A Project Report

On

Supply Chain Sustainability Performance: A Critical Evaluation of Unilever

Submitted to

University of Liverpool

EBUS636 Sustainable Supply Chain Management

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ABSTRACT

Unilever, with over 400 brands covering more than 3.4 billion consumers in approximately 190 countries, has one of the most complicated worldwide supply chains. That volume requires both significant influence and responsibility. Latest figures reveal 4.4% underlying growth in sales, supported by increasing dedication to sustainability, ethically-sourced goods, and resilient supply chains (Unilever, 2025).

This report explores the way Unilever turns ambition into action. It reflects on successes, failures, and progress. In a world where sustainability is no longer optional, Unilever's story takes us behind the scenes of what it actually takes to build a responsible global supply chain.

Sustainability at Unilever: From Vision to Impact

In a world where brands are built as much on purpose as on products, sustainability has become the new frontier of corporate identity. But is it a genuine commitment or a well-made story? This defines Unilever's journey towards sustainability. Unilever's approach follows Elkington's Triple Bottom Line (TBL) framework, which argues that businesses must focus on social, environmental, and economic goals together, not separately (Elkington, 1998).

In the past, Unilever began focusing on sustainability long before its 2010 Sustainable Living Plan (USLP). During the 1990s, it launched the Sustainable Agriculture Program and Brand Imprint tool to measure environmental and social footprints across product life cycles (Dhawan et al., 2010).In 2009, then-CEO Paul Polman set out a bold vision: to double the company's size while halving its environmental footprint (Dhawan et al., 2010).The USLP built on this , aiming to grow without increasing harm to the environment, while also improving people's lives (Unilever, 2010).

interesting, expand further

This approach fits with Hart's Natural Resource-Based View (NRBV), suggesting that companies can build competitive advantage by preventing pollution, taking product responsibility , and involving stakeholders (Hart, 1995). Currently, Unilever uses this by promising to use renewable energy, ethical buying, and water conservation- embedding sustainability centrally (Unilever, 2010).

Yet big goals show hard realities Unilever operates in over 190 countries and depends on high-risk inputs like palm oil and plastic, making its supply chain environmentally weak. Greenpeace (2021) reports that Unilever continues to produce billions of non-recyclable plastic sachets annually, despite promises, leading to concerns about greenwashing. Unilever's biggest environmental impacts are in areas it controls the least, such as agricultural sourcing and post-consumer waste (Dhawan et al., 2010). The Kraljic Matrix (Kraljic, 1983) highlights why critical materials require not just management but strong, honest supplier partnerships .

Still, Unilever has made great progress on its sustainability goals. Early initiatives such as Brand Imprint produced notable results: 100% renewable energy in operations by 2020 (Unilever, 2022a), 67% sustainable agriculture sourcing (Unilever, 2020), and an 82% reduction in energy emissions per ton since 2008 (Unilever, 2023a). Looking ahead, Unilever promises net-zero emissions by 2039 and living salaries across its supply chain by 2030 using its Compass Strategy (Wang et al., 2021). Yet ambition alone does not ensure results . As Hu and Zeng (2024) highlight, Unilever's real problem is executing its vision - even when suppliers ignore regulations, rules are confusing, and the company is struggling.

2. Sustainable Supply Chain Integration at Unilever

2.1 Building Supply Chain Resilience

A 2018 Brazilian truckers' strike delayed supplies and impacted Unilever's operations (Casey, 2018). Two years later, Unilever stopped buying Indonesian palm oil due to deforestation (edie newsroom, 2020). These were wake-up calls that changed how Unilever developed supply chain resilience, especially for suppliers and logistical partners.

Following the Triple Bottom Line (Elkington, 1998), Unilever realized that it could make money, treat people fairly, and build the economy by caring for the environment. Key stakeholders, such as former CEO Paul Polman, played an important role in shifting the business model to prioritize sustainability (Bartlett, 2015). Its hybrid supply chain structure, centralized for consistency yet locally adaptive ,reflects this philosophy (Hu and Zeng, 2023).

