

Unethical Procurement and Supply Chain Transparency

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Introduction

The globalised economy presents **unethical procurement together with limited supply chain transparency** as major obstacles which impair sustainable operations and logistics (Kshetri, 2021). Multiple supply chain levels with extensive networks are affected by hidden cases of forced labour and child exploitation and environmental damage beyond initial suppliers (LeBaron, 2021). The analysis evaluates corporate adaptation of ethical procurement strategies through analysis of green product development and responsible sourcing as well as sustainable transportation measures. An evaluation takes place demonstrating the relationship between the implemented strategies and SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Consumption and Production) which correspond to the UN's Blueprint for Business Leadership. The study examines the developing connections between ethics sustainability and supply chain resilience by using real-life examples and theoretical foundations.

Section A: Unethical Procurement and Supply Chain Transparency

Issue Identified

The widespread global supply chain networks across continents create low-cost production opportunities while concealing fundamental ethical violations. Unethical procurement represents a major sustainability issue because it refers to the acquisition of goods and services from suppliers using methods that violate human rights and international labour standards (Adegboyega, 2024). Unethical procurement includes forcing children to work along with forcing people into slavery as well as unsafe work environments and wage theft and environmental damage. The industries of textiles, electronics and mining exhibit high levels of unethical procurement because they face persistent cost pressures and poor procurement transparency (Hammond, 2021).

The problem worsens because a majority of businesses fail to show transparency through their supply chain beyond the first tier of suppliers. Multinational corporations build sourcing networks featuring multiple suppliers which create lack of visibility as the supply chain extends further from direct suppliers. A retailer who deals directly with a supplier often passes the

production to facilities that operate in areas where labour law enforcement is weak. The unclear structure enables unethical activities to function without detection (Czinkota et al., 2021). According to the discussion in Ethical Procurement lecture, the strength of any chain depends on its weakest component which demonstrates how ineffective traceability creates systematic vulnerabilities.

Global Scope and Human Impact

The extent of unethical procurement practices shows its magnitude while affecting human beings at every level. International Labour Organisation (ILO) reports that child labour affects more than 160 million children worldwide with hazardous work (International Labour Organisation, 2024). These children work in supply chains that manufacture standard consumer products which include smartphones and garments. The Rana Plaza disaster in Bangladesh represents the ultimate tragedy from unethical procurement practices. A poorly built garment factory collapsed in 2013 and resulted in the deaths of 1,134 workers along with injuries that affected more than 2,500 people (Chowdhury, 2017). International brands sourcing products indirectly from the building were discovered even though they operated under social compliance codes. The Rana Plaza disaster ignited worldwide scrutiny of fast fashion supply chains which led to the creation of the Bangladesh Accord on Fire and Building Safety yet such safety risks continue to affect workers globally (Manik and Yardley, 2013).



Figure 01: Rana Plaza Disaster (Manik and Yardley, 2013)

The cobalt mining sector in Democratic Republic of Congo (DRC) serves as a live manifestation of the problem today. The Democratic Republic of Congo produces 70% of global cobalt supply because this element serves as a critical component in lithium-ion batteries used in smartphones and electric vehicles (DiCarlo and Deberdt, 2024). Evidence from Amnesty International (2019) along with The Washington Post (2016) shows child labour and dangerous working conditions are widespread in artisanal mining facilities that supply electronics brands across the globe (Frankel, 2016). Companies that refuse to use problematic sources fail to demonstrate their claims through insufficient traceability systems. According to the 2024 Gartner Chief Procurement Officer Survey, the top risks identified include supply disruptions (42%), macroeconomic factors (33%), and compliance issues (32%), all of which directly influence a company's ability to uphold transparency and ethical sourcing (Chain, 2024). Below is the visual representation of it:



Figure 02: Gartner survey: supply disruption ranked as top procurement risk (Chain, 2024)

Theoretical Frameworks

Multiple strategic frameworks reveal both the reasons behind ongoing unethical procurement practices and established methods for resolving this issue.

The **Triple Bottom Line (TBL) model** by Elkington represents a fundamental sustainability framework that moves corporate attention beyond economic performance into social and environmental impact evaluation (Loviscek, 2021). A direct violation of the "people" pillar describes unethical procurement because it usually includes the destructive labour practices of child labour and unsafe workplaces and suppressed wages (*see Appendix A*). In addition, the Global Slavery Index (2023) reports that over 50 million people are trapped in modern slavery, with a significant share linked to raw material extraction, garment (Walk Free Foundation, 2023). Sustainable operations are impossible to achieve when human rights receive no protection since these conditions violate both international labour standards and degrade human dignity. TBL enables organisations to review procurement methods completely by assuring workers' welfare remains intact during cost-saving measures.

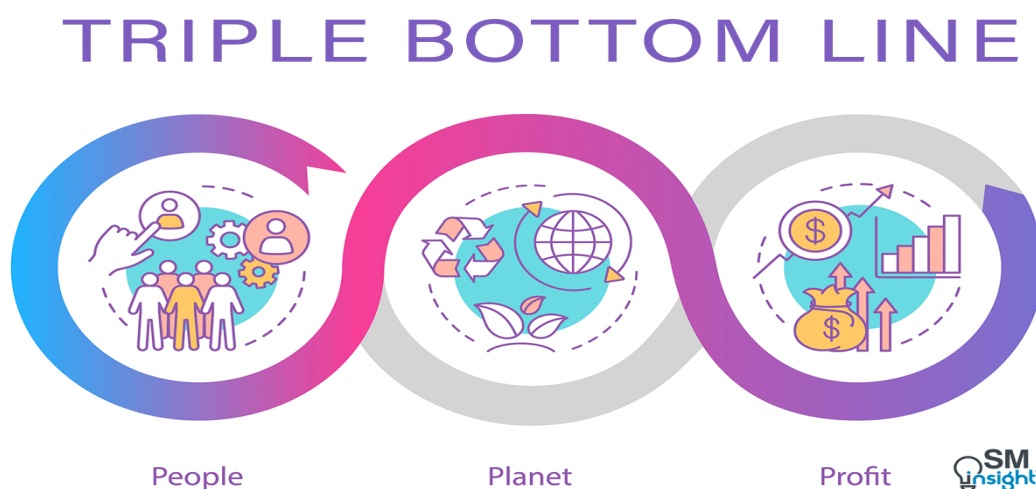


Figure 03: Triple Bottom Line (Jurevicius, 2024)

