Global Circularity Protocol for Business

Landscape analysis: Corporate performance & accountability, and policy & regulations

World Business Council for Sustainable Development

One planet handle with care

Table of content

1 Introduction

This landscape analysis provides guidance on how metrics and indicators can improve circularity performance aligned with a sustainable future, starting with gaps in policies, standards and frameworks

The **Global Circularity Protocol** for **Business** is a new global initiative spearheaded by the WBCSD in collaboration with the OPN. It will seek and ensure **active engagement** of partners from **academia**, **cross-sectoral businesses**, **NGOs**, and **policymakers** to address **accountability** and **policy gaps** currently impeding the scaling of circularity. By 2026, the Global Circularity Protocol for business will be the **go-to action framework** to guide companies in target-setting, measuring, reporting and disclosing progress on **resource efficiency** and **circularity**, combined with comprehensive and targeted policy guidance in order to **accelerate** the shift towards circular business models and a regenerative economy.

4 key workstreams shaping the GCP

Current workstream

WS1

Circular Transition Impact Analysis
- **Work package 1 – Landscape Analysis (this document)**
- Work package 2 – Impact Analysis
- Work package 3 – Design Principles for the GCP

WS2

Corporate Performance and Accountability System (CPAS) for Circularity

WS3

Policy Framework for Circularity

WS4

Science-based Targets for Circularity

Landscape analysis

1. This document is the first **milestone** for the “Circular Transition Impact Analysis” workstream, which aims to identify the **key impacts** of a circular transition for Climate, Nature, and Social indicators and improved business and value chain performance, and to **provide design principles** to help inform the development of the GCP
2. An initial step for this workstream is to conduct a **landscape analysis** of current **Circular Performance & Accountability** standards and frameworks and of **Circular Policies and Regulations**. The aim of the landscape analysis is to identify gaps and opportunities in the current circular ecosystem that can help inform the design of the GCP
3. While the circular economy can be an enabler for sustainability, social equity, value creation and risk mitigation, this document **does not address why circularity is important**, but it focuses on answering **how can metrics** and **indicators improve circularity performance** aligned with identified gaps in policies, standards and frameworks
4. Broad consultation involving the **Technical Working Group** complemented by **specific stakeholders** was conducted to populate this document – We would like to specifically thank you all stakeholders who agreed to spend some time to share their insights

A hypothesis led approach combined with primary and secondary research underpinned the landscape analysis

Preliminary literature selection and review, and working hypotheses development

Selection of **relevant sources, documents** and **literature**:

- CP&A: Existing CE/sustainability measurement frameworks, and circularity literature
- Policy & Regulation: non-exhaustive, but representative, illustrative sample of international case studies and comprehensive reports with diverse policies'

Development of **working hypotheses** to guide landscape analysis, through:

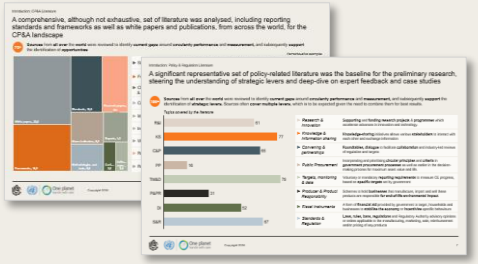
- 4 workshops with internal experts
- 3 workshops with TWG
- 2 discussions with external experts

Deep-dive on pages 61 (CP&A) and 62 (Policy)

Literature selection update, review, and preliminary data analysis

Identification of **new literature** streams aligned with the gaps identified from the working hypotheses and interviews, then **mapping all sources** and **content**:

- 74+ sources for CP&A
- 151 sources for Policies & Regulation

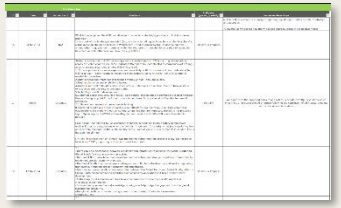


Deep-dive on pages 6 (CP&A) and 7 (Policy)

Discussions with Internal/External SME & Technical Working Group

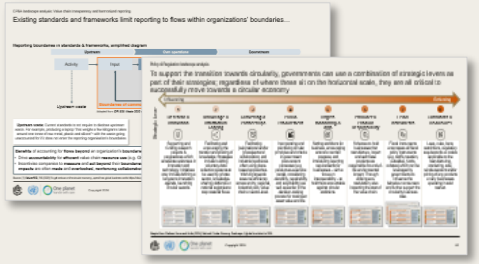
Discussion with various experts and with TWG and Advisory Committee members to **validate findings** and gain **further insights**

- TWG member sessions
- Advisory Committees members
- 23 external expert interviews



Data analysis and insights drafting

Data analysis deep-dive and **iterative insight development** and refinement based on expert **interviews** and **feedback**



Deep-dive on pages 15 (CP&A) and 40 (Policy)

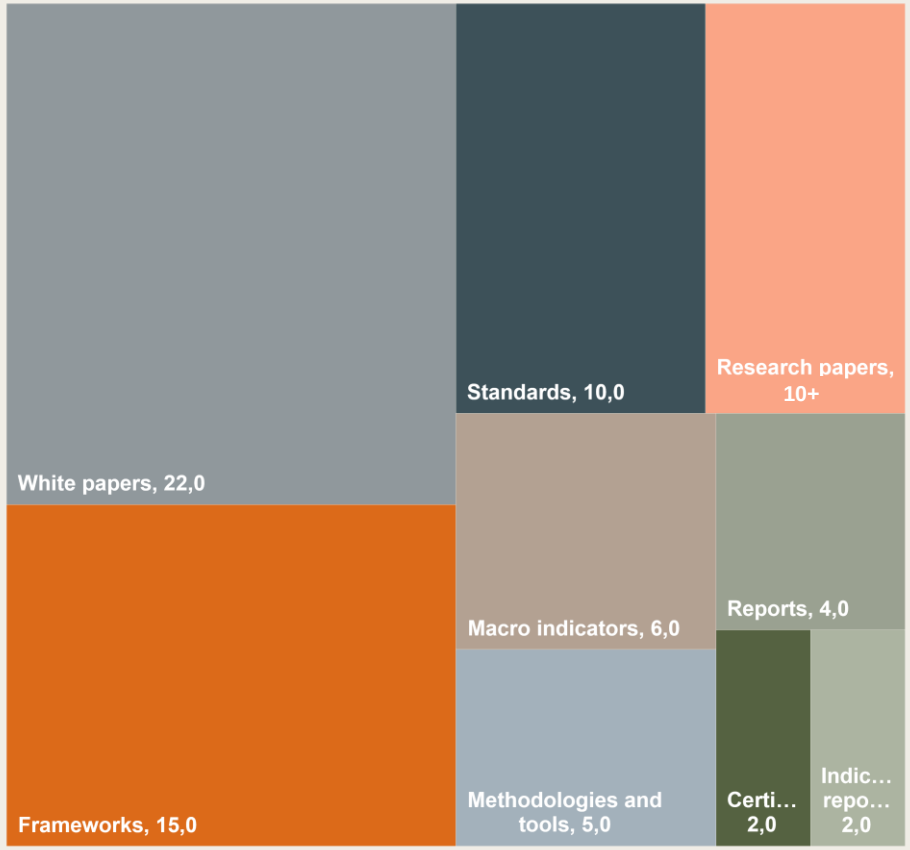
Validation

Structuring, clarifying and validating final insights with the TWG and Advisory Committee to **map** the current **CP&A** and **Policy** & **Regulation landscape** for **circularity,** turning **gaps** and **bottlenecks** into **opportunities** and **systemic solutions** as considerations for the GCP

- Workshops with TWG

A comprehensive, although not exhaustive, set of literature was analysed, including reporting standards and frameworks as well as white papers and publications, from across the world, for the CP&A landscape

75+ **Sources** from **all over** the **world** were reviewed to identify **current gaps** around **circularity performance** and **measurement,** and subsequently **support** the identification of **opportunities**



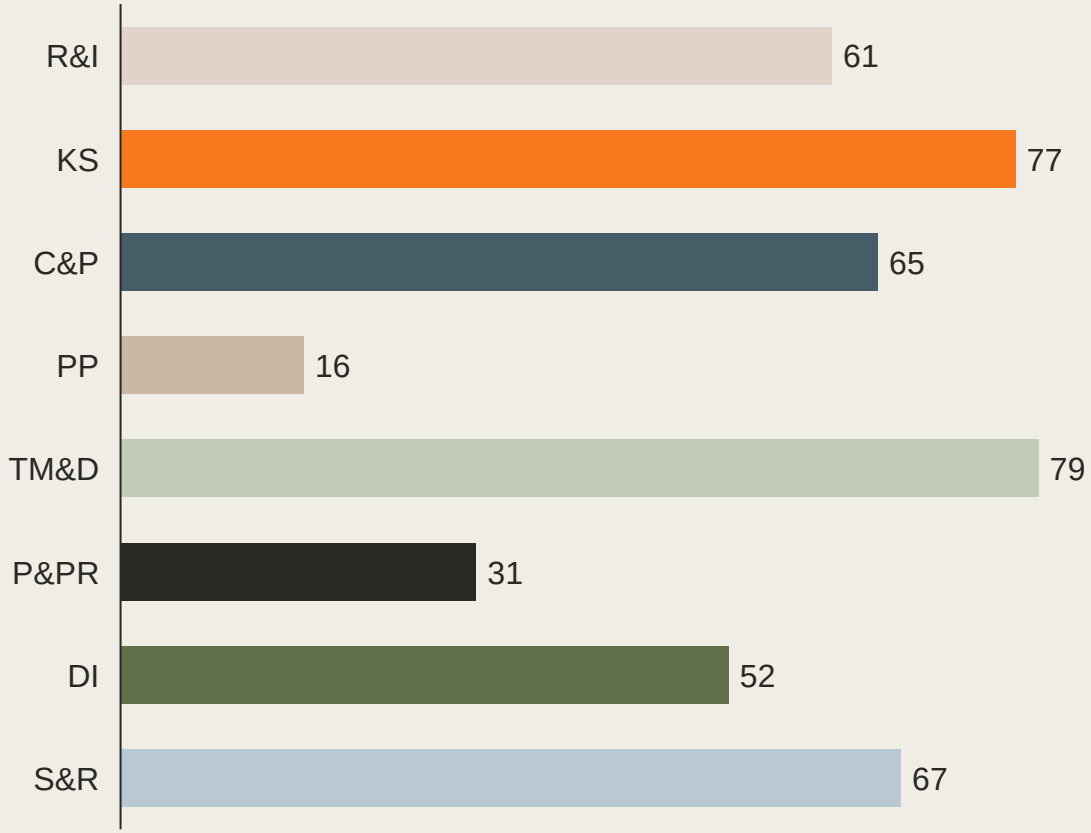
Non-exhaustive examples

▶ Standards	Used for **mandatory** or **voluntary disclosures**; include indicators that can help measure circularity	• ESRS E5 (EFRAG) • ISO 59000 series
▶ Frameworks	Usually voluntary, they are widely used for **external** sustainability or circularity reporting or **internal** assessments and decision-making	• TNFD, and others • CTI (often used internally)
▶ CE methodologies & measurement tools	Approaches which provide organizations with methodologies and **tools for self-assessment,** often for **internal usage**	• CTI Tool • Circulytics
▶ Certifications	**Company** or **product standards** or **assessments** granting a **certification** when requirements are met	• Cradle to Cradle® • B Corp
▶ Macro indicators	Metrics used at an **international** or **regional** level, **rather than by businesses** (these have equally informed the analysis)	• Circular Gap Metric • Eurostat indicators
▶ Indicator repositories	**Resource centre** for organizations or policymakers to find relevant indicators and their sources	• CE Knowledge Hub • OECD inventory
▶ White papers	Papers with **deep-dives** into specific topics	
▶ Research papers	**Scientific** and peer-reviewed **insights**	
▶ Reports	Miscellaneous reports with a holistic understanding of circularity	

A significant representative set of policy-related literature was the baseline for the preliminary research, steering the understanding of strategic levers and deep-dive on expert feedback and case studies

100+ **Sources** from **all over** the **world** were reviewed to identify **current gaps** around **circularity performance** and **measurement,** and subsequently **support** the identification of **strategic levers.** Sources often **cover multiple levers**, which is to be expected given the need to combine them for best results.

Topics covered by the literature



Research & Innovation	**Supporting** and **funding research projects** & **programmes** which accelerate advances in innovation and technology.
Knowledge & Information sharing	**Knowledge-sharing** initiatives allows various **stakeholders** to interact with each other and exchange information
Convening & partnerships	**Roundtables, dialogue** to facilitate **collaboration** and industry-led reviews of regulation and targets
Public Procurement	Incorporating and prioritising **circular principles** and **criteria** in **government procurement processes** as well as earlier in the decision-making process for maximum asset value and life.
Targets, monitoring & data	Voluntary or mandatory **reporting requirements** to measure CE progress, based on **specific targets** set by government
Producer & Product Responsibility	Schemes to hold **businesses** that manufacture, import and sell these products are responsible **for end-of-life environmental impact**.
Fiscal Instruments	A form of **financial aid** provided by government to target, households and businesses to **stabilise the economy** or **incentivise** specific behaviours
Standards & Regulation	**Laws, rules, bans, regulations** and Regulatory Authority advisory opinions or orders applicable to the manufacturing, marketing, sale, reimbursement and/or pricing of any products

Acronyms and other terms commonly used throughout the document

Term	Description	Online access
C2C	Cradle to Cradle – Cradle to Cradle Products Innovation Institute, Cradle to Cradle Certified®;	C2C Certified®
CE	Circular Economy	
CTI	Circular Transition Indicators – WBCSD (May 2023) Circular Transition Indicators v4.0	CTI v4.0
DPP	Digital Product Passport	
EMF	Ellen MacArthur Foundation – Author of Circulytics, a (discontinued) self-assessment framework containing circularity metrics	Circulytics
EOL	End-of-life	
EOU	End-of-use	
EPR	Extended Producer Responsibility	
ESRS	European Sustainability Reporting Standards – For use by all companies subject to the Corporate Sustainability Reporting Directive (CSRD). Prepared by the European Financial Reporting Advisory Group (EFRAG)	
ESRS E5	European Sustainability Reporting Standard E5, Resource Use and Circular Economy – EFRAG (2023) ESRS E5	ESRS E5
GRI	Global Reporting Initiative (GRI) Standards – Global Sustainability Standards Board (GSSB)	
GRI 301	Materials 2016 GRI Topic Standard	GRI 301
GRI 306	Waste 2020 GRI Topic Standard	GRI 306
IP	Intellectual Property	
ISO	International Organization for Standardization (ISO) – Published Circular Economy ISO59000 family of standards	
ISO 59004	ISO's standard on Circular economy — Vocabulary, principles and guidance for implementation (2024)	ISO 59004
ISO 59010	ISO's standard on Circular economy — Guidance on the transition of business models and value networks (2024)	ISO 59010
ISO 59020	ISO's standard on Circular economy — Measuring and assessing circularity performance (2024)	ISO 59020
ISO 59040	ISO's draft standard on Circular economy — Product circularity data sheet (Under development)	ISO/DIS 59040
SASB	Sustainability Accounting Standards Board (SASB). Sector-specific standard developed by the International Sustainability Standards Board (ISSB)	SASB Standards
SMEs	Small and Medium Enterprises	

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CP&A *Circular Performance & Accountability*

CP&A
Indicator mapping

Based on 4 selection criteria, 6 primary sources were identified for the detailed mapping of CE standards and frameworks

NON-EXHAUSTIVE

75+ Sources

Is the source a **standard, framework, methodology** or **tool**? — Yes → Is it mainly **targeted at businesses** and **micro-scale measurements**? — Yes → Is the source used for **circularity-specific assessment** or **reporting**? — Yes → Is it a primary source? — Yes → **Mapped sources:**

ESRS E5
ISO 59020
CTI
Circulytics
GRI[c]
SASB[c]

Non-exhaustive examples

No

White papers:
- Circularity Gap Report: Latin America and the Caribbean
- Demystifying Finance for Circular Economies

Research papers:
- Investigation of selected key indicators of circular economy for implementation processes in sectorial dimensions
- What CE indicators really measure? An overview of CE principles and SDGs

Certificates:
- Cradle to Cradle Certification

No

Macro, policy and **monitoring indicators** (rather than business reporting)**:**[a]
- European circular economy material flows (Eurostat)
- Monitoring framework to circular economy (Eurostat)
- SDGs
- UNECE, OECD (2023) Guidelines for Measuring the Circular Economy part A. Geneva
- UNEP (2024) Circular Economy: from indicators and data to policymaking. Nairobi

No

Non-circularity-specific:
- Water Footprint assessment
- Measuring stakeholder capitalism, WEF
- Iris+ (Impact)
- Nature Capital Protocol
- Social Return on Investment
- Social Life Cycle Assessment
- TNFD[b]

Not for reporting (no indicators/ measurement):
- BS 8001 (implementation guidelines and principles)
- ISO 59004, 59010 (terminology, principles, guidance)

No

Secondary source or indicator repositories:
- OECD inventory of CE indicators
- Circle Economy Knowledge Hub, Circular Economy Indicators Coalition (CEIC)

All other **sources** were **also analysed** and used to **identify gaps** and **opportunities** and **develop insights** on a range of topics (e.g. Global South/North, informal economy, business models, financing, etc.), providing a **holistic perspective** to inform the development of the GCP

Note: (a) Indicators have been mapped into a working database alongside the indicators from "mapped" sources; (b) While TNFD contains circularity-related indicators that are tied to Nature, the framework itself is not circularity-specific and has therefore not been delved-into in the next pages. TNFD indicators have been added to a database working document; (c) While GRI and SASB are not circularity-specific, they are currently used by many businesses in their sustainability reporting, specifically in their reporting and measurement of circular economy impacts and initiatives

There's a clear overlap in indicators covered in the standards and frameworks, with material flows being consistently used and CE-focused standards often covering the same themes

✓ – Related indicators

	Circular Economy Focus				General sustainability reporting	
	ESRS E5	**ISO 59020**	**CTI**	**Circulytics[a]**	**GRI[b]**	**SASB[c]**
	Reporting standard; guidance for CSRD	Measurement and assessment framework	Self-assessment framework; voluntary	Self-assessment tool; discontinued	Reporting standard; voluntary	Sustainability accounting standard
Inflows[d]	✓	✓	✓	✓	✓	✓
Outflows[d]	✓	✓	✓	✓	✓	✓
Water	Covered by ESRS E3	✓	✓	✓	Covered by GRI 303	✓
Energy	Covered by ESRS E1	✓	✓	✓	Covered by GRI 302	✓
Financial impacts	✓	✓	✓	✓		
Actions and resources	✓		Guidance			
Target-setting	✓		Guidance			

For indicator details see p. 66

These three sources have been **analysed in depth** as they are **CE-specific** and will soon be or are currently in use

Material outflow indicators in general **sustainability** reporting **standards** focus mostly on **waste**

Note: (a) Although Circulytics is discontinued, it was still included in the analysis and there will often be references to specific indicators from the Circulytics framework; (b) GRI has two different standards for reporting material inflows (GRI 301) and outflows (GRI 306); (c) SASB is composed of 70+ sectoral standards, each with different indicators; (d) Circular indicator definitions differ between frameworks, the GCP should account for this by clarifying the suitable definition for each indicator (e.g. circular inflows and outflows)

CE standards are starting to focus on indicators beyond material flows, like enabling dimensions that support the transition, however there is still a considerable gap

✓ – Related indicators

	Circular Economy Focus				General sustainability reporting	
	ESRS E5	**ISO 59020**	**CTI**	**Circulytics**	**GRI**	**SASB**
	Reporting standard; guidance for CSRD	Measurement and assessment framework	Self-assessment framework; voluntary	Self-assessment tool; discontinued	Reporting standard; voluntary	Sustainability accounting standard
Social impact (p. 19)	Other ESRS standards but not CE-related	Guidance	In development		Other GRI standards but not CE-related	Varies by sector but not CE-related
Environmental impact (p. 20)	Other ESRS standards but not CE-related	Guidance	✓c		Other GRI standards but not CE-related	Varies by sector but not CE-related
Collaboration (p. 24)	✓a			✓	For waste-related collaboration	
Digitalization & data (p. 25)	✓b		✓d	✓	For waste-related data	
Knowledge & skills (p. 23)				✓		
Long-term CE strategy (p. 23)				✓		
Leadership support (p. 23)				✓		

Note: (a) Covered qualitatively by voluntary disclosures of collective actions it undertakes with other stakeholders; (b) Mandatory description of methodologies and sources used; (c) CTI contains guidance and indicators to measure GHG and Nature impacts; (d) CTI tool supports the possibility to add level of confidence around data provided, while the CTI framework provides support in finding suitable data for some of the indicators (GHG impact, Nature impact, etc.)

CP&A
Gaps and opportunities

The CP&A landscape analysis is grouped into five themes, which shape the considerations for the protocol

A sustainable and just transition

1. Companies can **leverage circularity** to address resource scarcity, achieve net-zero, biodiversity, and climate goals, and drive an impactful and just transition
   a. Current frameworks fail to comprehensively consider **social** and **environmental** aspects such as the potential benefits and impacts associated to a circular economy
   b. Furthermore, the **informal economy** is of critical importance in a circular economy, and needs to be supported globally

Resource value retention and maximization

2. Most reporting metrics focus on **end-of-life** or lifespan extension, and **do not account** for a resource-centric view, which is critical to resource decoupling, **value retention and maximization**
   a. Recent standards and frameworks include more **holistic** CE metrics, however, there is a focus on **waste** and **recycling**
   b. Circularity indicators can help accelerate circular business, moving beyond the focus on '**closing**' of material loops and start including '**narrow**', '**slow**' and '**regenerate**' principles

Accelerating the transition through enablers

3. While measuring resource flows and circularity performance is critical, organizational enablers are needed accelerate the circular transition
   a. **Collaboration** and **data systems** can bring together actors to close loops and facilitate measuring and tracking progress
   b. Other key internal enablers include **knowledge** and **skills**, long-term **CE strategies** and **leadership support**

Finance for circular businesses and models

4. Financing is a key enabler of the CE transition and scaling of circular business models. Various **financial actors**, including governments, investors, insurers and banks, have different **needs and roles to play**. Both finance providers and businesses seeking finance, run into **similar challenges** and gaps in current standards and frameworks
   a. **Risk and valuation models** have traditionally been developed for linear businesses and are often not fit to capture the opportunities and value of circular business models, nor do they account for environmental and social externalities

Value chain transparency and harmonised reporting

5. Challenges related to value chain transparency are significantly impeding the circular transition and stem, among others, from a **limited scope of reporting** and **responsibility**, and **discrepancies in definitions** and **indicators**
   a. Evaluating and setting appropriate **reporting boundaries** (e.g. reporting on direct[a] vs indirect flows) can bring value chain **accountability** and **avoid burden-shifting**
   b. A protocol with an **industry-agnostic core** complemented by **sector-specific guidance** addresses the needs for **consistency in reporting** with flexibility to capture sectoral and regional differences

Eight GCP considerations emerged: 4 considerations from a business perspective and 4 considerations from a protocol set up perspective (p. 31)

Note: (a) Direct flows are resource flows owned or controlled by the company

The transition to a circular economy presents a diverse range of challenges and opportunities across the globe, requiring a differentiation in approaches; however, stakeholder feedback suggests that for standardised reporting purposes, this should not be reflected as distinct metrics in the protocol

	Regulatory development overview	Resource management infrastructure	Business needs
N Global North	• **Maturity ranges** in the **Global North**; while governmental actors are very engaged in Japan and Europe, the US is lagging on a Federal level • **Policies set** in the **Global North reach beyond** the **region** (e.g. for CSRD, non-EU businesses with significant operations in the EU must report on their EU operations, and EU businesses with global footprints must report on direct flows that occur outside the EU)	• Eastern Europe, the US and Australia are **moving** from **landfilling to incineration** and recycling is **limited** to valuable materials[3] • There's also a **need to design** and **adapt (existing) infrastructure** so it is **fit for purpose** in the CE and to **invest beyond recycling** for increased resource recovery and value retention such that loops can be closed[4]	• The **linear-champion model** is **deeply-rooted** (6x larger material footprint and 10x more climate impacts per capita than GS)[8] and there is a **need** for increased **understanding** of **circular benefits** and **practices** to attract investment and scale adoption[9,10] • While the EU taxonomy provides guidance, it's not clear enough (e.g. no proper definitions for resources and materials) so a **common taxonomy** across the world is needed[2,5]
S Global South	• While Chile and Uruguay have been paving the way in the Global South[1], **circular economy** term **usage** and its **underlying principles** is **less common** across the Global South[2] • "Improved **waste management** and prevention **policies**, **fiscal policies** and **EPR schemes**" are **necessary**[1], but there is also a need to go beyond (see Policy analysis for more details)	• Significant **investment** in **infrastructure** and **capacity building beyond recycling** is needed to transition to a **CE** instead of a **recycling** one[2], there is an opportunity to leapfrog the waste economy of the Global North[2] • **Most financing** is in the form of **blended financing** mechanisms and **multilateral development bank** financing[5,6,7], with increasing **resources towards CE** initiatives	• The Global South bears the brunt of **climate** and **waste-related impacts**, while having **limited influence** or control over product material choices and design for life and value maximization[3] • Large and small businesses should be **supported through "policy, fiscal** and **skills development initiatives"** (e.g. Industry 4.0 technologies accessible to smaller companies, or no/less subsidies for virgin resources)[1]

Considerations for GCP

1. While they acknowledge global differences, stakeholders suggest that having a North and South split does not represent reality but agree on highlighting that **frameworks** should **not have different** (regional) **metrics** and should instead **aim** for **consistency** and **comparability**

