post-pandemic recovery and business expansion strategy?
3. In what ways can Cathay Pacific collaborate with regional partners, regulators, and suppliers to create a more sustainable and transparent aviation ecosystem?

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Eternal: Balancing Profitability and Purpose in India's On-Demand Platform Economy

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Service & Platform

Operational Model & Efficiency

Introduction

Company Background

Eternal Limited is one of India's largest technology companies, with its headquarters located in Gurgaon, India. Eternal is the parent company of four businesses, two of which are India's most popular digital platforms: Zomato, which helps people find restaurants and provides food ordering and delivery services, and Blinkit, which offers quick online grocery delivery. Eternal's diverse business ecosystem also includes District, a retail platform for lifestyle services like purchasing show tickets, and Hyperpure, a B2B service that helps restaurants find food suppliers (Eternal, n.d.-b).

In 2008, Eternal started out as "FoodieBay," a platform for users to look up and review restaurants. The company rebranded to Zomato in 2010, exploring beyond food and expanding its operations to the United Arab Emirates, the United Kingdom and the Philippines (Chaturvedi & Shaikh, 2023). Since then, it has changed quickly and become an important part of the Indian internet economy. In 2020, Zomato acquired its rival Uber Eats in an all-stock deal. In March 2025, the company was renamed as Eternal Limited, signalling its transition into a holding company, while still retaining Zomato as the food delivery brand (The Hindu, 2025).

Sustainability Vision

Operating within the competitive "on-demand" platform economy, Eternal envisions a future in which sustainability, innovation, and adaptability form the cornerstones of its journey:

- Social impact (the gig economy): To protect the health, safety and well-being of its delivery partners, promoting inclusive growth and increasing their earnings.
- Environmental impact (waste and emissions): To reduce food and packaging waste, as well as delivery-related emissions from its food and grocery delivery activities.
- Economic impact (partnership): To promote responsible production and consumption, and aid in the growth of restaurant partners, especially micro, small & medium enterprises.
- Governance impact: To use governance as a foundation to support Eternal's strategy for addressing each of those issues. This relates to how Eternal ensures ethical conduct, risk control, board oversight, data security, etc.

Eternal's sustainability strategy is guided by key global frameworks, including the United Nations Sustainable Development Goals (SDGs) and the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The company is committed to achieving net-zero emissions across its food ordering and delivery value chain by 2033 (Eternal, n.d.-d), embedding ESG considerations into its core decision-making and stakeholder engagement.

Environmental Dimension: Impact on the Planet

The company's environmental strategy includes key pillars such as "Climate Conscious Deliveries" and "Waste-free World". The first pillar, "Climate Conscious Deliveries", aims to reduce emissions from last-mile delivery. Additionally, the second pillar, "Waste-Free World", aims to reduce waste at every stage of the food delivery chain, from packaging to excess food. These priorities have since produced a useful framework for accountability and action.

GHG Inventory and Scope 3

The company's 2025 ESG Factsheet indicates that most of its carbon footprint is linked to its value chain, particularly due to delivery operations (Eternal, 2025). Minimising emissions in this process can contribute significantly to achieving its environmental goals. Emphasising cleaner transportation, optimised routing, and efficient packaging would allow the company to decrease emissions substantially. This emphasis on decreasing emissions would help to improve cost efficiency and align the organisation with evolving climate regulations and consumer expectations.

Direct emissions (Scope 1) mainly arise from the combustion of fuel in company-owned vehicles, the operation of diesel generators, and minor leaks from air conditioning units and fire extinguishers. Eternal's 2025 ESG Factsheet indicates that these sources produced 57.27 tCO₂e, accounting for only 0.04% of the company's total emissions (Eternal, 2025).

The indirect emissions from purchased electricity (Scope 2) for leased offices were minimal, totalling 90.42 tCO₂e, which constitutes 0.07% of the overall emissions. This suggests that the company's office operations contribute minimally to its overall carbon impact, similar to its Scope 1 emissions.

The majority of emissions stemmed from indirect activities in the value chain (Scope 3), totalling 132,089.34 tCO₂e, which accounts for 99.89% of the company's overall carbon footprint (Eternal, 2025). Emissions mainly arise from third-party delivery fleets, packaging materials, and the transportation and distribution activities in both the upstream and downstream supply chain.

This distribution fits with Eternal's business model, which is asset-light. The company does not own most of the cars it uses for its services or run big factories. Its main job is to manage a network of independent delivery and restaurant partners. These

delivery partners handled 110,175.46 tCO₂e, or 83.41% of all Scope 3 emissions (Eternal, 2025). The data clearly shows that the main goal of any effective climate strategy would be to cut Scope 3 emissions from last-mile delivery.

Offsetting Operational Emissions

Eternal has taken measures to mitigate its direct operational impact. In the FY25 ESG Factsheet, the company recorded net zero for its Scope 1 and Scope 2 emissions. The company accomplished this via two strategies. The organisation acquired verified carbon removal offsets amounting to 57.27 metric tons of CO₂ equivalent to mitigate Scope 1 emissions (Eternal, 2025). Additionally, it acquired International Renewable Energy Certificates (IRECs) corresponding to 100% of its Scope 2 electricity consumption, amounting to 124.3 MWh. This process effectively offsets emissions from both owned and leased offices.

This achievement is significant for corporate reporting and fulfilling stakeholder expectations; however, it functions primarily as a fundamental hygiene measure. The approach focuses on the company's direct emissions via accounting methods, rather than implementing reductions at the source of those emissions. The strategic value is evident in demonstrating corporate commitment and supporting carbon-neutral operations, enabling Eternal to concentrate its attention and resources on the more significant challenge of reducing Scope 3 emissions throughout its value chain.

Leading the Change with “Climate Conscious Deliveries”—EV Transitioning

Eternal's “Climate Conscious Deliveries” initiative is central to its decarbonisation strategy. The programme aims to reduce emissions by transitioning its last-mile delivery fleet to Electric Vehicles (EVs) (PTI, 2025). Success depends on a thorough execution framework that integrates delivery partners, vehicle manufacturers, and policymakers. This approach ensures consistency across the ecosystem and enables measurable reductions in last-mile emissions. Transitioning to an all-electric fleet involves more than just providing vehicles. Eternal has the ability to impact the decisions of numerous independent delivery partners. Recognising this, Eternal has employed a three-pronged strategy to build a supportive ecosystem through awareness, access, and advocacy.

Awareness - Creating Demand for Electric Vehicles

The initial pillar emphasises the education and motivation of delivery partners to transition to EVs. The primary goal is to achieve a reduction in fuel costs, which increases net profits, in addition to providing a more comfortable and quieter experience. Eternal enables direct engagement opportunities, organising the “EV Bazaar” in Delhi, an on-site event that connected more than 1,000 delivery partners

with more than 40 players in the EV ecosystem, e.g. rental companies or EV battery swapping companies (Eternal, 2025). This strategy has enhanced community engagement and generated informed demand, serving as a crucial initial step in advancing the adoption of electric vehicles.

Access - Reducing Obstacles to Adoption

Eternal helps delivery partners have easy access to EVs at a reasonable cost. This is done through establishing partnerships within the EV ecosystem. The partnerships facilitate the “Rent an EV” feature within the Zomato delivery partner application, which is accessible in over 400 cities. As of July 2025, there are 37,000 EVs on Zomato alone (Keerthi, 2025).

Advocacy - Influencing the Wider Ecosystem

Eternal acknowledges that significant obstacles to EV adoption, including insufficient financing for gig workers, inadequate charging infrastructure and variable after-sales service, are systemic issues that cannot be addressed by a single company independently. Active policy advocacy constitutes the third pillar of its strategy. Eternal collaborates with policymakers to incorporate the real-world challenges faced by delivery partners into national and regional electric vehicle policies. This initiative seeks to establish a conducive regulatory and infrastructural framework to promote the adoption of electric vehicles. Eternal, in collaboration with the United Nations and other firms, co-founded the Deliver-E Coalition, an industry alliance focused on sharing best practices and developing collective solutions for zero-emission deliveries (United Nations Environment Programme, 2025).

Progress and Impact

The effects of Eternal’s comprehensive electric vehicle strategy are evident in the FY25 results. The company achieved 88 million food deliveries via electric vehicles, accounting for 10.3% of total orders (Eternal, 2025). The growth was facilitated by a fleet of 37,077 active EV-based delivery partners, representing a 1.3x increase from the prior year. The transition has yielded quantifiable environmental advantages. Since FY22, the emissions intensity for last-mile delivery, calculated per kilometer, has decreased by 10.53%. It is estimated that electric vehicle deliveries in FY25 have avoided 4,981 tCO₂e compared to petrol-powered vehicles.

“Waste-Free World” Initiative

“Recycle” Pillar - “100% Plastic Neutral Deliveries”

The initiative was started in April 2022 (Eternal, n.d.-e). The company does not control how its restaurant partners package their food, but it takes voluntary responsibility under an Extended Producer Responsibility (EPR) model. Eternal pays for the recycling of plastic, equating to the same amount as what restaurants use to fill orders made through its app. Since FY2023, Eternal has recycled 45,000 metric tons of plastic waste (Eternal, n.d.-e). By assuming financial responsibility for indirect environmental impacts, the company exceeds standard industry practices and establishes a significant benchmark.

“Reduce” Pillar - “Plastic-Free Future”

Eternal has utilised a “nudge” strategy to affect both consumer behaviour and restaurant partnerships. The default setting of the “Don’t Send Cutlery” option minimises the use of single-use plastics. In FY2025, approximately 1,050 metric tons of cutlery waste were avoided, resulting in a cumulative total of 2,983 metric tons avoided since FY2022 (Eternal, n.d.-e). Eternal initiated the “Plastic-Free Future” programme in December 2024 to influence restaurant practices. The programme features more than 8,000 restaurant partners in over 400 cities that utilise low-plastic packaging, providing them with visibility via a “low plastic packaging” tag and menu banners within the app (Eternal, n.d.-e). Eternal directs consumer attention to these partners, thereby creating market incentives for the wider adoption of sustainable practices.

“Reward” Pillar - “Plastic-Free Future Packathon”

Initiated in 2024 in collaboration with Startup India, this programme aims to identify and promote innovative solutions for plastic-free food delivery packaging (Eternal, n.d.-e). Eternal fosters a pipeline of scalable alternatives to plastic by highlighting and supporting startups like Bambrew, Go Do Good, and Frenvi. This method targets the fundamental issue of packaging waste within the industry and promotes sustainable, long-term systemic transformation.

“Sustain” Pillar - “Food Rescue”

Launched in November 2024, this addresses the issue of cancelled food orders that previously resulted in waste. The programme provides the food from these orders to local customers at discounted rates. This measure, in turn, can help mitigate the problem of food waste, recover a portion of potential revenue, and offer affordable meals to cost-conscious consumers. As of March 2025, five months post-launch, the

initiative is estimated to have prevented 190,000 kg of food waste (Eternal, n.d.-e). Hence, this “Food Rescue” initiative helps to generate environmental, commercial and social value. This approach avoids extra logistical expenses and complexities associated with traditional donation programmes, presenting a scalable and sustainable solution.

Economic Dimension: Aligning Profit with Purpose

Nowadays, a company’s success is not only based on the numbers on annual reports (profit, revenue, etc.) but also on the ability to create shared value. This includes the integration of social and environmental goals into its economic engine.

Diversified Economic Model as a Foundation for Sustainable Investment

Eternal benefits from having a wide range of revenue streams that work well together. The main sources of income are transaction fees and delivery fees from its takeout and fresh food businesses. On the other hand, Eternal is aggressively expanding its B2B services on top of this foundation. Hyperpure provides the tools, infrastructure, and ingredients needed for restaurants and cloud kitchens to thrive, generating more revenue (Eternal, n.d.-c). It also has District which provides retail experiences and marketing solutions. These diversified sources of income give Eternal the capacity to invest in sustainable practices that are costly upfront but worthwhile over time.

Creating Shared Value by Integrating the Goal into Core Strategies

At the heart of Eternal’s strategic success is the transformation of social and environmental challenges into new economic opportunities. Its Hyperpure business, which directly connects local farmers to restaurant endpoints, shortens the supply chain and helps kitchens become more competitive in the marketplace by helping them provide greater efficiencies and shorten their preparation time (Eternal, n.d.-c). This model not only lowers restaurants’ costs for buying food, but it also uses data to predict demand, which cuts down on produce waste. This makes the economy more efficient and provides economic gains for smallholder farmers. Such a business model can make the agri-food system more resilient, which is good for social sustainability (Farace & Tarabella, 2025).

At the logistics level, Eternal is testing a fleet of electric vehicles for its Zomato and Blinkit. As of March 2025, there are more than 51,000 active EV delivery partners (Eternal, n.d.-a). This move reduces dependence on fossil fuels in the long term, hedges against the risk of oil price volatility, and is a key pathway to achieving sustainable urban logistics.

Measuring Value Beyond Profit: The Economic Impact on a Wide Range of Stakeholders

Eternal's economic impact radiates throughout its ecosystem. For the rider community, the company has begun to focus on the welfare of its riders while pursuing algorithmic efficiency, for example by setting up a security fund. These projects cost more in the short term, but they make riders more loyal and operations more stable, which lowers long-term human resource costs. Eternal's platforms also help restaurant partners, especially small and medium-sized businesses, to reach more customers through its market insights. At the investor level, Eternal's sustainability disclosures on its website help to highlight its strategy and outcomes to investors. A McKinsey survey had shown that investors are willing to pay a 10% premium to buy companies with a good ESG track record (McKinsey Sustainability, 2020). Thus, Eternal's economic impact also extends to the wider investing community.

Social Dimension: Empowering People and Communities

In an increasingly digitised economy, the question of how firms generate social impact is central to a sustainability analysis. For Eternal Limited, the "social dimension" of its sustainability agenda involves the ways in which it empowers its network of stakeholders (delivery partners, gig workers, restaurant/merchant partners, and local communities) as well as how it contributes to inclusive growth across India's labour-market ecosystem. This section examines Eternal's key initiatives in livelihood creation, inclusion of marginalised groups, worker well-being frameworks, and community outreach – and assesses their impact, strengths, and gaps.

Livelihood Creation and Gig Worker Empowerment

Eternal operates through a platform model that connects consumers with restaurants (and grocery companies) via delivery partners. The company reported that over 3000 persons with disabilities (PwDs) have been onboarded as delivery partners, and that 6150 women work in logistics across the platforms of Zomato, Blinkit and Hyperpure as of March 2025 (Eternal, n.d.-d).

By enabling individuals from disadvantaged or underrepresented backgrounds to engage in income-earning activities, Eternal seeks to advance inclusive growth. For example, the CEO's letter states, "It endears my heart when our delivery partners, restaurant partners, and store partners tell me how we empower them, to make more money, to have more freedom, and to better provide for their families. A lot of them tell me that they are now able to send their kids to better schools, and are able to keep them in those schools, which was sometimes not possible earlier (Goyal, 2025)."

These programmes are all part of a consistent effort to make social a part of the business' value chain. For example, Zomato's "delivery partner well-being framework,"

which started in October 2024, mentioned five critical areas of well-being: social, financial, physical, mental, and professional (Kumar, A., 2024). These initiatives aim to help gig workers provide more stable sources of income and institutionalised support systems, such as training, health and safety. This supports the idea that Eternal is indeed a platform that cares about workers' well-being and encourages everyone to take part in the economy.

Inclusion of Persons with Disabilities (PwDs) and Underrepresented Groups

One of the standout aspects of Eternal's is its focus on persons with disabilities. Zomato, in collaboration with NeoMotion Assistive Solutions, has onboarded over 1,500 delivery partners with disabilities, completing 2.2 million deliveries across 50 cities. The initiative won the Indian National Award for Empowerment of Persons with Disabilities (2024) from the Ministry of Social Justice and Empowerment (Kumar, R., 2024).

This is significant in the Indian context for several reasons. First, employment opportunities for PwDs have always been limited, and integration into the gig economy provides a novel channel for economic participation. Second, the company adapts technology (e.g., assistive motorised clip-ons, customised gear) to enable access, which signals a commitment to meaningful inclusion rather than tokenistic hiring. Third, by making such inclusion publicly visible, Eternal sets a precedent for other gig platforms in India to follow.

Beyond the disability segment, the firm has also emphasised gender and diversity. The company reports 6,150 women in logistics roles as of March 2025 (Eternal, n.d.-d). Zomato also aims to train 10,000 women to join the logistics sector, a male-dominated domain (Cargo Insights, 2024). These efforts contribute to the broader agenda of equity and help to reduce structural labour inequalities in India's gig economy.

Community Outreach and Hunger Alleviation

Eternal supports community-oriented programmes beyond its core business. For example, the "Feeding India" initiative under Zomato aims to tackle hunger and malnutrition across cities, aligning with Sustainable Development Goal (SDG) (Zero Hunger) (WARC, 2022). Although not exclusively part of the delivery-partner ecosystem, such a community programme enhances the firm's social license to operate and reflects a wider community-impact mindset. Additionally, Eternal's CSR policy (via Zomato) is structured to address areas such as education, health, and poverty alleviation, targeting children, women, the elderly, and persons with disabilities (Zomato, 2020). Through these initiatives, the company uses its business presence to help build social infrastructure and develop human capital in areas of its operations.

Measuring Impact and Social Outcomes

From a sustainability-impact standpoint, Eternal has begun to publish metrics and dashboards pertaining to its social dimension. According to the ESG Factsheet FY25, the company reported (Eternal, 2025):

- 51,000+ active EV-based delivery partners as of March 2025 (which enhances the safety and sustainability of gig work).
- Plastic-neutral deliveries achieved since FY23: voluntarily recycled 45,000 metric tons of plastic waste (although more of an environmental metric, it also touches on community welfare).
- 3,000+ persons with disabilities onboarded, 6,150 women in logistics roles.

However, one challenge remains: how deeply can the firm track outcomes rather than mere input? For example, onboarding 3,000 persons with disabilities is a strong input metric, but to what extent does this lead to improved livelihoods, upward mobility, long-term retention, or significant income growth? A recent academic study on gig labour in India examined platform-based delivery work and found that workers still face “invisible labour” burdens, algorithmic management and limited autonomy (Suvarnapathaki, 2025). For Eternal, a more granular disclosure of worker incomes, retention rates, and qualitative feedback would strengthen the case for real empowerment, rather than just participation.

Internal Management and Strategic Integration

The social dimension of Eternal’s strategy is not separate from its business model; instead, it is integrated as a core strategic pillar. The firm articulates “Inclusive growth” and “Health, Safety & Wellbeing for All” as part of its sustainability themes (Eternal, 2025). This alignment matters for two reasons: firstly, it ensures that social initiatives are embedded in operations; secondly, the internal management systems reflect this commitment (e.g. Delivery Partner Well-being Framework, onboarding targets for women and support for PwDs).

However, some internal tensions exist. Because Eternal operates in a high-growth, rapid-scale environment (especially with its Blinkit quick-commerce business), pressures on delivery partners, dark-store staff and gig workers can mount. It would be helpful for Eternal to explicitly address these structural tensions (e.g., work intensity, payout fairness, worker voice) in its internal governance and social strategies.

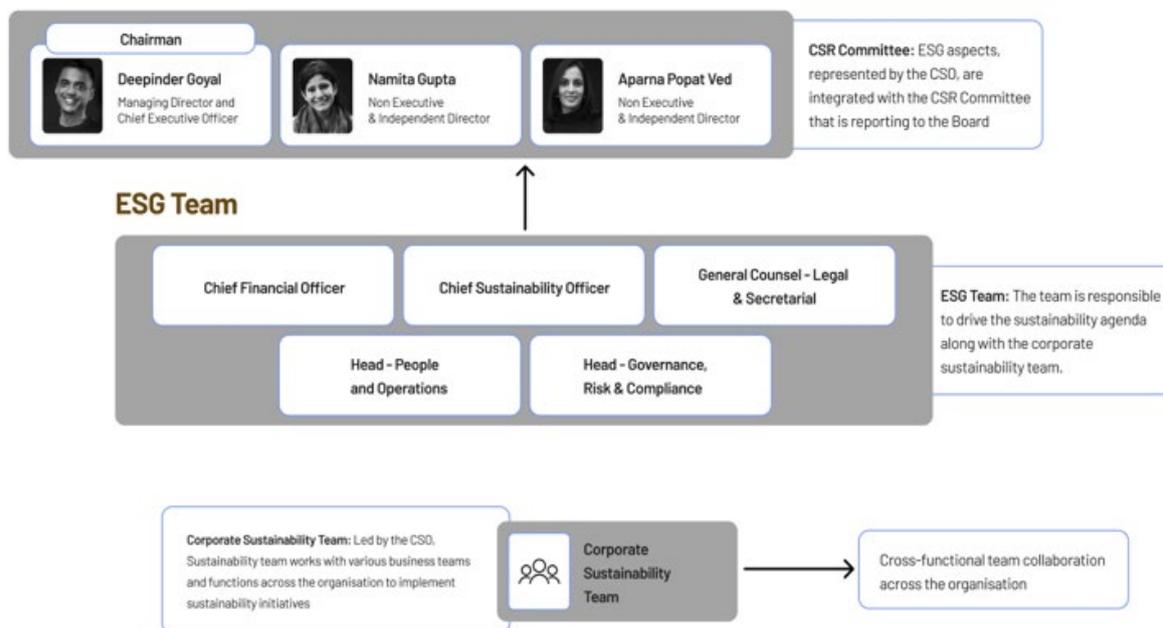
In summary, Eternal’s social dimension demonstrates a strong commitment to empowering people and communities, particularly through livelihood creation, inclusion of marginalised groups, and integration of social goals within business

operations. With robust frameworks and significant participation, the next phase of Eternal’s social impact work will benefit from deeper impact measurement, worker voice representation, and transparent scaling of its inclusion agenda.

