

Research Bulletin 26/3 | Developing Economic Indicators for the Circular Economy

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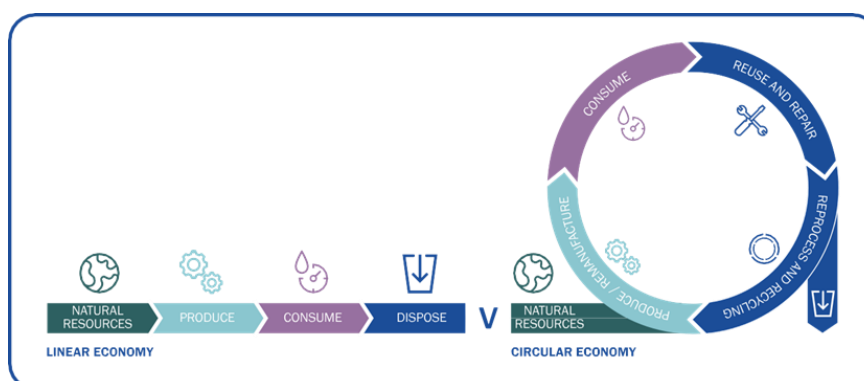
Summary

This research bulletin sets out the journey of developing an initial set of economic indicators to monitor the circular economy in Northern Ireland, building on international frameworks and existing classifications. It outlines how a pragmatic, interim approach using industrial classification systems (such as Standard Industrial Classification) can be applied to identify circular activities and produce early indicators, including employment, gross value added and business activity, while recognising potential methodological constraints. The bulletin emphasises that these indicators are intended to strengthen the evidence base, support monitoring over time, and provide a foundation for a broader, evolving monitoring framework aligned with international best practice.

Introduction

The circular economy is an economic model designed to shift from linear consumption to sustainable, regenerative systems, keeping materials in use at their highest value rather than disposing of them as waste. This contrasts with the traditional and unsustainable linear “take-make-use-dispose” model. The circular transition is central to supporting Northern Ireland’s climate change efforts as it is crucial for reducing carbon emissions and waste. It also offers an opportunity to optimise resource efficiency, increase resilience and generate sustainable economic growth.

Figure 1: Linear and Circular Economy Models ⁱ



Source: Department for the Economy (2024), DfE Economic Commentary: Spring 2024

The circular economy spans all sectors of the economy, where principles can be integrated across different industries to support the development of a more sustainable system. This model can deliver benefits for businesses, society, and the environment by minimising the use of imported virgin resources and improving environmental performance.

The Department for the Economy (DfE) released a Research Bulletin in the Summer 2025 series,ⁱⁱ which explored the role of the circular economy in supporting the net zero agenda. It explored circular economy metrics and introduced NI's carbon footprint and material footprint as part of a broader decarbonisation evidence base. The Bulletin also examined the extent to which territorial and consumption-based emissions have decoupled from economic growth.

In December 2025, DfE published estimates of Northern Ireland's material footprint based on analysis undertaken by the University of Leeds (UoL). The publication presents total material footprint estimates for the period 2001–2022, alongside detailed breakdowns by material group and trends in per-capita material consumption over time.ⁱⁱⁱ

Building on that foundation, this Research Bulletin shares the early journey of developing economic indicators for the circular economy in Northern Ireland. This includes exploring indicators included in other circular economy frameworks and focusing on the opportunity of using existing industrial classifications to identify and measure circular activities across the economy. It sets out the broader context for classifications and approaches taken by others using these frameworks and methodologies for the purpose of monitoring the circular economy. It then outlines areas of ongoing and potential future development, spanning the near-term and longer-term.

Strategic Context for the Circular Economy

The Programme for Government commits to publishing a Circular Economy Strategy with responsible production and consumption at its core.^{iv} The Department for the Economy has developed a draft Circular Economy Strategy, which due to its cross-cutting nature, will require Executive approval.

The Draft Circular Economy Strategy for NI^v set out the intention to establish a circular economy monitoring framework. The Department is currently exploring a suite of metrics and indicators to help monitor the progress and impact of circular economy policies and interventions over time. Following best practice from international frameworks, these indicators span a range of areas, including economic, social, environmental, and international domains.

