


RESEARCH ARTICLE

Circular economy in corporate sustainability reporting: A review of organisational approaches

Katelin Opferkuch^{1,2}  | Sandra Caeiro^{1,2} | Roberta Salomone³ | Tomás B. Ramos²

¹Department of Science and Technology, Universidade Aberta, Lisbon, Portugal

²CENSE, Center for Environmental and Sustainability Research, NOVA School of Science and Technology, NOVA University Lisbon, Caparica, Portugal

³Department of Economics, University of Messina, Messina, Italy

Correspondence

Katelin Opferkuch and Sandra Caeiro, Department of Science and Technology, Universidade Aberta, Rua da Escola Politecnica 147, Lisbon 1269-001, Portugal.
Email: katelin.opferkuch@uab.pt; scaeiro@uab.pt

Funding information

Foundation for Science and Technology, Grant/Award Number: UID/AMB/04085/2019; European Union's Horizon 2020, Grant/Award Number: 765198

Abstract

A growing commitment from companies to implement circular economy (CE) strategies demands the development of guidelines for consistent related external communication. The fields of non-financial reporting and sustainability are well established with numerous available international reporting frameworks and approaches; however, there is still an absence of standardised reporting principles and procedures for publishing progress on circularity. In this context, this article aims to explore how companies could include CE within their corporate sustainability reports, through an academic literature review and content analysis of existent reporting approaches. Results showed a clear disconnection between CE and sustainability reporting literature. Overall, only a few of the revised reporting approaches explicitly mention CE, and the guidance given to companies is very general, inconsistent and places the responsibility of selecting performance assessment approaches on the companies. The analysis contributes to identifying opportunities for transparent external communication of CE issues, as well as exploring the challenges and limitations.

KEYWORDS

circular economy, content analysis, corporate social responsibility, literature review, reporting framework, sustainable development

1 | INTRODUCTION

Experts have long argued for optimal strategies towards sustainable development (SD) and the circular economy (CE) model is gaining momentum as a promising pathway (Geissdoerfer et al., 2017). With this trend comes a proliferation of CE definitions, terminology and performance assessment approaches being adopted by various stakeholders (De Pascale et al., 2020; Kirchherr et al., 2017; Moraga et al., 2019; Parchomenko et al., 2019). Major principles of the CE model are becoming increasingly embraced and promoted by both companies and policy makers (Lacy et al., 2014).

CE, as a designated policy approach, first became prevalent at a national policy level with the 'Circular Economy Promotion Law of the

People's Republic of China' in 2008 (The Standing Committee of the National People's Congress, 2008). Within this document CE is described as 'a generic term for reducing, reusing and recycling activities conducted in the process of production, circulation, and consumption' (The Standing Committee of the National People's Congress, 2008, p. 1), strongly echoing the 3R framework: reduce, reuse, recycle (Yang et al., 2014). Following this, several institutions, such as the European Commission (EC), developed publications promoting the implementation of CE including the Circular Economy Action Plan (EC, 2015). Here, CE is expanded and is defined as 'A circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimising the generation of

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. Business Strategy and The Environment published by ERP Environment and John Wiley & Sons Ltd.

waste' (EC, 2015, p. 2). CE has also become influential across business circles, where work done by organisations, such as the Ellen MacArthur Foundation (EMF), promote CE as an 'economic model which seeks to ultimately decouple global economic development from finite resource consumption', often illustrated with the butterfly diagram distinguishing between technical and biological cycles (EMF, 2015b, p. 2).

Despite the increasing promotion of CE from international institutions and private organisations, academic research has identified potential sustainability trade-offs and rebound effects from implementing CE principles (Geissdoerfer et al., 2017; Korhonen et al., 2018). This 'rebound effect' can be defined as the reduction in expected benefits from new and more efficient technologies because of changes in consumer behaviour or the need for producers to maintain production of new products (Berkhout et al., 2000). This kind of effect could also be connected with 'greenwashing': the corporate practice of claiming or exaggerating sustainability with the purpose of hiding a questionable environmental or socio-economic performance (Braga Junior et al., 2019). In order to monitor and prevent rebound effects from the implementation of CE strategies and subsequent greenwashing, it is imperative for companies to be transparent regarding the assessment and reporting of progress on circularity. This could be achieved through the use of quantitative metrics as well as qualitative evaluation approaches. When using these options, organisations can consider the impacts of their CE practices towards their organisational sustainability goals. Transparency to demonstrate how internal changes (e.g., CE implementation) are actually impacting a company's sustainability performance are often formally communicated through 'corporate sustainability reporting' (EC, 2021; Lock & Seele, 2016). Higgins and Coffey (2016) stated that sustainability reporting can contribute to a company establishing their own conceptualisation of sustainability, as well as their strategic integration of sustainability principles. To facilitate the reporting writing process, reporting frameworks and approaches were constructed to ensure comparable, measured and reliable disclosures from companies across sectors (Thomson, 2015).

Within this article, the term 'reporting approaches' includes reporting standards, guidelines, frameworks, models and other tools designed to facilitate the sustainability report writing process. Significant drivers of sustainability reporting are, not only the typical non-financial stakeholders' demands (e.g., from consumers, local communities and non-governmental organisations [NGOs]), but also those from the investment communities (e.g., shareholders and banks) who are increasingly asking for transparency of business practices (Ditlev-Simonsen & Midttun, 2010). Thus, the quantity and quality of information disclosed in sustainability reports can be used by stakeholders to measure an organisation's legitimacy (Kuo et al., 2012). But with a growing landscape of competing reporting options available to companies, which are intended to reduce bias in self-assessment, the decision of which one to implement is not so straightforward, as highlighted by Thijssens et al. (2016). Furthermore, the capacity of reporting approaches to improve the quality and transparency of non-financial disclosures and in turn the sustainability performance of a

company, remains heavily debated (Cortesi & Vena, 2019; de Villiers & Sharma, 2020; Flower, 2015; Melloni et al., 2017; Thomson, 2015). With respect to sustainability narratives, such as CE, the guidance included within reporting approaches will influence the terminology used, definitions of concepts promoted and the assessment approaches applied by companies producing sustainability reports moving forward (Chen et al., 2020). How these reporting approaches are suggesting companies should communicate CE within a sustainability report and the challenges surrounding CE reporting remains unclear and largely unexplored.

To shed light on this issue, a review of corporate sustainability reporting approaches and how they are integrating CE aspects is presented. Therefore, the main research aim is to explore how existent sustainability reporting approaches and literature guide companies to include CE issues. This guidance will be explored in terms of both the structure and content of the reporting approaches and will be extracted from academic literature, reporting approaches and related documents. To achieve these aims, the remainder of this article is structured as follows. The next section provides a theoretical overview of the key concepts informing this research. In the third section, the methods utilised in this article are described. Following this, the academic articles are reviewed and the list of reporting approaches available to companies is selected and analysed using the coding framework. Finally, the article discusses critical reflections on the findings and concludes with suggestions for future research.

2 | THEORETICAL OVERVIEW

This section presents the main concepts which constitute the building blocks motivating and supporting this research:

- a. Sustainability reporting in the context of strategic management, in order to provide a definition, evolution, challenges and the benefits of sustainability reporting practices,
- b. Importance and relevance of reporting approaches for sustainability disclosure, in order to introduce the goal of reporting approaches as well as an overview of the current reporting landscape,
- c. The emergence of CE strategies, in order to improve sustainability performance,
- d. Linking CE and sustainability reporting, a description of the research gap.

2.1 | Sustainability reporting in the context of strategic management

The practice of sustainability reporting has evolved from the corporate social responsibility (CSR) movement. In the 1970s, the first collection of organisations publishing information regarding their environmental and social aspects was seen in both the United States and Western Europe (Junior et al., 2014; Kolk & Pinkse, 2010). This

practice gained serious prominence during the late 1990s and early 2000s partly due to the publication of the triple bottom line (TBL) concept (Elkington, 1997). The TBL model, popularised as ‘people, planet, profit’ (PPP) is an accounting framework responding to the Brundtland definition of SD in 1987 (World Commission on Environment and Development, 1987). Research from Davis-Walling and Batterman (1997) and Kolk (1999) contributed to the foundations of practices for evaluating the quality of sustainability reports. The evolution of sustainability reporting has been comprehensively summarised in numerous articles, such as Deegan and Blomquist (2006), Buhr (2007), Gray and Milne (2008), Owen and O'Dwyer (2009), Dumay et al. (2016) and Rupley et al. (2017).

Sustainability reports should consist of objective information allowing stakeholders to make reliable evaluations of the organisation's non-financial performance, including (but not limited to) social and environmental aspects (Gray, 2006). By disclosing targets, benchmarks and commitments within a sustainability report, a company may help investors and other stakeholders to put its performance in context (EC, 2017). Reporting on sustainability performance could potentially provide numerous benefits for a company including: increased credibility, reduced legal risks, improved supplier relationships, increased access to capital and increased ethical behaviour along the supply chain (Paun, 2018). Regarding a company's individual approach to sustainability, sustainability reports are said to be their most direct expression (Comas Martí & Seifert, 2013). A corporate sustainability report can also be known as several other titles such as: *Sustainability Report*, *CSR Report*, *Integrated Report*, *Environment, Social & Governance (ESG) Disclosure* or *Environmental Report*. Some researchers argue however, that no organisation producing sustainability reports can give equal billing to each of the components of the TBL (Gray et al., 2014) and that the expression ‘sustainability reporting’ is moving further away from the form of sustainability put forward with the Brundtland definition (Hahn & Kühnen, 2013). However, due to the recent publication of the draft proposal from the EC, ‘Corporate Sustainability Reporting Directive’ (EC, 2021), which proposes the terminology shift from ‘non-financial report’ (as defined in the European Non-Financial Reporting Directive in 2014—see text below) to ‘sustainability report’, in this article, the term ‘sustainability reporting’ will be used. Here, this term refers to the voluntary or mandatory reporting activities of a company publishing a report composed of either exclusively or partially non-financial information, irrespective of the reports title or the reporting approach employed (EC, 2014).

Sustainability reports themselves are merely a product of sustainability accounting and strategic management processes, which includes: strategic goal development (Gagné, 2018), resource allocation (Bower, 1971, 2017), implementation and management of change (Hussey, 1998) and assessment, monitoring and communication (Gamerschlag et al., 2011; Lozano & Huisinigh, 2011). Research within corporate sustainability has demonstrated that in order to cope with emerging sustainability challenges, organisations require a specific set of capabilities to go beyond mere regulatory compliance (Teece et al., 1997; Wu et al., 2013). Furthermore, several studies have examined how accounting processes (and by extension reporting

processes) influence both the development and management of a company's corporate strategy (Baumgartner & Rauter, 2017; Skærbæk & Tryggestad, 2010). Therefore, sustainability reporting can be utilised as a main driver facilitating change towards corporate sustainability within a company (Adams & McNicholas, 2007; Lozano et al., 2016). Authors such as Vermeulen and Witjes (2016) stress that corporate sustainability is not only about sustainability issues (e.g., PPP) but must incorporate a time dimension: both taking a long-term perspective enabling radical transformative changes and a short-term perspective, starting with activities which can be implemented tomorrow. Burritt and Schaltegger (2010) suggest that sustainability reports are tools that help managers make sustainability decisions. Through a review of literature, these authors offer two managerial perspectives: (i) the ‘inside-out’, meaning reports are developed by the company and their business strategy or (ii) the ‘outside-in’, where reporting is driven by external communication requests made by stakeholders (Burritt & Schaltegger, 2010; Domingues et al., 2017). Lozano et al. (2016) investigated these two perspectives in practice and concluded through a survey of 91 reporting companies, that sustainability reporting processes were mainly driven from internal motivations and their impact had facilitated changes for sustainability. Despite these examples of the potential benefits of sustainability reporting to a company's strategic management, it should also be noted that some authors claim companies are more likely taking an ‘outside-in’ perspective, simply ‘free-riding’ on the backs of leading reporting companies whilst continuing in their pursuit of profit and growth (R. Gray & Milne, 2002).

2.2 | Importance and relevance of reporting approaches for sustainability disclosure

Boiral and Heras-Saizarbitoria (2019) discuss that, despite advancements with social accounting practices, there has not been a direct increase in the quality of sustainability reports being published. Hopwood et al. (2005) voiced that companies are reporting more often on aims and intentions rather than on actual actions and performance. Even in 1998, researchers determined that managers often disclose information in a narrative format because such disclosures can be customised to manage public impressions (Neu et al., 1998). This is not unlike the process of ‘decoupling’, as labelled by Meyer and Rowan (1977), which concerns a company's symbolic adoption of new structures or sustainability words whilst still operating with the same traditional policies and activities, resulting in a ritualistic compliance. As previously mentioned, to decrease these shortcomings, reporting frameworks, initiatives and approaches (henceforth reporting approaches) have been developed which assist organisations to report comparable, consistent and trusted non-financial information required by national and/or international guidelines (EC, 2017). Reporting approaches can be issued and published by different types of institutions, including the following: governments, financial market regulators, stock exchanges, industry bodies, investors, standard setters, consultancies, NGOs and intergovernmental

organisations (Van der Lugt et al., 2020). In addition, informal reporting approaches have also been proposed by academics as the result of a growing body of CSR research (e.g., Sureeyatanapas et al., 2015; Yongvanich & Guthrie, 2006). Companies may use multiple reporting approaches to publish a report; however, this still results in a lack of comparability between data within sustainability reports (Eccles & Saltzman, 2011). Generally, the discussion within academic literature focuses on the most commonly used horizontal reporting framework: 'GRI Standards' and increasingly, the 'International Integrated Reporting Framework' (Hahn & Kühnen, 2013; Peršić et al., 2017). Which reporting approach a company selects is important; indeed, as Adams (2017) determined, the specific content related to value creation and sustainability issues can have a significant impact on the mindset of organisational leaders. The growth of reporting approaches available to companies within the last decade has resulted in a diverse landscape of reporting approaches all competing for dominance (Siew, 2015).

