ELLEN MACARTHUR FOUNDATION

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Navigating the circular economy reporting landscape

Contents

Overview

This report aims to support companies navigating the fast-changing circular economy reporting and measurement landscape — to accelerate from ambition to action, stay ahead of developments, and evidence circular economy leadership. It will be particularly useful for strategy, sustainability, reporting, finance, risk, and investor relations teams.

Transparency and accountability are key for a global economy operating within planetary boundaries, and they in turn rely on standardised and mature corporate disclosures. In many jurisdictions, climate-related disclosures that link to financial performance have become the norm, and progress on the climate challenge has been accelerated by widely accepted reporting frameworks, guiding companies on how to respond and evaluate performance and providing the markets with impactful data.

Currently, corporate performance reporting is largely based on a linear economic model, but the disclosure landscape has begun to evolve to incorporate circular economy measurement, as the circular economy gains traction in investor and policymaker agendas as a solution to multiple global challenges, including climate change, biodiversity loss, and waste and pollution. Given this, it is not unreasonable to expect circular economy reporting to follow a trajectory similar to that set by climate disclosure, and companies willing to be ahead of the curve can gain advantages now by engaging closely with the reporting landscape as it evolves. Companies viewing their circular economy data as a strategic asset, rather than simply a means to comply with disclosure requirements, can leverage data for strategic decision making across their businesses, beyond the investor relations and sustainability departments. For example, to influence the transformation of products and services, and inform R&D investment.

To date, progress has been patchy and decision makers face challenges in accessing meaningful and complete circular economy data. This is mainly due to: companies being unsure about which data is required and not having established data collection mechanisms in place; a narrow focus on recycling and resource management rather than evidence of a broader, strategic ambition; a siloed, inconsistent approach to data collection and analysis; and being stalled by the search for optimal metrics.

In the face of these challenges and the fast-moving evolution of non-financial reporting, this report supports companies to navigate the complex landscape of measurement and reporting, take a leadership position on measurement, and realise the opportunities the circular economy transition brings. It provides:

- A synopsis of the coverage of circular economy metrics within key disclosure initiatives.
- A classification matrix for circular economy metrics to provide a common language and help with a measurement gap analysis.
- Recommendations on how a company can play a leadership role by:
  - Reporting beyond the scope of mandatory reporting and reporting boundaries limited by jurisdiction, geography, issue, or materiality, in order to provide a more complete and meaningful account of performance
  - Going beyond resource management metrics to report on performance related to the design of products and business models that align with circular economy principles to better understand the business case for investment and innovation
  - Reporting on performance related to the regeneration of nature using a place-based approach, to inform corporate strategy, manage nature-related risks, and help to rebuild natural ecosystems
  - Linking circular economy data to progress on other global challenges such as pollution, climate change, and biodiversity loss in order to demonstrate the need for interconnected solutions to these challenges
  - Integrating circular economy-related information into financial statements, to give a fairer and more balanced view of a company's position and prospects.

To accelerate harmonisation, the Foundation is focusing efforts on informing leading voluntary and mandatory reporting frameworks and mechanisms such as the ESRS, ISSB, CDP, CTI, and TNFD. The Foundation is working to drive the incorporation of circular economy metrics and indicators aligned with the Foundation's three principles, driven by design: eliminate waste and pollution, circulate products and materials at their highest value, and regenerate nature.

The findings in this report are based on a collaborative research project in association with Systemiq, an Ellen MacArthur Foundation partner.

1. Introduction

Measurement and reporting are enablers of the circular economy. The performance data they generate can provide an economic rationale for circular business models, and demonstrate how these models help tackle global challenges, such as climate change, biodiversity loss, and waste and pollution (Figure 1). This information can also usefully inform decisions that catalyse the flow of capital towards companies seizing the opportunities associated with the circular economy transition, and direct policymakers towards interventions that are most impactful.

Companies can be better positioned as circular economy leaders by leveraging data as a strategic asset. This entails identifying data that is meaningful for achieving ambitions, as well as data required to comply with mandatory requirements and align with best practice reporting. Companies aspiring to be frontrunners need to establish collection mechanisms that go beyond downstream performance, such as recycling rates, to provide broader evidence of how their transition to the circular economy is led by design and a commitment to regenerating nature. Data can also be leveraged in strategic decision-making processes across the business, beyond the investor relations and sustainability departments, for example, to influence the transformation of products and services, and inform investment in R&D projects.

While the value and demand for circular economy-related data has been gaining traction, the non-financial reporting and measurement ecosystem has also been evolving. Examples are the mandatory reporting for the European Sustainability Reporting Standards (ESRS), and new voluntary initiatives for nature-related disclosure, such as the Taskforce for Nature-related Financial Disclosures (TNFD). At the same time, the measurement and reporting landscape has become more complex and difficult to navigate.

To help companies steer these challenges, this report provides:

1. A synopsis of different measurement and disclosure initiatives
2. A classification matrix for circular economy metrics to provide a common language and consistent approach across the business, and help with a measurement gap analysis
3. Recommendations on how a company can play a leadership role through measurement and reporting.

The findings in this report are based on a collaborative research project in association with Systemiq, an Ellen MacArthur Foundation partner. A review of metrics was based on publicly available sources, ranging from the following voluntary tools, reporting frameworks, and standards, to goal-setting methodologies, and mandatory sustainability disclosure frameworks.

