Circular Economy *in* FASHION SECTOR

A Practical Implementation Guide for Brands, Manufacturers, Retailers, Policymakers & Investors

Global Institute for Circular Economy & Sustainable Development Goals (ICESSDGs)

GLOBAL INSTITUTE FOR CIRCULAR ECONOMY & SUSTAINABLE DEVELOPMENT GOALS

ICE & SDGs

THE PRACTICAL IMPLEMENTATION GUIDE

Circular Economy
in the Fashion Sector

A practical implementation guide for brands, manufacturers, retailers, policymakers and investors.

EXPANDED & ENHANCED EDITION

An industrial redesign agenda for a circular fashion system.

20	12	15	62
CHAPTERS	FIGURES	ANNEXURES	REFERENCES

12 COUNTRY & REGIONAL PROFILES · 18 CIRCULAR BUSINESS MODELS

2026

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Circular Economy in the Fashion Sector

A Practical Implementation Guide for Brands, Manufacturers, Retailers, Policymakers and Investors

Expanded & Enhanced Edition · 2026

Evidence-based reference · 12 figures · 15 implementation annexures

Scope and positioning

This book is written as a hybrid of an academic reference and a practical industry guide. It focuses on apparel, clothing textiles and fast fashion, while also covering home textiles, technical textiles and second-hand clothing flows where they shape circularity outcomes. Country coverage includes India, EU, USA, China, Australia, Bangladesh, Vietnam, Turkey, Indonesia, Ghana, Chile and Kenya.

Prepared for	Edition	Citation approach	Main use
Fashion and textile industry professionals	Expanded Word edition, 2026	Inline source keys [S1]–[S62], complete references chapter	Strategy, training, implementation planning, policy engagement and investor due diligence

Original diagrams in this edition are of two kinds: illustrative system visuals (Figures 1–3) and precise implementation schematics prepared for this publication (Figures 4–12). The book is intended for professional use and should be adapted to local legal, labour, environmental and tax requirements before implementation.

Copyright, disclaimer and evidence note

This publication is provided as a professional working book for circular economy strategy, implementation and learning. It does not constitute legal, financial, tax, engineering or investment advice. Market estimates vary by methodology; the book therefore presents figures as directional evidence and flags uncertainties where relevant.

Evidence approach: priority was given to authoritative sources including UNEP, EEA, European Commission, EPA, World Bank, government sources, recognised industry initiatives, and major reports. Inline source keys such as [S6] connect claims to the reference list in Chapter 20.

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How to use this book

Executives can read Chapters 1, 4, 8, 9 and 17 first. Sustainability and sourcing teams should use Chapters 5–13 and the annex templates. Manufacturers can focus on Chapters 3, 6, 8, 11 and 12. Investors should use Chapters 9, 14, 16 and 18. Policymakers and associations may use Chapters 4, 13, 15 and 17. Every reader should keep the Annexures open while implementing — they convert the chapters into checklists you can act on this quarter.

1. Executive summary and key findings

The fashion sector is economically large, culturally influential and operationally global. It is also a visible example of a linear economy: raw materials are extracted, garments are produced quickly, consumers buy more than they can fully use, and large quantities of textiles are discarded, exported, landfilled, burned or downcycled. Global apparel was valued at about USD 1.8 trillion in 2025 and the broader textile market at about USD 1.16 trillion, while fast fashion alone was estimated at USD 162.76 billion in 2025 [S1][S2][S3].

Circular economy adoption is therefore not an optional green project; it is an industrial redesign agenda. The strongest strategies keep garments and materials at their highest value for as long as possible: durable design, care, repair, reuse, resale, rental, refurbishment, remanufacturing, responsible take-back, sorting, fibre-to-fibre recycling and regenerative material systems [S19][S20].

Finding	Implication for industry	Priority response
Growth and waste rise together	Circularity must be linked to volume, design and production decisions.	Use demand planning, durable design, take-back and resale; set waste and overproduction KPIs.
Impacts are distributed globally	Brands often outsource impacts to production and waste-receiving regions.	Include producer and receiving countries in risk analysis, not only consumer markets.
Policy is moving to mandatory	EU DPP, ecodesign, EPR and waste rules create market-access pressure.	Build product data, material disclosure and EPR readiness now.
Reuse markets matter	Resale can retain value when it displaces new production.	Professionalise grading, cleaning, authentication and pricing.
Recycling needs scale and purity	Blends, trims, elastane and contamination limit fibre-to-fibre recycling.	Design for recycling and create feedstock contracts.

- Circularity begins before fibre selection: assortment planning, trend cadence, SKU discipline and demand forecasting shape waste.
- Durability, emotional longevity and repairability are high-value interventions because they avoid the need for new production.
- Resale and reuse work best when quality, logistics, cleaning and pricing are professionalised.
- Recycling is essential for non-reusable textiles, but it cannot compensate for unlimited overproduction.
- Digital Product Passports are compliance tools and operational enablers for repair, resale, sorting and recycling.
- Countries receiving second-hand clothing need environmental justice, fair finance and infrastructure support, not only donations.

> **What is new in this edition**
>
> This expanded edition keeps the original analysis intact and adds nine implementation schematics (Figures 4–12), fully developed guidance for design, materials, technology, policy, finance, metrics, roadmaps and governance (Chapters 10–19), and a 15-part annexure of checklists and templates so teams can move from principles to action.

2. Introduction: global fashion, textiles and fast fashion

The apparel and textile system spans fibre production, yarn and fabric manufacturing, dyeing and finishing, cut-make-trim operations, logistics, retail, use, repair, resale and end-of-life management. It includes high-value luxury products, mass-market apparel, uniforms, footwear, accessories, household textiles and technical textiles.

Fast fashion is not simply cheap clothing. It is a production and merchandising system built around rapid trend identification, short lead times, frequent range refreshes, low prices and high volume. Its strengths are responsiveness and affordability; its weaknesses include overproduction risk, low perceived value, rapid disposal and difficult recycling of low-quality blended materials [S3][S4].

Market indicator	Recent estimate	Strategic interpretation
Global apparel market	USD 1.8T in 2025; USD 2.5T projected by 2033 [S1]	Circular strategy must be mainstream, not niche.
Global textile market	USD 1,160B in 2025; fashion application 72.7% [S2]	Fashion is the dominant textile application and shapes material demand.
Fast fashion market	USD 162.76B in 2025; USD 388.56B by 2034 [S3]	Speed and affordability drive volume, returns, quality concerns and waste.
EU textile waste	6.95Mt in 2020, about 16kg/person [S6]	Even regulated markets require much more circular capacity.
US textile MSW	17.03M tons generated in 2018 [S7]	Consumption markets need collection, data and recycling infrastructure.

Core thesis

Circular fashion succeeds when it changes what is designed, how much is made, how long products stay useful, how value is recovered after use, and who pays for end-of-life management. A circular label on a capsule collection is not enough.

3. Fashion value chain and material flows

The fashion value chain is a network, not a straight line. Fibre may be grown or synthesised in one country, spun in another, dyed elsewhere, sewn in a manufacturing hub, sold through multinational retailers, used by consumers, then donated, resold, exported, downcycled, burned or landfilled. Circular implementation requires visibility across this network [S22].

Value-chain stage	Main sustainability pressures	Circular levers
Fibre production	Water, land, pesticides, fossil feedstock, biodiversity, labour risks	Regenerative agriculture, certified fibres, recycled feedstock, lower-impact fibres.
Yarn / fabric production	Energy, process waste, chemicals, emissions	Renewable energy, waste segregation, recycled content, process efficiency.
Dyeing / finishing	Water pollution, toxic substances, wastewater, worker exposure	Safer chemistry, closed-loop water, waterless dyeing, effluent treatment.
Cut-make-trim	Cutting waste, labour conditions, overtime, low margins	Zero-waste cutting, made-to-order, fair purchasing, pre-consumer waste recycling.
Distribution / retail	Packaging, returns, transport, overstock	Demand forecasting, recommerce, repair hubs, reusable packaging.
Use phase	Washing, drying, microfibres, care behaviour, emotional obsolescence	Care instructions, repair, durable design, lower-wash materials.
End of use	Donation overflow, export, landfill, burning, downcycling	Take-back, sorting, reuse, resale, repair, fibre-to-fibre recycling.

Refer to Figure 1 for the systems view.

Figure 1. Circular Economy in the Fashion Sector systems map. Illustrative visual.

Figure 1 places value-retention loops at the centre. The practical message is that every product should be designed with a plausible next use: care, repair, resale, refurbishment, remanufacturing, recycling or safe residual disposal. Collection without downstream capacity merely relocates waste.

4. Country and regional profiles

Circular economy strategies must be country-sensitive. The same business model can have different impacts depending on local energy mix, waste infrastructure, labour conditions, import/export rules, consumer behaviour, second-hand markets, industrial clusters and policy requirements.

Country / region	Current role and pressure	Priority circular actions	Strategic note
India	Large domestic market; cotton, MMF and export manufacturing; deep informal repair, tailoring and reuse culture.	Cluster waste mapping; MSME finance; formalised sorter safety; recycled-content standards; design curricula for durability and repair.	Link traditional reuse systems with modern traceability, chemical management and industrial recycling.
European Union	Regulatory frontrunner: ecodesign, DPP, EPR, separate collection, waste-shipment controls and restrictions on destruction of unsold goods.	DPP-ready data; durability and repairability design; EU sorting/recycling capacity; EPR eco-modulation.	The highest-priority compliance market for global brands; its rules influence supplier requirements worldwide.
United States	Major consumer market with high textile waste and emerging state-level EPR. EPA data remain a key baseline.	California EPR readiness; recommerce; fit technology; national data and recycling standards.	Action is fragmented but the scale of textile waste makes it a major circularity opportunity.
China	Major production and consumption hub; national targets for waste-textile recycling and recycled fibre.	Domestic post-consumer collection; high-speed sorting; recycled-fibre quality standards; industrial symbiosis.	China's recycling scale can shape global secondary-fibre markets.
Australia	High clothing consumption and limited local textile recycling; Seamless provides a national stewardship framework.	Scale stewardship participation; fund collection and sorting; build domestic recycling for cotton/wool; discourage ultra-fast low-quality inflows.	A strong pilot market for stewardship, consumer education and transparent product claims.
Bangladesh	Second-largest RMG exporter; major green-factory leadership and large workforce.	Pre-consumer waste systems; green-factory circular material hubs; fair buyer financing; worker upskilling.	Circularity must not become an unpaid compliance burden for suppliers.
Vietnam	Major export hub with strong US/EU/Japan markets; textiles in climate and circular-economy policy.	Waste mapping; feedstock aggregation hubs; SME technical support; traceable secondary-material trade.	Can build circular competitiveness through compliant material data and cleaner production.
Turkey	Strategically close to Europe and heavily exposed to EU regulation.	Traceability systems; domestic recycling; SME readiness; near-shore circular production for EU buyers.	Can use proximity to Europe as a low-carbon, circular production advantage.
Indonesia	Large domestic and export sector; rising circular-textile policy activity; significant waste and wastewater challenges.	Textile-specific EPR; industrial-park pilots; informal-sector inclusion; recycling hubs and digital waste mapping.	Circularity can support resilience if imports, wastewater and MSME finance are addressed together.
Ghana	Kantamanto is a major reuse, repair and resale hub but receives high volumes of unusable clothing.	Global EPR contributions; quality controls on exports; worker safety; local upcycling and waste infrastructure.	Needs fair finance and recognition of reuse labour, not more unmanaged donation flows.
Chile	Atacama/Alto Hospicio illegal dumping shows the cost of unmanaged second-hand clothing trade.	Customs classification; textile EPR; remediation; local upcycling/recycling.	Illustrates why 'reuse' shipments need quality controls and downstream accountability.
Kenya	Second-hand clothing supports livelihoods but creates waste pressures around markets and dumpsites.	Import quality audits; recycling-machinery reforms; inclusion of traders, tailors and waste pickers; collection systems.	Requires livelihood protection and waste prevention together.

Each country's dynamics are summarised below.

India

India is important because it has a large domestic market; cotton, MMF and export manufacturing; and a deep informal repair, tailoring and reuse culture.

- **Priority actions:** Cluster waste mapping; MSME finance; formalised sorter safety; recycled-content standards; design curricula for durability and repair.
- **Strategy implication:** The priority is to link traditional reuse systems with modern traceability, chemical management and industrial recycling.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

European Union

European Union is important because it is the regulatory frontrunner: ecodesign, DPP, EPR, separate collection, waste-shipment controls and restrictions on destruction of unsold goods.

- **Priority actions:** DPP-ready data; durability and repairability design; EU sorting/recycling capacity; EPR eco-modulation.
- **Strategy implication:** The EU is the highest-priority compliance market for global brands because its rules influence supplier requirements worldwide.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

United States

United States is important because it is a major consumer market with high textile waste and emerging state-level EPR; EPA data remain a key baseline.

- **Priority actions:** California EPR readiness; recommerce; fit technology; national data and recycling standards.
- **Strategy implication:** US action is fragmented but the scale of textile waste makes it a major circularity opportunity.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

China

China is important because it is a major production and consumption hub with national targets for waste-textile recycling and recycled fibre.

- **Priority actions:** Domestic post-consumer collection; high-speed sorting; recycled-fibre quality standards; industrial symbiosis.
- **Strategy implication:** China's recycling scale can shape global secondary-fibre markets.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Australia

Australia is important because it has high clothing consumption and limited local textile recycling; Seamless provides a national stewardship framework.

- **Priority actions:** Scale stewardship participation; fund collection and sorting; build domestic recycling for cotton/wool streams; discourage ultra-fast low-quality inflows.
- **Strategy implication:** Australia is a strong pilot market for stewardship, consumer education and transparent product claims.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Bangladesh

Bangladesh is important because it is the second-largest RMG exporter, with major green-factory leadership and a large workforce.

- **Priority actions:** Pre-consumer waste systems; green-factory circular material hubs; fair buyer financing; worker upskilling.
- **Strategy implication:** Circularity must not become an unpaid compliance burden for suppliers.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Vietnam

Vietnam is important because it is a major export hub with strong US/EU/Japan markets; textiles are included in climate and circular-economy policy discussions.

- **Priority actions:** Waste mapping; feedstock aggregation hubs; SME technical support; traceable secondary-material trade.
- **Strategy implication:** Vietnam can build circular competitiveness through compliant material data and cleaner production.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Turkey

Turkey is important because it is strategically close to Europe and heavily exposed to EU regulation.

- **Priority actions:** Traceability systems; domestic recycling; SME readiness; near-shore circular production for EU buyers.
- **Strategy implication:** Turkey can use proximity to Europe as a low-carbon, circular production advantage.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Indonesia

Indonesia is important because it has a large domestic and export sector, rising circular-textile policy activity, and significant waste and wastewater challenges.

- **Priority actions:** Textile-specific EPR; industrial-park pilots; informal-sector inclusion; recycling hubs and digital waste mapping.
- **Strategy implication:** Circularity can support resilience if imports, wastewater and MSME finance are addressed together.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Ghana

Ghana is important because Kantamanto is a major reuse, repair and resale hub but receives high volumes of unusable clothing.

