

# *Make up the Future*

Second Edition, 2026 — Activating change for a sustainable beauty industry



Together, let's

*Make up  
the Future*

# Dear beauty leaders

We wish to extend a sincere Thank You to our partners at Beiersdorf, Colgate-Palmolive, Cosmetics Europe, Coty, DAVINES GROUP, DSM-Firmenich, EcoBeautyScore, Estée Lauder Companies, Kenvue, L'Oréal, Sephora, and The Sustainable Packaging Initiative for Cosmetics (SPICE) who contributed to the development of this report by sharing experiences and insights from their own sustainability journeys.



## In 2020, we invited the industry to “make up the future.”

Today, the beauty industry stands at a turning point. The pressures shaping it — climate volatility, geopolitical instability, resource scarcity and shifting regulation — are no longer distant trends but daily realities. At the same time, the market itself is evolving. Growth, consolidation and new entrants are redrawing the competitive landscape, challenging traditional models and reshaping what leadership in beauty looks like.

This year, we celebrate 20 years of working alongside companies across the beauty value chain as sustainability moved from a peripheral concern to a defining factor of business performance. Indeed, progress accelerates when environmental ambition is directly linked to how businesses operate, innovate and manage risk. Value is not created by intent alone, but when sustainability delivers measurable outcomes and informs everyday decisions.



Emmanuel Hembert —  
Global Head of Cosmetics,  
Personal Care & Pharma

However, with pressure comes progress. In our first report, we called for acceleration through pre-competitive industry collaboration, a shift beyond carbon to all nature topics, and a refill revolution at product level. Since our first publication, the beauty industry has made significant progress, moving from commitments to capabilities and action. Now, in a more challenging environment, the task is to activate change and ensure sustainability brings value to the business.

This new edition of *Make Up the Future* captures that evolution. It explores how sustainability is reshaping the beauty business at every level — industry, corporate, and product — not as a moral imperative but as a strategic one. Across all three levels, one theme stands out: future-proof. Brands that integrate sustainability deeply and decisively are the ones that will withstand disruption, adapt to new expectations, and unlock long-term growth.

The landscape is shifting fast: regulation is tightening, technologies like AI and digital traceability are expanding what's possible, and consumers are redefining value by asking not only for performance but for proof. In this context, the road ahead demands anticipation, speed and precision. Science remains our compass — guiding the industry toward decisions that are credible, consistent and future-fit. While we recognize that sustainable transformation needs to combine both environmental and social stakes, this report focuses on environmental challenges — our core expertise.

At Quantis, we're proud to stand beside the leaders driving this transformation. Together, we can ensure that the next chapter of beauty is not only innovative and inclusive but sustainable by design.

**What the beauty industry does next matters. Let's move forward together.**

## Meet the Sustainable Cosmetics Experts



Margaux Biharé



Jean-Marc Fontaine



Victor Frontere



Simon Gillet



Natalia Trunova



Emmanuel Hembert



Alice Joubay



Anne-Florence Lécolier



Marco Occhipinti



Laura Tasso



Clément Turnier



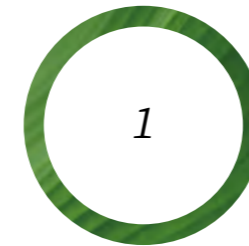
Marcial Vargas-Gonzalez



Alain Vidal

Extended thanks to other Quantis consultants who contributed to this report: Sophie Achigar, Hugo Berard, Jade Dubois, Joao Guimaraes, Mathilde Kolenda, Gabrielle Perier.

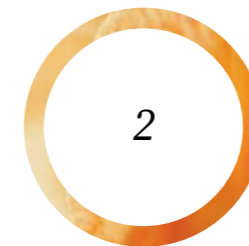
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# Navigating Change 1 at Industry Level

**Leveraging sustainability to withstand current and future headwinds**

Back in 2020, the beauty sector was seen as both a global economic force and a powerful cultural influencer. The industry's role in shaping perceptions of identity, aspiration and consumption gave it a unique opportunity and responsibility to drive systemic change.

Since then, the beauty market has expanded rapidly, even amid economic volatility and shifting global conditions. Industry revenue has risen by nearly 60%,<sup>(1)</sup> fueled by emerging economies, the rise of premium skincare and a wave of purpose-led brands redefining consumer expectations. Consolidation has also intensified, from the acquisition of Sol de Janeiro by L'Occitane in 2021

and of Tom Ford Brand by ELC in 2022, to L'Oréal's recent purchase of Kering's beauty division — reshaping competition and brand portfolios across the sector. The result is an industry that's more global, more complex and more competitive than ever before.

**As the sector scales, so do the risks** — from environmental disruption and supply chain instability to mounting pressure for transparency and accountability.

To navigate this new reality, it became clear that progress would depend on building resilience — through collective action and fact-based decision-making.



## Looking Ahead

The beauty industry is entering a new chapter — one built on the groundwork laid since 2020. After a first period focused on measuring impact and setting direction, then the initial wave of implementation, the challenge now is to move to transformation at scale across the entire value chain — proving that sustainability can guide the sector through intensifying headwinds and shape a more resilient, adaptive industry.

**Those headwinds are real.** Political and economic instability continues to disrupt global trade, drive inflation and reshape purchasing behavior. Fluctuating political agendas, climate shocks and fragile supply chains are no longer abstract risks; they're operational realities.

In parallel, climate change, regulators, retailers, consumers, and investors worldwide are making sustainability a clear right to play. At a minimum, beauty companies can no longer ignore it; at best, leaders will turn it into a powerful driver of value creation and competitive advantage.

Three key levers emerged to guide that shift: **better data, deeper collaboration and the power of marketing** to redefine what consumers value.

# Consumers + sustainability

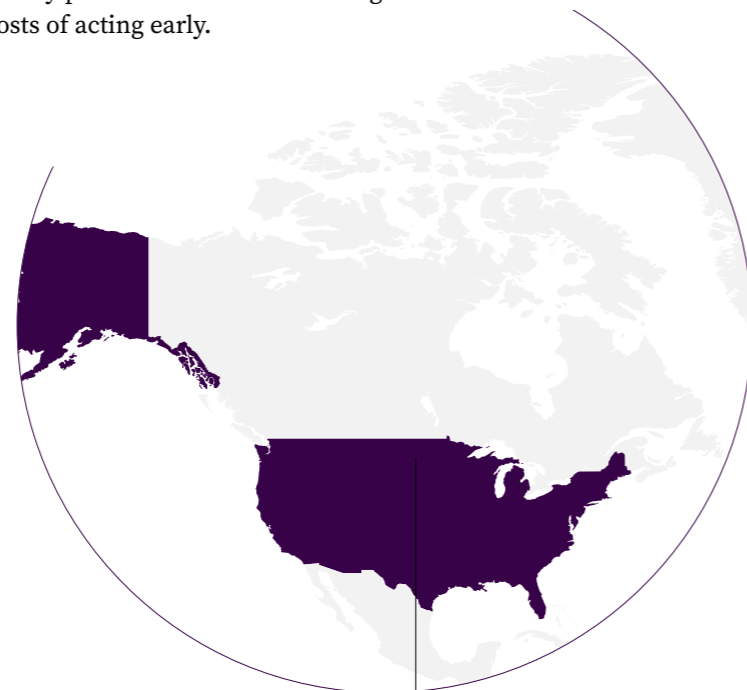
Fig.1

Consumers today are demanding more and their understanding of sustainability is evolving.<sup>(2)</sup> They want to make better choices, but many remain unsure how — and in practice, this intent does not consistently translate into higher sales of more sustainable products, revealing a gap that the industry must address.

**This creates both a challenge and an opportunity.** In an uncertain world, people are looking to trusted brands for guidance. That's why the cosmetics industry is uniquely positioned to lead — not just through compliance or communication, but by setting new standards for innovation, transparency and performance.

**To rise to this moment, the industry must move quickly and collaboratively.** Progress will come not just from individual efforts, but from collective intelligence: shared knowledge, systems tools, and data that unlock faster,

broader change. It will come from new technologies like AI, which are already reshaping product development, formulation, personalization and data management. And it will come from recognizing that the financial risks of inaction — from supply chain volatility to regulatory penalties — now far outweigh the costs of acting early.



USA

**52%** **61%**

of Gen Z consumers seek “natural” claims, and 41% look for “non-toxic” options in beauty products.

of US consumers expect brands to take the lead in addressing environmental issues.

FRANCE

**89%**

of skincare consumers in France consider sustainability initiatives when buying a skincare product.



ITALY

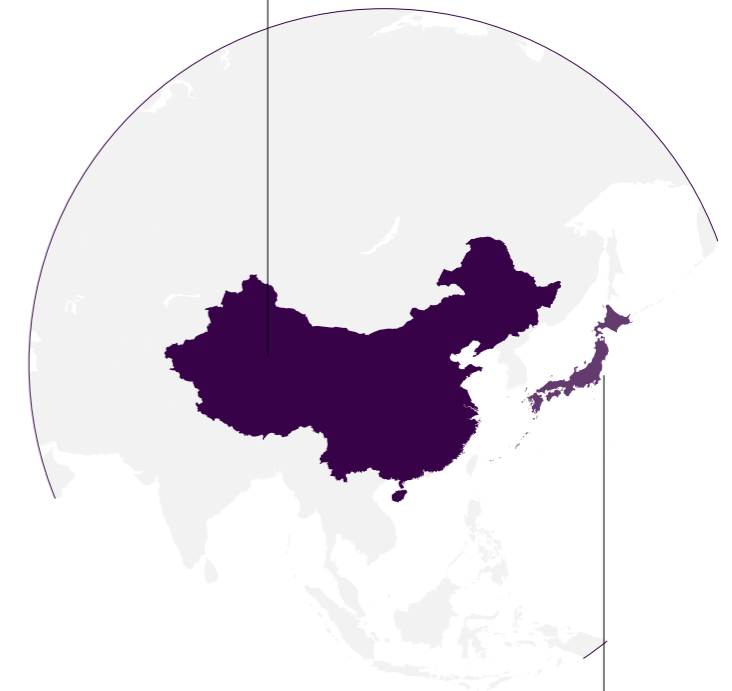
**54%**

of Italian adults would be interested in using an AI tool to help them find new natural/organic products to try.

CHINA

**45%**

of consumers in China say that the most important criterion for sustainable beauty products is that they are manufactured in a way that does not pollute the environment.



JAPAN

**66%**

of consumers in Japan are interested in buying beauty products with environmental/eco-friendly claims.

\*Based on global insights from consumer sustainability perception studies<sup>(3)</sup>

# Industry drivers of change

## 1. Collective intelligence remains essential

Since 2020, the beauty industry has made major strides in pre-competitive collaboration, evolving from a fragmented landscape into a more data-driven, aligned ecosystem. Early initiatives like the [Responsible Beauty Initiative](#) and [Sustainable Packaging Initiative for Cosmetics \(SPICE\)](#) laid the foundation. More recently, the [Traceability Alliance for Sustainable Cosmetics \(TRASCE\)](#) and [EcoBeautyScore \(EBS\)](#) have accelerated progress, tackling challenges such as supply chain traceability and environmental scoring.

The last two efforts address one of the key sources of environmental impact: ingredients and raw materials.

With over 35,000 INCI-listed substances in circulation, collective data-sharing is now essential. TRASCE enables companies to map supply chains through a shared platform, exposing social and environmental risks and opening pathways for joint action. This work is yielding real results. Transparency is increasing across the value chain, giving brands deeper insight into supplier practices and product impacts.

EBS on the other hand, inspired by the EU's [Product Environmental Footprint \(PEF\)](#) framework, provides consumers with clear and transparent information on the environmental impacts of the cosmetics products they buy. It is the first

“



*The evolution of the European regulatory framework over the past five years has profoundly transformed sustainability dynamics within the cosmetics industry. The European Green Deal marked a major turning point, acting as a true driver of transformation and embedding sustainability at the core of corporate strategies.*

*This shift has changed how product sustainability is addressed: after decades focused on human toxicity, attention now turns to environmental toxicity — interactions with ecosystems, persistence, biodegradability, and bioaccumulation.*

*This evolution is fueled by the convergence of several regulatory frameworks — REACH, the ‘Zero Pollution’ strategy, microplastics initiatives, the Green Deal, and more — and by an unprecedented alignment of science, regulation, and industry moving forward together.*

*The future will depend on collective ownership of science, shared knowledge, and harmonized approaches. Only by advancing together can the cosmetics sector turn these requirements into a true, long-term competitive advantage.”*



Emma Trogen — Deputy Director General, Cosmetics Europe



science-based, industry-wide scoring system, helping consumers compare product performance and giving brands an incentive to improve.

These initiatives are fueling a new wave of ingredient innovation and product ecodesign. Brands are better equipped to design responsibly, and consumers are empowered to choose more sustainably.

The global rollout of these initiatives will raise the bar, increasing stakeholder awareness and consumer exposure, and setting new expectations. As sustainability becomes a driver of purchase decisions, brands will face growing pressure to perform — and prove it. This shift will reward those who

invest early in transparency, product footprinting and ecodesign.

**To keep momentum, industry-wide data sharing must deepen.** That means strengthening common methodologies, verification processes, and governance to ensure data quality and comparability. While the industry is making progress in closing data gaps, these should not delay progress. Collective intelligence must now translate into action. Brands and alliances can already identify hotspots and improve specific supply chains or formulations using the data at hand. **Acting now, even with partial visibility, will accelerate learning, build trust, and drive real impact.**

CASE STUDY



## EcoBeautyScore: A shared framework for transparency and performance



**EcoBeautyScore (EBS)** is the first global, science-based system to measure and communicate the environmental impact of cosmetics and personal care products.

Developed by the **EBS Consortium** with more than 70 companies and associations, it provides a consistent, transparent and credible way to assess product impact. Inspired by the EU's Product Environmental Footprint (PEF) methodology, it evaluates a product's effects on 16 different environmental impacts across its full life cycle — from sourcing to end-of-use — and assigns an A-E score.

