BUSINESS IN THE COMMUNITY

The Prince's Responsible Business Network

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Report

HOW CIRCULAR?

2022

Measuring and Reporting Circular Economy in Business

BUSINESS IN THE COMMUNITY
The Prince's Responsible Business Network

REPORT

MEASURING AND REPORTING CIRCULAR ECONOMY IN BUSINESS

This report details original research carried out by Business in the Community (BITC) to evaluate indicators for the effective measurement of circular economy in business.

Introduction

Whilst ESG reporting is rapidly becoming a mainstream practice for corporate UK[i], there is not yet a clear approach for businesses to report on resource use or progress in the transition to a circular economy. Several metrics and frameworks exist, but these are designed to perform different functions and, therefore, use a wide range of indicators. This makes it difficult for businesses to report consistently, and harder still for investors to direct money towards the most successful circular opportunities.

Many businesses are either unaware of or are overwhelmed by the complexity of metrics which deal with holistic circularity and instead report against the familiar KPIs of waste generated and recycling rates. However, these KPIs fail to measure true circularity in a credible way and can even be counterproductive.

For example, they may encourage an increase in recycling rates rather than reusing and repurposing or ignore practices like the production of single use or fast fashion items which are sold as a product and, therefore, do not count as business waste.

BITC has undertaken a review of circular economy measurement and reporting frameworks and has gathered insights from member businesses on this topic which are presented in this report. Our aims and objectives for the project have been:

- to begin a conversation with BITC members on what 'good' looks like for circular economy reporting
- raise members' awareness of established circular economy metric frameworks
- provide a set of circular economy KPIs, derived from established metric frameworks that BITC can recommend companies adopt at scale to bring consistency to organisational circular economy measurement and reporting.

IF YOU CAN'T MEASURE IT, YOU CAN'T MANAGE IT, SO BY ENSURING THAT THEY ARE EFFECTIVELY MEASURING CIRCULARITY, BUSINESSES CAN BE MORE STRATEGIC ABOUT THE CIRCULAR ACTIONS WHICH THEY IMPLEMENT.

HRH THE PRINCE OF WALES ROYAL FOUNDING PATRON

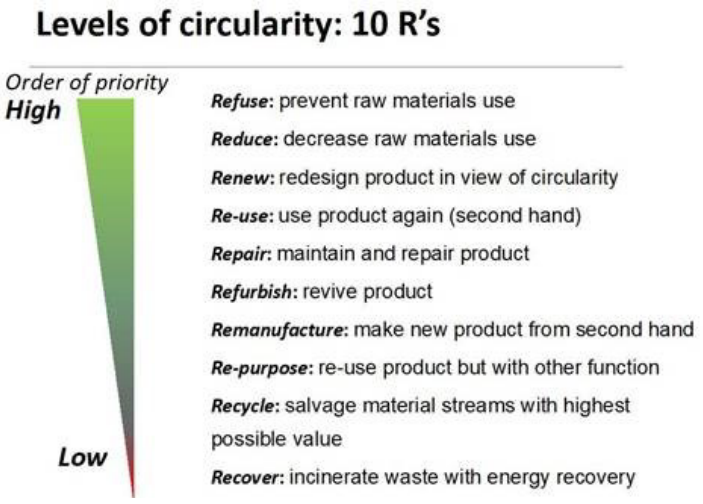
Definition of circular economy

There are many definitions of a circular economy. The definition we have used for these purposes which reflects that used in EU and UK law, as well as expert bodies like the Ellen MacArthur Foundation, is as follows:

> *The circular economy is a system where products and materials are kept in use at highest value, and used in a regenerative way, eliminating waste and pollution.*

This reduces demand for material resources, lowers carbon emissions, and lessens the stress put on the environment, in fact helping regenerate natural systems, for example, by recovering valuable biowastes to improve soil. It is a means to achieve other goals, rather than an end in itself.

It starts by abandoning the old-fashioned linear model of produce, consume and dispose and adopts a new way of thinking and acting by reusing, repairing, and reprocessing materials, and asking whether an item needs to be produced or consumed at all. Actions which can be taken to create a more circular economy are summarised in the 10 R's model below.[ii]



This, like the waste hierarchy[iii] is a simplified version of the 10 R's embedded in EU and domestic law, indicates the priority to be given to each action.