The Minister's Economic Vision is to increase the proportion of working-age people in good jobs, raise productivity, promote regional balance, and reduce carbon emissions.^{vi} The transition to a circular economy supports this vision in several ways. It directly supports decarbonisation through keeping products and

materials in use for longer and it reduces emissions associated with making new products. The Department currently tracks carbon footprint and material footprint as two metrics under its decarbonisation ambition. Extending the lifespan of materials and products through reuse, repair and refurbishment has the potential to increase resource productivity by enabling greater economic value and utility to be extracted from the same material inputs while reducing overall resource use.^{vii}

Developing robust economic indicators for the circular economy transition is essential to strengthen the evidence base, support analysis of trends over time, and provide insights into the scale and characteristics of circular activity. It can also support wider understanding by communicating the economic, environmental and social aspects of circular approaches.

In the sections below, we provide an overview of how international frameworks have guided our approach and why measuring the economic aspects of the circular economy is important. The paper also sets out progress in defining circular economy activities for measurement, considerations for current methods being explored, and plans for initial indicators to be developed over the coming months. Longer-term considerations are also outlined, alongside ongoing engagement with those involved in circular economy measurement across the UK.

International Frameworks and Best Practice

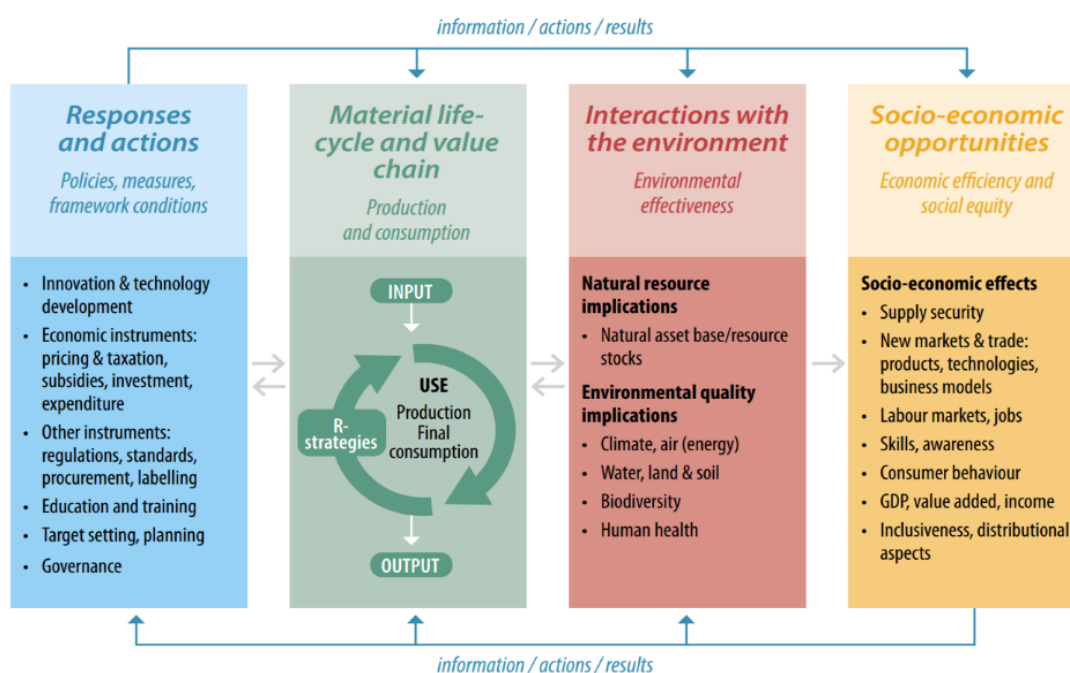
Our approach for developing circular economy indicators has been informed by international frameworks, ensuring that indicators being considered for monitoring the circular economy transition in Northern Ireland are aligned with global best practice and comparable internationally.

