



MICRO-CREDENTIAL

CIRCULAR ECONOMY FOR LAND AND WASTE MANAGEMENT

13.- Assessment Tools and Indicators of Circular Economy

CE indicators

CELWS-W13-V01

Circular Economy Indicators

A comprehensive exploration of the tools, frameworks, and indicators driving the global transition to a circular economy — and how we measure progress along the way.



The Imperative of Measurement

Before we can transform the global economy, we must understand it — through rigorous, consistent, and meaningful metrics.



Why Measure Circularity?

The global economy remains overwhelmingly linear — resources are extracted, transformed into products, and ultimately discarded. This "take-make-dispose" model is accelerating resource depletion and environmental degradation at an unsustainable pace. Transitioning to a circular economy is no longer optional; it is essential for long-term sustainability and planetary health.

3.4B

Tonnes of Waste

Projected annual global waste generation by 2050 — nearly double today's levels.

90%

Still Linear

Only ~9% of the global economy is currently circular, per the Circularity Gap Report.

Without robust measurement, we cannot identify where circularity is succeeding, where it is falling short, or how to prioritize action. What gets measured, gets managed.

The Challenge: Quantifying a New Paradigm

Traditional economic metrics were designed for a linear world. GDP measures output, not sustainability. Waste tonnage tracks disposal, not resource retention. These indicators are insufficient for capturing the complexity and dynamism of circular systems.

Legacy Metrics Fall Short

Conventional measures like GDP and waste tonnage focus on throughput and endpoints, ignoring the loops, value retention, and regenerative potential at the heart of circular thinking.

New Dimensions Required

CE measurement must capture resource loops, material efficiency, product longevity, and system-level environmental impact — across supply chains and geographies.

Standardization Gap

The absence of universally accepted CE indicators creates fragmentation, making it difficult to benchmark performance, compare progress, or align policy and investment decisions globally.

From Linear to Circular: A New Measurement Challenge

The visual contrast between a linear "take-make-dispose" system and a circular model of interconnected resource loops illustrates why our measurement tools must fundamentally evolve. Every loop closed represents value retained — and that value must be quantified.



A new generation of assessment instruments is equipping organizations with the means to measure, report, and improve circular performance.

The Circular Transition Indicators (CTI) by WBCSD

CTI v4.0

Published May 30, 2023 — the latest and most comprehensive iteration of the framework, developed by business, for business.

Developed under the World Business Council for Sustainable Development (WBCSD), CTI provides a universal, quantitative framework applicable across sectors and geographies.

→ Guide Strategic Action

Identifies concrete levers to increase circularity across operations, products, and value chains.

→ Quantify Co-Benefits

Measures the downstream climate and nature benefits generated by circular economy initiatives.

Resource Use Optimization

Measures how efficiently materials and energy are used across the value chain, minimizing virgin resource inputs.

Waste Minimization

Tracks reduction in waste generated and diverted from landfill, capturing the economic and environmental value of waste elimination.

Circular Potential Maximization

Evaluates how well products and materials are designed and managed for reuse, remanufacturing, and recycling at end of life.

CTI v4.0 sits at the core of the **Global Circularity Protocol (GCP)**, ensuring consistent and comparable measurement across businesses worldwide, supporting unified sustainability goal-setting.

The C-Indicators Advisor (CIA)

The C-Indicators Advisor (CIA) is one of the most comprehensive knowledge bases available for CE measurement professionals. It aggregates and organizes over **50 sets of CE indicators** into an accessible, need-driven taxonomy structured around 10 key categories — covering everything from material flows to business model circularity.

CIA Knowledge Base

Browse and compare 50+ indicator frameworks side by side.

CIA Web Tool

Interactive query interface for navigating and selecting the right metrics.

C-Potential Tool

Assess the circular potential of your organization or product portfolio.

Your Navigator for Circularity Metrics

The C-Indicators Advisor provides a structured pathway through the complex landscape of CE measurement — helping users find the right tool for the right question. Its query-driven design reduces the barrier to adoption for teams new to circularity assessment.