Governance Dimension: Guided by Integrity, Driven by Progress

Governance Structure

Figure 1: Eternal’s CSR Committee



Source: Eternal, 2025

Eternal’s Board of Directors has a subcommittee, the CSR Committee, which oversees all ESG-related issues. It oversees the ESG strategy, keeps track of progress, and drives Eternal to reach its 2030 ESG goals. The committee’s Chairman is the CEO, and includes two other non-executive independent directors. It also includes the ESG Team, which includes the Chief Financial Officer, Chief Sustainability Officer, Head of Governance Risk & Compliance, Head of People and Operations, and General Counsel - Legal & Secretarial (Eternal, 2025). A Corporate Sustainability Team oversees cross-functional team collaboration.

Risk Management (Eternal Limited, n.d.)

Risk management is the cornerstone of Eternal’s long-term objectives and strategy. The Risk Management Committee (RMC) oversees the company’s risk strategies. The firm evaluates its risk of exposure and presents the findings to the RMC biannually, as

well as provides reports on internal audits to the Audit Committee (Eternal, 2025). Risk management is integrated into product development, with all employees receiving training in the Code of Conduct and risk management. This training encompasses modules on anti-bribery, anti-corruption, conflict of interest, and human rights. There are emerging and increasing risks:

- **Black Swan Events:** Infrequent and unpredictable, can significantly impact operations, finances, and reputation. Geopolitical tensions, terrorist attacks, trade wars, and other unexpected global crises are examples. Events can disrupt supply chains, logistics, consumer shopping habits, and market fluctuations. They may also reveal business continuity and risk management issues that could disrupt an organisation's long-term performance and resilience. For quick recovery from these issues, Eternal is improving its business continuity plan (BCP) (Eternal, 2025). The company should keep introducing new products and services to meet customer needs. To stay current with consumer preferences and market conditions, the company must adapt its strategies accordingly.
- **AI Use:** Can improve operations, but risks remain, such as unethical use of AI, algorithmic biases, operational failures, and inaccurate decision-making. Violations of data privacy laws and related guidelines would result in losing stakeholder trust and damaging the firm's reputation. To mitigate risks, Eternal is creating an AI governance framework to ensure ethical, transparent, and efficient use of AI (Eternal, 2025). Rigorous testing will be needed, alongside allocation of roles, responsibilities and authorisation. Continuous monitoring and response will allow Eternal to use AI while reducing stakeholder risks.

Ethics and Compliance at Eternal

- **Information Security & Privacy:** ISO 27001-certified systems and dedicated security teams can keep data safe and private. Regular internal and external audits, as well as vulnerability and penetration testing, and annual cybersecurity training, all help to make Eternal's defences stronger. It also uses HackerOne to run a global bug bounty programme, hence enhancing its cybersecurity. There were no data breaches between FY2022 and FY2025 (Eternal, 2025).
- **Anti-Corruption, Anti-Bribery:** Eternal has a zero-tolerance policy for bribery and corruption, which is backed up by regular risk assessments and mandatory training for all employees. There were no reported incidents of corruption or bribery in FY2024 and FY2025 (Eternal, 2025).
- **Conflict of Interest:** Board directors and senior management have to declare any conflicts of interest annually (Eternal, 2025).

- **Data Privacy:** Eternal has refined its practices to abide by the Digital Personal Data Protection Act (Eternal, 2025).

Responsible Sourcing at Eternal

Eternal recognises that its responsibility does not end with its employees or its apps. The impact stretches across its supply chain, and a Sustainable Supply Chain programme was built on four pillars (Eternal, 2025):

- **Supplier Assessment:** Eternal evaluates the ESG performance of its key upstream suppliers and downstream customers, assessing them based on voluntary disclosures and certifications.
- **Building Capacity and Engagement:** Eternal provides its suppliers and delivery partners with ESG training, covering crucial topics like health and road safety. They are also opening new communication channels and workshops to share knowledge.
- **Preferential Suppliers:** If a supplier is aligned with their sustainability goals, Eternal gives them priority. A notable example is their partnership with Padcare, a company that manages menstrual waste. By choosing to work with them, Eternal is actively supporting another sustainable business.
- **Rewards and Recognition:** Eternal is building a formal programme to publicly acknowledge and reward the partners who go above and beyond in their ethical and sustainable practices.

Stakeholder Impacts

A stakeholder approach requires management practices to incorporate all key groups, including employees, customers, suppliers, and the wider society. This philosophy moves beyond simply engagement, demanding that the quality of these relationships be integrated directly into the firm's business model (Freeman, 2015). Eternal Limited has exemplified the stakeholder approach, integrating sustainability and ESG metrics into its core business. For Eternal, sustainability is a proactive strategy to foster corporate innovation and competitive advantage.

Core Stakeholder Groups and Their Impact Analysis

Delivery Partners

Delivery partners interact with customers most often and are closely connected to the company. Eternal's strategic plans and actions would result in economic and social

impacts on this group. The most obvious form of economic impact is employment opportunities. The gig economy model represents a significant means of livelihood, particularly in nations such as India, where job competition is notably high. Eternal has “created millions of direct and indirect jobs” (Goyal, 2025). In spearheading the transition to electric vehicles, Eternal has also enabled drivers to reduce their fuel expenses.

In addition, the “Delivery Partner Well-being Framework” implemented by the company presents a more intricate scenario regarding its social implications. The organisation provides training, health, and safety support aimed at enhancing the work experience and dignity of its delivery partners (Kumar, A., 2024). In this way, Eternal has tried to create economic and social benefits for its delivery partners.

Restaurants and Suppliers

Eternal’s Zomato food delivery service provides small and medium-sized restaurants with digital tools that significantly enhance their ability to attract new customers and manage their operations effectively. Hyperpure’s B2B platform facilitates a streamlined process for restaurants to acquire all necessary supplies from a single source, thereby reducing the duration for the supplies to travel from farm to restaurant. This approach enables both parties to utilise their resources more effectively and increase profitability by reducing intermediary costs and forecasting demand accurately.

Consumers

Consumers’ preferences and willingness to pay are critical factors that influence the effectiveness of Eternal’s ESG initiatives. The Zomato app provides users with the option to select “no cutlery” or contribute funds to charitable organisations, thereby allowing them to engage with the company’s sustainability initiatives. This approach empowers individuals and facilitates the adoption of more sustainable choices.

In general, companies in India must consider various factors that influence consumer price sensitivity when encouraging sustainable consumption practices. In the decision-making process, it is essential for companies to ensure that customers do not perceive ESG strategies as detrimental to their interests, as this perception could lead to a loss of clientele.

Investors

With the increasing popularity of ESG investment principles, there is a growing focus among investors on the effectiveness of companies in managing risks and their overall sustainability. Individuals tend to exhibit a higher level of trust towards companies that maintain strong ESG records, as there is a prevailing belief that these companies are positioned for better performance in the future. The willingness to pay a median of 10% more for these companies has been observed (McKinsey Sustainability, 2020).

Through clear ESG disclosures, Eternal offers investors the chance to evaluate its offerings objectively.

Strategic Analysis and Challenges

Strategic Positioning and Growth Drivers

Eternal's strategies have changed a lot in the last few years. Its name change marks the company's shift from a food delivery service to a full digital commerce ecosystem. This new structure has a lot of offerings, such as Blinkit for quick commerce, Hyperpure for B2B supply chain solutions, and District for events and ticketing. There are three main parts to consider:

- **Customer Demand:** The platform ecosystem is growing beyond the basic food delivery business because more customers want things done quickly and easily. For instance, quick commerce platform Blinkit's gross order value in the quarter ending June 2025 went up by 140% year-over-year. This was important because it was the first time that Blinkit had done better than Eternal's core food delivery business in terms of gross order value (Suvarna, 2025).
- **Synergies in Operations:** Extensive logistics infrastructure, data analytics and delivery-partner networks would allow Eternal to continue enjoy economies of scale. (Park, 2025).
- **Strategic Expansion:** Eternal is expanding its reach into India's Tier 3 and 4 markets with its low-cost delivery models, as well as exploring ad monetisation on its platforms (Park, 2025).

Eternal's strategic direction shows a desire to expand its services from food and grocery delivery to events, supply-chain management and ecosystem services. While criticism may lie in quick-commerce platforms encouraging excessive orders and packaging waste, Eternal has taken steps to reduce its plastic waste and shift to EVs.

Economic Viability and Circular Value Creation

Eternal's growth plan aims to increase network effects while keeping its ESG credibility. The Hyperpure division of the company is a good example of this. It follows the principles of a circular economy by getting its products directly from farmers, which shortens value chains and cuts down on waste. Its Zomato app has also promoted restaurants which use verified sustainable packaging solutions, hence bringing more business to these companies (The CSR Universe, 2024).

But increased operations also use up more resources and energy. They enlarge Eternal's carbon and energy footprints, especially in cities where renewable energy isn't always available. Despite energy efficiency measures, Eternal's Scope 3 emissions grew from 1,02,654.57 tCO₂e in FY2023 to 1,32,089.34 tCO₂e in FY2025 (Eternal, 2025). Finding a long-term business model for Eternal will depend on finding a balance between efficiency and decarbonisation in the last-mile delivery phase.

Social Sustainability Integration

Eternal's social programmes are a key part of its plan to encourage inclusive growth. Social inclusion should not be seen as an act of charity; instead, it should be seen as a strategic way to make organisations stronger by increasing the number of talented people they can hire and retain. Eternal's community engagement programmes, like Feeding India, help build reputational capital and strengthen ties with local governments and NGOs. Indian regulators are making ESG disclosure requirements stricter through SEBI's Business Responsibility and Sustainability Reporting (BRSR) framework. This means that these partnerships will likely become much more important. While Eternal's social programmes are good, there are some risks to be mindful of:

- **Depth vs breadth:** The company has made broad statements about inclusion and well-being (for example, thousands of women in logistics and thousands of PwDs hired), but there is still limited publicly available evidence of the depth of impact (for example, income increase and career advancement).
- **Instability of gig work:** Even though there is a well-being framework, delivery partners are still considered independent contractors in many places. This could make it harder for them to get social protection, benefits, and job security. The research on "invisible labour" points to problems with the structure of the gig economy (Suvarnapathaki et al., 2025).
- **Workers' voice and representation:** The company has internal structures, but there isn't much evidence of worker councils, collective bargaining, or worker representation. In quickly growing labour networks, ways for people to speak up, give feedback, and file complaints are especially important.

Environmental and Resource Efficiency Challenges

Eternal's biggest problem in sustainability is the environmental costs that come with fast-delivery logistics. The sustainability paradox is clear: people want things to be easy and quick, but the infrastructure that makes that possible (delivery vehicles, packaging, and cold-chain storage) puts more stress on the environment.

Eternal's answers include using electric two-wheelers and battery-swapping models for last-mile delivery, which is in line with India's aim of EVs accounting for 30% of total vehicles sold by 2030 (PIB Delhi, 2025). Still, scalability is up in the air; quick commerce operations need almost perfect reliability, and circular packaging systems may face logistics delays and customers not following recycling rules.

Eternal's rapid growth, especially in dark-store fulfilment and short-haul delivery, also makes it harder to keep its supply chain sustainable. These include the energy used by dark stores, the emissions from logistics, the waste from inventory (especially perishables), and the waste incurred from packaging. The company needs to balance growth with environmental considerations.

Governance and ESG Integration

Eternal's governance framework grounds sustainability in its strategic decision-making. The ESG Committee, which is led by senior leaders, looks at metrics for safety, emissions, and inclusion. This top-down integration is in line with best practices in ESG governance.

But there are still problems at the execution level. Decentralised gig networks make it harder to oversee all aspects, and franchise-like relationships with delivery partners and local dark-store operators make it harder to enforce standards directly. This is a problem that service-oriented companies may often face—finding a balance between decentralisation (for flexibility) and standardisation (for accountability). Adding third-party social and environmental audits could lower the risks of greenwashing and make investors more likely to trust the company.

The company's stakeholder disclosure also needs to be mature. Current reporting emphasises quantitative metrics (e.g., number of EVs, plastic offset, PwDs hired) but provides minimal qualitative insights into stakeholder satisfaction or material-impact mapping. Eternal would be in line with new global standards if it moves towards integrated reporting that links financial performance with ESG outcomes.

Strategic Challenges and Sustainability Trade-Off

Eternal's plan for sustainability includes three main trade-offs:

- **Growth vs Responsibility:** Quick expansion in commerce leads to more emissions and more waste from packaging. If logistics decarbonisation does not keep up with delivery growth, the overall environmental impact could go up even if energy efficiency improves.
- **Flexibility vs Security:** The gig model's flexibility makes it easier for people to get jobs, but it also makes them more vulnerable. Moving towards hybrid

employment models could make their employment more stable but also raise fixed costs.

- Digitalisation vs Energy use: Data analytics make operations more sustainable, but cloud computing and AI models use a lot of energy. Digital sustainability would rely on integrating renewable energy into data infrastructure.

These trade-offs exemplify the dynamic tensions recognised in strategic sustainability theory: companies must perpetually reconcile economic competitiveness with ecological and social integrity. Eternal will only be successful if it can turn sustainability limits into opportunities for innovative ideas, like partnerships for EV infrastructure, circular-economy packaging, and community-based recycling ecosystems.

Future Outlook and Recommendations

Outlook

Eternal is at a turning point in growth. It started as a food delivery service and has since grown into a digital ecosystem that includes quick commerce, B2B supply, and lifestyle services. Its transformation, focused on sustainability, has made profit and purpose work together, positioning it as a leader in responsible innovation. As it expands, it will be important to stay sustainable by using energy-efficient dark stores, electric last-mile delivery, and responsible sourcing. Below are the considerations as it looks towards the future:

- **Leverage ESG to stand out from the crowd:** Increasingly, investors want to put their money into companies that do well in ESG. Eternal's programmes, like "Climate Conscious Deliveries" and "plastic-neutral deliveries", boost both brand trust and investor trust. In the next ten years, clear ESG reporting and measurable results can help it stay at the top of sustainable digital commerce, especially as regulations get stricter.
- **Digital and Data Governance Outlook:** As Eternal uses more AI and analytics, good governance will be very important. As scrutiny of gig work and digital transparency grows, responsible AI practices, data privacy, and algorithmic fairness will be the basis for its license to operate.
- **Social Inclusion as an Economic Enabler:** Eternal has laid the groundwork for growth that includes everyone by hiring more than 3,000 people with disabilities and more than 6,000 women in logistics. The next step should be to further empower employees through training in digital and career skills.

- **Climate and Supply Chain Resilience:** As India moves towards net zero, Eternal's ability to cut Scope 3 emissions through EV fleets, circular packaging, and local sourcing will determine how well it can handle future challenges. To reach its goal of net-zero by 2033, it is important to increase the use of renewable energy in warehouses and partner networks.

Recommendations

Specific recommendations are as follows.

Scope 3 Decarbonisation and Circular Economy Models

- Expand EV partnerships to Tier 3 and 4 cities by using battery-swapping and financing networks.
- Expand the "Waste-Free World" project by getting restaurant partners to use closed-loop packaging and recycling systems.
- Equip suppliers with the tools to track their carbon emissions and push for climate-friendly purchasing policies.

Strengthen Social Sustainability

- Shift from participation-based metrics to outcome-driven KPIs like income growth, career mobility, and retention.
- Set up formal Delivery Partner Councils to make sure everyone is represented and to work together on policy.
- Try out hybrid employment models that offer both flexibility and social security.
- More training programmes to help gig workers get ready for digital jobs in the future.

Improve Governance and ESG Integration

- ESG-based compensation system to tie leadership bonuses to sustainability outcomes

Responsible Digitalisation of the Business:

- Create a company-wide AI Ethics and Data Responsibility Charter to make sure that algorithms and delivery assignments are fair, private, and open.

- For tech operations, including data centres powered by renewable energy, set KPIs that are linked to sustainability.

Partnerships with Communities and Ecosystems

- Work with governments, NGOs, and startups to promote social entrepreneurship, EV infrastructure, and sustainable packaging.
- Involve restaurant partners and the Blinkit network in its Feeding India programme to reduce food waste and make a bigger difference in the community.
- Partner with sustainable mobility providers and play an active role in shaping India's green logistics policies

In conclusion, though challenges abound, Eternal still has opportunities to leverage sustainability strategies and realise economic, environmental, social and governance gains.

Discussion Questions

1. Beyond its current efforts, how can Eternal further decarbonise its supply chain?
2. How can the company effectively enforce its ESG standards across a decentralised network, given that its business model depends on independent delivery partners, restaurant partners and dark-store operators?
3. What are the pros and cons of hybrid employment models for gig workers?

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Pang Donglai: How a Chinese Retail Chain Advances Sustainability

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Service & Platform

Operational Model & Efficiency

Introduction

In Southeast Asia, the term “lying flat” often meets resistance, while the term “996” (working from 9 am to 9 pm for six days a week) has gradually become a defining slogan of the era. Yet, in a fourth-tier Chinese city, every Tuesday, when nearly all shopping malls across China open their doors, Pang Donglai in Xuchang, Henan, is shut. This is Pang Donglai’s designated rest day for employees (Lian Shang Forum, 2023). It also grants employees 30-40 days of paid annual leave (Amazing Workplaces Bureau, 2024). This is astonishing as Pang Donglai boasts a high sales per square metre of RMB60,000, which is triple the industry average (Gao, 2025).

This case study will examine the unique Chinese retailer, which is guided by its business philosophy of “satisfying every customer” (Retail Sphere, 2024). While many companies increasingly restrict employee behaviour and choices, Pang Donglai appears to be developing their innate potential. Its deeply ingrained cultural ethos enables it to shoulder sustainability responsibilities with conviction.

Background of Pang Donglai

Pang Donglai operates like a “monastic” enterprise in the retail industry. It remains unlisted, grants employees nearly half a year of vacation time, yet maintains steady business growth. Originating in Xuchang, Henan Province, China, it has expanded its store network at a slow pace over the past two decades (Hu, 2023). Amidst a competitive retail environment, Pang Donglai has advocated a “freedom and love” philosophy, attracting customers from various parts of China, making it a model enterprise that many entrepreneurs strive to emulate (Wang, X., 2025). Pang Donglai’s store network is deeply rooted in Henan, primarily Xuchang and Xinxiang, comprising 13 large-scale department stores and supermarkets (Daxue Consulting China, 2025). The company had around 7,000 workers, with an average monthly salary of RMB9,000. In 2024, the company’s total annual sales reached RMB17 billion (Daxue Consulting China, 2025).

The influence of Pang Donglai cannot be overlooked. With its throngs of visitors, its stores have earned the nickname “National 6A Tourist Destination”, referencing China’s rating system for tourist attractions (Yang L., 2025). The company’s reputation is built not only on customer recognition but also on exceptionally high employee satisfaction. Pang Donglai’s generous leave policy and profit-sharing ratio far exceed industry averages. Employees enjoy weekends off, 30-40 days of paid vacation, 10 days designated as “unhappy leave” that they can take for emotional distress, and a five-day closure during the Spring Festival holiday (Amazing Workplaces Bureau, 2024; Zhihu, 2023). The company also allocates 95% of its profits towards employee compensation and benefits (Phoenix Finance, 2025).

Pang Donglai’s public business data lacks the ESG metrics and scores commonly disclosed by listed companies. Instead, it appears to embody an inherent ESG ethos.

In the environmental dimension, Pang Donglai actively builds green supply chains while opposing resource waste and excessive expansion.

In the social dimension, Pang Donglai redefines employee roles, enabling staff to maintain their personal identity while receiving corporate support and care.

In the governance dimension, Pang Donglai pioneers a unique profit-sharing mechanism focused on two core stakeholder groups: employees and customers. Its business model balances reduced working hours and greater profit distribution with superior product quality and service.

Core ESG Propositions and Analytical Framework

Core Propositions

Pang Donglai's commercial success and exceptional brand communication challenge traditional business theories that prioritise maximising profits by cutting employee wages and benefits. In the fiercely competitive retail sector, how can a company prioritising employee well-being and customer satisfaction generate commercial value far exceeding its peers? What propels Pang Donglai to the forefront of its era, achieving such close alignment with ESG principles? Is its success rooted in its corporate culture, or is it merely a coincidence?

Drawing on core research, the conclusion is that Pang Donglai's success stems from a strong corporate culture paired with mature management systems. Its people-centric approach establishes a framework that maximises human resource efficiency and supports employees in meeting needs that parallel the levels in Maslow's hierarchy, while the prevailing culture inherently encourages benevolent actions.

Analytical Framework

This case study will analyse Pang Donglai through the four-dimensional economics, environmental, social, and governance (EESG) framework, while also briefly touching upon Maslow's Hierarchy of Needs, the Flywheel Effect, and refined management methodologies.

Social Dimension

The “Employee Well-being System” under Maslow’s Hierarchy of Needs

Pang Donglai is often portrayed as a workplace where employees are respected and earn sufficient or even higher incomes. The company has established a comprehensive system that inspires employees, unleashes their full potential, and fulfils needs across all levels (Zhang, 2024). This phenomenon stems from Pang

Donglai's realisation of Maslow's Hierarchy of Needs which will be interpreted from foundational to intermediate and higher-level needs (McLeod, 2025).