It is becoming increasingly obligatory for companies to formally report non-financial information. For example, the European Union (EU) regulatory *Non-Financial Reporting Directive 2014/95/EU* (EC, 2014) impacts all sustainability reports published from 2018 by large public-interest companies. Following this, the EC published *Guidelines on Non-Financial Reporting (methodology for reporting non-financial information) (2017/C 215/01)* which acts as non-binding guidelines to assist companies in disclosing information in accordance with the directive (EC, 2017). Although a European level policy, the guidelines are based on information compiled from academic literature and various national and international reporting approaches. Furthermore, the guidelines state that while its aim is to address companies which are required to produce a mandatory non-financial disclosure, they also represent best practice for companies who wish to voluntarily produce a report (EC, 2017). There are relatively few studies focussing on the process of developing corporate sustainability reports, primarily as most companies are utilising the report formats and procedures formally prescribed in reporting approaches (Roca & Searcy, 2012). Generally, a company's corporate sustainability report will include text describing their: (i) sustainability vision and objectives (e.g., Adams, 2017; Gray, 2006); (ii) company policies, management systems and stakeholder relations (e.g., Daub, 2007; Lozano, 2020); and (iii) the company's performance in the context of sustainability, inclusive of relevant key performance indicators (KPIs) (e.g., GRI, 2016; Roca & Searcy, 2012). Building on this, the guidelines formulated eight key content elements (e.g., business model and KPIs) which must be addressed within a corporate sustainability report (European Commission, 2017) (see Appendix A, Table A1). As a result, these content elements are often utilised in academic studies as a basis to analyse the quality, format and style of sustainability disclosures (e.g., Manes-Rossi et al., 2018; Ștefănescu et al., 2021).

Additionally, it should be highlighted that sustainability research continues to identify challenges for corporate sustainability reporting. In recent years, the United Nations' (UN's) Sustainable Development Goals (SDGs) have become a globally recognised framework for society to progress towards SD (UN, 2015). Because of this, companies

are aligning their sustainability initiatives and targets with the SDG agenda (Rosati & Faria, 2019). In response, numerous reporting initiatives including the 'GRI Standards' and the 'Integrated Reporting Framework' have published supplementary material which support companies to integrate the SDGs within an organisation's internal goal setting process. The analysis of sustainability reports to evaluate a company's commitment and operationalisation of the SDGs has become a rapidly growing area of research and highlights the potential of reporting initiatives to influence the development of a company's response to emerging sustainability challenges (e.g., Biermann et al., 2017; Izzo et al., 2020; Tsalis et al., 2020).

2.3 | The emergence of circular economy strategies

CE is not a novel concept, and authors have discussed its origins and pre-cursors (see Calisto Friant et al., 2020). CE is most often presented as activities related to waste and resource management, aiming to establish a decoupling of economic development from finite resource consumption through introducing closed resource loops (Ghisellini et al., 2016; Kirchherr et al., 2017). Several authors argue that these narrow conceptions of CE focussed on resource efficiency do not support a system thinking approach, which help companies consider the impacts of CE strategies from a broader sustainability perspective (Webster, 2013). For example, research from Schroeder et al. (2019) suggest that CE can be a tool having positive contributions on numerous SDGs, beyond only those linked with the environmental dimension. This notion is echoed by other authors who have discussed CE as one of many sustainability narratives positioned as having the potential to lead society towards positive transformative change (D'Amato, 2021; Opferkuch, Raggi, et al., 2021; Roos Lindgreen, Walker). These studies highlight the conceptual diversity of CE which is not only being discussed within academic literature but is also evident within international CE policies. Through an analysis of EU CE policies, Calisto Friant et al. (2020) described the primary discourse of CE being promoted as both holistic and optimist. However, the targets and measures included within the EU policies reviewed are labelled as segmented and focus only on 'end of pipe' solutions (Calisto Friant et al., 2020). The ability of CE to address the underlying causes of sustainability challenges is dependent on how the narrative of CE is understood and subsequently implemented (D'Amato, 2021).

The transition towards a CE presents a new business paradigm, one associated with critical challenges in terms of resource management, stakeholder management, financial and regulatory aspects, organisational barriers and consumer acceptance (Ritzén & Sandström, 2017; Stewart & Niero, 2018). This paradigm requires companies to rethink the way they create and deliver value, ensuring that CE promotes organisational sustainability (Lozano, 2020). Companies implementing closed loop systems are compelled to work with an ecosystem of actors, requiring a shift from firm-centric to network-centric operational logic and sustainability assessments (Blomsma et al., 2019; Walker et al., 2020). For these reasons, the research field

concerning quantitative and qualitative approaches for CE assessment at both the company and product level is growing rapidly (Corona et al., 2019; Kristensen & Mosgaard, 2020). To date, there is no uniform approach to the assessment of CE practices, with proposed approaches ranging across scales such as (i) single indicators, for example, the circularity degree from Haas et al. (2015), (ii) circularity indices, for example, Material Circularity Indicator (MCI) from EMF (2015a) and (iii) company-level assessment frameworks, for example, Circularity Measurement Toolkit from Garza-Reyes et al. (2018). To contrast, some studies suggest that the evolution of assessment approaches for CE are losing sight of sustainability indicators (Kravchenko et al., 2020) or are rarely based on scientific evidence and risk driving 'circularity for circularity's sake' (Harris et al., 2021). The conceptual limitations of CE and its assessment identified in literature could translate into practical limitations for companies adopting CE strategies (Calisto Friant et al., 2020). Without strong theoretical foundations of the CE concept, a company claiming improvements in their sustainability performance due to the implementation of CE strategies could easily be accused of greenwashing, similar to discussions involving the 'green growth' discourse (Gregson et al., 2015). Thus, companies' commitments towards CE may largely remain aspirational without formal guidance provided in reporting approaches (Jones & Comfort, 2017).

2.4 | Linking circular economy and sustainability reporting processes

Research interest on the integration of CE strategies and business models within CSR processes is growing; however, investigation into the role of sustainability reporting remains in elementary stages. Furthermore, the potential of sustainability reporting processes to aid in the legitimisation and comparability of the sustainability contributions of CE strategies is yet to be explored. Currently, CE is being promoted as a key strategy within the 'European Green Deal', suggesting CE will 'modernise the EU economy' (EC, 2019, p. 7) and include measures which encourage businesses to adopt CE practices. Within the same communication, the Non-Financial Reporting Directive is being reviewed, with the aim of increasing disclosure on climate and environmental data as well as ensuring sustainable investments (EC, 2019). A first draft of this revision suggests that indeed, the requirements for reporting a company's sustainability performance will involve more detail, also mentioning CE in relation with resource use as a potential material issue companies will have to report on (EC, 2021). With these policy developments, not only will the amount and quality of data required to be reported by companies in the near future increase but also the number of companies required to publish sustainability data. This increasing public pressure emphasises the need for guiding principles to be included within reporting approaches, ensuring that quality and comparable CE-related information will be disclosed by companies moving forward. However, before these guiding principles and procedures can be proposed, research is needed to clarify the current challenges

regarding reporting CE issues in accordance with the guidance of reporting approaches.

3 | METHODS

This section describes the literature review approach applied in this research. This approach is adapted and applied on two bodies of literature: academic and reporting approaches, namely, reporting frameworks, standards, guidelines and policy documents. It utilises qualitative content analysis methods with the purpose of not only identifying key words within the text but also understanding and interpreting the contextual use of these key words (Hsieh & Shannon, 2005). The overall research approach is graphically presented in Figure 1.

3.1 | Search for circular economy within sustainability reporting literature

First, a systematic review was carried out to collect a sample of academic articles, and then a qualitative content analysis was performed to assess them (Grant & Booth, 2009). The aim of the systematic review was to find and discuss themes across multiple studies. The final outcome presents a broad understanding of the connection between CE and sustainability reporting (Butler et al., 2016). A review protocol has been developed in line with the qualitative systematic review method to reduce bias and locate relevant sources.

The database search was conducted for scientific articles written in English and peer-reviewed found in the Scopus and Google Scholar databases. Articles were included if they were published between 2012 and July 2020. This timeframe ensured that the literature being reviewed was published just prior to the noted increase in CE-related literature in 2013–2014 (as identified in Geissdoerfer et al., 2017) and since the first report published by the EMF in 2012, and the consequent increase in public promotion of the CE concept (EMF, 2012). A search query was devised to search for the selected terms in the title, abstract and keywords of publications. Eight search strings were selected in combination with the term 'circular*'—the asterisk is a truncation symbol to allow different endings of the search term (e.g., circularity) to be included in the results. According to the report *Reporting Matters* (WBCSD, 2019), for the year 2018 corporate reports were most commonly referred to as sustainability report (42%), annual report (16%), integrated report (14%) or CSR report (4%) in declining order. By knowing this, each of these four report titles were included as separate search strings. Additionally, less frequently used terms related to reporting were added: 'disclosure', 'communication', 'performance evaluation' and 'environment, social & governance' (ESG). By including all of these eight search terms with the operator 'or' and the term 'circular*', the possibility of excluding relevant literature due to incorrect terminology is reduced. After applying this initial step, a sample of 149 articles was established.

The second process was to review and refine this sample of articles. To do this, the cross-referencing methodology from Wohlin (2014) was applied. Each article's title and abstract were scanned to determine if the article was indeed relevant to the scope and topic of this research. The inclusion or exclusion process was dependent on whether the article was providing strategies, differences or connections between the two fields of CE and sustainability reporting. The geographical scope of the research did not influence the article's inclusion. If an article was determined to be irrelevant, it was excluded from the sample. Articles which appeared more than once in the search, duplicate copies, were removed. On completion of this review protocol, the final sample of academic articles to be qualitatively reviewed was obtained ($n = 31$). Articles were then qualitatively assessed to abstract data that identify reporting approaches which incorporate CE and research discussing or proposing tools for external corporate communication of CE (other

than sustainability reporting). The results of this section are presented in Section 4.1.

3.2 | Search for circular economy issues within reporting approaches

3.2.1 | Sample definition

As the research developed, it became clear that a cohesive and commonly used list of reporting approaches available to companies to guide sustainability disclosures was not available. Thus, to identify relevant documents, firstly the *Guidelines on Non-Financial Reporting (methodology for reporting non-financial information) (2017/C 215/01)* was analysed (EC, 2017). This revealed two lists of widely accepted reporting approaches mentioned within the document, which were

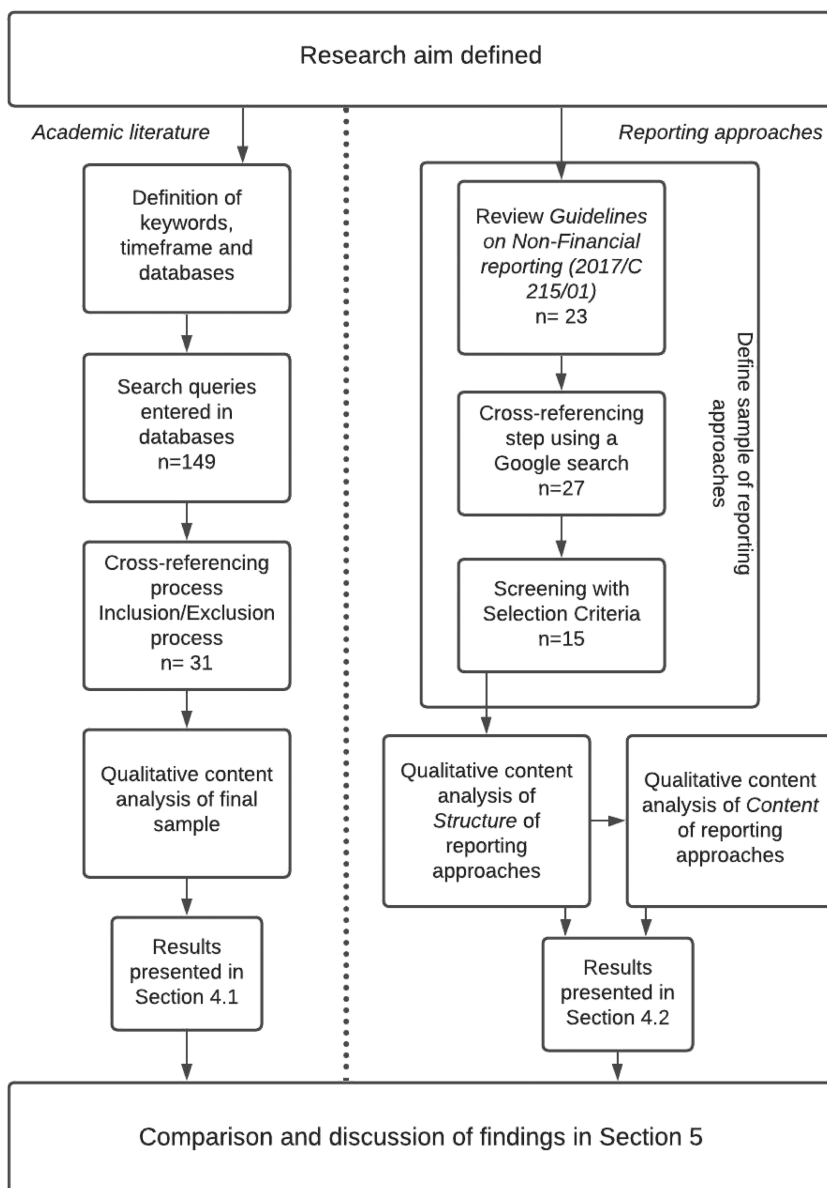


FIGURE 1 Summary of research steps

then combined to create the initial sample ($n = 23$) (as seen in Table A2).