European Circular Economy Stakeholder Platform: Circularity Circularity Assessment Tool

The **European Circular Economy Stakeholder Platform (ECESP)** offers a structured Circularity Assessment Tool designed to help organizations evaluate their current circular performance and identify pathways for improvement. It provides a measurable baseline score and connects users to proven CE frameworks and real-world case studies.

❏ This is a fee-paying service for companies. Public authorities and startups may access different pricing tiers.



Baseline Assessment

Generates a quantified starting-point score for circular performance across key dimensions.



Opportunity Discovery

Identifies specific areas where circular strategies can be integrated or improved.



Data Structuring

Organizes complex company data across operations, products, and supply chains into a standardized input framework.



Outcome Calculation

Automatically calculates CTI scores and tracks performance against circular targets with precision.



Reporting & Scenarios

Generates clear, investor-ready reports and enables scenario modeling to identify improvement pathways.

2,000+

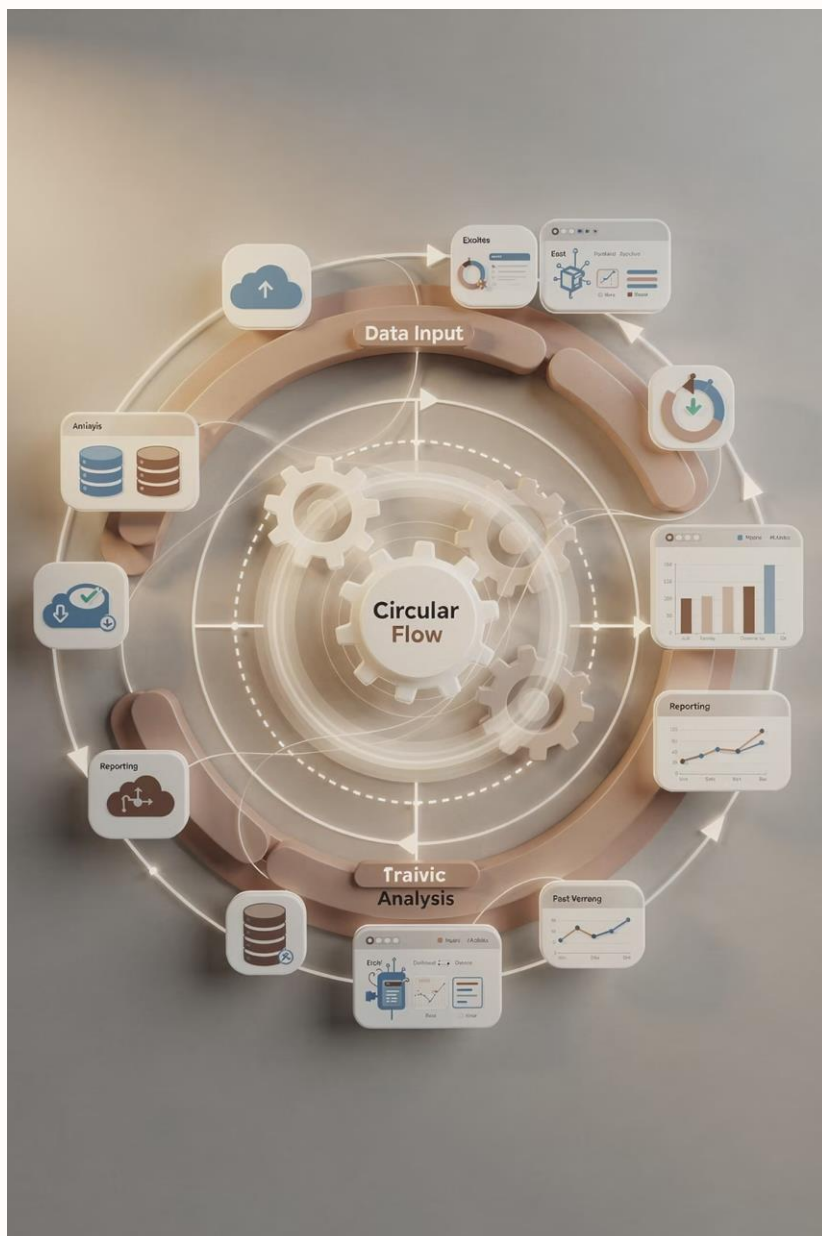
Active Accounts

Organizations worldwide using the CTI Tool to track and improve circular performance.

