

# Circular Material Valuer Curriculum



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# Circular Material Valuer Curriculum

## Framing, Structure and Definitions

The Circular Material Valuer Curriculum (CMVC) was created to equip circular initiatives, zero-waste programmes, reuse centres, and other similar organisations with the essential skills, knowledge, and sensibility needed to effectively divert reusable goods and materials from the waste stream and generate local value in social, economic and environmental ways.

As a core output of a citizen science research initiative conducted in 2025 by the Global Innovation Gathering (GIG) and Reuse City with support from the Hans Sauer Stiftung, the curriculum fosters a holistic understanding of material reuse. The project was designed to incorporate diverse perspectives, in particular those of reuse workers, repair volunteers, sustainable designers, situated makers, and community organisers experienced in material reuse in various settings.

The view pushed forward by the project integrates material analysis, social awareness, economic evaluation, and environmental responsibility. The CMVC provides a framework that moves beyond conventional linear economic models, empowering participants to design and implement practical, locally rooted circularity actions. By leveraging the collective intelligence and embodied knowledge of experienced participants, this curriculum contributes to ongoing research in understanding and defining the emerging systemic position of Circular Material Valuers. Such activity - be it performed as a discrete professional function or as an attribution of other roles such as sorter or evaluator - is crucial to engender more sustainable material flows and support grounded social-ecological transformation.

The curriculum consists of four modules:



1.

# Systemic View and Social Value



1.

# Systemic View and Social Value

## Circularity from the Ground-Level

This foundational module aims to provide attendees with a critical understanding of the circular economy, emphasising community-based approaches and the profound social benefits of reuse. It challenges traditional notions of waste and linear production, promoting a more equitable and sustainable interaction with materials, and framing local actions as vital systemic interventions.

### Rethinking Waste and Circular Economy

- Learning the **core principles of a circular economy**, extending beyond the conventional “take-make-dispose” model to focus on “reduce-reuse-recycle”.
- **Critical assessment** of mainstream circular economy discourse, which often prioritises industrial interests and economic value over social and human aspects (Schröder et al., 2020; Vosse, 2020). This includes understanding how current economic incentives can inadvertently favour modes of resource handling that devalue objects and simplify material flows towards a linear model, which makes repairing and reuse at best less attractive, and frequently unfeasible.
- Understanding the waste management hierarchy as recommended by contemporary and emerging policy (for instance European legislation on waste and circular economy, as well as international treaties regulating waste exports and intercontinental outsourcing of responsibilities). A strong emphasis is put on **waste prevention and reuse** as primary objectives over recycling, incineration, and landfilling, due to their lower environmental impact and higher societal value.

- Understanding the social and political context, positioning **reuse and repair as acts of resistance** against the devaluing of objects (Jackson, 2014; Oroza, N/D). This also involves understanding the "value of the product as the value of avoiding waste" and the challenges of counteracting massive material flows.

## Local and Community-Based Approaches

- Focus on **ground-level, commons-based waste prevention**, highlighting its contrast with top-down industrial models. This includes promoting and supporting initiatives such as *repair cafés*, scrap shops, and robust community networks. Examples include the Remakery in South London, Kunst-Stoffe and Nochmall in Berlin and the German Verbund Offene Werkstätten, and the repurposing of abandoned spaces, such as the Jupiter Mall in Hamburg, for reuse initiatives.
- Developing skills to foster "**generous cities**" systems that actively encourage care practices and transform excess materials into tangible social value within local contexts. This framing contrasts with a passive and arguably wasteful acceptance of "abundance," preferring a regenerative mindset (Clark & Rockefeller, 2020; Schmidt Fonseca, 2024; Wahl, 2016).
- Exploring **alternative models** like the historical SERO System in East Germany, which involved state-organised collection points, and networks such as Bauteilnetz (for building materials) and Verbund Offene Werkstaetten (open workshops) in Germany, as well as international approaches for providing materials to schools. Expand also on concepts focusing on minimum energy intervention and different states of material transformation, from simple cuts to more energy-intensive processes. The idea of **bioregions** (Thackara, 2017) encourages thinking about material flows on a scale wider than just the neighbourhood or city.
- **Decentralised vs. Aggregated Approaches:** explore the distinctions between these two models. A decentralised approach favours smaller, local initiatives embedded in specific communities, such as neighbourhood repair cafés or community co-ops. This model excels at building trust, fostering local knowledge, and reducing transport costs, but can struggle with high volumes and specialised equipment. An aggregated or centralised approach, by contrast, relies on larger, often industrial-scale hubs, such as major sorting facilities. This model offers efficiency for high volumes and access to advanced machinery, but can be disconnected from local social needs and may lead to a "lowest common denominator" valuation that promotes downcycling. Experiment with forms of combining both approaches according to local demands and potentialities.

