The Textile System between ESG and Circular Transition: Indicators, Governance, and Transformation

1. Introduction & Current Global Context

The global textile system is currently one of the sectors most exposed to converging pressures: regulatory, environmental, and reputational. According to the most recent data, in 2023 the global textile market reached a value of USD 1.84 trillion, with projections indicating a potential rise to USD 3 trillion by 2030, based on a CAGR between 4.2% and 7.4%. This sector accounts for approximately 1.6% of global GDP, with a production exceeding 124 million tons of fibers in the same year.
In the European context, the sector includes 197,000 manufacturing companies in textiles and clothing (EEA, 2025), rising to over 267,000 when including the entire industrial and distribution ecosystem (European Commission). This corresponds to a potential customer base of 449 million citizens, with an average annual spending on clothing around ú600 per capita.
However, despite these economic dimensions, the textile industry remains among the main contributors to global solid urban and industrial waste. It is estimated that over 73% of global textile waste ends up in landfills or is incinerated, while only 1% is currently recycled into new garments, according to the Ellen MacArthur Foundation. Fast fashion has worsened this imbalance by shortening the average life cycle of a garment and generating increasing volumes of premature waste. In Europe, approximately 12.6 million tons of textile waste are produced annually, and only a minimal fraction of this is actually sent for high-quality recycling.
The regulatory acceleration driven by the European Unionð through the Green Deal, the Circular Economy Action Plan, and the proposed Regulation on Sustainable Products (ESPR)ð now requires a structural rethinking of corporate governance in the sector. Traditional management models, exclusively oriented toward global profit maximization, must now face the internalization of environmental costs, supply chain traceability, and the adoption of practices that make ESG (Environmental, Social, Governance) promises verifiable. The adoption of standards such as the OECD Due Diligence Guidance or ISO 20400 on sustainable procurement is becoming increasingly necessary to avoid greenwashing and ensure future competitiveness.
Therefore, corporate social responsibility in the textile industry is gaining increasing relevance not only in ethical terms but also as a strategic lever. The Rana Plaza disaster in 2013 marked a turning point, revealing the systemic vulnerabilities of globalized value chains. Since then, stakeholder pressure has intensified regarding fair working conditions, wage transparency, safety, and inclusion. Companies that integrate these aspects into their governance not only reduce reputational and regulatory risks but also generate shared social value, with positive effects on consumer loyalty and attractiveness to responsible investors.
While the sector continues to represent a global economic force, its long-term sustainability will depend on its ability to combine growth with regeneration: revising production models, investing in eco-design, reducing environmental pressure, and building an industrial

ecosystem capable of regenerating itself without externalizing costs onto society and the environment.

2. ESG: Indicators or Drivers of Change?

The true ESG challenge lies not in measurement, but in transformation. When indicators are used merely as reporting tools, they risk freezing the present. But when they are co-designed and internalized, they can become generative mechanisms. Reporting can then become anticipation, governance can evolve into dialogue, and sustainability can once again become a matter of choices—not just spreadsheets.
Key question: Can an indicator change reality, or does it merely describe it?
Measuring or transforming: the ESG indicator dilemma
In today's sustainability discourse, a seemingly rational belief has taken root: what cannot be measured cannot be managed. ESG indicators (Environmental, Social, Governance) have become the dominant language of sustainability, essential tools for communicating, evaluating, and comparing corporate performance. However, this centrality of indicators carries a subtle risk: that measurement becomes an end in itself, and that reporting ends up crystallizing the present rather than guiding change.
The act of measuring is never neutral. As sociologist Marilyn Strathern pointed out, "when a measure becomes a target, it ceases to be a good measure." In the ESG context, this translates into the danger of mistaking the metric for reality, the indicator for impact, the report for the process. It is in this grey area that the paradox arises: a company may appear formally compliant with standards, yet be substantially inert when it comes to sustainable transformation.
The true ESG challenge, therefore, is not the construction of increasingly sophisticated reporting systems, but rather the ability to make indicators generative tools. Tools that do not merely describe the current state of affairs, but—if co-designed and internalized—can stimulate new practices, shift perspectives, and activate organizational learning processes. In this view, reporting loses its merely retrospective nature and becomes a tool for foresight. Governance moves beyond vertical control and opens up to transparent dialogue with internal and external stakeholders. Sustainability, finally, regains its ethical and deliberative essence: no longer a bureaucratic obligation or a reputational shortcut, but a choice involving responsibility, vision, and courage.
The most advanced experiences in corporate sustainability show that the most effective indicators are not those imposed from above, but those generated from below, through genuine engagement processes. Indicators that emerge from operational experience, that speak the language of corporate culture, and reflect an authentic commitment. In this sense, the indicator becomes almost a node of meaning, capable of connecting strategic objectives, daily behaviors, and shared values.
The key question, then, is not so much which indicators to use, but how to use them: can they change reality or do they merely describe it? Can they activate new narratives, or are they destined to perpetuate the same logics that gave rise to the environmental and social crises we now seek to overcome?
Ultimately, the value of an ESG indicator does not lie in its ability to faithfully represent reality, but in its potential to influence it—guiding choices, visions, and strategies. Sustainability does not need metrics alone; it needs meaning. And meaning is not generated

