

WATCH & JEWELLERY

INITIATIVE 2030



Unlocking decarbonisation
through circularity in the watch
and jewellery industry

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Deloitte.

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Foreword

The global watch and jewellery industry stands at a defining moment. The business context is more uncertain than before. There are increasing tensions on the demand side, and increasing cost pressures on the supply side, eroding margins. Most players are recalibrating their operations, and are more discerning in resource allocation.

They strive to balance short-term and long-term priorities. In a context where gold prices have soared and the diamond market is stressed, decarbonising supply chains is critical, and supply chain resilience is also a strategic business continuity issue. In this context, upstream circularity can both accelerate decarbonisation and make the supply chain more robust. The prerequisite is transparency and standards evolution to ensure that intention is followed by meaningful actions. Downstream circularity has not yet proven to be a significant business model – although the second-hand watch market is well established – but fulfils the increasing expectations for durability and reparability.

This white paper has been launched in collaboration with Deloitte. It explores the state of the art of circularity asking if circularity can drive systemic change.

This white paper outlines strategies for advancing decarbonisation through circularity in our industry, whilst enhancing value creation and competitiveness. It focuses on three critical areas along the value chain: upstream, downstream, and key enablers.

As a result of a collective effort across the industry, the paper builds on real-world examples and provides actionable recommendations.



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Setting the scene

A material industry

The art of crafting timeless objects of material, cultural and personal significance has always been at the heart of the watch and jewellery industry. Yet watches and jewellery are more than works of craftsmanship – they also carry deep emotional value, often passed down across generations.

These industries built on longevity and durability cannot remain untouched by today's global challenges. Since the industrial revolution, human activity has been impacting the planet's climate and ecosystems at unprecedented speed. Fossil energy, material resource use and waste generation are pushing up greenhouse gas (GHG) emissions, causing climate change and depleting the planet's material resources. Resource use accounts for more than 55% of global GHG emissions,¹ and with material use projected to increase from the current annual 100 billion tonnes to 160 billion tonnes by 2060,² our reliance on virgin resources is expected to persist and intensify. Expectations of how products are made, used, and dealt with after their use are changing.

While the watch and jewellery industry is not among the world's largest greenhouse gas emitters, it is highly dependent on precious and finite resources, such as gold, silver, platinum, diamonds and gemstones. The industry is responsible for 40% and 18% of annual gold and silver sourced, respectively.³ The sourcing and processing of these materials is energy- and carbon-intensive and contributes significantly to the sector's overall GHG footprint. Beyond environmental challenges, the industry's supply chains also harbour considerable social risks, and therefore careful evaluation of the total environmental and social impact of actions is needed. A strong reliance on scarce materials also exposes the industry to volatile and increasing raw material costs, especially for gold and silver in recent years. Lastly, both upstream and downstream risks have gone through periods of heightened uncertainty and pressure in the last five years. The disintegration of supply chains during the COVID-19 pandemic and the rise in U.S. import tariffs on finished goods in 2025 showed that resilience is crucial if exceptional quality is to continue to be supplied on time and competitively to consumers.

Circularity: a path to multiple ends

Circularity provides ways to turn these challenges into opportunities. Rethinking how resources are sourced, used, and recovered and how products are designed and marketed, can allow companies to use circular opportunities to reduce their GHG emissions and other environmental and social impacts, while unlocking new forms of value. From sourcing strategies that prioritise recycled, responsibly mined, laboratory-produced and alternative materials, to innovative product designs and novel service models, the industry has the scope not only to reduce its GHG emission footprint but also to improve resilience, enhance brand value, and elevate consumer loyalty.

This white paper reflects on these challenges and seeks to support advancing a transition. It aims to:

- 1 Increase transparency on the decarbonisation challenges the watch and jewellery industry faces across its value chain
- 2 Showcase real-world examples of how circular opportunities can address these challenges and unlock value creation opportunities
- 3 Derive and share recommendations at company, industry, and policy level to enable action and adoption

By embracing decarbonisation through circularity, the watch and jewellery industry can continue to celebrate its heritage of craftsmanship while leading the way to a more sustainable and resilient future.



1. Executive summary

This white paper is the product of direct engagement with industry leaders and practitioners and sets out a practical pathway for decarbonisation through circularity in the global watch and jewellery industry. The major opportunity for decarbonisation lies upstream: reducing emissions in mining and unlocking recycled and low-carbon material sources is essential to a successful transition. Downstream action can increase product lifetime value and contribute by providing recycled materials. Traceability solutions and policies that create transparent technical and administrative frameworks for material use are major enablers.

Breaking down industry emissions

Annual emissions along the end-to-end watch and jewellery supply chain are estimated at 40-60 megatons of carbon dioxide equivalent (MtCO₂-eq). Though it accounts for only about 0.1% of global emissions, the industry is one of the largest consumers of some of the most carbon-intensive virgin materials, like precious metals and gemstones. Overall, 50-60% of the industry's carbon footprint is made up of upstream activities, a high share highlighting the impact of emissions from raw materials. Downstream emission hotspots are fragmented across distribution and retail, packaging, and aftersales. Adopting circular practices has the potential to decrease emissions by 20-30% in the next five to ten years.

Upstream: increasing the adoption of recycled and low-carbon materials

Increased adoption of non-virgin and low-carbon production materials offers the largest decarbonisation opportunity for the industry, primarily through:

- **Recycled metals, especially gold and silver:** A leading global jewellery brand has already succeeded in crafting its jewellery from 100% recycled gold and silver – a unique and market-leading proof of concept for the industry. While availability of traceable recycled feedstock is limited today, the industry could reduce its emissions by 3-5% in the next decade by establishing systemic access to electronic waste (e-waste), which contains recyclable metals, and industrial sources of waste, fostering robust collection and recycling infrastructure, and securing long-term demand to enable investment.

Reviewing standards and ensuring transparent production of recycled gold and silver are therefore the new frontier for watches and jewellery. As the total production of certified recycled gold might not be sufficient in the short term, it remains equally critical to work with mines to also reduce their carbon emissions.

- **Low-carbon materials:** Lab-grown diamonds have the potential to reduce the carbon intensity of diamond sourcing by an order of magnitude. Solutions like metal, bio-ceramics and plant based alternatives to leather straps unite the pioneering spirit of watchmaking with the strive for emission reductions. Consumer acceptance might pose a constraint on the speed and extent of growth in the adoption of low-carbon materials in the industry but they could yield a 2-4% emission reduction over the next five to ten years. As lab-grown diamonds are as clean as the energy used, full transparency of the supply chain will be critical to make systemic progress.
- **Low-carbon mining practices:** Virgin materials will continue to play an important role in how the industry builds its products. Ensuring lower-carbon virgin material supply is therefore essential, offering a sizeable 10-15% emission reduction opportunity while transition volumes of recycled inputs scale. But achieving this lies partially outside the influence of the sector. Thus, co-investing with mining partners in low-impact, low-carbon extraction and processing as well as social advancement is crucial to advancing decarbonisation and social justice.

Downstream: let circularity drive consumer interactions

By improving repair, refurbishment, take-back, and resale, brands increase products' lifetime value and return materials to high-quality secondary streams.

- **Emotional durability and longevity:** The sector excels at cultivating emotional attachment and in timeless design and product upgradeability, which extends use cycles and lowers lifecycle emissions. Enhancing serviceability, modularity, and warranties can further amplify this effect, improve the consumer experience, and grow aftersales opportunities.
- **Tapping into the "urban mine":** The high value density of the materials (gold, silver, gemstones) used in watches and jewellery enables profitable recovery from consumer-held products – something that is not possible in most

other industries. New value models – rental, exchange, buy-back, deposit schemes, and authenticated resale – can turn dormant assets into circular feedstock. Unworn items in safety deposit boxes can become revenue streams and at the same time strengthen brand loyalty and traceable material flows.

In addition to supplying materials for upstream decarbonisation, downstream activities can reduce industry emissions directly by 3–6% by the mid-2030s. Conscious material and design choices for packaging and stores can drive this potential, embedding circularity into the heart of the consumer experience.

Enablers: be a catalyst for change through traceability

Embedding product-level traceability via digital product passports and interoperable data standards allows brands to verify the provenance of materials, substantiate recycled content claims, and direct products back into certified secondary streams. These solutions can also reinforce and elevate consumer trust around products and offer recurring digital consumer interaction opportunities after the sale. While watches and jewellery are not expected to be the primary scope of digital product passport schemes in the next five years, building voluntary, cooperative solutions could pre-empt regulatory requirements and unlock opportunities.

Our findings demonstrate that the industry has a strong ability to nurture innovation. But in some specific areas policy support is required to scale solutions across the value chain.

- **Upstream**, increased transparency on the full-cycle emissions of mined materials, especially diamonds, is imperative to understand the footprints and advance the decarbonisation of mined material. In addition, clear guidance on recycling claims, recycled content targets, and established standards for low-emission lab-grown diamond production could boost the shift towards low-carbon and non-virgin materials. Multi-stakeholder coalitions driven by proactive industry players, involving local governments and international organisations, are best equipped to develop the required frameworks.
- **Downstream**, extended producer responsibility and designing for repairability and recyclability are robust enablers already being used to prolong product lifetimes and foster recycling streams. Relatively mature EU regulatory schemes (e.g., Ecodesign for Sustainable Products Regulation – ESPR), are expected to be followed by other jurisdictions given the rising importance of domestically available critical raw material supplies. Incentivising take-back and recycling schemes could help to make the most out of unworn or obsolete items in the future – but such schemes are not yet systematically imposed on watches and jewellery, even in the EU.





2. Decarbonisation through circularity

Opportunities beyond product longevity

Longevity and durability, elements of circularity long before the contemporary term was born, have always been at the heart of the watch and jewellery industry. But the industry's value chain is still mostly linear. Making it more circular would help decouple virgin resource use from production output and consumer value, opening pathways for emissions reduction.

This chapter aims to bring clarity on the decarbonisation challenges the industry is facing along the value chain. We begin by defining the value chain and identifying its current GHG emissions and we provide a foundation for identifying critical intervention points for circular solutions.

Overview of the value chain

To craft beautiful and enduring objects, the watch and jewellery industry relies on a range of precious materials, most notably gold, silver, platinum, diamonds, and coloured gemstones such as emeralds, rubies and sapphires.

From material to product



Mining

Gold, silver, and platinum are extracted in large-scale industrial operations in regions such as South Africa, Russia, and the Americas, alongside artisanal and small-scale mining (ASM), particularly in Africa and South America. Diamonds are mined in Russia, Canada, and Botswana, while coloured gemstones are primarily sourced through artisanal small-scale mines in Africa, Sri Lanka and Colombia.⁴



Trading, processing & refining

Precious metals are smelted, refined and alloyed to the required purity and colour standards, while rough diamonds are sorted, cut and polished in hubs such as Surat (India) and Antwerp (Belgium), and coloured gemstones in Bangkok (Thailand) and Colombo (Sri Lanka).⁵



Manufacturing of components

The manufacturing phase differs by product type. Watches require the industrial production of highly engineered components – from complications in movements to cases, bracelets and dials. Less complex manufactured components may also be used to create jewellery though, in many cases, materials are passed to workshops and ateliers directly.



Assembly and finishing

Watchmaking is largely concentrated in Switzerland. Components are assembled intricately and decorated with finishes, followed by quality control and testing. For jewellery, once the components or raw materials have been received, artisans cast, solder, set stones and polish. This process is fragmented, with many small- and medium-sized enterprises involved.



Distribution and retail

In the sales and distribution phase, channels and practices vary significantly according to the value proposition of different brands. Watches are often sold through mono-brand boutiques and authorised dealers, while jewellery is sold in boutiques, department stores, and through auction channels.



Use phase

Watches and jewellery are long-lifespan goods, often retained for decades. Aftersales services are common: watches undergo regular servicing, repair, and part replacement to preserve their function and value, while jewellery may be repaired, resized, or remounted across generations.



End-of-first-life

While watches and jewellery are hardly wasted, end-of-life patterns differ significantly by the monetary and emotional value of the item. Resale, partial recycling, or reuse of parts (e.g., gemstones) are likelier for higher value items, enabled by certified resale platforms emerging in the last decade, predominantly successful for watches. In contrast, gadget-like watches or costume jewellery more often follow local disposal pathways.

Upstream emissions dominate

The industry's value chain depends heavily on sourcing virgin materials. Extracting and processing metals and gemstones is highly carbon-intensive and associated with other environmental risks, to nature, water, and biodiversity.

Based on approximate material use, the total emissions associated with the watch and jewellery value chain are around 40-60 Mt CO₂-eq annually.⁶ Upstream emissions related to raw material sourcing and manufacturing – mostly Scope 3 for the brands that market final products – account for approximately 70-80%⁷ of total emissions, highlighting that addressing upstream emissions is crucial to tackling the industry's overall decarbonisation challenge.

Emissions downstream from distribution to end-of-life management of products are around 20-30% of the total but these stages are important drivers and enablers for upstream change. For example, a brand focused on sustainability can build a market for low-carbon watches or jewellery, or create an effective programme to reclaim and recycle materials, reducing reliance on carbon-intensive virgin materials.

High-level watch and jewellery value chain

Upstream

	 Mining	 Trading, processing & refining	 Manufacturing of components	 Assembly and finishing
Emissions sources	- Fossil energy carriers for use of heavy mining machinery - Deforestation - Chemical emissions - Transportation	- Energy use for smelting / refining - Coal / gas to power machines for cutting and polishing - Chemical emissions - Transportation	- Energy use in workshops and machinery - Transportation	- Energy use to run factory for assembly - Transportation
Emissions intensity	VERY HIGH	HIGH	MEDIUM	MEDIUM-LOW
Additional challenges related to circularity	- Environmental: Water pollution, soil erosion, impact on nature - Social: Community displacement, unsafe working conditions - Slow adoption of clean solutions	- Supply chain risks: geopolitical and regulatory disruptions - Price volatility - Recycled metals: lack of availability and traceability challenges	Complex and fragmented supply chain (especially for watches for parts not produced in-house)	Complex and fragmented supply chain

Downstream

	 Distribution & retail	 Use phase	 End-of-first-life
Emissions sources	- Sales point materials and operational emissions - Transportation of finished goods - High-impact packaging	Servicing and related logistics	Refurbishment, distribution, potentially disposal
Emissions intensity	MEDIUM-LOW	LOW	LOW
Additional challenges related to circularity	- Brand strategy conflicts (i.e., quality concept of non-virgin or low-carbon materials) - Cultural and logistical barriers (e.g., towards rental models)	- Fragmented refurbishment and repair services - Consumer stockpiling ("urban stock") of used, unwanted items	- Authentication and trust in resale - Recycling: limited availability due to collection and recovery challenges

Upstream view

Precious in nature, high in impact

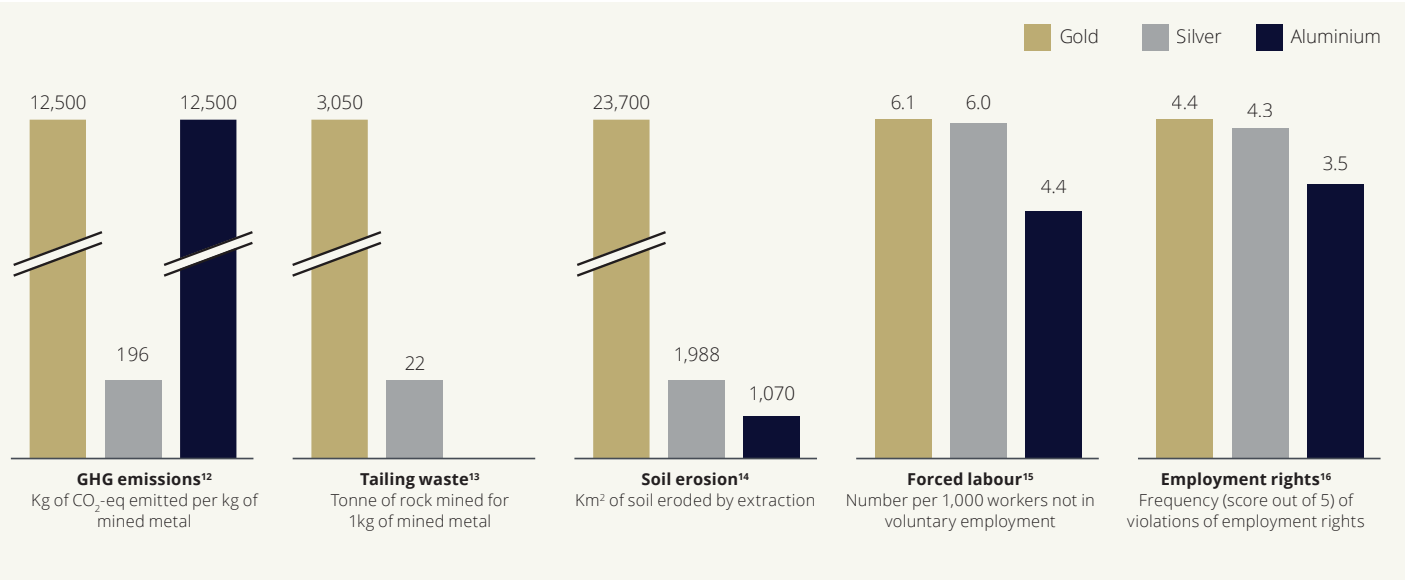
Annually, approximately 3,600⁸ tonnes of gold, 25,600⁹ tonnes of silver and 457¹⁰ tonnes of platinum are mined around the world. Almost half of that gold and one-fifth of the silver and platinum are sourced by the watch and jewellery industry.

Gold and silver are among the most environmentally damaging raw materials to extract. Their social impact is significant and complex.

Mining operations are extremely energy- and water-intensive and often result in deforestation, soil erosion, and habitat destruction, threatening local biodiversity. Large-scale mining relies heavily on diesel-powered heavy machinery and explosives, which generate direct GHG emissions. Extraction processes frequently use toxic chemicals such as cyanide and mercury,¹¹ which can contaminate rivers, groundwater and soil, causing long-term ecological damage. Tailings and waste rock from mines can leach heavy metals into surrounding ecosystems. Refining and smelting processes are also highly energy-intensive, emitting substantial carbon dioxide and other air pollutants. In addition, transportation of ores and materials between mines, processing plants, and refineries adds further carbon emissions.

Socially, upstream mining activities can significantly affect local communities. Large-scale operations can displace populations and disrupt traditional livelihoods, while artisanal and small-scale mining often involve unsafe working conditions, exposure to hazardous substances, informal labour practices, and limited access to fair wages or social protections.

Today, many mines, including both large-scale and artisanal operations, are demonstrating responsible business practices towards measurable impact. While there are challenges that remain, it is important to recognize the efforts being made to address risks, improve environmental and social outcomes, and foster meaningful engagement with affected communities and stakeholders. Examples include the work of the Swiss Better Gold Association, who focus on improving working and living conditions in artisanal and small-scale gold mining communities.

