URBACT

Co-funded by the European Union
Interreg

Guimarães
Integrated Action Plan for Textiles Circularity

25/11/2025

Quote

Message by the political supporter

TABLE OF CONTENTS

Contents

QUICK FACTS

- What is URBACT

URBACT is the European Territorial Cooperation Programme that fosters sustainable urban development through networking, capacity building and knowledge exchange among European cities. Since 2002, it has enabled over 1,000 European cities to work together, learn from each other, and co-create practical solutions to make cities more sustainable, inclusive and resilient.

- The Let's Go Circular! Network

Let's Go Circular! (LGC!) is an URBACT project aimed at supporting cities in their transition towards a circular economy. The project consortium, from which Guimarães Municipality is part of, was led by the City of Munich (Germany) and gathers eight other European Municipalities: Cluj-Napoca Metropolitan Area (RO), Corfu (GR), Granada (ES), Lisbon (PT), Malmö (SE), Oulu (FI), Riga (LV), Tirana (AL). The project aimed to develop the Integrated Action Plan for Circular Economy, for each city.

The network applies the "10 R Ladder" framework (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover) as a guiding principle for resource efficiency and waste reduction. Through a common methodology and peer learning, partner cities test governance models, financial mechanisms and behavioral-change strategies that can accelerate the circular transition at local level.

- What is the IAP

The Integrated Action Plan (IAP) is the main output of the URBACT Action Planning Network. Each partner city co-creates its IAP through an iterative, participatory process with local stakeholders. The plan identifies a strategic vision, concrete objectives, and measurable actions to advance the city's circular transition. Following the URBACT principles of integration and participation, the IAP serves both as a local roadmap for implementation and as a transferable model of good practice for other European cities.

In the case of Guimarães, the IAP took a sectorial approach by focusing on the textile sector, a key pillar of the local economy and heritage. At the European level, this sector faces tremendous challenges, from growing competitiveness from foreign markets to the pressing need to reduce its environmental footprint and comply with the new EU regulations on circularity and sustainability.

And so, the present document serves two main purposes: 1) To serve as a clear Roadmap for Guimarães Municipality's circular transition on textiles and 2) as a Guiding document for textiles businesses, helping them to get more acquainted and helping them to better adapt to the new regulatory requirements and sustainability demands.

- ULG contributors

The URBACT Local Group (ULG) is the cornerstone of the co-creation process. In Guimarães, the ULG brings together representatives from the textile industry, waste-management operators, research institutions, creative enterprises, NGOs and local authorities, covering all stages of the local textile value-chain. This participatory structure ensures that the Integrated Action Plan reflects the local challenges and opportunities, balances social, economic and environmental dimensions, and promotes shared ownership of the circular transition.

IAP IN A NUTSHELL

Guimarães' Integrated Action Plan (IAP) on circular textiles sits at the intersection of the city's broader sustainability strategy and Portugal's industrial heartland. The municipality is a medium-sized city and remains highly industrialised with textiles, footwear and metal-mechanics as key sectors. Over the last decade, Guimarães has pivoted from a growth-oriented industrial centre towards a mission-oriented governance model, aligning its ambitions with the EU Green Deal, the EU Circular Economy Action Plan (CEAP) and the "100 climate-neutral cities" mission.

The IAP's vision is to reduce textile waste, foster circular business models and boost community awareness while contributing to climate neutrality. To achieve this, the plan defines four Strategic Objectives (SO):

The plan bundles a total of 20 action, ten of them are classified as priority actions, under three lines of intervention (LoI): 1) Textile waste management, 2) Education, Empowerment and Awareness Raising

for Textile Circularity, and 3) Promote Circular Textile Solutions and Businesses. Each action includes concrete measures, KPIs and timelines (2026-2035).

Governance is a distinguishing feature of the Guimarães IAP. A broad Urban Local Group (ULG), representing all stages of the textile value chain was developed to co-create the present document. This participatory model is intended to reflect local needs and ensure that the design actions are locally adequate and implementable, promoting a transparent process.

PART I: The Textile Circularity Challenge

1. Circular Economy: General Context

1.1. EU Level

The European journey towards a more circular and resilient economy, can be considered to have started by developing a striking and more sustainable waste management framework. In 2008, the European Commission, launched the Waste Framework Directive which established the legal basis for waste management. With it, vital concepts, such as the Waste Hierarchy (Fig. 1) (Article 4), the Extended Producer Responsibility (EPR) scheme (Article 8), the application of the polluter-pays principle, to waste generation (Article 14) and the proximity and self-sufficiency principles (Article 16: *"Waste should be disposed of or recovered in the nearest appropriate installations, enabling each Member State to move towards self-sufficiency"*).

Figure 1 - EU Waste Hierarchy scheme by priority of action: prevention, preparing to re-use, recycle, recover and lastly, disposal. Adapted from the EU image.

Under EPR (Art. 8), producers must finance and arrange for the collection, treatment, recycling and/or disposal of their products once they reach their end-of-life. Member States are obliged to establish "ecomodulation" fees that reward producers whose schemes achieve higher recycling rates or incorporate greater recycled content. They must also clearly assign responsibilities to all stakeholders, set and monitor specific waste-management targets, track collection performance and ensure that waste-holders receive transparent information on take-back and recovery options

In 2015, the European Commission launched the Circular Economy Package, setting out four legislative proposals known as the "Waste Package", anchored by the Communication "Closing the loop – EU

action plan for the Circular Economy" (COM (2015) 614 final) and its implementation annex (COM (2015) 614 Annex). Member States were tasked with transposing its long-term principles into national law, demanding deep shifts in waste management, consumer behaviour, and product design, and significant height was put on minimising waste generation at the source.

Reinforcing the EU commitment for a sustainable transition, in 2019, the Commission rolled out the European Green Deal (COM (2019) 640 final), a comprehensive strategy to achieve net-zero greenhouse-gas emissions by 2050. This strategy recognises the central role of circular economy, highlighting the importance of ecodesign, industrial engagement, and material-loop closure to achieve this central ambition.

Fast forwarding to 2020, the EU Circular Economy Action Plan (CEAP) gets revamped. The 2020 Action Plan "For a cleaner and more competitive Europe" shifts toward a more regenerative, inclusive growth model, reducing dependence on imported raw materials (which account for approximately 40% of production costs). It introduces a Strategic Framework for sustainable products across seven value chains, including textiles, emphasizing eco-design, durability, repairability, recycled content, digital product passports and green public procurement. It also establishes an unprecedented ban on destroying unsold organic consumer goods.

On 5 July 2023, the Commission proposed updates focusing on textile and organic (food-waste) streams (COM (2023) 421 final). On food waste, it sets binding reduction targets (per capita and along the supply chain) and a standardized monitoring/reporting system by 2030, plus consumer education and redistribution incentives. For textiles, it mandates:

- Separate textile-waste collection by 2025;
- Harmonized EPR with ecomodulation to discourage fast-fashion;
- Common definitions of "textile waste" to streamline cross-border management.

On 19th of February, 2025, EU legislators reached an agreement regarding TW targets under the revised directive:

- EPR fees based on circularity and environmental performance, to penalize fast-fashion and ultra fast-fashion;
- Support for reuse operators by sharing cost savings from reduced waste volumes;
- Food-waste cuts of 10% in processing and 30% in retail/households by 2030 were also enshrined, with evaluation against 2020 baselines and staggered compliance timelines (3½ years for micro-enterprises).

To support the new CEAP, in 2024, it was launched a regulation on ecodesign (Regulation (UE) 2024/1781, updating Directive (EC) 2009/125). The regulation set binding lifecycle requirements: durability, repairability, recyclability, high recycled content, and sustained performance. It dovetails with the "Right to Repair" (Directive (UE) 2024/1799), for post-sale repair obligations, and the Consumer Capacitation Directive (UE 2024/1799), which makes mandatory the disclosure of durability and repair data at the point of sale and aims to prevent greenwashing. The latter implies that customers will get better and more consistent information about a product's longevity and reparability prior to purchasing it. Additionally, consumers will know more about their rights under the law and businesses will no longer be allowed to make ambiguous environmental claims, which means that if they are unable to provide proof, they will no longer be able to claim to be "green" or "environmentally friendly". Furthermore, displaying dubious voluntary sustainability logos will be prohibited and unfair business practices associated with early obsolescence will be outlawed.

1.2. National Level

Adopted by Resolution 190-A/2017 (amendment 108/2019), Portugal's first PAEC aligned with the EU package, SDG 2030, Paris Agreement and EU Industrial Strategy. It set four 2050 vision pillars, from carbon neutrality and resource-efficiency to inclusive prosperity and civic engagement, and classified actions as macro (structural), meso (sectoral), and micro (regional). Governance rested with an interministerial group and the Interministerial Commission for Air, Climate Change and Circular Economy.

One of the plan weaknesses was the overemphasis on waste valorisation over prevention and eco-design. As such, one of the results, for 2020, was the national gap between the national circularity rate (2.2 %) and the EU 27 average (9.5 %). Despite the underachievement on a key circularity indicator, the plan was overly successful in its implementation, with 77% of macro actions being delivered. One of the strongest points was regarding "Research & Innovation", whilst the weakest revolved around EPR implementation.

In 2023, a new version of the plan was launched. The updated version deepens circular-economy measures, embedding the European Green Deal and the new EU CEAP. This change can be observed in the document's key objectives:

- Decouple economic growth from material and energy use;
- Identify territorial needs and priority value chains;
- Support businesses' circular transition;
- Reduce environmental impacts across value chains;

- Optimize waste management via hierarchy;b
- Monitor circularity performance;
- Foster education and capacity-building.

The plan highlights include the development of digital platforms for industrial waste exchange; the expansion of key-sectors such as bioeconomy and sustainable mobility; enhanced citizen and private-sector engagement; detailed financing schemes and incentive models, and a stronger sustainability certification in industry.

1.3. Guimarães Municipality Policy Framework and Circularity Journey

The Guimarães municipality intentional journey towards sustainability began in 2014 with the first environmental diagnosis and the establishment of Landscape Laboratory. After the one environmental diagnosis, PEGADAS, Guimarães environmental education program was born. In the same year, the first roadmap for circular economy was also published, the "G4CE - Guimarães for Circular Economy"

In 2016, to promote the municipality waste management strategy, a PAYT (pay-as-you-throw) system was implemented in the city centre, covering 800 users, being the first municipality in Portugal to implement such system. With the PAYT system, Guimarães aimed to increase selective waste collection and diminish waste production. The waste tax, usually indexed to the water bill, became independent and was attributed according to the number of bags requested to store the waste by the user. Since recyclable materials collection is free of charge, the system rewards the users with the lowest waste production and the materials' recyclability. The political consensus was also reached in 2016 for a local greening strategy, and the formalisation of the Governance Ecosystem 2030 in 2018.

The "RRRCICLO" emerged in 2021, with the aim to reach the whole territory by 2028, this will enable the municipality to separately collect the biowaste from the municipal undifferentiated waste, which can represent 40% of the later. The collected biowaste is now being valued as biofertilizer and has an energy source. Additionally, recycling bins and composting bins are distributed upon request to the citizens to incentivise waste separate collection. In 2022, the PAYT system was extended to 10 000 users. Before the introduction of the PAYT system, recyclable materials represented 13% of the collected waste, with the system extension, in 2021, this percentage increased to 28%. Also in 2022, with the PAYT system extension, a biowaste selective collection was introduced in Guimarães city centre. This allowed the recyclables percentage to increase to 59% of the total waste collected.

In parallel, the municipality has deepened its commitment to circular and climate agendas and has been an active member of several European networks for circular economy and climate transition. In 2022, Guimarães Municipality became a signatory of the "Circular Cities Declaration", a pilot city of the

“Circular Cities and Regions Initiative” (CCRI) and a member of the Zero Waste Europe to become a zero-waste city. In the following year, 2023, it joined the NetZero Cities network and become a pilot city for the network climate transition mission and became a finalist (EGC, 2025) and later winner of the European Green Capital Award (EGCA 2026). In the same year, Guimarães also launched its Climate Pact. This initiative, promoted by the Municipality of Guimarães, aims to involve citizens, companies, institutions and the municipality in a collaborative action to decarbonize the territory with a view to climate neutrality in 2030. The pact serves to illustrate, in a more formal manner, the commitment that its signatories have in the municipality sustainable transition. Complementary, the “2030 Climate Neutrality Action Plan of Guimarães”, an Action Plan developed co-creatively with different stakeholders in alignment with the municipal action plan for climate change, another structural document for the city vision for a sustainable future. This evolving document, aimed to reflect the city reality, will give increasingly more importance to circular economy, as an important area of focus for climate neutrality.

In 2024, the municipality published its “PAPERSU 2030”, the municipal action plan for the Strategic Plan for the Solid Urban Waste 2030 (PERSU 2030). The “PAPERSU 2030” fits under the “PERSU 2030” that establishes the national urban waste management policies, in line with the community goals and policies, whereas the “PAPERSU 2030” is the municipalities’ adaptation of this national strategy to the local context, priorities and main challenges. Both focus on the application of the waste hierarchy, centred on waste prevention, and for the waste generated that can’t be prevented, the reinforcement of selective waste collection (APA, 2021).

In 2026, has Guimarães embraces the European Green Capital Award, the Integrated Action Plan for Textile Circularity marks a significant step toward implementing systemic change in one of the region’s key economic sectors, intertwining the importance of circular economy in the city climate neutrality strategy.

An overview of Guimarães journey towards the development of a Circular and Climate Neutral can be found bellow (Fig. 3).

Fig. 3 - Strategic timeline highlighting key milestones in Guimarães' environmental and circular economy journey (2014–2050). Each icon represents a major initiative, programme, or institutional achievement contributing to the city's long-term vision for sustainability, circularity, and climate neutrality. Architectural elements symbolize Guimarães' identity and continuity throughout this transition.

The timeline illustrates the strategic evolution of Guimarães' environmental and circular economy agenda from 2014 and key-commitments until 2050. It reflects the consolidation of a long-term vision built on participatory governance, institutional commitment, and alignment with European sustainability frameworks.

Looking forward, Guimarães reaffirms its ambition to achieve climate neutrality by 2030 and to become a "One Planet City" by 2050, in line with global sustainability goals and the city's own Climate Pact.

2. Overview of the Textile Challenge

Focusing on the textile sector, when compared to the rest of EU countries, Portugal takes the 5th place of higher employer and the 6th with the highest turnover in the Textiles and Clothes Sector (T&C) (EURATEX, 2024). T&C is a large and diverse sector, which is not limited to home textiles or clothing, producing essential elements for multiple areas, such as civil construction, automotive, medical and the agricultural sector. This industry, historically dominated by small family businesses, is gradually undergoing changes in its structure, with the growth of new companies, such as startups, that are focused on developing more sustainable products based on new technologies (EURATEX, 2024). In

Portugal, the majority of the sector companies are located in the north, with one of the main municipalities being Guimarães (ATP, 2019).

The textile industry is one of the most resource-intensive and polluting industries. It ranks fourth in primary raw material and water consumption, second in land use, and fifth in greenhouse gas emissions. The production phase generates significant environmental issues, including high energy and water use, extensive chemical pollution, and microplastic contamination from synthetic fibres (EEA, 2021). Garment production also contributes through waste from cut-offs and excessive use of hazardous chemicals.

2.1. Regulatory Framework for Textiles Circularity and Waste Management

Recognising the pressing challenge of current textile production and consumption patterns, the EC launched in 2022 the "EU Strategy for Sustainable and Circular Textiles", whose aim was to develop a coherent framework and a vision for the transition of the textile sector (COM(EC) 141 final, 2022). The strategy claims:

> *"By 2030 textile products placed on the EU market are long-lived and recyclable, to a great extent made of recycled fibres, free of hazardous substances and produced in respect of social rights and the environment. Consumers benefit longer from high-quality, affordable textiles, fast fashion is out of fashion, and economically profitable re-use and repair services are widely available. In a competitive, resilient and innovative textiles sector, producers take responsibility for their products along the value chain, including when they become waste. The circular textiles ecosystem is thriving, driven by sufficient capacities for innovative fibre-to-fibre recycling, while the incineration and landfilling of textiles is reduced to the minimum."*

To achieve the vision of a sustainable and circular textile market in Europe by 2030, the textiles should be produced under fair social and environmental standards, using primarily recycled fibres and products must be long-lived, reusable, repairable, and recyclable. Accompanying it, the consumption patterns must also change. Instead of fast consumption and discard, consumers reuse and repair textile goods; circular business models are promoted whilst fast fashion is rejected ("*Make fast fashion "out of fashion").* To achieve these aims, the strategy interlinks itself with others developed by the EU that, together, set the space for the circular transition.

One of the main regulatory instruments to support the sector transition is the "Ecodesign for Sustainable Products Regulation" (ESPR). The ESPR establishes mandatory requirements for a product design with the aim to enhance its durability, reparability and recyclability. One of the main tools under this regulation is the introduction of the Digital Product Passport (DPP). This tool will provide detailed

information on the product's environmental footprint, including manufacturing processes, materials composition, and information regarding its reparability and recyclability. The textile sector, due to its large consumption of raw materials and elevated environmental impact, is one of the priority sectors that will need to start the implementation of the DPP by 2027.

Although a delegate act is still being developed by the EU, to determine the exact parameters and evaluation methods to employ for the development of the DPP, a study done by the European Parliament provides some insights regarding the development of a DPP for a textile product. The implementation will occur in three phases at the EU level:

1) Until 2027, the DPP is minimal and simple, with core information;
2) until 2030, advanced DPP with more stakeholders involved and more detailed data flows (e.g. after-sales, second-hand, automated data exchange);
3) Until 2033, full circular DPP with end-to-end integration, closed-loop recycling information and AI-drives analytics.

The DPP information will be centralised in a European platform and made available to different stakeholders at different levels. The aim is that every economic operator involved at any stage of the product life cycle will add information that will help build the product DPP and keep it updated.

For the first stage of the DPP for textile products, the core information required is as follows:

1) Product composition: percentage of recycled fibres, presence of hazardous substances, and the presence of synthetic fibres with the potential to release microplastics.
2) Recyclability: if a product can be recycled and if it can, what method to use.
3) Supply-chain traceability: country or region of key product stages, for clothing items these are confection, weaving, knitting, dying, printing and wet processes
4) Packaging: recycled content, recyclability, reuse potential
5) Environmental innocuousness: basic environmental footprint or toxicity indicators

Supplementary data for life cycle analysis like main components breakdown (weight, quantity and type) and transport (mode(s) and distances) will be introduced in phase two of the implementation.

As the products complexity and variety increases, this tool will be exponentially more essential for WMO (waste management operators) to effectively revalue the TW and further develop a competitive secondary raw-materials market.

From a financial standpoint, the textile products should reflect the associated costs of the ecodesign requirements along with the EPR fees, that should, in turn, be reflected in the product specification and procurement.

2.2. Secondary Raw-Materials Market for Textiles

The development of a well-functioning secondary raw materials (SRM) market is essential to achieving a circular textile economy in Europe. Despite growing interest, the textile SRM market remains underdeveloped due to technical, economic, and regulatory challenges. However, promising initiatives, emerging technologies, and evolving policy frameworks are paving the way for progress.

The textile SRM market is not yet well-functioning due to:

- Limited supply of clean, high-quality, and homogeneous textile waste;
- Lack of harmonized standards and end-of-waste (EoW) criteria at the EU level, which, in turn, harden Transboundary Movements and so, limits TW valorisation options;
- Insufficient demand driven by low quality and price competitiveness.

From a technological standpoint, mechanical recycling is the most widespread method; however, it is suitable or cotton or wool. Blended fabrics, which make the majority of current clothing composition, are difficult to transform mechanically, especially if elastane is present. The majority of outputs from TW mechanical transformation are low-value textile products (e.g., insulation material, cleaning cloths, nonwoven products) with limited production of new yarns. The production of new yarns requires, in the vast majority of cases, the inclusion of virgin fibres. On the other hand, chemical processes are suitable for synthetic fibres (e.g. polyester) and cellulose-based ones (e.g. viscose) and hold potential to yield higher-quality recycled fibres, though not yet widely scaled. Chemical transformation, however, hads to the product environmental footprint and, in many cases, uses hazardous or polluting substances.

Before TW treatment, and impairment is found early on the availability of TW sorting technology, which is predominantly manual today. Automations are still on their early-stare (e.g. Near infrared (NIR)-based systems; SYPTEX; etc), shows potential to improve efficiency and material purity, but they require large financial investments.

2.3. EU instruments to push Circular Economy on Textiles

At EU level, a coherent suite of circular-economy instruments underpins the textile-sector transition. Overarching policy is set by the 2015 Circular Economy Action Plan (COM(CE) 2015/614) and its 2020 follow-up (COM(CE) 2020/ 98), which embed waste prevention, ecodesign and value-chain priorities,

including for textiles, into the EU law and regulatory framework (COM(CE) 2022/141 final). The textile sector benefits from a dedicated 2022 Communication—the EU Strategy for Sustainable and Circular Textiles—while binding design requirements are now enforced by the Ecodesign for Sustainable Products Regulation (ESPR, Regulation (EU) 2024/1781), mandating durability, reparability, recyclability and the introduction of digital product passports (Reg. (EU) 2024/1781). Waste governance rests on the Waste Framework Directive (2008/98/EC), which establishes the waste hierarchy, end-of-waste criteria and, via the 2023 amendment (COM(CE) 2023/ 421), mandates separate textile collection by 2025 and integrates textiles into Extended Producer Responsibility schemes (Reg. (EU) 2024/1781).Finally, consumer empowerment is strengthened through the Right-to-Repair Directive (EU 2024/1799) and the Consumers' Information Directive (EU 2024/825), ensuring consumers receive clear data on product durability and repair options at point of sale.

A summary of the current tools or instruments to promote the circular transition at the EU level, in particular for the textile sector, can be found at table 2.

Table 2 - Compilation on EUs tools and instruments to boost textile circularity.

CE Tool or Instrument	Legal Framing (Directive or Regulation)	Description
EU Strategy for Sustainable and Circular Textiles	COM (EC) 2022/141 final	Textiles sector-specific roadmap, aligning the industry with the European Green Deal and Circular Economy Action Plan commitments.
Circular Economy Action Plan (CEAP)	COM (EC) 2015/ 614 final; followed up by COM (EC) 2020/98 final	Establishes the EU's overarching framework for waste reduction, eco-design requirements and priority value chains, with textiles being one of seven targeted sectors.
Ecodesign for Sustainable Products Regulation (ESPR)	Regulation (EU) 2024/1781 of 1 3 June 2024	Sets binding lifecycle requirements—durability, reparability, recyclability, mandated recycled content—and empowers delegated acts to define the Digital Product Passport.
Digital Product Passport	Mandated under ESPR (Reg (EU) 2024/1781) and detailed in delegated acts (Textiles delegate act still in development)	ntroduces a standardized data-model for sustainability and circularity metrics across the product's life cycle, facilitating traceability of textile fibres and enabling secondary-material markets.
Right-to-Repair & Repair Information Form	Directive (EU) 2024/1799 of 13 June 2024	Establishes a common "Repair Information Form" template, minimum repairability

		standards and information obligations, making it easier and more transparent for consumers to repair textile-related goods.
Consumers' Green Information Directive	Directive (EU) 2024/825 of 28 February 2024	Requires clear point-of-sale disclosures on durability, repair and environmental performance, empowering textile consumers to make informed choices and support longer-lasting products.
Waste Framework Directive (WFD)	Directive 2008/98/EC (amended by COM (2023) 420 final and Parliament's P9_TA(2024)0145)	Embeds the waste hierarchy (prevent; reuse; recycle; recover; dispose), sets out end-of-waste criteria and mandates separate textile-waste collection by 1 January 2025.
Extended Producer Responsibility for Textiles (EPR)	Annex IVc to COM (2023) 420 final amending WFD 2008/98/EC	Requires producers to finance and manage collection, sorting, reuse and recycling of textile and footwear products, with ecomodulation fees incentivizing higher recyclability and reuse rates.
End-of-Waste Criteria	Article 6 of WFD 2008/98/EC; delegated acts under Article 9(8)	Defines the conditions under which recovered textile waste ceases to be "waste" and gains status as a secondary raw

		material, ensuring safe, quality-assured re-entry into manufacturing streams.
Single-Use Plastics Directive	Directive (EU) 2019/904 of 5 June 2019	Regulates certain plastic products, including textile microfibres from synthetic garments, by restricting items prone to microplastic release and promoting alternative materials.
REACH Regulation	Regulation (EC) No 1907/2006 (REACH)	Controls the registration, evaluation and restriction of hazardous chemicals in textile production and recycled inputs, safeguarding human health and the environment across the circular-textile value chain.
Environmental Footprint Methods Recommendation	Commission Recommendation (EU) 2021/2279 of 15 December 2021	Standardizes life-cycle assessment methods for measuring and communicating the full environmental footprint of textile products, underpinning policy-aligned eco-design and procurement decisions.

2.4. Barriers: Overview of the circularity instruments' shortcomings

At the heart of the circular transition lies regulatory and governance barriers born of a striking disconnect: on one hand, an abundance of EU and national instruments designed to advance circularity;

on the other, an absence of concrete methodologies and legal frameworks capable of translating those instruments into everyday practice. Firstly, circular-economy policies frequently lack the specificity needed to guide practitioners: there are no universally accepted protocols for choosing and applying the right indicators, nor clear procedures for monitoring progress. This deficiency is compounded by lengthy, convoluted procedures for declassifying waste—transforming it into a secondary raw material—which slow down market uptake of recycled inputs. Meanwhile, inconsistencies between member-state regulations and between national and EU rules breed legal uncertainty and administrative overload, raising costs and deterring investment. Finally, most financial incentives remain tied to end-of-pipe waste management, with scant support for the up-front capital outlays required by eco-design, reusable-system infrastructure, or digital-tracking tools.

Focusing on the current regulatory ambiguities, they begin and extend into the very definition of what constitutes “textile waste.” Absent a harmonized EU-wide definition, member-states apply divergent criteria, creating cross-border barriers that frustrate the free circulation of recyclable fibers. To qualify as a secondary raw material, a declassified waste must meet technical, market, health and environmental criteria—but such criteria vary by jurisdiction. Moreover, any regulated substance—even if present at trace levels—can disqualify an otherwise compliant material, deterring its market acceptance. For example, recycled fibers containing restricted substances for food-contact or toy applications are often excluded wholesale, regardless of whether those substances actually pose a risk in a given context

Another telling illustration of the regulatory ambiguity that affects textile circularity is the Digital Product Passport (DPP), slated to become mandatory for textiles in 2026. The DPP aims to be a disruptive tool to boost market circularity and transparency. However, for the specific case of textile products, the implementation of the DPP is still dependent on the development of delegate acts and specific regulations to be developed before its implementation.

The delegated act for textile products DPP still needs to specify exactly which data elements are mandatory, their format and their granularity. The definition of transition periods according to the company size also needs to be defined. For its practical application, the Textile Labelling Regulation also needs to be revised.

The current Textile Labelling Regulation (TLR) dictates that textile labelling must only show the percentage composition of fibers; this excludes recycled fibers, the presence of hazardous substances, and data regarding the product's recyclability or reparability, which are key components of the DPP. Additionally, the TLR regulates only physical labels. The nature of the DPP requires information digitalization and digital labels/unique identifiers that must be designed to be permanently and

irreversibly affixed—so that they cannot be removed or tampered with throughout the product's entire life cycle. Digital data carriers (e.g. QR codes and RFID tags) need to be explicitly regulated under TLR to promote information harmonisation and accessibility. Furthermore, EU guidance on DPP data-sharing, access rights, storage duration, verifiability and legal liability is needed. Alongside it, the definition of a standardised platform for data storage as well as the definition for interoperability standards to ensure seamless data exchange between the different entities involved in the product life cycle (e.g. consumers, certification bodies, customs, recyclers, manufacturers, etc.). The definition of data accessibility levels is also essential to ensure compliance with EU data privacy laws whilst promoting sector transparency. To avoid greenwashing and promote the sector transparency, the revision will also focus on tightening environmental claims, ensuring that any "eco-friendly," "recycled", or "biodegradable" statements on labels or in DPPs are substantiated and verifiable.

