Seamless

Pilot data and outcomes

From the Seamless
Circular Clothing Textiles Fund

This report was developed by Clothing Stewardship Australia Ltd. (Seamless) as part of a program that received grant funding from the Australian Government.

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In the spirit of reconciliation, we acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community. We pay our respect to their elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples.

In Australia, we have the privilege of learning from incredible First Nations design traditions. First Nations people have been creating clothing for millennia with a focus on circular principles. As we continue on this journey towards circularity in our industry, we are committed to learning from the way things have always been done by First Nations creators in this Country.

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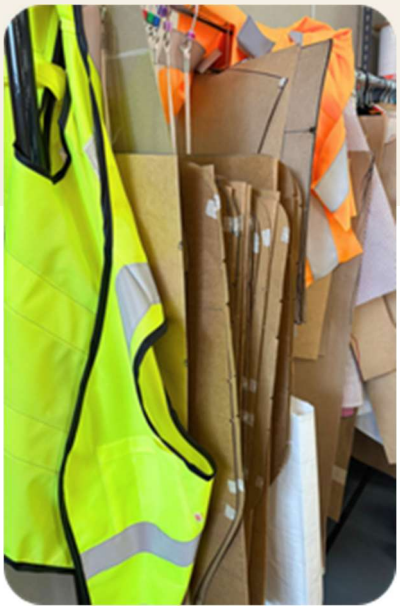

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About this report

The Seamless Circular Clothing Textiles Fund is part of a program which received grant funding from the Australian Government to support a coordinated national clothing collection, sorting, reuse and recycling system. It marks an important step towards a circular clothing economy in Australia.

The Fund supported seven practical pilots across Australia to collect, sort, process and recycle 'unwearables', which are the clothes we no longer wear. Outcomes from the pilots provide critical insights into how the current system works, where the gaps and opportunities are, and what's needed to build a national clothing system and address the 220,000 tonnes of clothing textiles that ends up in Australian landfill every year.

This report is a comprehensive overview of the data and outcomes from the seven pilots. It outlines the program of work, summarises the seven pilots, and shares key outcomes. It also shows how the outcomes inform the design of an effective and feasible national clothing system.

As shown in Figure 1, the findings in this report help inform the 'Evidence for change: Australia's circular clothing future'. Other inputs into the 'Evidence for change' report are a report on 'Next markets for unwearable clothing textiles' and 'National clothing scheme: Policy, economic and financial analysis.'

Figure 1: National coordinated clothing system program reports

Executive summary

Seven innovative pilots, delivered through the Seamless Circular Clothing Textiles Fund across metropolitan and regional Australia, gave unwearable clothing a second life. The pilots delivered data and outcomes to help shape a coordinated national clothing system, advance a circular clothing economy and help divert over 220,000 tonnes of clothing textiles from landfill annually.

Australia's clothing system is under increasing pressure. The volume of clothing waste continues to grow, while the coordinated systems needed to manage it don't exist.

In June 2025, Seamless received grant funding from the Australian Government to drive industry collaboration for clothing recirculation, stimulate next markets for Australian recycled clothing textiles and deliver the evidence for a national coordinated clothing system.

The Seamless Circular Clothing Textiles Fund was delivered as part of this program. The seven Fund pilots were an opportunity to test different ways to collect, sort and recycle 'unwearables', which are clothes that can't be worn again, and investigate what is required to develop a national clothing system.

Fund objectives

The Fund pilots provided data and outcomes to inform the evidence base for a scalable national stewardship model to deliver maximum impact. The objectives of the Fund were to:

1. Divert unwearable clothing, including uniforms, from landfill by making collection systems easier and more accessible for Australians.
2. Help determine the impact of increased volumes of unwearable clothing on existing collection, sorting and pre-processing practices.
3. Ensure that wearable clothing inadvertently collected enters appropriate domestic reuse channels.
4. Ensure that unwearable clothing collected is recycled or recovered to produce high value resources.
5. Confirm next markets and quantify demand for recycled Australian clothing textile resources.

Pilot focus areas

Pilots were designed to collect, sort, process and recycle unwearable clothing. The three focus areas were:

1. **Collection**: Models for collecting unwearable clothing that are most effective at diverting textiles from landfill, and the total cost to deliver them.
2. **Sorting and pre-processing**: Methods for sorting unwearable clothing that lead to effective reuse, recycling and recovery, as well as the funds, capability and infrastructure required to deliver them, along with the level of contamination from textiles that are not fit for recycling.
3. **Recycling and next markets:** Current and potential capability and capacity of textile recycling infrastructure, available next markets and current and potential demand for Australian recycled textiles.

Pilot activities

The pilots focused on unwearable clothing, as wearable items are already collected, sorted and resold by a large network of charities and other operators in Australia. However, there is currently no nationally coordinated system for collecting unwearable clothing.

In total, more than 30 organisations took part in the pilots, from clothing and uniform brands to charities, local councils, recyclers, logistics partners and universities. In less than three months, the pilots collected and sorted nearly 31 tonnes of clothing. Thirteen tonnes of unwearable items were transformed into eight new products, including acoustic and insulation panels, hydromulch for revegetation, and filling for homewares like cushions.

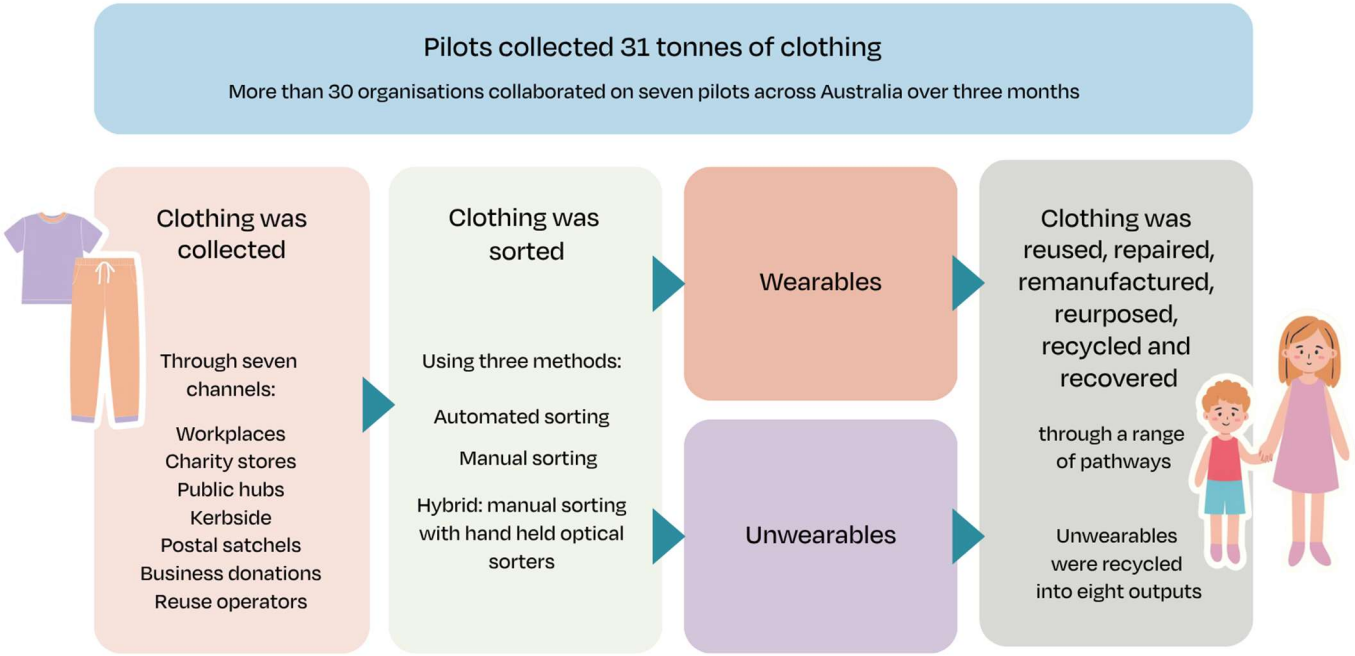

Figure 2: Pilot activities

Pilot data summary

Each pilot was required to provide milestone updates, a final report, a standardised data sheet and supporting evidence. These materials were supplemented by notes from site visits, milestone meetings, sector events, and an online learning forum. Together, they provided the data for analysis. Figure 3 below summarises the data from the pilots.

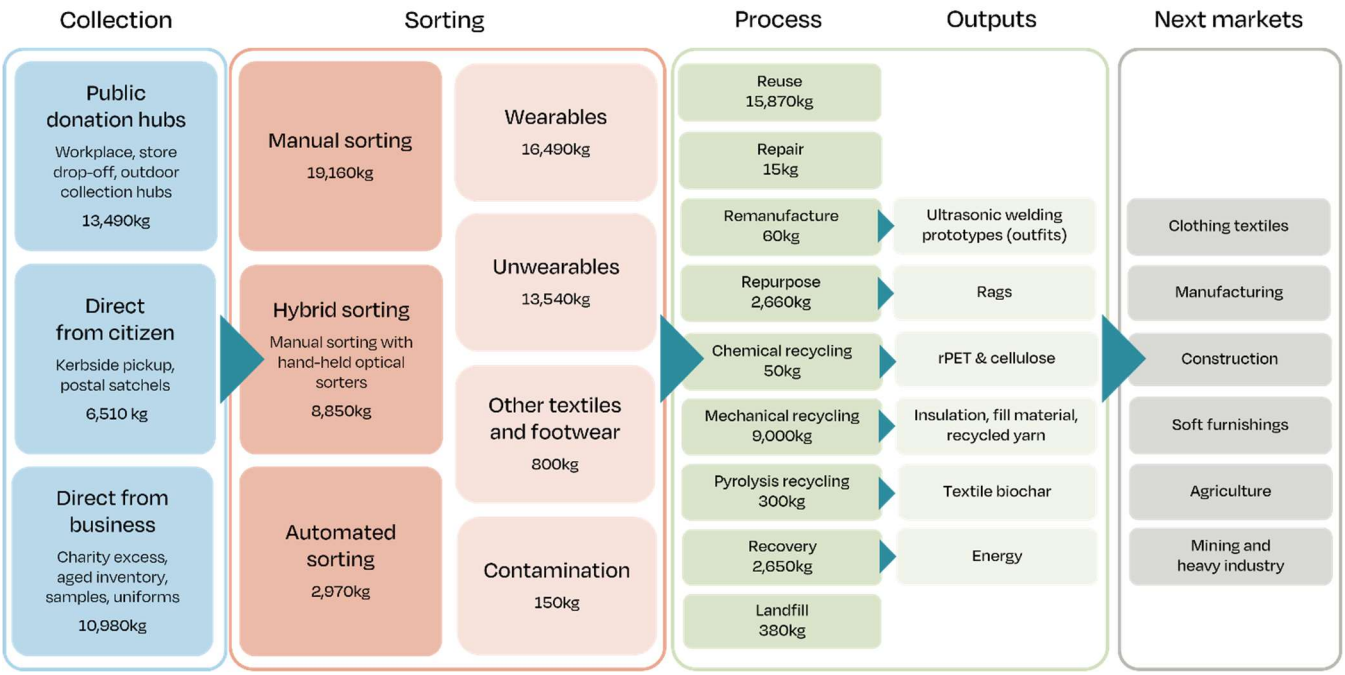

Figure 3: Summary of data from all pilots

Key outcomes

The pilots informed five key outcomes for how unwearables can be collected, sorted and recycled in Australia. Together, they show how citizens behave, how collection systems perform, and what is needed across sorting, recycling and next markets to divert unwearable clothing from landfill. The outcomes are:

1. **Citizens are willing, but quality control must sit with the system**. Australians are willing to dispose of unwearable clothing responsibly when convenient options are available. However, quality control cannot rely on citizens alone. Trials that asked people to separate wearable and unwearable clothing at the point of donation saw misclassification rates of 20–50%. So, while participation is high, sorting accuracy is limited. Overall, citizen engagement is a clear strength, but systems must manage quality and sorting.

2. **Collection can increase but the system is only effective if next markets are in place**. Large volumes of clothing can be mobilised and collected quickly across multiple channels. System effectiveness will rely on having recycling capacity and committed next markets for recycled clothing textiles ready from the outset, so textiles flow through the system, and collected clothing isn't stockpiled.