through spreadsheets, but through dialogue, listening, and the willingness to truly transform the systems we are part of.

3. What Is More Beneficial for the Environment?

From an ecological standpoint, extending the life of a product is generally the most sustainable strategy. Life Cycle Assessment (LCA) metrics show that:
- Each additional year of garment use reduces its carbon footprint by up to 24% (WRAP, 2022).
- Recycling, while necessary, is energy-intensive, often involves downcycling (loss of quality), and carries environmental costs related to transportation, washing, and reprocessing.
- Disassembly and chemical recycling require energy-intensive infrastructure and potentially hazardous chemicals, with variable impact depending on the technology.

For example, a mechanically recycled pair of jeans still consumes 20ï 30% of the energy needed for a new pair, whereas jeans worn for three years instead of one require no additional resources.
Extending product life is a preventive strategy; recycling is a corrective strategy.
From an ecological perspective, the most effective strategy to reduce the impact of the textile system is not technological regeneration but the extension of a productôs useful life. This seemingly simple principle is grounded in a preventive, systemic logic: reducing the frequency of production and consumption upstream leads to lower resource extraction, energy use, waste generation, and greenhouse gas emissions.
LCA metrics, currently among the most robust tools to assess a productôs overall environmental impact, clearly support this. According to WRAP (2022), each additional year of garment use reduces its carbon footprint by an average of 24%. This cumulative effect is particularly significant for high-impact items such as jeans, jackets, and heavy knitwear made with water- and energy-intensive materials like cotton, which offer substantial savings when kept in use longer.
In contrast, recyclingð while crucial within a circular economyð entails non-negligible environmental costs. Mechanical recycling, for instance, degrades fiber quality (downcycling), limiting reuse in high-end or technical garments. Chemical recycling, though promising in terms of molecular recovery, requires complex infrastructure, high-temperature treatments, and chemical agents, with impacts that vary depending on the technology and energy mix used. Moreover, both processes involve phases of transport, washing, and reprocessing that, if not optimized, may erode the overall environmental benefits of regenerated materials.
A concrete example makes this comparison clearer: mechanically recycled jeans still require 20ï 30% of the energy used for new production, while simply wearing a pair of jeans for three years instead of one consumes no additional energyð aside from regular home maintenance like washing and ironing. Systemically, the second scenario is clearly more virtuous.
Thus, extending a productôs useful life represents a preventive strategy, intervening before waste is generated and before a new industrial process is triggered. Recycling, by contrast, is a corrective strategy, necessary only when reuse is no longer possible. This approach aligns closely with the European waste hierarchy, which prioritizes reduction and reuse over

recycling, and resonates with the philosophy of design for longevity, now gaining traction among the most innovative brands.
In this perspective, product design itself plays a crucial role: modular, repairable garments, free from incompatible material blends, made from durable and environmentally neutral materials not only enable extended use but also build a new grammar of consumption. A grammar that speaks not only of price and trends, but of meaning, care, and relationship with the object.
It is a cultural change before it is a technological one. Extending the life of products also means re-educating consumers, rebuilding repair supply chains, and revaluing the concept of ñwear patinaò over the obsession with the new. The environmental challenge, therefore, is not only played out in innovation labs but also in everyday choices, in business models, and in the values that companies and institutions are able to promote.