Source: (1) Schröder, P., et al. (2020), The circular economy in Latin America and the Caribbean: Opportunities for building resilience, Chatham House; (2) Stakeholder feedback (April/May 2024); (3) UNEP (2024). Global Waste Management Outlook 2024: Beyond an age of waste – Turning rubbish into a resource; (4) Naco, M., (2022) Smart and Sustainable Upgrade of Municipal Solid Waste Management, CEI Proceedings; (5) Schröder et al., (2021) Circular economy in Africa: examples and opportunities – Finance, Ellen MacArthur Foundation, ICLEI Africa, Chatham House, University of Lagos; (6) Convergence Finance (2020) Blended finance – the key to bridging the Sub-Saharan Africa's infrastructure gap? (online); (7) Circle Economy (2023) Circularity Gap Report: Latin America and the Caribbean; (8) United Nations Environment Programme (2024): Global Resources Outlook 2024: Bend the Trend – Pathways to a liveable planet as resource use spikes. International Resource Panel. Nairobi.; (9) Khalifa et al (2022) Accelerating the transition to a circular economy; (10) OECD (2020) The Circular Economy in Cities and Regions;

The circular economy cannot scale without acknowledging and including the informal economy, and the GCP should ensure it considers its influence to drive a fair and circular transition

More than **60%** (or **2B**) of **the world's workers** are in the **informal economy**[1] and play an **essential role** in the CE

- E.g. waste pickers are "among the three largest urban informal worker groups".[2,3] In India, they represent 0.1% of the country's workers, collecting and processing about 80% of waste[4,5]. In 2011, in Lima, Peru, the **informal sector recovered 55x more** material by weight than the **formal** sector[6]
- Informal workers also play a role in food systems across the world (e.g. the Dabbawala in India have been delivering homemade meals for 125 years)[7]

The **informal economy** takes **different forms across** the **world** and **sectors**

- In the Global South, it contributes to a **higher share** of **GDP**[8], "where reuse, repair, waste collection and recycling sectors provide ample employment"[4]
- In the Global North, **repairs** and **trade** of **second-hand goods** also often occur in the informal economy or within communities

Challenges

Resources, skills and **knowledge** held by informal workers often **do not make it across** to **formal** economy, and efforts are not made to **build on their knowledge**

- Informal workers hold abundant "inherent practical knowledge – that of informal electronics repair workers or informal waste upcyclers, for example – [but there are no efforts to] **incorporate and retain** such embedded (and informal) circular knowledge and skills"[9]

Informal workers are often exposed to "numerous challenges, from **low wages** and job **insecurity** to **limited access** to **skills** development, **hindering their socio-economic advancement**"[9] as well as unsafe and unhealthy conditions

- Such "informality often acts as a barrier to accessing **government support**"[10]
- Although "formalization is not necessarily the end goal […], implementing a nuanced approach that supports informal workers, recognizes their essential role, and aims to improve their livelihoods and working conditions"[8] is paramount for a **just** and **circular** transition

Informal workers' contributions to the circular economy are often **difficult to track** and measure, posing **challenges** for companies and public institutions to **report accurately**, and for external audiences to see the true impact of these contributions

- In one study, informal workers were estimated to save the city of Lima €14M in annual waste management costs, equal to 5% of city's annual budget[6]

Considerations for GCP

1. Need to **consider** and **give credit** to the **informal economy** (e.g. by providing access to training and digital tools), as it makes up a **valuable** part of the circular economy
2. **Need to ensure negative** aspects (e.g. exploitation, lack of support, etc.) are **formalised** and **eliminated** to ensure a **just** and **scalable** transition

Source: (1) ILO (2018) Women and men in the informal economy: A statistical picture; (2) Dias and Samson (2016) Informal economy monitoring study sector report: waste pickers; (3) Korsunova et al (2022) Necessity-driven circular economy in low-income contexts; (4) Circle Economy, ILO, S4YE (2023) Decent work in the circular economy; (5) Bonnet, F., Vanek, J., & Chen, M. (2019). Women and men in the informal economy: A statistical brief; (6) IIED (2014) Informal and Green? The forgotten voice in the transition to a green economy; (7) Gent, E. (2020) The unsurpassed 125-year-old network that feeds Mumbai (Accessed 05/24); (8) Medina and Schneider (2019) Shedding Light on the Shadow Economy; (9) Circle Economy. (2023). Circularity gap report Latin America and the Caribbean; (10) Circle Economy (2024) Circularity Gap Report 2024

Organizations must consider how their business impacts both formal and informal workers and take responsibility for enabling circular practices in their global operations and across global supply chains

NON-EXHAUSTIVE

Upstream

- **Business model changes** can have far-reaching **consequences upstream** (and downstream) including nature, social and economic impacts
  - E.g. changing to bio-based materials can **impact** Tier 3, 4 or 5 suppliers such as (informal) small holders employed in agriculture. Increased demand could allow farmers to receive a **premium**, or conversely potentially lead to "**lower incomes** and **conflicts** over land use, if large-scale plantations are expanded by agro-businesses and stimulate land grabbing"[1]
- Moving to more local **closed loops** can also have **social impacts**
  - E.g. reduction of jobs in countries with mining or extraction activities

Own operations

- **Transitioning** from a linear to circular economy **requires organisations** to[2]:
  - incorporate circular practices across all their (global) operations, and leverage best practices across regions
  - establish partnerships across the entire value chain (up- and downstream, these are essential to close the loop
- **Funding needs** must **flow both upstream** and **downstream**; which can be through:
  - Pricing of externalities (e.g. true price, taxes or EPR-type schemes; see p. 28)
  - Development of skills and knowledge
  - Collaboration & partnerships (p. 24)
  - Data infrastructure development (p. 25)

Downstream

- Especially in **downstream activities** the **informal economy** and **voluntary sector** play a **key role**, e.g., in repair, waste collection and reuse or recycling
  - Upstream choices can also affect the type and amount of waste available to waste picking communities
- **Extended Producer Responsibility** (EPR) can help **fund downstream operations** as they effectively "internalize environmental externalities for end-of-life management"[3], however these are complementary to standards
  - "EPR poses unique opportunities [and] threats to the waste picking community" [4] who is usually affected and not included or engaged in EPRs
  - See p. 47 for details on EPRs

Considerations for GCP

1. **Holistic indicators** are useful to **fully capture** the **effects** of circular practices across the value chain, and could also help **align** and **improve circular practices across all operations** within organizations
2. **Available, accessible** and **reliable supply chain data** (p. 25) is fundamental as organizations need such data to **measure impacts** (similarly to GHG data sharing)

Source: (1) Schröder, P., et al (2020) The circular economy in Latin America and the Caribbean: Opportunities for building resilience; (2) Stakeholder feedback (April/May 2024); (3) Schröder, P., and Raes, J., (2021), Financing an inclusive circular economy: De-risking investments for circular business models and the SDGs. Chatham House; (4) Cass Talbott, Taylor, Pinky Chandran, Cecilia Allen, Lakshmi Narayan and Owusu Boampong. (2022) Extended Producer Responsibility (EPR) and Waste Pickers. WIEGO Technical Brief No. 15. Manchester, UK: WIEGO

The move to a circular economy should not forego making sure it is a fair transition, and this should be reflected in reporting

NON-EXHAUSTIVE

A **fair circular transition** both **between** and **within geographies** is a **key** factor highlighted by various sources[1,2] and stakeholders[3]. To achieve this, important **social risks** need to be **mitigated.** Examples include

- **Global North circular transformations** could lead to **negative impacts** in the **Global South,** as activities in traditionally extractive economies could face (partial) reallocation or replacement in non-extractive economies, following a reduction in raw material extraction[4] – this reallocation could, however, also lead to a reduction in negative impact as extraction activities are often harmful for people and the environment (e.g. conflicts arising from rare mineral extraction)[5,6]
- Circular solutions may lead to **unpaid labour due to additional efforts** (E.g. cleaning items to avoid single-use plastic) or leveraging hazardous processes (E.g. separating components of products using toxic solutions)[3]. Such activities' burden usually falls onto **women**, who are then **negatively impacted**

The approach of adding a **social lens** and **indicators** to **CE accounting standards** to help mitigate the above risks was validated in multiple interviews[2,3]. The importance of separating the audience per category (E.g. gender, under-represented communities, countries etc.) was also a common theme discussed[3]

- Examples of **frequently-used social indicators** include[7,8,9,10,11,12, 13]: **job creation**, **impact on income**, **minority-** or **women-owned procurement**, **toxicity** of **products**, involvement of **women** in **design of products**

Challenges & Gaps

No (CE) frameworks connect circular impact to **social impact** at a micro level

- There are no **micro indicators** connecting social impact to circularity performance (E.g. *Circular Jobs Initiative provides a macro analysis on the topic and CTI is looking into social impact, currently, does not have micro indicators for this)*
- Other frameworks discussing social indicators **are not connecting them** to **circular performance** *(E.g. IRIS+, IMP, Social Life Cycle Assessment, CSRD)*

Considerations for GCP

1. **Suitable social impact indicators,** that are **connected to CE** activities, can drive a fair transition
   – Indicators frequently seen in literature **cover jobs, income, health and skills** (to be separated per type of stakeholder)
   – **Connecting indicators** to the **social impact** of circular activities can promote a fair and inclusive transition

Source: (1) Schröder, P. and Raes, J. (2021), Financing an inclusive circular economy: De-risking investments for circular business models and the SDGs. Chatham House; (2) International Resource Panel (2024) Global Resources Outlook; (3) Stakeholder feedback (April/May 2024); (4) Schröder, P., et al. (2020) The circular economy in Latin America and the Caribbean: Opportunities for building resilience; (5) UN (2024) Global Resources Outlook 2024; (6) Chatham House (2024) What is Circular Resource Nationalism? (7) Circle Economy, ILO, S4YE (2023) Decent Work In The Circular Economy; (8) Social and Human Capital Protocol, 2019; (9) CSRD, 2014; (10) SDGs, 2024; (11) K. Raworth, (2017), Doughnut Economics; (12) IMP, 2021; (13) IRIS+, 2024;

Current standards do not link CE performance and its impact on climate, land use, water and pollution

NON-EXHAUSTIVE

Environmental impacts (related to the planetary boundaries)[1] and their inclusion in standards and frameworks

	GHG impact	Land use change/biodiversity	Water impact	Pollution impact[3]
Value	**Reducing** resource extraction by **30%** could **enable** the world to **stay below** the **2ºC limit**[2] as 55% of global greenhouse gas (GHG) emissions are related to the extraction and processing of material	Impact on **planet boundaries** such as land use change and biodiversity, can be **improved by circularity** as **resource extraction** leads to their **degradation**[3,2]	The recent overshoot of the **freshwater boundary**[1] and worsening ocean acidification makes the importance of **water impact** increasingly apparent[3]	**Minimizing pollution** (air, soil, and water, including biochemical flows and atmospheric aerosol loading) is highlighted in interviews[4] and literature[3,5] as a key **value-add** for CE
In reporting	• **Carbon avoided** due to the adoption of circular practices is measured in Cradle to Cradle and CTI (only sourcing & EOL, not accounting for longevity or other circular initiatives).[a] However, data unavailability makes it difficult to measure such impact • **Other frameworks do not** fully cover **carbon avoided** and **circularity** benefits (e.g. GHG protocol, CSRD, ISSB or SBTi)	• CTI's Nature Impact indicator looks at **land use change** (sourcing), **connecting** it to **CE** values (also a proxy for biodiversity) • ESRS E4 – Biodiversity and Nature Capital Protocol provide **guidance** and **indicators** on **biodiversity** and/or **land use change,** but they do **not connect** the **impacts** to **CE performance**	• CTI and water-specific frameworks incl. water footprint assessment tool, ESRS E3 and GRI 303, **measure water consumption and usage** • **None** of the existing standards **compare** the **water impact of circularity** *vs* **linear** practices	**No CE standards** measure **pollution**[b]. Impact avoided due to **circularity** could be assessed across the **value chain:**[3,4,6] • **Sourcing**: reduced environmental impact of mining, agriculture, etc. • **Production**: moving away from waste and substances of concern • **Use:** designing products with reduced materials, emissions, or leakage • **EOL**: avoided landfill and waste (toxicity can prevent recycling)

Resource scarcity

The rate of **global resource extraction** puts **pressure** on the **availability** of the **resources**. This leads to "increasing resource **scarcity** [with] potentially serious **adverse consequences** for human health, ecosystems and the economy"[7] **Increasing circularity** (incl. material **efficiency** and behavioral shift) can lead to **avoided emissions**, **avoided resources** and higher utilization of existing resource. This can mitigate supply chain risks of critical or scarce materials, guard against **volatile prices, and** boost **competitiveness**, with create new **business opportunities** and **innovative**, more efficient ways of producing and consuming".[7,8] Reporting related to resource scarcity appears in ESRS E5 and CTI, which contain indicators on critical raw materials used (e.g., % critical inflow in CTI)

Considerations for GCP

1. **Circular performance connected** to **environmental indicators** (leveraging existing ones) helps driving sustainability improvements
2. **Suitable data guidance** or **support** can enable the above linkage

Note: (a) Not all circular initiatives support a reduction in GHG emissions (e.g. more emission intensive to recycle materials than to incinerate for energy recovery) and this additional carbon should also be accounted for; (b) ESRS E2 does, but not E5, which is the specific resource-use standard | Source: (1) Richardson, J., Steffen W., Lucht, W., Bendtsen, J., Cornell, S.E., et.al. (2023) Earth beyond six of nine Planetary Boundaries. Science Advances, 9, 37. (online); (2) Circle Economy (2023) Circularity Gap Report; (3) International Resource Panel (2024) Global Resources Outlook 2024; (4) Stakeholder feedback (April/May 2024); (5) WBCSD (2023) Enabling corporate plastics disclosure; (6) European Commission (2024) Eco-design for Sustainable Products Regulation (ESPR) (online); (7) OECD (2016), Policy Guidance on Resource Efficiency, OECD Publishing, Paris, https://doi.org/10.1787/9789264257344-en; (8) OECD, Material resources (Available online)

Circularity indicators can help accelerate circular business, moving beyond the focus on ‘closing’ of material loops and start including ‘narrow’, ‘slow’ and ‘regenerate’ principles

NON-EXHAUSTIVE

CE Principle[1,2]	Narrow[a] *Use less*	Slow *Use longer*	Close flows *Use again*	Regenerate *Use regenerative resources*
CTI	• *Circular material productivity* • *Total linear inflow* • *Circular inflow in mass*	• *Actual lifetime compared to own product or industry average*	• *% material circularity (R-ladder)* • *% recovery types (R-ladder)* • *% recovery type by lifetime extension*	• *% circular inflow (renewable)* • % biodegradable • *GHG impact (sourcing)* • *Nature impact*
ISO 59020	• *Decoupling index* • *Resource productivity* • *Circularity material productivity* • *Value per mass*	• *Average lifetime of product or material relative to industry average*	• *Average % reused or recycled content inflow* • *Average % actual reused or recycled content outflow*	• *% renewable content of an inflow*
ESRS	• *Minimisation of virgin non-renewable material* • *Decrease post-consumer waste*	• *Expected durability* • *Design principles* • *Reparability of products*	• *Weight & % of reused / recycled components or content* • *Weight & % of products designed along CE principles* • *Weight of waste generated and recovery or disposal*	• *Overall weight of biological & renewable materials sustainability sourced*
Gaps[3]	Resource intensity metrics (per revenue, weight, or functional unit) are needed to measure **resource decoupling** and **avoided resource use**. These metrics are different from efficiency metrics and **currently lacking, not comparable** and often need to be tracked over time. ISO and CTI include some relevant metrics, ESRS does not. An industry- or product-lens can drive applicability	Actual or average lifetime definition (technical, functional, economic, which also includes definitions of durability, reusability, repairability etc.) and comparability between products with the **same functions** are **important to guarantee increased lifetime.** However, they are **currently lacking** due to limited industry standards on lifetime	Frequently documented and well-represented in the CE by the **bottom** R-ladder steps, via end-of-life measures. Among ‘close’ flows, there is a **(large) overreliance** on **recycling,** with other interventions not prioritized yet	Although there is an increased focus on the biological side of circularity, **clear criteria** for defining regenerative, renewable, or sustainably sourced circular materials are **missing** (including the need to screen for chemicals, microplastics and other toxic materials)**.** Similarly, definitions and criteria for biodegradable or compostable outflows are also lacking

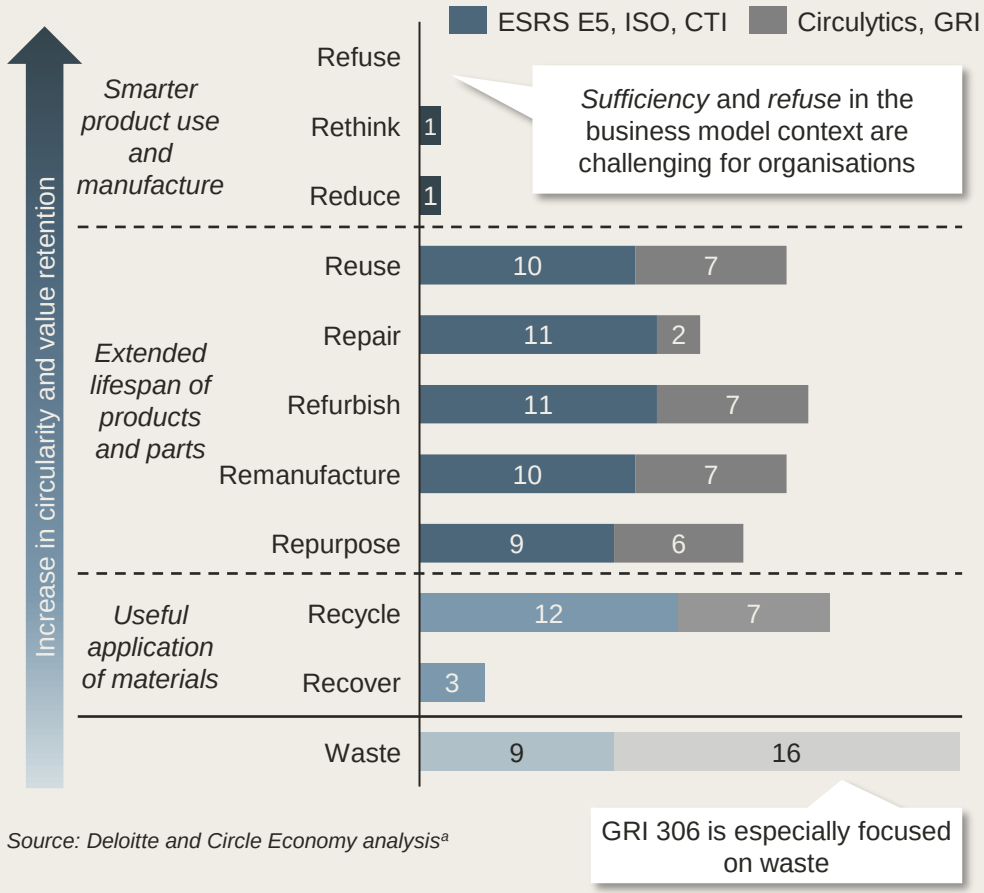
Considerations for GCP

1. Include (existing) **indicators** and **definitions** aligned with all **CE principles** to push for a **balanced circular transition**
2. Develop or leverage suitable **benchmarking** data to **contextualize indicators** and to enable data-driven **decision-making** and progress **tracking**
   – E.g. Define industry-specific intensity metrics (narrow), leverage actual lifetime measurements per product categories (slow) or align on and establish **requirements** for the **definition of** renewable **materials** that are **regeneratively** sourced (regenerate)

Note: (a) Some indicators sit between and are relevant for more than one principle (e.g. reuse for narrow and slow, or Repairability for slow and close) | Source: (1) Bocken, N., et al. (2016). Product design and business model strategies for a circular economy. Journal of Industrial and Production Engineering, 33(5), 308–320.; (2) Konietzko, J., Bocken, N., and Hultink, E., (2020). Circular Ecosystem Innovation: An Initial Set Of Principles. Journal of Cleaner Production. 253.; (3) EMF (2024) Navigating the circular economy reporting landscape

Most reporting metrics measure waste and recycling, which, although easier to track, fail to account for the resource-centric view which is critical to decoupling, value retention and resource maximization

R-ladder[1], waste and resource coverage by reporting metrics



Source: Deloitte and Circle Economy analysis[a]

Gaps

- Most metrics focus on **waste** and **recycling**, **failing** to capture **value-retaining** interventions
- The R-ladder does not provide explicit **lifetime** metrics, which **are** included in **ISO** and **CTI**
- **Very few metrics** cover the **upper area** of the **R-ladder**
  - **Difficult** to **measure** and therefore **difficult** to **prove**, leading to a risk of greenwashing[2]
  - **Differing views** include relating these to "**lower business value**" vs "**viable business opportunities**", the latter not being recognised by metrics and reporting directives[2]
- Although the **R-ladder** is **widely recognised**, it **fails** to **capture** aspects including:
  - **Reliability**: which is a key consideration for "long-term value retention"[2]
  - **By-products**: the R-ladder and Butterfly[3] focus on the (re)use of products and resources at end-of-life and -use, and tend to forego by-products and manufacturing waste, which are usually included in 'waste reduction metrics'

Considerations for GCP

1. Include metrics that focus on **decoupling, value maximization** and **enable** the **measurement** of **avoided impacts** (e.g., metrics on refuse, rethink, reduce interventions)[2]
   - E.g. products with reduced material weight need less inflows compared to products with same functional unit but higher weight, and should thus lead to avoided GHG emissions[4]
2. Measure the adoption of **circular business models** and **innovation** to "create a level playing field and incentivise higher R-practices" alongside appropriate policy[2]
3. Leverage and **complement existing frameworks** to capture **all types of flows** (incl. technical and biological; resources and by-products), providing a link to **high value retention**
   - E.g. EMF Butterfly, the 4 Flow Strategies[5], the Value Hill[6], the Key Elements[7] and the DISRUPT[8] frameworks

Note: (a) SASB is not mapped as each sectoral standard scopes different metrics | Source: (1) Kirchherr et al. (2017) Conceptualizing the circular economy: An analysis of 114 definitions (Basis for 10R Framework); (2) Stakeholder feedback (April/May 2024); (3) EMF (2019) Circular economy systems diagram; (4) WBCSD (2023) Guidance on Avoided Emissions; (5) Bocken et al. (2016) Product design and business model strategies for a circular economy; (6) Circle Economy (2016) Master Circular Business with the Value Hill; (7) Circle Economy (2021) The Key Elements of the Circular Economy Framework; (8) Circle Economy (2020) The DISRUPT Framework

Although organizational enablers can be leveraged to accelerate circular practices and business models, standards and frameworks are not including enough guidelines and assessments for these

NON-EXHAUSTIVE

	Collaboration	Data and digitalization	Knowledge & skills	Long-term CE strategy	Leadership support
Enablers[a]	Collaboration with suppliers, customers, policymakers, etc. is noted[1,2,3] as key driver, **enabling innovation**, **new business models** and the **sharing** of **best practices**, **knowledge** and **data** (p. 24)	**Digitalization** and **data** are critical for informed decision-making and adoption of new circular business models (p. 25). This requires data **prioritization**, **interoperability**, **standards,** and **management**	Building **employees' skills** and **knowledge** can allow organizations to develop **innovative solutions**, better implement CE strategies and improve circularity performance **assessments**[4]	Developing a suitable circular strategy can help to **connect** an **organization's daily operations** with circularity **targets**, which are a key pillar of **accountability** and **progress tracking**[5]	**Leadership buy-in** and **empowerment** is critical for the viability and scale-up of such approaches, connecting the overall strategy to the circularity one[4]
In standards	Widely covered by qualitative disclosures, that are similar and aligned across standards	Although difficult to measure, qualitative indicators exist in CTI and Circulytics	Circulytics covers actions taken to increase knowledge and skills	Included in several standards. CTI and ISO also include guidance on strategy development and target-setting	Circulytics covers qualitative indicators
Examples	• Actions taken to engage with value chain or local network of collaborators – ESRS • Value chain actions to prevent waste or manage impacts (EPR, take-back schemes, industrial symbiosis, …) – GRI 306	• To what extent are data systems in place to support circular innovation/ development projects – Circulytics • Level of proof or evidence of data provided – CTI tool	• CE training provision • Individuals or project teams with responsibility for CE implementation	• Plans and capacity to adapt strategy in line with CE principles - ESRS • (Long-term) strategy – Circulytics • (Long-term) targets – several • Implementation plans – Circulytics	• Extent to which leadership is involved in supporting circular innovation/development project • CE plans communicated internally – both indicators appear in Circulytics

Deep-dive on next pages

Considerations for GCP

1. Provide **(quantitative) indicators** and **comprehensive guidance,** highlighting how enablers can be leveraged **within different parts of an organisation** to drive systemic **value creation**

Note: (a) External levers and enablers include, among others, policy and regulation, financing and infrastructure, which are partially covered in CP&A section, and more compressively in the Policy analysis | Source: (1) Circular Accounting Coalition (2022) Financial accounting in the circular economy; (2) WBCSD (2024) Guidance for the chemical industry; and WBCSD (2024) CTI Fashion and Textile; (3) Stakeholder feedback (April/May 2024); (4) Opferkuch et al (2022) Circular economy disclosure in corporate sustainability reports: The case of European companies in sustainability rankings; (5) Taticchi, P., and Corvaglia-Charrey, M., (2023) Circular Economy Target-Setting: New Guidance and Insights from Industry Leaders | Background sources: WBCSD (2023) Achieving a circular economy: using data sharing tools, like the Digital Product Passport;

Collaboration is widely seen as necessary to scale the circular economy, however often limited in practice. Some standards are already capturing collaboration through disclosure of specific actions

NON-EXHAUSTIVE

Collaboration across **industries, value chains, service providers, governments** and **policymakers**, civil society and others, is of **vital importance** in a circular economy**:**

- **Improving resource use** through **industrial symbiosis** and **resource sharing**, reducing the use of resources and eliminating waste flows and their associated adverse impacts
- **Identifying** and **sharing best practices** among businesses, industries, and regions to accelerate circularity through innovation and new circular solutions[1]
- Developing **standardised frameworks** and **metrics**, complemented by **additional industry-wide metrics** where relevant for circularity performance reporting (p. 30)
- **Sharing data** and **developing digital technologies** to collect and analyse data[1], for more **accurate reporting,** as well as gaining **insights** into **areas for action** and **capability development**
- **Partnering** to drive new **business models** and **innovation** for new and enabling circular solutions[2]
- Enabling **customers** to participate in the **circular economy** by providing **reliable information** and developing **infrastructure** to facilitate the adoption of circular behaviours

Challenges

Collaboration is **currently lacking,** among other due to difficulties in[1]:

- Aligning on a **common vision** and **incentives**
- Finding agreement on the **distribution** of **value generated,** and the **investments needed**
- **Managing partnerships** once they are set up

Considerations for GCP

1. Establish a **common circularity language** to provide a base for regulation, standards and organizational global alignment
2. Incentivize **data sharing,** requiring businesses to enable **relevant data availability** for stakeholders to drive repairability, recoverability and reuse models
   - E.g. Cradle-to-Cradle's bronze certification[3] requires organizations to make data publicly available
3. Report on **impact beyond organizations**' boundaries to **ensure accountability across** the **value chain**
   - e.g. organizations jointly identify and report on risks and opportunities, set-up joint monitoring systems and provide the right infrastructure and information to customers to drive circular behaviours
4. Measure **partnerships** through collaboration disclosures to drive **collective accountability**
   - E.g. specifying collective actions with "competitors, suppliers, retailers, customers, …"[1] or "collaboration in the value chain and business model innovation: […] engaging in industrial symbiosis, applying new business models, ..."[4]

Source: (1) Stakeholder feedback (April/May 2024); (2) WBCSD (2024) CTI: Guidance for the chemical industry to accelerate the deployment of circular metrics; (3) Cradle to Cradle Products Innovation Institute, Cradle to Cradle Certified®; (4) Global Reporting Initiative – GRI 306

Digitalization in circularity enables new business models and informed decision-making, however data availability, access, reliability and comparability issues currently hinder business reporting

NON-EXHAUSTIVE

Importance of digitalization[1]

Digitalization has the **potential to scale** the circular economy by…
a) establishing **new circular business models** (e.g. sharing platform, platform for resources and waste management, IoT for as-a-service, etc.)[2]
b) driving **informed decision-making** for circularity for both businesses and consumers (e.g. circular design that extends durability, product use, etc.)