Businesses that adopt circular economy principles can see financial and commercial benefits, as well as helping achieve net-zero targets by:

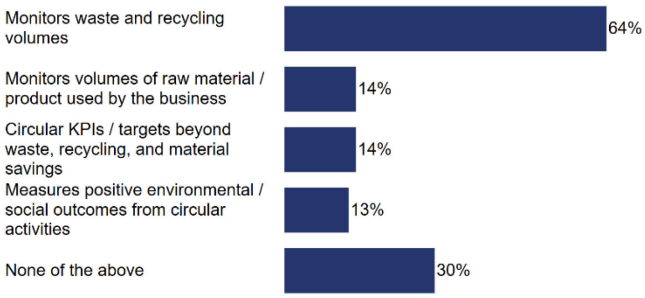
- reducing carbon emissions from extraction, processing, manufacture, and disposal of materials[iv]
- preventing harm to nature[v]
- lowering purchasing costs[vi]
- mitigating supply chain risks by having more control of essential materials which improves business resilience, accelerates growth, and enhances competitiveness.[vii]

WHAT ARE BUSINESSES CURRENTLY MEASURING AND REPORTING?

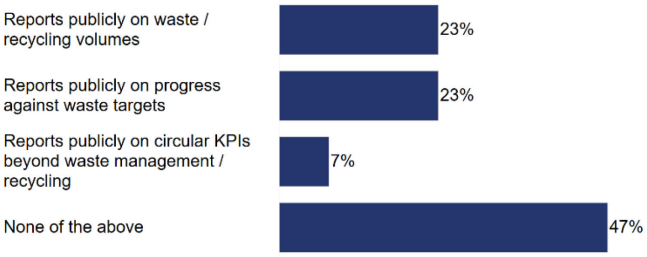
BITC's Responsible Business Tracker® enables an assessment of responsible business performance, including on circular economy issues. Participants are asked whether their organisation measures circular economy issues, and whether they report publicly on these.

The majority of participants (64%) monitor waste volumes including different end-of-life routes, but few monitor other circular economy issues, including the volume of raw materials or products that are bought in (14%) and other KPIs beyond waste management and volume of raw materials (14%). Meanwhile, only 23% report publicly on waste volumes, and just 7% report publicly on circular economy KPIs beyond waste management.

How is the business measuring performance on circular economy issues?



How is the business disclosing performance on circular economy issues?