4. So, What Is More Beneficial for the Economy?

Here, the answer is more nuanced and depends on the business model:
- The "disassemble and reproduce" model fits well within structured industrial systems (e.g., the Manteco supply chain, Re:newcell), where value is generated upstream and recovery becomes secondary raw material.
- Extending the productôs life, on the other hand, requires downstream models oriented toward service (repair, second-hand, leasing) and disintermediation: this implies lower volumes, but higher value per unit.

In the short term, recycling may appear more scalable, but in the long run, true value lies in service and customer loyalty.
Companies that sell fewer garments but keep them in circulation longer can generate higher margins and lower impacts, especially when supported by digital mechanisms and pay-per-use models.
The answer to what benefits the economy most cannot be singular, as it depends heavily on the business modelôs architecture, its position in the value chain, and the ability to activate synergies between production, distribution, and the relationship with the end user.
The "disassemble and reproduce" modelð that is, regeneration through mechanical or chemical recyclingð is most effective in vertically integrated industrial contexts, where value is built upstream through access to large volumes, standardization of flows, and the ability to reinsert processed materials into the production cycle. Examples like Manteco, with its historical regenerated wool supply chain in Tuscany, or Re:newcell, which has developed cellulose dissolution processes to produce new fiber from textile waste, show how value can indeed be extracted from end-of-life materialsð provided there are technologies, infrastructure, and supply chains capable of supporting the complexity of the process.
However, this approach, while scalable, remains anchored to a productivist logic: it presupposes a continuous flow of garments to be disposed of, indirectly sustaining the system of overproduction. In other words, recycling may reduce the intensity of impact, but it rarely dismantles its systemic root.
By contrast, extending the useful life of a product relies on radically different economic logics. It is a downstream model that prioritizes relationship over transaction, personalization over

standardization, and creates value not from the production of goods, but from their sustained activation over time. Here, profit does not come from selling more, but from making things last better: repair, restyling, reuse, leasing, and subscription models turn the product into a service, and the customer into a partner.

This economic reconfiguration, however, requires both infrastructural and cultural transformation. Companies that choose this path must equip themselves with digital platforms capable of tracking garments, monitoring their usage status, triggering maintenance notifications, and enabling dynamic payment methods (pay-per-use, product-as-a-service). In return, they gain not only higher per-unit margins (thanks to longer life cycles and added-value services), but also deeper customer loyalty, reduced exposure to overstock risks, and a strengthened reputation in the field of sustainability.

In the short term, regeneration may appear economically more attractive: it connects more easily with existing logics, scales better on volumes, and benefits from already-established learning economies. But in the long term, it is in the post-sale relationship that the most resilient value resides. Companies that manage to sell fewer garments but keep them active over timeð thanks to a service ecosystem, local networks, and digital solutionsð not only reduce environmental impacts but also build more distributed, rooted, and less consumption-dependent economies.

Ultimately, economic sustainability can no longer be measured solely in terms of revenue, but also in terms of value density. And that value is increasingly built through what happens after the sale: maintenance, trust, community, and experience. The company that manages to turn its product into a "temporal ally" for the consumer, rather than a short-cycle object, will be well positioned as a credible player in the sector's ecological and economic transition.

5. So, What Is More Beneficial for the Population?

The population ð understood as European citizens ð has multiple interests:

Extending the life of garments is economically advantageous on an individual level: lower expenses, less waste, greater stability. Access to reuse (second-hand, repairs, leasing) is perceived as more ethical and inclusive, especially among younger generations.

Systemic recycling creates social value if it generates local supply chains, decent and transparent employment in sorting, processing, and textile innovation.

But caution: if recycling only serves to legitimize fast fashion (ñbuy, use, recycle, rebuyò), the result is delayed consumerism, not true circularity.

When adopting a broader social perspective ð considering the population not merely as consumers but as European citizens with rights, expectations, and shared responsibilities ð the question of benefit becomes one of material justice, accessibility, and social cohesion.

Extending the life of garments is primarily beneficial at the individual level. It is a strategy of everyday resilience that eases pressure on household budgets, slows the pace of compulsive consumption, and restores agency to the citizen, who is no longer just choosing but also caring. Reuse, restyling, repairs, and peer-to-peer exchange platforms are

becoming not just sustainable options, but real cultural acts, particularly among younger generations. For many, dressing consciously is now a way of positioning oneself in the world: not just fashion, but an ethical language, an inclusive gesture, a form of resistance to the fast-paced ñthrowawayòcycle.