- **Priority actions:** Global EPR contributions; quality controls on exports; worker safety; local upcycling and waste infrastructure.
- **Strategy implication:** Ghana needs fair finance and recognition of reuse labour, not more unmanaged donation flows.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Chile

Chile is important because Atacama/Alto Hospicio illegal dumping shows the cost of unmanaged second-hand clothing trade.

- **Priority actions:** Customs classification; textile EPR; remediation; local upcycling/recycling.
- **Strategy implication:** Chile illustrates why 'reuse' shipments need quality controls and downstream accountability.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Kenya

Kenya is important because second-hand clothing supports livelihoods but creates waste pressures around markets and dumpsites.

- **Priority actions:** Import quality audits; recycling-machinery reforms; inclusion of traders, tailors and waste pickers; collection systems.
- **Strategy implication:** Kenya requires livelihood protection and waste prevention together.
- **Implementation lens:** align policy, finance, infrastructure, labour protections and material data rather than treating recycling as an isolated technical project.

Market and systems assessment: circularity in a given geography should be assessed across production, consumption, import/export flows, informal repair and resale, landfill or dumping pressures, policy readiness and access to finance. A brand sourcing from or selling into a market should identify the specific stage where impacts are concentrated rather than applying a generic global circularity programme.

Implementation pathway: the first step is a material-flow baseline, followed by actor mapping, policy alignment, pilot design and investment planning. The second step is to build traceable flows for the most material textile streams. The third step is to link circular actions to social safeguards so repairers, sorters, traders, tailors and factory workers benefit from the transition.

Workstream	First 6 months	Months 6–18	Scale-up test
Data	Map product and waste flows	Create reporting templates and supplier-data routines	Data covers priority fibres, products and end-of-life pathways
Infrastructure	Identify collection, sorting, repair and recycling capacity	Pilot logistics and grading routes	A downstream route exists for each collected category

Workstream	First 6 months	Months 6–18	Scale-up test
Finance	Estimate costs and value pools	Secure grants, EPR funds, offtake or buyer co-investment	Circular unit economics are documented
Social safeguards	Map affected workers and informal actors	Define safe work, pay and grievance requirements	Transition benefits are shared and monitored

5. Pollution from the fashion sector

Fashion pollution is not one problem. It includes air pollution, water pollution, land pollution, microfibres, chemical hazards, biodiversity impacts, climate emissions and social harms distributed across the life cycle. Circular economy can address many impacts when linked to safer chemistry, renewable energy, labour rights and responsible volume management [S4][S6].

Pollution type	Where it occurs	Evidence and relevance	Controls
Air pollution	Coal-powered mills, boilers, transport, open burning	Ghana, Kenya and Chile show visible end-of-life burning risks [S14][S15][S17].	Prevent waste exports, formalise disposal, prohibit open burning, use clean heat.
Water pollution	Dyeing, finishing, washing, landfill leachate	Textile processes are associated with wastewater and chemical discharge [S4][S6].	Safer chemistry, effluent treatment, closed-loop water, material disclosure.
Land pollution	Landfills, illegal dumps, factory waste piles	EU, US, Ghana, Kenya and Chile demonstrate landfill and dumping risks [S6][S7][S14][S15].	Waste prevention, EPR, sorting, reuse, recycling, landfill bans where alternatives exist.
Microfibres	Synthetic production, laundering, weathering in dumps	Microplastic risk is linked to synthetic textiles and washing [S4].	Low-shed design, filters, wastewater capture and fibre substitution where appropriate.
Chemical pollution	Cultivation, dyeing, finishing, coatings	Hazardous chemicals can prevent safe material cycling [S20].	Restricted-substances lists, substitution, chemical inventory, detox programmes.
Climate impacts	Production, synthetic feedstock, transport, washing/drying, disposal	EEA highlights high GHG pressures from EU textile consumption [S6].	Renewable energy, efficiency, durability, resale, lower virgin production.
Social impacts	Factories, informal waste work, second-hand markets	Ghana and Kenya show livelihood dependence and waste burdens [S14][S17].	Due diligence, fair purchasing, worker safety and inclusive circular jobs.

Evidence-quality note

Global impact estimates differ because sector boundaries differ. Use ranges and directional conclusions; do not over-claim precision. The more reliable operational step is to build company-specific baselines for materials, waste, emissions, chemicals and supplier practices.

6. Solutions to pollution and climate impacts

A credible portfolio uses prevention, mitigation, adaptation and systems change. Prevention avoids impacts; mitigation reduces unavoidable impacts; adaptation helps communities and businesses cope with current waste and climate realities; systems change shifts incentives, policies and infrastructure.

Impact	Prevention	Mitigation	Systems change
Overproduction	Demand forecasting, made-to-order, SKU discipline	Markdown controls, outlet governance	Executive incentives tied to sell-through and waste reduction.
Water pollution	Avoid hazardous chemistry, choose lower-impact fibres	Effluent treatment, closed-loop water	Mandatory discharge standards and transparent supplier data.
Climate emissions	Durable design, reduced virgin volumes	Renewable energy, efficient heat, lower-carbon logistics	Science-based targets, procurement reform and policy incentives.
Textile waste	Design for longevity and quality	Repair, resale, take-back, sorting, recycling	EPR, landfill restrictions, import-quality rules, public procurement.
Microfibres	Low-shed fabric design	Washing filters and wastewater capture	Standards for shedding tests and labelling.
Social harm	Responsible purchasing and due diligence	Worker safety and grievance systems	Binding agreements, living-wage strategies and inclusive circular jobs.

7. Circular economy foundations for fashion

Circular economy in fashion is a systems approach to designing, producing, using and recovering clothing and textile products so that value is retained, waste and pollution are eliminated, and natural systems are regenerated. It differs from conventional sustainability because it changes flows and business models rather than simply improving individual processes [S20][S21][S37].

Priority	Model family	Reason it ranks here
1	Refuse and reduce unnecessary production	Avoids impact before it exists.
2	Durability, care and emotional longevity	Extends useful life while the product remains at highest value.
3	Repair, reuse and resale	Keeps the whole garment in use.
4	Rental, sharing and product-as-a-service	Can increase utilisation for suitable categories.
5	Refurbishment, remanufacturing and upcycling	Transforms damaged products while preserving material value.
6	Mechanical and chemical recycling	Recovers fibres when whole-garment use is no longer viable.
7	Safe disposal of residuals	Necessary only when materials cannot be safely reused or recycled.

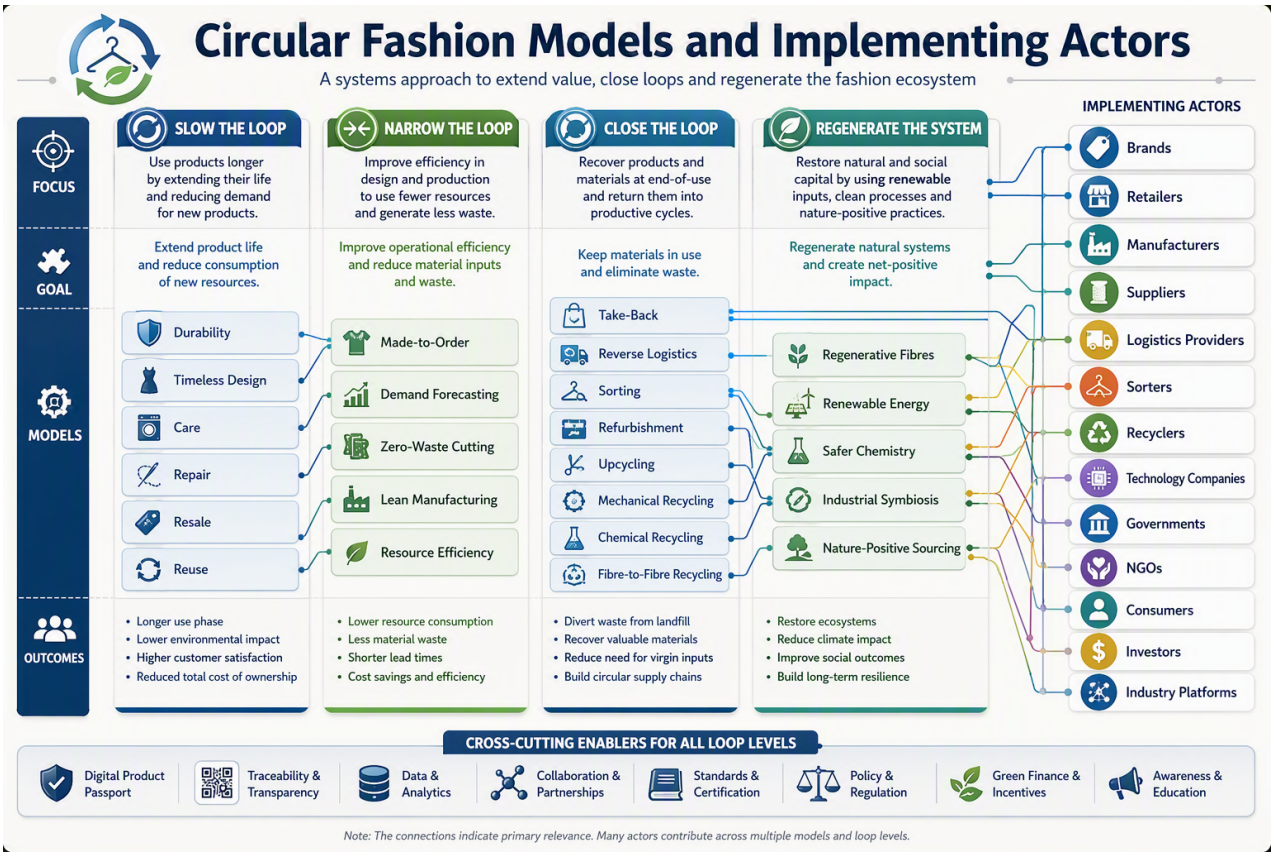


Figure 2. Circular fashion models and implementing actors. Illustrative visual.

The same logic can be expressed as a value-retention ladder (the '9R' family). The higher a strategy sits, the more value, energy and material purity it preserves — which is why the tightest inner loops should always be designed for first.

FIGURE 4

The Value-Retention (R-Strategy) Ladder for Fashion

Design rule:
Prioritise the tightest inner loops. Every step down the ladder loses value, energy and material purity — recycling cannot compensate for unlimited overproduction.

Figure 4. The value-retention (R-strategy) ladder for fashion.

The central design rule

Prioritise the tightest inner loops. Refusing, reducing, reusing and repairing keep whole garments at their highest value; recycling recovers only the material, and always with some loss. Recycling is essential, but it can never compensate for unlimited overproduction — so volume and design decisions sit above recycling in every circular strategy.

8. Circular fashion models and implementing actors

Circular fashion requires actor mapping because no single organisation controls the full loop. Brands influence design and procurement; manufacturers control production data and waste segregation; retailers and platforms control customer interfaces; logistics providers enable reverse flows; sorters and recyclers determine recovery; governments set rules; investors allocate capital.

Model	What it does	Best implementing actors	Implementation requirements
Durability and longevity	Design products that physically and emotionally last longer.	Brands, designers, suppliers, testing labs, consumers	Quality specs, reinforced seams, colour fastness, fit consistency, warranties, care guidance.
Care and maintenance	Keep garments usable with lower washing and repair impacts.	Brands, retailers, consumers, appliance makers	Care labels, low-temperature washing, lower-shed care, spare buttons and stain guidance.
Repair	Return damaged products to usable state.	Brands, retailers, local tailors, repair platforms	In-store repair, mail-in repair, repair credits, spare parts and tutorials.
Reuse and resale	Transfer whole garments to another user.	Brands, retailers, recommerce platforms, charities, consumers	Authentication, cleaning, grading, pricing and resale marketplaces.
Rental and sharing	Provide access rather than ownership.	Rental platforms, brands, logistics providers, cleaners	High-utilisation categories, durable products, cleaning controls and transport optimisation.
Refurbishment	Restore products to sellable or usable condition.	Brands, repair centres, refurbishers	Inspection, cleaning, minor repair, re-labelling and resale.
Remanufacturing	Use recovered components or panels to make new products.	Manufacturers, upcyclers, brands, social enterprises	Disassembly, pattern redesign, quality assurance and new SKU creation.
Upcycling	Convert waste or low-value textiles into higher-value products.	Designers, SMEs, artisans, NGOs, brands	Creative design, quality control, storytelling and small-batch production.
Mechanical recycling	Shred textiles into fibres for yarn, insulation, filling or nonwovens.	Recyclers, manufacturers, sorters, brands	Feedstock purity, sorting, de-trimming and fibre-length management.
Chemical recycling	Depolymerise or dissolve fibres.	Technology companies, recyclers, investors, brands	High-volume feedstock, process control, solvent management and energy controls.
Fibre-to-fibre recycling	Turn textile waste into fibres suitable for new textiles.	Recyclers, fibre producers, brands, investors, governments	Accurate sorting, design for recycling, offtake agreements and quality standards.
Take-back systems	Collect products after use.	Brands, retailers, municipalities, charities, logistics providers	Collection points, incentives, consumer trust and downstream pathways.
Reverse logistics	Move used products to sorting and recovery.	Logistics providers, retailers, brands, technology firms	Consolidation, tracking, route optimisation and cost control.
Product-as-a-service	Sell access, performance or outcomes instead of units.	Brands, platforms, investors, insurers	Ownership retention, maintenance systems, contracts and asset tracking.

Model	What it does	Best implementing actors	Implementation requirements
Made-to-order	Produce only after demand is confirmed.	Brands, manufacturers, digital tech companies	Digital sampling, flexible production and lead-time transparency.
Digital Product Passports	Provide product-level data for compliance and circular pathways.	Brands, tech companies, suppliers, regulators, recyclers	Unique IDs, material data, chemical data and repair/recycling instructions.
Regenerative materials	Link fibres to soil, biodiversity and ecosystem restoration.	Farmers, suppliers, brands, certification bodies	Long-term sourcing contracts, measurement, premiums and traceability.
Industrial symbiosis	Use one facility's by-products as another's inputs.	Industrial parks, manufacturers, utilities, governments	Material exchange, shared water/energy systems and cluster governance.

Each model below shares the same evaluation logic — product suitability, customer acceptance, operational capability, finance and measurable environmental outcomes — and adds its distinct actors, requirements and best-fit signal.

8.1. Durability and longevity

Durability and longevity is a circular fashion model that design products that physically and emotionally last longer.

- **Implementing actors:** Brands, designers, suppliers, testing labs, consumers.
- **Core requirements:** Quality specs, reinforced seams, colour fastness, fit consistency, warranties, care guidance.
- **Where it fits best:** all categories; the highest-leverage lever for basics, workwear, outerwear and childrenswear.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.2. Care and maintenance

Care and maintenance is a circular fashion model that keep garments usable with lower washing and repair impacts.

