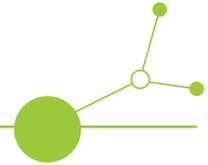




Final Solutions Compendium & Policy Recommendations





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II. EXECUTIVE SUMMARY

Europe's growing stream of electronic waste (WEEE) demands innovative, integrated solutions. The Circular WEEEP project piloted **five complementary approaches** – *WEEE Design, Collect & Market, Social, Lives, and Aware* – each targeting a different stage of the e-waste life cycle. These pilots engaged manufacturers, waste managers, schools, communities, and social enterprises to boost collection, reuse, and responsible design. Together they achieved measurable results (e.g. **200+ stakeholders** assessed in design, **~20 tonnes** of small electronics collected through schools) and revealed key lessons. In particular, all solutions underscored the power of **collaboration** (public-private-social partnerships), **education, digital innovation, inclusion, and supportive policy** to make e-waste management more circular. Below we summarize each solution's goals, outcomes, and insights, then highlight cross-cutting themes and policy recommendations for wider replication.

WEEE DESIGN (ECO-DESIGN FOR ELECTRONICS)

This pilot worked with producers, designers and recyclers to promote **circular product design**: making devices easier to repair, dismantle and recycle. It developed practical tools – an **Open Data Questionnaire** and a **Design Evaluation Manual** – to assess product circularity. Over **200 companies and experts** engaged with the pilot and **204 product self-assessments** were completed. These activities raised awareness of EU eco-design rules and energy efficiency standards. The key outcome was a foundational toolkit: even if full producer participation was lower than hoped (only ~16% of contacted firms responded), the pilot demonstrated a scalable methodology for evaluating and improving electronics design.

Lessons: The pilot confirmed that **stronger incentives and partnerships** are needed to convince manufacturers to change their designs. For example, linking voluntary eco-design assessments to favorable regulatory status or recognition could boost uptake. Involving industry associations and repair communities also helps legitimize and disseminate circular design practices. In summary, by pioneering eco-design evaluation methods, this solution highlighted both industry gaps and paths to mainstream longer-lasting, repairable products. Such design changes will reduce future WEEE generation and pave the way for a truly circular electronics sector.

WEEE COLLECT & MARKET (DIGITAL COLLECTION AND TRADING PLATFORM)

This pilot created a **transnational digital platform** (multilingual web app) that combined an *on-demand collection finder* with a *marketplace* for reusable materials. Its goal was to make it easier for citizens to drop off or schedule pick-ups of old electronics and to connect recyclers/buyers across borders. The platform was tested in Rimini, Italy (with an English interface to attract broader interest). In practice, the tool **attracted strong international attention**: traffic and inquiries exceeded targets, mostly from other regions exploring replication. It became a proof-of-concept model (an “Amazon of circularity”) rather than a locally used service, since Rimini residents continued using their existing waste app. Notably, the “market” side (trading raw materials directly with consumers) proved unrealistic in the B2B-dominated recycling industry.

Lessons: The main insight is that **digital solutions must be carefully integrated** with existing systems. New e-waste apps should complement municipal collection services and producer networks, not duplicate them. Early co-design with local waste operators avoids overlap – for instance, the pilot found that Rimini's waste utility already had a popular scheduling app, so double-applications led to confusion. In transferable terms, this project offers a **replicable blueprint** for an online WEEE platform: other cities/regions



can adapt it as a best-practice model. However, policymakers should ensure any such platform is interoperable (common data standards) and sustainably funded (e.g. for on-demand pickups). In short, the Collect & Market pilot demonstrated the promise of **digital innovation** for e-waste logistics, while highlighting the need for stakeholder alignment and realistic scope.

WEEE SOCIAL (SOCIAL ENTERPRISE INTEGRATION)

The Social pilot explored partnerships between **social economy enterprises (SEEs)** – organizations employing disadvantaged people – and mainstream WEEE businesses. The goal was dual: **create green jobs and boost WEEE recovery**. By conducting interviews and workshops in Poland, the project mapped out feasible cooperation models (e.g. SEEs doing community collection or initial dismantling). Although no actual joint facility was launched (due to funding and legal complexities), the pilot produced an **inventory of barriers and enablers**. It found major **legal and regulatory hurdles**: Polish law did not clearly allow SEEs to handle hazardous e-waste, and waste licensing rules were cumbersome. At the same time, companies and SEEs showed interest once the benefits (cost savings, CSR/ESG gains) were explained.

Lessons: The WEEE Social pilot became a **roadmap** for integrating social enterprises into e-waste management. Key recommendations include establishing **clear cooperation frameworks and model contracts** between recyclers and SEEs, and **simplifying permits** for SEEs to do collection or pre-processing. Training and equipping SEEs (e.g. in safe handling and basic repair) is also vital to build trust with industry. Importantly, without dedicated funding and policy support, practical trials remain limited: the project suggests public or joint investments to outfit SEEs with tools and safety gear. In conclusion, while this pilot did not yield immediate on-the-ground partnerships, it proved that **social inclusion is compatible with circular goals**. With targeted legal reforms and incentives, integrating SEEs could increase collection rates, repair and reuse, and create social value.

WEEE LIVES (SCHOOL COLLECTION & REUSE CAMPAIGNS)

WEEE Lives combined **school-based collection drives** with hands-on circular economy education. In a friendly competition across 78 schools in Poland, Slovenia, Slovakia and the Czech Republic, students gathered small e-waste (phones, chargers, gadgets) for a defined period, learning as they went. The pilot organized collection events, workshops on device dismantling and repair, and community e-waste days.

The results were outstanding. Students and families collected roughly **20 tonnes of small electronics** that would otherwise be forgotten or discarded. For example, a few Polish and Slovenian towns each gathered over a ton of WEEE – far exceeding targets. Thousands of students participated, gaining practical skills and influencing their households to recycle more. This approach yielded both **environmental and educational dividends**: it directly increased recycling volumes and instilled circular mindsets in youth. It also forged new local partnerships – schools worked with municipal recyclers and NGOs, strengthening community networks.

Lessons: WEEE Lives proved highly **replicable and scalable**. Critical factors for success include clear assignment of roles (which authority picks up waste, who checks for reuse, etc.) and proper infrastructure (marked bins, regular pickups). An important regulatory insight is to **allow reuse**: in some places (e.g. Poland) collected items were immediately classified as waste, legally forbidding refurbishment. Policies should enable a “prepare for reuse” step at collection. Educationally, keeping activities engaging – competitions, hands-on repair demos, rewards – amplified impact. Over the long term, turning one-off campaigns into annual or curricular programs can cement the habit of recycling. In





summary, the WEEE Lives model shows that **school and community action** is a powerful complement to formal waste systems, particularly for capturing the small electronics that often slip through the cracks.

WEEE AWARE (E-WASTE AWARENESS IN EDUCATION)

This pilot focused on **raising general awareness of e-waste** through education. It provided ready-to-use teaching materials on WEEE and circular economy, trained teachers, and ran interactive school events (e.g. dismantling workshops, swap days) in at least three countries. The approach was modular: school-level lessons, community outreach (family take-back challenges), and local government support (logistics for collections) worked together.

The outreach was substantial: **377 schools and over 1,000 students** participated. Feedback showed dramatic gains in knowledge – students who had never considered e-waste began sorting old devices at home and urging their families to recycle. Many schools established or improved on-site collection points as a direct result. The pilot confirmed that *experiential learning* (hands-on activities, guest speakers, creative projects) has the strongest impact on awareness.

Lessons: WEEE Aware's success across borders indicates **high scalability**. Key recommendations include institutionalizing e-waste topics in curricula or extracurricular programs, and providing teachers with ready-made toolkits (presentations, worksheets, project guides). Early teacher training and partnership with local recyclers or NGOs (for talks and site visits) greatly enhance credibility and interest. Monitoring progress (e.g. number of devices collected, participating students) and publicly recognizing achievements (certificates or awards) helps sustain motivation. Crucially, awareness efforts should be ongoing, not one-off: the pilot suggests building permanent programs that grow each year. Overall, WEEE Aware demonstrated that **education and culture change** can rapidly spread responsible behavior and lay a foundation for a circular society.

COMMON THEMES AND INSIGHTS

Across all pilots, several themes recurred:

- **Multi-stakeholder collaboration:** Every solution succeeded only by bringing together diverse actors – from ministries and municipalities, to schools, NGOs, industry and social enterprises. Co-design and clear agreements between partners prevented overlap and built ownership. For example, the digital platform had to be aligned with local waste utilities, and school campaigns formalized pick-up roles.
- **Education and community engagement:** Engaging youth and citizens proved critical. The combined WEEE Lives and Aware approaches show that **education multiplies results**. When students learn by doing, they become ambassadors at home. All pilots integrated learning – from eco-design webinars for firms to hands-on lessons for children – and noted that building awareness is a long-term investment.
- **Digital innovation:** Modern tools can greatly improve WEEE systems. The Collect & Market platform showed that a unified online portal is *technically feasible and in demand*. It also taught us that digital services must be user-friendly and interoperable. Similarly, leveraging school management apps (as done in Aware) or data dashboards (monitoring collection outcomes) can scale impact.





- **Social inclusion and jobs:** Integrating social economy brought added social value. The Social pilot highlighted that involving disadvantaged groups in recycling can create jobs and improve recovery rates. The live pilots also engaged communities broadly, emphasizing that no one should be left out of the circular economy agenda.
- **Regulatory integration:** Many lessons centered on policy. Legal frameworks must **enable** the innovations we want. For instance, laws should explicitly allow “preparation for reuse” before recycling. Regulations should accommodate social enterprises (through permits or delegated authority). Design incentives (like reparability labels) can be introduced to nudge industry. Harmonizing these policies ensures that practical pilots translate into lasting change.