Freeman (1984) established **Stakeholder Theory** which extends corporate responsibility beyond shareholders to encompass employees as well as suppliers and consumers together with NGOs and local communities (*see Appendix B*). The theory raises objections against the economic

approach of moving procurement to jurisdictions with low labour enforcement standards within global supply chains. Furthermore, the World Benchmarking Alliance found that only 80% of the 2,000 largest global companies scored zero on the initial steps of Human Rights Due Diligence (HRDD) implementation (GRRR, 2025). Companies that pursue business relationships in conflict areas without establishing ethical standards fail to meet their obligations toward stakeholders. When organisations put financial margins ahead of stakeholder interests they face double risks including poor business reputation and permanent operational complications.

Business Responses: From Compliance to Action

A number of companies have identified the pressing need to handle these challenges so they have begun implementing strategic solutions. The companies show diverse levels of dedication and stability in their implementation strategies. **Intel** created a significant milestone through its declaration of "DRC conflict-free" microprocessors which focused on tin tungsten tantalum and gold (Intel, 2014). In 2022, the Responsible Minerals Assurance Process audited 229 smelters from 154 suppliers and subcontractors in 3TGs supply chain achieved full compliance from all tantalum smelters (STMicroelectronics, 2023). Intel demonstrates transparent management of risks through blockchain technology as well as third-party audits and their unique practice of publishing audit results.

Apple promotes sustainability by using recycled rare earth elements in some components but receives criticism for its efforts. The struggle to manage remote suppliers became evident when Apple revealed in 2021 that ethical verification extended to just 25% of its cobalt supply (Apple Inc, 2022). The Responsible Sourcing Standard and SMETA audits from **Nestlé** ensure ethical practices in sourcing by conducting assessments on 96% of its key supplier's first-tier relationships during 2023. The Cocoa Plan program enabled Nestlé to track 149,000 children and it remediated child labour cases by offering school support programs (Nestle, 2022). These examples demonstrate progress yet most ethical programs exist primarily as reactions to regulatory risks, NGO activism or public criticism leading to doubts regarding genuine ethical dedication.

Critical Evaluation and Limitations

The initiatives demonstrate commendable aspects but we need to evaluate their ethical authenticity as opposed to their role in reducing organisational risk. The combination of public expectations and legal requirements through the UK Modern Slavery Act and shareholder involvement has pushed companies to take action yet their responses might lack true commitment. **Transparent supply chain management** becomes difficult because of both financial expenses and technological intricacy (Kumar, Liu and Shan, 2019). The implementation of blockchain tracking systems along with regular third-party audits requires businesses to make financial investments and strategic realignment. Small and medium-sized enterprises generally do not possess enough resources to compete directly with multinational corporations (Aras-Beger and Taşkın, 2021).

Self-reporting bias presents a significant restriction among other obstacles. A significant number of companies depend on supplier-generated self-assessments that risk being falsified or greenwashed. Audits performed by companies frequently occur irregularly without notice and cannot detect subcontractor activities (Brinks et al., 2021). Companies based in the Global North face jurisdictional challenges because they cannot enforce labour standards on suppliers who operate in regions with weak labour regulations in the Global South (Brinks et al., 2021). Geopolitical instability which includes both conflict in mineral-rich zones and authoritarian supply regions create obstacles for businesses to verify or influence upstream practices.

Section B: Strategic Adaptation in Response to Unethical Procurement and Supply Chain

Transparency

Strategic adaptation emerges as a critical need because businesses must address both unethical procurement and hidden supply chain operations. The analysis investigates changes in business logistics and operational structures through three essential areas which include green product design, responsible procurement and sustainable transport. The analysis uses specific strategies while evaluating their cost-efficiency relationship with ethical advantages.

1. Green Product Design

➤ Strategy

The development of green products through design adopts ethical and environmental concerns to prevent unethical procurement practices. The fundamental aspect of this strategy uses Design for the Environment (DFE) principles by minimizing harmful substances while making products easily disassembled with recycled materials and excluding components from unethical labour practices or environmental damage (Ali et al., 2024).



Figure 04: Design for the Environment (DFE) (Bora, 2022)

The Taptic Engine redesign from **Apple** incorporated 100% recycled rare earth elements to decrease mining operations in the Democratic Republic of Congo which has widespread child labour and poor labour conditions (Apple, 2023). The fashion industry leader **H&M** together with other brands follows a path toward circular design techniques. The increasing number of garments designed for reuse and recycling reduces the need for virgin fibers that come from regions with forced and underage labour conditions. Wren (2022) indicates that circular product design would cut textile waste by 20% while restricting the need for unethically sourced materials at its source.

IKEA demonstrates how design elements affect both logistics management and procurement operations. The company achieved a 13% reduction in global packaging volume by adopting flat-pack designs which lowered the amount of materials needed for packaging as well as shipping requirements (IKEA, 2023). The decreased material requirements decrease the opportunity to buy from unethical suppliers while more efficient shipping methods decrease the need for risky low-cost shipping providers.

➤ **Costs vs. Benefits**

Green product design requires organisations to bear substantial initial financial expenses. Companies need to **spend capital** on research and development for developing new materials and redesigning their products alongside staff training about sustainability criteria. The process of integrating recycled materials into Apple's products consumed numerous years of research and development and supplier agreements which slowed down product release dates at times (Apple Inc, 2022a).

Companies can now **measure the advantages** of implementing green product design. Organisations shield their reputation by following escalating industry regulations while earning customer confidence through their sustainable practices. McKinsey (2023) reports that more than 60% of respondents said they'd pay more for a product with sustainable packaging (Frey et al., 2023). Ethical design serves as the essential foundation for ethical supply chains because it helps companies avoid receipt of raw materials obtained through modern slavery as well as unsafe mining or unsustainable farming practices.