The TLR revision was initially scheduled for the fourth quarter of 2024, however, it has been postponed to the second quarter of 2026. The Commission has carried out a stakeholder public consultation in order to collect evidence regarding the pre-revision regulation. In May 2025, the single market strategy reinforced the need of revising such regulation, under the larger effort to balance consumer information needs with reduced market barriers and burden for the industry, whilst pushing transparency and reduced environmental impacts (Spinaci S., 2025). This delay may cause a cascade effect that might delay the publishing of the DPP on textile products and consequent implementation of the DPP by the sector. Even if the DPP implementation dates are not postponed, this can cause tremendous pressure on the European textile sector.

Without clear guidance on which data to include, how to verify it, or how to integrate it into existing IT systems, the passport risks becoming another regulatory burden rather than a seamless enabler of circular practices, causing distress to industrial actors that struggle to decipher its undeveloped calculation rules and governance structure.

Textiles also sit at the intersection of multiple regulatory domains—waste, environmental protection, chemical safety—each of which carries its own requirements and testing protocols. Yet there is no bespoke standard for textile secondary raw materials that integrates these domains. As a result, novel products such as bio-based or blended fibers may find themselves caught in outdated single-use-plastics rules or generic chemical regulations that fail to reflect their specific life-cycle profiles. Facing this maze of overlapping rules, many companies forego these promising materials altogether.

Under the Waste Framework Directive (DL (EC) 2008/98), Member States are required to monitor textile waste by life-cycle stage (post-industrial, pre-consumer, post-consumer), yet current separate-collection obligations primarily target post-consumer streams (COM (2023) 420 final). In the proposed

revision of the Ecodesign for Sustainable Products Regulation, the Commission has introduced a transparency obligation for companies to disclose volumes of products discarded or destroyed, including textiles, but no similar disclosure is mandated for post-industrial waste (COM (2023) 420 final). The EPR schemes under discussion would need to explicitly cover post-production waste to incentivize design for recyclability at the manufacturing stage.

Perhaps most concerning is the tendency to equate circularity with "efficient waste disposal." While high-quality waste management remains vital, it only addresses the tail end of a product's life cycle. In practice, both EU-level Circular-Economy Action Plans and Portugal's own national PAECs have set detailed targets for selective collection and recycling rates, but they pay scant attention to ecodesign metrics—durability, repairability, and modularity—or to the creation of high-value reuse and refurbishment systems. Consequently, over 10 billion euros of EU circular-economy funding between 2014 and 2020 flowed almost exclusively into waste-management programs, leaving prevention and product-design innovation chronically underfunded.

At the local level in Guimarães, demographic and socio-cultural conditions magnify these regulatory shortcomings. The municipality's dispersed settlement pattern complicates planning of curbside textile collection routes and can render door-to-door schemes economically unviable. Many micro-textile enterprises—lacking dedicated waste officers or sustainability expertise—simply consign their scraps to mixed municipal waste, driving up downstream sorting costs and forfeiting valuable secondary materials. These small firms often operate on razor-thin margins, making investments in sustainability planning or staff training an unattainable luxury. Simultaneously, low levels of public awareness, confusion over waste-fee structures, and a prevailing fast-fashion mindset stifle demand for higher-quality, longer-lasting garments and discourage citizens from participating in take-back schemes.

In sum, unless the Action Plan addresses both the top-down and bottom-up dimensions of circularity, the textile sector will continue to face steep hurdles. Regulation must be streamlined and harmonized—particularly around "textile waste," end-of-waste criteria, and digital-passport standards—while funding must shift toward ecodesign, collection infrastructure, and SME capacity building. Equally, local pilots and awareness campaigns are needed to adapt solutions to Guimarães's unique territorial and cultural landscape, transforming rules on paper into circular practices in every workshop, warehouse and household.

PART III: Guimarães context and Local textile challenge

3. Guimarães Municipality Characterisation

Guimarães is a medium-sized city, located in the northern region of Portugal, in the Ave subregion. It has a population of 156 277 inhabitants in an area of 240.95 km2. The city is more densely populated than the national average, with 649 inhabitants/km2 and 112 inhabitants/km2, respectively (INE, 2022), reflecting its high urbanisation. The municipality exhibits a polycentric governance model where the territory is divided into nine small towns and subsequently in 55 parishes that work as administrative units that work more closely with the local communities.

The municipality is one of the most industrialised in Portugal, with 60% of its economic activity in the secondary sector. In 2021, the territory enterprises employed 68 926 people and had a gross added value of 1 541 million euros. When compared to the national statistics, Guimarães municipality represents 0.3% of the territory but holds 3.1% of the national manufacturing enterprises, and 2% of the national exports (GEE, 2024). The territory has a strong tradition in the textile, shoes and leather goods production as well as cutlery and metalomechanic production. More recently, the tertiary sector gained importance, namely the creative industries that in 2019 already had a turnover of 5.700 million euros (Perebynos et. al., 2023).

Within the industrial production, the municipality exhibits a strong predominance of the textile sector, around 63% that can be decomposed between clothing industry (28.2%), textile production (25.3%) and leather industry and leather products (9.3%) (fig. 1).

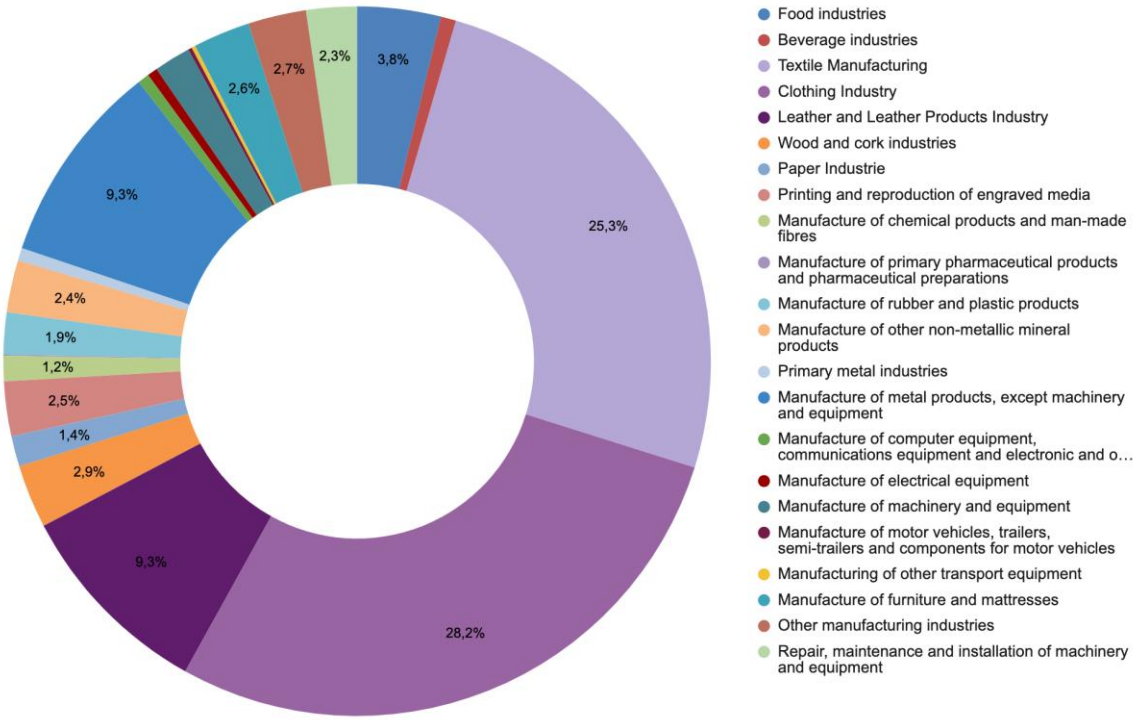

Figure 2 - Characterization of Guimarães economic profile through the frequency of industries within the territory. The frequency was determined by analyzing the number of industrial CAEs (Portuguese Classification of Economic Activities) registered in the territory (CAE number 10 to 33).

Following the textile industry, the fourth most prevalent industry in Guimarães is metallic manufacturing, linked to the construction and cutlery production.

In terms of total municipal solid waste generation, the waste management, Guimarães municipality is bellow the national and European average (Eurostat, 2025) (Table 1).

Table 1 - Volume of municipal solid waste generated, in kg per capita, during 2023 in the European Union, Portugal and Guimarães. (Eurostate, 2025).

	EU	Portugal	Guimarães
kg per capita in 2023	511.00	505.00	452.00

Over the past decade, Guimarães has shown a strong commitment to improving its waste management practices and moving towards a circular economy. Analysis of municipal waste data from 2011 to 2023 highlights the evolution of local waste composition, while recent strategic documents outline the city's ambitious vision for sustainable development (fig. 2).

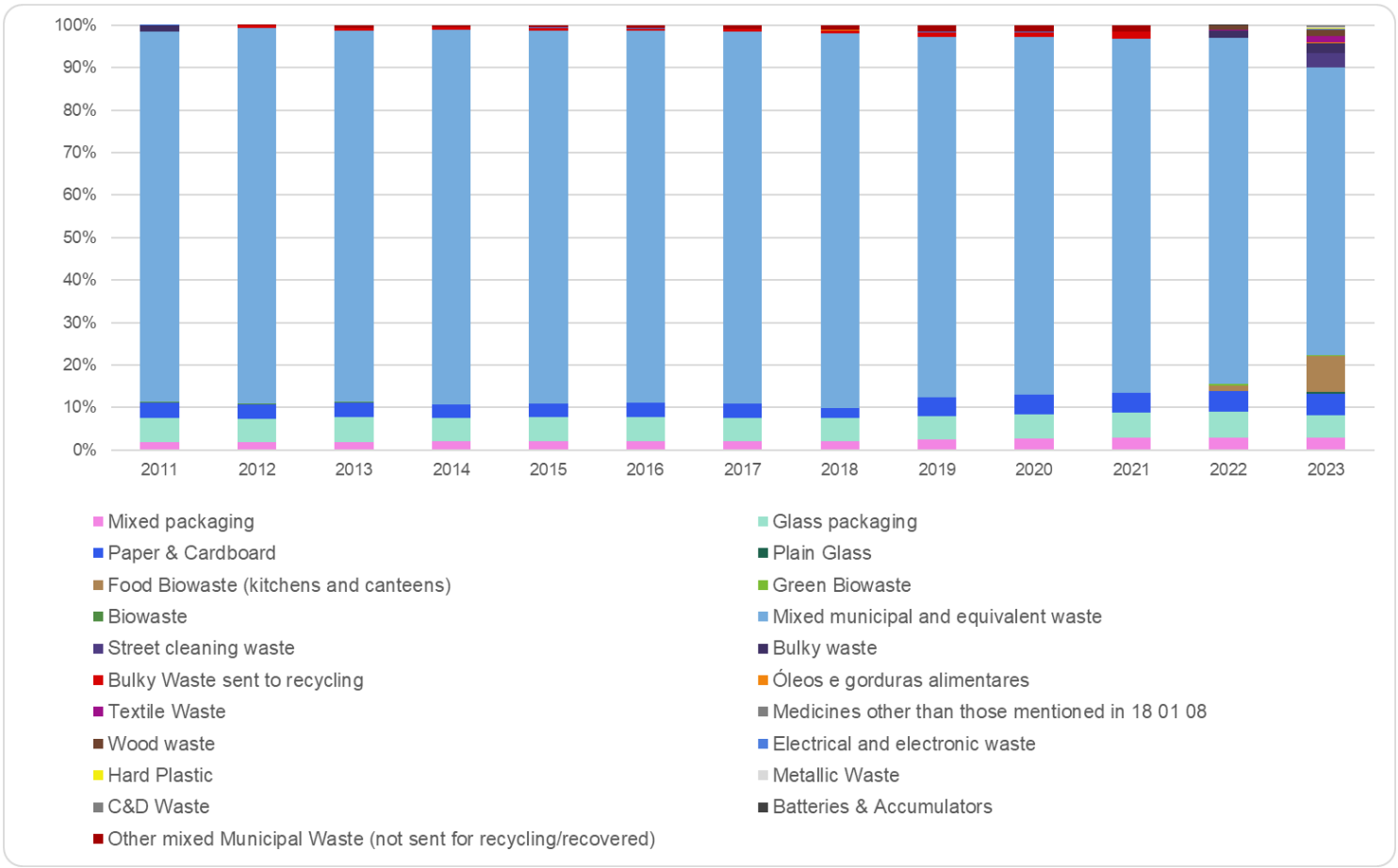

Figure3 - Characterization of Guimarães solid municipal waste, by fraction from 2011 until 2023.

This evolution is particularly reflected in the collection of biowaste, including green biowaste and food waste from kitchens and canteens, between 2022 and 2023. This trend is a strong indicator of the efforts placed towards the implementation of door-to-door collection coupled with a PAYT system for the HoReCa sector in the city centre. Parallelly, bulky waste sent to recycling also begins to appear in the chart, pointing to a more refined handling of large waste items and the expansion of selective collection programmes. Traditional recyclable streams, including paper & cardboard, glass packaging, and mixed packaging, have remained stable but modest, pointing to consistent management.

Despite the efforts, municipal waste in Guimarães has been overwhelmingly dominated by mixed municipal and equivalent waste. This fraction has consistently represented the majority of the waste stream, indicating that most household and commercial waste has not been separated at the source. This highlights the need to expand the waste fractions selectively collected at the municipal level. This is particularly true for the textile waste fraction.

Although its presence might seem negligible, the municipality has a higher rate than the European average in terms of textile waste present in solid, undifferentiated municipal waste, an average of 5.4% versus 4.7%, respectively. The national average is around 4% (Deckers, 2024). These figures reflect the importance of the sector to the municipality's economy and the urgency of developing an effective textile waste management solutions, that comply not only with the EU regulations on the matter but also meet local needs.

4. Analytic description of challenges and gaps of Guimarães Textile Sector

In Portugal, textile and shoes waste had a share of 3.78% of the total urban solid waste in 2019. In 2020, household textile waste generation was 16.44% kg per capita (Deckers et. al., 2024).

Due to the textile sector expressivity in the territory, textile waste (TW) is commonly found in undifferentiated municipal solid waste (MSW). Perebynos et al. (2023) identified the main municipal waste collection routes with the highest prevalence of textile waste (TW) in undifferentiated MSW were identified using two indicators: 1) TW composition in the undifferentiated MSW and 2) TW generation per capita. The TW was, on average, 5.4% of the undifferentiated MSW, a value slightly higher than the European average of 4.7% and the national average of 4% (Deckers, 2024). For the other indicator, value was on average of 0.7 kg of TW in the MSW per month per capita. Whilst larger enterprises might have the infrastructure and financial resources to have adequate waste management, smaller companies often lack the necessary skills and funds to improve their waste management processes (Perebynos et al., 2023). This is especially concerning attending the new EUs demands regarding waste prevention,

production and management including the extended producer responsibility, along with circular economy tools such as the DPP and eco-design principles (COM, 2022). Although vital for Europes' circular economy transition, the regulations places tremendous strain on local enterprises. Consequently, the first challenge identified falls on the need to invest in the textile industry to meet the new EU circularity requirements and have a competitive presence in the world markets.

Under this logic, the lack of support (financial and regulatory) to the private sector to develop novel circular products, along with the demanding regulations regarding the secondary raw-materials market and the end-of-waste status requirements (DL n.º 102-D/2020), means there is a market gap for circular products, especially within a short value chain. As a result, there is a gap in the market for circular products to be procured (as part of Green Public Procurement) that the municipality can buy and use. These difficulties pose a challenge to the municipality's mission of achieving climate neutrality by 2030.

On the bright side, a Boston Consulting Group study found that the majority of Portuguese is willing to paying a higher price for more sustainable options in essential product categories such as energy, food, hygiene and clothing. This trend can work as a lever to push the market towards more sustainable and circular principles.

On a territorial level, the "diffuse" nature of the territory, coupled with an increase of MSW produced per capita in recent years, poses a challenge for selective waste collection strategies and for the overall implementation of more circular strategies in the waste management system. In 2023, 449 kg of urban waste (UW) were produced annually per capita, of a total of 70655 tons of UW. Of these 449kg per capita, 315 kg was unsorted waste. Through the implemented waste management plans (PAPERSU 2030; Waste Management Plan- Guimarães Municipality's Zero Waste Commitment; RRRCICLO Strategy), Guimarães has been able to diminish the amount of waste produced in recent years (inferred based on the amount of waste collected). Despite this achievement, in 2022 a staggering 73% of the collected UW was landfilled, with only 13% directed to recycling operations and only 4% to composting. These numbers reflect the need to invest in waste valorisation processes. This need becomes ever more pressing when considering EU's legal obligations for selective collection of different waste fractions.

Given the municipality goal of a sustainable and circular transition, the required selective textile waste collection by January 1st, 2025, preconized in the EU Waste Framework Directive and the sector importance for the municipality economy, is paramount to find solutions to address the waste problematic whilst boosting the sector transition towards a more resilient and circular business model.

To comply with the EU Circular Economy Action Plan (EU COM, 2020) and the new national general waste management scheme (RGGR) (DL Nº 102-D/2020), large investments need to be done. As a start, the collection of selective waste fractions will require purchasing new containers, defining new

collection systems and, to close the loop, investing in improving waste treatment solutions. All these demands a high level of financial and human resources allocated to the task, both in the preliminary and the implementation phase. This resource allocation along with the highly technical nature of redesigning and reshaping Guimarães waste management, also pose a barrier into adopting more circular practices. Here, the diffuse nature of the territory also plays a challenge, since considerations need to be done according to the population density and prevalent economic activities, namely one defining new waste collection routes. For the textile waste, that requires selective collection by 2025 (COM (2020) 98 final), the territory patched nature is also reflected in the dispersity of the different territorial players of the textile sector, which presents a challenge into the planning of possible industrial clusters and/or symbiosis or new waste operators.

Within the municipality territory and neighbouring ones (Braga, Fafe, Póvoa de Lanhoso, Vila Nova de Famalicão, Vizela, Felgueiras, Santo Tirso), a total of 27 waste operators were identified has having the environmental licence to deal with textile waste (LER 04). From these 27 entities, only four have waste recycling or recovery operations (R3 and R5 operations). The remaining waste operations have operations of lower value (R12, D13 and D15). This quick analysis highlights the need to establish a high value waste operator that would enable closing the loop whilst keeping a short value chain.

For pre-consumer TW, data privatization undermines the development of structured and systematic solutions for the circular transition of the textile sector and decision-making processes. Due to this difficulty in obtaining data, it is also a challenge to implement a well-thought-out monitoring plan, with well-defined data collection processes and circularity KPI's. This difficulty is exacerbated when considering all the interveners on the textile value-chain and the need to monitor the implemented strategies. Different typologies of areas (urban, rural etc.) would most probably require different approaches for TW collection especially if we note that the micro- and small-enterprises lack a TW management system and the funds to install them.

These challenges were identified from different approaches, from the work carried out so far by the Guimarães municipality and the different plans and strategies produced, regarding the municipality vision and strategies on circular economy and sustainable waste management practices, as well as from the work developed with the Urbact Local Group (ULG). The ULG, composed local representatives along the textile value chain, provides an insightful perspective into the sector challenges in this new age of circularity requirements. As a sum, the currently territorial challenges to implement a circular strategy, with a particular focus on textiles, on Guimarães municipality is listed bellow:

- Guimarães textile sector is mainly composed by small and micro enterprises that lack the resources, financially and humanly wise, to implement more circular and sustainable practices;

- Lack of circular products to be considered during the public procurement processes;
- Guimarães is a diffuse territory, with varying characteristics and needs that must be considered for a successful implementation of selective waste collection actions and a circular economy strategy;
- Lack of innovative solutions for textile waste recovery/ valorization;
- Private data regarding waste generation;
- Difficulty in defining circularity KPIs and data collection processes to monitor or assess the impact of the circularity solutions implementend;
- Difficulty in mobilizing and obtaining support of all parish councils in Guimarães and coordinate all the different departments in the municipality;
- Lack of compliance and/or adherence to selective waste collection campaigns;
- Lack of high value waste operators, able to close the loop locally;
- Communication to raise citizens' awareness and engagement on separate textile waste collection.

PART II: Overall logic and integrated approach

5. Vision and Ambitions

The primary goal within the "Let's Go Circular!" project is to create an integrated Action Plan for Textiles Circularity, aligned with the municipality's ambitious vision for Guimarães' sustainable transitions, through co-creation methodologies. These methodologies with local stakeholders, that compose the "Urbact Local Group" (ULG), served to co-design and co-prioritize locally actionable solutions to address TW generation and associated pollution, whilst boosting the sector's sustainable transitions and its economic competitiveness, in alignment with the municipality's goal of achieving climate neutrality by 2030. By translating this overarching goal into the vision for a sustainable and circular textile sector in Guimarães, we achieve the following vision:

"Rethinking the textile sector towards circularity and reinforce the socioeconomic benefits of circular economy in the territory, focusing on zero landfilling."

This overarching vision aims to tackle textile circularity as a whole, combining public and private challenges whilst lowering the sector, and associated waste, environmental impacts and promoting socioeconomic development.

6. Methodology: Designing Textile Circular Solutions

The ultimate goal of the IAP for Guimarães municipality is to formulate an actionable circular textile ecosystem, which translates into reducing TW landfilling whilst boosting the textile sector through by transition to a more circular business model. Since the territory is mainly composed by micro- to small-sized companies, solutions catered to the companies' dimensions are crucial to ensure that the IAP goals are achieved whilst guaranteeing businesses' economic feasibility.

The ULG meetings served as convoys to pinpoint the local challenges and involve several actors to face them, as was the case of schools promoting collection, awareness and education for sustainability to implement circular economy strategies and better waste management practices, as well as potential solutions to overcome those barriers.

All sessions were marked by a quadruple-helix approach: citizens as institutions and NGOs, the public sector, the private sector, and research and development institutions. Here the ULG members were challenged to think from one of the helix groups, identifying key challenges and proposing solutions whilst identifying key players in the Guimarães ecosystem. This approach helped to develop cohesive solutions in a more empathic and holistic manner.

Overall, the sessions acted as both a mapping opportunity for the territory and as creative solutions think-tanks, were each meeting focused on a different topic to ensure that a holistic mapping of the territory was drawn.

To develop an implementable action plan for textile circularity, an integrated methodology was developed.

6.1. Guimarães Governance System for Circular Textiles

Guimarães Governance Ecosystem 2030 follows a quintuple helix approach, which promotes the continuous circulation of knowledge between five dimensions, recognising the inclusion of the natural ecosystems to achieve a sustainable transition to achieve climate neutrality and a circular city (Loureiro et al., 2022). The five identified dimensions are (Fig.

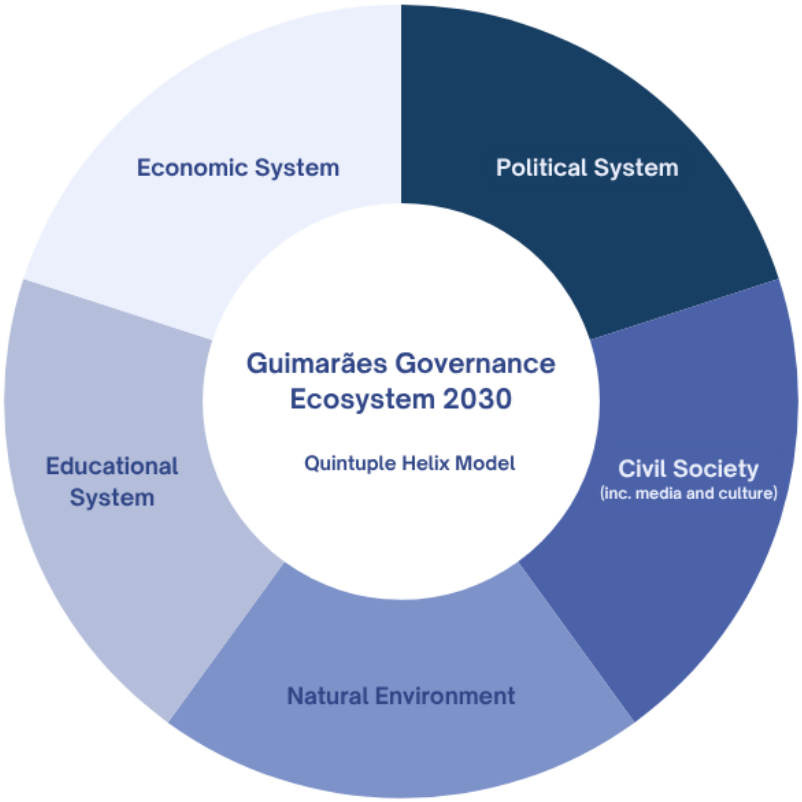

Fig. 4 – Guimarães Governance Ecosystem 2030 with its five dimensions: 1) Economic System; 2) Political System; 3) Civil Spciety (including culture and media); 4) Natural Environment; and 5) Educational System.

Initiated from a 'Mission Structure' in 2015, this model integrates diverse actors - municipal technicians, universities, associations, the private sector and citizens - to diagnose and tackle sustainability challenges and promote the transition to a low-carbon economy. Through a participatory and multidisciplinary process, environmental and social indicators are defined, targets are set, mitigation and adaptation actions are implemented, with continuous monitoring to assess progress. Thus, Guimarães uses this system to catalyse local transformation, strengthening citizens' quality of life and driving public policies aimed at climate neutrality and the sustainable integration of the territory (Loureiro et al., 2022). The Governance Model was established within Guimarães' 2030 climate neutrality journey (fig. 3).

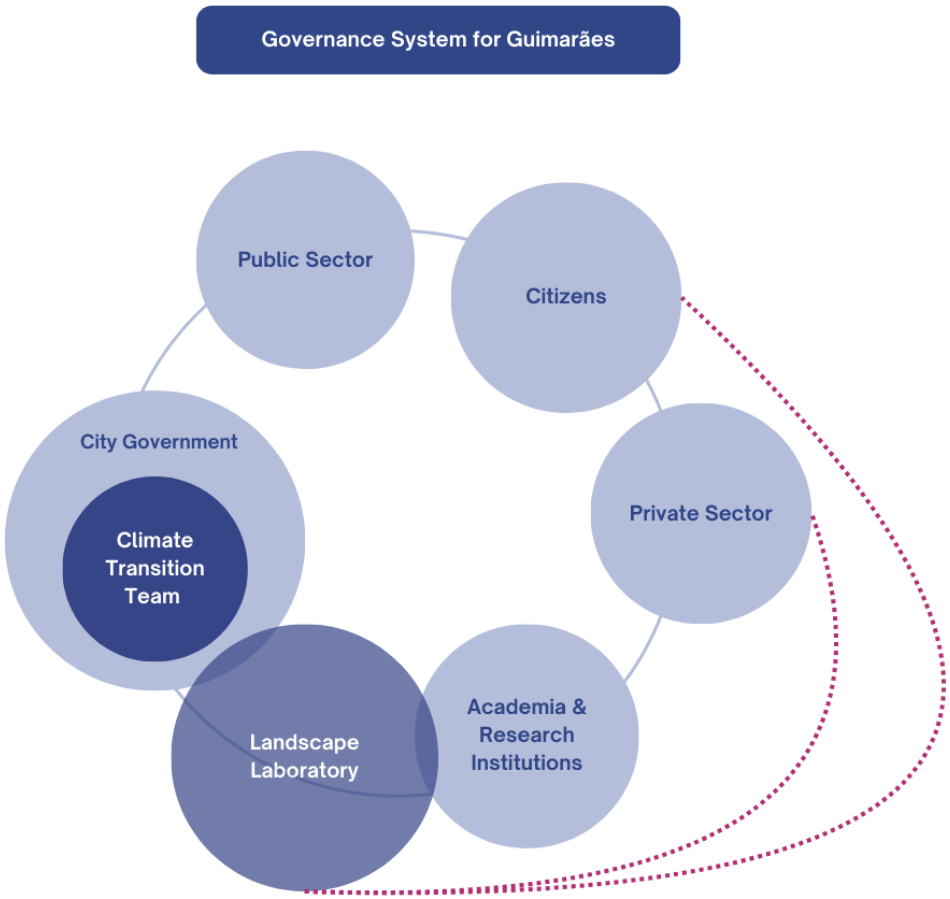

Figure 4 - Guimarães Governance System.

Circular economy is a vital pillar to achieve climate neutrality and is inherently linked to this governance model. Following the same logic and applying it to the textile sector, we have identified the following key stakeholders in the territory: 1) Public bodies; 2) Private Sector; 3) Civil Society; 4) Academia and Research Institutions, as seen in fig. 4.