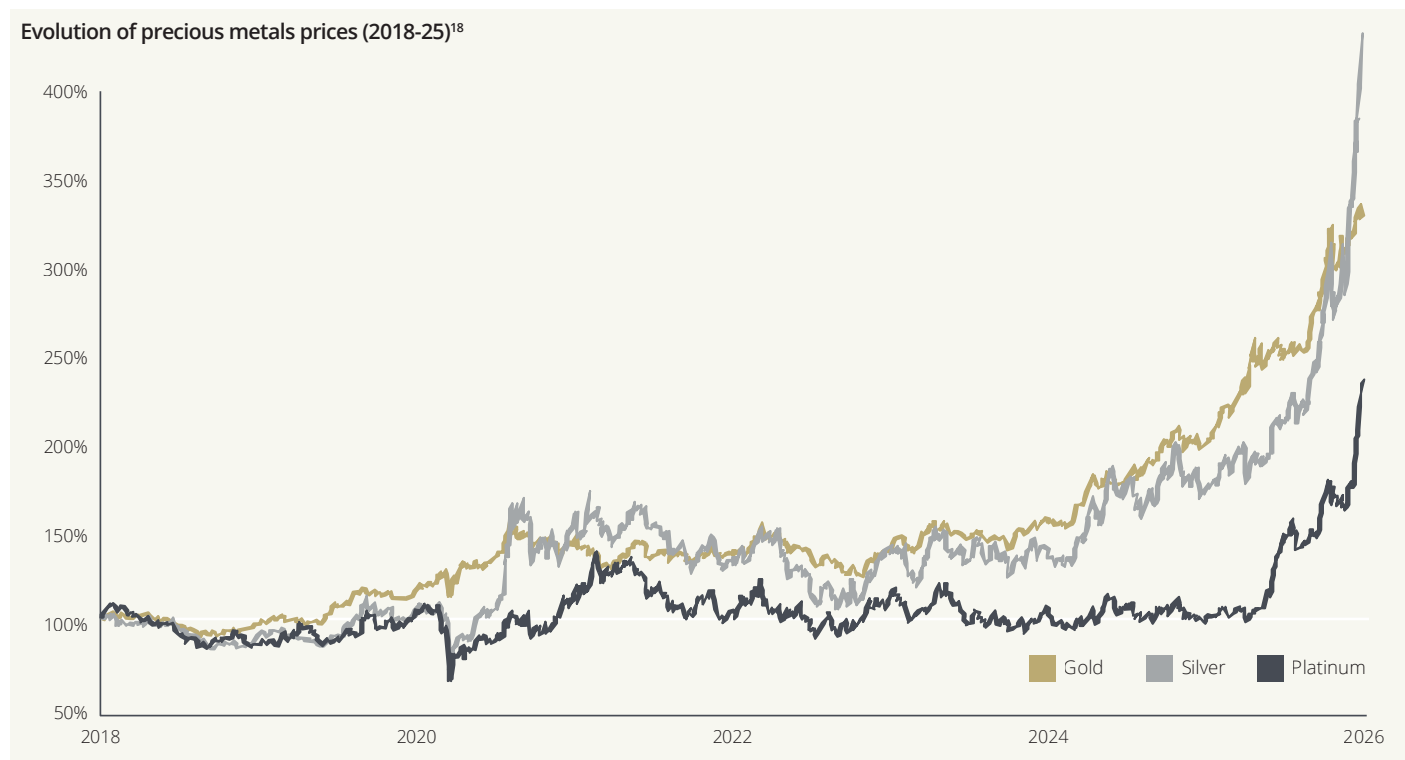


Note: There is no data available for tailing waste from platinum mining

Business risks posed by virgin materials – not least, soaring prices

Dependence on virgin materials exposes the watch and jewellery industry not only to environmental and social risks but also to significant operational and financial ones. Geopolitical, environmental and regulatory disruptions can destabilise supply chains and inflate costs. Precious metals like gold, silver, and platinum are often sourced from politically unstable regions such as Sub-Saharan Africa, Latin America, and Southeast Asia,¹⁷ increasing the risk of supply interruptions and necessitating costly alternative procurement. Beyond the physical supply and demand volatility, precious metal prices are highly sensitive to global macroeconomic conditions.

Recent soaring gold and silver prices have increased watch and jewellery production costs, squeezing margins and potentially inflating consumer prices – which is liable to affect especially the purchasing decisions of cost-sensitive consumers. This has underscored the pressing need for the industry to explore non-virgin or low-carbon materials and sustainable practices to mitigate supply chain vulnerabilities and financial impacts.



Incremental steps to optimise footprint at extraction

To reduce the impact of mining, new technologies and innovations are being explored, though adoption remains limited. Advances in development planning and monitoring – such as AI and machine learning-based tools, drones and sensors – can improve efficiency in deposit recovery while minimising waste. In extraction, less harmful alternatives to cyanide, such as heap leaching, bio-leaching, and thiosulphate, show promise, alongside renewable energy integration and improved water recycling. Blockchain-based traceability systems are being piloted by governments to ensure traceability and combat illegal mining. Despite this progress, regulatory hurdles, high costs and the limited scalability of new technologies – particularly in remote regions – pose barriers. Collaboration between watch and jewellery brands, precious metal processors and mining companies could help to formulate roadmaps for progress and create market demand for low-impact extraction.

A growing alternative: recycled metals

To mitigate the current impact of mining and processing, the use of recycled metals has increased significantly. Recycled gold can be produced with up to 99.8%¹⁹ lower emissions compared to mined gold and would result in a much lower environmental and social impact, without compromising on quality.

In 2024 approximately 1,400 tonnes of recycled gold and 6,000 tonnes of recycled silver re-entered circulation, but these amounts accounted for no more than about 30% of all the gold and 20% of the silver sourced annually.²⁰ The benefits and decarbonisation potential of recycled metals seem clear and promising, but there are also challenges to consider.

1) Importance of traceability

Definitions by organisations like the London Bullion Market Association (LBMA)²¹, International Organisation for Standardisation (ISO)²², Precious Metals Impact Forum (PMIF)²³, and the Responsible Jewellery Council²⁴ vary considerably, leading to confusion about what qualifies as recycled metal.

The LBMA and ISO classify all gold returned to refiners from pre- and post-consumer and investment sources as "recycled," complicating verification and tracing back to its origin. By contrast, the PMIF defines "recycled" gold as solely from post-consumer products containing less than 2% of gold in weight, such as e-waste. Enhanced traceability and alignment around these definitions are crucial to fostering robust circular practices and increasing the availability of recycled gold.

Despite evolving definitions and standards²⁴ aiming at increased traceability and monitoring, recycled gold is only evaluated at the point where it re-enters the tracked supply chain, typically at the refinery. The inability to trace gold back further than its return to the refinery creates a risk: recently mined virgin gold can be claimed as "recycled" and sold at a premium without ever being used by consumers.

2) Limited availability

Even if transparency can be improved in the definition and sourcing of recycled metals, limited availability still poses a challenge. It is true that recycled metals are unlikely ever to be sufficient to cover the entirety of industry demand. But there is a lot of scope to increase their availability.

The "urban mine"

Around 215,000 tonnes of gold and 1,615,000 tonnes of silver are currently stored, representing the global extracted stockpile. About 45-50% of these reserves are being held by consumers in the form of watches and jewellery in the so-called urban mine.²⁵ Some of these items hold high emotional value but it is reasonable to think that a portion is also dormant in security boxes and rarely used.

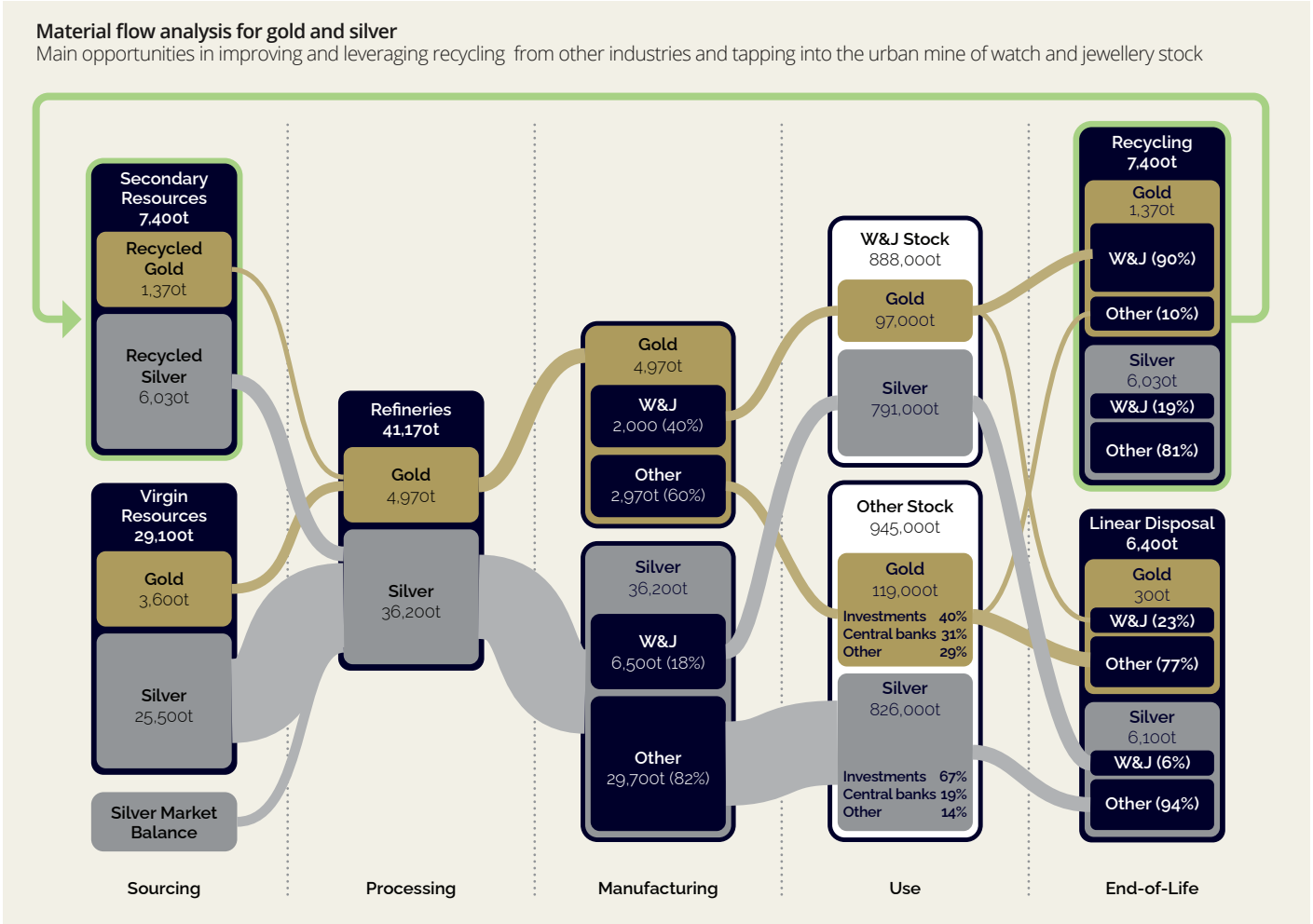
In a survey conducted by Watchfinder & Co about half of respondents said they have at least one luxury watch at home that they do not wear.²⁶ This underlines the need to improve end-of-life management for these items. Where emotional attachment is limited, the useful life of these products can be extended by authenticated resale. If the product no longer holds emotional or financial added value beyond its material content, it can be reintroduced in the value chain for recycling, reducing the need for newly mined materials.

E-waste

Annually, an estimated 300 tonnes of gold and 6,100 tonnes of silver are disposed of without being recovered, representing substantial wasted value economically, environmentally, and socially.²⁷ Exploiting these linearly disposed resources alone could increase the availability of recycled gold by about 20% and double the amount of recycled silver.

More than 200 of the 300 tonnes of gold that are disposed of come from e-waste.²⁸ Despite its high intrinsic value, a large share of gold contained in e-waste is currently lost, as only about 22% of global e-waste is formally collected and managed.²⁹ The main challenge lies in establishing effective collection and treatment systems. Indeed, even when it enters recycling, recovery is inefficient: in 2022 alone an estimated 1 billion kg of metals were lost during formal recycling due to low concentration and insufficient pre-treatment, such as dismantling and sorting.³⁰

Additionally, informal recycling operations may rely on unsafe, unregulated working conditions that expose workers to hazardous waste. Formalising and improving these supply chains is critical to protecting labour rights and more efficiently recovering waste. Reintroducing these metals from e-waste would increase the availability of post-consumer recycled gold and silver but would require targeted interventions to raise collection rates, stronger regulation, and investment in advanced recycling technologies to minimise metal losses.



Source: Circle Economy and Deloitte research, 2025. Detailed sources and assumptions applied are described in Appendix B. Values may be rounded.

Paying a high environmental and social price for diamonds

Diamonds hold a unique place in culture and society, as symbols of love, commitment, and timeless beauty. They are cherished as objects of immense emotional and financial value. "A diamond is forever". Yet behind diamonds' enduring allure lies a complex process of extraction and production with significant environmental and social impacts.

Mining diamonds generates high emissions per carat due to the large volume of rock that needs to be excavated by predominantly fossil-fuel-powered heavy machinery and equipment. Diamond mining also has a significant impact on local land use, animal habitat, vegetation and surrounding communities.³¹

The impact of diamonds does not stop at mining. Once mined, they are sorted by quality and transported elsewhere, mostly to India, to be cut, polished and distributed. This process contributes additional emissions. In addition, waste products and chemicals need to be managed carefully.

Estimating the industry-wide emissions of diamond mining is hindered by the lack of publicly available, reliable data that considers the full emissions cycle. Available sources vary significantly and typically disregard impacts associated with mining-related exploration, mine closure or diamond processing steps like cutting and polishing.³²

Given that 100-120 million carats of diamond are estimated to be produced globally every year, out of which 20-30% are of gemstone quality and used in the watch and jewellery industry,³³ mined diamonds can account for up to 10-12% of the industry's emissions.

Similar challenges with coloured gemstones

Coloured gemstones present the same challenges. Every year approximately 30 tonnes of rubies, 22 tonnes of emeralds and 28 tonnes of sapphires are mined and they too have an environmental impact in terms of deforestation, water contamination, habitat destruction and GHG emissions.³⁴

One important difference is that diamond mining and trading is a concentrated market with a few large actors whose activities are increasingly scrutinised. Efforts to lower the environmental and social impacts are intensifying. By contrast, coloured gemstones are typically mined by small private companies, cooperatives and local associations, and their impacts are less well documented. Greater transparency and traceability are needed.

Market uncertainty slows the decarbonisation agenda

The supply chain for diamonds and coloured gemstones is complex. Diamonds for jewellery only make up a minority of the market by carat volume. But the diamonds used in jewellery account for most of the market value and drive decision-making in extraction. Supply volumes have been trending down since 2017, with a significant hit in 2020³⁵ due to COVID-19. Consumer demand regained momentum in 2021-22 resulting in rising prices, which generated value for upstream players but significantly increased the challenges for those selling jewellery.³⁶

Once the post-pandemic boom had played out, diamond prices started to decline, with multiple factors at play. The wave of marriages that had been postponed by the pandemic subsided. Key markets, such as China, suffered economic difficulties. And, most importantly, lab-grown options became significantly more affordable than before.³⁷

To reduce the environmental impact of mined diamonds, the main diamond producers are now exploring the possibility of supplying diamond mines with renewable electricity, adopting alternatives to diesel to power heavy machinery, and seeking solutions to restore and protect the habitat.³⁸ Market uncertainty and the focus on cost competitiveness may, however, hinder implementation of these solutions.

Diamond Standard Index Price³⁹



Lab-grown diamonds: a disruptive opportunity

The share of lab-grown diamonds increased significantly, from 1% of jewellery diamonds in 2015 up to 20%⁴⁰ of the global diamond jewellery demand by 2024.

Lab-grown diamonds and lab-grown gemstones have the same chemical, physical, and optical properties as their mined counterparts but they are created in a controlled laboratory environment using high pressure high temperature (HPHT) and chemical vapour deposition (CVD) methods.

The significantly lower production costs of lab-grown diamonds allow for lower retail prices, bringing gemstone jewellery to a larger population. Besides their cost advantage, they have potential environmental and social benefits. Producing lab-grown diamonds with renewable energy sources can reduce GHG emissions by up to 90% compared to mined diamonds. However, the extent of these emissions reductions depends on the energy mix used in production, and whether powered by renewable or low-carbon electricity. Lab-grown diamonds can also require less water and avoid direct impacts on nature and biodiversity if produced in the correct operating conditions.^{41, 42}

Key upstream decarbonisation levers to pull with circular solutions

Innovation efforts are being made to reduce the impact of metal and diamond mining. Most, however, remain in their early stages and will require coordinated, cross-industry efforts to achieve scale.

Low-carbon materials are also gaining traction: recycled metals offer a promising pathway but depend on clearer definitions, stronger regulation, and closer collaboration with policymakers. Their availability will remain constrained unless the industry expands circular business models and improves end-of-life recovery of e-waste, where large quantities of precious metals are still being lost.

Lab-grown diamonds present another opportunity, avoiding soil erosion, water pollution and ecosystem degradation linked to mining. The impact advantage with renewable energy inputs is clear. The availability of renewable energy at scale for production poses feasibility constraints of varying extent across key production markets.

Unlocking the full potential of recycled metals and lab-grown stones will require consumer education, product design geared to sustainability, and new business models that incentivise take-back, reuse, and responsible ownership, bridging upstream sourcing challenges with downstream opportunities for circularity.

Downstream view

The downstream stages of the watch and jewellery value chain encompass distribution, retail, usage and end-of-first-life recovery. Compared to the upstream phases, the direct environmental impact of downstream activities is significantly lower, both in terms of emissions and resource intensity, accounting for approximately 20-30%⁴³ of total emissions. Yet downstream activities hold critical levers for transformation: extending product lifespans and closing the loop so that precious materials can re-enter the material flow. By achieving this, the industry could help lower the reliance on virgin resources and reduce the carbon intensity associated with extraction and primary processing.

The downstream catalysts for decarbonisation

The final stages before products reach the consumer contribute the majority of downstream CO₂ emissions. Around 3-6% of the industry's Scope 3 emissions arise from downstream transportation, distribution, and franchise operations.⁴⁴ Additionally, emissions from owned vehicles and stores are included within Scope 1 and 2 categories. Packaging accounts for roughly 2-5% of the industry's total emissions. Efforts to enhance the customer experience often restrict opportunities to minimise packaging. Packaging frequently combines multiple materials, such as cardboard, plastic, foam, fabric, and adhesives. This complicates recycling and leads to higher carbon emissions, from the extraction, manufacturing and disposal of these materials.

The impact of retail varies across the industry depending on a brand's presence – whether in shopping centres, mono-branded stores, exclusively online, or a combination – each with distinct implications for the carbon footprint. Physical stores offer brands a valuable opportunity to engage consumers and showcase their products. However, stores are frequently updated and redesigned to reflect new seasons or collections, generating additional waste. Companies also often have limited control over locations they rent and the energy mix used to power and heat these spaces.