## Social Inclusion and Empowerment

- Learning how to leverage and support existing **social groups already involved** in material reuse, ensuring new developments do not marginalise them but are instead empowered and better equipped. This includes recognising that individuals below the poverty line often act as *de facto* valuers (Noble, 2019) and their needs and perspectives should be incorporated in any attempts to improve local systems.
- Techniques for **augmenting and replicating the skills** of experienced individuals, fostering peer-to-peer knowledge sharing and mentorship within communities. This involves understanding the importance of intrinsic motivation and "non-linear education", such as learning from craftspeople and creative professions, and providing internal education and resources like literature on product design, materials science, and social entrepreneurship.
- Understanding the **cultural context of repair and reuse**, recognising how practices and perceptions vary across localities and influence behaviour. This also involves mapping potential beneficiary groups and organisations to enable the quick redirection of materials and balance supply and demand in a decentralised manner. Consider also the potential for trans-local **work exchange programmes**, encouraging participants not only to learn from other contexts but also to actively contribute to shaping and improving local systems.
- Building on **international contexts**, such as the National Waste Pickers' Movement (MNCR) in Brazil and the gaianetwork - powerful examples of organised labour and communities from a social inclusion perspective.

2.

# Eyes and Hands of a Circular Valuer:

## Materiality and Environmental Value



2.

## Eyes and Hands of a Circular Valuer: Materiality and Environmental Value

This module explores the practical assessment skills, in-depth material knowledge, and manual operations essential for material valuers. It also covers understanding and articulating the significant environmental benefits of material reuse, framing these skills as crucial for designing and implementing effective material interventions.

### Material Assessment and Properties

- Training in the role of valuing agent, focusing on developing comprehensive **material knowledge** and assessing the **potential value** of discarded items, in a broad sense - be it potential resale price, social value, community need, environmental impact, creative potential, availability. This includes visual inspection (cleanliness, condition, and care), manual inspection (build materials, integrity, and missing parts), functional inspection (e.g., PAT testing for electrical items, verifying the original purpose), and systemic and situated considerations. Particular characteristics of goods and materials can also inform the potential for repurposing and upcycling. For instance: adaptability, flexibility, modularity, water resistance, disposal regulations, among others.
- **Practical methods** for evaluating items for re-circulation, repair, reuse, recycling, or upcycling, considering vital factors such as physical condition, functionality, and potential demand. This involves making quick decisions, especially with high volumes of items, and an ongoing process of grading and determining an item's potential for reutilization. It will also explore the potentials and shortcomings of automating assessment, which can at times lead

to a "lowest common denominator" and reduce the actual material value. Tim Hunkin's series *The Secret Life of Machines* and *The Secret Life of Components* can inspire creative understanding of object modularity and functionality.