2. Responsible Procurement

➤ **Strategy**

The ethical direction of procurement becomes operational through processes that include selecting suppliers and monitoring their activities and maintaining active relationships. The responsible procurement framework consists of supplier conduct rules as well as third-party audit programs which are linked to traceability systems (Chen, 2022). Through the sourcing

process, organisations ensure they avoid suppliers who perform child labor or forced labour activities or maintain unsafe conditions.

The company proves its leadership within this industry segment. The Responsible Minerals Assurance Process (RMAP) enables the company to audit its smelters which confirms conflict-free sourcing of tin tungsten tantalum and gold (Helenius, 2024). The 2024 auditing results show that **Intel** achieved 100% conformance among its tantalum smelters while in 2021, inspecting 99% of its globally audited smelters (Intel, 2024). The company utilises blockchain technology for tracking purposes while making all smelter records available to the public as it connects its material procurement to global human rights disclosure standards.

The responsible procurement process depends heavily on platforms such as Sedex and Tradeshift which help businesses detect supply chain risks as they happen. **Levi's** has established detailed supplier mapping which tracks the cotton origins to confirm its products avoid regions where the Chinese government holds Uyghurs according to Hall (2023).

➤ **Costs vs. Benefits**

The establishment of responsible procurement systems demands high costs and significant labour resources. The cost of **SMETA or APSCA-certified audits** will be charged at £150 per audit while supplier ethical standard training requires continuous financial support (Sedex, 2024). Global supply chain visibility extends only to Tier 2 suppliers for 94% of companies according to McKinsey & Company (2024).

The **benefits** of both ethical conduct and commercial success become large enough to justify such approach. Brands that create ethical procurement systems faced criticism. According to Supply Chain Resilience report from BCI, 25% of companies faced disruptions in 2020 (Cajal, Del and Macchiavello, 2023) and gain greater resilience against upcoming EU Corporate Sustainability Due Diligence Directive regulations. According to research, 73% of Gen Z consumers threaten to stop purchasing from brands which violate labour regulations thus providing strong proof of brand reputation benefits from ethical sourcing (Campbell, 2022).

3. Sustainable Transport

➤ Strategy

Sustainable transport practices solve unethical procurement issues through the relocation of logistics from high-risk suppliers and ethically and environmentally damaging freight operations (Esan, Ajayi and Olawale, 2024). The company works to make freight delivery more sustainable through three main methods, using rail transport instead of roads, implementing electric and LNG-powered trucks and procuring goods from local suppliers as shown in the following figure:

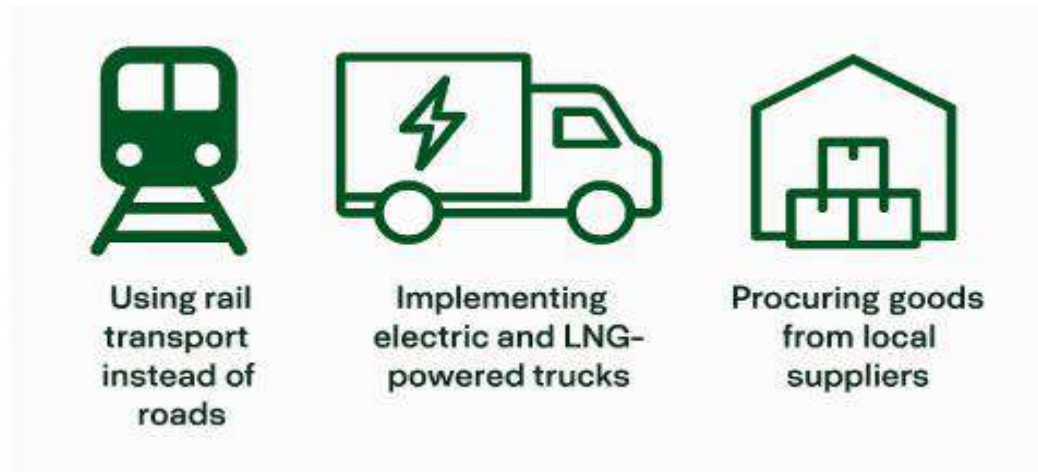


Figure 05: Strategies to Sustainable Transport (by Author)

Nestlé illustrates this in action. The commercial operations of Perrier transferred from trucks to electric rail systems which eliminated 27,000 annual truck journeys and decreased dependence on road-based transportation (Nestlé Global, 2020). France received LNG-powered trucks from the company to decrease long-distance transport emissions (Nestlé Global, 2020). These changes enhance carbon reduction efforts through regional supplier procurement practices which enable better labour law enforcement and provider auditing.

The fashion brands **Zara** and **ASOS** have moved toward sourcing from nearshoring hubs that include Turkey and Portugal as they shift away from ultra-fast and unethically questionable suppliers based in Southeast Asia (Ghirlanda, 2024). The modified logistics system reduces

delivery distances while enhancing supply chain visibility which helps eliminate the necessity of fast air freight toward countries with well-documented ethical issues.

This industry transformation receives substantial support from digital logistics platforms. Companies which implement **Transport Management Systems (TMS)** incorporating ESG criteria can utilise system capabilities to find transport routes and partners with acceptable ethical standards (Leogrande, 2024). The blockchain tool TradeLens from **IBM** and **Maersk** provides end-to-end freight tracking capabilities which enhances accountability while warning businesses about specific risk locations (Jovanovic et al., 2022).

➤ **Costs vs. Benefits**

The implementation of sustainable transport demands **changes to infrastructure networks** and **business cooperation methods**. Makarova et al. (2023) examine that changing transport modes to rail or consolidated freight hubs remains difficult because these facilities do not exist in all rural and developing areas. Electric trucks and LNG vehicles require greater initial financial investments while the availability of alternative fuels remains limited throughout the world.

However, the payoffs are compelling. The European Commission discovered that rail freight generates 73.2% less CO₂ emissions during transport activities compared to roadway operations per ton-km (European Environment Agency, 2023). The transportation industry will need to take important steps toward energy efficiency and fuel switching in order to achieve the 20% emission reduction (Anika et al., 2022).