Keeping products out of the safe

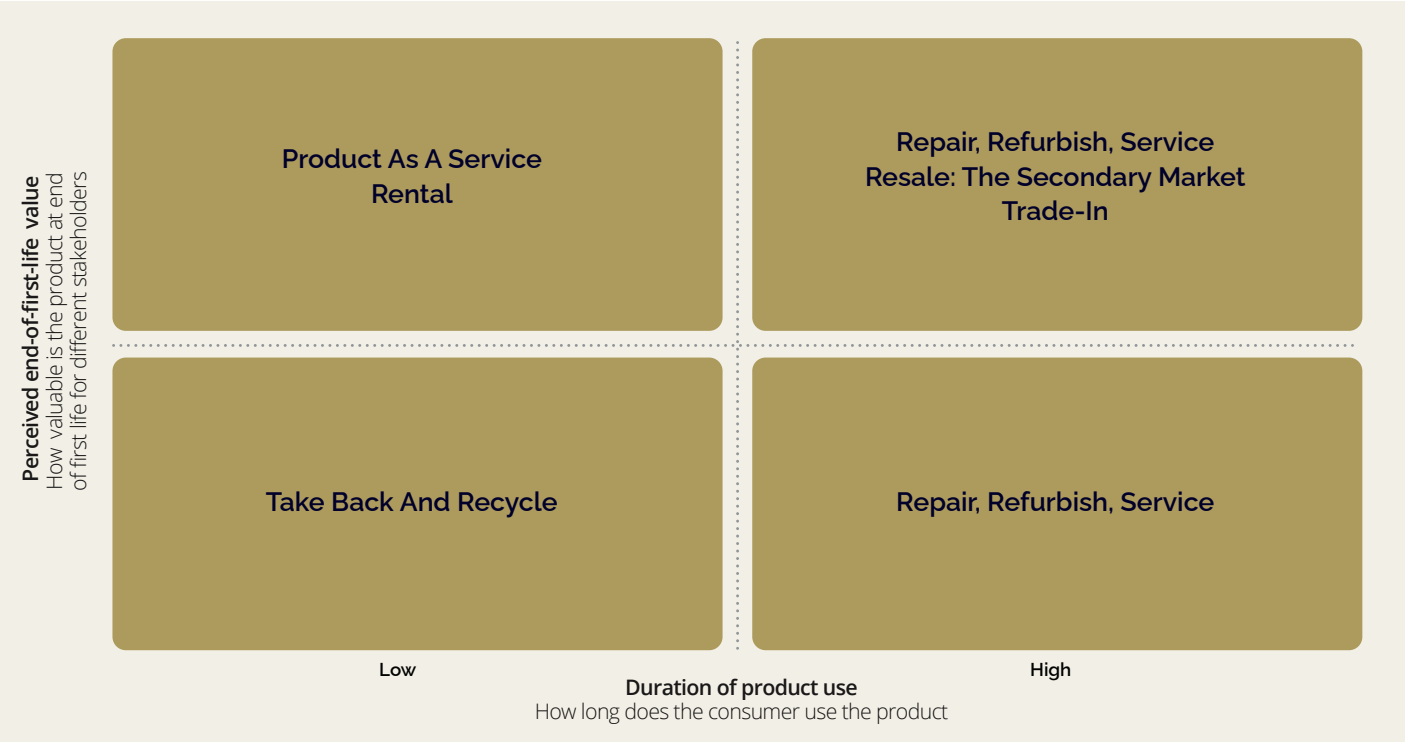
Brands are making efforts to extend the useful lifetime of their products. It is estimated that approximately 97,000 tonnes of gold and 790,000 tonnes of silver are stockpiled and in circulation as watches and jewellery.⁴⁵ Additionally, potentially half of luxury watch owners hold unworn pieces.⁴⁶ While many of these pieces may hold significant emotional value to their owners and represent family heirlooms, some of this volume of unworn watches and jewellery could form an urban mine. Owners need to be offered the chance to repair, refurbish, or resell their pieces to extend the use phase, and this offers the industry new customer interaction and revenue opportunities. If these options are not appealing, recycling of these pieces to extract their materials can also be incentivised.

Such fitting circular business models are determined by two main dimensions of the products concerned:

- 1 Perceived end-of-first-life value of the product:** How valuable is the product at its end-of-first-life for different stakeholders, such as the current consumer, potential new consumers, original marketer (brand, producer), or other stakeholders of the watch and jewellery value chain (e.g., resale platforms, precious metal refineries, etc.). Perceived value is defined across three dimensions, building on top of each other gradually:
 - a. Material value:** The value of each recoverable, recyclable material that the product contains (e.g., precious metals, gemstones), considering also the feasibility (e.g., recycling rate) and viability of recycling
 - b. Functional value:** The ability of the product to perform its originally designed function (e.g., a watch in good visual condition and a properly working movement has superior functional value to another with a broken movement)
 - c. Emotional value:** The personal meaning and emotional attachment to a product by the original user and the significance the item may represent to other consumers due to its brand value
- 2 Duration of product use:** How long the consumer uses and keeps the given product, influenced by its design, durability, and emotional meaning

Higher perceived value (material, functional, and emotional) and long-lifespan objects are best suited for repair, refurbishment and resale, which extends their relevance to the consumer and preserves brand equity. By contrast, lower perceived value and/or shorter lifespan items are more dependent on take-back and recycling schemes to recover valuable metals and gemstones. Models such as product-as-a-service are promising in contexts where utilisation can be maximised. But they are still in the early stages in the industry.

This framework highlights that the most impactful strategies depend not only on the product category but also on consumer behaviour and the consumer’s individual value perception, making a mix of models necessary.



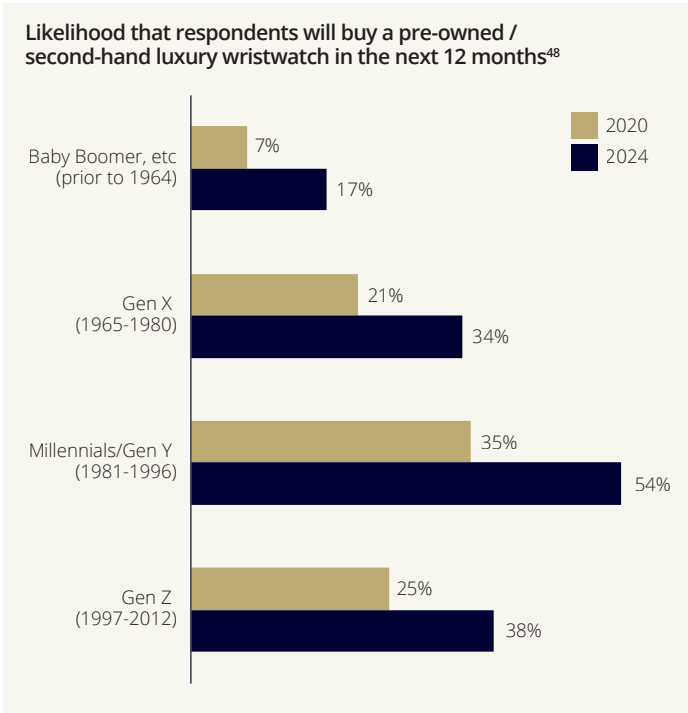
Circular business models

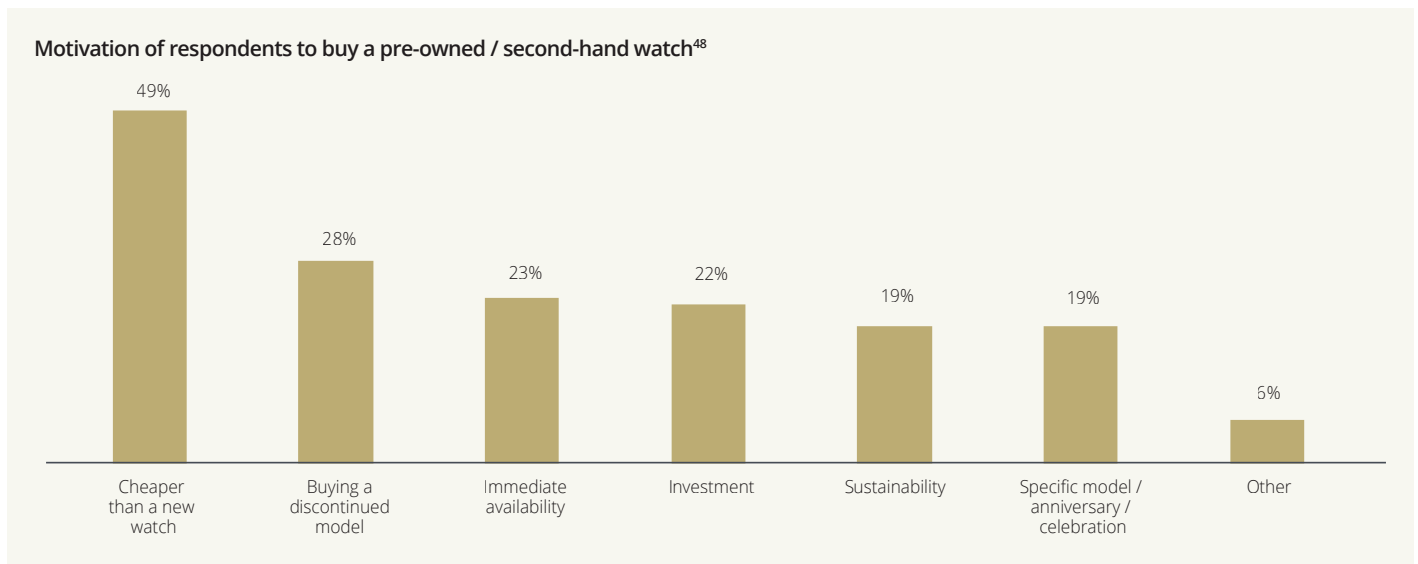
Resale: the secondary market

The secondary market for luxury watches is already booming, with platforms such as Chrono24 or Watchfinder enabling customers to buy, sell and trade pre-owned timepieces effectively. These watches, especially iconic models, often retain, or even increase, in financial value over time. For brands, resale represents not just a sustainability opportunity but also a way to maintain cultural relevance among younger customers who may first enter the brand universe through the pre-owned market.

The growth of the secondary market is currently higher than that of the primary market, and within the next ten years the pre-owned market is expected to be as big as the primary one,⁴⁷ provided the secondary market can offer competitive prices, and good availability of models that would be hard to find in the primary market.

The rise of the Certified Pre-Owned (CPO) model is also supporting the growth of the secondary market. It ensures full authenticity and extends the warranty of used watches.





Resale of watches and jewellery is also growing on multi-category recommerce marketplaces like eBay. According to Alexis Hoopes, eBay's Vice President for Global Fashion, resale of watches and jewellery has become mainstream and global listings in both categories have grown by double digits since 2020.⁴⁹

Compared to 2020, listings of pre-owned watches on eBay increased by over 65% in 2025, while pre-owned jewellery rose by over 35%. For watches, mid-range brands showed the largest increase, while for jewellery, high-end pieces have grown most in their popularity, with some showing three to four times growth over five years.⁴⁹

These results are reassuring as a growing secondary market reduces the reliance on the primary one and therefore the need for virgin resources. In addition, it highlights how consumers are willing to embrace new business models when there is clear value for them and they feel protected and reassured by reliable certifications.

In jewellery, resale is less advanced and resale platforms are fragmented and unstandardised. Moreover, certification of origin and authenticity is more difficult than for watches, especially when gemstones are involved. Nevertheless, pilot programmes by jewellers and digital marketplaces are beginning to emerge. The challenge for the industry is twofold: building trust in authentication systems to avoid counterfeiting, and reframing resale as a prestigious, brand-supported way of extending an item's story – not an inferior option to a new purchase.

The scope for repair, refurbishment and service

Watches are built with maintenance in mind. Luxury watch houses already offer long-term servicing, refurbishment, and repair, often through brand-owned service centres. This not only preserves the functionality of the watch but reinforces the narrative of craftsmanship and durability. Some brands even position servicing as an exclusive experience, strengthening customer relationships long after the original purchase.

In jewellery, however, repair and refurbishment services remain fragmented. Only a few brands provide structured refurbishment programmes, and most of the time only for recent or standard collections. Yet the opportunity is considerable: by polishing, resetting, or even reworking gemstones, brands could reignite the emotional connection customers have with older pieces, while recovering valuable materials in the process.

Challenges here include cost and accessibility: services are often expensive and slow, which discourages uptake. Furthermore, keeping stock from old collections takes up space and is expensive for companies. Scaling global servicing networks without undermining quality or exclusivity will require significant investment.

Take-back, trade-in and recycling

The intrinsic material value of gold, platinum, and diamonds makes trade-in schemes a logical avenue for the industry. A handful of brands have started to offer trade-in options, inviting customers to return unwanted items in exchange for credit on new purchases or refurbishment.

Take-back schemes are particularly relevant for products whose sales are temporarily boosted by a trend. These products, usually sold in large volumes, frequently end up forgotten in drawers, representing a loss of materials and a missed sustainability opportunity. Brands can incentivise consumers to return such items through mechanisms like discounts on new collections, thereby recovering valuable metals and components, reducing reliance on virgin resources and supporting a more circular industry.

At present, volumes are negligible and the potential high: huge amounts of unworn jewellery could be recovered, reused, or melted down to reduce reliance on mining.

Yet several challenges remain. The emotional attachment of consumers to pieces should be carefully considered to identify items they are ready to trade in. When intended for resale as intact items, these models require certification to prove they are authentic. Such certified pre-owned models are already commonly offered by watch retailers and manufacturers. If, by contrast, the products are used as sources of recycled metals, the recycling process could be complicated: the collected products may have a mix of materials that results in technical complexity.

Product-as-a-Service and rental

Perhaps the most experimental model is the concept of rental or subscription services, where customers access jewellery or watches for a limited time rather than purchasing outright. This model has seen limited traction so far, mostly in accessible jewellery or watch rental start-ups aimed at younger, trend-driven audiences.

For high-end watches and fine jewellery, adoption of rental or subscription is still minimal. Luxury has long been tied to ownership, legacy, and gifting – all of which clash with temporary access. However, for certain customer segments, particularly younger generations, access-based models can provide a lower barrier to entry into luxury and encourage broader brand engagement.

The main challenges here are logistical and cultural: ensuring secure transport, insurance, refurbishment between uses, and overcoming traditional perceptions of luxury ownership. Whether this model can scale meaningfully in fine watches and jewellery remains an open question.

The state of play – and what's needed to change it

Taken together, the watch and jewellery industry shows uneven progress across these models. Watches are relatively advanced in resale and servicing, thanks to their strong residual value and established brand networks. Jewellery lags in resale and structured refurbishment but is beginning to explore recycled inputs and take-back initiatives. Across both, rental remains peripheral.

The industry's main challenges are:

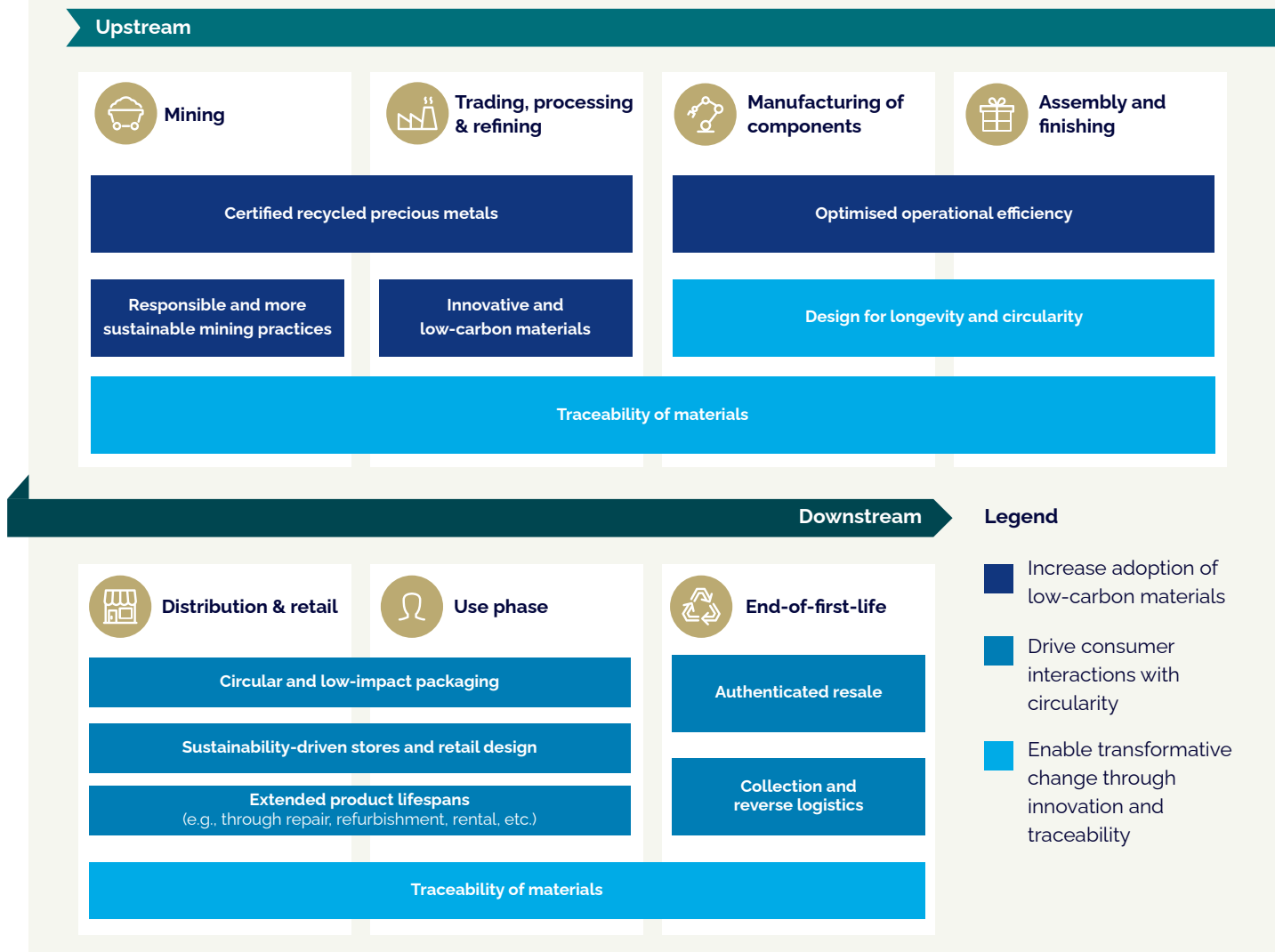
- **Trust and authenticity:** Without robust systems, resale and recycling risk being undermined by counterfeiting or greenwashing.
- **Consumer mindset:** Emotional attachment to products can slow resale or recycling, even when dormant items are no longer worn.
- **Brand strategy:** Companies must reconcile the rise of resale and recycling with business models traditionally centred on new sales.
- **Infrastructure gaps:** Global service networks, certification standards, and take-back and recycling logistics are still underdeveloped.