KEY POLICY RECOMMENDATIONS

Building on these insights, the CWEEEP project formulated targeted policy measures. Important recommendations include:

- **Institutionalize WEEE education and collection in schools:** Integrate e-waste topics into the formal curriculum and support annual school collection campaigns. For example, the Czech pilot advises developing official WEEE teaching modules and launching a national “E-waste School Challenge”. Slovakia and Poland have similar proposals to make school drives a regular, funded program.
- **Develop interoperable digital platforms:** Governments should promote or create user-friendly e-waste apps/websites that link municipalities, recyclers and citizens. Italy’s recommendation is to unify regional tools (like Hera’s app) into a national portal, with standard APIs and data-sharing. The Czech brief similarly urges a centralized collection app. Such platforms increase convenience and can significantly raise collection rates.
- **Enable “reuse before recycle”:** Amend waste laws to allow repair and refurbishment of collected devices. Poland, for instance, is advised to legalize “preparation for reuse” by certified centers. Slovenia recommends setting explicit reuse targets in regulations. These changes align with EU hierarchy (reuse first) and can unlock valuable secondary markets.
- **Empower producer organizations:** Mandate that Producer Responsibility Organizations (PROs) invest in public outreach and innovation. For instance, Poland suggests requiring PROs to fund awareness campaigns and pilot projects (like social enterprise partnerships) as part of their fees. This harnesses industry resources for education and system improvements.
- **Incentivize circular design:** Introduce national incentives (or labels) for reparability and recyclability. Austria’s brief proposes a reparability index for electronics. More broadly, linking eco-design compliance to benefits (e.g. faster market approval or tax breaks) can motivate manufacturers to build products that last and can be fixed.

These policy actions are *complementary* and should be pursued together. They leverage the project’s practical lessons – from school pilots to digital experiments – to create an enabling environment for circular solutions.





CALL TO ACTION

The CWEEEP pilots proved that **ambitious, participatory approaches work**: students and citizens eagerly sorted e-waste when guided, manufacturers can rethink products, and even new technologies can streamline collection. To meet Europe's targets (65% WEEE collection by 2030) and circular economy goals, we must scale up these innovations. Policymakers, educators, industry and civil society should **join forces** to replicate these solutions across the EU. This means adopting e-waste education in schools, funding local collection events, investing in interoperable digital tools, and reforming regulations as recommended. By acting now – following the proven “collect, educate, empower” formula – Europe can turn the e-waste challenge into an opportunity: cleaner communities, new green jobs, and a resilient circular economy for all.

III. Part 1: Pilot Solutions Overview

This section consolidates the five **Circular WEEEP** pilot solutions – **WEEE Design, WEEE Collect & Market, WEEE Social, WEEE Lives, and WEEE Aware** – highlighting their objectives, implementation methods, key outcomes, and guidance on transferability. The pilots addressed different stages of the e-waste (WEEE) management chain, from product design and digital collection platforms to social inclusion, school engagement, and awareness-raising. The insights and results from these pilots form the basis for the policy recommendations in Part 2.

WEEE DESIGN PILOT SOLUTION (ECO-DESIGN FOR EEE)

Objectives:

The WEEE Design pilot aimed to promote circular economy principles in the design and production of electrical and electronic equipment (EEE). Key objectives included encouraging manufacturers to design products for easier dismantling and recycling, combat planned obsolescence by improving reparability, and foster open sharing of technical data to support device repair and second-life uses^{[1][2]}. These goals aligned with EU WEEE Directive and Ecodesign policy objectives, seeking to reduce waste at the source by improving product **design for circularity**.

Implementation & Tools:

Led by RERA SD with scientific support from BOKU, the pilot developed practical tools to engage companies in eco-design practices^{[3][4]}. Two complementary tools were created: (1) an **Open Data Questionnaire for Producers** to assess companies' willingness to share technical repair information, and (2) a **WEEE Design Evaluation Manual & Assessment Questionnaire** to evaluate products against eco-design criteria (ease of disassembly, material separability, labeling for recycling, etc.)^{[5][6]}. The pilot team conducted outreach to over 200 companies across the EEE value chain, offering assessments and raising awareness through webinars and direct consultations. When initial engagement proved challenging (many firms lacked resources or familiarity with circular design), the team broadened outreach to include not just manufacturers but also repairers, recyclers, and designers, and hosted educational events (e.g. a webinar on sustainable design and new Ecodesign regulations) to build interest^{[7][8]}. This adaptive approach helped improve participation and knowledge, though conversion of awareness into concrete action remained limited without further incentives^[9].





Outcomes:

Despite lower-than-desired response from actual producers, the WEEE Design pilot delivered valuable results. Over **200 stakeholders** (manufacturers, recyclers, repair specialists) were engaged, with **204 completed design questionnaires** collected (about a 15.7% response rate from outreach)[10]. Notably, 38 respondents were EEE producers, providing a sample for analyzing current design practices[11]. The pilot resulted in the **development and testing of new eco-design assessment tools** and raised awareness among participating companies about circular design and upcoming EU Sustainable Product requirements[12]. In the final phase, a **Circular EEE Design self-assessment tool** was piloted with selected companies to guide them in improving energy efficiency, material selection, recyclability, and end-of-life planning for their products[13][14]. This follow-up provided practical guidance and showed that even qualitative support can nudge producers toward better design decisions[15][16]. The project's quantitative targets (e.g. number of companies assessed) were partially met, but more importantly, the pilot built a foundation for continued engagement by highlighting industry gaps in knowledge and motivation.

Transferability & Lessons:

The WEEE Design pilot demonstrated an approach that can be **scaled and replicated** with appropriate support. The tools and manuals developed can be adapted by other regions or industry associations to evaluate product circularity[17]. However, key lessons indicate that **stronger incentives and partnerships** are needed to bring manufacturers on board[18][19]. Integrating such voluntary assessments with regulatory or market incentives (for example, linking eco-design compliance to favorable treatment or recognition) would improve participation[20]. Collaboration with industry bodies is also recommended, as they can help legitimize the process and reach more companies[21]. In summary, the pilot delivered added value by pioneering assessment methodologies and confirming that **eco-design remains underdeveloped** in practice – addressing this will require persistent effort, policy alignment, and incentive structures to mainstream designing products for longevity and recyclability[20][22].

WEEE COLLECT & WEEE MARKET PILOT SOLUTION (DIGITAL PLATFORM FOR COLLECTION & TRADING)

Objectives:

The combined **WEEE Collect & Market** pilot set out to create a **transnational digital platform** to improve WEEE collection logistics and facilitate trading of secondary materials. The vision was an online system, deployed in multiple languages, that could coordinate e-waste collection across borders (WEEE Collect) and act as a marketplace for refurbished items or recovered materials (WEEE Market) – essentially an “Amazon of circularity” concept for e-waste[23][24]. The objective was both to enhance convenience for citizens (on-demand pick-up and drop-off information) and to connect businesses or recyclers for trading reusable components or recycled outputs, thereby closing the loop.

Implementation & Tools:

Developed by ASSO with dissemination by PoR (Province of Rimini), the platform was piloted in Italy with an English-language interface to attract broad interest[25][26]. The implementation revealed a tension between **localization and internationalization**: initially, project ambitions were transnational, but many practical details were rooted in the local Italian context (Rimini)[23][27]. To resolve this, the team made a strategic choice to focus on an English-first platform, effectively shifting the pilot's emphasis from serving





local end-users (who already had a sophisticated local waste app) to demonstrating a model for other regions[28][26]. The WEEE Collect component provided a web-based application where users could find e-waste drop-off points or request pick-ups, while WEEE Market attempted to list available secondary raw materials or refurbishable items for trade. During pilot operation, **challenges** emerged: in Rimini, the local utility (Hera) already offered the “Rifiutólogo” app with real-time waste services, leading to concerns of overlap[29]. Additionally, local waste companies were not formally part of the project, creating hesitation to invest in on-demand collection without compensation[30][31]. The pilot team engaged with a Czech partner to localize part of the platform (a Czech-language section was added later) as a test of transnational replication[32][33]. They also monitored platform traffic and outreach to gauge interest beyond Italy.

Outcomes:

The digital platform pilots provided **proof-of-concept** and rich lessons, even if full operational integration was limited. The online platform attracted significant attention, predominantly from outside Italy – **engagement numbers exceeded the original targets** set in the application[34]. This interest came from international stakeholders (city administrators, policy-makers, waste managers from other countries) looking to learn from the model, rather than Italian citizens (who largely remained with existing local tools)[26][34]. In essence, the pilot’s outcome shifted: it became a **demonstration model** showcasing how a structured, scalable e-waste collection platform can be implemented, rather than a widely used local service. The engagement metrics (e.g. site visits, inquiries) confirmed genuine demand for such solutions in other regions, even though local utilization in Rimini was low due to redundancy with Hera’s system[28][35]. The WEEE Market portion revealed a **mismatch with market realities** – the concept of individual consumers buying raw materials from recycling plants was deemed unrealistic given established B2B recycling markets[24]. No active marketplace transactions occurred during the pilot, underscoring that any future “WEEE marketplace” would need to target professional buyers/sellers and integrate with existing supply chains.

Transferability & Lessons:

The WEEE Collect/Market pilot yielded critical insights for scaling up digital solutions in e-waste management. A key lesson is the importance of **integrating with existing local infrastructure and stakeholders**: new platforms should complement, not compete with, established municipal or EPR systems[36][37]. Early co-design with local waste operators is essential so that innovations add value (e.g. data harmonization, broader accessibility) rather than duplicating services[37]. From a transferability standpoint, the pilot’s greatest success is as a **template for replication** – it effectively became a transnational model that other cities or countries can adapt[26]. The project showed that even if one locale has advanced tools, there is broad interest in **shared best practices** and a unified approach to WEEE collection. Any region adopting this model should ensure clear delineation of local vs. international features (language, regulations) to avoid confusion about target users[23][38]. Policy support could facilitate such platforms by providing common standards or incentivizing interoperability among national systems. In summary, WEEE Collect/Market demonstrated a *scalable digital blueprint* for WEEE management, with the caveat that proper stakeholder engagement and realistic operational plans (including funding for services like on-demand pickup) are necessary for full implementation[39][31]. The concept is **highly transferable** as a best-practice model – indeed, its primary users during the pilot were entities interested in replication – and it highlighted how Central European cooperation can drive innovation in e-waste logistics.





WEEE SOCIAL PILOT SOLUTION (SOCIAL ENTERPRISE INTEGRATION)

Objectives:

The WEEE Social pilot explored ways to **integrate Social Economy Enterprises (SEEs)** – organizations that employ or serve vulnerable groups – into the e-waste management chain. The core idea was to create win-win collaborations where social enterprises could take on roles in WEEE collection, sorting, minor repair or dismantling, thereby providing employment for disadvantaged individuals and improving WEEE handling capacity. The objectives were to identify feasible cooperation models between conventional WEEE companies (recyclers, producer responsibility organizations) and social enterprises, address barriers to such partnerships, and ultimately harness “social recycling” as a means to both **social inclusion and circular economy outcomes**[\[40\]](#)[\[41\]](#).