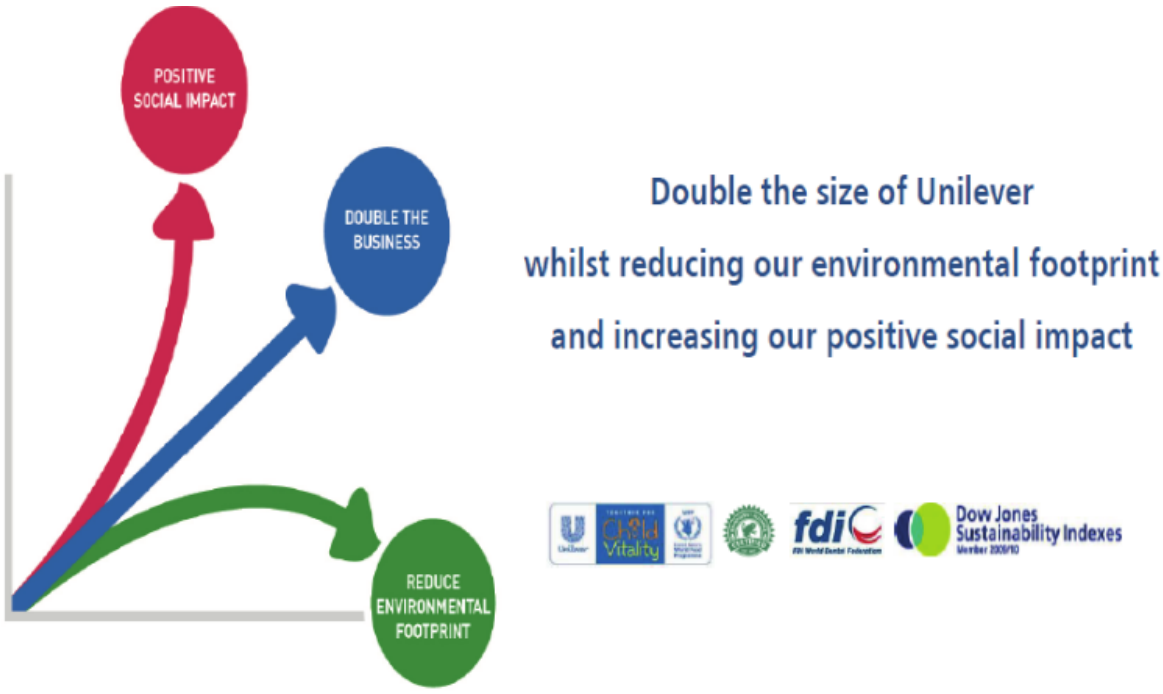

Figure 1: Unilever's digital strategy for growth
Source : Bechet et al., 2014

Economic sustainability for Unilever, started with suppliers and smallholder farmers. By using IoT for inventory, blockchain for sourcing, and AI for tracking emissions (Kaushik and Choudhary, 2024), it has reduced energy use by 28% since 2008 and switched to 100% renewable grid electricity *(*Unilever, 2019).

Environmentally, Unilever is working to reduce its logistics emissions by using electric trucks, hybrid vehicles, and bicycles for last-mile deliveries(Kaushik and Choudhary, 2024). The Supplier Climate Program helps suppliers reduce Scope 3 emissions, which make up more than 60% of its footprint (Unilever, 2024a). Greenpeace (2021) points out that depending on technical solutions like recycling won't solve the bigger problems related to governance and complexity. NGOs and groups like Greenpeace act as external stakeholders, scrutinizing Unilever's plastic commitments, pushing for more openness and accountability. (Greenpeace, 2021).

Socially, Unilever's Responsible Sourcing Policy demands fair wages, human rights, and sustainability (Unilever, 2020a). Skills development initiatives have empowered approximately 2.34 million women in the workforce, a crucial internal stakeholder group,51% of whom hold executive positions (Hu and Zeng, 2024). Hu and Zeng (2024) points out that smaller suppliers often lack the resources to meet Unilever's strict standards, exposing ongoing power imbalances.