Figure 1

The role of reporting and measurement in the circular economy transition

Reporting and measurement supports:

Capital flows
To allocate capital flows away from the linear economy and towards the circular economy, investors need data on which economic activities address global challenges, and which companies are taking action and making progress

Benchmarking
Comparative information drives competition in the market and the race to the top

Business transformation
Business decisions are driven by measurement. To measure progress, baselines and targets are needed in order to shift business models and behaviour

Policy agendas
Performance data provides an analytical basis for policy priorities

Shifting of mindsets
Evidence that the circular economy can help tackle global challenges will shift behaviours and decisions

Standardisation
As circular economy reporting and measurement grows, the more data there is to inform standardisation metrics. Being able to compare performance in a consistent way also supports decision making, for example, allocating capital to innovations that can have the most impact on the circular economy transition.

2. Circular economy in the corporate reporting landscape

The reporting and measurement landscape has been evolving to meet the increasing market demand for circular economy-related data, with new frameworks emerging on the horizon. This includes voluntary reporting frameworks, standards, goal-setting methodologies, sector guidance, and regulated sustainability disclosure frameworks.

Emerging frameworks that encompass circular economy topics include:

- The International Sustainability Standards Board (ISSB) has not yet published a circular economy standard, but the circular economy is a subtopic in a shortlist of potential future standards.[1] (The Foundation's response to the ISSB consultation on priorities can be found here)
- TNFD has published recommendations, guidance, and materials for companies to use for reporting on regenerating nature.
- Science-based Targets for Nature (SBTN), developed by the Science Based Targets Network, prescribes how companies should evaluate, set targets, monitor, and report their environmental impacts, including offering guidance on restoration of land and land under sustainable agriculture.
- International Organisation for Standardisation (ISO) is developing circular economy standards for publication in 2024.[2] ISO is a member-driven organisation, and its standard-setting process and business model has faced criticism.[3]

Figure 2 shows how the circular economy is referenced in the main frameworks and standards in the current landscape. It notes alignment with the Foundation's three principles, driven by design: eliminate waste and pollution, circulate products and materials at their highest value, and regenerate nature. Going forward, further developments are on the horizon that will see the circular economy included in disclosure frameworks (Figure 3).

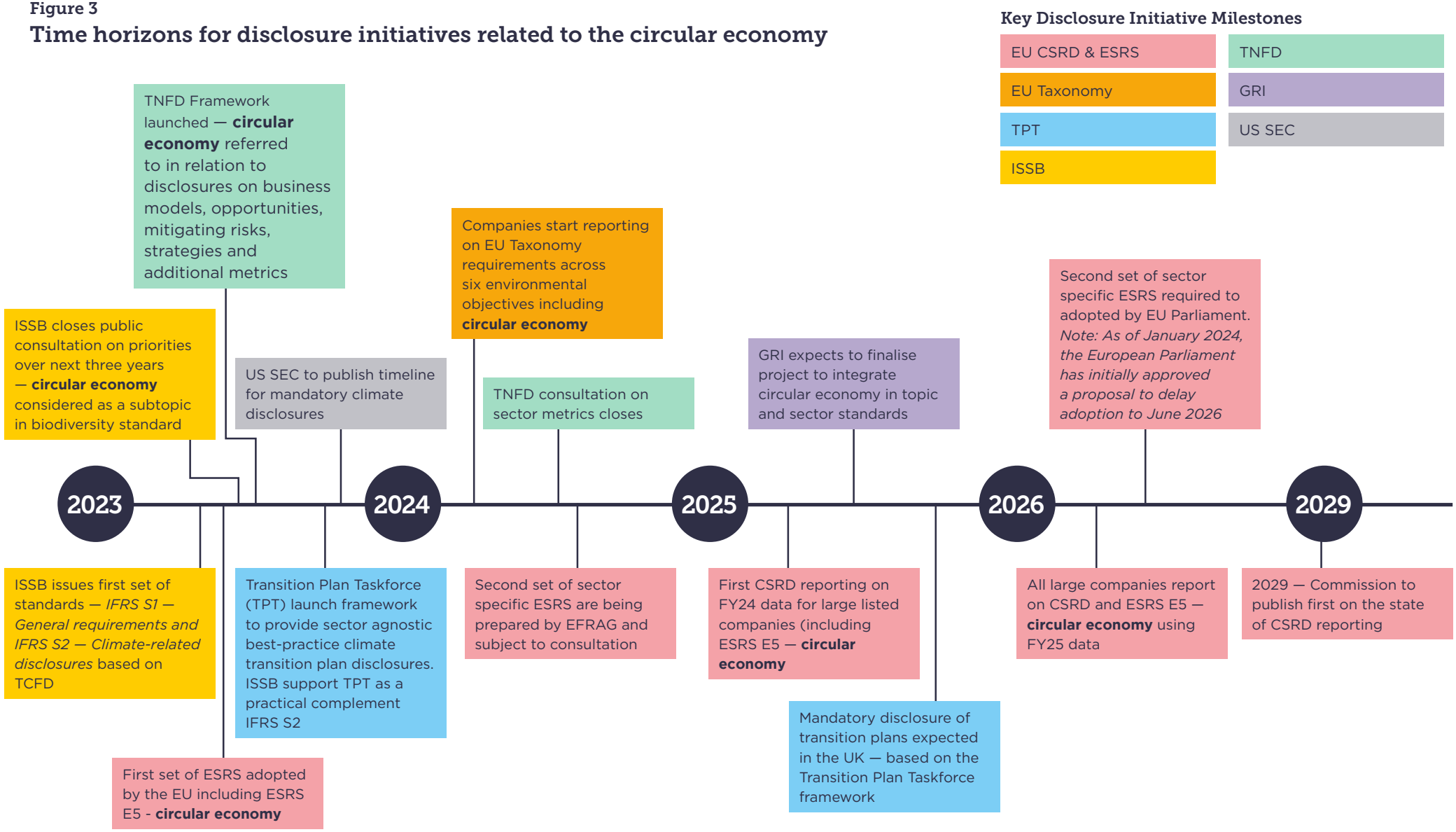
Figure 2

Disclosure initiatives that relate to the circular economy — current mandatory status, approach to materiality, and alignment to the Foundation's definition of the circular economy