	Data availability	Data access	Data reliability	Data comparability
Identified challenges	Some data may have historically **not been collected, hindering measurement** and **prioritising solutions**[3,4] • E.g. little publicly available information on the implications of product reuse or the GHG emissions savings from product recovery • Large difference in data collection across regions – 66% of waste generation in Latin America escapes official statistics[5]	Data might be **held** by parties **across** the **value chain**, making it **hard** for **organizations** to have **visibility** on their **own impact**[4] • E.g. impact data on resource inflows is often held by suppliers, often due to competitive reasons • A further level of complexity relates to data on the composition of products, such data drives circularity but may clash with confidentiality issues[6]	Organizations **differ** in **maturity levels** and **cannot all** provide the **same level** of **data granularity** and **sourcing**, lowering the confidence in measurements[3] • E.g. companies often report resources inflow with primary data while outflows with industry averages or national recycling rates	Data **collection, sources, modelling, assumptions** and **criteria often differ** across businesses, limiting investors and others from comparing organisations and investments • E.g. company performance can be measured by collecting company level data or aggregating product level data • Some indicators can be measured any time (e.g. inflow) while some only over a period (e.g. durability)
Considerations for GCP	1. Multiple **data availability scenarios** and **assumptions guidance** can aid decision-making and reporting – E.g. to assess Nature Impact, CTI assumes the most intense form of land-use if companies have no primary data	**2. Data sharing guidance/methods** can encourage data **exchange** across the value chain – E.g. reporting the adoption of product passports, certification schemes and traceability platforms	**3. Guidance** on **evaluating data reliability** and **data prioritization** drives reporting **credibility** – E.g. allow the use of secondary data when quality primary data are not available; list suitable sources of secondary data and describe their minimum quality requirements for secondary data to be used	4. A **global reporting taxonomy** can improve data **interoperability, collection** and **benchmarking** and partnership with **digital tool** providers is useful to promote standardization – E.g. GHG Scope 3 Evaluator[7]

Source: (1) EEA, (2022), Monitoring the circular economy using emerging data streams; (2) FICCI (2018) Accelerating India's Circular Economy Shift. Circular Economy Symposium 2018; (3) WBCSD (2023) CTI v4.0; (4) Serna-Guerrero, et al. (2022) Overcoming data gaps for an efficient circular economy: A case study on the battery materials ecosystem; (5) Circle Economy (2023) Circularity Gap Report: Latin America and the Caribbean; (6) Stakeholder feedback (April/May 2024); (7) GHG Protocol and Quantis (2017) Scope 3 Evaluator

Financing is a key enabler of the CE transition and scaling of circular business models, with financial actors having different needs and roles to play…

NON-EXHAUSTIVE, see p. 69-74 for details

Actors[a]	Areas of action (non-exhaustive)	High-level strategy
Governments	• Next to setting **policy**, governments **subsidise projects** and **provide incentives**	• **Subsidise**, **incentivise** or finance projects[1]
Institutional investors	• Construct funds and invest in **public equities** and companies that "adopt, enable or benefit the CE"[1,2] and invest in and issue CE-related **bonds**	• **Portfolio-play**, with exclusion and best-in-class investment in **publicly-traded** companies • Require disclosures[1] and seek comparability • Invest and direct capital towards CE[3] • Insure both companies and consumers[3]
Insurers	• Build insurance **solutions** for new circular products in the sharing economy[1,3,4] and "integrate the circular economy concept in **insurance criteria**"[1] and **risk models**	
Investment banks Commercial banks	• Develop new **risk models** which are fit for circular businesses[5] • Provide **loans** and **credit facilities** to companies or start-ups as part of **circular programmes**[6] or on a case-by-case basis • Perform **research** and publish **guidelines** or collaborate in **thought leadership**[7]	• Financing often through CE programmes, based on project or company assessments • Finance **early-stage**, **SME** and **large** enterprises (public and private)
Multilateral development banks Catalytic capital	• Provide financing for projects including CE **infrastructure** and **technology**, including by aggregating **funding** from companies and governments across the world[8]	• Financing based on fund theme (e.g. infra), based on project- and company assessments • Finance **early-stage**, **SME** and **social** enterprises and projects
Venture capital Private equity	• **Invest** (equity and debt) in companies where the circular economy is a "core value driver"[1] • Provide **growth capital** and **fill the gap** where "banks find projects too **innovative**" or projects are "too **capital intensive** [for other actors] to finance in full"[9]	• Investment based on project- and company assessments • Finance **early-stage** enterprises

Note: (a) Other actors include advisory firms, data providers, standard setters and rating agencies; adapted from Ellen MacArthur Foundation, University of Cambridge Institute for Sustainability Leadership and Deloitte analysis | Source: (1) Ellen MacArthur Foundation, (2020) Financing the circular economy - Capturing the opportunity; (2) BlackRock (2024) Circular Economy Fund; (3) Deloitte (2023) Repair over replace? Insuring the Circular Economy | Deloitte UK; (4) Ozili, P.K. Circular Economy, Banks, and Other Financial Institutions: What's in It for Them?. Circ.Econ.Sust. 1, 787–798 (2021); (5) Circular Risk Scorecard (2024); (6) Intesa Sanpaolo (online; online); (7) ABN Amro, ING and Rabobank (2018) Circular Economy Finance Guidelines; (8) Closed Loop Partners, Infrastructure Strategy; (9) Polestar Capital (2022) Polestar Capital opens €100 million CE fund;

…however, despite their different strategies, they run into similar challenges and gaps which are not being addressed by current standards and frameworks…

Challenges in financing circular businesses

Lack of CE-specific risk measurement knowledge

- **Circular** businesses **do not attract** the **same funding as linear** ones[1], although they are "**far more resilient** and less risky than their linear counterparts" by nature[2]
  - In the long-term circular businesses "amass more profits"[1] and have "lower risk of default over a one-year and five-year horizon"[3]
- **Risk models** may **not** be **fit for CE solutions,** as most do not factor in **externalities** and long-term risks for linear businesses and hence the **perceived risk** is **higher** for **circular** businesses[4]
  - "Current risk models based on the linear economy, and a narrow conception of risk […] neglecting risks associated with resource use and scarcity"[2,4]
  - A Dutch-led financial institutions' group has jointly-developed a Circular Risk Scorecard incorporating to assess circular businesses[11]

Lack of standardised metrics

- Lack of **standardised metrics** to describe companies' **circular extent**[8,9]
- **Costs** associated with **non-financial disclosures** limits voluntary disclosures[9]
- While **SFDR** and the **EU Taxonomy** are highlighted as being **key drivers** of CE **information** for **investors**[10], their **metrics** do not easily **align** with current mandatory and voluntary standards and frameworks
- Existing **non-circularity-specific frameworks** such as CDP, TCFD, TNFD, SASB, have been adopted by many companies but contain a **limited** number of **circularity indicators**

Focus on short-term returns

- There is a need to holistically look **beyond short-term returns**
  - **Short-term financial returns** of **linear businesses** can be the result of "[resource] inefficiency, overexploitation, and pollution because they do not bear the environmental cost"[5] and may not consider their exposure to **long-term risks** and **costs** such as resource **scarcity**[6]
  - Circular solutions may require **higher upfront costs** and may **not** "**yield immediate** financial **returns**, making it challenging to secure financing from investors focused on short-term gains"[7]
  - There is an **opportunity** to learn from complex, **asset-intensive industries** which take a **longer-term view** to investments and returns

Lack of CE-specific valuation experience

- A circular market in which **residual resources** are **accurately valued** and **priced**[2] is still immature
  - E.g. CE goods do not have a linear depreciation model
- In circular business **models** such as Product-as-a-Service (PaaS), assets remain on the balance sheet, requiring large amounts of debt to fund the business, leading to **balance sheet** and financial ratio **effects** that may **disincentivize investors**, creating a chicken-and-egg problem as businesses are then **unwilling to transition** to these models[2,10]

Source: (1) Saarinen, A. and Aarikka-Stenroos, L., (2022) Financing-related drivers and barriers for circular economy business; (2) Circular Accounting Coalition (2022) Financial accounting in the circular economy; (3) Bocconi University, EMF, Intesa Sanpaolo (2021) The circular economy as a de-risking strategy and driver of superior risk-adjusted returns; (4) UNEP FI (2020), Financing Circularity: Demystifying Finance for Circular Economies; (5) van Ewijk, UCL (2018) Resource efficiency and the circular economy; (6) Circle Economy, PGGM, KPMG, EBRD and WBCSD (2018) Linear Risks; (7) Kandpal, et al. (2024). Circular Economy Principles: Shifting Towards Sustainable Prosperity. Springer; (8) MSCI (2023) Transitioning to a Circular Economy; (9) Zara, C. et al (2022) The Impact of Circular Economy on Public Equity in Europe. Understanding De-Risking Effect and Risk-Adjusted Performance; (10) Stakeholder feedback (April/May 2024); (11) Circular Economy Working Group, DNB (online);

…to create the business case for financial investments and compare solutions, holistic risk models and valuation methods, which factor in externalities, are needed

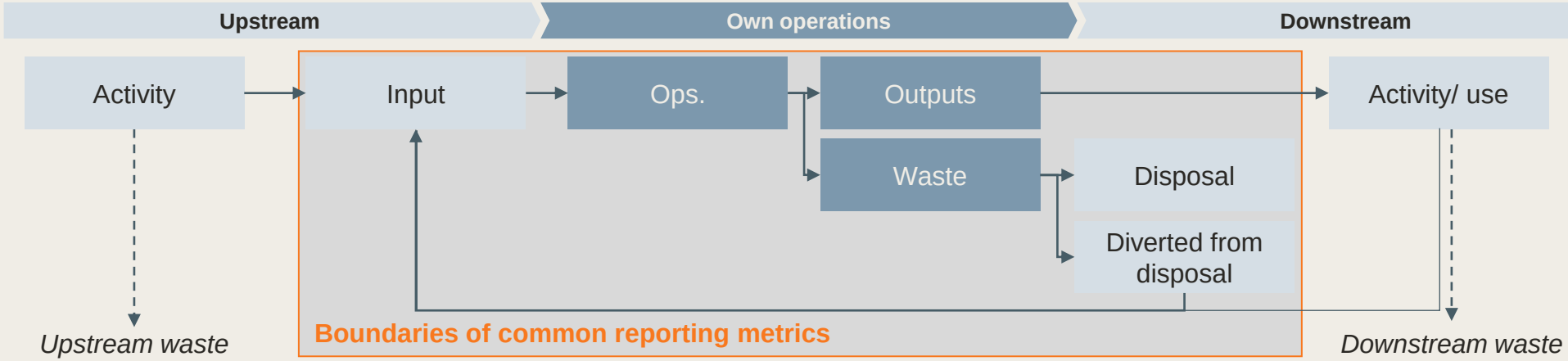
Considerations for GCP

1. Refer to circular **holistic risk models**
   - E.g. Dutch-led financial institutions' group has jointly-developed a Circular Risk Scorecard incorporating new metrics such as product circularity, scarcity of raw materials and management experience[1]
2. Enable **comparisons** through **valuation methods** and value chain **transparency,** reflecting **created value** and also a way to **overcome** the higher ***perceived*** **risk**
   - Including models such as PaaS, leasing, etc. and allowing valuators at end-of-life to recognize valuable components that can be disassembled and reused by OEMs (e.g. electronics)
3. Account for **residual resource** and **harvest value**[a]
   - Clarity on common measurement methods and definitions as well as unit-value metrics can allow for comparison of business models
4. Embed **alternative financial ratios** and **indicators**
   - Provide clarity and guidance on the use of Integrated Profit and Loss or Multi-capital balance sheet to capture the benefits and opportunities of CE and compare investments[2]
5. Price in **environmental** and **social externalities**
   - The linear alternative is too cheap and B2C consumers do not understand or are not willing to pay[3]; externalities should be priced in e.g. through tax (incentives) or new cost models such as total cost of ownership and true or full-cost pricing that enable a true comparison between circular and linear alternatives and help "underpin the business case"[4]. This would be comparable to (internal) carbon pricing mechanisms

Note: (a) Harvest value is defined as the value extracted from potential yields[2] | Source: (2) Circular Accounting Coalition (2022) Financial accounting in the circular economy; (3) Stakeholder feedback (April/May 2024); (4) UNEP FI (2020), Financing Circularity: Demystifying Finance for Circular Economies;

Existing standards and frameworks limit reporting to flows within organizations' boundaries…

Reporting boundaries in standards & frameworks, simplified diagram



Adapted from *GRI 306: Waste 2020 example process flows*

Upstream waste: Current standards to not require to disclose upstream waste. For example, producing a laptop "that weighs a few kilograms takes around one tonne of raw metal, plastic and silicon"[1] with the waste going unaccounted for if it does not enter the reporting organisation's boundaries

Downstream use: Current frameworks (e.g., SBTi, GHG) make it challenging to report on innovations that drive environmental improvements. E.g., product-lifetime extensions on products in use downstream increase the CO_2 per product over the total lifetime. This changes the previously reported average CO_2 for the production company, but reduces overall environmental impact in the value chain

Benefits of accounting for **flows beyond** an organization's **boundaries** include:

- Drive **accountability** for **efficient** value chain **resource use** (e.g. GHG Scope 3)
- Incentivise companies to **measure** and **act beyond** their **boundaries** where most **impacts** are often **made** and **overlooked**, **reinforcing collaboration**
- Promote the "shift from **waste-centric** to **holistic resource-centric** measurements"[2]
- Avoid **double counting** of impacts (like with GHG emission)

Source: (1) *Nature* **612**, 190 (2022) To get serious on the circular economy, upend how global business works https://doi.org/10.1038/d41586-022-04330-y ; (2) Stakeholder feedback (April/May 2024)

… and lack standardized methodologies and definitions to measure direct and indirect resource flows across the value chain

Challenges & Gaps

- **Reporting beyond** an organization's **boundaries** is **limited**
  - GRI 306 disclosures are limited to descriptions of up- and downstream waste-related impacts and waste "outside the physical boundary or administrative control of the organization"
  - CTI, Circulytics and ISO indicators may require downstream tracking (e.g. % actual recovery)
- **No standards** or **frameworks cover** waste from **upstream activities** nor **downstream use** or **consumption**
  - The gap in **downstream impacts** is starting to be covered by **EPR schemes** however issues remain in products that move across geos (e.g. EPR for a good may be paid in Global North, but the good may be dismantled in Global South, which bears the cost without getting funding for infrastructure)
- **Reporting challenges** for innovation or upgrades on **products in use** downstream can disincentivize implementation of innovations
  - Current frameworks like the GHG protocol or SBTi, make it challenging to report on innovations that drive environmental improvements of products during their use (e.g., longer product lifetime increases the total CO_2 per-product footprint)
- Although **LCAs capture flows**, and are commonly used, they are usually performed on specific or single products, focus on GHG emissions, and are limited in terms of circularity
- It can lead to **burden-shifting**, where **negative impacts** of **direct resource flows** are **pushed out** or **externalized** through outsourcing. This stresses the need for absolute and intensity metrics of products which take into account the entire value chain

Considerations for GCP

1. Clear **definitions** of **resource flows** supports defining **flows**[a] for which organisations are **accountable for (**and/or are **directly influencing with their business choices)** and **avoids burden-shifting**
   – E.g. defining flow reporting boundaries and terminologies such as "direct" and "indirect" flows
2. A **standard scope** of resource flow analysis for **measurements** of **different scale** (e.g. product, company, sector and country) and **levels of organisational maturity** to increase transparency
   – The scoping could be based on "critical materiality"

Note: (a) This report does not attempt to provide new definitions for indirect or direct flows, but rather to highlight a gap. Indirect flows are meant as those that do not enter the organization's boundaries, but are generated upstream or downstream due to an organization's activities or consumption or use of its goods; MFA – Material Flow Analysis | Source: (1) Stakeholder feedback (April/May 2024)

A protocol with an industry-agnostic core complemented by sector-specific guidance addresses the needs for consistency in reporting with flexibility to capture sectoral and regional differences

An **industry-agnostic framework** is necessary to **drive scale** and **collaboration** and provide a **common, consistent** and **simple framework** for all organizations

- Most standards and frameworks are industry-agnostic (e.g. ESRS E5, ISO)
- This enables **comparability** which is also **crucial for the financial sector**, as potential investments need to be compared across very different sectors and regions

Challenges & Gaps

Despite the need for consistency, **industries have different starting points, challenges, contexts, supply chains,** etc. which **can influence relevant metrics**

- **CTI captures** these **nuances** through sector guidance such as CTI for Electronics and CTI for Fashion and Textiles, and **EFRAG** is **planning** to develop **sector-specific** standards for the CRSD
- **SASB** provides **industry-specific metrics,** but they are **not circularity-specific**
- **ISO** standards on circularity are still in development; sectorial guidance can be expected in the coming years[1]

Industry-specific definitions or **(sub)indicators,** recommended **secondary sources,** suggested **certifications** are also **missing for sectors**, only partially covered by guidance such as CTI for Fashion

Region-, material-specific, value chain or **SME guidance** is **not frequently seen** in the literature although it should be considered to provide support to regions, hard-to-abate topics, and businesses with limited resources

- E.g. how to assess plastics circularity (incl. risks on plastic soup, dependency on fossil fuels, chemical vs mechanical recycling, etc.), guidance for SMEs or on how to report on engagement with the informal economy

Considerations for GCP

1. **Additional guidance** and **indicators** that are **based** on **industry materiality** are of value to ensure consistency, while enabling flexibility
   - Develop a **sector-agnostic core framework**, complemented by agile **industry-specific guidance and metrics**, which may **evolve** with industry readiness and needs
   - Use **scoring** systems**, thresholds** or **umbrella indicators** to **provide flexibility** (e.g. Circulytics, Cradle to Cradle and B Corp) and accommodate different **maturity levels**
2. **Region-, material-specific, value chain** or **SME guidance** will provide clarity for specific challenges
3. Recommended **industry-specific data sources** and **definitions** provide a common understanding across industry and value chain actors

Source: (1) Stakeholder feedback (April/May 2024);

In summary, eight GCP considerations emerged from the research, split equally for considerations from a business perspective and considerations from a protocol set up perspective

Summary of considerations *from a business perspective*

1. **Consistency** is key for **scalable** and **comparable** reporting
   - **Consistency**, **interoperability** and **comparability** are key to setting a **common understanding** and foundations to scale circularity and CP&A adoption
   - A common understanding is necessary for **value chain alignment** as well as **alignment** with and in the **financial sector** and thus **investment** comparability

2. A **systems-thinking** approach can address **CE complexities and maximize value-retaining activities**
   - **Circular practices** run across the **value chain** and an organization's **operations**
   - **Value-retaining activities** and **impact-avoiding** actions incl. refuse, rethink, reduce
   - The life cycle of materials, incl. **technical** and **biological resources** and **by-products**

3. **Guidance** can **support organizations** in driving circular practices and improved reporting
   - Circularity can be accelerated by leveraging enablers **across** and **within** organizations
   - **CP&A reporting**, incl. **data best practices** and reporting for **value chain alignment**
   - Implementing circular **business models** and **financing** considerations

4. **Transitioning** to a **CE** has **specific challenges** which need addressing
   - The **informal economy** should be recognised and supported to ensure a just transition
   - **Collaboration** is needed for improved data sharing and enabling new business models
   - The financial sector needs **standardised valuation** and **risk models** that are **fit for CE**

Additional considerations *from a protocol set-up perspective*

5. As a starting point, the protocol should aim to **build on and refer to existing frameworks** and **standards**
   - Prevent the duplication of efforts and ensure companies have **clarity**
   - Solve for **discrepancies** in metrics, definitions and guidelines found across existing standards and frameworks

6. Although consistency is fundamental, providing **sector-** (regional, SME, or other) **specific guidance** will help tackle unique challenges
   - Current standards and frameworks take **different approaches**, ranging from **sector-specific** to **sector-agnostic** standards
   - **Complementing** a sector-agnostic core with sector-specific **guidance** can provide valuable support including through aligned secondary data sources and definitions

7. Evaluating and setting appropriate reporting **boundaries** can bring **value chain accountability** and **avoid burden-shifting**
   - Current standards and frameworks cover **direct flows** entering and exiting an organization's boundaries but do **not** always include **indirect** flows up- and downstream
   - This also **avoids burden-shifting**, e.g. pushing and externalising the negative impacts of direct resource flows through outsourcing

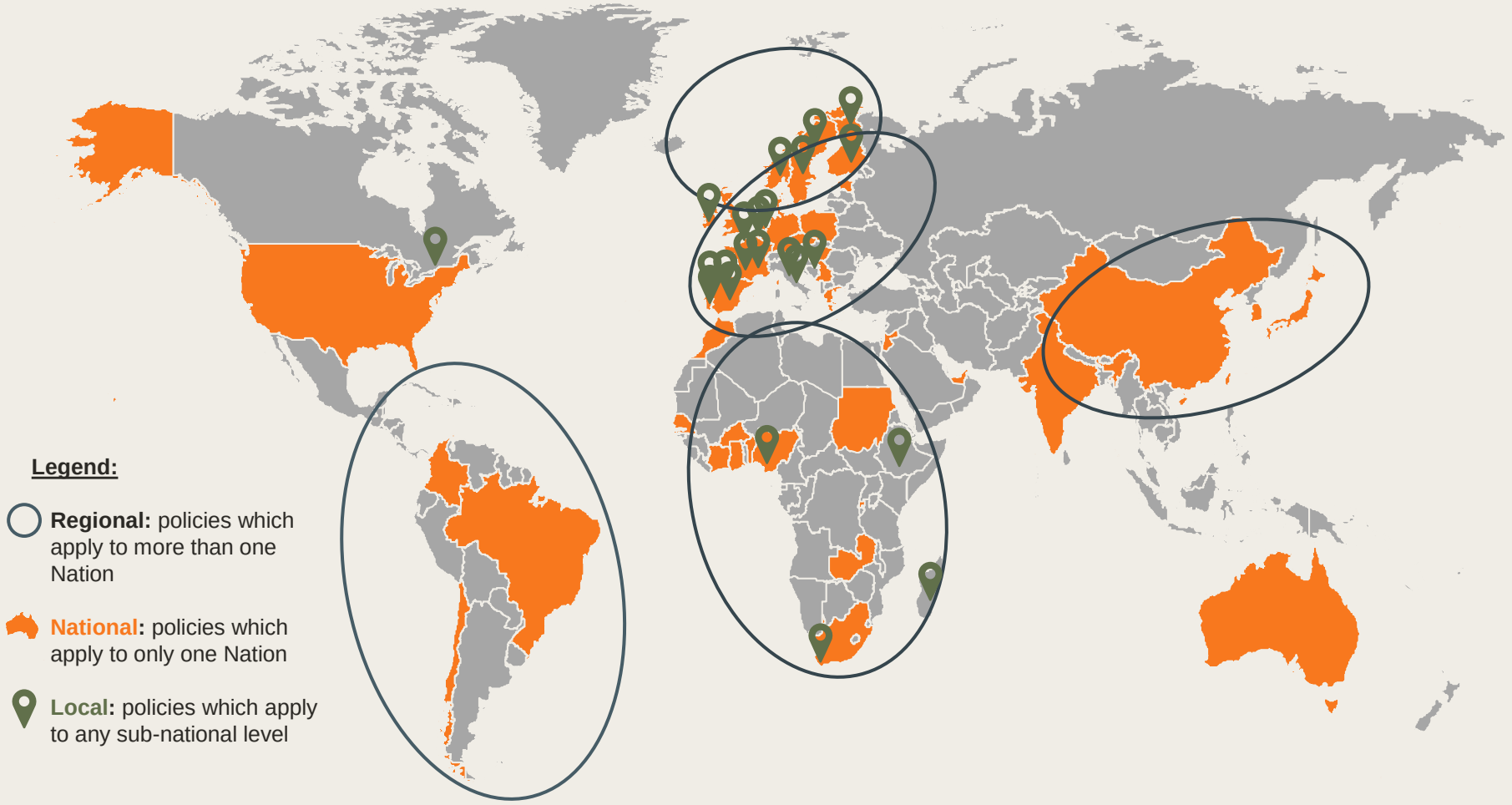
8. The protocol should **account** for **social** and **environmental impact** through suitable indicators and guidance
   - While **climate**, **land use**, **water** and **pollution** are sometimes measured (e.g., GHG in CTI and ISO 59020) they are not consistently included and linked to CE in reporting
   - Similarly, indicators and guidance to measure **social impact** are lacking in CE frameworks and are important for ensuring a **just transition**

Note: (a) Sources can be found on the related slides

3

Policies & Regulation

The literature review covered an heterogenous sample of 59 policies across the globe for different geographical scopes



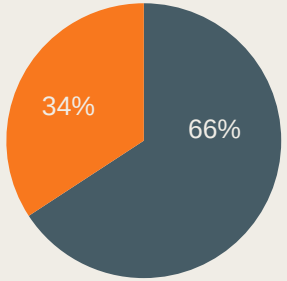
Key Findings

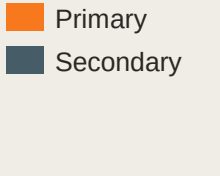
- The number of policies in the **Global North** (particularly in the EU) **exceeds** that introduced in the **Global South**
- **Local policies** are most present in the **EU**
- Regional, national, and local **policies** are **not** always **aligned** or mutually reinforcing
- Given increasingly integrated global supply chains **many businesses will be impacted** by several of these policies **simultaneously**

An assessment and distribution of the maturity and implementation status of policies was reviewed; alongside it, a literature review of secondary source literature was also completed

Mapping of sources analysed

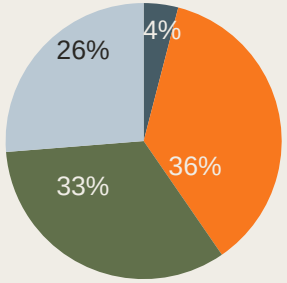
Primary vs secondary documents

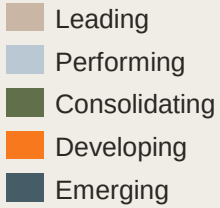




- Examples of sources deemed to be “primary” include policy, law, articles**, rules, bans, regulations** and Regulatory Authority advisory opinions or orders
- Examples of sources deemed to be “secondary” include **policy perspectives, thought leadership, research papers, reports, case studies, surveys** etc.