Implementation & Approach:

Led by partners in Poland (Powiat and ARR SA), the pilot primarily took the form of studies, stakeholder meetings, and bilateral engagements between WEEE industry actors and potential social enterprise partners. The pilot conducted an **analysis of barriers and opportunities** by gathering feedback from both sides: - WEEE companies reported concerns such as lack of clear procedures for working with SEEs, uncertainty about legal liability if non-traditional workers handled hazardous e-waste, and doubts about SEEs’ technical capacity and consistency[\[42\]](#)[\[43\]](#). - Social enterprises identified challenges including insufficient equipment and infrastructure for e-waste processing, limited knowledge of complex WEEE regulations, and workforce constraints (e.g. volunteers or employees with disabilities who might not sustain industrial-level workflows)[\[44\]](#)[\[45\]](#).

The pilot did not include a full on-the-ground trial (no actual e-waste facility was jointly run), due in part to limited funding and capacity for real-world testing[\[46\]](#)[\[47\]](#). Instead, it relied on scenario discussions and a willingness survey – companies could *declare* interest in cooperation models without implementing them, which provided insight but lacked empirical validation[\[48\]](#). This approach allowed identification of theoretical models (e.g. a social enterprise handling initial dismantling of electronics, or providing collection services in a community), but it also meant stakeholders could voice support without proving it in practice[\[49\]](#). Throughout the pilot, communication and awareness efforts were made to reframe the concept not as mere CSR, but as a potentially **efficient operational partnership** that could reduce costs or fill labor gaps for companies while advancing social goals[\[40\]](#)[\[50\]](#).

Outcomes:

The WEEE Social pilot yielded a candid inventory of **barriers and preconditions** for social–business collaboration in e-waste. It became clear that **legal and regulatory hurdles** are significant: for instance, in Poland there is an absence of a clear legal framework allowing waste management tasks to be delegated to social enterprises, causing uncertainty for both parties[\[51\]](#). Also, current regulations (e.g. on waste licensing and safety) make it difficult for SEEs to participate unless they invest heavily in compliance and equipment. The pilot did succeed in raising awareness – some WEEE companies engaged in the dialogue and acknowledged the concept’s merits once issues like ESG (environmental, social, governance) benefits were explained[\[52\]](#)[\[53\]](#). However, **no formal long-term partnerships** were established during the pilot, reflecting that companies remained cautious. The insights gathered were documented as lessons and recommendations. In summary, the outcome was more of a **strategic roadmap** than an immediate on-site result: the project identified what would need to change (procedures, laws, mindsets) to



make “social WEEE” collaborations viable at scale[54][55]. On a positive note, the pilot validated that the social aspect *can* complement circular economy efforts – for example, engaging SEEs can help meet repair/reuse goals – but it highlighted that significant groundwork (standardized training, pilot funding, legal clarity) is required first[56][57].

Transferability & Lessons:

The Social WEEE concept is **innovative and transferable** to many countries in principle, given that most regions have both e-waste management needs and social enterprises seeking opportunities. The pilot’s findings serve as a valuable checklist for any region attempting to replicate such a model. Key recommendations include: - Establish **clear cooperation frameworks** and model contracts for WEEE companies and SEEs, so each knows how to share responsibilities and liabilities[58][59]. - Provide **training and capacity building** for social enterprises in e-waste skills (regulatory compliance, safe handling, basic electronics repair) to build trust with industry partners[60][61]. - Introduce or amend laws to explicitly allow accredited social enterprises to perform certain waste management operations (collection, pre-processing) without onerous procedures, perhaps via simplified permits or delegated authority[51][62]. The lack of such legal provisions was a blocking factor in the pilot. - Secure **funding and incentives** for practical pilots and infrastructure: the project noted that without dedicated funding (beyond what Interreg could provide), real-world tests couldn’t happen[46][62]. Future initiatives should involve national funds or joint investments (public-private) to equip SEEs with needed tools (e.g. workstations, safety gear)[62][63]. - Emphasize the **business case** to WEEE industry players (cost reduction, meeting CSR/ESG goals, positive publicity) to motivate participation[52][64].

These lessons mean that while the Social WEEE pilot did not immediately yield a new operational model, it provided a foundation that *policy-makers can act on to unlock this potential*. *The concept holds promise for creating green jobs and improving collection/recovery rates, and with supportive policies, it can be replicated elsewhere. The conclusion from the pilot is that integrating social enterprises into e-waste management is possible and beneficial, but it requires overcoming structural barriers through focused policy measures and continued multi-sector collaboration*[54][55].

WEEE LIVES PILOT SOLUTION (SCHOOL COLLECTION & REUSE CAMPAIGNS)

Objectives:

The WEEE Lives pilot aimed to **increase the collection of small WEEE** and instill circular economy values by engaging schools and local communities. It had a twofold objective: 1) to collect significant quantities of otherwise neglected small electronic waste (such as old phones, chargers, gadgets often left in drawers) through school-based drives and competitions, and 2) to educate and involve students in hands-on activities (repair workshops, reuse) to extend the life of devices and promote long-term behavior change. Essentially, WEEE Lives sought to demonstrate that combining **education with practical action** can boost e-waste recovery and improve attitudes toward repair and recycling.

Implementation & Activities:

This pilot was implemented transnationally, with coordinated campaigns in **four countries (Poland, Slovenia, Slovakia, Czech Republic)**, led by CPU (Slovenia) with local co-leads in each country[65][66]. The pilot design was centered on schools: participating schools set up e-waste collection points and competed to gather the most electronics by weight, while also integrating e-waste topics into classroom activities. Key activities included: - **School Recruitment:** A total of 78 schools across the 4 countries





took part (e.g. 5 schools in Lublin, PL and 7 schools in Rogaška Slatina, SI, among others)[65]. Schools were engaged via local project partners and motivated by the competition element. - **Collection Drives:** Each school served as a micro collection center for a defined period. Students brought in old or broken electronics from home. Collection boxes and temporary storage were arranged on-site, with local waste operators assisting in pickups[67][68]. - **Educational Workshops:** To complement collection, the pilot organized **hands-on workshops** and events: students learned to dismantle small devices safely, participated in “repair café” sessions, and visited recycling or reuse centers[69][70]. These practical activities were often led by experts (e.g. ENVIDOM in Slovakia gave lectures, or CPU’s technicians demonstrating repairs). - **Community Involvement:** The campaign actively involved parents and the broader community. Schools sent information home (flyers, WhatsApp groups, etc.) to encourage families to contribute e-waste[71]. Some pilots held community e-waste days or invited local citizens to drop off electronics at the school events. - **Monitoring and Motivation:** The pilot introduced some light monitoring – tracking quantities collected per school and sharing interim results. This feedback (e.g. announcing how many kilograms collected, or the CO₂ savings from recycling) helped spur competition and keep motivation high[72][73]. Digital platforms (like EduPage or simple spreadsheets) were used to record data and communicate progress[74][75].

Outcomes:

The WEEE Lives pilot was very successful in both engagement and collection impact. Across the 78 schools, the campaign **mobilized approximately 20 tons of e-waste** in total[76]. This is a significant quantity of small electronics that might otherwise have been hoarded or improperly discarded. For example, the schools in Lublin (Poland) collected about *1.2 tonnes*, and those in Rogaška Slatina and Slovenske Konjice (Slovenia) collected about *1.65 tonnes*[76]. These numbers exceeded initial targets and demonstrated the efficacy of school-centric drives (the friendly competition and student enthusiasm translated into concrete results). In terms of reach, thousands of students were directly involved – **engaging students early proved highly effective**, with reports that many began influencing their families to sort e-waste at home[77][78]. Educationally, the combination of **collection + education + practical skills** was shown to embed circular economy values deeply: students not only learned about e-waste in theory but saw and practiced what can be done (dismantling, repairing)[79][80]. Feedback from schools indicated this approach provides a strong basis for long-term behavior change, as young people become accustomed to thinking about reuse and proper disposal[79]. Another outcome was strengthened local networks – the involvement of recycling centers, waste management companies, and reuse NGOs in pilot activities created new collaborations. For instance, in Slovenia, CPU’s partnership with municipal waste companies was reinforced through joint school visits and follow-up on collected items[81][82]. Some of the collected devices that were still functional or repairable were diverted to reuse (though regulatory barriers in some places limited this – see Poland case below). The pilot also highlighted areas for improvement, such as the need for clear **triage criteria** to separate reusable vs. recyclable electronics at collection time[83] and the importance of providing schools with enough resources (bins, storage space, etc.) to handle the volume safely[84].

Transferability & Lessons:

WEEE Lives is a highly **transferable model**, as evidenced by its implementation in multiple countries and diverse local contexts. The pilot underlined that **school and community-based approaches** to e-waste can be scaled up with relatively low cost and high social return. Key lessons and guidance for replication include: - **Clear Stakeholder**





Roles: Successful replication requires coordination between schools, local authorities, waste operators, and reuse/repair entities. The pilot showed that formalizing roles (who will pick up the e-waste, who will assess for reuse, etc.) through simple agreements is crucial^{[85][86]}. This prevents anything “falling through the cracks” when multiple actors are involved. - **Adequate Infrastructure:** Provide schools with the proper tools – e.g. standardized collection boxes or containers, and ensure regular pick-ups so that storage is not a burden^{[87][68]}. Visibility of the collection point (well-marked bins) also encourages participation^[88]. - **Regulatory Support for Reuse:** One barrier noted was that in some jurisdictions (e.g. Lublin, Poland), once electronics are collected as “waste,” current law forbids their reuse^[89]. For the model to achieve its full circular potential, regulations should permit a “prepare for reuse” step where collected items can be checked and refurbished for donation or reuse before being counted as waste. Harmonizing such rules would greatly enhance outcomes. - **Keep it Fun and Educational:** The competitive and hands-on aspects were key to success. Replicating this, future programs should include educational materials, teacher training (since e-waste is often not in the standard curriculum^[90]), and engaging activities like repair workshops or creative reuse projects^{[91][92]}. Teachers appreciated ready-to-use materials and external expert involvement, which suggests education ministries or environment agencies could help by developing curricula or guides^{[93][94]}. - **Monitoring & Recognition:** Even simple monitoring (counting items or weight) and providing feedback (announcing interim results, giving certificates or prizes to top-performing schools) helped sustain motivation^{[73][95]}. Future initiatives should include a straightforward data collection and reporting mechanism, and plan for rewards (even non-monetary recognition) to keep participants engaged. - **Long-Term Engagement:** To truly instill lifelong habits, one-off campaigns should evolve into **continuous programs**. The pilot’s modular structure (school actions feeding into community awareness, supported by local government) proved scalable and could be adopted as an annual or ongoing program^{[96][97]}. Some pilot schools indicated they would continue collections on their own, demonstrating lasting impact.