At the base of Maslow's Hierarchy of Needs, Pang Donglai seeks to support employees' physiological and safety needs. In terms of physiological needs, its employee facilities are extensive. The sixth floor of Pang Donglai's Times Square branch was designed as an employee lounge in May 2012 and is accessible only to employees and their families, covering an area of approximately 6,350 square metres (Lian Shang Forum, 2023). The dormitory area features eleven functional zones, including a library, a fitness zone, a recreational and entertainment area, bathing facilities, an automated massage area, and an open-air garden. These facilities are described as covering most aspects of employees' leisure lives and are provided free of charge, enabling staff to reduce part of their monthly living expenditure.

The company also implements seven-hour workdays (Amazing Workplaces Bureau, 2024). Regarding remuneration, the average monthly income for employees was more than RMB9,000, which is significantly higher compared to other grocery store workers earning around RMB3,700 to RMB6,000 in 2024 (Daxue Consulting China, 2025).

These benefits demonstrate that from the moment employees join the company, their basic needs such as food, clothing, housing, transportation, and wages, are secured. By alleviating financial stress and providing relatively stable living conditions, employees can focus more on their work.

Belonging and Esteem Needs

At the middle level of belonging and esteem needs, Pang Donglai has numerous measures intended to protect employees. The company places strong emphasis on personal dignity and respect. At the workplace, employees who are wrongly accused, insulted or assaulted will receive compensation from the company, with the sum ranging from RMB5,000 to RMB30,000 (Shi, 2025).

These protections allow employees to experience a relatively high degree of emotional security and personal dignity. This goes beyond minimum ethical expectations mandated by corporate social responsibility (CSR) frameworks and helps to build a sense of belonging.

Self-Actualisation Needs

At the top level of self-actualisation, Pang Donglai supports employees with competitive salaries, comfortable work environments, and extended vacation time (Zhang, 2024). While encouraging employees to develop their professional skills, the company also fosters their personal growth. Pang Donglai arranged complimentary overseas trips in 2024, with itineraries including Europe for managers, and Japan and Singapore for other staff, to broaden their perspectives (Lei Technology, 2025). Employees contribute not only through work performance but also through their

creativity, passion, and motivation, which are regarded as essential components of the organisation's long-term development (Zhang, 2024).

Happiness Transmitted to Customers

The service experienced by Pang Donglai's customers is not something that can be taught through training; it is due to employees who feel respected and fulfilled. Service is characterised as a process through which employees' sense of well-being is transmitted to customers (Meng et al., 2025). At the same time, it is an illustration of how Pang Donglai seeks to use its human capital effectively. The following section will detail specific examples of Pang Donglai's customer experience.

Pang Donglai's Beyond-Expectation Service

For in-store shopping, Pang Donglai offers multiple types of shopping carts, including ordinary shopping carts, special carts for the elderly and strollers for those with babies. In the fresh produce section, items are organised by type, origin, and harvest time (Daxue Consulting China, 2025). When it rains, employees will give out umbrellas to customers and escort them to their cars.

Comprehensive After-Sales Service

Many consumers cite after-sales service as their most memorable experience at Pang Donglai. The store's after-sales policies are notably customer-friendly: no receipt is required for returns or exchanges, customers may request unconditional refunds within 15 days, half-used shampoo or a fruit basket eaten down to the last piece can be refunded if a shopper is dissatisfied, and moviegoers can receive a half-price refund if they are unhappy with a film within 20 minutes of the screening (Song, 2023). These practices are framed as tools to build customer loyalty and trust over time, rather than as short-term promotional measures.

High Quality and Consumption

The company has a strict screening process for its food suppliers (Daxue Consulting China, 2025). Aside from adhering to safety and health principles, Pang Donglai also has an extensive stock-keeping unit (SKU) range, offering 10,000 to 15,000 SKUs compared with fewer than 4,000 in Costco (BCC Global, 2025).

Such service and assortment strategies, along with meticulous management practices, are made possible by the capabilities and commitment of Pang Donglai's staff.

The Strategy from Cost Centre to Value Engine

A key question is whether Pang Donglai's service model and after-sales policies create massive cost pressures or generate benefits over time. It can be argued that these practices formed part of a deliberate strategy to shift from a traditional business model to a "value engine" built on trust and reputation.

High employee compensation, combined with empowerment, enables the implementation of detailed management practices, securing three long-term cost advantages. First, Pang Donglai maintains an exceptionally low employee turnover rate of 2.01% in 2024 (Beijing Business Today, 2025). Second, management and supervision costs remain relatively low as long-tenured employees receive progressively higher salaries and benefits, while the firm avoids repeated recruitment and training expenses. Third, Pang Donglai's gains brand benefits.

Pang Donglai also excels at converting its social reputation into commercial returns. The company boasts exceptionally high sales per square metre and strong pricing power, supported by dense customer traffic and high conversion rates. Despite operating only a little over a dozen large supermarkets, Pang Donglai's sales reached RMB 17.12 billion by September 2025, and the company subsequently implemented measures to cap its annual sales growth below RMB 20 billion (China Business Magazine, 2025).

These demonstrate Pang Donglai's strong cost control capabilities and multi-dimensional support for employees, enabling high labour productivity and sales efficiency, while customer-oriented service and transparency help turn trust in the brand into long-term economic value.

Challenges and Critical Points

Pang Donglai is widely recognised in China for its retail model and strong reputation, yet its store network remains concentrated in Henan Province, indicating potential limitations in its expansion capabilities. This situation raises questions about whether substantial investment in corporate culture, employee development, and profit-sharing mechanisms can be sustained over the long term.

Financiers and investors often cautiously view businesses that cannot scale regionally. Even if Pang Donglai can maintain its long-term profit-sharing mechanism, it may appear less attractive to investors seeking higher and faster returns.

In addition, Pang Donglai operates a system with high labour costs (Hu, 2023). This raises questions about resilience under external shocks. For example, during public disruptions that force store closures or sharply reduce foot traffic, it is unclear whether its high-benefit system can be maintained at the same level, and whether employee morale and service standards can be preserved if wages need to be adjusted.

Moreover, Pang Donglai's system revolved largely around founder Yu Donglai's management style (Futubull, 2024). Over the long term, this creates uncertainty about how the company's human-centred governance model will evolve after leadership succession, including whether its core values can be consistently institutionalised and sustained by future management teams.

Governance Dimension

In this section, the analysis focuses on how Pang Donglai seeks to align internal company values and implement sustained profit-sharing through rules and systems, while translating its service-oriented mentality into tangible actions for society.

A Governance Philosophy Beyond Shareholders

Pang Donglai's business philosophy emphasises reciprocity and fairness, embedded as core beliefs and reflected in internal rules and strategic practices (Meng et al., 2025; Retail Sphere, 2024). This philosophy guides two key measures for profit distribution and employee engagement.

Firstly, senior executives have opportunities to become shareholders in operating subsidiaries which enable them to participate directly in value creation as equity holders. At the group level, Pang Donglai Group has only four individual shareholders besides Yu Donglai, while Pang Donglai Supermarket has 15 shareholders. Aside from Pang Donglai Group holding 63.3% of the shares and Yu Donglai holding 10%, the remaining 26.7% is held by 14 individuals who are core members of the management team, many of whom previously served as branch managers (NetEase, 2024).

Secondly, for middle- and lower-level employees, the company adopts a cash bonus system, allocating a portion of its profits for distribution among staff so that ordinary employees can also benefit (NetEase, 2024). In January 2025, the average monthly salary of Pang Donglai's frontline employees reached RMB 9,886, with 95% of the company's profits reinvested in its employees (Phoenix Finance, 2025).

In addition, Pang Donglai has established comprehensive governance measures, including practical regulations, customer service standards, and performance assessment schemes. Employees are required to participate in learning and evaluation programmes to ensure consistency in service quality and professional conduct (Wang Y., 2025). The company strengthens professionalism and teamwork through regular training sessions and team-building activities, which help cultivate trust and cohesion among employees and lay a solid foundation for sustainable growth (Zheng, 2025).

To promote continuous improvement, Pang Donglai establishes clear benchmarks that serve as reference models for performance expectations. Once employees meet these benchmarks, higher standards are gradually introduced, helping them build confidence

and sustain motivation. This process is supported by increased training efforts and on-site guidance (CBME China, 2025).

Pang Donglai's internal governance practices align closely with the Stewardship Theory mentioned by Davis et al. (1997). It posits that an individual is not a solely self-interested "economic man" but may, when faced with choices between personal and organisational interests, act as stewards who choose actions beneficial to the organisation. This differs from the agency theory which suggests the need for a series of strategies to discipline and motivate employees to maximise shareholder benefits (Davis et al., 1997).

When individuals identify with their organisation's goals and values, they are more likely to exhibit cooperative behaviour, altruism, and voluntary acts beyond their job requirements (Davis et al., 1997). From a governance perspective, stewardship offers an alternative to the monitoring and contracting approach of the agency theory, emphasising trust, empowerment, autonomy, organisational culture, and value alignment (Davis et al., 1997). When organisations are willing to assume that leaders or managers may act as stewards rather than opportunists, they can adopt more empowering and trust-oriented institutional designs, thereby enhancing organisational performance (Davis et al., 1997).

Institutionalisation of Values

Pang Donglai's core values are fairness, freedom, happiness, and fraternity (Retail Sphere, 2024). In addition, by integrating the values of "freedom" and "love" into its organisational narrative and brand communication (Wang, X., 2025), Pang Donglai positions cultural identity as a cornerstone of its long-term competitive advantage.

For the implementation of corporate values, Pang Donglai has established a series of awards that recognise employee initiative and contribution. Among these are the Happiness Suggestion Award, Innovation and Creation Award, and Professional Knowledge Contribution Award, which offer cash rewards to encourage staff participation and promote continuous improvement (Shen, 2025).

Pang Donglai applies its values not only internally but also in partner selection. The company enforces a rigorous screening process for food suppliers to ensure safety and quality from the source. Prospective suppliers undergo comprehensive evaluations, including verification of business licenses and compliance with national food quality and safety standards (Daxue Consulting China, 2025). The company also tightly controls every stage of product production, from raw material sourcing to logistics, creating strong supply chain integration and ensuring high product quality and competitiveness (Fast Moving Consumer Goods Elite Club, 2025).

Challenges

The series of measures adopted by Pang Donglai provides many advantages in market competition, but also raises several potential problems for future development. Although the company has operated its supermarkets in Henan Province for 28 years, it has yet to expand its business to other provinces, unlike larger supermarket brands (Hu, 2023). This implies that its current model is geographically concentrated and may limit its ability to gain a larger market share.

One of the possible reasons is that Pang Donglai's management structure may be more fragile than other large-scale chain supermarkets such as Walmart and China Resources Vanguard (Hu, 2023). Frontline employees of Pang Donglai are carefully selected by the company, but their educational levels and work abilities vary, making it difficult to develop management talent in a short time period (Hu, 2023). In addition, Yu Donglai holds 70% of equity, giving him and a small group of core shareholders substantial control over the company (NetEase, 2024). This structure may lead to highly concentrated power and reduced governance transparency, increasing reliance on the founder's values and judgement. At the same time, this may also make it difficult for external institutional investors to participate, resulting in constrained capital expansion.

Economics Dimension

In this section, we will use a 3R Framework (Responsibility, Risk Management, Returns) to analyse how Pang Donglai converts "social investment" such as generous benefits, employee care, and charitable initiatives, into "economic returns" such as high customer traffic, profitability, and brand momentum.

Analysis from the 3R Framework

In terms of social responsibility, Pang Donglai has long adhered to a "people-oriented" business philosophy and fulfilled its social responsibilities, focusing not only on customer experience but also on employee well-being and the spread of positive social impact (Meng et al., 2025). As mentioned above, Pang Donglai offers employees' salaries and vacation packages far exceeding industry standards.

Moreover, Pang Donglai strictly safeguards product quality and service integrity. In 2024, after a video posted online depicted unsanitary conditions in the dough processing area of one of its outlets, the company investigated and found that the merchant responsible had secretly moved its processing site without approval. In response, Pang Donglai refunded RMB8.8 million to customers who had bought the dirty noodles (Yang, 2024).

Pang Donglai is also a dedicated practitioner of corporate social responsibility, regularly organising charity events and making donations. During the 2008 Wenchuan

earthquake, Pang Donglai donated more than RMB7.5 million and led 160 employees to participate in on-site support (Song, 2023). During the 2021 Henan flood, Pang Donglai donated RMB10 million and sold vegetables at cost price (Song, 2023). These long-term commitments reflect Pang Donglai's active social responsibility and establish a high-trust brand image among customers, employees and society.

These social-investment choices are linked to risk management. High wages and a corporate culture that emphasises respect for employees can contribute to lower employee turnover risk and more stable labour costs over time (Zhang, 2024). At the same time, Pang Donglai's focus on integrity and social welfare, responsiveness to complaints, and prioritisation of quality and customer satisfaction is intended to reduce the likelihood of negative public opinion, reputational and operational risks. These practices have given the company greater resilience.

It is argued that Pang Donglai's dedication to social responsibility and risk management ultimately leads to sustainable economic returns. The company's widespread recognition as a "conscientious enterprise" fosters strong customer loyalty and word-of-mouth publicity. Despite not expanding into new regions, Pang Donglai's high-quality products and services have resulted in sales and profit margins far exceeding those of its peers (Zheng, 2025), while its management practices and corporate culture have been studied and emulated by businesses across many regions. In short, the 3R framework can be used to understand how Pang Donglai translates its social investment into economic and brand value.

Business Models That Go Beyond Short-Term Profits

Pang Donglai's long-term profit model is a classic social value-driven business model. It does not rely on scale expansion or price wars, but rather on trust, quality, and a people-oriented culture to build a long-term profit structure. Instead of short-term profit maximisation, Pang Donglai's core philosophy is "people first" (Meng et al., 2025).

Operationally, its model places employee care at the starting point. By ensuring they feel respected and happy, Pang Donglai aims to foster high loyalty and a proactive service attitude. Then, as employees develop an inherent drive and a sense of purpose, service quality and customer satisfaction naturally improve, generating positive word-of-mouth and strengthening brand momentum over time (Lian Shang Forum, 2023). On this basis, customer trust and high revenue provide resources that can be reinvested in employees and society, reinforcing organisational capability and culture, creating a "flywheel" in which social trust capital supports a low-risk, high-loyalty, and sustainable profit cycle (Collins, n.d.).

Challenges

Pang Donglai still faces several challenges. A central tension lies between cost and efficiency. In an industry where profit margins are generally low, Pang Donglai's

comparatively high spending on salaries, vacations, and training places pressure on financial sustainability (Hu, 2023). When external markets fluctuate or consumption declines, its social investments are difficult to reduce quickly without undermining the model, which could affect long-term profitability if revenue growth does not keep pace.

Environmental Dimension

Pang Donglai has implemented fewer environmental protection measures than in the social and governance domains. The company does not publish relevant ESG data or a formal ESG report on its official website. This indicates that Pang Donglai still has room for improvement in environmental management and disclosure. Based on available information, Pang Donglai appears to focus its environmental sustainability efforts on two main areas: green stores and the use of new energy sources.

Green Stores

The construction of Pang Donglai's stores was designed to fully incorporate energy-saving and environmental-protection concepts, striving to strike a balance between operational efficiency and environmental responsibility. In terms of lighting, Pang Donglai fully utilises energy-efficient LED lamps and lanterns, which can reduce energy consumption and maintenance costs compared with traditional lighting (PZ Academy, 2025).

In addition, Pang Donglai focuses on the effective use of natural resources in the design of store buildings. Site selection and structural layout consider natural lighting and ventilation, with scientific space planning and building-material choices used to reduce reliance on artificial lighting and air-conditioning (PZ Academy, 2025). Some stores have adopted large glass curtain walls and skylight designs to maximise natural light, contributing to energy saving and reduced consumption.

In addition, Pang Donglai regularly conducts maintenance and testing of air conditioners, elevators, refrigeration equipment, and other energy-consuming facilities to ensure efficiency and adjusts operating parameters according to season and customer traffic to optimise energy use (PZ Academy, 2025). It also explores the use of clean energy by installing solar photovoltaic panels on the roofs of some stores to provide electricity. This reduces the company's dependence on traditional energy sources and sets a good example of green-energy adoption in the city.

The use of green energy

To develop an efficient and green urban freight distribution service system in Xuchang, Pang Donglai invested RMB5.89 million to purchase 14 new energy delivery vehicles, 2 new energy sweepers, and 6 new energy sightseeing vehicles (Liu & Li, 2024). Additionally, 10 new energy charging stations were installed to actively promote new

energy transportation methods. This initiative improves supply and logistics efficiency while contributing to the green transformation and sustainable development of both the business and the city. It achieves this by reducing energy consumption during transportation and decreasing carbon emissions through greater integration of renewable energy within its operations (PZ Academy, 2025).

Challenges

At the same time, Pang Donglai faces several environmental challenges. Firstly, its environmental disclosure data is currently not comprehensive enough. Although there are qualitative descriptions of its environmental initiatives, there is a lack of quantitative indicators such as energy intensity and logistics-related emissions.

In addition, Pang Donglai has not yet established a fully developed system for internal corporate environmental governance. Although there are initiatives to improve efficiency, such as logistics and distribution optimisation, there is currently no complete framework for green supply chain management. Based on available information, Pang Donglai's internal employee-management and profit-distribution systems are relatively well-structured, while formal systems and related data disclosure on environmental performance are still lacking. In the future, to promote the sustainable governance of Pang Donglai, it should strengthen its environmental governance by introducing more relevant rules, targets and systemic disclosure.

Conclusion

This report has analysed the sustainable strategies of Pang Donglai from four different perspectives: economics, social, governance and environment. It has also highlighted how Pang Donglai has constructed a holistic framework for sustainable development with a unique humanistic philosophy.

At the social level, Pang Donglai focuses on employees and customers, using comprehensive welfare arrangements and service practices to pursue social value that extends beyond traditional CSR. At the governance level, the company reinforces internal consensus and organisational transparency through institutionalised values, ensuring that power is distributed more equitably and employees can genuinely participate in the decision-making process. At the economic level, Pang Donglai's long-term social investment is presented as feeding the company's growth, enabling it to make a sustainable and stable profit. At the environmental level, Pang Donglai's supply chain management and local collaborative approach have effectively reduced waste and carbon emissions.

Although Pang Donglai has a strong influence, it also faces several challenges. The company's development relies heavily on founder Yu Donglai's values and management system, but many elements have not yet been fully institutionalised. This suggests that Pang Donglai's business model is difficult to replicate on a large scale.

In addition, for employees to understand and practise the company's values, Pang Donglai needs to invest substantial time and resources in training. While the company currently emphasises employee well-being and service quality, its disclosure on environmental governance remains relatively insufficient. Consolidating existing strengths and filling these gaps will put Pang Donglai in a better position for the future.

Discussion Questions

1. What further steps can Pang Donglai take to strengthen its environmental governance and improve the transparency of its environmental disclosures?
2. How does Pang Donglai's unique approach to employee welfare contribute to its overall business sustainability?
3. In what ways could Pang Donglai's business model be adapted or expanded to promote sustainable practices and success in other regions or industries?

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AEON Malaysia's Sustainability Strategy: Integration, Performance and Gaps

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Service & Platform

Business Design & Circularity

Introduction

AEON Co. (M) Bhd. (AEON Malaysia) is headquartered at the AEON Taman Maluri Shopping Centre in Kuala Lumpur. Formerly known as JAYA JUSCO, it is one of Malaysia's leading retail enterprises. The company was established in 1984 when the Malaysian government invited the Japanese company AEON Group to invest in the local retail sector. In 1985, the first AEON store in Malaysia was opened at the Dayabumi Complex, making AEON the first Japanese general merchandise retailer to enter the Malaysian retail industry through a joint venture.

AEON Malaysia operates shopping centres, retail stores and other businesses across the country. According to its annual report for the fiscal year 2024, AEON Malaysia recorded approximately RM4.3 billion in revenue, with a net profit of approximately RM128 million, and had a membership base of 2.8 million under AEON Member Plus (AEON Malaysia, 2025). The total area of the shopping malls and retail spaces under AEON Malaysia is approximately 13.5 million square feet, with an occupancy rate close to full (96.9%). As of 2025, AEON Malaysia operates 28 AEON Mall outlets, 35 AEON retail stores, 6 MaxValu Prime supermarkets, 64 AEON Wellness stores, 47 DAISO stores, 22 AEON Big outlets, and 2 Petemo pet stores across the country.

The sustainable development strategy of AEON Malaysia is based on four key areas: Sustainable Economics, Environmentally Focused, Empowering People, and Efficiency & Integrity (AEON Malaysia, 2025). According to its 2024 disclosures, the organisation has received objective recognition for its sustainability and market performance. It achieved a 4.0 rating on the FTSE4Good Bursa Malaysia Index rating and was included in the FTSE4Good Bursa Malaysia Shariah Index, indicating compliance with sustainable standards aligned with Islamic finance (AEON Malaysia, 2025).

This study discusses the sustainability initiatives and impacts of AEON Malaysia and evaluates how its achievements contribute to Environmental, Social and Governance (ESG) outcomes from multiple perspectives.

AEON Sustainability Goals and Policies

AEON Sustainability Charter (ASC)

The company aims to promote initiatives involving environmental and societal aspects in collaboration with all stakeholders, including customers, employees, business partners and suppliers. AEON's mission is to pursue sustainable management to contribute to a sustainable society that aligns with corporate growth and responsibility. The AEON Sustainability Charter (ASC) was created in 2022 to provide a framework structured around four key engagement areas.

Figure 1: AEON Sustainability Charter



Source: AEON Malaysia, 2025

Sustainable Economics

AEON Malaysia aims to create sustainable economies for communities. The company promotes intrapreneurship and entrepreneurship, providing knowledge and education to the younger generation to build their business mindset. AEON also supports small and local businesses to help them grow on a bigger platform. The goal is to enhance community engagement and development while fostering a sustainable partnership model. Key areas under Sustainable Economics also include product quality, sustainable supply chains and business resilience.