2.2 Embedding Sustainability into Corporate Strategy

When Paul Polman became CEO in 2009, he changed Unilever's mission: society first, shareholder value second. He froze executive salaries, cut travel costs, and restructured leadership (Bartlett, 2015).

In 2010, Unilever launched the Sustainable Living Plan (USLP) with more than 50 goals. They reduced waste by 32% by 2020, reached 1 billion people via hygiene initiatives, and sustainably procured 62% of their agricultural commodities. The rise in greenhouse gas emissions per customer (+4% since 2010) did, however, highlight certain discrepancies in how things are being done (Bartlett, 2015).

Figure 2: Unilever Compass Strategy
Source: Unilever, 2021a.

Learning from these gaps, Unilever launched the Compass Strategy in 2021, to achieve net-zero emissions across its value chain by 2039 (Wang et al., 2021). The Climate Transition Action Plan (CTAP) set clear targets : 100% Scope 1 and 2 emissions cuts, and a 42% Scope 3 reduction by 2030 (Unilever, 2024a).However, scaling back its virgin plastic reduction goal in 2023 raised doubts about delivery capacity (Unilever, 2024b; Planet Tracker, 2024). Still, Unilever's willingness to adjust, rather than drop targets, shows a mature take to sustainability.

2.3 Sustainability Across the Value Chain

Porter's Value Chain (1985) shows that true advantage comes from understanding all operation links. Unilever brings this to life by including sustainability into sourcing, production, and distribution (Unilever, 2020a).

Unilever's inbound logistics include tracing commodities like palm oil using blockchain and ethical procurement of raw materials (Unilever, 2024c). IoT and AI tools inventory and improve carbon tracking, reducing pre-production emissions (Kaushik and Choudhary, 2024).

By 2015, Unilever reached zero non-hazardous waste to landfill, therefore including sustainability into daily operations (Unilever, 2024d). All seven facilities in Turkey achieved zero waste status by 2013 and 2015 (Unilever, 2020b). Factories use real-time systems to track and cut greenhouse gas emissions, improving energy use (Unilever, 2023). To close the loop, Unilever also runs packaging return and recycling programs (Kaushik and Choudhary, 2024). Still, lacking infrastructure makes it challenging to scale waste systems.

Outbound logistics connects factories to customers (Porter, 1985). The Ultralogistik Control Tower uses electric trucks and real-time route planning to cut emissions (Brito, 2016).By sending products directly from factories to consumers, the new Direct Dispatch system eliminates warehouse emissions and delivery times (Unilever, 2024e). In Turkey, these initiatives reduced transport CO_2 by 4% (Unilever, 2020b). Progress stays uneven, nonetheless, without strong green infrastructure (Greenpeace, 2021).

good to show some company-based evidence

To differentiate as a brand, marketing and sales push sustainability. Dove's biodegradable packaging and refillable deodorants are now very common (Unilever, 2022). Unilever uses sustainability to grow brands like Dove, Knorr, and Magnum, which are expanding faster than the rest ,while adapting to diverse markets .As a key stakeholder group, consumers are central to this transition. Unilever now focuses more on digital marketing and online sales (Reza, 2020), but rural access and affordability remain challenges.

Figure 3: Unilever's AI-powered recycling machine in China
Source: Unilever, 2021b

After-sales service includes waste and recycling after product use. Unilever addresses this by developing a contemporary PCR facility in Turkey, AI plastic sorting in China, and refill stations in Indonesia, as well as introducing the world's first recyclable soup packaging(Unilever, 2020c; Unilever, 2020b; Unilever, 2021b).Low customer involvement, therefore, threatens to leave the circular economy cycle unfinished.