Recycling, if well-structured, can generate collective value. When organized through local and transparent supply chains, it creates skilled jobs, enables paths to social inclusion, and enhances artisanal and technical skills that are often marginalized. Circular economy can thus become a proximity economy, capable of generating not only environmental but also economic and relational well-being. However, this potential only materializes when recycling is genuinely designed for and with peopleð not as an industrial externality outsourced to opaque or delocalized systems.

The risk, however, is that the recycling narrative becomes instrumentalized. If the textile system continues to produce low-cost, short-lived garments, while offering consumers the illusion of sustainability through collection bins or ñgreenò labels, it creates a dynamic of delayed consumerism: buy, use, recycleé then buy again. Recycling becomes an alibi, a form of ñperformative sustainabilityò that relieves producers of responsibility and deludes consumers into thinking that disposal is enough to be sustainable. In reality, as the ñrebound effectòwarns, if recycling is used to sustain the same levels of production and consumption, the net environmental benefit may be null.

What is truly beneficial for the population, then, is anything that strengthens their ability to make informed choices, protects them from informational asymmetry, and builds real alternatives to linear consumption. Whatôs needed is a system that does not force a trade-off between ethics and price, or between quality and accessibility. Ultimately, what benefits the population is an ecosystem that restores value to time, to repair, to careð dimensions increasingly rare in an economy of the instantaneous.

The future of sustainable textiles, from the populationôs point of view, is not just a technical or economic issue, but a political one: it is the arena where we decide what kind of society we want to be. A society based on shared responsibility and resilience, or one that continues to outsource its impact to invisible systems, and its choices to non-negotiable market logic.

6. A False Dichotomy

In reality, extending product life and disassembling for reproduction should not be seen as opposing visions, but rather as sequential phases of a mature cycle:

First cycle: prolonged use, repair, second-hand.

Second cycle: creative upcycling or remanufacturing.

Third cycle: mechanical/chemical recycling only at the true end of useful life.

The real ESG issue is how to distribute value across these phases, avoiding sustainability as a mere marketing narrative. What is needed is a multi-level governance that balances:

- Tax incentives for those who extend product life.

- Funds for truly traceable recycling infrastructures.

- Consumer education as a form of active citizenship.

The opposition between ñextending lifeò and ñdisassembling to reproduceò is, in fact, a misleading oversimplification. These strategies are not alternatives but complements, belonging to different stages of a mature textile cycle. Thinking in terms of sequence rather than binary choice allows us to escape false dichotomies and embrace an authentic circular vision, where each phase creates valueð albeit through different modalities and intensities.

The first cycleð prolonged use, repair, second-handð is the most virtuous from both environmental and social perspectives. Here, value is built in the relationship between product and user, nurtured through care, personalization, and story. It is the cycle of daily resilience, reuse culture, and local proximity. A garment that is adapted, passed on, resold, or simply worn for longer generates diffuse and decentralized value, accessible to all.

The second cycleð that of upcycling and creative remanufacturingð represents an exciting frontier of innovation. It is the space where craftsmanship, design, and experimentation converge to give discarded garments new form and new function. In this field, cultural economies are activated, new aesthetics are born, and emerging professions transform waste into narrative, residue into expression. This cycle is less standardized but carries high symbolic and local potential.

Only in the third cycle do we find mechanical or chemical recycling, to be used as a last resort when the original function is no longer recoverable. In this phase, value shifts upstream, to the industrial capacity to recover material efficiently, traceably, and with minimal secondary impacts. But even here, sustainability is never automatic: without supply chain control, transparency, and clear end-use designations, recycling risks becoming an after-the-fact justification for overproduction.

In this scenario, the real ESG issue is not what to do, but how to distribute value across these phases. Sustainability cannot exist as the sum of isolated individual actions or as a narrative detached from the structures of economic power. Whatôs needed is multi-level governance capable of redistributing incentives, responsibilities, and visibility.

On the fiscal level, this means recognizing and economically rewarding those who extend product life: repair operators, second-hand platforms, leasing and pay-per-use models should benefit from reduced VAT rates, tax breaks, and privileged access to European funds. On the industrial level, there is a need to fund recycling infrastructures that are truly traceable, localized, and integrated with systems for collection, sorting, and technological innovation. And finally, on the cultural level, consumer education must not be seen as a moral accessory

but as a right and duty of citizenship: knowing how to choose, repair, and demand transparency is now an essential part of democratic competence.