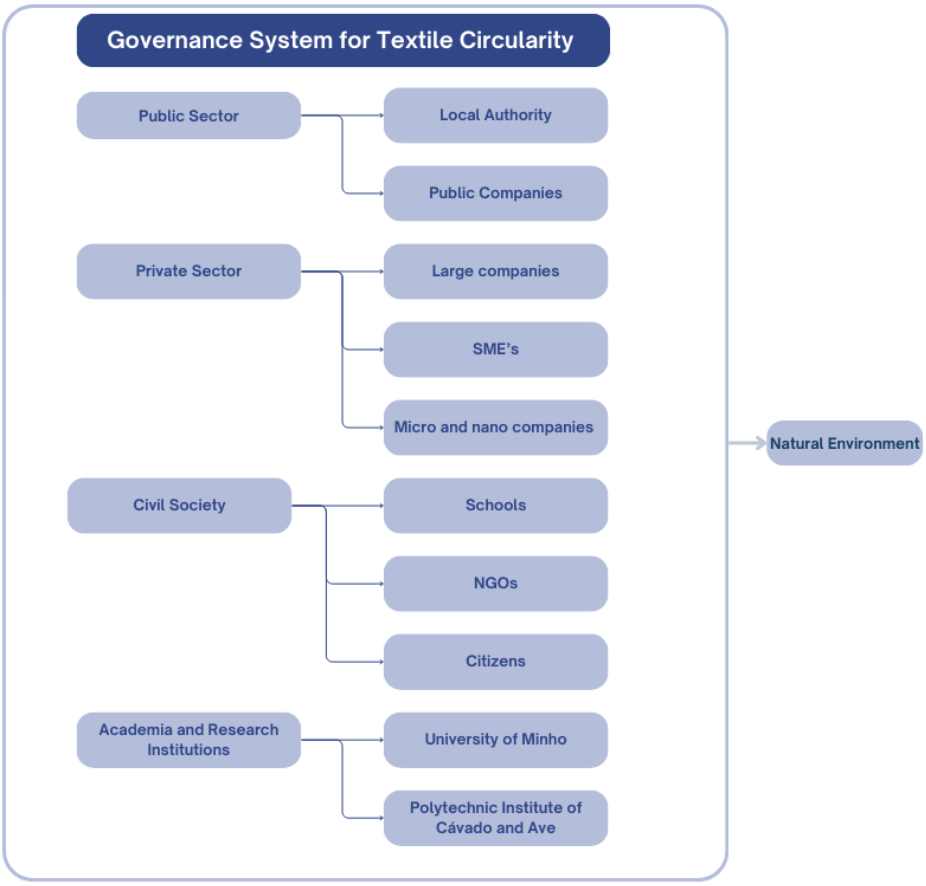

Figure 5 - Guimarães Governance System for textile circularity.

The natural environment will embody and limit the scope of action of all other dimensions, as applied in the doughnut economy model. It will define limitations on the development of the other systems, mainly the economic. These limitations, also known as planetary boundaries, have a crucial role in shaping innovation, sustainability and policy-making for the city sustainable transition, being an active and complex component. Beyond its limitative factors, it can also be a driver for the development of new circular solutions and environmental policies. In this sense, the planetary boundaries will limit the development of the circular solutions, ensuring that they respect the three main pillars of sustainable development (environmental sustainability, economic sustainability and social sustainability).

For the public sector this is mainly represented by Local Authorities and Public Companies. The Guimarães City Council is the main actor for the waste management system of the city as well as for the circular economy strategies. It operates under a concessionary management model to ensure efficient and comprehensive administration. With legal authorisation for such activities, Guimarães City Council oversees the coordination, supervision, and implementation of environmental management policies and actions across its jurisdiction. The City council falls under the public sector dimension of the governance model being responsible for general waste collection throughout the municipality, except

in areas where semi-underground containers are used. The City Council is also responsible for activating the 55 municipality parishes.

In terms of Public Companies, "VITRUS Ambiente, em SA", handles undifferentiated waste collection on the municipality and manages the PAYT system while also overseeing selective waste collection on the semi-underground containers, being an important actor for the TWSC strategy.

In these areas, "VITRUS Ambiente, Em SA", handles undifferentiated waste collection and manages the PAYT system while also overseeing selective waste collection. In the remaining parts of the municipality, RESINORTE is in charge of selective waste collection, as well as the sorting, recovery, and disposal of municipal waste, functioning as the Upper Management Entity for various waste types.

The private sector, for instance, is subdivided by the size of the company. From a circular economy perspective, these considerations are vital to understand the potential environmental footprint these companies might have on the territory. Additionally, according to the Portuguese General Regime for Waste Management (Law Decree n.º 102-D/2020, article nº 98), companies with less than ten workers are not necessarily obliged to have an integrated waste registration map. This means that the textile waste produced by said companies doesn't follow an industrial or more specific waste flux and is compared to domestic waste generation. Accessing the volume of textile companies under this condition is vital to predict the: 1) potential contamination risk of the undifferentiated municipal waste fraction with TW; 2) identify key routes for establishing effective TW collection routes; and 3) determine the TW container capacity in areas of larger concentration of these small companies. In parallel, this segmentation of companies will allow a more integrated approach where the necessities of each enterprise dimension are considered. Larger companies are more likely to have internal sustainability plans and human resources allocated to work on circular economy topics, when compared with smaller companies.

In terms of civil society, this dimension is subdivided into citizens, NGOs and schools. All together, they represent the average local textile consumer; however, their role and engagement differ. For citizens, multiple platforms and open communication resources are required to reach the highest number of citizens possible. For schools, specific pedagogical materials and activities should be developed and delivered directly to these institutions. NGOs on circular economy are usually early adopters of new policies and initiatives, they can be used as levers to implement the solutions in the territory.

6.2. Establishment Logic of the ULG

With the Textile Circularity Governance Model set out, the identification of the key actors for the Urbact Local Group (ULG) began. ULGs, from the URBACT programme, are fundamental building-blocks for the formulation and implementation of policies for sustainable urban development. The ULG should be composed by different stakeholders that have a shared interest or concern for a topic. In the case of

Guimarães, the ULG composition should represent the entirety of the textile value chain, answering all the lines of intervention and, in particular, the identified 5 business models for the circular economy. The aim was to bring together stakeholders with an interest in textile circularity and be able to define the territory's pressing issues, existing barriers, levers and potential solutions.

The ULG group of Guimarães (fig. 5), composition is diversified, with representatives of the whole textile sector value chain in the territory.

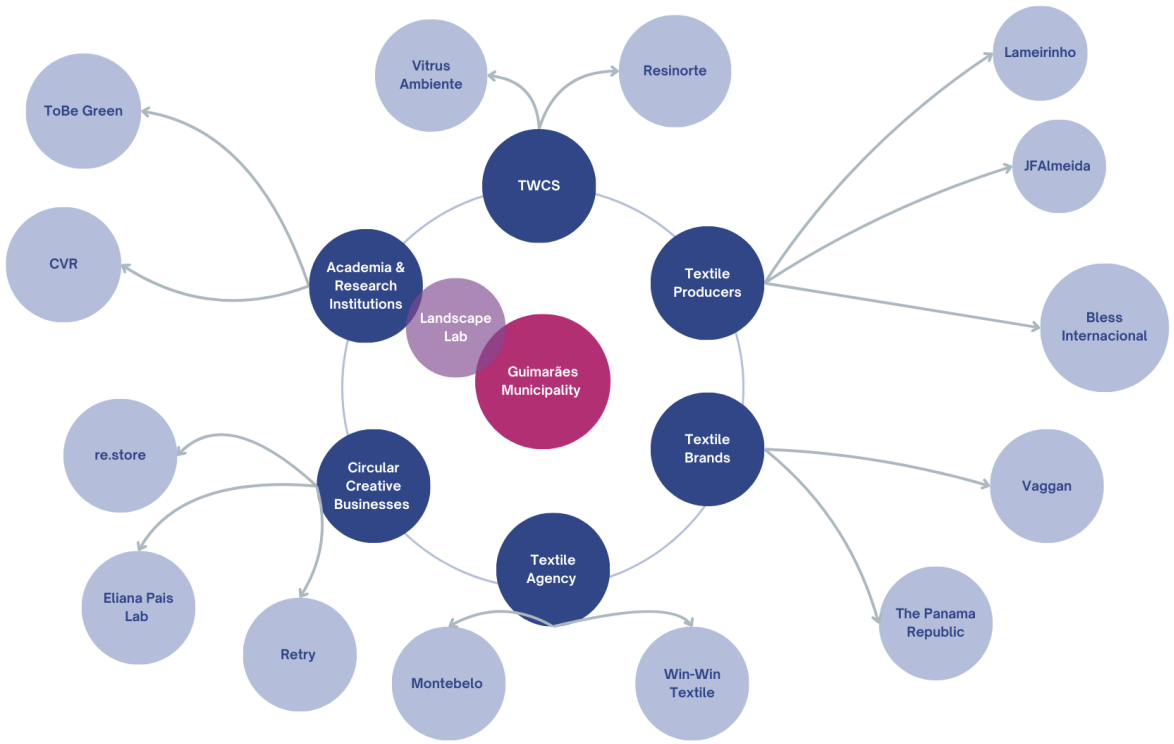

Figure 6 -Guimarães URBACT Local Group of textile sector stakeholders. Group developed under " Let's Go Circular" project implementation.

There is no significant textile raw material extraction in the territory, and so the ULG composition starts with textile industries (Lameirinho, JFAlmeida and Bless Internacional), textile agencies (Win-Win Textiles and Montebelo), clothing brands (Vaggan, The Panama Republic).

Following the waste hierarchy principle, after production we have high-value valorisation operations for post-production TW. In this dimension, we have creative businesses that repurpose production waste and material surplus (re.store and Eliana Pais Lab).

For post-consumer textiles, second-hand textile brands are the highest form of value retention. This business model is also represented in the Guimarães ULG composition (Retry and ToBe Green). For TW collection and treatment, we have enterprises from the Guimarães Waste Management System (Vitrus Ambiente and Resinorte).

Lastly, to close the loop, we have research institutions that work on developing and implementing innovative solutions to waste valorisation (CVR and ToBe Green).

Guimarães Municipality representatives are always present as the binding element of all the ULG members as well as Landscape Laboratory, that acts as a territorial enabler to active multiple stakeholders as well as a research institution.

The civil society, composed of citizens, schools and NGOs is engaged in a parallel manner to the ULG sessions. This dimension of the Guimarães Governance Ecosystem is engaged through specific actions that are elaborated in the Piloting section in this IAP.

ULGs sought to increase the influence of networking activities on local policies and practices by working together on Guimarães textile waste topics and exchanging experiences. This aimed to produce rigorous and creative outcomes and bolster the integration of local stakeholders in local policies development and so boost an overreaching sense of ownership and belonging.

6.3. The ULG Composition

Bless Internacional

Bless Internacional is a textile and apparel manufacturer with over 25 years of experience producing garments for international fashion brands. Blending tradition with innovation, the company is committed to quality, responsible production, and the long-term sustainability of the textile sector. Its approach to circularity is grounded in a belief that ethical practices and environmental care are essential to future competitiveness and trust.

The company integrates circular principles across its operations, working with certified sustainable materials and actively reducing its environmental footprint. It holds certifications such as GOTS, GRS, BCI, and OBP Neutral, and participates in initiatives like SEAQUAL®, using marine plastic waste to produce new high-quality textiles. Through transparent sourcing, traceability, and material innovation, Bless Internacional exemplifies how manufacturers can lead meaningful change in the fashion industry—combining craftsmanship with a strong commitment to environmental stewardship.

Lameirinho

LAMEIRINHO is a family owned portuguese company, in activity since 1948. Resulting from these strong family ties and dedication to their project, LAMEIRINHO has grown steadily and has attained an outstanding level of excellence as a recognized player both in the national and international textile scenarios.

From its facilities in Guimarães, with approximately 200,000 m2, the company produces home textiles for the most prestigious international brands. Being a practically vertical company, it guarantees all

processes: weaving, textile processing, yarn dyeing, roller and digital printing, confection and laundry as well as the shipment of final products. As a result, it has an extremely high production capacity, with presence on 5 continents with an export rate of 90%.

The company has a differentiating market vision and is focused on the future. Therefore, has been developing a vast portfolio of products with innovative concepts, assuming a pioneering role in the home textile area. It works with different types of fibers such as cotton, modal, tencel, linen, silk, cashmere, polyester... which will origin fabrics with different properties and characteristics.

Over the years, LAMEIRINHO has invested in new technologies that have allowed the optimization of its production process, added improvements and thus reducing its environmental impact. This way, it became a recognized company in the market for its high standard of quality through the several and demanding certifications that owns.

Innovation is a commitment of LAMEIRINHO, which actively participates in relevant national and international projects. In this context, it has a purpose of generating value to the entire intervening chain. Currently, it has a team of 800 people, who work in a dedicated way aiming to preserve the signature of quality, trust and differentiation of LAMEIRINHO.

J. F. Almeida, S.A.

J.F. Almeida, S.A. is a family-owned Portuguese company, operating since 1979, that has become a reference in the home textiles sector. Built on strong family values and the dedication of its people, the company has grown consistently and is now recognized as a benchmark player both nationally and internationally.

From its modern industrial park in Guimarães, in the north of Portugal, J.F. Almeida ensures full vertical integration, covering all stages of production — spinning, weaving, dyeing, finishing, confection and shipping. This structure allows the company to offer exceptional operational agility, production flexibility, and a fast response to market demands.

With more than 750 highly qualified professionals, J.F. Almeida combines advanced technology, quality excellence, and attractive design to produce home textiles that meet the needs of both domestic and international markets. In fact, 65% of its production is destined for export, reinforcing its strong global presence.

Driven by a clear mission to remain a family business focused on customer service excellence and sustainable innovation, J.F. Almeida seeks continuous improvement and is committed to delivering high-value solutions to its partners. Its values — ambition, quality, organization, speed, versatility, and credibility — are reflected in every product and service.

In recent years, the company has strengthened its innovation and expansion strategy, inaugurating a new bathrobe manufacturing unit with a €1 million investment, creating 30 new jobs, and achieving a capacity of 1,000 bathrobes per day. In 2023, it opened a new continuous textile finishing unit and a logistics hub, further increasing efficiency and service capacity.

J.F. Almeida stands out as a forward-looking company, committed to technological innovation, sustainability, and the highest standards of quality, while preserving the speed and flexibility that allow it to respond effectively to the challenges of the home textiles market worldwide.

Win-Win Textiles

Win-Win Textiles is based in Portugal and specialises in responsible apparel sourcing for premium, designer, and luxury brands. Our mission is to empower brands to act securely, ethically, and responsibly, simplifying complex challenges to deliver high-quality, sustainable, and regenerative solutions.

With long-standing expertise, we operate a full-service office, managing everything from research and development to final quality inspection. Our experienced teams support brands with sourcing, technical assistance, product development, quality assurance, and supply chain consulting.

We combine sourcing precision with consulting to help brands redesign supply chains, integrate eco-design, and build resilience. Our network of transparent and traceable production partners prioritises local supply chains, innovative materials, and circular economy strategies.

As part of the Let's Go Circular project in Guimarães, we contribute knowledge and experience in textiles, circularity, and supply chain transformation. Our expertise spans sustainable sourcing, partnership development, regenerative design, and transparent business practices — all essential for helping brands and communities adapt to new regulatory and social demands.

Win-Win Textiles actively seek partners who share our commitment to transparency, innovation, and climate responsibility. By fostering collaboration and delivering actionable guidance, we support brands in becoming leaders on the path to a circular future.

Montebelo

Montebelo is a creative agency that combines graphic design and visual communication through Montebelo Studio, with textile services through Montebelo Textile. The agency develops design and textile solutions with a strong commitment to environmental and social responsibility.

Montebelo Textile provides consulting, sourcing, research, product development, supply-chain and production management. The team works with partners across Europe and Asia to develop innovative material solutions and create products that are durable, functional, and refined. With a GOTS-certified

print and embroidery facility in Stuttgart, Montebelo ensures flexible and transparent production across Europe.

Montebelo Studio focuses on research, strategy, design, and content production, shaping brand identities, editorial projects, websites, and visual communication supported by photography, video, illustration, and infographics.

Montebelo collaborates with organizations such as Patagonia Europe, Stanley/Stella, Impetus, Sumo, Circular Systems, and Surfrider Foundation Europe. The team is multilingual and operates from Porto, Guimarães, Marbella, A Coruña, Stuttgart, and Galicia.

Väggan Unipessoal Lda

Väggan Unipessoal Lda, headquartered in Guimarães, Portugal, is an innovative company in the textile sector with a mission to transform the fashion industry through circular economy practices and the recovery of surplus materials, known as *deadstock*. Owner of the brands Väggan and Väggan Limited Editions, the company aims to redefine sustainable production by combining environmental responsibility, creativity, and cultural identity.

Väggan's purpose is to build a bridge between industry and culture, establishing partnerships with companies that hold textile surpluses and connecting them with local artists and creators. From this collaboration emerge limited-edition garments, unique and exclusive pieces that embody not only environmental awareness but also the value of artistic expression.

By giving new life to materials that would otherwise be wasted, Väggan promotes a business model that blends sustainability, innovation, and design, reinforcing the importance of circularity in fashion and contributing to a more responsible and conscious future.

With this vision, Väggan Unipessoal Lda positions itself as an agent of change, proving that it is possible to bring together industry, art, and sustainability to generate a positive impact on the textile sector and on the world.

re.store

re.store® is a Portuguese innovative textile brand combining environmental sustainability with social inclusion. It embraces circular economy in its essence by turning pre-industrial and pre-consumer textiles into higher-value products while creating social impact.

Our mission is to grow re.store's impact and revenue from textile waste by designing products with an extended life cycle and including people belonging to socially vulnerable groups who are typically

excluded from the fashion value chain. We aim at developing a business model where growth comes from better design, material reuse and social inclusion.

We operate an end-to-end model that covers material sourcing and sorting, circular design, small-series manufacturing, and product storytelling. Key activities include upcycling apparel and home textiles fabrics, developing made-to-order collections for organisations, and delivering hands-on training that equips communities and job-seekers with marketable skills. We collaborate with municipalities, NGOs, brands, and education partners to close local loops and build scalable, replicable solutions.

Our expertise spans circular design methodology, waste-to-resource logistics, quality craft production, and impact measurement. We bring a pragmatic approach, clear governance, and agile prototyping to help partners meet sustainability targets, reduce costs, and tell credible and measurable impact stories.

Our Key positive impact indicators include: 9,1 tons of upcycled fabrics and accessories, €70.000,00 paid to our social partners, 65 events where we promote collective awareness towards a more responsible consumer behaviour.

As recognitions, re.store has been awarded with the IPBN (Ireland Portugal Business Network) 2023 Business Success Winner Award and, in 2025, with the EUROPEAN ENTERPRISE PROMOTION AWARDS as the NATIONAL WINNER under the category of RESPONSIBLE AND INCLUSIVE ENTREPRENEURSHIP.

Eliana Pais Lab

At Eliana Pais Lab, we believe fashion can — and should — respect the planet. We work with existing garments, giving them new life through repair, creative mending, and thoughtful redesign.

Our services are rooted in pattern making — with a strong focus on technical and custom garment modelling — and deep expertise in sewing and construction, allowing us to transform each piece with precision, quality, and purpose.

Our collaboration within the Let's Go Circular program has been instrumental in expanding our impact. It has enabled us to co-develop projects with other companies in the initiative, fostering strategic partnerships and testing new approaches to bring reuse and circularity into the conversation within the fashion business community.

Being part of the Guimarães textile business hub is also crucial to our growth. This dynamic ecosystem provides access to collaboration networks, innovation, and shared knowledge — strengthening our ability to deliver meaningful, circular solutions for the textile sector.

More than clothing, we create stories that continue — with intention, creativity, and respect for the world around us.

Retry

Retry is a circular fashion startup created with a clear purpose: to make second-hand clothing a natural and attractive choice. Founded by young entrepreneurs committed to sustainability, the platform allows users to buy and sell quality pre-owned fashion easily and confidently. Built on the belief that reusing clothes is one of the simplest ways to reduce environmental impact, Retry.PT promotes a culture of mindful consumption and wardrobe longevity.

Beyond its digital marketplace, Retry partners with major retailers to bring curated second-hand collections into physical stores. These initiatives help bridge the gap between conscious consumption and convenience, encouraging more people to embrace reuse. Each item is carefully selected, quality-checked, and presented to meet modern consumer expectations. Through practical innovation and a deep sense of environmental responsibility, Retry is helping to reshape how people value and circulate clothing.

ToBe Green

To-Be-Green is an innovative solution that promotes the valorization of end-of-life clothing through sorting, sharing and reuse in "digital social stores", upcycling and recycling. The application of circular economy principles to the textile sector is our goal, using an app and a digital platform focused on new generations of consumers. This approach aims to respond to the growing problem of post-consumer textile waste, including Guimarães. Through community participation, the disposed clothes are analyzed and evaluated, ensuring traceability and measuring the environmental impact of their final destination. To-Be-Green's actions follow the waste hierarchy proposed by the European Union, prioritizing prevention, reuse and recycling, with a focus on sustainability and reducing the ecological footprint of the textile sector.

To-Be-Green implements a collaborative and innovative process that promotes the circular economy in the textile sector, actively involving municipalities, schools, social solidarity institutions (IPSS) and companies. Schools play an essential role in raising awareness among the new generations. Through the integration of educational sessions, classroom activities and webinars, students are challenged to reflect on responsible consumption and the principles of the circular economy. This direct involvement promotes a change of mindset from an early age, encouraging more sustainable and conscious behaviors.

Recently our company obtained its environmental license from CCDRNORTE/APA as a Waste Transformation Operator (Título Único Ambiental - TUA), being one of the first companies to have this license in the end-of-life clothing and textiles.

Vitrus Ambiente

VITRUS Ambiente is a municipal company of the Municipality of Guimarães, endowed with administrative, financial, and patrimonial autonomy. Established in 2010, its core mission is to ensure the efficient management of essential public services, while promoting environmental sustainability, innovation, and the continuous improvement of the quality of life of the local community.

Its key activities include the collection and treatment of urban waste, street cleaning, the maintenance of public spaces, the management of municipal buildings and public parking. The company also plays a strategic role in projects related to sustainable mobility, green space maintenance, and circular economy initiatives, consolidating its position as an operational arm of the municipality.

VITRUS stands out for its expertise in waste management and the implementation of innovative solutions, such as the PAYT (Pay-As-You-Throw) system, a pioneer in Portugal, and the selective collection of biowaste, already established in several parishes, schools, and catering facilities. In parallel, it leads environmental protection projects, such as “Guarda-rios de Guimarães”, aimed at monitoring and safeguarding water resources.

Its proven track record and national and international recognition through sustainability and good practice awards strengthen VITRUS’s position as a benchmark institution. Within the framework of preparing Guimarães for the European Green Capital 2026, the company is a key partner in initiatives focused on ecological transition, urban service innovation, and environmental enhancement, consolidating its role as a driver of change towards a more sustainable future.

RESINORTE

RESINORTE was established on October 20, 2009, as the multimunicipal system responsible for the sorting, collection, recovery, and treatment of municipal solid waste in the North Central region of Portugal. Covering a geographical area of 8,031 km² and serving nearly one million inhabitants, RESINORTE manages approximately 400,000 tons of urban waste annually.

Our mission is to ensure the efficient and sustainable management of the regional waste system, transforming challenges into opportunities that contribute to both local and national strategies for sustainable development. By maximizing resource recovery, ensuring legal compliance, and promoting

innovative practices, RESINORTE enhances human well-being and creates environmental, social, and economic value.

As a reference company in the waste sector, RESINORTE is committed to service quality, guaranteeing that waste is either reintegrated as a resource or directed to the most appropriate destination. The company operates under values that define its culture and impact: ambition, in the pursuit of excellence; integrity, through transparency and fairness; cohesion, driven by shared responsibility; innovation, through the adoption of cutting-edge technologies; and team spirit, fostering collaboration and respect for diversity.

Through this integrated approach, RESINORTE combines technical expertise, innovation, and sustainability to support the transition to a circular economy, where waste becomes a resource or raw material.

CVR - Centro de Valorização de Resíduos (Centre for Waste Valorization)

The CVR – Centre for Waste Valorisation is a Portuguese multi-sector Centre for Technology and Innovation (CTI), founded in 2002, which provides research services, scientific analysis, and the implementation of practical solutions in the field of waste valorisation. It is based in Guimarães, within the University of Minho campus, and has its own 2000 m2 laboratory facilities where it develops its activities. CVR currently employs 20 permanent staff members, including technicians and researchers trained in biology, biotechnology, environmental technology, materials engineering, chemistry, biological sciences, and mechanical engineering, as well as external collaborations with around twenty researchers from Portuguese universities.

The University of Minho, TecMinho, the Industrial Association of Minho and the Portuguese Foundry Association are its founding members. However, the CVR has a total of 106 constituent, founding and adhering members of different types, namely companies from the foundry industry, wastewater and waste management services, the metalworking industry, the ceramics industry, the paper industry, the civil construction sector, technological centres, municipal entities, and non-profit public institutions.

Regardless of the industrial sector, the CVR has the expertise required to support projects and initiatives related to a wide range of industrial and municipal waste. The centre's capabilities enable it to intervene in different stages of a process, namely through laboratory analysis services and specialised consultancy. The CVR also plays an important role as a provider of technical and scientific support for R&D projects, possessing the know-how necessary to develop solutions for waste treatment that are both environmentally and economically sustainable.

CVR is the organiser of the International Conference Wastes: Solutions, Treatments and Opportunities, having completed seven editions by 2025.

7. Strategic and Operational Objectives of the IAP

Recognising that the development of circular solutions is still very reliant on proper waste management practices, the first line of intervention focuses precisely on this topic. More particularly, this document envisions the design of systemic solutions to decrease the 5% of textile waste found in unsorted MSW through the implementation of an effective selective waste collection system and so, avoiding its landfilling.

Furthermore, it aims to recover and extend the life expectancy of the collected materials through innovative and sustainable solutions whilst promoting and supporting the textile sector transition towards a more circular economy.

To ensure that the circular economy actions are well received and will benefit the local community, it is imperative to start by raising the community literacy on the waste generation problematic, the associated impacts and the importance of adopting more circular and sustainable behaviors.

To reshape markets and transition towards a circular economy, the OECD identified five types of circular business models. Based on a structured analysis that followed a business-centric perspective focusing on the models' applicability, potential added value, scalability, cost-effectiveness, and insertion in current markets. These business models are as follows:

1. Circular Supplies Model: Replace single-lifecycle inputs with renewable energy sources and materials;
2. Sharing Platform Model: Product sharing models to increase utilization rate of products by making possible shared use/access/ownership;
3. Product-as-a-service Model: Provide users access to products through service models and don’t retain ownership, to internalize benefits of circular resource productivity;
4. Product Life Extension Model: Solution models that slow the flow of products and materials through the economy by increasing its lifespan through repairing, upgrading, reselling or other;
5. Resource Recovery Model: Recovery of useful resources/energy out of disposed products or by-products ;

These models were defined due to their potential positive environmental impact and their ability to scale within the economy. The transition to circular models reduces pressure on natural resources, decreases waste generation and can lead to economic efficiencies. In addition, technological changes, increased environmental awareness and evolving consumer preferences have driven the adoption of

these approaches (OECD, 2019). Considering the significance that textile companies have in Guimarães economy, this business-centric approach is vital to achieving Guimarães vision for and inclusive textiles circularity transition whilst boosting the Portuguese textile sector's competitiveness on international markets.

Guimarães focused on developing an integrated approach to the textile problematic, alongside the Urbact Local Group (ULG) quadruple helix structure, the action plan will be based on the following three Lines of Intervention (LoI):

1) Textile Waste Management;

2) Education, Empowerment and Awareness Raising for Textile Circularity;

3) Promote Circular Textile Solutions and Businesses.

Following the LoI logic, Guimarães set out four strategic objectives focused on increasing selective waste collection, raising awareness, encouraging circular economy practices, and developing supporting tools into a cohesive and actionable strategy. The strategic objectives are as follows (fig. 3):

SO1: Improve TW management and reduce MSW contamination;

SO2: Raise the community's awareness about the impacts of TW on the ecosystems;

SO3: Incentivize circular solutions and businesses;

SO4: Development of tools to boost the circularity of the textile sector;

Figure 7 - Guimarães Integrated Action Plan four strategic objectives for the Circular Transition of the textile sector: 1) Improve textile waste collection and reduce municipal solid waste contamination; 2) Raise community awareness on textile waste impacts on ecosystems; 3) incentivize the implementation of circular economy ideas for the textile sector; and 4) Develop tools that boost the textile sector circularity.