A key starting point for this work is the United Nations Economic Commission for Europe (UNECE)/ Organisation for Economic Co-Operation and Development (OECD) guidelines for Measuring the Circular Economy – Part A ^{viii}, which has guided indicator development to date. This document provides a headline definition of the circular economy, a conceptual framework, and a harmonised set of indicators for monitoring progress. Crucially, the conceptual framework identifies indicators based on three core principles: policy relevance; analytical soundness; and measurability. These principles are used to pinpoint 19 core indicators and additional complementary and contextual indicators (**see Annex 1** for the full list of core indicators). The UNECE/OECD guidelines provide practical guidance for producing and using statistics to support the development of core indicators, as well as outlining the institutional collaboration needed and national case examples. This framework was endorsed in 2023 by the Conference of European Statisticians (CES), which aims to align statistical measurement of the circular economy with existing frameworks and classifications. A further resource, Part B, was released for consultation in early 2026 to complement Part A and will be submitted to the CES for endorsement. Part B offers additional practical guidance, including on

data sources, collaboration, and statistical measurement to support the development of indicator sets aligned with national circumstances.^{ix}

The conceptual framework structures measurement around four main dimensions. Figure 2, sourced from Part A of the UNECE/OECD guidelines, illustrates these dimensions and the interrelationships.

Figure 2: Building blocks of the conceptual framework^x



Source: OECD (2023), Guidelines for Measuring Circular Economy (Part A: Conceptual Framework, Indicators and Measurement Framework).

The conceptual framework provides an overview of relevant themes for statistical measurement across the whole circular economy. However, as the focus of this Research Bulletin is on developing economic indicators, we reviewed the UNECE/OECD conceptual framework for indicators relevant to the economic dimension, alongside other monitoring frameworks at EU level, the rest of the UK and the Republic of Ireland. This was to understand the range of economic related indicators being included across other frameworks, to help inform our development and align with wider approaches.

A summary is provided of the various frameworks considered alongside the UNECE/OECD conceptual framework.

- **EU Circular Economy Monitoring Framework (CEMF):** The European Commission's updated monitoring framework^{xi} from 2023 includes a range of indicators across 5 dimensions: Production and consumption; Waste Management; Secondary raw materials; Competitiveness and innovation; and Global sustainability and resilience.

- **Scotland:** A Circular Economy Strategy for Scotland,^{xii} released in March 2026, includes a section on *Circular Economy Monitoring and Indicator Framework*. The proposed indicator framework shows the range of associated indicators under four themes: Economy; Environment; International; and Social. As the first national-level indicator framework for Scotland’s circular economy, it is expected to be refined over time as new or enhanced data sources emerge.
- **Republic of Ireland:** The Whole-of-Government Circular Economy Strategy 2026–2028^{xiii}, released in February 2026, provides an overview of data available, including the EU CEMF. While the Strategy does not include a list of the indicators that will be used for monitoring, it notes the intention to align strategy monitoring with the EU CEMF and other global frameworks, as appropriate. The measurement process will rely on official statistics, supplemented by other modelled or derived data. While not a core economic indicator, a core objective of the strategy is to raise Ireland’s Circular Material Use Rate (CMUR), alongside objectives on supporting economic expansion and enhancing competitiveness and innovation.

Figure 3 demonstrates a range of economic related indicators across the UNECE/OECD conceptual and other monitoring frameworks discussed. Indicators presented include a mix of core economic measures (e.g., output, employment) and other related indicators capturing innovation, competitiveness, and market activity within the circular economy. It is important to note that this is not an exhaustive list of all indicators used across these frameworks, but rather, a focused selection of those considered to have an economic dimension.

This highlights that, across these frameworks, there is a consistent focus on core economic indicators such as gross value added and employment in circular economy sectors, complemented by measures of investment, innovation and research and development. This provides a sound basis for developing a set of economic indicators for Northern Ireland that are aligned with established approaches, while taking account of local data availability and policy priorities.

Figure 3: Overview of economic indicators across Circular Economy (CE) frameworks^{xiv}

UNECE/OECD*	EU	Scotland	Republic of Ireland
- Gross value added of CE sectors - Jobs in CE sectors - CE startups and trademarks - Jobs in sharing economy, reuse and repair activities - R&D expenditure on CE technologies - Business investment in CE activities - Patented inventions for recycling / reuse / repair - CE start-ups, trademarks, certification of companies - Markets for recycled materials - GDP growth and structure	- Private investments - Persons employed - Gross value added (GVA) - Patents related to waste management and recycling	- Gross value added of CE sectors - Resource productivity and material intensity - Labour productivity of CE jobs - Number of CE patents (technology, product design) - requires development - Number of circular startups - requires development	While no dedicated monitoring framework is set out in the Strategy, it indicates alignment with EU and international frameworks, with monitoring expected to draw on official and modelled data, and to focus on competitiveness, innovation and economic growth.