- **Implementing actors:** Brands, retailers, consumers, appliance makers.
- **Core requirements:** Care labels, low-temperature washing, lower-shed care, spare buttons and stain guidance.
- **Where it fits best:** everyday garments where wash impact dominates the lifetime footprint (denim, knitwear, activewear).
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.3. Repair

Repair is a circular fashion model that return damaged products to a usable state.

- **Implementing actors:** Brands, retailers, local tailors, repair platforms.

- **Core requirements:** In-store repair, mail-in repair, repair credits, spare parts and tutorials.
- **Where it fits best:** higher-value and sentimental items; footwear, outerwear, denim and tailoring.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.4. Reuse and resale

Reuse and resale is a circular fashion model that transfer whole garments to another user.

- **Implementing actors:** Brands, retailers, recommerce platforms, charities, consumers.
- **Core requirements:** Authentication, cleaning, grading, pricing and resale marketplaces.
- **Where it fits best:** branded, durable, recognisable items that hold residual value (denim, outerwear, luxury, kidswear).
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.5. Rental and sharing

Rental and sharing is a circular fashion model that provide access rather than ownership.

- **Implementing actors:** Rental platforms, brands, logistics providers, cleaners.
- **Core requirements:** High-utilisation categories, durable products, cleaning controls and transport optimisation.
- **Where it fits best:** occasion, maternity, kidswear, workwear and other high-utilisation categories — not low-value basics.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.6. Refurbishment

Refurbishment is a circular fashion model that restore products to sellable or usable condition.

- **Implementing actors:** Brands, repair centres, refurbishers.
- **Core requirements:** Inspection, cleaning, minor repair, re-labelling and resale.
- **Where it fits best:** returns, ex-display and lightly-used stock; footwear and accessories.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.

- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.7. Remanufacturing

Remanufacturing is a circular fashion model that use recovered components or panels to make new products.

- **Implementing actors:** Manufacturers, upcyclers, brands, social enterprises.
- **Core requirements:** Disassembly, pattern redesign, quality assurance and new SKU creation.
- **Where it fits best:** uniforms, denim and textiles with reusable panels; supports limited-edition storytelling.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.8. Upcycling

Upcycling is a circular fashion model that convert waste or low-value textiles into higher-value products.

- **Implementing actors:** Designers, SMEs, artisans, NGOs, brands.
- **Core requirements:** Creative design, quality control, storytelling and small-batch production.
- **Where it fits best:** deadstock, offcuts and single-item collections; strongest with a clear brand narrative.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.9. Mechanical recycling

Mechanical recycling is a circular fashion model that shred textiles into fibres for yarn, insulation, filling or nonwovens.

- **Implementing actors:** Recyclers, manufacturers, sorters, brands.
- **Core requirements:** Feedstock purity, sorting, de-trimming and fibre-length management.
- **Where it fits best:** post-industrial cotton/wool streams and non-reusable textiles; watch fibre-length loss.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.10. Chemical recycling

Chemical recycling is a circular fashion model that depolymerise or dissolve fibres.

- **Implementing actors:** Technology companies, recyclers, investors, brands.
- **Core requirements:** High-volume feedstock, process control, solvent management and energy controls.

- **Where it fits best:** polyester and cellulosic streams at volume; needs clean, well-sorted feedstock and energy control.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.11. Fibre-to-fibre recycling

Fibre-to-fibre recycling is a circular fashion model that turn textile waste into fibres suitable for new textiles.

- **Implementing actors:** Recyclers, fibre producers, brands, investors, governments.
- **Core requirements:** Accurate sorting, design for recycling, offtake agreements and quality standards.
- **Where it fits best:** mono-material, well-sorted streams; the end-goal loop, but demand and off-take must be secured.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.12. Take-back systems

Take-back systems is a circular fashion model that collect products after use.

- **Implementing actors:** Brands, retailers, municipalities, charities, logistics providers.
- **Core requirements:** Collection points, incentives, consumer trust and downstream pathways.
- **Where it fits best:** brands with owned retail or e-commerce and a real downstream route for every collected grade.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.13. Reverse logistics

Reverse logistics is a circular fashion model that move used products to sorting and recovery.

- **Implementing actors:** Logistics providers, retailers, brands, technology firms.
- **Core requirements:** Consolidation, tracking, route optimisation and cost control.
- **Where it fits best:** any programme at scale; the enabling backbone that makes recovery models economic.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.

- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

Figure 3. Reverse logistics and textile recycling architecture. Illustrative visual.

Figure 3 shows why grading is the heart of reverse logistics. The decision gate determines whether a product should be resold, repaired, upcycled, mechanically recycled, chemically recycled or safely disposed of. The architecture also makes clear that data governance, EPR funding, worker safety, quality standards and environmental controls are not optional add-ons; they are foundations.

8.14. Product-as-a-service

Product-as-a-service is a circular fashion model that sell access, performance or outcomes instead of units.

- **Implementing actors:** Brands, platforms, investors, insurers.
- **Core requirements:** Ownership retention, maintenance systems, contracts and asset tracking.
- **Where it fits best:** durable, serviceable, higher-value products where utilisation and asset tracking justify the model.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.15. Made-to-order

Made-to-order is a circular fashion model that produce only after demand is confirmed.

- **Implementing actors:** Brands, manufacturers, digital tech companies.
- **Core requirements:** Digital sampling, flexible production and lead-time transparency.
- **Where it fits best:** personalised, premium and long-tail products; cuts overproduction and markdown risk.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.16. Digital Product Passports

Digital Product Passports is a circular fashion model that provide product-level data for compliance and circular pathways.

- **Implementing actors:** Brands, tech companies, suppliers, regulators, recyclers.
- **Core requirements:** Unique IDs, material data, chemical data and repair/recycling instructions.
- **Where it fits best:** every regulated market from 2027; start with high-volume and export-to-EU lines first.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.17. Regenerative materials

Regenerative materials is a circular fashion model that link fibres to soil, biodiversity and ecosystem restoration.

- **Implementing actors:** Farmers, suppliers, brands, certification bodies.
- **Core requirements:** Long-term sourcing contracts, measurement, premiums and traceability.
- **Where it fits best:** natural-fibre supply chains (cotton, wool) with committed farmers and verified outcomes.
- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

8.18. Industrial symbiosis

Industrial symbiosis is a circular fashion model that use one facility's by-products as another's inputs.

- **Implementing actors:** Industrial parks, manufacturers, utilities, governments.
- **Core requirements:** Material exchange, shared water/energy systems and cluster governance.
- **Where it fits best:** co-located manufacturing clusters and industrial parks; strongest with shared utilities.

- **Value proposition:** retain product or material value for longer while reducing waste, virgin-resource dependence and exposure to emerging regulation.
- **Key risk:** the model can underperform if logistics, quality controls, customer behaviour or downstream capacity are weak.
- **Evidence requirement:** collect baseline data, pilot results, unit economics and impact assumptions before making external claims.

Key decision-making factors for circular economy models 8.1–8.18

Design question	Operational decision	Metric to track
Where does value remain?	Decide whether value is highest at garment, component, fibre or residual level.	Value recovered per kg or per unit
Who owns the loop?	Assign accountability across design, retail, logistics and recovery partners.	Named owner and budget
What is the customer role?	Define incentives, convenience, trust and communication.	Participation rate and repeat use
How is impact proven?	Measure displacement, life extension, avoided waste and rebound effects.	Verified circular impact KPI

9. Benefits and business case of circular models

Circular business cases are strongest when they combine sustainability impact with commercial value. The World Economic Forum identifies value through sustainability, resilience, revenues and costs, but also notes upfront investments, organisational-capability gaps and operational complexity [S21].

Benefit category	How circularity creates value	Typical KPIs
Revenue	Resale, repair, rental, subscriptions, refurbished goods and product-as-a-service.	Circular revenue %, resale gross margin, repair conversion, rental utilisation.
Cost	Reduced material waste, lower customer-acquisition costs, reduced returns, feedstock value recovery.	Waste cost avoided, sell-through, return rate, material yield.
Resilience	Reduced dependence on virgin materials and geographically fragile supply chains.	Recycled/secondary input %, supplier concentration, feedstock contracts.
Compliance	Readiness for EPR, DPP, ecodesign, waste-shipment and green-claims rules.	Product-data completeness, EPR coverage, substantiated claims.
Brand and trust	Better transparency, repair support and product quality.	Customer loyalty, NPS, warranty/repair satisfaction.
Impact	Lower waste, resource demand and emissions where displacement is credible.	Tonnes diverted, product-life extension, kg CO2e avoided, water saved.

Business-case warning

Circularity is not automatically lower impact.

Rental can underperform if logistics and cleaning are intensive; resale can underperform if it stimulates extra consumption rather than displacing new purchases; recycling can underperform if it is energy-intensive or if downcycling dominates. Always test displacement, utilisation and logistics before claiming benefit.

10. Circular design principles

Design is the highest-leverage point in circular fashion. The European Commission estimates that a very large share of a product's environmental impact — commonly cited as up to 80% — is determined at the design stage, before a single garment is made [S39]. Design decides how long a product lasts, whether it can be repaired, whether it can be recycled, and what data travels with it. This chapter turns that principle into concrete design rules.

The five foundational commitments are unchanged, and each is elaborated below:

- Design for durability and repairability through strong seams, spare parts, replaceable components and care guidance.
- Design for recyclability through mono-materials where possible, limited elastane and removable trims.
- Design for emotional longevity through timeless styles, user attachment and customisation.
- Design for low-impact use through lower washing needs, lower-shed fabrics and clear care instructions.
- Design for data by assigning a product ID, fibre composition, chemical information and end-of-life route.

10.1 The Design-for-X framework

“Design for X” means designing deliberately for each circular outcome rather than hoping circularity emerges later. The four objectives should be pursued in parallel, and traded off consciously where they conflict (for example, added stretch improves fit but reduces recyclability).

Design objective	What it means in a garment	Practical design moves	Common watch-outs
Durability & longevity	Physical and emotional life extension	Tested fabric strength; reinforced stress points; quality trims; colour-fast dyes; classic silhouettes; warranty.	Over-engineering low-value items; durability without desirability.
Repairability	Easy, affordable repair	Provide spare buttons/yarn; standard components; open seams; published repair guides; visible-mending friendly.	Bonded seams and fused trims that cannot be reopened.
Disassembly	Separable materials at end of life	Mono-material construction; mechanical (not glued) fastenings; removable zips, rivets and labels; single thread type.	Mixed-fibre linings and permanent embellishments.
Recyclability	Clean feedstock for fibre-to-fibre	Mono-fibre fabrics; limit elastane; avoid PU coatings/laminates; recyclable trims; label full composition.	Blends chosen for marketing rather than performance.
Low-impact use	Lower footprint in the use phase	Lower-wash finishes; low-shed constructions; cold-wash suitability; stain resistance without PFAS.	Care advice that encourages over-washing or tumble-drying.
Data & traceability	A passport that enables every loop	Assign a unique ID; capture composition, origin, chemicals, care and end-of-life route at design.	Data created too late to influence sourcing.

FIGURE 5

Circular Design Decision Tree (Design for X)

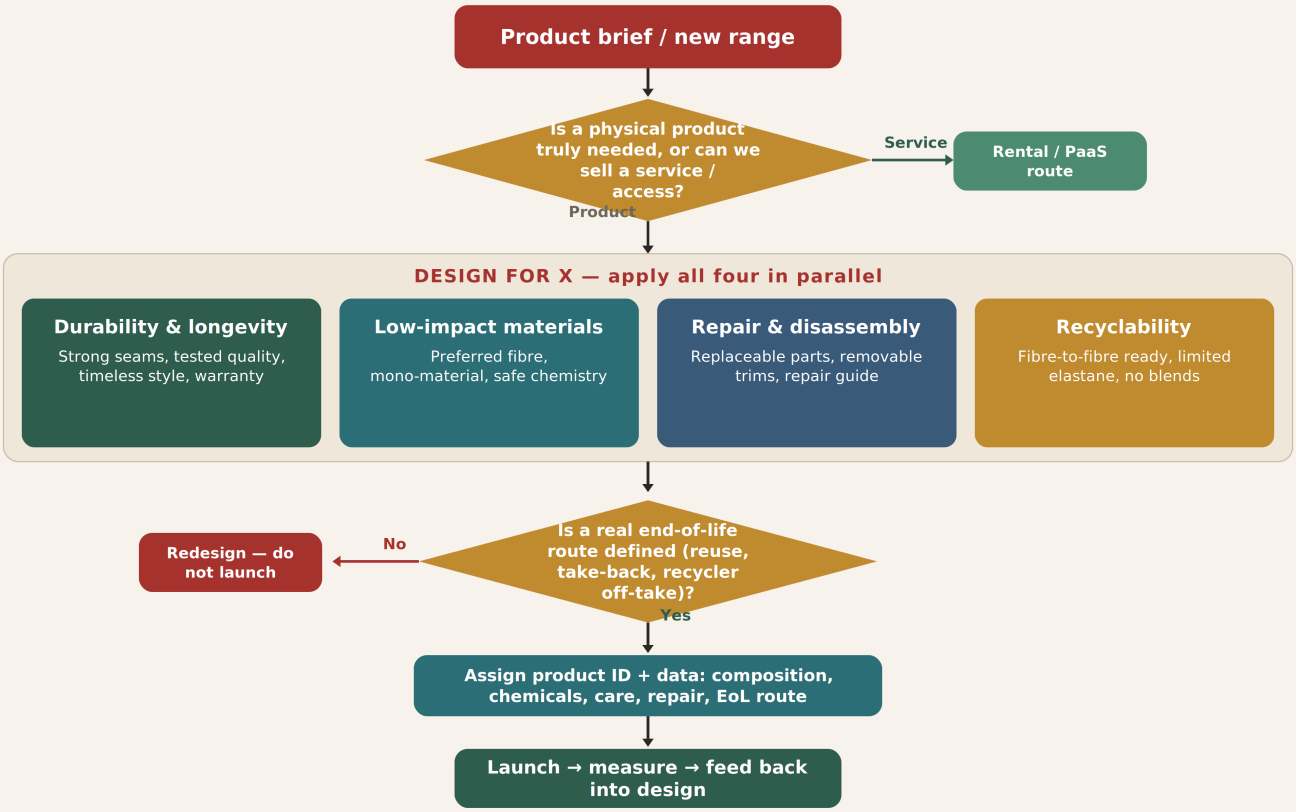


Figure 5. Circular design decision tree (Design for X).

10.2 Circular decisions by garment component

Recyclability is usually lost not in the main fabric but in the details — trims, threads, linings and coatings. Treat every component as a circular decision.

Component	Circular design guidance
Main fabric	Prefer mono-fibre or easily separable constructions; document exact composition; limit elastane to what function truly requires.
Trims & fasteners	Use removable, mono-material or clearly labelled trims; avoid mixed-metal/plastic fusions that block recycling.
Sewing thread	Match thread chemistry to fabric where possible so the whole garment can be recycled together.
Linings & interlinings	Avoid fused/bonded mixed-fibre interlinings; choose sew-in, separable alternatives.
Prints, coatings & laminates	Avoid PVC, PU and PFAS finishes that contaminate recycling; choose water-based or bio-based alternatives.
Labels & branding	Use printed or removable care/brand labels; consider a scannable digital carrier instead of multiple woven labels.