Initiative[4]	Voluntary/mandatory status	Materiality[5]	Metrics related to Eliminate (E), Circulate (C), Regenerate (R)	Circular economy definition is aligned with the Foundation's definition
CDP	Voluntary	Double	E, C, R	Aligned[6]
Circelligence (BCG)	Voluntary	Impact	E, C	Aligned
Circle Economy	Voluntary	Double	E, C	Aligned
Circulytics	Voluntary	Double	E, C, R	Aligned
CTI	Voluntary	Double	E, C	Aligned
EFRAG	Voluntary	Double	E, C ,R	EU definition[7]
EU CSRD/ESRS	Mandatory[8]	Double	E, C, R	EU definition
EU Taxonomy	Mandatory	Double	E, C	EU definition
GHG Protocol	Voluntary	Impact	E, C	Circular economy not referred to or defined
GRI	Voluntary	Impact	E, C, R	Own definition
ISSB	Voluntary[9]	Financial	E	Similar
SBTi	Voluntary	Impact	E	Circular economy referred to but not defined
SBTN	Voluntary	Impact	E, R	Circular economy referred to but not defined
TCFD	Voluntary	Financial	E	Own definition
TNFD	Voluntary[10]	Double	E, R	EU definition
TPT	Voluntary	Financial	E	Circular economy not referred to or defined

Figure 3

Time horizons for disclosure initiatives related to the circular economy



Mandatory circular economy reporting has arrived

The launch of the EU's Sustainability Reporting Standards (ESRS) was a breakthrough moment, marking the first legislative circular economy reporting requirements. The ESRS acts as the mechanism for disclosing under the EU Corporate Sustainability Reporting Directive (CSRD), which governs the requirements for sustainability reporting in the EU. One aim of the CSRD is to harmonise ESG reporting across the EU, making it easier for stakeholders and investors to compare the performance of companies across different sectors and countries. The CSRD is a cornerstone of the EU's sustainable finance framework, alongside the EU Taxonomy and Sustainable Finance Disclosure Regulations (a summary of how these regulations interact is shown here). Together, these support the EU Green Deal objectives.

Companies in scope of the CSRD need to report against standards that address a spectrum of topics (including climate change, biodiversity, pollution, and water consumption) — one of which is circular economy in accordance with ESRS E5 Resource use and circular economy.[11] Under separate legislation, the EU Taxonomy requires companies to report specifically on how and to what extent their turnover and expenditure are associated with environmentally sustainable economic activities, defined in terms of contribution to six environmental objectives, one of which is 'the transition to the circular economy'.[12] Both the CSRD and the EU taxonomy legislation require this data to be integrated into a company's annual financial report.

The Foundation broadly supports ESRS E5: indeed there is a clear overlap between ESRS E5 and the Foundation's Circulytics reporting framework, as evidenced by the reference to Circulytics in the European Financial Reporting Advisory Group (EFRAG draft ESRS E5). However, in response to the consultation during the development of the E5 standard, the Foundation highlighted concerns about its focus on material flows (e.g. recycled content), rather than metrics that relate to the design of products and materials in accordance with circular economy principles. While the overall requirements provide a suitable starting point, companies need to go beyond these regulations — particularly with regard to reporting on performance related to regenerating nature and circular design. To support companies that have reported against the Foundation's Circulytics framework, a mapping of Circulytics metrics against ESRS E5 metrics can be found on our website.

Although mandatory circular economy reporting is in an emergent phase, this is expected to accelerate with the growing recognition that the circular economy offers a systems solution to climate change and other global challenges, such as biodiversity loss and waste and pollution.[13] Global adoption may be further accelerated by the ISSB's vision to create a global baseline for sustainability-related financial disclosures. The ISSB has attracted support from the investor community: securities regulators (130 members of International Organisation of Securities Commissions [IOSCO]) and G20 jurisdictions. Countries including Australia, Brazil, Canada, China, Japan, and the UK have announced their intention to adopt the ISSB standards.

The maturity of sustainability reporting is a varied picture across the globe, with its incorporation into legislation being further ahead in some countries than others (see Figure 4 for examples of regional developments).

Figure 4

Examples of regional developments in non-financial reporting in G20 countries

- The opening of an ISSB office in Beijing in 2023 signals a commitment by China to support the ISSB's innovation and capacity building on non-financial reporting standards.[14]
- The UK is also expected to issue its own sustainability standards in 2024 based on the ISSB.[15] Ahead of mandatory climate transition plan reporting, the framework of the Transition Plan Taskforce (TPT), set up by the government, is intended to be the gold standard for private sector climate transition plans.
- The US has not publicly committed to adopting the ISSB, but the US Securities and Exchange Commission has proposed rule changes that would require companies to include certain climate-related disclosures in their registration statements and periodic reports.[16]