3. Circularity in action

Decarbonisation and circularity opportunities along the value chain

Sourcing low-carbon materials, engaging consumers and developing traceability are paths for decarbonisation



Opportunities to reduce GHG emissions through circularity are present along the value chain, and categorised under three main areas:

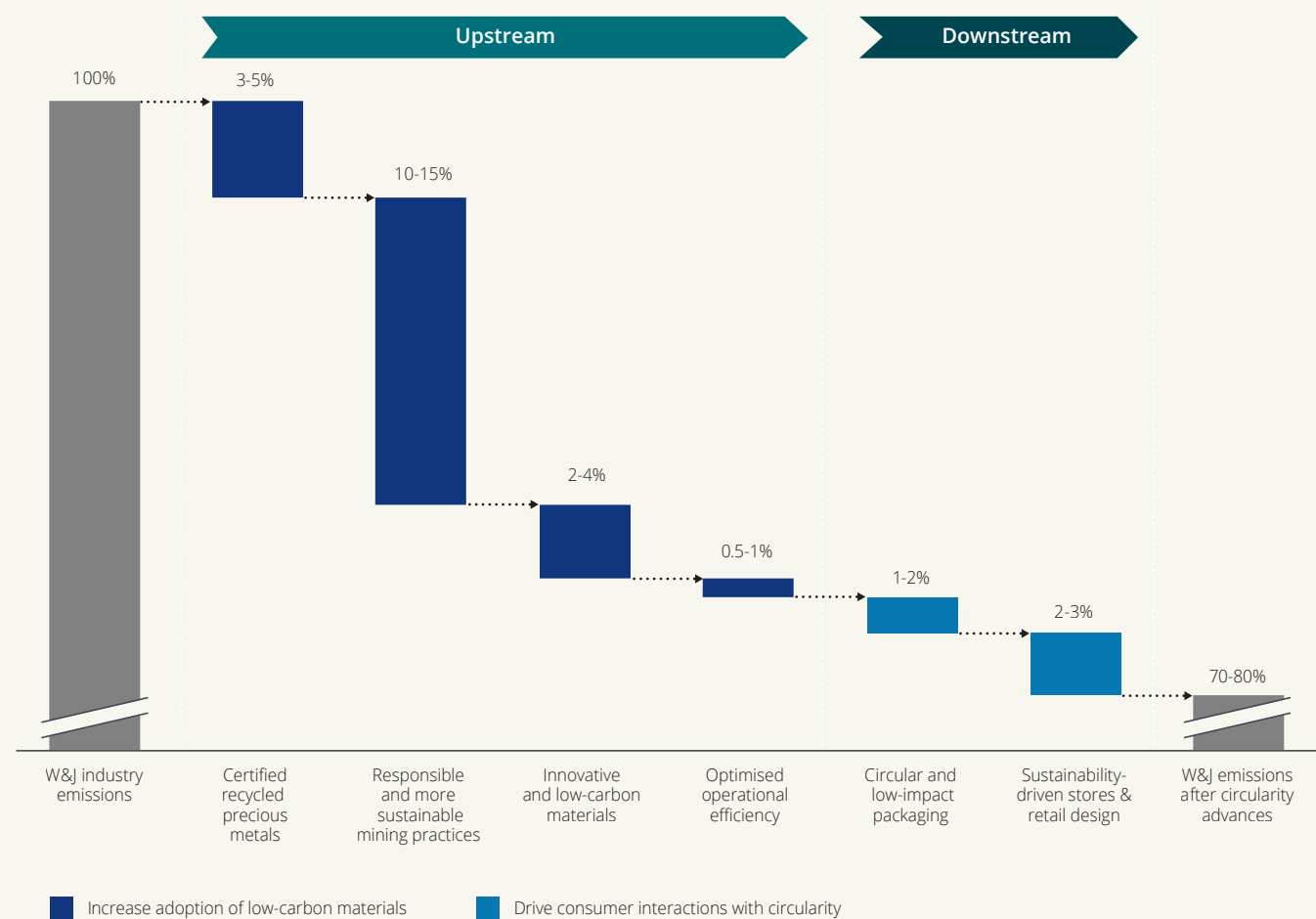
- **Upstream:** Increased adoption of non-virgin and low-carbon materials – addressing emission hotspots related to products
- **Downstream:** Embedding circularity in consumer interaction – evolving retail and packaging practices, applying business models that prioritise and incentivise an extended lifespan and offering second lives to items that owners no longer wish to wear or keep
- **Enablers:** Enabling transformative change through innovation and traceability – strategies, technology, policies and standards that catalyse the upstream and downstream practices, ensuring successful scaling

Adopting circular practices has the potential to reduce industry emissions by 20-30% over the next five to ten years. This decarbonisation opportunity, spanning both upstream and downstream activities, must be supported and accelerated by key enablers that facilitate transformative, industry-wide change.

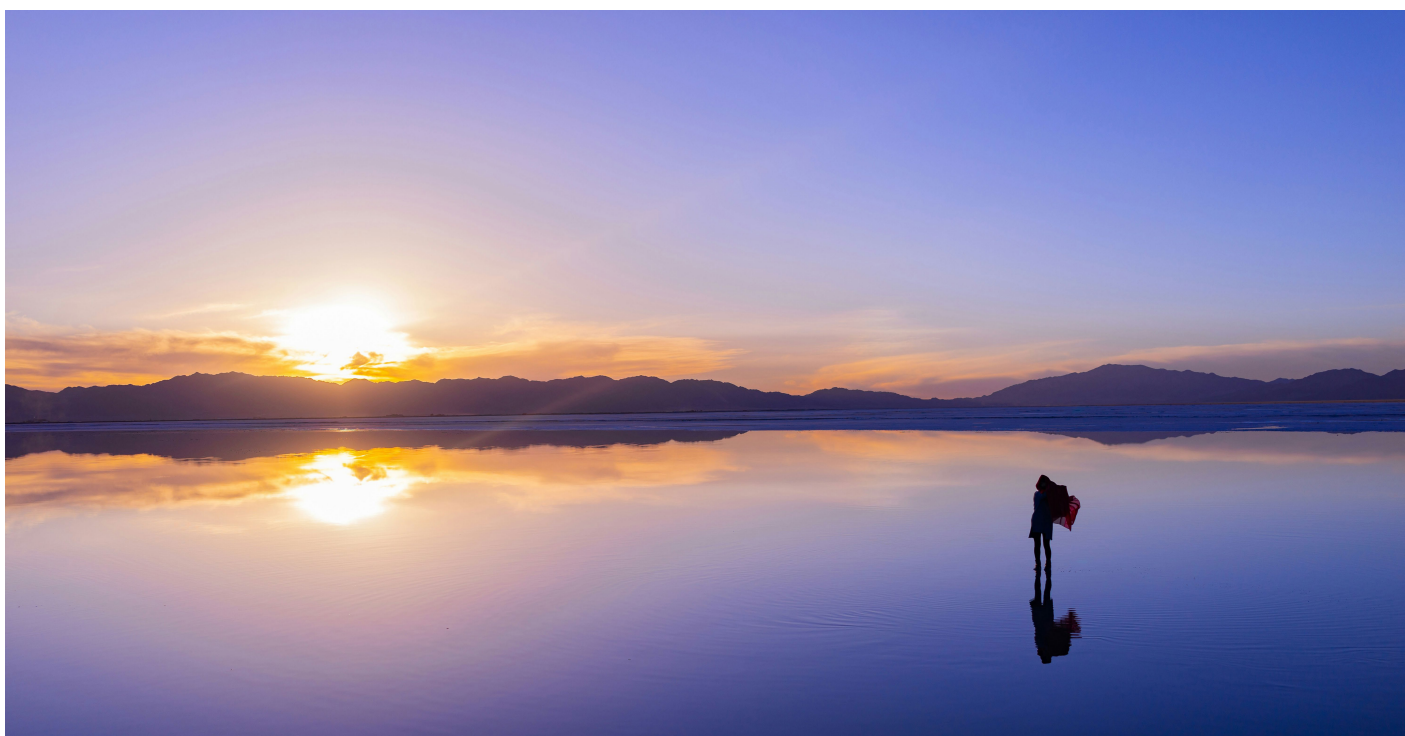
Besides contributing to achieving company commitments on emission reductions and consequently safeguarding brand credibility, many of the underlying circularity measures strengthen business resilience on a company or industry level. Safeguarding operational resilience by ensuring product availability, future-proofing revenue streams by reactivating and upselling to existing consumers, and acquiring new consumers who are attracted by pre-owned or responsible products are ways to benefit business while reducing emissions.

Direct emission reduction potential* through circularity

Majority of emission reduction potential lies upstream, complemented by downstream opportunities that also reinforce consumer and stakeholder credibility



* Not all circular opportunities create direct, clearly attributable emission reduction potential, while they remain important enablers for overall transformation.



a. Increase adoption of low-carbon materials

Certified recycled precious metals:

3-5% emission reduction potential

The limited availability of recycled metals can be addressed by improving end-of-life waste management of precious metals and by unlocking new sources from consumers, mainly the “urban mine” of watches and jewellery stock.

Improving end-of-life waste management

1. Utilising end-of-life watches and jewellery that is not eligible for repair or resale

Redirecting just 20% of the linearly disposed watches and jewellery pieces to recycling presents an opportunity for an emission reduction of about 0.4% for the industry. While some of the linear disposal is unintentional (e.g., losing pieces), and throwing away pieces is an unusual way to treat monetarily or emotionally precious items, increased messaging about the right end-of-life pathways could help bring improvement in this area.

2. Improvements in formal collection and recycling of e-waste

Doubling the amount of recycled e-waste and channelling this input to the watch and jewellery industry offers emission reduction potential of about 1 to 1.1%, mostly concentrated in gold. The amount of e-waste is rising five times faster than the capacity to recycle it.⁵⁰ To tap into this opportunity entails going beyond the usual watch and jewellery supply chains and becoming a catalyst for the proper treatment and recycling of e-waste. The watch and jewellery industry can help to resolve a growing global challenge while also reducing emissions for itself. Exploiting this opportunity requires cross-industry collaboration to systematically source recycled materials from the electronics industry.

3. Recover linearly disposed silver from industrial applications

Recovery from industrial applications also offers opportunity, especially for silver. But the emission reduction potential is moderate (0.2%) and technical feasibility is questionable given the low concentration of the metal in most products.

Unlocking new sources from consumers

Beyond conventional waste sources, activating the urban mine, the watch and jewellery stock of consumers, could further increase the amount of recycled precious metals flowing into new pieces. Involving items in recycling should only be considered an option when the product is no longer of interest to its current owner, and there is no added value in repairing, refurbishing, and reselling it as an integral object.

Only about 1 to 1.2% of the current stockpiles in consumers' possession is recycled annually.⁵¹ As these stockpiles originate primarily from within the industry, increasing the ratio by getting unused, obsolete items out of consumers' cupboards would almost proportionately increase the availability of the needed metals. Recycling should not cast a shadow over the industry's promise that its products offer longevity and durability. Brands can launch and communicate their take-back schemes in a way that bolsters their image. If a take-back scheme conflicts with the brand's messaging, ecosystem partners could be engaged to carry out these campaigns.

PANDORA

Pandora crafts its jewellery from 100% recycled gold and silver

WOUTERS & HENDRIX

Wouters & Hendrix sources 100% recycled gold for its jewellery

Responsible and more sustainable mining practices:

10-15% emission reduction potential

Increase the adoption of renewable energy

A growing number of gold and gemstone mines are replacing diesel generators with solar or hybrid power. For example, Anglo American has been powering all its South American operations with 100% renewable electricity,⁵² while Barrick Gold is integrating solar power at its African sites to lower operational carbon intensity.⁵³ Advances in water recycling technologies and closed-loop processing are also helping to reduce freshwater consumption, an especially critical issue in drought-sensitive regions.

The decarbonisation potential here is considerable as the majority of the industry's carbon footprint is concentrated in the extraction of raw materials. The current adoption of renewable electricity in mining operations is 10-15% and concentrated in South America.⁵⁴ If renewable electricity adoption could be raised to 20-30% of the industry's total demand, carbon emissions could be decreased by almost 10-15%.⁵⁵ But a rapid shift to renewables is difficult because many mining sites are remote, with limited infrastructure, and fossil fuels continue to predominate.⁵⁶

Catalyse innovation and the application of cleaner mining practices

Efforts to reduce the use of toxic chemicals such as cyanide and mercury are equally vital. Initiatives like the Alliance for Responsible Mining (ARM) and the Fairmined Standard promote the adoption of non-toxic leaching techniques and safer waste management for small-scale and artisanal miners. Pilot projects are demonstrating that cleaner methods can be both environmentally sound and economically viable, offering miners higher yields and safer working conditions.⁵⁷

Innovative and low-carbon materials:

2-4% emission reduction potential

Produce lab-grown diamonds with 100% renewable energy

Lusix, backed by LVMH, has become the first producer of "solar-grown" diamonds, using 100% solar energy in its facilities.⁵⁸ The adoption of lab-grown diamonds is expected to rise above today's 20% of the diamond market,⁵⁹ representing an opportunity to increase the use of low-carbon gemstones in the industry. While publicly available emission factors vary widely for lab-grown diamonds,⁶⁰ it is clear that production powered by renewable energy cuts emissions considerably and represents a significant decarbonisation opportunity for the industry.

Embrace innovative materials such as ceramics, recycled composites, and biomaterials

At the same time, watchmakers are embracing bio-based and recycled materials to reduce their reliance on virgin materials. Swatch has introduced bioceramic, a blend of ceramic and bio-sourced plastic,⁶¹ while ID Genève works with various "climate heroes" creating innovative and circular materials for the straps.⁶²

Regeneration 

MEJURI

Regeneration mines tailing and restores the surrounding habitats for Salmon Gold used by Mejuri

ID
GENÈVE

ID Genève works with climate heroes on innovative textiles and technologies

Optimised operational efficiency:

0.5-1% emission reduction

Adopt digital manufacturing tools to reduce material loss

By integrating technologies such as computer-aided design, 3D printing and automation, manufacturers can precisely plan and execute each stage of production, significantly reducing material loss and energy consumption. These digital tools enable more accurate cutting, shaping, and assembly, ensuring that precious metals and other materials are used as efficiently as possible.

Reusing production offcuts and scraps internally not only conserves valuable materials but also reduces the need for additional extraction and processing, both of which are energy-intensive and carbon-heavy activities. By streamlining the transfer of precious metals between value chain partners, the industry can limit unnecessary handling and associated losses. Operational efficiency is already a hallmark of watchmaking and jewellery craftsmanship, rooted in the tradition of precision. Leveraging this expertise for circular innovation reinforces the sector's maturity and commitment to sustainability, while delivering measurable environmental benefits.

b. Drive consumer interactions with circularity

Circular and low-impact packaging:

1 to 2% emission reduction potential

The European Union's Packaging and Packaging Waste Regulation (PPWR) requires all packaging to be reduced to the minimum volume and weight sufficient for its intended function, eliminating unnecessary layers and features that increase bulk by 2030. By 2038, packaging will also be required to achieve at least 80% recyclability.⁶³ While EU law does not automatically apply in other jurisdictions, more resource-efficient packaging solutions, if positively received by consumers, could make their way to other geographies, depending on what brands decide.

However, at present these regulatory changes pose a significant challenge to luxury watch and jewellery brands, many of which rely on elaborate packaging to elevate the consumer experience. These developments offer a valuable opportunity to reimagine packaging, focusing on reducing absolute volume and weight, and ensuring that materials can be easily separated and recycled. Given the direction of regulation, the transition to circular, low-impact packaging is not merely optional but inevitable. Brands that act proactively can position themselves as leaders in sustainability and innovation.

A particularly compelling solution lies in the use of recycled aluminium. Aluminium offers a unique combination of advantages: infinite recyclability, low environmental impact, luxury look and feel. By embracing recycled aluminium, luxury brands can not only comply with forthcoming regulations but also enhance their sustainability credentials, elevate their consumer experience, and maintain a strong, lasting presence in customers' lives.

Sustainability-driven retail & store design:

2 to 3% emission reduction potential

Use low-carbon and modular fixtures and fittings, reduce frequency of renovations by designing for adaptability

While reducing energy consumption remains a key focus for the retail sector, addressing the material-related carbon footprint of stores presents a more complex challenge. Emissions from capital goods, including fixtures, furniture, and manufacturing equipment, account for approximately 12% of the industry's total emissions.⁶⁴ These material impacts are often overlooked but represent a significant opportunity for decarbonisation.

SWAROVSKI

Swarovski reuses crystal production scraps to produce ReCreated™ crystals

BOUCHERON
PARIS DEPUIS 1858

Boucheron reduced the material weight and complexity of packaging, designed for reuse

TOMWOOD®

Tom Wood redesigned their packaging with 100% recycled aluminium

TOMWOOD®

Tom Wood designed its stores for modularity and low maintenance, committing to a 100% lifetime extension

Retailers should prioritise the use of low-carbon alternatives, such as recycled, regenerative, or responsibly sourced materials, when designing and fitting out stores. Traditionally, store materials are selected with a limited lifespan, often intended for use over just eight years before being discarded.⁶⁵ Instead of disposing of these materials, retailers should consider offering them for sale to employees or customers at the end of their useful life in-store.

This approach not only extends the lifecycle of materials and reduces waste but also strengthens the brand's reputation for responsibility and sustainability, creating a tangible connection with consumers and staff. In addition, recycled or low-carbon alternatives can be used for seasonal changes to in-store marketing and decoration, and engaging digital experiences can reduce the dependence on material use.

Store materials are generally chosen with care, reflecting the brand's identity and values, and are not frequently changed. However, adopting modular design principles allows fixtures, fittings, and furniture to be repurposed or reconfigured for different functions and spaces within the store. This flexibility facilitates the regular updates brands seek to keep stores fresh and relevant for new collections or seasons while also minimising waste and supporting long-term sustainability goals.

Extended product lifespans:

No direct emission reduction

The industry's aftersales service programmes, encompassing repair, refurbishment, and maintenance, are already well-established and form a core part of the consumer experience. Many leading brands offer comprehensive support, ensuring that timepieces and jewellery can be maintained, restored, or even upgraded over many years. While these mature programmes do not result in direct, immediate emission reductions, they are instrumental in emission avoidance and ensuring compliance with evolving laws under the European Union's Circular Economy Act.⁶⁶ By extending the lifespan of products and keeping them in use, aftersales services help prevent premature disposal and reduce the demand for new manufacturing, thereby avoiding the associated environmental impacts. They also offer meaningful, recurring interactions with consumers, allow for data to be collected on consumer habits and preferences, and offer incremental revenue potential.

By continuing to invest in and communicate the value of aftersales programmes, watch and jewellery brands can reinforce their commitment to responsible consumption and sustainability, while deepening customer loyalty and engagement.

Further expanding and promoting these services, ensuring ongoing availability of spare parts, and educating customers on proper care and maintenance can enhance their effectiveness. By continuing to invest in and communicate the value of aftersales programmes, watch and jewellery brands can reinforce their commitment to responsible consumption and sustainability, while deepening customer loyalty and engagement.

Authenticated resale:

No direct emission reduction

By enabling products and materials to re-enter the value chain, resale and take-back initiatives help reduce waste and maximise the use of valuable resources. However, the success of these programmes relies heavily on robust authentication and certification processes, as well as the trust and confidence of both buyers and sellers. Standardising quality assurance for pre-owned products and developing secure, convenient trade-in and collection channels are essential pathways to building a credible and scalable resale market.

TOUS

TOUS offers personalisation, engraving, repair and at-home care services

WOUTERS & HENDRIX

Wouters & Hendrix offers repair and remelting services for all pieces sold since the brand's founding

MONICA VINADER



Monica Vinader repairs jewellery with emotional value and resells refurbished pieces

The certified pre-owned market for luxury watches is already well established, with major brands and specialist retailers offering authenticated resale services that guarantee provenance and quality. This market demonstrates strong consumer demand and trust in pre-owned luxury goods. There is considerable potential to scale these programmes further, both within the high-end segment and across a broader range of watch and jewellery products. By investing in infrastructure, technology, and transparent processes, brands can expand the reach of authenticated resale, making it more accessible and attractive to a wider audience. This not only supports sustainability objectives by keeping products in circulation but also strengthens brand reputation and customer loyalty through responsible stewardship of valuable items.

Collection and reverse logistics:

No direct emission reduction

Developing efficient, consumer-friendly systems to collect unwanted or obsolete products is an important opportunity for the industry. By making it easy for customers to return items, whether through in-store drop-off points, postal returns, or dedicated collection events, brands can recover valuable materials and components that would otherwise be left dormant in the urban mine or lost to landfill or informal disposal.

Reverse logistics networks responsible for collecting products must be designed to ensure safe transport and tracking while also being economically viable for both the business and the consumer. By investing in this infrastructure the industry can enable large-scale refurbishment, recycling, and authenticated resale, thereby extending product lifecycles and reducing waste.