* Indicative only – this is a large, conceptual framework, UNECE may include additional economic related indicators not captured here.

Source: Author's compilation based on UNECE/OECD (2024), European Commission (2023), Scottish Government (2026), and Department of Environment, Climate and Communications (2026).

Why Economic Indicators Matter

Previous research^{xv} has noted the preference for a suite of metrics to track the impact of policies and interventions as no single metric would be sufficient to measure systems change. Metrics and indicators are also essential for developing targets, complementing the macro scale target in the Draft Circular Economy Strategy for Northern Ireland to reduce material footprint to 8 tonnes per capita per year, which is considered a sustainable level of resource use.

To date, attention has been focused on environmental outcomes and related indicators such as carbon and material footprints, greenhouse gas emissions, and waste.

However, developing economic indicators for the circular economy is crucial for understanding the scale and impact of a transition in terms of its value. Economic metrics such as employment, Gross Value Added (GVA),

business activity, and productivity provide important and complementary insights.^{xvi} These indicators, if developed, would support:

- Establishing a baseline: Determine how many jobs or businesses are currently part of NI's circular economy, and their contribution to economic output;
- Monitoring growth and change: Track trends over time – e.g., how are jobs within the circular economy changing over time;
- Informing policy and investment: Quantify economic value of circular activity and its wider benefits to guide policy decisions, prioritise interventions and inform the case for sustained public and private investment; and
- Assessing system-wide performance and benchmarking progress: Examine the extent to which economic growth is being decoupled from resource consumption and waste generation, while enabling comparison with other regions to track performance and demonstrate progress.

In essence, these indicators would show how the circular economy transition contributes to NI's sustainable growth ambitions, evidencing value, and progress over time. They also align with the DfE's Economic Vision^{xvii} by highlighting opportunities to reduce waste, lower costs, improve productivity and enhance competitiveness, while developing a clear case for investment and buy-in.

Statistical Classifications

The UK Standard Industrial Classification (SIC) is a five-digit classification framework used to organise and present statistical data by economic activity.^{xviii} Businesses are required to provide a SIC code (or multiple codes if there are several business activities) to Companies House as part of their statutory company information, and these data are used by government to classify business activity and analyse industry trends.^{xix} The SIC framework operates on a hierarchical basis, with 1-digit codes representing broad industry sectors and 5-digit codes representing smaller, more detailed business activities.

The 'statistical classification of economic activities' in the European Community, commonly abbreviated as NACE, is the European classification system^{xx} and International Standard Industrial Classification of All Economic Activities (ISIC)^{xxi} is the classification system maintained by the United Nations. SIC, NACE and ISIC are broadly comparable at the 4-digit level.

Progress in Defining Circular Economy Activities

A range of existing approaches aim to define or measure the circular economy by using standard industrial classification systems, such as SIC, NACE or ISIC. These approaches allow for the identification of activities that are considered inherently circular – that is, activities whose primary function keeps materials in use for

longer – and use these to define the scope of the circular economy. These typically include activities such as repair, recycling, remanufacturing, and leasing.

There is no single, consistent classification of the circular economy across these approaches. Rather, they tend to identify and analyse subsets of codes most closely associated with circular activities. However, the underlying classifications were not originally designed to distinguish circular from linear activities, and emerging circular practices may not be fully captured by existing classifications.

For this research, a range of circular economy analytical frameworks / methodologies that explicitly reference SIC, NACE or ISIC codes were reviewed, reflecting a range of UK and international approaches.