2.4 Strategic Sourcing for resilience

Unilever applies the Kraljic Matrix (1983) for sourcing to handle supplies by assessing risk and profit. Strategic items like Palm oil and soy are tracked using blockchain and satellites, achieving 97.5% deforestation-free certification by 2023 (Unilever, 2024c). Plastic packaging now uses

refillable models and biodegradable materials, leading to a 23% decrease in virgin plastic use from 2019 to 2023 (Unilever, 2024d).

Yet Bottleneck items such as mica and cocoa have weaknesses, making full transparency difficult (Hu and Zeng, 2024). The Kraljic framework highlights that even effective strategic sourcing can encounter hidden risks in weak supply chains, potentially harming long-term credibility.

To address geopolitical shifts like Brexit, Unilever developed more intimate relationships with international suppliers and regulatory counterparts through its "Partner to Win" strategy (Liu, 2023).It is centered on real-time monitoring, joint innovation, and trust between suppliers, shifting from short-term buying to long-term resilience (Liu, 2023).For this shift, it aims to emphasize Unilever's reliance on partnerships in managing unpredictable sustainability risks. For this shift, it aims to emphasize Unilever's reliance on partnerships in managing unpredictable sustainability risks.

3. Technology in Unilever’s Sustainable Supply Chain

can link to some theories

3.1 Drivers of Technological Adoption

A truck strike in Brazil. A deforestation scandal in Indonesia. A failed ERP implementation in Kenya. These incidents revealed a hidden issue: sustainability without vision is fantasy(Supply Chain Dive, 2018a; edie newsroom, 2020; Chepkoech and Noor, 2014). Blockchain was applied for proof. In 2022, Unilever traced 188,000 tons of palm oil via SAP’s GreenToken to verify deforestation-free sourcing (Unilever, 2022c). Tea chains in Kenya and Malawi followed, using blockchain to validate farmer identities and fight fraud (Supply Chain Dive, 2018b).

As ESG limits grew stricter, Unilever turned towards the assistance of AI to make predictions about demand and optimize logistics (Ameh, 2024). IoT sensors were installed in warehouses to track emissions in real time (Ameh, 2024).As mounting pressure from large retailers such as Walmart mounted, who needed real-time sustainability data from suppliers to meet Scope 3 transparency goals (Walmart, 2018),Unilever implemented cloud-based ESG reporting solutions (BI Group, 2023).Lacking verifiable data, Unilever risked losing retailer contracts, consumer

trust, and access to its key markets. In order to improve traceability, Unilever extended its blockchain platform from palm oil to high-risk materials like cocoa and mica (Unilever, 2022c; Unilever, 2022d; Unilever, 2023c).

3.2 Barriers Behind the Innovation

For Unilever, going digital brought real struggles .The first and most pressing? Digital inequality. With over 56,000 suppliers worldwide, many in regions like sub-Saharan Africa or rural Indonesia, Unilever found that some suppliers simply weren't online. Blockchain pilots in tea and palm oil sectors stalled because partners couldn't access or understand it (Gadhi, 2017; Dhawan et al., 2010).

Inside Unilever many departments were working in silos, using old systems that didn't talk to each other . In Kenya, an ERP system recently implemented to make things easier in the end backfired. Workers were not properly trained, the system was not tailored to local needs, and the migration felt imposed (Chepkoech and Noor, 2014).

Other than systems, there were also human barriers. Farmers resisted QR-coded crops and new sustainability standards where advantages weren't clearly spelled out (Almutairi, 2023).Some of the suppliers were uncertain about why things were shifting, especially when they did not observe performance being measured using sustainability metrics. Some of them were even hesitant to reveal too much information, especially in cases where trust with digital tools was low (Dhawan et al., 2010). Unilever, too, failed to consider at all times the different cultures and local requirements of local suppliers. In the end, technology alone wasn't enough. Success required communication, training, and inclusion(Almutairi, 2023; Dhawan et al., 2010).