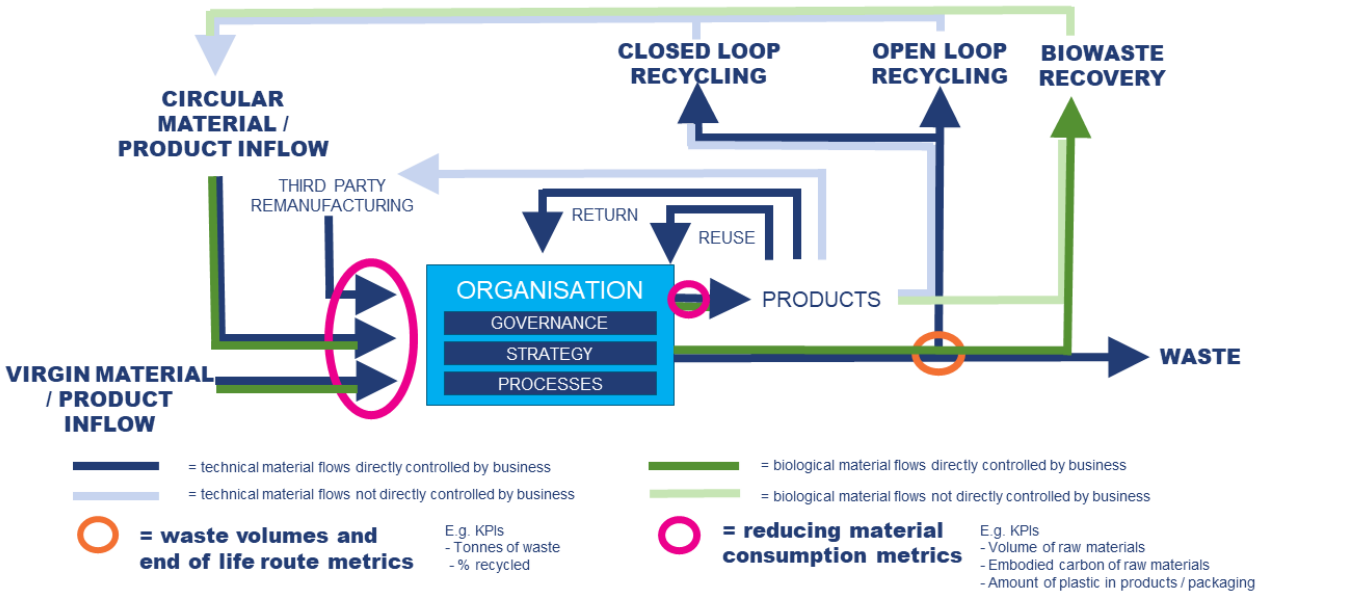


In the free text responses participants that reported having KPIs beyond waste management and reducing material use shared some of the indicators used. These included:

- 'redistribution of food waste'
- 'percentage of packaging that is easy to recycle'
- 'revenue-based metrics' for circular business models'
- investment and job creation in circular innovation start-up.

To develop this report, we held a focus session for businesses through which we gained a deeper insight into business practice and motivations for measuring circular economy. The businesses invited to join this focus group were generally more mature than average in their thinking around circular economy and sustainability. Several of the businesses saw a client demand for information on carbon impact, and as a result, had implemented embodied carbon measurement. This included the use of lifecycle assessment tools to allow the businesses to share information on the embodied carbon in their product /service.

The below graphic illustrates the material flows of a typical business, and circular economy measurement aspects which are commonly or occasionally adopted, based on our research.



Need for change

As the graphic shows, current circular economy measurement practice is generally focussed on specific points across the businesses ecosystem rather than measuring the circularity of the system as a whole.

The prevalent use of waste-based indicators (total tonnes of waste created by the business, and the percentage of waste that is recycled) is particularly problematic as recycling is towards the bottom of the 10 R's hierarchy. By focussing on measuring recycling rates, and taking actions that will maximise the recycling rate, businesses may miss opportunities to take actions further up the waste hierarchy which would be more conducive to creating a circular economy.

Research has shown that ethical and sustainability issues remain a key driver for almost a third of consumers, who claim to have stopped purchasing certain brands due to related concerns.[viii] It is, therefore, important that companies not only carry out sustainability activity, but also effectively communicate this to consumers.

However, in parallel to this is increased scrutiny of green claims, working alongside other global authorities, the Competition and Markets Authority found that in 2021, 40% of 500 websites promoting products and services used misleading tactics to communicate sustainability and may be in breach of competition law.[ix] The Competition and Markets Authority's Green Claims Code responds to this problem, helping businesses to understand how to communicate sustainability, while not misleading consumers.[x] Their guidance includes, for example, that "the claim reflects the whole life cycle of the brand, product, business, or service and is justified by the evidence".[xi]

This emphasises the importance of taking a systems approach for monitoring and reporting processes rather than focusing on individual issues in isolation, such as reducing plastic packaging. Business claims on circular economy should, therefore, take a whole life cycle approach and reflect action across the organisation, as well as good measurement practices that can provide the required evidence.

Whilst there is yet no required mandatory disclosure for businesses on circular economy, businesses may use circular economy as a way of reducing energy use (for example, through remanufacturing which is less carbon intensive then manufacturing new products) and may, therefore, choose to report on circular economy activities as part of their Streamlined Energy and Carbon Reporting[xii] (SECR) or Energy Saving Opportunity Scheme[xiii] (ESOS) disclosures. These required disclosures could, therefore, be viewed as a driver for businesses to report on circular economy activities, and to measure the carbon impact of their increased circularity.

In April 2021, the European Commission adopted a proposal on Corporate Sustainability Reporting Directive[xiv] (CSRD) which broadens the scope of the Non-Financial Reporting Directive from 11,600 to approximately 49,000 entities in the EU, including foreign subsidiaries.

The proposed CSRD includes mandatory disclosures on resource use and circular economy. The Exposure Draft[xv] which is currently open for public consultation until August 2022 includes specific disclosures on:

- measurable outcome-oriented resource use and circular economy targets
- the overall total weight of materials used during the reporting period
- the weight in both absolute value (tons) and percentage of renewable input materials used to manufacture the undertaking's products and services (including packaging)
- the weight in both absolute value (tons) and percentage of reused or recycled input materials used to package the undertaking's products
- the amount in both absolute and percentage terms of material and products

that are designed along circular principles.[xvi]

While the CSRD may not apply to UK companies, this provides an indication of possible future policy direction around corporate disclosures in the UK and globally on circular economy.