To ensure this list was still valid in the current reporting landscape, an additional cross-referencing step using a Google search was made. This step aimed to identify any other documents which are not exclusively intended as a reporting framework but include content relevant to reporting of CE issues. Similar to the methodology used for academic literature, a search query was developed to combine three search strings with the term 'circular economy'. The search strings include 'reporting framework', 'reporting guidelines' and 'organisational framework'. Four additional documents were identified: two which act as reporting frameworks and two which focus on the organisational implementation of CE. These additional documents were then added to the sample ($n = 27$).

With this sample of documents, a criterion sampling technique was employed to ensure the final sample of reporting approaches are relevant to the research aims (Palinkas et al., 2015). Four selection criteria labelled SC1 to SC4 (as seen in Table 1) were designed to ensure that the final sample of reporting approaches was the most relevant for companies engaged with CE and wanting to produce a sustainability report across sectors and regions. The sample of 27 reporting approaches was then reviewed and the ones which did not satisfy all four selection criteria were excluded (the remaining approaches and reasons for exclusion are presented in Table A3). The final sample contained 15 documents relevant for organisational CE reporting ($n = 15$).

3.2.2 | Content analysis

Using the sample list, each reporting approach was analysed for CE on two dimensions: (i) structure of the reporting approaches and (ii) the content of the guidance on CE issues. To do this, a content analysis approach, consisting of the collection and coding of 'meaning units',

was developed to facilitate a transparent and consistent analysis of the qualitative documentation (Bryman, 2012). 'Meaning units' are defined as 'the constellation of sentences or paragraphs containing aspects related to each other, answering the question set out in the aim' (Bengtsson, 2016; Catanzaro, 1988). All 15 reporting approaches were read, and any explicit text mentioning 'circular economy', or also more broadly other terminologies including 'circular*', were collected and recorded as meaning units. The extracted text will provide evidence of how companies producing a sustainability report are being advised by reporting approaches to integrate CE within their corporate sustainability strategy and ultimately be included in their sustainability reports.

For the dimension of structure, (*if* and) *where* the reporting approach mentions CE was noted in order to obtain insights into which key content elements of a report companies are being suggested to include CE within their reports. The coding framework was developed by examining each reporting approach and noting the (i) format, that is, whether CE is included as a central topic within principle documents or within supplementary material and (ii) content elements, that is, where CE was mentioned across the three key content elements required for sustainability reports: (i) sustainability vision and objectives, (ii) company policies, management systems and stakeholder relations, and (iii) the company's performance in the context of sustainability. Using an inductive approach, the data gathered allowed classifying approaches into three main categories (and two sub-categories) as described in Table 2. The location of each 'meaning unit' within the reporting approaches allowed each reporting approach to be categorised as one of the three. As little is known about how CE could be incorporated into reporting, a document categorised as *Fully integrated* does not necessarily mean it will produce a better sustainability report discussing CE issues than a framework which is classified as *Partially integrated*. Instead, the aim is to observe *where* the authors of reporting approaches have chosen to include CE (or could choose in the future) and how frequent these categories are being applied in current reporting approaches. By observing this, insights into how much importance or weight each reporting approach

TABLE 1 Selection criteria of the reporting approaches to be analysed

Selection criteria (SC)	Description
SC1	The reporting approach must be international in scope, excluding national or regional reporting requirements
SC2	The reporting approach must be intended to be used by organisations (private, public or state owned)
SC3	The reporting approach must be horizontal (cover a broad variety of sectors and topics), excluding any reporting approaches made specific to one sector or topic
SC4	The reporting approach must contain advice for organisations on the content and format of their non-financial report, excluding those designed purely for internal communication or internal decision making only

TABLE 2 Categories used to identify if and where CE is integrated in the analysed reporting approaches

Classification of the structure		Description (<i>if</i> and <i>where</i>)
Fully integrated		CE is integrated throughout numerous content elements within principal reporting guidelines of the document
Partially integrated	Supplementary material	CE is included in a CE-specific supplementary material and integrated across more than one content element
	Content element	CE is included within the principal reporting approach documents and integrated within one content element
Not mentioned		CE is not mentioned at all

gives to CE issues are obtained. The different structures of the reporting approaches will influence companies' interpretation of the CE concept and this will ultimately be reflected in the sustainability reports of the companies using them.

For the second dimension of content, the sample was reviewed to determine *what guidance* specifically related to CE is integrated within each reporting approach mentioning CE, as determined in the previous step. The coding framework was developed using three variables from literature which are considered critical to understanding a company's conceptualisation and implementation of CE: definition (Ghisellini et al., 2016; Kirchherr et al., 2017), terminology (Schöggl et al., 2020; Walker, Opferkuch, Roos Lindgreen, Raggi, et al., 2021) and assessment approaches (Roos Lindgreen et al., 2020; Saidani et al., 2019). Specific to this study, a fourth variable was introduced titled 'reporting requirements' which observes whether CE issues are a voluntary or mandatory reporting issue according to the requirements of the reporting approach. Using an inductive approach, each 'meaning unit' was coded against the four categories seen in Table 3. For the content dimension, rather than classifying each approach (like what was done with the structure dimension), qualitative observations were noted on the four categories using the coding schedule and are presented in Section 4.2.

4 | RESULTS

This section presents the results of the review of academic literature, followed by the results of the review of reporting approaches.

4.1 | Findings from the review of academic literature

The articles reviewed revealed that within academic literature, to date, no informal reporting approaches have been developed to inform and guide companies wishing to include CE within their sustainability report. However, the following section will describe the common themes extracted from the academic articles reviewed

TABLE 3 Categories used to identify what guidance related to CE is integrated in the analysed reporting approaches

Classification of the content	Description
Definition	Presence of a definition of CE (own definition or reference to other source)
Terminology	Indication of key terms, phrases and concepts on circular economy and related topics (including sustainability)
Assessment approaches	CE-related indicators or other assessment approaches, including tailor made initiatives
Reporting requirements	CE is a voluntary or mandatory issue to be reported

resulting in the following challenges for CE reporting: application of existent reporting approaches to CE practices, challenges with corporate CE communication, transparency of CE impacts and insights into CE reporting trends.

Only a few authors have discussed existing sustainability reporting approaches with relation to their coverage of CE practices. Pesce et al. (2018) conducted research to gather opinions on the implementation of the international standard ISO 14001:2015 for environmental management systems in Chinese companies, linking with CE topics. One of the focus areas was to better 'understand the potential of the standard in relation to the rise of new approaches and corporate sustainability paradigms such as corporate social responsibility and circular economy' (Pesce et al., 2018, p. 8). From a workshop with 72 small and medium sized enterprises (SMEs) and multinational companies in the Guangdong province, the results suggest that the companies interviewed do not believe the ISO 14001:2015 standard fully integrates CE principles. The companies demanded changes in sustainability tools and approaches which will allow users to integrate emerging sustainability paradigms, such as the CE. The work of Pauliuk (2018) presents a critical appraisal of the CE standard BS 8001:2017. The standard from the BSI attempts to provide guidance for organisations implementing and monitoring CE principles and strategies. Pauliuk (2018) argues that the guidance on monitoring CE strategy implementation within the standard is vague and does not facilitate organisations capturing a broad range of benefits from CE implementation. Furthermore, the standard places the responsibility for selecting CE performance indicators for both internal and external communication (such as within sustainability reports) on the organisations themselves. Left without uniform guidance for the monitoring and assessment of CE practices, Pauliuk (2018) concludes organisations will 'cherry pick results that fit their corporate message but not necessarily contribute to the wider CE and sustainability goals' (pp. 90). These two studies show that in an organisational management context, the suitability of existing reporting approaches to the developing model of CE is limited and only now beginning to be discussed.

Several challenges to corporate communication of CE have been studied but, within the analysed literature, the opportunities for sustainability reporting practices to address these challenges have not been yet explored. Esken et al. (2018) point out that CSR, as a field of management gaining attention since the 1990s, consists of activities designed within the linear economic model. For long running embedded CSR employees, often in upper management, it is difficult to embrace an alternative non-linear model of production. Esken et al. (2018) suggest that, to increase synergies between the fields of both CSR and CE, intra-corporate exchange of best practices is critical. In order to transition towards a CE, no single entity can do this alone and their commitment must be expressed both internally and externally. This collaborative process could be accelerated through comparable sustainability reporting, to identify collaboration opportunities between organisations along the supply chain.

Gusmerotti et al. (2019) provide a further exploration of a firm-centric approach to CE implementation, exploring the drivers and

approaches of CE within 821 Italian manufacturing firms. Their findings suggest that companies who are successful in CE implementation have recognised the need for circularity to 'pervade the whole business and, therefore, encompass all business functions' (Gusmerotti et al., 2019, pp. 324). Companies which limit their focus to internal operations will reduce the potential economic and market opportunities related to CE. On the other hand, companies who focus too much on marketing actions and communication could be interpreted as greenwashing and hinder their success in the market (Gusmerotti et al., 2019). Laurenti et al. (2018) add suggestions for corporate communication through their study on waste impacts for circular products. Through stakeholder consultation with life cycle assessment (LCA) practitioners and consumers, the researchers identified the paradox of suggesting metrics which are simple enough for consumers to understand but complex enough so they can still convey the significance of different environmental impacts (Laurenti et al., 2018). Birat (2015) proposed the combination of two tools: LCA and material flow analysis (MFA) to evaluate and communicate CE performance. However, this proposal has not yet been accepted by the market as the dominant representation of CE performance. These studies highlight the risks associated with data selection for external communication and how reporting approaches could inform this communication, providing a comparable format and reducing the potential for greenwashing and oversimplification of CE-related data.

Several of the reviewed articles discuss forms of external communication, other than sustainability reporting and their applicability to communicating CE performance. For example, Bovea et al., 2018 investigate the options of eco-labelling for circular products. More specifically, the researchers focus on icon design and propose five globally selected icons for five different CE strategies (upgrade, disassembly, lifetime extension, repairability and reuse). The authors recommend companies integrate these icons into the design process of their products to improve consumer awareness of CE. This study demonstrates that the lack of consumer awareness and understanding of CE results in limitations for corporate communication of CE issues. On a related angle, Muranko et al. (2019) explore the use of persuasive communication strategies to influence the perception of remanufactured products (an example of products produced using CE practices) as having a high and safe quality. They too, identify a lack of societal CE awareness and comment on how this not only restricts the potential of corporate communication, but it could also be seen as a risk for companies.

In a related context of communication and transparency, Peschel and Aschemann-Witzel (2020) explored the level of transparency in communication of the prices of goods produced using CE practices, in this case, upcycled plant-based food items. In some scenarios, the introduction of upcycled alternatives actually increased sales of competing alternative sustainable items. The authors conclude that in their study, communication revealing the upcycling of ingredients actually lowered the product's perceived monetary value (Peschel & Aschemann-Witzel, 2020). Without adaptations to current corporate communication strategies, it is possible that companies will decide not to discuss CE issues at all.