For consumers, EBS aims to build trust through science and third-party verification. For brands, it offers a harmonized, comparable framework that cuts through greenwashing and makes sustainability measurable on a level playing field.

**Quantis** supported the Consortium as a scientific advisor, helping develop the methodology, shared database and scoring framework that provide the foundation for the EcoBeautyScore system.

Already displayed by brands such as Biotherm, Eucerin, Garnier, Johnson's Baby, L'Oréal Paris, Neutrogena, Nivea and Schauma, EBS is setting a new industry benchmark.

*“EcoBeautyScore gives the beauty industry the transparency tool it has long been missing”*



**Jean-Baptiste Massignon — Managing Director of the EBS Association**

By combining scientific rigor, collaboration and transparency, EcoBeautyScore is transforming sustainability from an individual claim into a shared language for progress — empowering consumers and driving measurable change across the beauty sector.

## 2. The financial ROI of sustainability needs to become clearer than ever

In 2020, the economic case for sustainability was still being shaped. Today, the value creation is increasingly undeniable but not yet properly formalized. The risks of inaction are now unfolding across global supply chains. Climate-related disruptions are impacting ingredient availability and price volatility is affecting margins. **For an industry that increasingly relies on natural resources, this is no longer a future threat; it's a current business risk.** However, there is still work remaining to be able to fully quantify the sustainability case.

**What's becoming increasingly clear is that sustainability is not and can't be considered any more as a cost center — it's a driver of resilience, efficiency and growth.**

Companies investing in renewable packaging, sustainable ingredients or circular models are finding that reducing emissions often goes together with reducing risks and costs. Sustainability-led innovation and brand campaigns are also proving their worth, deepening consumer trust, differentiating products

in crowded markets, and opening up new growth opportunities.

**More than ever, sustainability must be seen through a financial lens.** It requires upfront investment, but the returns — in terms of risk reduction, regulatory readiness, customer loyalty and operational efficiency — must be real and measurable. Companies that continue to treat sustainability as an add-on or an afterthought will increasingly struggle to keep pace with competitors that have built it into their core strategy.

Looking ahead, the challenge is to embed this perspective across the industry. **Sustainability teams can't make the case alone.**

Finance leaders, commercial teams and executive decision-makers must be brought into the conversation and equipped with the data and tools to understand the business implications of sustainability decisions.

CASE STUDY

## L'Oréal: Embedding sustainability into core business performance

For over 25 years, **L'Oréal** has proactively worked towards a sustainable and inclusive future, seeking to protect the planet's beauty and empowering communities worldwide by sharing its economic success with them. Today, this ambition is structured through the *L'Oréal for the Future* program. It is anchored in the Group's culture of dual excellence, the belief that financial and sustainability performance reinforce one another, and has evolved into a deeply integrated operating model where sustainability is embedded into core business performance and decision-making.

This integration has enabled L'Oréal to demonstrate tangible return on investment, both internally and across its ecosystem. Internally, sustainability-driven ecodesign initiatives have unlocked new efficiency levers. Downstream, sustainability is also creating measurable value for partners and consumers. A prime example is L'Oréal Water Saver showerhead, a patented water fragmentation technology that helps salons save up to 69% water at the backbar. Now deployed in more than 5,300 salons in the world, it presents a compelling economic case for salon owners — cutting water and energy bills, making water efficiency a clear business incentive.

Refill systems further illustrate how sustainability can directly support growth. While they required significant upfront investment across innovation, manufacturing, sales and marketing, refill formats now prove clear consumer and business benefits. Sold at a lower price per milliliter, they are more accessible, encourage repeat purchase, drive sales, recruit new consumers and strengthen brand loyalty, while creating new category

## L'ORÉAL

dynamics for retailers. By fundamentally adapting global manufacturing sites, L'Oréal has achieved a 17-fold increase in refillable options over just five years, which now includes some of the world's best-selling male and female fragrances. Refills are now being scaled across all 4 divisions and categories — skincare, haircare, makeup, fragrance — delivering both environmental and economic benefits for consumers.

*"At L'Oréal, there is a constant pursuit of what's next. Sustainability acts as a powerful catalyst for rethinking our business model, leveraging the latest science, data and technology to create shared value. Beyond transformation, sustainability is key to unlock innovation and build resilience."*



Ezgi Barcenas — Chief Corporate Responsibility Officer, L'Oréal

Looking ahead, anticipation will be critical. Water resilience is a challenge, particularly in water-stressed regions, making it essential to equip Research & Innovation teams with data-driven insights to develop low-rinse or no-rinse routines adapted to evolving consumer constraints. Scaling circularity will be another major focus, alongside green sciences and strengthening the resilience of our sourcing ecosystems amidst a shifting global environment.

*"Ultimately, what will differentiate leaders is trust: being recognized as a credible, committed partner by suppliers, retailers, public authorities and consumers alike."*



Joel Tronchon — Global Sustainability Zones & Divisions VP, L'Oréal

### 3. The AI revolution will reshape industry dynamics

Artificial intelligence (AI) has entered the beauty industry at speed, reshaping everything from product innovation to supply chain management. In 2020, AI barely registered in the sustainability conversation. By 2026, it has become an indispensable tool — driving both scientific precision and operational agility.

**Today, AI is helping companies unlock new levels of insight, efficiency and innovation.**

In R&D, it's accelerating the discovery of renewable ingredients and sustainable formulations. L'Oréal, for instance, uses IBM's generative AI to analyze ingredient datasets, identify bio-based alternatives and optimize their environmental profiles — cutting development time and expanding access to low-impact materials. Other leaders, including Shiseido and BASF, are following suit to fast-track the design of next-generation ingredients and formulations.

AI is also redefining how brands connect with consumers. Startups such as Haut.AI use AI-driven recommendation engines to analyze skin data and ingredient profiles, matching products to individual needs. Working with manufacturers like Beiersdorf and Ulta Beauty, Haut.AI

shows how AI can bridge science and personalization — **making efficacy, inclusivity and sustainability part of the same experience.**

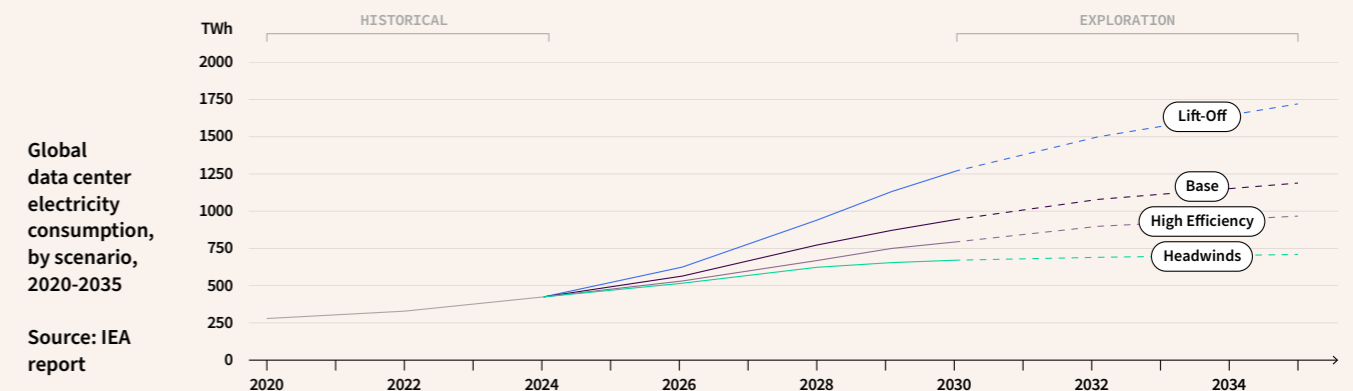
Operationally, AI is becoming a key enabler of sustainability performance, supporting — not replacing — human intelligence. It automates data collection, fills gaps, and models impacts across ingredients, packaging and manufacturing, enabling faster and more precise assessments. Machine learning trained on large LCA datasets helps brands move from assumptions to evidence-based decisions — reformulating products, prioritizing eco-innovation and targeting environmental hotspots with confidence. AI also enhances traceability and transparency, improving scope 3 accuracy and enabling scenario modeling to forecast the impact of design or sourcing choices.

The industry is only at the start of this transformation, and AI will continue expanding across the value chain — from digital traceability and blockchain integrations to compliance monitoring and real-time sustainability tracking. As regulation tightens and data grows more complex, this intelligence is becoming essential. However, it must be deliberately channeled toward sustainable progress. Depending on use cases, scale and adoption curves, current projections suggest AI deployment could become antagonistic to climate trajectories if rising energy intensity and emissions outweigh efficiency gains. **Deployed mindfully and where it adds real value, AI can empower human expertise and become one of the industry's most powerful tools for measurable, science-based progress.**

FOCUS

### When AI scales: Energy demand + environmental footprint

Fig.2



AI is triggering a structural shift in the energy footprint of the digital economy. After more than a decade of efficiency gains that kept data-center electricity demand broadly flat, the deployment of AI-specific hardware marked a clear inflection point from 2017 onward, driving a rapid increase in power consumption.<sup>(4)</sup> Today, data centers account for around **180 Mt of indirect CO<sub>2</sub> emissions globally, or ~0.5% of combustion-related emissions**, with AI representing a fast-growing share.<sup>(5)</sup> Beyond energy and carbon, AI-driven data-center expansion also **intensifies local water demand for cooling and upstream pressure on non-renewable mineral resources** required for AI-oriented hardware, adding material environmental and supply-chain constraints.<sup>(4-6)</sup>

A single text-based AI query is estimated at roughly **0.3 Wh**;<sup>(4)</sup> at current usage levels, **one billion daily queries over a year exceed 100 GWh of electricity**, equivalent to the **annual residential electricity consumption of a mid-sized city** (≈10,000 households).<sup>(4)</sup> The expansion of image, video and reasoning models further amplifies demand, with some advanced reasoning models requiring **over 40× more energy per task**.<sup>(4)</sup>

Looking ahead, AI is expected to become the dominant driver of data-center electricity demand. By **2028, AI could account for more than half of total data-center electricity consumption**, reaching a level comparable to over **one-fifth of total US household electricity demand**.<sup>(4)</sup> In parallel, indirect emissions from data centers could increase by **~80% by 2030** under a baseline scenario, and substantially more under accelerated AI deployment.<sup>(5)</sup> National analyses, including in France, similarly identify AI as the primary factor behind a **three- to six-fold increase in data-center electricity demand by mid-century**.<sup>(6)</sup>

This growing footprint must be weighed against AI's mitigation potential. Applied at scale in end-use sectors, existing AI applications could enable up to 1,400 Mt of CO<sub>2</sub> emissions reductions by 2035, in the most optimistic scenario.<sup>(5)</sup> **The net sustainability outcome of AI will therefore depend less on the technology itself than on where AI is deployed, how resource-intensive uses are governed, and the energy — and resource-systems that support it.**

# 2 Driving Transformation at Corporate Level

Change is essential to unlock sustainable growth

In 2020, we called on beauty players to move beyond good intentions and adopt a science-led approach to sustainability

aligned with the Planetary Boundaries framework — harnessing beauty’s “scientific superpowers” to identify environmental hotspots, set ambitious climate and nature targets, and embed sustainability across every function. Transformation, we said, couldn’t be siloed. It needed to reach R&D, marketing, operations, sourcing and beyond. Transparency was equally critical — not just to meet regulations, but to build credibility, trust and alignment with stakeholders. And we urged companies to look beyond carbon,

addressing their broader impacts on biodiversity, water and packaging.

**Today, as seven planetary boundaries have been crossed and the 1.5°C objective appears compromised, that call is more urgent than ever. The corporate agenda is shifting from commitment to delivery. Sustainability is no longer a side project; it is a defining pillar of competitiveness and resilience.**

The next wave of transformation must come from within — embedding sustainability into strategy, governance and decision-making. To succeed, companies must move from assessment to execution, from ambition to measurable impact, and from siloed initiatives to system-wide change.

## Looking Ahead

In recent years, beauty companies have made real progress — mapping their footprints, setting targets and defining strategies. **The challenge now is delivery: translating plans into measurable results that reduce emissions, limit nature-related risks and reshape product portfolios.**

This next phase calls for a holistic approach. Climate action remains critical, particularly across scope 3, where most impacts occur. Supplier engagement will be key to meeting decarbonization goals and building more resilient value chains. At the same time, brand manufacturers need to ensure the entire value chain looks beyond carbon — embedding biodiversity, water and land-use considerations into planning and innovation. Portfolio transformation will be central to this shift, ensuring product development is guided by sustainability performance as much as consumer demand.

**Delivering at this scale also means rethinking how organizations operate.**

Digital tools can unlock speed, scale and transparency — from automated data collection to real-time insights — but governance and accountability will ultimately determine success. Aligning sustainability roles and decision-making with broader business objectives is essential to make it a true driver of growth and resilience rather than a separate agenda.

**And while the work starts within, it can’t end there.**

Upstream, collaboration with suppliers, manufacturers and logistics partners is critical to drive meaningful reductions. Downstream, brands have a unique opportunity to engage retailers and consumers — not just through better products, but by enabling more sustainable behaviors across the value chain.



# Drivers of change for companies

## 1. Adopt a holistic approach to sustainability

### Double down on scope 3 reduction

In the years since the first edition, beauty companies have made progress in reducing their operational emissions (scope 1 and 2). Yet a significant share of their climate impact — approximately 95% — lies in scope 3, driven by upstream activities such as raw material sourcing and packaging production.<sup>(7)</sup> Accelerating work on these indirect emissions will be critical to achieving 2030 climate targets.

Companies have gained clarity on what needs to change. Primary data from suppliers is now recognized as critical for accurate footprinting, enabling companies to more accurately track their upstream impacts. Until now, companies have had to rely on generic data and assumptions to assess their scope 3 impacts. Now, to be more specific and to implement tailored supply chain decarbonization action

plans (e.g. choosing to source from suppliers with the lowest impact), access to primary data is key. Digital tools are streamlining data collection and analysis, while procurement teams are starting to factor environmental performance into sourcing decisions. Suppliers, in turn, are becoming more informed and responsive. Despite this progress, implementation remains slow and uneven.