3. **Sorting is the control point and must align with next markets**. Clothing sorting is the critical control point and must be aligned with the requirements of recycling and next markets. Different sorting approaches serve different functions: manual sorting involves judgement-based decisions for resale and reuse, while technology assisted and automated sorting improve throughput and fibre identification. Sorting should be matched to the intended textile output and related textile recycling specifications.

4. **Open-loop recycling is an immediate solution**. Open-loop recycling, where clothes are recycled into new, different products for use outside the clothing industry such as insulation, rags or stuffing for furniture, can process recycled clothing textiles at scale today. While markets are still developing, closed-loop recycling remains an important solution for the future to reduce reliance on virgin materials, and associated emissions.

5. **Next market development and supportive policy are essential for a functional circular system**. Next markets for recycled clothing textiles currently exist. However, an effective system will require stronger demand for recycled textiles; investment in capability and infrastructure for clothing sorting, recycling and remanufacturing; and supportive measures and policy settings across the product lifecycle. These measures include circular procurement policies for uniforms, as well as eco-modulated stewardship fees for products which are made from renewable, recycled or safe materials and designed for high value recycling.

A strong foundation

The Seamless Circular Clothing Textiles Fund is the first investment of its kind in Australia. Fund pilots explored practical ways to keep unwearable clothing out of landfill and in use. The pilots addressed data gaps across clothing collection, sorting and recycling, showing what works today and what can be optimised nationally.

A key finding is that circular systems depend on strong and consistent demand for recycled clothing textiles. This means clothing collection and sorting must be designed around next market requirements, with market development the next priority.

The pilots also highlight the value of Seamless as a system coordinator, or 'transition broker', bringing industry together to collaborate and build the foundations for a coordinated national clothing system. This system covers the full clothing lifecycle, from design and use, through to recycling and end of life.

The pilots show that while practical pathways exist, scaling them will require broader system settings, including stronger demand signals, industry participation and supportive policy. They also demonstrate the value of early investment to test and de-risk new approaches.

While the pilots delivered on the Fund objectives, their impact was proportionate with the timeframe and total funding available. Delivering additional rounds will continue to build local clothing reuse, recycling and remanufacturing capacity, and contribute to developing domestic next markets for recycled textiles. It will also provide the data and investable business cases needed by private capital to support the transition to a national system, where valuable textiles remain in circulation and out of landfill.

Contribution to the wider program

The data and outcomes from the pilots, together with other program deliverables, helped to identify the post-consumer metrics needed to transparently track progress toward a circular clothing economy in Australia. This supports the Productivity Commission's recommendation in 'Australia's circular economy: unlocking the opportunities'.[1]

The findings in this report help inform the 'Evidence for change: Australia's circular clothing future'. Other inputs into the 'Evidence for change' report are a report on 'Next markets for unwearable clothing textiles' and 'National clothing scheme: Policy, economic and financial analysis.'

[1] Productivity Commission report, Australian Government (2025), Australia's circular economy: unlocking the opportunities

Program of work

Seamless received grant funding from the Australian Government in June 2025 to drive industry collaboration for clothing recirculation and, ultimately stimulate next markets for Australian recycled clothing textiles. The program addressed the critical challenges facing the clothing industry, with over 220,000 tonnes of clothing textiles ending up in Australian landfill in 2024.

A national coordinated clothing system

As part of the program, the Seamless Circular Clothing Textiles Fund supported seven pilots across Australia to collect, sort, process and recycle unwearables. Delivered in collaboration with more than 30 partners across Australia's clothing and textiles industry and beyond, the pilots provided critical data and insights into how the current system works, where the gaps and opportunities are, and what's needed to build a coordinated national clothing collection, sorting, reuse and recycling system for Australia.

Figure 3 is an overview of the program that received grant funding from the Australian Government.

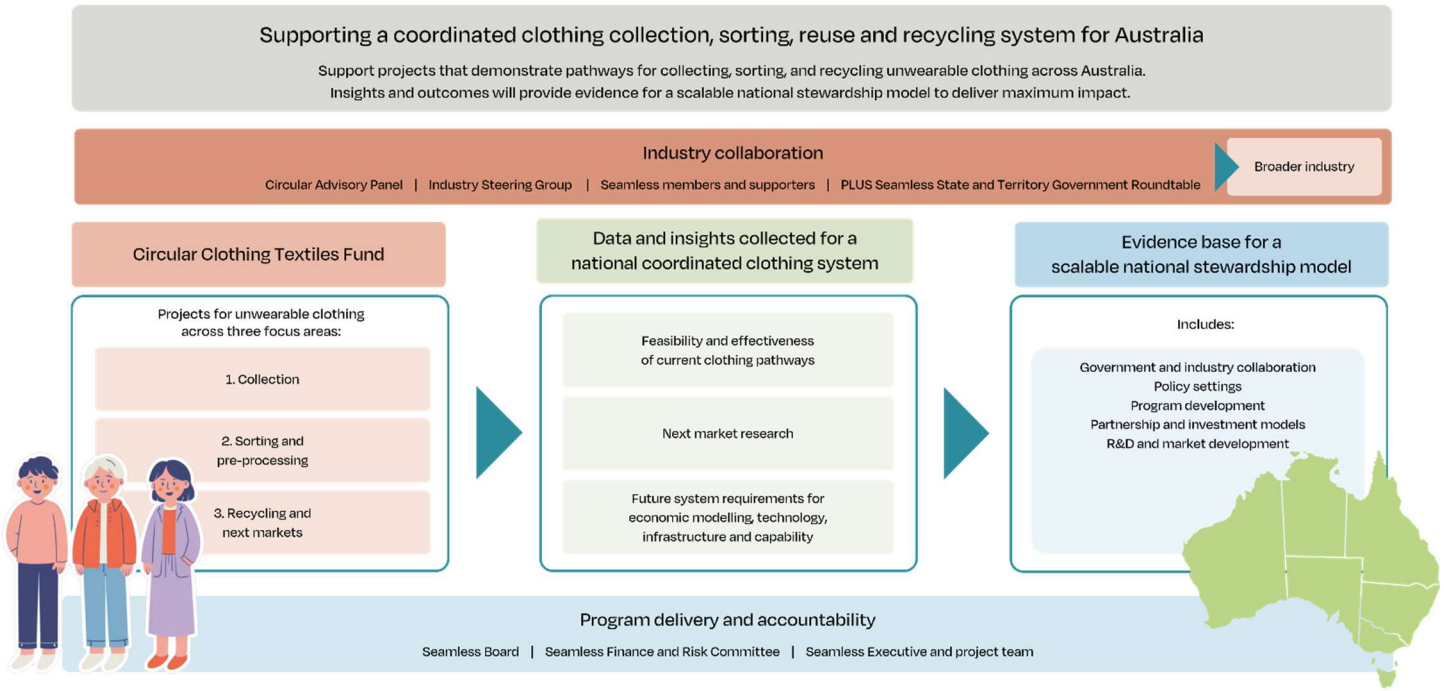

Figure 4: Overview of program that received grant funding from the Australian Government

Fund objectives

The Fund pilots provided data and outcomes to inform the evidence base for a scalable national stewardship model to deliver maximum impact. The objectives of the Fund were to deliver practical pilots that:

1. Divert unwearable clothing, including uniforms, from landfill by making collection systems easier and more accessible for Australians.
2. Help determine the impact of increased volumes of unwearable clothing on existing collection, sorting and pre-processing practices.
3. Ensure that wearable clothing inadvertently collected enters appropriate domestic reuse channels.
4. Ensure that unwearable clothing collected is recycled or recovered to produce high value resources.
5. Confirm next markets and quantify demand for recycled Australian clothing textile resources.

Pilot focus areas

Pilots were designed to collect, sort, process and recycle unwearable clothing. The three focus areas were:

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3. **Recycling and next markets:** Current and potential capability and capacity of textile recycling infrastructure, available next markets and current and potential demand for Australian recycled textiles.

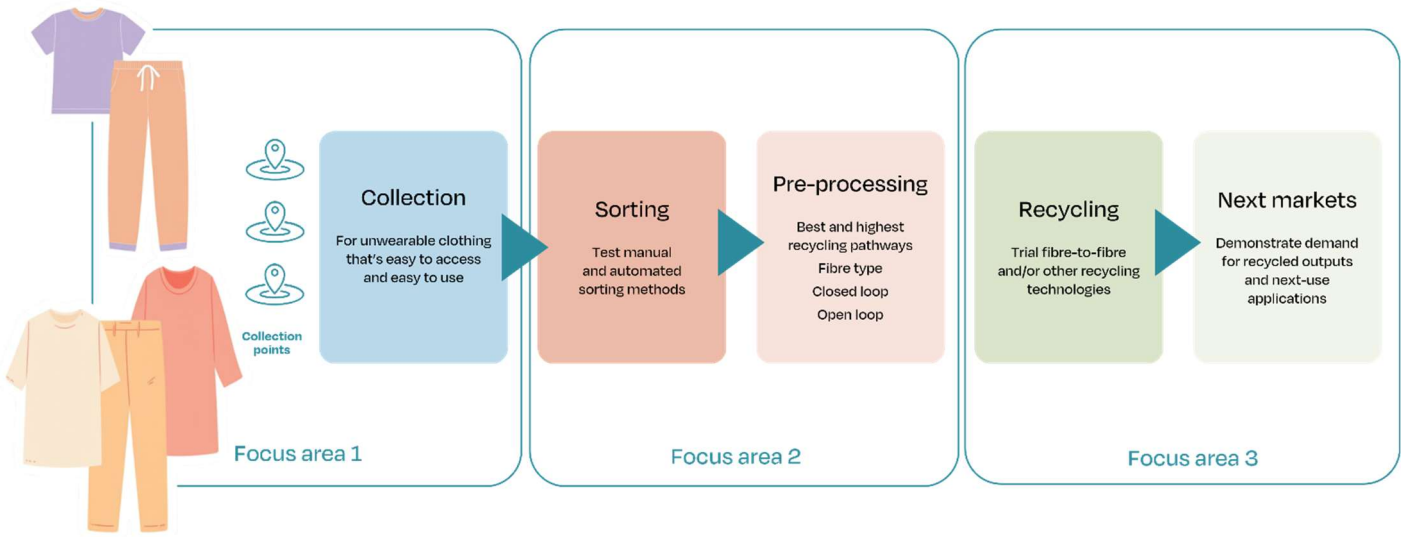


Figure 5: Pilot focus areas

Data collection and analysis

Pilot reporting requirements

Each pilot was required to provide milestone updates, a final report, a standardised data sheet and supporting evidence such as photographs, technical documents and laboratory reports where applicable. These materials were supplemented by notes from site visits, milestone meetings, sector events, and an online learning forum that Seamless hosted for all organisations that participated in the pilot on 24 February 2026. Together, they provided the data and insights for analysis.

Data validation and standardisation

All submitted data was reviewed for completeness, consistency, and accuracy. Key data points, such as volumes of clothing collected, sorted, and directed to different pathways, were reconciled.

Units and categories were also standardised to allow comparison across pilots. Where gaps or inconsistencies were identified, the Seamless team worked with Project Leads to clarify assumptions, fill missing information, and correct errors. Quantitative data was cross-checked against reports, technical documents, and site observations. The validated dataset was then prepared for independent audit.

To support analysis, the data was consolidated into a single dataset. This combined both quantitative and qualitative inputs, enabling comparison across pilots while preserving important context such as local conditions, delivery models, and partnerships.

Quantitative analysis

Quantitative analysis focused on how different activities performed and the implications for a future national clothing system. This included measuring clothing volumes collected, sorted, and processed, and assessing how much unwearable clothing was diverted from landfill into recycling or recovery.

The analysis also examined how materials moved through different sorting approaches and recovery methods, and what outputs were produced. From this, indicative system-level metrics were developed, such as performance of collection channels, and cost ranges.

Where data was limited or inconsistent across projects, results were presented as indicative ranges or described qualitatively, rather than as precise comparisons.

Qualitative analysis

Qualitative data was reviewed to identify key themes across the pilots. This included insights into how different collection approaches worked in practice, operational challenges in sorting and pre-processing, and the technical and commercial realities of clothing reuse, recycling, and recovery.

The analysis also considered the role of partnerships, governance, and local conditions in shaping outcomes. Themes were coded against the Fund objectives and focus areas and reviewed by multiple team members to strengthen consistency and reduce bias.