The greatest mistake would be to delegate the transition solely to marketingð turning every action into a declaration, every package into a green promise, every logo into an ethical shortcut. True circularity is not a linear system disguised as a cycle; it is the capacity to distribute value across time, space, and actors, with justice and effectiveness. It is, first and foremost, a project of social design, even before it is one of technological innovation.

7. Three Models Compared: H&M, Mercatopoli, MUD Jeans

a. H&M – “Close the Loop” Model
- Voucher: 15% discount for each bag of used clothing (since 2013)
- Collection: over 22,000 tons (target was 25,000 by 2020, not reached)
- Destination: 50–60% rewear, 35–45% open-loop recycling, <1% actual regeneration, 3–7% incineration
- Issues: encourages consumption, greenwashing, exports to the Global South

b. Mercatopoli – Consignment System
- Seller receives 50% of the sale price
- Transparent tracking via My Mercatopoli platform
- No direct incentives to consume
- Encourages product life extension and multi-cycle reuse

c. MUD Jeans – Product as a Service
- Leasing: €9.95/month + €29 initial fee
- Options: keep, return, or swap the jeans after 12 months
- Impact reduction: -41% CO_2, -72% water use, use of recycled cotton (up to 40%)
- In the Netherlands: supported by regulation, B-Corp status
- In Italy: obstacles regarding VAT, leasing classification, EPR, and consumer awareness

In the fragmented landscape of sustainable fashion, these models are not merely operational alternatives but actual ideological and strategic devices. Analyzing H&M, Mercatopoli, and MUD Jeans is not only a matter of comparing practices, but of observing three radically different ways of interpreting circularity, responsibility, and value.

H&M – Circularity as Extended Consumption

H&M’s “Close the Loop” program, launched in 2013, is perhaps the most well-known example of corporate recycling. The mechanism is simple and appealing: each bag of used clothing returned to the store earns a 15% discount voucher for a new purchase. The implicit message is twofold: on the one hand, a virtuous act is promoted; on the other, constant consumption is encouraged, reproducing the linear economy under the guise of sustainability.

Official figures cite over 22,000 tons collected, but the 25,000-ton target set for 2020 was not achieved. The final destination of returned clothing reveals structural issues: only 50–60% is actually re-worn, 35–45% goes to open-loop (non-textile) recycling, less than 1% is regenerated into new garments, and 3–7% is incinerated. A significant portion is exported to the Global South, leading to severe side effects: unfair competition with local artisans, increased waste in recipient countries, and a lack of transparency in the post-sale supply chain.

The H&M model illustrates how circularity, if not accompanied by a rethinking of product volumes and design, risks becoming greenwashing. A “loop” is closed, yes—but without slowing down production or redistributing value and awareness. It is performative sustainability: reassuring but not transformative.

Mercatopoli – Reuse as Relational Economy

Mercatopoli represents a fundamentally different model: a consignment system where individuals can sell used items (including clothing) and receive 50% of the sale price. The digital platform My Mercatopoli ensures transparency and traceability, without promoting further purchases or offering discounts.

Here, value is not generated through production but through keeping goods in circulation. The store becomes both a physical and symbolic space of interaction between responsible supply and demand, where a product's timeline expands and its story continues through multiple cycles of use. Reuse is not a residual act but a cultural practice based on the idea that something which once had value can have value again—without needing to be dismantled or melted down.

Though limited in scale and margins compared to industrial recycling, Mercatopoli provides a concrete example of a regenerative, distributed, proximity-based economy. It doesn’t require large plants or complex processes—just trust, care, and transparency.

MUD Jeans – Product as a Service

MUD Jeans offers perhaps the most conceptually radical model: transforming the product into a service through a leasing contract. For an initial fee and a monthly payment of €9.95, customers can wear a pair of jeans, return them, replace them, or redeem them after 12 months. This model cuts CO_2 emissions by 41% and water use by 72% compared to traditional production, thanks to the combined use of recycled cotton (up to 40%) and modular design.

In the Netherlands, MUD Jeans has thrived: the legal framework allows leasing of consumer goods, B-Corp certification strengthens its brand credibility, and consumers are more accustomed to conscious use rather than ownership.