**Only 7% of beauty players with net-zero targets meet key criteria — including interim targets, transition plans, and progress reporting — revealing major delivery risks as the 2030 deadline approaches.**<sup>(8)</sup>

Procurement teams will need to mobilize and be equipped with the tools and methodologies that will help them to engage, incentivize, assess and track supplier impact reduction — and go beyond carbon to include topics such as water, biodiversity and deforestation.



### CASE STUDY

## Coty's cultural transformation toward Net Zero

**COTY**  
SINCE 1904

Since committing to SBTi in 2021, **Coty** has been proactively mobilizing its entire organization to achieve its 2030 and 2050 climate goals, with the continued support of Quantis as strategic advisor.

According to **Nadja Koerner**, Head of Coty's Sustainability Office — which defines the company's strategic direction and coordinates efforts across the business — three cultural levers are key to driving this transformation:

- **Make decarbonization tangible** by translating it into the language of business.
- **Build the right expertise mix** within each department, combining sustainability and business skills or supporting business profiles to pivot into sustainability roles.

- **Balance bottom-up engagement with top-down drive.**

Coty has linked sustainability performance indicators — such as external ratings (e.g., CDP) — to long-term management remuneration.

Operationally, Coty has launched a green procurement program, embedding sustainability criteria into supplier selection and targeting carbon-intensive ingredients and packaging. The company is also partnering with retailers to integrate sustainability into the customer experience and develop decarbonized product assortments.



### Evolve product portfolios to decrease scope 3 impacts

**Companies are placing growing focus on the environmental performance of their products.** Product design decisions directly shape scope 3 impacts, which account for most of a company's environmental footprint. That includes not only carbon, but also water use, land occupation, and biodiversity pressure. As a result, product-level life cycle assessments (LCAs) have become a cornerstone of sustainability strategy, giving teams clear visibility into where

impacts are concentrated, whether in ingredients, manufacturing processes, packaging, or end-of-life.

This has sparked a wave of ecodesign activity, especially in reformulation and packaging redesign. But the work is now becoming more advanced and more systemic. Companies are adopting dedicated ecodesign tools — from LCA dashboards and modular footprinting platforms to AI-powered scenario modeling — to integrate sustainability into early-stage product development and design decisions. These tools

enable product teams across the entire company to simulate and compare the environmental impact of different ingredient or packaging choices in real time, accelerating decision-making and reducing reliance on assumptions.

Crucially, the goal isn't just better individual products; it's smarter portfolios. LCA insights are helping companies shift from a SKU-by-SKU approach to a portfolio-level strategy that targets the highest-impact categories, streamlines product ranges, and prioritizes formats with the greatest

potential for footprint reduction. This is essential for achieving meaningful, measurable reductions in scope 3 impacts and water use.

Regulations like the Ecodesign for Sustainable Products Regulation (ESPR) in Europe, the Extended Producer Responsibility (EPR) in the US, and the excessive packaging regulation in China will soon result in greater scrutiny of environmental claims and require deeper transparency into product impact. Beauty may not be the first category in scope, but brands are already feeling the ripple effects, especially from retailers.

Indeed, retailers are rolling out green screening frameworks that assess product-level performance across environmental criteria. These frameworks are becoming gatekeepers: products that don't meet the bar risk being deprioritized in-store, dropped from assortments, or excluded from campaigns.

**Importantly, ecodesign is no longer the job of product development alone. To succeed, it requires alignment across R&D, marketing, regulatory, packaging, procurement, and sustainability teams.**

It's about building shared frameworks, using common tools, and setting clear impact reduction targets that guide product pipelines, not just individual launches.

**Looking ahead, the shift to low-impact design will only accelerate.** Companies that embed ecodesign into portfolio strategy — and mobilize cross-functional teams around clear scope 3 and water reduction goals — will be better equipped to navigate regulation, meet customer expectations, and drive resilient growth.

### Integrate nature into business resilience

The cosmetics industry has focused much of its efforts on “going natural,” opening the door to risks and impacts they’re not used to managing.

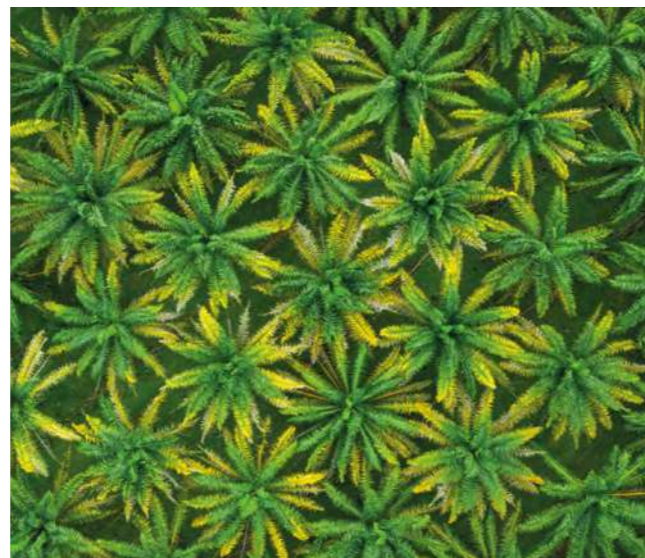
Since 2020, companies have begun adopting more structured approaches to nature-related risks, supported by frameworks such as the Corporate Sustainability Reporting Directive (CSRD), the Science Based Targets for Nature (SBTN), and the Taskforce on Nature-related Financial Disclosures (TNFD). Disclosure platforms like CDP have also expanded their focus to include forest and water data.

Today, the first generation of integrated nature strategies is taking shape. The EU Deforestation Regulation (EUDR) is set to push companies to strengthen traceability for key commodities like palm, cocoa, and wood.

Nature-related impacts and risks are inherently local, which makes scaling strategies complex. Unlike carbon, they cannot be averaged across a value chain. Companies need granular, location-specific data to assess risks and design targeted interventions, especially in sourcing regions that are ecologically vulnerable — for example, areas facing water scarcity, polluted waterways, degraded soils or ecosystems, or threatened species.

**Crucially, nature and climate are deeply connected.** Forests, wetlands, soils and oceans regulate climate, while biodiversity supports resilience and

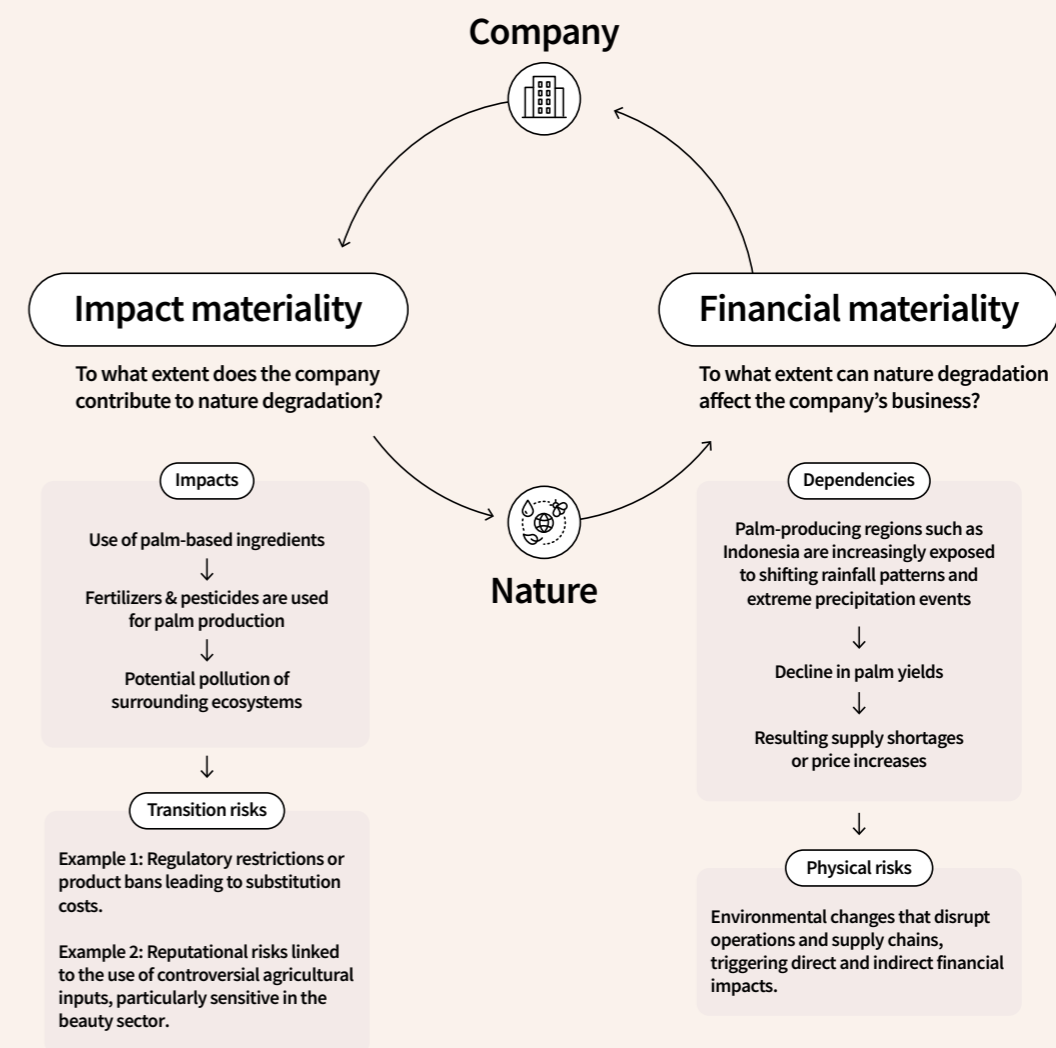
productivity. Integrating nature and climate strategies helps avoid trade-offs and unlocks co-benefits across the value chain.



**Looking forward, building resilience and preparing for business disruptions must become a core element of corporate strategy.** Climate change is already altering temperature, precipitation, and ecosystem patterns, putting value chains at risk. To be future-proof, companies must go beyond mitigation and develop robust adaptation or transformation plans. This starts with conducting comprehensive climate and nature risk assessments — covering both physical and transition risks — and translating those insights into concrete actions. **Beauty companies that anticipate and manage these risks early will not only strengthen their sourcing resilience, but also protect access to critical raw materials, maintain strong community relationships, and enhance long-term business continuity.**

### Understanding climate + nature-related risks to strengthen supply resilience Fig.3

Impact and dependencies on climate and nature shape business risks. These are captured through the concept of Double Materiality at the core of CSRD reporting. Beyond compliance, Double Materiality provides companies with a strategic compass to strengthen risk management and long-term resilience. Below is an illustration of the concepts, using a key ingredient in beauty supply chains: palm.



“

davines

At DAVINES GROUP, we may not have the leverage of big industry players, but agility is our strength. Sustainability is rooted in our values and lived across every role, grounded in a shared sense of responsibility. We start by recognizing our impact and committing to regenerate what we take. Our Regenerateam brings that ethos into daily practice — because regeneration isn't a project, but a philosophy that shapes how we grow and operate.”



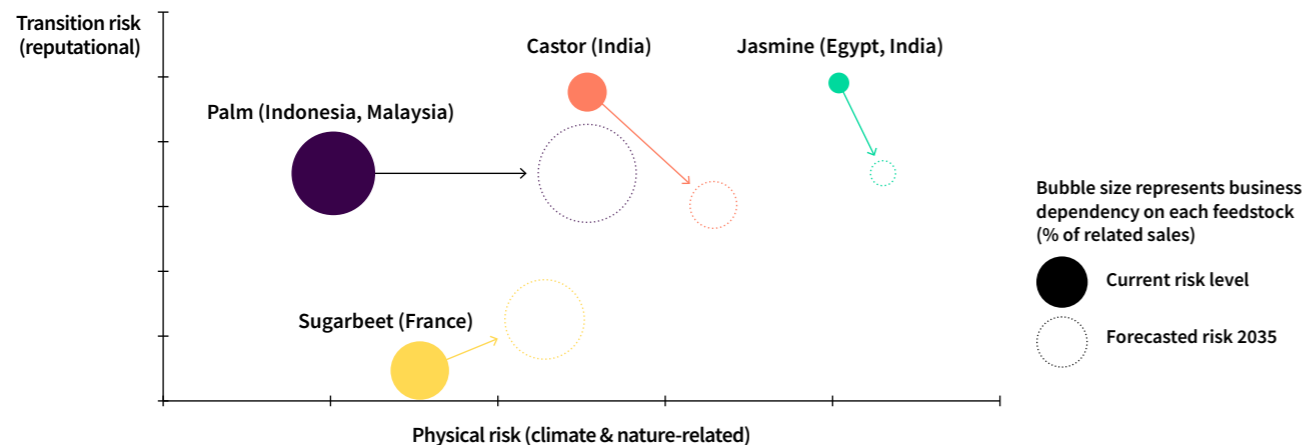
Sonia Ziveri — Chief Sustainability Officer, DAVINES GROUP

## Integrating climate + nature-related risks into business risk assessment and planning Fig.4

Example of strategic feedstocks for cosmetic ingredients.

Key nature-derived ingredients rely on a small set of strategic natural feedstocks. On the one hand, high-volume commodities — such as sugar beet for alcohols or palm for surfactants — underpin a large share of product portfolios. On the other hand, specialty feedstocks — such as jasmine for

fragrance or other wild and cultivated plants for active ingredients — may appear in very small volumes yet still anchor significant sales through iconic products. In this illustration, palm and castor stand out for their combined exposure to high physical and transition risks, together with strong business dependency, positioning them as critical feedstocks to monitor and manage proactively.



FOCUS

## Regenerative agriculture presents a strategic shift for resilient ingredient supply

Regenerative agriculture offers a transformative vision for farming; one that goes beyond reducing harm to actively restoring ecosystems. This holistic, outcome-based approach generates agricultural products while measurably improving soil health, biodiversity, climate resilience, water cycles, and farmer livelihoods. It promotes carbon sequestration above and below ground, reduces greenhouse gas emissions, enhances biodiversity in and around farms, and increases water and nutrient efficiency, while delivering more stable yields over time.

agricultural landscapes contributes to lower air pollution and greater biodiversity.