There is, therefore, a need for business to prepare for and trial more comprehensive measurement and reporting on circularity of their enterprises.

CIRCULAR ECONOMY METRICS

The World Economic Forum's *Towards Common Metrics and Consistent Reporting of Sustainable Value Creation*[xvii] sets out recommended metrics and disclosures around ESG issues, linked to the UN Sustainable Development Goals, for companies to include in annual reports. Within their Resource Availability theme, they recommend that companies adopt resource circularity metrics:

> *Report the most appropriate resource circularity metric(s) for the whole company and/or at a product, material or site level as applicable. Potential metrics include (but are not limited to) the Circular Transition Indicators (WBCSD), indicators developed by the Ellen MacArthur Foundation and company developed metrics. Disclose the methodological approach used to calculate the chosen circularity metric(s) and the rationale for the choice of metric(s).* [xviii]

However, this leaves a lot of leeway for companies in selecting the most appropriate metric and can lead to confusion for those who are unfamiliar with the metric frameworks.

To support members, BITC has undertaken a literature review of some of the common metric frameworks and existing research on these, as well as a series of interviews with the organisations that have created these frameworks.

For this analysis we have reviewed several established frameworks for measuring and reporting circular economy performance.

FRAMEWORK	DEVELOPED BY	DESCRIPTION
Carbon Waste and Resources Metric	WRAP	Developed to allow monitoring and evaluation of waste management (recycling, energy-from-waste, composting, anaerobic digestion) impacts in terms of Greenhouse Gas emissions impact upstream and downstream in comparison to landfill.
GRI 306: Waste 2020	Global Reporting Initiative	GRI 306: Waste 2020 provides a standardised reporting framework for organizations to report information about their waste-related impacts, and how they manage these impacts.
Circulytics	Ellen MacArthur Foundation	Circulytics measures the circular economy performance of a company's entire operations, using a comprehensive set of indicators including both enablers and outcomes.

Circular Transition Indicators v3.0	World Business Council for Sustainable Development	This CTI framework is based on an assessment of material flows within company boundaries, combined with additional indicators on resource efficiency and efficacy, as well as the value added by circular business.
CIRCelligence	Boston Consulting Group	CIRCelligence shows organisations how to make circular economy an integral part of overall corporate strategy by assessing circularity through a combination of quantitative and qualitative scores.
Circle Assessment	Circle Economy	Circle Assessment is a simple online tool, currently only including qualitative factors, for businesses to measure circularity and identify opportunities for circular strategies.

Aspects of the circular economy which the frameworks cover

The Dutch not-for-profit organisation Circle Economy published in 2020 *Circular Metrics For Business: Finding opportunities in the circular economy* which provides guidance for businesses to select the most suitable metric to measure circularity in their organisation.

The key point in *Circular Metrics for Business* is that the each of the metric frameworks which they reviewed seek to do slightly different things and are designed to be used in different ways. Circle Economy classify the metric frameworks based on the type of indicator which they focus on:

Headline indicators focus on providing you with a verdict, i.e., how well are you performing?

Performance indicators focus on assessing the physical processes underlying your circular performance. Indicators should include all stages of the value chain, such as share of secondary materials used and recycling rates.

Process indicators focus on monitoring the transition process at your organisation. By definition, many different indicators are needed to highlight different aspects of change processes.