10.3 Zero-waste and efficient pattern making

- Use zero-waste or high-efficiency marker making to cut fabric loss at the cut-make-trim stage; typical cutting waste of 10–15% is a direct, designable saving.
- Design panels and grading to fabric width to reduce offcuts; nest patterns and standardise components across styles.
- Route unavoidable pre-consumer offcuts to upcycling, remanufacturing or mechanical recycling through pre-arranged partners (see Chapter 8).
- Use 3D and virtual sampling to cut physical sample waste and speed iteration (see Chapter 12).

10.4 Common design pitfalls that block circularity

- Blends chosen for cost or marketing rather than performance — they can make fibre-to-fibre recycling impossible.
- Elastane added by default across a range — even a few per cent can disqualify a garment from many recycling routes.
- Fused, glued or ultrasonically bonded seams that cannot be opened for repair or disassembly.
- PFAS and PVC finishes applied for minor performance gains at the cost of recyclability and safety.
- Care labels that advise hot washing and tumble drying, driving avoidable use-phase impact.
- Product data created after sourcing decisions are locked, too late to change the outcome.

Design takeaway

Circularity is decided on the drawing board. Set Design-for-X rules as non-negotiable range requirements, review every new style against them, and use the design checklist in Annexure A before sign-off. When two objectives conflict, favour the one that keeps the whole garment in use for longer.

11. Materials and sustainability implications

Material choice shapes water, land, chemical, carbon and recyclability outcomes across the whole life cycle. The essential principles are unchanged:

- Cotton, polyester, wool, viscose, nylon, elastane, leather and emerging bio-based materials have different water, land, chemical, carbon and recyclability profiles.
- No fibre is universally sustainable; material choice must be matched to function, durability, care, production geography and end-of-life pathway.
- Recycled polyester reduces reliance on virgin fossil feedstock but can be constrained by bottle-to-textile competition and microfibre concerns.
- Regenerative natural fibres can support soil and biodiversity outcomes when measured and verified.
- Blended fibres should be used only where performance justifies the recycling trade-off.

FIGURE 6

Fibre & Materials Circularity Selection Matrix

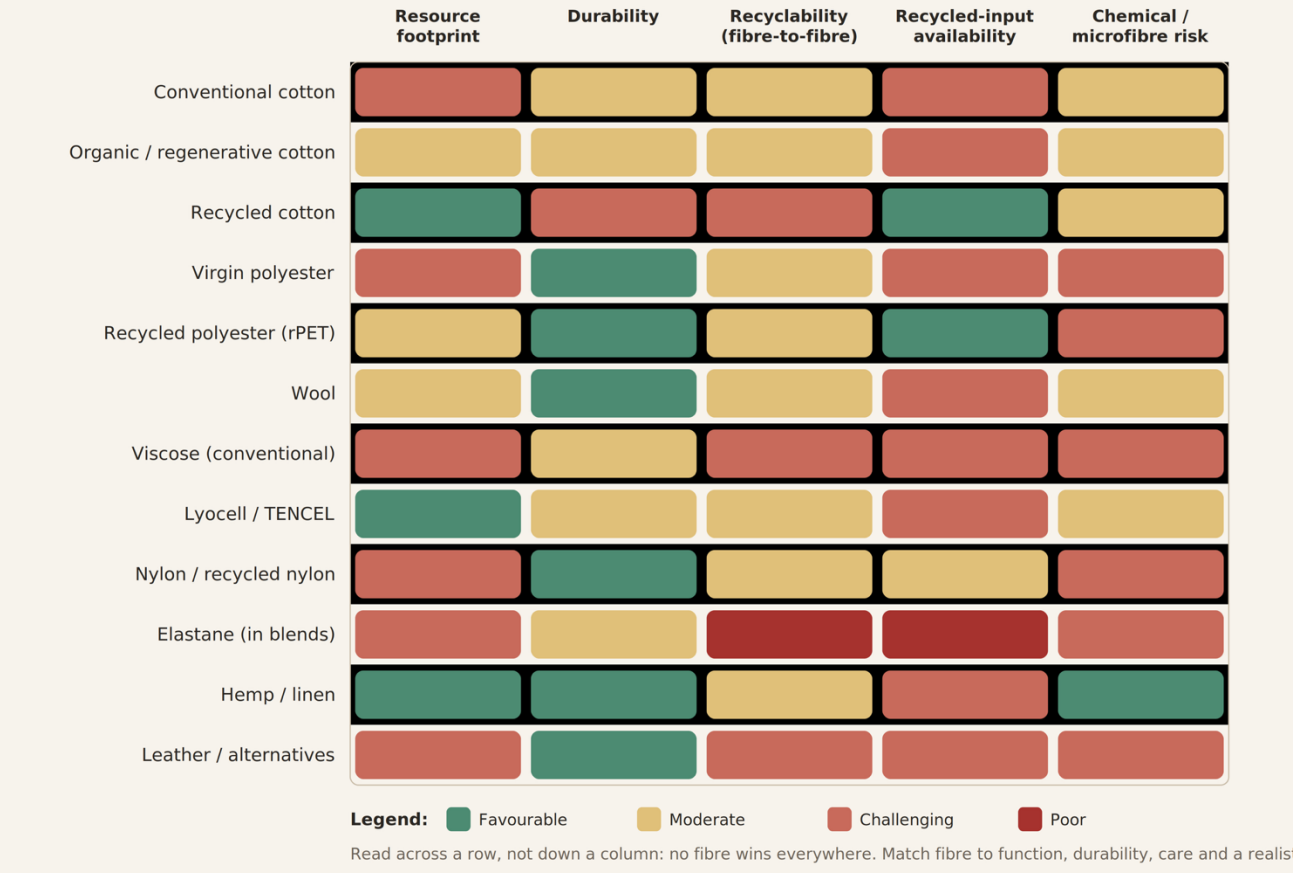


Figure 6. Fibre and materials circularity selection matrix.

Figure 6 is deliberately a matrix, not a ranking: read across a row, because no fibre wins on every criterion. The snapshot below expands each fibre's strengths, concerns and circular strategy [S23][S40].

11.1 Fibre-by-fibre snapshot

Fibre	Key strengths	Key concerns	Circular strategy
Conventional cotton	Natural, breathable, repairable, widely recyclable mechanically	High water and pesticide use; land pressure	Prefer certified/regenerative; keep mono-material for recycling.
Organic / regenerative cotton	Lower chemical load; can support soil and biodiversity	Yield and premium; needs verification	Use verified programmes; long-term farmer contracts [S17.]
Recycled cotton	Diverts waste; lower virgin demand	Shorter fibres; often re-blended, reducing strength	Blend minimally with virgin; keep future recyclability in mind.
Virgin polyester	Durable, cheap, low-wash, technically recyclable	Fossil feedstock; microfibre shedding; downcycling common	Shift to recycled; design low-shed; secure textile-to-textile routes.
Recycled polyester (rPET)	Cuts virgin fossil use; widely available	Bottle-to-textile competition; still sheds microfibres	Prefer textile-derived rPET; mono-material; low-shed construction.
Wool	Durable, biodegradable, repairable, high reuse value	Land/methane footprint; scouring effluent; moth damage	Certified/regenerative wool; repair and resale; keep mono-material.
Viscose (conventional)	Soft, drapes well, cellulosic	Deforestation and chemical-intensive processing risk	Move to certified closed-loop cellulosics; verify forest sourcing.
Lyocell / modal (e.g. TENCEL)	Closed-loop solvent process; lower-impact cellulosic	Still finite feedstock; blends reduce recyclability	Prefer certified closed-loop; keep mono-material where possible.
Nylon / recycled nylon	Very durable, strong, good for technical wear	Fossil-based; energy-intensive; sheds microfibres	Use recycled nylon; design for disassembly of technical products.
Elastane (in blends)	Stretch, comfort, fit	Even small % blocks most fibre-to-fibre recycling	Use only where function demands; explore mono-stretch alternatives.
Hemp / linen	Low input, durable, biodegradable, repairable	Processing and softness; limited recycled availability	Excellent for durable, mono-material, long-life products.
Leather & alternatives	Durable, repairable, high longevity (leather)	Tanning chemistry; some 'vegan' options are fossil-plastic based	Prefer responsibly tanned or genuinely bio-based; design for repair.

11.2 Blends and the recyclability trade-off

Blends are the single biggest barrier to fibre-to-fibre recycling. A cotton–polyester–elastane blend can be comfortable and cheap, yet be effectively unrecyclable with today's dominant technologies. The rule is simple: use a blend only where a specific, tested performance need justifies losing recyclability, and record that decision so it can be revisited as separation technology matures.

11.3 Chemicals and safe material cycling

- Hazardous substances in dyes, finishes and coatings can prevent safe reuse and recycling and harm workers and waterways [S20].
- Adopt a Restricted Substances List (RSL) for products and a Manufacturing RSL (MRSL) for inputs; align with the ZDHC Roadmap to Zero MRSL and wastewater guidelines [S44].
- Phase out PFAS ('forever chemicals') and PVC where alternatives exist; both create recycling, health and regulatory risk.
- Maintain a chemical inventory per supplier and require disclosure; safer chemistry is a precondition for closed loops, not an optional extra.

11.4 Certifications and claims — a quick map

Certifications reduce (not eliminate) risk and support substantiated claims. Match the standard to the claim you need to make [S41][S42][S43][S45][S46][S47].

Standard / tool	What it covers	Use it for
GOTS	Organic fibre content plus environmental and social criteria along processing	Substantiating 'organic' textile claims [S41]
OCS / RCS / GRS	Chain-of-custody for organic, recycled content (GRS adds social/environmental criteria)	Verifying organic or recycled content [S42]
OEKO-TEX STANDARD 100	Tested for harmful substances in the finished article	Consumer safety assurance [S43]
ZDHC MRSL	Input-chemistry restrictions and wastewater limits	Chemical management in manufacturing [S44]
bluesign	Input stewardship across chemicals, resources and workers	Cleaner-production sourcing [S45]
Cradle to Cradle Certified	Material health, reuse, energy, water and social fairness	Design-for-cycling ambition [S46]
Textile Exchange preferred fibres	Framework of lower-impact and recycled fibres	Portfolio-level fibre strategy [S40]
Higg MSI / Cascale	Cradle-to-gate material impact scoring	Comparing material impacts (with care on claims) [S47]

Materials takeaway

There is no universally sustainable fibre. Choose the material that best fits the garment's function, durability, care behaviour and a realistic end-of-life route — then keep it as mono-material and as chemically clean as possible so the loop can actually close. Use Annexure B as a quick preferred-materials reference.

12. Technology, innovation and traceability

Technology is an enabler, not the strategy. Used well, it makes circular models cheaper, more trustworthy and compliant. The core capabilities are unchanged:

- Digital Product Passports can store composition, origin, chemical, care, repair and recycling information.
- QR, RFID, NFC and forensic tracers can support authentication, resale, sorting and claims substantiation.
- AI demand forecasting can reduce over-production but must be linked to purchasing decisions.
- Automated sorting using NIR and AI can improve feedstock purity for recycling.
- Blockchain is useful only when underlying data are verified; it does not make poor data true.

FIGURE 7

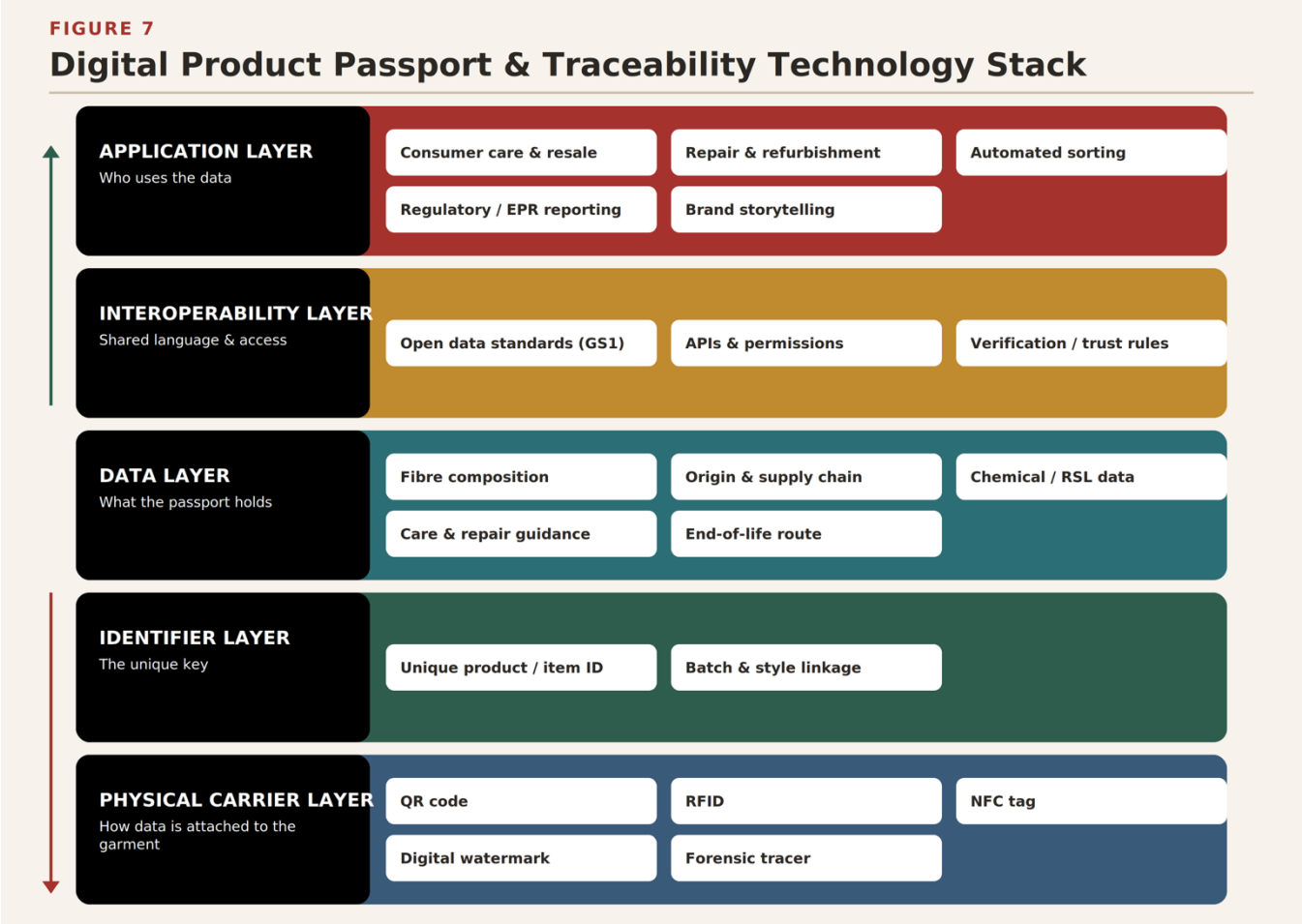


Figure 7. Digital Product Passport and traceability technology stack.