Transitioning to regenerative systems offers a path forward. Studies and field trials show that after an initial transition period, regenerative practices can restore soil function, stabilize yields, and improve climate resilience, without compromising economic viability. For ingredient buyers, this means more secure, more sustainable sourcing. For consumers, it offers a credible link between the care they seek in cosmetics and care for the planet and its people.

In the beauty industry, an increasing number of key raw materials originate from nature, whether in relatively unprocessed forms like cocoa butter and natural oils, or as refined inputs like ethanol from sugar beet or wheat. These supply chains are increasingly vulnerable to declining productivity, climate volatility, and biodiversity collapse — trends that threaten both availability and quality. As food companies are increasingly moving their agricultural supply to regenerative sources, the beauty industry cannot afford to lag behind.



Regenerative systems also offer powerful co-benefits for human and environmental health — an area of growing relevance to both regulators and consumers. Practices like reduced pesticide and fertilizer use are linked to improved air and water quality, lowering exposure to harmful substances and nitrates in domestic water. Diversified cropping systems can boost the nutritional value of yields while increasing agricultural resilience and increased natural habitat in

**To fully realize this potential, brands will need to collaborate with farmers, suppliers, and other value chain partners, supporting the transition through long-term contracts, technical support, and shared investment.**

The rewards are substantial: a more stable ingredient supply, progress toward scope 3 and water targets, and a stronger, more future-fit brand narrative.

## 2. Scale up your organizational enablers

### Decentralize sustainability to embed it across core functions

Since 2020, the beauty industry has made steady progress in embedding sustainability across functions and geographies. Once the domain of CSR or corporate affairs, sustainability is increasingly becoming part of how businesses operate day-to-day.

Today, cross-functional engagement is growing, with teams such as product development, legal, regulatory and finance playing more active roles in delivering environmental goals.

This shift is helping companies move from ambition to implementation. However, progress is uneven. While some functions are well integrated, others — especially marketing — remain underleveraged. Given its role in shaping consumer behavior and brand perception, aligning marketing with sustainability represents a major untapped opportunity. Similarly, procurement and digital teams can play a more strategic role by aligning sourcing and tech decisions with environmental objectives.

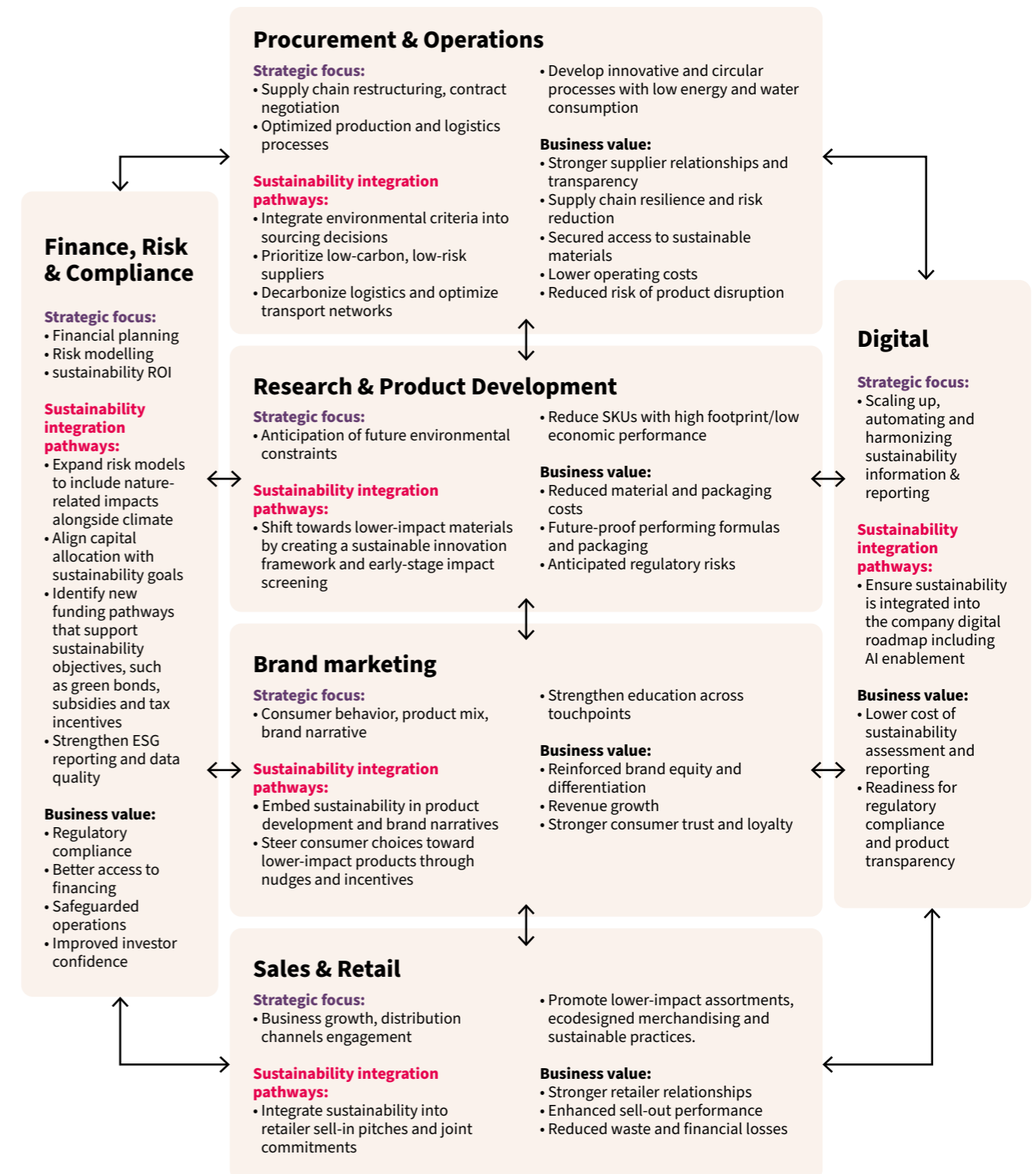
Organizational structures are beginning to evolve in response.

### Some companies — typically early movers — are decentralizing sustainability responsibilities, embedding them into core business units like finance and operations.

Others are building internal networks of sustainability champions, coordinated by central teams to balance local action with strategic alignment. While promising, these approaches are still in the early stages of adoption across the industry.

Performance management is also beginning to shift. Some companies have started linking sustainability goals to employee KPIs, particularly for senior leaders and decision-makers. Although not yet common practice, these incentives show strong potential to drive accountability and support long-term cultural change.

## Integrating environmental sustainability in operating models Fig.5



Embedding sustainability across every function ensures alignment with business priorities and drives lasting impact. The table above outlines practical ways each department can contribute to company-wide transformation.

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*Since 2020, the sustainability landscape has undergone significant transformation.*

*In the 2010s, many companies made bold sustainability commitments — often without having all the answers. That risk paid off: ambitious, well-structured goals have proven effective in mobilizing organizations.*

*In the early part of this decade, companies began activating their sustainability strategies — and confronting reality. With stricter regulations and reporting requirements, sustainability has moved into the spotlight for CFOs and CEOs. The focus is now shifting toward clear investment implications and demonstrable value creation.*

*At the same time, as early goals reach their deadlines, businesses are renewing their ambitions around what matters most.*

*For The Estée Lauder Companies, that means climate, packaging, waste, and water management — while investors increasingly view sustainability through the lens of business risk, and consumers keep expecting it.”*



Al Iannuzzi — VP Sustainability,  
Estée Lauder Companies

**Looking ahead, companies will need to take further steps to embed sustainability into strategy, governance, and operating models.** As regulatory and investor scrutiny increases, CFOs and Corporate Strategy Departments will need to actively manage environmental risks and opportunities. **We recommend that companies prioritize cross-functional ownership, define clear lines of accountability, and align decision-making with sustainability objectives at every level.** When sustainability becomes part of how success is measured, it becomes a shared responsibility, and a potential source of competitive advantage.

**Digitalize to unlock efficiency, accuracy and speed**

Digital platforms now underpin a wide range of sustainability functions across the beauty industry. From footprint assessments and risk mapping to ESG reporting, these tools are replacing fragmented spreadsheets with automated, integrated systems. Carbon accounting has seen particular advances, with platforms pulling data directly from enterprise systems like SAP and matching it with the correct emission factors to accelerate and standardize calculations. But digitalization goes beyond operational efficiency. Many tools now offer simulation capabilities, helping companies evaluate different reduction strategies — across packaging,

formulations, and suppliers — before acting. They also improve progress tracking by aggregating historical data and visualizing trends across products or sites, enabling more strategic decision-making. That said, digitalization is not as easy as it might appear. Beyond selecting the right tools, the implementation of a data strategy and integration support is also required.

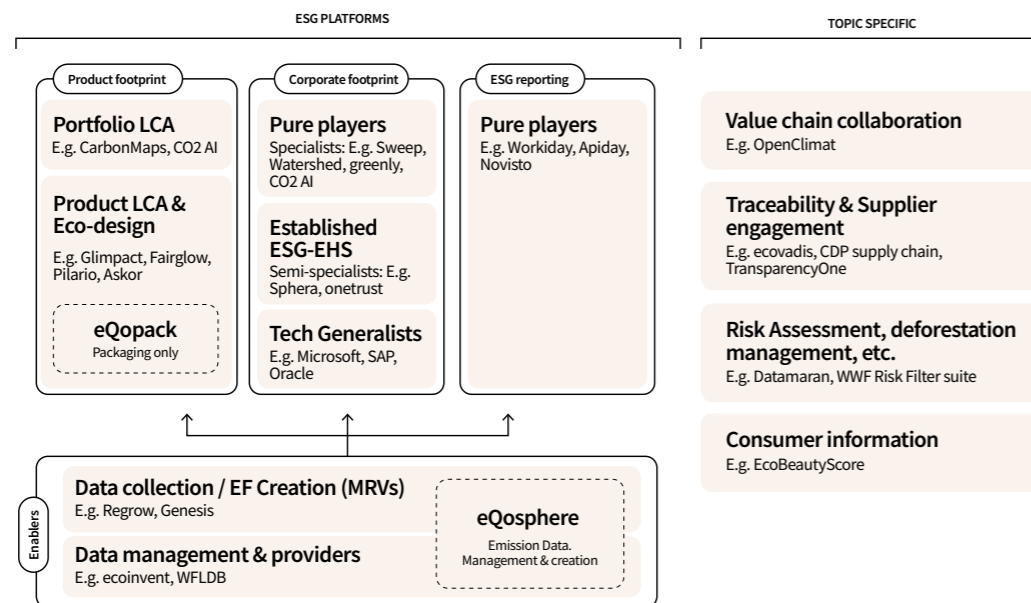
As sustainability reporting frameworks such as CSRD, CDP, TNFD and Science Based Targets Initiative (SBTi) grow more demanding, digital platforms reduce the compliance burden, speeding up data consolidation and verification. They also promote cross-functional collaboration by making sustainability metrics accessible to departments like finance, R&D and procurement through user-friendly dashboards.

Reckitt’s partnership with CO<sub>2</sub>, AI and Quantis demonstrates this potential: by automating emission factor matching and using AI-driven insights, the company mapped emissions across 25,000 products in just four months — improving accuracy 75-fold and identifying key substances driving most upstream impacts. The results now guide supplier engagement and ingredient choices, embedding accountability across the business. Looking ahead, companies will move further from manual processes toward integrated, cloud-based systems built specifically for sustainability. However, the current digital landscape remains fragmented. Suppliers face

‘questionnaire fatigue’ from multiple, overlapping requests. As adoption grows, harmonization will become essential, within organizations and across the industry. Streamlined data flows and shared standards will improve data quality, reduce friction, and foster trust throughout the value chain.

**Ultimately, digital tools are evolving from reporting aids into strategic enablers**, driving smarter decisions, internal engagement, deeper insight, and more agile sustainability performance, providing easy to access insights for non-expert audiences.

**Landscape of sustainability digital tool providers** Fig.6



The carbon management and sustainability software market is rapidly evolving, driven by stricter regulations and evolving client’s needs (e.g. scope 3 emissions accounting, product ecodesign). Monitoring this market is key and should be done frequently: this will help companies in carefully selecting a software that meets their unique requirements, and integrates smoothly with their IT infrastructure.



### 3. Influence beyond your company walls

#### Engage upstream suppliers and wider ecosystems

Since 2020, improved carbon data collection and pre-competitive initiatives have enhanced visibility into upstream impacts. It is clear that gathering data is no longer enough; **the next phase demands deeper, more strategic supplier relationships and broader collaboration across ecosystems.**

We are starting to see progress, albeit not at the pace required, with brands expanding their supplier engagement beyond procurement. Many now offer tailored training and contextualized guidance — especially to smaller or lower-tier partners — to build capability in areas like carbon, water, and biodiversity. This not only drives better performance but also strengthens long-term value chain resilience. There is still plenty of work required in this area, particularly in establishing engagement techniques that work and are long lasting.

Some companies are also piloting regenerative sourcing initiatives. Though still nascent in beauty, such programs (well established in the food sector) hold significant potential. Collaborations that link cosmetics players with agricultural suppliers can de-risk natural ingredient supply chains while delivering measurable environmental and social benefits. For example, L’OCCITANE’s long-term partnership with women-led cooperatives in Burkina Faso demonstrates how sourcing relationships

can strengthen both environmental stewardship and community resilience.

Meanwhile, supplier co-innovation is gaining traction. Involving suppliers earlier in product development helps align goals, tap technical expertise, and identify sustainable alternatives, reducing costly design revisions and increasing commercial viability.