Each of the strategic objectives is linked to at least one operational objective that in turn will guide the identification and design of the actions, adapted to the specific needs of the territory, that will help achieve Guimarães's vision.

7.1. Strategic Objectives

SO1: Improve TW management and reduce MSW contamination

The textile sector has a long relevance for Guimarães economy and a great environmental impact, namely in the municipality water bodies. Despite great efforts have been made to diminish the environmental impacts in the textile production stage, there is the clear need to close the loop and find solutions for final stage of the textile products' end of life-cycle. To this end and to promote textile waste valorization over incineration or landfill deposition, a system to promote textile waste selective collection is imperative. This SO is directly related to the governance sphere, in this case the municipality, and the development of a system and associated infrastructure that will allow this selective collection.

SO2: **Raise community awareness to the impacts of textile waste on the ecosystems**

This SO is directly addressed to the community. The quality of the selective textile waste collection is paramount to allow its valorization which in turn is deeply connected with the citizens' involvement and compliance with the defined program. According to previous studies done on the municipality, textile waste accounts for 5.4% of the undifferentiated MSW which not only poses environmental risks associated with its deposition in landfills or incineration but also increases waste management operational costs due to the textile fibers entanglement on the used machinery.

SO3: **Incentivize the implementation of circular economy ideas in the textile sector**

Reaching the target goals of increasing TW selective collection by 30%, until 2025, is not enough. Even though taxation and the extended producers' responsibility are useful strategies to make companies accountable for the waste generation environmental impact, alone they can cause the strangulation of the textile business fabric, especially attending that most enterprises are of micro- to small-dimensions and already face difficulties competing in the global market. Incentives are crucial to bring all elements to the table in a positive and collaborative manner and ensure the economic viability of an important sector for the local, and even national, economy. This SO is destined to the enterprise's helix of the ULG structure.

SO4: **Development of tools that boost the textile circularity**

This last SO will be the linking thread between all the other presented SOs. To ensure a systemic TW selective collection, circularity tools must be developed to ensure the connection between all the elements of the territorial textile value-chain. The goal is to develop valuable tools that allow to map the TW generation and its valorization circuits, whilst promoting a networking system for a more inclusive and efficient TW management.

7.2. Operational Objectives and Actions

Following the strategic objectives (SOs), these now need to be subdivided and organized as operational objectives (OOs). These are crucial, for the implementation of the IAP, because they will translate high-level strategic goals into concrete actions, making it possible to monitor progress and adjust activities in real time. By breaking down the SO, the OO allows a more manageable organization of tasks and help allocate resources more effectively, setting the tone to the definition of concrete actions that are essential to achieve this IAP overarching vision.

For organizational purposes, each will be listed bellow, under its respective SO.

SO1) Improve TW management and reduce MSW contamination

To achieve this SO, two different textile waste streams need to be identified: post-consumer textile waste and post production textile waste. The first one concerns textile discarded by end-users, like clothing, footwear, household textiles like bedding and curtains, and other fabric products that consumers have used and then thrown away or diverted for recycling and reuse. The second one, the post-consumer textile waste, or post-industrial waste, refers to waste generated before products leave factories, providing a relatively clean and homogeneous feedstock for recycling technologies. Another type of textile waste is pre-consumer waste, this one is generated after the products have entered the market but before they are sold to the end consumer. This can occur due to damages during transportation, during retail, or others, and for the purpose of this IAP it won't be considered.

For post-consumer textile waste, the OO is:

OO1.1) Development of a public Textile Waste Collection System in Guimarães Municipality to increase selective collection by 30% until 2026.

By rolling out a dedicated Textile Waste Collection Service (TWCS) at municipal level creates the physical and logistical backbone for substantially higher separate collection rates. Route designs, container-type studies and a clear frequency methodology ensure collections are both efficient and user-friendly.

For post-production textile waste:

OO1.2) Promote improved Industrial Textile Waste Management, by 2027;

To achieve a reduction in the MSW contamination with TW, one of the main goals of the IAP. Given Guimarães economic profile, improvements on the industrial textile waste management, in particular of small enterprises, is vital due to the potential risk of contamination of undifferentiated solid municipal waste (USMW) with TW. Whilst large enterprises might have the necessary financial and human resources to develop circular economy strategies and are, by law, obliged to report and send their waste to specific waste operators, the smaller enterprises face a different reality. These may not beobliged to issue IWRM (Integrated Waste Registration Map), due to their size (≤ 10 employees) and waste generation (average superior to 1100 liters per day). Some of these might not even have their economic activity legalised, posing a serious contamination risk to municipal waste.

The aim is for the municipality tailor collection routes and container volumes to each site's contamination risk and waste output. This data-driven approach minimizes mixed-waste contamination and delivers cleaner, more recyclable industrial streams.

For general textile waste, both post-production and post-consumer:

OO1.3) Promote high-value recovery solutions for TW (municipal and industrial), by 2030

Through targeted studies of Quality-By-Region (QBR) facilities holding environmental permits, OO3 pinpoints where local post-consumer and post-industrial textiles can enter advanced recycling or up-cycling processes. Building on that intelligence, the plan forges industrial-symbiosis partnerships—linking waste generators to recyclers—to pilot and scale high-value recovery solutions.

SO2) Raise community awareness to the impacts of textile waste on the ecosystems

OO2.1) Increase by 15% the commitment level to the textile circularity transition by developing three distinct strategies and communication materials until 2027.

Addressing schools, businesses, municipal bodies, citizen groups and the general public with tailored training, workshops, task-force workplans and multi-channel communications, this OO drives a measurable uptick in stakeholder participation. By assessing needs, segmenting audiences, crafting creative content strategies and designing events around the EU's 6R principles, this objective turns awareness into action.

SO3) Incentivize circular solutions and businesses

OO3.1) Plan for the development of at least three Circular Economy ideas, until 2030.

Currently, due to the needed investments needed to improve the sustainability waste management systems and expand selectively collected fractions, pure circular economy concepts are often postponed. This OO intends to seed local innovation on textiles circularity and promote them. The actions go from defining a "Circular Textiles" quality label, with specific criteria, piloting at least one upcycling kiosk, promoting second-hand stores and platforms, scaling the existing "Upgreen Circular" pilot and codifying a city-wide financial rollout plan. Together, these initiatives—and their supporting procurement, regulation, monitoring and budget frameworks—forge viable, revenue-generating pathways for textile reuse and remanufacturing.

SO4) Development of tools that boost the textile circularity

OO4.1) Set an Integrated Textile Circularity Ecosystems focusin on a value-chain approach, by 2026

To equip all stakeholders, this OO develops certification schemes, circular-procurement regulations, a public traceability database and targeted R&D programs into sorting and recycling technologies. It also defines performance indicators, convenes multidisciplinary working groups and lays the groundwork for a permanent Circular-Textile R&I Hub—creating the standards, data and innovation ecosystem needed to sustain a fully circular textile sector in Guimarães.

7.3. IAP Logic Scheme

In development, please check:
https://www.canva.com/design/DAGktqs0rHs/BKvc8v2o1McqQkxfz7lTOg/edit?utm_content=DAGktqs0rHs&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

8. Summary of Actions for Guimarães Textile Circularity

Guimarães, with its long tradition in textiles, has, within the territory, the whole value chain represented, with the exception of the raw-material productions (e.g. cotton production). This means that there is a high potential to close the loop within the municipality and neighboring ones.

The actions here designed aim to close this loop and address the existing gaps. A total of 20 actions are organised under the three defined lines of intervention and listed on table 3. *Table 3 – Guimarães Integrated Action Plan actions under their respective line of intervention.*

LoI 1: Textile Waste Management
1. Containers for TWSC on the municipality parishes
2. Containers for TWSC on cultural, sports and recreational associations with more than 200 associates
3. Map textile industries with and without Integrated Waste Registration Map
4. Study of licensed textile waste operators (OGRs) and identify local needs
LoI 2: Education, Empowerment and Awareness Raising for Circularity
5. Environemntal Education about the TW impacts on the Ecosystems
6. Consumer Communication Campaign on Local Textile Consumption
7. Implement a Training Programme for Textile Sector Circularity
8. Establish a Municipal Circular Economy Task-Force
9. Workshops on TW using the Citizens Assembly Methodology
10. Promotion of awareness-raising actions at local events
LoI 3: Development of Circular Business Models
11. Create a circular textiles label
12. Set at least one repair or repurposing kiosk textile goods
13. Development of an Investment Plan for Textile Circular Solutions
14. Simplify certification processes & unlock circularity incentives
15. Sustainable Public Procurement Plan for Textiles
16. Promote Use of Databases for Textile Waste and Surplus Materials
17. R&D of new equipment, processes and tools for Textile Waste Recovery

18. Promote Multidisciplinary Cooperation for Circular Systemic Solutions
19. Development of a Circular Textile Hub
20. Textile Industrial Symbiosis Plan

9. Steps undertaken at Local Level - Pilot Actions

The ULG meetings were essential to better understand the local challenges related to the circularity of the textile sector as well as the circularity of textile waste management, at the local level. Since the first meeting, participants were able to share their points-of-view on the sustainability of the textile sector, associated concerns and expectations from the Let's Go Circular Project. Overall, the sessions acted as both a mapping opportunity for the territory and as creative solutions think-tanks.

On the ground, pilot-actions were implemented to test the feasibility of selective textile collection in the municipality. The pilot itself started with the placement of textile collection bins in 10 different schools of the municipality. This pilot was expanded to all municipality 88 schools in 2025. Along with these containers, Landscape Laboratory environmental education programme, PEGADAS, brought awareness raising activities to the municipality schools, that focused on the environmental footprint of the textiles and the importance of adopting more circular habits.

On a more global level, Guimarães has implemented a successful bio-waste strategy, the RRRCICLO programme. With this strategy, 1.650 tones of green-waste were collected in 2022 and 2023, 3,629 tones of recyclable waste were collected door-to-door with the PAYT system in 2023 and overall, 10,256 tones of organic waste collected between january, 2022, and may 2024. The vision is to extend this strategy, to other waste fractions.

The pilot actions developed under the "Let's Go Circular" project will be organized according to the lines of intervention of the URBACT methodology.

Governance Level

Initially, all secondary and vocational schools of the municipality were equiped with TWSC bins (Fig. 8) were distributed in the pilot project, a total of 11 schools. Collection campaigns were organized and the networking systems between the schools and the vaporization company, To Be Green, were already established. To keep in line with the waste hierarchy, the collected textiles underwent a separation system were collected clothes in good condition were donated to associations that work with people from underprivileged backgrounds. The collected textile that couldn't be distributed was shredded and valued in

municipality merchandising goods such as canvas bags and blankets. The blankets were distributed by two routes, the first one was the HoReCa system in the historical centre of the municipality and, the second one, in the public animal shelters system. In turn, the tote bags were distributed with the goal of making the municipal market a zero-plastic site.

Figure 8 – Left: Example of container for selective post-consumer textile collection in schools.

For the remaining 77 municipality schools, the bins were already purchased and where installed by the end of 2024 (Fig. 9)).

Figure 9 – Containers for selective post-consumer textile collection in schools pilot expansion presentation in the European Week for Waste Prevention, 2024.

Awareness raising for circular consumption patterns

1 - PEGADAS programme

In-line with the distribution of TWSC bins in schools, environmental education sessions were developed under PEGADAS programme (Guimarães Ecological Programme for Environmental development and Learning). In these sessions the fast-fashion problematic was presented to the pupils as well the connection between step raising of textile production worldwide and the decrease of the textile goods average life-expectancy (Fig. 10)

Figure 10 – Environmental Education sessions at local schools focusing on the impacts of textile waste on the environment.

Additionally, the environmental impacts of the production and wrong discard phase were also showed, focusing on the aquatic ecosystems. These environmental problems were also connected to the ubiquitous presence of microplastics in the environment and the rise of synthetic fibers. At the end of the theoretical-practical session, the students created tote bags from old t-shirts that would otherwise end-up in the undifferentiated MSW (Fig. 11)

Figure 11 – Example of a practical output – totebag made out of an old t-shirt- from the environmental education sessions on the impacts of textile waste on the environment.

2 – Textile Sustainability Events

Guimarães municipality coordinated with Landscape Laboratory the organization of two major event, Green Week and Spring Fest, which focused on raising awareness for more sustainable textile consumption practices and overall sustainability. In Green Week best-practices companies on textile production were invited to present and sell their products and to give presentations on the current challenges and solutions to achieve the circular transition of the textile sector (Fig. 12).

Figure 12 – Guimarães Urbact Local Group representatives sharing their experience and knowledge on textile circularity. From the top right to the left, are the following representatives: re.store, ToBe Green, Retry and CVR.

This event is directed to all of the population whilst Spring Fest is more directed to families and children. With this in mind, the Spring Fest counted with the elaboration of District C logo handmade by elderly people from socio-cultural associations that used TW. Furthermore, environmental education activities were available to the population like ecoprint activities using native plants.

PART III: Prioritised Action planning details

10. List of Prioritised Actions

The priority actions were identified by the ULG members during the co-creation sessions, as the most commonly mentioned actions and tools that the textile sector would need to make their transition towards a more circular business model. The actions, listed below, were presented and agreed to by all the ULG members.

1. Implement a Training Programme for Textile Sector Circularity;
2. Establish a Municipal Circular Economy Task-Force;
3. Promote Use of Databases for Textile Waste and Surplus Materials;
4. Consumer Communication Campaign on Local Textile Consumption;
5. R&D of new equipment, processes and tools for Textile Waste Recovery;
6. Simplify certification processes & unlock circularity incentives;
7. Development of a Circular Textile Hub;
8. Sustainable Public Procurement Plan for Textiles;
9. Promote Multidisciplinary Cooperation for Circular Systemic Solutions;
10. Textile Industrial Symbiosis Plan;

Additionally, the ULG were asked to prioritize the actions according to their order of importance and feasibility. A mentimeter survey was used to collect data that can be found on Figure 13.

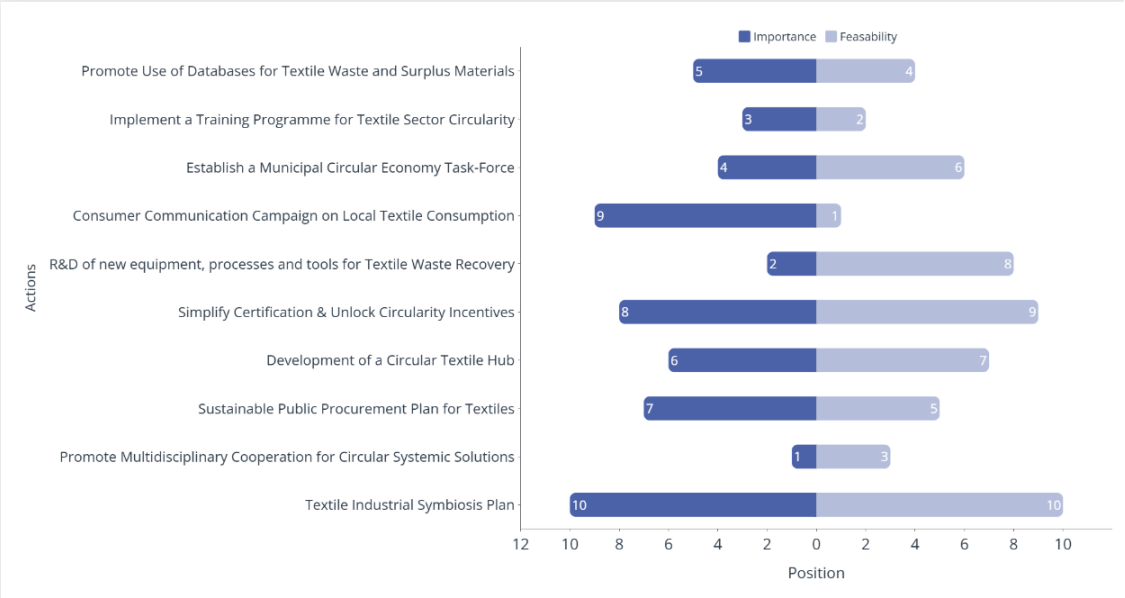

Figure 13 – Integrated Action Plan actions priorisation exercises for the Integrated Action Plan done by the Urbact Local Group using a mentimeter survey.

The action where ordered from 1-the most important/feasible and 10-the least important/feasible.

Besides this actions, Guimarães ULG members also reinforced the need to define specific criteria to assess textile circularity. This not only will push the sector transition by helping companies to redirect their sustainable efforts and answer market needs, but will also promote market transparency. Such indicators will also guide companies in the development of their DPP as well as to define public procurement criteria for textiles.

Alongside it, there is a clear need to digitalise the sector. Whilst companies have inventories for materials and products, the same traceability is vital for deadstocks and post-production TW. This will help the development of parallel and circular value-chain that will promote the efficient circular businesses development.

PART IV: Implementation framework

11. Detailed presentation of the actions

In this section, the priorised actions will be detailed with their respective descriptions, indicators, subactions (activities), implementation timelines, and indicative budget. A complete description of all actions included in the Integrated Action Plan (IAP) is available in the Annex.

In light of the mandatory selective collection of the municipal textile waste fraction in effect since 2025, the previously prioritised action "Promote a database for textile waste, raw-materials surplus and other materials to close the loop on the sector activity" has been replaced by the action "Containers for Textile Waste Selective Collection in Parishes". This change is justified by the fact that several databases and platforms for textile circularity already exist at the national and European levels. As such, the focus will now be on preparing local stakeholders to engage with, contribute to, and benefit from these existing systems.

Action 1: Containers for Textile Waste Selective Collection in Parishes

Provide textile waste collection bins (TWSC) in all 55 parishes in Guimarães. This establishes a municipal network of selective textile-collection containers, closing the loop on clothing reuse and recycling. By optimizing collection routes through data-backed methodologies (AI-driven tools and territorial studies on TW generation patterns), this reduces textile waste sent to landfill and recovers resources (e.g. textiles become secondary raw materials).

This action supports the municipal waste plan (PAPERSU 2030) emphasis on prevention and reinforced selective collection. Guimarães's waste hierarchy and communication campaign under the RRRCICLO strategy already stress separate textile collection.

Indicators	
Execution Indicator	% of parishes equipped with textile waste containers
	Number of containers installed
	Number of optimized collection routes implemented
Impact Indicator	% reduction of textile waste (TW) in mixed municipal solid waste (MSW)
	Increase in tonnes of TW selectively collected
	CO_2 emissions reduction from optimized logistics

Methodological subactions (activities):

Timeline	Activity	Indicators	
		Execution	Impact

2026-2028	Conduct a feasibility study and route analysis to determine container types/locations	Report completed; Nº of perished studied;	Improved container placement efficiency (operator feedback); Lower complaint rate from users (baseline vs after)
	Implementation Strategy Development	Strategy developed; Published Strategy	Improved deployment (feedback from waste operators);
2027-2028	Train parish staff and waste operators on proper use and maintenance of containers.	# of staff trained; # of sessions held	Staff satisfaction and ability to manage TWSC containers (survey)
	Launch a public information campaign (leveraging RRRCICLO materials) to inform residents about new textile bins.	# of citizens reached; # of campaign materials produced	Increase in correct bin use (collected volume & contamination rate of MSW); Awareness score (survey)
2027-2030	Procure and deploy textile-specific collection bins in all parishes	# of bins installed; % coverage of 48 parishes	+% in TW selectively collected per year; Decrease in TW in residual MSW
	Optimize collection logistics (e.g. dedicated vehicles, AI scheduling) and integrate with waste operator (Vitrus, Resinorte) routes.	Implementation of AI-based routing tool; # of new routes	Decrease in fuel use per ton of TW collected; Decrease of GHG emissions (carbon footprint of the WMS); Increase in collection frequency efficiency
2030- onwards	Establish a maintenance scheme (regular emptying, cleanliness)	# of maintenance rounds;	Perception of cleanliness and

		# incident reports	functionality of TWSC infrastructure; Feedback from Vitrus and Resinorte on container misuse or maintenance

Budget, Resources and Financial Schemes:

The rough estimation costs revolve around 5 million euros. The costs include pre-implementation plans, implementation and maintenance plans, communication strategy as well as equipment purchasing.

Major expenses include containers, collection vehicles/trucks, and operational costs. Preliminary/implementation studies and an IT system for route optimisation will be needed. Soft investments include awareness materials and training for stakeholders.

Given the EU obligation of TW selective collection and the financial volume this action needs, the funding scheme will need a blended approach, combining national, municipal and EU funds and loans. Since this action needs strict coordination with the territory municipal waste management operator, Resinorte, the costs will probably be split between the two organizations. However, EU Waste Framework is not clear on the underlying schemes for TW collection, it puts the collection responsibility on governance bodies, like municipalities, but lacks clarity in terms of fees, investments and treatment responsibilities.

For funding sources:

- Municipality budget;
- National funds:

    Portugal's ERDF/FEDER (Cohesion Policy);

    National waste prevention funds (PERSU);

    Recovery & Resilience Plan (PRR) green transition programs.

- EU grants (mostly for innovative solutions deployment and sustainable urban development)

    LIFE Programme, CLuster 6 on environment and circular economy;

    HORIZON, namely NetZero Cities that can support innovative collection pilots. Local budget covers base costs.

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Delayed implementation, compromising EUs goals of selective TW collection by 2025.	Start TW selective collection on a smaller scale. Start with schools and key-community places. This measure requires less investments and starts developing behavioural-changes in the community.
Risk of low usage if placement is inconvenient or poorly publicized	Engage parish councils in site selection; Run an information campaign in multiple languages/channels; Develop reward systems like the SAYR and PAYT for TW
High cost overrun	Tender for phased rollout; Seek co-funding

Main stakeholders involved:

- Municipality sustainability and environment departments;
- 55 parish councils;
- Municipal waste operators (Vitrus Ambiente, Resinorte);
- Recycling social enterprises ("To Be Green");
- CCDR-N and Portuguese Environment Agency (APA) for technical support;
- Intermunicipal groups (Ave Region) for coordination.

Expected Outputs:

- All 48 parishes equipped with textile collection bins;
- Increased textile diversion (target +30% selective collection by 2026);
- Reduced textile fraction in mixed waste
- Shorter local value chains for returned textiles.

Relevance & Alignment:

This action implements Guimarães's RRRCICLO (Circular Economy) strategy and national waste plan by enabling source-separated textile recovery. It concretely follows Circular Economy Action Plan (CEAP) principles of keeping materials in use and aligns with the EU "zero waste" and textile strategies. By collecting textiles locally, it also reduces the global footprint of fast fashion (85% of textile raw materials for the EU

come from outside Europe. This supports the city's climate neutrality and circularity goals (Climate Pact, NetZero Cities commitment).

Action 2: Training Programme for Textile Sector Circularity

Deliver a structured training curriculum for local textile businesses on new circular economy regulations and practices. Modules cover the EU textile strategy (ESPR/ecodesign, Digital Product Passport), Extended Producer Responsibility (EPR) obligations, Design for Recycling, and sustainable business models. The programme helps SMEs comply with incoming rules and leverage circular opportunities. The tailored workshops aim to reach 20–50 companies in the first 2 years, with certification of participation. Afterwards, the necessity of keeping the programme will be reevaluated.

Indicators	
Execution Indicator	Number of workshops/training modules delivered
	Number of textile SMEs enrolled or trained
	Availability of online training platform (yes/no)
	Number of certification completions issued
Impact Indicator	% of companies reporting increased knowledge/confidence on EU regulations (pre- and post-training surveys)
	Increase in compliance with DPP, ESPR and EPR within local textile sector (via survey)

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026-2027	Curriculum co-design with experts, including training manuals and case studies.	# of co-creation sessions with stakeholders	Alignment of content with EU regulatory needs (ESPR, DPP, EPR)

	Partner with industry associations (ATP, Vila Verde Textile Cluster) to recruit companies	# of companies reached; # of collaborations established	Conversion rate (reached : enrolled)
	Offer the first edition of workshops (2026–2027) on topics like eco-design, product passports, repair/REEMAP techniques, and green procurement. Provide hands-on sessions for designers and managers.	# of training sessions held; # of private companies attending #of participants certified	Increase in compliance-readiness among SMEs (post-training survey); Programme adequacy (feedback survey)
	Provide follow-up advisory support	# of companies that require support	Support usefulness (survey); #of circular practices developed during the support;
2027–2028	Reevaluation of the programme performance and current need and adjust it accordingly.	Report issued	Tracking of circular practices implementation (nº); Use of acquired knowledge in actual business operations (case studies) Value of the programme for companies visibility and investment (survey)

Budget, Resources and Financial Schemes:

Funds cover curriculum development, expert fees, venue and digital platform, and materials and in-kind staff time from Landscape Lab and the city representatives from the environment and sustainability department.

The estimated cost for this action is approximately €30,000, covering the development and delivery of the full training programme. This budget includes the preparation of training materials, hiring expert facilitators, producing sector-specific guidance documents, conducting workshops, and designing pre- and post-training assessment tools. Soft investments dominate the cost structure, particularly curriculum development, SME engagement, and the creation of communication materials to ensure consistent participation across the sector.

Operational resources will rely heavily on partnerships with local experts on textile and local textile companies, who may provide in-kind support through technical expertise, case studies, or hosting facilities. The municipality will coordinate programme logistics, outreach to companies, and integration with broader capacity-building initiatives under the IAP.

Funding Sources:

- Municipal budget (education, environment or economic development budget);
- National grants:
    - Fundo Ambiental Português;
    - PRR;
    - Portugal 2030
- EU
    - Erasmus+ for Adult Education and/or VET;
    - FSE+
    - LIFE Programme (LIFE CAP PT II)

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Low participation if SMEs see it is time-consuming	subsidize participation; Involve private “early adopters” first; Use PMAC signatories and Climate Contracts; Pre-consultation on the training programme best-format (online, in-person, hybrid) and focus-group

	to determine content relevance (use URBACT ULG members)
Keeping content up-to-date with evolving EU law	Continuous liaison with EC updates; Use URBACT network best practices; Use AI driven research and alert tools for updates on the CE communications regarding circular economy and textiles;

Main stakeholders involved:

- Municipality (Sustainability, Training & Development, Education offices);
- Landscape Laboratory (program lead);
- Private sector: Textile companies (managers and designers);
- Networking and dissemination vehicle: trade associations (ATP);
- Academia and Expertise providers: UMinho, FICEP, ToBe Green, CITEVE, CVR;
- Other potential targets: vocational schools and industry clusters.

Expected Outputs:

- At least 1 comprehensive training manual;
- 5 modular courses;
- Certificate of attendance for participants;
- Workshop report;.
- Workshop communications materials (social media posts, etc);
- Improved company readiness measured by a pre- and post-workshop survey;

Relevance & Alignment

The programme aims to reflect the municipality effort to support local businesses in their effort to comply with EU sustainability and circularity standards (ESPR/ecodesign, REACH, EPR), recognizing the lack of financial and human resources as well as the lack of expertise, especially in smaller companies that make the majority of textile companies in the territory,. The action is aligned with the EU Textiles Strategy and CEAP goal to empower businesses. This capacity-building supports Guimarães's Climate Neutrality Pact by reducing environmental impacts from textile production and upskilling the workforce also creates "green jobs" and enhances economic resilience in the local textile sector.

Action 3: Municipal Circular Economy Task Force

Establish a formal multi-stakeholder Task Force (TF) on textile circularity. Chaired by the Mayor's office, the TF meets regularly (2025–2027) to coordinate the IAP actions, share data and best practices, and engage citizens. The action also aims to mitigate monitoring needs of the territory performance by centralising information and data regarding circular economy and efficient waste management. This further boosts a science- and data-backed climate transition, aiding decision-making processes.

Members include city officials (environment, economy, education), industry representatives (textile firms, ATP), researchers (UMinho), NGOs (Landscape Lab, civic groups) and neighboring municipalities. The TF ensures integrated planning (social, economic, environmental), accountability (monitoring targets), and connects to URBACT/Circular Cities networks for learning.