Sustainable transportation systems help businesses **avoid unregulated logistics providers** which frequently engage in unlawful subcontracting practices, forced work durations and dangerous product handling methods (Oyetoro, 2024). When companies eliminate dependence on such actors they achieve better control of environmental and human rights risk.

Section C: UN SDG Alignment – SDG 8 and SDG 12

The process of fixing unethical procurement procedures along with supply chain transparency demands operations to meet global sustainability standards. SDGs 8 and 12 function as essential

frameworks which guide ethical conduct in procurement practices. The UN Blueprint provides five dimensions to assess implementation which include Intentionality, Ambition, Consistency, Collaboration and Accountability.



Figure 06: UN Blueprint Dimensions (by Author)

SDG 8: Decent Work and Economic Growth

SDG 8 underlines the importance of creating productive jobs with fair wages along with safe workplaces that abolish both modern slavery and child labour (Chigbu and Nekhwevha, 2023). The goal demands business entities to transcend minimum compliance standards when operating global supply chains by creating operational systems that protect dignity and ensure safety while delivering opportunity to all workers throughout their entire procurement network.

1. Intentionality

Intel and Apple together with other firms made public declarations about eliminating child labour while upholding fair working environments in their supply networks. **Intel** implements its conflict-free minerals initiative through explicit human rights policy which obligates the company to avoid purchasing minerals from forced or child labour linked mines (Intel, 2018). **Apple** maintains zero tolerance for underage labour which they enforce through strict supplier codes of conduct (Apple, 2022). These commitments encounter operational difficulties when implemented in practice. Cobalt from Democratic Republic of Congo artisanal mines which was traced to Apple devices despite its official policies. The cobalt mining conditions show children working for \$2 per day in hazardous conditions (United States Department of Labor, 2023). The incident showed

how the implementation of ethical practices between Tier 1 suppliers and their lower-tier partners remains highly inconsistent because visibility becomes increasingly limited.

2. Ambition

True alignment with SDG 8 demands high ambition beyond legal minimums. Nestlé's Cocoa Plan serves as an excellent illustration of the company's ambitious approach (Nestle, 2022). **Nestlé** actively works together with West African governments and communities to solve the fundamental reasons behind child labour instead of restricting its support to supplier audits. Nestlé discovered children at risk of labor exploitation, it worked to build and refurbish 50 schools in the Ivory Coast and enhanced access to education, ultimately protecting more than 145,000 children (Nestlé, 2019). The extensive plan indicates a systematic method which confronts underlying economic factors leading to unethical procurement by tackling poverty together with education accessibility instead of viewing child labour as a supply chain issue.

3. Consistency

Companies need to implement uniform labour and ethical standards throughout all their worldwide operations to properly support SDG 8 objectives. ESG annual reports together with supplier training and standard audit procedures establish uniform policy implementation. **Apple** publishes its Supplier Responsibility Progress Report annually to show how many facilities they audited and the audit results with detailed corrective action plans. The 2022 audit program conducted by Apple evaluated 1,177 facilities in 52 countries to identify and resolve unacceptable working hour and unsafe facility conditions (Apple Inc, 2022b). The consistency level differs significantly between different industries. The level of enforcement practice by fashion retailers depends on where their production occurs. **H&M** demonstrates consistent ethical practices through its requirement of factory-wide ethical training and its public supplier list focused on Bangladesh and Southeast Asia (H&M Group, 2024). The company integrates its worldwide human rights policy through its supplier selection process as well as its evaluation of supplier performance.

4. Collaboration

The solution to systemic labour problems requires partnership between multiple groups of stakeholders. Companies now team up with worldwide entities including the ILO and Fair Labour Association along with local NGOs to create ethical guidelines which drive the development of area-specific solutions. Child labour risk management through **Nestlé's** collaborations with community-based organisations illustrates how joint initiatives provide both extensive reach capabilities and localized sensitivity capabilities (Nestlé, 2024). The Responsible Business Alliance (RBA) serves as an industry-wide initiative which standardises labour practices across electronics and consumer goods thus enabling brands to jointly track suppliers and share ethical risk data (Weng, 2025).

5. Accountability

The core elements of accountability consist of robust audit systems alongside transparent reporting structures. Independent verification of supplier practices occurs through ethical audits that use either SMETA (Sedex Members Ethical Trade Audit) or APSCA standards (Sedex, 2024). The Sedex platform has achieved adoption by more than 400,000 companies worldwide which demonstrates broad acceptance of the platform. Yet, audits alone are insufficient. The Rana Plaza collapse (Manik and Yardley, 2013) together with other repeated incidents prove that unannounced and frequent audits must extend to deep-tier suppliers. Operational as well as reputational harm threatens companies which lack proper accountability systems.



Figure 07: Decent Work and Economic Growth SDG 8 (eurostat, 2024a)

SDG 12: Responsible Consumption and Production

The sustainable usage of natural resources together with waste minimization and lifecycle thinking and ethical production form the core objectives of SDG 12. The issue of unethical procurement meets SDG 12 by examining both unsustainable material consumption and the systems that conceal labour abuse.

1. Intentionality

The adoption of Life Cycle Assessments (LCA) (*see Appendix C*) and eco-design principles by numerous companies ensures sustainability remains integrated across the entire product lifecycle including design and disposal phases. The Daisy robot developed by **Apple** illustrates purposeful efforts to replace newly extracted rare earth elements with recycled materials from used iPhone devices. Apple's Daisy robot, capable of disassembling up to 1.2 million devices per year (Apple, 2019). These initiatives combine environmental sustainability with human rights protection through eliminating procurement from dangerous areas. **Unilever** established sustainability targets which form part of its procurement methods and product development strategies. According to its latest progress report, Unilever achieved 100% sustainable sourcing for key agricultural commodities like palm oil, tea, and soy by 2020, according to its latest progress report (Unilever PLC, 2025).

2. Ambition

SDG 12 demonstrates high ambition through companies who dedicate to circular systems that produce zero waste while completely revealing their supply chain operations. **IKEA** aims to achieve full circularity by 2030 through product design that enables disassembly and recyclability which enables the company to minimize dependence on virgin materials extracted through unfavorable labour practices (IKEA, 2023). The Fashion Pact united more than 60 apparel brands to abolish single-use plastics and promote regenerative agriculture (The Fashion Pact, 2023), which addresses the core drivers of unfair sourcing practices while protecting land sustainability.