A final theme across the analysed articles involves the application of content analysis research methods on sustainability reports to analyse various aspects of CE implementation in different sectors and regions. Recently, Stewart and Niero (2018) made first attempts at revealing how CE is being included within companies sustainability agenda using systematic content analysis of sustainability reports. Among the conclusions, the researchers emphasize that within the fast-moving consumer goods (FMCG) sector, the integration of CE in sustainability reports has started and is mostly often associated with recycling and reusing (Stewart & Niero, 2018). The results also showed that sustainability reports which had more elaboration on CE were lacking references to sustainability performance indicators or assessment methodologies (Stewart & Niero, 2018). This could indicate that companies are unsure of how to comprehensively communicate the integration of the assessment of CE practices within sustainability reports. Fortunati et al. (2020) analysed the integration of CSR and CE within multi-national companies in the cosmetics industry. The authors observed that in numerous cases, the circular approach was not clearly described or supported by quantified actions and objections (Fortunati et al., 2020). Similarly, Dagiliene et al. (2020) determined, through content analysis of sustainability reports within the manufacturing sector, that companies are still not reporting much information about CE. Findings suggested that sustainability reports which do describe reuse, recycle and recover practices still do not contain sufficient data from the holistic perspective of CE. The authors also acknowledge the potential for reporting approaches and assurance standards to positively guide the development of the reporting of CE strategies; however, more work needs to be done to integrate CE within existing environmental management accounting tools (Dagiliene et al., 2020).

4.2 | Findings from the review of reporting approaches

The final list of 15 documents, (numbered 1–15), are presented in Table 4. As described by the four selection criteria in Table 1, this list can be utilised by organisations engaged with CE of all sizes, operating in different sectors and locations seeking guidance to assist them in preparing a voluntary or mandatory organisational sustainability report suitable for external communication.

Results indicate that the majority of the sustainability reporting approaches reviewed have no mention of the concept of CE. One reason for this could be due to the reporting approaches being published before the *EU Action Plan for Circular Economy* (EC, 2015); however, this is not the explanation for all approaches as only two were last revised before 2015.

No reporting approaches were classified as *Fully integrated*, indicating that, despite academic literature and policy documents positioning CE as a transformative model for the improvement of organisational sustainability performance, from the perspective of the authors of reporting approaches, CE is not yet being positioned as a central topic within a sustainability report nor within the organisation.

TABLE 4 Classification of the structure of reporting approaches to identify CE, according to the four categories defined in Table 2 (reporting approaches listed in alphabetical order)

No.	Abbreviation	Author(s)	Title of the reporting approach	Last revised in ^a	Classification on structure
1	CDP	CDP Global (formerly the Carbon Disclosure Project)	CDP	2019	Not mentioned
2	CDSB	Climate Disclosure Standards Board (CDSB)	CDSB framework	2020	Not mentioned
3	EMAS	European Commission	Eco-Management and Audit Scheme (EMAS)	2017	Partially integrated, supplementary material
4	GRI	Global Reporting Initiative (GRI)	GRI Sustainability Standards	2020	Partially integrated, content element
5	ISO	International Organisation of Standardisation (ISO)	ISO 26000 Social Responsibility	2017	Not mentioned
6	IIRC	International Integrated Reporting Council (IIRC)	The International (IR) Framework	2021	Not mentioned
7	OECD	Organisation for Economic Co-operation & Development (OECD)	OECD Responsible Business Conduct: OECD Guidelines for Multinational Enterprises	2011	Not mentioned
8	POEF	European Commission	Product and Organisation Environmental Footprint guides	2016	Not mentioned
9	SASB	Sustainability Accounting Standards Board	Sustainability Accounting Standards Board	2017	Not mentioned
10	SDG	United Nations	SDG Compass: The Guide for Business Action on the SDGs	2015	Not mentioned
11	SDGD	ACCA ^b , ICAS ^c , CA ANZ ^d , IIRC & World Benchmarking Alliance	Sustainable Development Goals Disclosure (SDGD) Recommendations	2020	Not mentioned
12	UNGC	United Nations	United Nations Global Compact: Guide to Corporate Sustainability: Shaping a Sustainable Future	2014	Not mentioned
13	WEF	World Economic Forum (WEF)	Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation	2020	Partially integrated, content element
14	BSI	British Standards Institute	BSI 8001:2017; Framework for implementing the principles of the circular economy in organizations—Guide	2017	Partially integrated, supplementary material
15	UL	UL	UL 3600; Measuring and reporting circular economy aspects of products, sites and organizations	2018	Partially integrated, supplementary material

^aEither partial or full revision.

^bAssociation of Chartered Certified Accountants.

^cInstitute of Chartered Accountants of Scotland.

^dChartered Accountants Australia and New Zealand.

Five reporting approaches were classified as having *Partially integrated* CE. Two of them, GRI and WEF, were classified within the sub-category: *Content Element*, indicating CE was mentioned inside a specific content element of the core reporting approach. In both cases, CE was only mentioned with relation to one content element: sustainability performance of the company. More specifically, both reporting approaches describe CE with relation to only the environmental performance, or 'Planet' dimension of the company's activities. With GRI, CE is discussed in the recently revised 'GRI 306:

Waste 2020', which is only effective for reports published on or after 1 January 2022 (GRI, 2020). Designed to outline the GRI's reporting requirements on the topic of waste, this revision is the foremost mention of CE throughout the entire 'GRI Standards' series. In the case of WEF, CE is discussed within one of four pillars—'planet', specifically as an expanded metric for 'resource availability'. Other mentions of CE or circularity throughout the framework are aligned with the view of CE advancing resource management. Table 4 also shows that the remaining three reporting approaches classified as *Partially integrated*,

EMAS, BSI and UL, were further categorised with *Supplementary material*, having all developed supplementary material for users of the reporting approach promoting the inclusion of CE within organisations, as well as within their sustainability reporting. The EMAS published a document titled ‘Moving towards a circular economy with EMAS: Best practices to implement circular economy strategies’ (EC, 2017). All three are examples of reporting approaches considering CE as an important issue with respect to sustainability strategy development; however, companies themselves must voluntarily find and gain access to the additional CE-specific advice. In the case of BSI, the CE-specific ‘BSI 8001:2017’ is different to other standards from BSI, in the sense that it is merely a set of guidelines, void of any accreditation for its implementation.

When focussing on the five reporting approaches that contain any mention of CE (EMAS, GRI, WEF, BSI and UL), other findings within their content can be explored using each of the four categories used

to analyse their content earlier explained: *definitions, terminology, assessment approaches* and *reporting requirements* as seen in Table 5.

Through the use of the category *definition*, none of the five reporting approaches listed in Table 5 propose their own original definition for CE. EMAS, WEF and BSI include definitions of CE based on the definition proposed by EMF (EMF, 2012). Only EMAS and BSI suggest organisations adapt this definition to their own context and then communicate this within their sustainability reports. GRI does not use the term CE or describe it as a societal concept, rather describing circularity as a method to prevent waste generation and waste's associated impacts (GRI, 2020).

Focussing on *terminology*, no consistency in CE-related terminology was found between EMAS, GRI, WEF, BSI or UL. The most commonly used terminology within each reporting approach is summarised in Table 5. Surprisingly, only two mention the word ‘sustainability’ in relation to CE—WEF and BSI. Within BSI, sustainability is

TABLE 5 Analysis and classification of content for reporting approaches which mention CE according to the four categories defined in Table 3

Reporting approaches	Definition Presence of a definition of CE (own definition or reference to other source)	Terminology Indication of key terms, phrases and concepts on CE and related topics	Assessment approaches CE-related indicators or other assessment approaches, including tailor made initiatives	Reporting requirements CE is a voluntary or mandatory issue to be reported
3 EMAS	Based on EMF definition—but does suggest companies adapt this to their own context	‘Circular economy’, ‘material circularity’, ‘circularity indicators’	EMF circularity indicators, LCA's, MFA's suggested	Voluntary
4 GRI	Undefined	‘Circularity measures’	‘Circularity measures’ indicator prescribed. Suggests companies qualitatively describe and report the circularity measures implemented or planned within the company	Mandatory
13 WEF	Based on EMF definition	‘Circular economy’, ‘resource circularity’, ‘circularity metrics’, ‘sustainability’	EMF circularity indicators, WBCSD circularity transition indicators (CTI) or self-developed metrics for resource circularity	Voluntary
14 BSI	Based on EMF definition	‘Circular economy’, ‘sustainability’	For products: LCAs, MFAs and aggregation of several data sources (e.g., proportion of recycled content, product recyclability) are suggested For companies: states there is no metric or method which should determine a level of circularity but as a starting point: EMF circularity indicators or circularity maturity model proposed within BSI	Voluntary
15 UL	Undefined	‘Circular economy aspects of products, sites and organizations’, CE aspects: ‘material flows and the impact of those flows’	Tailor made quantitative metrics developed by UL: ‘product circularity’, ‘site circularity’, ‘corporate circularity’	Voluntary

referred to as the goal of SD, which is defined based on the Brundtland definition (World Commission on Environment and Development, 1987). The connection between CE and sustainability remains implicit; however, the benefits of CE implementation on all three dimensions of sustainability are discussed. Acknowledging structural differences of the reporting approaches, *GRI* clearly describes at the beginning of the 'GRI 306: Waste 2020' how this document is one part of the broader environmental series of standards which are accompanied by economic and social standards, completing the sustainability standards from the Global Reporting Initiative (GRI, 2020). From the perspective of a company adhering to the GRI framework, CE may only be mentioned within a sustainability report in relation to the environmental dimension of sustainability and more specifically, only through the perspective of waste. This is also the case within *EMAS* where the entire reporting approach relates solely to environmental management systems within organisations. Within *UL*, the terminology used infers CE aspects specifically relate to measurable material flows and the impacts of those flows which should be communicated in a 'Circularity Facts Report' (UL LLC, 2018).

Analysis of *assessment approaches* reveals that across the five reporting approaches reviewed, five different CE-related assessment approaches (or combinations of) are presented. The majority of reporting approaches make suggestions for assessment approaches which may be implemented by companies to evaluate their CE practices and subsequently include the results within their

sustainability report. In these instances, the choice of which assessment approach and how many is entirely up to the company. According to BSI, 'the British standard is not prescriptive' (BSI, 2017, p. 64) and advises organisations to be flexible in their interpretation of the guidance provided. *GRI* and *UL* have developed CE-specific indicators, of a qualitative and quantitative nature respectively. *GRI* advises companies to qualitatively describe the circularity measures being implemented within the organisation under four categories: 'Input material choices and product design, collaboration in the value chain and business model innovation, end-of-life interventions' (GRI, 2020, p. 8). The most frequently suggested assessment approaches for CE within the reporting approaches are 'EMF Circularity Indicators' (EMF, 2015a). Additional advice is provided within *EMAS* as companies are encouraged to develop a narrative for its CE strategy as well as identifying national or international CE objectives which they can reference within their report.

Finally, reviewing the *reporting requirements* category shows that only *GRI* includes CE as an essential reporting requirement, all other reporting approaches position CE as an optional issue which the organisation may choose to include in their report.

5 | DISCUSSION

This article investigated how companies are being advised to disclose CE within their sustainability reports, in accordance with literature.

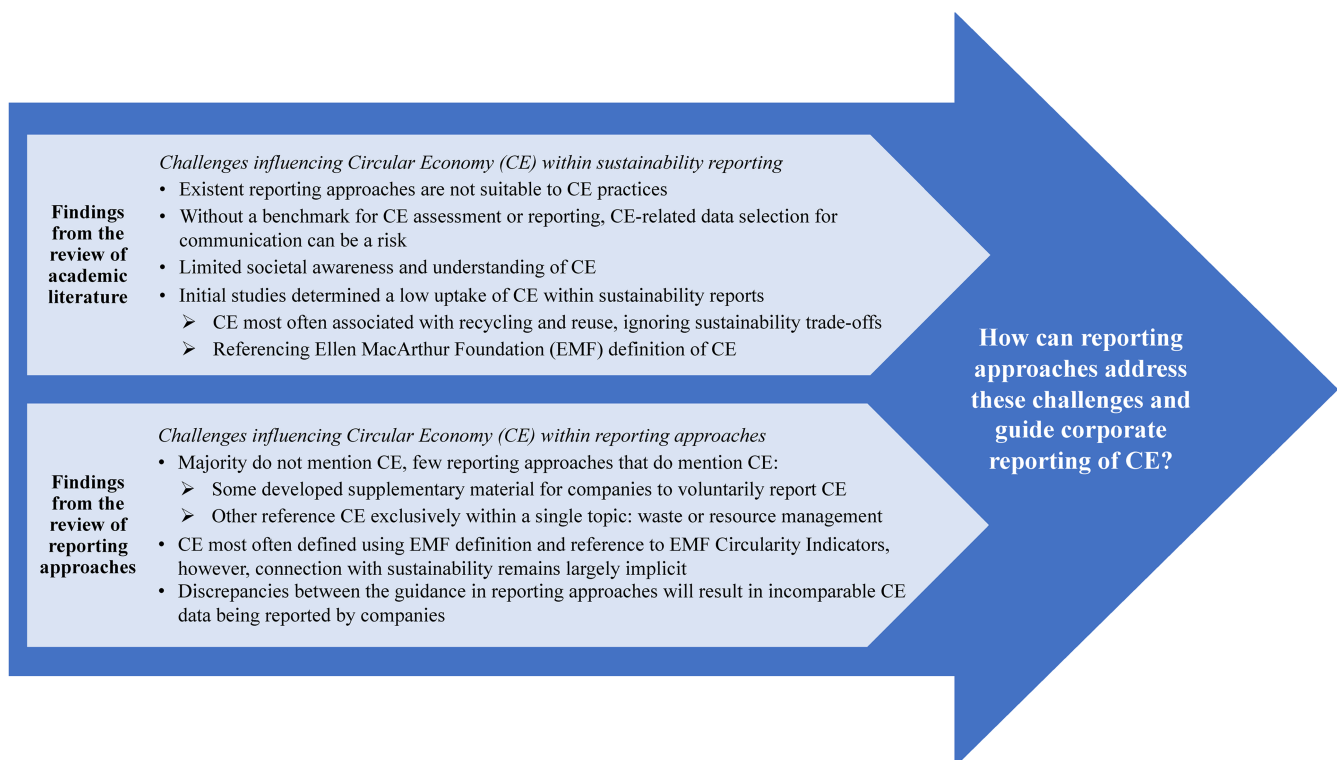


FIGURE 2 Summary of the research findings from the review of academic literature, review of reporting approaches and a guiding question for further research [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

Figure 2 summarises the main findings of the article and contributes a guiding question for further research. The low number of academic articles found within the systematic literature review has shown a clear absence of CE-related discussion within the literature. In addition, across the few reporting approaches which do mention CE, the guidance for companies is vague, inconsistent and places the responsibility for the selection of CE-specific assessment approaches on the companies. Nevertheless, several challenges influencing CE within corporate sustainability reporting approaches have been identified and will be critically discussed in this section.