12.1 Traceability carriers compared

The 'carrier' is how data is attached to a garment. Each option has trade-offs in cost, durability, data capacity and consumer experience [S31][S52].

Technology	Best for	Strengths	Limitations
QR code	Consumer access, DPP entry point, low cost	Cheap, printable, smartphone-readable, high adoption	Can be copied; wears/fades; needs line of sight.

Technology	Best for	Strengths	Limitations
RFID	Inventory, returns, high-speed sorting	Bulk scanning without line of sight; robust	Tag/reader cost; privacy considerations.
NFC	Tap-to-authenticate, premium engagement	Rich interaction; harder to clone than QR	Higher unit cost; short read range.
Digital watermark	Automated sorting, brand protection	Invisible; survives many processes; sorting-friendly	Requires compatible detection infrastructure.
Forensic / molecular tracer	Origin verification, anti-fraud	Very hard to fake; verifies fibre origin	Lab or specialist reading; higher cost.
Blockchain / distributed ledger	Shared, tamper-evident records	Trust across many parties; audit trail	Only as good as the data entered; energy/complexity.

12.2 What goes in a Digital Product Passport

From 2027, DPPs are expected to become a market-access requirement for textiles in the EU [S48]. The core data set (expanded in Annexure C) includes:

- Unique product/item identifier and links to style and batch.
- Full fibre composition and material origin.
- Chemical and restricted-substance information.
- Care, repair and spare-part instructions.
- End-of-life route (reuse, take-back, recycler) and disassembly guidance.
- Durability, recycled-content and certification claims, with evidence.

12.3 Sorting and recycling technology

- Near-infrared (NIR) and hyperspectral scanning identify fibre type at speed, improving feedstock purity for recycling.
- AI vision and robotic sorting grade condition, colour and contamination, reducing manual cost and error.
- Automated de-trimming and disassembly help remove zips, buttons and labels that block recycling.
- Feed sorting data back to design and procurement so future products are easier to sort and recycle.

12.4 Design and demand technologies

- 3D and virtual sampling cut physical sample waste and shorten development cycles.
- Digital twins and PLM connect design decisions to material and impact data.
- AI demand forecasting reduces overproduction — but only if it is wired into buying and open-to-buy decisions, not left as a dashboard.
- On-demand and made-to-order production (including on-demand print) cut markdown and deadstock risk.

12.5 Data quality and interoperability

Technology fails circularity when the data underneath are wrong, incomplete or locked in silos. Blockchain does not make poor data true. Prioritise verified data at source, adopt open identification and data standards (for example GS1) so passports are readable across the value chain, and match technology to problem maturity — pilot at low technology-readiness levels before scaling [S52].

Technology takeaway

Choose the lightest technology that solves a real circular problem: a QR-linked passport with clean, verified data beats an elaborate ledger built on guesswork. Interoperability and data quality matter more than any single vendor's platform.

13. Policy and regulatory landscape

Policy is shifting circular fashion from voluntary to mandatory, and from consumer markets to the whole value chain. The headline signals are unchanged:

- The EU strategy is the most influential policy package, combining ecodesign, DPP, EPR, microplastic and waste-export measures [S5][S30][S48].
- Separate textile collection in the EU from 2025 increases pressure to scale sorting and recycling capacity [S6].
- California textile EPR creates a major US policy signal [S29][S50].
- Australia's Seamless scheme illustrates voluntary stewardship design and the need for adequate funding [S8][S28].
- Receiving countries need trade rules that distinguish reusable textiles from waste [S27][S54].

FIGURE 8

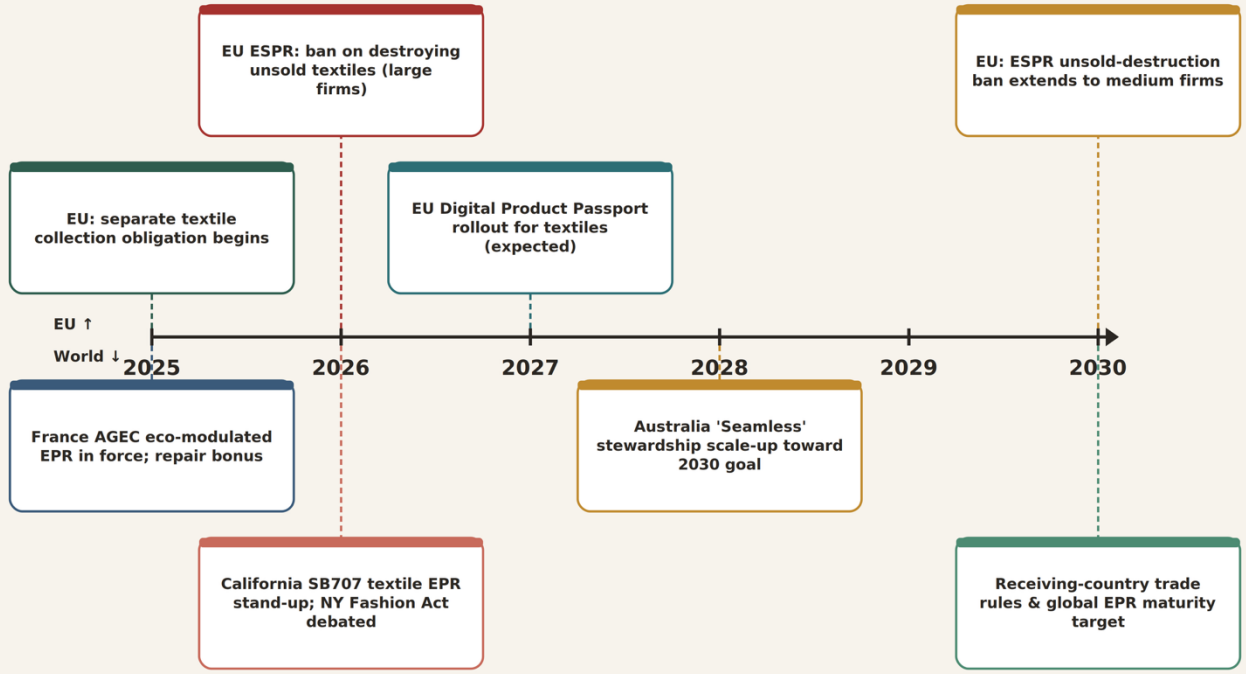


Figure 8. Global policy and compliance signals, 2025–2030.

13.1 Key instruments explained

Instrument	What it does	What it means for brands
Extended Producer Responsibility (EPR)	Makes producers pay for collection, sorting and recycling of what they place on the market.	Budget for fees; register; gather product data; design to reduce fees.
Eco-modulation	Varies EPR fees by circular performance (e.g. mono-material, durability, recycled content).	Design choices directly lower or raise your fees [S33].
Ecodesign / ESPR	Sets minimum durability, repairability and recyclability requirements for products.	Meet product requirements to keep market access [S48].
Digital Product Passport (DPP)	Requires machine-readable product data along the value chain.	Build data capture now; expected for textiles from ~2027 [S48].
Separate collection	Obliges separate textile collection streams.	Plan for more feedstock and downstream capacity [S6].
Unsold-goods destruction ban	Prohibits destroying unsold textiles/footwear.	Manage overstock via resale, donation, recycling [S30].
Waste-shipment controls	Restrict export of textile waste dressed up as reuse.	Ensure exported goods are genuinely reusable [S54].
Green-claims rules	Require environmental claims to be substantiated.	Evidence every public claim; avoid vague terms [S53].

13.2 Jurisdiction snapshot

Jurisdiction	Flagship measures	What it means for brands
European Union	ESPR, DPP, textile EPR, separate collection, unsold-destruction ban, green-claims rules	The global compliance benchmark; prepare data and EPR first here [S5][S48].
France	AGEC anti-waste law; eco-modulated EPR; repair bonus; unsold-destruction ban	Mature EPR model and repair incentives to learn from [S49].
United States	California SB707 textile EPR; New York Fashion Act (proposed); state-led action	Fragmented but material; California is the near-term signal [S50][S51].
Australia	'Seamless' clothing stewardship scheme; 2030 circular goal	Voluntary levy and eco-modulation pilot; watch funding [S28][S33].
China	National waste-textile recycling and recycled-fibre targets	Large-scale recycling ambition shaping secondary markets [S9].
India / manufacturing hubs	Emerging waste rules; strong informal reuse economy	Formalise reuse, sorting safety and recycled-content standards.
Receiving countries	Trade classification and quality-control debates	Support genuine-reuse rules and fair EPR contributions [S27][S59].

13.3 How EPR eco-modulation works

Under eco-modulation, a producer's fee per garment goes up or down according to circular performance. Australia's Seamless scheme, for example, has signalled reduced levies for garments meeting mono-material or single-fibre criteria in its initial period [S33]. The practical implication is direct: durability, mono-materiality and recycled content are no longer only reputational — they change your unit cost.

13.4 Green claims and anti-greenwashing

- Regulators are cracking down on vague or unsubstantiated environmental claims; the EU Green Claims Directive and consumer-empowerment rules require evidence [S53].

- Avoid unqualified terms such as 'eco', 'green', 'sustainable' or 'climate neutral' without robust, accessible substantiation.
- Tie every public claim to primary evidence — certification, measured data or verified displacement — before publication (see Annexure J).
- Governance matters: a single unsupported claim can trigger regulatory action and reputational damage.

13.5 What to do now — compliance readiness

- Map your regulatory exposure by market and product line; prioritise the EU and any EPR states you sell into.
- Stand up product-data capture (composition, origin, chemicals, care, end-of-life) to be DPP-ready.
- Register for and budget EPR fees; use design to reduce eco-modulated costs.
- Install a claims-substantiation process before making public environmental statements.
- Use the readiness checklist in Annexure I to track progress.

> **Policy takeaway**
>
> Regulation is converging on the same requirements: know your product data, take responsibility for end-of-life, design for durability and recyclability, and prove your claims. Building these now is cheaper than retrofitting them under deadline.

14. Financing circular fashion

Circular models change the shape of cash flows: more up-front investment in take-back, repair, data and recycling; revenue spread over longer product lives and multiple use cycles. Finance must therefore evaluate both circular opportunity and linear risk. The core principles are unchanged:

- Circular finance should evaluate both circular opportunity and linear risk: stranded inventory, virgin-material exposure, regulatory risk, waste liabilities and reputational risk [S20].
- Useful instruments include green loans, sustainability-linked loans, blended finance, concessional capital, EPR funds, innovation grants and offtake agreements.
- Investors should test feedstock security, unit economics, technology readiness, customer demand and policy exposure.
- SMEs need patient capital and shared infrastructure because many circular models are operationally complex and labour-intensive.
- Metrics must connect capital to real-world outcomes such as tonnes diverted, material savings, emissions avoided and jobs created.

FIGURE 9

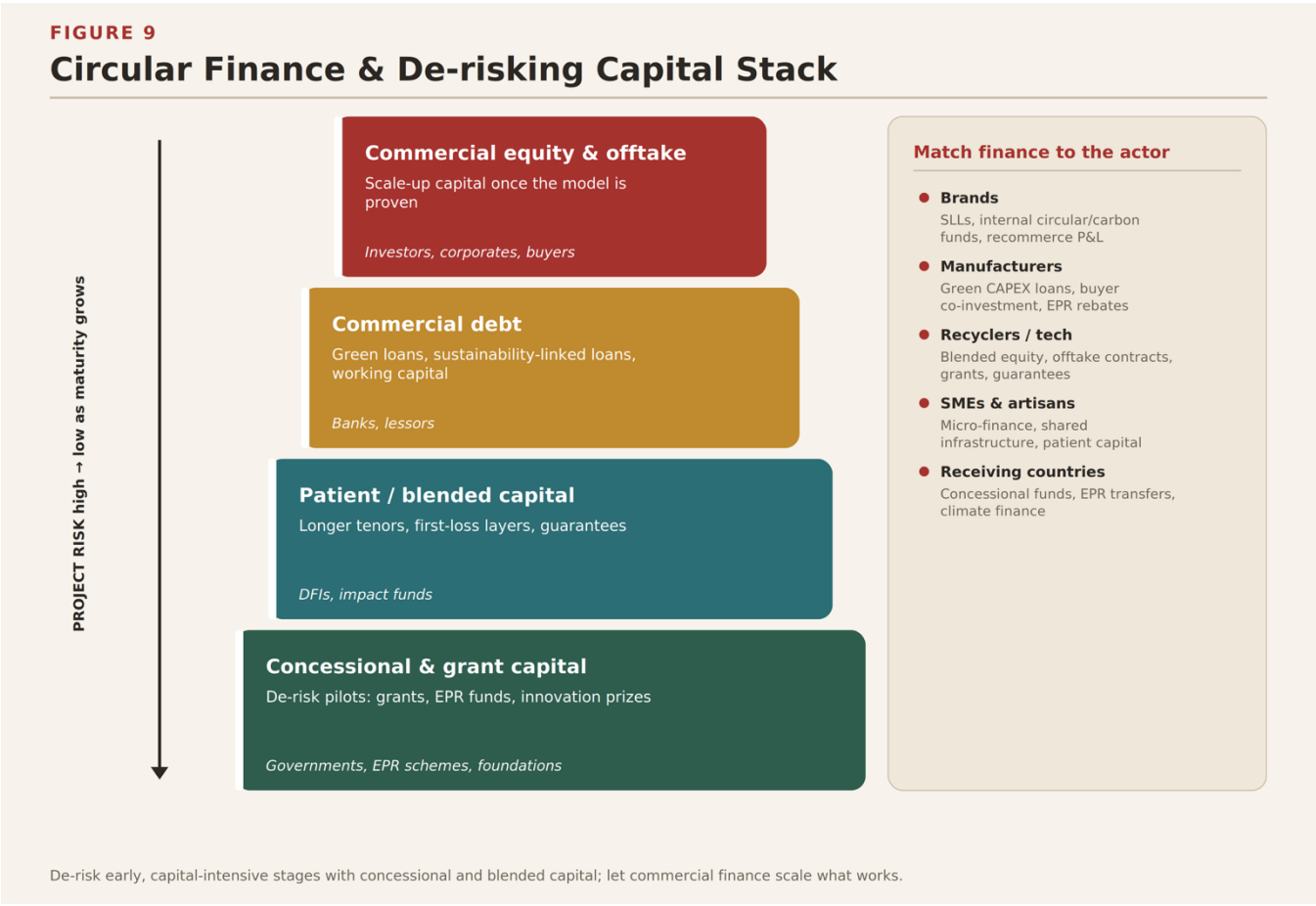


Figure 9. Circular finance and de-risking capital stack.