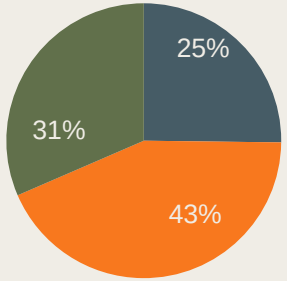
Maturity level distribution (primary)

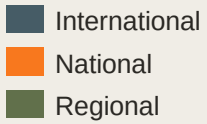




- The maturity level was assessed considering the strategic levers used, based on a matrix that crossed them with the maturity levels: **Emerging, Developing, Consolidating, Performing** and **Leading**, from least to most mature for primary documents.
- Twenty (26% of total) were identified which meet the criteria to be considered “performing”. These policies were concentrated in just seven regions located primarily in the Global North.

Geographical distribution (primary & secondary)





- Documents from various geographies were reviewed. The reviewed research and impact papers primarily focused on broad international initiatives, with very few assessing the impact of sub-national (local) policies (only 5 documents of the national documents).

Key Findings

A total of 151 documents have been reviewed, and the following insights gathered:

- Documents often refers to good practices and quote examples from documents from other regions or countries
- Secondary or primary documents refers to various strategic enablers or levers is a combine portfolio of actions
- Most of the documents are focusing on the first stages of the maturity matrix, but there is a tendency for policies to moving higher on the matrix

Sector-specific standards built upon a consistent set of definitions and boundaries within a sector-agnostic framework can potentially accelerate the transition

More ambitious countries have developed sectoral approaches for resource efficiency and circular economy…

	Built Environment	Water	Waste	Chemicals & plastics	Automotive & vehicles	Food & beverage	Electricals & ICT	Textiles	Agriculture	Other sectors
European Union	✓	✓		✓	✓	✓	✓	✓		▪ Packaging
The Netherlands	✓			✓		✓				▪ Manufacturing ▪ Consumer goods
Ghana	✓	✓	✓	✓				✓	✓	
France				✓		✓		✓		▪ Strategic materials
Nigeria	✓		✓						✓	▪ Energy ▪ Water ▪ Solid mineral mining ▪ Manufacturing and industrial processing
Japan				✓				✓		▪ Batteries ▪ PV panels
Chile	✓	✓	✓		✓	✓	✓		✓	▪ Agriculture / Forest & land use ▪ Energy
China	✓		✓		✓		✓		✓	▪ Paper & pulp

There is a **misalignment of sectors** in the **Global Resource Outlook (GRO)** when considering circularity strategies developed by countries. Some notable omissions include the **Healthcare & MedTech, Renewables & Energy, and Aerospace & Defence** sectors.

These sectors can be characterised by their **resource-intensive manufacturing processes** and high dependence **on Critical Raw Materials (CRMs)**. However, the diverging focus between CRM and circularity strategies risks impeding **material recovery** and the development of **secondary raw material** supply chains.

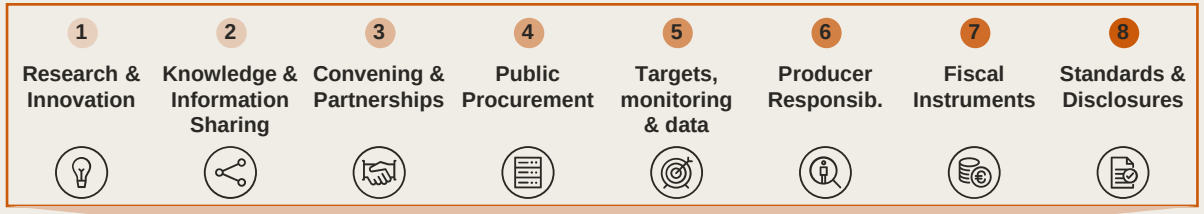
The matrix provides an indication of the maturity of policy and helps to assess how strategic levers have been applied across countries and geographies; using this framework, we've assessed the maturity of the levers included in this report and the research

	Emerging	Developing	Consolidating	Performing	Leading
Research & Innovation	Research and innovation programmes limited in scope and scale; no government strategy or funding for developing circularity technology.	Limited government funding made available for research and innovation programmes; lack of strategic direction set by government.	Targeted government investment in circularity research and innovation programmes in line with strategic priorities.	Government plays active role in research and innovation programmes by developing and funding research partnerships between public and private sector researchers, driven by strategic priorities.	Government actively supports the development of circularity technologies through from research to commercialisation; uses system of subsidies, grants and tax relief to enable this.
Knowledge and Information sharing	General public awareness campaigns on recycling and waste management; limited/no private sector support for knowledge platforms and information sharing.	Targeted public awareness campaigns on recycling/reuse; knowledge platforms developed with government support focused on waste reduction/recycling targets.	Awareness campaigns endorsing remanufacturing and reuse; knowledge sharing platforms supported by government to focus on value chain collaboration.	Awareness campaigns focused on sustainable production and consumption; knowledge platforms accessible and connecting private sector to encourage enhanced information sharing.	Awareness campaigns focused on fundamentally shifting how consumers interact with goods/services; knowledge platforms accessible and widely used.
Convening and partnerships	Limited partnerships, focused primarily on downstream.	Support for broader ecosystem and cross-sector partnerships focused on waste reduction and by-products.	Broader ecosystem and cross-sector partnerships focused on processing, resource efficiency and closing loops.	Ecosystem partnerships in place that successfully close the value chain loops.	Cross-sector partnerships commonplace across sectors to address material leakage in value chain; fully closed loop system.
Public Procurement	Government does not consider circularity criteria when procuring products and services.	Small number of government departments consider circularity criteria across a narrow scope of procured products and services.	Circularity criteria are considered in procurement process across a growing portion of government departments and regional administrations, but circular procurement still comprises a small portion of total volume.	Circularity criteria are considered in procurement procedures across most government departments and regional administrations, and circular procurement comprises a growing portion of total volume.	Circularity criteria is considered across all government departments and regional administrations; central government actively encourages the procurement of circular products and services wherever viable.
Targets, monitoring & data	Emergence of initial targets related to municipal waste management. Initial data information requirements from companies on waste management and recycling.	Emergence of recycling targets tied into emerging thinking on EPR. Data information requirements on waste reuse and by-product data alongside existing requirements.	Recycling and reuse targets set as standards in regulation; initial thinking on designing for reuse/recyclability and product standards. Data requirements move further up value chain, procurement and processing data to be reported. Data gaps identified to enable full sustainable supply chain transparency.	Sustainable design principles common; products not aligned to principles banned from market. Data gaps addressed, and through long-term trends, advanced ability to measure progress. Metrics adapted to be realistic and influence target-setting.	Targets focused on reducing scope 3 emissions domestically and internationally; waste reduction targets on track to zero waste produced. Full supply chain transparency (chain of accountability) for all critical supply chains both within and beyond borders.
Producer responsibility	Extended producer responsibility not included in regulation. Little/no responsibility for producers in contributing to end-of-life.	Initial policy thinking to implement EPR for specific categories with focus on recyclability; focus on covering full cost of recycling.	EPR system implemented for key product categories. Strong focus on recycling targets, and effective recycling system.	EPR system common and intrinsic to government policy. Focus is on using eco-modulation as an instrument to encourage reuse and design.	EPR integrated and used in all product categories necessary; eco-modulation/ recyclability standards commonplace.
Fiscal Instruments	**Disincentives**: Business and civil charges for improper waste disposal included but enforcement mechanism limited. **Incentives:** Research initiatives into waste reduction; limited financial support; primarily focused on disincentives (taxation and charges) for illegal activity.	**Disincentives**: Business and civil charges for improper recycling disposal; emergence of enforcement mechanism for waste disposal. **Incentives:** Emergence of subsidies to incentivise waste reduction coupled with disincentives; emergence of sustainable public procurement instruments.	**Disincentives**: Additional business charges based on recyclability and recycled content commonplace in most product categories. **Incentives:** Emergence of incentives to encourage upstream partnerships; integration of sustainable public procurement instruments into existing procurement policy.	**Disincentives**: While charges exist for recyclability, incentives and bans exist to ensure companies are designing for circularity. **Incentives:** Upstream partnerships incentivised and commonplace. Sustainability enshrined in public procurement framework/s.	**Disincentives**: Enforcement mechanism for not reaching prevention/dematerialisation charges as well as for non-closed loop/linear value chains. **Incentives:** Subsidies and support for circular value chains are robustly in place. Risks associated to linear value chains and stranded assets addressed.
Standards & Disclosures	Standards related to waste measurement based on waste reduction targets and sorting.	Standards and regulation focused on punitive measures with aim of reducing waste.	Regulation and standards banning environmentally harmful and/or single-use products from the market.	Regulation and standards effectively implemented to only allow for products designed for circularity to enter market.	Regulation and standards support scaling circular business models, highlighting critical risks in linear value chains.

For this analysis, the policy and regulatory landscape for circularity was broken-down into two subsets: strategic levers, and ecosystem enablers

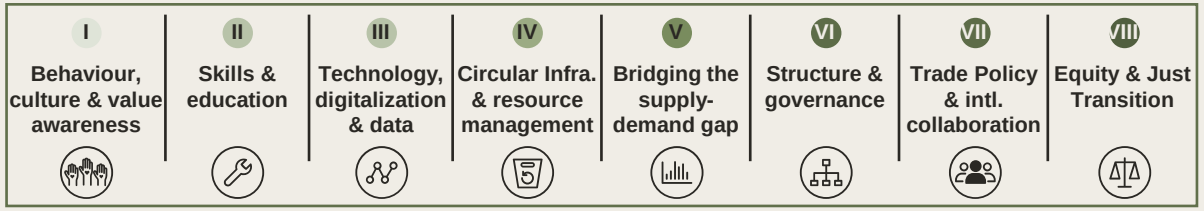
Strategic Levers

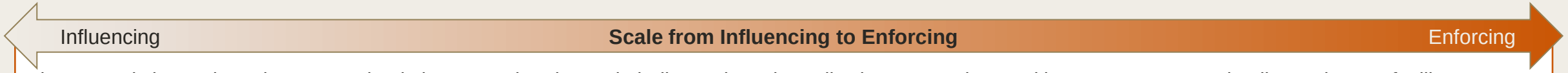
- ***Instruments*** used by government to drive targeted action across a country's circularity activities. They ***define ambition***, incentivise growth and set-out ***organisational obligations***
- Each lever has a ***varying level of impact*** on a country's circularity progression, but all are necessary, ***in some combination***, to shift away from linear consumption patterns
- **Deep-dive use cases** to illustrate strategic levers can be found from p. 42 to 50



Ecosystem Enablers

- Ecosystem enablers are the ***overarching systemic changes*** needed to accelerate the circular transition. They create an environment that underpins and ***supports the implementation of policy levers***
- Each enabler plays a key role in enacting ***system-wide change*** and are closely interlinked in achieving countries' ***long-term circularity objectives***
- **Deep-dive use cases** to illustrate enablers can be found from p. 51 to 59

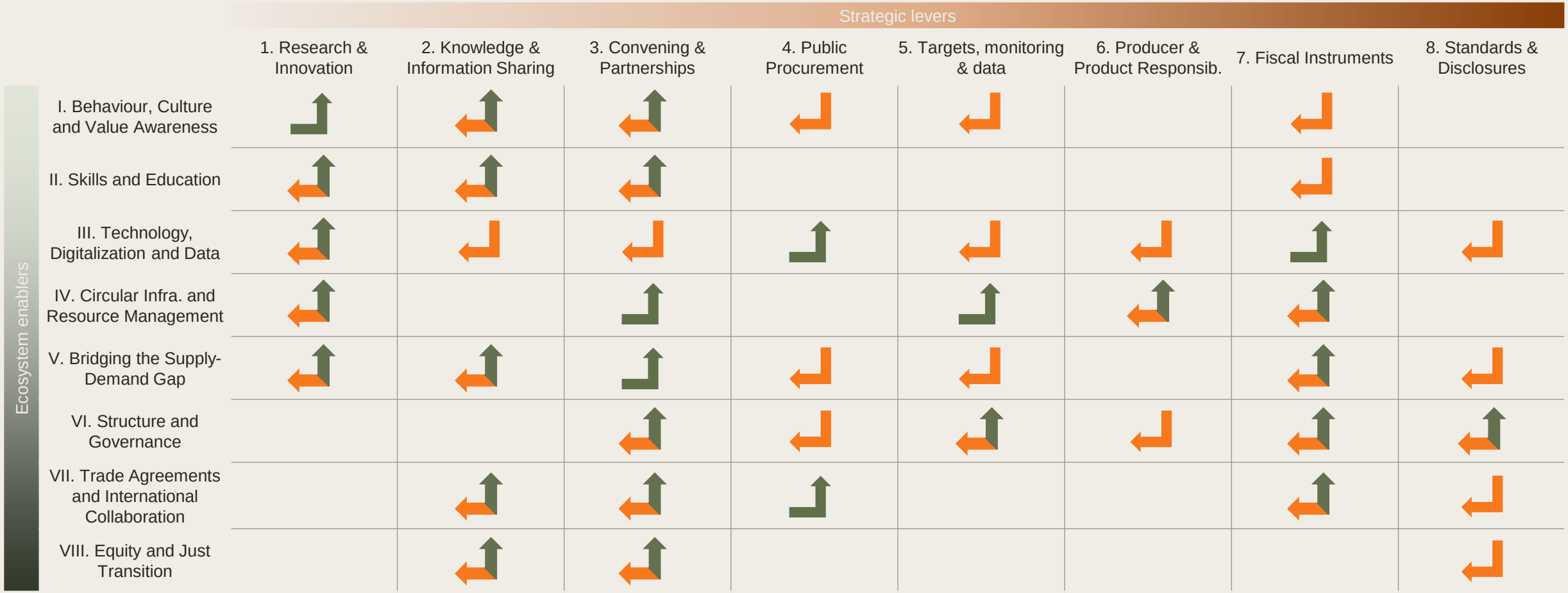




The strategic levers have been organised along a scale. The scale indicates how the policy levers may be used by governments and policy makers to facilitate changes in the behaviours and actions of both consumers and businesses. For example, fiscal instruments are "hard" economic policies which may be enforced by governments. These may include taxation on single-use plastic goods (impacting the behaviour of consumers), or subsidies for the use of non-virgin feedstock (impacting the operations of business). No lever alone will lead to change, thus a range of different levers should be used in different combinations.

The ecosystem enablers and strategic levers are cross-cutting and can mutually reinforce each other

The ecosystem enablers are cross-cutting and provide a framework within which strategic levers are most effectively implemented



Source: Deloitte & Circle Economy Consulting analysis based on case studies

To support the transition towards circularity, governments can use a combination of strategic levers as part of their strategies; regardless of where these sit on the horizontal scale, they are all critical to successfully move towards a circular economy

Strategic Lever

Influencing → Enforcing

1	2	3	4	5	6	7	8
Research & Innovation	**Knowledge & Information Sharing**	**Convening & Partnerships**	**Public Procurement**	**Targets, monitoring & data**	**Producer & Product Responsibility**	**Fiscal Instruments**	**Standards & Disclosures**
Supporting and funding research projects & programmes which accelerate advances in innovation and technology. Initiatives may include defining a long-term innovation agenda, launching circular awards.	Facilitating and encouraging the transfer and sharing of knowledge. Strategies include building voluntary data collection systems to be used by private sector, knowledge-sharing platforms or national registries to map material flows.	Facilitating (sub)national and/or (cross)sectoral collaboration; and industrial symbiosis often using place-based approaches. Working towards resource efficiency across at city, regional, industrial park, value chain or sector-level.	Incorporating and prioritising circular principles and criteria in government procurement processes (e.g. product-as-a-service model, considering durability, repairability and recyclability) as well as earlier in the decision-making process for maximum asset value and life.	Setting ambitions for business, encouraging actors to monitor progress, and introducing reporting requirements for businesses – with a focus on interoperability – to hold them accountable against circular ambitions.	Schemes to hold businesses that manufacture, import and sell these products are responsible for end-of-life environmental impact. Through utilising eco-modulation, also impacting the start of the value chain.	Fiscal instruments encompass all fiscal policy instruments (e.g. tariffs, taxation, subsidies, funds, rebates) which can be leveraged by governments to influence the behaviour consumers and further support the circularity business case.	Laws, rules, bans, restrictions, regulatory requirements or orders applicable to the manufacturing, marketing, sale, reimbursement and/or pricing of any products or any businesses operating in said market.

Adapted from Chatham House and Unido (2024): National Circular Economy Roadmaps: A global stocktake for 2024

Complementarily, there are eight enablers overall, supporting the circular transition

Enabler	I **Behaviour, Culture and Value Awareness**	II **Skills and Education**	III **Technology, Digitalization and Data**	IV **Circular Infra. and Resource Management**	V **Bridging the Supply-Demand Gap**	VI **Structure and Governance**	VII **Trade Agreements and International Collaboration**	VIII **Equity and Just Transition**
Definition	Supporting the cultural and behavioural transition to a circular economy. This can consist of awareness development and influencing consumption habits through consumer campaigns and guaranteeing consumer rights, such as the right to repair or protection from hazardous chemicals.	Enabling workers and end-users to have the right level of knowledge and to support the circular transition is a key requirement to assure that this transition can take place. For government, this includes developing new training practices for workers or creating the right channels for end-users to spread information.	Supporting the creation of the right data and technological landscape can help provide all actors of the value chain with suitable information to make data-driven decision-making in line with circular practices. New data standards, rules for interoperability, development of new platform are possible examples of the role that governments can take to drive this forward.	Investing and developing the infrastructure necessary for circular economy across the value chain. This includes interventions at design, mid-stream of end-of-life phases including development of waste management and repair facilities, enhancing reverse logistics, collection, sorting, recycling, recovery and reintegrating materials at the start of the value chain, to close loops.	Interventions to account for positive externalities that increase the demand for non-virgin materials, contributing to the value proposition of business and increasing economies of scale; subsequently driving down costs of circular models.	Putting in place necessary governance mechanisms to continuously monitor and evaluate progress with respect to roadmap/strategy objectives and to hold action owners accountable, within and outside government, as agreed in overarching roadmap/strategy. Publishing & developing sector-specific CE transition action plans with a broad range of stakeholders.	Putting in place measures to support collaboration cross international government and private sector stakeholders. Incorporating circular principles in existing trade infrastructure and measures. Setting up necessary monitoring measures to track the national transition to a circular economy (for example material flow accounts).	Strengthening the rights and recognising the value of workers performing necessary circular activities (such as informal waste pickers, repair specialists, building decommissioning workers and members of the informal economy). Ensuring the transition to a circular economy supports the inclusion across industries and geographies and doesn't neglect sections

Adapted from Chatham House and Unido (2024): National Circular Economy Roadmaps: A global stocktake for 2024

In summary, GCP considerations from a policy perspective cover eight strategic levers, that applied in a combined approach can drive eight circular enablers

Strategic levers to be used in a combined approach…

Research & Innovation	Investment in, and support for, research and innovation provides business with the **tools** to **future-proof** their operations and **secure a circular future**, but should be considered in conjunction with other levers
Knowledge & information sharing	Enabling knowledge and information sharing in different markets can play a **fundamental role in enhancing cross-value chain collaboration**
Convening & partnerships	Enhancing **collaboration across sub-national institutions, public-private partnerships, sector** and **industrial symbiosis** is an important tool to further the transition
Public procurement	Government can use public procurement to **drive** and **accelerate the transition**; while linking **different environmental strategies** and **reducing** the **cost** to tender to business of circular initiatives
Targets, monitoring & data	Targets, monitoring and data requirements, despite current fragmented nature, are key to **holding economic actors responsible**; however, this is contingent on the **digital transition**
Producer and Product responsibility	Extended Producer Responsibility (EPR) and Deposit Return Schemes can help improve **waste management** and cover **end-of-life costs**, but there is further opportunity to increase reuse
Fiscal instruments	Taxation, Charges & Levies are key tools to **disincentivise linear models but** rely on enforcement mechanisms. Conversely, subsidies & incentives can **embed circular models** and **encourage circular consumer behaviour**
Standards & disclosures	Standards and disclosures are used to **embed eco-design principles** in manufacturing and encourage **transparent reporting**; but could be applied more comprehensively across the value chain

… to drive the below enablers as outcome

Behaviour, Culture and Value Awareness	Moving away from dependency on linear models requires a **behaviours change** from the actors of the value chain, as well as raise **awareness around good circular practices**
Skills and Education	Finding the **right channels** and **assuring inclusiveness** in access to information and training needs to be considered from the design of the educational programs
Technology, Digitalization and Data	Data is an enabler for all the strategic levers, however, to benefit from its full potential **specific infrastructures** and **supporting ecosystem** need to be developed
Circular Infra. and Resource Management	Investment in infrastructure and waste management systems are a core driver of circularity capacity, particularly in driving **significant impact in a short period** of time; and a **key aspect of the public-private collaboration**
Bridging the Supply-Demand Gap	The **supply-demand gap is symptomatic of linear production** and **consumption habits**, but with government intervention, circular design and secondary raw materials can help to address this
Structure and Governance	Circular strategy requires **cross-governmental policy development** and **governance** and should consider **sector-specific strategies** interaction with decarbonisation and economic strategy
Trade Agreements & Int. Collaboration	International collaboration is an important tool to facilitate the transition to a circular economy. Inconsistent **circular taxonomies** are presenting **challenges** in designing an economically viable **circular trade model**
Equity and Just Transition	The circular transition presents a **series of opportunities for the people and communities involved**; and this lens can generate significant buy-in for the transition

Investment in, and support for, research and innovation is key to the circular transition, as this provides scope to future-proof business operations; scaling innovation will be contingent on other levers to action

Case Study #1 – Investment fund as part of the Chilean Circular Economy Roadmap

Embedding sectoral level support initiatives as a core pillar of the roadmap to *"generate new circular business models… and focus investment and research and development (R&D) efforts towards innovative circular projects".*[1]

Emerging	Developing	Consolidating	Performing	Leading

Initiatives should be well considered in combination with other segments of the roadmap and broader government policy, including considering the social impacts of the initiatives such as job creation.

Case Study #2 – Arizona State University & City of Phoenix

The city of Phoenix has partnered with Arizona State university to support start-ups with innovative circular solutions. As of June 2020- the businesses who have made use of the scheme have collectively filed for 14 patents, launching 25 products.[2]

Emerging	Developing	Consolidating	Performing	Leading

Support for innovation is often a combination of financial initiatives and logistical and operational support (which in this case was offered through the partnership with the University).

Case Study #3 – Environmental Funding Program in Portugal

The Environmental Funding Program in Portugal combines all the environmental related taxes into one fund, including the sale of CO_2 permits in EU ETS. Today is over €1 billion fund (it started with €300 million) and it is run by a set of principles and areas of investment, which include circular economy. It was fundamental to foster circular economy at the level of local communities.[3]

Emerging	Developing	Consolidating	Performing	Leading

Providing the right level of financing and investment, specifically at a level that is easily accessible to local communities and SMEs is key to support the circular transition. Combining this financing with a tax to levy the funds is a suitable approach to push for more environmentally friendly behaviours.