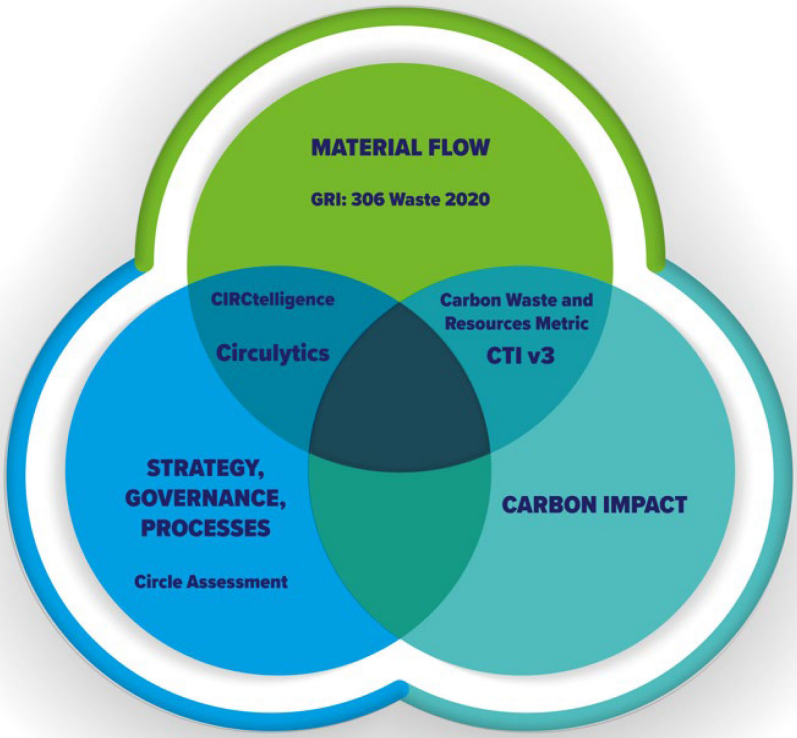
Additionally, Circle Economy identify that the indicators are designed to be used at different stages of the innovation process, from raising awareness and creating a baseline, identifying and tracking opportunities to building a business case and sharing results.

We would recommend Circle Economy's review for any business seeking to identify suitable metric frameworks to use.

Another way to categorise frameworks would be to consider whether they consider circularity in terms of:

- the flow of materials into and out of the business and through the wider economy
- internal business governance, strategy and processes that enable circular economy practices to be caried out in the organisation
- the carbon impact of circular, rather than linear, practices.

All of the frameworks reviewed above can fit into at least one of these categories, as summarised in the diagram below:



INSIGHTS FROM BUSINESS

Most focus group members were familiar with at least some of the metric frameworks which were discussed, however, none had fully adopted any of them. Out of the frameworks, Circulytics had the most familiarity.

Reasons given as to why the businesses had not fully adopted them included that:

- there was an unawareness that some frameworks existed
- it is resource intensive to gather the required data and put it together in the way that is required by the frameworks
- it is hard to use the frameworks to benchmark if peers are not using them
- clients / customers are more interested in carbon impact than material circularity
- it can be unclear as to how scoring for different issues is weighted by the frameworks.

While adopting one of the established frameworks would help businesses to be more strategic on circular economy issues, many businesses aren't yet ready to adopt an established framework due to resource constraints. Yet there is a clear need for businesses to consider circular economy beyond the commonly adopted waste and recycling indicators to provide focus to their action on climate, nature, and resource/supply chain management. Identifying a set of common indicators is also important to allow benchmarking.

KEY PERFORMANCE INDICATORS TO ADOPT AT SCALE

Through a review of the established metric frameworks, we identified key indicators across the themes of material flows, governance strategy and processes, and carbon equivalence. Some of these indicators were identified by the metric creators themselves, through the interviews that we conducted, as being good starting points for businesses. Others were identified as suitable by BITC, and our members who participated in the focus group session and interviews, based upon the indicators filling important gaps in the circular transformation of a business

We recommend that businesses adopt at least one of the indicators from across each thematic area to measure and report on circular economy:

	Material Flows	Governance, Strategy, Processes	Carbon Impact
STARTING POINT	Material / product inflow (tonnes) Circulytics Circular Transition Indicators, The amount of raw materials and products that come into your business, measured in tonnes	Governance, strategy, and process enabler indicator Circulytics The extent to which businesses have embedded circular economy in how they work	GHG impact of waste management (kg CO2e per tonne of material relative to landfill) Carbon Waste and Resource Metric The amount by which greenhouse gasses are reduced by recycling, composting, or recovering energy from waste rather than sending it to landfill and creating new material in its place
HIGHER MATURITY	% circular inflow Circulytics, Circular Transition Indicators The proportion of material / product inflow that is renewable, or that has been reused or recycled	% (by mass) of physical products designed along circular principles Circulytics The proportion of the business's products which are designed to be durable, repairable, recyclable	GHG savings through use of recycled material input (CO2e per kg of material, or % reduction form virgin material) Circular Transition Indicators The percentage by which carbon savings can be reduced by using recycled materials rather than virgin materials
	% circular outflow Circular Transition Indicators The proportion of materials leaving the business – either as products being sold or as waste – that are likely to be recycled or reused	% of revenue from circular services Circulytics The proportion of business revenue which comes from selling services that grow the circular economy, e.g. consultancy support to circular businesses	Product related Scope 3 emissions (tonnes CO2e) N/A The amount of greenhouse gas emissions released during the creation and use of products which the business makes or sells

