

Electronic Waste Industry Practices and Needs

Insights from ERM & CEP In-Person Workshop

Environmental and social assurance of e-waste management practices are becoming increasingly important to original equipment manufacturers (OEMs) that engage in the circular value chain, on par with manufacturing and forward supply chains. Some assurance standards already exist and are widely adopted and recognized throughout the industry. Nevertheless, many OEMs have additional due diligence requirements for e-waste recyclers to address corporate requirements and other known risks unique to the recycling industry.



Background

The need for e-waste recycler due diligence has existed since electronics recycling first became offered programmatically by OEMs in the early 2000s. Beginning in approximately 2005, OEMs first developed their own corporate standards to address brand and reputational risks arising from mismanagement of e-waste by certain recyclers¹. Following development of OEM-centric due diligence programs and corporate standards, industry organizations like Sustainable Electronics Recycling International (SERI) and Basel Action Network (BAN) engaged with stakeholders to develop industry standards. Sustainable Electronics Reuse and Recycling (R2) Standard and the e-Stewards Standard for Ethical and Responsible Reuse, Recycling, and Disposition of Electronic Equipment and Information Technology (e-Stewards) were created as a way to self-police the recycling industry in the absence of consistent legislation. These standards have been instrumental in setting baseline expectations for e-waste recycler performance on a variety of topics, including environmental compliance, worker health and safety, data security, and proper management of materials. However, they have proven to be only partially effective in mitigating the risks recyclers pose to the OEMs who trust them for downstream processing of materials.

In response to this complex operating environment, OEMs continue to run their own due diligence programs in parallel to the standards certification process. ERM has partnered with many OEMs to co-develop and implement strong due diligence programs for the downstream value chain to identify and mitigate risks associated with end-of-life. The team at ERM has seen the growth and transformation of these programs in the last 20 years, including increased adoption of industry standards, as well as organization maturity in driving business value through risk management. Even with high adoption of individual standards and corporate programs, there are still some challenges including OEMs do not often share information, varying sets of requirements for audit programs, multiple and often duplicative audits for the recyclers, and small-to-no improvement in recycler performance over time, despite the heavy burden of both certification as well as customer audits.

¹This is in part due to the stubbornly low amounts of e-waste properly recycled (2024 E-waste Monitor), and the serious potential health risks associated with improper e-waste management (World Health Organization), and the consistent public and media attention that it garners ([The Verge](#)).

As a direct result of ERM's experience working with OEMs, recyclers, standards developers, certification bodies, and in a series of workshops hosted by the Responsible Business Alliance (RBA) over the past few years, ERM has synthesized the following insights, which provide a foundation for discussion on next steps:



Notes: ESG = Environmental, Social, and Governance; ILO = International Labour Organization; OECD = Organisation for Economic Co-operation and Development; UN = United Nations

Workshop Objectives

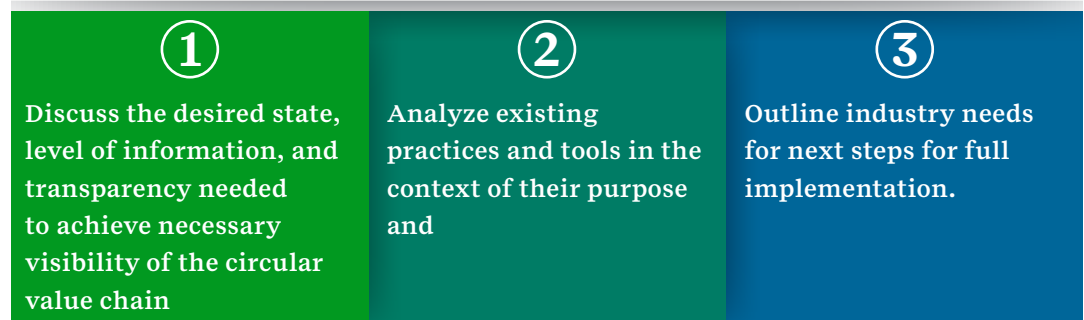
The Circular Electronics Partnership (CEP) has gathered the collective voices of the private sector, stakeholders, and policy makers to outline the obstacles preventing the electronics value chain from going fully circular in the [CEP Circular Electronics Roadmap](#). Outlined is the need to establish an environmental, health, and safety assurance scheme for secondary materials that is transparent, consistent and on par with systems that have been developed and deployed for decades in linear supply chains. The inability to provide full life-cycle due diligence that sufficiently abates risk in recycling processes and material sourcing, will continue to inhibit demand and integration of secondary materials.