Environmentally Focused

AEON strives to be environmentally focused, working together with customers and partners to create a more sustainable world. Their objectives include: reduce carbon footprint; improve energy efficiency; reduce waste and minimise water consumption; and enhance biodiversity conservation.

Empowering People

AEON is committed to diversity and inclusion in the workplace. The company focuses on training and development to ensure employees have equal opportunities and feel safe. Their objectives include: promote diversity and inclusivity; respect human and labour rights; enhance health, safety, and well-being; and empower employee learning and development.

Efficiency and Integrity

AEON aims to be an efficient organisation to maximise value from every investment and strives to lead the market in operational efficiency. AEON is committed to ensuring that business partners and stakeholders uphold similar standards of integrity. Their objectives include: promoting integrity and anti-corruption; and improving data governance and security.

Policies

To achieve its sustainability goals, AEON adopts the following policies.

Environmental Policies

Sustainability and Climate Change Policy

This policy adopts a structured approach to sustainability aimed at mitigating climate-related risks, enhancing resource efficiency, and strengthening supply chain resilience. It reflects AEON's commitment to environmental stewardship, social responsibility, and solid governance, ensuring that the organisation's operations remain sustainable, ethical, and future-ready (AEON Malaysia, 2024). The policy also applies to its supply chains and business partners, and is used in conjunction with the AEON Sustainability Charter.

Waste Management Policy

This policy highlights the importance of protecting the environment from the harmful effects of improperly managed inorganic and biodegradable waste. While waste can be recycled if it is collected and managed efficiently, mismanagement may result in water contamination, soil degradation and air pollution.

AEON adopts waste management practices based on internationally recognised standards, following five key stages (AEON Malaysia, 2022b):

- Stage 1 Prevention: Use fewer materials during design; extending products lifespan; reducing hazardous materials.

- Stage 2 Reuse: Prepare for reuse; cleaning, repairing, and refurbishing.
- Stage 3 Recycling: Converting waste into new substances or products, including composting.
- Stage 4 Recovery: Processes such as anaerobic digestion (biogas conversion for electricity generation) and incineration with energy recovery
- Stage 5 Disposal: Landfill and incineration without energy recovery.

Aligned with the 3Rs principle of “Reduce, Reuse, Recycle”, AEON aims to minimise waste sent for incineration or landfill. The organisation also focuses on two key areas:

- Food Waste: Partner with non-governmental organisations (NGOs), non-profit organisations, and industry players to ensure that food waste is not just simply discarded but repurposed as another resource.
- Plastic Waste: Develop a resource recycling model that enables the collection, reuse and recycling of used plastics from stores, while working with customers to promote sustainable resource use.

Through these efforts, AEON seeks to support a circular and low-carbon economy and promote a culture of shared environmental responsibility.

Social Policies

Health and Safety Policy

This policy outlines AEON’s commitment to providing a safe and healthy working environment, including stores, offices, and facilities. The company maintains a written safety policy and provides employees with instructions, training, awareness programmes, and supervision, including guidance on environmental preservation (AEON Malaysia, 2022a).

Health and safety considerations are embedded into AEON’s daily operations and are viewed as shared responsibilities among all employees. The company believes that adopting a proactive approach to workplace safety not only protects its people but also supports operational excellence and long-term sustainability.

Human and Labour Rights Policy

This policy is created to regulate fairness, dignity, equality and respect, which are principles recognised as basic human rights. The policy is intended for protection, especially for those who may face abuse, neglect, or isolation. AEON aims to ensure

that all jobs within the organisation are decent, fair, and safe (AEON Malaysia, 2023). This policy was developed in alignment with Malaysian regulations, such as the Employment Act 1955 (Act 265), as well as international bodies such as the International Labour Organization (ILO), a United Nations agency responsible for promoting social and economic justice through setting international labour standards. AEON implements the ILO's Fundamental Principles and Rights at Work, which include:

- Freedom of association and the effective recognition of the right to collective bargaining;
- The elimination of all forms of forced or compulsory labour;
- The effective abolition of child labour;
- The elimination of discrimination in respect of employment and occupation; and
- A safe and healthy working environment.

To uphold these principles, AEON identifies potential human rights risks, such as forced labour, harassment, or unsafe conditions, and implements proactive measures to prevent them. The company promotes equality, privacy, and respect for all employees and customers while fostering awareness through regular education and training programmes.

All stakeholders are encouraged to report any violations through AEON's whistleblowing channels, which ensure confidentiality and protection. Overall, AEON aims to create a workplace culture built on respect, inclusion, and transparency, ensuring that human rights are safeguarded and continuously improved across its operations and value chain.

Translating Sustainable Strategy into Action

As the subsidiary of AEON Group Co., Ltd in Japan, AEON Malaysia similarly integrates sustainability into its core business strategy, going beyond regulatory compliance. Guided by its Sustainability Charter and aligned with the United Nations Sustainable Development Goals (UN SDGs), AEON Malaysia's sustainability efforts are anchored primarily in environmental and social policies, covering areas such as climate change, waste management, human and labour rights. While policy development provides strategic direction, the practical execution of these commitments is crucial, as it is the implementation that generates tangible environmental and societal impact.

Environmental Strategy in Action

AEON Malaysia has implemented several efforts that directly address environmental sustainability, mainly through enabling a circular economy and transitioning towards clean energy. These initiatives are viewed as long-term investments that could reduce the company's operational footprint in the future.

Resource Management and Energy Efficiency

Efficient management of energy and finite resources is a central focus for AEON Malaysia. Recent initiatives include the adoption of a water recycling system and the installation of solar panels in some of their malls to reduce their carbon footprint.

Recognising the limited clean water resources on earth, AEON has adopted a two-pronged approach to water management: reducing overall water consumption and utilising alternative water sources where possible. Some of the AEON Malls in Malaysia are equipped with a Rainwater Harvesting System (RWHS) that utilises the large rooftop areas of their malls. Harvested rainwater is used to substitute costly municipal water for non-potable purposes such as landscape irrigation, general cleaning, and toilet flushing. For instance, AEON Taman Universiti in Skudai, Johor uses a 1,000 m³ RWHS tank for these purposes. Based on long-term rainfall simulations (1975-2003), the study found that this tank size could meet operational needs for 356 days per year with only 9 days of insufficient supply (Fulazzaky et al., 2022). The same research reported a return on investment (ROI) of 1.96 for a 500 m³ RWHS installed during the building's construction, assuming a water tariff of RM4.70/m³, indicating a profitable investment with significant cost savings.

In addition to rainwater harvesting, AEON Malaysia has installed water-efficient fittings such as sensor-activated taps and low-flow toilets to minimise water wastage. A case study at Suqian People's Hospital in China found that installing branch-pipe pressure-reducing valves had significant water and energy-saving potential. Theoretical analysis predicted a 19.4% reduction in water consumption. After implementation, actual savings in 2015 were 14,773 m³ of water (an 11.9% reduction) and more than 15,000 kWh of energy savings compared to 2014 (Zhao et al., 2018).

In a strategic move to address its energy consumption, AEON Malaysia has initiated renewable energy projects across the country in partnership with Huawei and GSPARX to install large-scale photovoltaic (PV) systems at its retail outlets nationwide. These initiatives transform the underutilised rooftop spaces of malls and parking areas into solar power hubs. With a total capacity of 78 MW, the project is expected to produce 99 GWh of solar energy annually, offsetting an estimated 70,000 tons of annual carbon dioxide emissions each year (Huawei, 2025). As of 2024, PV systems have been installed in 11 of AEON's 28 malls in Malaysia, producing more than 8,000 MWh collectively (AEON Malaysia, 2025). With an investment of around RM3-4 million per PV site, AEON is collaborating with state-owned utility company

Tenaga Nasional Berhad (TNB) to meet the net-zero carbon emission target by 2050 (Free Malaysia Today, 2023).

Figure 2: PV Installation at AEON Alpha Angle, Wangsa Maju, Kuala Lumpur



Source: The Edge Malaysia, 2023

Circular Economy and Waste Reduction

Beyond reducing single-use and non-sustainable practices, AEON actively promotes and implements circular economy principles through waste reduction across its business. In Malaysia, the company encourages suppliers to use sustainable packaging and promotes recycling campaigns for consumers.

One of AEON's consumer-based sustainability programmes focuses on sustainable packaging and recycling efforts. AEON became one of the first retailers in Malaysia to stop the use of plastic carrier bags at checkout counters nationwide, starting in January 2023 (Gomes and Tan, 2024). This initiative aims to shift consumer behaviour and reduce the volume of plastic waste entering landfills and waterways. In addition, AEON conducts several recycling programmes, reflecting its commitment to support resource circularity. For instance, in 2024, AEON launched a Polyethylene Terephthalate (PET) bottle recycling awareness programme across its 15 malls in partnership with Coca-Cola, Hiroyuki Industries, and Trash4Cash, offering shopping credits for every PET bottle submitted (Tan, 2024). Another project is with Kao Malaysia, where within 10 months, AEON collected more than 680 kg of High-Density Polyethylene (HDPE) plastics from consumers (Nandini, 2025). These consumers also received buy-back rewards and a Kao free gift. For clothing and fabric recycling, AEON collaborates with

KLOTH Circularity, which has collected and recycled 1 million kg of clothing and fabric items over three years (as of May 2025) (Kloth Circularity, 2025).

Figure 3: Fabric Recycling Programme by Kloth Circularity and AEON Malaysia



Source: Food Malaysia, 2022

Figure 4: Plastic Bottle Recycling Bins as Part of a Recycling Programme by Kao and AEON Malaysia



Source: Nandini, 2025

To support suppliers and producers in sustainable development, AEON is establishing a partnership with Bursa Malaysia and CIMB Bank to develop an ESG supplier programme that facilitates ESG disclosures and provides sustainability-linked financing for Small and Medium-sized Enterprises (SMEs), with an allocation of RM3 billion until 2030 (AEON Malaysia, 2024a). Under this programme, AEON's SME suppliers may receive a 0.5% annual financing rebate when they meet pre-agreed sustainability performance targets. This is to ensure suppliers elevate their ESG standards and foster collective commitment to a sustainable future.

Additionally, AEON Malaysia had collaborated with the United Nations Industrial Development Organization (UNIDO) on the Sustainable Supplier Development Programme (SSDP) to increase safe and sustainable sourcing between Malaysian SMEs and AEON (UNIDO, n.d.). Through this programme, AEON contributed US\$100,000 in kind to support training programmes on responsible value-chain development, helping 40 food suppliers upgrade their business practices to comply with ethical, social, environmental, and safety requirements under the Global Market Protocol of the Global Food Safety Initiative (GFSI).

Social Strategy in Action

Sustainability in social development is another priority for AEON, including community upliftment, employee well-being, respect for local culture, and responsible corporate citizenship. As outlined in the AEON Sustainability Charter, the company emphasises two pillars relevant to social sustainability: *Empowering People* and *Efficiency & Integrity*, which guide efforts to build an inclusive and future-ready workforce.

Community Participation and Empowerment

Community outreach, empowerment, and collaboration become a cornerstone of AEON's social initiatives. Through the AEON Foundation, more than 80,000 children and 28,000 families have received assistance, with contributions amounting to more than RM22 million (Malaysian AEON Foundation, n.d.). AEON implements various community-focused programmes. In 2021, during the COVID-19 pandemic, AEON launched the "Bersama AEON" programme, distributing about essential-care boxes to people retrenched from the hotel industry (Tan, 2021). To create a greater impact on regional society, AEON Foundation contributed RM300,000 in support of victims of the 2025 Myanmar earthquake, in collaboration with the United Nations High Commissioner for Refugees (UNHCR) (AEON Credit Service, 2025).

Beyond social development, AEON demonstrates community participation through environmental protection. For instance, AEON collaborates with the World Wildlife Fund (WWF) on reforestation and orangutan rehabilitation efforts in Sabah. Tree-planting has been part of AEON's long-standing programmes since 1991, with over 557,000 trees planted nationwide (AEON Malaysia, 2025). In 2018, AEON completed a reforestation project covering 77 hectares of forest, investing RM500,000 and planting more than 12,000 trees since 2011 for this project (AEON Malaysia, 2018).

This long-term commitment involves not just financial support but also an example of a holistic approach in which corporate social responsibility (CSR) contributes to biodiversity conservation.

Employee Welfare

In addition to ensuring social and environmental sustainability, AEON sees its employees as an integral part of its success. Therefore, the company has developed policies aimed at enhancing well-being and professional growth.

AEON's employment policy is designed to foster a loyal and motivated workforce. Supporting this vision, AEON has signed a collective agreement with the AEON Workers' Union, covering more than 10,000 employees (Bernama, 2024). The collective agreement highlights a partnership model in which both employees and employers participate in decision-making processes, enabling bottom-up and top-down solutions to reach equilibrium. Lastly, AEON prioritises employee welfare and implemented an increase in the minimum wage across all its business operations one year ahead of the government's recommendation (Yap, 2022).

AEON's Action Summary

AEON Malaysia's "Strategy into Action" provides an example of how a large retail organisation integrates sustainability into its daily operations, encompassing environmental, social, and employee aspects. By addressing key areas such as water, energy, waste management, and social value through employee welfare and community engagement, AEON creates interconnected programmes as part of its corporate strategy to ensure long-term operational resilience, build stakeholder trust, and make positive contributions to society.

Measuring Impact: Environmental and Social Outcome Analysis

AEON Malaysia, with its sustainable development philosophy, comprehensive regulations, and management capabilities, has demonstrated its responsibility and influence on the environment and society. Through environmental and social initiatives, AEON has translated its sustainable development philosophy into various practical outcomes. This section presents results with quantitative data to illustrate the effectiveness of AEON's sustainable strategy and analyse its benefits for both the environment and society.

Quantifiable Environmental Outcomes

In recent years, AEON has implemented numerous initiatives in energy conservation, energy conversion, and waste management, achieving measurable results. The

following provides data and analysis from two perspectives: energy and emissions, and the waste and circular economy.

Energy and Emissions

Regarding energy conservation and emissions reduction, AEON's 2024 Integrated Annual Report shows that total annual electricity consumption increased by 0.4% compared to 2023, reaching 528,298 MWh, mainly due to the opening of new stores. However, this increase does not indicate neglect of energy conservation, as AEON continues to expand renewable energy usage. In 2024 alone, 11 AEON shopping malls generated 8,877 MWh of electricity through solar power. The company also purchased 57,913 MWh of green electricity through the Green Energy Tariff (GET) programme. This brings AEON's total renewable energy usage in 2024 to 66,790 MWh, representing approximately 12.6% of total electricity consumption. (AEON Malaysia, 2025).

Table 1: Quantifiable Environmental Outcomes of Energy & Emissions for AEON Malaysia

Indicator	Unit	FY2022	FY2023	FY2024	Remarks
Total Electricity Consumption	MWh	521,414	524,739	528,298	↑0.4% vs 2023 due to new outlets
AEON's Own Consumption	MWh	412,368	420,220	403,840	Slight decline, efficiency improvement
Tenants' Consumption	MWh	109,047	122,519	124,458	Stable year-on-year
Solar PV Generation	MWh	1,982	3,922	8,877	+126% vs 2023; 11 malls powered by solar
Green Electricity (GET) Purchased	MWh	387,495	290,230	57,913	66,790 MWh total renewable energy (solar + GET)
Share of Renewable Energy	%	–	–	12.6%	Of total electricity use
Scope 1 Emissions	tCO ₂ e	265,994	294,253	288,285	↓2% vs 2023
Scope 2 Emissions	tCO ₂ e	86,159	139,504	263,990	↑ Due to reporting expansion
Combined Scope 1 + 2	tCO ₂ e	–	–	552,876	↓17% vs 2019 baseline (346,278 tCO ₂ e)

Emission Reduction Target	–	–	–	70% reduction by 2035	Mid-term goal toward net-zero 2050
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Source: Adapted from information in AEON Malaysia’s Integrated Annual Report 2024 (2025), remarks column by authors.

Waste and Circular Economy

In 2024, AEON generated approximately 58,023 tonnes of waste. While this figure remains substantial for a national retailer, it remained relatively stable compared to the previous two years, reflecting the corresponding increase in energy consumption and waste from AEON’s business expansion. In terms of recycling, AEON has increased the recycling rate to 11%, meaning that 6,355 tonnes of materials were transformed from waste into reusable resources. Through community initiatives, AEON collected 2.3 tonnes of PET bottles, 252 tonnes of textiles, 0.35 tonnes of HDPE containers, and approximately 2 tonnes of electronic waste across participating malls (AEON Malaysia, 2025).

Using a conservative conversion factor of 1.26 tCO₂e avoided per tonne of waste, AEON’s recycling activities are estimated to have collectively prevented approximately 8,000 tCO₂e during 2024.

Table 2: Quantifiable Environmental Outcomes of Waste and Circular Economy

Indicator	Unit	FY2022	FY2023	FY2024	Change/Remarks
Total Waste Generated	Metric tonnes	58,238	62,260	58,023	-6.8% vs 2023
Recycled Waste	Metric tonnes	5,951	6,753	6,355	11% diverted from landfill
Diversion Rate from Landfill	%	10	11	11	Stable
HDPE Containers Recycled	kg	–	–	350	Pilot with Kao Malaysia
E-waste Collected	kg	–	–	2,000	Community collection day
tCO₂e Avoided (estimated)	tCO ₂ e	–	–	8,000	Based on 1.26 tCO ₂ e/tonne waste diverted

Source: Adapted from information in AEON Malaysia's Integrated Annual Report 2024 (2025), remarks column by authors.

Tangible Social Benefits

AEON not only addresses its environmental responsibility but also undertakes social responsibility as a large enterprise. This section discusses its contributions from two aspects: employee empowerment and development, and community investment and social impact.

Employee Empowerment and Development

AEON Malaysia aims to ensure job opportunities for diverse social groups. In 2024, there were 168 persons with disability under AEON's employment, forming 1.8% of its workforce. It targets a workforce composition of 2% employees with disabilities by 2030 (AEON Malaysia, 2025).

It also aimed for gender parity in management, and in FY2024, 59% of managerial roles are held by women.

AEON places great emphasis on employee training to enhance skills, potential, and self-worth. Employee training is regarded as both a right and benefit for employees and an obligation and investment by the company. Employee training hours totalled 107,824 hours in 2024.

Community Investment and Social Impact

In 2024, AEON allocated RM1.2 million for community investment, supporting local initiatives such as school facility improvements and food distribution during Ramadan (AEON Malaysia, 2025).

Beyond annual donations, AEON makes long-term social contributions through its own foundation. Established in 2004, the foundation has cumulatively donated over RM22 million to society (Malaysian AEON Foundation, n.d.).

AEON also prepares young people entering the workforce by providing internships for graduates, supporting the development of core professional skills. Additionally, as an active member of retail industry associations, AEON drives sector-wide initiatives on environmental sustainability and sustainable development.

In summary, AEON has established a comprehensive community investment framework characterised by annual donations for immediate impact, foundation support for long-term sustainability, and future development extensions. Through financial contributions, platform operations, and industry collaboration, AEON continues to generate lasting social impact.

Governance Foundation: Ensuring Accountability Through Structure and Frameworks

While AEON Malaysia's environmental and social initiatives show a commitment to sustainability, the effectiveness of these programmes highly depends on strong governance structures and transparent reporting frameworks. This section examines how AEON's governance architecture, combined with its alignment to international reporting standards, specifically the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD), establishes accountability mechanisms necessary to drive, monitor, and continuously improve its sustainability performance.

Multi-Tier Governance Architecture

AEON Malaysia has established a four-tier governance structure that integrates sustainability considerations at every level of decision-making, from the boardroom to operational execution (AEON Malaysia, n.d.-a).

Board of Directors: Strategic Oversight

At the top of AEON's sustainability governance is the Board of Directors, which holds ultimate responsibility for the company's sustainability strategy and performance. Key responsibilities include:

- Reviewing and approving AEON's sustainability strategy and climate change policies
- Identifying key environmental, social, and governance (ESG) risks
- Overseeing sustainability disclosures and reporting to stakeholders

Sustainability and Risk Management Committee (SRMC)

The second tier features the Sustainability and Risk Management Committee (SRMC), a specialised Board committee established to oversee sustainability and climate-related matters. Its responsibilities include:

- Creating sustainability and climate risk strategies aligned with AEON's business objectives
- Overseeing company-wide sustainability risk assessments
- Coordinating sustainability oversight across different Board committees

Sustainability Steering Committee (SSC)

The third tier is the Sustainability Steering Committee (SSC), which functions as the executive arm translating Board-level strategy into operational reality. The group ensures sustainability is embedded across departments such as finance, operations, and human resources. Its responsibilities include:

- Overseeing implementation of the sustainability strategy and monitoring performance
- Reviewing and recommending strategic sustainability direction to the Board
- Allocating resources and coordinating cross-functional sustainability projects

Sustainability Task Force (STF)

At the operational foundation sits the Sustainability Task Force (STF), responsible for day-to-day management of sustainability performance across AEON's business units. Comprising Business Unit Heads of Departments and their line managers, the STF is the central point of contact for all sustainability matters. The STF's responsibilities include:

- Implementing sustainability initiatives across the organisation
- Collecting sustainability data and monitoring progress against targets
- Reporting results for inclusion in the Sustainability Statement/Report

This governance framework, combined with GRI and TCFD reporting that enhances transparency and accountability, ensures that sustainability moves beyond aspiration into execution, positioning AEON as a notable contributor to sustainable practices in Malaysia's retail sector.