Table 1: Circular economy analytical frameworks reviewed, and underlying industrial classification frameworks used

Organisation(s)	Circular economy analytical framework / methodology	Underlying industrial classification framework
CE-HUB: UKRI National Interdisciplinary Circular Economy Research (NICER)	A guide to public data resources for a circular economy modelling & measurement framework	SIC
Zero Waste Scotland (ZWS)	Circular Economy Jobs Tracker	SIC
Eunomia and University College London – commissioned by ZWS	State of the circular economy in Scotland	NACE
Eurostat	Eurostat Circular Economy Monitoring Framework	NACE
Circle Economy	The Circular Jobs Methodology	ISIC

The codes included in the circular economy analytical frameworks and methodologies were compared to understand the extent of overlap in how circular economy activity is defined using industrial classifications. The comparison focused primarily on 4-digit SIC codes, as this level provides sufficient granularity to distinguish inherently circular activities, while remaining broadly comparable with NACE and ISIC.

Through this work, we have developed a SIC-based circular economy classification, drawing on SIC/NACE/ISIC codes that were consistently identified across multiple frameworks presented in table 1. This classification is contained in table 2 below.

Table 2 – Proposed SIC circular economy classification

SIC 07	Description
33.11	Repair of fabricated metal products
33.12	Repair services of machinery
33.13	Repair services of electronic and optical equipment
33.14	Repair services of electrical equipment
33.15	Repair and maintenance services of ships and boats
33.16	Repair and maintenance services of aircraft and spacecraft

33.17	Repair and maintenance services of other transport equipment
33.19	Repair services of other equipment
38.1	Waste collection
38.2	Waste treatment and disposal
38.3	Materials recovery
45.2	Maintenance and repair of motor vehicles
46.77	Wholesale of waste and scrap
47.79	Retail sale of second-hand goods in stores
77.11	Renting and leasing of cars and light motor vehicles
77.12	Rental and leasing of trucks
77.21	Rental and leasing of recreational and sports goods
77.22	Rental of video tapes and disks
77.29	Rental and leasing of other personal and household goods
77.31	Rental and leasing of agricultural machinery and equipment
77.32	Rental and leasing of construction and civil engineering machinery and equipment
77.33	Rental and leasing of office machinery and equipment (including computers)
77.34	Rental and leasing of water transport equipment
77.35	Rental and leasing of air transport equipment
77.39	Rental and leasing of other machinery, equipment and tangible goods n.e.c.
95.11	Repair of computers and peripheral equipment
95.12	Repair of communication equipment
95.21	Repair of consumer electronics
95.22	Repair of household appliances and home and garden equipment
95.23	Repair of footwear and leather goods
95.24	Repair of furniture and home furnishings
95.25	Repair of watches, clocks and jewellery
95.29	Repair of other personal and household goods
96.01	Washing and (dry)cleaning of textile and fur products

This provides a practical starting point for analysis using existing data sources, enabling initial estimates of scale and economic value, while supporting further development and refinement as the approach is evaluated and expanded over time.

Key Considerations for Using SIC-Based Measurement

Establishing a practical interim working classification at this stage enables early socio-economic analysis to proceed, and supports policy development and monitoring, while recognising that improvements to classifications and/or complementary measurement approaches may be required, or become available, over time.

The SIC-based classification provides a practical and transparent starting point for analysis, focusing on circular industries, rather than capturing every circular initiative in the economy. SIC codes provide a common, UK-wide framework that enables early, comparable analysis using official data sources.

This approach recognises that no existing industrial classification system was designed explicitly to capture circularity. For example, a manufacturing company that introduces circular practices (like product take-back or recycling processes) would not be counted if its main SIC code is a traditional manufacturing code outside of the defined list. Similarly, broader system-level metrics (like material footprints or consumer behaviour changes) are outside the scope of an industry-based approach.

While the limitations of SIC are well understood, they are not unique to circular economy measurement and are widely acknowledged across existing frameworks and methodologies. Focusing on activities that are inherently circular, and where there is broad consensus, allows analytical work to progress. There are a number of considerations when using SIC codes for statistical measurement:

1. Coverage of circular economy activity

SIC 2007 does not explicitly identify all circular economy activities and cannot fully distinguish circular from linear practices within some industries.

2. Overlapping and multiple activities

Some SIC codes include a mix of activities, requiring analytical judgement to focus on those where circular activity is dominant.

3. Emerging and hybrid business models

New and hybrid circular business models are not always well captured within current classifications.