The conversation about how to streamline audits, share audit results and information, and provide greater transparency of materials movement downstream has been ongoing for many years. The need for a wider platform to collect, monitor, and share audit information on e-waste recycler performance has grown, and with it, a greater call from across the technology industry to solve this problem more efficiently.

In October 2024, CEP and ERM combined their respective experiences through co-hosting a workshop at the Inaugural Electronics Sustainability Summit to engage with key stakeholders on this issue. The workshop sought to actively engage companies from the entire electronics value chain, device manufacturers, retailers, refurbishers and recyclers to discuss what evolutions in due diligence processes are needed to create the collaboration, transparency, and visibility pathways to enable a circular value chain.

The results of the workshop and recommendations are summarized herein.

By creating a space for collaborative conversation, the objective of the workshop was to:



Discussion Insights

At the October 2024 workshop, the session began with opening remarks from CEP and RBA on the importance of collaboration across the electronics industry. Next, representatives from SERI presented on the R2v3 Standard, highlighting its focus on auditing processes and compliance as well as discussing their plans for development of an ESG standard specific to recyclers. The audience split up into smaller breakout groups, by discussion topic, for facilitated discussions. Topics included:

1. Need for transparency in the downstream network, including transboundary movement
2. Risk assessment for downstream processes and
3. An audit is a snapshot of performance in time, and not always a view into day-to-day facility operations.

Key themes that emerged from these discussions were:

- OEMs need more transparency into how their recyclers are performing both for legal compliance and their management system, with some analysis as to areas at different risk levels (high vs. low risk).
- Recyclers want more standardization around what information the OEMs need to streamline their compliance and reporting programs.
- There remains significant skepticism in having a single “trusted organization” provide oversight for an audit program for the full downstream network. More in-depth discussion is needed to evaluate whether a global program on a multi-party platform would meet the needs of both OEMs and recyclers. One place to start to advance the conversation would be to develop a unified audit protocol to share with interested parties for consideration and feedback.

Additional outcomes per individual topic:

TOPIC 1:

Transparency into the Downstream Network, Including Transboundary Movement

The group identified two major risks to having full transparency of their downstream networks currently at play. First, getting full transparency downstream from a recycler can be quite challenging, as the recycler often loses visibility once the material is aggregated and moves to the next downstream vendor. Second, current tools to share this information are usually spreadsheets or Application Programming Interface (API) export, and are not shared widely. The group also voiced significant concern over the amendments to the Basel Convention coming in 2025, which will make it more difficult to import and export regulated wastes between countries. The group stated that enforcement of these new requirements would be critical to preventing illegal shipments and increasing the local demand of infrastructure development for recycling materials like plastics.

Insights:

- Recyclers would like more standardization on the downstream requirements to help streamline what they are required to provide to the OEMs, which will save them time and effort.
- All parties agreed there is a greater need for policing “bad actors” further downstream, between the initial recycler and the smelter/commodity processor.
- Circularity will require transparency at the material level to source recycled content. The Digital Product Passport (DPP) being implemented in the European Union may be a tool available to help drive this throughout the value chain. DPP requires data on origin of the materials, suppliers, and percentage of recycled content.

