cep

circular
electronics
partnership

Circular Electronics Partnership:

Our vision of a circular
electronics industry.

Introduction of the CEP

Mission statement

The Circular Electronics Partnership aims to drive a coordinated transition towards a sustainable and economically viable circular industry. For this transition, the industry will leverage:

- circular design principles,
- material, component or product loops,
- data-driven systems,
- responsible business models,
- and advanced partnership.

We will cooperate closely with civil society, the public sector, and key stakeholders affected in sharing, implementing and extending existing knowledge and innovation needed to scale and accelerate the circular transition.

Scope

Our vision for circular electronics includes all types of electronic and electrical equipment as defined by the EU Waste Electrical and Electronic Equipment (WEEE) Directive. This specifically includes devices and equipment from six product categories: temperature exchange equipment, screens and monitors, lamps, large equipment, small equipment, and small IT.[i] From a market perspective, circular electronics include B2C, B2B and B2G equipment sold in bulk and in individual units.

Partners

GLOBAL ELECTRONICS COUNCIL — Sustainability for a Connected Future·

GeSI — ENABLING DIGITAL SUSTAINABILITY

PACE — Platform for Accelerating the Circular Economy

Responsible Business Alliance — Advancing Sustainability Globally

wbcsd

WORLD ECONOMIC FORUM

Supported by: **Accenture**

In collaboration with:

ITU

① A systems perspective on the transition to circular electronics

Companies and consumers are going more and more digital. For example, worldwide retail ecommerce sales have grown +16% in 2020.[ii] Digital transformation is critical for companies' success and profitability.[iii] This digital imperative is increasing worldwide demand for electronic products and services, both from companies and consumers. In emerging markets and developing markets, digitization is also driven by improved accessibility and affordability of electronics.[iv]

Under the current linear economy conditions for production, use and disposal of electronics, the consumption of resources (metals, minerals, crude oil) will increase and with it the amounts of e-waste generated. Being aware of the environmental and social challenges created until now and recognizing e-waste as valuable post-consumer resources, we set out to develop a circular electronics vision.

Looking at each step of the electronics value chain, from design to recycling, many decisions need to be taken to move towards circularity.

We developed a framework that makes this transparent and structures suggested actions. The responsible intent of products designed for circularity does not guarantee that the product will eventually be used and disposed of in a responsible way. On the other hand, a product which has not been designed for circularity cannot be collected, sorted and recycled in a formal and responsible way. In line with the waste hierarchy, minimization of waste and optimized use life, i.e. product lifetime extension through e.g. reuse or repair, are key.

All players have interdependent roles to play to bring the life cycle of a product to an optimal circular and responsible state. This is the reason why a vision for circular electronics must lead to **system transformation**.

Extensive stakeholder collaboration is required to simultaneously change different pieces of the puzzle and create a chain reaction of positive impact.[v]

Achieving this transformation will require effective strategies to move to responsible circularity across the electronics value chain, considering different maturity levels of companies and geographies as starting points. While **responsible circularity** is the target state, transitional circularity provides benefits over purely linear decisions and will be important as an interim step. Transitional circularity describes a state in which some circular actions are implemented to transform products or value chains, but they might not address all aspects across the full value chain or might not be formalized yet. For example, while a 100% official collection rate of waste is highly desirable and requires all waste to be collected through official channels, integrating informal collectors in the system transformation process is critical on the way to get there. Connecting informal collection will help to channel more material back into the formal flow, improve health and safety conditions of workers, and start the formalization process which increases transparency.

This document highlights the Circular Electronics Partnership's (CEP) vision for a systemic, circular transformation of the electronics industry.

② Our vision of a circular electronics industry

Vision statement

The circular electronics industry establishes and strengthens loops and maximizes the value of components, products and materials throughout the full life cycle, using safe and fair labor. It depends only on circular resources and generates economic value while having a greater positive social and environmental impact.