14.1 Instruments at a glance

Instrument	What it funds	Who provides it	Watch-outs
Green / sustainability-linked loans	CAPEX and working capital tied to circular targets	Banks, DFIs	Targets must be real and measured, not cosmetic.
Blended finance	De-risking early, capital-intensive projects (e.g. recycling)	DFIs, impact funds, governments	Needs a credible path to commercial returns.
Concessional & grant capital	Pilots, innovation, receiving-country infrastructure	Governments, foundations, EPR schemes	Bridge to scale, not a permanent subsidy.
EPR funds	Collection, sorting, recycling capacity	Producer-responsibility schemes	Eligibility and reporting requirements apply.
Offtake agreements	Demand certainty for recycled feedstock/fibre	Brands, manufacturers	Volume and quality commitments must be firm.
Venture / private equity	Scaling technology and platforms	VC, PE, corporate ventures	Technology-readiness and demand risk.
Asset finance / leasing	Rental and product-as-a-service inventory	Lessors, banks	Utilisation and residual-value assumptions.

14.2 Unit economics of circular models

Each model lives or dies on one or two variables. Model these before scaling.

Model	Revenue drivers	Main costs	Make-or-break variable
Resale / recommerce	**Resale price × volume; take-rate**	Intake, cleaning, grading, authentication, logistics	Processing cost per item vs resale value; displacement.
Rental	**Rental price × rotations per item**	Cleaning, repair, logistics, idle stock	Utilisation (rotations) per garment.
Repair	**Repair fee or loyalty/retention value**	Labour, spare parts, space	Labour efficiency and repeat/referral value.
Refurbishment	**Refurb sale price**	Inspection, cleaning, minor repair	Yield of sellable units per intake batch.
Recycling / feedstock	**Recycled-fibre price; offtake**	Sorting, processing, energy, logistics	Feedstock purity and secured off-take.
Take-back	**Enables resale/recycling; loyalty**	Collection, reverse logistics, storage	A real downstream route for every grade.

14.3 Investment appraisal — questions investors ask

- Is feedstock (used product or recycled) secured in the right quality and volume?
- What is the technology-readiness level, and what has been proven at pilot scale?
- Is there real, repeatable customer demand — or one-off novelty?
- Do the unit economics work without permanent subsidy?
- How does policy (EPR, DPP, bans) change the risk and the opportunity?
- Is the environmental benefit genuine after accounting for displacement and rebound?

14.4 Financing by actor

- **Brands:** fund with internal circular/carbon budgets, sustainability-linked facilities and a recommerce P&L line.
- **Manufacturers:** green CAPEX loans, buyer co-investment and EPR rebates for cleaner, circular capacity.

- **Recyclers and technology firms:** blended equity, grants, guarantees and firm offtake to de-risk scale-up.
- **SMEs and artisans:** micro-finance, shared infrastructure and patient capital for labour-intensive models.
- **Receiving countries:** concessional funds, global EPR transfers and climate finance for infrastructure and just transition.

Finance takeaway

Circular is not automatically bankable. The projects that attract capital are those with secured feedstock or utilisation, proven unit economics and a credible, measured impact. De-risk early stages with concessional and blended capital, then let commercial finance scale what works.

15. Case studies and implementation lessons

The cases below show circular models in the real world — what worked, what was hard, and the transferable lesson. Each is summarised in a consistent format so teams can compare across models [S25][S26][S14][S8].

15.1 EILEEN FISHER Renew — branded take-back and resale

- **Context:** A US womenswear brand that takes back its own garments and resells them.
- **Model:** Take-back plus resale as a branded value-retention model.
- **What worked:** Owning the loop for durable, recognisable products; recovered garments become a second revenue stream and reinforce brand values.
- **Challenges:** Processing (cleaning, grading, repair) is labour-intensive; margins depend on efficient intake and pricing.
- **Lesson:** Design for durability first: recommerce only works economically when the original product is worth recovering [S25].

15.2 Patagonia Worn Wear — repair, resale and culture

- **Context:** An outdoor brand pairing repair, resale and customer education.
- **Model:** Repair + resale + storytelling that reinforces brand identity.
- **What worked:** Repair and resale strengthen loyalty and normalise keeping products longer; the message reinforces the product's durability promise.
- **Challenges:** Requires genuine product durability and a service culture; can appear contradictory if paired with growth in low-quality volume.
- **Lesson:** Circular models are strongest when they are consistent with the whole business, not a side programme [S25].

15.3 Levi Strauss — repair, resale and lower-impact process

- **Context:** A global denim brand offering repair/tailoring and resale alongside water-saving finishing.
- **Model:** Repair and resale for a durable, iconic product plus process efficiency.
- **What worked:** Denim is durable, holds resale value and suits repair; process improvements cut use of resources at scale.
- **Challenges:** Scaling in-store services and resale logistics across many markets is operationally demanding.
- **Lesson:** Iconic, durable categories (like denim) are ideal first candidates for repair and resale [S25].

15.4 Kantamanto & The Or Foundation (Ghana) — the receiving-country reality

- **Context:** One of the world's largest second-hand clothing markets, with tens of thousands of livelihoods.
- **Model:** Informal reuse, repair and resale at massive scale, absorbing global surplus.
- **What worked:** Extraordinary skill and entrepreneurship keep huge volumes in use; the market supports large numbers of livelihoods.
- **Challenges:** A large share of imported clothing arrives unusable, creating waste, flooding and burning burdens borne locally.
- **Lesson:** Circularity is a justice issue: receiving countries need fair finance, quality controls and recognition of reuse labour, not more unmanaged donations [S14][S59].

15.5 Seamless (Australia) — national stewardship design

- **Context:** A national clothing product-stewardship scheme with eco-modulated levies.
- **Model:** Voluntary EPR-style stewardship funding collection, sorting and design incentives.

- **What worked:** Creates a shared national framework and rewards better design through eco-modulation.
- **Challenges:** Depends on broad participation and adequate funding; free-riders undermine the model.
- **Lesson:** Stewardship works only when enough producers join and funding matches the task [S8][S28][S33].

15.6 Circular Fashion Partnership (Bangladesh) — pre-consumer waste

- **Context:** A cross-industry pilot connecting manufacturers, recyclers and brands to capture factory textile waste.
- **Model:** Manufacturer collaboration to map and recycle pre-consumer waste.
- **What worked:** Pre-consumer waste is cleaner and easier to recycle; collaboration builds traceable feedstock supply.
- **Challenges:** Requires trust, data-sharing and viable off-take to keep material flowing.
- **Lesson:** Start circularity where the feedstock is cleanest — the factory floor — and build demand-side commitments early [S26].

15.7 Lease-a-product denim (product-as-a-service) — access over ownership

- **Context:** Circular denim brands offering jeans on a lease or subscription with guaranteed take-back and recycling.
- **Model:** Product-as-a-service with designed-in recyclability (mono-material, minimal elastane).
- **What worked:** Guaranteed return secures feedstock; design-for-recycling makes the loop real; customers value convenience and values alignment.
- **Challenges:** Logistics, credit risk and customer retention are demanding; the model suits durable, recyclable products.
- **Lesson:** PaaS only closes the loop when the product is designed to come back and be recycled from day one [S36][S61].

15.8 Fibre-to-fibre recyclers — the off-take lesson

- **Context:** Several high-profile textile-to-textile recyclers that scaled processing capacity ahead of demand.
- **Model:** Fibre-to-fibre recycling turning textile waste into new fibre.
- **What worked:** Demonstrated that closed-loop cellulosic and polyester recycling is technically feasible at scale.
- **Challenges:** Some have faced financial distress when brand off-take and firm purchase commitments did not materialise fast enough to fill capacity.
- **Lesson:** Recycling capacity without secured demand is fragile: brands must commit to buying recycled fibre, not only to pilots [S19][S36].

15.9 Cross-cutting implementation lessons

- Durability first: every downstream loop (resale, repair, rental, recycling) is easier and more economic when the original product is well made.
- Secure the downstream before you collect: take-back without a real route for each grade simply relocates waste.
- Design decides recyclability: mono-material, low-elastane, disassemblable products are the ones recyclers can actually use.
- Commit demand, not just pilots: recyclers and reuse systems need firm off-take and purchasing to survive.
- Share the benefit: workers, sorters, tailors and receiving communities must gain from the transition for it to be legitimate and durable.

16. Circularity metrics and measurement framework

What gets measured gets managed — and, increasingly, disclosed. A good circularity measurement framework covers inflows, product design, outflows, business-model performance and social outcomes, and connects them to formal disclosure. The five lenses are unchanged:

- **Measure resource inflows:** total material weight, fibre mix, certified materials, recycled content and renewable inputs [S22].
- **Measure product circularity:** durability, repairability, modularity, mono-materiality, recycled content and design-for-disassembly.
- **Measure resource outflows:** waste by type, destination, diversion, resale, repair, recycling and disposal [S22].
- **Measure business-model performance:** resale revenue, repair rate, take-back participation, rental utilisation and product-life extension.
- **Measure social outcomes:** worker safety, fair wages, informal-sector inclusion and community impacts.

Figure 10. Circularity metrics dashboard — five lenses.

16.1 A core metric set with definitions

Metric	Definition / formula	Why it matters
Circular revenue %	Revenue from resale, repair, rental, refurbished and PaaS ÷ total revenue	Shows how much of the business is decoupled from new-unit sales.
Recycled / preferred input %	Recycled or certified material weight ÷ total material weight	Tracks the shift away from virgin, fossil and high-impact inputs.
Product circularity score	Composite of durability, recycled content, mono-materiality and design-for-disassembly (MCI-style)	Design-stage indicator of whether products can actually cycle [S38].
Diversion-from-landfill %	Weight reused/recycled ÷ total post-use weight collected	Measures whether collected product finds a real next life.
Product-life extension	Additional use cycles or months achieved (reuse, repair, rental)	The clearest proxy for avoided new production.
Repair rate	Garments repaired ÷ garments eligible/returned	Signals durability-in-use and service uptake.
Take-back / collection rate	Units collected ÷ units sold in a comparable period	Feedstock for every downstream loop.
Rental utilisation	Actual rotations ÷ potential rotations per garment	The make-or-break variable for rental economics.
Fibre-to-fibre recycled %	Textile-to-textile recycled fibre ÷ recycled content	Distinguishes true closed-loop from downcycling.
Waste intensity	Pre- and post-consumer waste per unit produced	Links volume and design decisions to waste.

16.2 Avoiding vanity metrics

- **Displacement:** count a resale or rental as a benefit only to the extent it replaces a new purchase, not adds to consumption.
- **Rebound:** watch for lower prices or 'guilt-free' consumption driving extra volume.
- **Boundaries:** be explicit about what is in and out of scope; inconsistent boundaries inflate results.
- **Gross vs net:** report tonnes collected and tonnes that found a genuine next life — not just intake.

16.3 Data collection and cadence

- Set a material-flow baseline first; you cannot show improvement without a starting point.
- Automate capture at source (PLM, ERP, take-back systems, DPP) rather than annual manual surveys.
- Report leading indicators (design scores, data completeness) monthly and outcome indicators (diversion, life extension) quarterly.
- Review the metric set annually as technology and regulation evolve.

16.4 Aligning with disclosure

Regulatory disclosure is converging on resource-use and circularity metrics. Align internal measurement with ESRS E5 (resource use and circular economy) covering resource inflows, outflows, waste, product design and value-chain coverage [S22], and with the emerging ISO 59000-series circular-economy standards [S58]. Building the measurement system once, to a recognised framework, avoids duplicated effort later. The KPI dashboard template is in Annexure K.

Metrics takeaway

> Measure the whole loop — inflows, design, outflows, business model and social outcomes — and report trend, not just level. Prioritise metrics that prove displacement and life extension, because those are what genuinely reduce impact.

17. Practical roadmaps for industry actors

Circularity is a sequencing problem as much as an ambition. The roadmap below moves every actor from foundation to scale over roughly three years, without waiting for perfect conditions. The starting principles are unchanged:

- Brands should begin with material-flow baselines, product data and a shortlist of high-volume categories for redesign.
- Manufacturers should segregate pre-consumer waste, improve wastewater and energy systems, and create recyclable-feedstock partnerships.
- Retailers should build customer-facing repair, resale, rental or take-back pilots with clear downstream routes.
- SMEs should choose one circular niche, validate demand and build partnerships rather than trying to control the entire system.
- Policymakers should fund collection, sorting, repair, recycling and receiving-country infrastructure while discouraging low-quality waste exports.

FIGURE 11

Phased Circular Implementation Roadmap

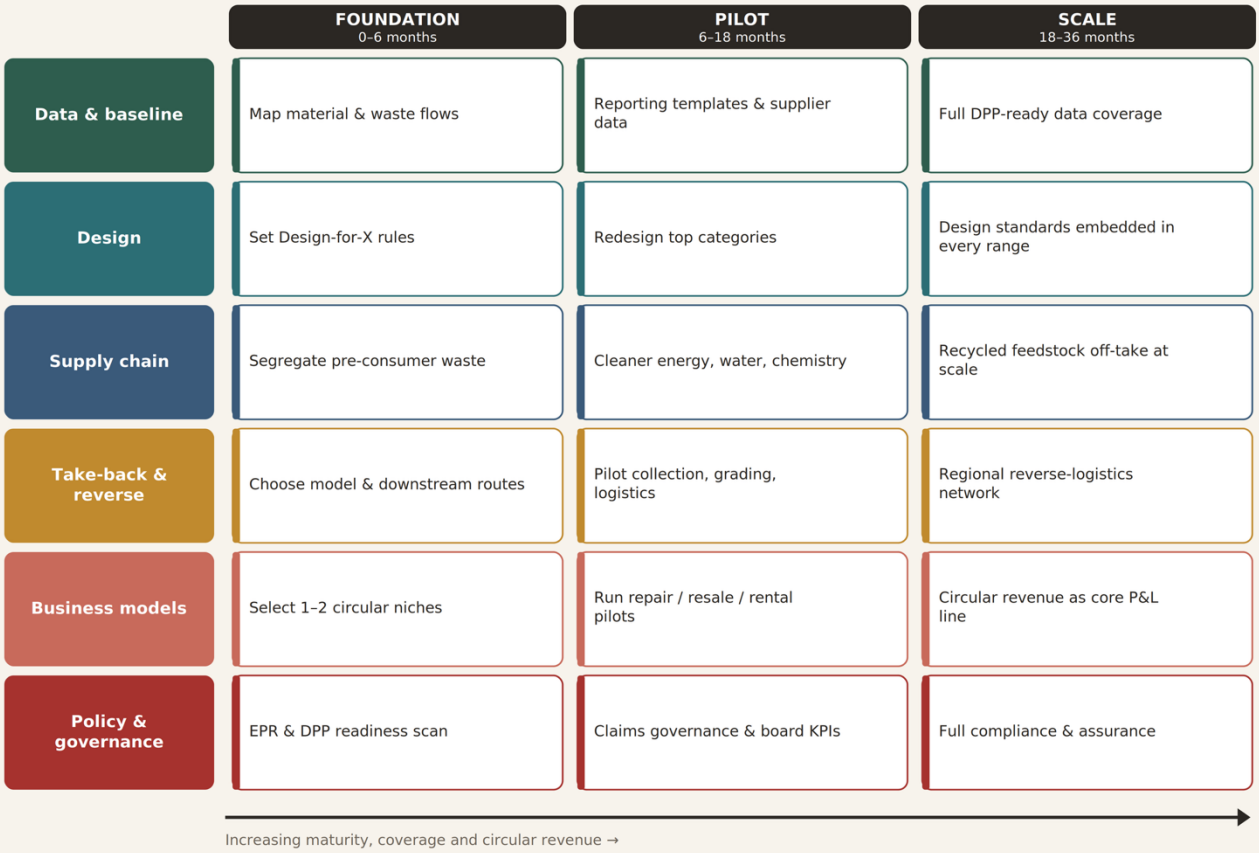


Figure 11. Phased circular implementation roadmap.