3. Consistency

Sustainable practices must be uniformly implemented throughout all target markets. The environmental sustainability practices implemented by **Apple** that eliminate charging accessories from product boxes apply worldwide. The sustainability measurements at **Unilever** proceed yearly through dashboard tracking which assesses supplier performance alongside water usage and material resource utilisation (Unilever PLC, 2025). Nevertheless, industry-wide gaps remain. Most product sustainability claims either target only flagship products or small market sectors which require transparent policies that establish standard supplier requirements to avoid greenwashing (Nygaard, 2023).

4. Collaboration

Effective alignment with SDG 12 demands cross-sector collaboration. Through its offerings, the European Trucking Alliance joins logistics firms to build transport networks with reduced emissions. Business partnerships enable organisations to create infrastructure such as electric vehicle corridors and consolidated freight hubs that decrease transportation-related environmental and ethical costs. Real-time supplier compliance tracking through Tradeshift and SAP Ariba allows organisations to collaborate by sharing certificates and monitoring contracts which enables responsible consumption standards at scale (SAP, 2025).

5. Accountability

Public sustainability dashboards along with supply chain mapping tools have become mandatory instruments for fostering accountability. Through its transparency portal Unilever discloses its palm oil suppliers and their associated deforestation risks to the public. **Apple** provides stakeholders with Materials Impact Profiles that assess cobalt, lithium and rare earths sourcing to show progress and identify areas needing improvement (Apple, 2023). Independent verification methods get limited application even with available tools. The EU Corporate Sustainability Reporting Directive (CSRD) strengthens regulatory power of SDG 12 which will require businesses to shift from self-reporting to third-party assurance throughout their entire product life cycle (Hummel and Jobst, 2024).



Figure 08: SDG 12: Responsible Consumption and Production (eurostat, 2024b)

Conclusion

Unethical procurement and supply chain opacity pose significant threats to sustainable logistics and ethical business operations. This research supports analysis of green product design and responsible procurement and sustainable transport to show that companies adopt transparency and accountability as well as ethical standards within their operations. Intel together with Nestlé and Apple demonstrate how firms must change their strategies to battle environmental and labour abuses in their industries. The integration of SDG 8 and SDG 12 emphasizes how human rights and lifecycle thinking needs to become essential components of worldwide supply chain management. Ethical procurement needs to advance from stand-alone compliance efforts to become an essential data-driven stakeholder-focused business priority that ensures sustainability through resilient practices.

References:

- Adegboyega Oyedijo (2024). Relationships Between Disruptions and Unethical Procurement and Supply Chain Practices: Insights from the Covid-19 Pandemic. *Springer eBooks*, pp.1009–1034. doi: https://doi.org/10.1007/978-3-031-19884-7_53.
- Ali, R.F., Harel, S., Shaikh, T. and Chakraborty, P. (2024). 'Impact of Design Principles on End-of-Life and Recycling'. *SAE Technical Paper Series*. [online] doi: <https://doi.org/10.4271/2024-26-0163>.
- Anika, O.C., Nnabuife, S.G., Bello, A., Okoroafor, E.R., Kuang, B. and Villa, R. (2022). Prospects of low and zero-carbon renewable fuels in 1.5-degree net zero emission actualisation by 2050: A critical review. *Carbon Capture Science & Technology*, 5, p.100072. doi: <https://doi.org/10.1016/j.ccst.2022.100072>.
- Apple (2019). *Apple expands global recycling programmes*. [online] Apple Newsroom. Available at: <https://www.apple.com/uk/newsroom/2019/04/apple-expands-global-recycling-programs/> [Accessed 18 Apr. 2025].
- Apple (2022). *Apple Supplier Code of Conduct*. [online] Available at: <https://www.apple.com/hk/supplier-responsibility/pdf/Apple-Supplier-Code-of-Conduct-and-Supplier-Responsibility-Standards.pdf> [Accessed 25 Apr. 2025].
- Apple . (2023). *Apple will use 100 percent recycled cobalt in batteries by 2025*. [online] Available at: <https://www.apple.com/ke/newsroom/2023/04/apple-will-use-100-percent-recycled-cobalt-in-batteries-by-2025/> [Accessed 21 Apr. 2025].
- Apple Inc (2022a). *Apple Expands the Use of Recycled Materials across Its Products*. [online] Apple Newsroom. Available at: <https://www.apple.com/newsroom/2022/04/apple-expands-the-use-of-recycled-materials-across-its-products/> [Accessed 18 Apr. 2025].
- Apple Inc (2022b). *People and Environment in Our Supply Chain*. [online] Available at: <https://www.apple.com/euro/supplier->

[responsibility/l/titles_en/pdf/Apple_ESCI_2022_Progress_Report_UK_IE.pdf](#) [Accessed 25 Apr. 2025].

Aras-Beger, G. and Taşkın, F.D. (2021). Corporate Social Responsibility (CSR) in Multinational Companies (MNCs), Small-to-Medium Enterprises (SMEs), and Small Businesses. *The Palgrave Handbook of Corporate Social Responsibility*, pp.791–815. doi: https://doi.org/10.1007/978-3-030-42465-7_69.

Bora (2022). *Designing for the environment*. [online] Medium. Available at: <https://uxdesign.cc/design-for-the-environment-ab79e5dc302b> [Accessed 20 Apr. 2025].

Brinks, D., Dehm, J., Engle, K. and Taylor, K. (2021). Chapter 1. Private Regulatory Initiatives, Human Rights, and Supply Chain Capitalism. *University of Pennsylvania Press eBooks*, pp.3–34. doi: <https://doi.org/10.9783/9780812299694-003>.

Cajal-Grossi, J., Del Prete, D. and Macchiavello, R. (2023). Supply Chain Disruptions and Sourcing Strategies. *International Journal of Industrial Organization*, [online] 90, p.103004. doi: <https://doi.org/10.1016/j.ijindorg.2023.103004>.