Moreover, by supporting the responsible collection and recycling of electronic components and precious metals found in many modern watches and jewellery, the industry can contribute to decarbonising other sectors. Effective e-waste recycling reduces the demand for virgin material extraction and lowers the carbon footprint of manufacturing in industries such as electronics and automotive. In this way, the watch and jewellery sector not only advances its own sustainability goals but also plays a valuable role in the broader transition to a low-carbon, circular economy.

c. Enable transformative change through innovation and traceability

Design for longevity and circularity

By prioritising design for longevity and circularity, brands can unlock and amplify the impact of initiatives such as aftersales services, authenticated resale, and reverse logistics.

Embracing modular, repairable and upgradeable product architectures allows watches and jewellery to be adapted or restored over time, rather than replaced. Selecting durable and recyclable materials and minimising overall material use ensure that products retain value and can be responsibly managed at the end of their life. Beyond technical considerations, fostering a culture of longevity and emotional attachment through compelling storytelling can encourage consumers to cherish and care for their pieces, reducing the likelihood of premature disposal.

By embedding these principles into product development, the industry can create a virtuous cycle where sustainability is not an afterthought but an intrinsic part of every watch and jewellery item. This approach supports environmental objectives and strengthens brand loyalty, positioning companies as leaders in responsible luxury.

Traceability of materials

End-to-end traceability of materials is a cornerstone of responsible sourcing, effective recycling, and building consumer trust in the watch and jewellery industry. In addition, it offers brands more effective measures to fight counterfeit production. But significant data gaps persist, especially upstream in the value chain, making it challenging to verify the origins of materials, monitor their journey, and ensure ethical and sustainable practices. Without robust traceability, efforts to decarbonise, recycle, and promote circularity can only be limited in their effectiveness and credibility.


BREITLING
1884

Breitling sells authenticated and refurbished watches to extend active lifetimes

SWAROVSKI

Swarovski released the versatile and modular Chroma Twist collection


ULYSSE NARDIN
SINCE 1846 LE LOUVE - SOUSSE

Ulysse Nardin created the world's lightest mechanical dive watch, the Diver [AIR]

ID GENEVE

ID Genève embeds sustainability and circularity in the business model and product design

To address these challenges, the industry must invest in digital traceability solutions that enable real-time tracking of materials from source to finished product and beyond. Standardising data collection and reporting practices across suppliers, manufacturers and retailers will help create a consistent and reliable foundation for traceability. Collaboration with regulators on an international level is also essential to ensure alignment with the variety of emerging legal and ethical requirements, and to future-proof business operations. Finally, brands should communicate traceability information transparently to consumers, empowering them to make informed choices and reinforcing the brand's commitment to sustainability and responsibility.

By prioritising traceability, the watch and jewellery sector can catalyse the impact of all other sustainability initiatives, ensuring that responsible sourcing, recycling and circularity are not only possible, but also trusted and valued by all stakeholders.



MONICA VINADER

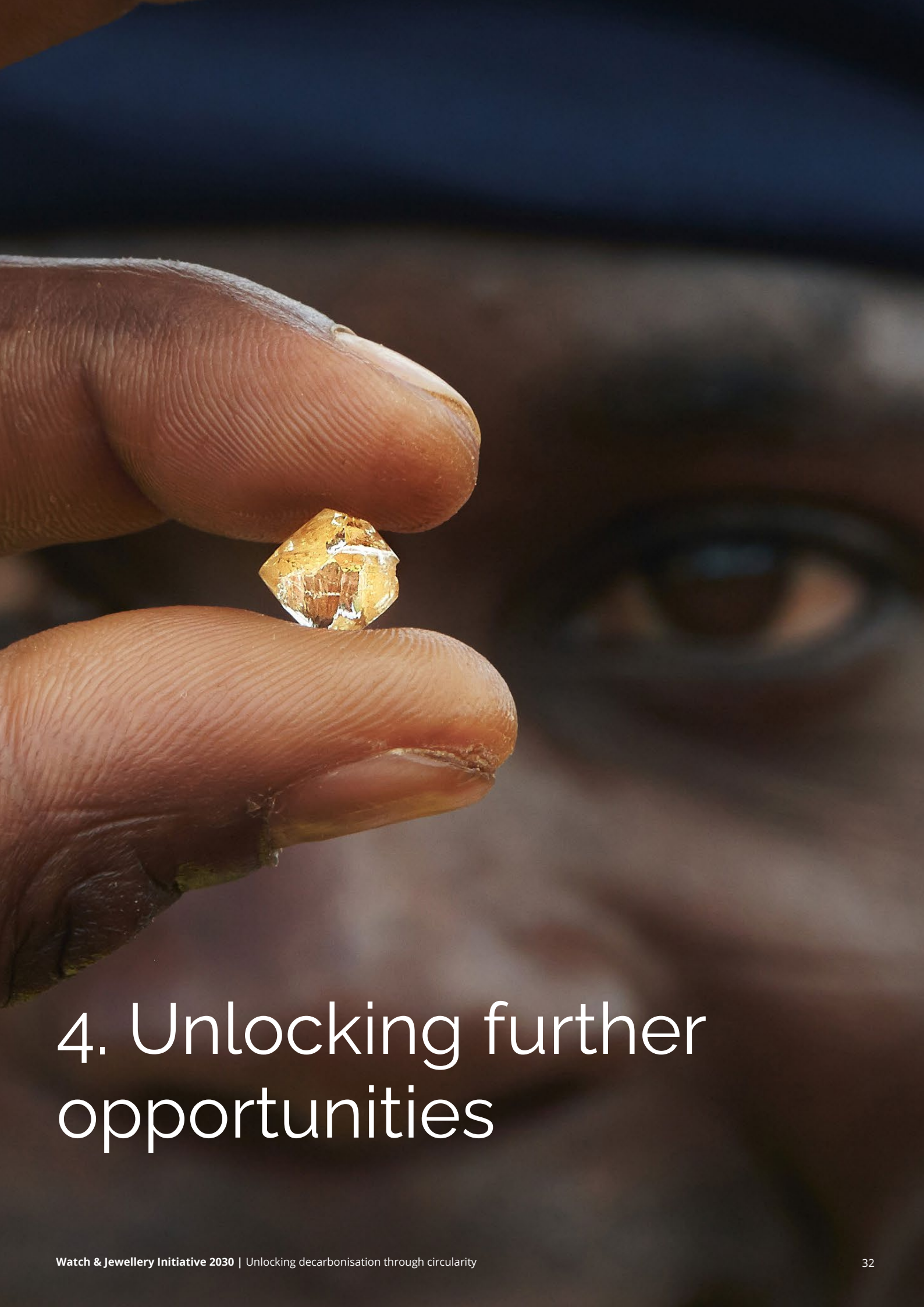


Monica Vinader established traceability across the supply chain to communicate material origins through a Digital Product Passport



BREITLING
1884

Breitling sells watches with the Origins label to trace gold and diamonds to manufacturers



4. Unlocking further opportunities

The watch and jewellery industry is inherently well positioned to lead on decarbonisation through circularity. Its high-quality products have always been made to be cherished and hold their value over a lifetime, and even beyond. These strengths lend themselves to repair, reuse, and material recovery. Yet to achieve these things the industry still has hurdles to jump. Most emissions are in the upstream supply chain; sourcing can be complex and hard to trace; data is inconsistent. In addition, traditional business models stand in the way of change and the limited collaboration among key industry players makes it harder to pull the levers of decarbonisation and take the step towards circularity.

To fulfil the potential offered by circularity, actions must be taken at three interconnected levels:



Company:

what brands and manufacturers can do now in strategy, design, sourcing, operations, and aftersales



Industry:

collaboration on shared standards, tools, and investments



Policy:

regulations, incentives, and guidance from international bodies, governments and other stakeholders to remove barriers and speed progress

The recommendations that follow give concrete steps, measures of success, and the support needed to embed circularity at the heart of the industry, cutting emissions while protecting craftsmanship, desirability, and long-term brand value.

a. Increase adoption of low-carbon materials



Company

Source certified recycled metals, innovative and alternative materials

Introduce and scale sourcing of certified, traceable recycled precious metals and low-carbon innovative materials such as lab-grown diamonds. Experiment with alternative materials, like biomaterials. Use low-carbon innovations to lead consumers on a brand and innovation journey. Use recognised chain-of-custody standards and apply product carbon footprints to ensure proven emissions savings and responsible practices.

Use digital tools to cut waste and energy

Adopt digital design and manufacturing tools to reduce waste, reworking, and energy use. Establish publicly available KPIs on energy intensity in manufacturing, highlight progress, and reinvest savings in further efficiency and low-carbon innovation.

Enable cleaner practices in artisanal and small-scale mining (ASM)

Partner with small-scale mining suppliers to introduce renewable energy and clean mining methods, while preserving local jobs and incomes. Provide training, financing support, and fair purchasing agreements, and verify progress through third-party audits and community feedback.



Industry

Common standards for "recycled"

Agree on clear, shared definitions and certifications for recycled content across the sector. Align on measurement methods, verification rules, and claims guidance to reduce confusion, prevent greenwashing, and build consumer trust.

Build supplier capability for sustainability and renewables

Create industry programmes that help upstream suppliers adopt better environmental practices and renewable energy. Offer toolkits, training, and co-funding for energy audits, efficiency upgrades and clean power, with simple reporting to show the impacts. Incentivise supplier decarbonisation by offering long-range buying guarantees for low-carbon inputs.

Collaborate on R&D and demonstrations

Pool resources to research, test, and demonstrate cleaner mining technologies and innovative low-carbon materials. Set up shared pilots and open learning platforms and publish results so that solutions can scale faster.

b. Drive consumer interactions with circularity



Company

Use low volume and recyclable packaging

Minimise packaging volume and reduce material diversity to make recycling easier. Use recycled or recyclable materials, avoid mixed composites, and clearly label disposal guidance for customers. Consider reusable packaging as a way to enhance the customer experience.

Make repair and refurbishment easy and visible

Expand repair, refurbishment, and maintenance services with clear pricing, service levels and turnaround times. Promote these services at point of sale and online, and offer care plans to extend product life and strengthen customer loyalty.

Enhance trusted authentication for resale

Develop robust authentication and certification processes for pre-owned items, including condition grading and service histories. Provide warranties for refurbished products to build trust and support a healthy, high-quality secondary market.



Industry

Establish common quality standards for pre-owned and refurbished

Standardise testing, grading, and warranty expectations for pre-owned and refurbished products. Shared criteria protect consumers, reduce confusion, and raise confidence in circular offerings across brands and retailers.

Create shared reverse logistics networks

Collaborate on secure, efficient reverse logistics for repairs, trade-ins, and end-of-first-life returns. Pooled collection points, secure transport, and common data protocols reduce costs, improve recovery rates, and inhibit fraud.

Educate consumers collectively on circular care

Run industry-wide campaigns that explain the benefits of repair, refurbishment, and proper care. Provide simple guides, care kits, and in-store demonstrations to make circular behaviours easy and desirable.

c. Enable transformative change through innovation and traceability



Company

Design for modularity, repair, and upgrades

Rethink product architecture so that key components can be accessed, replaced, or upgraded without damaging the item. Use standardised fasteners and interfaces, publish service guides for authorised repairers, and ensure spare parts remain available to extend life and preserve value.

Invest in end-to-end digital traceability

Adopt digital tools to capture origin, processing, service events, and ownership transfers. Start with high-impact materials and models, ensure data quality, and make systems interoperable with partners.

Communicate simply and transparently with consumers

Share clear information on origin, materials, care, and recyclability through product passports, certificates, and digital touchpoints. Use plain language and verified claims to build trust and show how care and repair retain performance and value.



Industry

Common data standards for traceability and reporting

Agree a practical data model for material origin, recycled content, processing emissions, and service history. Standardise key fields, formats, and assurance levels so that data can flow across brands, suppliers, and markets with less duplication and cost.

Shared digital platforms for compliance and visibility

Co-create or adopt interoperable platforms that suppliers can use once to satisfy multiple customers and regulators. Pooled solutions lower barriers for brands, reduce audit fatigue, and improve the reliability of chain-of-custody and due-diligence information.

Design standards that support longevity and circularity

Align on baseline design practices, repairability criteria, minimum parts availability windows, and durability testing protocols. Shared expectations make it easier for component suppliers, especially in the watch industry, to meet brands' requirements, for repair networks to operate more effectively, and for consumers to compare like-for-like longevity.



Policy

Establish minimum thresholds for recycled content and renewables in supply chains

Set legally binding, phase-in minimums for recycled content in specified materials (e.g., precious metals) and renewable energy use in key processing steps (e.g., refining, alloying). Provide clear timelines for adopting the required measures, exemptions for technical feasibility, and recognised measurement, reporting and verification processes.

Demand mandatory end-to-end traceability for high-impact materials

Require traceability from source to finished product for designated materials (e.g., precious metals, diamonds and gemstones), including origin, chain-of-custody, and processing emissions. Specify audit requirements, digital record-keeping, and penalties for non-compliance.

Align on traceability rules

Harmonise national requirements with international standards (e.g., relevant EU regulation, OECD due diligence, ISO/IEC data standards) and enable mutual recognition of certifications. Alignment reduces trade frictions, lowers compliance costs, and improves cross-border enforcement.

Create consumer labelling on origin, materials, and recyclability

Mandate simple, standardised labels – digital and/or physical – that state country of origin, key materials (including recycled content), and recyclability or take-back options. Back labels with substantiation rules and advertising oversight to prevent misleading claims.

Call to action

Circularity is essential to decarbonise the watch and jewellery sector. But it also offers many other benefits – improved business resilience, reinforced brand reputation, and future proofing of business models when circular innovation is executed with a strong consumer focus.

Through extensive dialogues with leading watch and jewellery industry stakeholders over the course of a year we have identified how circularity can contribute to the decarbonisation of the sector, where existing initiatives are delivering results at scale, or still in their early stages, and where the focus for future action should lie.

Unlocking much of these benefits requires enhanced collaboration within and even beyond the traditional boundaries of the industry to leverage materials already extracted and influence how virgin material is extracted. The energy and drive we experienced from companies, brands, and associations contributing to this paper gives us confidence that the industry can seize these opportunities, continue with its pioneering work and lead the charge to a more sustainable and resilient future with circularity.



Appendix A: Collection of good practice

Good practice examples mapped to circular use cases

1 PANDORA

Recycled precious metals

Crafting jewellery from 100% certified recycled gold and silver

2 WOUTERS & HENDRIX

Recycled gold

Creating all jewellery with 100% certified recycled gold

3 **Regeneration** MEJURI

Salmon Gold™

Remining tailings and restoring the surrounding habitats

4 ID GENEVE

Circular-by-design

Embedding sustainability in the business model and product design

5 SWAROVSKI

ReCreated™ crystals

Reusing production scraps for new components

6 BOUCHERON PARIS DEPUIS 1858

No Pack is the New Pack

Reduction of materials for durable and reusable packaging

7 TOMWOOD®

100% recycled aluminium packaging

Developing a new packaging solution to be infinitely recyclable, durable, and reused with purpose

8 TOMWOOD®

Sustainable store design

Designing stores for low maintenance and modularity, shaping brand identity and consumer interactions

9 qeelin

Circular pop-up stores

Reusing pop-up stores in new locations to reduce material use

10 TOUS

Aftersales service

Offering personalisation, engraving, repair, and at-home care services

11 WOUTERS & HENDRIX

Repair and refurbishment

Offering repair and remelting services for all pieces sold since the brand's founding

12 MONICA VINADER

Repair and refurbishment

Repairing jewellery with sentimental value and reselling refurbished pieces

13

BREITLING
1884

Certified pre-owned

Selling authenticated and refurbished watches to extend active lifetimes

14

SWAROVSKI

Chroma Twist collection

Versatile and modular collection made for more frequent use and easily disassembled

15

ULYSSE NARDIN
SINCE 1840 LE LOCLE - SUISSE

Diver [AIR]

Creating the world's lightest mechanical dive watch

16

MONICA VINADER

M

Digital Product Passport

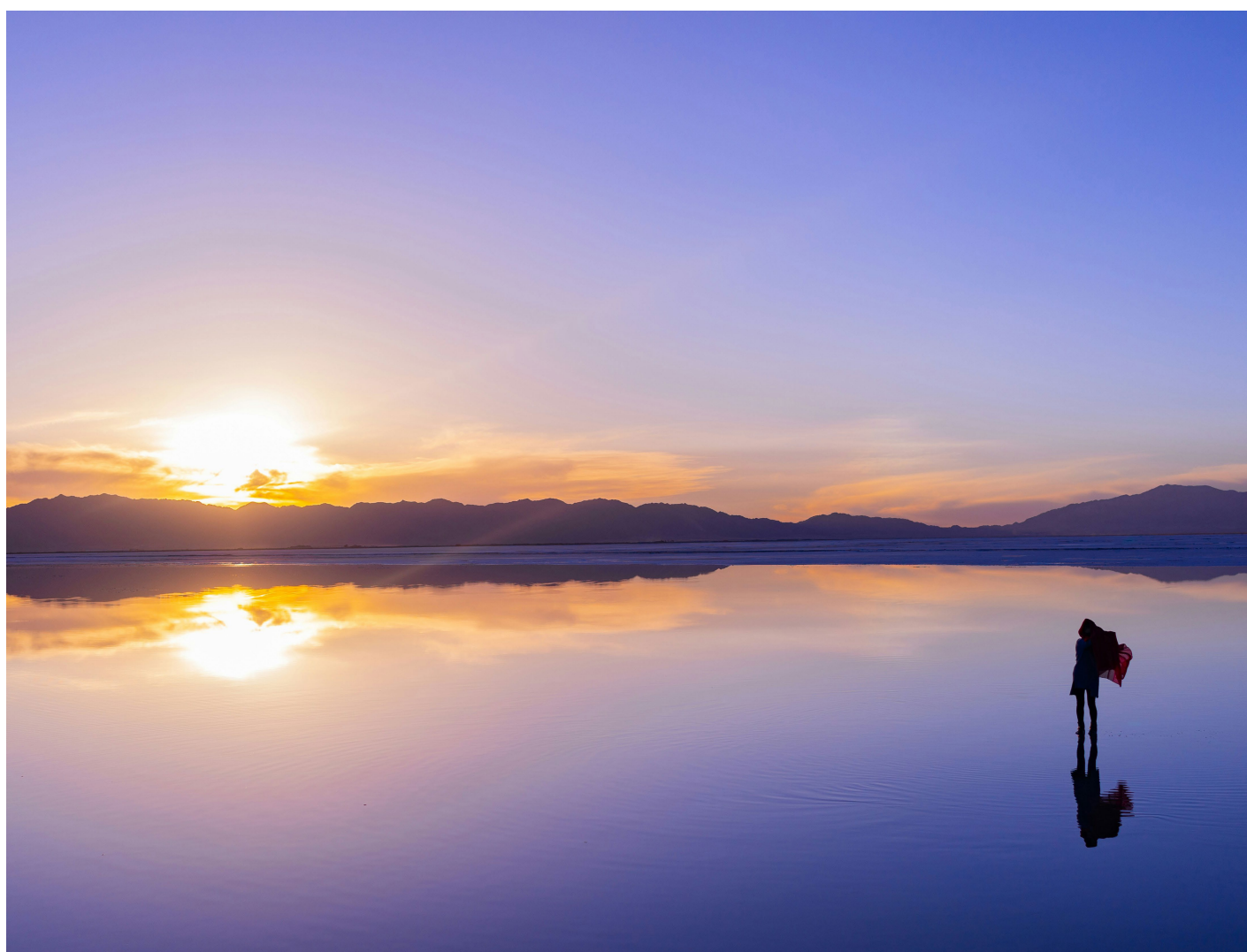
Establishing traceability across the supply chain to communicate material origins

17

BREITLING
1884

Origins label

Marketing watches with "better gold" and "better diamonds" traceable to manufacturers



Pandora – Recycled precious metals

To reduce carbon emissions and other environmental impacts, Pandora decided to switch to 100% recycled gold and silver in all its jewellery.