In Italy, however, the model faces several barriers: an unsuitable fiscal framework for “product-as-a-service” models (including VAT issues and leasing classification), and complex regulations around Extended Producer Responsibility (EPR). The real obstacle, though, is cultural: despite valuing quality and durable fashion, Italian consumers are not yet ready to abandon the ownership paradigm or to view jeans as a time-based service.

These three models reflect three versions of the same tension: sustainability as legitimization of the existing system (H&M), sustainability as a widespread social practice (Mercatopoli), and sustainability as systemic innovation (MUD Jeans). None are perfect or fully scalable, but each reveals a possible fragment of the future. The challenge for businesses and institutions is to connect these experiences into a hybrid network—one that unites industrial capacity, social proximity, and transformative vision.

8. Manteco and Traceable Regeneration: A Replicable European Model?

- MWool® system: short supply chain in Tuscany, 50 coordinated companies, LCA traceability
- Verified EPD: -99.2% emissions, -99.9% water, -93.3% energy compared to virgin wool
- Certifications: GRS, RWS
- No blockchain currently, but compatible with DLT systems
- High export potential to non-EU markets (USA, Japan, Canada), provided that:
    - digital infrastructure is strengthened
    - logistics is integrated
    - adaptation to local regulations occurs

The Manteco case is one of the most advanced and recognized examples of textile regeneration in Europe. It stands out for its ability to combine manufacturing excellence, environmental traceability, and supply chain robustness. At its core lies the MWool® brand—a mechanically regenerated wool from used garments—embedded within a short supply chain in Tuscany composed of around 50 coordinated companies, all located within a compact operating radius. This territorial setup reduces environmental logistics costs and allows direct, high-quality control over the entire production process.

Manteco's strength lies in its certified, verifiable traceability. The company has developed a reporting system based on Life Cycle Assessment (LCA), which culminated in an Environmental Product Declaration (EPD). The results are remarkable: compared to virgin wool, MWool® achieves a 99.2% reduction in emissions, 99.9% reduction in water use, and a 93.3% reduction in energy consumption. These figures are verified by third parties and reinforced by international certifications like GRS (Global Recycled Standard) and RWS (Responsible Wool Standard).

Though rooted in a local, supply-chain-based logic, Manteco's model is by no means limited to Tuscany. On the contrary, its modular and collaborative structure—combined with environmental data transparency—makes it a potentially replicable model in European contexts with strong industrial competence and political will for transition.

To scale and adapt this model to non-EU markets like the USA, Japan, or Canada—where requirements for traceability, accountability, and technical compliance are high—a few key challenges must be addressed:

1. Digital reinforcement:

Manteco currently does not use blockchain or Distributed Ledger Technology (DLT), but the system is compatible with such technologies. Adopting decentralized recording systems would allow not just verifiable but immutable traceability, aiding compliance with global regulations on supply chain security and digital product passports (as anticipated by the EU ESPR proposal). This step could bridge local trust-based systems with globally interoperable infrastructures.

2. Integrated, sustainable logistics:

To export regenerative models effectively, post-production transport and management must not cancel out the environmental benefits achieved during production. This calls for low-impact logistics, intermodal transport, and ideally, partial localization of regeneration activities in destination markets ("glocal" regeneration). Replicability will also hinge on balancing know-how centralization with decentralized production.

3. Adaptation to local regulations:

The EU regulatory framework—through instruments like the Green Deal, EU Taxonomy, and PNRR funds—supports circularity. But there is no direct equivalent in non-EU markets. In Canada, for example, EPDs must meet CSA Group standards; in the U.S., environmental certifications must align with ANSI frameworks or FTC Green Guides. This requires careful translation and regulatory adaptation, which could be facilitated by bilateral partnerships and interoperable certification platforms.

In short, Manteco is not just a company, it is an industrial mindset. A mindset that treats regeneration not as an emergency, but as a structural principle; that integrates craftsmanship, industry, and technology in an intelligent balance; and that views sustainability not as storytelling, but as an operational standard.

For this model to become a European best practice, it must be supported by multi-level policies: incentives for integrated supply chains, traceable digitalization, and international certification harmonization. Only then can Europe not just produce sustainable goods—but export sustainable systems, and with them, a new paradigm of value.