94

Countries Reached

Demonstrating the tool's global applicability across diverse regulatory and industrial contexts.



The CTI Tool transforms raw operational data into structured circularity insights — enabling companies to move from awareness to targeted action. By connecting measurement directly to scenario planning and reporting, it bridges the gap between intent and implementation across the circular economy transition.



The next wave of CE indicators is being shaped by European Commission research, systemic thinking, and the power of digital innovation.

This landmark study represents the most systematic EU-level effort to develop a next-generation CE indicator framework. Its four-phase methodology ensures both policy relevance and practical applicability:

01

Policy Framework Review

Mapping the CE indicator needs embedded in EU legislation and strategy documents.

02

Indicator Mapping

Cataloguing existing CE indicators across frameworks for gap analysis.

03

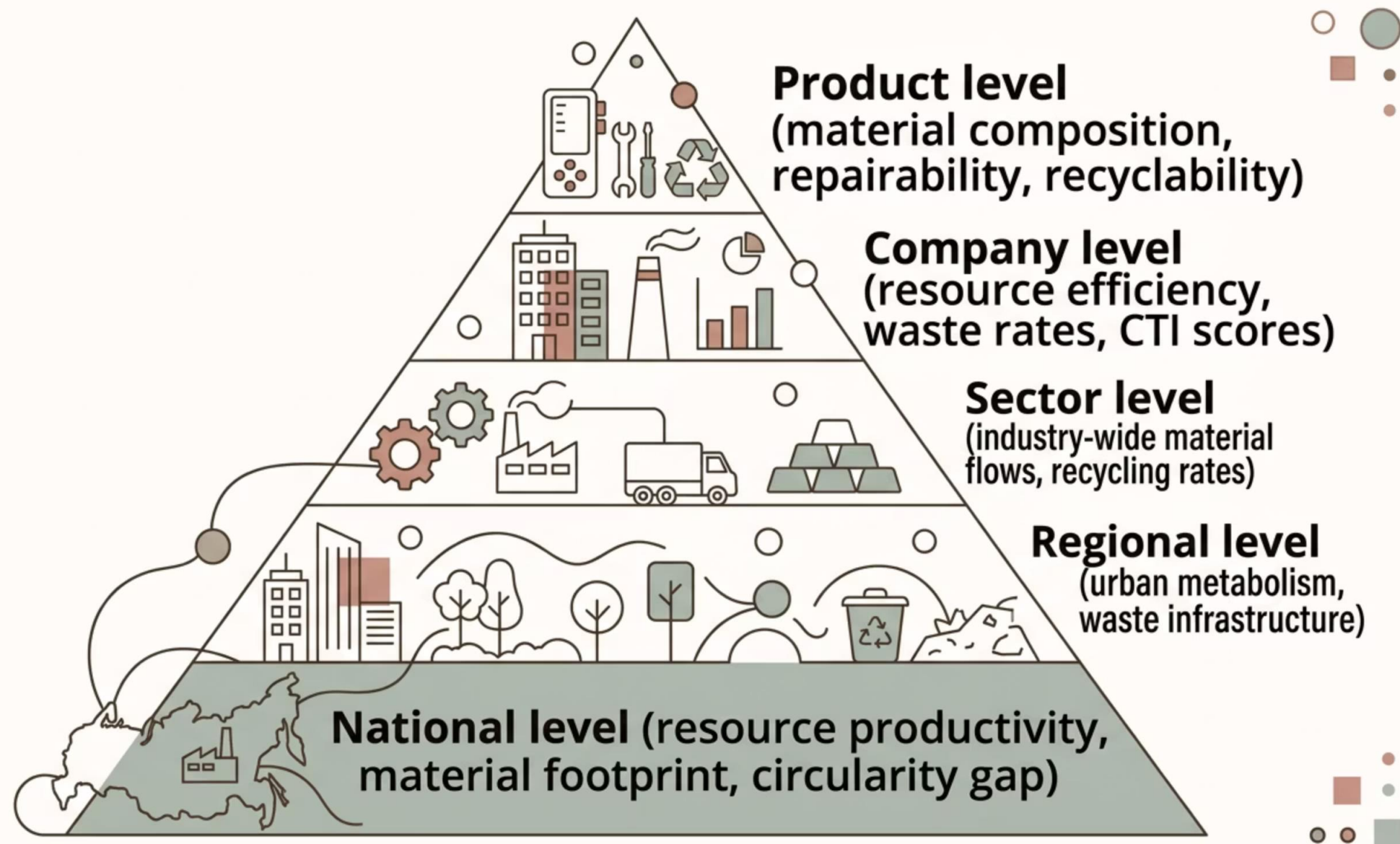
Stakeholder Engagement

Consultations with industry, civil society, and government to validate priorities.

04

Analysis & Ranking

Scoring and prioritizing candidate indicators for adoption.



Scaling Up: Measuring Circularity Circularity Across Systems



From city-level urban metabolism to transnational material flow accounting, systemic CE indicators reveal the hidden flows of resources, waste, and embedded value that shape our economies. Building the data infrastructure to capture this complexity is one of the defining challenges of the decade ahead.



AI-Powered Analysis

Machine learning algorithms can detect patterns in vast datasets, identifying hidden circular opportunities, material inefficiencies, and predictive maintenance needs across complex value chains.



Real-Time Data Collection

IoT sensors and digital product passports enable continuous, accurate tracking of material flows — replacing periodic surveys with dynamic, granular monitoring.



Blockchain Traceability

Distributed ledger technology provides immutable records of material provenance and lifecycle transitions, dramatically enhancing supply chain transparency and trust in circularity claims.

The Future of CE Measurement

Harmonization, integration with planetary goals, and stakeholder empowerment define the next frontier of circular economy indicators.