Harmonisation of standard bodies and disclosure initiatives

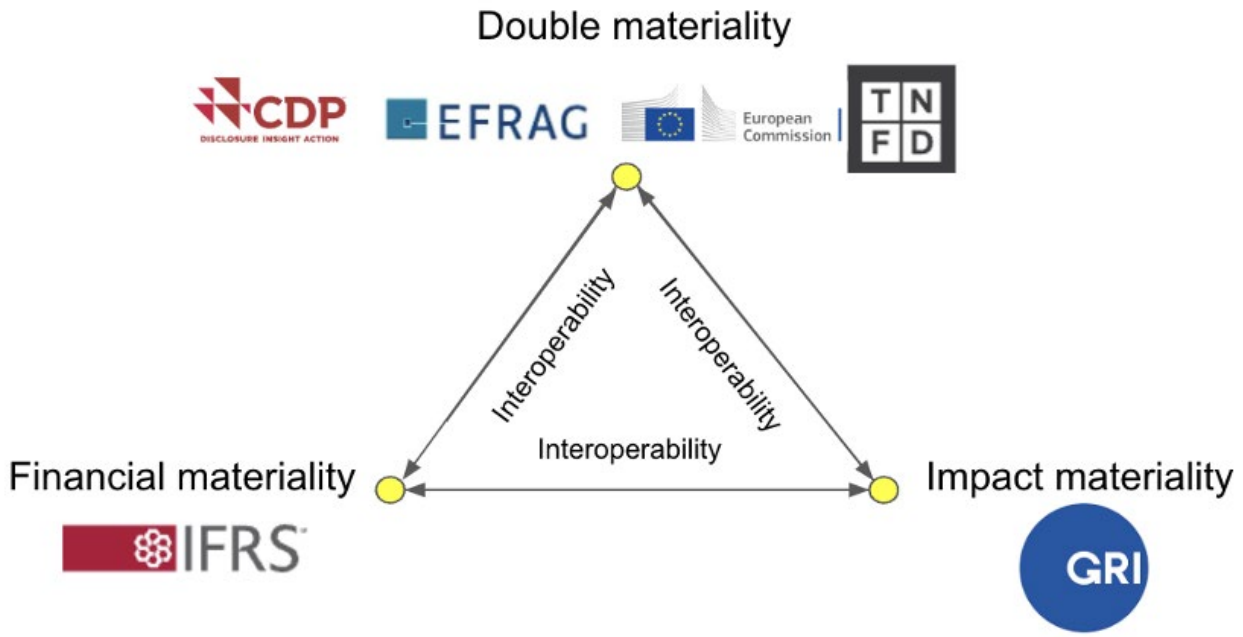
Standard bodies and disclosure initiatives have begun to consolidate their reporting frameworks in response to increasing complexity reporting and calls for harmonisation of the 'alphabet soup'. Standardisation will accelerate the flow of capital towards the circular economy by providing financial stakeholders with more consistent and comparable information to aid decision making.[17] At the same time, it will enable companies to streamline their reporting efforts and data collection.

For example, to support consolidation and reduce fragmentation, the ISSB has been incorporating other financial materiality-focused initiatives into its workstreams, including the CDSB Framework, IR Framework, SASB standards, and TCFD recommendations. The ISSB also collaborates closely with jurisdictional and global disclosure initiatives to foster regulatory adoption of its standards, as well as to facilitate interoperability where there are differences in approaches to materiality.[18] Other global disclosure initiatives with different approaches to materiality have also made joint statements to achieve interoperability. For example, when announcing the first set of EU sustainability standards, the EU and EFRAG presented a very high level of alignment with ISSB standards[19] and the GRI Standards.[20] Furthermore, CDP will align its 2024 questionnaires to the ISSB climate disclosure standard (IFRS S2), and has committed to integrate other disclosure initiatives, including the TNFD, EU standards, ISSB, and US SEC.[21]

Figure 5 shows current collaboration commitments between different reporting initiatives on double materiality (TNFD, EFRAG, EU, and CDP), impact materiality (GRI),[22] and financial materiality (ISSB).[23]

Figure 5

Interoperability commitments between initiatives with different approaches to materiality[24]



To accelerate harmonisation, the Foundation's measurement workstream is focusing on engaging with leading reporting frameworks and mechanisms (such as the ESRS, ISSB, CDP, CTI, and TNFD) to drive the incorporation of circular economy indicators and a common definition based on the Foundation's circular economy principles. The Foundation will work to collect evidence of measurement challenges and act collectively to shape framework evolution.

Figure 6

Analysis of coverage and convergence of circular economy metrics in disclosure initiatives

	Eliminate (by design)	Circulate (by design)	Regenerate (by design)
Resource management[A]	**Reduce absolute resource use and waste**	**Increase circulation of resources**	**Increase regenerative resource use**
	Highest level of coverage and 'standard' for CE measurement – but on their own they do not capture the most critical system change elements		*Footprint metrics and natural resource use but rarely location-specific*
Circular products[B]	**Design products for longevity, durability, safety, and efficiency**	**Design products for circularity**	**Design products & systems for regeneration**
	Less coverage, less convergence, and less satisfying metrics so far – but critical to maintain transformative system change view of CE		*Limited coverage*
Circular Business Model[C]	**Dematerialize business models**	**Scale circular business models**	**Scale regenerative business models**
	Less coverage, less convergence. and less satisfying metrics so far, but critical for transformative system change view of CE		*Regenerative business models – no metrics, ill defined concept*
Value Creation	**Increase resource productivity**		*Limited coverage, emerging as part of the TNFD*
	Highest level of coverage and 'standard' for CE measurement – but on their own they do not capture the most critical system change elements		

Limited coverage in existing CE/sustainability metrics studied

Some coverage but incomplete or divergent

Good coverage and convergence in existing CE/sustainability metrics studied

A) Including resource consumption in operations, infrastructure, and assets

B) Substitute is a strategy that applies across ECR principles

C) This includes business models that enable circularity e.g. traceability

Coverage and convergence of metrics

A study of metrics for this report found that coverage of circular economy topics is broadening to financial materiality, and convergence is beginning to occur across the reporting landscape, though gaps remain. The analysis, shown in Figure 6, was structured around a classification matrix built from the Foundation's three circular economy principles against four dimensions of circular economy performance. (Refer to section 3 for more details of this approach and the matrix.)