As noted in previous research and seen in Figure 2, CE is most commonly presented in sustainability reports: (i) using the definition from EMF; (ii) highlighting the connection with only the environmental dimension of sustainability; and (iii) generally, without using consistent data selection or narratives (Dagiliene et al., 2020; Stewart & Niero, 2018). These three CE reporting trends were also identified in the findings from the review of reporting approaches, as seen in Figure 2, which encompasses the most common advice provided within reporting approaches for how companies should report CE. Although the study from Stewart and Niero (2018) focuses on one sector, it is an example of the level of influence reporting approaches can have on the perceptions of CE embraced by companies. As mentioned earlier, CE is frequently being explored and promoted as a tool to achieve the SDGs (Schroeder et al., 2019), which is a framework consisting of not only environmental, but social and economic societal goals. Particularly, more recent research is investigating the relevance of the social dimension of sustainability to CE practices (Kühnen & Hahn, 2017; Walker, Opferkuch, Roos Lindgree, Simboli, et al., 2021). The present study showed that the most frequent discourse adopted by the reviewed reporting approaches is that CE is only considered with the environmental dimension of CE, more specifically only with waste management operations or resource management at a practical level. This perception implies CE strategies will amount to 'incremental rather than radical transformations, a "weak" rather than a "strong" form of sustainability' (Hobson & Lynch, 2016, p. 18). 'Hesitant company culture' has been identified as a pressing barrier for CE implementation, where CE-related discussions exist as a niche topic within the sustainability department and ignored in the more influential financial departments of companies (Kirchherr et al., 2018). Results from this study suggest that reporting approaches in fact reinforce this barrier, with none of them yet positioning CE as a central topic within an organisation or presenting consistent guidance on CE-related content. It is not likely that application of the reporting approaches reviewed in this study will facilitate CE-related conversations outside of a company's sustainability department nor for CE to be encompassed in all business functions, as suggested by authors such as Gusmerotti et al. (2019). Additionally, as determined, the contents of reporting frameworks can influence both the mindset of company leaders (Adams, 2017) as well as encourage long-term thinking (Vermeulen & Witjes, 2016). Therefore, the findings of the current research suggest that the lack of CE within the existent reporting approaches will not likely result in CE being further integrated in management level

sustainability decisions, as Burritt and Schaltegger (2010) suggest sustainability reports can do.

Pauliuk (2018) criticised the 'BSI 8001:2017' for being too vague and suggested that its application will result in companies cherry-picking results, something attune to greenwashing practices. Results in this study highlighted that only one of the five reporting approaches that mention CE actually require companies to report on CE. The other four present CE as a voluntary material issue to report. This reflects the ongoing debate and uncertainty within literature about how best to define and measure the impact of CE strategies due to the absence of any benchmark or standard relating to CE implementation. Further to this, across the reviewed reporting approaches, different CE assessment approaches are suggested for companies to utilise and then include the results of this assessment within their sustainability report. This lack of consistency between reporting approaches with regards to the assessment of CE indicates that not only are there inconsistencies between the advice of different reporting approaches, but also within the approaches, as companies utilising the same reporting approach will apply different assessment approaches and report different CE data. This implies that for the case of CE issues, the use of sustainability reporting approaches will not likely support consistent data selection, increase organisational transparency or produce comparable sustainability reports, as reporting approaches are intended to do (Lozano & Huisingh, 2011; Thomson, 2015a). This challenge of inconsistent CE data collection may also inhibit increased supply chain collaborations, a characteristic imperative to the advancement of CE (Howard et al., 2019).

Within both the *BSI* and *WEF* frameworks, it is acknowledged that there is currently no universally accepted or standardised approach to measuring organisational circularity (BSI, 2017; World Economic Forum, 2020). Results from this study show that the landscape of reporting approaches is also void of any universally accepted approach to disclosing CE issues (listed in Figure 2). Bouten et al. (2011) noted that without the requirement of uniform actions and performance indicators to report on, companies will report more on their aims and intentions rather than actual performance, as already stressed earlier. There has been a growing interest in developing new indicators, indices and company-level assessments for CE, as already highlighted by Saidani et al. (2018) and Roos Lindgreen et al. (2020). However, results from this review have shown that the majority of these indicators and other CE performance evaluation initiatives are not supported by reporting approaches, reducing the likelihood of them actually being implemented. Similarly, discussions on how best to define CE have been a major focus of CE literature (e.g., Geissdoerfer et al., 2017; Ghisellini et al., 2016; Prieto-Sandoval et al., 2018). Findings within this study suggest that despite this multitude of definitions, companies utilising reporting approaches will most likely be provided with the definition of CE from EMF as their main reference, as efforts from EMF continue to successfully drive the CE transition within the private sector. As stated earlier, the assessment and monitoring of strategies are an integral basis for the development of corporate communication strategies (Gamerschlag et al., 2011);

therefore, as cohesion within CE assessment approaches advances, it is likely that reporting approaches will be revised. In fact, the ISO have created a technical committee for CE, ISO/TC 323, which will work to standardise the implementation of CE, with the context of SD (ISO, 2018). However, until these standards are published, it seems that the number of CE definitions and assessment approaches proposed within literature will continue to multiply and diverge, causing acceptance of CE definitions and robust assessment approaches for varying contexts to be more difficult.

Reporting approaches are constantly competing for dominance as the authority for sustainability reporting (Siew, 2015). The development of uniform approaches to reporting of CE issues will assist in improving the legitimacy of CE and circular products much needed within society (Bovea et al., 2018; Muranko et al., 2019; Peschel & Aschemann-Witzel, 2020). The most effective structure and content of these uniform approaches, whether through the development of comprehensive supplementary material specific for CE or through integrating CE issues within principle reporting documents remains unclear. This article determined that CE issues were primarily a voluntary issue to report, however, companies possessing an 'inside-out' managerial perspective (Burritt & Schaltegger, 2010) or an 'ecologically-and eco-justice-informed approach' to reporting (Gray, 2006) can be more proactive and formulate a comprehensive strategy to reporting CE issues. If companies have an 'outside-in' managerial approach and acknowledging that literature suggests the most commonly applied reporting instruments are GRI and the IIRC, then the results here show it is most likely companies engaged with CE will either: exclude any mention of CE within their report or they will qualitatively describe their circularity measures implemented with relation only to the environmental dimension of sustainability, more specifically regarding the prevention of waste generation.

So, as illustrated in Figure 2, how can reporting approaches guide corporate reporting of CE? Results from this study indicate that the application of reporting approaches is not likely to change the current state of CE reporting, where companies do not communicate much information about this topic (Dagilienne et al., 2020; Stewart & Niero, 2018). Thus, what value CE reporting has for companies remains unclear. As previously mentioned, many initiatives and studies are now focussing on the integration of SDGs within sustainability reports (Adams et al., 2020; Izzo et al., 2020; Moldavska & Welo, 2019; Rosati & Faria, 2019; Tsalis et al., 2020). These studies suggest that despite a high awareness of the SDG framework, there are still significant differences in the range of quantity and quality of data reported by companies for each SDG. As CE reporting moves forward on the agenda, lessons should be learnt from the progress of these aforementioned initiatives. Furthermore, research should progress the development or selection of sustainability evaluation tools incorporating CE which are both implementable by companies and desired by external stakeholders. This process should not only include the authors of reporting approaches and accounting firms but also sustainability practitioners and academics, among other relevant stakeholders. It should be of particular interest for all stakeholders, as already mentioned, both sustainability reporting and CE centre around

the idea of value creation: reporting is an output of the corporate value creation process (Adams, 2017) and CE is not only related with activities for retaining value by shortening and closing resource loops, but also identifying opportunities for new value creation (EMF, 2015b). With these developments, companies will be encouraged and supported to report on their CE performance, ultimately reducing claims of greenwashing. As Dagilienne et al. (2020) observed, the authors of reporting approaches may act as facilitators of translating CE strategies into companies' reports; however, results from this study suggest that there is still a long way to go.

6 | CONCLUSIONS

This article contributes an overview of the current status of CE disclosure within sustainability reporting approaches based on a literature review. As CE implementation increases in the private sector and the extent of its contribution to SD is debated, an increased scrutiny of CE data and communication will be observed. Companies utilising reporting approaches to facilitate the sustainability report writing process may embrace the definitions of CE, terminology and the CE assessment approaches promoted within their chosen reporting approaches. Therefore, the aims of this article were to investigate what reporting approaches are available for companies wanting to report on CE issues and based on their structure and content, observe how these documents are integrating CE issues. For this purpose, a systematic review of literature was conducted on academic literature and a coding framework was developed for the content analysis of reporting approaches.

Only few reporting approaches incorporate CE issues within their guidance. A list of 15 reporting approaches relevant for companies engaged with CE has been compiled. Within those that do mention CE, companies are most commonly provided with a definition of CE from EMF and to report CE practices with relation to only the environmental dimension of their sustainability reports. Further to this, CE remains an optional issue to report with the only exception being the GRI framework which requires companies to report a qualitative indicator designed to describe circularity measures. In addition, 'Circularity Indicators' proposed by the EMF are the most suggested CE assessment approach which companies may choose to include results of within their sustainability reports. The challenges for CE identified within this research highlight the vagueness and inconsistencies between reporting approaches, likely resulting in companies either not reporting CE issues at all or only describing CE practices with relation to waste management. Furthermore, the literature review has pointed out challenges and opportunities for sustainability reporting to address challenges facing the advancement of CE including issues of legitimacy and transparency of with the sustainability impacts of CE practices, data selection for CE corporate communication and further integration of CE strategies within a company's strategic management processes. The current guidance provided from reporting approaches, combined with the growing debates in academic literature on how best to define and assess CE, are not likely

to improve the transparency or comparability of sustainability reports presenting CE data, as they were designed to.

The research methods chosen for this study have limitations which must be recognised. Firstly, as with any academic literature review, the selection of databases, timeframe and keywords may have excluded relevant articles from being included for review. In particular with CE-related literature, where a significant increase in the number of articles published in the last 5 years has resulted in a fast-changing landscape of CE research. In addition, only horizontal frameworks were included for review, meaning there may be some sector or product level reporting guidelines or indices available that advise on CE; however, this was not within the scope of this study. Furthermore, there are several factors which influence a company's decision to utilise particular reporting approaches (e.g., accessibility and data availability), but these factors were not covered within this research. The development of the content analysis coding framework was constructed and revised several times to reduce coder interpretation and subsequent bias in the results. However, it must be acknowledged as a limitation that some interpretation will remain. Additionally, the authors acknowledge that some reporting approaches are currently under consultation and review by their respective authors.

Further research is planned to work to bridge the gap between CE and sustainability reporting literature. Exploring the CE reporting practices of a wider variety of companies and identifying current CE reporting trends in light of the upcoming revisions to sustainability reporting regulations will help support companies to produce and communicate high-quality CE data within their sustainability reports. A wide range of opportunities exist for research to develop corporate communication strategies which help legitimise the value of CE practices within society. Particularly, research should explore the popularisation of other external communication channels (such as social media), as they continue to grow in importance and accessibility, especially for those companies where a corporate sustainability report is not mandatory to be produced. It is hoped that the challenges for corporate sustainability reporting approaches identified within this research can inform future revisions as well as the development of CE-related assessment and communication strategies.

ACKNOWLEDGEMENTS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie grant agreement No 765198. The authors acknowledge and thank the support given to CENSE by the Portuguese Foundation for Science and Technology (FCT) through the strategic project UID/AMB/04085/2019. The corresponding author would also like to thank Kieran Campbell-Johnston and Ana Rita Domingues who reviewed earlier versions of this article.