Independent pilot audits

An independent audit of the data provided by each pilot was completed by a third party organisation, Rawtec. The audit assessed the pilot data for completeness and accuracy, including material flows, mass balance and cost information. The auditor concluded that the data was fit for purpose and suitable to inform this report, and the 'Evidence for change' report.

Triangulation and development of key findings

The final stage of analysis brought together quantitative data, qualitative insights, and reflections from the Seamless learning forum and other engagement activities.

This was used to develop a set of key outcomes for the pilots overall. These outcomes highlight how current clothing pathways operate and what is needed for them to operate efficiently within a coordinated national system.

Fund program delivery

The Seamless Circular Clothing Textiles Fund was announced as part of a program that received grant funding from the Australian Government in August 2025. Figure 6 is a timeline of the delivery milestones for the Seamless Circular Clothing Textiles Fund.

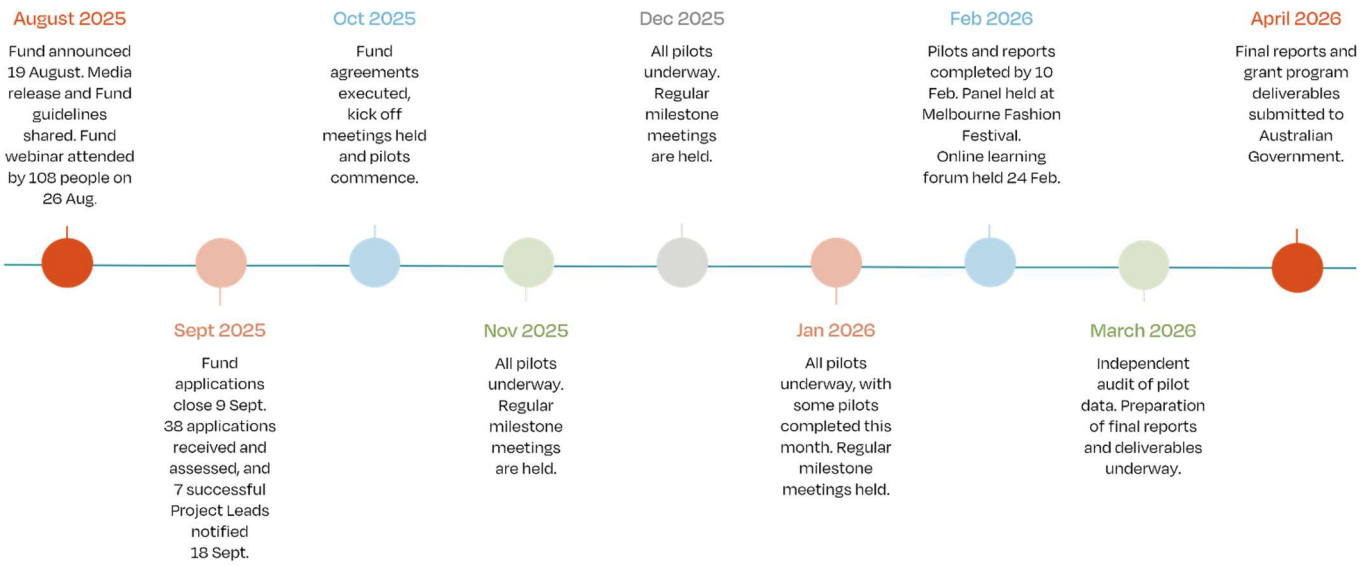
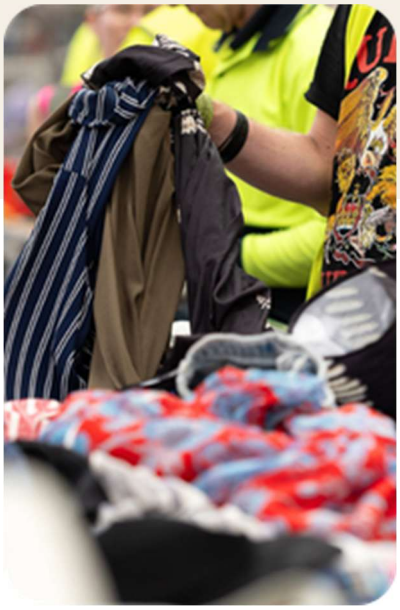


Figure 6: Seamless Circular Clothing Textiles Fund delivery milestones

Pilot overviews



Seven innovative pilots across metropolitan and regional Australia, explored new ways to collect, sort and recycle clothing that can't be worn again. Over 30 organisations collaborated to collect nearly 31 tonnes of clothing in three months.

Organisations across the Australian clothing industry and beyond, from clothing and uniform brands to charities, local councils, recyclers, logistics partners and universities, collaborated on the pilots.

This section overviews the seven pilots listed in Table 3. For each pilot, it summarises the activities, locations, and key data and outcomes.

Table 1: Summary of pilots

	Pilot name	Lead organisation	Partners
1.	National Circular Textiles Pilot	Australia Post	R.M. Williams, REMONDIS, BlockTexx, iQRenew
2.	Clothing to Construction initiative	ResourceCo	Shred-X, Salvos Stores, Sussan Group, Pellenc ST, Procitex
3.	Project ReCarbon	Vital Chemical	Georgiou, Salvos Stores, Textile Recyclers Australia, Earth Systems
4.	Circular Take-Back Scheme for Industrial Safety Workwear	Blackwoods	Assembled Threads, Wallara Logistics, Gerrbik Launderer, Textile Recyclers Group (TRG), Remote Op Shop, mining partners
5.	Circular Textiles Yackandandah Pilot	Stone Hill View	Yackandandah Community Centre
6.	WA Clothing Recovery Pilot	Good Sammy Enterprises	City of Vincent, City of Kwinana, To the Power of You, ThreadUp Australia, Stewart & Heaton
7.	Sort for Good pilot	SCRgroup	Reground, RMIT University, WRAP Asia Pacific, AusLoop

1. National Circular Textiles Pilot

Pilot overview

The National Circular Textiles Pilot was a trial led by Australia Post in collaboration with R.M. Williams, REMONDIS Australia, BlockTexx and iQRenew. The pilot embedded clothing disposal directly into the online shopping experience, making it simple for consumers to participate in a circular system.

Customers purchasing items online from R.M. Williams were given the option to receive a purpose-designed return satchel with their order, allowing them to send back unwanted clothing through Australia Post's existing logistics network. The pilot accepted any brand of clothing, not just R.M. Williams products.

Clothing was returned in a purpose-designed circular satchel that was made entirely from Australian household soft plastics (LDPE) collected from Australian kerbside bins. It was processed and manufactured by IQRenew in Australia, who also collected and recycled the used satchels back into pellets for remanufacture.

Once returned, garments were sorted, and each item was directed to its best possible next use, whether reuse, or recycling, while the data needed to verify the activity was collected.

Unwearable clothing was processed by BlockTexx, which transformed it into recycled polyester and cellulose, creating new materials for manufacturing and agricultural applications.

A key feature of the pilot was data traceability. Australia Post captured detailed data as garments moved through the circular journey downstream from the consumer. Every item was tracked to its next use, providing transparency and confidence in the system.

The pilot also tested consumer willingness to participate in and pay for such a service. Through A/B testing, customers were offered the satchel, either for free, or at a cost of $5. While uptake was higher when the service was free, the results showed a clear willingness among customers to pay for a convenient and trusted clothing return solution.

Pilot data and outcomes

Project Lead	Australia Post
Partners	1. R.M. Williams – clothing brand 2. REMONDIS - sorting 3. BlockTexx - chemical recycling for clothing textiles 4. iQRenew - satchel manufacturing and recycling
Activity summary	• Clothing collected via postal satchel • Clothing sorted manually • Chemical and mechanical recycling
Objectives	1. Develop and test the functionality of a recycled and recyclable Circular Satchel, including its ability to carry up to 3 kg of clothing and the effectiveness of QR-code-enabled digital traceability through the Australia Post network. 2. Test customer participation and experience through an embedded online checkout offer. 3. Validate operational feasibility across collection, sorting and recycling, and verify reuse and recycling pathways for donated clothing.
Geography	Clothing was collected nationally through the Australia Post network. Clothing was sorted in New South Wales and recycled in Queensland.
Pilot data	• In two weeks, 672 Circular Satchels were sent to customers in every Australian state and territory. • 48% of satchels were distributed to customers in regional locations. • A 15% satchel return rate was recorded within the one-month reporting window. • Manual sorting was undertaken by REMONDIS at its Tomago (NSW) facility and was allocated as follows: 24% reuse (23% recommerce, 1% donation), 49% chemical recycling via BlockTexx, 27% mechanical recycling. • A data-focused sort averaged around 3.4 minutes per satchel (about 30 seconds per garment), capturing each item's physical characteristics, condition and recovery pathway. • A speed sort averaged around 1.6 minutes per satchel (about 18 seconds per garment), focusing on assessment and pathway allocation without recording item-level details, roughly doubling throughput from 120 to 200 garments per hour.
Pilot outcomes	1. **Customers are willing to pay, but free options increase uptake**: Regardless of whether they paid $5 for the service, or received it free, customers engaged with the program and were willing to participate. However, uptake was highest when satchels were free, indicating price influences participation more than service quality. 2. **Return rates take time to fully capture**: A 15% return rate on satchels was recorded within one month, but this likely understates participation, as many customers may return satchels over a longer period.

3. **Simple and flexible collection criteria are essential**: Customers engaged with return declarations but often sent a wider range of items than requested. This reflects real-world behaviour and highlights the need for clear, flexible collection guidelines.
4. **There is a trade-off between data and efficiency in sorting**: Detailed, data-rich sorting provides valuable insights but is slower, while faster sorting increases throughput with less data. Future systems will need to balance these priorities.
5. **Multiple recycling solutions are needed to handle all materials**: A combination of mechanical and chemical recycling is required to process different fibre types and garment conditions. Mechanical recycling can handle a wide range of materials, while chemical recycling supports more specific fibre recovery.

2. Clothing to Construction initiative

Pilot overview

The Clothing to Construction initiative, led by ResourceCo, piloted a supply chain to demonstrate how unwearable clothing can be transformed into high-quality commercial insulation.

Clothing was sourced directly from businesses, with contributions from Shred-X (pre-shredded uniforms), The Sussan Group (unsellable samples) and Salvos Stores (clothing donations that couldn't be sold). These garments were then sorted at Pellenc ST in Western Sydney using automated sorting infrastructure to separate fibres, control material types and colours, and remove contamination, ensuring inputs met the specifications required for insulation production.

The sorted textiles were sent to an experienced partner in Chile, where they were mechanically recycled into thermal insulation specifically designed for Australian commercial and residential buildings. This partner also provided guidance on advanced manufacturing techniques to achieve superior product performance. The insulation is now being assessed against Australian building standards and tested with the local construction industry.

While insulation is just one application, it is particularly well suited to recycled textiles because it utilises mixed fibres. Through controlled blending of cotton, polyester and other fibres, product density can be regulated, insulation properties can be varied, and fire retardance, moisture resistance, and other aspects of product performance can be improved. That's why automated sorting was so important, it ensured that the right clothing properties were being used to create the best possible product, in the most efficient way.


Pilot data and outcomes

Project Lead	ResourceCo
Partners	1. Shred-X - shredding and direct donation 2. Salvos Stores - direct donation of unsaleable clothing 3. Sussan Group - direct donation of aged and damaged inventory 4. Pellenc ST - sorting 5. Procitex - insulation manufacturer 6. Construction partner - insulation procurer
Activity summary	• Material collected from three partners (excess from charity, aged inventory from clothing brand, pre-shredded uniforms) • Automated clothing sorting • Mechanical recycling
Objectives	1. Understand contamination levels, material formats, and characteristics of unwearable textile inputs. 2. Trial automated Near Infrared (NIR) and optical sorting technology to separate textile streams to a defined specification. 3. Manufacture insulation batts from Australian textile inputs that meet Australian construction standards. 4. Validate the commercial model and supply chain assumptions for a future large-scale domestic facility.
Geography	Based in NSW, with international manufacturing of insulation in Santiago, Chile.
Pilot data	• Sorting trials using Pellenc ST NIR and optical sorting technology achieved 2.5 tonnes per hour, progressing toward a 3-tonne target. • Following on from the above, at least five sorting streams are required to reach 95% accuracy, particularly to control the blend of poly-cotton materials. • Working with Procitex in Chile, ResourceCo produced insulation batts from Australian textile inputs, achieving an R2.2 thermal rating.
Pilot outcomes	1. **Direct business-to-business sourcing improves feedstock quality**: ResourceCo used three channels to source unwearable clothing textiles as feedstock: aged and damaged inventory from The Sussan Group, excess stock from Salvos Stores, and pre-shredded uniforms from Shred-X. Sourcing unwearable textiles directly from businesses provided more consistent, traceable and higher-quality feedstock than citizen-facing channels. It also allowed clearer visibility of garment types, volumes and condition. Minimising packaging and non-textile materials further improved efficiency by reducing the need for additional handling and contamination removal. 2. **Automated sorting can deliver high volume and accuracy:** Optical sorting technology achieved high throughput and showed strong potential for large-scale operations. However, accuracy depends on having enough sorting streams to manage fibre blends, and processing whole garments rather than shredded inputs. These factors are critical when designing future facilities and processing workflows.