The traffic light analysis in Figure 6 highlights that:

- **Metrics related to resource management have the highest level of coverage and convergence** (e.g. emissions intensity, energy consumption, water consumption, material flows, etc.) compared to other performance dimensions.
- **Frameworks include only limited 'circular product design'** (e.g. recovery potential) and 'circular business model' metrics (e.g. waste reduction as a result of process redesign) despite these being critical to system-level change.
- **Good levels of coverage and convergence on metrics relating to value creation.** This can help organisations monitor how the use and generation of capital supports circular economy goals, e.g. incentives for senior management to achieve climate targets.
- **Gaps in the coverage and convergence of metrics relating to the regeneration of nature**, making it difficult for companies to assess and compare the impact of their circular business models.

Analysing the coverage of current disclosure initiatives in this way emphasises the need to ensure that metrics are taking a whole system design approach. This analysis has also identified two areas ripe for further development:

Metrics related to circular product design and business models. Design-focused metrics can help businesses to understand the financial value of innovation and develop the business case for investment. To date, design metrics are less standardised than other circular economy metrics, as they need to be sector activity-specific. As a result, companies have had to develop their own metrics and so are using different methodologies, boundaries and assumptions, for example, 'revenue from circular products and solutions'.

Metrics related to regenerating nature. Business models and products that regenerate nature are central to the circular economy. The analysis found that current metrics typically:

- focus on measuring companies' overall pressure on nature, acting as 'footprint' measures, rather than regeneration;
- miss location-specific impacts;
- fail to capture positive contributions;
- are not standardised, with ambiguity on the boundaries and transparency needed on judgements; and
- are often not included in regulated disclosures.

These gaps are being partially addressed by the framework of the Taskforce on Nature-related Financial Disclosures and supporting guidance. The TNFD has been working to inform reporting standards and regulatory developments, including GRI[25] and ESRS[26] standards, and CDP and ISSB have also made statements of interoperability (as shown in Figure 5). The symmetry between the TNFD and SBTN (Science Based Targets Network) mirrors what is in place for climate reporting with the TCFD and Science-based Targets initiative (SBTi) (which provides methods for setting climate targets). A comparison of the TNFD and the SBTN is provided in Figure 7.

The TNFD framework is structured identically to the TCFD framework, including recommendations and indicators to help organisations get started on nature-related assessment. It is based on an analysis of 3,000 nature-related metrics, providing a multi-layered non-prescriptive approach whereby an organisation should disclose the metrics that are most relevant to and most accurately represent the nature-related risks and opportunities it is exposed to. The TNFD recommends companies report on all of its core global (e.g. water withdrawal and consumption) and sector risk and opportunity metrics (1st public consultation period now closed). Furthermore, companies are recommended to disclose any other relevant additional metrics at the appropriate organisational level (e.g. value of expenditure, categorised into mitigation hierarchy actions — avoid, reduce, restore and regenerate, transform etc. as %).[27]

In addition, the CEIC[28] (Circular Economy Indicators Coalition) has issued guidance on metrics relating to regenerating nature (e.g. total weight & % materials that are regeneratively produced and renewable), and the WBCSD[29] (World Business Council for Sustainable Development) has issued guidance for businesses to be 'Nature Positive' (e.g. state of nature indicators in priority locations).

Figure 7

Comparing the TNFD and SBTN

The TNFD's mission closely relates to that of the SBTN, with a shared ultimate aim of driving nature-positive outcomes. However, the two frameworks serve distinct purposes:

- The TNFD provides a set of nature-related recommended disclosures and additional guidance for corporates and financial institutions to identify, assess, manage, and disclose nature-related issues.
- SBTN focuses on targets — providing science-based methods and guidance for companies to set measurable, actionable, and time-bound targets that are grounded in societal goals and ecological thresholds.

SBTN and TNFD are working actively together to ensure alignment,[30] and jointly developed a fundamental component for reporting on nature: the LEAP approach (Locate, Evaluate, Assess and Prepare). LEAP helps companies to understand their relationships to nature (including how circular economy principles can respond to nature-related issues). The TNFD framework recommends companies use methods from the SBTN to aid in the achievement of targets for nature-related impacts.[31]

Sector standardisation

The development and adoption of sector-specific standards is likely to characterise the next phase in the evolution of circular economy reporting. There is a need for consistent and comparable sector-specific metrics that reflect different business models within industries. A study by EY on circular economy reporting found a wide range of maturity across industries,[32] due to industry-specific barriers. Consumer products and apparel industries are currently leading, while the aerospace industry is among the laggards. In this regard, the ISSB (through SASB), EFRAG, GRI, and TNFD are working on sector-specific disclosures (as illustrated in Figure 3).

Companies with reporting and measurement processes informed by relevant sector standards and metrics can benchmark themselves against peers and industry targets. Good performance can build brand equity, help attract talent, and signal ambition and resilience to investors.

3. Developing circular economy metrics

An analysis of thousands of illustrative circular economy metrics for this report — across different standards, tools, frameworks, and regulations — found no universal sector-agnostic metrics that would enable meaningful comparability of performance across the three circular economy principles (see Figures 6, 8, 9, 10, and 11). While the harmonisation and standardisation of reporting initiatives are crucial, a single generic set of reference metrics would not provide the explanatory power and nuance needed from circular economy data, nor capture the breadth of circular strategies employed by businesses, nor the variety of outcomes aspired to.

In the absence of standardisation, and to help make measurement easier for companies, a metrics classification matrix has been developed.

Metrics classification matrix

The metrics classification matrix shown in Figure 8 presents a common structure for performance metrics and a consistency of approach to measurement across a business.

The matrix proposes a categorisation of performance outcome metrics into four circular economy performance dimensions (shown in dark grey in Figure 8):

- resource management;
- circular products;
- circular business model; and
- value creation.[33]

and then a mapping against the three circular economy principles: eliminate waste and pollution, circulate products and materials at their highest value, and regenerate nature. The result is a taxonomy of ten families for measuring company-level circular economy outcomes (shown in light grey in Figure 8).