Key takeaways

Considerations for GCP

1. Research and innovation support is a lever which accelerates the transition. While **many funding instruments** (government funding, financial sector policy, etc.) do **exist**, **access** to the funding is **difficult for those who may be constrained for resources** and if not made accessible can **impede an equitable transition**.
2. Businesses that apply for grants and funding often need to produce **verifiable and detailed business cases** prior to receiving support, which may **not always** be **available** when accelerating the transition. There is limited room for testing and evaluating circular approaches.
3. Research and innovation policies across government are **not necessarily aligned** to maximise impact. Linking broader government policies with circularity as an enabler may increase availability and access to funds.

Mapping to Enablers

Source: (1) EMF(2021) Chile's Circular Economy Roadmap; (2) ASU (2020) Resource Innovation and Solutions Network; (3) Republic Portugal (2024) Environmental Funding Program in Portugal

Return to strategic levers home

As Governments continue to develop circularity strategies, enabling knowledge and information sharing in different markets can play a fundamental role in enhancing cross-value chain collaboration

Case Study #1 – The Holland Circular Hotspot

Initially funded by the Dutch Government, Holland Circular Hotspot was set up to connect business, governments and knowledge institutions to create circular opportunities for Dutch business internationally, stimulate cooperation and provide international visibility of Dutch CE innovation/best practices.[1]

Emerging	Developing	Consolidating	Performing	Leading

Connecting leading academics to the private sector and ensuring a transparent movement of information is vital to ensure that the transition moves at pace. Further, sharing learnings from economies who are further advanced in their transition accelerates the transition globally as these learnings are applied in other regions.

Case Study #2 – Circular South Africa

Set up in collaboration with ACEN and the Dutch Government, created based on the Holland Circular Hotspot model to stimulate collaboration between government, business, knowledge institutions and society in South Africa. Utilises knowledge-sharing, partnerships to facilitate the transition. Further "matchmaker" function to bridge the gap between public and private organisations.[2]

Emerging	Developing	Consolidating	Performing	Leading

There is a need in emerging economies to bring together local actors with government to inform government policy and to create forum that stimulate value chain collaboration.

Case Study #3 – Nordic Circular Hotspot

The Nordic Circular Hotspot, funded by the Nordic Innovation (organization part of Nordic Council of Ministers), is a network and facilitator that accelerates the transition to a sustainable and circular economy in the Nordics[3]. The focuses on activities such as knowledge sharing, match-making and collaboration.

Emerging	Developing	Consolidating	Performing	Leading

Hubs and hotspots do not necessarily need to be done on a national level. In many cases, there is an emergence of regional hubs that drive circularity.

Considerations for GCP

1. There is a **need** to create room for companies to **share data**, despite **IP** challenges. Using data sharing platforms as a lever in tandem with other strategic levers, Targets, Data and Monitoring, and/or Producer Responsibility Schemes, can further support sharing of data.
2. Exploring knowledge and information models that support **cross-value chain collaboration internationally** would be more fit-for-purpose, given the complexity of global supply chains.
3. Knowledge sharing schemes should be used to **engage communities** and be **inclusive** of all stakeholders, leveraging both a **top-down** (government, policy makers, academics etc.) and **bottom-up (community led)** approach.

Key takeaways

Mapping to Enablers

Source: (1) Holland Circular Hotspot (2024); (2) Circular South Africa (2024); (3) Nordic Circular Hotspot (2024)

Return to strategic levers home

Enhancing collaboration across sub-national institutions, public-private partnerships (PPPs) and industrial symbiosis is key to furthering the objectives of the circular economy

Case Study #1 – Be Circular

Born out of the Brussels Regional Programme for a Circular Economy, *Be Circular* convenes local and national government with private sector organisations to provide funding, share information and upskill economic operators.[1]

Emerging | Developing | **Consolidating** | Performing | Leading

The initiative works across different levels of government, including 3 Ministries and 4 regional administrative bodies, and consults a diverse range of stakeholders. While this can create challenges in building consensus, it can also render the most impactful results and achieve the greatest level of engagement. For example, 1,300 businesses were engaged through the programme in 2018.

Case Study #2 – Circular & Fair ICT Pact (CFIT Pact)

The CFIT Pact is a partnership between public and private buyers of ICT.[2] It aims to leverage its collective procurement power to accelerate circularity and fairness in the ICT sector, focusing on procurement criteria, guidance and knowledge-sharing.

Emerging | Developing | **Consolidating** | Performing | Leading

Collective procurement policies can help signal the scale of circular demand in the market and encourage the development of more circular product lines. Without these clear market signals, suppliers may lack the confidence to become a first-mover, stalling change.

Case Study #3 – Rizhao eco-industrial park (REDA)

Companies operating at REDA use industrial symbiosis to exchange, recycle and recover resources; optimising the use of material outflows and exploiting available by-products for secondary uses.[3]

Emerging | Developing | Consolidating | **Performing** | Leading

Industrial symbiosis has the potential to deliver significant material savings to manufacturers when applied at scale. By reforming how companies view their waste streams, and recognising the value of material outflows, industrial symbiosis can help utilise circular feedstock for new applications. For example, in 2011, a REDA paper factory provided 71,446 tons of white sludge as a substitute for calcium carbonate in nearby citric acid and cement factories.

Considerations for GCP

1. Effective partnerships work in tandem with other levers that encourage actors in supply chains or industry groups to **set targets** for to **provide cover** and **set direction.**
2. The success of partnerships is determined by the **ambition** and **capability** of **voluntary participants,** which could limit reach and scope. **Further financial incentives** may therefore be required to increase the **appeal and traction** of partnerships.
3. Industrial symbiosis is more efficient when manufacturers **organise around** (place-based) **designated hubs** and **maintain direct dialogue** on recovery, recycling and repurposing resource outflows.

Key takeaways

Mapping to Enablers

Source: (1) BeCircular (2024); (2) Circular & Fair ICT Pact (2024); (3) Childress, L. (2017). Lessons from China's industrial symbiosis leadership, GreenBiz.

Return to strategic levers home

Public procurement is a key tool that shifts the role of Government from being the policymaker to the buyer; leveraging this tool can be instrumental in driving the circular transition provided the right incentives are used and processes developed with circularity in mind

Case Study #1 – Dutch CO2 Performance Ladder

The Dutch Performance Ladder is a scheme which certifies companies' climate action.[1] The Ladder has been used as part of one in ten European tenders in the country. The CO2 Performance Ladder certification has been successful in accelerating emissions reductions. To enhance the experience for business, the Dutch Government has additionally developed a set of practical guides for companies. These are user-friendly tools to enhance climate and environmental standards in procurement.

Emerging | Developing | Consolidating | **Performing** | Leading

The structure of the scheme may be used to assess companies' targets and CE ambition and embed CE in the process of public procurement. Aligning the ladder across several geographies would maximise the schemes impact, especially for multinational businesses and reduce the fragmentation seen in other schemes such as EPR.

Case Study #2 – Sale and Buy-Back Fragmentation France

When issuing tenders for public contracts, the French government split the sale and buy-back into two separate transactions. This increases the cost for businesses and impacts the efficiency of EOL treatment.[2]

Emerging | **Developing** | Consolidating | Performing | Leading

Splitting the sale and buy-back increases cost to businesses and potentially disincentivises applications. Further, inefficiencies may be introduced in the supply chain as businesses may be disposing of products which are not familiar to them.

Case Study #3 – Toronto Strategies to Stimulate a Transition

Toronto implemented the Circular Economy Procurement Implementation Plan and Framework, aiming to leverage the purchase power of the city to make more sustainable consumption choices.[3] The framework aims to *"maximise the use of raw materials… maximise the useful life of materials… (and) minimise waste".*[4]

Emerging | Developing | **Consolidating** | Performing | Leading

Governments have extensive purchase power and can use this to impact the operational practises of businesses, incentivising them to make choices which nudge them towards circular models. Prioritising such considerations not only impacts material use, but ultimately also considers the impact on the environment (nature, biodiversity, and GHG emissions).

Considerations for GCP

1. There is a significant **discrepancy across public procurement policies**, from both a circular and a climate risk perspective.
2. Considering **procurement processes more holistically in government** could allow for **value-maximisation** rather than going to market to procure a product too early or under the wrong pretences.
3. Considering various circular approaches in procurement is an area that requires further development. Currently, considering options like **product-as-a-service** are challenging for government based on current operating models.
4. Public procurement is a tool which governments can use to **link** progress on GHG emissions, biodiversity and resource strategies into **their overarching goals**. Transforming governments from policy-setters to **actors in a value chain is a key part of this.**

Key takeaways

Mapping to Enablers

Behaviour
Skills & Ed.
Tech & Data
Infrastruct.
Supp.-Dem
Structure
Trade & Coll
Equity

Source: (1) IPAC (2022) The Netherlands' CO2 Performance Ladder; (2) Stakeholder feedback (April/May 2024); (3) EMF (2024) Circular economy procurement plan and framework; (4) Toronto Government (2016) Circular Economy Procurement Implementation Plan and Framework

Targets, monitoring and data requirements are fragmented, but essential to holding economic actors across the market responsible; however, the digital transition is a core enabler for this

Case Study #1 – Chile Circular Economy Roadmap

Chile's roadmap sets out a vision and shared action plan to 2040, including the headline target to increase material productivity by 60%.[1] The plan sets a number of intermediate and long-term goals, with an action plan updated every ten years.

Emerging | Developing | **Consolidating** | Performing | Leading

Chile use seven intermediate and long-term goals across different facets of the transition (creating jobs, reducing waste, increasing recycling and material productivity and recovering illegal dump sites) to ensure a comprehensive strategy. 27 initiatives were created, with actions and timescales to monitor and achieve these targets. A dedicated programme was set up to monitor roadmap implementation.

Case Study #2 – Battery Pass, Germany

Digital Product Passports (DPP) are used to carry product data.[2] While no governments have implemented DPPs yet, the German government is partially funding Battery Pass, a consortium to advance implementation of the EU battery passport.

Emerging | Developing | Consolidating | **Performing** | Leading

DPPs have not been brought into legislation yet but will be a core part of the transition. While companies are focused on data for DPPs, specific category requirements may differ across regulation. DPPs require cross-value chain collaboration. Introduction of DDPs at the EU level will change the product data landscape, and potentially international harmonisation.

Case Study #3 – SA National Waste Management Plan

"*The SA government has recently approved the National Waste Management Plan for 2020. The goal of the National Waste Management Policy 2020 is to support the waste hierarchy and the ideals of the circular economy, thus obtaining both socio-economic gains and reducing harmful environmental impacts*".[3]

Emerging | **Developing** | Consolidating | Performing | Leading

Establishing the development of suitable waste-definition and circularity targets is a crucial step to help further improve the circular abilities of a country. Connecting the environmental side of circular to its social side is a valuable approach to drive a fair circular transition

Considerations for GCP

1. **Disaggregated data** spanning a variety of industries, timeframes and standards, are key **bottlenecks for companies investing and reporting**; **standardising** and **aligning** for interoperability from a government lens could be an important lever to circularity progress.
2. **Ambitious targets set by Government** can drive the circular transition and support a systemic transition focused on scaling to high performance, addressing inefficiency of time and resources.
3. **Product data** is critical for circularity on a broad scale and a core consideration for GCP. It leads to **more informed consumers** and more specific instructions around recycling, reuse, remanufacture, **driving behaviour change**.

Key takeaways

Mapping to Enablers

Source: (1) Chile (2021) Roadmap For A Circular Chile By 2040; (2) Battery Pass (2020) A consortium to advance the implementation of the EU Battery Passport; (3) Hoosain, M.S., Paul, B.S., Doorsamy, W. et al. Comparing South Africa's Sustainability and Circular Economic Roadmap to The Rest of the World.

Return to strategic levers home

Extended Producer Responsibility (EPR) and Deposit Return Schemes can help improve waste management and cover EoL costs, but there is further opportunity to increase reuse and drive companies to perform better higher up the R-Ladder

Case Study #1 – France EPR scheme

France has implemented 17 categories of EPR scheme, including packaging, textiles and furniture, with plans to implement a further four from 2025.[1,2] The packaging scheme uses eco-modulation to encourage sustainable product design amongst producers.

Emerging | Developing | **Consolidating** | Performing | Leading

Eco-modulation has been an effective mechanism for improving circular design under the packaging scheme, namely through increased recyclability and use of recycled content. However, it has had little impact on total packaging volume, with some waste streams even increasing between 2011-2020. For example, annual plastic waste per capita rose from 31.2kg to 35.7kg per annum during this period.

Case Study #2 – Taiwan EPR system

Taiwan's EPR system is designed around the "4-in-1 recycling programme".[3] Manufacturers and importers pay taxes into the Taiwan Recycling Fund, managed by the Taiwanese Environmental Protection Agency, rather than a private PRO.

Emerging | Developing | Consolidating | **Performing** | Leading

Taiwan's EPR successes are two-fold:

1) Firstly, they have been successful in uplifting collection and recycling rates, reducing dependence on landfill as a result;
2) Secondly, they have cut daily per capita waste, reducing it from 1.14kg in 1998 to under 0.4kg in 2015. This reduction is partially attributable to the Pay As You Throw (PAYT) scheme, which is only used in limited instances across Europe.

Case Study #3 – Belgium packaging EPR scheme

Belgium's packaging EPR scheme uses "Green Dot" fees to accurately reflect EoL waste management costs for different packaging types.[4] Non-recyclable waste streams are charged at far higher rates to disincentivise their use and drive circularity.

Emerging | Developing | **Consolidating** | Performing | Leading

As of 2024, Belgium increased EPR fees for non-recyclable packaging to $4,033/tonne. This sent a strong message to producers that only circular packaging types should be used when marketing products. For consumers, similar drivers of behavioural change can be seen through DRS for glass bottles, which encourages continual reuse through a closed-loop system.

Considerations for GCP

1. While EPR schemes have been successful at increasing product recovery and recyclability, most have been unable to significantly improve **reuse rates** or change **consumption habits.** There should be greater emphasis on how these can be addressed to maximise policy impact.
2. There are **discrepancies** in EPR schemes in different geographies resulting in reporting and compliance challenges for businesses operating in multiple jurisdictions.
3. EPR fees must be set at a sufficient level to have a **meaningful impact** on **producer behaviour.** Where fees are set too low, producers may choose to **absorb or pass-on costs,** rather than redesign products.
4. To achieve buy-in across an EPR scheme, policymakers should develop a **multi-stakeholder model incl. the private and where necessary the informal sector,** accounting for all stakeholder groups during scheme design.

Key takeaways

Mapping to Enablers

Source: (1) Stakeholder feedback (April/May 2024); (2) EMF (2021) France's Anti waste and Circular Economy Law: eliminating waste and promoting social inclusion ; (3) Rapid Transition Alliance (2019) Taiwan's Transition – from Garbage Island to Recycling Leader; (4) Fost Plus (2024) Green Dot Rates

Return to strategic levers home

Taxation, Charges & Levies are key tools used by governments to disincentivise inefficient resource use and excess waste creation, but rely on enforcement mechanisms

Case Study #1 – UK Plastic Packaging Tax (PPT)

The tax is payable by manufacturers and importers of plastic packaging which contain less than 30% recycled content.[1] It is designed to provide an economic incentive for the use of recycled plastic and to stimulate secondary raw materials markets. As of April 2024, the tax stood at £217.85 per tonne for businesses exceeding a 10-tonne threshold who do not meet the 30% target.

Emerging | Developing | **Consolidating** | Performing | Leading

The UK government outlined an *Evaluation Plan* to appraise the performance of the PPT using quantitative and qualitative analysis. The *Evaluation Plan* will consult government policy experts, industry representatives and businesses impacted by PPT to get a full picture of its impact and identify any necessary reforms.

Case Study #2 – Ghana E-waste Eco-levy

All waste electrical and electronic equipment exported to Ghana must be registered with Ghanian customs.[2] Suppliers must pay an Eco-levy for customs to release the shipment, with proceeds financing formal e-waste management in-country.

Emerging | **Developing** | Consolidating | Performing | Leading

Legal loopholes and limited enforcement mean that illegal waste imports are still prevalent in Ghana. Suppliers are able to falsify shipment consignments to avoid contributing to the Eco-levy, and the recycling ecosystem lacks the infrastructure necessary to sustainably manage all types of e-waste.

Case Study #3 – Colombia plastic bag tax

The tax is applied to all single-use plastic bags to encourage the uptake of reusable alternatives.[3,4] The tax is structured to incrementally increase over time, strengthening the deterrent against the use of plastic bags.

Emerging | Developing | Consolidating | **Performing** | Leading

Within the first 18 months of the tax, plastic bag use in supermarkets declined by 54%. Building on this, the Colombian government has been consulting on a broader single-use plastics tax, with packaging, containers and wrapping set to be in scope.

Considerations for GCP

1. Revenues raised through circularity taxes, charges and levies (e.g. taxing virgin material), should be **ringfenced** and **invested** in **circularity initiatives** and **infrastructure** rather than generic government budget or used to reduce tax burden on circular behaviours (e.g. reduced taxes for labour to repair)
2. The success of taxation, charges and levies depends on the strength of **enforcement mechanisms.** While they may exist, governments are approaching these differently which may result in some businesses having the upper hand.
3. Tax thresholds and rates could be **adjusted over time** to have a bigger impact, adapting to market conditions and encouraging behavioural change.

Key takeaways

Mapping to Enablers

Behaviour
Skills & Ed.
Tech & Data
Infrastruct.
Supp.-Dem
Structure
Trade & Coll
Equity

Source: (1) GOV.UK (2023) Plastic Packaging Tax: policy evaluation plan; (2) Ghana Business News (2018) Ghana to start e-waste tax in November; (3) United Nations Environment Programme (2017) Colombia's plastic bag tax: A concrete step towards fighting marine litter in the Caribbean; (4) OECD (2017) Waste Management and the Circular Economy in Selected OECD Countries Evidence from Environmental Performance Reviews

Return to strategic levers home

Subsidies & Incentives are being used across several markets to promote businesses to embed circular operational models and consumers to choose circular products

Case Study #1 – The Dutch Government's National Circular Economy Programme, 2023 – 2030

The Dutch government uses Stimulus measures, such as subsidies and vouchers, as a key instrument in this programme to encourage the adoption of more circular practices, including through research projects, improving accessibility, and scaling solutions.[1]

Emerging | Developing | Consolidating | **Performing** | Leading

There are two layers to the stimulus provisions:

1) General measures for a circular economy, i.e. those which help reduce, substitute and recycle raw materials, extend product lifetime, and support wider climate goals
2) Measures for priority product value chains, i.e. those which target specific products and processes in high-impact areas, such as plastics, textiles and construction materials

Case Study #2 – Government of Canada funding scheme

The Canadian government introduced a funding scheme to invest in circular economy projects, with a focus on plastics products and textiles.[2] Projects are designed to identify opportunities, facilitate collaboration, and encourage adoption of circular solutions.

Emerging | Developing | **Consolidating** | Performing | Leading

Subsidies provided under this scheme support circularity across the different stages of the plastics value chain, from data collection and sharing, through to design criteria, recycling and reuse. This will help deliver more comprehensive insights for the development of circularity solutions than a multi-sector approach could have.

Case Study #3 – Brazilian Development Bank

The Brazilian Development Bank (BNDES) offers financing for sustainable and circular projects. Those includes funds for environmental projects in the plastic sector or funds for environmental sanitation.[3]

Emerging | Developing | **Consolidating** | Performing | Leading

Providing funds for circular projects can help organizations mitigate the initial risks associated with the transition. However, the access to those funds needs to be inclusive and to consider smaller organizations. This can be done by providing specific assistance to those organizations to fill for a claim.[4]

Considerations for GCP

1. Significant **gap for incentives** based on the country's roadmap that needs to be addressed to provide necessary funds to circularity. Government needs to think of circularity as an opportunity for climate and environmental actions.
2. It is important to consider any **unintended consequences** of subsidies, including how existing incentives could conflict with new support schemes.
3. To capitalise on the subsidy **"multiplier effect"**, incentives could be prioritised in strategic growth areas, which are likely to vary from country-to-country.

Key takeaways

Mapping to Enablers

Source: (1) Government of the Netherlands (2023) National Circular Economy Programme 2023-2030 | Report | Government.nl; (2) Government of Canada (2018) Recipients of the grants and contributions funding for advancing a circular economy for plastics in Canada; (3) Brazilian Development Bank (2024) Support for Social and Environmental Projects; (4) Stakeholder feedback (April/May 2024)

Return to strategic levers home

Standards and disclosures are used to embed eco-design principles in manufacturing and encourage transparent reporting; but could be applied more comprehensively across the value chain

Case Study #1 –Indian Battery Regulation

India's battery regulation mandates a specific percentage (for example, 50% lithium recovery from waste batteries by end of 2027) of recycled, domestically sourced content. The policy looks to not only to embed eco-design principles in the early stages of product development but also to stimulate a market for recycled materials domestically.[1]

Emerging | Developing | Consolidating | **Performing** | Leading

Such directives support both the supply and demand side of the supply chain domestically, especially in India where the volume of recycled materials in the Indian market is high. Further, batteries are a high-impact sector and thus addressing it first is more impactful on the economy as a whole.

Case Study #2 – Brazilian National Circular Economy Strategy

A National Circular Economy Strategy was approved at the federal level in Brazil to promote the transition from the current linear model to the circular economy and combine efforts from all actors (government, private sector, etc).[2,3] The focus spans from innovation, to financial instruments, and to involvement of workers. An implementation roadmap from this strategy is needed.

Emerging | Developing | Consolidating | **Performing** | Leading

The design of the law considers all actors in the supply chain and thus all stages of the product life cycle, from design to manufacture, through to the EOL phase. It also considers the role of enablers including but not limited to the workforce, innovation.

Case Study #3 – French eco-labelling standards

The French eco-labelling standards for producers requires all producers to be able to provide free-of-charge information to the consumer across a variety of metrics. Increasing focus is being placed on the information provided to consumers.[4]

Emerging | Developing | Consolidating | **Performing** | Leading

Several geographies have already announced or implemented labelling policies which aim to increase both transparency and accountability. Data points which are needed to be collected, stored and disclosed as part of DPP schemes and labelling policy should be **holistically considered** as part of standard eco-design principles.

Considerations for GCP

1. The **growing volume of standards** is **overwhelming** for business since there is **fragmentation** both nationally and globally.
2. International collaboration is needed to bridge the supply and demand gap and make recovered and **secondary materials** more readily **available** in **markets** where they are **needed**.
3. Governments should better consider the **cost implications** of design principles and standards for companies, particularly for **SMEs**, and **corporations** operating across **jurisdictions, aiming to comply with diverging standards.** Regulation is targeted at **high-impact sectors** before being applied to low-volume or low-impact sectors. While this can lead to important gains, it could lead to a **lack** of **level playing field** in products and services and potentially, higher costs for consumers.

Key takeaways

Mapping to Enablers

Source: (1) The BATT4EU Partnership (2024); (2) Brazilian government (2024) O que é a Estratégia Nacional de Economia Circular? ; (3) IEA 50 (2023) Brazilian National Policy on Solid Waste; (4) French Government (2024) Circular Economy Roadmap of France - 50 measures for a 100% circular economy

Return to strategic levers home

Changing consumption behaviour and habits of consumers is a core enabler, and dependency, of the circular transition; and can be effected through levers such as knowledge and information sharing

Case Study #1 –Zero Waste Island Greece

Tilos, a small Greek Island closed its last landfill in 2023, becoming the world's first zero waste island. The initiatives on Tilos first focused on setting up an information centre in the port for residents. Each household was then given the needed supplies to enable to sort refuse appropriately. The correct infrastructure (digital and otherwise) was then introduced.[1]

The initiative focused first on getting buy-in from residents on the island, presenting the opportunities for both society and the ecosystem on the island. Further, providing all the needed tools to operate the scheme across the island reduces the social impact on residents.

Case Study #2 – Sustainable Circular Housing Ecuador

Circa three million new tires are sold in Ecuador each year. Initiatives promoted by the government have advocated for second life uses of tire materials in for example the construction of seismically resistant structural elements. 70% of the housing sector in the country is informal.[2]

Prioritising solutions which are already available in a region is key to maximising impact. In this case, repurposing tires in this manner increases the access that society has to housing. Tires are readily available and thus cheap and easy to replace and refurbish.

Case Study #3 – Embedding Culture in the Transition Plan of Curaçao

The government of Curaçao has set out its ambition to apply a doughnut model to the economy. A key initiative includes the collection and sharing of information. In addition to traditional methods, a total of 10 workshops were held in neighbourhoods across Curaçao. During these workshops, the local community voiced ideas on a circular future, including on education, training and sustainable employment.[3]

In addition to traditional data sharing methods (hosted online or through the distribution of literature etc.), community engagement is key for a sustainable long-term strategy and ultimately, a just transition for the community.

Key takeaways

Considerations for GCP

1. The transition will require core changes to **consumers** lifestyles and **business operations**. Ensuring that **data** is available to inform decisions (e.g. on true pricing and value) can provide better understanding and acceptance for these changes.
2. When considering waste collection policies, ensuring robust mechanisms for financing the transition (e.g. EPR and household waste fees) should cover both opex and capex of high performing systems, whilst generating a demand for recycled materials.
3. Circular solutions will **vary from region to region** and have different starting points based on the domestic situation in the country (e.g. build countries vs shift countries).[4] Thus, investment in research, information sharing and partnerships, as well as financial mechanisms need to be **inclusive and region or sector-specific** to tackle taboos, educate consumers and stimulate circular business models.
4. Considering the way in which **circularity engages** with **social** value and other social issues (e.g. housing) is a key enabler and accelerator.