17.1 Roadmap by actor

Actor	Foundation (0–6m)	Pilot (6–18m)	Scale (18–36m)
Brand	Material-flow baseline; product-data capture; pick 2–3 high-volume categories; set Design-for-X rules	Redesign priority categories; launch one recovery model (repair/resale/take-back); EPR & DPP readiness	Circular revenue as a core P&L line; DPP across the range; eco-modulation-optimised design
Manufacturer	Segregate pre-consumer waste; audit energy, water, chemistry; capture supplier data	Cleaner-production upgrades; recyclable-feedstock partnerships; traceable secondary-material trade	Recycled feedstock off-take at scale; circular-material hub; verified process data
Retailer	Choose customer-facing model; identify downstream routes; train store teams	Run repair/resale/rental/take-back pilots with clear grading and logistics	Regional reverse-logistics network; recommerce embedded in stores and online
SME	Pick one circular niche; validate demand; find partners for what you can't own	Prove unit economics on a small batch; build brand story and repeat customers	Scale the proven niche; join shared infrastructure and stewardship schemes
Policymaker	EPR/DPP scan; convene actors; map informal sector	Design eco-modulated EPR; fund collection, sorting, repair pilots; quality rules for exports	Full EPR & DPP; receiving-country infrastructure; just-transition safeguards

17.2 The 90-day quick start

Any organisation can begin now. The first 90 days build the foundation the rest of the roadmap depends on (expanded in Annexure L).

1. Assign an accountable owner and a small cross-functional team.
2. Build a material-flow and waste baseline for your top categories.
3. Start capturing product data (composition, origin, chemicals, care, end-of-life).
4. Set Design-for-X rules as range requirements for the next season.
5. Choose one circular model to pilot and confirm a real downstream route.
6. Scan regulatory exposure (EPR, DPP) and stand up a claims-substantiation process.

17.3 Circular maturity model

Level	Description
1 — Aware	Circularity discussed; no baseline, owner or targets.
2 — Piloting	Baseline built; one or two pilots running; data capture starting.
3 — Managing	Design-for-X standard; recovery models operating; metrics reported.
4 — Integrated	Circular revenue material; DPP across range; EPR-optimised design; assured data.
5 — Regenerative	Value decoupled from virgin throughput; regenerative sourcing; net-positive ambitions.

Use **Annexure M** to self-assess your current level and identify the next move. Progress one level at a time — skipping stages usually means the data or downstream capacity is not really there.

> **Roadmap takeaway**
>
> Do not wait for perfect conditions. Assign an owner, build a baseline, set design rules and run one pilot with a secured downstream route in the next 90 days. Sequencing beats scope: a small loop that actually closes is worth more than a grand plan that never launches.

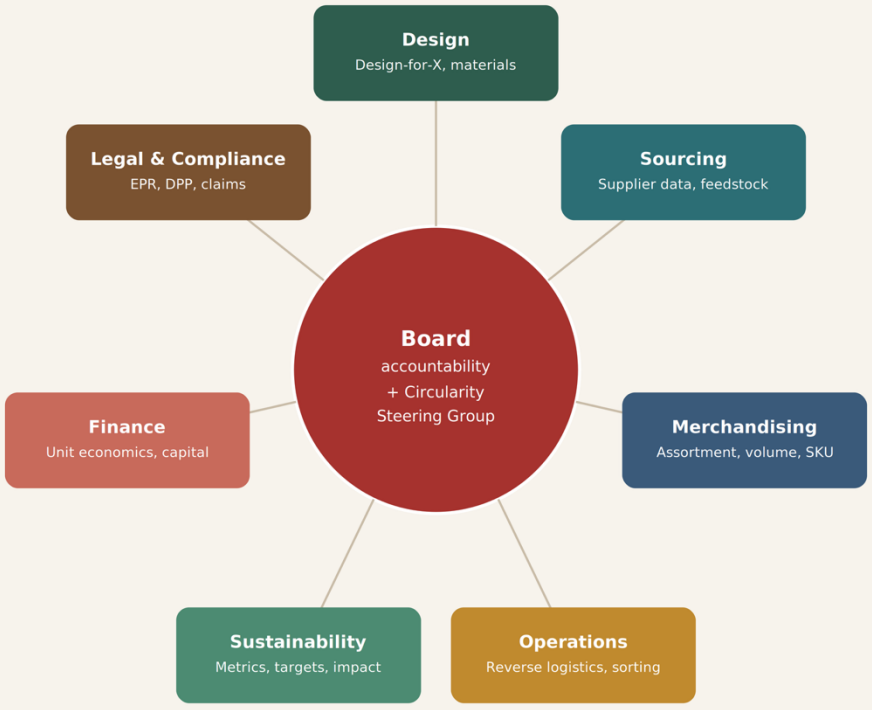
18. Risk, opportunity and governance toolkit

Circularity touches design, sourcing, merchandising, operations, finance and legal at once, so it needs governance, not goodwill. The core principles are unchanged:

- Governance should assign executive accountability for circularity across design, sourcing, merchandising, operations, sustainability, finance and legal.
- Risk registers should include material scarcity, waste liability, greenwashing, policy non-compliance, supplier burden and social impacts.
- Opportunity registers should include resale, repair, local production, recycled inputs, product-data services and circular finance.
- Board reporting should include product and material metrics, programme economics, policy exposure and impact evidence.
- Claims governance should require substantiation before public communication.

FIGURE 12

Circularity Governance Operating Model



Principle: No single function owns the loop. Assign a named owner and budget for each spoke, and give the steering group authority over volume, design and claims decisions.

Figure 12. Circularity governance operating model.

18.1 Governance operating model

- Establish board-level accountability and a cross-functional circularity steering group with authority over volume, design and claims decisions.
- Give every spoke — design, sourcing, merchandising, operations, sustainability, finance, legal — a named owner and a budget.
- Set shared KPIs so no single function can optimise itself at the expense of the loop (for example, buying volume against waste targets).
- Tie executive incentives to sell-through, waste reduction and circular-revenue targets, not only to top-line growth.

18.2 Risk register

Risk	Example	Mitigation
Material scarcity / price	Recycled or preferred fibre supply is tight or volatile	Long-term contracts; feedstock partnerships; design flexibility.
Waste liability	EPR fees, disposal costs, unsold-stock rules	Reduce volume; design to cut fees; resale and recycling routes.
Greenwashing	Unsubstantiated 'sustainable' claims draw regulatory action	Claims-substantiation process; evidence every public claim [S53].
Policy non-compliance	Missing DPP data or EPR registration in a key market	Regulatory scan; data capture; early registration [S48].
Supplier burden	Circular costs pushed onto suppliers unpaid	Fair purchasing; co-investment; shared benefit.
Social impact	Harm to workers, sorters, receiving communities	Due diligence; safe work; inclusive circular jobs [S62].
Feedstock / off-take	Recycling capacity built without secured demand	Firm off-take commitments before scaling.
Rebound / displacement	Circular models add consumption instead of replacing it	Measure displacement; avoid volume-driven incentives.

18.3 Opportunity register

Opportunity	Value it can create
Resale & recommerce	New revenue, customer acquisition, brand values, feedstock control.
Repair & services	Loyalty, retention, differentiation, product-life extension.
Recycled & preferred inputs	Resilience, lower virgin exposure, eco-modulation savings.
Local & near-shore circular production	Lower carbon, faster response, compliance advantage.
Product-data services (DPP)	Compliance readiness, engagement, sorting and resale enablement.
Circular finance	Access to green/blended capital tied to measured outcomes.

18.4 Claims governance

Treat every environmental claim as a controlled statement. Before publication, require: a defined claim, primary evidence (certification, measured data or verified displacement), sign-off by a responsible owner, and an accessible substantiation trail. Vague terms without evidence should be blocked at source. The claims checklist is in Annexure J.

18.5 Board reporting

- Product and material metrics: recycled/preferred input %, product circularity score, durability.

- Outcome metrics: diversion, product-life extension, circular revenue %, emissions and water where credible.
- Programme economics: unit economics of each circular model, investment and returns.
- Policy exposure: EPR/DPP readiness and upcoming obligations by market.
- Impact and assurance: substantiated claims, social outcomes, and data assurance status.

19. Outlook to 2030, 2040 and 2050

This chapter translates the circular fashion agenda into practical expectations and no-regret moves. It is written for implementation teams that need direction and sequencing rather than broad aspiration.

- By 2030, DPP, EPR, ecodesign, separate collection and green-claims rules will make product data and end-of-life responsibility mainstream in regulated markets.
- By 2040, circular business models could become a competitive norm for durable, high-value, workwear, outdoor, children's and occasion categories.
- By 2050, the leading companies will be those that decouple value creation from virgin-resource throughput and build regenerative, data-rich supply networks.
- The transition will remain uneven: high-income consumer markets, manufacturing hubs and receiving countries will need different policy and finance packages.
- The core future question is not whether fashion can recycle more, but whether it can create value without unlimited growth in short-lived products.

19.1 Signposts to watch

- **Policy:** DPP delegated acts, more textile EPR schemes, and tighter green-claims enforcement.
- **Technology:** cost-down of fibre-to-fibre recycling, automated sorting and blend separation.
- **Consumer:** normalisation of resale, repair and rental across mainstream categories.
- **Finance:** eco-modulation and disclosure re-pricing linear risk into the cost of capital.
- **Receiving countries:** trade rules distinguishing reuse from waste, and fairer global EPR transfers.

19.2 Three scenarios to 2040

Scenario	What drives it	Implication for your business
Compliance-led	Regulation is the main force; firms do the minimum required	Data and EPR readiness are survival; laggards lose market access.
Innovation-led	Recycling, materials and business-model innovation scale with demand	First movers with secured feedstock and demand win share and margin.
Fragmented	Uneven policy and finance; receiving countries bear the burden	Reputational and supply risk rise; resilience and fairness become differentiators.

19.3 No-regret moves

- Build product data and traceability now — useful under every scenario.
- Design for durability, mono-materiality and repair — the foundation of all loops.
- Reduce overproduction — the cheapest and most certain impact reduction.
- Secure real downstream routes and off-take before scaling collection or recycling.
- Invest in the people of the loop — workers, sorters, tailors and receiving communities.

> **Outlook takeaway**
> The direction of travel is clear even if the pace is not: data, durability, responsibility and decoupling from virgin throughput. Organisations that make the no-regret moves now will be ready whichever scenario unfolds.

20. References and source notes

This book uses source keys in square brackets. The sources below ground market figures, policy developments, country profiles, case studies and practical claims. Keys [S1]–[S36] are from the original edition; keys [S37]–[S62] were added for the expanded chapters and annexures. URLs were accessed during preparation where online sources were consulted.

[S1] Grand View Research, Apparel Market Report 2026–2033: global apparel valued around USD 1.8T in 2025; projected USD 2.5T by 2033; Asia Pacific largest regional share.

[S2] Grand View Research, Textile Market Report 2026–2033: textile market valued around USD 1,160B in 2025; fashion application 72.7%; Asia Pacific 49.9% revenue share.

[S3] Fortune Business Insights, Fast Fashion Market 2026–2034: global fast fashion valued USD 162.76B in 2025 and projected to USD 388.56B by 2034.

[S4] UNEP Textile Initiative and related UNEP sources: fashion/textiles are linked to climate, nature, pollution and waste pressures; sector-wide circular transition is needed.

[S5] European Commission, EU Strategy for Sustainable and Circular Textiles: 2030 vision for durable, repairable, recyclable textiles; DPP, ecodesign, EPR and waste-export actions.

[S6] European Environment Agency, Textiles topic and 2024 briefings: EU textile consumption creates high water, land, material and GHG pressures; 2020 textile waste estimated at 6.95Mt.

[S7] US EPA, Textiles: Material-Specific Data: 2018 MSW textiles generation 17.03M tons; 2.51M tons recycled; 3.22M tons combusted; 11.3M tons landfilled.

[S8] Seamless Australia: 2024 clothing-system data including over 1.5B clothing units, 55 items per Australian and about 220,000t clothing to landfill annually.

[S9] China State Council / NDRC waste-textile recycling guideline: targets to recycle 25% textile waste and produce 2Mt recycled fibre by 2025; 30% and 3Mt by 2030.

[S10] Bangladesh Investment Development Authority: 2024 RMG export earnings USD 38.48B; over 230 LEED-certified factories; 4.4M workers.

[S11] Vietnam customs/media and policy-dialogue sources: 2024 textile and garment exports reported around USD 37–44B depending on scope; sector is a circular-economy priority.

[S12] World Bank, Türkiye Circular Economy Transition in the EU Global Value Chain Ecosystem, 2025: textile-apparel and automotive-machinery focus; EU is nearly half of Turkish exports.

[S13] OEC, Textiles in Indonesia Trade: 2024 textile exports USD 13.5B and imports USD 9B; US largest destination and China largest origin.

[S14] The Or Foundation / Kantamanto information: about 15M garments arrive weekly; ~40% unusable/unsellable; more than 30,000 livelihoods depend on the market.

[S15] ECLAC/UNECE, Reversing direction in the used-clothing crisis, 2024: Atacama/Alto Hospicio illegal dumps, synthetic-fibre burning and second-hand clothing flows.

[S16] Changing Markets and related Kenya second-hand clothing estimates: large used-clothing flows include substantial waste and synthetic/plastic-based clothing.

[S17] Environment for Development, Kenya SHC crisis, 2025: Kenya imported 198,000t SHC in 2023 valued USD 186M; sector supports more than 2M livelihoods; contested waste estimates.

[S18] EEA Circularity Metrics Lab / EU used-textiles exports: EU used-textile exports around 1.4M tonnes annually since 2015, mainly to Africa and Asia, with uncertain fate.

[S19] McKinsey, Scaling textile recycling in Europe: >15kg textile waste/person; <1% fibre-to-fibre recycled today; 18–26% potential by 2030 with EUR 6–7B investment.

[S20] UNEP FI, Financing Circularity: circular-economy finance, 9-R behaviours, EPR and sectoral risk/opportunity considerations for apparel and fashion.

[S21] World Economic Forum, Circular Transformation of Industries 2025: circularity creates value through sustainability, resilience, revenues and costs; survey of 420 executives.

[S22] EFRAG/ESRS E5 and value-chain guidance: resource use and circular-economy disclosures include resource inflows, outflows, waste, product design and value-chain coverage.

[S23] Textile Exchange and apparel climate/material guidance: material choices should be assessed across certified, recycled, regenerative and lower-impact pathways.

[S24] OECD circular-economy policy guidance: EPR, waste prevention, standards and fiscal measures can shift incentives from linear to circular systems.