In conclusion, WEEE Lives confirmed that **engaging youth and communities is a powerful strategy** for improving e-waste collection and promoting reuse. It not only yielded immediate environmental benefits (tonnes of waste collected) but also education dividends. This model can be adapted across regions – urban or rural – and is an important complement to formal e-waste management systems, as it addresses the smaller items and household behaviors that centralized systems often miss. The pilot’s success across Central European countries suggests it could be expanded transnationally, with each locale tailoring the campaign to its needs while adhering to the core formula of “**Collect, Educate, Empower**”.

WEEE AWARE PILOT SOLUTION (E-WASTE AWARENESS IN EDUCATION)

Objectives:

The WEEE Aware pilot focused on **raising awareness and knowledge of e-waste issues** through formal and informal education channels. Its primary goal was to address the low general awareness of WEEE among students, teachers, and the public, by integrating e-waste topics into school activities and community outreach. The pilot aimed to make youth “e-waste aware” – understanding why recycling electronics is important, how to do it safely, and how to adopt circular behaviors (repair, reuse) – thereby laying a foundation for improved WEEE collection and prevention in the long term. Another objective was to test approaches that could be easily scaled or transferred across different regions and school systems.





Implementation & Activities:

WEEE Aware was implemented in at least **three countries** (for example, Slovakia, Czech Republic, and one other partner country) in parallel, working with schools and educational bodies[98]. Key components of the pilot included: - **Educational Materials & Curriculum Integration:** The pilot developed and provided **teaching materials** about e-waste (presentations, worksheets, videos, etc.) to participating schools[93]. Since e-waste topics were not part of the standard curriculum, the pilot supplied ready-to-use content to help teachers incorporate it into science or environmental lessons[90]. Methodological guidance was given so that even without formal curriculum mandates, teachers could find space for these lessons. - **Teacher Training:** Early in the pilot, training sessions and workshops for teachers were organized, though one lesson learned was that even more structured training should have been provided sooner[99]. The idea was to equip teachers with knowledge and confidence to cover WEEE topics, including practical demonstrations (like how to safely take apart a device for demonstration). - **School Campaigns and Events:** Similar to WEEE Lives, WEEE Aware encouraged **school e-waste collection drives**, but with the emphasis on awareness rather than competition. Many pilots linked an educational campaign with an actual collection activity (e.g. a “bring your old devices” day) to make the learning experiential[100][78]. Some community-based events were included, such as electronics swap events or repair café days hosted at schools, to spread awareness beyond the student population[101]. - **Use of Digital Platforms:** The pilot leveraged existing digital school platforms (like *EduPage*) and social media to share tips, challenges, and results[102]. This not only facilitated communication with students and parents but also added a modern, interactive element to the awareness campaign (for example, quizzes or online pledge forms). - **Expert Involvement:** Partners brought in experts from recycling companies or environmental organizations (e.g. ENVIDOM in Slovakia) to give talks or demonstrations at schools[94][103]. These guest lectures made the content more credible and engaging – hearing directly from e-waste professionals or seeing a live dismantling demo had strong impact. - **Monitoring & Feedback:** WEEE Aware also highlighted the need for **monitoring tools** to track the reach and impact of the educational activities. A recommendation was to use unified data collection from the start (e.g. simple surveys or counts of electronics collected) to compare results across schools/countries[104]. During the pilot, data like number of students engaged or volume of e-waste collected were gathered to evaluate success.

Outcomes:

The WEEE Aware pilot achieved broad outreach and demonstrated significant *scalability*. In total, it engaged **377 schools and 1,068 students** across the three countries involved[105]. (These figures likely refer to core participating students/teachers directly involved in pilot activities; the wider awareness raised would span many more individuals given each school’s community.) The relatively high number of schools indicates that the model was attractive and easy to roll out – many schools could participate once materials and a basic structure were in place. Students who participated reportedly began to change their behavior, **starting to sort e-waste at home and involving their parents** in recycling efforts[100][78]. Qualitatively, the pilot confirmed that **experiential learning is most effective**: activities like device dismantling workshops, creative upcycling projects, and open discussions were “most appreciated” by students and teachers[106][100]. It also found that schools highly value **simple, visual materials** given their limited time – when provided with ready resources, they were eager to use them[107]. The involvement of families was a notable outcome: by sending information and challenges home, the pilot increased family awareness, thus multiplying the effect beyond the classroom[108]. In terms of improving e-waste collection, many schools established or improved their on-





site collection points as part of the project, creating a convenient drop-off for small electronics (often a first for those institutions)[109]. The pilot's modular approach (linking school activities with community events and support from local authorities) proved effective – it built a **bridge between educational efforts and real-world action**, which is essential for lasting impact[110].

Transferability & Lessons:

WEEE Aware's success across multiple countries shows that its approach is **highly scalable and transferable**. The pilot developed a “**module**” approach that can plug into various educational systems: one module at the school level (lesson plans, student projects), one at the community level (events, family involvement), and one at the local government level (supporting schools with logistics and expertise)[96]. This layered model supports transnational transfer because each module can be adapted to local context while keeping the overall framework. Key recommendations for transferring this solution include: - **Institutionalize E-waste Education:** Work with education ministries or school networks to formally include e-waste and circular economy topics in curricula or extracurricular programs. The pilot's finding that teachers struggle to place the topic in a packed curriculum[111] suggests that top-down inclusion (even as part of environmental education mandates) would help. At minimum, provide national repositories of vetted e-waste teaching resources. - **Provide Ready-to-Use Resources:** As learned, teachers appreciate having worksheets, presentations, and project ideas prepared[93]. Transferability increases if a toolkit is developed centrally and then distributed to schools. Different countries can create localized content (language, referencing local recycling systems) based on the pilot's materials. - **Early Teacher Training:** Ensure that before or at the start of any campaign, teachers receive orientation on e-waste issues and how to use the provided materials[99]. This could be done via online webinars or in-person workshops, possibly leveraging experts from recycling organizations (as those were found to be very impactful[103]). - **Community and Expert Engagement:** Encourage each school to partner with a local recycler, municipality, or NGO. The pilot showed that such partnerships (guest lectures, facility tours) greatly enhance credibility and student interest[94][112]. Local government can play a role by connecting schools with these resources and by publicizing school campaigns to the wider community. - **Monitoring & Recognition:** Adopt a unified simple monitoring system (e.g. all schools report the number of participants and amount of e-waste collected) to evaluate impact across regions[104]. Share these results to motivate participants (for instance, highlight which school collected the most, or estimate the environmental benefit). The pilot noted that *standardised data collection* would also facilitate cross-country learning and comparison[104]. - **Sustain and Expand:** Plan for continuity. WEEE Aware pilots often expressed what they would do differently or continue: more community-based activities (repair cafés, etc.) and sustained communication with schools to troubleshoot and keep interest high[113][114]. A transferred program should include a long-term engagement plan so that awareness efforts don't fade after a one-off event. Given the **strong scalability potential** demonstrated[97], it's feasible to build a permanent program that grows each year (adding more schools or new topics like battery recycling, etc.).

In conclusion, WEEE Aware bridged an important gap in WEEE management – general awareness and education. It confirmed that **general awareness of e-waste is very low** initially, but also that **with appealing, hands-on education, students and communities quickly respond and take action**[107][108]. The model's effectiveness and transferability have been proven by the pilot's reach and the positive changes observed, making it a strong candidate for replication in any country aiming to improve its e-waste outcomes through education and culture change.







(Table 1 provides a comparative summary of the five pilot solutions, encapsulating their focus, activities, outcomes, and transferability.)

[17][26]

Pilot Solution	Focus & Approach	Key Outcomes	Transferability & Insights
WEEE Design (RERA SD, BOKU)	Eco-design for EEE – Engaging manufacturers to improve product design (repairability, recyclability). Developed tools: Open Data Questionnaire & Design Assessment Manual[5][6]. Outreach via webinars and direct consulting.	<ul style="list-style-type: none"> • 200+ stakeholders engaged (incl. 38 producers)[11] • Eco-design assessment tools created/tested[12] • Increased awareness of new EU design obligations among firms[12] 	Scalable methodology for product assessments; can be adopted by industry associations or agencies. Needs policy incentives to boost producer participation (link assessments to compliance or recognition)[20][21]. Emphasized involving designers/repairers, not only manufacturers, to champion circular design[115][116].
WEEE Collect & Market (ASSO, PoR)	Digital platform for WEEE collection and trading – Created a web platform (multilingual) for on-demand e-waste collection info (Collect) and a marketplace for secondary materials (Market). Piloted in Rimini with English UI to attract international users[26].	<ul style="list-style-type: none"> • Platform exceeded engagement targets, drawing interest from other regions (international traffic)[34]. • Demonstrated a working model for an online WEEE system, though local user uptake was low due to existing services[28]. • Identified unrealistic elements (e.g. direct consumer material sales) and adjusted scope. 	Highly replicable model as a best-practice template for cities/regions[26]. Key insight: integrate with local systems and stakeholders early to avoid duplication[29][37]. Transnational cooperation can produce scalable tools, but future projects should clarify target users and provide sustainable funding for new services[39][31].