CONTEXT

Pandora is the **world's largest jewellery brand**, selling over 100 million pieces annually. **Gold and silver are the most used precious metals** in Pandora's jewellery, making up around 75% of total metal consumption.

Traditional gold and silver mining has a **high environmental footprint**, incl. carbon emissions, energy use and many other negative **ecological impacts**.

Recycled gold and silver represent an opportunity as they can be **infinitely recycled without quality loss**. In 2020, Pandora set a target to switch to **100% recycled silver and gold by 2025**. At the time, Pandora was already using approximately 60%¹ recycled gold and silver.

OBJECTIVES

- By 2025, Pandora will **craft its jewellery using 100% recycled gold and silver**, incl. own production and suppliers
- Establish requirements around **certified sources** of recycled gold and silver to drive **traceability and transparency in the supply chain**
- Reduce **environmental impact** and align with investor and consumer demand for low-carbon products

APPROACH

01 Understanding landscape	• Evaluated available certification landscape and their adoption level in the industry • Selected RJC CoC² as they provided one of the most stringent, specific, and robust definitions for recycled metals and CoC
02 Implementing audit process	• Set up third-party aggregated and traceable audit across the entire value chain to ensure constant traceability and proper CoC is in place
03 Onboarding suppliers	• Conducted onboarding based on different supplier requirements - for raw material refiners, a commitment to buy the certified recycled materials they source; for component suppliers, sufficient access to certified materials and training on segregation and documentation
04 Processing legacy materials	• Transitioned legacy gold (previously sourced but not fully certified) to 100% recycled in production process

Note:

Silver and gold are used in a wide range of industrial applications incl. electronics, medical equipment and chemical production. Today, less than **20% of the world's silver supply** and less than **25% of the world's gold** come from recycled sources. Pandora's refiners source gold and silver from industrial waste, manufacturing scraps, old jewellery, silverware, and other materials

1. Self-declared by suppliers

2. Responsible Jewellery Council (RJC) Chain of Custody (CoC)

IMPACT



Achieved commitment to craft with 100% recycled gold and silver

Pandora successfully transitioned to crafting with 100% recycled gold and silver in August 2024, one year ahead of its 2025 target, reinforcing the company's leadership position and strong accountability



Reduced environmental impact

Avoids approx. 58,000 tonnes of CO₂e emissions annually, equivalent to the annual electricity use of 11,000 homes³

- Recycled gold generates 600 times⁴ lower CO₂ emissions than mined gold
- Recycled silver results in 30% lower emissions compared to mined silver⁴



Optimised supplier management

Strategic supplier selection, including refiner partnerships and pooling strategies helped control costs associated with the transition to recycled metals



Strengthened competitive edge as a sustainability pioneer

Demonstrated sustainability leadership and enhanced its brand reputation among eco-conscious consumers, company employees, investors, and other stakeholders

KEY CHALLENGES



Auditing all suppliers

Pandora spent years to define the right operating model, engage suppliers and audit more than 40 sites



Managing costs

Pandora covers an annual added cost of \$10 million associated with increased premiums, suppliers' handling costs, overheads, audits, training, and compliance measures



Engaging the organisation

More than 100 Pandora employees were involved in the shift to 100% recycled gold and silver



Pandora's 14k gold family tree charm has a CO₂ footprint of 330 grams, less than a chocolate bar³

Pandora's sterling silver family tree charm has a CO₂ footprint of 230 grams, less than a café latte³



Source:

Photos courtesy of Pandora

Interviews with representatives of Pandora

3. [Pandora lifecycle assessment \(Rambøll\), 2024](#)

4. Sphera lifecycle assessment of Pandora materials, 2020

Wouters & Hendrix – Recycled gold

In the process of setting and meeting their sustainability agenda, Wouters & Hendrix committed to use only recycled gold in their products.

CONTEXT

Wouters & Hendrix is a **Belgian jewellery brand** founded in 1984, known for their surrealist design and unexpected combinations of materials and techniques.

In 2024, to progress against their sustainability agenda, the brand committed to **using only recycled gold** in their products.

The transition to recycled gold was not commercially driven and has not been actively communicated or marketed to consumers of the brand to date.

OBJECTIVES

- **Sustain the business long-term**, not driven by consumers or financial incentives
- **Reduce negative impacts downstream** due to gold extraction

APPROACH

01 Supplier identification	• Identified suppliers for Responsible Jewellery Council Chain of Custody (RJC CoC) certified recycled gold and selected a preferred one, ensuring the material met quality standards
02 Supply chain integration	• Embedded the use of recycled gold into subcontractor and supplier relationships, such as chain manufacturing • The limited volumes required (2-3 kg annually) facilitated accessing the recycled gold with RJC CoC certification
03 Absorption of costs	• Absorbed the additional costs of recycled gold into the cost of goods sold during the transition period before slightly increasing the products' prices
04 Roll out	• Achieved 100% use of RJC CoC certified recycled gold in all products in 2024 • The project was completed in 2 months thanks to the small volumes required

IMPACT



Decarbonisation

Recycled gold emits up to 98% less CO₂ compared to virgin gold¹



Environmental footprint

Wouters & Hendrix's recycled gold is sourced from manufacturing waste from jewellery and waste materials from electronics that are diverted from landfills



Cost absorption

While retail prices should be adjusted over time to maintain the gross margin, the additional costs have been absorbed in the cost of goods sold during the transition period

KEY CHALLENGES



Price mark-up

Recycled gold has a 2-3% cost premium compared to primary produced



Limited traceability of recycled gold

Without full traceability, there is a risk that gold sold as "recycled" was mined under unsustainable or unethical conditions, which can weaken sustainability claims

The Embrace cuff bracelet is a Wouters & Hendrix signature piece



Source:

1. Based on Wouters & Hendrix analysis

Photo courtesy of Wouters & Hendrix

Interviews with representative of Wouters & Hendrix

Regeneration and Mejuri – Salmon Gold™

Regeneration's Salmon Gold™ uses an innovative approach to transform legacy placer mining areas into flourishing habitats.

CONTEXT

Many old mines worldwide operated before adequate laws for closure and environmental protection were established, leaving **hundreds of thousands of orphaned, abandoned and mine waste sites**. These untreated sites can damage sensitive watersheds, adversely impacting local ecosystems and native species.

Regeneration Enterprises, a public benefit corporation created by RESOLVE with founding members **Mejuri, Rio Tinto and Apple** restores habitats affected by historical mining. **Salmon Gold™** transforms legacy placer mine sites¹ in **Yukon and Alaska** by **remining for remaining minerals**, and in parallel, **transforming river and terrestrial areas** into flourishing habitats.

Last year, **Mejuri sourced 9 kg of Salmon Gold™** for their Salmon Gold™ collection. Since Mejuri joined the project, a cumulative total of **33.5 acres of upland habitat** and **1,650 linear meters of stream** have been restored.

OBJECTIVES

- **Re-mine tailings, mine waste and residual ore** from legacy placer gold mining sites
- **Decrease the environmental footprint** of gold sourcing compared to alternatives
- **Move from solely de-risking the luxury supply chain to adding value** by restoring habitats and working with small-scale miners to deliver additional restoration value at their sites, benefiting the environment and surrounding communities

APPROACH

01 Identified priority mines	• Regeneration works with mining companies, government and community partners to identify suitable abandoned, orphaned and closure mine sites for remining and restoration. The Salmon Gold™ initiative prioritises building partnerships to collaborate on historical placer mine sites, with restoration opportunities that will enable fish populations to thrive again
02 Community engagement	• Engage with local governments, Indigenous Peoples, and communities to discuss project approaches and ensure their involvement in the solution. It can take ~18 months to work with the community to build relationships and deliver on the remining and restoration operations
03 Remine and restoration	• Work with local placer miners to extract the minerals • Restore streams and rivers to optimise for fish habitat and improve terrestrial habitat with the addition of appropriate plants and local fertile soils to support biodiversity improvement
04 Refine and sale	• After remining, raw gold is shipped to the refining partner Italtrepreziosi, who completes the small-batch refining of Salmon Gold™. They are one of the leading operators in refining precious metals due to their cutting-edge refining techniques and strict ethical standards • Batch-level traceability from mine to market is facilitated by small batch refining and a clear chain of custody of the gold

Definition:

1. Placer mines are those using water instead of chemicals for the extraction of minerals from deposits of sediment such as sand, gravel and riverbed material

Legacy mining activity has resulted in the creation of orphaned and abandoned mines. Those without an identifiable owner are defined as Orphaned. In the case the owner is unable to deliver a proper closure outcome the mine is termed Abandoned ([Mines Canada](#))

IMPACT



Ecosystem restoration

Successfully restored habitats for local species, including return of salmon to improved Alaskan streams in as little as four months, and re-population of small mammals at newly created upland meadows that support the wider food web with greater biodiversity



Community engagement

Regeneration strives to engage communities, including Indigenous Peoples who have been adversely impacted by the mining activities in the restoration and long-term solutions



Scaling opportunities

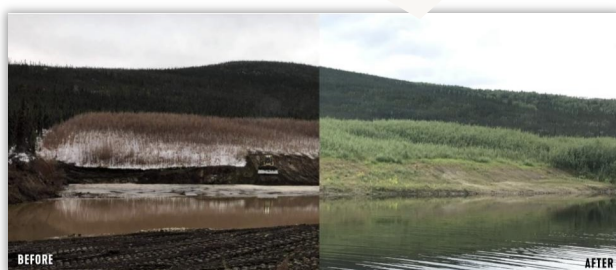
The learnings from Regeneration's initial Salmon Gold™ sites are helping inform work as the Regeneration site portfolio grows, with new Salmon Gold™ sites and, in advancing transition mineral hard rock mine waste and tailings projects



Restoration certificate

Regeneration is working to generate its first restoration certificates

Before and after restoration (Van Bibber Lake at Sulphur Creek, Yukon)²



Source:

2. Photo credit: Yukon Alpine Heliski
Photos courtesy of Mejuri and Regeneration
Interviews with representatives from Mejuri and Regeneration
For more information on Salmon Gold™, visit the [website](#)

KEY CHALLENGES



Individual project complexity

Scaling the project requires time to establish customised plans that reflect the needs and complexity of each individual site. Significant time and effort is required to set up remining operations and the variable quantities retrieved per mine remain a barrier to scalability along with the remote nature of many sites



Environmental limitations

Ensuring durability of effective habitat restoration in agreement with local communities. Liability from past actions at sites can prevent projects from advancing



Measuring impact

Measurable emissions factors and life cycle analyses have not yet been generated for Salmon Gold™ vs. large-scale hard-rock mined gold, posing challenges in validating and reporting emissions reductions. However, this initiative is on course to rapidly gain maturity in measuring impact, creating opportunities for climate-positive action that were not possible before Regeneration



Seasonality change

The field season in the far north can be short and variable; this makes it challenging to predict mining season outcomes and habitat restoration as site activities can be delayed or cut short by the weather



Mejuri creates annual capsule collections made from 100% Salmon Gold™

ID Genève Watches – Circular-by-design

Convinced the luxury industry should be leading in eco-innovation, ID Genève offers opportunities for climate heroes to industrialise their solutions.

CONTEXT

ID Genève is a Swiss watch brand founded in 2020 known for its commitment to sustainability and **innovation in the luxury watch industry**.

Not bound by legacy, ID Genève's sustainability aspirations are deeply embedded in its business model and product design.

OBJECTIVES

- ID Genève aimed to **introduce a new identity in the watch industry**
- **The brand takes responsibility as newcomers** and takes accountability for being born in the **era where climate change is central**

APPROACH

Establishing and orchestrating a regional & local supply chain of "Climate hero" partners

 **Biophilica** developed Treekind straps made entirely from green waste and fully industrially compostable at the end of the lifecycle. Straps can be sent to ID Genève at end-of-life for eco-digestion in Lavigny (50 km from Geneva)

 **VEGEA** developed a fabric with the discarded grape residue from local wineries

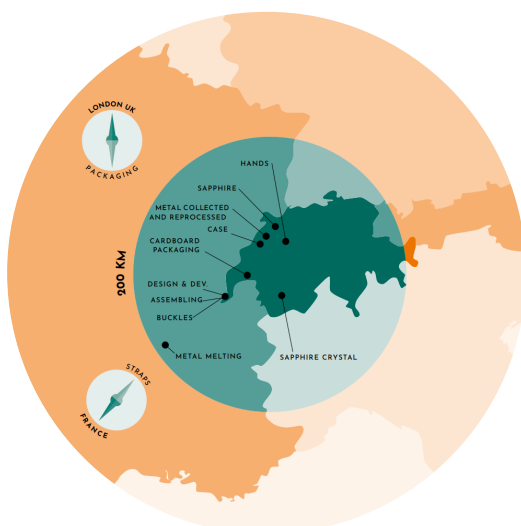
 **MIRUM** developed a leather-mimicking material made entirely from a mix of natural or renewable resources

 **CompPair** developed healable carbon fibre made from recycled fibres used in the Circular C collection as the first regenerative watch

 **Nisiar** material made using the residue of grapes from their partner winery belonging to the Perrin family working in the Chateauneuf-du-Pape region

 **Revoltech** developed a textile material made from local hemp residues allowing it to be fully recycled and biodegradable used by ID Genève as strap

 **Morphotonix** specializes in nano-imprinting technology for microscopic patterns to be etched directly onto metal surfaces (used on the watch dials)



Morphotonix nano-imprinting etches patterns into metal eliminating the need for ink or chemicals



Circularity offers



Maintenance

Consumers are offered services to polish the stainless steel and access to after-sale suppliers worldwide



Modularity

Circular tokens are offered to consumers giving them access to a digital portal for several discounted services encouraging consumers to extend the lifecycle to the fullest:

- Change strap, dial colour, and bezel finishing
- Change laterals shape, colour, or material



Cash back

ID purchases the watch back from consumers to refurbish and sell back

IMPACT



0% precious metal and gemstone extraction

ID Genève prioritises secondary or renewable materials to reduce extraction, using 100% locally recycled stainless steel. The brand's watches have on average 8.6% extracted virgin materials (including packaging)



54% carbon emission reduction

Over its lifecycle the Circular S model cuts carbon emissions by 54% compared to the same model using standard stainless steel reducing its impact to 1.81 kg CO₂-eq per watch instead of 3.94 kg CO₂-eq. By eliminating the use of gold, ID Genève can lower emissions on average by around 99.9%



Increased costs for innovative materials

Innovative materials can cost up to 2x to 5x more per square meter (producing 80 straps) compared to leather



Cost of purchasing refurbished movements

ID Genève purchases refurbished movements to reuse unsold stock from brands that are 30-50% more expensive than newly manufactured movements

KEY CHALLENGES



Material performance

Ensuring innovative, bio-based materials last through natural wear and tear



Volume consistency

Supply risks in scaling solutions when purchasing refurbished movements in stock from other brands



Traceability of reprocessed materials

Reprocessed and recycled materials are challenging to trace to the point of original extraction



Lack of control over the supply chain

Collaborating with climate heroes offers little control over practices and transparency on data

Source:

Photos courtesy of ID Genève
Interviews with representatives of ID Genève
[ID Genève Impact Journey](#), 2025

Swarovski – ReCreated™ crystals

Swarovski transformed a crystal waste challenge into innovative colour development and advancement towards sustainability goals.

CONTEXT

Swarovski is an Austrian brand **leading in luxury crystal products**, including jewellery, accessories, and decorative items. Founded in 1895, it has a **presence in over 140 countries**.

The brand was experiencing large volumes of crystal waste in manufacturing which was costly and detracting from the landfill-free goal. Driven by their sustainable strategy, Swarovski **ReCreated™ crystals were developed, made with breakage** from the crystal manufacturing process. For ReCreated™ crystals, **multicoloured breakage is remelted and transformed** into a single new shade that is of the **same quality** as the original product.

OBJECTIVES

- **Swarovski aims to become 90% landfill free by 2030** with at least 70% of waste being recycled or repurposed
- Turn a **manufacturing waste problem into a desirable product** for consumers

APPROACH

01

Issue identification

- Identified the waste issue and conducted initial trials with the simplest colours from a technical standpoint, ensuring the highest quality and adherence to Swarovski's most stringent compliance standards

02

Collaboration with experts

- Worked with academic institutions and chemical specialists to support the development of Swarovski ReCreated™ crystals

03

Design

- After confirming feasibility, approached design and integrated the crystals into a capsule collection, which was a success

04

Expansion and trademarking

- Introduced the concept under the trademarked name ReCreated™ crystals and expanded the range to more than 600 component SKUs,¹ which were integrated into over 50 jewellery products

Note:

1. SKU: Stock Keeping Unit – a unique identifier to track and manage individual items in inventory

IMPACT



Environmental footprint reduction

34% reduction in environmental footprint compared to standard crystals and 40% fewer natural resources needed



Consumer perception of sustainability

Consumers are able to wear sustainable products without any compromise in aesthetics, quality, or upcharge. They are integrated into existing collections meaning consumers may not even realise they have purchased a sustainable product



Commercial success

Swarovski ReCreated™ crystals have already achieved significant commercial success, which is partly thanks to the brand's strategy to offer these crystals at the same price as standard components to encourage sustainable practices

KEY CHALLENGES



Technical challenge

Expanding the concept to more complex waste streams poses a considerable technical challenge



Positioning

Careful positioning of ReCreated™ crystals to balance between exploiting their sustainability story and retaining the merits of the standard product



Efficiency and scalability

Due to the inconsistencies in waste feedstock, every batch of ReCreated™ crystals requires a new recipe

Stuart Weitzman collaboration using Swarovski ReCreated™ Ice Blue crystals



ReCreated™ crystals became successful for the desirability of the new colours, not sustainability

Source:

Photos courtesy of Swarovski
Interviews with representatives from Swarovski
[Swarovski impact report, 2024](#)

Boucheron – No Pack is the New Pack

Boucheron successfully developed a packaging collection reflecting their cutting-edge aesthetic while contributing to their sustainability agenda.

CONTEXT

Boucheron was founded in 1858 in Paris, France, as a timeless luxury Maison. Known for their exceptional jewellery and watches, the Maison creates pieces to endure over generations.

In 2021, CEO Hélène Poulit-Duquesne challenged her team to reinvent the packaging, declaring “No pack is the new pack”. Their boxes were too bulky, heavy, required 11 different materials, and above all could not be recycled. The new packaging, made up of just aluminium and felt, launched in 2023.