[S25] Case evidence from EILEEN FISHER Renew, Patagonia Worn Wear, Levi Strauss repair/resale, Trove/ThredUp and brand recommerce programmes.

[S26] Global Fashion Agenda and Circular Fashion Partnership evidence on pre-consumer textile waste, manufacturer collaboration and recycling pilots.

[S27] UNEP Circularity and Used Textile Trade Project: Ghana, Kenya, Pakistan and Tunisia project focuses on policy, finance, trade and criteria distinguishing used textiles from waste.

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Annexures — implementation toolkit

The annexures convert the chapters into things you can act on. Print or copy the checklists, adapt the templates to your business, and use them as working documents. Each annexure links back to the relevant chapter.

How to use the checkboxes: each ☐ is a decision or task. Tick it when it is genuinely done and evidenced — not merely discussed.

Annexure A — Circular design brief and checklist

Use at the start and sign-off of every style. Links to Chapter 10.

Design brief — fill in before designing

- Product and category; expected lifetime and number of use cycles.
- Intended end-of-life route (reuse, take-back, recycler off-take).
- Target durability, care and repair standards.
- Material strategy (mono-material target; recycled/preferred content).

Design-for-X checklist — pass before sign-off

- ☐ Durability: fabric strength, seams and trims tested to standard.
- ☐ Repairability: spare parts/yarn available; seams can be reopened; repair guide planned.
- ☐ Disassembly: trims, zips and labels are removable; single thread type where possible.
- ☐ Recyclability: mono-material or clearly separable; elastane minimised; no PVC/PU/PFAS coatings.
- ☐ Low-impact use: cold-wash suitable; low-shed construction; no over-wash care advice.
- ☐ Emotional longevity: timeless design, quality feel, customisation or repair story.
- ☐ Data: unique ID assigned; composition, chemicals, care and end-of-life captured.
- ☐ Trade-offs: any blend/stretch/coating justified by tested need and recorded.
- ☐ Pattern efficiency: marker efficiency checked; offcut route arranged.
- ☐ Claims: any durability/recycled claim is evidenced (see Annexure J).

Annexure B — Preferred materials and certifications quick reference

A one-page reference for sourcing decisions. Links to Chapter 11.

Fibre quick guidance

Fibre	Prefer when…	Keep it circular by…
Cotton	Durable, breathable basics	Certified/regenerative; mono-material; no PFAS finish
Recycled polyester (rPET)	Durable, low-wash, technical	Textile-derived rPET; mono-material; low-shed design
Wool	Durable outerwear/knitwear	Certified/regenerative; repair and resale programmes
Lyocell / modal	Soft cellulosics	Certified closed-loop; avoid blends
Hemp / linen	Long-life, low-input	Mono-material; design for durability
Recycled nylon	Technical, high-strength	Design for disassembly of technical products
Elastane	Only where stretch is essential	Minimise %; explore mono-stretch alternatives

Certification chooser

- ☐ Need to claim 'organic'? → GOTS / OCS.
- ☐ Need to claim recycled content? → GRS / RCS.
- ☐ Need consumer chemical-safety assurance? → OEKO-TEX STANDARD 100.
- ☐ Managing manufacturing chemistry? → ZDHC MRSL; bluesign.
- ☐ Signalling design-for-cycling ambition? → Cradle to Cradle Certified.
- ☐ Setting a portfolio fibre strategy? → Textile Exchange preferred-fibre framework.

Chemical management

- ☐ Product RSL and manufacturing MRSL in place and shared with suppliers.
- ☐ PFAS and PVC phase-out plan documented.
- ☐ Per-supplier chemical inventory and disclosure required.

Annexure C — Digital Product Passport data-field checklist

The core data set to capture per product to be DPP-ready. Links to Chapter 12 and [S48].

Identification

- ☐ Unique product/item identifier (and data carrier: QR/RFID/NFC).
- ☐ Style, batch and production-site linkage.

Material & origin

- ☐ Full fibre composition (% by weight).
- ☐ Material origin and key supply-chain tiers.
- ☐ Recycled and certified content, with certificate references.

Chemical & safety

- ☐ Restricted-substance / RSL compliance status.
- ☐ Any coatings, finishes or treatments of recycling concern.

Use & repair

- ☐ Care instructions (including low-impact wash guidance).
- ☐ Repair guidance and spare-part information.

End of life

- ☐ Recommended end-of-life route (reuse / take-back / recycler).
- ☐ Disassembly guidance (removable trims, thread type).

Claims & governance

- ☐ Durability, recycled-content and certification claims with evidence links.
- ☐ Data owner assigned; data verified at source; standard/format agreed (e.g. GS1).

Annexure D — Supplier circularity onboarding and assessment checklist

Use when onboarding or reviewing suppliers. Links to Chapters 3, 6, 11 and 18.

Data & transparency

- ☐ Provides full material composition and origin data.
- ☐ Discloses chemical inputs against your MRSL.
- ☐ Can support product-data/DPP fields for your products.

Environmental

- ☐ Wastewater treatment and discharge compliance evidenced.
- ☐ Energy source and efficiency measures documented.
- ☐ Pre-consumer waste segregated and routed to recycling/upcycling.

Circular capability

- ☐ Can produce mono-material and recycled-content constructions.
- ☐ Supports zero-waste/efficient cutting.
- ☐ Willing to partner on feedstock/take-back where relevant.

Social

- ☐ Fair purchasing terms and no unpaid circular-compliance burden.
- ☐ Worker safety, fair wages and grievance mechanisms in place.

Governance

- ☐ Circular requirements written into the supplier agreement.
- ☐ Improvement plan and review cadence agreed.

Annexure E — Take-back and reverse-logistics set-up checklist

Do not launch collection without a downstream route. Links to Chapter 8 (models 8.12–8.13) and Figure 3.

Design the system

- ☐ Chosen collection channels (in-store, mail-in, drop-off, partner).
- ☐ Customer incentive and communication defined.
- ☐ Consolidation and transport plan (route/emissions optimised).

Grading & routing

- ☐ Grading criteria agreed (condition, composition, contamination).
- ☐ A confirmed downstream route for EVERY grade: resale, repair, upcycle, mechanical recycling, chemical recycling, safe disposal.
- ☐ Digital identification/tracking at intake.

Foundations

- ☐ Data governance and reporting in place.
- ☐ Worker safety and fair conditions for sorting/handling.
- ☐ EPR funding/eligibility and quality standards addressed.
- ☐ Unit economics modelled (intake, processing, value recovered).

Annexure F — Resale / recommerce operations checklist

Links to Chapter 8 (model 8.4) and Chapter 14.

- ☐ Category selection: durable, branded, residual-value items prioritised.
- ☐ Intake and authentication process defined.
- ☐ Cleaning and refurbishment standard set.
- ☐ Grading and condition standards documented.
- ☐ Pricing logic and margin model built.
- ☐ Channel chosen (own platform, partner, in-store).
- ☐ Reverse-logistics and storage costed.
- ☐ Displacement tracked (resale replacing new purchases, not adding volume).
- ☐ Unit economics: processing cost per item vs resale value.

Annexure G — Repair programme set-up checklist

Links to Chapter 8 (model 8.3).

- ☐ Repair channels: in-store, mail-in, partner tailors, self-service.
- ☐ Repair menu and pricing (or loyalty/warranty model) defined.
- ☐ Spare parts, yarn and components stocked/available.
- ☐ Staff/partner training and quality standard in place.
- ☐ Turnaround-time commitment set.
- ☐ Customer communication and repair guides published.
- ☐ Repair rate and retention value tracked.
- ☐ Feedback loop to design on common failure points.

Annexure H — Rental programme checklist

Links to Chapter 8 (model 8.5) and Chapter 14.

- ☐ Category fit: high-utilisation, durable (occasion, maternity, kidswear, workwear).
- ☐ Utilisation (rotations per garment) modelled and monitored.
- ☐ Cleaning and repair operations costed and controlled.
- ☐ Logistics (out/return) route- and emissions-optimised.
- ☐ Pricing covers cleaning, logistics, repair and idle stock.
- ☐ Damage/loss policy and deposit/credit handling defined.
- ☐ Asset tracking and condition history in place.
- ☐ Displacement and net-impact assessment done.

Annexure I — EPR and regulatory readiness checklist

Links to Chapter 13. Prioritise the EU and any EPR markets you sell into.

Exposure

- ☐ Regulatory exposure mapped by market and product line.
- ☐ EPR schemes identified for each relevant market.

Data & registration

- ☐ Product-data capture stood up (DPP-ready fields — Annexure C).
- ☐ Registered with applicable EPR schemes; fees budgeted.
- ☐ Eco-modulation levers understood and designed for.

Product requirements

- ☐ Durability/repairability/recyclability requirements (ecodesign) met.
- ☐ Unsold-goods destruction rules complied with (resale/donation/recycling route).
- ☐ Waste-export practices verified as genuine reuse.

Claims

- ☐ Green-claims substantiation process in place (Annexure J).

Annexure J — Green-claims substantiation checklist (anti-greenwashing)

Run before ANY public environmental claim. Links to Chapters 13 and 18 and [S53].

- ☐ The claim is specific and defined (no vague 'eco/green/sustainable' without qualification).
- ☐ Primary evidence exists: certification, measured data, or verified displacement.
- ☐ Scope and boundaries of the claim are stated.
- ☐ Life-cycle trade-offs are not hidden (no cherry-picking one attribute).
- ☐ Comparative claims use a fair, stated baseline.
- ☐ 'Neutral/positive' claims explain method and any offsets transparently.
- ☐ Evidence is accessible to the consumer (e.g. via the DPP/QR).
- ☐ A responsible owner has signed off; substantiation is on file.
- ☐ Claim reviewed against current green-claims regulation in each market.

Annexure K — Circularity KPI dashboard template

Copy into your reporting tool. Set a baseline, then track trend. Links to Chapter 16 and Figure 10.

Lens	KPI	Baseline	Target	Current	Trend
Inflows	Recycled / preferred input %				
Inflows	Certified material %				
Design	Product circularity score				
Design	Mono-material %				
Outflows	Diversion-from-landfill %				
Outflows	Fibre-to-fibre recycled %				
Business model	Circular revenue %				
Business model	Take-back / collection rate				
Business model	Repair rate / rental utilisation				
Impact	Product-life extension				
Social	Living wage / safety coverage %				
Governance	Substantiated public claims %				

Annexure L — 90-day circular quick-start plan

A minimum first quarter any organisation can run. Links to Chapter 17.

Weeks	Focus	Deliverable
1–2	Mandate	Named owner + cross-functional team; scope agreed.
3–5	Baseline	Material-flow and waste baseline for top categories.
4–6	Data	Product-data capture started (composition, origin, chemicals, care, EoL).
5–8	Design rules	Design-for-X set as requirements for next season.
6–10	Pilot choice	One circular model chosen; downstream route confirmed.
8–12	Compliance	Regulatory/EPR scan; claims-substantiation process live.
12	Review	Baseline report + roadmap to 18 months agreed.

Rule of thumb: finish the 90 days with one real loop in motion and a measured baseline — not a strategy document alone.

Annexure M — Circular maturity self-assessment

Score each dimension 1–5, then take the lowest as your working level. Links to Chapter 17.

Dimension	Level 1	Level 3	Level 5
Data & traceability	No baseline	Baseline + reporting	Full DPP-ready, assured data
Design	Ad hoc	Design-for-X standard	Embedded in every range
Materials	Virgin default	Preferred-fibre strategy	Mono-material, regenerative, verified
Business models	None	1–2 pilots	Circular revenue is core P&L
Reverse logistics	None	Pilot collection	Regional network with routes per grade
Compliance & claims	Reactive	Readiness in progress	Full compliance + assurance
Governance	No owner	Owner + KPIs	Board-level, incentivised

Scoring: average for a headline, but manage to the weakest dimension — the loop is only as strong as its thinnest link. Aim to move one level at a time.

Annexure N — Implementation roadmap template

Copy and populate per workstream. Links to Chapter 17 and Figure 11.

Workstream	Foundation (0–6m)	Pilot (6–18m)	Scale (18–36m)	Owner
Data & baseline				
Design				
Materials & suppliers				
Take-back & reverse logistics				
Business models				
Policy & compliance				
Finance				
Governance & claims				

Annexure O — Glossary of key terms

Term	Meaning in this book
Circular economy	A system that keeps products and materials at their highest value and eliminates waste and pollution by design.
Value-retention (9R)	Strategies — refuse, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle, recover — ranked by value kept.
Design for X (DfX)	Designing deliberately for durability, repair, disassembly, recyclability, low-impact use and data.
Mono-material	A product made of a single fibre/material so it can be recycled without separation.
Fibre-to-fibre recycling	Turning textile waste into fibre suitable for new textiles (true closed loop), as opposed to downcycling.
Downcycling	Recycling into a lower-value use (e.g. insulation, wiping cloths).
Pre-/post-consumer waste	Waste from manufacturing (pre-) versus from used products (post-).
Take-back	A programme to collect products from customers after use.
Reverse logistics	Moving used products back to sorting and recovery.
Recommerce / resale	Selling used products through a managed channel.
Product-as-a-service (PaaS)	Selling access or outcomes (e.g. rental, lease) instead of ownership.
Extended Producer Responsibility (EPR)	Making producers pay for the end-of-life management of what they sell.
Eco-modulation	Varying EPR fees by circular performance (durability, mono-material, recycled content).
Ecodesign / ESPR	EU rules setting minimum product durability, repairability and recyclability.
Digital Product Passport (DPP)	Machine-readable product data (composition, origin, chemicals, care, end-of-life).
RSL / MRSL	Restricted Substances List (product) / Manufacturing RSL (inputs).
Displacement	The extent to which a circular sale replaces, rather than adds to, a new purchase.
Rebound effect	When efficiency or lower prices drive extra consumption, eroding benefit.
Material Circularity Indicator (MCI)	A product-level measure of how circular a product's materials and use are.
Regenerative materials	Fibres sourced in ways that restore soil, biodiversity and ecosystems.

Closing note

Circular fashion is an industrial redesign, not a marketing layer. Start where your feedstock is cleanest and your leverage highest — design and volume — secure real downstream routes, measure displacement honestly, and make sure the people of the loop share in its value. Use these annexures as living working documents and revisit them each season.

Circular Economy in the Fashion Sector

EXPANDED & ENHANCED EDITION · 2026

ABOUT THIS BOOK

The fashion sector is one of the clearest examples of a linear, take-make-waste economy — and one of its largest opportunities for change. This Expanded & Enhanced Edition treats circularity not as a marketing layer but as an industrial redesign agenda, and turns it into decisions teams can act on this quarter — across design, materials, technology, policy, finance, metrics and governance.

> Circular fashion is not an optional green project. It is an industrial redesign agenda.

WHAT'S INSIDE

A complete, evidence-based reference

20 Chapters	**12** Figures & schematics	**15** Annexures	**62** References
12 Country profiles	**18** Circular models	**9** New diagrams	**40+** Checklists & tools

WHO SHOULD READ THIS

Brands · Manufacturers · Retailers · Sustainability & sourcing teams · Investors · Policymakers

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