Campbell, V. (2022). *Gen Z buyers: the future is ethical consumption*. [online] MAERSK. Available at: <https://www.maersk.com/insights/growth/2022/11/03/gen-z-buyers-the-future-is-ethical-consumption> [Accessed 25 Apr. 2025].

Chain, S. (2024). *Gartner survey: supply disruption ranked as top procurement risk*. [online] The Supply Chain Xchange. Available at: <https://www.thescxchange.com/finance-strategy/procure/top-procurement-risks> [Accessed 20 Apr. 2025].

Chen, J.-Y. (2022). Responsible sourcing and supply chain traceability. *International Journal of Production Economics*, [online] 248, p.108462. doi: <https://doi.org/10.1016/j.ijpe.2022.108462>.

- Chigbu, B.I. and Nekhwevha, F. (2023). Exploring the concepts of decent work through the lens of SDG 8: addressing challenges and inadequacies. *Frontiers in Sociology*, [online] 8(8). doi: <https://doi.org/10.3389/fsoc.2023.1266141>.
- Chowdhury, R. (2017). The Rana Plaza Disaster and the Complicit Behavior of Elite NGOs. *Organization*, [online] 24(6), pp.938–949. doi: <https://doi.org/10.1177/1350508417699023>.
- Czinkota, M.R., Kotabe, M., Vrontis, D. and Shams, S.M.R. (2021). Distribution and Supply Chain Management. *Springer Texts in Business and Economics*, [online] pp.499–552. Available at: https://www.researchgate.net/publication/354108633_Distribution_and_Supply_Chain_Management [Accessed 19 Apr. 2025].
- DiCarlo, J. and Deberdt, R. (2024). *DRC is the world's largest producer of cobalt – how control by local elites can shape the global battery industry*. [online] The Conversation. Available at: <https://theconversation.com/drc-is-the-worlds-largest-producer-of-cobalt-how-control-by-local-elites-can-shape-the-global-battery-industry-236205> [Accessed 19 Apr. 2025].
- Eckelman, M. and Nunberg, S. (2021). *Life Cycle Assessment Explained*. [online] STiCH. Available at: <https://stich.culturalheritage.org/life-cycle-assessment-explained/> [Accessed 22 Apr. 2025].
- Esan, O., Ajayi, F.A. and Olawale, O. (2024). Supply chain integrating sustainability and ethics: Strategies for modern supply chain management. *World Journal of Advanced Research and Reviews*, [online] 22(1), pp.1930–1953. doi: <https://doi.org/10.30574/wjarr.2024.22.1.1259>.
- European Environment Agency (2023). *Greenhouse gas emissions from transport in Europe*. [online] www.eea.europa.eu. Available at: <https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emissions-from-transport> [Accessed 25 Apr. 2025].

- eurostat. (2024a). *SDG 8 - Decent work and economic growth*. [online] Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG 8 - Decent work and economic growth](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_8_-_Decent_work_and_economic_growth) [Accessed 25 Apr. 2025].
- eurostat. (2024b). *SDG 12 - Responsible consumption and production*. [online] Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG 12 - Responsible consumption and production](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_12_-_Responsible_consumption_and_production) [Accessed 22 Apr. 2025].
- Frankel, T. (2016). *The Cobalt Pipeline*. [online] Washington Post. Available at: <https://www.washingtonpost.com/graphics/business/batteries/congo-cobalt-mining-for-lithium-ion-battery/> [Accessed 25 Apr. 2025].
- Frey, S., Am, J.B., Doshi, V., Malik, A. and Noble, S. (2023). *Consumers Care about Sustainability—and Back It up with Their Wallets*. [online] McKinsey & Company. Available at: <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/consumers-care-about-sustainability-and-back-it-up-with-their-wallets> [Accessed 23 Apr. 2025].
- Ghirlanda, A. (2024). Fast fashion and sustainability: a feasible oxymoron? *Unive.it*. [online] doi: <https://hdl.handle.net/20.500.14247/15519>.
- GRRR (2025). *80% of companies fail on human rights due diligence – regulations, guidance and pressure are needed to accelerate change*. [online] World Benchmarking Alliance. Available at: <https://www.worldbenchmarkingalliance.org/publication/social/findings/80-of-companies-fail-on-human-rights-due-diligence-regulations-guidance-and-pressure-are-needed-to-accelerate-change/> [Accessed 25 Apr. 2025].
- H&M Group (2024). *Annual and sustainability report 2023*. [online] H&M Group. Available at: <https://hmgroup.com/wp-content/uploads/2024/03/HM-Group-Annual-and-Sustainability-Report-2023.pdf> [Accessed 18 Apr. 2025].
- Hall, M. (2023). *Levi's, 'Illegitimate Cotton' and 'Imaginary' Forced Labor Risks*. [online] Sourcing Journal. Available at: <https://sourcingjournal.com/denim/denim-brands/xinjiang-forced->

[labor-levi-strauss-canada-kelley-drye-john-foote-altana-publican-cbp-469654/](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3930247) [Accessed 22 Apr. 2025].

Hammond, D.R. (2021). *Modern Slavery, Human Trafficking, and Child Labor in Corporate Supply Chains: Creating Oppression-Free Portfolios*. [online] papers.ssrn.com. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3930247 [Accessed 24 Apr. 2025].

Helenius, W. (2024). Conflict and extended minerals : balancing responsibility, risks, and regulatory compliance. *Theseus.fi*. [online] doi: <https://www.theseus.fi/handle/10024/819509>.

Hummel, K. and Jobst, D. (2024). An Overview of Corporate Sustainability Reporting Legislation in the European Union. *Accounting in Europe*, 21(3), pp.320–355. doi: <https://doi.org/10.1080/17449480.2024.2312145>.

IKEA (2023). *Breaking down the IKEA value chain – IKEA Global*. [online] IKEA. Available at: <https://www.ikea.com/global/en/our-business/how-we-work/the-ikea-value-chain/> [Accessed 20 Apr. 2025].

Intel (2014). *Intel's Efforts to Achieve a 'Conflict Free' Supply Chain*. [online] Available at: <https://www.intel.com/content/dam/doc/policy/policy-conflict-minerals.pdf> [Accessed 25 Apr. 2025].