OBJECTIVES

- Reduce the environmental footprint from packaging by half by the end of 2025
- Develop a durable and desirable packaging collection

APPROACH

01

Scoping workshops

- The project began with awareness-raising workshops to ensure that all contributors had the same level of knowledge about eco-design and the environmental impact of packaging
- Two sessions were organised on packaging issues and constraints, and eco-design principles

02

Eco-design

- Everything was rethought, deconstructed and reinvented with an eco-design approach
- The primary goal was to reduce the environmental footprint of the new packaging to a minimum, from the material choice to their end-of-life
- The Maison continually aims to connect the past and present, drawing the packaging design on archives and inspired by beauty kits of the 1980s

03

Material selection

- An LCA was conducted in the design phase to identify potential materials meeting the aesthetic and sustainability requirements
- The materials were limited to just two, both being natural and recyclable: aluminium and wool felt
- Each case has a textured surface featuring finely sculpted emerald-cut shapes, representing Place Vendôme as seen from above

04

Launch and roll out

- After two years of research and development, the new packaging was launched in June 2023
- The packaging from the previous collection (the buffer stock) is recycled and given a new life

IMPACT



Increased simplicity

The packaging weight was cut by 75%, reduced from 12 to 7 sizes, and from 11 materials to 2



Material choices

The aluminium is 15-20% of recycled, mainly from industrial waste. Felt, certified with the Responsible Wool Standard (RWS), offers the advantage of requiring neither glue nor stitching, which fosters recycling



Transportation packaging

In addition to consumer-facing packaging, Boucheron reduced plastic use in transportation to a minimum and revised the logistic flow from production sites to markets and storage

KEY CHALLENGES



Maintaining brand aesthetic

Boucheron had to reduce the packaging weight while maintaining the maison's value and aesthetic communicated through the packaging



Limited LCA scope

Certified responsible wool is not recognised or accounted for in a lifecycle assessment (LCA)

The new packaging is made from aluminium and felt



The boxes are made to be reused for decorative and practical purposes

Source:

Photos courtesy of Boucheron
Interviews with representatives from Boucheron
[Boucheron Impact report, 2024](#)

Tom Wood – 100% recycled aluminium packaging

Tom Wood identified an opportunity to set the industry benchmark for most sustainable packaging and reached the north star with a jewellery box made of 100% recycled aluminium.

CONTEXT

Tom Wood was founded in 2013, centred around a **commitment to longevity, quality, responsibility and lowering environmental impact.**

Historically, their jewellery boxes were made of 100% recycled PET with black ink, limiting their recyclability.

In the European Union, **40% of plastics and 50% of paper are destined for packaging** and account for 36% of municipal waste.¹

Over one year, Tom Wood developed a jewellery box made of **100% recycled aluminium** that consumers can collect, stack, and reuse to stay close to the brand.

OBJECTIVES

Driven to set the industry benchmark, they aimed for the new packaging solution to:

∞ Be infinitely recyclable

⌚ Be designed for longevity

♻ Be reused with purpose

★★★ Elevate the brand

APPROACH

01 Responsible materials sourcing

- Researched 40 different materials with over 30 different suppliers to identify the best options in terms of sustainability, aesthetics, technology, and quality
- Selected multiple industry-leading producers and material suppliers to support different elements of the programme

02 In-house design process

- Implemented a comprehensive in-house design process focusing on symbiotic elements of packaging: sustainability, design, functionality, cost, and unboxing experience
- Packaging components for the e-commerce and gift programmes have been optimised by reducing material thickness and adjusting formats

03 Prototyping and testing

- After 18 months of research and development the jewellery box was made from 100% recycled aluminium, a material that is lightweight, corrosion-resistant, and infinitely recyclable without losing integrity.
- Interior components are designed to securely protect the jewellery pieces

04 Carbon footprint assessment

- Tom Wood conducted an early phase carbon footprint pre-analysis, before validating emissions with a comprehensive Comparative Carbon Footprint Analysis using ISO-compliant Life Cycle Assessment (LCA) methodology with the company HiQLCD

05 Launch with emission validation

- All packaging elements are designed to be fully recyclable, aimed to significantly reduce carbon emissions and eliminate recycled plastic
- The new packaging programme brings together 100% recycled, responsibly sourced, and certified components across gift and e-commerce boxes to cards and paper bags

Source:

1. [European Parliament](#), 2023

IMPACT



Cost increase

The new jewellery box is approximately 90% higher in cost compared to the previous recycled PET. Considering all changes made to the packaging programme, there is an approximately 30% increase in average costs



Decarbonisation

The jewellery boxes have a 6.5-10% carbon emission reduction.² Per kilogram, the emissions are approximately 25% lower than that of recycled PET.³ Aluminium recycling uses 95% less energy than virgin aluminium production.⁴ Tom Wood prioritised energy efficiency by selecting stamping over casting, avoiding high-energy material melting



Durability and recyclability

Longevity and usability of the packaging increased, with expectations that consumers will continue using the boxes for decorative and storage purposes. Aluminium is also infinitely recyclable without losing integrity, has minimal environmental impact, lightweight, and corrosion-resistant



Brand experience

Enhanced brand experience with customers able to keep and repurpose the boxes, always being reminded of the brand



KEY CHALLENGES



Marginal effort barrier

It becomes significantly more challenging to go from 98% to 100% recycled aluminium than reaching 98%. This is due to the alloys that must be processed



Supply chain strain

The number of suppliers they could work with was limited due to the complex vendor agreements to meet their Chain of Custody requirements



Plastic-free protection

Difficulty in finding a viable alternative to plastic foam for the interior of the box that meets the necessary features for secure protection and enhanced longevity of jewellery pieces



"We gave ourselves enough space for trial and error to set a new benchmark" –
Morten Isachsen, CEO Tom Wood

Source:

2. [LCA by HIQLCD](#), 2025

3. Ibid

4. Hydro

Photos courtesy of Tom Wood

Interviews with representatives from Tom Wood

Tom Wood – Sustainable store design

Tom Wood has designed stores that prioritise sustainability without compromising their visual and brand identity.

CONTEXT

Tom Wood was founded in 2013 centred around a **commitment to quality, responsibility and lowering environmental impact**.

The brand's sustainable store design philosophy is anchored in **longevity, craftsmanship, and material responsibility**. Tom Wood favours **raw, durable materials** such as steel, concrete, aluminium, and glass, **chosen for their resilience** and some for their ability to develop a natural patina, expressing **Tom Wood's commitment to enduring design and environmental stewardship**.

Tom Wood opened its first sustainably designed store in Oslo in 2020, followed by two stores in Tokyo (Aoyama and Ginza).

OBJECTIVES

- **Minimise the environmental footprint** through conscious design and resource-efficiency
- **Select materials** that age with grace and require **minimal replacement**, promoting circularity and **reducing waste**
- Align retail spaces with Tom Wood's values, placing **responsibility, transparency, and timelessness** at the forefront

APPROACH

01 Concept and responsibility alignment

- Every store project begins with a feasibility analysis and concept development kick-off with the CEO, CCO, Creative Director, and retail team
- The space's ambitions were connected to the brand's strategic roadmap, sustainability and circularity goals, and innovation priorities

02 Time and responsible material plan

- Shape the creative direction, ensuring cohesion across all retail environments and prioritising local materials with the required environmental responsibility and properties
- Assess feasibility of materials based on durability, recycled content, and local sourcing to support circular, low-impact design

03 Design and prototype for longevity

- Engage local architects and contractors to localise and operationalise the concept
- Prototype, test, and quality control all components to meet longevity expectations and low maintenance under real-world conditions

04 Execution and evaluation

- Implement and execute designs with agile responsiveness for the project to adapt as needed while maintaining high standards
- Post-launch, stores are subject to ongoing visual and functional evaluations

IMPACT



Operational savings

Overall, the long-term value creation (e.g., reduced maintenance costs, long-term (re)use of modular displays) from sustainability investments outweighs the upfront costs



Reduced emissions

Tom Wood targeted significantly reduced CO₂ emissions by incorporating recycled steel and aluminium, utilising low-emission materials such as Kvadrat Really, powering stores with 100% renewable energy, and prioritising locally sourced or short-shipped materials for interior construction



Carbon emission calculator

Tom Wood has initiated the development of a carbon emissions calculation tool for retail space construction with an aim to reduce emissions while working towards ambitious retail growth targets



Consumer response

Tom Wood's store design has received positive consumer feedback, affirming both the creative and sustainable choices. These responses can translate into enhanced brand equity and loyalty

KEY CHALLENGES



Material availability

Depending on the location, it can be challenging to access the required volume of local recycled materials with aesthetic precision



Balancing durability and minimalism

Maintaining the brand's minimalist design aesthetic with the available local, sustainable materials



Cost variations

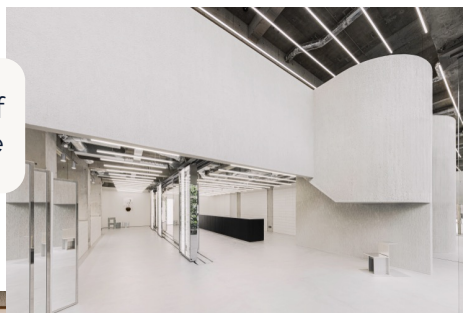
Sourcing constraints in new markets can increase the costs of materials and labour



Lead times

Developing prototypes demands significant time, especially with custom materials, sustainable processes and design constraints

First and second floor of the Tokyo flagship store



Inspired by wooden logs, this modular display can be rebuilt to fit into any space

Source:

Photos courtesy of Tom Wood
Interviews with representatives from Tom Wood

Qeelin – Circular pop-up stores

Timeless design with high-quality and sustainable materials ensures Qeelin's pop-up stores can be reused without compromising brand reputation.

CONTEXT

Qeelin was founded in 2004 in Hong Kong, as a luxury jewellery brand. The brand is renowned for **blending modern aesthetics with traditional Chinese symbolism**, exceptional craftsmanship, and innovative design. Qeelin puts emphasis on **sourcing materials sustainably, designing for longevity, and promoting awareness** about sustainability and circularity.

Qeelin's pop-up stores are a way to **present the brand for a limited time in a single location**, typically six months to two years. Introduced in **2021**, the circular pop-ups are **designed for easy disassembly and reassembly**, allowing them to be **reused in new locations** and thereby **extending their lifespan** significantly. **Furniture used in events is reused or resold** to employees and customers.

OBJECTIVES

- **Reduce raw material extraction** and the associated carbon footprint
- **Reduce costs** for brand presence at temporary locations
- Leverage the **timelessness of the brand** to reuse materials and designs

KEY PILLARS

01 Timeless design	• The pop-up stores are designed to align with the brand's timeless aesthetic and functionality • The designs ensure stores can be reused across the region and for years (at least five years) without impacting the brand's reputation
02 Material use	• The materials sourced for the pop-up stores are predominantly recycled or sustainably sourced • Qeelin committed to using 100% recycled aluminium from 2025, significantly reducing the carbon footprint of the stores
03 Circular process	• Pop-ups are designed for easy dismantling after an event or set-up • Damage to the pop-up store components is repaired in the warehouse • The store is re-installed and adapted to the requirements of the new location
04 Resale	• Qeelin's furniture and decorations that are no longer used are resold or offered to customers and employees

IMPACT



Successful circularity

Qeelin has eight rotating pop-ups, one of which has been reused eight times since its launch in 2021



Decarbonisation

Qeelin has reduced its carbon footprint related to pop-up stores by 50% through recycling and upcycling of materials



Material footprint reduction

Since 2021, the reuse of materials has saved the raw materials needed for 14 pop-up stores



Cost reduction

The costs related to sourcing raw materials for 14 new pop-up stores have been eliminated. Costs to keep materials in stock are negligible in comparison to material sourcing

KEY CHALLENGES



Managing third parties

With pop-up stores all around the region, Qeelin must work with multiple third parties, ensuring all materials are reused, resold or recycled



Transparency on end-of-life

It has been challenging to receive reports proving sustainable waste management from dismantling companies that are not used to reusing and recycling waste



Source:

Photos courtesy of Qeelin
Interviews with representatives from Qeelin

TOUS – Aftersales service

With its roots in repair and personalisation, TOUS has successfully implemented a global aftersales service programme, working with local and traditional artisans.

CONTEXT

TOUS is a Spanish jewellery brand whose origins date back to 1920 as a small watch workshop. Over the years, the company diversified into **jewellery, handbags, accessories, and perfumes** and now **operates in over 40 countries**. The brand's identity is characterised by **innovative design, craftsmanship, and high-quality** materials.

Carrying on its heritage in repair and personalisation, TOUS offers aftersales services such as **personalisation** (i.e., tailor-made adaptation of jewels and engraving), **maintenance and cleaning services, restoration and repair**. TOUS is set to **launch at-home repair services**, offering step-by-step instructions and advice, allowing them to take care of their pieces independently. In 2018, **TOUS School** was introduced to **train new generations** in jewellery repair and restoration.

OBJECTIVES

- **Keep the brand's heritage** of repair and personalisation in the core of its brand identity
- **Maintain the quality and value** of pieces over time for a life-long experience
- Build **long-lasting and trusting relationships** with customers

KEY PILLARS

01

Quality control in selection of partners

- The initiative requires a continuous process of identifying potential jewellers and ateliers and ensuring their compliance with TOUS' standards
- TOUS sends products in need of repair to the atelier or jeweller in proximity and evaluates their work based on the quality of repair, the lead time and technique used

02

Centralised management

- TOUS manages the aftersales service centrally through the Spanish headquarters' customer service team
- The individual services are decentralised and performed in external ateliers located close to the point of sale to ensure efficiency and quality

03

Warranty

- The warranty period offered is aligned with local regulations
- In countries where mandatory warranty is less than three years, members of the My TOUS programme, the brand's loyalty scheme, benefit from an additional year for a total three-year warranty

IMPACT



Consumer participation

In 2024, the company carried out a total of 677,676 services with an average delivery time of 14.2 days¹



Reduced environmental footprint

The aftersales services contribute to TOUS' ambition to improve sustainable sourcing practices and reduce impact of extracting raw materials by extending the lifespan of products, reducing the need for new ones



Emotional durability

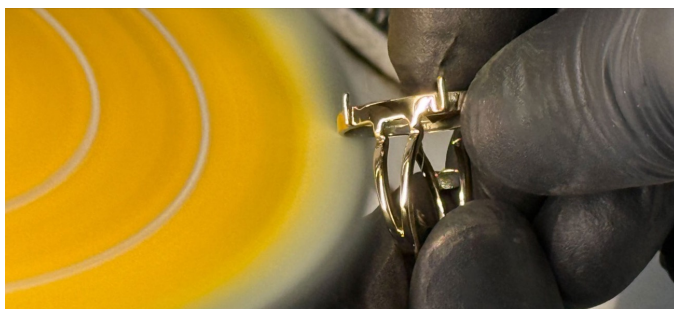
TOUS fosters emotional durability of products through personalisation and repair, ensuring life-long (re)use



Local empowerment

The widespread presence of the 250 jewellers involved in TOUS' aftersales services ensures at least 95% of repairs can be carried out locally, making them more accessible and efficient for customers

TOUS works with traditional jewellery artisans to repair and refurbish pieces



Source:

1. Information based on all products sold, not just jewellery
Interviews with representatives of TOUS

KEY CHALLENGES



Partner identification

The traditional jewellery-making profession is becoming less common, making it challenging to identify local partners



Expanding to omnichannel

In achieving an omnichannel experience, TOUS is working to ensure the quality and efficiency of services remain accessible to all consumers, regardless of the purchase channel



Investment and running costs

The services require significant costs for the artisans and infrastructure. To partially offset these costs, a small fee is charged for some services (e.g., customisation) but the rest is absorbed



Customers have the ability to bring their unique jewel to life, choosing the metal and gems that best represent them

Wouters & Hendrix – Repair and refurbishment

Since its founding in 1984, repair has been part of Wouters & Hendrix's offering.

CONTEXT

Wouters & Hendrix is a **Belgian jewellery brand** founded in 1984 known for the surrealist design and unexpected combinations of materials and techniques.

The brand can **repair every piece** of Wouters & Hendrix jewellery **produced throughout its history**, even from 40 years ago.

Jewellery can be passed down generations and sent for **repair, refurbishment and possibly even remelting** to reuse the materials of sentimental pieces.

OBJECTIVES

- Maintain Wouters & Hendrix's **repair programme** that has been part of the **brand's DNA** for 40 years
- **Keep pieces in use for longer** and match the physical durability with the emotional connection

KEY PILLARS

01

Customer returns

- Customers are offered a two-year warranty in which they can return their piece for free repair
- Outside of warranty customers pay a moderate fee for the repair

02

Dedicated resources

- Assigned one full-time employee with the right capacity and craftsmanship to ensure reliable and high-quality repair services

03

Link to loyalty programmes

- Wouters & Hendrix plans to link the repair programme to the Mussel club, the brand's loyalty programme, to offer a number of repairs free of charge or remelting into a new piece

04

Agile stock management

- Maintain components in stock for older collections to facilitate repairs, ensuring readiness for repair requests
- Leverage the proximity of their mostly Belgian- and Netherlands-based customers to their production site to minimise shipment time

IMPACT



Monetisation

The repair service covers the cost of one FTE¹ but will start acting as an enabler for consumers to join the loyalty programme and engage more meaningfully and frequently with the brand



Decarbonisation

Avoidance of approximately 2,000 pieces per year (10% of annual sales) remaining in urban stock, reducing the need to produce and sell new pieces



Consumer satisfaction

Wouters & Hendrix is receiving positive consumer responses, appreciating the ability to repair pieces at a lower cost than buying new ones, and valuing the brand's commitment to sustainability

KEY CHALLENGES



Component stock management

Need to keep components ready in stock that would not be used in current production, representing approximately 2% of stock value



Eligibility assessment

Assessing the eligibility for repair under warranty based on photos is challenging and may become more complex as the customer base grows internationally

The Mussel Club is made available to customers with a specific spend or brand engagement and will extend the warranty of pieces to 3 years



Source:

Photos courtesy of Wouters & Hendrix

Interviews with representative of Wouters & Hendrix

1. FTE: Full-time employee

Monica Vinader – Repair and refurbishment

Monica Vinader has established a five-year warranty on jewellery, offering repair and refurbishment services to reinforce customer satisfaction and reduce waste.

CONTEXT

Monica Vinader founded the brand in 2008, based in the UK. Since being founded, the brand's **focus has been on responsibility for the planet and people**, designing jewellery that empowers and endures.

To ensure jewellery can be treasured for generations, Monica Vinader **offers a five-year warranty and lifetime repair services**. When jewellery is within warranty, it can be **returned to the store** or **shipped for repair**.

If a piece cannot be repaired and is not sentimental, customers are offered a **replacement**. For jewellery **outside warranty**, customers can benefit from repair services at **a small fee**.

OBJECTIVES

- **Operate with integrity and sustainability**, making it synonymous with the brand
- Keep otherwise **wasted items in circulation** through repair and refurbishment

KEY PILLARS

01

Warranty

- Customers are offered a five-year warranty on their pieces
- Within the warranty period the piece can be repaired or replaced for free (meeting the warranty conditions)
- Outside the warranty period, a small fee is charged for the services

02

Customer care

- The customer wishes to replate, resize or repair their jewellery
- Customers can return their jewellery in-store or ship it for free (under warranty)
- Pieces are assessed for their potential repair or refurbishment

03

Repair and refurbishment

- In partnership with key suppliers, products are fully refurbished with the aim of making the product the same quality as those that are new
- Products are then either returned to customers or sold through various channels

IMPACT



Reducing waste

By investing in circular economy, Monica Vinader keeps otherwise wasted stock in circulation and reduces waste of valuable materials



Positive customer response

Five-year warranty and lifetime repairs have very positive customer feedback and enable more frequent customer engagement past the point of sale

KEY CHALLENGES



Material-specific disassembly

Pearls are challenging to disassemble without damaging, limiting their reusability



Gemstone damage

Gemstones are often returned due to damage or are damaged in the process of removing or recasting and are difficult to reuse or reform

Items can be replaced, repaired or refurbished to the same quality as new pieces



In addition to repair, pieces can be replaced and resized

Source:

Photos courtesy of Monica Vinader
Interviews with representatives from Monica Vinader

Breitling – Certified Pre-Owned

Breitling's Certified Pre-Owned programme has helped them bring consumers on their journey for transitioning to circularity.