Looking ahead, companies must also engage beyond their direct suppliers. Partnerships with local businesses, cooperatives, and regional stakeholders — around shared transport systems, water-saving technologies, or circular infrastructure — can unlock operational efficiencies and reduce costs over time. These ecosystem-level initiatives also help strengthen brand equity, positioning companies as enablers of regional sustainability and community resilience. In a market where both consumers and investors are watching closely, such collaboration can enhance reputation while driving tangible impact. The future of supplier engagement lies in collaboration that goes both deeper and wider.

#### Influence downstream by partnering with professionals, retailers, and consumers

While companies have focused on suppliers and operations to reduce impact, up to 70% of emissions often occur during product use<sup>(9)</sup> — beyond their direct control. Tackling downstream



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*Since 2020, we’ve seen an era of action. After a decade of bold commitments, companies are now focused on turning promises into action.*

*For Colgate-Palmolive, a caring, innovative growth company that is reimagining a healthier future for all, that means further integrating sustainability into our business — from product innovation to supply chain to community engagement and more.*

*This commitment shows up across all of our regions. In our Africa & Eurasia Division, water stewardship programs are critical. In our Asia Pacific Division, packaging is a key focus. In Europe, regulatory momentum continues to raise the bar. And around the world, Colgate’s Bright Smiles, Bright Futures program is an important way we reach children and their families with vital oral health education. Every region brings its own priorities, but all are driving toward the same goal: making sustainability part of everyday decision-making.*

*Colgate-Palmolive is leveraging the power of collaboration and technology to innovate and accelerate progress. Whether it’s co-investing with peers and suppliers on more resilient value chains, or exploring how AI can streamline reporting and help design better materials with partners such as Google, Glacier or Earthos, we’re finding new ways to deliver both environmental and business value. That’s where the next frontier of sustainability lies — in working together and working smarter.”*



Ann Tracy — EVP & Chief Sustainability Officer, Colgate-Palmolive

emissions is complex but essential, requiring stronger partnerships with professionals, retailers, and consumers.

Professional channels like salons and spas are high-impact environments, consuming significant water, energy, and product. Yet, they are also powerful influencers of consumer behavior. Brands are beginning to treat these partners like strategic collaborators — co-developing low-impact solutions such as water-efficient tools, refillable formats, and more sustainable routines. L'Oréal's partnership with Swiss startup Gjosa, followed by its acquisition in 2024, illustrates this approach: together, they developed the L'Oréal Water Saver, a salon showerhead that cuts water use from 8 liters to just 1.5 liters per rinse — proving how innovation and sustainability can flow hand in hand.

Retailers also play a critical role, sitting between brands and end consumers. With more sales flowing through retail channels, in-store teams shape customer decisions. Brands and retailers are now

working together to spotlight ecodesigned products via displays, refill stations and “green corners.” Training beauty advisors on sustainability, backed by brand-supplied data and communication assets, helps turn these touchpoints into moments of education and influence.

Engaging consumers directly remains a vital but nuanced task. While interest in sustainability is growing, changing habits (like switching to refills or cooler rinses) requires more than awareness. Brands must combine transparency with support, making it easier for consumers to act. Effective tactics include influencer campaigns, practical guidance, loyalty programs, and take-back schemes.

**Collectively, these efforts are shifting the system from passive consumption to active stewardship.** By treating downstream partners as co-creators, brands can extend their impact well beyond the factory gate, unlocking new levers for climate and sustainability progress across the full product life cycle.

## Beiersdorf

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*Five years ago, sustainability was mainly a top-down agenda. Today, the momentum comes from the market. Retailers are sharpening their net-zero strategies and demanding clearer answers on scope 3. Inside companies, sustainability has become a shared responsibility — sales, R&D, supply chain, and marketing now carry targets, supported by stronger routines, common methods, and a more reliable data backbone.*

*Progress looks different across regions. Europe remains the most advanced, driven by a mix of regulation and retailer expectations. In the U.S., Asia Pacific, and South America, the conversation is accelerating, especially on carbon and circularity. Consumers, however, continue to send a familiar paradox: “make it sustainable, but don’t make it more expensive.” This is pushing the industry to simplify — removing confusing claims, using fact-based labeling, and offering tools that help people understand trade-offs.”*



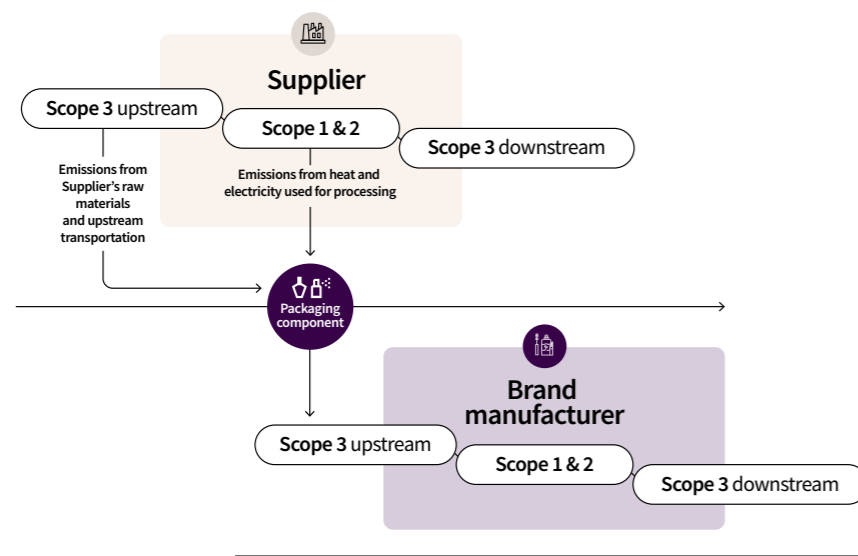
Jean-Francois Pascal — Vice President Sustainability, Beiersdorf



Dorle Bahr — Head of Sustainability Strategy & Reporting, Beiersdorf

### How companies' environmental performance is impacted by upstream partners' data & performance

Fig.7



A cosmetics brand's footprint extends beyond its own operations. The scope 1, 2 and upstream scope 3 emissions of packaging and raw material suppliers are part of the brand's scope 3. Reducing these impacts depends on collaboration and transparent data across the value chain.

# How does our beauty routine impact the environment?

Fig.8

In Europe, the average beauty routine generates about 700 gCO<sub>2</sub>e. Most climate change emissions occur during the use phase, primarily from the use of hot water for rinsing off products and cotton used for makeup removal.

## Environmental impacts of a typical beauty routine including the use phase:

Raw materials production	Packaging production	Distribution	Use phase	End-of-life of formulation & packaging
<10%	<10%	5%	70%	10%

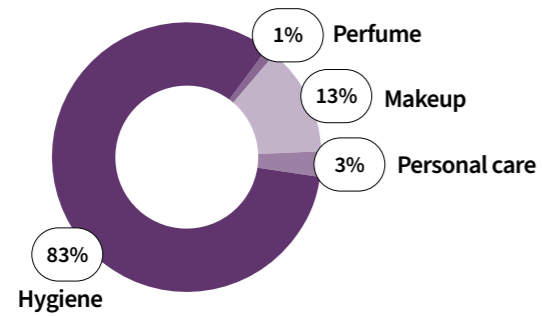
## and excluding the use phase:

Raw materials production	Packaging production	Distribution	End-of-life of formulation & packaging
25%	25%	10%	40%

Source: Impacts are calculated by aggregating 16 environmental indicators following the Product Environmental Footprint (PEF) methodology. Impact estimate based on a simplified set of products used in a typical beauty routine. Actual routines and doses vary by person and region, this analysis uses an average European context. The wide-range estimate is meant as a call to action for better products and practices.

# Environmental impact by beauty routine step

Fig.9



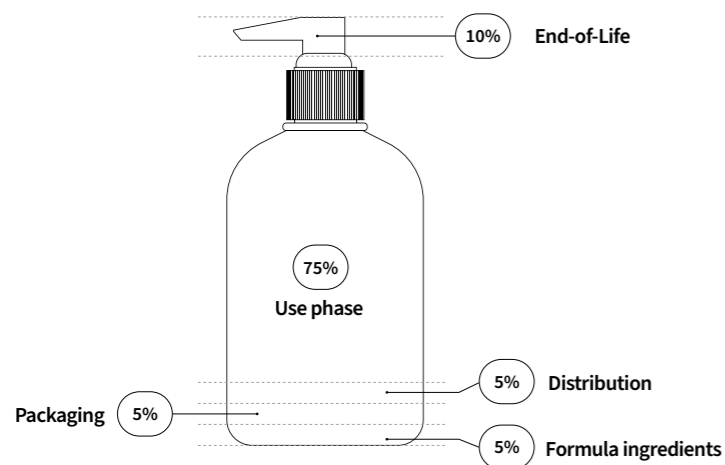
\*Percentages represent the share of environmental impact, including use phase.



## Hygiene

**Products considered:** body wash, shampoo, conditioner

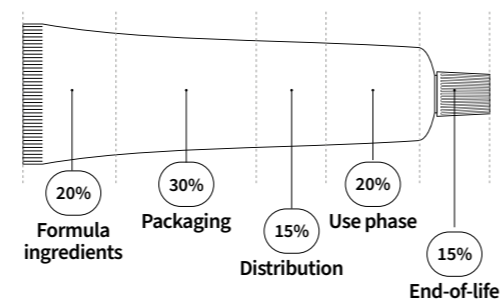
Every morning begins with the main driver of impact, the shower, as heating around 50 L of water consumes significant energy. In addition, some ingredients traditionally found in rinse-off products, such as silicones, are poorly biodegradable and persist in the environment.



## Personal care

**Product considered:** toothpaste, face cream, deodorant

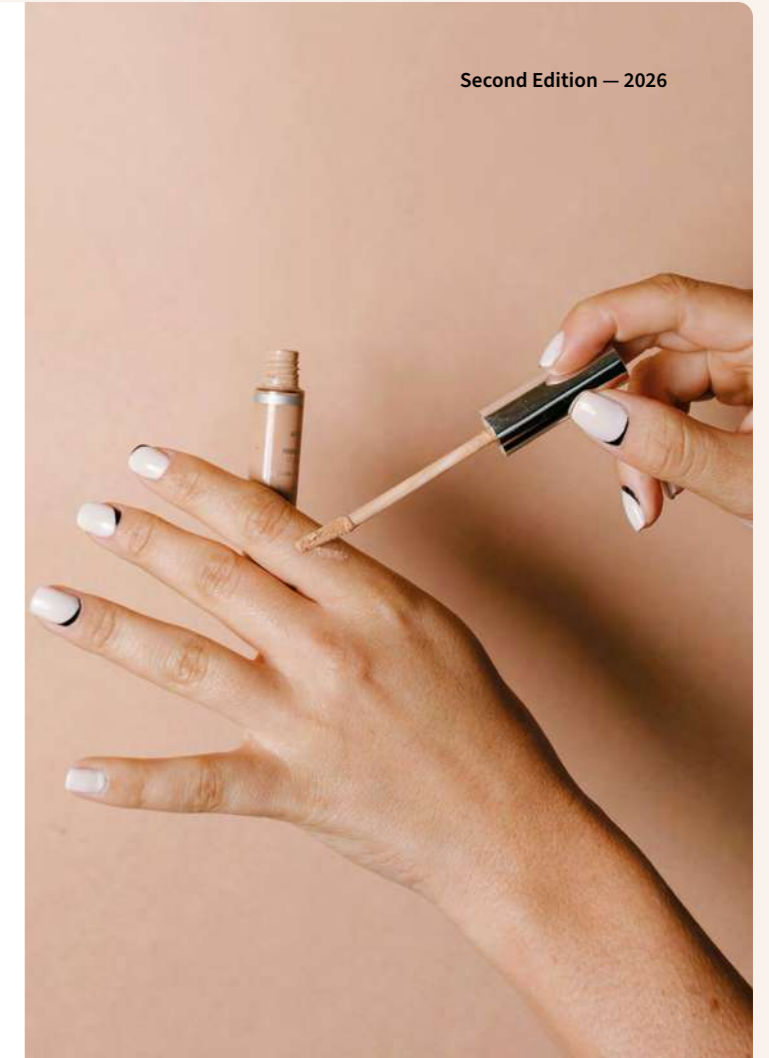
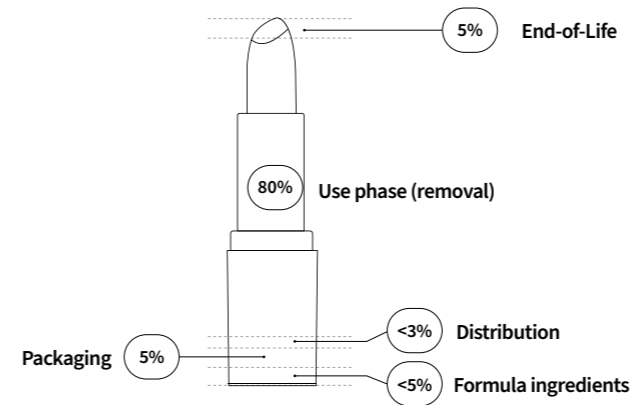
The impact of toothpaste mainly comes from the water used during brushing. For face cream and deodorant, packaging and decorative parts — often glass or plastic — are the main contributors. Though recyclable, these materials are energy-intensive to produce and, in the case of glass, heavy to transport.



## Makeup

**Products considered:** foundation, lipstick, mascara

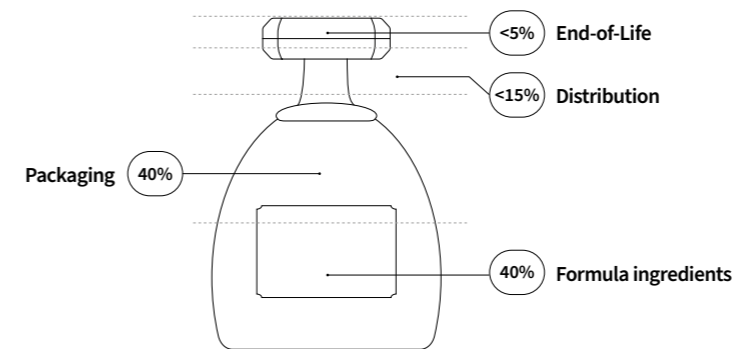
For makeup, most of the environmental impact occurs during removal, driven by resource-intensive makeup removers and cotton pads. Packaging adds to this, with small, intricate parts that are difficult to recycle.