4. Self-reporting of SIC codes

SIC codes are self-reported by businesses to represent their dominant activity and may not always reflect the principal activity, particularly for complex or evolving businesses.

5. Granularity constraints

There is limited granularity in some codes that may constrain precision, but this does not prevent the production of indicators for early analysis.

6. Sample size and analytical feasibility

The SIC codes identified as having significant overlap will be taken forward for further exploration and refinement. For some codes, small sample sizes may limit the level of analysis or disaggregation possible at this stage. The feasibility and granularity of future indicators will therefore depend on data availability.

7. Future review following SIC 2026

Prior to 2026, the last review of SIC was in 2007. The proposed working classification is explicitly interim, based on SIC 2007 codes, and will be reviewed following the implementation of SIC 2026 and its reflection in official statistics.

The ongoing review of industrial classifications (SIC 2026) may allow for additional granularity and inclusion of more circular economy activities. The classification will therefore be reviewed in light of these developments, and when data from the new SIC 2026 becomes available.

Near-Term Plans for Initial Economic Indicators

Using the SIC-based classification, an initial set of economic indicators for the circular economy are intended to be included in a future DfE output. Subject to the suitability of data sources for providing estimates and the availability of data, these may include:

- **Employment in circular sectors:** Number of jobs (and share of total jobs) in NI that are in circular economy industries. This provides a labour market perspective on the circular economy's scale.
- **Gross Value Added (GVA):** The economic output (value added) generated by circular economy activities, offering a measure of their contribution to overall Gross Domestic Product (GDP).
- **Business demography:** The count of active businesses in circular sectors, and possibly new business "births" and "deaths" each year in those sectors. This sheds light on how dynamic the circular economy is – e.g., whether new circular enterprises are emerging.
- **Labour productivity:** GVA per job in circular activity, calculated from the above employment and GVA figures. This indicates how productive circular economy industries are relative to the non-financial business economy, which may help identify strengths or gaps (e.g. if productivity is lower in circular sectors, this could highlight the need for innovation or upskilling).

These initial indicators are planned to be near-term deliverables – they use existing datasets and methods, making them feasible to explore over coming months. They also align well with international practices: for example, the EU already reports on jobs and GVA in circular sectors as key indicators.^{xxii}

Data Sources and Approach

Compiling the above indicators is likely to draw on established statistical sources:

- **Annual Business Inquiry (ABI):** provides industry-level estimates of turnover, GVA and employment costs, useful for GVA calculations.
- **Business Register and Employment Survey (BRES):** the primary source for NI employee jobs by industry, which can be filtered by our circular sector list to estimate employment. If more timely insights are needed, the Labour Force Survey (LFS) could be explored.
- **Annual Survey of Hours and Earnings (ASHE):** Wage information in specific industries, possibly informing income analysis in circular sectors.

- **Inter-Departmental Business Register (IDBR):** a comprehensive register of businesses which can be used to count firms by SIC code and track births and deaths annually, critical for business demography metrics.

Analysts will extract data on the identified SIC codes from these sources to calculate the indicators. All indicator estimates will be reviewed for statistical robustness and disclosure control (ensuring no confidential company data is revealed). If data limitations emerge (e.g., too few firms in a category to report safely), alternative approaches or aggregations may be considered.

Methodological Note: These traditional sources cover the formal economy. They may not capture informal circular activities, or smaller or less visible activities. In time, expanding the evidence base (e.g. via surveys or administrative data) may allow broader measurement, but initial analysis will focus on what can be measured reliably now. DfE will publish the full list of SIC codes underpinning the classification alongside any analytical outputs produced or accompanying documents. References made to the ‘circular sector’ are used for classification and statistical purposes only and do not constitute a formal definition of the circular economy.

Longer-Term Development

In the longer term, DfE envisions:

- **Refinement of classification:** Revisiting the SIC-based classification periodically, especially to account for SIC 2026, to incorporate new industry codes or adjust the list as needed. This will ensure the classification stays relevant and can capture emerging circular sectors or account for more granular activities not currently available;
- **Broader metrics:** Complementing core economic indicators with additional measures as data improves; and
- **Deeper dives or more research outputs:** for example, using microdata to examine characteristics of circular economy firms (size, productivity, export orientation, etc.) or regional patterns of circular activity within NI. This could include encouraging or enabling research projects (possibly through the Northern Ireland Statistics & Research Agency (NISRA) Research Support Unit or via Administrative Data Research (ADR) Northern Ireland platforms).