Our vision statement translates into clear objectives for six "pathways" based on stages along the value chain. We aim to drive progress simultaneously across these pathways with short- and long-term action towards circular electronics by 2030.
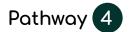
Pathway ①

Design for circularity

By 2030, embracing circularity as a business model will be common for companies. Product and service developers will be empowered to design circular electronics products based on industry-wide standards and definitions, which will be developed by standards organization in collaboration with CEP members.

Corporate initiatives will help spur innovation and increase adoption of circular materials, technologies and product-service models. Cross-functional teams within organizations will collaborate towards shared circularity goals including collaboration with value chain partners to ensure all life cycle impacts are considered from the beginning. The evaluation of circularity and its environmental and social impact will be structurally embedded in the product development process through the timely use of life cycle assessment (LCA) and circularity metrics. Prioritization of these measures in evaluations and understanding of the value to business accelerates action. Emerging technologies will provide insights on using safer and more sustainable alternatives to legacy materials as well as enable tracking and accounting of material usage and energy consumption of different components.

Pathway ②

Drive demand for circular products and services

By 2030, there will be a consistently applied global definition of what constitutes a circular product and service. All leading electronics manufacturers will be providing a wide range of circular products and services that will make up a high share of their portfolios. Producers will have the ability to quantify the benefits that circular products and services provide to people, planet and economy and communicate these clearly to all consumers – from private households to large-scale organizational purchasers. The majority of consumers will have a clear understanding of the benefits of circular products and services.

The majority of total yearly public and private sector electronics category spend includes a preference for circular products and services in procurements, and circular procurement criteria will be embedded in guidelines and processes. Organizational purchasers will transparently report on progress in circular procurement each year.

Pathway ③

Scale responsible business models for circular electronics

By 2030, companies will generate more value from their products and services through new business models such as: product as a service, dematerialization, lifetime extension and material recovery. Companies and investors will have strategies and processes in place to ensure human rights are respected in value chains.

Responsible circular business models will become standard as incentives for key stakeholders are aligned. Companies along the value chain will offer products and services with a plan of how those solutions will be (re)used, (re)distributed and recovered. Companies will collaborate with (value chain) partners in the development of business models and share information and real-time data based on aligned standards and metrics. All businesses in the value chain will support and respect international labor standards, and internalize environmental and social best practices, supported by public policy incentives. Investors will have adapted their understanding of value creation and risk to objectively and holistically evaluate the economic, environmental and social performance of circular business models. Consumers will value the use of and access to products over the consumption and ownership of them.
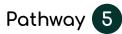
Pathway 4

Increase official collection rate

By 2030, a global system for take-back will maximize responsible repurposing of purchased electrical and electronic equipment (EEE). In doing so, the industry will recognize producer responsibilities, protect and value the actions of responsible value chain actors, and encourage and incentivize those that are lagging behind. The system will be supported by a convergence of regulation – first regionally, then globally – and one global standard for measuring take-back. Transboundary extended producer responsibility (EPR) schemes and the convergence of different schemes will have contributed to breaking down silos.

Take-back will be valued by producers and trusted by all consumers to deliver environmental, social and economic benefits. There will be close cooperation between producers, distributors, collectors, recyclers and NGOs to create an integrated system that provides convenient take-back options. A cooperation that will achieve greater economies of scale connected to a thriving, reverse supply chain, which encourages circularity. Measures will be implemented to support the formalization of enterprises and to create an enabling environment for existing and new sustainable enterprises in emerging markets. Innovative circular economy models will manage EEE throughout use cycles and facilitate high-quality recycling for waste electrical and electronic equipment.

Pathway 5

Aggregate for reuse and recycling

By 2030, all EEE and WEEE equipment can move into a reverse supply chain to maximize the number of components and products that are reused and safely recycled. A reverse supply chain will move end-of-use and end-of-life electronics from areas of use and collection to areas with a high capacity for safe and efficient repair, refurbishment or recycling. The reverse supply chain will have three key characteristics: it must be environmentally and socially responsible, economically viable and globally available.