## Perfume

Most perfumes contain 80-90% ethanol, whose production, when bio-based, demands significant energy, water, and agricultural land.

The remaining fragrance blend is light but impactful: natural extracts may require large amounts of plant-based material, while synthetic ones rely on complex chemistry. Add the heavy, decorated glass-and-metal bottles of premium formats, and the impact grows.



Source: Impacts are calculated by aggregating 16 environmental indicators following the Product Environmental Footprint (PEF) methodology. Impact estimate based on a simplified set of products used in a typical beauty routine. Actual routines and doses vary by person and region, this analysis uses an average European context. The wide-range estimate is meant as a call to action for better products and practices.

**When hair drying is added, the impact increases significantly.**

A typical hair dryer runs at 1,500 to 2,000 watts, meaning just 7 minutes of drying can consume as much electricity as watching TV for about 3 hours. **Electricity use represents nearly 100% of its total impact**, far outweighing the impact of the device's materials or packaging.

# Advancing Innovation at Product Level

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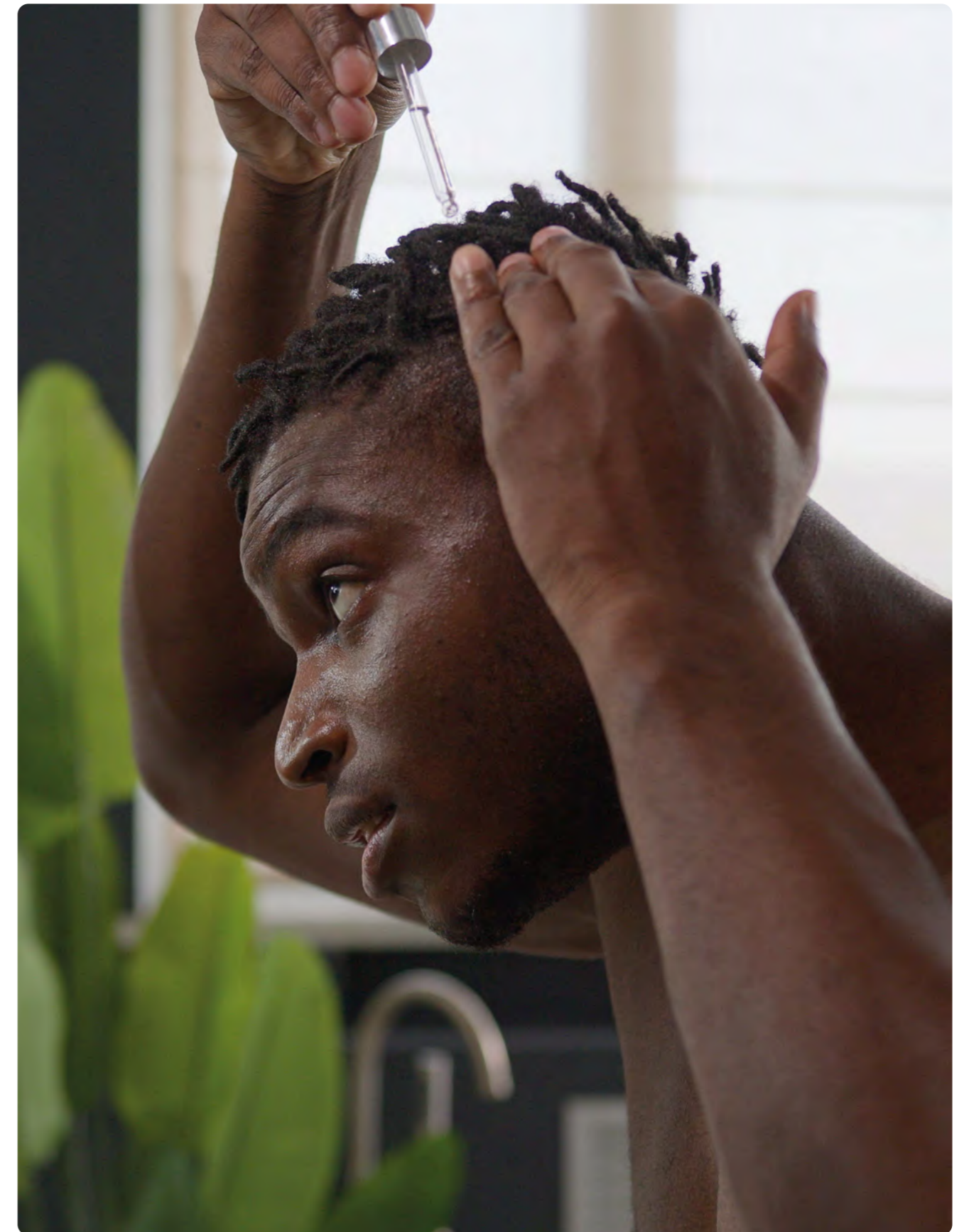
**Sustainable innovation across the product life cycle powers performance, compliance and impact reduction**

Sustainable innovation enables a fundamental rethink of product portfolios. By integrating advanced ecodesign across the full life cycle — from ingredients and formulation to packaging, use, and end-of-life — brands can improve environmental performance and achieve their scope 3 decarbonization targets, while strengthening competitiveness, compliance and long-term resilience.

In recent years, the focus has shifted from isolated improvements to systemic design. Life cycle assessments are now guiding priorities, helping brands

reduce impact at every stage. Ingredient traceability, sustainable chemistry and circular packaging have become key enablers of change — along with better engagement on how products are used and disposed of.

**Ecodesign and sustainable innovation are no longer a niche experiment or a compliance task. They are a strategic lever for resilience, differentiation and innovation — and the foundation for the next wave of transformation across the beauty industry. Anticipation of the mounting environmental constraints will be key to staying competitive.**



# Drivers of change for products

## 1. Advance alternative, low-impact ingredients

### 2020-2025: What shaped the agenda

- The EU Deforestation Regulation introduced stricter rules on deforestation-free sourcing.
- EU regulations on microplastics, PFAS and volatile silicones, as well as the Urban Wastewater Treatment Directive accelerated ingredient substitution through higher scrutiny on their biodegradability and ecotoxicity.
- Life cycle thinking replaced the “natural vs. synthetic” divide, supported by LCAs to assess trade-offs across carbon, water and land use.
- Innovation emerged around quick-rinse formulas, dose-controlled formats and low-temperature efficacy to cut use-phase impacts.

**Today**, life cycle thinking is embedded across the industry, supported by the latest industry methodologies (such as EcoBeautyScore) and predictive modeling tools. But gaps remain — from inconsistent data to slower progress on formulation. Biodegradability and use-phase impacts remain key areas for progress.

### What's next

The next wave of formulation innovation will be driven by science, data and design. Biodegradability and toxicity are set to become baseline requirements, especially for polymers and rinse-off products. This will push R&D teams to evaluate ingredient fate and environmental behavior early in the development process, supported by updated EcoBeautyScore methodologies and predictive modeling tools.

Digitalization will accelerate this shift. **Artificial intelligence is emerging as a key enabler, helping teams balance performance, cost and environmental impact while flagging compliance risks before they arise.** Its potential, however, depends on robust, reliable ingredient data — a growing competitive advantage for companies that invest in it.

At the same time, breakthroughs in biotechnology, fermentation and regenerative agriculture are expanding the palette of available materials. These advances are creating renewable

ingredients with smaller footprints and bringing new life to by-products once considered waste, closing loops between industries and accelerating

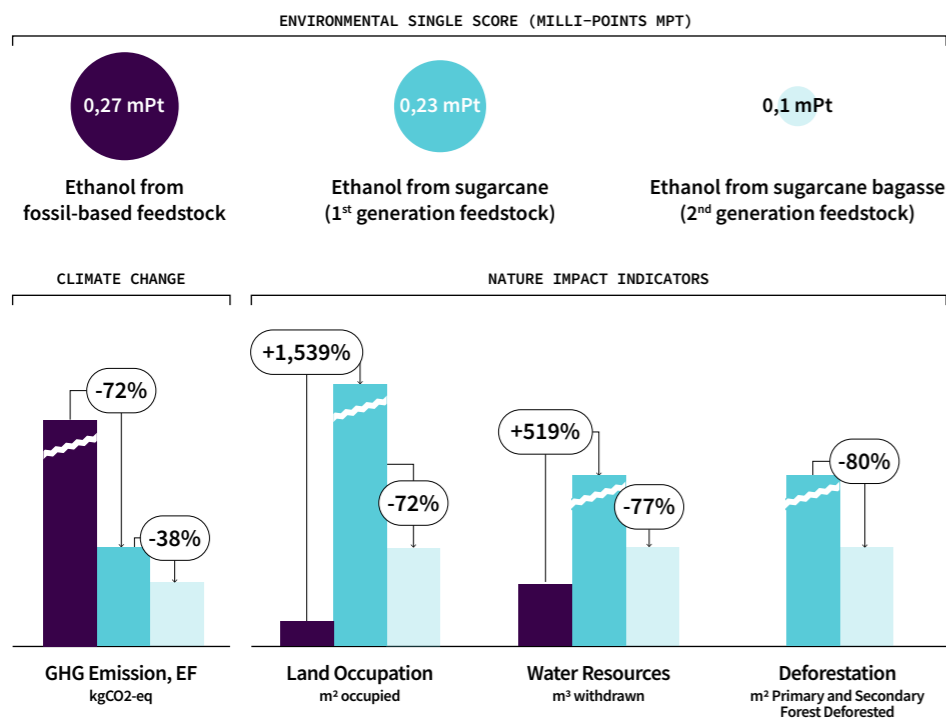
circular innovation. Recent data on next-generation feedstocks illustrates both the potential and the trade-offs of this shift toward low-impact materials.

## Assessing alternative ingredients: potential and trade-offs Fig.10

Feedstock	Process	Potential benefits	Challenges to monitor
Petro-based	Chemical <i>e.g. Synthetic menthol</i>	<ul style="list-style-type: none"> <li>• Established infrastructure and mature supply chains</li> <li>• Low production costs at large scale</li> <li>• No competition with food production</li> </ul>	<ul style="list-style-type: none"> <li>• High greenhouse gas emissions</li> <li>• Reliance on non-renewable resources</li> <li>• Increasing regulatory and reputational risks</li> </ul>
Bio-based	Physical (+ Chemical) <i>e.g. Natural menthol</i>	<ul style="list-style-type: none"> <li>• Renewable, bio-based carbon</li> <li>• Often biodegradable</li> <li>• Relatively simple extraction and processing (vs. biotech)</li> <li>• Well-established in cosmetics and personal care</li> </ul>	<ul style="list-style-type: none"> <li>• Potentially high GHG emissions and nature impact depending on agricultural practices</li> <li>• Land-use pressures, including deforestation</li> <li>• Limited molecular design flexibility</li> </ul>
	Biotech (+ Chemical) <i>e.g. Sugar-based squalane</i>	<ul style="list-style-type: none"> <li>• Renewable feedstock base</li> <li>• Potential GHG reductions compared to conventional routes, depending on energy mix and yields</li> <li>• Growing technological maturity for selected ingredients and regions</li> </ul>	<ul style="list-style-type: none"> <li>• Land-use change and biodiversity risks</li> <li>• Energy-intensive fermentation and downstream processing</li> <li>• Competition with food and feed</li> </ul>
By-product (bio-based or carbon capture)	Physical (+ Chemical) <i>e.g. Upcycled fatty derivatives</i>	<ul style="list-style-type: none"> <li>• Reduced environmental impacts compared to virgin feedstocks</li> <li>• Reduced waste generation and disposal-related emissions</li> <li>• Supports circular economy models</li> </ul>	<ul style="list-style-type: none"> <li>• Limited and variable availability at scale</li> <li>• Variability in quality and performance</li> <li>• Traceability, contamination and regulatory constraints</li> </ul>
	Biotech (+ Chemical) <i>e.g. Lignin-based vanillin</i>	<ul style="list-style-type: none"> <li>• Significantly reduced environmental impacts through waste valorization</li> <li>• Potentially much lower GHG emissions than fossil or crop-based routes</li> <li>• Reduced pressure on land use and biodiversity</li> <li>• Strong circularity and innovation potential</li> </ul>	<ul style="list-style-type: none"> <li>• Lower technological maturity and scale-up challenges</li> <li>• Fragmented and less reliable feedstock supply</li> <li>• Energy-intensive processes in early development stages</li> <li>• Limited industrial-scale biorefinery capacity today</li> </ul>

Comparing ingredient origins: Each generation of feedstock brings distinct benefits and trade-offs. Second-generation and upcycled sources show the strongest potential for innovation and impact reduction. Across all options, environmental performance is highly context-dependent and driven by land use, energy intensity, scale, and supply chain maturity rather than by feedstock origin alone.

## Impact of using 2<sup>nd</sup> generation bio-based ethanol (cradle-to-gate) Fig.11



Next-generation bio-based feedstocks can cut total environmental impacts by more than half compared to 1<sup>st</sup> generation, reinforcing the need for life cycle data to guide material portfolio choices.

Source: Estimation modeled by Quantis using ethanol as commodity

This example highlights how science-based assessment can steer innovation toward genuinely lower-impact solutions — ensuring that ingredient choices reduce overall footprint, not just shift it elsewhere.

As these systems evolve, transparency will become both an outcome and an enabler. Digital product passports and

blockchain-based traceability tools are beginning to replace static certification models, linking ingredient data directly to corporate climate and nature targets.