One of the most pressing needs in CE measurement is the development of a common language — a consistent set of indicators that enable meaningful comparison across companies, sectors, and nations. Fragmented frameworks create reporting burdens, obscure true performance, and undermine investor confidence.

ISO 59020

International standard for measuring and assessing circularity — a foundational reference for indicator design.

ESRS E5

EU Sustainability Reporting Standard on resource use and circular economy, mandating disclosure for large European companies.

GRI Standards

Global Reporting Initiative frameworks increasingly incorporate CE-relevant metrics on material flows and waste.

Building a Common Language for Circularity



The convergence of ISO 59020, ESRS E5, GRI, and the Global Circularity Protocol signals a maturing measurement ecosystem. As these frameworks align, companies, investors, and policymakers will gain access to consistent, comparable, and credible data — unlocking the full potential of circular economy accountability at global scale.

The Human Element: Empowering Stakeholders

The most technically sophisticated indicator framework is only as powerful as the people who use it. The next generation of CE measurement tools must be accessible, interpretable, and actionable for the full spectrum of stakeholders — from frontline workers and consumers to corporate boards and national policymakers.

Fostering a **culture of measurement** requires investment in literacy, capacity-building, and tools designed with the end-user in mind. Indicators should empower, not overwhelm.

Business Leaders

Integrated dashboards translate CE data into strategic priorities and investment cases.

Consumers

Product-level circularity labels and sustainability scores enable informed purchasing decisions.

Policymakers

Systemic indicators provide the evidence base for regulation, incentives, and public investment.

Collective Action Through Clear Measurement

When every stakeholder — from consumers to corporations to governments — shares access to clear, consistent, and credible circularity data, the conditions for transformative collective action are created. Measurement is not merely a technical exercise; it is the foundation of accountability, trust, and coordinated change at every level of the system.