ORCID

Katelin Opferkuch  <https://orcid.org/0000-0001-6820-1966>

REFERENCES

- Adams, C. A. (2017). Conceptualising the contemporary corporate value creation process. *Accounting, Auditing & Accountability Journal*, 30(4), 906–931. <https://doi.org/10.1108/AAAJ-04-2016-2529>
- Adams, C. A., Druckman, P. B., & Picot, R. C. (2020). Sustainable Development Goal Disclosure (SDGD) recommendations. ACCA, Chartered Accountants ANZ, ICAS, IFAC, IIRC and WBA.
- Adams, C. A., & McNicholas, P. (2007). Making a difference: Sustainability reporting, accountability and organisational change. *Accounting, Auditing & Accountability Journal*, 20(3), 382–402. <https://doi.org/10.1108/09513570710748553>
- Baumgartner, R. J., & Rauter, R. (2017). Strategic perspectives of corporate sustainability management to develop a sustainable organization. *Journal of Cleaner Production*, 140(January), 81–92. <https://doi.org/10.1108/AAAJ-04-2016-2529>
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *NursingPlus Open*, 8, 8–14. <https://doi.org/10.1016/j.npls.2016.01.001>
- Berkhout, P. H. G., Muskens, J. C., & Velthuisen, W. J. (2000). Defining the rebound effect. *Energy Policy*, 28(6–7), 425–432. [https://doi.org/10.1016/S0301-4215\(00\)00022-7](https://doi.org/10.1016/S0301-4215(00)00022-7)
- Biermann, F., Kanie, N., & Kim, R. E. (2017). Global governance by goal-setting: The novel approach of the UN Sustainable Development Goals. *Current Opinion in Environmental Sustainability*, 26–27, 26–31. <https://doi.org/10.1016/j.cosust.2017.01.010>
- Birat, J. P. (2015). Life-cycle assessment, resource efficiency and recycling. *Metallurgical Research and Technology*, 112(2), 206.
- Blomsma, F., Pieroni, M., Kravchenko, M., Pigosso, D. C. A., Hildenbrand, J., Kristinsdottir, A. R., & McAloone, T. C. (2019). Developing a circular strategies framework for manufacturing companies to support circular economy-oriented innovation. *Journal of Cleaner Production*, 241, 118271. <https://doi.org/10.1016/J.JCLEPRO.2019.118271>
- Boiral, O., & Heras-Saizarbitoria, I. (2019). Sustainability reporting assurance: Creating stakeholder accountability through hyperreality? *Journal of Cleaner Production*, 243, 118596. <https://doi.org/10.1016/j.jclepro.2019.118596>
- Bouten, L., Everaert, P., Van Liedekerke, L., De Moor, L., & Christiaens, J. (2011). Corporate social responsibility reporting: A comprehensive picture? *Accounting Forum*, 35, 187–204. <https://doi.org/10.1016/J.ACCFOR.2011.06.007>
- Bovea, M. D., Quemades-Beltrán, P., Pérez-Belis, V., Juan, P., Braulio-Gonzalo, M., & Ibáñez-Forés, V. (2018). Options for labelling circular products: Icon design and consumer preferences. *Journal of Cleaner Production*, 202, 1253–1263. <https://doi.org/10.1016/j.jclepro.2018.08.180>
- Bower, J. L. (1971). Managing the resource allocation process: A study of corporate planning and investment. *The Journal of Finance*, 26(1), 208. <https://doi.org/10.2307/2325773>
- Bower, J. L. (2017). Managing resource allocation: Personal reflections from a managerial perspective. *Journal of Management*, 43(8), 2421–2429. <https://doi.org/10.1177/0149206316675929>
- Braga Junior, S., Martínez, M. P., Correa, C. M., Moura-Leite, R. C., & Da Silva, D. (2019). Greenwashing effect, attitudes, and beliefs in green consumption. *RAUSP Management Journal*, 54(2), 226–241. <https://doi.org/10.1108/RAUSP-08-2018-0070>
- British Standards Institution. (2017). *BSI 8001:2017. Framework for implementing the principles of the circular economy in organizations—Guide*. London: BSI Standards Limited.
- Bryman, A. (2012). *Social research methods* (4th ed.). New York: Oxford University Press. <https://doi.org/10.1017/CBO9781107415324.004>
- Buhr, N. (2007). Histories of and rationales for sustainability reporting. In J. Unerman, J. Bebbington, & B. O'Dwyer (Eds.), *Sustainability accounting and accountability* (pp. 57–69). London and New York: Routledge.

- Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal*, 23(7), 829–846. <https://doi.org/10.1108/09513571011080144>
- Butler, A., Hall, H., & Copnell, B. (2016). A guide to writing a qualitative systematic review protocol to enhance evidence-based practice in nursing and health care. *Worldviews on Evidence-Based Nursing*, 13(3), 241–249. <https://doi.org/10.1111/wvn.12134>
- Calisto Friant, M., Vermeulen, W. J. V., & Salomone, R. (2020). A typology of circular economy discourses: Navigating the diverse visions of a contested paradigm. *Resources, Conservation and Recycling*, 161, 104917. <https://doi.org/10.1016/j.resconrec.2020.104917>
- Catanzaro, M. (1988). Using qualitative analytical techniques. In N. F. Woods & M. Catanzaro (Eds.), *Nursing research: Theory and practice* (pp. 437–456). St. Louis, MO: C. V. Mosby.
- Chen, Y., Jermias, J., & Nazari, J. A. (2020). The effects of reporting frameworks and a company's financial position on managers' willingness to invest in corporate social responsibility projects. *Accounting and Finance*, 61(2), 3385–3425. <https://doi.org/10.1111/acfi.12706>
- Comas Martí, J. M., & Seifert, R. W. (2013). Assessing the comprehensiveness of supply chain environmental strategies. *Business Strategy and the Environment*, 22(5), 339–356. <https://doi.org/10.1002/bse.1749>
- Corona, B., Shen, L., Reike, D., Rosales Carreón, J., & Worrell, E. (2019). Towards sustainable development through the circular economy—A review and critical assessment on current circularity metrics. *Resources, Conservation and Recycling*, 151, 104498. <https://doi.org/10.1016/J.RESCONREC.2019.104498>
- Cortesi, A., & Vena, L. (2019). Disclosure quality under integrated reporting: A value relevance approach. *Journal of Cleaner Production*, 220, 745–755. <https://doi.org/10.1016/j.jclepro.2019.02.155>
- D'Amato, D. (2021). Sustainability narratives as transformative solution pathways: Zooming in on the circular economy. *Circular Economy and Sustainability*, 1(1), 231–242. <https://doi.org/10.1007/s43615-021-00008-1>
- Dagliene, L., Frenzel, M., Sutiene, K., & Wnuk-Pel, T. (2020). Wise managers think about circular economy, wiser report and analyze it. Research of environmental reporting practices in EU manufacturing companies. *Journal of Cleaner Production*, 274, 121968. <https://doi.org/10.1016/j.jclepro.2020.121968>
- Daub, C.-H. (2007). Assessing the quality of sustainability reporting: An alternative methodological approach. *Journal of Cleaner Production*, 15(1), 75–85. <https://doi.org/10.1016/J.JCLEPRO.2005.08.013>
- Davis-Walling, P., & Batterman, S. A. (1997). Environmental reporting by the Fortune 50 firms. *Environmental Management*, 21(6), 865–875. <https://doi.org/10.1007/s002679900073>
- De Pascale, A., Arbolino, R., Szopik-Depczyńska, K., Limosani, M., & Ioppolo, G. (2020). A systematic review for measuring circular economy: The 61 indicators. *Journal of Cleaner Production*, 281, 124942. <https://doi.org/10.1016/j.jclepro.2020.124942>
- de Villiers, C., & Sharma, U. (2020). A critical reflection on the future of financial, intellectual capital, sustainability and integrated reporting. *Critical Perspectives on Accounting*, 70, 101999. <https://doi.org/10.1016/J.CPA.2017.05.003>
- Deegan, C., & Blomquist, C. (2006). Stakeholder influence on corporate reporting: An exploration of the interaction between WWF-Australia and the Australian minerals industry. *Accounting, Organizations and Society*, 31(4–5), 343–372. <https://doi.org/10.1016/J.AOS.2005.04.001>
- Ditlev-Simonsen, C. D., & Midttun, A. (2010). What motivates managers to pursue corporate responsibility? *Corporate Social Responsibility and Environmental Management*, 38(18), 25–38. <https://doi.org/10.1002/csr.237>
- Domingues, A. R., Lozano, R., Ceulemans, K., & Ramos, T. B. (2017). Sustainability reporting in public sector organisations: Exploring the relation between the reporting process and organisational change management for sustainability. *Journal of Environmental Management*, 192, 292–301. <https://doi.org/10.1016/j.jenvman.2017.01.074>
- Dumay, J., Bernardi, C., Guthrie, J., & Demartini, P. (2016). Integrated reporting: A structured literature review. *Accounting Forum*, 40(3), 166–185. <https://doi.org/10.1016/J.ACCFOR.2016.06.001>
- Eccles, R. G., & Saltzman, D. (2011). Achieving sustainability through integrated reporting. *Stanford Social Innovation Review*, 9(3), 56–61. <https://doi.org/10.1016/j.sbspro.2013.08.672>
- Elkington, J. (1997). Cannibals with forks: Triple bottom line of 21st century business. In *The Triple Bottom Line*. Oxford: Capstone Publishing. <https://doi.org/10.4324/9781849773348>
- Esken, B., Franco-García, M. L., & Fisscher, O. A. M. (2018). CSR perception as a signpost for circular economy. *Management Research Review*, 41(5), 586–604. <https://doi.org/10.1108/MRR-02-2018-0054>
- European Commission. (2014). Directive 2014/95/EU on the disclosure of non-financial and diversity information by certain large undertakings and groups. Luxembourg: Office for Official Publications of the European Communities.
- European Commission. (2015). Closing the Loop - An EU Action Plan for the Circular Economy. COM(2015) 614 Final. European Union, Brussels.
- European Commission. (2017). Guidelines on non-financial reporting (methodology for reporting non-financial information) (2017/C 215/01). Brussels. https://ec.europa.eu/info/publications/170626-non-financial-reporting-guidelines_e
- European Commission. (2019). The European Green deal. Brussels.
- European Commission. (2021). Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting, COM(2021) 189 final. Brussels: European Commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021PC0189&from=EN>
- Flower, J. (2015). The international integrated reporting council: A story of failure. *Critical Perspectives on Accounting*, 27, 1–17. <https://doi.org/10.1016/j.cpa.2014.07.002>
- Fortunati, S., Martiniello, L., & Morea, D. (2020). The strategic role of the corporate social responsibility and circular economy in the cosmetic industry. *Sustainability*, 12(12), 5120. <https://doi.org/10.3390/su12125120>
- Gagné, M. (2018). From strategy to action: Transforming organizational goals into organizational behavior. *International Journal of Management Reviews*, 20, S83–S104. <https://doi.org/10.1111/ijmr.12159>
- Gamerschlag, R., Möller, K., & Verbeeten, F. (2011). Determinants of voluntary CSR disclosure: Empirical evidence from Germany. *Review of Managerial Science*, 5(2), 233–262. <https://doi.org/10.1007/s11846-010-0052-3>
- Garza-Reyes, J. A., Salomé Valls, A., Peter Nadeem, S., Anosike, A., & Kumar, V. (2018). A circularity measurement toolkit for manufacturing SMEs. *International Journal of Production Research*, 57(23), 7319–7343. <https://doi.org/10.1080/00207543.2018.1559961>
- Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The circular economy—A new sustainability paradigm? *Journal of Cleaner Production*, 143(April 2018), 757–768. <https://doi.org/10.1016/j.jclepro.2016.12.048>
- Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, 114, 11–32. <https://doi.org/10.1016/j.jclepro.2015.09.007>
- Global Reporting Initiative. (2016). Consolidated Set of GRI Sustainability Reporting Standards 2016. Amsterdam.
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26(2), 91–108. <https://doi.org/10.1111/j.1471-1842.2009.00848.x>