Indicators	
Execution Indicator	Task Force established (yes/no)
	Number of meetings held
	Monitoring framework and policy roadmap published (yes/no)
Impact Indicator	Level of cross-departmental alignment on circular textile policy (via scorecards)
	Number of policy actions revised or launched through Task Force
	Institutional readiness to integrate circularity into governance (via interviews or surveys)
	Stakeholder feedback on governance effectiveness (via interviews or surveys)

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
		Decree issued (yes/no)	Institutional legitimacy

2025-2026	Issue mayoral decree to mandate TF formation and Assign secretariat (Environmental Dept.);	Secretariat formally designated (yes/no) Timeline and operational procedures documented	of Task Force (measured via internal department alignment or stakeholder recognition); Readiness of secretariat to coordinate (qualitative assessment)
	Identify and recruit members from across sectors;	# of actors formally joining Task Force; Sectoral diversity of members (public, private, academic, civic)	Level of representation from key textile circularity stakeholders (measured against a defined target);
	Hold quarterly meetings to discuss progress on textile circular actions, align with net-zero goals, and troubleshoot issues.	# of meetings held; % of attendance rate; # of action points documented and assigned	Perceived usefulness of meetings (survey); #bottlenecks resolved or actions unlock due to the TF action;
	Develop a workplan linking to Guimarães's Municipal Plan for Climate Action (PMAC) and Circular Economy strategy (RRRCICLO).	Workplan document produced (yes/no);	Degree of policy coherence (scoring rubric) Workplan used as reference in other municipal actions or budgets (yes/no)
2026 - onwards	Prepare biannual reports	# of reports produced	Alignment score with municipal CCC actions (annual reporting)
	Engage the TF in citizen workshops (see Action 4) and URBACT peer exchanges (Let's Go Circular).	# of co-creation actions developed;	Usefulness perception (survey)

	Ongoing coordination;	# of meetings held; % of attendance rate; # of action points	Perceived usefulness of meetings (survey); #bottlenecks resolved or actions unlock due to the TF action;
	Data centralisation and processing;	Data centre developed and organized; Adoption rate by TF members	Centralization usefulness (perception survey & number of projects/applications that drew data from this centre)

Budget, Resources and Financial Schemes:

The estimated 3.000€ includes the meeting costs and minor consultancy. This budget was calculated for the 2026-2027 period. This amount accounts for facilitation materials, expert participation in selected sessions, and the development of light governance-support tools. As this action is primarily centred on coordination and strategic alignment, its financial needs are modest and focus mainly on soft investments.

Most resources will be provided in-kind by the Municipality and the Landscape Laboratory, including staff time, access to data systems, meeting venues, and use of URBACT toolkits and methodologies. Internal departments (environment, procurement, education, communications) will contribute their own personnel to ensure cross-sectoral coordination, and no major capital expenditure is required.

Funding Sources:

- Municipality budget (sustainability office).
- National: non-relevant
- EU (in case of cooperation with other cities and for methodological exploitation):
    - URBACT network;
    - EU NetZero Cities pilot funds (for coordination).
    - CEP (Cohesion) capacity-building grants.

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure

Risk of siloed interests or lack of follow-through	Formal mandate; Clear definition of responsibilities and timeplan; Public reporting
Overlap with existing committees	Early coordinate other committees to avoid work duplication (e.g. Green Capital Award Committee; CCRI committee, etc)
Short staff availability	Team reinforcement though public hiring; Integration of new works through professional internships; Merit grants for university students;

Main stakeholders involved:

- Municipal departments (Environment, Public Procurement, Communications, Education);
- Landscape Lab;
- OGRs and textile industries, as data providers;
- Circular economy experts (R&D institutions)

Expected Outputs:

- Establishment of a functioning Task Force;
- 6–8 meetings/year;
- Action plan alignment (IAP implementation tracker);
- Monitoring of CE initiatives and plans implementation/ Policy coordination (e.g. linking textile and climate plans);
- Creation of an urban governance forum on circular textiles.

Relevance & Alignment:

Builds on URBACT's co-production methodology and reinforces Guimarães commitment on the Circular Cities Declaration and City Climate Contract, translating into concrete actions. This mirrors Guimarães's broader governance ecosystem ("Governance Ecosystem – Guimarães 2030" and fosters the partnerships needed for systemic change whilst promoting a transparent and accountable work.

Action 4: Consumer Communication Campaign on Local Textile Consumption

Launch a targeted communications campaign to educate the public on the environmental impacts of textiles and the benefits of local, shorter-value-chain products. This "Circular Textiles" campaign will highlight how buying locally-made or recycled textiles reduces emissions and waste (as per CEAP "empower consumers"). It will use clear visuals, social media, local events and school programs to shift consumer behavior towards

sustainable clothing (e.g. reuse, repair, buying local). Such a strategic plan is called for in Guimarães's IAP to raise awareness of sustainable textile habits and proper waste separation.

Indicators	
Execution Indicator	Number of campaigns delivered (schools, media, public events)
	Number of communication materials produced (videos, infographics, stories)
	Estimated outreach (media impressions, views, attendees)
Impact Indicator	Increase in citizen awareness about textile lifecycle and impacts (via pre/post surveys)
	Increase in citizen participation in reuse/recycling activities (number)
	Perception change measured through civic engagement indices

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026	Develop a strategic communication plan (2026–2027) with segmented messaging for general public, youth, and local businesses;	Strategy developed	-
2026-2028	Produce campaign materials: posters, videos, infographics (e.g. explain "circular fashion" concept, Guimarães textile heritage).	# of videos, exhibitions, or photo essays produced	Evaluate via surveys (e.g. awareness of textile waste issues before/after campaign); # of people reached
	Organize events: "Fashion Repair Cafés", swap fairs, and in-market	# of events organized; # of people attending;	% of attendance rate between similar events; Increase in textile waste

	demonstrations. Partner with local designers and influencers.		sorting behavior or reuse habits (survey)
	Engage schools (curriculum modules on textiles and environment) and community groups in the message.	# of schools involved; # of sessions held;	Students' knowledge of textile impacts (quiz or interviews)
	Promote "Buy Local" days or label schemes for local textile brands (to emphasize shorter supply chains).	# of partnerships signed; #of days organized;	Audience emotional engagement and reach (survey); Behavioral change (baseline vs after)
	Leverage the existing RRRCICLO/Circular Cities branding, and European campaigns (e.g. European Circular Economy Week)	# of events organized; # of people attending;	% of attendance rate between similar events; Increase in textile waste sorting behavior or reuse habits (survey)
2027 - onwards	Reevaluate and redirect efforts if necessary;	Report issued; Compliance with initial plan SWOT analysis conducted;	Increased awareness (survey); # of issues resolved; # of improvements made

Budget, Resources and Financial Schemes:

The estimated budget for this action is €15,000, covering the key costs of designing and delivering an effective multi-channel communication campaign. Expenditures include graphic design, media buys, and some event-related costs such as facilitation materials, and personnel support for public awareness activities. Additional costs include the creation of visual content (videos, infographics) and targeted messaging to reach schools, youth groups, families, and local consumers.

A significant portion of the programme will be supported through in-kind resources. The Municipality and the Landscape Laboratory will contribute staff time, coordination support, and access to their

communication infrastructure, including social media channels, mailing lists, local press partnerships, and existing educational tools. These contributions substantially reduce the financial burden and allow the campaign to reach a wider audience than the budget alone would permit.

Funding Sources:

- Municipal communications budget;
- National grants for environmental education:
  - Ambiente.pt grants;
  - ICNF programmes;
  - Fundo ambiental;
- EU:
  - CCRI support;
  - LIFE Programme Environment (awareness projects);
  - NetZero Cities communications funding
- Other:
  - Sponsorship by local businesses

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Message fatigue or lack of public interest	Use engaging storytelling, leverage local cultural references; Use visual metaphors as aid; Diversify communication outlets and formats to reach a wider audience;
Conveying nuanced benefits of local textiles	Use simple infographics; Use local businesses testimonies and interviews;
Budget shortfalls	Leverage free/low-cost channels; partnerships with universities/media; Use in-house labor;

Main Stakeholders involved:

- Municipality Communications Office;
- Other Municipal Departments (Sustainability, Education, Culture);
- Textile businesses and local retailers (for co-marketing);
- NGOs (environmental and consumer groups); schools and universities; media outlets.
- EU networks (Covenant of Mayors, Circular Cities)

Expected Outputs:

- comprehensive communications strategy document;
- Campaign materials;
- Public events held (>10 events);
- Measured increase in awareness (% of citizens recognizing textile impacts).

Ideally, a measurable rise in residents using local or recycled textiles and correctly using the new collection bins will be observed.

Relevance & Alignment:

By informing consumers, this action implements the CEAP's call to "empower consumers" and aligns with the EU Textiles Strategy focus on changing consumption, complements RRRCICLO's existing awareness efforts and fits Guimarães's "Information & Communications" priority. Engaging citizens builds social support for the other actions (collection, procurement) and helps realize the municipal climate-neutrality vision through demand-side change.

Action 5: R&D of new equipment, processes and tools for Textile Waste Recovery Technologies

Sponsor research projects and pilots on innovative recycling technologies for textile waste (both pre- and post-consumer). In partnership withlocal R&D institutions, this will explore mechanical fiber separation, chemical recycling of polyesters, eco-friendly dye/chemical recovery, and AI-based sorting of mixed fabrics. Results may include prototypes (e.g. a fabric shredder or solvent-recovery unit) or applied solutions (collaboration with startups like Smart Waste Portugal). This bridges a key gap identified by the IAP: new processes/tools to make "hard-to-recycle" materials circular.

Indicators	
Execution Indicator	Number of academic–industry partnerships formed

	Number of R&D pilot projects launched (e.g., for sorting, fiber recovery)
	Research reports or prototypes developed
	Number of R&D projects launched and completed per year
Impact Indicator	Tonnes of textile waste processed in pilots per year (by tonnage)
	Increase in investment in textile circular R&D in Guimarães
	Number of case studies on successful technological and the adoption of tech transfer opportunities initiated with local SMEs or academia
	Yield improvement of fibre recovery vs. baseline
	Unit processing cost compared with current benchmarks (EUR per tonne)

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026	Perform a needs assessment (2024) to prioritize research areas (e.g. complex fiber blends).	Diagnostic report completed	Prioritized R&D areas aligned with real industry challenges
	Establish an R&D working group (LdP; University of Minho, FIBRENAMICS, ToBe Green, textile machinery firms).	# of academic-industry partnerships created	Knowledge exchange between labs and SMEs
	Apply for competitive funding	# of applications submitted	Funds awarded/secured; # of successful applications;

2027-2030	Carry out joint R&D projects (2026–2029) with prototype development and pilot testing (ex: install a small-scale recycling demo plant).	# of pilots initiated and tested	New technologies validated (e.g. fiber recovery efficiency %) # pilot-scale prototypes; # of validated process parameters;
	Publish and disseminate findings at conferences;	#of articles published	#of synergies developed; # of new initiatives developed;
2030-2035	Incorporate results into local industry practices	Scalability report written	# of pilot outcomes moved to industrial or municipal testing stage # of training sessions held # of attendees to the training sessions

Budget, Resources and Financial Schemes:

The estimated budget for this action is €1.5 million, reflecting the significant investment required to develop, test and validate new technologies for textile waste recovery. Expenditures include staffing costs for engineers, researchers and PhD students, acquisition of laboratory equipment, procurement of specialised testing materials, and the potencial installation of a pilot-scale unit capable of demonstrating process viability under real conditions. Additional costs cover prototyping, analytical tools, and technical supervision throughout the research and testing stages.

Resource needs include laboratory space, specialised machinery for mechanical or chemical recovery processes, and suitable environments for continuous testing and refinement. Making use of existing research facilities and laboratory infrastructures will reduce overall costs by enabling the project to build on existing technical capacity, equipment and supporting systems.Funding Sources:

- National:
  - Portugal 2030;
  - PRR;
  - FCTT
  - IAPMEI SME support,
  - CCDR-N regional funding
- EU:
  - Horizon Europe Clusters 4-6;
  - EIC Accelerator for prototypes;
  - LIFE Innovation;
  - EIT RawMaterials

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Technical complexity and long development time	Interactive prototyping with industry feedback; Focus on near-term feasibilities; Continuous development monitoring and adaptation;
Lack of commercial uptake	involve companies from the start (also protect IP); Development of a strategic marketing campaign; Leverage EU communication channels and platforms,
Budget shortfalls	Diversify funding sources; Phase deliverables to match funding;

	Implement a financial plan with regular monitoring;

Main Stakeholders involved:

- Landscape Laboratory (project mediator)
- Academia/R&D: University of Minho (eng. and chemistry departments), CITEVE, FIBRENAMICS, Smart Waste Portugal.
- Industry: local textile manufacturers (dye houses, weavers), machinery makers, chemical firms.
- Innovation bodies: Centro 3 (BEI cluster), CCDR-N, IAPMEI (for R&D support). NGOs: Landscape Lab (project mediator).

Expected Outputs:

- At least one funded R&D projects;
- New recycling equipment prototypes;
- Reports/papers on scientific breakthroughs.
- Potentially one pilot recycling facility;
- Development of R&D protocols

Ultimately, new local recycling capabilities and added value products (e.g. recycled yarn).
Relevance & Alignment:

Encourages the innovation ecosystem and meets "Textile Circularity Ecosystem" objectives. It aligns with EU and national strategies calling for sustainable tech (EU CEAP, Green Deal) and builds on Guimarães's industrial heritage and regional cluster strengths (CITEVE and others). By creating local recycling tech, Guimarães reduces waste exports and aligns with the CEAP's priority on sustainable products and processes. It also reinforces Guimarães municipality commitment on its inclusive climate neutrality transition by supporting the local businesses development.

Action 6: Simplify Certification & Unlock Circularity Incentives

Review and streamline environmental/circular certification for textile companies, and propose policy incentives. This involves auditing current schemes (EU Ecolabel, national EMAS/AENOR labels) to identify bottlenecks for SMEs. Recommendations might include fast-track audit processes, reduced fees for local producers, and simplified criteria for recycled content. Concurrently, lobby for economic incentives (tax breaks, grants or preferential VAT) for circular measures (e.g. repairs, use of recycled fibers). The IAP envisages policy proposals to cut bureaucratic burdens and introduce supportive measures.

Indicators	
Execution Indicator	Number of policy workshops/consultations held with SMEs and certifiers
	Mapping of circular certification systems (yes/no)
	Procedures or incentive pathways simplified /Toolbox developed (yes/no)
Impact Indicator	Decrease in time/cost to access circular certification steps for textile companies (measured baseline vs. after)
	Satisfaction with incentive schemes (perception survey)
	Uptake of new circular business models incentivized by simplified access

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026-2027	Map all relevant certifications and incentives;	Mapping report produced; # of procedures mapped	Clarity and transparency of current certification routes
	Consulting textile businesses to document pain points.	# of meetings held; # of stakeholders activated and engaged;	# of issues addressed;
	Organize roundtables with regulators (economy and environment ministries) to discuss streamlining	# of meetings held;	# of solutions identified;
2027-2028	Toolkit development: e.g. integrate textile criteria into Portugal's eco-labelling, create	Toolkit or streamlined guide published	# of users # Uptake of circular certification

	one-stop application for multiple certificates.		usefulness perception
	Work with national partners (ATP, IAPMEI) to incorporate textiles in future "Sustainable Mobility and Circular Economy" programmes.	# of partnerships developed	
	Promote the idea of a local "Made in Guimarães Circular" label as a trademark with simpler rules. Timeline: 2026–2035		

Budget, Resources and Financial Schemes:

The estimated budget for this action is €20,000, covering targeted consultancy, meeting costs, and technical support to analyse current certification schemes and propose simplified pathways for textile companies. This action will require highly qualified human resource, with backgrounds on legal/regulatory expertise, meeting facilities, ISO and certification expertise as well as life-cycle assessment experience. The allocation is designed to finance focused, high-impact analytical work without major operational or capital expenses. The budget supports the production of clear guidance and practical recommendations that make certification more accessible for SMEs and enable future circularity incentives.

Funding Sources:

- Municipal: pilot incentives schemes;
- National
    - Ministry of Economy/Environment may fund pilot incentive schemes;
    - mall PIE (Public Investment) budgets for policy studies;
    - FCT
- European:
    - LIFE programme CSA actions;
    - Horizon (Call on circular economy governance);

- Interreg partnerships (to share best practice);
- The city can leverage its City Climate Contract status to receive technical assistance on regulatory innovation.

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Resistance from regulators	Present clear SME case; Pilot small-scale reforms; Clear cost-benefit correlation study;
Complex EU rules	Collaborate with APA and other institutions;
Ensuring incentives benefit circular actions not simply greening	tie benefits to measurable circular KPIs

Main stakeholders Involved:

- Municipality (Environmental Dept, Legal Office, Economy Dept);
- Landscape Lab;
- Textile companies;
- Certification bodies (ISO, national ecolabel agencies);
- Trade associations (ATP, SME confederations);
- Regulatory agencies (APA);
- National agencies (IAPMEI, CCDR-N).
- EU consultant Commission initiatives on sustainable products (CEN work on textile standards)

Expected Outputs:

- Published report with streamlined certification proposals;
- Draft legislation, fiscal ordinance or potential whitepaper for incentives;
- Launch of a pilot support programme for circular textile businesses
- Reduced administrative time for firms obtaining “sustainability” labels.

Relevance & Alignment:

By lowering barriers, this accelerates market uptake of circular textiles, echoing CEAP's goal to make sustainable products the norm. It also ties to Guimarães's Climate Pact (public commitment). Simplified certification and incentives strengthen local industry competitiveness and contribute to the city's circular economy targets.

Action 7: Development of a Circular Textile Hub

The Hub is thought to be developed to serve two governance spheres: the citizens and the private companies, under a heavily politically supported umbrella of innovation and sustainability. This Hub will take the learnings from the already developed creative businesses incubator (Guimarães LabPac) to develop circular solutions and innovation for the territory. Through several co-creation sessions that we have made (e.g. citizens assemblies, Schools EcoParliaments, and Co-creation sessions with private businesses and Industries), we already have the foundations of what the several stakeholders from the city need and want to achieve the territory's circular transition.

For the citizens, and following the Right to Repair Directive and the already deployed municipality initiative of "RRRCICLO EcoKiosks" (https://RRRCICLO.pt/ecoquiosques-RRRCICLO/), the aim is to provide circular solutions along the product value chain, starting with textiles and small electronics. One particular initiative that we aim to implement is the development of a Textile FabLab to support our fashion and textile engineering students community, develop community workshops and further support repair services.

This circular solution will also be integrated in URBIA to promote services accessibility and local artisans. URBIA is Guimarães' collaborative urban management platform to enhance real-time data access, citizen participation, and sustainable urban governance that uses advanced technologies to support smart city initiatives. It builds on Urgezes Circular repair workshops, EcoQuiosques RRRCICLO kiosks, school-driven upcycling initiatives.

Indicators	
Execution Indicator	Development of a Guimarães Circular Hub
	Development of a Textile FabLab
	Workshops and Event Programme Developed
Impact Indicator	Textiles repaired/upcycled (tonnes)

	Green jobs created
	URBIA usage (registrations/bookings
	Network connectivity index
	Citizens satisfaction rate (survey)

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026-2028	Stakeholder Co-Design & Governance Setup	# co-creation meetings Governance charter published	Stakeholder buy-in score (survey)
	Site Selection & Space Retrofit	Site MoU signed (yes/no) Retrofit progress (%)	Accessibility & safety cor
	Guimarães circular Businesses and Initiatives Mapping and developed inscription survey (self-reporting)	# of initiatives mapped Self-reporting tool developed and available	-
2028-2030	Digital Platform Integration on URBIA	% of initiatives incorporated	# of self-reported businesses and initiatives #of users for URBIA Circularity indicators
	FabLab and Workshops Launch	FabLab is Operational (yes/no)	Outputs per session (repair/upcycle items);

		# of workshops held # of circular businesses involved	Skill gain score (pre/post survey); Usefulness perception (survey)
2030- onwards	Incubator & Mentorship Programme	# Calls launched # Projects developed # Mentorship hours delivered # of students involved	Pilot sales by startups (€) External investment attracted (€) # of circular jobs developed
	Circular Textile Solutions Development	# of innovation challenges launched # of textile circular solutions co-designed and tested	# of textile solutions adopted by local actors % of reused/recycled materials used
	Innovation Demonstrator Set-Up	Demonstrator (e.g. recycled textile line, compost-dye) installed and functioning # of guided visits and demo days held	Visitor satisfaction (survey ≥80%) Institutional interest in replication (qualitative)
	Monitoring & Scale-Up Strategy	# reports published (annully) Midterm evaluations conducted Learning materials disseminated # of circular solutiosn scaled	# of solutions uptake by external entities (best-practices disseminated) % of actions integrated in municipal startegy

Budget & Resources:

The total estimated budget for the Guimarães Circular Textile Hub is of €2.5 million . This figure reflects the ambition to repurpose a former textile factory into a flagship circular economy facility—bridging historical industrial heritage with forward-looking innovation and sustainability. Alternatively, the Circular Hub can be included in other municipal construction work to optimize space and financial resources. It includes:

- €1 000 – Construction & Retrofit of Former Textile Factory

  This includes architectural adaptation, structural refurbishment, energy efficiency upgrades (e.g., insulation, LED lighting, ventilation), basic accessibility improvements (e.g., ramps, accessible toilets), and compliance with safety and building codes. The aim is to create a modern, functional, and inclusive space while preserving the historical identity of the building.

- €500,000 – Machinery, Equipment and FabLab Fit-Out

  This includes all required textile-repair, textile-testing and digital-fabrication equipment. International benchmarks show that while basic textile workshops can operate with modest investment, professional-level hubs—including industrial sewing machines, overlockers, embroidery tools, cutting equipment, small-scale shredders for testing, dyeing units, 3D printers, laser cutters and specialised prototyping devices—require a substantially higher allocation. This line also covers workbenches, storage systems, safety equipment and modular workstations, ensuring the Hub functions both as a community repair space and as an innovation and prototype-development centre for students, artisans and companies.

- €30,000 – Textile Bank

  Supports the creation of a Textile Bank supplying recovered textiles, samples, surplus materials, and reusable components for students, artisans and local businesses. This includes storage systems, acquisition of initial stock, cataloguing tools, and quality-control processes. The Bank strengthens the Hub's role as a circular resource centre and complements repair, upcycling and prototyping activities.

- €20,000 – Contingency Fund

  Reserved for unexpected construction, permit, or operational costs during setup.

-

- €20,000 – Digital Platform Integration

  Integration of the Hub's digital presence within URBIA, including service listings, training resources, booking systems, and stakeholder directories.

- €100,000 – Staffing & Facilitation

  Salaries for a full-time coordinator, part-time workshop facilitators, and technical support staff to

manage FabLab, events, and incubator activities.

- €30,000 – Workshops, Innovation Challenges & Seed Grants
  Programming budget for public events, community repair cafés, youth innovation challenges, and mini-grants for testing circular business ideas or student prototypes.

This investment reflects Guimarães's strategic intent to anchor its circular textile transition in a tangible, community-powered landmark—positioned to serve both innovation and inclusion goals under the city's European Green Capital 2026 and climate neutrality strategy.

Funding Sources:

- Municipal Budget
- National funds: PRR; Portugal 2030; FCT
- EU Funds: Horizon Europe (cluster 4 or 6) ; Interreg (Europe, Atlantic, SUDOE, POCTEP); LIFE Programme; EU Cohesion fund
- Risks & Mitigation: Data gaps/inconsistencies from companies (Mitigation: confidential data handling, initial focus on aggregate data). Misalignment with EU metrics (Mitigation: align with any forthcoming EU textile circularity indicators to ensure compatibility).

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Data gaps/inconsistencies from companies	Confidential data handling; Initial focus on aggregate data
Misalignment with EU metrics and circularity criteria	Develop a Regulation aligned with EU circularity indicators and priorities
Budget Overruns	Diversify financing sources
Delays in the Physical Development of the Circular Hub	Use public spaces to start developing the capacity-buidling programmes and events, if the Hub is not available.

Main Stakeholders:

- Municipality Departments: Environmental and Sustainability; Public Construction; Finances, etc
- Technical support from Landscape Lab
- Circular Textile businesses, Local artisans and artists
- Academic partners (UMinho, CVR, CITEVE)
- Civic Sector: AVE, Green Brigades, Re.Food, community groups, schools

Expected Outputs:

- Governance model & operational blueprint
- Physical Hub retrofitted and fully equipped
- Circular Economy Indicator in URBIA, live and accessible
- ≥12 FabLab events/year;
- ≥5 startups incubated
- Learning reports and impact publications (annual)

Relevance & Alignment:

This Hub operationalises IAP Strategic Objective 4 and OO4.1 by providing a physical–digital backbone for the city's textile circularity ecosystem. It consolidates multiple municipal initiatives (RRRCICLO, PEGADAS, LabPac, EcoParliaments), links to EU frameworks like the European Green Capital 2026 and Horizon Europe, and responds to stakeholder demands through participatory governance. It also advances Guimarães's commitments under the 100 Climate Neutral Cities Mission, Green City Accord, and CCRI initiative, serving as a replicable circularity model in Southern Europe.

Action 8: Sustainable Textile Public Procurement Plan

Develop and implement circularity criteria for all municipal textile purchases (e.g. uniforms, linens, event fabrics). This involves auditing current procurement, then drafting guidelines that require minimum recycled content, durability, reparability, and take-back clauses in contracts. The plan trains procurement officers and pilots these criteria in one department before full rollout. By leveraging public procurement power, the city boosts demand for sustainable textiles and encourages suppliers to meet higher standards. This concrete output is a set of guidelines (and revised tender documents) for circular textile procurement.

Indicators	
Execution Indicator	Defined and approved circularity criteria for textiles public procurement

	Number of procurement categories reviewed (uniforms, linens, event textiles, etc.) Number of supplier engagement sessions held Number of tender templates revised to include circularity clauses Number of pilot tenders launched using the new requirements
Impact Indicator	Reduce on 30% the environmental impact of Textiles Procurement by 2035 % reduction in environmental impact of municipal textile procurement (CO_2e, water, and material footprint) % increase in recycled content in procured textiles % increase in textiles purchased with durability and reparability guarantees % reduction in textile waste generated from municipal textile use Number of suppliers meeting circular requirements (durability, recycled content, traceability) % of procurement budget directed to circular-certified suppliers Total lifecycle cost savings (TCO) from buying durable and repairable textiles

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026-2027	Inventory of current textile purchases to identify priority areas.	Inventory completed (yes/no) # of textile categories audited	Baseline Value calculated for the Impact of Textiles Procured by the Municipality (CO_{2e}, water) Identification of priority areas for circularity (% of spend identified as high-impact)
	Research best practices (other cities, EU GPP criteria) and engage with APA (Portuguese GPP agency)	State-of-the-art developed (yes/no) # of best-practice benchmarks collected (cities, national, EU)	-

		# of meetings with APA and national GPP experts	
	Draft new procurement policy, specifying e.g. ≥30% recycled content, free repair/collection.	Draft delivered on time (yes/no) # of circular requirements included (ex: recycled %, durability, take-back) # of municipal departments contributing to consultation # of revisions based on stakeholder feedback	Policy completeness score (internal evaluation survey) Stakeholder acceptance level (survey score from procurement and suppliers)
	Consult legal advisors to ensure compliance with procurement law.	Legal compliance verification report completed (yes/no)	% reduction in legal risks associated with procurement Tender-readiness of circularity specifications (yes/no)
	Train municipal procurement staff on the new criteria.	# of staff trained # of training sessions delivered % of procurement staff completing training Staff knowledge improvement (pre/post evaluation score)	Staff capacity to apply circular criteria (measured through case exercises) Reduction in errors in circular tender documents (audit score)
2028	Run a pilot tender (e.g. for school uniforms or hotel linens) to test implementation	# of pilot tenders launched Compliance level of pilot tender with circularity criteria (%) # of eligible suppliers participating	Environmental impact reduction achieved (pilot vs. baseline values) Supplier readiness (number of suppliers meeting new criteria)
2028 - onwards	Scale up to all city tenders	% of all tenders applying circular criteria	Municipality textile comsumption

		# of departments adopting the criteria # of updates made to criteria based on evaluation	environmental impact reduction (%) Increase in procurement budget allocated to textile circular products Reduction in municipal textile waste generation (tonnes/year) Circular public procurement compliance rate (%)
	Monitor by tracking share of procurement meeting criteria.	Monitoring framework designed and approved (yes/no) # of procurement processes monitored per year % of municipal textile procurement categories covered in monitoring Share of textile tenders evaluated against circularity criteria	% of textile procurement meeting all circular criteria Year-on-year increase in compliance rate (%) Environmental impact reduction achieved (CO_2e, water, materials) Improvement in supplier performance (number of suppliers meeting ≥80% of criteria) % reduction in municipal textile waste due to higher quality/durability procurement Cost savings associated with durability and repair provisions (TCO-based)
	Update criteria according to EU regulations and local needs.	# of EU regulatory changes monitored and incorporated (ESPR, DPP, GPP criteria, EPR extensions, REACH) Technical revision report produced (yes/no)	Improved alignment with EU textile sustainability legislation (qualitative score) Number of suppliers adapting to new requirements

		Number of internal departments adopting the updated criteria % of tenders published using the latest version of the criteria	Improvement in procurement officers' confidence using updated criteria (survey) % increase in GPP-compliant expenditure across textile categories

Budget, Resources and Financial Schemes: The estimated budget for this action is €10,000, covering the essential costs of reviewing current procurement practices, defining circularity criteria, and ensuring legal and technical compliance. Expenditures include consultancy for regulatory and procurement guidance, preparation of updated tender specifications, and training materials for municipal procurement staff.