3. **Thermal insulation is a viable and scalable next market:** Recycled textiles can be used to produce insulation suitable for the construction sector, with performance approaching required standards. This solution has strong potential to scale, with the capacity to absorb significant volumes of recycled clothing textiles in a large market.
4. **Next market requirements shape system design:** Producing consistent, high-quality outputs requires tight control over input materials, particularly fibre composition. This highlights the importance of aligning clothing textiles collection, sorting and processing to the specific requirements of next markets from the outset.
5. **International collaboration can accelerate local capability**: Working with experienced international partners helped fast-track development, reduce risk and build local expertise. It also strengthened industry relationships and demonstrated how global knowledge can support the rapid development of Australian recycling capability.

3. Project ReCarbon

Pilot overview

Project ReCarbon, led by Vital Chemical in partnership with Earth Systems, Georgiou, Textile Recyclers Group and Salvos Stores, piloted an Australian-first circular solution that turned unwearable clothing from construction sites into hydromulch for revegetation.

Hi-vis workwear and everyday clothing were collected through hubs at Georgiou construction sites and offices, then manually sorted. Items still suitable for wear were diverted to Salvos Stores for resale.

Unwearable clothing was processed by Textile Recyclers Group, where non-textile components like buttons and zips were removed for recycling. The fabric was then shredded into feedstock for recycling via pyrolysis. Earth Systems carried out this process, which breaks down textile waste using high heat in a low-oxygen environment. Instead of burning the material, the heat causes the fibres to thermally decompose and transform textile structures into a new carbon product, known as biochar. The biochar was then incorporated into hydromulch for revegetation and returned to the construction sites the clothing came from.

Pyrolysis converted a large volume of unwearables into a much smaller amount of stable carbon, reducing the original volume by up to two-thirds. It largely powers itself using heat generated through the process and can break down contaminants, including chemicals such as PFAS (perfluoroalkyl and polyfluoroalkyl substances) that are often found in workwear.



Pilot data and outcomes

Project Lead	Vital Chemical
Partners	1. Georgiou – construction company hosted clothing collection hubs and hydromulch was also applied back to Georgiou construction sites. 2. Salvos Stores – accepted clothing which was suitable for reuse. 3. Textile Recyclers Australia – textiles shredding. 4. Earth Systems – textile recycling via pyrolysis.
Activity summary	• Clothing collected from construction sites and offices • Manual sorting • Recycling via pyrolysis to produce textile biochar
Objectives	1. Demonstrate that pyrolysis is a viable and commercially scalable method for diverting unwearables from landfill. 2. Generate emissions data to understand compliance requirements for commercial scaling. 3. Activate construction worksites as sites of responsible citizen donation and behaviour change.
Geography	• Clothing collection in Brisbane, North Queensland, NSW and Western Australia • Pyrolysis was carried out in Melbourne • Hydromulch was returned to a construction site in Brisbane
Pilot data	• 70% of clothing collected included high-visibility strips on uniforms and 30% did not • 36% of clothing collected was suitable for reuse and sent to Salvos Stores. The remaining 64% became feedstock for pyrolysis recycling. • 1.5% of the feedstock was rejected due to high contamination.
Pilot outcomes	1. **Workplaces can drive strong donation behaviour:** Construction sites proved effective for collecting uniforms when supported by leadership and clear communication. Simple, on-site messaging and convenient collection points helped normalise donation, although workforce mobility highlights the need for ongoing engagement and accessible options. 2. **Manual sorting enables accurate and flexible outcomes:** A team of 12 Vital Chemical staff were trained by Salvos Stores before sorting the clothing. The trained team was able to sort clothing effectively into wearable and unwearable streams, with further separation by fibre type and end use. Structured processes and supervision supported consistent results and clear pathways for reuse and recycling. 3. **Pre-processing is essential for recycling readiness:** Decommissioning and shredding prepared textiles for recycling by removing hard components and creating a consistent feedstock is essential. These steps are critical to ensure materials can be processed efficiently in downstream systems. 4. **Pyrolysis is a viable solution for complex textile waste:** Pyrolysis successfully reduced textile volumes and handled contaminated materials that are difficult to recycle through other methods. It also offers the added benefit of breaking down harmful substances such as PFAS.

5. **Textile-derived biochar was incorporated into hydromulch:** The project produced Australia's first textile-derived biochar, which was incorporated into hydromulch for revegetation on construction sites.
6. **Agriculture and construction are promising next markets:** Strong potential was identified for biochar use in agriculture, land management and construction. These sectors offer scalable opportunities to absorb textile-derived materials and support low-carbon outcomes.
7. **Clear and timely regulation is critical to scale**: Regulatory approvals were a key challenge and delayed progress. Clear, consistent and timely regulatory pathways are essential to enable wider adoption and commercial use of textile-derived biochar.

4. Circular Take-Back Scheme for Industrial Safety Workwear

Pilot overview

The Circular Take Back Scheme for Industrial Safety Workwear, led by Blackwoods, demonstrated a practical way to recover and reprocess used workwear from some of Australia's most remote industrial sites.

Garments were collected from three mining sites and its Brisbane headquarters, then professionally laundered by Gerrbik Launderer, an Indigenous owned organisation, to meet strict safety standards. This ensured the clothing could be safely handled, sorted without contamination, and directed to the highest-value outcome.

Sorting and preparation took place at Wallara Logistics, creating employment opportunities for people with disabilities. Wearable items were sent to Assembled Threads, where they were de-branded, repaired and redistributed. Assembled Threads also produced upcycled collection bags and managed the ReTread platform, coordinating national redistribution. In total, 2,628 kg of clothing was redirected to charities, Indigenous organisations, farming communities and remote op shops via the ReTread platform.

Unwearable garments were processed by Textile Recyclers Group into recycled fibres for use in yarns and non-woven products such as insulation and stuffing, with 441 unwearable uniforms successfully recycled.

Together, these partners established a viable Australian model for industrial textile recovery, showing how collaboration can deliver circular outcomes at scale.


Pilot data and outcomes

Project Lead	Blackwoods
Partners	• Mining sites – clothing collection • Assembled Threads – debranding, repair, reuse and ReTread platform management • Wallara Logistics – clothing sorting and storage • Gerrbik Launderer - Indigenous owned industrial laundry undertook decontamination • Textile Recyclers Group (TRG) - mechanical recycling • Remote Op Shop – clothing charity
Activity summary	• Clothing collected from mining sites • Manual sorting • Mechanical recycling
Objectives	1. Validate a safe collection system for end-of-life industrial workwear in a high-risk workplace environment. 2. Prove reuse and recycling methods for debranded workwear through social enterprise and charity partners. 3. Test the ReTread platform as an ongoing channel for redistributing aged uniform inventory to charities.
Geography	Clothing was collected from three mining sites in Queensland as well as a Brisbane office. Sorting, repair and recycling was carried out in Victoria.
Pilot data	• 500 garments weighing 272.5 kg were collected from mining sites • 2,382.9 kg of textiles mechanically recycled through TRG • 2,628 kg redistributed through reuse and donation via ReTread • Zero contamination after laundering, confirming effective safety processes • Significant landfill diversion, including 5,283.4 kg avoided emissions
Pilot outcomes	1. **Workplaces can drive strong behaviour change with the right support:** Workplaces proved effective for collecting used uniforms, especially when supported by clear communication, leadership endorsement and incentives. Ongoing messaging, onsite champions and integration into normal routines are key to sustaining participation, particularly in transient workforces. 2. **Collection systems must actively manage safety risks:** Clothing bins can attract hazardous items, making safety a critical design consideration. Sealed bins, clear signage, safe handling protocols and staff training are essential to minimise risks and ensure materials can be processed safely. 3. **Traceability is critical across the value chain:** Gaps in logistics visibility, such as lost bins or unlabelled cartons, highlighted the need for end-to-end traceability. Keeping partners closely connected and embedding tracking systems from the outset improves accountability, reduces loss and strengthens data integrity. 4. **Laundering is essential for safe handling of industrial uniforms:** For contaminated workwear, laundering must occur before sorting or handling. A clear sequence - collect, seal, transport, launder, then sort - is critical to ensure worker safety and should be built into system design, costs and timelines.

5. **Labelling and inventory systems are essential:** Poor labelling of aged stock created significant delays and manual rework. Standardised labelling and digital tracking (for example product or SKU, size, quantity and condition) are essential to enable efficient sorting, redistribution and reuse.
6. **Integrated activities deliver both social and environmental impact:** Collaboration across charities, social enterprises and recyclers enabled a mix of reuse, repair and recycling outcomes. Wearable items were redistributed, while unwearables were converted into non-woven materials, fill, composites and pigments, demonstrating how integrated systems can maximise value and impact.

5. Circular Textiles Yackandandah Pilot

Pilot overview

The Circular Textiles Yackandandah Pilot, led by Stone Hill View, established a small-scale, community-led system for recycling textiles in Yackandandah, a regional town of around 2,000 people in north-eastern Victoria.

Working with the Yackandandah Community Centre, which runs the local Op Shop, the pilot built on existing community habits. Donated clothing was assessed by staff and volunteers, with items suitable for resale kept in circulation locally.

Clothing that could not be resold was diverted for recycling. Items were bagged using a bag-swap approach, stored at the Op Shop, and collected regularly by Stone Hill View for processing.

The unwearable clothing was mechanically shredded at Stone Hill View and turned into filling for new products such as pet beds, cushions and draught stoppers, creating a local loop from donation to remanufacturing.

By keeping collection, processing and remanufacturing within the community, the pilot reduced landfill, avoided transport to distant facilities, and created practical local uses for recycled textiles. It demonstrates a low-cost, replicable model for other small towns with existing Op Shop and local next markets for recycled clothing textiles.



Pilot data and outcomes

Project Lead	Stone Hill View
Partners	The Yackandandah Community Centre (YCC), which operates the town's Community Op Shop, collected and sorted clothing.
Activity summary	• Clothing collected via in store donations to the op shop • Manual sorting • Mechanical recycling
Objectives	1. Test a simple, low-infrastructure collection model using an existing community Op Shop donation point. 2. Establish a local sorting and processing method for non-resaleable textiles. 3. Demonstrate the viability of mechanical shredding as a recycling pathway feeding into locally manufactured products. 4. Document a replicable model for other regional communities.
Geography	Yackandandah, a regional town located in the Hume region of north-eastern Victoria.
Pilot data	• 18% of donations to the local Op Shop were unsaleable and were redirected for mechanical recycling.
Pilot outcomes	1. **Trusted community channels drive strong participation:** Local Op Shops are highly effective collection points. However, many donors drop off all textiles, reinforcing the need for systems that can manage both wearables and unwearables. 2. **Simple sorting works when aligned to end use:** A clear, two-category sorting approach, resaleable or non-resaleable, proved efficient and easy to implement within existing workflows. This simple model worked well because it aligned with downstream recycling requirements and was supported by a quality check process. 3. **Local processing and next markets enable immediate impact:** Unwearables were shredded and used as stuffing in locally made products such as draught stoppers and cushions, creating a local solution. Using existing manufacturing capacity ensured steady demand and demonstrated how regional systems can deliver practical outcomes. 4. **Collection volumes can quickly exceed processing capacity:** Even at a small scale, textile volumes built up faster than expected, creating early storage pressures. This highlights the need to align collection with processing capacity and secure next markets before starting collection activities. 5. **Right-sized infrastructure supports regional delivery:** The shredder technology was effective and easy to operate, but performance can be improved with appropriate infrastructure, such as temperature-controlled environments and access to three-phase power, to support higher throughput over time. 6. **Regional areas should consider tailored, localised solutions**: Regional communities have strong networks and existing infrastructure that can support circular textile systems. Place-based approaches that build on these strengths offer a scalable solution for regional Australia.