See the appendix of this report for a rationale on why each indicator was selected and a more detailed description of what they entail. These indicators are intended as a transitional measure towards reporting through the circular economy metric frameworks that these indicators are derived from.

Comments on suggested indicators

The businesses in our focus group, and those we interviewed separately, were generally supportive of the suggested indicators.

In particular, the importance of the qualitative factors such as having circular economy considerations within organisational governance, strategy and processes was stressed, with participants noting that quantitative aspects will not improve unless these essential building blocks are in place. Being in close alignment with TCFD disclosures[xix], this approach also feels familiar to business.

The two additional indicators within Governance, Strategy, Processes assess the extent to which circular models are adopted by the business. Businesses pointed out that in order to do this there needs to be an understanding of what constitutes a 'circular principle' or 'circular business model' and that there can be some ambiguity on this. Nevertheless, as these metrics get to the heart of a strategic transformation towards a circular business, we consider it important to include them whilst also supporting clarity on their terms.

Having a clear understanding of the quantity of material flows into the business is also fundamental for being able to assess circularity. There was some discussion around the optimum units of measurement, as weight and environmental impact are not always aligned and prioritising high weight material flows may lead to some lightweight materials that have a potentially high environmental impact, such as non-recyclable plastics being overlooked or even being prioritised to reduce material consumption. Nevertheless, a weight-based unit is consistent with what is used in the frameworks that were reviewed and is commonly used as a unit of materials, making it easier to source data. We expect over time that other units will be developed, whether around volume or impact-focused metrics. Defra has a commitment to explore carbon-based metrics in the Resources and Waste Strategy for England[xx].

Businesses were uncertain about which material streams should be included or omitted, and also the definitions of circular inflow and outflow. Further guidance on this is available within the guidance notes provided with the relevant metric frameworks, however, each business will need to decide what boundaries they use to include and exclude material flows. As with all the recommended indicators, businesses should be transparent about what boundaries have been set to determine the scope of what is included, also what assumptions have been made in performing calculations.

As reducing lifecycle carbon emissions is a key goal, businesses were particularly interested in this topic. Several are undertaking carbon assessments, either using a bespoke Lifecycle Assessment or using proxy data. This approach takes effort but is important in terms of capturing a company's full set of emissions, including scope 3 emissions, even though these may relate to the supply chain or the behaviour of the end user. This approach can help account for avoided emissions benefits across the whole product lifecycle though the circular design and management of products i.e., reuse and repair as well as remanufacture. The metric frameworks that were reviewed can support these approaches, in part by considering the greenhouse gas impact of recycled material both as an inflow and outflow from the business. The final box can be calculated looking at scope 3 emission methodologies, although not all scope 3 emissions are relevant – for example, transport and distribution emissions need not be counted.

Limitations of the indicators

Ideally companies may undertake an assessment of avoided emissions on a lifecycle basis, but this requires a detailed lifecycle assessment of the products / services offered by the business, as well as a lifecycle assessment of a comparable linear product / service which can be used as a baseline. The WRAP WARM approach does this in part, but only with regards to a series of interventions with a focus on recycling.

There is a need for a carbon impact metric. However, a product-by-product lifecycle assessment that considers total carbon avoidance based on design for longevity, reuse, remanufacturing etc. for a variety of common products, as well as the embodied carbon of materials used is complex. At present, what appears to be feasible is to quantify carbon emissions associated with products and materials used, which forms the major share of scope 3 emissions.

We also heard a desire from businesses to increase adoption of nature-focused impact metrics, looking at impact on nature, and how circular economy can play a role in restoring nature. While outside the scope of this project, the Natural Capital Protocol provides a framework through which business can consider their impacts on nature, impact on nature is also under consideration to be included in future versions of the Circular Transition Indicators. At present, the thinking on circular economy is that the level of circularity is a good proxy for reduced impact on nature.