**What started as compliance is rapidly transforming into strategy — a way for brands to turn visibility into credibility and data into trust.**

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dsm-firmenich ●●●

*In the past few years, we've seen the Perfumery and Beauty industry advance from ambition to accountability. Sustainability is no longer a side conversation — it's becoming a performance criterion. Progress in the adoption of sustainable solutions varies according to the clients. The step change happens when sustainability metrics sit alongside price, quality, and lead time in selection decisions. That's when it truly drives transformation across the value chain.*

*As an ingredient and fragrance supplier, our role is to make that integration possible. We're working end to end, from our suppliers to our clients to build consistent, data-based systems where sustainability performance can be measured, shared, integrated into design, and rewarded as a competitive advantage. From harmonizing emission factors to participating in cross-industry coalitions, the goal is to make credible impact measurable — and scalable.*

*No single company can do this alone. What needs to emerge now is a collective movement, where collaboration, transparency, and digital tools allow everyone — from suppliers to brands — to make better, more informed decisions for people, nature, and the climate on a level playing field.”*



Michal Benmayor — VP Innovation & Sustainability, Perfumery & Beauty, DSM-firmenich



Thomas Andro — VP Responsible Sourcing, DSM-firmenich

FOCUS

## ESPR: A new baseline for sustainable product performance

The Ecodesign for Sustainable Products Regulation (ESPR) is one of the EU Green Deal's most far-reaching levers to transform how products are designed, produced, and brought to market. Adopted in 2025, ESPR sets a horizontal legal framework that applies across all EU member states and impacts any product sold in the EU, including imports.



The ESPR aims to improve the environmental performance of products across their full life cycle. It introduces requirements for product circularity, covering durability, repairability, recyclability and refillability, as well as resource and energy efficiency — pushing manufacturers to reduce energy, water and material use in both production and use.

One of ESPR's most transformative features is the Digital Product Passport, a scannable identifier that will provide detailed, standardized sustainability and compliance data across the value chain. This shift toward radical transparency supports both consumer trust and regulatory accountability, while reinforcing the need for robust, auditable product data from design through to disposal.

Although cosmetics do not yet fall under a delegated act, the implications for the sector are already clear. ESPR overlaps with related regulations such as [Packaging and Packaging Waste Regulation \(PPWR\)](#) and the [Green Claims Directive](#), which demand similar levels of data readiness and environmental performance. Additionally, aluminium — a material commonly used in packaging — has been identified as a priority under ESPR. A delegated act targeting aluminium is expected between 2025 and 2027, with likely requirements around recycled content, material traceability, and digital tracking.

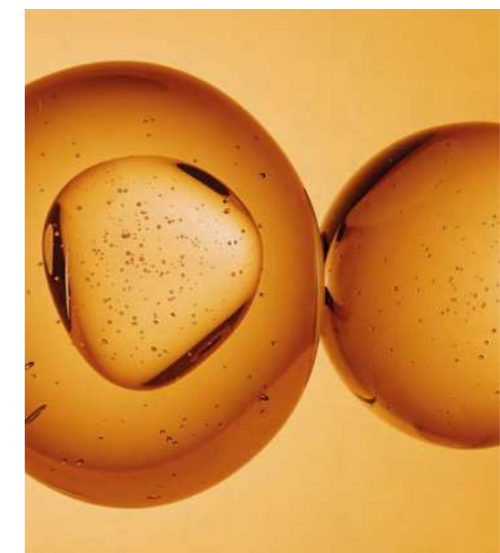
In short, ESPR signals a new regulatory direction: one where sustainable product design, credible data, and life cycle accountability are no longer differentiators, but prerequisites.

## 2. Build in end-of-life considerations for ingredients

### 2020-2025: What shaped the agenda

- For years, the end-of-life phase of ingredients in cosmetics went largely unmeasured, with few harmonized tools to assess downstream impacts.
- While the EU Product Environmental Footprint (PEF) method included a recommended freshwater ecotoxicity indicator, it often faced applicability challenges in the cosmetics sector.
- Brands often relied on simplified, risk-based approaches such as dilution volume, leaving the real environmental impact of cosmetic residues poorly understood.
- The recast EU Urban Wastewater Treatment Directive shifted this dynamic by introducing Extended Producer Responsibility (EPR) for micropollutants — making downstream performance a core design consideration rather than an afterthought.

**Today**, ingredient end-of-life has become a key priority in formulation design. Brands are now screening for persistent ingredients and aligning with



micropollutant EPR requirements. The EcoBeautyScore's industry and PEF-inspired methodology — which includes the freshwater ecotoxicity indicator — has confirmed that ingredient residues can represent a material, previously overlooked hotspot in product life cycles.

Life cycle data reveals just how significant these downstream impacts can be — particularly for formula ingredients in both leave-on and rinse-off products.

**What's next**

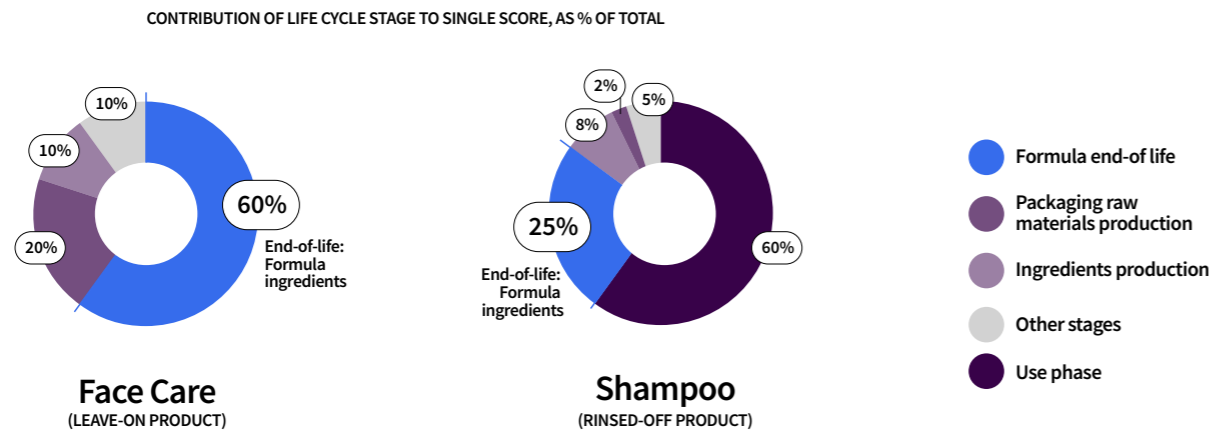
The coming years will require a more systematic approach to managing downstream impacts. Compliance with micropollutant EPR will push companies to identify and phase out ingredients that are persistent, bioaccumulative and toxic (or equivalent level of concern). Biodegradability and ecotoxicity will need to be embedded into formulation briefs from the outset, especially for high-volume and rinse-off products.

Advances in artificial intelligence and molecular modeling will make large-

scale ingredient assessments more feasible. These tools will help predict environmental behavior, pinpoint risks and guide reformulation long before new regulations take effect.

**For early movers, this shift offers both operational and reputational advantages.** Integrating end-of-life performance into product design will reduce compliance costs, strengthen transparency and build consumer trust — positioning responsible ingredient management as a new marker of innovation and credibility.

**How cosmetics products' end-of-life drives their overall environmental impact** Fig.12



Across cosmetics categories, the end-of-life of formula ingredients is a major driver of overall environmental impact, reaching up to 60% in leave-on products and in rinse-off formats (average based on 100 products). As a result, environmental performance increasingly depends on what happens after use, making ingredient selection, biodegradability, and fate in wastewater systems critical design levers.

Source: Quantis expertise based on 2025 data and on the EBS methodology for End-of-Life impact assessment, average based on 100 products.





### 3. Packaging: Design beyond compliance

**2020-2025: What shaped the agenda**

- Regulation has been the new catalyst completely reshaping the agenda. The EU Packaging and Packaging Waste Regulation (PPWR) recently established binding targets for recyclability and reuse — while for now cosmetics is excluded from reuse targets — influencing global policy.
- Other regions, including the US, Canada, India and China, have followed suit, with state-level Extended Producer Responsibility (EPR) laws in the US accelerating accountability.

- Packaging ecodesign has moved from concept to common practice. Frameworks such as SPICE guidebooks, and Design-for-Recycling (DfR) became standard tools, guiding brands toward metrics-based sustainability.
- The early ecodesign focus on *Reduce* — through lightweighting and inclusion of Post-Consumer Recycled (PCR) materials — has expanded to *Reuse*, sparking business model innovation and portfolio redesign, though consumer uptake remains gradual.

**Today**, PPWR sits at the center of packaging strategy. By the end of 2025, Design-for-Recycling standards will be mandatory, and by 2030, only packaging that meets EU criteria will remain on the market. Verified recyclability is becoming a legal prerequisite, while Reduction requirements — including PCR content of up to 30% for some categories<sup>(10)</sup> — are raising expectations and tightening timelines across the value chain.

**What's next**

The next phase will mark a decisive shift from adaptation to acceleration. Recyclability is no longer a differentiator but a license to operate, driving innovation toward mono-material designs, sort-friendly designs and components and higher verified PCR content. Integration of Digital Product Passports (DPPs) and EcoBeautyScore

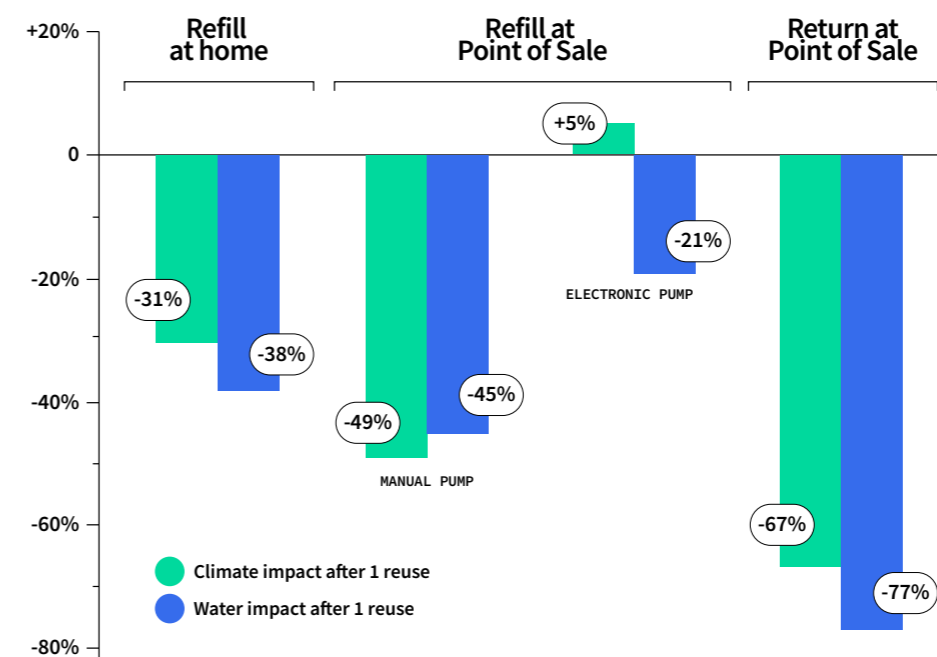
(EBS) information will make compliance more transparent and measurable, linking packaging performance directly to corporate reporting and consumer communication.

Refillable systems will need to move beyond pilot initiatives to become mainstream business models. Regulatory frameworks such as the EU PPWR, the Chinese excessive packaging regulation, and California's SB 54 are key signals accelerating the shift from linear to circular packaging systems. While cosmetics are currently out of scope of PPWR refill targets, regulatory trajectories suggest that additional product categories could be considered in future revisions.

Beyond regulation, refill models are a strategic lever for cosmetics companies to support packaging-related net-zero

### How to reduce the environmental impact of reusable packaging

Fig.13



Climate and water impacts vary by model. Refill-at-home and in-store systems can cut emissions and water use after just one reuse, while return-at-point-of-sale formats achieve the greatest reductions when paired with efficient logistics and cleaning.

- Key levers to unlock the potential of reuse solutions:**
- Design lighter, more durable packaging
  - Optimize reverse logistics
  - Extend reuse cycles (three to five)
  - Invest in low-energy dispensing systems and consumer education

Source: SPICE Reuse Guidelines (January 2025)

ambitions and virgin material reduction targets, where these exist, by reducing material use and associated life cycle emissions when deployed at scale. At the global level, momentum is already emerging: around 20% of global plastic packaging production is covered by commitments to adopt circular economy approaches, including reuse and reuse-oriented systems, under the New Plastics Economy Global Commitment led by UNEP and the Ellen MacArthur Foundation.<sup>(11)</sup>

Achieving scale will depend on dedicated infrastructure — including reverse logistics, cleaning and refilling systems — as well as strong consumer engagement and retailer collaboration.

**Consistent standards and cross-industry coordination will be critical to simplify operations, align incentives and build trust in reuse models.**

FOCUS

## Extended Producer Responsibility (EPR)

**Extended Producer Responsibility (EPR)** is redefining packaging accountability, shifting waste management costs from municipalities to producers. Companies must now join Producer Responsibility Organizations (PROs) and pay eco-modulated fees based on material, recyclability and recycled content.

In Europe, the Packaging and Packaging Waste Regulation (PPWR) will harmonize these rules. In the US, seven states — including California, Oregon and Colorado — have adopted EPR laws with the same intent but differing scope and timelines. Some are piloting eco-modulated fees, using LCAs or equivalent data to reward better design and lower impact.

Despite regional differences, both frameworks signal a common shift: mandatory accountability and higher cost exposure for brands that fall short on design or recyclability.

EPR mechanisms coupled with PPWR and the future ESPR represent a fundamental shift in how packaging is designed, measured and managed — making performance and transparency essential for market access. To prepare, companies should:

- Centralize packaging data to meet disclosure and reporting requirements.
- Eliminate hard-to-recycle formats and integrate recyclability into design pipelines.
- Leverage LCAs to anticipate fees and substantiate sustainability claims.
- Engage suppliers to verify PCR content and ensure data readiness for reporting.