Pilot Solution	Focus & Approach	Key Outcomes	Transferability & Insights
<p>WEEE Social (Poland partners)</p>	<p>Social enterprise integration – Connecting WEEE recyclers with Social Economy Entities (employing vulnerable groups) for e-waste collection/processing tasks. Conducted surveys, workshops to identify cooperation models and barriers[42][44]. No on-ground pilot operations due to funding limits.</p>	<ul style="list-style-type: none"> • Mapped out barriers: legal uncertainties, lack of standards, low mutual awareness[51][117]. • Improved dialogue – some companies showed interest in “social recycling” once benefits (cost, ESG) explained[41][50]. • Produced recommendations for framework improvements (legal, training, investment)[118][53]. 	<p>Concept transferable to any country with social enterprises, but requires groundwork. Policy/legal changes needed (e.g. allow task delegation to SEEs)[51]. Provide training & resources so SEEs can meet WEEE standards[119][120]. Showed that without practical pilots and funding, progress is slow – future projects should include joint trials to build trust and evidence[46][121].</p>
<p>WEEE Lives (CPU, CZ/PL/SI/SK)</p>	<p>School-based e-waste collection & education – Organized e-waste drives in 78 schools (4 countries) with competitions and hands-on workshops (device dismantling, repair demos)[79][80]. Partnerships with local recyclers and reuse centers for logistics and expertise.</p>	<ul style="list-style-type: none"> • ~20 tons of WEEE collected (small electronics) across schools[76]. • 78 schools, thousands of students engaged; strong family/community involvement[122][66]. • Students gained repair/reuse skills; increased long-term awareness and behavioral change (reported sorting at home)[123][80]. 	<p>Easily replicable community model. Key to success: clear coordination among schools, municipalities, waste operators[85][86]. Low-cost and scalable – can be expanded regionally/nationally. Ensure regulatory support for reuse (so collected items can be refurbished where viable)[89]. Education + action proven effective; integrating such campaigns into school programs nation-wide could significantly boost collection rates and circular mindset.</p>



Pilot Solution	Focus & Approach	Key Outcomes	Transferability & Insights
<p>WEEE Aware (ENVIDOM, partners)</p>	<p>Educational awareness campaign – Integrated e-waste topics into school curricula and activities in 3 countries. Provided teachers with materials & training, ran interactive lessons, school collection days, and community outreach (e.g. repair cafés, swap events)[93][113]. Used digital tools (EduPage) to engage and share results[102].</p>	<ul style="list-style-type: none"> • 1068 students directly involved across 377 schools[105]. Strengthened knowledge: baseline low awareness was improved via experiential learning (dismantling workshops, etc.) – “strongest educational impact”[107][108]. • Schools established e-waste collection points and continued activities beyond pilot (indicating sustainable impact). 	<p>Highly scalable – the pilot’s modular approach (schools ↔ community ↔ local gov) supports broad adoption[96]. Transnational transfer is straightforward with localization of content. Recommend curriculum inclusion of WEEE topics and sustained teacher support[124]. Digital platforms help scale engagement and monitoring. Pilot confirms that early-age awareness yields long-term benefits, aligning with EU circular economy education goals.</p>

Table 1: Summary of Circular WEEEP Pilot Solutions – their focus, key outcomes, and transferability insights.[\[97\]](#)[\[79\]](#)





IV. Part 2: National Policy Recommendations for WEEE Management

Building on the pilot outcomes and considering each partner country's context, this section presents policy briefs with recommendations to improve Waste Electrical and Electronic Equipment (WEEE) management at the national level. The recommendations draw from the **lessons of the CWEEEP project**, as well as the framework of EU circular economy strategies and WEEE Directive requirements. Each brief addresses country-specific challenges and operational insights, providing **actionable suggestions for policymakers** and stakeholders to enhance electronic waste collection, recycling, reuse, and prevention. Notably, all partner countries face the common EU target of achieving a 65% WEEE collection rate (of equipment put on market) and moving toward circular economy goals; these briefs aim to help bridge the gap through targeted national measures.

CZECH REPUBLIC

Context:

The Czech Republic has modernized its waste legislation with Act No. 541/2020 (effective 2021) to align with EU directives^[125], and it operates a producer responsibility system for WEEE. Collection infrastructure exists (municipal collection points, take-back by retailers), but **small WEEE collection and public awareness remain challenges**. The CWEEEP pilots in Czechia (e.g. school campaigns under WEEE Lives and WEEE Aware, and the interest in the WEEE Collect digital platform) revealed that greater engagement and education are needed to boost WEEE returns. Additionally, certain circular practices like repair and reuse of collected items are not yet common. Czech stakeholders showed enthusiasm for adopting innovative solutions (such as the digital collection platform and school-based drives), indicating a readiness for policy support to scale these up.

Policy Recommendations (English):

- **Integrate E-waste Education into Curriculum:** Incorporate **WEEE and circular economy topics in school curricula** and teacher training programs. The pilots found that teachers currently struggle to include e-waste since it's outside the curriculum^[90]. The Ministry of Education should develop official guidelines or modules on e-waste (possibly within environmental studies or science classes), ensuring students learn about proper disposal, recycling, and repair from an early age. This includes providing schools with age-appropriate materials and hands-on project ideas, building on the successful approaches of CWEEEP (device dismantling in class, creative reuse projects, etc.). By institutionalizing e-waste education, Czech Republic can raise a generation that is far more aware and proactive about electronics recycling.
- **National School E-waste Program:** Scale up the **school collection campaign model** nationally in cooperation with municipalities and producer responsibility organizations. The WEEE Lives pilot in Czech schools (and neighboring countries) proved highly effective in recovering small electronics and engaging communities^{[79][80]}. The government should launch an annual "E-waste School Challenge" with modest financial or recognition rewards for participating schools. This program would support schools with standardized collection boxes, safety guidelines, and a pickup service (through existing municipal waste systems or compliance schemes). It should also include educational workshops (leveraging experts from entities like ASEKOL or REMA, Czech WEEE compliance schemes).





Such a program would significantly increase collection of small WEEE and batteries, which often evade current collection channels.

- **Support Digital Collection Platforms:** Encourage the development of a **user-friendly national e-waste collection app/website** that helps citizens schedule pickups or find drop-off locations for WEEE. Building on the CWEEEP experience (where a bilingual platform was piloted), Czech authorities (possibly in coordination with the Coordinating Body for WEEE) can adapt the platform concept to local needs. A centralized digital platform, integrated with municipal services, would make it easier for consumers to dispose of electronics responsibly. It's important to involve local waste companies and existing apps in the planning to avoid duplication and ensure seamless service[29][26]. The government can provide funding or public-private partnership frameworks to develop this tool. By increasing convenience, Czech Republic can boost its WEEE collection rates toward EU targets.
- **Enhance Reuse and Repair Pathways:** Amend national waste regulations or guidance to strengthen **preparation for reuse** of WEEE. Currently, devices handed in as “waste” often all go straight to recycling, even if some could be refurbished. Czech policy should clarify and promote pathways for items to be tested and refurbished by authorized facilities (including social enterprises or repair centers) *before* final recycling. For example, allow registered organizations to extract potentially functional equipment from collection streams for refurbishment under supervision, without complex waste handling permits. This policy would align with the WEEE Directive's goal of reuse and with the Circular Economy Action Plan's push for a “right to repair.” It could also be supported by creating **repair support centers** or funding community repair workshops – extending initiatives like “Repair Cafés” that were piloted in CWEEEP to a broader scale. By enabling reuse, Czech Republic not only reduces waste but can create local jobs in refurbishing, including opportunities for social enterprises.
- **Public Awareness Campaigns:** Alongside structural changes, run periodic **public awareness campaigns on e-waste** (via media, online, and in retail outlets) to remind citizens to recycle electronics. Highlight the environmental impact of improper e-waste disposal and inform about available drop-off points (many people still store old electronics at home). The campaigns should also promote the idea of donating or returning used devices (for example, emphasizing retailer take-back programs like the “One-for-One” and “One-for-Zero” schemes in the EU[126][127]). Such national campaigns could be timed with the school programs or international e-waste day, maximizing their effectiveness. The CWEEEP project showed that when communities are informed and challenged (as in school drives), they respond enthusiastically – a broader campaign can amplify this effect across the population.

Policy Brief – Czech Republic (Česky):

- **Začlenění tématu elektroodpadu do výuky:** Začněte **výuku o elektroodpadech a oběhovém hospodářství** již na základních a středních školách v rámci školních vzdělávacích programů. Pilotní projekty ukázaly, že učitelé postrádají metodiku, jak téma elektroodpadu zařadit do výuky, protože není v osnovách[90]. MŠMT by mělo vytvořit oficiální metodické materiály a výukové moduly o nakládání s elektroodpady (např. v rámci environmentální výchovy či fyziky) a zajistit školení pedagogů. Součástí má být i praktická složka – žáci by si měli například zkusit bezpečně rozebrat starý spotřebič nebo vymyslet, jak prodloužit jeho životnost.





Začleněním těchto témat do vzdělávání vyroste generace, pro kterou bude třídění a recyklace elektra samozřejmostí.

- **Celostátní program sběru elektroodpadu ve školách:** Navážeme na úspěch pilotního projektu **WEEE Lives** a zavedeme **každoroční celostátní soutěž škol ve sběru elektroodpadu**. Pod záštitou Ministerstva životního prostředí a ve spolupráci s obcemi a kolektivními systémy (např. ASEKOL, ELEKTROWIN) obdrží školy nádoby na sběr drobného elektra, metodiku a zajištění odvozu. Žáci budou soutěžit ve sběru vysloužilých spotřebičů a baterií, což se již v pilotu velmi osvědčilo – školy nasbíraly dohromady desítky tun elektra[76] a aktivně zapojily rodiče i veřejnost. Nejlepší školy mohou být oceněny (např. vybavením učeben, exkurzí do recyklačního závodu apod.). Takový program výrazně zvýší zpětný odběr malých spotřebičů, které dnes často končí v šuplících nebo směsném odpadu.
- **Podpora digitálních platforem pro sběr elektroodpadu:** Zefektivníme odběr elektra zavedením **online platformy či mobilní aplikace**, která občanům ukáže nejbližší sběrná místa nebo umožní objednat odvoz elektroodpadu. V rámci projektu CWEEEP se testovala mezinárodní platforma; nyní můžeme vytvořit její lokalizovanou verzi pro ČR, ideálně při Centru oběhového hospodářství nebo ve spolupráci s Hospodářskou komorou. Aplikace by mohla využít databázi stávajících sběrných dvorů a míst zpětného odběru u prodejců. Důležité je zapojit do vývoje místní odpadové firmy, aby se platforma propojila s jejich systémy a doplnila je místo konkurence[29][37]. Stát může podpořit vznik platformy finančně nebo poskytnutím dat. Díky digitální aplikaci usnadníme občanům odevzdání starého elektra, což by mělo zvýšit míru sběru k požadovaným 65 %.
- **Podpora opětovného použití a oprav:** Zasadíme se o to, aby legislativa a praxe umožňovala co nejvíce **předcházet vzniku odpadu opětovným použitím funkčních přístrojů**. Konkrétně doporučujeme upravit prováděcí předpisy zákona o odpadech tak, aby kolektivní systémy a obce mohly vyčlenit z odevzdaného elektroodpadu zařízení vhodná k repasi ještě před tím, než jsou klasifikována jako odpad. Tato „příprava k opětovnému použití“ by měla být prováděna certifikovanými subjekty (např. sociálními podniky, opravárenskými dílnami) za dodržení bezpečnostních standardů. Inspirací mohou být projekty sociálních podniků, které by rády staré spotřebiče opravovaly, ale dnes narážejí na legislativní překážky[51][128]. Dále doporučujeme zavést motivační programy pro veřejnost na podporu oprav – například snížení DPH na opravy elektroniky, nebo poukázky na opravu spotřebiče při koupi nového (princip „oprav a ušetř“). Tyto kroky podpoří rozvoj opravárenských služeb a maximalizují využití výrobků před recyklací, v souladu s principy oběhového hospodářství a chystaným evropským právem na opravu.
- **Zvyšování povědomí a zapojení veřejnosti:** Kromě školního programu je třeba oslovit i širokou veřejnost. Doporučujeme spuštění **celonárodní informační kampaně o elektroodpadu**, například pod heslem „Uklidme si starou elektroniku“. Kampaň by mohla probíhat v médiích a na internetu, včetně spolupráce se známými osobnostmi či influencery, a motivovat občany, aby odevzdali vysloužilá elektronická zařízení. Součástí mohou být i **sběrací akce na veřejných místech** (např. během Dne Země mobilní sběrné dvory ve městech). Je nutné občanům opakovaně připomínat, že elektroodpad nepatří do popelnice a že jeho recyklací se získávají cenné suroviny a chrání životní prostředí. Díky kampani se zvýší účast obyvatel na existujících systémech sběru. Navíc posílí veřejnou podporu pro další opatření, jako jsou ty zmíněné výše.