- Gray, R. (2006). Social, environmental and sustainability reporting and organisational value creation?: Whose value? Whose creation? *Accounting, Auditing and Accountability Journal*, 19(6), 793–819. <https://doi.org/10.1108/09513570610709872>
- Gray, R., Adams, C. A., & Owen, D. (2014). *Accountability, social responsibility and sustainability: Accounting for society and the environment*. UK: Pearson.
- Gray, R., & Milne, M. J. (2002). Sustainability reporting: Who's kidding whom? *Chartered Accountants Journal of New Zealand*, 81(6), 66–70.
- Gray, R. H., & Milne, M. (2008). International trends in corporate 'sustainability' reporting. *Chartered Accountants Journal*, 87(12), 60–63.
- Gregson, N., Crang, M., Fuller, S., & Holmes, H. (2015). Interrogating the circular economy: The moral economy of resource recovery in the EU. *Economy and Society*, 44(2), 218–243. <https://doi.org/10.1080/03085147.2015.1013353>
- GRI. (2020). GRI 306: Waste 2020. Amsterdam.
- Gusmerotti, N. M., Testa, F., Corsini, F., Pretner, G., & Iraldo, F. (2019). Drivers and approaches to the circular economy in manufacturing firms. *Journal of Cleaner Production*, 230, 314–327. <https://doi.org/10.1016/j.jclepro.2019.05.044>
- Haas, W., Krausmann, F., Wiedenhofer, D., & Heinz, M. (2015). How circular is the global economy?: An assessment of material flows, waste production, and recycling in the European union and the world in 2005. *Journal of Industrial Ecology*, 19(5), 765–777. <https://doi.org/10.1111/jiec.12244>
- Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59(November 2013), 5–21. <https://doi.org/10.1016/j.jclepro.2013.07.005>
- Harris, S., Martin, M., & Diener, D. (2021). Circularity for circularity's sake? Scoping review of assessment methods for environmental performance in the circular economy. *Sustainable Production and Consumption*, 26, 172–186. <https://doi.org/10.1016/j.spc.2020.09.018>
- Higgins, C., & Coffey, B. (2016). Improving how sustainability reports drive change: A critical discourse analysis. *Journal of Cleaner Production*, 136, 18–29. <https://doi.org/10.1016/j.jclepro.2016.01.101>
- Hobson, K., & Lynch, N. (2016). Diversifying and de-growing the circular economy: Radical social transformation in a resource-scarce world. *Futures*, 82, 15–25. <https://doi.org/10.1016/J.FUTURES.2016.05.012>
- Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sustainable Development*, 13, 38–52. <https://doi.org/10.1002/sd.244>
- Howard, M., Hopkinson, P., & Miemczyk, J. (2019). The regenerative supply chain: A framework for developing circular economy indicators. *International Journal of Production Research*, 57(23), 7300–7318. <https://doi.org/10.1080/00207543.2018.1524166>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Hussey, D. (1998). *Strategic management: From theory to implementation* (4th ed.). Oxford, UK: Butterworth-Heinemann.
- ISO. (2018). ISO/TC 323 Circular economy. Retrieved from <https://www.iso.org/committee/7203984.html>
- Izzo, M. F., Ciaburri, M., & Tiscini, R. (2020). The challenge of sustainable development goal reporting: The first evidence from Italian listed companies. *Sustainability*, 12(8), 1–18. <https://doi.org/10.3390/su12083494>
- Jones, P., & Comfort, D. (2017). Towards the circular economy: A commentary on corporate approaches and challenges. *Journal of Public Affairs*, 17(4), 1–5. <https://doi.org/10.1002/pa.1680>
- Junior, R. M., Best, P. J., & Cotter, J. (2014). Sustainability reporting and assurance: A historical analysis on a world-wide phenomenon. *Journal of Business Ethics*, 120(1), 1–11. <https://doi.org/10.1007/s10551-013-1637-y>
- Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. (2018). Barriers to the circular economy: Evidence from the European Union (EU). *Ecological Economics*, 150, 264–272. <https://doi.org/10.1016/J.ECOLECON.2018.04.028>
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127(April), 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- Kolk, A. (1999). Evaluating corporate environmental reporting. *Business Strategy and the Environment*, 8(4), 225–237. [https://doi.org/10.1002/\(SICI\)1099-0836\(199907/08\)8:4<225::AID-BSE206>3.0.CO;2-4](https://doi.org/10.1002/(SICI)1099-0836(199907/08)8:4<225::AID-BSE206>3.0.CO;2-4)
- Kolk, A., & Pinkse, J. (2010). The integration of corporate governance in corporate social responsibility disclosures. *Corporate Social Responsibility and Environmental Management*, 17(1), 15–26. <https://doi.org/10.1002/csr.196>
- Korhonen, J., Nuur, C., Feldmann, A., & Birkie, S. E. (2018). Circular economy as an essentially contested concept. *Journal of Cleaner Production*, 175, 544–552. <https://doi.org/10.1016/J.JCLEPRO.2017.12.111>
- Kravchenko, M., McAlloone, T. C., & Pigosso, D. C. A. (2020). To what extent do circular economy indicators capture sustainability? *Procedia CIRP*, 90, 31–36. <https://doi.org/10.1016/j.procir.2020.02.118>
- Kristensen, H. S., & Mosgaard, M. A. (2020). A review of micro level indicators for a circular economy—Moving away from the three dimensions of sustainability? *Journal of Cleaner Production*, 243, 118531. <https://doi.org/10.1016/j.jclepro.2019.118531>
- Kühnen, M., & Hahn, R. (2017). Indicators in social life cycle assessment: A review of frameworks, theories, and empirical experience. *Journal of Industrial Ecology*, 21, 1547–1565. <https://doi.org/10.1111/jiec.12663>
- Kuo, L., Yeh, C. C., & Yu, H. C. (2012). Disclosure of corporate social responsibility and environmental management: Evidence from China. *Corporate Social Responsibility and Environmental Management*, 19(5), 273–287. <https://doi.org/10.1002/csr.274>
- Lacy, P., Keeble, J., McNamara, R., Rutqvist, J., Haglund, T., Cui, M., Cooper, A., Pettersson, C., Kevin, E., Buddemeier, P. Senior, T. (2014). Circular advantage: Innovative business models and technologies to create value in a world without limits to growth. *Accenture Strategy*, 24.
- Laurenti, R., Martin, M., & Stenmarck, Å. (2018). Developing adequate communication of waste footprints of products for a circular economy—A stakeholder consultation. *Resources*, 7(4), 78. <https://doi.org/10.3390/resources7040078>
- Lock, L., & Seele, P. (2016). The credibility of CSR (corporate social responsibility) reports in Europe. Evidence from a quantitative content analysis in 11 countries. *Journal of Cleaner Production*, 122, 186–200. <https://doi.org/10.1016/J.JCLEPRO.2016.02.060>
- Lozano, R. (2020). Analysing the use of tools, initiatives, and approaches to promote sustainability in corporations. *Corporate Social Responsibility and Environmental Management*, 27(2), 982–998. <https://doi.org/10.1002/csr.1860>
- Lozano, R., & Huisingh, D. (2011). Inter-linking issues and dimensions in sustainability reporting. *Journal of Cleaner Production*, 19, 99–107. <https://doi.org/10.1016/j.jclepro.2010.01.004>
- Lozano, R., Nummert, B., & Ceulemans, K. (2016). Elucidating the relationship between sustainability reporting and organisational change management for sustainability. *Journal of Cleaner Production*, 125, 168–188. <https://doi.org/10.1016/j.jclepro.2016.03.021>
- Manes-Rossi, F., Tiron-Tudor, A., Nicolò, G., & Zanellato, G. (2018). Ensuring more sustainable reporting in Europe using non-financial disclosure-de facto and de jure evidence. *Sustainability (Switzerland)*, 10(4), 1162. <https://doi.org/10.3390/su10041162>
- Melloni, G., Caglio, A., & Perego, P. (2017). Saying more with less? Disclosure conciseness, completeness and balance in integrated reports.

- Journal of Accounting and Public Policy*, 36(3), 220–238. <https://doi.org/10.1016/j.jaccpubpol.2017.03.001>
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363. <https://doi.org/10.1086/226550>
- Moldavska, A., & Welo, T. (2019). A holistic approach to corporate sustainability assessment: Incorporating Sustainable Development Goals into sustainable manufacturing performance evaluation. *Journal of Manufacturing Systems*, 50, 53–68. <https://doi.org/10.1016/J.JMSY.2018.11.004>
- Moraga, G., Huysveld, S., Mathieux, F., Blengini, G. A., Alaerts, L., Van Acker, K., De Meester, S., & Dewulf, J. (2019). Circular economy indicators: What do they measure? *Resources, Conservation and Recycling*, 146, 452–461. <https://doi.org/10.1016/J.RESCONREC.2019.03.045>
- Muranko, Z., Andrews, D., Chaer, I., & Newton, E. J. (2019). Circular economy and behaviour change: Using persuasive communication to encourage pro-circular behaviours towards the purchase of remanufactured refrigeration equipment. *Journal of Cleaner Production*, 222, 499–510. <https://doi.org/10.1016/j.jclepro.2019.02.219>
- Neu, D., Warsame, H., & Pedwell, K. (1998). Managing public impressions: Environmental disclosures in annual reports. *Accounting, Organizations and Society*, 23, 265–282. [https://doi.org/10.1016/S0361-3682\(97\)00008-1](https://doi.org/10.1016/S0361-3682(97)00008-1)
- Owen, D. L., & O'Dwyer, B. (2009). Corporate social responsibility: The reporting and assurance dimension. In A. Crane, D. Matten, A. McWilliams, J. Moon, and D. S. Siegel (Eds.), *The Oxford handbook of corporate social responsibility*. Oxford Handbooks. <https://doi.org/10.1093/oxfordhb/9780199211593.003.0017>
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, 42(5), 533–544. <https://doi.org/10.1007/s10488-013-0528-y>. Purposeful
- Parchomenko, A., Nelen, D., Gillabel, J., & Rechberger, H. (2019). Measuring the circular economy—A multiple correspondence analysis of 63 metrics. *Journal of Cleaner Production*, 210, 200–216. <https://doi.org/10.1016/J.JCLEPRO.2018.10.357>
- Pauliuk, S. (2018). Critical appraisal of the circular economy standard BS 8001:2017 and a dashboard of quantitative system indicators for its implementation in organizations. *Resources, Conservation and Recycling*, 129, 81–92. <https://doi.org/10.1016/J.RESCONREC.2017.10.019>
- Paun, D. (2018). Corporate sustainability reporting: An innovative tool for the greater good of all. *Business Horizons*, 61(6), 925–935. <https://doi.org/10.1016/J.BUSHOR.2018.07.012>
- Peršić, M., Janković, S., & Krivačić, D. (2017). Sustainability accounting: Upgrading corporate social responsibility. In M. Aluchna & S. O. Idowu (Eds.), *The dynamics of corporate social responsibility* (pp. 285–303). Springer. https://doi.org/10.1007/978-3-319-39089-5_15
- Pesce, M., Shi, C., Critto, A., Wang, X., & Marcomini, A. (2018). SWOT analysis of the application of international standard ISO 14001 in the Chinese context. A case study of Guangdong Province. *Sustainability (Switzerland)*, 10(9), 1–19. <https://doi.org/10.3390/su10093196>
- Peschel, A. O., & Aschemann-Witzel, J. (2020). Sell more for less or less for more? The role of transparency in consumer response to upcycled food products. *Journal of Cleaner Production*, 273, 122884. <https://doi.org/10.1016/j.jclepro.2020.122884>
- Prieto-Sandoval, V., Jaca, C., & Ormazabal, M. (2018). Towards a consensus on the circular economy. *Journal of Cleaner Production*, 179, 605–615. <https://doi.org/10.1016/J.JCLEPRO.2017.12.224>
- Ritzén, S., & Sandström, G. Ö. (2017). Barriers to the circular economy—Integration of perspectives and domains. *Procedia CIRP*, 64, 7–12. <https://doi.org/10.1016/j.procir.2017.03.005>
- Roca, L. C., & Searcy, C. (2012). An analysis of indicators disclosed in corporate sustainability reports. *Journal of Cleaner Production*, 20(1), 103–118. <https://doi.org/10.1016/J.JCLEPRO.2011.08.002>
- Roos Lindgreen, E., Salomone, R., & Reyes, T. (2020). A critical review of academic approaches, methods and tools to assess circular economy at the micro level. *Sustainability (Switzerland)*, 12, 4973. <https://doi.org/10.3390/su12124973>
- Rosati, F., & Faria, L. G. D. (2019). Addressing the SDGs in sustainability reports: The relationship with institutional factors. *Journal of Cleaner Production*, 215, 1312–1326. <https://doi.org/10.1016/J.JCLEPRO.2018.12.107>
- Rupley, K. H., Brown, D., & Marshall, S. (2017). Evolution of corporate reporting: From stand-alone corporate social responsibility reporting to integrated reporting. *Research in Accounting Regulation*, 29(2), 172–176. <https://doi.org/10.1016/J.RACREG.2017.09.010>
- Saidani, M., Yannou, B., Leroy, Y., Cluzel, F., & Kendall, A. (2018). A taxonomy of circular economy indicators. *Journal of Cleaner Production*, 207, 542–559. <https://doi.org/10.1016/j.jclepro.2018.10.014>
- Saidani, M., Yannou, B., Leroy, Y., Cluzel, F., Kendall, A. (2019). A taxonomy of circular economy indicators. *Journal of Cleaner Production*, 207, 542–559. <https://doi.org/10.1016/j.jclepro.2018.10.014>
- Schöggel, J. P., Stumpf, L., & Baumgartner, R. J. (2020). The narrative of sustainability and circular economy - A longitudinal review of two decades of research. *Resources, Conservation and Recycling*, 163, 105073. <https://doi.org/10.1016/j.resconrec.2020.105073>
- Schroeder, P., Anggraeni, K., & Weber, U. (2019). The relevance of circular economy practices to the sustainable development goals. *Journal of Industrial Ecology*, 23(1), 77–95. <https://doi.org/10.1111/jiec.12732>
- Siew, R. Y. J. (2015). A review of corporate sustainability reporting tools (SRTs). *Journal of Environmental Management*, 164, 180–195. <https://doi.org/10.1016/J.JENVMAN.2015.09.010>
- Skærbaek, P., & Tryggestad, K. (2010). The role of accounting devices in performing corporate strategy. *Accounting, Organizations and Society*, 35(1), 108–124. <https://doi.org/10.1016/j.aos.2009.01.003>
- Ștefănescu, C. A., Tiron-Tudor, A., & Moise, E. M. (2021). EU non-financial reporting research—Insights, gaps, patterns and future agenda. *Journal of Business Economics and Management*, 22(1), 257–276. <https://doi.org/10.3846/jbem.2020.13479>
- Stewart, R., & Niero, M. (2018). Circular economy in corporate sustainability strategies: A review of corporate sustainability reports in the fast-moving consumer goods sector. *Business Strategy and the Environment*, 27(7), 1005–1022. <https://doi.org/10.1002/bse.2048>
- Sureeyatanapas, P., Yang, J. B., & Bamford, D. (2015). The sweet spot in sustainability: A framework for corporate assessment in sugar manufacturing. *Production Planning and Control*, 26, 1128–1144. <https://doi.org/10.1080/09537287.2015.1015470>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- The Ellen MacArthur Foundation. (2012). Towards a circular economy vol 1: An economic and business rationale for an accelerated transition. <https://www.ellenmacarthurfoundation.org/publications/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an-accelerated-transition>
- The Ellen MacArthur Foundation. (2015a). Circularity indicators: An approach to measuring circularity. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/insight/Circularity-Indicators_Project-Overview_May2015.pdf
- The Ellen MacArthur Foundation. (2015b). Towards a circular economy: Business rationale for an accelerated transition. https://www.ellenmacarthurfoundation.org/assets/downloads/publications/TCE_Ellen-MacArthur-Foundation_26-Nov-2015.pdf
- The Standing Committee of the National People's Congress. Circular economy promotion law of the People's Republic of China (2008). China.
- Thijssens, T., Bollen, L., & Hassink, H. (2016). Managing sustainability reporting: Many ways to publish exemplary reports. *Journal of Cleaner*