CONTEXT

Founded in 1884, **Breitling** is a **leading Swiss watchmaker**. The innovative company **invented the modern chronograph** and pioneered the navigational tool watch. Today, it is still breaking new ground as a **casual, inclusive, and sustainable luxury brand**.

Breitling collaborates with retailers on **Certified Pre-Owned (CPO)** initiatives, leveraging their expertise in the pre-owned watch market.

Breitling's **CPO** programme launched as a **pilot project** in Switzerland in August 2023. Since then, the program has **expanded to other geographies** and retail partners.

OBJECTIVES

- **Offer consumers the confidence** that their purchase is both **authentic and fully functional**
- **Transition** to circularity together **with the customer**

KEY PILLARS

01

Partner selection

- Breitling launched the pilot project with Bucherer, a trusted partner offering customer confidence in the product
- Additional CPO programme partners have been selected based on the existing relationship they have and their experience in CPO

02

Aftersales process

- Breitling established a dedicated aftersales process that meets Breitling's global standards and aligns with their partner authentication process

03

Authentication process

- The watches acquired by the retail partner first undergo an initial validation check by the retailer's own watchmakers. If the components are genuine, Breitling will perform the complete authentication, followed by a service if necessary, and ultimately issue the two-year warranty

04

Consumer positioning

- Consumers in the CPO market are typically value-conscious luxury buyers seeking high-quality, authenticated timepieces at a lower entry price than new models. They are motivated by a mix of practicality and passion, looking for reputable brands with strong resale value and recognised heritage
- These buyers often appreciate the opportunity to acquire iconic or discontinued models, balancing their desire for prestige, craftsmanship, and investment potential

IMPACT



Extend active lifetime

The CPO programme allows Breitling to extend the active lifetime of its timepieces, encouraging regular use and sustainable resale



Enhance brand value

Breitling reinforces its brand reputation by offering authenticated pre-owned watches through trusted channels



Warranty offering

Breitling's E-Warranty, the internationally valid two-year manufacturer warranty issued upon purchase of a CPO watch and unique to the Breitling CPO programme, ensures the customer receives a high-quality refurbished and authentic watch. Breitling provides the same warranty and coverage as for a brand new watch



Partnerships strengthening consumer confidence

Bucherer was selected as the partner to launch the project, and further partnerships were selected to strengthen consumer confidence in the secondary market to successfully attract new groups with innovative concepts



KEY CHALLENGES



Trusted and experienced partners

Breitling does not sell CPO watches directly but does so through authorised dealers, demanding trust and an exceptional level of service on both sides to ensure long-term success



Source:

Photos courtesy of Breitling
Interviews with representatives from Breitling
[Breitling Sustainability Mission Report, 2025](#)

Swarovski – Chroma Twist collection

By bringing together multiple teams and external expertise, Swarovski successfully developed the sustainability-rooted Chroma Twist collection.



CONTEXT

Swarovski is an Austrian brand that **designs, manufactures, and sells the world's finest crystals, jewellery, and accessories**, as well as home décor. Founded in 1895, it has a **presence in over 140 countries**.

In 2025, Swarovski launched the **Chroma Twist collection**. It uses **lower impact materials** and offers **versatile styling options** to be “used more” and “made to be made again”.¹

Swarovski launched six products with circularity in mind. For example, the double-sided Chroma Twist strand necklace's **magnetic closures** allow you to **adjust the necklace length** from long to crew to choker, or to create five bracelets of varying lengths.

OBJECTIVES

- **Meet goals set by Swarovski's Sustainability Strategy through the circular design framework** to create products with sustainable materials and processes
- **Offer Swarovski's customers a more sustainable product** that combines strong design features with circular principles
- Contribute to the ambition that at least **50% of products are in line** with Swarovski's **sustainable guiding principles**

APPROACH

01 Circular Design Framework

- In 2022, Swarovski collaborated with the London-based Centre for Sustainable Fashion² (CSF) to explore Circular Design methodologies and create a dedicated framework for jewellery

02 Collaborative Working Group

- In January 2023, the brand set up a Circular Design Working Group with internal teams and CSF including product design, quality and product development to build competence and pilot product development

03 Competence building

- Organised workshops to:
 - Explore technical definitions of circularity for the industry
 - Perform an industry benchmark to analyse challenges and successes

04 Pilot product development

- Developed a top standard solution meeting their quality objectives
- Launched the Chroma Twist collection in January 2025, made up of six pieces with unique modular and versatile opportunities

05 Circular design champions

- Dedicated circular design champions within the company are continuously bringing together stakeholders from different departments to share ideas, expand expertise and fuel further innovation

Note:

1. As described in Swarovski's Circular Design Framework developed in collaboration with the Centre for Sustainable Fashion
2. [Centre for Sustainable Fashion](#)

IMPACT



Reduced environmental footprint

The Chroma Twist collection uses at least 50% Swarovski ReCreated Crystals™, leading to 40% less resource use and 34% reduced environmental footprint.³ The collection also uses at least 90% recycled metal



Extended circularity

The high versatility and repairability of the collection means consumers could use their pieces more frequently and for longer, extending the product lifecycle. Additionally, through modularity and versatility, there is an increase in value for money for the consumer, as they can adapt and customise their pieces to suit different needs and preferences, further enhancing the longevity and utility of the products



Packaging improvement for holistic consumer experience

Switched packaging from protecting foam to pouches to allow consumers to easily store unused pieces of the collection at home and when travelling



Key features like the **magnetic closures** allowing to split the strand necklace into four smaller strands, or the **turning mechanism** to switch colours in the ring, enables versatility and longer product use

Source:

Photos courtesy of Swarovski

Interviews with representatives from Swarovski

3. Calculation based on, and compliant with, ISO 14040 lifecycle assessment

KEY CHALLENGES



Design challenges

Ensuring the collection meets circularity goals and stays true to the look and feel of the brand



Communicating care & repairability

Communicating about products' repairability in a positive way to reflect the added value



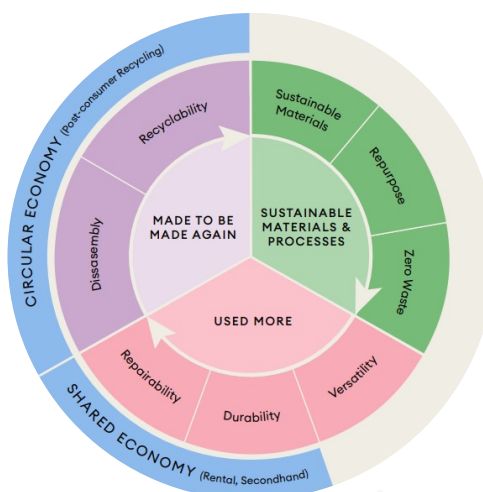
Measuring circularity

Measuring elements of circularity such as versatility to quantify the positive environmental impact



Using "Circular" label

Determining if innovative sustainability practices and versatility meet evolving standards for using "Circular" label



Swarovski's Circular Design Framework developed in collaboration with the Centre for Sustainable Fashion

Ulysse Nardin – Diver [AIR]

Setting out to create the world's lightest mechanical dive watch, Ulysse Nardin successfully showcased the economic viability of sustainable practices.

CONTEXT

Ulysse Nardin is an **independent Swiss watch manufacturer** with a commitment to pushing boundaries as part of their DNA.

The brand ventured into the diving scene much earlier than most, **creating its first waterproof instrument** in 1893, its **first dive watch** in 1964, and the Acqua Perpetual, in 2001, the **first and only water-resistant dive watch** to 200 metres featuring a perpetual calendar.

For the latest edition of their Diver collection, the brand created the **Diver [AIR]**, the **world's lightest mechanical dive watch**.

OBJECTIVES

- **Create a high-horology sports watch** with the customer at the forefront
- **Push the limits** for materials sourced for watchmaking without technical compromises
- Demonstrate that **sustainability is not contradictory to high performance** and high technology

KEY PILLARS

01

Design

- The watch had to be entirely rethought and redesigned to achieve the Diver [AIR]'s exceptionally light weight of just 52g
- Material had to be removed without compromising reliability and performance

02

Next-gen materials

- Despite requiring careful and slow processing (to avoid catching fire in machining), titanium was chosen for its durability and lightness
- Applied carbon fibre and an innovative balance responsible for controlling the watch's precise timing, weighing half as much as a standard balance

03

Innovative ecosystem

- Ulysse Nardin partnered with market leaders and start-ups to integrate innovative materials
- The titanium used is 90% recycled and the bezel insert is forged from CarbonFoil, 100% upcycled carbon fibres from IMOCA boats
- The side parts of the case are made from Nylo®-Foil, a unique blend of 60% Nylo® and 40% carbon fibre

IMPACT



World's lightest mechanical dive watch

The Diver [AIR] is approximately 50% lighter than any previous Diver watch, weighing just 52g. The weight corresponds to the average weight of a tangerine



Reduced material dependence

The space inside the watch is 80% air and just 20% material, simplifying the design and making it lightweight



Local innovation ecosystem

Ulysse Nardin has partnered with European high-tech companies and start-ups for innovative material solutions:

- TiFast (Italy) and Thyssenkrupp (Germany) supplying upcycled titanium from the Swiss BioTech industry for the calibre and case
- Fil & Fab (French start-up) supplying Nylo® made from ocean-netting
- CDK Technologies (French shipyard) supplying upcycled carbon fibre, reprocessed by Extractive and Lavoisier Composites (French start-ups)
- Sigatec (Swiss) supplying the escapement made from upcycled silicon



KEY CHALLENGES



Reducing weight without compromising performance

Building upon the Diver X Skeleton watch of 105.8g, the brand developed a new, innovative, high-tech calibre which had to be entirely rethought and redesigned to further skeletonise the watch without compromising reliability and performance (200m depth and 5000g impact resistance)



Leveraging innovative materials

Trade-offs needed to be made to integrate more sustainable and light materials that were more challenging to process. For example, titanium is more challenging to machine but offers the durability and lightness desired for the watch



*"If it's possible, it's done.
If it's impossible, it will be done."*

- Paul-David Nardin, 1876

Source:

Photos courtesy of Ulysse Nardin
Interviews with representatives from Ulysse Nardin

Monica Vinader – Digital Product Passport

On the journey to making consumers more aware of Monica Vinader's product passports, the brand awakened an industry interest and shift towards transparency and accountability.

CONTEXT

Monica Vinader founded the brand in 2008, based in the UK. Since being founded, the brand's **focus has been on responsibility for the planet and people**, designing jewellery that empowers and endures.

Monica Vinader's product passport is an industry-leading transparency initiative that gives consumers insight into the origins of their jewellery. With the **blockchain-backed** product passport, pieces can be **traced from raw material throughout their entire lifecycle**.

Since its launch in 2022, great progress has been made towards **achieving 100% of collections on product passport by 2027**.

OBJECTIVES

- **Enable customers** to trace the origin of their jewellery
- **Increase transparency** in the supply chain
- **Achieve 100% product passport coverage** by 2027

APPROACH

01 Mapping supply chain	• Collaborated with one supplier (Ennovie) on the first 50 SKUs,¹ launched in 2022 • Rolled out the project in partnership with all six Tier 1 suppliers to support with the mapping of the supply chains to source of each product
02 Brand team collaboration	• Worked with the brand team on visuals, engagement, and technological requirements
03 Data collection	• The traceability partner, EnnoTrace, selected a blockchain provider • Gathered supply chain data across manufacturing, gemstone mining, recycled metal refineries, component parts, and assay office
04 Enhanced due diligence	• In order to share a supply chain on their product passport, suppliers have been checked against an enhanced due diligence process
05 Platform integration	• Uploaded the collected data to the blockchain • Linked the blockchain data with the customer-facing platform

Note:

1. SKU: Stock Keeping Unit – a unique identifier to track and manage individual items in inventory

IMPACT



Increased investment in traceability

Establishing traceability to source required investment in the platform, running costs for new suppliers and products, and audits from blockchain auditor SCS for the product passport



Transparency through traceability

By knowing the sourcing routes of all materials, the jewellery industry can begin to better understand and manage associated social and environmental impacts in the supply chain



Increased consumer awareness

The brand works to inspire and educate customers to understand the importance of transparency through continuing to focus on communicating the challenges and their efforts in this space

KEY CHALLENGES



Onboarding suppliers

Time-consuming process, taking two to three months for Tier-1 suppliers and more for downstream suppliers not exclusive to the industry



Information validation

Constant verification and validation of supplier-provided information

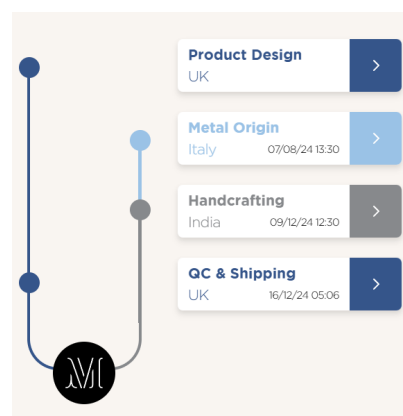


Tracing materials

Pearls and gemstones are particularly challenging to trace to source due to fragmented, complex supply chains

Monica Vinader partnered with EnnoTrace to develop the product passport

ennoTRACE



Visualisation of the product passport on Monica Vinader's website

Source:

Photos courtesy of Monica Vinader
Interviews with representatives from Monica Vinader

Breitling – Origins label

Starting with the launch of the fully traceable Super Chronomat 38 Origins watch in October 2022, Breitling has since expanded this concept to half of its collection containing gold and diamonds, thereby designated by the Breitling Origins label.

CONTEXT

Founded in 1884, Breitling is a leading Swiss watchmaker. The innovative company **invented the modern chronograph** and pioneered the navigational tool watch. Today, it is still breaking new ground as a **casual, inclusive, and sustainable luxury brand**.

Watches with Breitling's **Origins label** are made with **better gold¹ and better diamonds²**. Their artisanal and small-scale (ASM) gold and lab-grown diamonds are **fully traceable to manufacturers** that have been selected for their social and environmental responsibility.

Traceability and community-based value chains are key drivers to uphold Breitling's commitment to meaningful transparency. This approach has fostered **collaboration with local communities, promoting economic development** through various tailored programmes. Notably, there is an emphasis on childhood education, supported by initiatives funded through voluntary contributions to the Breitling Better Gold and Better Diamond funds.

OBJECTIVES

- **Achieve traceable ASM gold and lab-grown diamonds** for the main collections by the end of March 2026
- **Establish high-quality primary data** of the environmental and social impact for a baseline upon which to report and guide tangible progress
- **Engage across** the pillars of **community, nature and governance** to make a meaningful impact at a local level

KEY PILLARS



Better gold

- Gold sourced from artisanal and small-scale mines with a focus on workplace standards, community involvement and protection of the natural environment



Better diamonds

- Certified lab-grown diamonds from trusted suppliers to ensure they are free of association with conflict, human rights abuses, and environmental degradation



Better traceability

- Breitling carefully selects and closely collaborates with their suppliers, developing personal relationships in order to advance their shared sustainability objectives
- Breitling informs customers about the provenance of key materials including gold and diamonds in their traceability enhanced NFT

Note:

1. Based on the [Swiss Better Gold Association](#)
2. Based on [Sustainability Rated Diamonds](#)

IMPACT



Positioning in the female market

The Origins label contributes to an overall compelling female offering in a competitive marketplace



Customer attraction

The awareness of Breitling Origins label products, fostered by a wide uptake of media outlets, has engaged new customers



Enables full-scope strategy

Transparency and traceability across the supply chain has enabled nature and climate impact reduction strategies such as the installation of on-site solar panels at both gold mining and lab-grown diamond production sites



Traceability integrated in the business model

Traceability allows Breitling to collect high-quality, primary data of their environmental and social impact, make it publicly available, and use it to guide and implement, together with their partners to achieve their shared objectives



Source:

Photos courtesy of Breitling
Interviews with representatives from Breitling
Breitling Sustainability Mission Report, [2023](#), [2024](#), and [2025](#)

KEY CHALLENGES



Trusted partnerships

Establishing trusted partnerships at each step of the value chain



Operationalisation of traceability

It was challenging to operationalise a traceable supply chain in production processes designed to function with non-traceable commodities. Industry collaboration has been key to enable the release of this product and the development of the supply chain which brought it to life



The Super Chronomat 38 Origins was the first Origins label watch launched in 2022, establishing an industry benchmark for traceability



Appendix B: Material flow research

Gold and silver material flow analysis

OBJECTIVE

Show where gold and silver enter, accumulate within and leave the watch and jewellery value chain

APPROACH

1. Scope and map

Map annual flows and in-use stocks, covering sourcing, processing, manufacturing, use and end-of-life

2. Build the evidence base

Combine official market statistics, published research, and expert interviews

3. Test and disclose

Use external EOL benchmarks where direct data is missing, and test assumptions

ASSUMPTIONS

Gold

SOURCING	Value	Source	Assumption
Recycled input	1,370 t	World Gold Council. Gold Demand	
Virgin resources	3,604 t	World Gold Council. Gold Demand	
PROCESSING	Value	Source	Assumption
Total finished commodity	4,974 t		
MANUFACTURING	Value	Source	Assumption
W&J	2,004 t	World Gold Council. Gold Demand	
Central banks	1,045 t		
Investments	1,180 t		
Other	476 t		
Other electronics	271 t		
USE	Value	Source	Assumption
Stock in use	216,265 t	World Gold Council	
W&J	97,149 t	How Much Gold Has Been Mined? World Gold Council	
Other gold stock:	119,116 t		
Central banks	37,755 t		
Investments	48,634 t		
Other	32,727 t		
END-OF-LIFE	Value	Source	Assumption
Recycled gold	1,370 t	World Gold Council	
W&J	1,233 t	Supply World Gold Council	Jewellery accounts for roughly 90% of recycled gold
e-waste	54 t	Global e-waste monitor	
other	83 t		Remaining gold not from W&J or e-waste
Linear gold	294 t		
W&J	65 t		95% of gold from W&J is recycled
e-waste	216 t	Global e-waste monitor	
other	13 t		Remaining gold not from W&J or e-waste

Silver

SOURCING	Value	Source	Assumption
Recycled input	6,032 t	The Silver Institute - World Silver Survey	
World mine production	25,497 t	The Silver Institute - World Silver Survey	
PROCESSING	Value	Source	Assumption
Total finished commodity	31,574 t	The Silver Institute - World Silver Survey	
ADDITIONS TO STOCK	Value	Source	Assumption
Metal in W&J	6,491 t	The Silver Institute - World Silver Survey	
Manufacturing losses	0 t	Recycling in Deutschland	
Market balance	4,632 t	The Silver Institute - World Silver Survey	
Net official sector sales	46 t	The Silver Institute - World Silver Survey	
USE	Value	Source	Assumption
Stock in use	1,616,805 t		
Jewellery	791,000 t	https://cpmgroup.com/how-much-silver-is-above-ground/	
Bullion	57,000 t		
Coins	51,000 t		
Industrial	556,125 t		
Lost	161,681 t	How Much Silver Is Above Ground? 	
END-OF-LIFE	Value	Source	Assumption
Recycled silver	6,032 t	The Silver Institute - World Silver Survey 2025	
- W&J	1,133 t	The Silver Institute - World Silver Survey 2025	19% of recycled silver comes from Jewellery
- e-waste	240 t	Global e-waste monitor	
- Other	4,659 t		Remainder: recycled amount not coming from W&J or e-waste
Linear silver	6,105 t	End-of-life recycling rates - IEA	49.7% recycling rate – 2021
- W&J	369 t		75% recycling rate for W&J
- e-waste	960 t	Global e-waste monitor	
- other	4,775 t		Remainder: Waste not coming from W&J or e-waste

Endnotes

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