(Pozn.: Uvedená doporučení vycházejí z poznatků pilotních akcí projektu CWEEEP a jsou v souladu s cíli ČR v oblasti oběhového hospodářství a směrnici o odpadech z elektrozařízení.)

ITALY

Context:

Italy has a well-established WEEE legislative framework (Legislative Decree 49/2014 and related Ministerial Decrees) aligning with the EU Directive [129][126]. Implementation on the ground includes a network of collection points and active producer responsibility consortia (e.g. Remedia, Ecodom) under the Coordination Centre (CdC RAEE). Innovative local solutions also exist – for example, in Emilia-Romagna the multi-waste “Rifiutologo” app by HERA assists the public in waste sorting and electronic collection scheduling [29]. Despite this, Italy’s WEEE collection rate is still below the EU target (in recent years hovering around 40%–45% of POM, leaving a significant gap). Illegal or informal flows and regional disparities (North vs. South) remain issues. The CWEEEP pilot in Italy (WEEE Collect/Market in Rimini) highlighted the need for **better integration of new digital tools with existing systems** and for engaging stakeholders early. Additionally, Italy could leverage more the **social dimension** and **reuse opportunities**, as identified in other pilots, to boost its circular economy performance for electronics.

Policy Recommendations:

- **Foster Integration of Digital Tools:** Build on Italy’s existing best practices by **integrating digital platforms** for WEEE into the national system. Rather than create parallel apps, the Ministry for Ecological Transition (MiTE) in concert with CdC RAEE should encourage interoperability or linking of tools like HERA’s app with a national WEEE platform. For instance, a **unified national e-waste portal** could be established to complement local apps: users enter their location and are directed either to local service booking (like Hera’s system in Emilia-Romagna) or, where no advanced local system exists, use a standard request form for pickup or locate the nearest collection point. The CWEEEP pilot showed that a one-size digital solution must be adaptable – Italy should specify clear **national standards/API** for WEEE digital services so that regional waste utilities and national consortia can share data. Additionally, Italy could mandate that all municipalities provide online information and scheduling for WEEE pickup (many smaller towns lack this), possibly through funding dedicated to digitalization of waste services. By unifying these efforts, Italy can improve citizen access to proper disposal and collect more WEEE, especially in areas currently underserved.
- **Strengthen Local–National Coordination:** The pilot experience in Rimini revealed tension when a new project wasn’t aligned with local operators [130][37]. To avoid this, Italy should formalize **early stakeholder consultation** for any new WEEE initiatives. For example, when rolling out changes in WEEE policy or systems, involve local waste management companies, regional authorities, and producer consortia in a co-design process. This could be done through the existing **CdC RAEE platform** by setting up working groups that include local stakeholders. A specific policy suggestion is to develop a **“WEEE innovation protocol”** – a set of guidelines that any region or entity must follow when introducing a new tool or scheme for e-waste, ensuring it complements existing infrastructure. This will turn potential conflicts into synergies (e.g. an app developed in one region could be scaled nationally with collective input). By improving coordination, Italy can implement new solutions (like on-demand collection in areas where feasible)





without disrupting operators, thus gradually enhancing service quality across all regions.

- **Incentivize On-Demand Collection Pilots:** One insight from CWEEEP is that on-demand pickup for small WEEE, while costly, could significantly improve collection if done smartly – especially in urban areas or for bulky items. Italy should consider **pilot programs with financial incentives** for waste operators or social enterprises to provide on-demand WEEE collection. For instance, through the national Waste Management Program or EU Recovery funds, allocate grants to cities that want to trial curbside e-waste pickup (perhaps quarterly or during special drives). Data from such pilots can inform a sustainable model. To ensure feasibility, these pilots might focus on **aggregated pickups** (neighborhood collection days) rather than purely individual calls, to balance cost. Any successful model can then be adopted more widely. Essentially, Italy needs to explore and financially support new collection methods to capture the large quantities of WEEE still not reaching official channels. Incentivizing this experimentation will help identify which approaches can work economically, with the ultimate goal of mainstreaming convenient collection services nationwide.
- **Promote Reuse and Social Initiatives:** Italy has begun to emphasize reuse (e.g., recent updates encourage preparing for reuse at collection centers), but more can be done. We recommend establishing **Re-use Centres or corners at ecocentri (civic amenity sites)** in every province, where functioning or repairable devices can be diverted for refurbishment. Municipalities, in partnership with social cooperatives (a strength of Italy’s social economy), can run these centers. To support this, MiTE in collaboration with the Ministry of Labour could provide *guidelines and legal clarity* on transferring items destined for reuse (to address liability concerns). Additionally, include **social enterprises in WEEE management plans** explicitly – e.g., allow a portion of WEEE compliance fees to fund training or equipment for social cooperatives doing repairs or collection (as part of CSR). The CWEEEP Social WEEE pilot underscored the need for legal frameworks; Italy could lead by example by creating a clear path for accredited social enterprises to perform certain WEEE operations (perhaps via an amendment or a Ministerial Decree under the existing law). This would not only improve circular outcomes (more items refurbished, parts harvested) but also align with Italy’s goals for social inclusion. Furthermore, promoting reuse ties in with the upcoming EU “right to repair” – Italy could prepare by supporting networks of repair cafés and fixing hubs (some exist, but scaling them would help). Offering small tax breaks or subsidies for repair services (following models in other EU countries) would also incentivize consumers to opt for repairing over discarding.
- **Bolster Public Awareness & Consumer Incentives:** Continue and expand awareness campaigns about WEEE, targeting specific issues like **informal scrap collectors** and **proper battery disposal**. Ensure that consumers know how and where to dispose of electronics (leveraging the digital tools and collection improvements above). Italy could institute a **nationwide “Clean Your Cellar” week** for electronics, working with municipalities to allow free pickup of e-waste on certain dates – heavily publicized to get people to clear out stored e-junk. Another idea is to implement or promote incentive schemes such as **“bonus vouchers”**: for example, when turning in an old device for recycling, citizens get a small discount on new efficient electronics (this could be done in partnership with retailers under Extended Producer Responsibility). These incentives can spike returns of e-waste. Finally, coordinate with the EU’s awareness initiatives (like





International E-waste Day) to give them high profile in Italy. With robust public outreach and clever incentives, Italy can address the “hidden flow” of electronics and encourage more citizens to participate in formal take-back programs.

POLAND

Context:

Poland’s WEEE system has developed rapidly in recent years, but the country still struggles with meeting the collection targets; a considerable amount of e-waste is not formally collected due to low public awareness and regulatory hurdles. The CWEEEP pilots in Poland (notably in Lublin region for WEEE Lives and the Social WEEE analysis) revealed specific barriers and opportunities. In Lublin’s school campaign, for instance, a **regulatory barrier** was noted: once electronics are collected as waste, current law **prohibits their repair or reuse** for second life[131], which prevented potentially reusable items from being saved. Additionally, the Social WEEE pilot identified that both companies and social enterprises are interested in cooperation, but lack frameworks and assurance to do so[40][117]. Poland also has untapped potential in engaging municipalities and the educational system more deeply in WEEE collection. With EU Circular Economy policies urging improvement (and Poland facing possible penalties if recycling rates don’t improve), now is a crucial time to implement national measures.

Policy Recommendations:

- **Amend Waste Law to Enable Reuse:** Adjust Poland’s waste legislation (or issue clarifying regulations) to explicitly allow and encourage **“preparation for reuse”** of WEEE. Currently, as found in the pilot, anything deposited as waste cannot legally re-enter use[128]. The Ministry of Climate and Environment should introduce provisions that authorize certified facilities (including repair workshops, social enterprises) to access collected e-waste for the purpose of sorting out functional or repairable devices before final recycling. This could involve a status change (e.g. classify certain items as “products” again after inspection) or a time-limited exemption for testing. By doing so, Poland would align with the WEEE Directive’s hierarchy (reuse before recycle) and salvage valuable devices. To implement safely, develop **standards for testing and refurbishing** e-equipment (perhaps using EU CENELEC standards as a guide) and incorporate them into permitting. This legal change would unlock new reuse businesses and donation programs – for example, refurbished electronics from collection points could be given to schools or low-income families, reducing electronic waste and supporting digital inclusion.
- **Standardize E-waste Collection and Triage Protocols:** The CWEEEP experience suggests introducing a **national protocol for WEEE collection at source**. We recommend that all official collection sites (municipal yards, electronics retailers, etc.) implement a **triage system**: when e-waste is collected, have trained personnel or clear guidelines to quickly categorize items as “reusable/repairable” vs “recyclable” vs “hazardous”[132]. The Ministry can issue such guidelines and require compliance through the voivodeship waste plans. This might involve simple steps like segregating devices that appear intact or only slightly damaged into a separate bin for further evaluation by reuse experts. The pilot highlighted that without such sorting, many potentially reusable items are lost in bulk waste[133]. A standardized approach across Poland would ensure that wherever e-waste is collected, there’s a chance to intercept devices for second life. Training programs for staff at collection points should be part of this (perhaps funded by





the EPR organizations). Over time, this will contribute to higher “preparation for reuse” statistics and more efficient recycling (since recyclers will receive more uniform batches of true end-of-life material).