The metrics matrix is based on a review of company level ‘outcome metrics’ (lagging), rather than metrics at the product level. Predictive ‘exposure and enabler metrics’ (leading) were not included in the review — such as those relating to a company’s readiness to manage the impacts, risks, and opportunities associated with a transition to the circular economy.

Figure 8

Descriptions of the ten metrics families in the classification matrix[34]

	Eliminate (by design)	Circulate (by design)	Regenerate (by design)
Resource management[A]	**Reduce absolute resource use and waste** Reduce absolute resources used to produce goods and services, design out non recyclable waste and pollution	**Increase circulation of resources** Source circulated resources and circulate resources[D] in operations	**Increase regenerative resource use** Source regeneratively grown resources, develop regenerative facilities, and build natural capital
Circular products[B]	**Design products for longevity, durability, safety, and efficiency** Design products to contain no hazardous substances, eliminate unnecessary materials, extended lifetimes, and use-phase efficiency	**Design products for circularity** Design products to enable reuse, remanufacturing, refurbishment or recycling of products and materials	**Design products & systems for regeneration** Design products that regenerate natural systems and build natural capital
Circular Business Model[C]	**Dematerialize business models** Increase revenues and outcomes from dematerialized models (e.g sharing or pooling)	**Scale circular business models** Increase revenues and outcomes that are derived from circular models (e.g. repair, refurb, rcontent)	**Scale regenerative business models** Increase revenues and outcomes from restoration of nature or supporting ecosystem services
Value Creation	**Increase resource productivity** Revenues/outcomes generated from products and services over resource use		

A) Including resource consumption in operations, infrastructure, and assets

B) Substitute is a strategy that applies across ECR principles

C) This includes business models that enable circularity e.g. traceability

D) e.g. recycled processing waste

Figure 9

Examples of illustrative metrics in the ten families of the classification matrix from companies in different industries (Sources: Company websites, March 2023)

	Eliminate (by design)	Circulate (by design)	Regenerate (by design)
Resource management[A]	**Reduce absolute resource use and waste** • Zero Waste World Programme at CHEP (Brambles) • 50% absolute reduction of GHGe (H&M) • Total of ~95 KT waste generated of which ~21 KT was non-hazardous waste and ~74 KT was hazardous waste (Umicore)	**Increase circulation of resources** • 17% of r-content in private brand packaging (Walmart) • 25% of plastics from recycled content (Volvo) • 100% recycled tin in the Fairphone 4 (Fairphone)	**Increase regenerative resource use** • Sourcing of fabrics from cert. org. cotton (GANNI) • 100% of products from regenerative agriculture(Danone)
Circular products[B]	**Design products for longevity, durability, safety, and efficiency** • Applying additive manufacturing to increase resource efficiency (Siemens) • Products with lifelong repair (Rimowa) • Reduction in process emissions by phasing out cobalt in batteries (Tesla	**Design products for circularity** • Design out multi-materials (Unilever) • Develop digital product passports (Northvolt) • Number of devices refurbished and resold through trade-in programs (Apple)	**Design products & systems for regeneration** • Carbon negative building (Arup) • 10m shoes from ocean plastic (Adidas) • Regen. rubber supply for footwear (Timberland)
Circular Business Model[C]	**Dematerialize business models** • Revenues generated from car sharing services (Miles) • Revenues from refill business model (PepsiCo)	**Scale circular business models** • Revenues from products x % recycled content (BASF) • Revenues from traceability enabling CE (Circulor) • Revenues from Takeback Program (Cisco)	**Scale regenerative business models** • Revenues from products that are regeneratively produced (Lush) • Planting trees from proceedings (Ecosia)
Value Creation	**Increase resource productivity** • CO_2/km (Volvo)		

A) Including resource consumption in operations, infrastructure, and assets

B) Substitute is a strategy that applies across ECR principles

C) This includes business models that enable circularity e.g. traceability

Sources: Company websites,

Note: Examples demonstrate the use of individual metrics at the company level without Systemiq's assessment of the effectiveness of the metric or the overall circularity of a company.

Using the matrix

The matrix can help companies optimise the value of their measurement and reporting to:

- signal that a robust measurement approach considers all circular economy principles and outcome dimensions;
- provide a common and consistent language for circular economy measurement across the business;
- provide a framework for understanding where the business is performing well and opportunities for improvement and innovation;
- enable comparability of performance across different parts of the business; and
- reduce the risks arising from incomplete information.

Figure 9 provides examples of metrics for each of the ten families in the matrix.

We recommend companies:

1. Start with a limited set of indicators based on a materiality assessment and mandatory reporting requirements
2. Use the metric matrix to identify which of the families of metrics are most relevant for their circular economy ambition and reporting needs, and then identify metrics for each of those families
3. Select metrics from the ten families that:

   a) track their circular economy targets; and

   b) have been identified as interoperable between multiple common (also voluntary) reporting frameworks, to optimise reporting efficiency
4. Take a staged approach to developing data collection processes and assets.

4. Recommendations

Companies that stay ahead of the shifting market demands for performance data and the evolving reporting landscape will be well positioned to realise the opportunities the circular economy transition brings. They can prepare by leveraging approaches already established for climate disclosure and by being early adopters of emerging voluntary and mandatory frameworks that support the circular economy transition (see time horizon in Figure 3). For example, companies can monitor ISSB developments and draw on existing ISSB standards — IFRS S1 General Requirements and IFRS S2 Climate-related Disclosures — published in June 2023.