Mapping to Levers

- Research
- Sharing
- Partnership
- Procurem.
- Targets
- Prod. Resp.
- Fiscal instr.
- Disclosures

Source: (1) Positive.News (2023) The world's first zero waste island; (2) Cecchin, Andrea & Davis, Michael Maks & Lamour, Mathieu & Jacome Polit, David. (2016). End-of-life tires management in Ecuador: an opportunity for a sustainable local development. 10.13140/RG.2.2.33344.33283.; (3) Curaçao (2023) Curaçao Doughnut Economy: A new compass for economic prosperity ;(4) CGR (2023)

Return to enablers home

Providing workers and end-users with the right circular knowledge, in an inclusive and holistic manner, is vital to assure that the circular transition can happen

Case Study #1 – LoCAL-ACE Ghana

The LoCAL-ACE initiative seeks to advance circular economies and climate smart agricultural approaches and is part of the UN Capital Development Fund.[1] One of their recent program focused on providing officials from Ghana with the necessarily tools to address knowledge gaps on circularity practices in agriculture, program that was funded by Norway.

Understanding who are pillars of community to advance knowledge sharing is key to help spread circular practices. Finding the right channels to help share the message in informal economies could help make circularity a part of the daily practices of communities.

Case Study #2 – Sustainable Jobs Training Fund Canada

The Canadian government in opening new funds to help for the training of jobs in the low-carbon economy to help drive the transition. “These new funding streams will support tens of thousands of workers across the country with a range of training projects to upgrade or gain new skills for jobs in the low-carbon economy”. [2]

Developing suitable skills to help for the transition will require fundings to help train the current workforce. This is an opportunity to create new jobs as well. Many funds are focusing on sustainability as an end goal, and a circular economy should show how it can enable a sustainable future

Case Study #3 – Programa Empleaverde (Green Jobs Programme) Spain

“The Programa Empleaverde (Green Jobs Programme) was one of the earliest programmes that promoted the provision of green skills in Spain. Co-funded by the European Social Fund (ESF), the goal of the initiative was to increase the provision of skills for green jobs to promote the greening of the economy and employability of workers”.[3]

The program increased the quantity of workers that could support for the green transition as it was designed in a way to be accessible for a diverse audience. More focus on systemic challenges around green skills development was not, however, addressed

Considerations for GCP

1. Making **circular training accessibly** and **inclusive** is important to guarantee a large reach in circular skills development. Social impact indicators could then be considered to guarantee this aspect.
2. Circular economy skills programs **should leverage** as much as **possible existing system** to avoid the duplication of efforts. To allow this connection, circularity programs should highlight how they connect to sustainability goals.
3. Identifying the **right channels** (digital platforms, members of communities, etc.) **of knowledge sharing** is valuable to Flanders guarantee that knowledge can easily be spread.

Key takeaways

Mapping to Levers

- Research
- Sharing
- Partnership
- Procurem.
- Targets
- Prod. Resp.
- Fiscal instr.
- Disclosures

Source: (1) UN (2023) Local government training focuses on Circular Economy and Climate Smart Agriculture approaches - UN Capital Development Fund (UNCDF); (2) Government of Canada (2024) Government of Canada announces two new funding opportunities for sustainable jobs in the low-carbon economy - Canada.ca; (3) European Commissions (2022) Green Skills Roadmap Flander

Data is an enabler for all the strategic levers, however, to benefit from its full potential specific infrastructures and supporting ecosystem need to be developed

Case Study #1 – EU battery regulation

Due to the strategic important of batterie within the economy, the EU drafted specific regulations around the reuse or recycling of materials within their composition and the sharing of information on said composition to end-users.[1] Requiring this information to be shared in a standardized approach can enable data-driven decision-making from all the actors from the value chain.

Improving transparency and data is key to help actors make informed-decision on circularity. With limited requirement and harmonization around circularity standards, it becomes challenging for actors to act according to circular principles as comparability between products cannot take place.

Case Study #2 – Azores circularity platform

The Portuguese government initiated a platform for the Azores Island to help circularity to grow and develop.[2] The aim is to enable users to access goods and services based on circularity practices (reuse or second-hand) to minimize any waste and to thus leverage technology to help information flow among the population.

Supporting the development of technologies or platform that can help end-users access the right services or products to minimize waste creation is a requirement to assure that circularity practices can happen.

Case Study #3 – Ecodesign for Sustainable Products Regulation (ESPR)

ESPR recently entered into force replacing the Ecodesign Directive.[3] It sets new requirements for products to be more durable, reliable, reusable, upgradeable, reparable, easier to refurbish, recycle, and efficient. It includes the creation of a digital product passport (DPP) to electronically register, process and share product-related information amongst supply chains, authorities and consumers.

Digital product passports can drive value as a stepping stone for circular business models. The secure storing and sharing of product information across the value chain is essential to demonstrate adherence to regulations, accountability and transparency. Additionally, DPPs create a channel for direct engagement with resellers and customers

Key takeaways

Considerations for GCP

1. Circular data and digitization requires a **supporting ecosystem** (data standards, data protocol, etc.) to guarantee that data can be streamlined across systems in an efficient manner.
2. **Technology** and **digital infrastructure** to support data sharing also need to be implemented to enable the flow of information (second-hand platform, digital products passport, etc.) to take place.

Mapping to Levers

Source: (1) Official Journal of the European Union (2023) Regulation (EU) 2023/of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries; (2) Azores Government (2024); (3) Ecodesign for Sustainable Products Regulation - European Commission (europa.eu)

Investment in infrastructure and resource management systems are a core driver of circularity capacity and capability; and a key aspect of the public-private collaboration required for a circular transition

Case Study #1 – Aarhus reusable coffee cup return system

Denmark's second-largest city, Aarhus, is operating a pilot deposit return scheme (DRS) for reusable coffee cups. Under the scheme, 25 automated collection points have been installed around the city in partnership with TOMRA, allowing consumers to return cups for treatment and future reuse. 40,000+ coffee cups were introduced for circulation as part of the scheme, and there are 40+ participating cafes.[1]

New schemes and infrastructure are required to increase the uptake of reusables and reduce dependence on single-use packaging. A well-integrated network of reverse logistics centres and collection points are key to facilitate this transition.

Case Study #2 – Belgium plastic packaging recycling

Belgian PRO, Fost Plus, facilitated significant investment in new waste sorting and recycling facilities between 2019-2024. This new infrastructure increased domestic recycling capacity and helped reduce waste exports to neighbouring countries, especially for plastics. By 2025, Fost Plus projects that 75% of plastics will be recycled domestically as a result of this investment, compared to a 2020 baseline of just 9%.[2]

Fost Plus was able to incentivise investment in waste infrastructure by setting-out long-term agreements at competitive rates for suppliers. This gave waste management organisations the confidence to invest in major projects and transform Belgium's infrastructure in a short period of time.

Case Study #3 – California waste investment fund

California's packaging EPR scheme includes a $500m annual investment fund to cut plastic pollution and support disadvantaged communities impacted by plastic waste. This annual sum is raised through an industry surcharge and was agreed for a period of 10 years.[3]

By setting an objective to support disadvantaged communities, the investment fund is designed to go beyond waste reduction and recycling, and towards ensuring a just transition across the circular economy.

Considerations for GCP

1. Moving away from waste management to resource management is a key nuance that will significantly impact the way resources are considered in supply chains.
2. Effective **public-private collaboration** is key for establishing circular infrastructure.
3. Targeted investment in strategic infrastructure projects can have a **significant impact in a short period of time**. However, government must help create the right **business environment** for investors to invest.
4. Waste **collection and sorting infrastructure** is a key **precursor** to material recovery and recycling.
5. There is also a need to look at **reverse logistics infrastructure** to better enable reuse.

Key takeaways

Mapping to Levers

Source: (1) De Lorenzo, D. (2024) Danish City First To Test Return System For Reusable Coffee Cups; (2) FostPlus (2022) Fost Plus recycled 95% of all household packaging in 2022; (3) CalRecycle (2024)

The supply-demand gap is symptomatic of linear production and consumption habits, but with government intervention, circular practices including the use of secondary raw materials can help to address this and will lead to avoided emissions and resource use

Case Study #1 – Buildings As Material Banks (BAMB) Belgium

Using funding provided by EU Horizon, BAMB has developed *Reversible Building Design* guidelines to improve the circularity of materials used in the built environment.[1] The guidelines help to optimise resource use through greater repair and refurbishment, improved material recoverability, and waste reduction (i.e. building transformation instead of demolition).

Reversible Buildings can bridge the supply-demand gap in the built environment by 1) increasing the supply of secondary materials through greater recoverability and reuse; and 2) reducing the demand for virgin materials by prioritising building transformation instead of reconstruction.

Case Study #2 – Urban Mining Pilot Policy (UMPP) China

The UMPP was established by China's government to conserve resources and recover valuable waste streams.[2] China experienced significant resource exhaustion during industrialisation and sees urban mining as a strong solution: balancing economic growth with resource preservation and establishing a supply of secondary raw materials.

The Urban Mining Pilot Cities (UMPCs) have helped alleviate metal resource constraints in certain parts of China, but the regional variability in industrial base and economic development means urban mining has had varying success in bridging the supply-demand gap.

Case Study #3 – European Critical Raw Materials Act

"With the European Critical Raw Materials Act, the EU aims to ensure secure and sustainable supply of critical raw materials for Europe's industry and significantly lower the EU's dependency on imports from single country suppliers".[3]

Strengthening domestic supply chain and reinforcing international engagement are the two goals of the acts. By improving circularity performance, the EU has the potential to reduce dependencies on virgin inflows for critical materials and can thus improve supply management and piling.

Considerations for GCP

1. **Market forces alone** will be unable to bridge the supply-demand gap: governments must proactively support the scaling of **circular supply chains** and help **curb demand for virgin materials.**
2. Production of circular materials must become **more economical** to compete with virgin equivalents.
3. Circular alternatives are **not going to be viable** in all instances. Governments should focus on scaling circular supply chains in areas with **proven use cases** as priority.
4. Improving the state supply chains locally has important benefits, but countries should be conscious of the impact this may have in ensuring the just transition. **Circular resource nationalism** could lead to a growing **global divide** in resource access and use and have uneven economic implications for countries dependent on raw materials/extractives.

Key takeaways

Mapping to Levers

- Research
- Sharing
- Partnership
- Procurem.
- Targets
- Prod. Resp.
- Fiscal instr.
- Disclosures

Source: (1) BAMB (2020); (2) Shen H, Liu Y. Can Circular Economy Legislation Promote Pollution Reduction? Evidence from Urban Mining Pilot Cities in China. *Sustainability*. 2022; (3) EU Commission (2023) European Critical Raw Materials Act - European Commission (europa.eu);

Return to enablers home

Circularity roadmaps require cross-governmental collaboration, financing and governance and should consider sector-specific (and product-group) strategies, while linking to broader decarbonisation and economic targets

Case Study #1 – NL Sector Focus

The Netherlands has five sector strategies with a three-year reporting framework, financed predominantly from its NZ budget.[1,2] The strategies sit across different ministries and operate inter-ministerially, covering biomass & food, manufacturing, construction, consumer goods and plastics. The Government set up inter-ministerial and public-private structures and highlighted clusters of policy instruments to facilitate the circular transition.

Circularity ownership sits under, and funding comes from, several ministries and budgets, demonstrating the interdisciplinary nature of circularity and the importance of cross-governmental collaboration.
Sector-level focus allows for a greater focus on priority sectors, which is supported by product-group specific forum. This ensures strong private sector collaboration.

Case Study #2 – Chile's Circular Roadmap

Chile's Circular Roadmap is cross-sectoral and links to other policy frameworks, such as the 2020 action plan for the social, economic and environmental inclusion of the informal waste sector.[3] Increased demands on industry due to population growth has limited industry engagements – Chile extended the strategy development process to allow for wider engagement.

An international Advisory Committee provided technical advice during development of the roadmap, demonstrating the space for support from international organisations.
Mining makes up a large portion of the Chilean economy; Chile have therefore focused on upstream process, through introducing measures to reduce raw material consumption.

Case Study #3 – Japanese Plan for Establishing a Sound Material-Cycle Society

Japan's Fundamental Plan for Establishing a Sound Material-Cycle Society has seven pillars of focused measures, including regional circulating and ecological sphere; and international resource circulation, reflecting the geographical breadth of the strategy.[4]

Japan refreshes its strategy every five years, with targets set around resource productivity, recycling rates and the final waste disposal amount. The strategy additionally aims to promote international cooperation and overseas business expansion of waste management and recycling industries.

Considerations for GCP

1. The cross-cutting nature of circularity makes **cross-government collaboration** an important aspect of success.
2. Sector focused strategies can allow governments to focus on **priority, most material industries** and better track progress, but increase the monitoring burden and therefore cost.
3. Circularity plans **developed in isolation from net-zero** and economic growth plans allow for development of robust CE indicators and a high-level of ambition but can consequently **lead to challenges when addressing trade-offs** between decarbonisation and resource efficiency, and with budget allocation.

Key takeaways

Mapping to Levers

Source (1) Stakeholder feedback (April/May 2024); (2) Government Netherlands (2022) Global Climate Strategy; (3) Chile (2021) Roadmap For A Circular Chile By 2040; (4) Japanese Government (2018) Fundamental Plan for Establishing a Sound Material-Cycle Society

Return to enablers home

International collaboration is an important tool to unlock the potential of various levers in facilitating the transition to a circular economy

Case Study #1 –GACERE: Global Alliance on Circular Economy and Resource Efficiency

Bringing together members from the ***Global North and Global South*** to advocate for a just transition, GACERE has ***facilitated international dialogue and cooperation*** on circular economy.[1] ***Uniting global stakeholders*** to ***promote sustainable resource management*** and economic practices.

Recognising the need to engage a diverse range of stakeholders and their diverse needs is critical to developing a strategy which is impactful and cohesive.

Case Study #2 – ACEA: African Circular Economy Alliance

The alliance is focused on pressing issues such as ***single-use plastics, EPR, and the digital transformation*** recognising the need for solutions to be drafted at an ***international, national, and sub-national*** (city) level.[2] ***Trade*** has also been highlighted as a major enabler to the transition.

Identifying the need for different levels of policy to tackle principal challenges and provide aligned solutions is fundamental to maximising impact. Understanding the impact of the international trade landscape on such policy further accelerates progress.

Case Study #3 – LACCEC: Circular Economy Coalition- Latin America and the Caribbean

The coalition supports businesses to access financing from governments and the private sector, particularly for small and medium enterprises (SMEs).[3] Focusing on implementing a circular economy approach through collaboration between governments, business, and society.

Recognising that both SMEs and wider society play an important part in the transition and should be considered alongside large, multinational businesses

Consideration for GCP

International collaboration is quickly changing to reflect the reality of global supply chains. Nevertheless, to avoid duplication or conflicting messages, and consider region-specific perspectives, there is a need to consider how **existing alliances** and fora can further coordinate and standardise approaches and data collection to lead to broader ecosystem collaboration.

Key takeaways

Mapping to Levers

Source: (1) UNIDO (2024) GACERE; (2) EMF (2024) Circular Economy: Africa's perspective; (3) UNEP (2021) Circular Economy Coalition launched for Latin America and the Caribbean (unep.org)

Dependency on linear models and inconsistent circular taxonomies are presenting challenges in designing an economically viable circular trade model

Case Study #1 – Reusing in the MedTech industry

Due to the fragmentation in policy applied to the highly regulated MedTech industry, parts for reuse must originate in the same market as their intended second life home.[1] This is the case even where the product has the same specification across all markets. There is no guarantee that these parts can be used in a second life.[2]

The limitations placed on trade makes shipping parts for reuse or recycling cost-inefficient.
Movement of parts is important due to the differences in the maturity of the infrastructure needed to transform these materials across different markets.

Case Study #2 – Kenyan second-hand fabric taxation

The Kenyan Government places a 35% tax on the import of second-hand fabrics. While generating USD 54 million in tax revenue in 2013, this acts as a disincentive to a circular models and imposes indirect costs as a result.[3]

Incentives for the linear model remain across borders. These incentives increase the cost of circular models and inhibit circular trade.

Case Study #3 – US local alignment

In the US, there is little central federal oversight of policies impacting the movement of material, or other policies which may impact the circular model. Therefore, engagement and alignment on a state level is vital to ensure necessary conditions for circular trade are met.[4]

In countries with federalised circular policy, alignment at the sub-national level should be established on conditions and policy that affect the movement of materials – to facilitate both intra and international circular trade.

Considerations for GCP

1. Aligning on the **definitions of waste, non-waste, and the categorisations of waste** allows businesses to operate more effectively in more markets. This is especially important for multinational businesses operating in multiple geographies of varying maturity.
2. **Digital tools** can further support efficiency of trade requirements and could be further leveraged globally to align on standardised processes.
3. For some economies, policies impacting the trade of non-virgin feedstock as well as other material flows are a source of **income for the state.** Thus, it is important to highlight the value of a circular model which can be implemented globally (albeit with some differences across economies).

Key takeaways

Mapping to Levers

Research
Sharing
Partnership
Procurem.
Targets
Prod. Resp.
Fiscal instr.
Disclosures

Source: (1) EY (2023) Driving Innovation in MedTech: The Power of Circularity and Sustainable Product Design ; (2) Stakeholder feedback (April/May 2024); (3) Nairobi News (2023) Soon, mitumba, thrift or Second-hand clothes will be more expensive; (4) Stakeholder feedback (April/May 2024);

Return to enablers home

The circular transition presents a series of opportunities for the people and communities involved; while it may result in significant changes to the way of life of others impacted in the value chain

Key takeaways

Case Study #1 – Contribution of Informal Workers and Women to the transition in Vietnam

There is recognition in Vietnam that a sustainable and circular transition must account for the livelihoods of informal workers and women, especially those employed in sectors like waste management.[1] To reflect this, women's unions are providing training on health and safety and circular principles to the informal waste sector, and women are able to access funding needed to purchase new machinery.

By improving access to training and resources, women are empowered grow and innovate under the circular transition. This enables them to uplift their skills base and income while developing circular solutions to waste management challenges

Case Study #2 – Natural Farming brings socio-economic benefits to farmers in India

A government-led training programme in Andhra Pradesh aims to embed Natural Farming methods in farming communities.[2] Long-term objectives include the integration of bio-stimulants, pest and disease management through botanical extracts, and ending the use of synthetic fertilisers, pesticides or herbicides.

In most cases, Natural Farming in Andhra Pradesh has increased crop yields, reduced high input costs and cut irrigation and electricity use. Beyond the environmental benefits of increased biodiversity and climate resilience, Natural Farming has saved farmers up to $2000 USD per season and helped pull many out of indebtedness, thereby improving their livelihood.

Case Study #3 – Addressing digital poverty through IT repairs in Brazil

The Belo Horizonte Computer Reconditioning Centre (CRC) was established by government to reduce e-waste, address youth unemployment and improve digital inclusion.[3] The programme trains those from low-income backgrounds to repair and restore post-use IT equipment, which is then donated to 'digital inclusion sites' to bridge the digital divide.

On average, the scheme has diverted 15 tonnes of electronics from landfill each year while supporting nearly 10,500 people with training as of 2021. This has improved digital inclusion, provided new opportunities to 16–24-year-olds and helped address challenging e-waste management.

Considerations for GCP

1. The circular transition not only entails the reshaping of economic activity, but the **upskilling of workers** to meet the demands of the future. This presents significant opportunity to support **marginalised groups**.
2. Circularity initiatives can offer many **socio-economic benefits** beyond their environmental impact. **Communicating** these benefits is key to achieving **buy-in for the transition**.
3. A country's level of **economic development** will determine the role of **informal workers** and how they should be **empowered** as part of the circular economy.
4. Being aware of the impact of the transition to circularity in various geographies is an area where further research is required to support a global just transition to circularity.

Mapping to Levers

Source: (1) UNDP (2022) The tactics to drive a gender-inclusive circular economy; (2) EMF (2022) Andhra Pradesh Community-managed Natural Farming; (3) EMF (2021) Tackling electronic waste and digital poverty in Brazil: Belo Horizonte

4 Appendix

Working hypotheses

Circular Economy definitions mapping

Mapping of standards and indicators

CP&A background research
(incl. financial markets research)

Sources

Working hypotheses were developed to guide the research process and insight-gathering for Corporate Performance and Accountability…

Working hypotheses for CP&A

2.1
There is a **discrepancy** between **regulatory** and **infrastructure needs** in the **Global North** and in the **Global South** to drive the transition to circularity.

2.2
Based on regulatory pressure, businesses are currently **allocating resources to meet disclosure requirements** rather than investing in the long-term transition to a circular economy.

2.3
Businesses in different geographies and industries require different KPIs with regards to the transition to circularity, based on their current situations, challenges and local context.

2.4
While many businesses may have grandparent KPIs or high-level claims related to circularity, waste reduction, or material substitution, **there is a misalignment between high-level KPIs/sustainability targets and BAU KPIs.**

2.5
Due to a lack of alignment between KPIs (2.4) and incomplete data, **funding allocation** across business **does not support** the **large-scale transition** to a **circular economy**, inhibiting scaling.

2.6
While measuring GHG emissions is more straightforward, measuring for **circularity is more complex**. Because of this, it is difficult to select circularity indicators and to identify reinforcing opportunities or trade-offs**.**

2.7
In most supply chains (e.g. hard-to-abate sectors), there is an **evident gap between supply and demand** of secondary materials, that **inhibits investment**, innovation, technological development and scalability of solutions.

2.8
Currently, there is a **gap between circular economy performance and financial performance**. For example, rating system do not take the full extent of risks related to the linear economy into consideration, making the transition to circularity less financially viable.

2.9
Circularity is still very much measured based on waste rather than resource use. Consequently, the resource value is not being appraised in a thorough or precise way.

2.10
Existing standards often fail to quantitatively connect circularity performance to other sustainability challenges, e.g. biodiversity, regenerative economy/system, social equity, pollution. This results in a disconnect between circularity decisions and broader sustainability goals.

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… as well as for Policies & Regulations

Working hypotheses for Policies and Regulation

3.1
While governments/regions are developing overarching and ambitious circularity strategies; these often do not offer a **sector/industry-specific lens** and do not provide/include clear **financial/budget allocations** or specific/targeted **monitoring instruments**.

3.2
Even though green corridors are emerging, there are still significant challenges to businesses, as **international trade regulation remains a barrier** for promoting recycling and reducing of natural resource extraction.

3.3
The transition to a circular economy will impact countries and regions' policymaking differently, so approaches to measure circularity and its impacts **require regional, national and local** approaches to underpin a global methodology.

3.4
Government claims and targets on circularity (e.g. fully circular or zero waste) are often unsubstantiated and require further scrutiny to provide a thorough definition with clear intermediate targets.

3.5
Metrics and monitoring remain difficult for government to formulate given the need for **information and data** from business and supply chain.

3.6
There are opportunities for industry-level regulators, **Producer Responsibility Organisations (PROs), trade bodies, and other alliances**, to enhance collaboration and set direction, accelerate standard adoption and create non-competitive environments, enabling collaboration and sharing of best practices on **Extended Producer Responsibility (EPR)** and standards related to, for example, Life Cycle Assessments (LCAs).

3.7
Whilst the transition to circularity may result in adverse socio-economic impacts on extraction economies, there is a **lack of policies targeted towards ensuring a just transition** to circularity.

3.8
While regional alliances and sub-national government (e.g. cities) are pivotal for the transition to circularity, regional approaches require further **national and sub-national collaboration and coordination, and financing, to accelerate and scale the transition**.