- **Empower Municipalities and Schools:** Encourage every **gmina** (municipality) to incorporate WEEE awareness and collection into their local waste management programs. National authorities can facilitate this by providing **toolkits to municipalities** – for example, template materials for local e-waste info campaigns, guidance on hosting community collection events, and connections to WEEE producer compliance schemes for support. Building on the success in Lublin schools, Poland should implement a country-wide “**Electro-scrap for Schools**” initiative (perhaps led by the Ministry of Education with support from environmental funds). This could be similar to past paper recycling drives in schools but focused on electronics. Municipalities can compete or collaborate in these efforts, and data can be collected centrally. By integrating such programs, municipalities directly improve their collection rates (which feed into national targets) and educate their populace. We also recommend reinstating or strengthening **mobile collection points** (objazdowa zbiórka) for e-waste in areas where access to fixed points is limited – national funding or co-financing could be allocated for municipalities to run periodic e-waste collection trucks that tour villages. Essentially, through policy signals and possibly dedicated grants (e.g. from the National Fund for Environmental Protection – NFOŚiGW), local authorities should be mobilized as key actors in WEEE management.
- **Leverage Producer Responsibility Organizations (PROs) for Outreach:** Poland’s WEEE compliance schemes (PROs) hold financial responsibility for collection and recycling. Policymakers should task these PROs with a greater role in **consumer outreach and innovation**. For instance, regulations could require that a percentage of PRO fees be spent on awareness campaigns or pilot projects (like collection kiosks or partnerships with social enterprises). In the Social WEEE pilot, companies indicated they respond to economic arguments^[41]; PROs can tap into that by highlighting how engaging in these initiatives can satisfy CSR and upcoming ESG reporting needs. A policy move could be to incentivize PROs to fund **social enterprise partnerships** – e.g., if a PRO contracts a social enterprise to run a small WEEE collection or repair workshop, allow part of that to count towards their collection targets or give them regulatory credit. This would align financial responsibility with socially beneficial outcomes. In essence, push PROs beyond just meeting quotas in the cheapest way; encourage them (via soft mandates or competitive scoring) to invest in system improvement, public education, and circular economy measures (like supporting repair cafes, donation of refurbished items, etc.). This aligns with EU principles of Extended Producer Responsibility that include awareness-raising as part of producer obligations.
- **Address Informal E-waste Flows and Scrap Trade:** An issue in Poland, as in many countries, is the loss of WEEE to informal collectors or scrap metal traders, who cherry-pick valuable components (cables, etc.) and often improperly dispose of the rest. To combat this, Poland should strengthen enforcement against illegal e-waste handling (through inspections, higher fines), but also try to **integrate the informal sector** in a formal way. One recommendation is to create a **simplified licensing or incentive for individual collectors** to bring e-waste to official drop-offs. For example, implement a take-back reimbursement: authorized scrap collectors could be paid a small fee per kg for delivering e-waste intact to a collection center, rather than stripping it for copper and dumping the rest. Another





approach is community-level buy-back events (pay people by weight for e-waste, funded by PROs or scrap value). Policy can facilitate pilots of these approaches in regions where informal collection is rampant (perhaps Śląsk or other industrial areas). Additionally, run public information that disposing e-waste with unauthorized scrap dealers is harmful and illegal, encouraging use of eco-friendly channels. By formalizing or disincentivizing the grey market, Poland can recapture more WEEE into the official system, improving environmental outcomes and collection metrics.

SLOVAKIA

Context:

Slovakia's e-waste management system is relatively advanced in collection network and industry involvement – for example, the compliance scheme ENVIDOM operates door-to-door WEEE collections in major cities^{[134][135]}. However, public awareness and participation still need enhancement, especially for smaller devices. The CWEEEP project saw Slovak schools and communities successfully engage in pilots (part of WEEE Lives and WEEE Aware), indicating strong potential if harnessed nationally. Slovakia's policy framework is aligned with EU requirements, but to meet the ambitious recycling and landfill reduction targets in its “Greener Slovakia” strategy^[136], efforts must extend to hard-to-capture waste streams like electronics. Key insights from the pilots include the importance of direct collaboration between recyclers and educators (ENVIDOM's involvement in schools was very effective^[103]) and the need to sustain motivation through feedback and incentives (schools were keen to see results of their efforts). Slovakia can build on these to further improve WEEE management.

Policy Recommendations:

- **Institutionalize School-Based Collection Nationwide:** Following the success observed in pilot regions, Slovakia should **integrate WEEE collection and education into schools across the country**. A recommended step is for the Ministry of Education, in cooperation with the Ministry of Environment and producer responsibility organizations, to launch a program wherein every school (or at least every district) has an **e-waste collection point and annual collection campaign**. This could be part of the existing environmental education curriculum or as a special initiative like “Zber elektrodpadu do škôl”. As part of this, provide schools with standard collection containers and involve local waste companies to ensure pickup and safe handling. The program should include educational support: e-waste topics in classroom lessons, possibly using materials from CWEEEP (translated/adapted) and visits by experts. The **modular “schools-community-municipality” approach** that proved scalable in pilots^[96] can be replicated. By formally including schools in the national WEEE collection infrastructure, Slovakia will both raise awareness from a young age and increase the capture of small electronics that currently escape the system.
- **Expand Community Collection and Reuse Centers:** Slovakia has made progress with collection points (including innovative ones like street collection containers for small e-waste). We suggest expanding the network of **reuse and learning centers** where citizens can drop off working or repairable electronics. Building on the CPU (Center for Reuse) model in neighboring countries, the Ministry of Environment could partner with NGOs or social enterprises to open **“Repair and Reuse Hubs”** in each region. These hubs would serve multiple purposes: receiving donations of old electronics, training students or unemployed people in





repair skills, and redistributing refurbished items to charity or resale. The CWEEEP project's idea of "Repair & Reuse Academies" in schools^[137] could tie into this – for example, a hub could coordinate with local schools to host workshops or after-school programs on tinkering and fixing devices. Policy support could include grants from the Recycling Fund or EU funds to establish these centers, and adjustment of regulations to smooth out permitting for storage and handling of used electronics for reuse (similar to the reuse-friendly provisions considered under Czech or EU guidelines). By creating visible community hubs for electronics reuse, Slovakia would strengthen the top tiers of the waste hierarchy (reuse over recycle) and involve the public in a hands-on way.

- **Continuous Public Awareness & "Clean-up" Actions:** Maintain and elevate public awareness campaigns. ENVIDOM and other schemes have conducted outreach, but a coordinated **national awareness campaign** could amplify the message. For instance, implement an annual "**Electronic Waste Week**" where citizens are urged via media to clear out old electronics and are informed of where to take them. The government can endorse and promote this in partnership with compliance schemes (who can sponsor ads or collection events). Another effective approach is integrating WEEE topics into the popular "**Na skládku nepatří**" (It doesn't belong in landfill) type campaigns, emphasizing that e-waste contains both hazardous components and valuable materials. Additionally, provide real-time feedback to the public on progress: for example, publish statistics on WEEE collected in each region and the environmental benefits (like CO₂ savings or raw materials recovered) – this was noted as a motivator in pilots^[72]. By transparently sharing results, citizens see that their efforts matter, sustaining engagement.
- **Leverage EPR Schemes for Service Improvement:** Slovakia's producer responsibility organizations (like ENVIDOM, SEWA, ASEKOL SK) should be encouraged or required to innovate in collection convenience. For example, **broaden door-to-door collection** beyond the current 11 cities^[135] – perhaps through a schedule that covers smaller towns periodically. The government can set targets or incentives for PROs to implement such services (e.g., by counting collected tonnage from these programs with a bonus factor, or by giving public recognition to schemes that exceed collection targets via innovative methods). Another policy could be to support the deployment of **smart collection bins** for small electronics in public spaces (with sensors alerting when full). PROs in coordination with municipalities could pilot these in shopping centers or post offices, making it easy for people to drop off items like phones or chargers. The ministry could co-fund such pilots. By pushing PROs to not just meet the status quo but actively seek higher collection through new services, Slovakia can capture more WEEE especially small appliances that currently end up in mixed waste.
- **Ensure Regulatory Alignment with EU Circular Initiatives:** As the EU moves forward with the Circular Economy Action Plan, Slovakia should anticipate and incorporate relevant measures – for instance, the upcoming Right to Repair and sustainability labeling for electronics. Policymakers should set the stage by, say, endorsing **repairability scoring** on appliances (even before it's mandated, encourage retailers to display it), or running a **repair voucher scheme** to stimulate demand for fixing broken electronics (subsidized by government or PROs). Moreover, continue to refine national laws to meet WEEE Directive updates – e.g., if collection target calculation methods change, be ready to adapt. This proactive stance will keep Slovakia on track with EU developments and could improve





national performance (for example, promoting repair can indirectly reduce WEEE generation). Essentially, stay ahead by embedding circular economy principles – durability, reuse, recycling – into national policy so that Slovakia not only meets compliance but becomes a regional leader in effective WEEE management.

SLOVENIA

Context:

Slovenia has a smaller population but generates typical amounts of WEEE per capita. It has a well-organized collection system and has been progressive in circular economy (Ljubljana was one of the first European capitals to adopt Zero Waste goals). From CWEEEP, Slovenia's involvement (through CPU in Rogaška Slatina and Slovenske Konjice in WEEE Lives, and possibly other pilots) showed strong community engagement and the value of partnerships between municipalities and **reuse NGOs**. CPU's role demonstrated how bringing reuse expertise into WEEE collection drives can yield better outcomes (repairs and reuse of some collected items, educational impact). Slovenia also faces a regulatory environment similar to others regarding WEEE, but perhaps could integrate social enterprises more (CPU itself is an NGO focused on reuse). The country is poised to exceed EU waste targets if these collaborative, circular initiatives are supported.