To evidence circular economy leadership, the Foundation recommends that companies:

i Report beyond the scope of mandatory reporting

Regulatory standards and voluntary frameworks prescribe the types of information to be reported and reporting boundaries are defined by jurisdiction, geography, issue, materiality, or other aspect of scope. Companies should consider going beyond what is required for compliance where that would provide a more complete and meaningful account of performance. For example, the US Securities and Exchange Commission is proposing mandatory climate disclosure requirements based only on financial materiality, whereas the ESRS (under the CSRD) requires a double-materiality lens. Companies should be guided by the needs of their data users and look to meet or exceed good practice for their sector. While the CSRD applies to large and listed EU companies, as well as to large non-EU companies which do substantial business in the EU or have securities listed on EU regulated markets, others can remain competitive in the EU market by reporting the same data voluntarily and staying one step ahead of potential legislative developments in other jurisdictions.

ii Report beyond resource management metrics

Reporting frameworks most commonly include metrics that relate to resource management and value creation — as shown in Figure 6. However, measurement that focuses only on downstream elements (e.g. total water consumption and emissions) will not generate sufficient insights to inform strategic decision making and prioritise the circularity levers that yield the largest gains for achieving targets. Designing for the circular economy (design of circular products, services, and business models) holds the key to reducing the downstream impacts right at the start.

Metrics relating to the design of circular products (such as ‘percentage of products recyclable’) and business models (such as increase in revenue from dematerialisation across the business) help companies understand the financial value of, and contribute to the business case for, investment and innovation that support circular economy leadership. At the same time, to avoid perceptions of greenwashing, design-focused metrics relating to intent need to be complemented with resource management metrics relating to practice, such as ‘% recycled in practice’ or ‘% packaging weight reused in practice’.

Furthermore, in addition to the outcome metrics in the classification matrix, circular economy reporting should include more forward-looking enabler indicators, for example, ones related to governance and strategy, and risk and opportunity. These demonstrate commitment to the circular economy transition and provide data that supports and facilitates the adoption and implementation of circular economy initiatives within the company.

iii Report on performance relating to the regeneration of nature

Companies wishing to maintain a leadership role in the circular economy transition should track and report on their activity and progress in regenerating natural ecosystems. By adopting a place-based approach and tracking and reporting their progress through emerging frameworks (e.g. the TNFD and SBTN), companies can fill the previous gap in the availability of metrics relating to regenerating nature, and better inform their corporate strategy, manage nature-related risks, and help to rebuild natural ecosystems.

iv Link circular economy data to progress on other global challenges

Cross-referencing data related to the circular economy (such as 'reduction in use of virgin materials') to performance on pollution, climate, and biodiversity targets (such as 'total GHG emissions') allows companies to better track the value and impact of their circular transition.[35] In turn, this knowledge supports the integration of circular economy activities into companies' climate and nature transition plans, and promotes the circular economy as a solution to interconnected global challenges. (Transition plans are recommended under standards such as the ESRS, TCFD, and TNFD.)

Currently, there is little guidance on how to account for the impacts of circular economy performance. To address this, the Foundation will explore the challenges that companies face in measuring the role of circular business models in avoiding emissions and other impacts, and support reporting frameworks to develop standard approaches.

v Integrate circular economy-related information into financial statements

Reporting circular economy performance with financial information reinforces integrated thinking within companies, for example aligning sustainability and finance departments on the performance indicators used to monitor, measure, and drive success.

Integrated reporting is becoming established in reporting standards, such as the ISSB. At the same time, auditing and assurance practices have been more focused on the connectivity and completeness of ESG reporting. Regulators are paying more attention to the linkages between non-financial and financial performance, and ensuring that a fair and balanced view of a company's position and prospects is presented. This also applies to circular economy-related disclosures within management commentary and financial statements.

A report issued by EU regulators outlined the supervisory actions being taken on greenwashing risks,[36] and UK regulators[37] are taking action on the enhanced role of auditors to consider ESG issues.[38] There has been an increased focus on ensuring compliance with the core principles of reporting, such as comprehensiveness and transparency. In the EU, for example, reporting under the CSRD is subject to formal assurance standards,[39] yet an EFRAG review of climate risk reporting in annual reports found cases where companies had referenced climate risk hundreds of times in the management report and sustainability section, but the financial statements had no quantitative climate risk disclosures.[40]

5. Next steps: moving towards measurement leadership

The recent integration of circular economy metrics in key reporting standards, and emerging reporting frameworks related to nature, will help companies assess their circular economy performance and understand the value and impact of their circular economy activities. These developments signal that a greater degree of standardisation is on its way.

The extensive review of current metrics carried out for this study found no silver bullet for circular economy measurement — no generic set of metrics that would adequately capture the breadth of circular strategies employed by businesses or their impact on either business success or global challenges.

However, circular economy reporting and measurement is a strategic asset. We encourage companies to evolve their reporting in line with the developments in the ecosystem of frameworks in a way that serves their needs and those of their stakeholders; and to draw on the metrics classification matrix proposed in this report.

By demonstrating measurement leadership, organisations can ensure they are equipped to make the right strategic decisions and well placed to seize the opportunities for innovation and investment presented by the circular economy transition.