6. WA Clothing Recovery Pilot

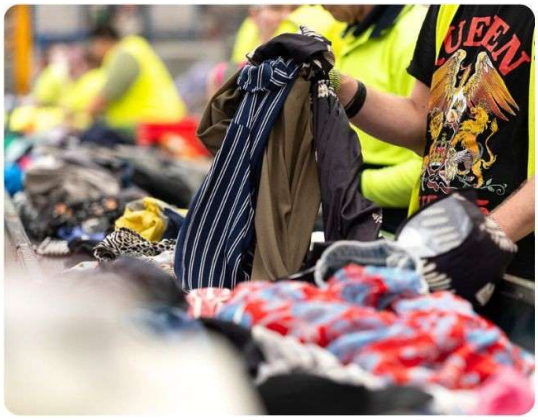
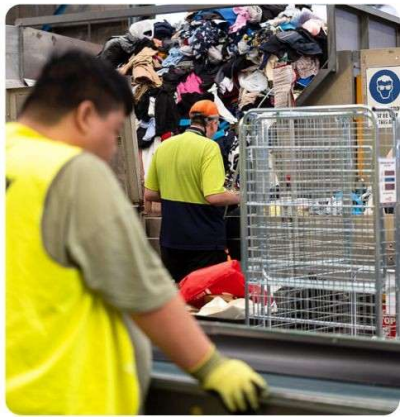
Pilot overview

The WA Clothing Recovery Pilot, led by Good Sammy Enterprises in partnership with local organisations across Western Australia including the City of Kwinana and City of Vincent, trialled a new approach to household clothing collection. Over three weeks, more than 3,000 households donated almost six tonnes of clothing.

Residents were asked to separate items into two categories, wearable and unwearable, using different coloured bags, which were collected via kerbside pickups. All clothing was then sorted at Good Sammy's Perth facility through a manual sorting process with handheld optical devices. Good Sammy managed collection, sorting, garment disassembly and analysis, while supporting local employment for people with disability.

Clothing in good condition was resold through Good Sammy's op shop network, helping fund community programs. Unwearable items were sent to ThreadUp Australia, along with decommissioned uniforms from Stewart & Heaton, where they were converted into fibres for acoustic insulation. Additional materials were also recovered, including zips, which were refurbished by To the Power of You for resale.

By connecting local partners within Western Australia, the pilot created a clear pathway for collecting, sorting, reusing and recycling clothing, keeping materials out of landfill and in use for longer.

Pilot data and outcomes

Project Lead	Good Sammy Enterprises
Partners	1. City of Vincent - local council that managed kerbside clothing collections 2. City of Kwinana - local council that managed kerbside clothing collections 3. To the Power of You - zip decommissioner and reuse operator 4. ThreadUp Australia - mechanical recycler 5. Stewart & Heaton - contributed decommissioned uniforms 6. To the Power of You - recovered and refurbished zips removed from garments
Activity summary	• Kerbside clothing collections from households • Hybrid sorting: manual sorting with hand held optical sorters • Mechanical recycling

Objectives	1. Test kerbside collection as a mechanism for separately capturing unwearable clothing from households. 2. Understand the volume, composition, and characteristics of unwearable clothing in community donation streams. 3. Develop and validate sorting and decommissioning protocols for unwearables. 4. Establish and test downstream recycling for processed fibre.
Geography	Western Australia, with some mechanical recycling carried out in Italy and zip decommissioning in Indonesia.
Pilot data	• Over three weeks, more than 3,000 households donated almost six tonnes of clothes. • Nearly 22% of households took part, more than double the typical participation rate for previous clothing collections. • Most donated clothing could still be worn again, with nearly 80% suitable for resale. • For the items that couldn't be reused, the main issues were heavy staining and worn-out elastic. Less than 1% of these garments were suitable for repair. • Compared with typical donations, unwearable items included higher proportions of children's clothing, menswear and undergarments. More durable items, such as jeans and winter clothing, were less common in the unwearable category. • Uniforms and branded workwear presented a unique challenge. 3% of unwearable clothing were uniforms and branded clothing. While 70% were still in good condition, the presence of logos and personalisation meant they couldn't be reused. • 4,000 kg of decommissioned workwear was prepared as feedstock and sent to a partner in Italy for remanufacturing into acoustic batts for soundproofing, with an estimated 1,900 batts to be produced weighting 2.1kg each.
Pilot outcomes	1. **Kerbside clothing collection drives strong participation:** Kerbside collection proved highly effective, with strong household participation and a "neighbour effect" boosting engagement. Simple design choices, such as well-timed collections and practical bag options, improved results. However, this approach is resource-intensive and best paired with always-available drop-off options for long-term scalability. 2. **Households donate a mix of wearable and unwearable items:** Donation streams included a significant share of unwearable clothing, particularly items prone to wear such as children's clothing, menswear and undergarments. This highlights the need for systems that can manage mixed-quality inputs rather than relying on accurate pre-sorting by households. 3. **Existing charity networks are important:** Charitable reuse organisations provide a ready-made, trusted network for collecting large volumes of textiles. Building unwearable clothing pathways into existing systems can offer a cost-effective way to expand collection without creating new infrastructure. 4. **Manual sorting is effective and adaptable:** Experienced manual sorters delivered strong throughput while managing complex decisions about condition, fibre type and end-use. This flexibility makes manual sorting an important capability, particularly where nuanced judgement is required.

5. **Optical sorting improves fibre identification with limitations:** Handheld optical sorting technology supported fibre identification across different settings, but has constraints, particularly with complex fibre blends, natural fibre differentiation and item-by-item scanning. Its value is highest where fibre accuracy is critical to downstream processing.
6. **Decommissioning unlocks material value but needs local solutions:** Removing trims and hardware improved material recovery and feedstock quality, with many garments requiring minimal intervention. While recovering components such as zips does provide benefits, offshore processing reduces environmental gains, highlighting the need for domestic capability.
7. **Uniforms require dedicated handling methods:** Branded workwear is often in good condition but difficult to reuse due to branding. These items require specific decommissioning and recycling methods.
8. **Simple repurposing captures immediate value:** Cotton-rich textiles were effectively repurposed into industrial rags using existing processes, providing a reliable, high-volume outlet that directly replaces virgin materials and demonstrates the value of repurposing textiles.
9. **Mechanical recycling enables large-scale next market applications**: Unwearable textiles were successfully processed into fibre acoustic insulation. This demonstrates strong potential for applications in the construction sector and highlights that mechanical recycling is effective for diverse clothing textiles streams.

7. Sort for Good pilot

Pilot overview

The Sort for Good pilot, delivered by SCRgroup in partnership with Reground, RMIT University and WRAP Asia Pacific, tested a dual-stream clothing collection system across multiple channels. People were asked to separate wearable items from unwearable items at the point of donation, supported by clear messaging and dedicated collection infrastructure.

Running from October 2025 to January 2026, the pilot operated across three channels: eight outdoor donation hubs in Sydney and Melbourne; collection of excess charity stock in Swan Hill and Kerang in regional Victoria; and a kerbside trial in the Macedon Ranges In Victoria, serving around 2,500 households.

This mix of locations and collection methods provided a strong test of how people sort clothing in different contexts. Clothing was then sorted by SCRgroup and directed to appropriate pathways, including mechanical recycling into yarns and non-woven textiles, as well as energy recovery.

Pilot data and outcomes

Project Lead	SCRgroup
Partners	1. Reground - community engagement, communications and education 2. RMIT University - research leadership 3. WRAP Asia Pacific - evaluation framework and international benchmarking 4. AusLoop – supported offshore fibre-to-fibre recycling trials
Activity summary	• Collections: outdoor donation hubs, kerbside collections, excess stock from charities • Manual sorting • Mechanical recycling
Objectives	1. Test whether citizens can accurately separate wearable and unwearable clothing at the point of donation when supported by clear infrastructure and instructions. 2. Understand the volume, composition, and characteristics of unwearable textiles across multiple collection channels. 3. Develop and validate sorting criteria and protocols for wearables and unwearables. 4. Establish downstream pathways for sorted material including domestic reuse, offshore reuse, and recycling.
Geography	Eight outdoor clothing donation hubs were installed across metropolitan Sydney and Melbourne. Excess charity stock was collected in Swan Hill and Kerang in regional Victoria. And a kerbside collection trial took place in the Macedon Ranges in Victoria, serving around 2,500 households. Clothing was sorted in Australia and Malaysia and mechanical recycling took place in India.
Pilot data	• When donations were assessed, around 20-52% of unwearable items were placed in wearable bags and 25-44% of wearable items were placed in collection points for unwearable clothes. • Australian project partners processed 1.1 tonnes over two days in Melbourne, equivalent to 6 kg per hour, while two skilled sorters in Malaysia processed one tonne in seven hours, equivalent to 148 kg per hour.

Pilot outcomes

1. **Existing collection systems can scale to include unwearables:** The pilot collected large volumes of clothing across kerbside, donation bins and directly from businesses, showing that established collection infrastructure can be readily adapted to capture unwearables when channels are clearly defined.
2. **Citizen sorting is inconsistent and varies by channel:** Sorting accuracy ranged widely, with frequent misclassification between wearable and unwearable items. Kerbside performed best, while donation bins saw higher error rates, highlighting the need for stronger upfront education and system-led quality control.
3. **Workforce capability is a key constraint for onshore sorting:** Manual sorting rates in Australia were significantly lower than experienced offshore operations, underscoring the need to build a skilled, trained sorting workforce to support efficient processing in Australia.
4. **Sorting can support circular design education:** Hands-on sorting gave participants direct insight into how design choices affect end-of-life outcomes. This practical experience has potential as a training tool to inform better circular design practices.
5. **Limited and costly onshore recycling capacity remains a barrier:** Access to recycling operators in Australia was constrained and expensive, while operators located outside Australia offered a viable commercial alternative. Developing competitive onshore recycling capacity is critical to reduce reliance on exports.
6. **Remanufacturing demonstrates creative potential:** Unwearables were successfully remanufactured into new garments using innovative techniques such as ultrasonic welding, demonstrating the potential for design-led outcomes for unwearable clothing.

Pilot data summary

Seven pilots were delivered across metropolitan and regional Australia to test different ways to collect, sort and recycle unwearables, and investigate what is required to develop a coordinated national clothing collection, sorting, reuse and recycling system.

Each pilot was required to provide milestone updates, a final report, a standardised data sheet and supporting evidence such as photographs, technical documents and laboratory reports where applicable. These materials were supplemented by notes from site visits, milestone meetings, sector events, and an online learning forum. Together, they provided the data for analysis.

In less than three months, the pilots collected and sorted nearly 31 tonnes of clothing. Thirteen tonnes of unwearable items were transformed into eight new products, including acoustic and insulation panels, hydromulch for revegetation, and filling for homewares like pet beds, cushions and draught stoppers.

Figure 7 summarises the data from all of the pilots.