These longer-term enhancements will require collaboration and resourcing, but they are aligned with a strategic goal: to build a robust, multi-dimensional evidence base on the circular economy’s value to NI’s economy.

Collaboration and Coherence

The development of circular economy indicators is a collaborative effort. DfE has actively engaged with counterparts across the four nations of the UK to share this approach and to understand wider developments

in circular economy measurement. A voluntary Four Nations Circular Economy Analytical Group meets regularly to discuss analytical challenges, share learning and best practice, and identify opportunities to collaborate and work towards greater coherence. The Department will continue to engage with this group as work in this area progresses.

Promoting coherence in classifications and methods, where appropriate, supports comparison across countries and helps place Northern Ireland's circular economy development within a broader UK context. This also reduces duplication and allows insights from one region to inform others.

Internationally, the Department will continue to keep abreast of key global developments to remain aligned with emerging best practice. This supports comparability and strengthens the overall credibility of the indicator set by ensuring they are informed by widely accepted frameworks and shared learning.

Conclusion – Towards a Circular Economy Baseline

Developing economic indicators for the circular economy is a foundational step in strengthening Northern Ireland's evidence base for sustainable growth. By using an interim SIC-based definition and drawing on international frameworks, DfE is making practical early progress on quantifying the circular economy's contribution in terms of jobs, GVA, and business activity. These initial measures will provide a baseline for tracking change in the coming years, supporting more informed policymaking and helping to gauge the effectiveness of NI's forthcoming Circular Economy Strategy.

This work is focused primarily on the development of a set of economic indicators, as outlined above. However, it is recognised that there are other potential economic related indicators that could be explored in due course. In this context, ongoing development in economic and wider circular economy indicators will continue to be informed by international frameworks and emerging best practice, helping to ensure a more comprehensive and aligned measurement approach over time.

Importantly, this work also plays a wider role in communicating the value of circularity. By generating clear, consistent and credible evidence, it supports greater awareness, builds stakeholder confidence and strengthens the case for sustained public and private investment. In doing so, it signals that the opportunities associated with the circular economy are being actively measured, understood and progressed.

While the approach has recognised limitations, it will provide a robust and transparent starting point for developing economic insight in an area where measurement is still evolving. It reflects a collaborative and forward-looking approach, drawing on learning from other jurisdictions while taking proactive steps to develop methods suited to Northern Ireland's context.

The indicators and methods will continue to evolve, reflecting improved data and feedback. As they do, Northern Ireland will be better equipped to monitor its transition to a circular economy – ensuring that as

we aim to reduce waste and emissions, we are also delivering on jobs, innovation, and prosperity. In this context, establishing economic indicators is not an endpoint, but a critical early step in embedding a more evidence-led, strategic and investable approach to the circular economy.

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If you would like to provide feedback for consideration, or require any further information, please contact: analyticalservices@economy-ni.gov.uk.

Annex – UNECE/OECD Proposed Core Indicators

Table 1 provides a list of the proposed core indicators within the UNECE/OECD Guidelines for Measuring the Circular Economy.^{xxiii} These are alongside a range of complementary and contextual indicators, as part of a three-tier structure. The full indicator set is designed to support countries in tracking progress towards a circular economy.