- Understanding **materiality in design and manufacturing** - shifting from abstract concepts to working directly with available materials, their inherent properties, and potential transformations. This includes applying the Reshape strategy (Sander, 2025) for industrial waste to preserve material integrity by leveraging its function, form, or composition in new products, thereby extending their lifetimes.
- **Education about Product Design and Value:** Understanding how products are designed, their intended lifespans, common failure points, and the impact of planned obsolescence. This includes learning to distinguish between high-quality, repairable items and those designed for rapid disposal, as well as appreciating the value embedded in craftsmanship and durable design (Sennett, 2008). The film "The Lightbulb Conspiracy" (Dannoritzer, 2010) can be used to illustrate the historical context of planned obsolescence.

## Manual Operations and Tools

- **Hands-on training** and skill shadowing in practical repair, upcycling, and repurposing techniques. This includes developing hand skills (e.g., using screwdrivers and other tools) and understanding the practicalities of *repair cafés* and upcycling workshops. Richard Sennett's *The Craftsman* (2008) offers a profound examination of skilled manual work, apprenticeship, and the significance of physical workshops.
- Familiarisation with a diverse range of skills for **material transformation**, from traditional crafts to digital fabrication (e.g., 3D printing, laser cutting), always ensuring practical applicability and relevance. This includes addressing the need for access to spare parts and the challenges of storing items for longer repair times. It will also cover the use of simple tools to enable individuals, including children, to design and create their items, thereby changing their relationship with waste and fostering locally adapted solutions.
- Learning from initiatives like the [Berlin repair voucher](#) and diverse **initiatives promoting the reuse** of computers and mobile phones. Touching upon the concept of refurbishing and retrofitting existing products as well, and drawing inspiration from experimental projects such as the "[Free Universal Construction Kit](#)".

## Environmental Impact Mitigation

- Understanding the **environmental benefits** of reuse, such as reducing greenhouse gas emissions and minimising raw material extraction and waste. This also includes knowledge on how to calculate the ecological cost of discarding or recycling an object, aiming to foster a system-wide approach that values a product based on its ability to avoid waste.
- Understanding the issues related to "**downcycling**" where recycled materials are of lower quality than the originals, highlighting the paramount importance of higher-value reuse (McDonough & Braungart, 2002). It also considers whether environmental awareness is a prerequisite for valuers or a skill to be developed, noting that in some contexts (particularly in developing nations), people engage in reuse primarily for economic survival rather than environmental concern. Explore also how to counter the waste flow through systems redesign and business models that directly challenge the status quo. The documentary *Ilha das Flores* (Furtado, 1989) offers a critical perspective on the societal implications of waste.

3.

# Information Systems and Economic Value



3.

## Information Systems and Economic Value

This module focuses on the digital tools, data management, and economic considerations pertinent to material valuation within the progression towards a circular economy. It examines how information and market dynamics impact reuse practices and how these can be leveraged for effective interventions.

### Data and Information Management

- Learning to use and contribute to **information systems** for identifying objects and retrieving reuse information. This includes the idea that sorting involves mapping and generating data on material types, potential beneficiaries and other local stakeholders.
- Exploring digital tools to optimise the valuer's work, including the potential for scanning and linking to **existing knowledge bases**, be them formal (e.g., product specifications, repair manuals, spare parts information) or informal (for instance online platforms such as Youtube, Instagram, Pinterest, Instructables). This involves understanding existing systems already used by reuse centres, as well as the potential for novel solutions such as international repair data platforms like the [Open Repair Alliance's Dataset](#) and AI-enabled tools for self-guided and community-based repair.
- **Digital Inventories and Materials Banks:** Understanding the role of digital inventories for tracking available materials within reuse centres and materials banks (e.g., for construction materials, industrial scraps). This includes exploring the management of physical storage spaces and the strategic assessment of sorting versus storing materials based on their potential future value and

demand. Key tools such as The Restart Project's [Fixometer](#) and [Restart Party tutorial](#), as well as [IFIXIT's Repair Guides](#), provide practical examples of collecting and sharing repair data. The concept of [Open Know-Where](#) can help map distributed production and repair capabilities.