Intel (2018). *Conflict-Free supply chain and intel*. [online] Intel. Available at: <https://www.intel.com/content/www/us/en/corporate-responsibility/responsible-minerals.html> [Accessed 25 Apr. 2025].

Intel (2024). *2023-24 Corporate Responsibility Report*. [online] Available at: <https://csrreportbuilder.intel.com/pdfbuilder/pdfs/CSR-2023-24-Full-Report.pdf> [Accessed 19 Apr. 2025].

International Labour Organization (2024). *Child Labour* | International Labour Organization. [online] www.ilo.org. Available at: <https://www.ilo.org/projects-and-partnerships/projects/child-labour> [Accessed 18 Apr. 2025].

Jovanovic, M., Kostić, N., Sebastian, I.M. and Sedej, T. (2022). Managing a blockchain-based platform ecosystem for industry-wide adoption: The case of TradeLens. *Technological Forecasting and Social Change*, [online] 184, p.121981. doi: <https://doi.org/10.1016/j.techfore.2022.121981>.

Jurevicius, O. (2024). *Triple Bottom Line: The Ultimate Guide - SM Insight*. [online] Strategic Management Insight. Available at: <https://strategicmanagementinsight.com/tools/triple-bottom-line/> [Accessed 18 Apr. 2025].

Kshetri, N. (2021). Blockchain and sustainable supply chain management in developing countries. *International Journal of Information Management*, [online] 60(2), p.102376. Available at: <https://www.sciencedirect.com/science/article/pii/S0268401221000694> [Accessed 25 Apr. 2025].

Kumar, A., Liu, R. and Shan, Z. (2019). Is Blockchain a Silver Bullet for Supply Chain Management? Technical Challenges and Research Opportunities. *Decision Sciences*, 51(1).

LeBaron, G. (2021). The Role of Supply Chains in the Global Business of Forced Labour. *Journal of Supply Chain Management*, [online] 57(2), pp.29–42. doi: <https://doi.org/10.1111/jscm.12258>.

Leogrande, A. (2024). Integrating ESG Principles into Smart Logistics: Toward Sustainable Supply Chains. *Hal.science*. [online] doi: <https://hal.science/hal-04784306>.

Loviscek, V. (2021). Triple Bottom Line toward a Holistic Framework for Sustainability: a Systematic Review. *Revista De Administração Contemporânea*, 25(3), pp.1–11.

Makarova, I., Serikkaliyeva, A., Gubacheva, L., Mukhametdinov, E., Buyvol, P., Barinov, A., Shepelev, V. and Mavlyautdinova, G. (2023). The Role of Multimodal Transportation in

Ensuring Sustainable Territorial Development: Review of Risks and Prospects. *Sustainability*, [online] 15(7), p.6309. doi: <https://doi.org/10.3390/su15076309>.

Manik, J.A. and Yardley, J. (2013). Scores Dead in Bangladesh Building Collapse. *The New York Times*. [online] 24 Apr. Available at: <https://www.nytimes.com/2013/04/25/world/asia/bangladesh-building-collapse.html> [Accessed 18 Apr. 2025].

McKinsey & Company. (2024). *A new approach to supply-chain risk management* | McKinsey. [online] Available at: <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-shockproof-is-your-supply-chain-really> [Accessed 20 Apr. 2025].

Nestlé (2022). *Nestlé Announces Innovative Plan to Tackle Child Labor risks, Increase Farmer Income and Achieve Full Traceability in Cocoa*. [online] Nestlé Global. Available at: <https://www.nestle.com/media/pressreleases/allpressreleases/tackle-child-labor-risks-farmer-income-cocoa-traceability> [Accessed 25 Apr. 2025].

Nestlé (2019). *How Is Nestlé Helping to Stop Child labor?* [online] Nestle.com. Available at: <https://www.nestle.com/ask-nestle/human-rights/answers/nestle-child-labour-supply-chains> [Accessed 22 Apr. 2025].

Nestlé (2024). *Creating Shared Value at Nestlé*. [online] Available at: <https://www.nestle.com/sites/default/files/2025-02/creating-shared-value-nestle-2024.pdf> [Accessed 19 Apr. 2025].

Nestlé Global. (2020). *Nestlé and European Clean Trucking Alliance call for more sustainable road freight*. [online] Available at: <https://www.nestle.com/media/news/nestle-european-clean-trucking-alliance-sustainable-road-freight> [Accessed 19 Apr. 2025].

Nygaard, A. (2023). Is sustainable certification's ability to combat greenwashing trustworthy? *Frontiers in Sustainability*, [online] 4. doi: <https://doi.org/10.3389/frsus.2023.1188069>.

- Oyetoro, A. (2024). *Embracing Sustainability in Operations and Supply Chain Management: A Path to Long-Term Viability*. [online] ResearchGate. Available at: https://www.researchgate.net/publication/380396207_Embracing_Sustainability_in_Operations_and_Supply_Chain_Management_A_Path_to_Long-Term_Viability [Accessed 25 Apr. 2025].
- SAP. (2025). *SAP Ariba Contracts | Contract Management Software*. [online] Available at: <https://www.sap.com/mena/products/spend-management/contract-management-software.html> [Accessed 25 Apr. 2025].
- Sedex. (2024). *Price Increase for SMETA Audits - Sedex*. [online] Available at: <https://www.sedex.com/price-increase-for-smeta-audits/> [Accessed 20 Apr. 2025].
- STMicroelectronics . (2023). *Responsible mineral sourcing - STMicroelectronics Sustainability report 2023*. [online] Available at: <https://sustainabilityreports.st.com/sr23/community/responsible-mineral-sourcing.html> [Accessed 25 Apr. 2025].
- The Fashion Pact (2023). *The Fashion Pact*. [online] The Fashion Pact. Available at: <https://www.thefashionpact.org/> [Accessed 19 Apr. 2025].
- Unilever PLC (2025). *Unilever sees early signs of progress on sustainability goals*. [online] Unilever. Available at: <https://www.unilever.pk/news/2025/unilever-sees-early-signs-of-progress-on-sustainability-goals/> [Accessed 24 Apr. 2025].
- United States Department of Labor (2023). *Forced Labor in Cobalt Mining in the Democratic Republic of the Congo Final Report*. [online] Available at: <https://www.dol.gov/sites/dolgov/files/ILAB/DRC-FL-Cobalt-Report-508.pdf> [Accessed 26 Apr. 2025].
- Walk Free Foundation (2023). *THE GLOBAL SLAVERY INDEX 2023*. [online] Walk Free. Available at: <https://cdn.walkfree.org/content/uploads/2023/05/17114737/Global-Slavery-Index-2023.pdf> [Accessed 17 Apr. 2025].