Global Reporting Initiative (GRI) Alignment: Transparency in AEON's GRI Reporting

GRI Framework: Comprehensive Performance Disclosure

AEON's GRI reporting goes beyond compliance documentation by providing a structured accountability mechanism that transforms sustainability commitments into measurable performance. The GRI Standards ensure consistent reporting and prevent selective disclosure of successes while omitting challenges. Stakeholders can track AEON's impacts and compare performance year on year.

AEON conducted stakeholder engagement with customers, employees, suppliers, investors, and communities to identify 14 material topics across four pillars: **Sustainable Economics** (product quality, supply chain, resilience), **Environmentally Focused** (climate change, water, waste, packaging), **Empowering People** (labour practices, diversity, health & safety, learning, community), and **Efficiency & Integrity** (governance, ethics, data security) (AEON Malaysia, n.d.-b).

The strategic actions and their impact metrics were discussed in its 2024 report. Table 3 illustrates how GRI facilitates disclosure, accountability and scope for future improvements.

Table 3: AEON Malaysia’s GRI Disclosures and Accountability

Material Topic	GRI standard	GRI Mandate Disclosures	AEON’s 2024 Transparency	Accountability Created
Climate Change	305 (Emissions)	Scope 1,2,3 Emissions and Targets	Full disclosure about all 3 scopes	Spike in scope 2, allowing us to take action to fix it
Waste Management	306 (Waste)	Total Waste, Recycling, Disposal Methods, etc.	Full disclosure, exact figures and methods shared	11% is a low rate as per industry comparison, which can be improved
Water Efficiency	303 (Water)	Water Consumption & Efficiency Measures	Partial disclosure – no intensity metrics disclosed	Gap identified, can be covered in future reporting
Labour Practices	401-402 (Employment)	Employment Statistics, Benefits, etc.	Full disclosure	Union Agreement disclosure creates low chances of breach or conflicts
Diversity and Inclusion	405 (Diversity)	Workforce Diversity	Partial – No information about the	The possibility of the existence of a

			gender pay gap	gender pay gap
Community Contribution	413 (Communities)	Community Programmes, beneficiaries reached	Full disclosure	Proves impact and builds reputation
Governance & Ethics	205 (Anti-Corruption)	Percentage of Operations assessed, trainings	Full disclosure	Creates trust and credibility
Data Security	418 (Privacy)	Privacy Breaches or data loss incidents	Full disclosure	Showcases Security

GRI Delivers Concrete Benefits

- Performance tracking enables year-over-year comparison (e.g., recycling 10% to 11%, solar PV generation from 1,982 MWh to 8,877 MWh)
- Gap identification reveals weaknesses requiring attention (e.g., low recycling rates, missing gender pay data)
- Builds stakeholder confidence through systematic disclosure
- Materiality assessment ensures strategic focus and resource allocation priority

Task Force on Climate-related Financial Disclosures (TCFD): Forward-Looking Climate Governance

AEON became a TCFD supporter in July 2022 and is progressively implementing disclosures across the four TCFD pillars.

Pillar 1: Governance

AEON's climate governance is integrated into its broader sustainability governance structure. The Board of Directors holds ultimate responsibility for climate oversight, with the SRMC serving as the specialised committee that creates climate risk

strategies, monitors climate-related risks quarterly, and coordinates climate considerations across Board committees.

Pillar 2: Strategy

AEON's climate strategy targets carbon neutrality by 2040, aligned with the broader AEON Group's Decarbonisation Vision 2050. The strategy includes:

- Reducing total Greenhouse Gas (GHG) emissions from stores to zero by 2040 through renewable energy adoption and energy efficiency improvements
- Switching 50% of electricity to renewable sources by 2030 (a target accredited by the Science Based Targets initiative as consistent with the Paris Agreement's 1.5°C pathway)
- Continuing efforts to achieve zero GHG emissions across operations, products, and logistics
- Cooperating with customers for societal decarbonisation through initiatives such as Electric Vehicle (EV) charging infrastructure

Pillar 3: Risk Management

AEON integrates climate risk management within its broader Enterprise Risk Management (ERM) framework, overseen by the SRMC. To address physical risks, AEON has implemented measures such as installing watertight panels to prevent mall flooding and developing business continuity plans for extreme weather events. For transition risks, the company is proactively adopting renewable energy (the 78 MW solar programme with GSPARX), improving energy efficiency, and developing sustainable product offerings to meet evolving consumer preferences.

Pillar 4: Metrics and Targets

AEON tracks comprehensive climate metrics, and its climate targets have received external validation. It achieved a 4.0 rating in the FTSE4Good Bursa Malaysia Index for 2024 and won the Green Energy Stewardship - Gold Award at the National Energy Award 2025.

Critical Analysis

AEON Malaysia's sustainability approach demonstrates a comprehensive integration of policy, strategy, and execution across environmental and social dimensions,

supported by its robust governance framework. However, a closer examination shows a mixed performance—solid achievements in certain areas coexist with significant implementation gaps and tensions between ambitious targets and current progress.

AEON's renewable energy initiatives demonstrate strategic direction and have produced notable outputs, but these achievements obscure a significant setback: Scope 2 emissions spiked 89%, from 139,504 tCO₂e (2023) to 263,991 tCO₂e (2024), largely due to reduced green electricity procurement. This reversal contradicts the company's 2040 carbon-neutrality commitment and highlights shortcomings in transition planning. With renewable energy accounting for only 12.6% of total consumption, reaching 50% by 2030 will require tripling the current rate of expansion—an acceleration that appears misaligned with the organisation's present trajectory.

Waste management performance also indicates limited progress. The recycling rate increased from 10% (2022) to 11%, but remains far below benchmarks set by global retail leaders (50-70%). Circular economy programmes (e.g., PET recycling, KLOTH CARES textile collection, organic composting) demonstrate conceptual promise but have limited scale. Likewise, its successful Alpha Angle composting initiative remains confined to one location despite years of operation, pointing to organisational barriers in replicating pilot successes.

On the other hand, AEON's social initiatives signal a sustained commitment. The establishment of a collective labour agreement after four decades, the early adoption of minimum-wage adjustments, and community support through the Malaysian AEON Foundation, which has contributed RM22 million to benefit over 80,000 children and 28,000 families, represent meaningful social contributions. However, the impact of these social initiatives could be strengthened through clearer quantitative targets and performance metrics.

From a governance standpoint, AEON has a structured system that reflects its strategic intent to advance sustainability. The issue, however, is not the strength of its stated aspirations but its organisational capability to deliver outcomes at the pace required to meet its 2030 and 2040 commitments.

The transparency gaps in GRI disclosures, the deviations from emissions targets, and the limited effectiveness of circular economy initiatives would pose significant challenges to achieving AEON's goals if not addressed promptly and in greater detail.

Gap Analysis

This section conducts a gap analysis of AEON's sustainability efforts, focusing primarily on energy reduction, recycling, and social benefits, while examining the discrepancies between current practices and stated goals.

First, investment in renewable energy has notably decreased. Although total electricity consumption rose slightly by 0.4% in 2024, AEON's procurement of green electricity

dropped sharply—from over 387,000 MWh in 2022 to less than 58,000 MWh in 2024, a drop of approximately 85%. While AEON officially attributes this to an “adjusted subscription amount” in the period from May to December, the shift also reflects a strategic pivot away from purchased green power towards self-generation through photovoltaic installations. Despite this strategic transition, total self-generated energy reached only approximately 8,877 MWh, leaving the overall proportion of renewable energy considerably low.

Secondly, AEON’s emission reduction targets warrant close attention. The company aims to cut Scope 1 and 2 carbon emissions by 70% by 2035 (compared to the base year 2019). Its 2024 performance reflected a 17% reduction. However, achieving the remaining 53% reduction over the next 11 years requires annual cuts of approximately 4.8%. At present, AEON’s decarbonisation efforts are concentrated on electricity conservation and solar installations, with limited evidence of a broader, more systematic decarbonisation solution.

Next, progress in recycling remains slow. Although AEON often mentions increased recycling efforts, the data remains modest. The recycling rate in 2024 stands at only 11%, a 1-percentage-point improvement compared to the previous year. Current recycling activities continue to focus primarily on plastics and textiles, and consideration could be given to all types of waste. In addition, waste management practices across shopping malls and tenants lack standardisation, resulting in inconsistent implementation.

Finally, gaps are also evident in AEON’s social impact efforts. For instance, in terms of employee diversity, AEON has set targets such as achieving 50% female representation in management and 2% of its workforce to comprise employees with disabilities by 2030. However, there are no clear metrics related to the inclusion of individuals from remote areas, leaving important dimensions of diversity unaddressed. Additionally, although social investment expenditure increased to RM1.2 million in 2024 and the number of beneficiaries expanded to 40,000 (AEON Malaysia, 2025), there remains a lack of long-term impact evaluation. Current reporting tends to emphasise activities (“what was done”) rather than demonstrated outcomes (“what changed as a result”).

Future Outlook

To enhance AEON’s future sustainability journey, the firm has plans for protecting the environment, using more renewable energy and supporting inclusive growth.

Environmental Commitment

AEON plans to increase the use of renewable energy capacity by installing solar photovoltaic (PV) systems in its malls (AEON Malaysia, 2025). This will support AEON’s long-term goal to achieve carbon neutrality by 2040. It also aims to improve

waste reduction with reuse and recycling, and remove single-use plastic across its value chain by 2040. From 2025 to 2027, AEON is also committed to planting 30,000 trees in collaboration with the Forest Research Institute Malaysia (FRIM).

Social and Governance Focus

AEON Malaysia will continue strengthening workplace diversity and inclusion. By 2030, the company targets achieving at least 50% women in management, at least 30% female representation on its Board and Leadership Council, and 2% of its workforce to comprise people with disabilities. AEON also plans to integrate the Task Force on Climate-related Financial Disclosures (TCFD) recommendations more fully into its reporting processes to improve transparency and accountability in climate-related risk management.

Sustainability Integration

AEON aims to further integrate environmental, social, and governance (ESG) principles into all operational decision-making. Its #AEONResponsible Suppliers Program would promote shared responsibility in ethical sourcing and sustainable production through its supply chain.

Conclusion

In Malaysia, AEON has become a benchmark within the retail industry for advancing sustainability to the next level. Through its Sustainability Charter, AEON has embedded sustainability into its core corporate identity, translating environmental and social commitments into structured policies and actionable programmes aligned with global sustainability standards such as GRI and TCFD. AEON has made efforts to balance environmental responsibility and social well-being through programmes such as rainwater harvesting, solar PV installations, community development programmes, and employee well-being measures.

However, this report also identifies a critical gap between AEON's long-term ambitions and its current performance. Despite its strong governance framework, AEON faces challenges, particularly the sharp increase in Scope 2 emissions and its relatively low recycling rate compared with its industry peers. The rise in Scope 2 emissions is largely due to reduced purchases of GET, which increased dependence on grid electricity. In addition, the current PV installations across AEON malls do not generate enough energy to meet overall consumption needs. Therefore, it is recommended that AEON continue purchasing GET until it can sufficiently rely on self-sourced electricity through its own PV system, while also strengthening on-the-ground execution to scale successful pilot programmes and manage transition risks more effectively. AEON's social initiatives and policy frameworks provide a strong basis for addressing the implementation gap through strategic execution. Moving forward, AEON should

leverage its governance structure to ensure accountability and accelerate progress in decarbonisation and circular economy efforts.

Discussion Questions

1. What kinds of systems and practices should AEON Malaysia put in place to scale successful sustainability pilots across its value chain?
2. How can AEON Malaysia further bridge the gap between its emission targets and actual emissions reduced?
3. How does a strong governance structure support organisational sustainability?

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Changi Airport Group: Finding Jewels in Green Travel

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Service & Platform

Business Design & Circularity

Introduction

As a symbol of Singapore's progression and modernisation, the story of Changi Airport Group (CAG) reflects not merely physical expansion but a successful strategic transformation. From its origin as a national infrastructure project to its current status as one of the world's leading international aviation hubs, this journey illustrates Singapore's strong alignment between business development and a sustainable future. Through the airport's policies and practices, operational excellence and sustainability emerge as two mutually reinforcing forces.

The heart of CAG's vision lies in the statement "To be a first-in-class, leading global aviation hub run by exceptional people, connecting lives and businesses, contributing to the economic growth of Singapore" (Changi Airport Group, n.d.-a). These are supported by the company's core values, which emphasise world-class service, culture and excellence. Taken together, these elements define an organisation that values partnership and purpose as much as performance. CAG's logo, in which dynamic lines converge into one, symbolises this unity (Changi Airport Group, n.d.-a). The airport's ecosystem is thus built upon individuals, collaborators, and travellers coming together to deliver seamless connectivity and collective advancement.

CAG's development timeline corresponds with Singapore's broader national growth. Conceived in the 1970s, due to capacity constraints at Paya Lebar Airport, Terminal 1 of CAG commenced operations in 1981, marking Singapore's entry into the global aviation landscape (Changi Airport Group, n.d.-b). In the following decades, the continuous expansion of other terminals and the formation of Changi Airport Group reflected Singapore's vision to improve global connectivity. As the organisation matured, its philosophy has shifted from operational efficiency towards a stronger commitment to sustainability.

In the 21st century, sustainability became a core part of CAG's long-term strategy. Its 2030 roadmap can be analysed under the Economics, Environmental, Social and Governance (EESG) dimensions, and through the lens of the United Nations Sustainable Development Goals (SDGs). To be more specific, CAG has prioritised investments in operationally sustainable growth, such as digital innovation, renewable infrastructure, and sustainable design. From an environmental perspective, the organisation has identified decarbonisation, energy efficiency, and resource optimisation as part of its long-term goal. Furthermore, by building a people-centric organisational culture, CAG seeks to maintain an equitable and human-focused working environment. In terms of governance, transparency and accountability are reinforced through structured ESG reporting and stakeholder dialogue.

Ultimately, Changi's journey from a national airport to a global benchmark follows a coherent logic: mission shapes culture, culture drives innovation, and innovation enables sustainable growth. Through this alignment, CAG demonstrates a purpose that extends beyond connecting nations to connecting sustainability and the future. The subsequent discussion will examine this case in greater detail.

Environment - Greening Aviation with a Scalable Impact

When tourists from around the world arrive at Changi Airport, many are immediately attracted to its spectacular indoor waterfall. The comfortable indoor temperature and the rainforest-like scenery contrast sharply with the heat outside. The core of this unique landscape lies in the rainwater harvesting and recycling system, which collects water from the roof of Jewel Changi Airport within the building. This system not only improves the microclimate of the terminal but also significantly reduces cooling demand and carbon emissions. As global air travel continues to expand and flight routes increase, the environmental pressures and impacts from airport operations are also constantly increasing.

In this section, the analysis explores how Changi Airport advances sustainable development through green building design, emission reduction, waste management, and water resource utilisation, and examines its overall environmental impact and achievements.

Energy & Emissions-Solar panel system

In February 2024, Changi Airport Group (CAG) announced that it would install Singapore's largest single-site rooftop solar photovoltaic (PV) system, which would be designed, built, owned, and operated by Keppel Ltd. The system spans terminal rooftops, airfield, and cargo buildings, delivering a total capacity of 43 MWp, including 38 MWp on rooftops and 5 MWp on grass fields outside the airfield (Changi Airport Group, 2024b).

Figure 1: Solar Panel Installed on Terminal Rooftops



Source: Changi Airport Group, 2024b

This initiative marks CAG's first large-scale deployment of solar PV systems and represents a strategic move beyond conventional rooftop utilisation. Upon completion, the system is projected to generate enough renewable energy to power over 10,000 four-room flats annually, offsetting approximately 20,000 tonnes of carbon dioxide

(CO₂) emissions per year, which is equivalent to around 10% of CAG's 2019 emissions baseline (Changi Airport Group, 2024b).

Sustainable energy & fuel

Sustainable Aviation Fuel (SAF) refers to a jet fuel substitute made from renewable or waste-based sources. For example, SAF can be derived from plant oils, animal fats, or municipal waste, and can be directly used in existing aircraft engines and fuelling infrastructure. Certified "neat SAF" must be blended with conventional jet fuel to comply with ASTM D1655, the global specification for aviation turbine fuel (International Air Transport Association, 2024). According to the United States Department of Energy's Alternative Fuels Data Centre, depending on feedstock type and certification pathway, the SAF blending ratio typically ranges between 10% and 50% (U.S. Department of Energy, n.d.).

Historically, the SAF industry began its practical validation phase in 2008, when Virgin Atlantic conducted the world's first commercial biojet demonstration flight (International Air Transport Association, 2025a). In 2011, the American Society for Testing and Materials (ASTM) approved an amendment allowing the use of SAF in commercial air transportation, and the first passenger flights powered by certified SAF were operated in the same year. By 2015, 22 airlines worldwide had operated over 2,500 passenger flights using SAF blends (International Air Transport Association, 2025a). In recent years, the International Air Transport Association (IATA) has reported that hundreds of thousands of commercial flights worldwide have used SAF-blended fuel, and that SAF is now available at dozens of airports around the world.

CAG is actively advancing decarbonisation across both airborne and ground operations. Emissions from aircraft operations and ground-support equipment constitute the majority of Changi Airport's Scope 3 emissions, with aircraft operations alone accounting for over 90% of the aviation industry's total carbon emissions. As such, CAG is collaborating with local and international partners to reduce emissions on both fronts (Changi Airport Group, 2025c).

With regard to SAF, recognised as a key lever in aviation decarbonisation, it is estimated to contribute about 65% of the emission reduction needed to meet the International Civil Aviation Organisation's (ICAO) 2050 net-zero target. In 2020, CAG launched a joint feasibility assessment. By July 2022, a one-year SAF pilot programme commenced through collaboration among the Civil Aviation Authority of Singapore (CAAS), GenZero and Neste, which supplied 1,000 tonnes of SAF blended with traditional fuel for flights departing Singapore. By calculation, this pilot was estimated to reduce CO₂ emissions by approximately 2,500 tonnes. In May 2023, Neste opened a SAF refinery factory in Tuas, with an annual production capacity of up to 1 million tonnes of SAF, and integrated pipeline supply chain at the airport (Changi Airport Group, 2025c).

Furthermore, in terms of ground support, Changi Airport is accelerating the transition towards a more environmentally friendly and electrified ground support vehicle fleet. By 2025, CAG has installed over 100 charging points across the airport to support electric ground support vehicles and achieved 100% electrification of baggage tractors. For heavy equipment that has not yet fully adopted electric power (such as refuelling vehicles), the airport is exploring renewable diesel as a transitional solution (Changi Airport Group, 2025c).

Waste & Materials

Changi Airport has developed a comprehensive closed-loop system for on-site waste reduction and source segregation. Across Terminals 1 to 4, the airport has installed 11 food waste digesters, with Terminal 3 alone capable of treating approximately 600 kilograms of kitchen waste per day on-site. This approach converts high-moisture organic waste at source, reducing the volume of material requiring transportation or incineration, and thereby lowering both leachate generation and transport-related emissions (Changi Airport Group, 2025b).

To encourage proper waste segregation among passengers and staff, Changi Airport has introduced facilities such as “recycling corners” and tray recycling stations, which guide users to sort garbage into five categories: liquids, food residues, plastic bottles, metal cans, and non-recyclable items. Since their introduction in January 2024, each collection point has recycled an average of approximately 90 kilograms of recyclable materials per month, while also supporting on-site food waste disposal and composting.

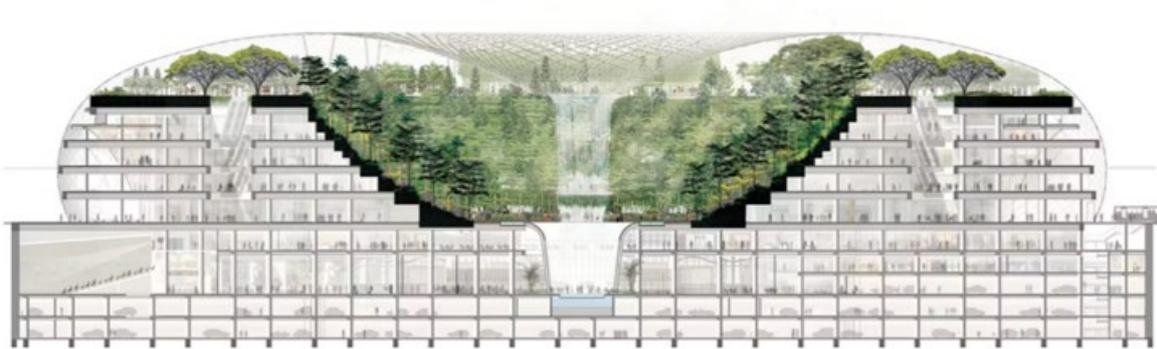
Working towards zero-waste operations, Jewel Changi Airport has strengthened waste reduction and resource recycling management at an integrated, precinct-wide level. CGA has taken a series of measures, including food waste composting, cardboard recycling, plastic and aluminium can collection, and electronic waste management. The terminal also promotes reusable tableware and refillable bottles, provides free water replenishment stations, and operates reverse vending machines (RVMs) to reward users for returning empty beverage containers. For these efforts, Changi Airport received the Building and Construction Authority’s (BCA) Universal Design Excellence Award and the BCA Green Mark Platinum award (Changi Airport Group, 2024a).

These measures are aligned with Singapore’s Zero Waste Masterplan, which aims to reduce per capita daily waste sent to the landfill by 30% by 2030 and achieve a national overall recycling rate of 70% (National Climate Change Secretariat, n.d.). The measures implemented at Changi Airport demonstrate how large-scale airport and retail infrastructure can integrate on-site waste treatment, recycling, and circular economy principles.