## Economic Valuation and Business Models

- Assessing the potential **resale price and transactional value** of objects, and the factors that influence these, including understanding concepts like use value and exchange value. This also involves considering "shelf time" for products and alternative approaches, such as auction events for select objects. Adam Minter's *Secondhand: Travels in the New Global Garage Sale* (2019) offers a global perspective on the economic realities of second-hand markets.
- Exploring **sustainable business models** for various actors in the reuse ecosystem, such as charity shops, scrap shops, and social enterprises. This includes addressing the need for more structured funding and flexible, low fixed-cost structures for reuse businesses. There should be a "buffet of options" for business models and the need to make trends in international commodity prices accessible to grassroots waste pickers, helping them to plan and maximise their income.
- Addressing **incentive systems for reuse**, recognising how policies and economic structures can encourage or hinder material circulation. This includes understanding the "value of the product as the value of avoiding waste," contrasting it with business models focused solely on manufacturing, distribution and marketing costs. It also considers the rise of refurbished product marketplaces and the economic viability of repair versus buying second-hand. Explore also radical business models inspired by biomimicry, such as "forest economics" and the "blue economy," and how to change incentive structures to force evolution towards circularity, leading to impactful interventions. Elinor Ostrom's work on *Governing the Commons* (1990) provides foundational principles for collective action and resource management.
- Understanding **logistical challenges**, such as storage space, which can be a significant obstacle for local circular business models, and exploring strategies to mitigate them. Large cities, in particular, often lack affordable space for storing second-hand goods and parts. Finally, consider how global economic shifts and international commodity prices can affect local reuse efforts, particularly in the Global South.
- **Web Services for Pricing and Valuation:** Utilising online platforms and databases (e.g., eBay's sold listings, specialised second-hand marketplaces) to research and determine the market value of specific items, aiding in the

strategic assessment of reuse potential. Additionally, resources like [Make Works](#) can help to connect with local manufacturers and fabrication resources.

4.

# Stories and Personal Values



**4.**

# Stories and Personal Value

This module emphasises the crucial human dimension of reuse, including the emotional connection to objects and the transformative power of storytelling in fostering a "generosity" mindset towards materials. These elements are vital for fostering community engagement and ensuring interventions are culturally resonant.

## Emotional and Cultural Connection

- Recognising the "story" and **emotional connections** that objects hold, and how this deeply influences their perceived value and potential for reuse. This includes understanding the "joy of repair", the concept of "mundane technologies" (Nemer, 2022), and the personal satisfaction derived from extending an object's life, even if it has cosmetic defects (Jackson, 2014).
- Exploring the broader "**maker culture**" as a powerful driver for engaging with materials, fostering creativity, and building a sense of belonging within communities. This moves beyond a purely "shabby chic" aesthetic to a deeper appreciation of an object's history and potential.

## Promoting a Generosity Mindset

- Adopting the concept of "**material generosity**" as an intentional and active approach to interact with the world and manage excess materials. This includes fostering a collective view of the value of things within neighbourhoods and communities. Additionally, explore how a new professional identity for material valuers can be a source of class solidarity, particularly in the context of precarious labour and volunteer initiatives.
- Learning how **storytelling and visual representation** can effectively highlight the potential value of discarded materials and inspire broader engagement in

reuse initiatives. It connects to the challenge of instilling "tactile skills, curiosity, and imagination" in younger generations, which are crucial for effective material valuation. This includes the idea of "changing our emotional landscape" regarding waste, fostering a deeper connection that drives proactive interventions. Documentaries such as *Waste Land* (Walker et al., 2010) and *Estamira* (Prado, 2004), as well as fiction films like *Trash* (Daldry & Duurvoort, 2014), offer powerful narratives on the human dimension of waste.

5.

## References and Resources

This section provides a curated list of texts, videos, websites, and other relevant materials to support the learning and practice of a Circular Material Valuer.

→ <https://wiki.reuse.city/projects/circular-valuer-curriculum/CMVC-References>





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