Appendix

i Frameworks included in the metrics landscape analysis

The review of metrics was based on publicly available sources, ranging from the following voluntary tools, reporting frameworks, standards, goal-setting methodologies, and mandatory sustainability disclosure frameworks:

Figure 10

Four types of disclosure initiatives analysed

Format	Description	Examples
CE measurement tools	• CE tools and surveys to measure material flows within company boundaries, sometimes combined organisational (e.g. d4x) or financial indicators, e.g. revenue from circular business models	BCG, SAP, CTI TOOL, CIRCULYTICS™
Voluntary standards and frameworks	• A system to voluntarily collect (report) information to inform practices and make informed decisions, usually applied for internal use • Companies are likely to be expected to follow and report against certain frameworks and methodologies, e.g. via the TNFD making them 'quasi-regulated'	TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES, TNFD, GRI, SCIENCE BASED TARGETS DRIVING AMBITIOUS CORPORATE CLIMATE ACTION
Formal standards and setting bodies	• Formal standards can use voluntary standards and frameworks as input to guide the establishment of technical specifications and criteria that must be met in order to ensure consistency and reliability • This can help organisations identify areas for improvement and track progress over time	ISSB, ISO, EFRAG
Regulations	• Regulations are generally mandatory and enforceable by law and may include requirements for environmental protection, consumer protection, or other areas of concern • Often regulation and mandatory reporting build on previously voluntary reporting and disclosure, e.g. CSRD with ESRS 5	EU CSRD, EU Taxonomy

Figure 10

Frameworks mapped in the gap analysis

Circle Economy: Empowering a global community of cities and businesses with tools and on the ground support to create circular cities while driving economic and social prosperity, within the boundaries of our planet.

Circulytics: A data-driven tool developed by the Ellen MacArthur Foundation that allowed companies to measure their circular economy performance, highlighting successes and identifying areas for improvement.

Circular Transition Indicators (CTI): Developed by World Business Council for Sustainable Development (WBCSD), CTI is an objective and quantitative framework for businesses to measure circularity, evaluate linear risks and identify circular opportunities.

Boston Consulting Group (BCG): BCG is one of the Big Three global management consulting groups. Developed by BCG, Circelligence is a part evaluative, part circular economy framework, providing an assessment of a company's circularity.

Taskforce on Nature-related Financial Disclosures: The TNFD has developed a set of disclosure recommendations and guidance for organisations to report and act on evolving nature-related dependencies, impacts, risks, and opportunities.

EU Taxonomy: The taxonomy is a classification system that defines criteria for economic activities that are aligned with a net zero trajectory by 2050 and the broader environmental goals other than climate, in line with the European Green Deal objectives.

Science Based Targets: The Science-based Targets initiative (SBTi) defines and promotes best practice in emissions reductions and net-zero targets in line with climate science. They also provide technical assistance and expert resources to companies who set science-based targets in line with the latest climate science.

Taskforce on Climate-related Financial Disclosures: The TCFD develops recommendations on the types of information that companies should disclose to support investors, lenders, and insurance underwriters in appropriately assessing and pricing a specific set of risks related to climate change.

CDP: The CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts.

International Sustainability Standards Board (ISSB): The ISSB is developing standards that will result in a high-quality, comprehensive global baseline of sustainability disclosures focused on the needs of investors and the financial markets.

International Organization for Standardization (ISO): A global network of standard setters that develop and publish International Standards, covering a wide range of activities, and are internationally agreed by experts.

Global Reporting Initiative: One of the most widely used sustainability reporting standards globally.[41] The GRI works with businesses, investors, policymakers, civil society, labour organisations, and other experts to develop the GRI Standards and promote their use by organisations around the world.

European Union, Corporate Sustainability Reporting Directive: Entering into force on 5 January 2023, the directive modernises and strengthens the rules concerning the social and environmental information that companies have to report. A broader set of large companies, as well as listed SMEs, will now be required to report on sustainability. The Commission adopted the European Sustainability Reporting Standards (ESRS) for use by all companies subject to this directive.

European Financial Reporting Advisory Group (EFRAG): A private association established in 2001 with the encouragement of the European Commission to provide Technical Advice to the European Commission in the form of fully prepared draft ESRS and draft amendments to these Standards.

ii Glossary

Terms used as categories of circular economy performance in the classification matrix:

Resource management - performance relating to the ability to reduce primary resource consumption and waste and circulation of materials.

Circular products - performance relating to the adjusting of product design for longevity, e.g. through reuse and efficiency, e.g. collection and sorting technology.

Circular Business Model - performance relating to shifting to dematerialised and regenerative business models, e.g. product-service offerings, outcome-based models.

Value Creation - performance relating to activities leading to increased resource management, e.g. financial turnover over total resource consumption.

Other terms:

Circular economy outcomes - outcomes are immediate and measurable results of circular economy levers — including resource management, circular products, circular business models, and value creation.

Financial materiality - in the context of sustainability-related financial disclosures, information is material if omitting, misstating or obscuring that information could reasonably be expected to influence decisions that primary users of general purpose financial reports make on the basis of those reports, which include financial statements and sustainability-related financial disclosures and which provide information about a specific reporting entity.[42]

Impact materiality - a sustainability matter is material from an impact perspective when it pertains to an organisation's actual or potential positive or negative impacts on people or the environment over the short, medium, or long-term.[43]

Double materiality - double materiality includes both dimensions, namely; impact materiality and financial materiality.[44]

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8 Reporting is mandatory if circular economy is identified as a material issue as part of double materiality assessment.

9 The ISSB Standards provide a global baseline of sustainability disclosure standards. It is for jurisdictional authorities to decide whether to mandate use of IFRS Sustainability Disclosure Standards issued by the ISSB, and requirements aimed at meeting the information needs of broader stakeholder groups beyond investors.

10 The TNFD, like the TCFD, may be mandated by jurisdictions in the future — irrespective of double materiality assessments, e.g. UK.

11 The CSRD applies to companies with more than 250 employees and EUR 50mn in turnover. Initially more than 11,000 listed companies will have to comply from the beginning of 2024. It will then expand to large non-listed companies and listed small and medium enterprises in 2025 and 2026, totalling around 50,000 entities. Companies outside the EU with more than EUR 150m turnover in each of the two previous fiscal years — through either an EU subsidiary or a branch — will also need to report on the CSRD.

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