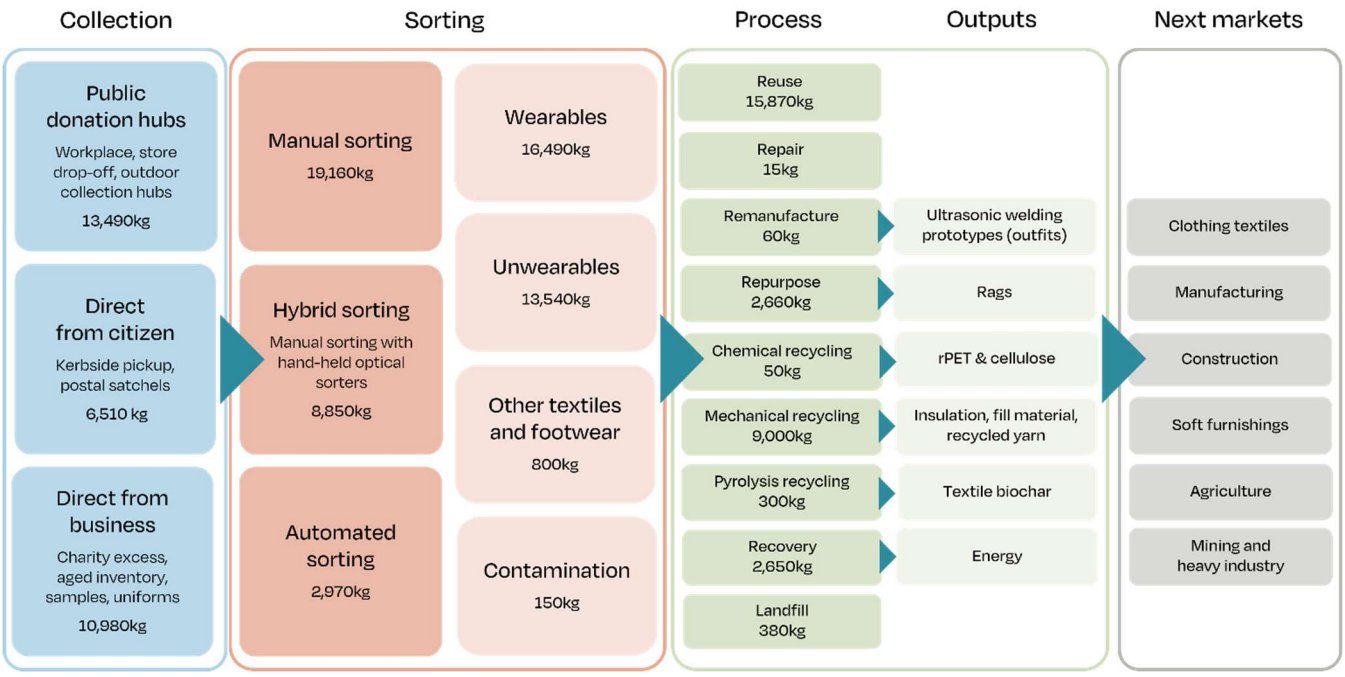


Figure 7: Summary of data from all pilots

Consolidated activity data

The following tables summarise the data from all pilots across each activity, from clothing collection, sorting and processing through to recycling and next market outputs.

Together, the pilots collected nearly 31 tonnes (30,980 kg) of clothing. 53% of clothing collected (16,490 kg) was wearable, 44% (13,540 kg) was unwearable, and the remaining 3% of items collected weren't clothing.

Table 2: Clothing collection channels	
Method	**Quantity**
Donation hubs in workplaces	Total for collection hubs: 13,490 kg
Donation hubs in charity stores	
Public collection hubs	
Kerbside collections	Total for household collections: 6,510 kg
Postal satchels	
Donations from businesses	Total collections from businesses: 10,980 kg
Reuse operations redirecting stock	

Table 3: Clothing sorting methods	
Method	**Quantity**
Manual sorting	19,160 kg
Hybrid: manual sorting with hand held optical sorters	8,850 kg
Automated sorting	2,970 kg

Table 4: Where clothing was sorted to	
Category	**Quantity**
Wearable clothing distributed to partners including clothing charities	16,490 kg
Unwearable clothing was sent for recycling	13,540 kg
Non-clothing including household textiles (for example, sheets and towels) and footwear	800 kg
Contaminated waste	150 kg

Table 5: How clothing was processed	
Category	**Quantity**
Sent for reuse to be worn again	15,870 kg
Repaired	15 kg
Remanufactured into a new outfit that featured on the runway at PayPal Melbourne Fashion Festival 2026	60 kg
Repurposed as rags	2,660 kg
Chemically recycled	50 kg
Mechanically recycled	9,000 kg
Recycled using pyrolysis, a process that breaks down textile waste using high heat in a low-oxygen environment	300 kg
Textiles were incinerated and energy was recovered	2,650 kg
Sent to landfill	380 kg

Table 6: Recycled clothing textiles outputs
Thermal insulation panels for residential and commercial construction in Australia
Acoustic insulation panels for internal walls and sound proofing
Stuffing for locally made products such as pet beds, cushions and draught stoppers
Medium-grade non-woven fibre for carpet underlay
rPET pellets that can be respun into recycled-polyester fibre, and micro-crystalline cellulose
Textile biochar incorporated into hydromulch for revegetation
Rags to be used for cleaning and maintenance in automotive, mining, construction industries and more
Remade into an outfit that featured on the runway at PayPal Melbourne Fashion Festival 2026

Table 7: Next markets for recycled textiles
Clothing textiles
Manufacturing
Construction
Soft furnishings
Agriculture
Mining and heavy industry

Onshore and offshore delivery

Australia's circular clothing economy is closely linked to global supply chains. Most pilots took place in Australia. However, three of the seven pilots also used organisations based outside Australia to deliver solutions, either because these arrangements are already in place or because local capability is not yet available at scale. Four pilots were fully delivered onshore. Only onshore activities were funded by the program.

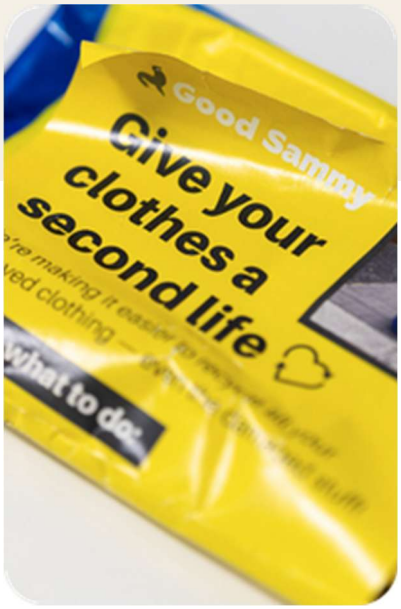
Two pilots worked with overseas partners to turn mechanically recycled clothing into thermal and acoustic insulation. Processed Australian clothing textiles were sent to specialist facilities in Italy and Chile, where production already operates at scale. This allowed partners to test product performance, understand technical requirements, and compare against global best practice. The insulation prototypes were then returned to Australia for further testing.

Another pilot partnered with facilities in Malaysia and India. After clothing was initially sorted in Australia, it was sent to Malaysia for high-volume professional sorting. This provided useful data comparisons on capacity, speed and processes. Materials were then directed to reuse, rags, recycling or energy recovery outside Australia. In India, partners mechanically recycled textiles into fibres for yarns and non-woven products, supported by established large-scale spinning capability. Another pilot collaborated with a partner which operates in Australia and Indonesia. This partner undertook zip decommissioning in Indonesia. In total, 5,640 kg of clothing textiles from the pilots remained offshore, which was 18% of the clothing collected.

Transparency and traceability often decrease as materials move offshore, making it harder to verify environmental and labour standards. The pilots show that Australia can learn from international best practice while building local capability. Priorities include improving domestic sorting, expanding remanufacturing in Australia, and working with global partners to strengthen traceability and material transparency. Figure 8 shows the pilot activities that occurred in Australia, and outside Australia.

Figure 8: Locations where pilot activities occurred

Pilot outcomes



Five key outcomes relating to how unwearable clothing can be collected, sorted and recycled in Australia have been identified. These outcomes are informed by the pilot data and supported by insights from reports, site visits and forums. Together, they show how citizens behave, how collection systems perform, and what is required to develop a national clothing system.

Key outcomes

Five key outcomes from the pilots are provided here.

1. Citizens are willing, but quality control must sit with the system

The pilots showed strong public willingness to dispose of unwearable clothing responsibly. Nearly 31 tonnes of clothing was collected by the pilots in three months through donation hubs in public-facing settings like charity stores and workplaces, as well as kerbside collections and postal satchels. This demonstrates clear engagement when convenient collection options are available.

However, quality control cannot rely on citizens alone. Trials that asked people to separate wearable and unwearable items at the point of donation saw misclassification rates of 20–50% when checked by professional sorters. Contamination was also present, with 3% of items collected including non-clothing items such as sheets, towels, toys and books. The pilots showed that sorting decisions are subjective and influenced by time, knowledge and context.

Overall, citizen engagement is a clear strength, but quality control must be managed through sorting and pre-processing within the system.

2. Collection can increase but the system is only effective if next markets are in place

The pilots confirmed that large volumes of clothing can be collected quickly across multiple channels, including donation hubs, household collection and business-to-business streams. In total, nearly 31 tonnes of clothing was collected through these channels in three months. Each channel plays a role, with business-to-business channels particularly effective for capturing items in bulk, like uniforms and samples.

A key enabler was having recycling partners ready to receive and process materials. This reduced storage time, maintained feedstock quality and avoided stockpiling. Strong next market demand for recycled clothing textiles also helped shape what was collected and sorted. The findings show that effective systems rely on having recycling capacity and committed next markets ready from the outset, so clothing textiles flow through the system.

3. Sorting is the control point and must align with next markets

Clothing sorting is the control point and must be aligned with the requirements of recycling and next markets. Across the pilots, all collected material was sorted using manual or automated approaches, or a hybrid approach, where manual sorting was assisted by technology such as optical sorters.

Existing clothing sorting systems in Australia focus on reuse and prioritise the ability of a garment to be resold. However, sorting for recycling requires different criteria, such as fibre composition, decommission requirements and contamination levels. When these requirements were clearly defined, materials were directed to appropriate pathways. When they were not, more material was diverted to lower value uses.

Different sorting approaches serve different functions: manual sorting supports judgement-based decisions, while tech-assisted and automated sorting improve throughput and fibre identification. An effective system matches the sorting approach to the intended textile output and related recycling specifications.

4. Open-loop recycling is an immediate solution

Open-loop recycling is the process of recycling clothing textiles into new, different products for use outside the clothing industry such as insulation, rags or stuffing for furniture. Closed-loop recycling is the process of recycling clothing textiles into new products that are the same type and quality as the old ones, such as when textiles are recycled into new yarns that are reused to make clothes again.

Open-loop recycling can accept a wide range of blended fibres and garments in varying condition, as they have less strict feedstock purity requirements than closed-loop recycling. This means they can process a large share of unwearables.

In comparison, closed-loop, or fibre-to-fibre recycling, was achieved at much smaller volumes in the pilots, reflecting more stringent feedstock requirements and processing complexity. While markets are still developing, closed-loop recycling remains an important solution for the future to reduce reliance on virgin materials, and associated emissions.

5. Next market development and policy are essential for a functional circular system

The pilots showed strong potential for using recycled clothing textiles across multiple sectors, including construction, soft furnishings, manufacturing and agriculture. These markets already exist and could be stimulated to use more Australian recycled clothing textiles.

An effective national clothing system will require stronger demand for recycled textiles; investment in capability and infrastructure for sorting, recycling and remanufacturing; and supportive measures and policy settings across the product lifecycle. These measures include circular procurement policies for uniforms, as well as eco-modulated stewardship fees for products which are made from renewable, recycled or safe materials and designed for high value recycling.

Outcomes for pilot activities

Outcomes for each pilot focus area - collection, sorting, pre-processing, recycling and next markets - are explored here in detail, along with supporting data and examples. These are informed by the data and outcomes from each pilot provided earlier in this report. Together, these outcomes informed the five key outcomes in the previous section.

Clothing collection

As reported earlier in this document, together, the pilots collected nearly 31 tonnes (30,980 kg) of clothing through three collection channels, across different contexts:

1. Donation hubs in workplaces, charity stores, and public precincts.
2. Collections direct from citizens via kerbside and postal satchels.
3. Donations from businesses including clothing and uniform brands and reuse operators redirecting unsaleable or unwearable stock.

Detailed outcomes from clothing collection activities are:

1. Build on existing infrastructure and trusted services

Collection is most effective when it uses systems people already know and trust, such as charity networks, workplaces, public donation hubs, postal services and kerbside services. Integrating the collection of unwearable clothing into these channels reduces cost and complexity, while leveraging existing behaviours and logistics. This approach also creates opportunities for brands and retailers to play a more active role in end-of-life responsibility.

2. A mix of collection channels is most effective

No single channel can capture all clothing. The pilots showed that a combination of citizen-facing and business-to-business channels works best, with each playing a different role. Tailoring this mix to local context, user behaviour and material type is key to maximising collection volumes and system performance.

3. Collection requires active management and user-centred design

Effective collection required more planning and operational effort than some pilots anticipated. High participation can quickly create pressure on storage and logistics if not well managed. Channels used by everyday Australians in the community also experienced greater risks of contamination and the collection of non-clothing items such as household goods. Clear signage, simple instructions and intuitive design help reduce contamination, while accountability measures and ongoing operational support can further improve outcomes. Notably, collection channels requiring citizens to physically present items in-store, or to have their identity linked to a donation, produced more suitable donations.