Application – The Jewel Changi

Jewel Changi is a mixed-use complex that includes retail, leisure, and transport into a single destination. It features the world's tallest indoor waterfall that gives an impressive visual and acoustic presence, contributing to indoor microclimate regulation. Surrounding the waterfall are greenery arranged within the Forest Valley, while the rooftop Canopy Park links multiple experience zones. Collectively, these settings create a calm, biophilic environment suited to Singapore's warm, humid conditions.

Figure 2: Jewel Changi – Side View



Source: Safdie Architects, n.d.

Figure 3: Jewel Changi – Top-down Perspective



Source: Safdie Architects, n.d.

From the outset, Jewel adopted a whole-of-life approach across energy efficiency, water stewardship, indoor environmental quality, and material selection, with the aim of reducing carbon footprint, energy use, and water demand. The double-skin façade and expansive glazed roof maximise daylight penetration while reducing solar heat gains; when working in concert with the evaporative cooling effect of the artificial

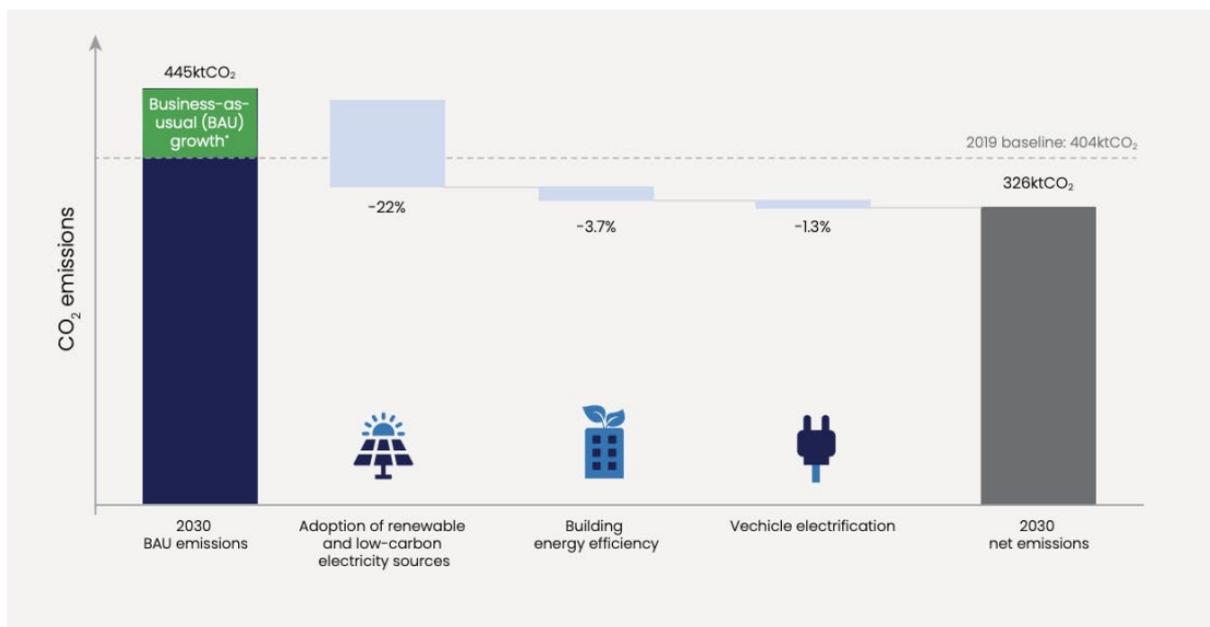
waterfall, these features lower ambient temperatures and lighten air-conditioning loads. Photovoltaic arrays installed on façades and rooftops contribute on-site renewable electricity, supplying part of the complex’s total energy demand. Given Singapore’s high annual rainfall, rainwater harvested from the roof is reused for landscape irrigation and toilet flushing, thereby reducing dependence on municipal water supplies without compromising user comfort or operational efficiency.

Impact

Changi Airport’s environmental programme is delivering measurable decarbonisation and resilience outcomes. The rooftop solar project is widely recognised as a significant milestone in Singapore’s aviation decarbonisation journey, aligning with both Singapore’s Green Plan 2030 (Singapore Green Plan 2030, n.d.) and the ICAO’s aviation emissions reduction frameworks. With a total installed capacity of 43 MWp, including approximately 38 MWp located on rooftops, the project is projected to reduce annual carbon emissions by about 20,000 metric tonnes, equivalent to about 10% of CAG’s 2019 emission baseline (Changi Airport Group, 2024b).

This initiative sets a global benchmark for sustainable airport development. By integrating large-scale on-site renewable energy generation, Changi has reduced its reliance on the national electricity grid, enhanced energy security and operational stability amid global energy price volatility, and provided a replicable model supporting Singapore’s energy diversification.

Figure 4: Projected Reduction of Domestic Aviation Emissions in 2030



Source: Civil Aviation Authority of Singapore, 2024

On the sustainable fuels front, Changi has acted as both a pioneer and ecosystem enabler for SAF, pairing operational facilitation for airlines with policy momentum that creates demand signals. Operationally, CAG facilitated Cebu Pacific's SAF-powered commercial flight in September 2022 and supported SAF uplift pilots by carriers including Japan Airlines and China Airlines (Changi Airport Group, 2025c). At the policy level, the CAAS's Sustainable Air Hub Blueprint, announced in February 2024, stipulates that all flights departing Singapore will be required to use SAF from 2026, starting with a 1% blend mandate and rising to 3%–5% by 2030, supported by levy mechanisms designed to catalyse supply-side investment (Civil Aviation Authority of Singapore, 2024). Despite these advances, global SAF supply constraints remain a challenge. IATA and multiple industry reports estimate that global SAF production may reach about 2 million tonnes in 2025, accounting for only around 0.7% of total global jet fuel usage (International Air Transport Association, 2025b). This highlights cost and feedstock bottlenecks, and unveils Singapore's centralised and policy-driven approach to accelerate SAF ecosystem formation.

Overall, Changi Airport's combined strategy of clean electricity substitution, fuel-mix evolution, and regulatory alignment has delivered quantifiable emissions cuts in the short term, while laying the foundations for long-term energy security and a lower-carbon aviation plan.

Social - Elevating Global Society through Inclusive Design

Talent Development Framework

CAG has established a structured and comprehensive personnel development framework. According to the Changi Airport Group (2025a) in its annual report, the company conducted 527 training sessions focused on management matters, and 100% of employees participated in at least one training activity. Such an attendance rate is uncommon in global business practice, indicating a strong organisational commitment to investment in human capital. The high level of employee participation provides a robust foundation for the company to cultivate talent.

Another noteworthy aspect of CAG's approach is its "4D+i" operational model, under which four days are dedicated to operational work, while the remaining day "i" is designated as Innovation Day (Changi Airport Group, 2025a). During the Innovation Day, staff are encouraged to acquire new skills, experiment with ideas, and collaborate across functions. This model is relatively uncommon among large corporations globally and reflects contemporary business principles that intentionally foster innovation.

In addition, CAG has employed the Forum Theatre interactive training method, which participants reportedly rated as effective. From a learning theory perspective, this experiential learning approach is widely recognised as more effective and engaging than traditional lecture-based training.

Diversity Employee Structure

CAG has 2,151 employees, including 1,344 males and 807 females, with average training time reported to be broadly comparable across genders (Changi Airport Group, 2025a). This relative parity reflects CAG's emphasis on fair training opportunities. In terms of age distribution, employees aged 30 to 50 account for the largest segment (1,422 employees) (Changi Airport Group, 2025a). This age group is generally regarded as a core career stage, characterised by rich experience, which provides a strong human resource foundation for organisational sustainability.

Changi Airport Group also places strong emphasis on comprehensive welfare for its employees. The Group has established "Changi Axis", an innovative collaborative workspace located in Terminal 2 (Changi Airport Group, 2025a). This renovated building integrates natural lighting, greenery, and ergonomic furniture, illustrating how inclusive and human-centred design principles can enhance employee comfort and operational adaptability. In addition to the physical environment, the company provides a strong commitment to supporting the psychological well-being of its workforce, offering a range of mental health services, including 24-hour access to mental health resources and professional assistance. Such resources are implemented to assist employees in managing their health and work-life balance.

Impact

CAG's community engagement initiatives have generated profound social impact. With 4,821 hours of annual volunteer service and an employee participation rate of 33% (Changi Airport Group, 2025a), these efforts have directly addressed community needs while fostering employees' sense of social responsibility. Through community foundations and outreach programmes, CAG has supported disadvantaged youth (Chan, 2024), including the provision of over 400 internship opportunities, thereby contributing to social mobility and fair opportunities. CAG's outstanding performance in safety management not only ensures the safety of employees and passengers, but also sets a benchmark for the entire aviation industry.

Governance - Embedding Accountability in a Global Gateway

Board Governance Structure

The governance structure of CAG adopts a clear separation between the duties of the Chairman and the Chief Executive Officer (CEO). Mr Lim Ming Yan serves as the non-executive Chairman, while Mr Yam Kum Weng holds the position of CEO and is the

sole executive director (Changi Airport Group, 2025a), a structure designed to ensure independence of decision-making and effectiveness of execution.

The Board has established seven specialised committees, reflecting a high degree of functional differentiation and professional oversight. This committee-based governance structure supports informed and effective decision-making by allocating oversight responsibilities across key domains. The Board is provided with regular comprehensive information on the Group's operations and financial performance. It conducts a minimum of four meetings each year, allowing it to provide timely guidance without encroaching on daily operations. It may also seek independent professional advice when necessary, thereby enhancing the rigour and objectivity of governance deliberations.

Risk Management System

CAG has established a three-lines-of-defence risk management system, designed to enable layered risk management and internal checks and balances. The first line of defence comprises business departments responsible for identifying and managing inherent risks, ensuring that risk ownership is embedded at the operational level. The second line of defence consists of professional departments that offer direction and supervision in risk management. The third line of defence is the independent internal audit department, which provides objective risk management assessment and assurance (Changi Airport Group, 2025a).

This multi-level and mutually balanced design can identify and control various risks to the greatest extent. Notably, CAG has obtained ISO 27001 certification and the Cyber Trust Mark, which are widely recognised standards in information security and cyber risk management, reflecting CAG's forward-looking management of emerging risks.

Information Disclosure

CAG demonstrates a strong commitment to transparency and information disclosure. The company's financial reports are regularly submitted to the Board and are subject to an independent external audit. The company has established multiple stakeholder communication channels, including the publication of annual reports and engagement through digital and social media platforms. These disclosure practices support greater transparency, enhance stakeholder understanding, and contribute to public trust in the organisation's governance.

Internal Audit

The internal audit function at CAG is structured to ensure independence, objectivity, and effectiveness. The Senior Vice President of the Internal Audit department reports to both the Chairman of the Audit Committee and the CEO (Changi Airport Group,

2025a). The bilateral reporting mechanism guarantees audit independence and ensures a timely management response.

The company employs established auditing methods and modern data tools, with regular reviews of high-risk areas. The internal audit function is supported by a quality assurance and improvement programme, which includes biannual internal assessments and external quality reviews conducted every five years, ensuring alignment with international internal auditing standards.

Impact

Through its governance practices, CAG has established a strong and influential image among investors and stakeholders. CAG's corporate reporting adheres to the Singapore Financial Reporting Standards and the provisions of the Companies Act, thereby ensuring the authenticity and accuracy of financial information. The Board receives quarterly detailed reports on key operational and financial performance indicators. A strict internal and external audit system provides a strong guarantee for governance quality, with external audits conducted by PricewaterhouseCoopers (PwC) and audit partner rotation implemented every five years (Changi Airport Group, 2025a). These governance measures enhance investor confidence in investments. Beyond compliance, the company also promotes active participation of stakeholders in sustainable development and encourages employees to integrate sustainability concepts into their daily lives.

Economics - Building Value through Sustainable Aviation

As one of the world's leading airports, Changi Airport financially contributes to Singapore's economy while exemplifying how airports can promptly integrate financial and operational strategies to sustain long-term sustainability. This section discusses how CAG's economic sustainability is achieved through four key dimensions: revenue growth, infrastructure investment, operational efficiency, and environmentally aligned practices. Economic sustainability in this context refers to sustaining strong financial performance while investing in infrastructure and facilities that support operational efficiency, environmental responsibility, and long-term growth.

Economic Performance

According to Changi Airport Group's (2025a) FY2024/25 financial report, the company achieved a record operating revenue of S\$3,071 million, representing a 13% uplift from the previous year. This progress was driven partially by the strong recovery in passenger traffic, which reached 68.4 million passenger movements. Significantly, it marked the first time passenger volumes exceeded pre-pandemic levels since Singapore's border reopening in 2022, signalling a robust rebound in aviation demand.

Moreover, there is a 11% increase in airfreight throughput and an 8% rise in aircraft movements. This remarkable progress demonstrates Changi's tenacity and reaffirms its special role in linking Singapore with international markets. Among these positive changes, Changi also improved its revenue-generating efficiency. Concession and rental revenue surged by 12%, supported by the introduction of around 40 new retail brands at Jewel Changi Airport and the terminals. Airport service fees rose by 15%, reflecting the airport's enhanced positioning as a regional and global gateway (Changi Airport Group, 2025a).

Revenue Reinvestment

One of the critical showcases of CAG's economic sustainability strategy is the reinvestment of revenue into infrastructure and capacity enhancements. To accommodate growing traffic and preserve competitiveness, CAG introduced a higher airport fare, enabling the airport to fund extensive capital investments without compromising operational efficiency (Ong, 2024). In FY2024/25, the Group invested around S\$1 billion in infrastructure upgrades, including the development of a new inter-terminal baggage transportation system, Skytrain system expansions, and Terminal 3 renovation (Changi Airport Group, 2025a). By channelling passenger-derived revenue back into infrastructure improvements, CAG aims to build a sustainable operation where future demand can be further satisfied.

Another aspect of Changi's economic sustainability comes from cost control and operational effectiveness. Many automation projects have been implemented at the airport to ensure higher operational efficiency, such as autonomous baggage vehicles and early baggage storage systems. These techniques lower labour costs and successfully speed up turnaround times (Changi Airport Group, 2025a). Energy-saving measures, including LED lighting and energy-efficient chiller plants, have lowered energy usage to below pre-pandemic levels, reducing the negative impact of growing operating expenses. Despite inflationary pressures, CAG maintained operational expenses at S\$1,604 million (excluding depreciation and amortisation), representing a 5% rise (Changi Airport Group, 2025a).

Circular Economy

From an environmental perspective, Changi Airport has also successfully realised economic sustainability. Through recycling trash and turning it into valuable resources, CAG supports Singapore's Green Plan 2030 and advances the circular economy. Furthermore, CAG participates in various sustainable events such as the Ecotoberfest (Changi Airport Group, 2025a). These events enhance staff environmental awareness and embed eco-responsibility into daily operations. These measures reduce environmental impact and deliver long-term cost savings.

SAF Charge

Apart from traditional actions, the implementation of the SAF charge is a rather innovative component of CAG's strategy for economic sustainability. It is anticipated that adding this charge will boost Singapore's SAF consumption by 1% starting from 2026, rising to 3-5% by 2030 (Civil Aviation Authority of Singapore, 2024). To some extent, the fee encourages the use of sustainable fuels, lowering carbon emissions and aligning environmental responsibility with financial strategy. Changi positions itself as a responsible and forward-looking aviation hub by incorporating environmental efforts into its business model.

Impact

CAG has achieved economic sustainability through a comprehensive approach covering revenue growth, strategic investments, operational efficiency, and environmentally responsible practices. Beyond reinvesting extra profits into infrastructure expansion, the company also takes full advantage of automation and energy-saving capital to improve efficiency. Furthermore, policies such as the SAF charge also reflect CAG's focus on sustainability. All of these actions reinforce CAG's position as a sustainable and forward-looking leader in the global aviation industry. Notably, CAG's success lies in its balanced policies between economic growth and environmental care. As the global aviation industry continues to evolve, CAG's integrated and sustainable approach can help it stay strong and innovative, creating a solid base for Singapore's economic growth and its journey towards sustainable development.

Accelerating Towards Climate-Smart Development

Steady progress is being made towards CAG's climate goals, staying on track to cut its Scope 1 and 2 carbon emissions by 20% by 2030, compared to its 2018/19 baseline. The challenge is significant, with passenger and cargo volumes expected to continue rising. However, the goal is to achieve an absolute reduction, not only greater efficiency per passenger or per flight. The plan focuses on increasing building energy efficiency and expanding renewable energy use.

CAG also aims to achieve net-zero emissions by 2050, aligning itself with national goals. This objective relies on enhancing building efficiency, increasing off-site renewable energy procurement, and supporting the decarbonisation of Singapore's national electricity grid. Beyond terminal operations, CAG is also addressing Scope 3 emissions produced by various stakeholders across the airport ecosystem. Starting in March 2025, no new permits will be granted for non-electric forklifts, tractors, or light vehicles at the airport. To support this change, 120 charging ports have been installed for airside vehicles, helping to move towards fully transitioning all airside equipment to cleaner energy sources by 2040 (Changi Airport Group, 2025a).

Changi Nexus One: A Blueprint for Green Aviation Facilities

In October 2024, CAG opened Changi Nexus One, a milestone development in its decarbonisation journey. Located within the Changi Airfreight Centre, it became the first airport to achieve the Green Mark Platinum Positive Energy Building certification, which is Singapore's highest recognition for environmental performance. The facility produces more renewable energy than it consumes, achieving over 60% energy savings through advanced design and solar generation. By 2028, it is expected to generate up to 140% of its total energy needs, with surplus renewable energy fed back into the airport grid (Changi Airport Group, 2025a).

Tracking Energy and Emission Performance

CAG is committed to reducing energy consumption by at least 15% below pre-pandemic levels. Electricity accounts for 98.3% of combined Scope 1 and 2 emissions. In FY2024/25, there was a slight increase of 0.2% in emissions compared to the previous year, despite handling 9% more passengers (Changi Airport Group, 2025a). This indicates major efficiency gains across systems such as air-conditioning and lighting, even amid traffic growth. The improved performance has helped to mitigate the cost, and CAG aims to channelise the energy across its other operations.

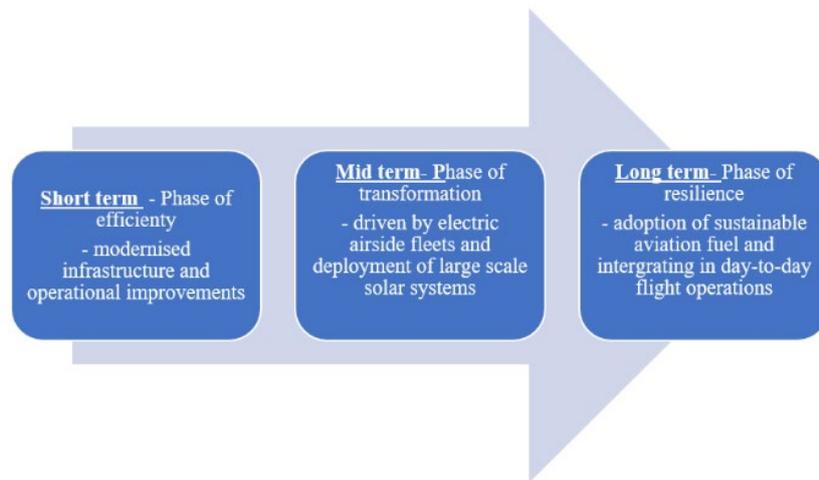
Engaging Passengers in Climate Action

Changi Carbon Offsets has been introduced as a programme that allows travellers to calculate and offset emissions from their air journeys, regardless of the airline chosen. The tool is accessible via the Changi App or QR codes across the airport. Funds collected are used for carbon emission projects, while also creating a sense of responsibility for climate action. Ongoing certified projects include forest protection in Indonesia, reforestation in China, and wind energy initiatives in India. The programme has steadily gained traction, signalling growing passenger interest in responsible travel choices. This initiative is not limited to Changi Airport, contributing to broader efforts to reduce aviation-related global emissions.

Analysis

Changi distinguishes itself through the scale and integration of its sustainability roadmap, combining on-site innovation, collaborative partnerships, and operational upgrades driven by efficient and responsible energy use. The approach goes beyond technical measures to include stakeholder engagement. By raising awareness, encouraging idea sharing, and exploring innovative steps together, CAG encourages broader participation in the action plan.

Figure 5: Changi's Approach to Decarbonisation



Source: Authors

Way Ahead - Sustainability Takes Flight through Terminal 5

Terminal 5, the much-awaited terminal, is envisioned as Singapore's next-generation aviation gateway. Its design will include low-carbon technology and smart building management to manage indoor temperatures and ensure comfort (Airport Technology, 2023). Cutting-edge technology will enable the minimisation of energy use.

Terminal 5 is expected to set new standards for the future of aviation, complementing progress in alternative fuels with infrastructure. It is also being built to withstand a changing climate. The terminal and airfield will be built 5.5 metres above sea level to guard against flooding and rising tides (Ministry of Transport, 2024). Changi Airport is also putting other flood protection and monitoring systems in place.

Although the transition towards fully sustainable aviation infrastructure is gradual, CAG is taking decisive steps forward.

Conclusion

Singapore's Green Plan is not just a policy; it is a commitment to shaping a future that is cleaner, smarter, and more resilient. In the aviation sector, the stakes are high and the momentum is global. The ICAO's goal of achieving net-zero emissions by 2050 reflects a shared urgency across borders. Aviation currently contributes around 2% of global emissions; however, its impact goes beyond numbers alone. There is a growing need to rethink how we fly and, more importantly, how we protect the skies we all share, not only for ourselves but for future generations. Changi Airport is aligned with national goals for aviation expansion while being accountable for climate responsibilities.