Responsible supply chains will provide for movement only to certified facilities which will repair or recycle products in a safe manner. This will ensure post-consumer resources neither leave formal collection systems nor are dumped in developing countries with little capacity or regulation around recycling. Regulatory barriers for reuse of components or materials connected to, e.g. hazardous substances, will have to be reviewed and revised as adequate. A globalized system allowing for economies of scale and competition will make reverse supply chains economical and efficient, outcompeting linear flows and substituting and/or formalizing informal channels. Sufficient investment at all stages of the reverse supply chain will enable recovery of most value from an increasingly varied array of products.

Pathway 6

Scale secondary material markets

By 2030, the electronics recycling industry will take full advantage of materials through high-quality processing, full traceability and replacement of virgin materials, ensuring adequate socioeconomic conditions of all participants in the value chain. Impact plans will also address difficult, more complex, and special materials. The increased traceability and embedded value of materials – including the social, environmental, and economic value of reclaimed materials – will increase the demand for their use in manufacturing sourcing.

A circular electronics industry will include a well-functioning recycling sector covering all geographies and be adjusted to regional needs: one that is integrated into overall design and supply chain, has the technology and capacity to process returned materials from all channels, and can provide high-quality secondary materials with traceable origins that replace virgin materials as a significant source in electronic products.

③ Looking forward

CEP aims to drive collective, coordinated action across value chains, overcoming the bottleneck effect of players waiting for the others to move towards circularity and helping the tech industry make use of the benefits of circular thinking and circular acting. Collaboration and simultaneous action in all pathways are critical to accomplishing our mission:

CEP companies and partners have been collaborating in working groups during 2020 to converge on this Vision and a Roadmap for Circular Electronics. This Roadmap outlines 40 interventions, required stakeholders and more for the industry to achieve this vision. The projects that CEP takes on will directly respond to the Roadmap and will be monitored for progress on an annual basis.

We invite electronics companies and key stakeholders to contact us as we embark on our circular transition. Find out how at www.cep2030.org

We acknowledge everyone who contributed to CEP*

Accenture
Alexander Holst
Benoît Prunel
Laura Rheinbay
Franziska Zengerle

Arcelik
Orkun Kaymakci
Sefa Kemal Mandal
Zeynep Özbek
Ozlem Unluer

Atea
Camilla Cederquist

Averda
Camran Macci

Baker & McKenzie LLP
Jonathan Cocker
Doug Sanders

Cisco
Natasha Scotnicki
Klaus Verschuere

Clariant
Adrian Beard

Closing the Loop
Joost de Kluijver
Hannah Jung
Reinhardt Smit

Dell Technologies
Erika Chan
Chris Ettery
Katie Green

Leann Hudson
Jonathan Perry
John Pflueger
Markus Stutz

Enel Global Infrastructure and Networks
Bettina Mirabile
Daniela di Rosa
Maria Elena Ferigo
Ricardo Perez

Glencore U.S.
Stephane Burban
Randy Hauck
Kunal Sinha

Global Enabling Sustainability Initiative (GeSI)
Riccardo Grisanti
Kaoru Inoue

Global Resale Ltd.
Martin Series

Globe Telecom
Rofil Sheldon Magto
Mela Rosal

Global Electronics Council (GEC)
Nancy Gillis
Shela Gobertina von Trapp

Google
Mike Werner

GSMA
Dulip Tillekeratne

Hewlett Packard Enterprise
Amy Bowdish

HP Inc.
Marta Jakowczyk

Huawei
Ling Hu
Zelin Zhong

iNEMI
Marc Benowitz

International Telecommunication Union
Garam Bel
Paolo Gemma
Reyna Ubeda
Robin Zuercher

Jabil
Cassie Gruber

Karo Sambhav Private Ltd.
Dhairya Jain

Microsoft
Cintia Gates
Patrick Gaule

Lorraine Tew
Andrew Brookie

NamiGreen
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World Business Council for Sustainable Development (WBCSD)
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World Economic Forum (WEF)
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Xerox
Victoria DeYoung

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[v] PACE (2021): Circular Economy Action Agenda for Electronics.
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