ACKNOWLEDGEMENTS

We extend our thanks to the representitives of the following organisations for their input into our research through participating in our focus group session and interviews:

BASF	Ellen MacArthur Foundation	Ricardo plc
BEIS	J Sainsbury plc	Sodexo
BSI	JLL	Unipart Group
Circle Economy	Mayborn Group	WBCSD
Crown Workspace Limited	Pennon Group	WRAP
Currys plc	Reckitt	

ENDNOTES

[i] Lexology (2022), *2022 & Beyond: The Rise of ESG in the UK and Europe*, available here: https://www.lexology.com/library/detail.aspx?g=cffba0a5-d3ed-41e3-9c61-8f7a79df76d7
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[xvii] The World Economic Forum's *Towards Common Metrics and Consistent Reporting of Sustainable Value Creation*, available at: https://www3.weforum.org/docs/WEF_IBC_ESG_Metrics_Discussion_Paper.pdf
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[xviii] BITC Factsheet (2021), *Taskforce on Climate-Related Financial Disclosures: What Does it Mean for Responsible Business* (BITC member only content), available at: https://www.bitc.org.uk/fact-sheet/taskforce-on-climate-related-financial-disclosures/

APPENDIX

Description of recommended indicators

This appendix sets out why each of these indicators is considered important and a description of how the metric frameworks assess performance against the indicator. More detailed descriptions of the indicators, and guidance on how they should be completed, can be found in the corresponding framework(s) from which they are derived. When using the indicators businesses should be transparent about the boundaries that are used (i.e. what material flows, or parts of the business, has been determined to be in scope and out of scope) as well as any assumptions that have been made in performing the calculations.

Material Flow Indicators

Indicator: Material / product inflow (tonnes)

Framework derived from: Circular Transition Indicators v3.0, Circulytics

Rationale: Having a good understanding of the flow of products and materials into your business is essential to understanding resource productivity.

Description: This indicator measures the quantity of materials that are bought into the business. These can either be in the form of raw materials or in the form of products which the business will use. This should be expressed in terms of material mass, e.g. tonnes, over a given period of time. The desired direction of travel would be for this number to decrease over time as your business becomes more resource efficient, however, it is likely to fluctuate year-on-year based on business growth or decline. This figure may be more useful as a basis for calculating the other material flow indicators than as one to report in itself.

Indicator: % Circular Inflow

Framework derived from: Circular Transition Indicators v3.0, Circulytics

Rationale: Using circular materials and products creates a demand pull for circular economy and is a fundamental part of closing the loop which is currently not being measured by a majority of businesses.

Description: This indicator summarises the circularity of the key materials and products that flow into the business

Within the Circular Transition Indicators, for each of the key material streams identified, this is calculated based on:

- Mass of each inflow type
- % of renewable content or % non-virgin content per inflow type

A sum total for the overall % circular inflow is then calculated.

Circulytics has similar indicators, but figures are calculated using a different approach.

The business sets out the percentage of each product / materials stream coming into the business which is weighted based on whether it is non-virgin (reused or recycled), sourced from by-products / waste streams, renewable and regeneratively produced, renewable and sustainably (but not regeneratively) produced, or none of the above.

Plant, Property, and Equipment purchased by the business is assessed separately in Theme 8. A weighted score is given to each asset category based upon whether they are second hand, and whether they are designed with circular approaches in their use phase and/or at the end of their functional life

Indicator: % Circular Outflow

Framework derived from: Circular Transition Indicators v3.0

Rationale: This indicator goes beyond recycling rates as it includes the circularity of products put onto market by the business, as well as waste streams. It also encompasses repair and refurbishment / remanufacturing as well as recycling.

Description: This indicator summarises the circularity of the product, by-product, and waste outflows from the business

For each of the outflows identified, the % circular outflow is based on a combination of:

- % recovery potential – reflecting outflows that are technically possible to be recovered
- % actual recovery – the proportion of the material stream which is actually processed for recovery in the real world

A sum total for the overall % circular outflow is then calculated.

Governance, Strategy, Process Indicators

Indicator: Governance, strategy, and process enabler indicator

Framework derived from: Circulytics

Rationale: Ensuring that governance, strategy and processes are in place which will embed circularity within the business is an essential first step.