Given the analytical and governance-focused nature of the action, the budget is designed to support targeted expert input and the production of clear procurement guidelines without requiring major operational or infrastructure investment. The allocation enables the municipality to integrate durability, recycled content, reparability and take-back requirements into textile procurement in a structured and legally robust manner.
Funding Sources:

- Municipal budget;
- National funds supporting green public procurement
    - PNPC; e.g. SNCP program;
    - Portugal 2030;
- UE:
    - LIFE CSA actions
    - Horizon Cities & Regions call on GPP and NetZero Cities support

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Slow and formal nature of Procurement processes;	Start early; Reinforce communication and support to departments; Align with budget cycles

Supplier pushback on requirements	Engage suppliers early; Allow sufficient lead time; Justify via green economy goals; Involve private sector in training sessions and justify compliance through EU requirements;

Main stakeholders involved:

- Municipal: Procurement Office; Environment/Sustainability Dept; legal advisors.
- Landscape Laboratory (training provider and action facilitator);
- Sectorial: Textile suppliers (to refine specs);
- APA (for national GPP guidance);
- Local consortium (Ave Region) for joint procurement learning

Expected Outputs:

- A Circular Textile Procurement Handbook (guidelines and template clauses);
- At least one department successfully completes a circular tender;
- Percentage of municipal textile spend on certified circular products increases.

Logic & Alignment:

Green public procurement is explicitly cited by the EEA as critical for textiles and is an EU objective in CEAP ("empower public buyers". This action demonstrates municipal leadership and drives market change by creating local demand for sustainable textiles, consistent with Guimarães's NetZero and Climate Pact commitments.

Action 9: Promote Multidisciplinary Cooperation for Circular Economy

Create an open Circular Textile Innovation Forum – a network or regular event series that brings together diverse actors (designers, engineers, business, arts, consumers) to co-create circular solutions. Events can be annual "Circular Fashion Hackathon" or design-engineering student competitions. This encourages cross-sector collaboration (multidisciplinary) to generate systemic innovations beyond silos. The IAP envisions at least one yearly "innovation challenge" and a sustained community network for textile circularity.

Indicators	
Execution Indicator	Number of cross-sector events (forums, workshops) delivered
	Number of collaborative pilot projects launched
Impact Indicator	Number of partnerships signed between sectors
	Number of innovations emerging from cooperative pilots
	Increase in circular project participation by non-traditional stakeholders (e.g., artists, NGOs)

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact
2026	Establish a coordination team (Municipality + Landscape Lab)	-	-
	Organize a kick-off Circular Textiles Symposium with presentations of local projects and networking sessions;	KoM held; Representativity in the meeting of different stakeholders and demographics;	-
2026 - 2030	Launch annual hackathons or design sprints, inviting students (textile engineering, fashion design, IT) and companies to solve real textile-waste challenges;	# of events organized annually; # of participants; #of businesses involved # of diverse actors involved (arts, academia, SMEs	# new circular ideas developed; Attendance rate (%, compared between events) Degree of ecosystem interconnectedness (network mapping)
	Provide seed grants for winning projects.	# of cross-sector projects funded	Circular results from projects (materials reused, emissions

		# of applicants	reduced); Decarbonization potencial; Circularity rate potencial
	Partner with URBACT and other "smart city" networks (sharing knowledge from Lisbon's innovation hubs)	# of partnerships formed	# of synergies formed (projects and applications) # of best-practices exchanged
	Maintain an online community platform for stakeholders to share ideas and resources between events;	Community formed; # of users	Knowledge sharing and visibility of local initiatives
	Document and promote successful projects (e.g. a matching app for donors/recyclers as per impact example)	# os successful projects	potential circular impact of projects

Budget, Resources and Financial Schemes: 50 k€ for event series (venues, facilitation, prizes)

The estimated budget for this action is €50,000, covering the development and facilitation of multidisciplinary cooperation initiatives between 2026 and 2035. Expenditures include organising co-creation workshops, annual innovation forums, hackathons, thematic working groups, and collaborative events involving designers, engineers, businesses, researchers, schools and civic organisations. Costs also include facilitation materials, expert support for challenge-setting, and small prototype or demonstration resources to enable participants to test early concepts.

Given the extended timeline, the allocation is designed to support periodic activities rather than continuous programming. The budget provides flexibility to deliver focused, high-impact collaboration opportunities that stimulate circular thinking and cross-sector innovation without requiring major capital investment. The action leverages existing municipal and community capacities, emphasising cooperation, creativity and knowledge exchange as core drivers of the city's circular transition.

Funding Sources:

- National:
  - FCT;
  - ANI
  - Portugal 2030;
- EU:
  - Erasmus+ (innovation education)
  - EU Smart Cities and Communities programme (e.g. participatory labs)
- Private sponsors (textile brands) might contribute prizes or in-kind support. Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Limited engagement	Involve universities and vocational schools for participation; Advertise in creative community; Leverage Municipal Initiatives (LabPac, Guimarães Marca, etc)
Sustainability beyond initial events	Develop a working-group to ensure continuity; Link to other similar initiatives at EU level;

Main stakeholders:

- Guimarães Municipality
- Academia: UMinho researchers and students (engineering, design, social sciences)
- R&D institutes (FIBRENAMICS, ToBe Green);
- General public/NGOs (to broaden perspective)
- Industry: Textile designers, engineers, sustainable business incubators

Expected Outputs:

- A formal Circular Textiles Network;
- 3–4 innovation events (hackathons/symposia);
- Several collaborative project proposals or prototypes (e.g. apps, redesigns).
- Increased cross-disciplinary projects addressing textile waste.

Logic & Alignment:

This action encourages co-creation and innovation, key themes in the IAP and CEAP. The EEA notes that systemic change requires innovation across the value chain; this forum directly fosters that. It leverages Guimarães's URBACT participation ("Let's Go Circular") and contributes to an innovation ecosystem for green SMEs and education. Furthermore, it helps maintain Guimarães' textile sector at the cutting-edge of innovation, supporting the sector's economic resilience.

Action 10: Textile Industrial Symbiosis Plan

Develop and implement a *Textile Industrial Symbiosis* network in Guimarães. This strategic plan will map material and energy flows among local companies (producers, dyers, logistics) and identify by-product exchange opportunities. It will convene firms to design collaborative solutions (e.g. shared heating, fabric offcut exchanges, energy sharing) and outline legal/contractual frameworks for cooperation. The outcome is a roadmap for piloting at least one symbiotic partnership (e.g. by-product exchange between a garment maker and a recycler).

Indicators	
Execution Indicator	Plan delivered (yes/no) # of stakeholders involved in the plan
Impact Indicator	Uptake of recommendations by companies or municipality # of new symbiosis initiatives emerging post-pilot Long-term reduction in textile waste (tonnes) Reduction of setor environmental impact (CO_{2e})

Methodological subactions (Activities):

Timeline	Activity	Indicators	
		Execution	Impact

2026-2035	Conduct a comprehensive industrial survey (2025–2026) to map inputs/outputs of key textile firms and allied industries (cutlery, paper, etc.);	# of firms surveyed vs. target % coverage of sector by tonnage/value Data-quality score (completeness, consistency) Stakeholder satisfaction with survey process	Identified symbiosis opportunities (e.g. waste reuse %) # of waste/resource streams identified (e.g. kg/year) # of viable symbiosis matches opportunities Usefulness of mapping for strategy (stakeholder feedback)
	Organize workshops where businesses explore reuse opportunities and co-develop solutions (guided by Circularity advisors);	# of workshops held; # of companies attending Diversity index of participants (SMEs, cutlery, paper, etc.) # of solution concepts generated	# of collaboration proposals formed # of concepts advanced to feasibility stage Business interest level (post-workshop survey)
	Develop a feasibility study and Prospect potential locations;	Feasibility report delivered (yes/no) # of potential locations/site assessments completed Clarity of site criteria (expert review)	# of sites deemed technically & economically viable Readiness score for next-phase pilot (peer review)
2028-2030	Engage R&D/urban planning experts to design pilot projects, including logistics coordination and any shared infrastructure needed.	# of experts/contracts mobilized # of pilot designs or blueprints produced	Technical robustness of pilot design (external expert assessment) # of infrastructure needs specified (e.g. shared heating, logistics)
	Secure commitment (MOUs) from pilot participants and clarify	# of MOUs signed with participant firms Comprehensiveness of	Partner confidence in risk allocation (survey)

	ownership/liability (with legal support).	legal agreements (legal team rating) % of pilot partners with clear liability clauses	
2030 - 2035	Launch at least one pilot symbiosis project (e.g. supply chain for recycled fiber production) and document lessons.	Pilot kicked off by target date (yes/no) # of firms actively exchanging materials Volume of material exchanged (kg or tonnes)	% increase in secondary-fiber production vs. baseline; Pilot satisfaction and lessons-learned (participant interviews)
	Emit report on pilot	Report completed and disseminated (yes/no) # of stakeholders receiving the report Report clarity and actionability (feedback)	# of new symbiosis projects planned based on report Influence on policy or investment decisions (qualitative evidence)

The image bellow, shows an indicative timeline for the subactivities:

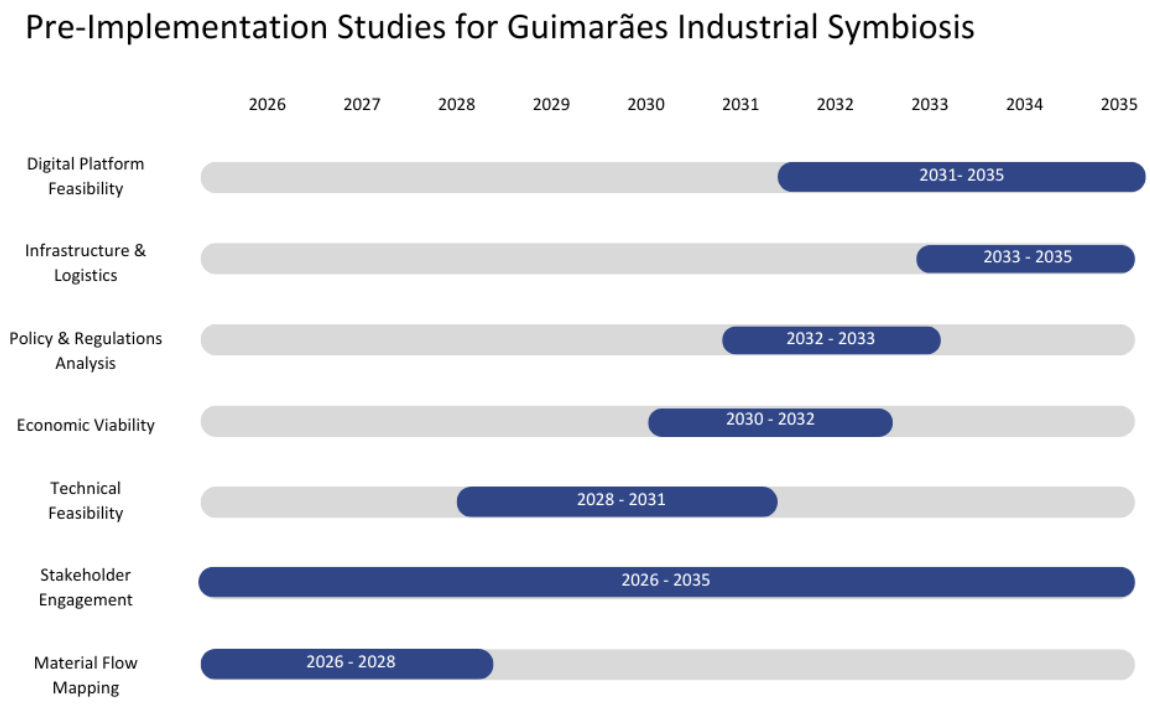

Fig. 14 –: Textile Industrial Symbiosis Plan (Action 10) subactions timeline.

Budget, Resources and Financial Schemes:

The estimated budget for this action is €1.5 million, covering all the preparatory and technical activities required to design and initiate an Industrial Symbiosis (IS) ecosystem in Guimarães. The allocation includes specialised consulting services, industrial and material-flow mapping tools, coordination costs, and the multi-disciplinary expertise needed for a territory-wide symbiosis plan. The budget supports all necessary preliminary studies, including industrial and material flow mapping, stakeholder mapping and engagement processes, technical feasibility assessments, economic viability analyses, and policy and regulatory reviews. It also accounts for infrastructure and logistics studies and the feasibility analysis of a potential IS digital platform to support ongoing exchanges.

Resources required include advanced analytical tools, urban and environmental engineering expertise, and the involvement of the Landscape Laboratory in coordinating data, stakeholders and methodology. A dedicated portion of the budget is allocated to the implementation of pilot projects, including the acquisition of technical equipment, adaptation of infrastructure and testing of real symbiosis exchanges between companies. This investment ensures that Guimarães can move from diagnosis to practical demonstration, laying the groundwork for a scalable industrial symbiosis model in the local textile cluster.

Funding Sources:

- National:
  - PRR;
  - Portugal 2030;
  - IAPMEI
- EU:
  - EU Cohesion/EFRE for industrial innovation (BEI Circular Economy fund);
  - HORIZON (CIRCULAR 4.0)
  - Interreg;
  - EIT

Risks assessment & Mitigation measures:

Risk Assessment	Mitigation measure
Limited engagement	Involve universities and vocational schools for participation;

	Advertise in creative community; Leverage Municipal Initiatives (LabPac, Guimarães Marca, etc)
Sustainability beyond initial events	Develop a working-group to ensure continuity; Link to other similar initiatives at EU level;

Risk Category	Potential Risk	Impact	Likelihood	Mitigation Measures
Stakeholder Engagement	Low participation from SMEs due to lack of awareness or resources	High	High	Early and continuous engagement via the URBACT Local Group (ULG) - Conduct awareness workshops in textile parishes (e.g., Pevidém, Lordelo) - Offer technical support for participation
Data Availability & Transparency	Incomplete or unreliable data on material/waste flows	Medium–High	Medium	- Use CVR and University of Minho for data collection & confidentiality assurances - Incentivize data sharing through benchmarking or diagnostic reports
Technical Compatibility	Difficulty matching waste/resource streams (e.g. textile sludge reuse)	High	Medium	- Conduct pilot studies before scaling - Involve technical experts in feasibility stage (e.g. CVR, research labs)

Economic Viability	Lack of financial incentive or clear ROI for firms	High	Medium	Develop business cases tailored to SME scale - Seek co-funding (Portugal 2030, PRR) for infrastructure investments
Policy and Legal Barriers	Waste/by-product classification inhibits reuse (e.g., sludge, chemicals)	Medium	Medium	Work with APA (Portuguese Environment Agency) to clarify classification - Propose regulatory adaptation zones or pilot derogations
Diffuse Geography	Logistics inefficiencies due to spatial dispersion of industries	Medium	High	Identify territorial micro-clusters for localized IS (e.g., Vale do Ave subregion) - Use shared logistics platforms/hubs with municipal support
Institutional Coordination	Weak coordination between municipality, industry, academia	Medium	Low–Medium	Formalize a coordination group (Guimarães Circular Cluster) - Align with Municipal Environmental Pact & Smart City strategies
Digital Literacy/Adoption	Resistance to or lack of capacity for digital IS platforms	Low–Medium	Medium	Provide training and simple user interfaces - Partner with digital startups or platform providers
Cultural Resistance to Change	Business-as-usual mindset within traditional textile SMEs	Medium	High	-se success stories/case studies from other EU cities - Leverage peer learning through URBACT/Interreg partners

Main Stakeholders:

- Industries: Local textile firms, printers/dyers,
- Logistics and waste firms (Vitrus, Resinorte), regional textile clusters
- Public: Guimarães Municipality (Environment, Industry, Urban Planning)
- Landscape Lab (project coordination). Business associations (ATP),
- Utilities: energy (E-Redes; ADENE; REN) and water (Vimagua)
- Academia/R&D: UMinho and spin-offs (ToBe Green, FIBRENAMICS), CEiiA, Smart Waste Portugal)

Expected Outputs:

- Published *Industrial Symbiosis Strategic Plan*;
- 7 substudies published;
- Material flow maps;
- List of symbiosis opportunities (e.g. key waste-to-input matches)
- At least one operational symbiosis pilot (e.g. fabric scraps used by another firm)
- Long-term, reduced virgin resource use and new revenue from by-products

Logic & Alignment:

Industrial symbiosis embodies the circular economy's top principles. The IAP highlights it as a high-impact solution in Guimarães's dense textile cluster. It directly reduces waste and emissions (shorter supply chains, less raw material use). This action realizes EU directives on proximity/self-sufficiency of waste recovery and is a hallmark project in the NetZero Cities framework. Key municipal and EU strategies (Guimarães IAP, PAPERSU 2030, RRRCICLO, Municipal Climate Plan, City Climate Contract) guided the above plans.

12. Indicative Timeplan and Financial Plan

In this section, we will outline the implementation strategy for all the actions designed in this plan.

The time plan associated with the IAP follows a phased implementation logic, ensuring that each action progresses according to its level of complexity, stakeholder involvement and resource needs (Fig.13).

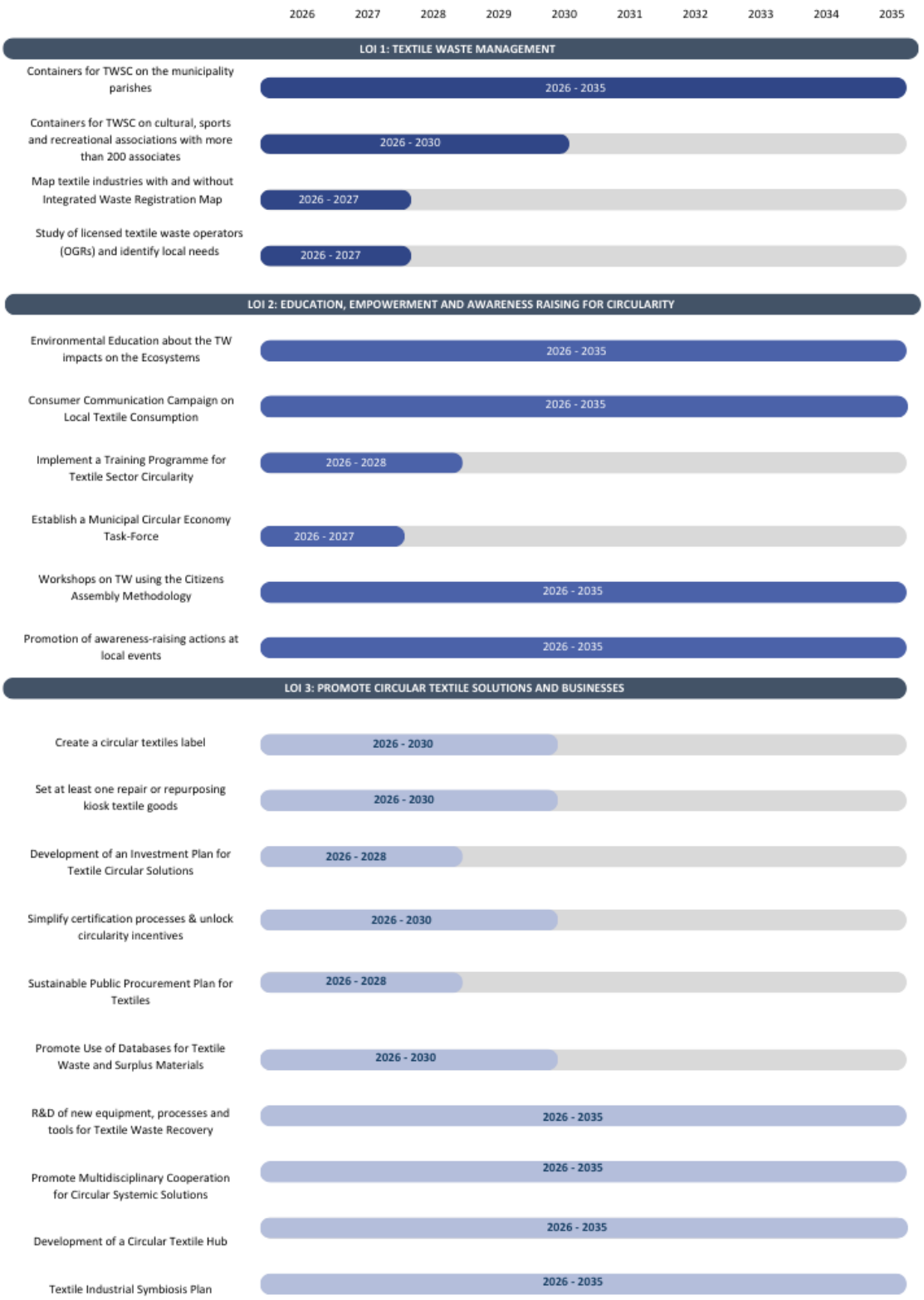

Fig. 13- IAP indicative timeline considering the 2026-2035 timeframe.

The organisation of the actions within the time plan responds to the need to structure implementation in a realistic and manageable manner. Actions that can advance with existing capacities are planned earlier in

the process, while those requiring additional coordination, technical preparation or stakeholder engagement are positioned later. This approach supports a balanced progression from capacity-building and awareness initiatives to more complex and resource-intensive components of the IAP, allowing the necessary conditions to be in place before advancing to demanding operational phases.

The financial plan is organised according to the three Lines of Intervention established in the IAP, grouping actions with similar objectives and operational requirements. The indicative values reflect the level of ambition, maturity and expected impact of each action, providing a coherent framework for resource mobilisation.

The combined indicative budget for the IAP is €22.176 million (Fig. 15). The allocation across the three Lines of Intervention illustrates the differentiated nature of the proposed actions: €5.165 million for Textile Waste Management; €113,000 for Education, Empowerment and Awareness; and €16.898 million for the Promotion of Circular Textile Solutions and Businesses.

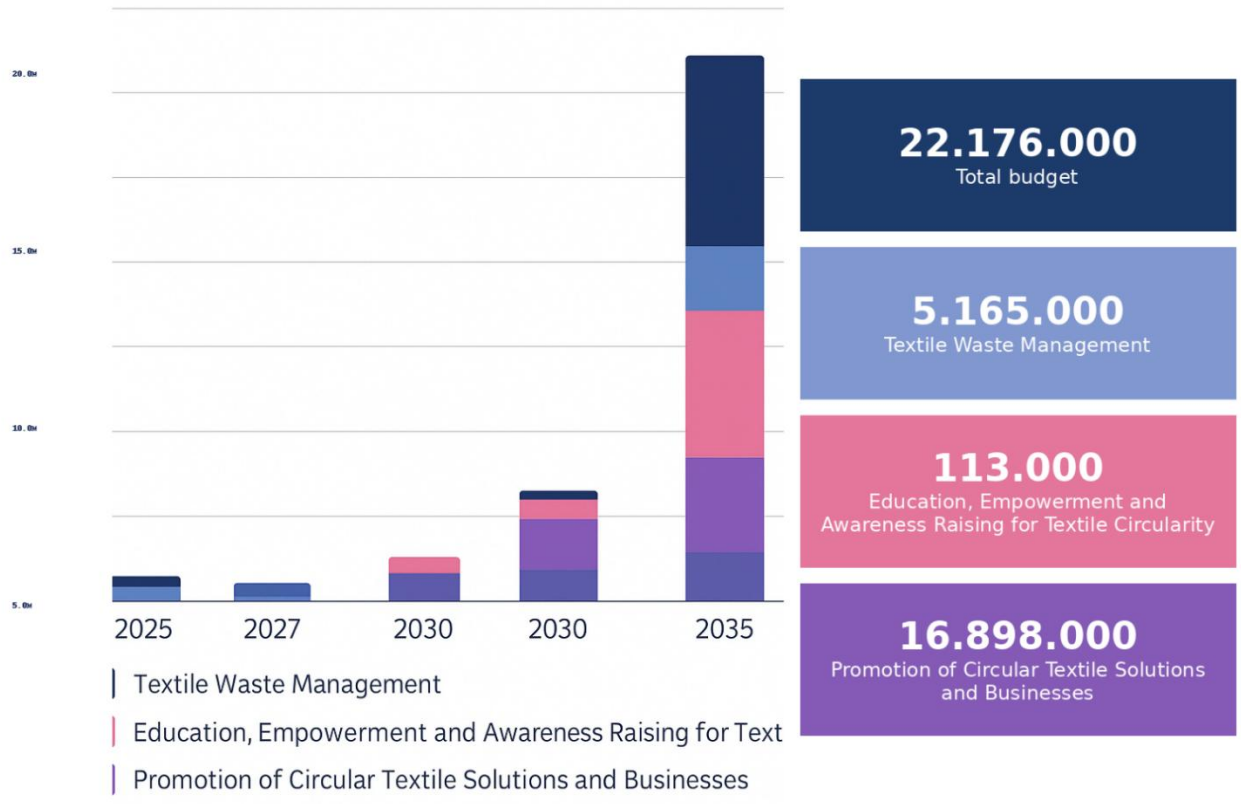

Fig. 15 – IAP indicative budget per Line of Intervention and per timeline.

The articulation between the financial and time plans strengthens the feasibility of the IAP by aligning the required resources with the municipality's operational capacity and the sector's readiness. This alignment ensures that action owners can mobilise funds progressively, coordinate implementation effectively and respond to emerging needs as the transition to a circular textile system evolves.

This section, summarises this integrated approach, linking the budgetary commitments with the implementation timeline for each Line of Intervention. The overall budget per action can be found on the table bellow:

	Indicative Budget	Indicative Timeline
LoI 1: Textile Waste Management	**5 165 000€**	**2026-2035**
1. Containers for TWSC on the municipality parishes	5€ Million	2026-2035
2. Containers for TWSC on cultural, sports and recreational associations with more than 200 associates	150000€	2026-2030
3. Map textile industries with and without Integrated Waste Registration Map	7 500€	2026-2027
4. Study of licensed textile waste operators (OGRs) and identify local needs	7 500€	2026-2027
LoI 2: Education, Empowerment and Awareness Raising for Circularity	**113 000€**	**2026-2035**
5. Environmental Education about the TW impacts on the Ecosystems	22 500€	2026 - 2035
6. Consumer Communication Campaign on Local Textile Consumption	15 000€	2026 - 2035
7. Implement a Training Programme for Textile Sector Circularity	30 000€	2026 - 2028

8. Establish a Municipal Circular Economy Task-Force	3 000€	2026 - 2027
9. Workshops on TW using the Citizens Assembly Methodology	7 500€	2026 - 2035
10. Promotion of awareness-raising actions at local events	35 000€	2026 - 2035
LoI 3: Promote Circular Textile Solutions and Businesses	**16 898 000€**	**2026-2035**
11. Create a circular textiles label	25 000€	2026 - 2030
12. Set at least one repair or repurposing kiosk textile goods	45 000€	2026 - 2030
13. Development of an Investment Plan for Textile Circular Solutions	10 000€	2026 - 2028
14. Simplify certification processes & unlock circularity incentives	20 000€	2026 - 2030
15. Sustainable Public Procurement Plan for Textiles	10 000€	2026 - 2028

16. Promote Use of Databases for Textile Waste and Surplus Materials	150 00€	2026 - 2030
17. R&D of new equipment, processes and tools for Textile Waste Recovery	1.5€ Million	2026 - 2035
18. Promote Multidisciplinary Cooperation for Circular Systemic Solutions	50 000 €	2026 - 2035
19. Development of a Circular Textile Hub	2.5€ Million	2026 - 2035
20. Textile Industrial Symbiosis Plan	1.5€ Million	2026 - 2035
Total Indicative Budget:		22 176 000€

PART IV: Monitoring framework

In this section, we will define the overall strategy to monitor the IAP implementation. Each of the priority actions has specific execution and impact indicators associated. Since this IAP focus on the Textile Sector transition, many necessary actions fall under the private domain. This monitoring framework will dedicate itself on monitoring the municipality's overall performance in terms of textile production, consumption and disposal following the IAPs Three lines on Intervention:

1) Textile Waste Management;
2) Education, Empowerment and Awareness Raising for Textile Circularity;
3) Promote Circular Textile Solutions and Businesses.