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A circular economy, in general, touches upon 5 key elements, including resource efficiency, systems approach, material use, business cases and systemic benefits; a definition of the circular economy should strive to be complete, concise and comprehensible

Complete: covers everything that is circular economy
Concise: short as possible
Comprehensible: understandable for non-technical audience

CE framing across literature

	Resource Efficiency/SCP	Systems approach	Material use	How/Business case	Systemic benefits
A circular economy…	…focuses on the efficient use of **materials, resources**, and **products** in **production** and **consumption**, thereby reducing the environmental **impact** of their use **OR** … and resource efficiency	…is an economy where resource use is effectively **decoupled** from **economic growth** **OR** …closely **mimics nature**, where there is no waste: all materials have **value** and are used to sustain life in a myriad of ways **OR** …stands in **contrast** to the **linear** economy which is based on the “extract, make and dispose” model of production and consumption **OR** …one of the current sustainable economic models	…ensures that materials **remain** in the **value chain** at **highest possible value** for as **long** as possible, through a 9-step R-ladder **OR** …**maintains resources** in the **value chain** for as **long** as possible **OR** …**reduces** the **impact** of the use of natural resources **OR** …**minimises waste** as much as possible by prevention, reduction, recycling and reuse	…is an **opportunity** to **transform** our economy and generate new and sustainable **competitive advantages** **OR** …plays an important role in increasing the **resilience** of our economies **OR** …**maximises** and **maintains** the **value** of the technical and biological resources, products and materials by **creating a system** that allows for **durability**, optimal **use or reuse**, **refurbishment**, **remanufacturing**, **recycling** and **nutrient cycling**	…is a **systems solution** framework that **tackles global challenges** like climate change, biodiversity loss, waste, and pollution; based on three principles, driven by design: eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature **OR** …has **benefits that go beyond** reducing carbon emissions levels, including the creation of jobs and growth, investment, and broader global sustainable development efforts **OR** …is key to addressing the **triple planetary crisis**

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CE definitions vary widely, with ISO being the most recent addition (1/2)

NON-EXHAUSTIVE

Definition	Source
Economic **system** that uses a systemic approach to **maintain** a **circular flow of resources**, by recovering, retaining or adding to their **value**, while contributing to **sustainable development** (development that meets the environmental, social and economic needs of the present without compromising the ability of future generations to meet their own needs)	International Organization for Standardization (2024) ISO 59004, 59010, 59020 drafts
A circular economy is an economy where: 1) the **value of materials** in the **economy** is **maximised** and **maintained** for as long as possible; 2) the **input** of materials and their consumption is **minimised**; 3) the generation of **waste** is **prevented** and **negative environmental impacts reduced** throughout the life cycle of materials.	UNECE, OECD (2024) Guidelines for Measuring Circular Economy
A **systems** solution framework that **tackles global challenges** like climate change, biodiversity loss, waste, and pollution. It is based on three principles, driven by design: **eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature**. *It is underpinned by a transition to renewable energy and materials. Transitioning to a circular economy entails decoupling economic activity from the consumption of finite resources. This represents a systemic shift that builds long-term resilience, generates business and economic opportunities, and provides environmental and societal benefits.*	Ellen MacArthur Foundation (2024) CE glossary webpage
The circular economy is an **economic model** that is **regenerative by design**. The goal is to **retain the value** of the circulating **resources, products, parts and materials** by creating a system with innovative business models that allow for renewability, long life, optimal (re)use, refurbishment, remanufacturing, recycling and biodegradation. By applying these principles, organizations can collaborate to **design out waste, increase resource productivity and maintain resource use within planetary boundaries**. Note: CTI is in alignment with the EMF circular economy principles: Design out waste and pollution; Keep products and materials in use; Regenerate natural systems	WBCSD (2023) Circular Transition Indicators V4.0
Circular economy as part of a **just transition** aims to ensure that **resources and materials are kept at the highest possible value** for **as long as possible** along the value chain. Circular economy approaches can **strengthen NDC targets** as they complement existing GHG emission reduction efforts such as renewable energy and energy efficient strategies to raise ambition (GACERE 2021). As such, circular economy is a **sustainable economic model**, in which **products and materials are designed** in such a way that they can be **reused, remanufactured, recycled** or **recovered** and thus **maintained** in the **economy for as long as possible**, along with the resources they are made from. The **generation of waste**, especially hazardous waste, **is avoided or minimized**, and GHG emissions are prevented or reduced (UNEP/EA.4/Res.1). Adopting circular thinking has the potential to **restore ecosystems** and **rebuild natural capital**, hence **increasing resilience** and **sustainability**	UNEP, UNDP and UNFCCC secretariat. 2023. Building Circularity into Nationally Determined Contributions (NDCs) - A Practical Toolbox User Guide. Nairobi
The circular economy is an **economic system** where **waste is designed** out, everything is used at its **highest possible value** for **as long as possible** and natural systems are **regenerated**. The concept of circularity closely **mimics nature**, where there is **no waste**: all materials have value and are used to sustain life in a myriad of ways. If we effectively deploy these strategies, we will ultimately **require fewer materials** to **provide** for **similar societal needs**	Circle Economy Foundation (updated 2022)
The core definition of a Circular Economy is the **transition towards "closed loop" economic activity**, whereby **waste is eliminated or diverted** to other types of economic activity, which also serves to **minimize pollution**. A Circular Economy is distinct from dominant "linear" models of economic activity which are based upon "take-make-dispose" and are widely recognized as unsustainable	African Circular Economy Alliance (ACEA) (2021) Increasing Circularity in Africa's Plastics Sector
A circular economy is an **alternative** to a traditional linear economy (make, use, dispose) in which **resources are kept in use** for as long as possible, **maximum value** is extracted from them whilst in use, then **materials are recovered** and **products are regenerated** at the end of each life	African Circular Economy Network (accessed online)

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CE definitions vary widely in political texts too (2/2)

NON-EXHAUSTIVE

Definition	Source
The circular economy is one where **the value of products, materials and resources** is **maintained** for as long as possible **in the economy**, and the generation of **waste** is **minimized**. This is in contrast to a linear economy, which is based on the “extract, make and dispose” model of production and consumption.	International Resource Panel (2024) Global Resources Outlook 2024
Recalling its resolution 4/1 on innovative pathways to achieve sustainable consumption and production, which acknowledged that, along with other sustainable production and consumption approaches, a more circular economy, in which **products and materials are designed** in such a way that they can be **reused, remanufactured, recycled** or **recovered** and thus **maintained in the economy for as long as possible**, along with the resources of which they are made, and the generation of waste, especially hazardous waste, is avoided or minimized, and greenhouse gas emissions are prevented or reduced, can contribute significantly to sustainable consumption and production,	United Nations Environment Programme (2023) UNEP/EA.5/R11, Nairobi
An economic system in which the **value of products, materials and other resources** in the **economy** is **maintained** for as long as possible, enhancing their **efficient use** in production and consumption, thereby **reducing the environmental impact** of their use, **minimising waste** and the **release of hazardous substances** at all stages of their life cycle, including through the application of the waste hierarchy. The goal is to maximise and maintain the value of the technical and biological resources, products and materials by creating a **system** that allows for durability, optimal use or reuse, refurbishment, remanufacturing, recycling and nutrient cycling.	EFRAG (2023) ESRS E5 Resource Use and Circular Economy
In order to endeavour to **decouple our economic growth** from **environmental degradation** and **enhance sustainable consumption** and **production**, including primary resource consumption while supporting economic growth, we acknowledge the critical role played by circular economy, extended producer responsibility and resource efficiency in achieving sustainable development.[…] We commit to enhance environmentally sound waste management, substantially reduce waste generation by 2030, and highlight the importance of zero waste initiatives.	G20 (2023) G20 New Delhi Leaders’ Declaration, Green Development Pact for a Sustainable Future
From an industrial point of view, CE focuses on **closing the loop for materials** and **energy flows** by incorporating **policies** and **strategies** for more **efficient** energy, materials and water **consumption**, while **emitting minimal waste** to the environment (Geng et al. 2013). Moving away from a linear mode of production (sometimes referred to as an ‘extract-produce-use-discard’ model), CE promotes the **design of durable goods** that can be **easily repaired**, with components that can be **reused**, **remanufactured**, and **recycled** (Wiebe et al. 2019). In particular, **since CE promotes reduction, reuse** and **recycling**, a large amount of **energy** and **GHG-intense virgin material** processing can be **reduced**, leading to significant **carbon emission reductions**.	IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the 6th AR of the IPCC
‘Circular economy’ means an **economic system** whereby the **value** of products, materials and other resources in the economy is **maintained for as long as possible**, enhancing their **efficient use** in **production** and **consumption**, thereby reducing the **environmental impact** of their use, **minimising waste** and the release of hazardous substances at all stages of their life cycle, including through the **application of the waste hierarchy**.	REGULATION (EU) 2020/852, Art. 2, EU Taxonomy
The transition to a more circular economy, where the **value of products, materials and resources is maintained** in the **economy** for **as long as possible**, and the generation of **waste minimised**, is an essential contribution to the EU's efforts to develop a sustainable, low-carbon, resource efficient and competitive economy. Such transition is the opportunity to **transform our economy** and generate new and **sustainable competitive advantages** for Europe.	EU Circular Economy Action Plan, COM (2015) 614 final

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Inflow and outflow indicators are well aligned across reporting standards and frameworks, although they sometimes use different wording or approaches for similar concept

Inflows Outflows

ESRS E5	Disclosure description	ISO	CTI	Circulytics	GRI 301/306
E5-4 31 a	Total weight of products and technical and biological inflows	[Sum of all of the below and % virgin non-renewable content]	% circular inflow (total mass inflows)	0m Total annual mass of inflow products and materials	301 - 1 a Total weight or volume of materials that are used to produce and package the organization's primary products and services during the reporting period, by: non-renewable materials used / renewable materials used
E5-4 31 b	percentage of biological materials that is sustainably sourced	A.2.4 Average % renewable content of an inflow	% circular inflow (% renewable content)	6a Percentage (%) inflows by mass from non-virgin / sustainably sourced input materials	
E5-4 31 c	weight and percentage of non-virgin products and materials	A.2.2 Average % reuse content of an inflow A.2.3 Average % recycled content of an inflow (renewable and non-renewable sources)	% circular inflow (%non-virgin content)	6a Percentage (%) inflows by mass from non-virgin / sustainably sourced input materials	301 - 2 a Percentage of recycled input materials used to manufacture the organization's primary products and services
E5-4 30	Critical materials - Descriptive only		% critical inflow		
E5-5 35	Description of key products and materials that are designed along circular principles	[No indicators; Substances of concern in material outflow can be relevant for specifying indicators. e.g. safe material choices. When systems-thinking has been applied at the design stage, the resulting safe material choices become measurable in the material outflow.]	% recovery potential; % recovery type	6d Extent to which products are designed along circular principles (% of products)	
E5-5 36 a	Expected durability of the products in relation to the industry average	A.3.2 Average lifetime of product or material relative to industry	% actual lifetime	6f Part 2 Number of uses before end of functional life	
E5-5 36 b	Repairability of products		% recovery potential	Extent to which products are designed along circular principles	
E5-5 37 a	Total weight of waste generated	[inherent in the calculation of the below]	% circular outflow (total mass of all outflow)	0o Part 1 & 2 Total waste from products designed to be consumed / used	306-3 Total weight of waste generated in metric tons, and a breakdown of this total by composition of the waste
E5-5 37 b	Weight of recovered waste / by recovery operation type (reuse, recycling, other recovery)	A.3.3 Percent actual reused content derived from outflow A.3.4 Actual % recycling rate of outflow A.3.5 Percent actual recirculation of outflow in the biological cycle (biodegradation; composting or anaerobic digestion)	% actual recovery; % recovery type	6f Part 1 % actual recirculation of products and materials	306-4 - a, c, d Total weight of waste diverted from disposal / by composition / by recovery operation / by location (onsite vs offsite)
E5-5 37 c	Weight of disposed waste / by disposal treatment type (incineration, landfill, other disposal)	Mass of non-recoverable resources that is incinerated (waste to energy) Mass of any other resources not accounted for above, to achieve mass balance (e.g. this can include other unspecified losses, emissions, and non-recoverable resources placed in a landfill).	% circular outflow [not circular, no specific metric]	6b, 6c Percentage of waste to landfill or incineration	306-5 Total weight of waste directed to disposal / by composition / by disposal operation (incl. incineration with energy recovery) / by location (onsite vs offsite)
E5-5 37 d	Total amount and percentage of non-recycled waste		% circular outflow [not circular, no specific metric]		
E5-5 39	Total amount of hazardous and radioactive waste generated by the undertaking				306-4 -b; 306-5 Total weight of hazardous waste diverted from disposal and directed to disposal / by composition / by recovery operation

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ISO 59020, CTI and Circulytics all contain water and energy indicators, while in ESRS and GRI, these are covered by other standards which are not associated to the circular economy

Inflows | Outflows

	ESRS E5	ISO	CTI	Circulytics	GRI 301/306
Water inflows	ESRS E3	A.5.2 % water withdrawal from circular sources	% water circularity; % circular water inflow (Q total circular water withdrawal / Q total water withdrawal)	Total water demand (annual); % annual water demand by source; % water withdrawal reviewed for SMART reduction targets	GRI 303
Water outflows		A.5.3 % water discharged in accordance with circularity principles	% circular outflow (discharge, restore)	Total water outflow (annual); Destination of water outflows	
Water recirculation		A.5.4 Ratio (onsite or internal) water reuse or recirculation	Onsite water circulation (reuse & recycle)	[% of total annual water demand by source / source being water that is internally recirculated]	
Local water considerations mentioned		Water circularity is considered local in nature, influenced by the ecosystem and an important consideration in measuring and assessing circularity with reference to the local catchment area or watershed. This determines water availability and quality for all water users in the area.	Where materials can circulate in a global system, it is necessary to assess water circularity on a local level for a water catchment area or local watershed	What % of water used in your operations leaves your infrastructure and in the case of original freshwater, recharges local aquifers/groundwater, replenishes rivers/lakes/wetlands, or goes to local societal purposes	
Nutrient extraction from water		• B.5.2 Nutrient extraction from discharged water		Extraction of resources from water before discharge (descriptive)	
Energy inflow	ESRS E1	A.4.2 % average of energy consumed that is renewable energy	% renewable energy Total energy annual consumption	10a % of renewable energy; 0t. Part 1 Total energy usage (annual)	GRI 302
Energy outflow				0t. Part 2 Total energy production (annual); 10b % of energy produced that is renewable	
Energy recovery		B.4.2 % energy recovered from residual, non-renewable and non-recoverable resource outflows			
Energy intensity		B.4.3 Energy intensity - amount of energy used to produce a given level of output or activity			

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Revenue and decoupling indicators are the most frequently captured financial indicators

	ESRS E5	ISO	CTI	Circulytics	GRI 306
Revenues		(A.6.2) Revenue share of circular resources or products (RSCR)	CTI revenue at product level / company level (% circular flows * revenue generated from that product/group)	% of service revenue from circular services	
Decoupling / Material productivity		(A.6.3) Material productivity (MP or CMP) (Ratio of revenue generated by total mass of all linear resource inflows) (A.6.4) Resource intensity index (RII) The ratio of the change rate of resource consumption to the change rate of economic scale in a period of time[a] (decoupling index; can be applied to micro or macro level)	Circular material productivity (revenue / total mass of linear inflow)		
Net value	(E5-6 42) Anticipated financial effect from resource use and circularity	(B.6.2) Net value added (NVA) - Value of a product minus negative economic factor costs			
Macro indicators		(B.6.4) Resource productivity (Ratio of gross domestic product (GDP and domestic material consumption (DMC) or raw material consumption (RMC)) (B.6.5) Genuine progress indicator (GPI)			
Other		(B.6.3) Value per mass - Value per unit total mass of resource(s) used			

Note: (a) Alternately, for regional system level, domestic material consumption (DMC) to raw material consumption (RMC) can be used

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At a high-level, financial market participants have different investment strategies but face similar issues and are aligned on their definitions of the circular economy as an ESG issue

Valuation and capital allocation

- As highlighted in p. 27, ESG and CE are not consistently integrated into **company valuations** due to:
  - Lack of valuation experience (p. 27)
  - Legal issues around collateral value
  - Uncertainty over environmental issues and mitigation policies
- Capital **allocation** challenges include[1]:
  - Uncertainty over where to start
  - Perceived financial trade-offs
  - Lack of shareholder pressure
  - Lack of metrics to integrate ESG into formal capital allocation frameworks
- Although financing is available for circular business models, these are not yet common, and face challenges (asset ownership & balance sheet effects), while some businesses struggle to prove they are circular, or sometimes the business case is not there yet[2]

See p. 70 for more details

Financial markets' definition of CE

- CE **definitions**[a] by markets (p. 71) are **aligned** to those in literature (p. 64)
- While **financial market** participants (must) **provide definitions** for CE when they offer CE-related financial products, the inclusion of a company in a traded fund or index is usually at the discretion of the **Investment Adviser**, based on the fund **methodology**[b]
- Additionally, publicly available definitions and information are kept at a **high-level**, making it **challenging** to identify **sectoral differences**
- **No geographical differences** were found, however most **market players** are based in the **Global North**

See p. 71 for more details

CE information & CE as an ESG value driver

- **Drivers** for **CE information** include[2]:
  - **SDGs**: SDG 12-alignment
  - **Disclosures**: especially **SFDR** and **EU taxonomy**[c]; being taxonomy-aligned raises much interest from managers looking to build SFDR Art. 8 (light-) & 9 (dark green) funds
  - **ESG ratings**: including measures of resilience to CE-related risks
- **Barriers** to its integration include
  - **Lack** of **standardised metrics** to describe companies' circular extent
  - **Costs** of non-financial disclosures, limiting the extent of the practice
- **ESG and circularity** have been shown to **de-risk investments** and provide **superior** risk-adjusted **returns**[3]

See p. 74 for more details

CE investment strategies

- Investors complement financial ratio analysis with circular data and disclosure information, but publicly-available methodologies **do not** point to specific **circularity metrics**
  - E.g. an equity may be chosen "based on % of revenue, total revenue, or **any connection to CE**"[4]
  - LCAs are widely used by banks but are often applied to **one product** and provide **limited CE** information
- Strategies differ by market participant:
  - Many funds use exclusion and best-in-class, but these are not very meaningful when other companies in 'class' are not CE-mature
  - **Private capital fills a gap** where "banks find projects too innovative"[5]

See p. 72 for more details

Note: (a) Sources can be found on p. 71; (b) When financial markets offer thematic funds, they must provide a definition for the theme, in this case Circular Economy; (c) The EU taxonomy has been noted as the most important framework for financial market players, however it is EU-centric | Source: (1) Deloitte (2023) Capital allocation and resilient portfolios (online); (2) Stakeholder feedback (April/May 2024); (3) Zara, C. et al (2022) The Impact of Circular Economy on Public Equity in Europe. Understanding De-Risking Effect and Risk-Adjusted Performance; (4) BlackRock (2024) Circular Economy Fund; (5) Polestar Capital (2022) online

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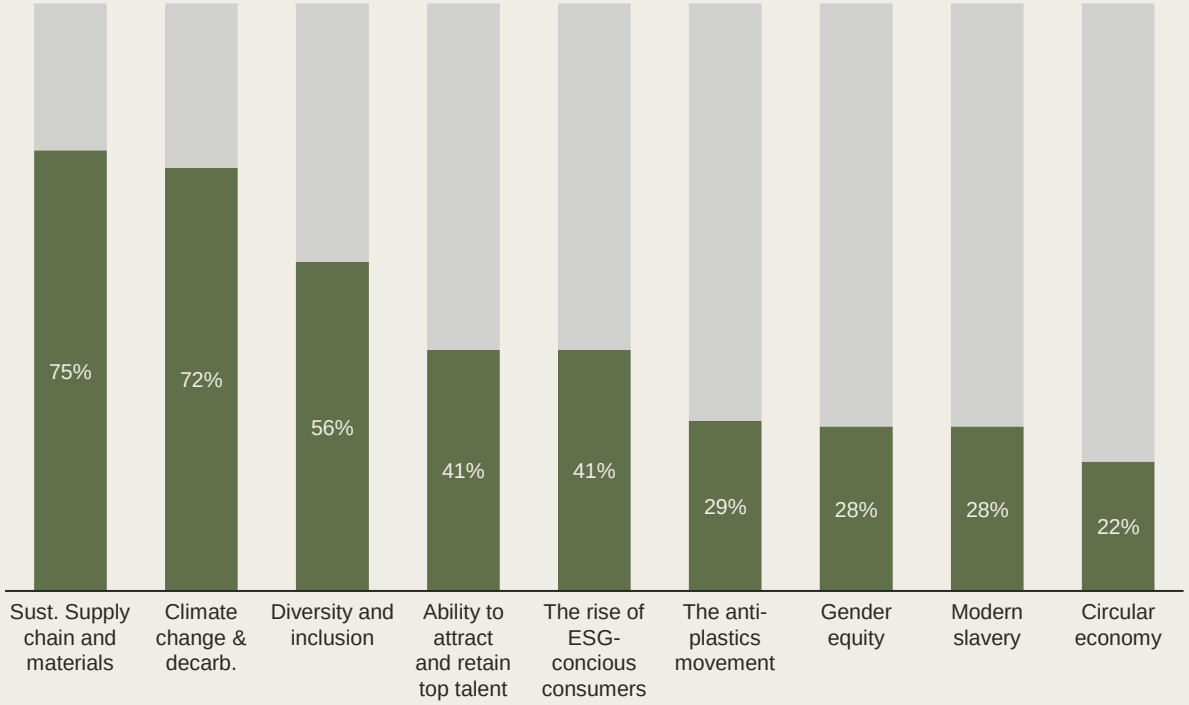
The integration of resource use and circular economy as an ESG value driver in company valuation models and capital allocation is currently limited

What ESG factors receive greatest focus in your capital allocation process?[1]
(Percentage of respondents selecting each factor)



Company valuation – challenges[2,3,4]

- As highlighted on page 27:
  - Changing nature of the firm's cash flow, as well as increased debt on the balance sheet to fund circular business models in which assets remain on the balance sheet, leading to a distortion of the solvency ratio leading investors and banks to reject loan requests
  - Legal issues surrounding collateral and its value
  - Depreciation of assets

Capital allocation[1]

- It is worth noting that while only **22%** of survey respondents selected **CE**, **75%** selected sustainable **supply chain and materials**, this could potentially be explained due to a lack of understanding of the CE
- **Challenges** towards **integrating ESG** in the **capital allocation** process include:
  - "Not knowing where to start"
  - "Perceived financial trade-offs"
  - "Lack of pressure from shareholders."
- Reasons for making **ESG** an integral part of **capital allocation strategy** include:
  - ESG as a source of **competitive advantage** and an opportunity to **create value** (40%)
  - **Expectation** that ESG initiatives will **increase** the **value** of their enterprise (65%)
- While many companies are considering ESG in their capital allocation strategies, its place in formal **frameworks** and **scenario planning** typically remains a **work in progress**
- Establishing **concrete**, easily **identifiable metrics** to **integrate ESG** into a formal capital allocation framework is often **challenging**
- **True cost accounting** and impact value methodologies can help model the costs and benefits of a particular sustainability investment

Source: (1) Deloitte (2023) How Companies Can Integrate ESG in Capital Allocation—and Why it Matters; (2) Circular Accounting Coalition (2022) Financial accounting in the circular economy; (3) Bocconi University, EMF, Intesa Sanpaolo (2021) The circular economy as a de-risking strategy and driver of superior risk-adjusted returns; (4) UNEP FI (2020), Financing Circularity: Demystifying Finance for Circular Economies;

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CE definitions from financial markets are aligned to those seen in political text and literature, they are primarily associated to environmental aspects but also influence social and governance considerations, and no significant differences are found between geographies and sectors at a high-level…

NON-EXHAUSTIVE

ESG Rating providers	A circular economy is an economic system wherein resources are kept **as long as possible** within the system, whether by rethinking resource-intensive products and processes, maximizing the use of materials, extending the life of products, and/or recycling of waste materials. This is a structural shift from the current linear economy, where materials are taken, converted via a manufacturing process, used, and then disposed. Underlying to the concept of a circular economy are the 9R strategies,[1] which provide a holistic view to improving circularity at each stage of a product's lifecycle[2]
Institutional investors	The Circular Economy concept recognises the importance of a **sustainable economic system** and represents an **alternative economic model to the default** "make-use-throw away" **approach of consumption**, which is believed to be **unsustainable given scarce resources** and the **rising cost** of **managing waste**. The Circular Economy concept promotes the **redesign** of products and systems to **minimise waste** and to **enable greater recycling** and **reuse** of materials[3]
	The circular economy is an alternative to the commonly practiced linear economy (take, make, use, dispose) model. The circular economy is **regenerative** and **restorative** by design ("reduce, reuse, recycle"). It aims to **redefine products and services to design waste out**, while **minimising negative impacts**. The circular economy encourages **sustainability** and **competitiveness** in the **long-term** through a model combining **environmental** and **social** considerations, as well as **economic benefits**[4]
	The circular economy represents a **model of production and consumption** that optimises the earth's **scarce resources**. Products are **designed** to last for **as long as possible**, with their **creation**, **reuse** and **regeneration** having a **less adverse impact** on the environment than a traditional, linear approach. We believe that better resource productivity ultimately leads to **improved financial returns**. When investing in this theme, we are **looking for companies** that provide **innovative solutions** to help **reduce materials usage** and **promote recycling**[5]
	The circular economy is an **economic model** that places a greater reliance on **reusing existing materials** in a series of **loops**. It aims to replace the current linear economy, which is based on the take-make-waste system of extracting minerals, turning them into manufactured products and then disposing of them at the end of their useful life. The strategy invests in **companies that seize opportunities** created by the shift from traditional production and consumption patterns toward a circular economy. This means **focusing on innovative solutions** that **redesign production** inputs to make them reusable or recyclable, that manage **circular logistics** and **waste management systems**, or that promote **sustainable and eco-friendly nutrition** and **lifestyles**[6]
Banks	In a **circular economy**, the **value of products** and **materials** is **maintained** for **as long as possible**. **Waste and resource use** are **minimized**, and when a product reaches the end of its life, it is used again to **create further value**. This can bring **major economic benefits**, contributing to **innovation**, **growth** and **job creation**[7]. A circular economy **aims at decoupling economic growth** from the **consumption** of finite raw materials and resources and in this way **increasing societal welfare**. This can be achieved by gradually **designing out waste** from economic activities, **keeping products** and materials in economic use and regenerating natural systems[8, 9]

Source: (1) Potting, J., Hekkert, M., Worrell, E., Hanemaaijer, A. (2016) Circular Economy: Measuring Innovation in the Product Chain; (2) MSCI ACWI IMI Sustainable Water Transition Index Methodology (2023); (3) BlackRock (2024) Circular Economy Fund; (4) M&G (2024) Positive Impact Fund; (5) Federated Hermes (2024) Impact Opportunities Fund; (6) Robeco (2024) Sustainable Investing; (7) European Commission, Industry (online); (8) Ellen MacArthur Foundation, Circular Economy concept; (9) ABN Amro, ING, Rabobank (2018) Circular Economy Finance Guidelines;

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…However, differences do exist on an index selection and investment strategy level

NON-EXHAUSTIVE

	ESG rating and CE index providers	Public markets	Banks	Private markets
Investment strategy	• Exclusion; analysis based on publicly available information and disclosures	• Exclusion (e.g. BNP Paribas ETF); Best-in-class (BlackRock CE fund)[1]; Engagement and voting (M&G)[2]; Impact (Federated Hermes)[3]; RobecoSAM (ESG integration)[4]	• Case-by-case analysis (e.g. solutions extend life, design & manufacture; innovative tech.)[6] • CE programmes and labs	• Case-by-case analysis coupled with often extensive engagement

Strategy and themes	• Companies that provide technologies that enable a circular economy, such as alternatives to single-use plastics; digital technologies that replace traditional resource-intensive products, etc
	• Companies that reduce their negative operational impact by maximizing resources and/or minimizing waste. Key issues include: biodiversity and land use and packaging material and waste
		• Grouped by type of CE contribution (across all sectors)
		  • e.g. BlackRock: adopters, enablers, beneficiaries
		• Business models
		  • e.g. ECPI: circular supplies, resource recovery, product life extension, sharing platforms, product-as-a-service
		• Other clusters
		  • e.g. RobecoSAM: redesign inputs, enabling technologies, circular use, loop resources
		• Based on percentage of revenue, a defined total revenue threshold, or any connection to the CE regardless of the amount of revenue – see page 73 for more details
			• CTI v4.0 - Rabobank tried sustainability-linked loan with CTI indicators[7,8]
			• However, it is time and resource intensive to do the assessment, if companies have not previously done it themselves
			• Scope of CTI can differ greatly (per BU, per project / product, or company)
				• Private capital (or private debt funds) often serve to bridge the gap where “banks usually find such projects too innovative, and for venture capitalists, they are generally too capital intensive to finance in full”[11]
				• Investment strategies may be divided by type of funding and theme
				  • Venture capital, growth equity, private equity, catalytic capital[12]
				  • Infrastructure, food, plastics[12]