3.3 Unilever's Technology-Driven Supply Chain

can specify the technology application

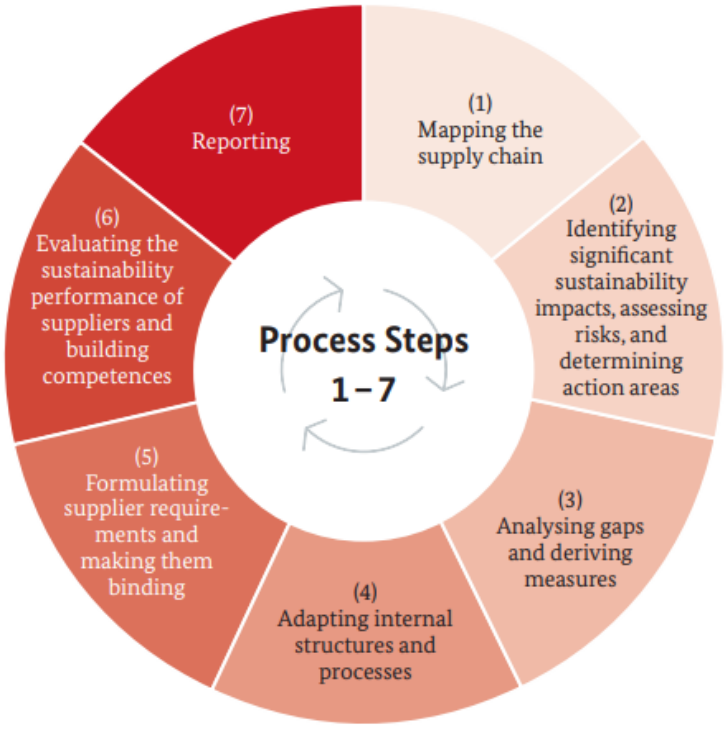

Figure 4: The 7-Step Process of Sustainable Supply Chain Management
Source: BMUV (2021, p. 18)

This analysis follows the 7-Step Sustainable Supply Chain Management (SSCM) framework, showing how Unilever embedded technology to turn ambitions into reality.

1. Mapping the Supply Chain

Palm oil also led to a rethinking of transparency. It closed down non-compliant suppliers and launched a public Grievance Tracker to bring to light sourcing breaches (Unilever, 2021c). SAP GreenToken blockchain tracked over 188,000 tons of palm oil to verified sources (Unilever, 2022c), and satellite monitoring covered over 20 million hectares of forest (Unilever, 2024c).

2. Identifying Sustainability Impacts, Risks, and Action Areas

Mapping showed environmental and social vulnerabilities. Geolocation of 36,000 smallholder farmers revealed weak digital literacy, infrastructure and connectivity (Unilever, 2024c). As

Gadhi (2017) found in Kenya's tea sector, even technology tools were failing when users lacked training and access.

Step 3: Analyzing Gaps and Deriving Measures

Unilever's ERP rollout in Kenya didn't succeed because of issues like inadequate infrastructure, limited skills, and a rigid system design (Gadhi, 2017). Unilever switched to modular cloud-based Business Reference Systems (BRS), reducing rollout times from years to just four months (Bechet et al., 2014).

Step 4: Adapting Internal Structures and Processes

Unilever aggregates 200 different ERP systems into four SAP HANA systems, handling over 4 billion transactions annually (Bechet et al., 2014).Mannheim uses digital twins to create virtual copies of packaging lines and aid in the design of Dove packaging made with 100% recyclable paper. This technology removes over 1,000 tons of plastic each year(Sustainability Magazine, 2023).

Step 5: Developing Supplier Requirements

With the help of. climate modeling, satellite images, and soil moisture technology in India and Spain, Unilever learned how mustard seed and tomato plants would respond to unfavorable weather. The Cool Farm Tool and SMAP satellite technology provided advance warning of drought and yield shift. This information guided Sustainable Agriculture Code(SAC) updates so that farmers would be required to utilize drought-resistant crop types and regenerative practices (Day, 2020). This made supplier policies proactive rather than reactive and allowed farmers to plan for forthcoming climate shocks rather than responding to them.