Description: Circulytics (themes 1 – 5) evaluates the extent to which businesses have embedded circular economy within their organisational processes by asking questions with weighted response options across the themes of:

- Strategy and planning
- Innovation
- People and skills
- Operations
- External engagement

Indicator: % (by mass) of physical product designed along circular principles

Framework derived from: Circulytics

Rationale: Products need to be designed along circular principles to ensure that at their end-of-life options that are high up the 10 R's waste hierarchy are possible.

Description: Theme 6 question D of Circulytics sets out circular principal categories as applicable to products:

- During use (designed for: longevity, reusability, repairability)
- End of functional life (designed to enable: disassembly, remanufacturing, recycling, nutrient recirculation)
- Enabling circular economy (designed to: prevent customer waste, increase longevity of other products, improve recycling yield of other products, enable other products to enter bioeconomy safely, increase use of renewable energy)

Businesses are asked to set out the % of their product portfolio which meets:

- Both category 1 and 2 (during use and end of functional life) – this is weighted at 100%
- Only category 1 (during use) – this is weighted at 50%
- Only category 2 (end of functional life) – this is weighted at 50%
- Only category 3 (enabling the circular economy) – this is weighted at 50%

Indicator: % of revenue from circular services

Framework derived from: Circulytics

Rationale: Circular economy is not only relevant to product-based companies. Service-based businesses can support the transition to a circular economy through the services which they provide. Product-based businesses can also use service-based models to supply products in a way which enables circular approaches. Businesses should therefore quantify and look to increase the proportion of their business which is based on circular services.

Description: Theme 7 question A of Circulytics sets out a list of circular services across the following categories:

- Consultancy and business support
- Software
- Services using products
- Recirculation
- Other

Businesses are asked to set out the % of their service revenue that is from each of these circular services.

Carbon Equivalence

Indicator: GHG impact of waste management (tonnes CO2e saved)

Framework derived from: Carbon WARM

Rationale: Understanding the greenhouse gas (GHG) impacts of moving waste management up the hierarchy can be a driver for business to prioritise more circular options.

Description: Carbon WARM sets out GHG savings for the waste management of a variety of materials through recycling, energy from waste, anaerobic digestion, and composting relative to the GHG impact if they were to be landfilled and new materials produced. This is expressed in kg CO2e/tonne of waste and can be multiplied by the number of tonnes of each waste type to give an overall saving.

Nb. These figures demonstrate the influence that a business's waste management has on the greenhouse gas emissions of other organisations – to avoid double counting they should not be included in the business's carbon footprint, in line with the GHG Protocol.

Greater carbon savings may be seen from reusing, refurbing or remanufacturing waste items, either through the original supplier or through a third-party organisation. Carbon savings may be able to be provided by the company carrying out the service, or else assumptions may need to be made based on typical embodied carbon figures for the item.

Indicator: % GHG savings through use of recycled material input

Framework derived from: Circular Transition Indicators v3.0

Rationale: Businesses can use information on the greenhouse gas reduction potential from using recycled materials rather than virgin materials to better understand carbon footprint benefits, evaluate trade-offs and help prioritise circular improvements.

Description: This indicator provides companies with a high-level indication of the GHG savings they may obtain by applying circular strategies. It is calculated based on:

- Weight of virgin material
- GHG emission factor for virgin material
- Weight of recycled content material
- GHG emission factor for recycled content material

The outcome is the % GHG emissions savings if the material is made out of recycled content versus the current composition.

Indicator: Product related Scope 3 emissions

Framework derived from: although outside the scope of the literature review undertaken, the GHG Protocol's Product Lifecycle Accounting and Reporting Standard provides a methodology

Rationale: Businesses develop an understanding of the emissions that relate to product resource use – embodied and also downstream – and can focus behaviour accordingly.

Description: Companies that report Scope 3 emissions will be gathering emissions data across value chain activities including purchased goods and services, distribution, business travel, commuting, use of sold products, and end-of-life of sold products. By taking a sub-set of this data, companies can show whole lifecycle product-related emissions (including activities such as raw material sourcing, manufacturing, transportation, storage, use and disposal).

While outside the scope of the literature review which was undertaken, the Product Lifecycle Accounting and Reporting Standard provides a methodology which can be used to understand the full life cycle emissions of a product and focus efforts on the greatest GHG reduction opportunities, which can include circular economy models.