Examples	MSCI • Renewables and Energy Efficiency Index • Sharing Economy Index • Sustainable Water Transition Index • Natural Resources Index • Plastics transition index • Sustainable water transition index	• BlackRock Circular Economy Fund • BNP Paribas CE Leaders • RobecoSAM Circular Economy Equities • Federated Hermes • M&G Positive Impact Fund	• Intesa Sanpaolo (also includes a business and innovation lab)[6] • Rabobank Circular Business Desk[9] • Rabobank Circular Challenge • ING Circular investments and deals, and CE Business Simulation[10]	• Dutch pension fund (Pensioenfonds Detailhandel, €32 bn AUM) invested €100 mn in Polestar Capital’s Circular Debt Fund • Closed Loop Partners portfolio has $530 mn AUM, across 65+ investments and a global reach
Observations	Often based on exclusions for ESG controversies, low ESG scores, or SDG misalignment and some best-in-class where the ‘class’ is not very CE-mature	• Full methodology is often proprietary, and investments are decided on by the fund managers or **Investment Adviser** • 76% of global capital committed to SDG 12 is found in Europe and North America[5]	Serve a **range of clients** from larger and listed companies, providing them with credit facilities, to loans for smaller or early-stage companies	Private market actors tend to aggregate money from different sources and focus on early-stage ventures and social or infra projects

Source: (1) BlackRock (2024) Circular Economy Fund; (2) M&G (2024) Positive Impact Fund; (3) Federated Hermes (2024) Impact Opportunities Fund; (4) Robeco (2024) Sustainable Investing; (5) Phoenix Capital (2022) SDG 12 Responsible consumption and production; (6) Support to Circular Economy - Intesa Sanpaolo; (7) Auping and Rabobank’s path towards circularity; lessons learned on how to get there – Rabobank; (8) Stakeholder feedback (April/May 2024); (9) Circular business – Rabobank; (10) Circular economy | ING; (11) Polestar Capital (2022) online; (12) Closed Loop partners

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Investment strategies for selected Circular Economy equities funds; mentions of circular metrics are limited or not present at all

NON-EXHAUSTIVE

Definition	Source
The Fund will aim to invest in line with the **principles of the Circular Economy** as **determined by the Investment Adviser** (having regard to specialist third party information sources as appropriate). In normal market conditions the Fund will invest in a portfolio of equity securities of companies with **large, medium and small market capitalisation**, across **all industry sectors**, that **benefit from** the **Circular Economy** and/or **contribute to the advancement** of the Circular Economy across three categories: • **Adopters**: Companies that are **adopting 'circularity'** in their business operations (e.g. companies involved in sustainable fashion or companies that have made a commitment to use recycled plastics in production processes) • **Enablers**: Companies that provide new, innovative solutions directly aimed at solving inefficient material use and pollution (e.g. companies involved in recycling of products, companies involved in reducing inputs such as water and energy and companies enabling sustainable transportation). • **Beneficiaries**: Companies that provide alternatives to materials that cannot be recycled or supply these to the extended value chain (e.g. companies that will see an increase in demand for their products from shifts towards more easily recyclable products and companies that offer natural or plant-based circular alternatives to non-recyclable and non-biodegradable products) The assessment of a company's benefit from and/or contribution to the advancement of the Circular Economy in each of the above categories may be based on **percentage of revenue**, a **defined total revenue threshold**, or **any connection to the Circular Economy regardless of the amount of revenue received**. The companies are rated by the Investment Adviser based on their **ability to manage the risks and opportunities associated with the Circular Economy** and on their **ESG risk and opportunity credentials**, such as their **leadership and governance framework**, which is considered essential for sustainable growth, their ability to strategically manage longer-term issues surrounding ESG and the potential impact this may have on a company's financials.	BlackRock | Circular Economy Fund
ECPI selects securities according to the following definition of **Circular Business Models** and **Industrial Sectors** with a **positive ESG rating** according to ECPI's research, grouped by: • **Circular Supplies**: renewable energy, bio-based or fully recyclable material (Industrial Sectors: renewable energy generation/equipment, Biofuels etc.) • **Resource Recovery**: recover useful resources/energy out of disposed products or by-products (Waste management, environmental services & equipment) • **Product Life Extension**: extend working life cycle of products and components by repairing, upgrading and reselling (Apparel & textile products, automotive, construction materials etc.) • **Sharing Platforms**: enable increased utilisation rate of products by making possible shared use/access/ownership (Technology, shared services) • **Product-as-a-Service**: offer product access and retain ownership to internalise benefits of circular resource productivity (Technology, retail shared goods)	BPN Paribas CE leaders
RobecoSAM Circular Economy Equities is an actively managed fund that invests globally in **companies aligned with circular economy principles**. The selection of these stocks is based on fundamental analysis. The fund has **sustainable investment as its objective**, within the meaning of **Article 9** of the Regulation (EU) 2019/2088 of 27 November 2019 on **Sustainability-related disclosures in the financial sector to finance solutions** supporting the paradigm shift to a circular economy. The strategy **integrates sustainability criteria** as part of the **stock selection process** and through a **theme-specific sustainability assessment**. The portfolio is built on the basis of an eligible investment universe that includes companies whose business models contribute to the thematic investment objectives and relevant **SDGs using an internally developed framework**. The fund invests in **four distinct investment** clusters, with the following exposure per end of February. **'Redesign Inputs'**: 33%; **'Enabling Technologies'**: 19%; **'Circular Use'**: 30%; and **'Loop Resources'**: 18%. As a result, the portfolio is invested mostly in the industrials, information technology, materials, consumer discretionary, consumer staples and healthcare sectors.	Robeco Circular Economy Equities

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Demand for ESG and CE information has been driven by alignment to SDGs and sustainability disclosures and regulations, mainly in the EU; in parallel, ESG and circularity have been shown to drive superior risk-adjusted performance and create value across areas

Main drivers of demand for CE **information** and **barriers** to its integration

Main drivers include:

- **SDGs** and SDG alignment[1] is consistently seen across financial market investment strategies[2]
  - While widely used, their circular economy ambition is limited and focused on SDG 12
- **Sustainability disclosures** are seen as another strong driver and as more ambitious than SDGs[1]
  - Regulated reporting: specifically, **SFDR** and the **EU taxonomy** have been key drivers as the circular economy is one of six environmental objectives; being "EU taxonomy aligned" raises great interest from financiers[1]
  - Voluntary frameworks: Rabobank has previously leveraged CTI[1] for circularity assessments, however the effort required to collect data and undertake the assessment for each company was highlighted as a barrier toward scaling[1]
- **ESG Ratings** issued by specialised providers (e.g. MSCI, S&P, Sustainalytics, Moody's, etc.) seeking to assess a company's performance on environmental, social and governance aspects
  - E.g. Within ESG, MSCI, has 10 themes (incl. Natural Capital and Pollution & Waste – both in "E"), divided into 33 'Key Issues' (incl. raw material sourcing, electronic waste, packaging material & waste, toxic emissions & waste) – there is no standalone CE 'Key Issue'
  - E.g. Moody's categorises Circular Economy within Waste and Pollution, within "E"
- Additionally, **global challenges** have driven further market interest in ESG and CE[3]

Barriers include:

- Lack of **standardised metrics** and **measurements** to describe companies' **circular extent**[4,5]
- **Costs associated with non-financial disclosures** narrows their adoption and disclosure[5]
- **Data availability** and **quality** are highlighted as gaps by ESG rating providers and financiers

ESG as a value driver and **financial performance**

ESG and **circularity** can create **value** across different areas:

- **Business value**:
  - Cost savings and efficiency (e.g. by making goods easier to repair)[6]
  - Competitive advantage (e.g. product differentiation, first-mover)[7]
- **Social value**
  - Job creation and skills development
  - Equity and just transition
- **Environmental value**
  - Resource efficiency and waste reduction
  - Biodiversity preservation and climate change mitigation

…as well as **superior risk-adjusted performance** for businesses:

- The analysis of **222 European circular shares** over **5 years** found that these can **de-risk equity investments** and have **superior risk-adjusted performance**[5]
- Similarly, researchers in China utilized a dataset of over 24 thousand observations, from a sample of all listed organizations worldwide over ten years, to investigate ESG impact on corporate financial performance, finding a **positive ESG-corporate performance** relationship[8]

Source: (1) Stakeholder feedback (April/May 2024); (2) MSCI, RobecoSAM, M&G among others; (3) MSCI (2021) Circular Economy: Transforming the global economy in the face of finite resources; (4) MSCI (2023) Transitioning to a Circular Economy; (5) Zara, C. et al (2022) The Impact of Circular Economy on Public Equity in Europe. Understanding De-Risking Effect and Risk-Adjusted Performance; (6) EMF (2013) Towards the circular economy Vol. 1; (7) UNEP Finance Initiative (2020), Financing Circularity: Demystifying Finance for Circular Economies; (8) Simin Chen et al. Environmental, social, and governance (ESG) performance and financial outcomes: Analysing the impact of ESG on financial performance;

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To provide a complete picture of the circular economy, there is a need to consider the informal economy. Despite their important role, informal workers face many challenges; these are highlighted in the literature, however the topic is absent from reporting standards and frameworks

Secondary sources

- *"Many linear economy wastes are literally **put out of sight** of consumers. **Investments** in urban areas that **steer away from informal collection** and **backyard recycling** towards **organised circularity** can **change livelihoods** and **save lives**, particularly in emerging economies. One approach is to **formalize** the **informal sector** by providing equipment, training, financial support, cooperative organisation and **integration** into the waste processing value chain"*[1]

- *"**Waste processing** currently **relies heavily on informal employment** for collection services. For a just transition to circularity to occur, **formalising** the status of informal **waste picker jobs is key**"*[1]

- In Latin America and the Caribbean, *"around **half of economic activities** are 'informal'. These activities have **market value** but **aren't formally registered** or **trackable**"*[3]

Literature findings

- **Multiple sources[1,2,3] confirm** that **circular activities (reuse, repair, refurbish, waste collecting, etc.)** in the Global South, as well as the Global North, are **often informal**
- These activities are **not reported** in **existing standards** and **frameworks**
  - CTI, SASB, ESRS, etc. do not refer to the informal economy
  - IRIS+, which is not circularity-specific, can provide limited indicators, mostly on social aspects

Insights

- Standards and frameworks only account for **flows** within the organization's **direct control/boundaries**, while many **informal activities** occur **upstream** and **downstream** of an organization's boundaries. Furthermore, a key challenge is the difficulty of **tracking informal activities**
- Some **indicators** which **could relate** to the informal economy include:
  - Quality of products (therefore providing the opportunity for reselling an item)
  - Ease of repair (thus can be repaired through informal networks)
  - Social aspects such as community benefits or value added to the community
  - Qualitative / actions taken to engage, support or formalize informal workers
- E.g. the Chilean bank *Banco de Chile* highlighted in their annual report that they put together a **recycling network** for the bank, **collaborating with 'grassroots recyclers'** and **provided** them **support** to **formalize** their employment situation, achieving both social and environmental impact; although the impact is not quantified, it shows how businesses can incorporate actions around the informal economy into their processes

Source: (1) UNEP Finance Initiative (2020), Financing Circularity: Demystifying Finance for Circular Economies; (2) Schröder et al. (2021) Circular economy in Africa: examples and opportunities – Finance, Ellen MacArthur Foundation, ICLEI Africa, Chatham House, University of Lagos; (3) Circle Economy. (2023). Circularity gap report Latin America and the Caribbean. Commissioned by ECLAC, IDB, IDB Invest, UNEP and UNIDO; (4) Schröder, P. and Raes, J. (2021), Financing an inclusive circular economy: De-risking investments for circular business models and the SDGs. Chatham House; (5) Schröder, P. et al. (2020), The circular economy in Latin America and the Caribbean: Opportunities for building resilience, Chatham House

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To accelerate the circular transition, the GCP should strike a balance between comprehensiveness and simplicity, seeking to increase accountability while not overburdening organizations

Stakeholder perspectives'

"Disclosure requirements, such as reporting on emissions and waste, may be **easier** and **less costly** to meet **than investing** in new **infrastructure**, **technologies**, and **processes** for **circular economy practices**.

Regulatory pressure can be a **catalyst for businesses** to begin their transition to a circular economy. By **increasing transparency** and **accountability**, regulations **can help** businesses identify **areas for improvement** and **set targets** for sustainability and circularity"

– Stakeholder feedback (April 2024)

"Meeting regulatory requirements is often a **short-term priority** for businesses, as **non-compliance** can lead to fines, legal action, and reputational damage [and] r**egulatory pressure** shouldn't be overdone as this then **[prevents] innovation** and is a **too high burden** for the industry."

– Stakeholder feedback (April 2024)

"**Regulatory pressure is needed to drive** the topic, but at the moment it is being a **tremendous effort**"

– Stakeholder feedback (April 2024)

Literature findings

- Standards such as the **ISO 59020**, provide organizations with **guidelines** both on **indicators** and the **implementation** of CE principles **throughout** the organization[a]
- **Reporting standards** such as **GRI 306** and **ESRS E5**, ask firms to **disclose actions** and **impact management** as well as quantitative indicators
- ESRS E5, ISO, CTI and Circulytics, all contain financial indicators for organizations to report on **financial effects or impacts of CE**, and in some cases, they also cover the **identification of risks and opportunities**

Insights

- Although the circular transition of organizations may be accelerated by reporting, this is not happening in the short-term as businesses need to divert resources to comply with and meet disclosure requirements instead of accelerating the CE transition
- Reporting standards themselves are too narrow, focusing on waste-related disclosures, rather than having to disclosures of more holistic practices
- There is a need to strike a balance between simplicity and comprehensiveness. Covering a holistic suite of indicators and themes, may enable the protocol to act as a catalyst for businesses to identify areas of improvement, circular pathways and opportunities; this may be complemented by not only providing metrics and disclosure requirements, but also guidance on circular economy principles

Note: (a) Standards analysed include, CTI, Circulytics, ESRS E5, GRI 306, ISO 59020, SASB and Cradle to Cradle

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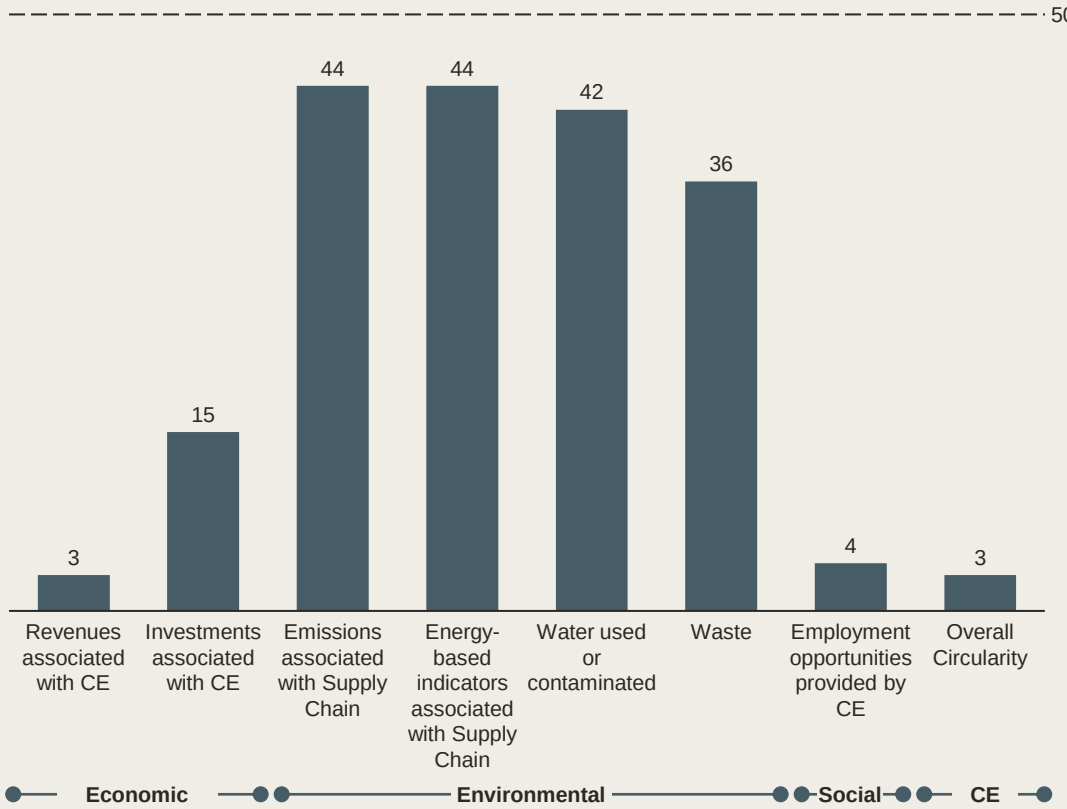
To comprehensively cover circularity, reporting standards and the protocol should encourage organisations to report on holistic CE indicators, moving away from the current focus on waste

Economic, environmental and social KPIs for European MNEs[1]



Literature findings

- A systematic review of indicators used by the top 50 European (Fortune 500) firms, shows that most firms are reporting on environmental indicators, with emissions, energy, water and waste-related indicators being prominent
- Social indicators include for example ‘green’ jobs created and circularity indicators may include metrics such as parts collected and remanufactured
- Philips’ report shows the firm reports on land use and ecological sensitivity, water demand in water-stressed areas, circular revenues and initiatives to close the loop; similarly, Enel has developed its own circular metrics to complement environmental reporting

Insights

- The circular transition is not being accelerated by reporting as **disclosures** revolve mainly around **environmental indicators**; where materials are considered, they are usually only approached from a **waste perspective**, as seen in company annual reports
- The use of waste indicators is widespread because it is 1) feasible to trace and collect the data within a company’s boundaries, 2) all companies, regardless of sector or size, produce some amount of waste
- To accelerate the CE transition, there is a need to move away from the **waste perspective** and disclose or report on a more **holistic set of indicators** such as those offered by CTI

Source: (1) Calzolari et al. (2022) Circular Economy indicators for supply chains

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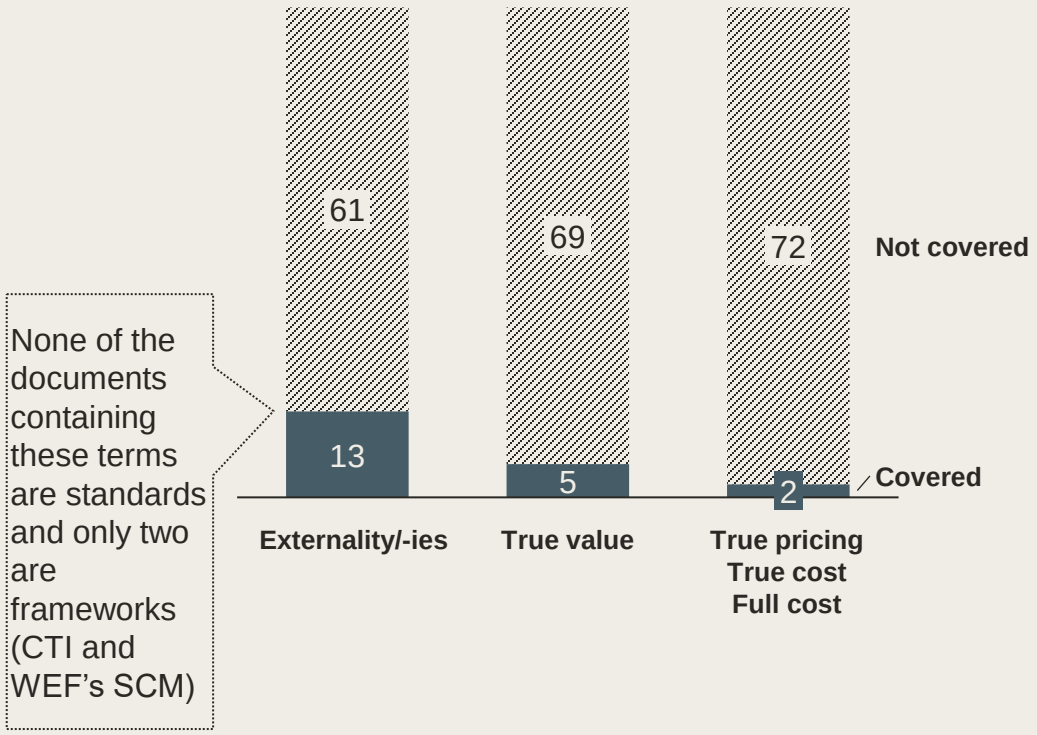
To accelerate the circular transition, the true cost of externalities should be acknowledged

Literature references to externalities and true pricing-related terms



Literature findings

- One source presents a potential solution: **multi-capital balance sheets** with one of the **challenges** being **monetizing externalities**[12] and suggests approaches such as **fee-and-dividend** could collect revenue from societies most polluting activities and directed towards essential services
- Environmental and social externalities, usually covered by public sector outlays, or not at all (leading to the loss of natural and social capital), e.g. the lack of "externality pricing, [gives] producers and consumers economic benefits from intensive use of cheap but harmful products"[1]

Insights

- There is no commonly agreed framework to value externalities, making the widespread adoption of these models challenging at present
  - Firms such as Philips are starting to incorporate the concept, for example by valuing the impact of GHG emissions and societal cost of carbon used
- The protocol could include true pricing indicators as a way to spur its adoption and help set a common method or framework
- Total cost of ownership is often discussed in the context of consumer goods and new business models; however, one of the challenges lies in **split incentives**, when those benefiting from lower TCO may not be those making the investment
- For example, in the built environment case, the literature suggests that "**misalignment in incentives** between builders and users of building projects creates barriers to long-term investment. 'Split incentives' are barrier since circular solutions require **higher initial investments**, but often result in a **lower TCO**"

Sources: (1) Resource efficiency, UCL; (2) Financing Circularity, UNEP; (3) CTI, WBCSD; (4) CGR, Circle Economy; (5) CGR in LAC, Circle Economy; (6, 7, 8) Toward the Circular Economy, vol. 1-3, EMF; (9) Stakeholder Capitalism Metrics, WEF; (10) OECD list of indicators; (11) Circular Economy in Africa, EMF; (12) Financial Accounting in the Circular Economy, Coalition Circular Accounting; (13) Financing the Circular Economy, EMF; (14) Financing an inclusive circular economy, Chatham House

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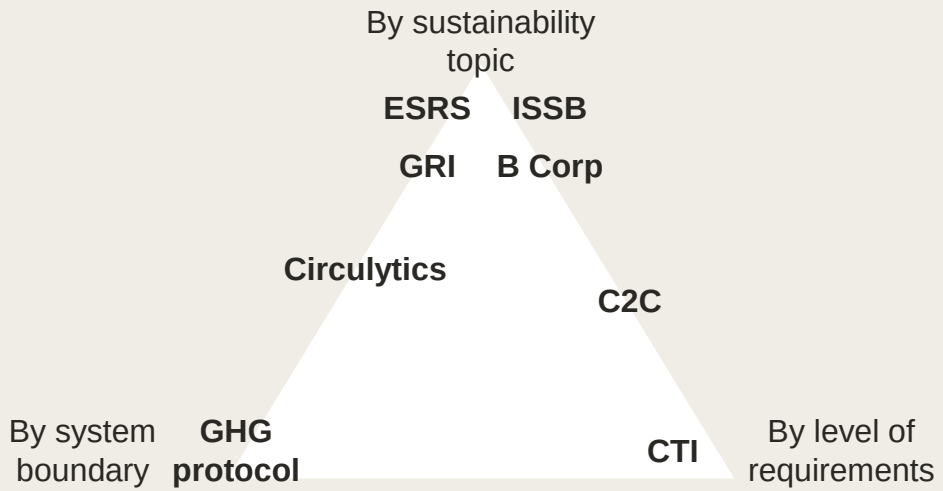
To encourage global measurement, the GCP may need to have multiple levels of reporting with a low barrier for entry level reporting

Standards and frameworks structuring



Literature findings

- **CTI:** indicators divided into 4 parts, of which one mandatory**:** close the loop; and three optional: optimize, value and impact. “Easy to implement and versatile in scope”
- **GHG Protocol**: Scope 1, 2 and 3 structured in reference to system boundary in value chain
- **ESRS/GRI:** Structured into topical standards with disclosure requirements focusing on specific sustainability topics
- **ISSB:** Structured by material topics within each industry standard

Insights

- Circular economy is a holistic concept, and measuring it covers multiple business areas and sustainability topics. For that reason, businesses with little resources struggle to report on extensive indicators, especially quantitative ones as they demand a data collection system in place. To incentivise the reporting of CE in businesses that have just started measuring CE, GCP should encompass multiple levels of reporting, similar to other CE-focused standards, e.g. C2C and CTI.
- This is to acknowledge that circular transition is a process, and it requires significant time and effort to make progress on measuring and reporting CE performance, and adopting CE practices.
- Businesses with little resource could start with reporting on basic CE performance, and progress towards additional indicators as they become more mature both in their (data) infrastructure and circular transition, or use thresholds instead of quantitative reporting, to account for different data maturity levels.

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This publication is the result of an iterative process, incorporating feedback along several stakeholder consultation rounds with business leaders, scientific institutions, think tanks, NGOs, civil society and policy markers provided feedback throughout the process of developing this publication, ensuring that the document broadly represents most participants' views. However, the authors (WBCSD and OPN) are responsible for the final content. As a basic principle, the views expressed by project participants are individual views and may not reflect the views of the respective organisations or employers.

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