- Production*, 136, 86–101. <https://doi.org/10.1016/J.JCLEPRO.2016.01.098>
- Thomson, I. (2015). 'But does sustainability need capitalism or an integrated report' a commentary on 'The international integrated reporting council: A story of failure' by Flower, J. *Critical Perspectives on Accounting*, 27, 18–22. <https://doi.org/10.1016/J.CPA.2014.07.003>
- Tsalis, T. A., Malamateniou, K. E., Koulouriotis, D., & Nikolaou, I. E. (2020). New challenges for corporate sustainability reporting: United Nations' 2030 Agenda for sustainable development and the sustainable development goals. *Corporate Social Responsibility and Environmental Management*, (February). <https://doi.org/10.1002/csr.1910>, 27, 1617, 1629
- UL LLC. (2018). *Outline of investigation for measuring and reporting circular economy aspects of products*. Sites and: Organizations.
- United Nations. (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York: UN Publishing.
- Van der Lugt, C. T., van de Wijs, P. P., & Petrovics, D. (2020). Carrots & Sticks 2020—Sustainability reporting policy: Global trends in disclosure as the ESG agenda goes mainstream. Retrieved from www.globalreporting.org
- Vermeulen, W. J. V., & Witjes, S. (2016). On addressing the dual and embedded nature of business and the route towards corporate sustainability. *Journal of Cleaner Production*, 112, 2822–2832. <https://doi.org/10.1016/j.jclepro.2015.09.132>
- Walker, A. M., Opferkuch, K., Roos Lindgreen, E., Raggi, A., Simboli, A., Vermeulen, W. J. V., Caeiro, S., & Salomone, R. (2021). What is the relation between circular economy and sustainability? Answers from frontrunner companies engaged with circular economy practices. *Circular Economy and Sustainability*. <https://doi.org/10.1007/s43615-021-00064-7>
- Walker, A. M., Opferkuch, K., Roos Lindgreen, E., Simboli, A., Vermeulen, W. J. V., & Raggi, A. (2021). Assessing the social sustainability of circular economy practices: Industry perspectives from Italy and the Netherlands. *Sustainable Production and Consumption*, 27, 831–844. <https://doi.org/10.1016/j.spc.2021.01.030>
- Walker, A. M., Vermeulen, W. J. V., Simboli, A., & Raggi, A. (2020). Sustainability assessment in circular inter-firm networks: An integrated framework of industrial ecology and circular supply chain management approaches. *Journal of Cleaner Production*, 286, 125457. <https://doi.org/10.1016/j.jclepro.2020.125457>
- WBCSD. (2019). Reporting matters. Retrieved from <https://www.wbcsd.org/Pages/eNews/eNewsDetails.aspx?ID=16374>
- Webster, K. (2013). What might we say about a circular economy? Some temptations to avoid if possible. *World Future: The Journal of New Para- Digm Research*, 69(7–8), 542–554. <https://doi.org/10.1080/02604027.2013.835977>
- Wohlin, C. (2014). Guidelines for snowballing in systematic literature studies and a replication in software engineering. In: *Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering - EASE '14* (pp. 1–10). New York, USA: ACM Press. <https://doi.org/10.1145/2601248.2601268>
- World Commission on Environment and Development. (1987). Report of the World Commission on Environment and Development: Our common future (The Brundtland Report). <https://doi.org/10.1080/07488008808408783>, 4, 17, 25
- World Economic Forum. (2020). Measuring stakeholder capitalism: Toward common metrics and consistent reporting of sustainable value creation, (September), 1–48. Retrieved from http://www3.weforum.org/docs/WEF_IBC_ESG_Metrics_Discussion_Paper.pdf
- Wu, Q., He, Q., & Duan, Y. (2013). Explicating dynamic capabilities for corporate sustainability. *EuroMed Journal of Business*, 8(3), 255–272. <https://doi.org/10.1108/EMJB-05-2013-0025>
- Yang, Q. Z., Zhou, J., & Xu, K. (2014). A 3R implementation framework to enable circular consumption in community. *International Journal of Environmental Science and Development*, 5(2), 217–222. <https://doi.org/10.7763/ijesd.2014.v5.481>
- Yongvanich, K., & Guthrie, J. (2006). An extended performance reporting framework for social and environmental accounting. *Business Strategy and the Environment*, 15, 309–321. <https://doi.org/10.1002/bse.541>

How to cite this article: Opferkuch, K., Caeiro, S., Salomone, R., & Ramos, T. B. (2021). Circular economy in corporate sustainability reporting: A review of organisational approaches. *Business Strategy and the Environment*, 30(8), 4015–4036. <https://doi.org/10.1002/bse.2854>

APPENDIX A.

TABLE A1 Key elements of the structure and content of non-financial reports (adapted from EC, 2017)

	Key element	Description
1	Business model	A brief description of the undertaking's business model
2	Policies and due diligence	A description of the policies pursued by the undertaking in relation to those matters, including due diligence processes implemented
3	Outcome	The outcome of those policies, presented from a useful, fair and balanced view of the undertaking's strengths and vulnerabilities
4	Principal risks and their management	The principal risks related to those matters linked to the undertaking's operations including, where relevant and proportionate, its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the undertaking manages those risks
5	Key performance indicators	Non-financial key performance indicators relevant to the particular business
6	Thematic aspects (a) Environmental matters (b) Social and employee matters (c) Respect for human rights (d) Anti-corruption and bribery matters (e) Others	Information necessary for an understanding of the undertaking's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters. Others may include: supply chain issues and conflict minerals
7	Reporting frameworks	A company relying on one or several frameworks should disclose which framework(s) it has used for its specific disclosures
8	Board diversity disclosure	A description of the diversity policy applied in relation to the undertaking's administrative, management and supervisory bodies with regard to aspects such as, for instance, age, gender or educational and professional backgrounds, the objectives of that diversity policy, how it has been implemented and the results in the reporting period

TABLE A2 Sample of available reporting approaches for companies before review

#	Reporting approach (as listed in the EU guidelines)
1	CDP (formerly the Carbon Disclosure Project)
2	The Climate Disclosure Standards Board
3	The Eco-Management and Audit Scheme (EMAS)
4	The European Federation of Financial Analysts Societies' KPIs for Environmental, Social, Governance (ESG), a guideline for the integration of ESG into financial analysis and corporate valuation
5	The Global Reporting Initiative
6	Guidelines for Multinational Enterprises of the Organisation for Economic Cooperation and Development (OECD)
7	The International Integrated Reporting Framework
8	ISO 26000 of the International Organisation for Standardisation
9	Model guidance on reporting ESG information to investors of the UN sustainable stock exchanges initiative
10	The Natural Capital Protocol
11	Product and Organisation Environmental Footprint guides
12	The Sustainability Accounting Standards Board
13	The United Nations (UN) Global Compact
14	UN Sustainable Development Goals, Resolution of 25 September 2015 transforming our world: the 2030 Agenda for Sustainable Development
15	The OECD due diligence guidance for responsible supply chains from conflict-affected and high-risk areas, and the supplements to it
16	Guidance for responsible agricultural supply chains of FAO-OECD
17	Guidance on the strategic report of the UK Financial Reporting Council
18	UN Guiding Principles on Business and Human Rights Implementing the United Nations 'Protect, respect and remedy' framework
19	The sustainability code of the German Council for Sustainable Development
20	The Tripartite Declaration of principles concerning multinational enterprises and social policy of the International Labour Organisation (ILO)
21	From the British Standards Institute: BSI 8001:2017. Framework for implementing the principles of the circular economy in organizations—Guide
22	From UL: UL 3600. Measuring and Reporting Circular Economy Aspects of Products, Sites and Organizations
23	From the World Economic Forum: Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation
24	From the ACCA, ICAS, CA ANZ, IIRC & World Benchmarking Alliance: Sustainable Development Goals Disclosure (SDGD) Recommendations

Note: Reporting approaches 1–20 were utilised to guide the development of the EU Directive 2014/95/EU (methodology for reporting non-financial information) (2017/C 215/01). Documents 21–24 were added from the Google search.

TABLE A3 Explanation of the excluded reporting approaches from initial sample

#	Reporting approach title	Year last revised	Selection criteria not satisfied (SC1-SC4)	Remarks and/or link to reporting approach
1	The European Federation of Financial Analysts Societies' KPIs for environmental, social, governance (ESG), a guideline for the integration of ESG into financial analysis and corporate valuation	2009	SC4	The document was last revised in 2009. https://effas.net/pdf/setter/DVFA%20criteria%20for%20non-financials.pdf
2	International Labour Organization's tripartite declaration of principles concerning multinational enterprises and social policy	2017	SC4	This framework is intended to inform the policies of rather than instruct how an organisation should develop a non-financial report. 'The principles of this declaration are intended to guide governments, employers' and workers' organizations of home and host countries and multinational enterprises in taking measures and actions and adopting social policies, including those based on the principles laid down in the constitution and the relevant conventions

(Continues)

TABLE A3 (Continued)

#	Reporting approach title	Year last revised	Selection criteria not satisfied (SC1-SC4)	Remarks and/or link to reporting approach
				and recommendations of the ILO, to further social progress and decent work'. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---multi/documents/publication/wcms_094386.pdf
3	Model guidance on reporting ESG information to investors of the UN sustainable stock exchanges initiative	2015	SC2	Its primarily designed to inform stock exchanges to produce reports which can assist companies in providing relevant ESG information on them. https://sseinitiative.org/wp-content/uploads/2015/09/SSE-Model-Guidance-on-Reporting-ESG.pdf
4	The natural capital protocol	2016	SC4	https://naturalcapitalcoalition.org/wp-content/uploads/2016/07/NCC_Primer_WEB_2016-07-08.pdf The framework states it does not 'provide a framework for external financial reporting, although decisions can be reported'
5	The OECD due diligence guidance for responsible supply chains from conflict-affected and high-risk areas, and the supplements to it	2016	SC3, SC4	This framework is sector specific, only 'concerning companies who are operating in or sourcing minerals from conflict-affected and high-risk areas. The document providing guidance on principles and due diligence processes for responsible supply chains of minerals from conflict-affected and high-risk areas, consistent with applicable laws and relevant international standards'. Also the aim is not to assist companies in preparing a non-financial report. https://www.oecd.org/daf/inv/mne/OECD-Due-Diligence-Guidance-Minerals-Edition3.pdf
6	Guidance for responsible agricultural supply chains of FAO-OECD	2016	SC3, SC4	Sector-specific framework – Only relevant for companies which are involved in agricultural supply chains therefore not a horizontal framework.
7	Guidance on the strategic report of the UK financial reporting council	2018	SC1	Developed by the UK financial reporting council and scope is for organisations within the UK only—referring to numerous UK laws and regulations. https://www.frc.org.uk/getattachment/fb05dd7b-c76c-424e-9daf-4293c9fa2d6a/Guidance-on-the-Strategic-Report-31-7-18.pdf
8	The sustainability code of the German Council for Sustainable Development	2017	SC1	https://www.nachhaltigkeitsrat.de/wp-content/uploads/2018/03/The_SustainabilityCode_2017.pdf