By 2030, Singapore aspires for top-tier green buildings to achieve an 80% enhancement in energy efficiency compared to 2005 standards (Singapore Green Plan 2030, n.d.), laying the foundation for super-low energy development. CAG is leveraging its long-standing experience in sustainable airport design and operations to support national climate goals, building on initiatives that began with early “greening” efforts in 2006.

Figure 6: Various United Nations Sustainable Development Goals (SDGs) Relevant to the Changi Airport Group



Source: Authors

Goal 7 - Through workshops and partnerships, CAG is reducing reliance on fossil fuels and supporting small and medium-sized enterprises (SMEs) through the integration of energy-efficient technologies.

Goal 8 - CAG facilitates workforce upskilling for the green economy and supports fair labour practices.

Goal 9 - The airport is paving the way for renewable diesel adoption, supporting the infrastructure for SAF fuels, and developing environmentally conscious building structures for Terminal 5.

Goal 12 - CAG promotes a circular economy and has developed sustainable processes, such as food waste transforming, the use of sustainable materials, and the development of environmentally responsible event planning guidelines.

Goal 13 - In alignment with Singapore’s Green plan, policy mechanisms such as a fixed levy on departing flights to promote SAF fuel usage represent one of the most practical ways to aviation decarbonisation.

Goal 17 - CAG participates in Airport Carbon Accreditation and collaborates closely with airport partners on initiatives such as vehicle electrification and supplier assessments on eco-certifications.

These adaptations show that environmental advancement, innovation, and economic growth can progress simultaneously. CAG follows an operational control approach to account for its greenhouse gas (GHG) emissions. Through collaboration with the aviation and energy sectors, CAG is advancing towards the objectives of the Paris Agreement. The company constantly monitors and reports its Scope 1 and Scope 2 emissions while exploring strategies to reduce Scope 3 emissions, including optimising heating, ventilation and air conditioning (HVAC) systems, expanding green infrastructure, and supporting Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) implementation.

The path is to innovate, partner, develop lasting advancement, and secure clearer skies.

Discussion Questions

1. Can CAG's decarbonisation model be scaled across the global aviation sector, or is it fundamentally dependent on Singapore's unique institutional context?
2. What are the pros and cons of funding sustainability through passenger charges (e.g., SAF charge and higher airport fees)?
3. What can CAG do to expand its social sustainability efforts?

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Haidilao: A Hot Pot of Culture, Technology and Green Resource Management

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Service & Platform

Business Design & Circularity

Introduction

The Urgency of Sustainable Strategies in the Catering Industry

Industry Overview: Sustainability Trends in Food and Beverage (F&B)

The catering industry is closely related to daily life. As part of the tertiary industry that is deeply integrated with people's lives, the catering industry not only provides food services to consumers but also operates extensive middle- and back-office departments, including stores, supply chain management, and logistics. In the process of global sustainable development, the sustainable development of the catering industry cannot be overlooked.

The catering industry faces scrutiny over food waste, high energy consumption and carbon emissions, limited transparency in food sourcing, high employee turnover rate, and concerns regarding employment fairness. According to Crippa et al. (2021), about one-third of global greenhouse gas (GHG) emissions come from the food system, including processing, transportation, cooking, and waste disposal. Each year, 13% of food is lost between harvest and retail. In 2023, Singapore generated nearly 755,000 tonnes of garbage, accounting for approximately 11% of the country's total waste generation (Arora, 2025). Globally, food loss and waste are estimated to result in economic loss of around US\$940 billion. These figures illustrate only one of the sustainability challenges associated with the catering industry. As a downstream sector of agriculture and animal husbandry, the catering industry is also vulnerable to the adverse impacts of global warming. Therefore, for catering enterprises, sustainable development is one of the core issues in their business processes and warrants attention by the academic community.

Industry Transformation: Sustainability as a Strategic Trend

At the same time, the implementation of sustainability measures in the catering industry is not merely a response to social responsibility; it can also serve as a competitive strategy for enterprises. In Singapore and the broader East Asian market, government policies and social awareness are jointly driving this transformation. At the policy level, green city plans are prompting enterprises to reassess energy usage and waste management practices. The National Environment Agency (NEA) of Singapore requires large food waste generators, including catering enterprises, to submit sustainable operation reports, thereby making energy conservation and waste reduction a regulatory obligation rather than a purely ethical choice. From a technological perspective, digitalisation and intelligent systems have become important tools for enhancing efficiency. Many chain restaurant brands are reducing raw material waste and energy consumption through means such as artificial intelligence (AI)-based inventory management and smart kitchen systems, thereby balancing environmental benefits and operating costs. At the business level, shifts in

consumer and investor preferences are also accelerating this trend. Younger customers are increasingly inclined to support brands with strong environmental, social, and governance (ESG) commitments and transparent supply chains, while investors increasingly take environmental performance and social responsibility into account for long-term corporate value. For enterprises, sustainable operation is therefore not only about social image, but a determinant of brand reputation, capital flow, and market competitiveness.

In this context, sustainability has become not merely a moral obligation but a key differentiator for long-term competitiveness.

Company Background: Haidilao's Growth and Core Business Model

Haidilao International Holding Ltd. was founded in Sichuan Province, China, in 1994. It is a hot pot restaurant chain brand characterised by its service-oriented business model and customisable self-service seasonings. Over the past three decades, Haidilao has rapidly expanded into a globally renowned Chinese catering group. As of 2024, Haidilao reportedly operates 1,368 stores worldwide, generates annual revenue of RMB42.8 billion, and employs over 137,000 staff (Haidilao International Holding Ltd., 2025a).

Haidilao's business model is centred on a "customer-first" service philosophy and a unique employee management system. The company places strong emphasis not only on customer experience in its operation, but also on employees' sense of belonging and growth opportunities. This people-oriented management culture provides a solid internal foundation for its sustainable development. Through its training system, promotion mechanism, and employee welfare system, Haidilao has built an efficient and stable service team based on incentive and trust mechanisms.

However, alongside its rapid expansion, Haidilao is confronted with a series of sustainability-related challenges. With the sharp increase in store count and workforce size, Haidilao's talent cultivation system is under tremendous pressure. Intense competition and a rapid promotion model have led to high turnover. While rapid internal promotion and job rotation enable employees to advance from frontline service roles to managerial positions within a short timeframe, this approach has also resulted in gaps in managerial capability and difficulties in role adaptation. The rapid expansion of headquarters and stores has increased the difficulty of overall organisational management. The cost of maintaining standardised services has gradually risen, and regional differences in customer experience have begun to emerge. Media discussions about a perceived "service decline" at Haidilao have begun to emerge. Meanwhile, large-scale catering operations have also brought pressure to Haidilao in terms of energy and water consumption, as well as waste management. The impact of its large supply chain system on the environment is also significant.

These challenges raise critical questions regarding how Haidilao can maintain its environmental and social responsibilities while continuing to pursue sustainable

development, long-term competitiveness, and growth. This report aims to examine Haidilao's sustainability strategies from both internal and external perspectives, exploring how the company balances operational efficiency, social responsibility, and long-term growth.

Internal Action

Internal control is an important part of a company's overall governance. In the framework of sustainability, internal control typically refers to organisational domains that an enterprise can directly control and have a long-term impact on organisational performance. Stable internal control not only ensures the compliance of an enterprise's operations but also creates long-term value that extends beyond mere compliance at the strategic level. For Haidilao, internal control measures mainly focus on employees, human resources and organisational culture, digitalisation and operational efficiency, as well as energy conservation and resource management.

The Three Main Internal Management Measures of Haidilao

Human Resource Management (HRM) and Organisational Culture

Within Haidilao's organisational culture, the "master-apprentice" training system and a clear internal promotion mechanism occupy a central position. The "master-apprentice system" is also referred as the "interest binding model". Under this model, all assets of the stores, including decoration and equipment, are fully invested by Haidilao, with no capital contribution required from employees. Store managers are positioned as "super employees" rather than shareholders, a role that can be understood as senior professional managers. The income of store managers is directly linked to the store-level operating profits, allowing them to receive a profit share that may exceed industry averages. This business model not only ensures the headquarters retain ownership and control over the stores but also generates a strong business motivation for the store managers. Within the master-apprentice framework, experienced store managers ("masters") also benefit from the expansion of new outlets managed by their former trainees ("apprentices"). When an apprentice opens a new store, the master continues to earn income from their original store while additionally receiving profit-based rewards from the apprentice's outlet. Gradually, this structure forms a "family-centred" master-apprentice relationship that shares honour and disgrace, while having interests linked together. This model supports Haidilao's internal proactive talent cultivation system and expansion incentives.

Another key dimension of Haidilao's internal management measures is reflected in its employee welfare, incentive mechanisms, and culture of organisational care. Haidilao stores commonly provide employee dormitories and meals under standardised implementation standards to ensure the quality of life and work convenience for employees. In terms of humanistic care for its employees, Haidilao provides separate

rooms for married employees, equipped with household appliances such as televisions and computers. Such a system provides support for Haidilao's high-intensity working mode.

Haidilao's motivation-centred organisational culture provides a strong impetus for its rapid expansion and helps to explain its ability to maintain high service standards in the global catering market. Through a performance-linked profit-sharing mechanism in the "master-apprentice system", Haidilao has successfully established an internal self-driven growth system. This structure facilitates a business inheritance relationship among employees and forms a performance-oriented incentive chain, enabling management and grassroots employees to operate in coordination under the same interest goal. This system has significantly reduced the management costs and communication barriers commonly encountered by traditional catering enterprises during scale expansion.

However, this high-intensity performance-oriented culture has also brought certain side effects. As the income of store managers and mentors is directly linked to operating profits, some stores may prioritise output over employee workload management and psychological well-being, leading to excessive competition and internal friction. In 2024, the documentary "Ren Sheng Hai Hai" reportedly depicting the working life of a Haidilao store manager in Beijing and his family sparked public discussions about the long-term high-pace working environment and high-pressure competition within the company. Despite these pressures, Haidilao has publicly claimed to maintain a relatively low employee turnover rate of 10% by using a transparent piece-rate wage algorithm and a clear competitive pathway, effectively reducing the management costs caused by employee departures.

Digitalisation and Operational Efficiency

Within its internal governance system, Haidilao is also renowned for its advanced digital operation. Digitalisation is not only a technical means for enterprises to enhance efficiency, but also an important support for their sustainable development. In this regard, Haidilao's digital governance is most prominently reflected in its intelligent ordering system, kitchen data monitoring system and intelligent procurement management.

At Haidilao, customers can place orders independently through in-store tablets, with individual preferences and ordering habits linked to personal accounts and displayed on the tablets. Haidilao's self-service intelligent ordering model significantly speeds up ordering efficiency and optimises user experience, enabling a balance between personalised ordering and operational standardisation. More importantly, the intelligent ordering system can provide precise historical data for the backend, helping stores predict the demand for dishes during peak hours, prepare ingredients in advance, reduce waiting time and waste, and optimise table turnover efficiency and human resource scheduling. In 2022, Haidilao launched the "Kpad Automatic

Ordering” system, which initially addressed challenges related to sales volume prediction and enabled more precise control over daily inventory opening and warehousing. According to company disclosures, the system has been deployed in over 600 stores and is estimated to reduce waste by 15 dishes per store per day.

In the back kitchen, Haidilao adopts its independently developed Intelligent Kitchen Management System (IKMS) (Haidilao International Holding Ltd., 2024b). This system can collect data from all aspects of the smart kitchen and conduct multi-dimensional analysis, thereby monitoring the overall operation, production, inventory and food shelf life of the kitchen, achieving unified and refined management. IKMS, in conjunction with the automatic serving machines in the restaurant, is equipped with a Radio-Frequency Identification (RFID)-based food ingredient supervision system. Each dish is assigned a unique “identification card” for real-time tracking and precise control of shelf life. This system enables full-process management of food safety by both employees and the environment.

Haidilao’s central kitchen is equipped with full-process facilities made of food-grade materials. All dishes are transferred from an ultra-clean intelligent food warehouse reportedly meeting a Class 300,000 cleanroom standard and featuring an automatic temperature control function (Haidilao International Holding Ltd., 2024b). They are directly delivered to the automatic serving machines in stores through a full cold-chain fresh food logistics at temperatures between 0°C to 4°C. The automatic dish serving machines are connected to the front desk ordering system and uses robotic arms to complete automatic dish serving. This automatic food serving machine was developed by Haidilao and Yinghai Intelligent Automation Technology Co., LTD. (Haidilao International Holding Ltd., 2024b). It enhances efficiency and also ensures food freshness control, a breakthrough in kitchen automation and food safety.

On this basis, Haidilao further combines RFID technology, a supporting technology for an automatic food preparation system, with an AI inventory system to implement real-time monitoring of the entire life cycle of dishes, thereby ensuring the freshness and safety of ingredients.

Figure 1: Haidilao Smart Food Warehouse (Beijing Zhongjun World City Store)



Source: Haidilao International Holding Ltd., 2024b

Green Operations and Resource Management

During its expansion, Haidilao has gradually shifted from a “high energy consumption” growth model towards a more green approach. With the rapid expansion of the number of stores, green operations are no longer limited to fulfilling corporate social responsibilities but have become a key to enhancing long-term competitiveness.

In terms of energy management, Haidilao has installed intelligent lighting systems and energy-saving kitchenware equipment in many of its stores, reducing unnecessary energy consumption through automatic sensing technologies and zoned control. Meanwhile, some stores have introduced water circulation systems, through which kitchen cooling water and cleaning water are purified and reused, thereby promoting a closed-loop approach to resource utilisation. In 2024, Haidilao established a set of green business goals. Taking 2018 as the base year, the company aims to reduce average waste generation per store by 10% and average electricity consumption per store by 10% by 2025, while lowering water consumption per unit of operating income by 5%. By 2026, Haidilao plans to further reduce the emissions of oil and salt at the individual stores (Haidilao International Holding Ltd., 2025b).

In addition, Haidilao also introduces menu design strategies such as “half-portion” and “small-portion” options to meet diverse consumer preferences and appetite levels. According to company disclosures, approximately 80% of customers voluntarily choose portion sizes of dishes, which has contributed to a reduction in food waste (Haidilao International Holding Ltd., 2025b).

Market Expectation and Competitive Performance Based on Internal Management Analysis

The Chinese hot pot culture continues to expand in Asia. At the same time, however, the hot pot catering industry remains fairly fragmented and intensely competitive. Within this context, Haidilao reported operating income of RMB42.75 billion in 2024, reflecting a year-on-year increase of 3.1%, while its net profit reached around RMB4.7 billion, reflecting a year-on-year increase of 4.6% (Haidilao International Holding Ltd., 2025a). Its biggest competitor, Xiabu Xiabu, recorded revenue of only RMB4.8 billion and continued to report operating losses (Xiabuxiabu Catering Management (China) Holdings Co., Ltd., 2025). Other mid-to-high-end chain brands, such as Coucou and Xiao Long Kan, although possessing regional brand recognition, remain significantly smaller in terms of revenue scale, profitability, and brand coverage when compared with Haidilao.

These results indicate that Haidilao’s internal sustainability measures have translated into tangible market advantages. The company’s external reputation and ESG impact will be discussed in the following section.

External Action

External action is another key pillar of a company's sustainability governance system, and companies must pursue both internal and external approaches to achieve greater results. External action reflects how a firm interacts with its external ecosystem and generates broader sustainable value by influencing upstream and downstream partners, communities, and society. Haidilao promotes greater responsibility both within the company and across the industry through supply chain governance, green procurement, and social collaboration. The company's external actions focus on strengthening green supply chain management and transparent procurement, including embedding Haidilao's ESG standards into upstream supplier selection and approval mechanisms. In addition, Haidilao has established a full-chain traceability system covering beef, dairy products, aquatic products, and agricultural products to enhance transparency and accountability. Furthermore, Haidilao collaborates with local industries to align commercial innovation with social benefit. For example, Haidilao collaborates with Leishan County in Guizhou Province to launch the "Fish Sauce Sour" project, integrating local speciality products into Haidilao's national catering system and promoting the joint development of rural economies and regional brands. Through these external-facing practices, Haidilao has transformed the concept of sustainability from internal compliance into an external influence mechanism, promoting industry progress and long-term value creation on a larger scale.

Supply Chain and Partner Level

In Haidilao's 2024 ESG Report, the company classifies green supply chain development and community collaboration as sustainability focus areas, incorporating philanthropy and community engagement (Haidilao International Holding Ltd., 2025b). Haidilao has extended sustainability practices within its supply chain network through the implementation of unilateral procurement guidelines and green standards. For example, the company requires its suppliers to adhere to internationally recognised certifications, including ISO 14001 (Environmental Management System), ISO 22000 (Food Safety Management System), and Hazard Analysis and Critical Control Points (HACCP) (Haidilao International Holding Ltd., 2025b). The company also has a "full-chain traceability" system to guarantee the traceability of certain land and water animal-sourced food products across sourcing, transportation, and in-store processing stages (Haidilao International Holding Ltd., 2025b). Additionally, the company requires suppliers to conduct third-party testing and verification of water and soil quality, alongside comprehensive records on strategic pesticide application and non-point source pollution avoidance systems (Haidilao International Holding Ltd., 2025b).

In terms of environmental impact, green procurement and a full-chain traceability system effectively reduce resource waste, while guiding upstream packaging and logistics companies to pursue low-carbon transformation through procurement

requirements. The positive environmental effects of supply chain standardisation are spreading throughout the catering industry, creating a synergistic effect of emission reduction from raw materials to the end user and from upstream to supply.

Haidilao's first type of external action focuses on supporting rural industrial upgrading through cooperative procurement, thereby positively modifying local economic development. In 2024, Haidilao started working with local governments and small- and medium-sized firms, such as food processing plants in Leishan County, Guizhou Province, to standardise the traditional fermented ingredient known as "Leishan fish sauce" (Zheng, 2024). This local special fish sauce was integrated into Haidilao's national menu as a standardised sauce, creating a fully integrated supply chain to link production, branding, and consumers. This Leishan fish sauce project significantly increased the extra value of local agricultural products, provided farmers with stable sales channels and employment opportunities, and attracted migrant workers back to the region, generating an output value of at least RMB30 million (approximately US\$4.1 million) for the local factory (Zheng, 2024). Haidilao has transformed supply chain collaboration from a simple procurement relationship into a sustainable co-creation cooperation model, enabling a balance between commercial activities, social benefits, and cultural heritage value.

Haidilao's external initiatives at the supplier and procurement levels have garnered positive feedback from both the market and the public. The Chinese public considers Haidilao's Leishan fish sauce project a prime example of corporate participation in rural revitalisation through sustainable business practices. This example also demonstrates that replacing traditional donations with a mutually beneficial cooperative model can achieve business sustainability, while indirectly supporting green and sustainable development projects through collaboration. Consumer feedback on social media indicates a strong interest in Haidilao's use of local speciality ingredients, with such practices perceived as reflecting corporate social responsibility and brand authenticity. These impacts and public feedback demonstrate that Haidilao's outward extension of its internal sustainable development strategy has not only enhanced the company's social influence, but has also strengthened its brand reputation and market trust.

In summary, Haidilao's external actions within its supply chain and partner levels effectively operationalise its internal ESG plan. By fostering environmental collaboration through standardisation, driving rural development through collaborative efforts, and strengthening industry trust through transparent governance, Haidilao is contributing to the sustainable transformation of China's catering industry.

Social and Community Level

At the social and community level, Haidilao deeply integrates corporate social responsibility with local community development and public welfare initiatives, playing an active role in sustainable social development. In 2024, Haidilao participated in

1,885 volunteer and philanthropic events and spent more than RMB5 million in social initiatives, such as education support, disaster relief, mental wellness care, and environmental advocacy (Haidilao International Holding Ltd., 2025b). These actions are not only a manifestation of Haidilao's commitment to social responsibility, but also a human-centred foundation for green transition. By investing in education, disaster relief, health, and environmental awareness, Haidilao extends sustainable development beyond operational and supply-chain indicators to social, psychological, and cultural levels, thereby advancing a more humanistic approach to green development.

From the perspective of sustainability outcomes, community-level actions have produced quantifiable and replicable impacts in two main areas. First, public awareness of conservation and waste reduction has been enhanced. Through external communications and in-store campaigns, Haidilao promotes the concepts of "saving, refusing waste, and rational ordering", aligning with China's national "Clean Plate Campaign" (China National Radio, 2024). These initiatives translate anti-waste policies into specific consumer behaviours (such as bringing personal containers and ordering according to need), thereby reducing avoidable food waste at the catering end.

Second, resource redistribution and waste reduction have been institutionalised at the community level. Haidilao engages in sustainable practices not only within China but also internationally, including the redistribution of near-expiry food and other supplies to prevent waste. This combination of community-level waste reduction and welfare care reflects a sustainable approach that embeds reuse and redistribution within community networks. In addition, Haidilao enhances transparency and accountability through institutionalised disclosure and traceability. Community engagement, volunteer services, and public education are incorporated as social performance indicators in its annual ESG reporting. The Stock Exchange of Hong Kong Limited (HKEX) ESG disclosure framework explicitly identifies community empowerment as a key component of social responsibility, providing governance tools and audit trails for conservation awareness campaigns and volunteer activities in schools and communities (Haidilao International Holding Ltd., 2025b). These actions and callings enable the continuous recording and comparison of community-level green externalities.