Table 1: List of proposed core indicators

Framework	Themes	Proposed core indicators
Material life-cycle and value chain	The material basis of the economy	Material consumption & productivity (DMC, RMC): trends and mix
	The circularity of material flows and the management efficiency of materials & waste (with reference to R strategies and CE mechanisms)	- Total waste generation: trends; intensity per GDP and per capita - Circular material use rate - National recycling rate - Waste going to final disposal
	Interactions with trade	none
Interactions with the environment	Natural resource implications (physical evolution of natural assets)	- Natural resource index / depletion ratios: energy & mineral resources - Intensity of use of renewable freshwater resources
	Environmental quality implications (effects of materials extraction, processing, use and end of life management on environmental conditions and on human health)	- GHG emissions from production activities - Pollutant discharges from production activities to water bodies and proportion safely treated - Placeholder: Impacts on human health
Responses and actions	Support circular use of materials, promote recycling markets and optimise design	Taxes and government support for circular business models
	Improve the efficiency of waste management and close leakage pathways	Investment in waste management infrastructure, waste collection and sorting (government, businesses)
	Boost innovation & orient technological change for more circular material lifecycles	R&D expenditure on CE technologies (government, businesses)
	Target setting and planning	none
	Strengthen financial flows for a circular economy and reduced leakage	Business investment in CE activities
	Inform, educate, train	Placeholder: education and training
Socio-economic opportunities for a just transition	Market developments and new business models	- Gross value added of CE sectors - Jobs in CE sectors
	Trade developments	none
	Skills, awareness and behaviour	Placeholder: Behaviour
	Inclusiveness of the transition	Placeholder: Distributional aspects & socio-economic inequality of CE policies

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- ⁱ [Economic Commentary Spring 2024 | DfE](#)
- ⁱⁱ [Research Bulletin 25 1 - Indicators to Monitor Decarbonisation and the Circular Economy](#)
- ⁱⁱⁱ [Material Footprint in Northern Ireland 2001-2022 | Department for the Economy](#)
- ^{iv} [Programme for Government 2024-2027 'Our Plan: Doing What Matters Most'](#)
- ^v [Draft Circular Economy Strategy for Northern Ireland](#)
- ^{vi} [DfE Business Plan 2025-26 | Department for the Economy](#)
- ^{vii} [UK Parliament Post \(2025\) The Circular Economy and sustainable manufacturing](#)
- ^{viii} [UNECE/OECD Guidelines \(2024\): The Guidelines for Measuring Circular Economy | UNECE 2024](#)
- ^{ix} [GUIDELINES FOR MEASURING CIRCULAR ECONOMY – PART B: PRACTICAL GUIDE FOR MEASURING PROGRESS TOWARDS A CIRCULAR ECONOMY](#)
- ^x [Guidelines for Measuring Circular Economy \(Part A: Conceptual Framework, Indicators and Measurement Framework\) | UNECE](#)
- ^{xi} [European Commission \(2023\) Circular Economy Monitoring Framework – EU Indicators. Brussels | European Commission \(Eurostat\).](#)
- ^{xii} [Scotland's Circular Economy Strategy | Scottish Government, 2026](#)
- ^{xiii} [The Republic of Ireland's Whole-of-Government Circular Economy Strategy 2026–2028 | Department of Environment, Climate and Communications, 2026](#)
- ^{xiv} [UNECE/OECD Guidelines \(2024\): The Guidelines for Measuring Circular Economy | UNECE 2024](#)
[European Commission \(2023\) Circular Economy Monitoring Framework – EU Indicators. Brussels: European Commission | Eurostat](#)
[Scotland's Circular Economy Strategy | Scottish Government 2026](#)
[The Republic of Ireland's Whole-of-Government Circular Economy Strategy 2026–2028 | Department of Environment, Climate and Communications 2026](#)
- ^{xv} [Research Bulletin 25 1 - Indicators to Monitor Decarbonisation and the Circular Economy](#)
- ^{xvi} [UNECE/OECD Guidelines \(2024\): The Guidelines for Measuring Circular Economy | UNECE 2024](#)
- ^{xvii} [10x Economy: An Economic Vision for a Decade of Innovation. | DfE 2021](#)
- ^{xviii} [UK Standard Industrial Classification of Economic Activities - Office for National Statistics](#)
- ^{xix} [Keeping your standard industrial classification \(SIC\) code accurate | Companies House](#)
- ^{xx} [Statistical classification of economic activities - NACE | Eurostat](#)
- ^{xxi} [United Nations Statistics Division | ISIC](#)
- ^{xxii} [European Commission \(2023\) Circular Economy Monitoring Framework – EU Indicators. Brussels: European Commission | Eurostat](#)
- ^{xxiii} [UNECE/OECD Guidelines \(2024\): The Guidelines for Measuring Circular Economy | UNECE 2024](#)