Weng, L.S. (2025). Ethical and Transparent Tier-N Supplier Management: A Research Report.
[online] doi: <https://doi.org/10.2139/ssrn.5129033>.

Wren, B. (2022). Sustainable Supply Chain Management in the Fast Fashion Industry: a
Comparative Study of Current Efforts and Best Practices to Address the Climate Crisis.
Cleaner Logistics and Supply Chain, [online] 4(100032), p.100032. doi:
<https://doi.org/10.1016/j.clscn.2022.100032>.

Appendices:

Appendix A: Triple Bottom Line (TBL) Model

People	Planet	Profit
The "People" pillar addresses human rights, fair labour, and workplace safety. Violations such as child labour and unsafe conditions undermine this dimension, as highlighted by the Global Slavery Index (2023), which reports over 50 million people trapped in modern slavery (Walk Free Foundation, 2023)	The "Planet" pillar emphasizes environmental stewardship through sustainable sourcing, carbon reduction, and circular economy practices; for instance, Apple's Daisy robot recovers rare earth elements to reduce dependency on unethical mining.	The "Profit" pillar calls for achieving financial success without harming society or the environment. Ethical procurement strategies, like Nestlé's Cocoa Plan, demonstrate that responsible sourcing can drive resilience and profitability (Nestle, 2022).

Table 01: Triple Bottom Line (TBL) Model (by Author)

Appendix B: Stakeholder Theory

Freeman's Stakeholder Theory (1984) establishes that companies must fulfill their responsibilities toward shareholders as well as a diverse group of stakeholders which includes employees and suppliers and consumers alongside local communities and NGOs. All groups hold significant positions that suffer or benefit from the consequences of procurement decisions.

- **Employees:** Deep supply chain workers face extensive risks of labour exploitation which includes child labour and dangerous workplace environments. Through ethical procurement companies guarantee that workers receive just compensation while maintaining secure workplaces that maintain human dignity standards.

- **Suppliers:** All suppliers need to follow the established ethical standards. Unethical practices like forced labour in cobalt mines or sweatshops continue to spread because companies neglect their responsibility to conduct proper investigations.
- **Consumers:** They are progressively showing interest in purchasing products from ethical sources. Edelman (2023) reveals that human rights abuse-related boycotts will be supported by 60% of consumers.
- **NGOs and Local Communities:** Non-governmental organizations together with local communities function as ethical monitoring entities. NGOs and local communities play a critical role by uncovering unethical business activities which leads to company pressure toward transparent ethical sourcing.



Figure 09: Stakeholder Theory (by Author)

Appendix C: Life Cycle Assessment (LCA)

The Life Cycle Assessment (LCA) serves as an organizational assessment method that evaluates environmental and ethical effects of products from initial creation to final disposal. Sustainable procurement and responsible operations receive essential support through the six connected components depicted in the following figure.

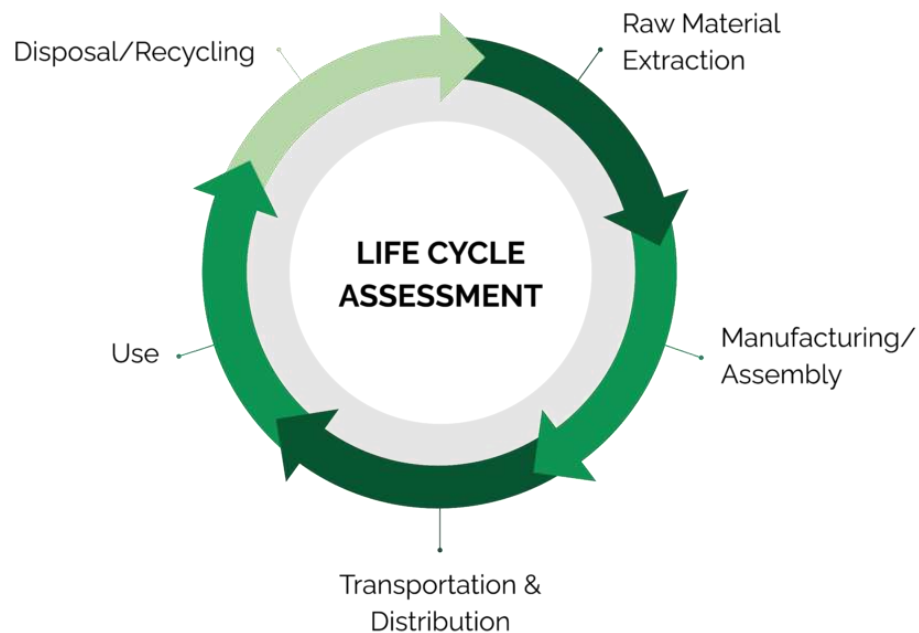


Figure 10: Life Cycle Assessment(Eckelman and Nunberg, 2021)

- **Raw Material Extraction:** Evaluates the source and ethics of material sourcing (e.g., avoiding conflict minerals or forced labour in mines).
- **Material Processing:** Assesses environmental impact during conversion of raw materials (energy use, emissions, chemical treatment risks).
- **Manufacturing:** Focuses on working conditions, energy efficiency, and waste during product assembly.

- **Distribution:** Considers the carbon footprint, ethical transport practices, and packaging sustainability during logistics.
- **Use:** Evaluates the product's environmental performance during consumer use (e.g., energy or water consumption).
- **End of Life:** Determines disposal impacts promoting recycling, reuse, or ethical waste management to prevent environmental harm.