Step 6: Supplier Sustainability Evaluation and Capability Building

Unilever developed the Sustainability Stakeholder Rating Tool (SSRT) jointly with MIT to rate supply chains on financial and environmental risk dimensions (Dhawan et al., 2010). AI-enhanced ERP systems combined weather and sales data to improve cold-chain forecast accuracy

by 10% in Sweden (NuFFooDS Spectrum, 2025; Unilever, 2025b).Unilever also partnered with Nufarm in 2023 to pilot test energy cane, a semi-dry region biotech crop, to reduce consumption of fossil-sourced oils and improve its net-zero 2039 target (Unilever, 2024a; Unilever, 2024f).

Step 7: Reporting and Transparency

Grievance platforms, blockchain reporting, and SAP BPC scenario models , like predicting carbon tax impacts, made progress measurable (Bechet et al., 2014). In Liverpool's £68 million Materials Innovation Factory, robotic arms and simulation tools accelerated recyclable packaging development, reducing waste by 25% (Vogue Business, 2024; Unilever, 2024g).

But tools like SSRT and BPC only work if people can use them. Kenya's ERP failure proved that tech without training is just expensive confusion. Unilever's real challenge now? Making sure the smartest systems reach the people who need them most. Because the future of supply chains won't be built by software alone , it'll be built by people who know how to use it, trust it, and shape it for good.

4. Future Recommendations

Unilever's future won't be decided by another pledge or dashboard. It will be shaped when a tea farmer gets a text, when a deodorant bottle signals it's ready to return, and when a supplier is ranked not by price, but by how they protect the planet. This is the future Unilever must create.

Short Term:

In 2020, Unilever launched a promising traceability pilot in Southeast Asia. Blockchain worked. Satellite data was clear. The problem? Most smallholder farmers lacked smartphones and electricity (Gadhi, 2017). The digital supply chain collapsed under real-world inequality.

East Africa offers a lesson. Vodafone's mAgri program uses simple SMS to deliver weather alerts and market updates to over 1.3 million farmers, boosting yields by up to 30% (GSMA, 2015). No smartphones. Just basic phones. Unilever must build a similar SMS system for its smallholder suppliers, simple texts delivering standards, alerts, and guidance, with farmers reporting back harvests or disruptions.

Social success is empowering farmers who were once invisible. Environmental success is faster detection of sourcing risks. Economic success is lower compliance costs and fewer audit failures.

Medium Term:

Unilever has mastered forecasting demand , now, it must learn to forecast disasters. Bayer's Climate FieldView system uses AI and satellite data to predict droughts, temperature shifts and yield risks . This allows Bayer to adjust crop sourcing in real time (Bayer Crop Science UK, 2025). Unilever, operating across 190+ countries with over 1.5 million farmers, needs a similar tool. It could model climate shocks, shift contracts before harvest failures, and strengthen the most vulnerable supply nodes.

Socially, it protects livelihoods. Environmentally, it prevents over-extraction. Economically, it avoids billions in raw material loss during extreme weather events.

Long Term:

In the UK, Greyparrot, a leading AI waste analytics company, partnered with waste management giant Biffa to deploy computer vision in sorting facilities. This software scans conveyor belts in real-time to check what materials are present, how much contamination there is, and whether they can be recycled, all with great accuracy (Peiris, 2022). Brands can see what happens to packaging after it's thrown away, right away.

Unilever is aware of the amount of plastic it sells. But it doesn't really know how much of it is being recycled. By using this technology in partner plants, Unilever can create packaging based on actual evidence instead of assumptions.

Socially, it holds the company accountable to its plastic commitments. Environmentally, it enables true circularity. Economically, it transforms packaging waste into a real-time R&D feedback loop.

Unilever doesn't need more technology. It needs to connect what already exists. The problem isn't invention. It's execution. When technology helps people feel included, when data is used to make better decisions, and when sustainability is built into every step, that's real success.

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