Policy Recommendations:

- **Embed Reuse/Circular Criteria into WEEE System:** Encourage each WEEE collection operation to incorporate **reuse objectives**. For example, update the national WEEE management **Decree** to set a **preparation for reuse target** (even a small percentage) for collection schemes. This would push producer organizations and waste management companies to partner with reuse centers. Slovenia can capitalize on the success of CPU by **scaling up the network of reuse centers** – perhaps establishing at least one Reuse Center per statistical region, supported by local authorities. Provide modest funding or facilities (e.g., space at municipal waste centers) for these reuse operations. By having a formal reuse target or requirement, all actors in the WEEE chain will be incentivized to extract devices for refurbishment, which CPU and similar organizations can handle. This not only reduces waste but also fosters local green jobs and skills development.
- **School and Youth Engagement Programs:** Building on the positive outcome of involving **78 schools in WEEE Lives across countries** (with notable contributions from Slovenian schools)^[122], Slovenia should integrate WEEE topics into its acclaimed environmental education efforts. One idea is to incorporate an “E-circular education” module in the **Eco-Schools program** (Slovenia has many Eco-Schools). This could involve an annual electronics collection challenge and creative projects (like students making art or useful items from e-waste components). The Ministry of Education and Ministry of Environment can collaborate with Eco-Schools coordinators to supply content (possibly translating the CWEEEP educational materials) and measure results. Additionally, youth organizations (scouts, youth centers) could be engaged for community e-waste collection events, turning it into an environmental volunteer activity. Slovenia's relatively small size and tight-knit communities are an advantage – a national youth-driven e-waste initiative could quickly gain traction and become a model for others.
- **Municipal “Zero Waste” Electronics Initiatives:** Many Slovenian municipalities are pursuing Zero Waste certifications. Encourage them to include **electronics**





recovery as a key pillar. For instance, municipalities can organize quarterly **Repair Café events** (with support from NGOs like CPU) where residents bring broken gadgets to be fixed – reducing waste generation. The national government can support this by subsidizing the training of repair volunteers or providing toolkits. Another initiative is to set up local **electronics libraries or lending services** (for rarely used equipment like drills or projectors), reducing the need for new purchases and eventual waste. While not directly about WEEE collection, this aligns with circular economy principles and ultimately reduces WEEE volumes. The Ministry of Environment could create a small grants program for municipalities that propose innovative circular electronics projects. By empowering local communities to go beyond just collection – aiming for reduction and repair – Slovenia can significantly advance its circular economy leadership.

- **Improve Monitoring and Data Transparency:** Strengthen how WEEE data is tracked and used. Building on the recommendation from CWEEEP for unified monitoring tools^[104], Slovenia should ensure that data from all collection channels (municipal, retail take-back, events) is centrally compiled in real-time. Then use this data to identify gaps – e.g., if certain regions have low per-capita collection, target them with campaigns or improved services. Also, consider publicly sharing more granular data to foster accountability and competition (for example, publish a list of municipalities by WEEE collection per capita). This friendly competition can motivate localities to improve. Additionally, implement feedback loops: if a community or school performs well in WEEE collection, recognize them (as was done in pilots to maintain motivation^[72]). On the flip side, if data shows certain types of WEEE (say small IT equipment) are under-collected, adjust policy (maybe implement deposit-refund or trade-in programs for those categories). Essentially, use data-driven management to continuously refine the system.
- **Regional Collaboration and EU Funds Utilization:** Lastly, Slovenia should continue to collaborate with neighboring countries on WEEE strategies (as done in CWEEEP) and leverage EU funding opportunities for innovation. For instance, under the EU Green Deal or Digital Europe programs, seek funds to develop advanced e-waste sorting technologies or circular business models (like electronics leasing or take-back schemes led by manufacturers). By being proactive in regional projects, Slovenia can benefit from shared knowledge and scale up successful pilots. Policy support for this would be to ensure that WEEE/circular economy is a priority in Slovenia's use of EU Cohesion Funds and Recovery and Resilience Facility – dedicating some of those resources to modernizing WEEE processing (e.g. automated disassembly lines, AI for material sorting) and to public engagement campaigns across the region (possibly jointly with Austria, Croatia, etc., as e-waste flows are transboundary). Embracing these opportunities will keep Slovenia at the forefront of WEEE management excellence in Central Europe.

AUSTRIA

Context:

Austria, through its university partner (BOKU), contributed research expertise to the CWEEEP project, particularly in the WEEE Design pilot. Austria's WEEE system is quite mature, often exceeding EU collection targets and with robust involvement of social enterprises in reuse (e.g., the RepaNet network and repair initiatives like "Reparaturbonus"). However, even advanced systems benefit from continuous





improvement. The project insights relevant to Austria include the need for **ongoing engagement of producers in eco-design** (the difficulty in getting many manufacturers to actively participate was noted[138][11]) and the potential for regional leadership in fostering open data for repairs. Austria also has a strong culture of community recycling centers and could further leverage that to improve small WEEE collection and reuse. In line with the EU Circular Economy Action Plan and Austria's own Circular Economy Strategy, there is room to tighten the link between policy, research, and industry practice.

Policy Recommendations:

- **Enhance Producer Engagement in Circular Design:** Building on the WEEE Design pilot findings, Austria should implement measures to **incentivize EEE producers to prioritize eco-design and repairability**. One recommendation is introducing a **“repairability index” labeling requirement** at national level (ahead of the EU mandate) – France has done this; Austria could either adopt a similar scheme or encourage voluntary labeling where companies disclose repairability scores of their products sold in Austria. This creates market pressure for better design. Additionally, Austria can use economic instruments: for example, modulate the **EEE end-of-life fees** based on design – devices that are easier to recycle or come with repair manuals could benefit from lower fees, whereas hard-to-disassemble products pay higher into the WEEE system. The government, in consultation with EPR schemes, can study this modulation for feasibility. Further, Austria should continue funding programs like *Circular Economy Action Plan (Kreislaufwirtschaftspaket)* research grants to support projects that bring together manufacturers and researchers (like BOKU) to develop and test circular product designs. By rewarding companies for eco-design (through public recognition awards or tax breaks for those who implement it), Austria will maintain its lead in this area and push the market toward sustainability.
- **Open Technical Information Repository:** Leverage Austria's academic and industry strengths to create an **open repository for technical and repair data** for electronics – essentially an Austrian (or European) “repair wiki” or database. The WEEE Design pilot's questionnaire on open data indicated willingness by some companies to share info[139]. Austria could spearhead this by hosting a platform (perhaps through a public-private partnership with repair community organizations) where manufacturers can upload repair manuals, spare part lists, and recycling instructions for their products. Policy can encourage participation by making it a part of EPR obligations or providing a legal safe harbor (i.e. companies sharing repair data won't be liable for independent repair outcomes if the info is used as directed). This repository would greatly support repair cafes, independent technicians, and even consumers, thereby extending product lifetimes and reducing waste. It aligns with the EU's upcoming requirements under the Sustainable Products Initiative. Austria, known for its strong environmental policies, could pilot this approach nationally, then advocate for it at EU level.
- **Support Social Enterprises in WEEE Sector:** Austria already has social enterprises involved in collection and refurbishing (e.g., AfB social firm for IT equipment, caritas workshops, etc.). To amplify this, the government should consider **dedicated support schemes**: for instance, allocate a portion of WEEE compliance fees or public funding to a “Social WEEE Fund” that finances social businesses handling e-waste. This fund could help them invest in modern equipment or expand their operations (as the Social WEEE pilot noted, technical infrastructure and funding are barriers[62][63]). Additionally, streamline any





administrative hurdles for social enterprises to become authorized WEEE handlers. Perhaps create a special category of permit or partnership where they can work under the umbrella of a compliance scheme with less bureaucracy, acknowledging their dual benefit of waste reduction and job creation. By reinforcing the role of the social sector, Austria not only achieves environmental goals but also social inclusion, embodying the circular economy's just transition.

- **Public Awareness: Focus on Small Devices and Lithium Batteries:** Austria's collection rates for large appliances are high, but like elsewhere, **small devices and embedded batteries** remain a challenge. Policy should target this through specific campaigns and possibly regulatory nudges. One idea: make **return of small electronics and batteries as convenient as returning bottles** – expand deposit/refund to electronics? While a full deposit system for electronics is complex, Austria could start with requiring retailers to take back small WEEE free of charge *regardless of purchase* (an EU requirement that could be better publicized) and ensure these take-back points are well advertised in stores. Enforce clear labelling in retail: every electronics retailer should have signage “Hier können Sie ihr altes Elektrogerät kostenlos zurückgeben” (You can return your old device here for free). Additionally, run a public campaign highlighting the fire risks of improper battery disposal and urging people to bring in old gadgets (phones, toys, tools) that contain them. Austria might also pilot an **“e-waste in the post” program** – allowing citizens to mail small e-waste in special envelopes to a recycler, free of charge (this has been tested in some countries). If successful, this could particularly help in areas without nearby drop-off. By zeroing in on the small stuff, Austria can capture the remaining fraction needed to hit that 65% collection goal and ensure hazardous batteries are safely handled.
- **Continuous Improvement via Research & Innovation:** Finally, Austria should keep linking academia, industry, and policy for WEEE solutions. This means funding research into advanced recycling (like urban mining for critical raw materials from e-waste) and into new business models (product-as-a-service, take-back schemes). BOKU's involvement in CWEEEP shows the value of academic input. Perhaps establish a **National E-waste Innovation Hub** that pilots projects such as AI-based e-waste sorting, or modular product design concepts in collaboration with Austrian manufacturers. The government can provide seed grants or innovation prizes for startups that tackle e-waste challenges (for example, an app that encourages WEEE collection or a service to refurbish devices at scale). Keeping innovation at the forefront will ensure Austria not only complies with current targets but leads in shaping the future of electronics circularity.





V. Conclusion

Each of these national briefs provides a tailored roadmap for enhancing WEEE management, but they also complement each other and serve the broader Central European and EU objectives of a circular economy for electronics. By sharing lessons from CWEEEP and implementing these recommendations, partner countries can significantly improve their environmental performance, recover valuable resources, and set best practices that inspire wider adoption across Europe. Together, these actions will help move from pilot solutions to systemic change in how we design, use, and recycle our electronic devices, closing the loop on e-waste.





VI. Links and reference

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