9. Circular Debate: Extend Product Life or Disassemble and Reproduce?

Environment:

- *WRAP 2022*: each extra year of garment use = -24% CO2 emissions
- Recycling is energy-intensive, with risks of downcycling and high costs

Economy:

- Recycling is scalable but centralized

- Extending product life requires downstream models—less voluminous but more profitable (repair, leasing, second-hand)

Society:

- Extending product life = greater equity and accessibility
- Recycling is valuable if it creates local jobs and supply chains, but it risks legitimizing circular consumerism

A sustainable sequence:

1. Prolonged use
2. Reuse/repair
3. Mechanical/chemical recycling

Toward a Mature Circularity: Beyond the False Dilemma

The debate between “extending product life” and “disassembling to reproduce” has often polarized textile sustainability strategies, as if these were mutually exclusive models. In reality, data and analysis converge on a more complex and layered view: a sustainable sequence in which each phase responds to a different logic of value. If properly integrated, all contribute to building a truly circular system.

From an environmental perspective, the evidence is clear: extending a garment’s useful life is the strategy with the lowest impact. Each additional year of use reduces CO_2 emissions by up to 24% (WRAP, 2022), without requiring new production or energy-intensive processes. Recycling, while necessary, entails significant environmental costs and often results in lower-quality materials, with partial loss of original value (downcycling).

Economically, centralized regeneration aligns well with structured industrial supply chains, enabling economies of scale and margin gains through volume. But it's in life extension—via repair, second-hand, leasing, subscriptions—that more distributed, relational, and higher-margin models emerge. These are less visible but more resilient economies, capable of fostering loyalty, proximity, and services.

Socially, circularity becomes meaningful only if it restores power to citizens and dignity to labor. Extending product life promotes equity, accessibility, and autonomy by offering concrete alternatives to compulsive consumption. Recycling, in turn, can drive inclusion if organized through local, transparent, and non-offshored supply chains. But if it merely legitimizes the “buy-use-recycle-rebuy” model, it risks becoming a new ritual of delayed consumerism—greener perhaps, but no less linear.

This is why true sustainability does not lie in favoring one strategy over another, but in managing the sequence. Extending, reusing, regenerating—in that order—means

prioritizing prevention, relationship, and transformation. It means designing cycles, not shortcuts. Above all, it means distributing value—across actors, territories, and generations.

This requires coherent public policies, targeted tax incentives, civic education on consumption, and digital traceability platforms. But more profoundly, it calls for a shift in mindset: from sustainability as narrative to sustainability as systemic choice. It is not enough to close the loop, we must learn to walk it, with awareness and responsibility.

10. Operational Proposals

ESG can become an infrastructure not just reporting. To achieve this, we need:

- Tax incentives for those who extend product life
- Funding for traceable recycling infrastructure
- Consumer education as a form of citizenship
- Digital and contractual models (leasing, tokens, DPP) to guarantee transparency

Every textile company must ask itself not only *what* it reports, but *why*, *for whom*, and *what it generates over time*. The future of ESG depends on this:

“Don’t adapt sustainability to business—adapt business to sustainability to make ESG a transformative infrastructure.”

For sustainability to move beyond surface-level storytelling and become the backbone of the European textile system, we must shift the focus from reporting to regenerating. This implies a redefinition of priorities: not adapting sustainability to business as usual, but shaping business models that are sustainable by design, structure, and systemic impact.

Operational proposals must not remain generic principles, but become actionable levers throughout the supply chain—capable of connecting stakeholders, guiding choices, and producing measurable effects over time.

1. Tax incentives for durability and maintenance

Currently, companies investing in repairability, product life extension, second-hand markets, or after-sales services receive no fiscal recognition. It is necessary to introduce tax credits or reduced VAT rates for producers of repairable garments, for leasing or pay-per-use providers, and for those managing maintenance or extended service. Likewise, businesses that sell fewer items but keep them in circulation longer should be rewarded for the time-based value they generate—not penalized for lower volumes.

2. Structural funds for traceable recycling infrastructures

Recycling will only be effective if supported by local, interoperable, and truly transparent infrastructures. A European plan is needed for local regeneration facilities, integrated with digital systems to track material flows. The key concept is *traceable circular supply chains*, not the global outsourcing of waste. The principle is *responsible proximity*: regenerate where production happens, following a "glocal" logic.