As part of its broader green and sustainable development strategy, Haidilao is actively exploring innovative consumer-driven public welfare projects that generate both commercial and social benefits. A representative example is the Sea Buckthorn Hotpot Public Welfare Programme, launched in partnership with the China Foundation for Poverty Alleviation and Ant Forest. This programme integrates dining consumption with ecological restoration. By ordering sea buckthorn hotpot, consumers participate in a desert tree planting project, gaining a sense of participation and belonging. For each sale of sea buckthorn hotpot, Haidilao collaborates with Ant Forest to plant a sea buckthorn tree in desertified areas, contributing to sand control and carbon

sequestration through consumer behaviour (Forbes China, 2021). By linking consumer participation to environmental action, this model transcends the boundaries of traditional donation-based public welfare and embeds public welfare directly into consumer behaviour. Sea buckthorn, known for its sand-fixation and soil improvement capabilities, possesses significant ecological value, while Ant Forest's digital tracking mechanism enhances transparency and public participation. Through this project, Haidilao has integrated green concepts into product innovation, forming a closed-loop model in which "consumption becomes public welfare." This approach represents a typical case of how the catering industry can promote green and sustainable transformation.

Haidilao's community-oriented external initiatives have garnered significant recognition from both the market and the public. The social responsibility section of its English-language website consistently highlights its public welfare projects, enabling international stakeholders to better understand its green governance initiatives. Collectively, these actions have enhanced Haidilao's social capital in the capital market, strengthening its credibility and reputation as a sustainable enterprise.

Supply Chain Analysis

Haidilao's Management Of Procurement, Food Sourcing, Supplier Audits, and Waste

To achieve a comprehensive low-carbon transformation, Haidilao has developed systematic external initiatives to encourage suppliers and partners to share environmental and social responsibility. According to the Haidilao 2024 ESG Report (Haidilao International Holding Ltd., 2025b), the company prioritises food quality and safety by implementing internationally advanced food safety management systems, modern production technologies, and equipment. Its operation scope is broad, covering every step from ingredient procurement to storage, processing, packaging, transportation, and sales. Moreover, Haidilao has developed standardised procurement requirements to ensure that food safety indicators are strictly monitored from the procurement source. Strategically, Haidilao mitigates supply risks through long-term partnerships with multiple high-quality domestic and international suppliers, ensuring safe and quality sources. At the same time, the company promotes products from remote areas, such as Leishan fish sauce, to contribute to rural revitalisation and product diversity.

Haidilao has established a responsible and transparent supply chain management system that emphasises suppliers' ESG performance and risks, ensuring systematic oversight across the entire supplier lifecycle. In 2024, the company worked with over 2,000 suppliers across Mainland China, Hong Kong, Macau, and Taiwan regions (Haidilao International Holding Ltd., 2025b). Supplier management is guided by internal governance frameworks such as the Supplier Review Management Regime,

Measures for Handling Unqualified Suppliers, and Blacklist Management Rules for Red-line Violations. Prospective suppliers are required to obtain International Organisation for Standardisation (ISO) 14001 (Environmental Management System) and Hazard Analysis and Critical Control Points (HACCP) food safety certification, and must complete compliance checks, audits, and traceability reviews prior to approval. Haidilao also integrates environmental performance into ongoing supplier evaluations and quarterly unannounced audits. For plant-based agricultural products, suppliers must submit soil and water samples to independent third-party testing institutions prior to cultivation, reducing potential environmental risks. The presence of a strict “one-vote veto” system immediately disqualifies suppliers that fail certification reviews or factory inspections (Haidilao International Holding Ltd., 2025b). Haidilao also employs a scientific tiered risk classification system, categorising suppliers into A, B, or C levels based on audit outcomes, issues identified, industry norms, and product complexity. This classification determines the frequency and depths of subsequent reviews. In non-extreme cases, Haidilao utilises tools such as the 8D quality improvement methodology to assist supplier improvement. This tool has led to a 70% reduction in customer complaints within three months for one supplier (Haidilao International Holding Ltd., 2025b).

Haidilao has established a comprehensive waste management system that strictly complies with national environmental protection laws. Recognising food loss and waste as critical sustainability challenges, the company has set a clear goal to reduce average waste generated per restaurant by 10% by the end of 2025, compared to 2018 levels. At the restaurant level, Haidilao promotes portion control through offering “half-dish” options and four-grid soup bases, which are selected by approximately 80% of customers. In kitchen operations, waste is reduced by eliminating decorative garnishes for 70% of dishes and substituting non-edible decorations with edible items such as lettuce leaves (Haidilao International Holding Ltd., 2025b). To further reduce spoilage, Haidilao has implemented “visualised management” practices based on the 5S framework in warehouses, limiting food stock levels and purchase limits, and improving inventory turnover. A pilot programme for “estimated ingredient preparation” aligns food preparation with expected customer demand, reducing waste during low-traffic periods. Additionally, the company uses small-package shipments to minimise waste due to product backlogs and expiration.

In terms of waste disposal, Haidilao’s main sources of waste include waste grease, non-recyclable kitchen waste, recyclables, and hazardous waste. Waste grease is disposed of in full compliance with the Kitchen Waste Grease Disposal Process. Haidilao also recovers clean water and heat during cleaning processes, resulting in a 10-15% reduction in kitchen waste. Hazardous waste is stored in sealed containers and transferred to qualified recyclers, with zero hazardous waste discharge incidents reported in 2024 (Haidilao International Holding Ltd., 2025b). Furthermore, Haidilao prioritises biodegradable and recyclable materials and refrains from the use of non-degradable disposable plastic products in packaging. Through these coordinated efforts across operations, logistics, and restaurants, Haidilao enhances both

environmental sustainability and supply chain efficiency while reducing its overall ecological footprint. These external measures extend the concept of sustainability beyond internal operations to the entire value chain, forming a green supply network characterised by shared responsibility and shared governance.

Link Between Haidilao's Sustainability Goals and Supply Chain Resilience

Haidilao's comprehensive food traceability system is a cornerstone of its strategy to strengthen supply chain resilience, efficiency, and crisis responsiveness. By implementing end-to-end control and risk verification at every stage of the supply chain, potential problems can be spotted in time. To support this, Haidilao employs the Operation Accountability Mechanism for Food Safety Product Traceability and the Imported Cold Chain Code System, which enable swift identification and recall of affected products in case of safety anomalies (Haidilao International Holding Ltd., 2025b). When potential risks are detected, the Food Safety Traceability and Recall and Termination for Sale System is activated to ensure prompt containment, thereby protecting consumers while safeguarding the brand's reputation. Complementing this, the company maintains a data-driven food safety risk management file for each product, implementing dual-point documentation at both risk input and output stages to minimise oversight gaps. This improves the precision and timeliness of quality control across its global supply chain. Such traceability reduces the time required to isolate issues, recall defective products, or identify supplier-related risks, thereby limiting operational disruption and preventing the cascading spread of risk. In this sense, traceability functions not only as a compliance mechanism but also as a structural enabler of supply chain resilience. Moreover, the use of technologies such as RFID in warehouses improves inventory accuracy and speed of checks, reducing both waste and margin for error.

Haidilao directly links waste reduction to supply chain efficiency and resource optimisation. Through centralised ingredient processing in its central kitchens before distribution to restaurants, the company reduces waste and improves efficiency. Beyond their environmental and social benefits, such waste reduction methods improve cost efficiency by lowering disposal costs and spoilage, enhancing logistic efficiency and inventory turnover. As a result, overall supply chain operating performance is strengthened.

Furthermore, Haidilao leverages AI-driven data systems to optimise product offerings and supply-chain efficiency. The combination of rigorous supplier standards, centralised logistics, and digital forecasting helps the company manage supply risks, reduce spoilage, respond faster to demand changes, and improve resilience and efficiency. Moreover, by committing to sourcing transparency and environmental and social dimensions, Haidilao may reduce reputational, regulatory, and supplier disruption risks. For example, sourcing from remote agricultural bases across provinces helps diversify supply. Furthermore, strong traceability systems identify

disruptions early, reducing system-wide impact and improving supply chain robustness.

Financial Performance

Year-to-year Comparison

From 2023 to 2025, Haidilao’s overall operating performance can be divided into three phases: a rapid post-pandemic recovery, a slowdown in growth, and a period of structural adjustment. Based on the 2023 annual report published on HKEX, Haidilao entered a strong recovery phase following the COVID-19 pandemic through substantial expansion.

In the financial year 2023, Haidilao recorded operating revenue of RMB41.453 billion, representing a year-on-year increase of 33.6% compared to 2022 (Haidilao International Holding Ltd., 2024a). Pre-tax profit even performed significantly better than operating revenue, reaching RMB5.833 billion – an increase of 175% year-on-year (Haidilao International Holding Ltd., 2024a). A rebound in customer traffic was the main reason that drove the profit increase, improved table turnover, and restored management efficiency. However, Haidilao’s 2024 annual report (Haidilao International Holding Ltd., 2025a) shows a significant slowdown in revenue growth. Revenue increased by only 3.1% to approximately RMB42.8 billion, with limited net profit growth.

Figure 2: Haidilao’s 2025 Mid-Year Report

KEY FINANCIAL HIGHLIGHTS

	For the six months ended	
	June 30,	
	2025	2024
	(RMB’000)	(RMB’000)
	(Unaudited)	(Unaudited)
Revenue	20,703,294	21,490,903
Revenue from restaurant operation	19,176,714	20,596,386
Profit before tax	2,626,953	2,888,060
Profit for the period	1,754,576	2,033,103
Profit attributable to owners of the Company	1,758,525	2,038,125
Basic earnings per share (RMB)	0.32	0.38
Core operating profit (non-IFRS measure) ^{Note}	2,408,104	2,798,866

Source: Authors’ adaptation; Haidilao International Holding Ltd., 2025c

In the interim report for the first half of 2025, the company recorded operating income of RMB20.703 billion, representing a 3.6% decrease compared with the same period in the previous year. Pre-tax profit also decreased from CNY2.888 billion to 2.627 billion year-on-year (Haidilao International Holding Ltd., 2025c). These figures show

that Haidilao has transitioned from a recovery growth stage to a steady adjustment period.

This change can be attributed to various factors, including Haidilao's strategic decision to integrate sustainability more deeply into its restaurant chain brand. Since 2023, Haidilao has increased its investment in sustainability strategies, including the establishment of a green supply chain system covering upstream raw materials, stricter traceability and procurement standards, the adoption of biodegradable tableware and packaging materials, reductions in energy and water consumption, and the publication of more comprehensive ESG disclosures. While these initiatives have improved corporate governance and social reputation, they have increased operating costs and supply chain pressures in the short term. However, in the long term, these changes are worthwhile, as research indicates that consumers are willing to pay a premium of nearly 10% for green brands or products, which means increased revenue that could partially offset the cost pressures previously incurred (PwC, 2024). At the same time, the company has also launched a series of green projects that combine public welfare with environmental protection. For example, in its Sea Buckthorn Hot Pot initiative, Haidilao partnered with the China Foundation for Poverty Alleviation and Ant Forest to link consumer behaviour with ecological restoration. For every serving of sea buckthorn hot pot sold, sea buckthorn trees are planted in desertified areas, achieving a philanthropic innovation that combines consumption with environmental protection (Forbes China, 2021).

From a financial perspective, Haidilao's green and philanthropic initiatives have not yet shown a direct profit contribution in the short term, likely due to the short timeframe and market reaction. Haidilao's 2025 interim financial report (Haidilao International Holding Ltd., 2025c) reflects a minor decrease in profit margins, possibly due to increased costs associated with environmentally friendly material substitution, green procurement audits, and employee training. However, from a long-term perspective, these investments represent strategic upfront costs that will help achieve win-win outcomes for all parties, while establishing a robust supply chain system. The analysis of Haidilao's 2024 ESG report (Haidilao International Holding Ltd., 2025b) suggests that energy savings from its internal operations and improvement of the green supply chain are highly possible, leading to a gradual reduction in operational costs and recycling expenses. These money savings would increase operational efficiency and brand premium over the next three years.

Overall, while Haidilao's financial performance from 2023 to 2025 reflects an initial sharp growth followed by a slight decline, its sustainable development strategy has become a key pillar of the company's long-term competitiveness. In the short term, green transformation and social welfare initiatives have increased operational burdens and squeezed profit margins. However, from a long-term perspective, these actions and strategies are reforming the company's brand value and social trust, building a unique competitive advantage, and positioning Haidilao for a favourable position in the increasingly competitive hotpot chain market. Haidilao is shifting from a growth model

reliant on scale expansion to a quality-focused development path centred on responsibility-driven development and sustainable innovation. While this transformation has not yet been fully reflected in its financial data, it lays the foundation for steady future growth.

Comparison with Competitors / Market Position

Position within the Chinese Hot Pot Ecosystem

Haidilao holds the higher-priced segment of the branded hot pot industry, positioned at the upper end of the service value chain. Its large operational scale provides it with an advantage in digital kitchen technology as well as ESG reporting. Recent corporate disclosures, including its ESG report, affirm the company's goals in reducing greenhouse gas emissions intensity and ESG governance.

By comparison, Xiabuxiabu illustrates an institutional focus on environment and society. The overall focus of Xiabuxiabu's sustainability storytelling emphasises more on controls rather than traceability. This contrast not only illustrates Haidilao's relative competitive edge in sustainability governance, but also reflects an overall trend of convergence among its rivals towards ESG best practices.

Coucou Hot Pot, a smaller lifestyle-oriented chain brand, positions itself around customer experience or ingredients. While there is limited public information on Coucou, the brand can be characterised as a "local premium" rival that emphasises its local sourcing credentials. However, Coucou lacks Haidilao's size or purchasing power, which constrains its ability to persuade suppliers regarding issues of sustainability.

Benchmarking Against Western Chains on Sustainability Themes

Chipotle Mexican Grill, while positioned in the fast-casual dining segment, remains highly relevant for sustainability benchmarking. The company has been an early mover in supplier transparency, animal welfare policies, and metrics-driven targets (e.g., emissions, regenerative agriculture pilots, renewable energy procurement). Chipotle's publicly available sustainability reports and recent updates show explicit supply-chain commitments and quantified targets, which enhance stakeholder trust and position supply traceability as a competitive differentiator (Chipotle Mexican Grill, Inc., 2025). In comparison, although Haidilao has made progress in reporting and operational technologies, its supplier transparency disclosures and public Scope 3 emission coverage remain relatively limited.

Panera Bread, known for its official food waste reduction strategies, is an exemplar of food distribution strategies. Its responsibility disclosures show how food waste strategies can be effectively incorporated into organisational values. Several of Panera Beard's approaches may offer transferable insights for Haidilao, provided they are

adapted to Haidilao's buffet concept. The strategies include partnerships for food recovery and the use of key performance indicators involving food waste.

Strengths, Weaknesses and Strategies

Haidilao's strengths include service excellence, the broad application of digital and automation technologies (e.g., smart kitchens and robots), and more defined ESG goals.

Key weaknesses include comparatively limited public disclosure on supplier traceability and Scope 3 greenhouse gas emissions (relative to best-in-class Western peers). In addition, the hot pot business model is inherently energy- and water-intensive. Sustainability messaging also lacks consistency across international markets.

Haidilao can leverage its scale to impose higher supplier standards and traceability. Further opportunities include piloting low-carbon and energy-efficient restaurant formats, as well as institutionalising food waste recovery and community redistribution programmes.

Haidilao faces heightening regulatory demands on food safety and ESG reporting across various countries. Moreover, operational incidents could pose reputational threats, potentially affecting the firm's social license and financial markets' sentiments.

Recommendations

The following recommendations are prioritised based on the gaps found in the previous section. Each recommendation directly addresses these gaps and is accompanied by a concise rationale and proposed key performance indicator(s).

Enhance Supplier Transparency and Traceability (High Impact, Medium Costs)

Haidilao should create an incremental path in supplier traceability roadmaps by initially concentrating on high-priority risk ingredients such as beef, seafood, and high-quality vegetables. The initiatives should include pilot implementation of "proof-of-origin" projects for selected stock-keeping units (SKUs) and menu items, utilising QR code technology for customers to track food origins. In addition to that, suppliers of core proteins should be engaged via shared questionnaires and third-party audit cycles, ensuring compliance with higher moral and environmental principles. The objective of this effort is to replicate Chipotle's transparent supply chain, mitigating operational risks as it bridges the knowledge gap on global suppliers. The programme's success should be assessed via the percentage of suppliers providing core proteins who have accomplished supplier traceability and the total SKUs that have successfully enabled

QR code verifications. Supplier audit success should also be examined by its overall completion rate.

Publishing Annual ESG Reports with Broader Scope (Medium Impact, Low-Medium Costs)

Haidilao should extend the existing disclosure of ESG information by including precise Scope 3 topics that fall within the restaurant industry's supply chain. Publicly accessible goals must be outlined on the short-term timeline for 2026 and 2030. In addition, critical ESG data from external sources should be subject to external verification to ensure accountability. Additionally, the company should aim to publish an audited report that incorporates comprehensive Scope 1, Scope 2, and Scope 3 information, as well as the percentage of data that has been externally verified. The company's goal of standing at the forefront of restaurant companies in the Asian industry in terms of disclosure quality and transparency will be achieved through such efforts.

Operational Decarbonisation and Resource Efficiency Pilots (High Impact, Higher Costs)

Haidilao should pilot a series of "green restaurants" that showcase various energy- and water-saving solutions, such as energy-efficient kitchen equipment, LED and heating, ventilation, and air conditioning (HVAC) system optimisation, heat-recovery ventilation for water heating, and solar panels on rooftops when technically viable. To manage these resources effectively, Internet of Things (IoT)-enabled metering solutions for both energy and water resources should be adopted, allowing for real-time monitoring, benchmarking, and optimisation across pilot sites. As energy and water resources represent important aspects of the hot pot industry, the learnings from these pilot initiatives will inform investment choices in the future. Building on Haidilao's existing smart kitchen management system, this effort aims to extend digital capabilities towards full resource management. The success of this activity should be assessed through kilowatt-hours of electricity used per seated customer per month, total water used per customer, and the percentage of renewable electricity used by pilot stores.

Food Waste Management and Community Redistribution (Medium Impact, Low Costs)

The company should implement digital waste monitoring systems across its restaurants to enable real-time tracking of waste streams by weight or digital records. At the same time, it should collaborate with local food recovery non-governmental organisations (NGOs) in planning safe redistribution of surplus food to vulnerable groups. For non-reducible food waste, the company should launch anaerobic digestion

and composting initiatives in key operational hubs to prevent landfilling and support circular use of resources. This initiative will enhance both operational efficiency and social stewardship by reducing waste and contributing to local communities. Performance should be measured through kilograms of food waste per served customer, tonnes of redistributed food annually, and the percentage of food waste diverted from landfill.

Global Sustainability Framework and Localised Campaigns (Medium Impact, Low Costs)

Haidilao should develop a concise, one-page global sustainability plan that clearly articulates its mission statement and defines three core pillars: Environmental, Supply Chain, and People. The framework at the highest level would serve as a foundation for region-specific sustainability plans that reflect local regulatory requirements, cultural expectations, and operational realities. To enhance consumer engagement and awareness, the business should run limited-time promotions, such as “Green Hotpot Week”, featuring vegetable-prominent menu offerings and responsibly caught seafood. The programme ensures a unified sustainability narrative across markets, while encouraging localised execution and customer activation. Measurements of success include campaign reach metrics, improved perception by customer survey, and consistency scores from cross-market sustainability communications audits.

Employee Training and Social Key Performance Indicators (High Impact, Low Costs)

Haidilao should incorporate a short sustainability module into its existing employee training modules, covering vital issues such as food waste reduction, energy conservation, and general awareness of supplier provenance. Additionally, the company should expand public disclosure of significant social performance indicators, including employee turnover rates, training hours, and the number of grievance mechanisms, to increase the responsibility and accountability of the company. Through embedding sustainability into day-to-day operations, Haidilao can leverage its strong service-oriented culture to amplify positive environmental and social impacts across its workforce. This not only reinforces employee dedication but also guarantees business excellence. Progress should be monitored through training completion rates, reductions in operational waste driven by frontline employee behaviours, and employee satisfaction measurement.

Implementation Roadmap (Summary: 12-24 Months)

0–6 months: Publish a Scope 3 emissions roadmap; begin supplier questionnaires; launch food-waste tracking pilot in 5 to 10 flagship restaurants.

6–12 months: Pilot traceability QR code on selected SKUs; begin “green restaurant” technical feasibility studies and rooftop solar pilots at larger retail locations.

12–24 months: Roll-out scaled pilots; introduce third-party ESG reporting assurance; release global sustainability framework; launch local campaigns.

Conclusion

In conclusion, Haidilao’s sustainable transformation demonstrates how operations can be aligned with environmental and social responsibility. By combining internal initiatives—such as human resource management, digitalisation, and green operations—with external actions including supply chain governance and community engagement, the company has integrated sustainability into its core business model. This approach has enhanced efficiency, transparency, reputation, and supply chain resilience.

Although the transformation has temporarily increased operational costs, Haidilao’s investment in sustainability has laid the foundation for its long-term competitiveness and risk mitigation. The company’s emphasis on traceability, waste reduction, and responsible sourcing reflects a proactive response to regulatory and consumer expectations. In comparison with industry peers, Haidilao has demonstrated strong execution, although opportunities remain for more comprehensive Scope 3 disclosures and accelerated decarbonisation.

Overall, Haidilao’s case demonstrates a transition from rapid expansion to quality-driven growth. The company has positioned sustainability as a strategic driver for achieving resilience and industry leadership.

Discussion Questions

1. How does Haidilao ensure that its sustainability plan is effectively implemented across different regions with varying cultural and regulatory environments?
2. What challenges has Haidilao encountered in reducing operational food waste, and how does the company measure progress and success in this area?
3. In what ways is Haidilao involving its employees and local communities to enhance both environmental and social sustainability outcomes?

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