4. Citizen sorting is helpful but not reliable

Two pilots that together collected 16 tonnes of clothing, asked Australians to sort their wearable and unwearable clothing at the point of donation. While this pre-sorting can be useful, an analysis of the clothing received found that between 20% and 50% of donated garments were classified incorrectly. The pilots showed that sorting decisions are often subjective and influenced by time, knowledge and context. Citizen sorting is useful, but quality control must be managed through sorting and pre-processing within the system. In the future, when pathways for unwearables are operational, education campaigns will be required.

5. Collection must be aligned with downstream capacity

Collecting unwearable clothing is not yet standard practice, and current systems are not set up to support it. Clothing volumes can grow quickly once the right infrastructure and education are in place, and collection must be designed as part of a connected system, not in isolation. Clothing collection must be closely aligned with sorting, recycling and next market demand. When these elements are well coordinated, material flows efficiently through the system. When they are not, stockpiling, quality loss and operational risks increase.

Sorting and pre-processing

As reported earlier in the document, the pilots sorted nearly 31 tonnes (30,980 kg) of clothing using three approaches: manual sorting by paid staff, supported employees and volunteers; automated sorting with machinery; and a hybrid approach with employees manually sorting clothing using hand held optical sorters.

In addition, pilots carried out pre-processing to prepare clothing for its next use. This included removing trims like buttons and zips, as well as cutting, cleaning or bundling materials. These steps ensure textiles meet the requirements of reuse, recycling or other recovery pathways. Outcomes from clothing sorting and pre-processing activities are:

1. Manual sorting can be highly effective

Manual sorting by trained workers delivered consistent and reliable results across the pilots. Pilots which used professional sorters were able to sort 100kg to 140 kg of clothes per hour. This enabled accurate separation of wearable and unwearable items, as well as more detailed decisions about condition, fibre type and processing needs. These roles are typically entry-level and can support inclusive employment, but require clear training aligned to next market requirements to ensure consistent outputs.

2. Decommissioning is essential and varies by pathway

Decommissioning clothing such as removing zips, buttons and other components is often necessary to prepare textiles for recycling, but the level of effort varies. Many garments require little or no decommissioning, while others need more complex disassembly. Two pilots examined decommissioning requirements in detail for unwearables. Their analysis showed that 40% - 60% of unwearables required no decommissioning, less than half required simple decommissioning such as removing one or two trims, and a small amount required more complex decommissioning. Requirements differ across recycling solutions, so standards must be developed in partnership with recyclers, and aligned to specific processing needs.

3. Technology improves speed and precision, but must be applied appropriately

Automated and technology-assisted sorting can significantly increase throughput and improve fibre identification, particularly where high material precision is required. However, their value depends on the recycling method. In some cases, additional technology adds cost without clear benefit, so it should be applied where it directly improves outcomes.

4. Sorting for recycling requires different skills and systems than sorting for reuse

The pilots showed that sorting clothing for recycling is different from sorting for reuse. While reuse focuses on garment condition and resale value, recycling depends on understanding fibre composition, contamination tolerances, decommissioning needs and the feedstock requirements of each method. Existing training and processes need to be adapted. Pilots that involved recyclers in setting sorting criteria and delivering training saw better results, with outputs more closely matched to recycling needs and less material misdirected. Overall, the findings highlight the importance of developing recycling-specific sorting criteria in partnership with recyclers, providing training that explains why these criteria matter, and designing sorting systems that are detailed enough to meet technical requirements while remaining practical.

5. Existing sorting technologies can be adapted to accelerate textile recycling

The pilots showed that existing Australian sorting technologies can be adapted to support clothing textiles. For example, an automated machine originally designed for paper and cardboard was reprogrammed to sort textiles, demonstrating how current systems can be repurposed to close the gap between today's capabilities and what is needed for scale. At the same time, emerging technologies are expected to further improve fibre identification, traceability and sorting efficiency. Unlocking this potential will require targeted investment in technology, infrastructure, workforce capability and system design, with a strong focus on adaptability so sorting systems can continue to evolve alongside changing technologies and recycling processes.

6. Accurate garment labelling is important for effective sorting and recycling

The pilots showed that technologies such as NIR and other fibre-identification tools can detect inconsistencies in garment labelling, revealing cases where fibre content was incorrectly recorded. Because both manual and technology-assisted sorting rely on accurate fibre information to direct items to the right recycling pathway, mislabelling creates uncertainty and reduces sorting effectiveness. This highlights an opportunity. Improving the accuracy of garment labelling at production would strengthen sorting outcomes, reduce reliance on technology to correct errors, and support more reliable and efficient recycling.

Recycling

Recycled clothing textiles outputs

The pilots used a range of recycling and recovery methods to turn unwearables into new products and outputs:

1. **Remanufacturing into ultrasonic welding outfits**: Clothing textiles were transformed into new garments using ultrasonic welding, which fuses fibres without stitching or added trims. This approach preserves material quality and demonstrates the potential for design-led outcomes for unwearable clothing.

2. **Repurposing into rags**: Suitable textiles were converted into industrial wiping cloths. This is a simple, proven solution that creates a stable, high-volume product for sectors like automotive, construction and mining.

3. **Chemical recycling into cellulose and rPET**: Polyester–cotton textiles were chemically recycled into PolyTexx®, a recycled PET pellet, and CellTexx®, a microcrystalline cellulose. These outputs can be used in new clothing production, such as polyester yarns and buttons, as well as land management applications, such as hydromulch and dust suppressants. They show early potential for fibre-to-fibre and material recovery.

4. **Mechanical recycling into thermal insulation**: Mechanical recycling technology was used to make a batch of thermal insulation panels specifically designed for the local construction industry, offering a scalable, lower-emissions alternative to virgin materials.

5. **Mechanical recycling into acoustic insulation**: Industrial workwear and other unwearables were processed into fibre for acoustic insulation products for soundproofing in commercial and residential buildings. This demonstrates that recycled textiles can meet technical requirements in construction applications.

6. **Mechanical recycling into fill**: Shredded clothing textiles were used as stuffing for products such as cushions, pet beds and draught stoppers. This solution can handle a wide range of materials and replace virgin inputs without compromising performance.

7. **Mechanical recycling into recycled yarn and non-woven textiles**: Higher-quality fibres were respun into coarse yarns for industrial textiles, while shorter fibres were used in non-woven products like carpet underlay and mattress padding. This solution retains material value across these new textile applications.

8. **Pyrolysis into biochar**: High visibility (hi-vis) workwear from Australian construction sites, and unwearables were converted into textile biochar using advanced pyrolysis technology. The biochar was then incorporated into hydromulch for revegetation and returned to the construction sites the clothing came from.

9. **Energy recovery**: Low-grade or heavily contaminated textiles were used to generate energy. While a last-resort option, it reduces landfill and provides a controlled outcome for materials that cannot be otherwise processed.

Figure 9: Recycled clothing textiles outputs from pilots

Top row left to right: thermal insulation, stuffing for household products, hydromulch for revegetation
Bottom row left to right: repurposed rags, recycled polyester and cellulose pellets, new garment created with ultrasonic welding

Recycling outcomes

Outcomes from clothing recycling activities are:

1. Wearability is complex in practice and requires flexible sorting and recycling decisions

While the Seamless circular clothing definitions[2] provide a useful starting point for distinguishing between wearable and unwearable clothing, the pilots show that this distinction is more complex in practice. Mis-sorting rates of unwearables by citizens of 20% - 50% reported in the pilots, reflect genuine complexity. Additionally, some unwearable items can be repaired or remanufactured to become wearable again, while wearables with low resale value may be better directed to high value recycling solutions.

This has important implications for system design and feedstock security. Future systems need to support practical, flexible decisions at scale, rather than treating wearability as a simple either/or classification. It also highlights the need to reduce reliance on offshore markets for low-grade wearables, which are increasingly vulnerable to supply chain disruptions and growing scrutiny around transparency and environmental performance.

[2] Seamless circular clothing definitions: Commonly used terms for the Australian circular clothing economy (December 2025)

2. Unwearable textiles are valuable resources

The pilots demonstrated that unwearable clothing can be successfully recycled into a wide range of useful products. With the right processes and partners, these materials can become a reliable and valuable feedstock for multiple industries, rather than a waste stream.

3. Recycling pathways have different requirements

Each recycling pathway has specific requirements for fibre type, contamination and pre-processing. The pilots showed that clearly defined, pathway-specific criteria developed with recyclers, are essential to ensure materials are processed effectively.

4. Open-loop recycling is the most effective starting point

Open-loop recycling, such as mechanically recycling textiles into insulation and fill, handled the majority of unwearables and operated well with blended fibres and mixed garment conditions. This shows that focusing on open-loop solutions is a practical starting point to build volume, infrastructure and market demand. At the same time, improvements in design for recyclability, accurate labelling and targeted investment in local recycling technologies will be needed to support more advanced closed-loop outcomes, allowing a growing share of textiles to move towards fibre-to-fibre recycling as the system develops.

Next markets

Next markets are the sectors and applications that take recycled textile outputs and put them back into productive use. The pilots showed that recycled outputs can be used across multiple sectors including clothing textiles, manufacturing, construction, soft furnishings, agriculture, mining and heavy industry. These applications were demonstrated at both national and regional scale, from a small-scale, community-led system in regional Victoria, through to larger industrial and construction applications.

1. Unwearables can be remanufactured into products for multiple next markets

The pilots showed that unwearable clothing can be remanufactured into outputs for a diverse range of markets, demonstrating clear pathways for re-entering the economy. These include thermal and acoustic insulation for the built environment, textile biochar for revegetation in agricultural applications, stuffing for soft furnishings, rags for manufacturing, mining and other heavy industries, and remanufactured garments and fibre-to-fibre outputs for new textile applications. Together, these examples show that with the right processes and market connections, recycled textiles outputs can support both large-scale commercial uses and regional solutions.

2. Committed next market partners are needed from the outset

Pilots with committed recycling and next-market partners in place before clothing collection started were more effective, and helped to manage material flows, maintain feedstock quality and avoid stockpiling. Also, where next-market partners were in place from the outset, their feedstock requirements informed sorting and processing decisions, creating better alignment across the value chain, from collection through to output.

3. Viable next markets exist, but require market development and policy support

Viable next markets for recycled textiles are emerging across sectors such as construction, agriculture, manufacturing and mining, but most are at an early stage. Moving from pilot to routine use will require deliberate market development, including longer trials to test products in real-world conditions, confirm performance and build confidence in consistent supply. Achieving scale will also depend on targeted policy and investment, including demand-side measures like recycled content targets and procurement policies; supply-side investment for infrastructure and trials to help reduce risk for early commercial projects; and product stewardship mechanisms and eco-modulated levies that incentivise design for recyclability and provide ongoing funding for coordination, standards and next markets growth.

4. An independent transition broker is needed to connect next markets

The pilots highlighted the need for strong system coordination to connect clothing collection, sorting, recycling and next markets. In particular, aligning stakeholders around shared quality standards, feedstock specifications and traceability processes requires a trusted, independent body. The lack of consistent standards and accreditation was also identified as a barrier to market confidence and commercial investment. As the national clothing stewardship organisation, Seamless is well positioned to act as the system coordinator or 'transition broker' to bring together organisations across the clothing value chain and develop shared standards, accreditation pathways and market intelligence.

Limitations of the outcomes

The pilots show that onshore processing capacity, skills and market opportunities already exist and can be expanded. However, the pilots were limited in scale, scope and geography due to time and funding constraints. As a result, the outcomes are not fully representative of all potential clothing pathways and next markets for Australian recycled clothing textiles. Limitations include:

- Limited pilot activity in northern Australia, where remote communities face unique logistics challenges.
- Limited or no participation from specific channels and sectors, including some clothing collection channels such as shopping centres, commercial reuse operators, industrial laundries and emerging recycling technologies such as enzymatic recycling.
- A short delivery timeframe for pilots, which limited testing of seasonality, long-term performance and sustained citizen engagement and education.
- Pilot-stage economics, where smaller volumes and grant funding do not reflect true commercial costs.

These findings should be viewed as insights into current practices and constraints, rather than definitive measures of a mature coordinated national clothing system.