3. Consumer education as active citizenship

A sustainable transition is impossible without informed, empowered citizens capable of making choices. Consumer education is not a moral dimension—it is a civic competence. Schools, businesses, and media must work together to develop environmental literacy, critical thinking about greenwashing, knowledge of product life cycles, and sensitivity to the object-person relationship.

4. Digital and contractual models to ensure transparency and equity

ESG transformation requires updated technological and legal tools. We need innovative contracts (leasing, subscriptions, shared use rights) supported by digital tools like traceability tokens, digital product passports (DPP), and DLT infrastructures to ensure data immutability across the value chain. In this sense, digitalization is not just about efficiency—it is a democratic guarantee of data integrity and the foundation for trust between stakeholders.

The LINX Case: A Concrete Example of Business Aligned with Sustainability

The LINX system—a mutual credit network inspired by models like Sardex or WIR—can be interpreted as a systemic enabler infrastructure that directly responds to these needs. Though initially designed to support liquidity and inter-enterprise exchange, the LINX model exhibits three key characteristics aligned with an evolved ESG vision:

- Traceability and transparency of exchanged value: Every transaction is visible within the network and linked to a real good or service. This enables reconstruction of the value created and control over its circularity.
- Territorial redistribution: LINX fosters local proximity, prevents capital outflow, and strengthens trust-based ties. Applied to the textile sector, it could finance local networks for repair, exchange, and reuse, and support the ecological transition of small businesses.
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- Cooperative governance: LINX is not a speculative currency, but a tool of mutual regulation—where value is generated not by extraction, but by participation. This makes it compatible with authentic, not performative, ESG logic.

If integrated into a circular textile project, LINX could become a complementary currency for maintenance services, usage credit for leasing garments, or a reward system for citizens and companies adopting virtuous behavior. In this sense, it is not just an economic experiment, but a transformative infrastructure—one that enables what traditional monetary systems often obstruct: long-term thinking, trust-based relationships, and widespread sustainability.

11. ESG as Architecture and Governance

To move from ñdocumentaryò ESG to ñgenerativeò ESG, three levers are essential:

1. Differentiated fiscal policies
   - ï Tax deductions for those who extend product life cycles
   - ï Reduced VAT for leasing, repair, and second-hand goods
2. Traceable infrastructures
   - ï Digital Product Passport
   - ï Low-impact blockchain (e.g., Tezos, Algorand: <0.001 g CO2/tx)
3. Consumer education
   - ï No longer just a client, but a citizen of the fashion system

The future of sustainable textiles will not be determined by who pollutes less, but by who succeeds in redesigning the flow of valueð encompassing environment, labor, and use meaning. If properly interpreted, ESG can become the language of this transition.

The future of sustainable fashion will not be defined by a race to pollute less, but by the capacity to redesign value flowsð including environmental impact, labor practices, and the meaning of use. It is in this systemic reconfigurationð where sustainability ceases to be an external constraint and becomes an internal business formð that ESG can return to its original promise: not as a compliance framework, but as a generative architecture.

The three levers are now evident, and no longer deferrable.

The first is a differentiated tax system, capable of attributing value to durability and maintenance. Today, companies that extend product life or operate in the reuse economy are taxed at the same rate as those fueling overproduction. This systemic distortion penalizes precisely those who innovate.

The second lever is traceable digital infrastructure, capable of restoring trust in data and visibility to virtuous behavior. The Digital Product Passport, paired with low-impact blockchain technologies such as Tezos or Algorand, can guarantee a readable, interoperable, and accessible supply chain. It is not only important to know where a garment comes fromð but what it becomes and for whom it holds value throughout its life cycle.

The third lever is consumer education as active citizenship. The consumer is now a political actor, and the fashion system is one of the domains where the power to shape the future is exercisedð daily and materially. To purchase, repair, reuse, or reject: each gesture has systemic consequences.

But to truly shift from ñdeclaredò ESG to ñembodiedò ESG, we also need a tool for interpretationð a map that can help businesses and regions understand where they are headed. Not an algorithm, but a reflective device, capable of making visible intentions and limitations, potentials and contradictions. A tool that doesnôt just collect data, but that raises questions: Why do we report? For whom? What does it generate over time, across communities, and within the system?

This is the terrain where the maturity of ESG as a language of transition is tested. And with our approach, we have chosen to stand precisely there: where we stop merely describing the present and begin designing the possible.

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