The first line of intervention will directly imply the TW disposal. The second and third line will impact the whole value chain.

Circularity Indicator	Calculation formula	Baseline value (Year)		Target value (Year)		Data sources	Responsible
Textile Separate Collection Rate	TCR% = $\left(\frac{TW\ selectively\ collected}{Total\ MSW\ generted}\right) \times 100$	0 tonnes	2024	≈1 200 tonnes	2035	Vitrus Ambiente S.A. Resinorte	Guimarães Municipality Resinorte Vitrus Ambiente S.A.
Post-Consumer Textile Waste Generation per capita	PCTWG=$\left(\frac{TW\ generated}{Residing\ Pop.}\right) \times 100$	6.97 kg *per capita* per year	2023	4.4 kg *per capita* per year	2035	INE Vitrus Ambiente S.A. Resinorte	Guimarães Municipality
Textile Waste Share (TWS) in MSW	TWS=$\left(\frac{TW\ in\ MSW}{Total\ MSW\ generted}\right) \times 100$	4.5% - 5.32%	2016 & 2023	2.25%	2035	Resinorte CVR	Guimarães Municipality Landscape Laboratory Resinorte Vitrus Ambiente S.A.
Textile Green Public Procurement	TGPP&= $\left(\frac{Textile\ tenders\ with\ GPP\ criteria}{Total\ tenders}\right) \times 100$	0	2025	30%	2035	Public Entities	Guimarães Municipality
Jobs in Circular Economy Sectors Rate	JCE= $\left(\frac{\sum Employment\ in\ NACE\ CE\ sectors\ (recycling + re}{Total\ Emplyment}\right.$	N.A.	2025	2.5%	2035	INE Guimarães Municipaliy	Guimarães Municipality

Increase private sector commitment towards sustainability	# Guimarães Climate Pact Signatories	≈135	2025	300	2035	Guimarães 2030 Structure Guimarães Municipality	Private Sector
Citizen Awareness on Textile Circularity	Awareness% = (No. of respondents with "high awareness" ÷ Total survey respondents) × 100	To be calculated	2026				
Circular Services Access	CSA= (No. of residents living within a walkable distance of a repair kiosk or reuse hub ÷ Total residents) × 100	To be calculated	2026				
Schools Circular Engagement	SCE %= $\left(\frac{Nº\ of\ Schools\ with\ CE\ in\ their\ curriculem}{Total\ Schools}\right)$	To be calculated	2026				

The set of indicators will translate the overall success rate of implementation of the IAP in changing the *status quo* from linear to circular when it comes to textiles.

Whilst designing the list of indicators, it became evident that there is a lack of infrastructure to reply to more specific circular indicators such as:

- Textile recycling rate;
- Textile reuse rate;
- Export of used textiles;
- Secondary-raw materials share on total textiles production;
- Secondary textiles consumption;
- Textile Footprints (GHG, Water and Material)

The data privatisation of industrial TW generation and valorization processes in place, make it impossible to truly understand the circularity level of a sector that heavily falls under private domain. Additionally, current datasets are not prepared to distinguish between primary raw materials and secondary raw materials, or even the incorporation of recycled fibers in the final product, for example the NC nomenclature used to classify goods in the EU.

PART VI: Conclusions

The Guimarães IAP on circular textiles exemplifies how a medium-sized industrial city can pursue a circular transition without neglecting its economic and social context. Through its mission-oriented governance, the document created aimed to develop a robust framework that integrates local stakeholders, leverages research and fosters citizen participation in a sector with deep roots in the people of Guimarães, its economy and its heritage. The plan goes beyond traditional waste management actions: it embeds digital tools, behavioural change programmes, financial incentives and innovation labs, signalling a systemic approach to circularity. The plan is integrated in the municipality's vision of achieving climate neutrality by 2030 and becoming a One-Planet City by 2035.

By integrating tools such as a circular certification scheme, a surplus database and an industrial symbiosis framework, the IAP seeks to foster local innovation and competitiveness. These measures align Guimarães with upcoming EU legislation (EPR, Digital Product Passport and Ecodesign Regulation), enhancing the city's eligibility for European funding and positioning it as a pilot site for textile circularity. Yet the plan is candid about its limitations.

The diffuse territory complicates service standardisation and continuous citizen engagement. The plan's success will also heavily depend on securing adequate financing, maintaining political commitment and sustaining citizen engagement. Behaviour change is a long-term endeavour, and achieving a circular textile ecosystem requires continuous outreach and dedication. Due to duality of European regulations and legislation, where, on one side there is a vast list of tools and requirements that the sector must follow and on the other side, there is a large gap on how to implement such requirements and tools on the field - there is deep concern on the sector on how they will be able to adapt an adjust to this new market.

The integrated monitoring framework will be crucial for adjusting measures and demonstrating progress. Overall, the Guimarães IAP provides a comprehensive roadmap for transforming the textile sector, demonstrating that even a city rooted in traditional industries can lead the circular transition through strategic planning, stakeholder collaboration and innovative action.

In sum, Guimarães' IAP offers a comprehensive and adaptable roadmap for transforming a traditional textile centre into a circular, climate-aligned city. It underscores that achieving circularity is a multi-year journey of local coordination, learning through networks and strategic investment. The document will be adpted and adjusted as necessary in this ever-changing sector which reflects the IAP real strength - its ability to adapt evolve, not just in its initial design.

Picture

Acknowledgement message

Names of local coordinator and political supporter

References

A new Circular Economy Action Plan (COM (2020) 98 final). European Commission. (2020).

A new circular economy action plan: For a cleaner and more competitive Europe (COM (2020) 98 final). European Commission (2020).

A new circular economy action plan: For a cleaner and more competitive Europe (COM (2020) 98 final). European Commission. (2020).

A new industrial strategy for Europe (COM (2020) 102 final. European Commission. (2020).

Action for Waste 2030: PAPERSU Guimarães 2030. Guimarães Municipality and CVR (2024). https://www.cm-guimaraes.pt/cmguimaraes/uploads/document/file/21338/papersu_2030_cm_guimaraes_net.pdf

Amending Directive 2008/98/EC on waste (COM (2023) 420 final). European Commission (2023).

An EU strategy for sustainable and circular textiles (COM (2020) 141 final). European Commission. (2020).

An industrial strategy for a globally competitive, green and digital Europe. EU Industrial Strategy. (2020).

ATP – Associação Têxtil e Vestuário de Portugal. (2019, June 25). Caracterização do Setor Têxtil e de Vestuário em Portugal. https://atp.pt/pt-pt/estatisticas/caraterizacao/

Circular economy action plan – implementation annex (Annex to COM (2015) 614). European Commission. (2015). *Circular economy action plan – implementation annex* (Annex to COM (2015) 614).

Circular Cities and Regions Initiative (CCRI) (2024). https://circular-cities-and-regions.ec.europa.eu/pilots/guimaraes

Closing the loop – an EU action plan for the circular economy (COM (2015) 614 final). European Commission. (2015).

Consumer Capacitation Directive - Directive (EU) 2024/1799 on empowering consumers for the green transition. European Parliament & Council. (2024).

Deckers, J., Duhoux, T., & Due, S. (2024). Textile waste management in Europe's circular economy. *ETC CE Report*, *5*.

Decree Law No. 102-D/2020. National Law on Waste Management: The new general waste management scheme (RGGR) and the new scheme for the landfill of waste. Republic Diary No. 239/2020, Series 1 of 2020-12-10

Ecodesign and Energy Labelling Working Plan 2022-2024 (2022). Directorate-General for Energy

Ecodesign for sustainable products regulation (Regulation (EU) 2024/1781). European Commission. (2024).

EU strategy for sustainable and circular textiles (COM (2022) 141 final). European Commission (2022).

European Environment Agency. (2021). *Plastic in textiles: Towards a circular economy for synthetic textiles in Europe*. Briefing no. 25/2020. DOI: 10.2800/555165. https://www.eea.europa.eu/en/analysis/publications/plastic-in-textiles-towards-a-circular-economy-for-synthetic-textiles-in-europe

Extended producer responsibility and polluter-pays principles (Articles 8 & 14 of Directive 2008/98/EC). European Commission. (2019).

Facts & Key Figures 2024: Of the European Textile and Clothing Industry (2024. EURATEX, Economic and Statistics.

G4CE: Guimarães for Circular Econnomy. Ribeiro, C., Cristino, D. S. C. V. J., & Loureiro, I. (2017). Guimaraes: Circular economy towards a sustainable city. *European Journal of Sustainable Development*, *6*(3), 69-69.

Guimarães 2025 European Green Capital: Finalist (2023). Guimarães Municipality, Landscape Laboratory and Guimarães 2030. https://labpaisagem.pt/en/noticia/guimaraes-is-a-finalist-in-the-race-for-european-green-capital-2025/

Guimarães 2026 European Green Capital: Winning Proposal (2024). Guimarães Municipality, Landscape Laboratory and Guimarães 2030. https://circabc.europa.eu/ui/group/c6e126de-5b8c-4cd7-8d36-a1978a2a63de/library/e4f88891-f69c-45ff-bd96-4687b5f403b7/details

Guimarães City Climate Contract. NetZero Cities (2024). https://netzerocities.app/resource-4181

Guimarães Climate Pact (2023). Guimarães Municipality. https://guimaraes2030.pt/pacto-climatico-de-guimaraes/

Guimarães 2030 branding – Join the green transition. https://guimaraes2030.pt/

Horizon Europe mission: 100 climate-neutral and smart cities by 2030. European Commission. (2021).

Loureiro, I., Ribeiro, C.A. & Sepúlveda, D. Guimarães 2030: a Governance Ecosystem. Euro-Mediterr J Environ Integr 7, 319–328 (2022). https://doi.org/10.1007/s41207-022-00331-5

Mission label on climate-neutral and smart cities mission. NetZeroCities (2024). https://netzerocities.eu/2024/03/25/more-european-cities-reach-milestone-on-climate-neutral-and-smart-cities-mission/

Paris Agreement, adopted Dec. 12, 2015, UN Treaty Series vol. 3156, p. 79.

PAYT: *Pay-as-you-throw taxation system at Guimarães* (2015). Guimarães Municipality. https://www.cm-guimaraes.pt/municipio/camara-municipal/servicos/servicos-urbanos/gestao-de-residuos/sistema-payt

PEGADAS Guimarães Environmental Education. https://www.pegadasguimaraes.pt/

Perebynos, A., Sepúlveda, D., & Ribeiro, C. (2023). Study on textile waste generation in the undifferentiated municipal solid waste stream in Guimarães, Portugal. Waste Disposal & Sustainable Energy. https://doi.org/10.1007/s42768-023-00137-3

Portugal Circular Action Plan (2017). Resolution 190 A/2017 (amended by Resolution 108/2019).

Revision of the textile labelling regulation (Legislative Train Schedule). European Commission. (2025).

Right-to-Repair Directive - Directive (EU) 2024/1799 on promoting the repair of goods. European Parliament & Council. (2024).

RRRCICLO Strategy for Circular Economy in Guimarães. Guimarães Municipality (2021). https://rrrciclo.pt/en/home/

RRRCICLO: Guimarães Biowaste Management Plan 2030. Guimarães Muncipality and Landscape Laboratory (2021). https://www.cm-guimaraes.pt/cmguimaraes/uploads/writer_file/document/9107/plano_de_gestao_de_biorresiduos_guimaraes_2030.pdf

Sustainability Report: Textile and Apparel Sector (2023). CITEVE under Be@t.

Sustainability Report: Textile and Apparel Sector (2024). CITEVE under Be@t.

The European Green Deal (COM (2019) 640 final). European Commission. (2019).

United Nations. (2015). Transforming our world: The 2030 Agenda for sustainable development (Sustainable Development Goals).

Waste Framework Directive - Directive 2008/98/EC on waste. European Parliament & Council. (2008).

Zero Waste Europe. (2023). *The state of zero waste municipalities report 2023*.

Zero Waste Plan Guimarães 2030. Guimarães Municipality (2022).

ANNEX

Textile Waste Management

Admitting that there is a long journey to achieve a closed loop, the first set of actions will address directly the issue of TW generation. Their aim is to propel the Guimarães municipality and textile sector and Guimarães to reach a zero-waste threshold. These actions will lay the foundation to reduce TW generation at the end of the value chain, the consumer, and minimise environmental impacts.

<table>
<tr><td>Title of action</td><td colspan="2">Containers for TWSC on the municipality parishes.</td><td rowspan="3">Relevant strategies, policies, development programmes</td><td rowspan="3">Guimarães Waste Management Plan; PAPERSU 2030</td></tr>
<tr><td>Link to specific objective</td><td colspan="2">Creation of a public TWCS in Guimarães Municipality to increase selective collection by 30% until 2026</td></tr>
<tr><td>Output</td><td colspan="2">Availability of containers in parishes, reaching the entire municipality</td></tr>
<tr><th>Short description</th><th>Output</th><th>Timescale</th><th>Rough cost estimation</th><th>Other assets needed</th></tr>
<tr><td>Acquire, define and distribute selective collection containers for textile waste, promoting specific optimized collection routes in all parishes in the municipality, reducing the ecological footprint by optimizing collection.</td><td>Selective collection of textiles in 48 parishes</td><td>2026-2035</td><td>50 M €</td><td>Preliminary study
Implementation Study
Maintenance scheme</td></tr>
<tr><td>Estimated impact on sustainability</td><td colspan="4">Lower the percentage of TW found on MSW.
Lower TW deposition on landfills and incineration rates.
Bring added value to waste and lower the need of raw-materials consumption.
Develop shorter value-chains for the sector.</td></tr>
<tr><td>Cross-cutting topics addressed</td><td colspan="4">Use of artificial intelligence tools to control container capacity and optimize collection routes.</td></tr>
<tr><td>Status of the action</td><td colspan="4">New action</td></tr>
<tr><td>Rough risk estimation</td><td colspan="4">High</td></tr>
<tr><td>Action owner</td><td colspan="4">Guimarães Municipality</td></tr>
<tr><th colspan="5">Key stakeholders involved</th></tr>
<tr><td colspan="5">Horizontal level of governance</td></tr>
<tr><td colspan="5">Municipality Sustainability and Environmental Department, Landscape Laboratory, Parishes</td></tr>
<tr><td colspan="5">Sectorial</td></tr>
</table>

To be Green, Vitrus, Resinorte
Vertical level of governance
North Regional Coordination and Development Commission; APA (Portuguese Environmental Agency)
Territorial level
Ave Intermunicipal Community and Guimarães Parishes
Hard and soft investments
Hard: physical bins, vehicles Soft: Training and awareness raising of parish executives, their employees and the entity responsible for collection; Public Communication Campaigns

Title of action	Containers for TWSC on cultural, sports and recreational associations with more than 200 associates		**Relevant strategies, policies, development programmes**	RRRCICLO Strategy; Zero Waste Strategy 2030; Guimarães City Climate Contract.
Link to specific objective	Creation of a public TWCS in Guimarães Municipality to increase selective collection by 30% until 2026			
Output	Post-consumer TWSC at the municipality level			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Coordinate with association leaders to site containers on their premises. Integrate bins into RRRCICLO communication so members participate (e.g. club newsletters, events). Rotate containers if needed to cover many institutions.	TW selective collection at cultural and sport institutions.	2026-2030	150.000 €	Preliminary study (ID of associations) Implementation Study Contract with valorization company
Estimated impact on sustainability	Lower the percentage of TW found on MSW. Lower TW deposition on landfills and incineration rates. Bring added value to waste and lower the need of raw-materials consumption. Develop shorter value-chains for the sector. Reinforces circular habits in community activities. Enhances local circular economy by supplying recyclers with more material.			
Cross-cutting topics addressed	Community engagement and social cohesion; environmental education in grassroots settings; culture/sport integration; Reuse innovation, Inclusive social development; Environmental Sustainability			
Status of the action	*New action*			
Rough risk estimation	*Low*			

Action owner	Guimarães Municipality
Key stakeholders involved	
Horizontal level of governance	
Landscape Laboratory, Vitrus Ambiente, ToBe Green, Associations Administrations	
Sectorial	
To be Green, Vitrus, Resinorte	
Vertical level of governance	
Guimarães Municipality Departments: Sustainability and Environmental Division; Culture and Tourism Division; Social Intervention Division	
Territorial level	
Associations with more than 200 associates	
Hard and soft investments	
Hard: Equipment for separating textile waste and investment in selective waste collection; Soft: Capacity-building of associations staff for appropriate TW collection	

Title of action	Map textile industries with and without "Integrated Waste Registration Map		Relevant strategies, policies, development programmes	RRRCICLO Strategy; Zero Waste Strategy 2030; Guimarães City Climate Contract. URBIA Platform, National Statistical data on economic indicators
Link to specific objective	Creation of a public TWCS in Guimarães Municipality to increase selective collection by 30% until 2026			
Output	Study on the textile manufacturers present in Guimarães Municipality (number, distribution, business model, waste generation volume and type).			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Map the textile manufacturers present in Guimarães Municipality (number, distribution, business model, waste generation volume and type).	Study on Guimarães textile manufacturers.	2026-2027	7.500 €	Business registry access, cooperation of ATP (Associação Têxtil e do Vestuário de Portugal) or local textile trade associations. GIS software (city's existing systems).

Estimated impact on sustainability	Lower the percentage of TW found on MSW. Lower TW deposition on landfills and incineration rates. Help to develop actionable TW management system that is adequate to the territory and its textile sector. Helps ensure all producers participate in recycling schemes, reducing illegal disposal. Provides baseline for performance indicators.
Cross-cutting topics addressed	Environmental Sustainability; Resource Efficiency; Resilience Planning; Data management and digitalization; Policy Integration & Alignment; Economic Development
Status of the action	*On going*
Rough risk estimation	*Medium*
Action owner	Landscape Laboratory
Key stakeholders involved	
Horizontal level of governance	
Landscape Laboratory; Municipality: Sustainability and Environment Division, and Innovation, Digital Transformation and Economics Department;	
Sectorial	
Textile/fashion companies, designers, retailers, and their associations; waste management companies and consultants (To be Green, Vitrus, Resinorte)	
Vertical level of governance	
North Regional Coordination and Development Commission (CCDR-N); APA	
Territorial level	
Ave Intermunicipal Community; AICEP (investment promotion), CITEX textile research center (UMinho).	
Hard and soft investments	
Soft: survey and study itself	

Title of action	Study of licensed textile waste operators (OGRs) and identify local needs		Relevant strategies, policies, development programmes	RRRCICLO Srategy; Zero Waste Strategy 2030; Guimarães City Climate Contract. URBIA Platform, National Estatistical data on economic indicators
Link to specific objective	Creation of a public TWCS in Guimarães Municipality to increase selective collection by 30% until 2026			
Output	Study on the textile manufacturers present in Guimarães Municipality (number, distribution, business model, waste generation volume and type).			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**

Map the textile manufacturers present in Guimarães Municipality (number, distribution, business model, waste generation volume and type).	A report identifying waste operators authorized for textile collection/treatment close to Guimarães, and an assessment of their capacity in relation to Guimarães's textile waste volume. Includes analysis of unmet needs (e.g. if local businesses lack nearby services).	2026-2027	5.000 €	Acess to satellite information and territorial data regarding economic activity.

Estimated impact on sustainability	Clarifies the market for textile recycling; Ensures infrastructure matches waste flows; May trigger new services (e.g. a local sorting line) if current operators fall short, thus increasing recycling rates; Helps develop a data and needs driven TWM system.
Cross-cutting topics addressed	Industry collaboration; Policy (implements EPR obligations); Innovation (identifying technological or logistic bottlenecks); Economic Development (new jobs in recycling).
Status of the action	*On going*
Rough risk estimation	*Low*
Action owner	Landscape Laboratory
Key stakeholders involved	
Horizontal level of governance	
Landscape Laboratory; Sustainability and Environment Division from Guimarãs Municipality	
Sectorial	
To be Green, Vitrus, Resinorte	
Vertical level of governance	
APA; CCDR-N, Labor Inspectorate (for informal waste pickups)	
Territorial level	
Ave Intermunicipal Community ; Textile Businesses and Waste Management Operators; CCDR circuits.	
Hard and soft investments	
Soft: Planning and strategy	

Education, Empowerment and Awareness Raising for Circularity

Following the logic of addressing the pressing need to better manage TW, the second set of actions will strive to minimise TW generation through information and capacity-building to achieve a behavioural change in the community, where circular consumption becomes the norm.

Title of action	**Environmental Education about the TW impacts on ecosystems**		**Relevant strategies, policies, development programmes**	**PEGADAS programme**
Link to specific objective	**Develop strategic communications and training to raise community awareness**			
Output	**At least one training action for all the municipality schools between 2025-2026**			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
The goal is to raise students' awareness on the impacts of textile waste wrong separation on the ecosystems, mainly on freshwater and soil systems.	**Through the environmental education program, it is expected to reach more than 19,000 students**	**2026 - 2035**	**22.500€**	**Development of training and awareness-raising materials to implement in schools.** **Curriculum developers, teacher trainers, school contacts.** **Develop strong communication visuals (visual metaphors).**
Estimated impact on sustainability	**Raise student's awareness on the impacts of TW on the environment;** **Builds on long-term behavioral changes for textile consumption and disposal;** **Increases household participation through children awareness;** **Demystify the second-hand clothing market and other forms of more sustainable consumption;** **Supports future workforce in green sectors;**			
Cross-cutting topics addressed	**Environmental Sustainability; Education; Youth engagement; Biodiversity (textile chemicals in environment); Culture (using Guimarães's textile heritage for context); Gender Equality**			
Status of the action	***On-going***			
Rough risk estimation	***Low***			
Action owner	**Landscape Laboratory**			
Key stakeholders involved				
Horizontal level of governance				
Landscape Laboratory; **Education sector: Public and private schools, Parents and students** **Municipal Departments: Communications and Public Relations Office; Training and Development Division; Education Division; Educational Projects Support Office;**				
Sectorial				
Public sector: Municipality of Guimarães, CIM do Ave. **Education sector: Education sector: Public and private schools, Universidade do Minho (for scientific backing)**				

Civic sector: Environmental NGOs like Associação Famalicão em Transição, ZERO, and local scouts or youth groups. Private sector: Textile companies offering site visits or donating materials (e.g. ULG members) Media: Local press like Guimarães Digital to promote the campaign.
Vertical level of governance
Ministry of Education; APA
Territorial level
School Community; Local Libraries; Environmental Community centres (ex: Urgezes Circular); NGOs'
Hard and soft investments
Soft: Production of environmental education material; Capacity-building of scholar community

Title of action	Consumer Communication Campaign on Local Textile Consumption		**Relevant strategies, policies, development programmes**	RRRCICLO communication campaign; Guimarães Brand
Link to specific objective	Develop strategic communications and training to raise community awareness			
Output	One strategic dissemination campaign			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
The goal is to develop a strategic communication plan to raise community awareness about the need of adopting more sustainable textile consuming habits, promote TWSC and inform about the TW impacts on the environment.	Radio spots; Journal articles; Merchandising products made from the valorization of TW	2026-2035	15.000€	Graphic designer, copywriter, web developer. Coordination with city PR department. Use of RRRCICLO logo and messages to ensure consistency.
Estimated impact on sustainability	Raise community awareness on the TW impacts on the ecosystem; Start a mindset shift towards more sustainable consuming habits; Sensitize for the correct disposal of TW; Demystify the second-hand clothing market and other forms of more sustainable consumption Encourages community pride in local circular initiatives; Complements school education for family outreach.			
Cross-cutting topics addressed	Environmental sustainability; Education; Information & Communications strategy			
Status of the action	*On going*			
Rough risk estimation	*Low*			
Action owner	Guimarães Municipality			
Key stakeholders involved				

Horizontal level of governance
General public, youth, community centers Landscape Laboratory; Municipality: Sustainability and Environment Division; Communications and Public Relations Office; Culture Division
Sectorial
Public sector: Municipality, CIM do Ave. Education: Local schools and Minho University Private sector: Textile industry partners (e.g. ULG members) & Guimarães Business Association Civic sector:Environmental associations (e.g. AVE Association) and Local influencers or artists Media: Collaboration with local news outlets (e.g., Jornal de Guimarães) and radio stations (e.g. Santiago)
Vertical level of governance
APA and ASC (Agency for Sustainability and Climate); Guimarães Business Association; ATP (Textile and Clothing Association of Portugal)
Territorial level
Citizens: schools, parishs councils, community centers, markets across Guimarães. Public: Vitrus Ambiente (e.g. RRRCICLO Waste management vehicules and VitrusBus) Private: GuimaBus, Resinorte
Hard and soft investments
Soft: Communication, information and awareness material

Title of action	Implement a Training Program for Textile Sector Circularity		**Relevant strategies, policies, development programmes**	Guimarães CCC
Link to specific objective	Develop strategic communications and training to raise community awareness			
Output	Structured training programme for textile companies on EUs regulations and and tools.			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
This action delivers a technical training programme focused on the evolving regulatory framework for the textile sector, supporting Guimarães companies to understand and comply with EU and national circular economy obligations. The programme will focus on: DPP, EPR, ESPR, TW obligations and Circular public procurement readiness.	Creation and delivery of a specialized training programme for textile companies in Guimarães. At least 20–50 businesses reached in the first 2 years, with tailored sessions for SMEs. Participants receive certification or attendance proof for compliance readiness. Output includes: 1 training manual; 5 training modules; Workshop; Participant	2026-2028	30.000€	Consultant/expert fee Curriculum development Coordination and outreach Venue Training platform Printed/electronic materials

	surveys and follow-up support.			Industry contact lists for outreach
Estimated impact on sustainability	Prepares companies for compliance (avoiding penalties) Encourages earlier adoption of circular practices Enables smoother market transition, especially for SMEs Supports Guimarães's leadership in textile sustainability			
Cross-cutting topics addressed	Governance and regulation; Economic resilience of local industry; Innovation in compliance tools; Digitalization (DPP, traceability); Green jobs and workforce upskilling; Gender equality			
Status of the action	*New*			
Rough risk estimation	*Moderate*			
Action owner	Guimarães Municipality and Landscape Laboratory			
Key stakeholders involved				
Horizontal level of governance				
Landscape Laboratory; Municipal Departments: Communications and Public Relations Office; Training and Development Division; Education Division; Educational Projects Support Office; Environemntal and Sustainability Department				
Sectorial				
Private sector: Textile companies and associated businesses Media: Local press like Guimarães Digital to promote Legal consultants and certification bodies				
Vertical level of governance				
ATP (Associação Têxtil e do Vestuário de Portugal) APA (Portuguese Environment Agency) DGAE (Directorate-General for Economic Activities) IAPMEI (for SME support) EU DG ENV / DG GROW (guidelines and standards)				
Territorial level				
Guimarães Industrial Zones; Intermunicipal collaborations via CIM do Ave; Regional innovation ecosystem (UMinho, CVR; CITEVE)				
Hard and soft investments				
Soft: Capacity-building materials; Technical Support				