FOCUS

## SPICE: A long-standing industry coalition accelerating sustainable packaging.

Founded in 2018 by **L'Oréal** and **Quantis** and now gathering over 30 organizations, the **Sustainable Packaging Initiative for Cosmetics (SPICE)** is a leading industry coalition shaping the future of sustainable cosmetic packaging. It provides the consistent, science-based foundation the sector needs to address shared challenges — from harmonizing environmental data to setting enablers for designing packaging aligned with real-world circularity and regulatory expectations. SPICE brings together brands, suppliers and experts to co-develop credible, comparable operational methodologies and relevant insights. Its guidance on recyclability and reuse clarifies what works at scale and how companies can design packaging that meets emerging requirements such as the EU PPWR or US new policies. The SHARP Taskforce

addresses one of the industry's most pressing needs: aligned Product Carbon Footprint (PCF) data across the value chain, supported by a harmonized, packaging-specific protocol.

As sustainable packaging expectations grow, SPICE is expanding its scope to provide an even more integrated view of packaging performance. Its workstreams — from reconciling circularity and environmental impact to integrating biodiversity into materials strategies and deploying the SPICE Tool within companies — connect design, data and science in one coherent system.

After seven years of collaboration, SPICE has become a core enabler of cosmetics industry alignment. SPICE collaborates closely with the EcoBeautyScore and looking ahead, SPICE intends to deepen its engagement across the broader packaging value chain — working with recyclers, material innovators and system actors — to accelerate progress toward truly circular and more sustainable packaging.

CASE  
STUDY

## Kenvue: Embedding ecodesign at the core of product Innovation



Over the past few years, **Kenvue** has placed ecodesign at the heart of its product development strategy, recognizing its potential to drive both environmental and business resilience. A key milestone on their journey to date was the launch of the Sustainable Innovation Profiler in 2025 — an integrated digital platform that combines life cycle assessment with practical design intelligence. As **Oliver Price, Global Head of Product Resiliency & Sustainability, R&D**, explains, the Profiler was initially conceived as a measurement tool but has since evolved into a collaborative design environment where packaging and formulation engineers can prototype multiple product variations and instantly visualize the environmental and regulatory implications of their choices.

This new process is already reshaping Kenvue’s innovation pipeline, strengthening product portfolio resilience and reducing risk exposure. By integrating parameters such as packaging circulatory measures (e.g. recyclability) and green chemistry indicators (e.g. biodegradability), teams can anticipate future market and compliance shifts — steering innovation toward solutions that

remain competitive, compliant, and future-ready. A growing market pull reinforces this approach, as retailers increasingly favor products with stronger sustainability credentials — and potentially help drive positive sales momentum for Kenvue’s brands.

The success of such a transformation lies in robust governance, cross-functional collaboration, and significant investment in digital capabilities to ensure an intuitive user experience. Ecodesign principles have been embedded into Kenvue’s core product development process, supported by mandatory e-learning and dedicated expert teams spanning packaging, raw materials, and data governance.

Looking ahead, Kenvue aims to extend the Sustainable Innovation Profiler to support a broader range of sustainability claims and integrate avoided costs such as Extended Producer Responsibility (EPR) fees into its analytics — making return on investment from sustainable innovation systematically measurable.



**Oliver Price — Global Head of Product Resiliency & Sustainability, R&D, Kenvue**

## 4. Optimize the use phase to minimize water dependency

### 2020-2025: What shaped the agenda

- Brands began designing for dose control, quick-rinse and cold-water efficacy, but progress was gradual.
- Reducing use-phase impacts proved difficult since they occur beyond company operations and depend on consumer habits and technologies still in development.
- Meanwhile, the global water crisis has intensified. Droughts are more frequent and severe, now affecting regions such as Germany, northern France, the UK and Scotland. According to the IPCC (2023), nearly four billion people — almost half the global population — face severe water scarcity for part of the year, putting new pressure on an industry reliant on water across its value chain.

**Today**, water scarcity is beginning to reshape consumer expectations. In high-stress regions, households are prioritizing essential uses and seeking products that perform with less water. CDP data shows most major beauty brands plan to expand their low-water or “out-of-shower” portfolios within two years. Formats such as bars, powders and concentrates are gaining traction, particularly in hair care, as companies work to reduce water dependency during use.

### What’s next

**The next frontier for water reduction lies in product design.** Fixed-dose pumps, foaming actuators and quick-rinse polymers will help cut water use per application without compromising performance. Scaling these technologies across categories will make efficiency an inherent feature of product function.

Regionalization will also play a key role. Rinse-free and out-of-shower formats tailored to water-stressed markets can lower dependency while meeting local needs. This will require agile production and design processes that respond to both climate realities and consumer behavior.

Finally, consumer engagement will be crucial.

**Brands can pair innovation with education to promote mindful use — demonstrating how small shifts in routine can make a measurable difference.**

Over time, water efficiency will evolve into a standard performance metric, integrated into product development and impact reporting.



## 5. Reinvent the shopper interface

### 2020-2025: What shaped the agenda

- Retail spaces began evolving into platforms for sustainability, where in-store design and materials support environmental goals.
- Point-of-sale materials (POSM) adopted ecodesign principles to cut waste and use more recycled and responsibly sourced content.
- Retailers such as Sephora and LUSH proved that sustainability and visual impact can coexist through creative, low-impact design.
- Early refill and return pilots tested new business models, revealing challenges around hygiene, logistics and consumer participation.

**Today**, sustainability is becoming embedded in the shopping experience. The EcoBeautyScore (EBS) now appears in online filters and will soon surface on packaging and in stores, giving shoppers clearer, more transparent data to guide choices. Retailers are also developing their own sustainability labels — including Sephora's Planet Aware, ULTA's Conscious Beauty program and Amazon's Climate Pledge Friendly filter — making



environmental performance a visible part of product discovery.

The shift extends beyond labeling. POS materials are increasingly designed using the same sustainability criteria applied upstream in product development. Leading retailers are piloting refill fountains, modular and reusable displays, and using LCAs to identify and phase out high-impact materials.

**Together, these efforts are reshaping the shopping experience, making sustainability a practical, everyday decision point for consumers.**

**What's next**

The next chapter in retail design will merge circularity with customer engagement. Standardized POS formats will enable reuse across campaigns and store networks, reducing waste and lowering costs. Serialized tracking will enhance traceability, allowing retailers to manage reuse cycles, quality control and logistics more efficiently.

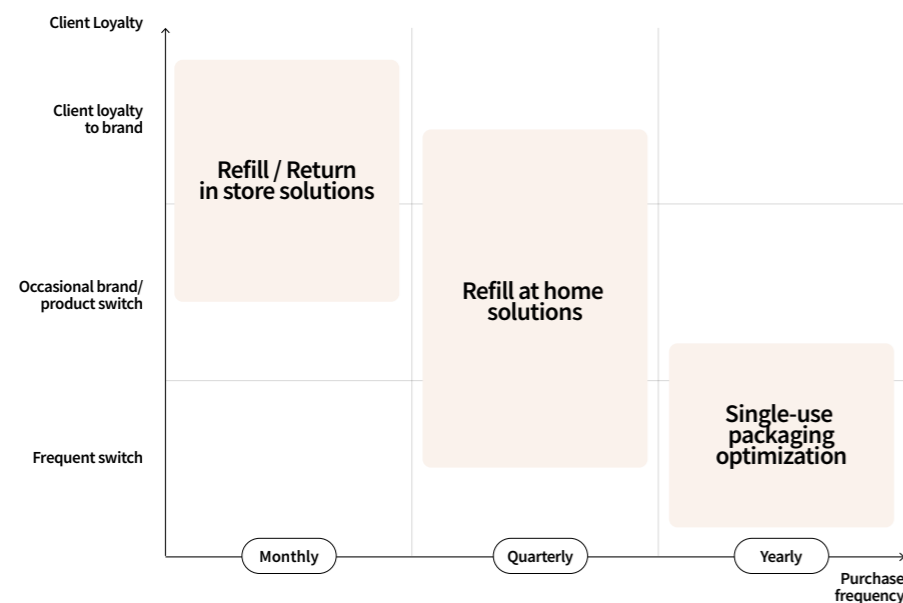
We are also seeing the early stages of retailers shaping assortments based on sustainability criteria. Labels and filters are only the first step; the next — already underway — is narrowing the selection funnel using quantified metrics. Industry scores such as EBS and Product Carbon Footprints (PCFs) will

increasingly determine which products are referenced, listed or promoted to consumers.

Retail environments will take on a new role as circular engagement hubs — spaces that actively educate consumers on sustainability, refill models and product impact. Refill bays, modular fixtures and reusable display systems will replace single-use setups, making circularity tangible at the shelf.

**Ultimately, the store will become a live interface for sustainable behavior, linking product transparency, brand accountability and consumer participation in one connected experience.**

**Tailor sustainability solutions to client's habits and products** Fig.14



Selecting the right consumer reuse model depends on purchase frequency and client loyalty. For low-frequency or low-loyalty products, single-use optimization remains most effective. For products bought several times a year, refill-at-home formats offer strong potential, while frequently purchased items are best suited to in-store refill or return models. These choices determine how brands, retailers and logistics partners can jointly reduce distribution impacts.

CASE STUDY

**Sephora: Retail as the next driver of systemic change**

SEPHORA

As a beauty retailer, **Sephora** sees its role as a catalyst. Rather than waiting for consumers or brands to be ready, Sephora pushes progress from both sides — helping customers identify more responsible options in-store, and supporting brands in upgrading their products through initiatives such as *Planet Aware at Sephora* or *Together for Tomorrow*. This TFT program shares best practices, sets clear expectations, and elevates standards across packaging, ingredients, and transparency.

and plastic by almost 60% compared to two 50 ml bottles. Yet, adoption depends on more than environmental footprint reduction: consumers need intuitive, seamless experiences to make refill a new habit.

Sephora expects its brand partners to continue developing products that meet higher sustainability criteria, innovating on packaging reduction, responsible sourcing, and transparent communication, and to engage proactively in co-creating solutions. Collaboration is essential to scale impact.

To accelerate change, Sephora has defined 10 operational sustainability goals for 2026-2030 and is already deploying concrete initiatives: over 50% of stores now host collectors for empty products; more than 40 brands meet the 35+ criteria of the Planet Aware program; and teams are trained as sustainability changemakers through a dedicated workshop. A circular program transforming in-store POS materials into gift boxes has already produced over one million units in France, illustrating how sustainability can unlock both innovation and business value.

Sephora ultimately aims to continually help consumers purchasing more responsible products and influence their behavior through engaging in-store experiences.

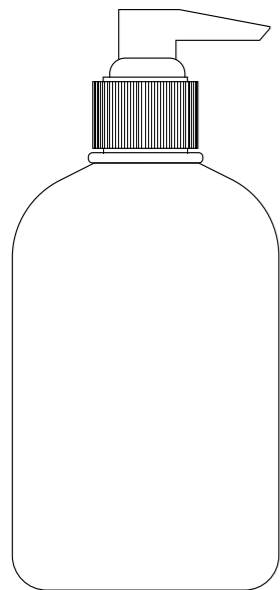
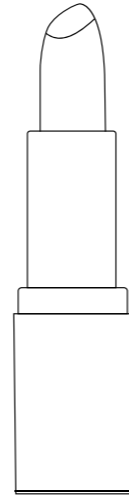
*“Our role is to empower consumers, support brands in their transition, and coordinate these efforts. We are the right interface to embed sustainability more seamlessly across the experience.”*



**Matthieu Riché —  
Global Vice President of  
Sustainability at Sephora**

Refill is emerging as one of the strongest levers to cut environmental impact, and Sephora is prioritizing it as a transformational solution. First acting as brand: for example The Lift & Firm Sephora Collection refill uses 76% less plastic. A 100 ml fragrance refill reduces glass

# Strategic checklist for beauty leaders



**The beauty industry has reached a turning point: progress now depends on translating strategy into execution.**

The following checklist brings together the key priorities highlighted throughout the Second Edition of *Make Up the Future* — guiding leaders on where to focus first to accelerate impact, strengthen resilience, and turn sustainability ambition into measurable business results.

## (01) Industry

- Strengthen pre-competitive collaboration:** Invest in shared initiatives like TRASCE and EBS to close data gaps and align sustainability metrics.
- Link sustainability to resilience:** Position sustainability as a core lever for managing risk, stabilizing costs, and driving growth.
- Harness AI with purpose:** Apply AI to accelerate ingredient innovation, traceability, and emissions modeling — while monitoring its own footprint and value-added impact.

## (02) Corporate

- Embed sustainability across the organization:** Decentralize ownership by aligning all functions around shared environmental targets.
- Mobilize decision-makers:** Equip finance, commercial and leadership teams to integrate sustainability indicators into business strategy.
- Prioritize scope 3 action:** Embed supplier impact data and decarbonization plans into procurement decisions.
- Elevate supplier engagement:** Move from questionnaires to co-investment, training, and innovation partnerships that deliver measurable results.
- Build a resilience strategy with nature at the core:** Map dependencies and risks to develop targeted nature strategies aligned with climate goals.
- Digitalize for scale and accuracy:** Implement integrated AI-enabled platforms for data collection, scenario modeling, and disclosure readiness.
- Activate downstream partnerships:** Work with retailers, professionals and consumers to reduce use-phase impacts through training, campaigns, and new usage models.
- Scale up and embed ecodesign across the entire company:** involving sustainability, product development, marketing and procurement.

## (03) Product

- Design low-impact formulas upstream:** Embed biodegradability and water ecotoxicity into ingredient selection and formulation architecture; prioritize low-impact ingredients guided by robust impact data, particularly leveraging biotech, next-generation feedstocks and upcycled ingredients.
- Future-proof packaging through circular design:** Optimize packaging by integrating design-for-recycling compliance, environmental impact, circularity performance and EPR fees into packaging decisions.
- Strengthen informed product design decisions:** Deploy AI-enabled LCAs and improved data access to guide optimization across the product design funnel, aligning performance, safety, compliance, cost and environmental impact.
- Innovate for water-smart use:** Develop low-water and out-of-shower formats grounded in evolving consumer routines, particularly in geographies increasingly exposed to water scarcity.
- Rethink the shopper experience in collaboration with retailers:** Optimize retail and point-of-sale materials to reduce waste and enable modular reuse. Embed sustainability seamlessly into compelling product narratives. Make refill intuitive and attractive, and scale beyond pilots through strong retailer and consumer collaboration.

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