Despite these limitations, the pilots make an important contribution to the evidence for change. They help address key data gaps and improve understanding of recycling capacity, sorting capability and the composition of unwearable clothing in Australia.

What's next

The pilots were an opportunity to test different ways to collect, sort, process and recycle unwearables, and investigate what is required to develop a national clothing system. They inform a set of principles, requirements and performance criteria for future system design.

Importantly, decisions should start with the end use in mind, ensuring that clothing collection, sorting and processing are designed to meet the needs of reuse, recycling and next markets for Australian recycled clothing textiles.

Designing and assessing a national clothing system

Principles for future system design

The pilot data and outcomes inform four core principles to guide how clothing pathways that divert textiles from landfill can be designed and assessed. These principles consider the volume of clothing diverted, as well as the value of clothing resources, social impact and long-term viability.

1. **Material efficiency through highest use**: Keep clothing in use as long as possible through reuse, repair and resale. When items are no longer wearable, maximise material quality so they can enter the highest-value recycling pathways before lower-value recovery or disposal.

2. **System scalability and fit**: Solutions must scale beyond pilots and work as part of a national system. No single solution will suit all clothing, materials or regions, so approaches must be adaptable and build on existing infrastructure and capabilities.

3. **Economic viability**: Solutions must be financially and commercially sustainable. Long-term success depends on viable business models and stable demand for recycled clothing textiles and products.

4. **Environmental and social value**: When assessing solutions, consideration should be given to the volume of clothing diverted from landfill, emissions reduction, waste avoidance and safe material handling, alongside social benefits such as job creation, inclusive workforce participation and community impact.

Seamless has used these principles to develop a structured assessment approach for future clothing pathways, helping guide funding, incentives and system design.

National clothing system requirements

The pilots help us to understand what needs to be in place to build an effective coordinated national clothing system. These requirements focus on enabling consistent clothing collection, efficient sorting and viable markets for reused and recycled clothing textiles.

The proposed requirements for a national clothing system and their weightings are provided in Table 8 below.

Table 8: Proposed requirements for an effective coordinated national clothing system

System requirement	Weighting	Action needed
Environmental and social impact Clothing diverted from landfill, emissions reduction, waste avoidance and safe material handling, alongside social impact such as job creation and inclusive workforce participation.	25%	Develop, measure and embed environmental and social outcomes. Use these in scheme design, pathway assessment and, over time, in the design of rebates or other economic incentives so that environmental and social impact outcomes are recognised and rewarded.
Market readiness Sustainable next markets for clothing textiles with stable demand exist.	20%	Invest in and stimulate next markets for clothing textiles in Australia through procurement policy settings, recycled content requirements, investment in infrastructure and innovation and mandatory clothing stewardship.
Capacity Handle increasing volumes of unwearable clothing that is destined for landfill.	15%	Invest in and expand infrastructure across Australia, including regional areas, to handle growing volumes across clothing collection, sorting and recycling.
Capability Availability and suitability of skills, standards, technology and infrastructure to sort and process clothing textiles in Australia.	15%	Build workforce skills and invest in clothing sorting technology, supported by clear sorting and processing standards that are co-developed with recyclers and remanufacturers.
Integration Aligned clothing collection, sorting, reuse, recycling and next market requirements across the system.	15%	Design systems with end-to-end integration, ensuring clothing collection and sorting aligns with reuse, recycling and next market requirements. Standardise data, metrics and reporting across the clothing supply chain for accurate benchmarking and measurement.
Compliance Clear regulation, targets, consistent data and reporting frameworks.	10%	Establish a clear regulatory framework with defined targets, mandatory participation and compliance mechanisms. Standardise data definitions and reporting and embed data and audit requirements into scheme rules and funding arrangements.

Building a decision-making framework

To assess future clothing solutions including the infrastructure and policy settings required, and to understand their ability to handle increased volumes if Australia's circularity rate doubles[3], consistent data and insights are needed across three areas:

- **Quantitative data**: such as clothing volumes, contamination rates, yields, recycled content and emissions.
- **Qualitative insights**: such as capability, readiness and policy alignment.
- **Risk factors**: such as dependencies (including on export markets and international supply chains), potential bottlenecks and regulatory uncertainty.

Bringing these principles and requirements together into a practical assessment framework will help to compare options and guide decisions. It will help ensure that future decisions are based on the amount of clothing textiles diverted from landfill, as well as whether solutions are scalable, coordinated, viable and able to deliver strong environmental, economic and social outcomes.

Extending the Fund

While the pilots achieved the Fund objectives, their impact was limited by time and funding. Delivering additional rounds will accelerate investment in local clothing collection, sorting, recycling and remanufacturing, while strengthening Australia's domestic capability. Priority areas include:

- Remote and regional pathways: trial collection, sorting and recycling models in remote and very remote communities, where logistics and service access differ from metropolitan areas.
- New settings and technologies: test under-represented channels and partners such as shopping centres, commercial reuse operators, industrial laundries and emerging recycling technologies.
- Pre-processing standards: further define and test steps like clothing decommissioning and contamination removal, including cost and workforce requirements.
- Longer pilots: run extended trials to better understand seasonality, long-term performance, sustained participation, how citizen behaviour changes over time, and how efficiencies emerge as volumes scale.

Together, the pilot data and outcomes provide a practical foundation for designing a coordinated national clothing system for Australia. They show that effective solutions depend on aligning collection, sorting and processing with clear next market demand, supported by consistent principles, measurable system requirements and a shared evidence base for decision-making. Future rounds of the Fund would strengthen this evidence base, test system performance under more diverse conditions, and accelerate the transition from successful pilots to a functioning national system that keeps clothing in use for longer and out of landfill.

[3] Australia's Circular Economy Framework, includes an Australian Government target to double Australia's circularity rate by 2035.

Proposed performance criteria

Effective stewardship schemes are built on assurance, transparency and measurable progress. This gives the public and industry confidence that collective action is reducing product impacts, contributing to a circular economy and maximising the value of products and material streams.

The Productivity Commission report 'Australia's circular economy: unlocking the opportunities'[4] recommends that the clothing industry adopt clear performance criteria to benchmark and track progress towards a circular clothing economy in Australia.

Data and outcomes from the pilot projects have been used alongside existing research such as the Seamless 2024 National Clothing Benchmark for Australia[5], and reports such as, 'Next markets for unwearable clothing textiles' to inform this proposed performance criteria.

The proposed performance criteria are outlined in the 'Evidence for change' report.

[4] 'Australia's circular economy: unlocking the opportunities', Productivity Commission report, Australian Government, August 2025

[5] 'Seamless 2024 National Clothing Benchmark for Australia'

A strong foundation

The Seamless Circular Clothing Textiles Fund is an Australian-first investment in practical ways to keep unwearable clothing out of landfill and in use. The seven Fund pilots have filled key data gaps across clothing collection, sorting, processing and recycling, showing what works today, what can be optimised and where further investment and policy are needed to scale nationally.

A clear outcome is that circular systems depend on strong market demand for Australian recycled clothing textiles. Several next markets for clothing show promise, but only where there is consistent demand to pull materials through the system. This means clothing collection and sorting must be designed to meet next market needs, and that market development is critical to success.

The pilots also highlight the role of Seamless, Australia's clothing stewardship scheme, as a system coordinator or 'transition broker', bringing together clothing brands, collectors, sorters and recyclers to enable collaboration that would not otherwise occur. It demonstrates the value of product stewardship in building a coordinated national system.

Importantly, the pilots show the need for early investment to test and de-risk new approaches and help unlock industry collaboration. These projects create the foundation for scalable, investable solutions and provide structured learning that would not happen under normal market conditions.

While viable clothing textiles pathways exist, scaling them will require broader system settings, particularly stable demand for recycled clothing textiles and strong participation from industry. International experience shows this is supported by measures such as mandatory clothing stewardship, procurement settings and product standards.

While the pilots achieved the Fund objectives, their impact was limited by time and funding. Additional rounds of the Fund will continue to build local clothing reuse, recycling and remanufacturing capacity and develop domestic next markets. They will also provide the data and confidence needed by private capital to support the transition to a national system that keeps textiles in use and out of landfill.

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Appendices

Glossary

Term	Description
Biochar	Textile biochar is a stable, carbon product which is produced by breaking down textile waste using high heat in a low-oxygen environment. This process is called pyrolysis. Instead of burning the material, the heat causes the fibres to thermally decompose and transform the textile structures into biochar.
CellTexx®	A microcrystalline cellulose produced by Australian recycling operator BlockTexx.
Chemical recycling	Chemical recycling uses chemical processes to break down textile waste to a molecular level.
Closed-loop recycling	Closed-loop recycling is the process of recycling clothing textiles into new, different products for use outside the clothing industry such as insulation, rags or stuffing for furniture.
Collection	Collection refers to the gathering of pre- or post-consumer clothing textiles by retailers, wholesalers, charity-owned businesses, commercial collectors or local authorities. Retailers may initiate their own collection programs through 'take-back' schemes or other customer-return initiatives. In some cases, collection may also involve preliminary sorting, storage and transport. 'Separate collection' refers to gathering textiles by type or fibre to facilitate specific next-life processes; this term is also used by local authorities in reference to the separation of textiles from other materials exiting households.
Mechanical recycling	Mechanical recycling employs physical processing techniques, including the shredding of textiles into smaller pieces, to recycle clothing textiles.
Near-Infrared (NIR) optical sorting technology	Near-Infrared (NIR) optical sorting technology is an automated identification system used in recycling to distinguish materials based on their molecular composition, invisible to the human eye. It operates by reflecting light off materials, analysing their unique spectral signatures via sensors to separate materials by type and quality.
Open-loop recycling	Open-loop recycling is the process of recycling clothing textiles into new products that are the same type and quality as the old ones, such as when textiles are recycled into new yarns that are reused to make clothes again.
PFAS	Perfluoroalkyl and polyfluoroalkyl substances are a group of over 4,700 synthetic chemicals.
PolyTexx®,	A recycled PET pellet produced by Australian recycling operator BlockTexx.
Pyrolysis	Textile pyrolysis is a process that breaks down textile waste using high heat in a low-oxygen environment. Instead of burning the material, the heat causes the fibres to thermally decompose and transform textile structures into a new carbon product, known as biochar.

Term	Description
Recycle	To recycle is to breakdown a product or component thereof into its basic materials or substances and convert them into new products or secondary materials that are returned to productive use (excluding recovery). Recycling can occur in both closed-loop systems (where materials are recycled into the same product-type) and open-loop systems (where materials are recycled into different products).
Remanufacture	To remanufacture is to disassemble, reassemble and remake products and components into as-new condition with the same, or improved, level of performance as newly manufactured ones. This process may involve reassembling components into one or multiple products or combining elements from multiple products into one.
Reuse	Reuse is the repeated use of a product for its intended purpose. Small adjustments or cleaning may be necessary to prepare the product for use. Reuse allows a product to be used multiple times, either by the original user or others, extending its life and reducing the need to make or buy more. Resale, where products are sold again for reuse, can also be considered part of this practice; as can non-commercial reuse forms of sharing, swapping and donating.
SKU	SKU, or stock keeping unit, is a unique alphanumeric code which retailers use to track inventory.
Sorting	Sorting is the process of separating garments into more homogenised categories. This involves an evaluation of the garment's suitability for reuse or other next life pathways. Sorting is a process that typically occurs after collection and may include other processes or minor transformations such as decommissioning or cleaning.
Ultrasonic welding	Ultrasonic welding fuses fibres without stitching or added trims.
Unwearable clothing	Unwearable garments (or 'unwearables') are those which can no longer function in their original form for their original purpose. Unwearables may be deemed unsuitable for wear due to a range of commercial, functional, hygienic or aesthetic reasons. These items are typically directed toward refurbishment, remanufacturing, repurposing, recycling or recovery options, depending on the material specifications, quality, and available end markets.
Wearable clothing	Wearable garments (or 'wearables') can be worn again in their original form for their original purpose. Wearable garments are typically categorised into cascading grades according to factors including but not limited to their quality, signs of wear, brand name, and potential for resale (saleability). Two wearable grades are: 1. High value wearable – Garments in good to very good condition, suitable for resale or direct reuse. May require minor interventions to prepare for reuse or resale, such as cleaning or minor repair. 2. Low value wearable – Garments in worn or heavily used condition, still suitable for reuse but with limited resale potential. Low value wearable garments may require interventions to prepare for reuse or resale, such as repair or refurbishment.

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