Title of action	**Establish a Municipal Circular Economy Task-Force**		**Relevant strategies, policies, development programmes**	**PMAC;** **Guimarães CCC;** **RRRCICLO Strategy;** **Zero Waste Startegy**
Link to specific objective	**Raise Community Awreness to the impacts of TW on the ecosystems**			
Output	**A formal multi-stakeholder working group on circularity, meeting regularly to oversee circular economy solutions and the IAP implementation. It includes city officials, businesses, academia and civic actors, defining roles and timelines for each action.**			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Launch a "Textile Circularity Task-Force" in early 2025. Members represent relevant departments (environment, economy, education) and external partners (textile firms, UMinho researchers, NGOs like LabPaisagem). The group applies the URBACT co-production approach , ensuring an integrated plan that covers social, economic, and environmental dimensions. It coordinates all actions, shares progress reports, and engages the URBACT "Let's Go Circular" network for best practices.	**Development of a Circular Economy Task-force.**	**2026-2027**	**3.000€**	**Official mandate from the Mayor;** **Secretariat support (Environment Dept);** **Access to data on circularity performance;** **URBACT Local Group Toolkit materials for facilitation.**
Estimated impact on sustainability	**Promotes policy coherence and avoids siloed action (URBACT stresses integrated, participative planning).** **Ensures accountability and timely execution.** **Strengthens trust among stakeholders.**			
Cross-cutting topics addressed	**Governance (transparency, cross-departmental); Co-creation;** **Capacity building; Innovation (sharing ideas); Social Sustainability; Environmental Sustainability; Inclusive development**			
Status of the action	***On-going***			
Rough risk estimation	***Low***			
Action owner	**Guimarães Municipality**			
Key stakeholders involved				
Horizontal level of governance				
Landscape Laboratory;				

Municipal: Environment and Sustainability Division; Public Procurement Office; Communication and Public Relations Office; Municipal Police Operational Division; City civil servants; Circularity NGOs and R&D representatives,
Sectorial
Industrial Representatives;
Vertical level of governance
National: Guimarães Municipality Mayor; CCDR-N; Guimarães Business Association; ATP (Textile and Clothing Association of Portugal)
Territorial level
Neighboring municipality representatives (Ave Industrial Corridor); URBACT partner cities;
Hard and soft investments
Soft: Organizations and meetings; Capacity-building

Title of action	Workshops on TW using the Citizens Assembly Methodology		**Relevant strategies, policies, development programmes**	Guimarães CCC; RRRCICLO Strategy; PEGADAS Programme
Link to specific objective	Raise Community Awareness to the impacts of TW on the ecosystems			
Output	Series of citizen assemblies and workshops on textile waste prevention, circular behaviours, and community-led systemic solutions.			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Implement citizens-assembly-based workshops that introduce residents to textile waste flows, environmental impacts and circularity opportunities. Using structured deliberation and evidence-based discussion, participants will co-develop actionable proposals to strengthen circular behaviours, support municipal policy design and promote community-led initiatives for reuse, repair and responsible consumption.	A set of citizen-generated proposals for textile circularity, documented workshop summaries, and increased community engagement in textile waste prevention, reuse and repair.	2026-2035	7.500€	Skilled facilitators Workshop venues and materials Outreach and communication channels for participant recruitment Documentation tools for capturing deliberations (audio, notes, visuals)

Estimated impact on sustainability	Strengthens trust among stakeholders. Encourages behavioural changes toward reuse, repair, selective collection and circular consumption Produces community-backed recommendations that can be incorporated into municipal policies Expands the culture of environmental citizenship and collective responsibility Contributes to long-term circularity outcomes through co-created local actions
Cross-cutting topics addressed	Participatory Governance; Co-creation; Capacity building; Innovation (sharing ideas); Social Sustainability; Environmental Sustainability; Inclusive development
Status of the action	*On-going*
Rough risk estimation	*Low*
Action owner	Guimarães Municipality
Key stakeholders involved	
Horizontal level of governance	
Landscape Laboratory; Municipal: Environment and Sustainability Division; Communication and Public Relations Office City civil servants; Circularity NGOs and R&D representatives,	
Sectorial	
City civil servants;	
Vertical level of governance	
NA	
Territorial level	
Neighboring municipality representatives (Ave Industrial Corridor); Parish councils Community centres and cultural associations Intermunicipal entities in the Ave region	
Hard and soft investments	
Soft: Organizations and meetings; Capacity-building Hard: Office supplies for sessions (paper, pens, flipcharts,etc); Printed communication materias; Projection equipments; Evidence recording devices (ex: camera)	

Title of action	Promotion of awareness-raising actions at local events	Relevant strategies, policies,	Sustainable events action plan (being launched);

Link to specific objective	Develop strategic communications and training to raise community awareness		development programmes	Guimarães CCC; Annually Guimarães Cultural Agenda;
Output	Incorporation of at least one textile-focused exhibit or activity at major Guimarães sustainability events (e.g. environmental fairs, Green Capital events).			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Work with event organizers to add textile circularity elements during a fair. The city's successful European Waste Reduction Week in 2024 included a textile bin at a school; we will replicate this outreach.	Awareness raising actions at three events: European week for waste prevention; Spring fest; Green week;	2026-2035	35.000€	Cooperation between event organizers; Materials (textile art, samples); Possibly a small mobile kiosk or trailer
Estimated impact on sustainability	Raises broad awareness among citizens and visitors (families, students, tourists) about TW; Sparks curiosity and behavior change; Reinforces other year-round actions; Reinforces the cultural and economic significance of Guimarães Textile Sector;			
Cross-cutting topics addressed	Environmental sustainability; Education; Social Inclusion; Public engagement; Eco-culture; Green tourism (Green Capital promotion); Integrated approach			
Status of the action	*On going*			
Rough risk estimation	*Low*			
Action owner	Guimarães Municipality			
Key stakeholders involved				
Horizontal level of governance				
Event attendees, volunteers; Local artists; Local textile businesses				
Sectorial				
Event Activities: Resinorte; Vitrus; ToBe Green; Vimagua; Live Science Center of Guimarães Private: Circular Textile Companies and Iniciatives; Local Artists Education: Minho University (e.g. Fashion Design and Marketing course); Polytechnic Institute of Cávado and Ave Civic sector: Green Brigades; Environmental NGOs (e.g., Ave Association), scout groups, and community associations Media and influencers: Local media coverage (e.g., Guimarães Digital), partnerships with local sustainability influencers to expand reach.				
Vertical level of governance				

National: Guimarães Municipality; CCDR-N; Guimarães Business Association; ATP (Textile and Clothing Association of Portugal): EU: EU Green Week; European Week for Waste Reduction; European Circular Economy Stakeholder Platform
Territorial level
Citizens; Parishes;
Hard and soft investments
Hard: Equipment, materials and art installations Soft; Communication, information and awareness material; Event Logistics'

Development of Circular Business Models

The last set of actions will support the municipality's circular transition by developing enabling tools and mechanisms for sustainable, circular businesses to establish and thrive. The aim is to support existing businesses and those who may surge in navigating the new market needs. Alongside it, it aims to develop the needed structures to promote collaborations and material reusage.

Title of action	Create a circular textiles label		**Relevant strategies, policies, development programmes**	PMAC; Guimarães CCC; RRRCICLO Strategy; Zero Waste Startegy; Guimarães LabPac; Guimarães Brand
Link to the specific objective	Incentivize the implementation of textile circular economy ideas on the territory			
Output	A locally managed certification/logo for textile businesses and products that meet circularity criteria (e.g. recycled content, take-back scheme). Award the label to pilot initiativesn and use it in city-wide promotions.			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
A locally managed certification/logo for textile businesses and products that meet circularity criteria (e.g. recycled content, take-back scheme). Award the label to pilot initiativesn and use it in city-wide promotions.	Locally managed certification on textile circularity; Benefit circular Businesses	2026-2030	25.000€	Expertise from certification bodies or consultants; Engagement with local firms to join; Possibly integrate with ISO standards or EU ecolabel processes.
Estimated impact on sustainability	Encourages local firms to adopt best practices to earn the label; Helps consumers identify circular products easily; Promotes Green and Circular Textiles public procurement processes at municipal level; Builds a local economy niche;			

	Over time, can track increase in labeled products as an indicator.
Cross-cutting topics addressed	Quality assurance; Economy Development; ; Circular business innovation; Consumer information and transparency (product labelling); Sustainable Public Procurement
Status of the action	*New*
Rough risk estimation	*Medium*
Action owner	Guimarães Municipality (Environmental Department) and Landscape Laboratory
Key stakeholders involved	
Horizontal level of governance	
Consumers, fashion sector professionals; Municipality Requesting departments	
Sectorial	
ULG Members; Apparel/furniture manufacturers, second-hand shops, repair services, fashion designers. Guimarães public services (e.g. Hospitals, Vitrus, etc)	
Vertical level of governance	
Guimarães Municipality (economic development and Funding departments); National quality institute (InMetro or APA-qual), Associação Nacional de Recicladores.	
Territorial level	
Coordination with national label initiatives (Portuguese Ecolabel, Zero Waste certifiers).	
Hard and soft investments	
Soft: Circularity criteria development; branding; communication materials Hard: Printed labels	

Title of action	Set at least one repair or repurposing kiosk textile goods	Relevant strategies, policies, development programmes	EU right to repair; Extend products life expectancy; Guimarães CCC
Link to specific objective	Incentivize the implementation of textile circular economy ideas on the territory		
Output	Set at least one repair or second-hand store of textile goods in Guimarães		

Short description	Output	Timescale	Rough cost estimation	Other assets needed
Rehabilitate municipal kiosks to become, in an inclusive way, textile repurposing and reparation hubs. This action will create jobs and promote economic turnover in already built structures to minimize environmental impacts. It also builds on previous pilot, "Urgezes Circular"(currently for electronics/furniture)to textiles (e.g.: sewing "clinic")	Transform at least municipal kiosks in textile reparation and repurposing centers.	2026- 2030	45.000 €	Public procurement for tenders; Rehabilitation work on kiosks; Location and Built infrastructure; Sewing material; Trainers and/or part-time staff;

Estimated impact on sustainability	Jobs generation; Economic revenue Municipal infrastructure rehabilitation (kiosks); Extends life of garments, greatly reducing waste; Educates citizens on repair culture; Inspire new upcycling businesses; Support fashion students (UMinho and CISAVE)
Cross-cutting topics addressed	Highly qualified workforce development; Entrepreneurship; Social inclusion; Creative industries (design for reuse); Social Sustainability; Environemntal Sustainability
Status of the action	*New*
Rough risk estimation	*High*
Action owner	Guimarães Municipality
Key stakeholders involved	
Horizontal level of governance	
Municipality: Department of Economic Development; Department of Environment and Climate Action; Department of Social Services; Department of Urban Planning; Department of Tourism and Culture	
Sectorial	
ULG Members, Parishes and NGO's Public Sector: Municipality of Guimarães, Landscape Laboratory; Guimarães Brand; Private Sector: Guimarães LabPac Incubated Entreprises; Textile circular companies and initiative; Civic Sector: NGOs and associations; Interested Citizens (e.g., ZERO, Associação Famalicão em Transição); IEFP (Employment and Vocational Training Institute); Education Sector: Universidade do Minho; Guimarães Professional Schools (e.g. CISAVE);	
Vertical level of governance	
Guimarães Municipality;	

National: IEFP (Employment and Vocational Training Institute); IAPMEI
Territorial level
Citizens: Interested Residents; Parishes Private: CVR; ToBe Green Intermunicipal Level (CIM do Ave)
Hard and soft investments
Hard: Infrastructure revitalization; Equipment Soft: Public procurement for tenders; Capacity building workshops; Communication materials

Title of action	Development of an Investment Plan for Textile Circular Solutions		**Relevant strategies, policies, development programmes**	Guimarães Climate Pact (PMAC); Guimarães CCC; Guimarães "The major planning and budget options" plan;
Link to specific objective	Support the creation on markets, stores and/or companies to support TW valorization			
Output	Dedicated financial roadmap aligning budgets and funding for textile circular initiatives. This plan lists estimated costs and potential funding sources (municipal budget, national waste grants, EU funds, private sponsorship). Applicable for municipal and local private companies actions.			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Conduct a budgetary analysis of all proposed actions. Identify eligible funding mechanisms Outline a multi-year financing schedule, including seeking external grants), setting aside municipal investment, and leveraging private investment. Also include a small revolving fund for pilot projects (crowdfunding or loans) and overarching suggestions for local businesses to fund their own circularity initiatives.	Roadmap to fund textile circularity ideas and actions.	2026-2028	10.000€	Collaboration with City Finance Dept; Access to grant databases; Finance analyst; EU funds expert; Design and communication expert.
Estimated impact on sustainability	Jobs generation Ensures that the action plan is financially feasible and sustainable. Maximizes use of available resources. Helps secure investments in circular infrastructure (e.g. repair hubs, R&D projects). Supports the textile sector circular transition.			

	Reinforces public commitment towards circularity and overall sustainability Supports public trust.
Cross-cutting topics addressed	Environmental Sustainability; Innovation; Employability; Economic resilience; Public-private partnership; circular economy financing; Improved governance (by tying actions to budgets.
Status of the action	*New action*
Rough risk estimation	*Medium*
Action owner	To be defined
Key stakeholders involved: Guimarães municipality, landscape laboratory, local industries, water suppliers, energy suppliers, constructors	
Horizontal level of governance	
Municipality: Department of Economic Development; Digital Transformation and Innovation Unit; Energy Eficiency Office Landscape Laboratory	
Sectorial	
Private sector Financial institutions; Impact investors, NGOs specialized in sustainable finance	
Vertical level of governance	
National recovery plan authorities (for PRR); EU funding liaison offices; CCDR-N economic agencies; APA (Agência Portuguesa do Ambiente); IAPMEI (funding and technical support for SMEs implementing symbiosis systems)	
Territorial level	
ATP; Ave region Integrated Development (Territory plan), partnerships with neighboring towns (joint applications)	
Hard and soft investments	
Soft: Planning and Strategy; Digitalization and Automation of funding opportunities	

Title of action	Simplify certification processes & unlock circularity incentives	Relevant strategies, policies, development programmes	Guimarães Climate Pact (PMAC); Guimarães CCC;
Link to specific objective	Support the creation on markets, stores and/or companies to support TW valorization		

Output	Policy proposals or recommendations to streamline environmental/circular certifications for textiles and to introduce incentives (tax breaks, grants) for circular practices. For instance, simplified audit for recycled content and subsidies for eco-design.			Guimães "The major planning and budget options" plan;
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Review existing certification schemes (EU Ecolabel, national eco-labels) and identify bureaucratic hurdles for SMEs. Propose simplifications (e.g. faster track for low-volume local producers). Work with government to adjust incentive programs: e.g. include textile repairs under green tax incentives, or extend reduced VAT to certified recycled-content products.	Overview, recommendations and simplification of certification EU schemes.	2026-2030	20.000€	Expertise in environmental law/regulation; Consultation with textile sector; Roundtables with national regulators to discuss simplification.
Estimated impact on sustainability	Supports the textile sector circular transition by reducing barriers. Reinforces public commitment towards circularity and overall sustainability Supports public trust. Encourages more companies to certify sustainable practices, thereby increasing scale of circular products and services.			
Cross-cutting topics addressed	Environmental Sustainability; Innovation; Employability; Economic resilience; Public-private partnership; Improved governance (by tying actions to budgets; Regulatory reform; Industry competitiveness;			
Status of the action	*New action*			
Rough risk estimation	*High*			
Action owner	Guimarães Municipality and Landscape Laboratory			
Key stakeholders involved: Guimarães municipality, landscape laboratory, local industries, water suppliers, energy suppliers, constructors				
Horizontal level of governance				
Municipality; Landscape Laboratory; Business consultants; Legal advisors.				

Sectorial
Textile industry (to articulate burdens); Certification bodies; Trade associations.
Vertical level of governance
National: National Ministries (Economy, Environment) and agencies (e.g. IAPMEI), CCDR-N; EU: BEI C3; Comission
Territorial level
Collaboration with other textile regions (Lisbon, Porto) to form a united voice.
Hard and soft investments
Soft: Planning and Strategy; POlicy and Regulatory work

Title of action	Sustainable Public Procurement Plan for Textiles		**Relevant strategies, policies, development programmes**	Guimarães Climate Pact (PMAC); Guimarães CCC; Guimães "The major planning and budget options" plan;
Link to specific objective	Set an Integrated Textile Circular Ecosystem focusing on a value-chain approach, by 2030			
Output	A set of guidelines or amended procurement policies for the municipality (and recommendation for public institutions) that incorporate specific circularity indicators for textiles(e.g. minimum recycled content, durability, take-back clauses).			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Audit current municipal textile purchasing (e.g. uniforms, linens). Draft new tender specifications requiring circular criteria (following best practices in green public procurement). Provide training to procurement officers on applying these criteria. Pilot circular procurement in a municipal department before broader rollout.	Textiles Circular Public procurement Framework	2026-2028	10.000€	Expertise in sustainable procurement; Expertise in public procurement and finances; Legal Advisor;
Estimated impact on sustainability	Supports the textile sector circular transition; Reinforces public commitment towards circularity and overall sustainability; Supports public trust. Reduces overall material use and waste in public sector;			

Cross-cutting topics addressed	Environmental Sustainability; Innovation; Improved governance and Public sector leadership; Regulatory compliance; Green jobs; Economic Development;
Status of the action	*New action*
Rough risk estimation	*Medium*
Action owner	Guimarães Municipality and Landscape Laboratory
Key stakeholders involved: Guimarães municipality, landscape laboratory, local industries, water suppliers, energy suppliers, constructors	
Horizontal level of governance	
Municipality: City Procurement Office, internal policy-makers; Legal advisors;	
Sectorial	
Textile sector suppliers; Procurement trainers;	
Vertical level of governance	
National: APA; SNCP (National System for Public Procurement)	
Territorial level	
Other northern municipalities (joint procurement agreements)	
Hard and soft investments	
Soft: Planning and Strategy; Policy and Regulatory work	

Title of action	Promote Use of Databases for Textile Waste and Surplus Materials	Relevant strategies, policies, development programmes	Guimarães City Contract; Guimarães Climate Pact
Link to specific objective	Set an Integrated Textile Circular Ecosystem focusing on a value-chain approach, by 2030		
Output	A digital platform (online database or app) listing available textile waste, surplus fabrics, and material demands. Acts as a "matchmaking" tool for closing loops locally (e.g. a company with leftover fabric posts it for interested upcyclers).		

Short description	Output	Timescale	Rough cost estimation	Other assets needed
Database containing surplus raw-materials, secondary raw-materials and production waste. Build on city/GIS infrastructure to create a user-friendly interface. Promote via Chamber of Commerce and waste network. This enables resource sharing in line with circular principles.	Database for the textile sector	2026-2030	150 000 €	IT team or contracted developer; Data Manager; Data collection; Integration with existing platforms and APA

Estimated impact on sustainability	Promotes resource efficiency Stimulates new business models Reduces need for virgin production Promotes Green Jobs
Cross-cutting topics addressed	Digital innovation; Industrial symbiosis; Economic efficiency; Consumer empowerment;
Status of the action	*New*
Rough risk estimation	*High*
Action owner	Landscape Laboratory, Fibernamics Green (UMinho)
Key stakeholders involved	
Horizontal level of governance	
Platform users; textile businesses	
Sectorial	
Vertical level of governance	
Guimarães Municipality; APA Siliamb	
Territorial level	
Collaboration with neighbouring municipalities with a strong textile sector	
Hard and soft investments	
Hard: IT Soft: Concept development and management	

Title of action	**R&D of new equipment, processes and tools for Textile Waste Recovery**		**Relevant strategies, policies, development programmes**	
Link to the specific objective	**Set an Integrated Textile Circular Ecosystem focusing on a value-chain approach, by 2030**			
Output	**Research projects on innovative textile recycling technologies (e.g. fiber separation machines, chemical recycling methods), with pilot demonstrations.**			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Collaborate with the University of Minho and the Portuguese textile cluster to apply for R&D funding (national/Horizon). Research areas include advanced material recycling, eco-friendly dye recovery, or automated sorting of mixed fibers. Results could include a prototype recycling unit or partnership with a startup.	**R&D on textile circularity**	**2026-2035**	**1.5M €**	**Research teams;** **Lab facilities;** **Pilot space;** **Needs analysis previous study;**
Estimated impact on sustainability	**Opens new pathways for textile recycling, making "hard-to-recycle" materials circular. Could significantly reduce reliance on landfilling. Enhances local industry competitiveness with new technologies.**			
Cross-cutting topics addressed	**Innovation ecosystem; Higher education; Green economy; Technology development; Ecological Sustainability; Economic resilience**			
Status of the action	***New***			
Rough risk estimation	***High***			
Action owner	**Landscape Laboratory (has mediator)**			
Key stakeholders involved				
Horizontal level of governance				
University researchers, students (R&D implementation); **R&D institutions: Fibernamics; ToBE Green; ; Smart Waste Portugal**				
Sectorial				
Textile machinery manufacturers, recycling technology firms, chemical companies.				
Vertical level of governance				
FCT (National Science Foundation), EU Horizon Europe, CCDR-N (innovation funding),				

IAPMEI; APA
Territorial level
Collaboration with Porto/Braga tech centers; European textile research networks.
Hard and soft investments
Soft: grant-funded R&D Hard: lab equipment and materials

Title of action	Encourage multidisciplinary cooperation for Textile Circularity Systemic Solutions		**Relevant strategies, policies, development programmes**	Guimarães PMAC; Guimarães CCC
Link to the specific objective	Set an Integrated Textile Circular Ecosystem focusing on a value-chain approach, by 2030			
Output	A network or forum for multidisciplinary collaboration on textile circularity, including at least one annual "Innovation Challenge" or symposium. For example, host a "Circular Fashion Hackathon" or joint projects between design and engineering students.			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Organize events and platforms where stakeholders from different fields (engineering, design, sociology, business) co-create. Showcase successful synergies (e.g. material science student teams working with local seamstresses). Build on URBACT Let's Go Circular exchanges (Guimarães partners with other cities and Win-Win Textiles). Encourage teams to develop projects (with modest seed grants) to solve textile challenges.	Circular Textiles community.	2026-2035	50.000€	Veneu; Coordinating team; Communication materials and design team; Suppliers (catering, ets)
Estimated impact on sustainability	Fosters innovative systemic solutions that cut across silos (e.g. a company redesigns supply chain, or a new app matches donors with recyclers). Engages a broad community (science, arts, commerce).			
Cross-cutting topics addressed	Innovation ecosystem; Education; Culture; Creativity Social Sustainability; Environmental Sustainability; Entrepreneurship; Capacity-building; Co-creation			
Status of the action	*New*			
Rough risk estimation	*Medium*			
Action owner	Guimarães Municipality and Landscape Laboratory			

Key stakeholders involved
Horizontal level of governance
University researchers, students (R&D implementation); R&D institutions: Fibernamics; ToBE Green; CITEVE; Smart Waste Portugal; General Public and NGOs
Sectorial
Textile designers, engineers, environmental scientists, fashion/business incubators.
Vertical level of governance
Municipal innovation office, ministry of education (for student involvement), EU programs (Smart Cities).
Territorial level
Collaboration with other cities innovation hubs (e.g. Lisbon Beato Innovation District)
Hard and soft investments
Soft: Events organization; Mentoring; Communication Hard: Venue; Catering; Logistics; Supplies

Title of action	Development of a Circular Textile Hub		Relevant strategies, policies, development programmes	BEI C3; Guimarães CCC; Guimarães PMAC: Guimarães LabPac
Link to the specific objective	Set an Integrated Textile Circular Ecosystem focusing on a value-chain approach, by 2030			
Output	Feasibility and implementation plan for creating a "Circular Textile Hub" in Guimarães, a dedicated space for circular textile startups, workshops, training and information. The plan details location options, partnerships, business model and funding.			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**
Investigate repurposing an idle industrial building (e.g. former textile factory) or municipal space into an incubator focused on textiles. The hub would provide co-working, equipment (small-scale recyclers, sewing machines), and serve as an innovation cluster. The plan outlines phases (pilot coworking space, scale-up), aligned with climate-neutral and green capital development strategies.	Strategy to develop a Textile Circular Hub in Guimarães.	2026-2035	2.5 M€	Identification of site; Public-private partnership arrangements; Operational plan; Financial Plan; City Development Plan integration; Risk and Mitigation Plan;

Estimated impact on sustainability	Serves as focal point for all textile circular activities. Encourages clustering of innovation and skills. Creates green jobs and attracts entrepreneurs. Tangibly demonstrates city's commitment (leveraging Guimarães 2026 European Green Capital status).
Cross-cutting topics addressed	Urban regeneration; Entrepreneurship; Education; Environmental Sustainability; Social Sustainability, Economic development & Resilience
Status of the action	*New*
Rough risk estimation	*High*
Action owner	Guiamarães Municipality
Key stakeholders involved	
Horizontal level of governance	
University researchers, students (R&D implementation); R&D institutions: Fibernamics; ToBE Green; CITEVE; Smart Waste Portugal Community, NGOs, potencial entrepreneurs	
Sectorial	
Industrial Heritage sites owners; Construction sector, Textile Sector	
Vertical level of governance	
FCT (National Science Foundation), EU Horizon Europe, CCDR-N (innovation funding), IAPMEI; APA	
Territorial level	
Collaboration with other municipalities to connect hubs and other EU cities to share good practices	
Hard and soft investments	
Soft: Operations and Strategy planning; R&D; Programme management Hard: Facility and equipments	

Title of action	Textile Industrial Symbiosis Plan		Relevant strategies, policies, development programmes	RRRCICLO Strategy; PMAC; Guimarães CCC; Zero Waste Strategy;
Link to Operational objective	Set an Integrated Textile Circular Ecosystem focusing on a value-chain approach, by 2030			
Output	Textiles Industrial Symbiosis Plan			
Short description	**Output**	**Timescale**	**Rough cost estimation**	**Other assets needed**

Industrial symbiosis between companies to use each other's by-products, waste, or energy to reduce environmental impact and boost efficiency. In Guimarães dense network of textile producers, dyers, logistics and suppliers, the opportunity is strong. This action involves mapping material flows, convening businesses, and designing a collaboration plan. It builds on existing platforms like RRRCICLO and draws on the experience of regional circular economy clusters. The plan will include logistics coordination, legal/contracting guidance, and funding needs for shared infrastructure.	A strategic plan and stakeholder roadmap for implementing an industrial symbiosis (IS) network among Guimarães' textile and allied industries. Expected results include: Identification of key material and energy exchange opportunities; Mapping of willing industry participants and their waste/resource flows.; framework for piloting at least one symbiotic partnership.	2026 - 2035	1.5 M€	Buy-in from local industry (textile clusters, waste handlers, logistics operators). Technical support from R&D institutions; Technical Planning from Urban developers; GIS/data specialists to map flows and distances. Legal guidance on liability, contracts, and data confidentiality.

Estimated impact on sustainability	Reduce Raw material demand and improve resource efficiency Lower Transportation emissions Lower Waste generation Creation of shared economic value Promote shorter-value chains Can reduce GHG emissions, Energy and water consumption
Cross-cutting topics addressed	Innovation & Digitalization; Sustainable Urban Development; Climate Change Mitigation; Economic Development; Governance; Innovation; Entrepreneurship; Employability; Green Jobs generation
Status of the action	*New*
Rough risk estimation	*High*
Action owner	Guimarães Municipality; Landscape Laboratory
Key stakeholders involved	
Horizontal level of governance	
Municipality: departments for environment, energy efficiency, finances, economic development, urban planning Landscape Laboratory	
Sectorial	
Industries: Local textile industries, possibility to integrate other sectors (cutlery; paper; etc) Logistics and waste service providers: Vitrus, Resinorte Business associations: ATP – Associação Têxtil e Vestuário de Portugal Energy suppliers: E-Redes; REN	

Water supplier: Vimagua Academic & R&D: Universidade do Minho and spinooffs(ToBe Grren And Fibewrnamics), CVRT (Textile Waste Valorisation Centre); CEiiA; Smart Waste Portugal Training and Employment Agencies: IEFP, vocational training centers for developing new skills in resource efficiency and industrial ecology.
Vertical level of governance
Guimarães Municipality Regional Level: CCDR-N National Level: Technical Support and funding: IAPMEI Energy: E-Redes; REN Environmental Protection and Waste: APA; ICNF
Territorial level
Guimarães metropolitan industrial areas; CIM do Ave (for regional coordination) University of Minho (research/technology development)
Hard and soft investments
Soft investment: planning, mapping, facilitation, stakeholder engagement (Future hard investment): if pilot infrastructure (e.g. material exchange centers or shared logistics platforms) is implemented