TOPIC 2:

Risk Assessment for Downstream Processes

The group first identified current practices for risk evaluation with downstream vendors, which included some form of an initial screening checklist, as well as running pilots by sending a batch shipment, and even conducting a site visit. There was disagreement around the level of detail needed from a vendor during the screening process. While there was a general consensus that a unified auditing program and tiered/graded scoring system would provide greater value to the industry and create some efficiencies, there was skepticism of relying on a “trusted organization,” and the desires for the OEMs to do the audits themselves anyway. OEMs did not seem satisfied with only receiving a summary and would want to see raw results. In contrast, the recyclers were not keen on raw results of audits being shared widely. This discussion ultimately revisited existing problems, but did not yield general consensus on how to agree on a standardized risk assessment process for downstream vendors that all parties were willing to agree to conceptually. Some ideas around tiered scoring for existing certifications were shared for consideration.

Insights:

- All stakeholders agreed that historical perspective is important. Visibility of audit results over time and continual improvement (or stagnation, decreasing performance) helps to identify risk and highlight recyclers prioritizing improvement.
- Understanding the recycler’s level of compliance with legal requirements is key. A process evaluation of the management system does not always identify whether a recycler is in compliance.

- Companies agreed that the idea of a standardized assessment for risk is wonderful in theory, but observed actual implementation as problematic since different stakeholders are unlikely to agree to levels of risk, scoring system, or degree of transparency. If the industry could reach a compromise on a standardized approach, some ideas for how to collaborate were shared as follows:
 - ◇ For a standardized assessment, consider a tiered scoring system. In addition to a baseline “pass,” there could be a letter grade system (A/B/C) with defined criteria, or gold/silver/bronze tiers. There could be a public “report card” on the auditing organization’s website (akin to the SERI “Find a R2 Recycler” page) with the grade or tier, and high-level discussion of why the facility received that grade. There is a desire to see grades/tiers over time, not just the current grade from the most recent audit.
 - ◇ Recyclers with strong compliance and due diligence programs see this tiered system as a differentiator from the competition to show which recyclers have “best in class” programs, rather than all having the same level of certification to a specific standard.

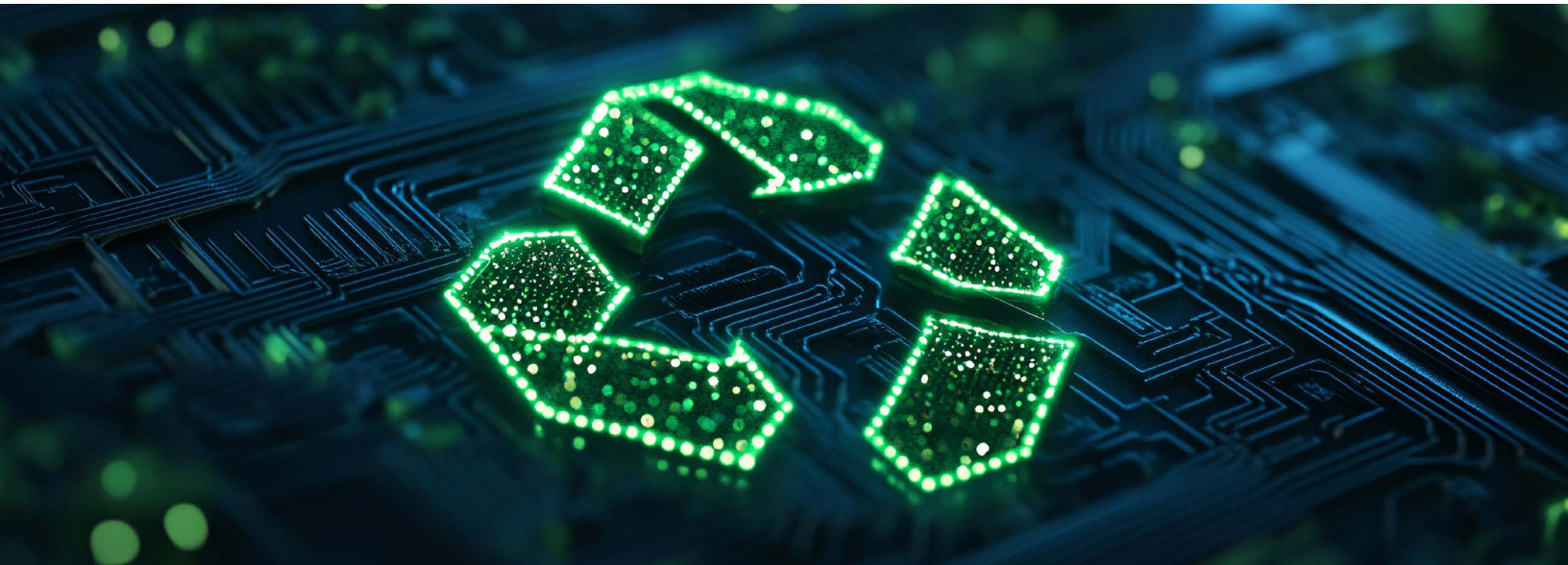
TOPIC 3:

An Audit is a Snapshot of Performance in Time, and Not Always a View Into Day-To-Day Facility Operations

The group identified opportunities and challenges in how OEMs can have reasonable assurance that a facility is operating safely and in compliance on days when not being audited. While announced versus unannounced audits both have benefits, the group shared concern over the site’s willingness and availability to participate in an unannounced audit that is non-regulatory in scope. Also, while current technologies exist which would allow opportunities to assess in different ways, such as livestream videos, there is also concern for the high cost of recyclers to maintain or manage such equipment in ways that meet emerging country-by-country compliance requirements related to data and privacy.

Insights:

- All parties agreed that there is wide range of elements that can affect outcomes. This can include audit scopes and approaches, such as those that focus on ‘low hanging fruit,’ rather than the relevant high-risk elements. This can also include auditor experience, skillset, and training, which influences their individual approach.
- A unified audit protocol among OEMs for efficiency would be ideal, but the group acknowledged that OEM-specific needs still need to be incorporated into the audit.



Recommendations and Next Steps:

Based on the insights gathered from the workshop and the need for enhanced collaboration and transparency in e-waste management, here are several recommendations for next steps:

- 1. Develop a Collaborative Task Force:** Use existing industry organizations like CEP and its Partners to form a multi-stakeholder task force consisting of representatives from OEMs, recyclers, industry associations (like SERI and BAN), and regulatory bodies. This task force should focus on establishing a shared understanding of due diligence requirements and fostering collaboration for standardized practices.
- 2. Create a Unified Audit Protocol:** Initiate the development of a unified auditing framework that incorporates best practices from existing OEM audit programs. This protocol should facilitate consistency across audits, ensuring that all OEMs can derive meaningful information and that recyclers receive streamlined expectations.
- 3. Standardize Information Sharing Practices:** Establish standardized metrics and reporting templates for recyclers to improve transparency in the downstream network. Guidelines should facilitate the sharing of compliance metrics and operational performance indicators while respecting confidentiality.
- 4. Enhance Risk Assessment Methodologies:** Work towards creating a consensus on risk assessment methodologies across the industry. Incorporate tiered scoring systems that allow recyclers to be evaluated against a common set of performance indicators, fostering improvements in compliance and performance tracking over time.
- 5. Facilitate Training and Capacity Building:** Develop training programs aimed at both OEMs, recyclers and auditing organizations on best practices for e-waste management, reporting standards, and compliance requirements. This will help minimize confusion and establish greater competency in meeting shared goals.
- 6. Continue to Foster Industry-wide Advocacy:** Encourage collaboration across multi-industry partnerships like CEP, SERI, and RBA to advocate for sustainable practices and policies at relevant industry associations and governmental levels, promoting a broader commitment to responsible e-waste management among all stakeholders.

By taking these actionable steps, the industry can work towards a more cohesive, transparent, and collaborative approach to e-waste recycling, ultimately fostering a sustainable circular value chain for electronics.



Learn more about how CEP is helping to create a circular electronics industry

Learn more about how ERM supports organizations across the industry