



UNDERPINNING SUSTAINABILITY PARADIGMS: CIRCULAR ECONOMY AND ENHANCED TRIPLE BOTTOM LINE

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Abstract:

Whilst stakeholders and policy makers in industry and academia increasingly use circular and sustainable, the terms are not clearly understood. Furthermore, the need for a switch from a current economic model (linear) to the circular one has been recognized globally by the major decision-makers. The shift from one mechanism to another has presented challenges in grasping the Circular Economy (CE) and Sustainability (S) principles: defining them, understanding the similarities and differences, and successfully applying them using Triple Bottom Line (TBL) approach. Employing systematic literature review, the aim of this paper is to clarify the ambiguities and add to clarity by exploring the concepts and the relationship of CE and S by applying TBL framework – social, economic and environmental variables. The gaps regarding relations to people and profit contribution are identified in the literature, future research priorities and new frameworks are recommended.

Keywords:

circular economy, sustainability, triple bottom line, people planet profit.

1. INTRODUCTION

In the 20th century, through inventions and industrial and technological development, nature and its cycle have been harmed more than ever. Towards the end of this period, however, it feels that humans started waking up – it was not possible to continue this way; mechanisms were needed to reverse the impact made. That is how Sustainability (S) as a concept that means more than business sustainability appeared only in the second half of the 20th century (Ruggiero, 2021). Furthermore, Circular Economy (CE) was born, the idea that humans can mimic nature and close loops in the way they produce, use, recycle, repurpose, repair or, when repair is not possible, remanufacture. Its features, according to Geissdoerfer et al. (2017) are comparable to those of S. Finally, when the Triple Bottom Line (TBL) framework emerged (Elkington, 2013a), so did the need to clarify the concepts, define their relationship and successfully apply them on micro, macro and meso levels (Nikolaou et al., 2021a).

This paper sets out to clarify some of the ambiguities and add to clarity by exploring the relationship (whether CE contributes to S) between the two concepts, and how TBL paradigm relates to them through systematising different views in the available literature within the existing frameworks. Considering the topic significance and the amount of literature available, the authors focus mainly on the sources published after the year 2010 to demonstrate latest findings and approaches to this relatively new field first publications of which appeared in 2007.

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Building on previous work, this article further investigates how the ambiguities might affect efficient integration of the concepts into practice and whether a better understanding of the terminology and concepts contributes to bridging the gap in their application. It aims to provide conceptual clarity by analysing the concepts, their relationships and their implementation that would benefit all stakeholders, not only shareholders. Finally, the challenges and potential for further research are identified and the conclusion is made that the social and economic aspects have not been given enough attention and the application of the concepts has not been regulated. Ultimately, a new framework is developed and ideas for further research where people and profit are substantially explored is recommended.

2. RESEARCH METHODOLOGY STAGES

For the purpose of this research, over twenty scientific papers and other relevant sources have been cited out of more than fifty publications found which will be used for the upcoming scientific research. The methodology used is a systematic literature review and the steps are shown in Figure 1.

The first few steps consisted of gathering ideas, selecting relevant literature by setting relevant and specific criteria to research scientific databases. The inclusion criteria used in this step were: a) publication type – only peer-reviewed articles were included and relevant renowned books and sources (such as Ellen McArthur Foundation); b) time frame – mostly articles written or published after 2010 were selected as a source; however, some older relevant sources were included (TBL founder's articles, for instance); c) language – only sources found in English were included; d) context - global; e) themes - mainly articles that focus on defining, explaining CE (subtopic one), those that analyse Sustainability Strategies (subtopic two) and finally, the sources that explore TBL and its connection with the previous two concepts (subtopic three) were

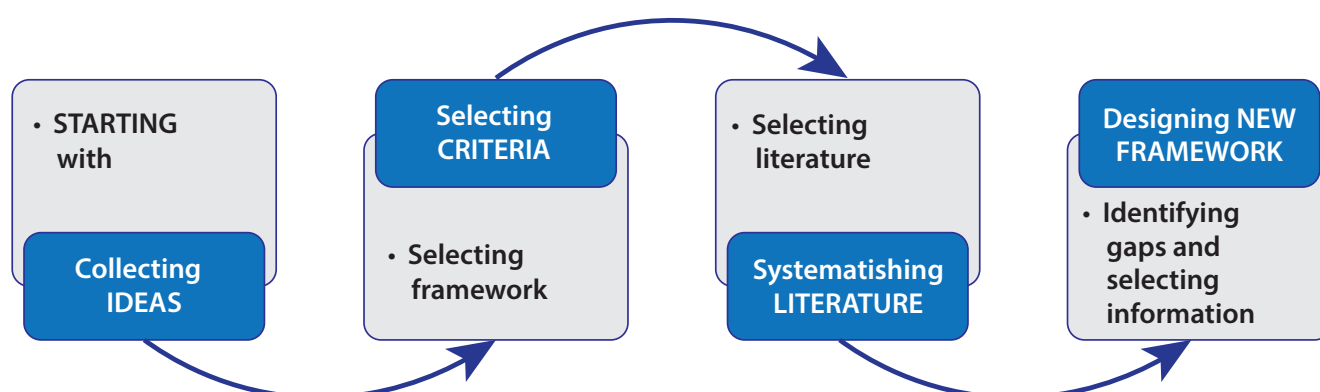
read and cited in this paper. To ensure quality, mostly peer-reviewed scientific papers were chosen, but other sources were also cited - reports, the Ellen McArthur Foundation, Harvard Business Review, etc. The reason for including non-peer-reviewed sources was considered adequate as CE and S are new research areas and the two concepts have not yet been comprehensively explored.

The aforementioned research stages provide a concrete framework used to analyse the relationship between CE and S in both industry and academia globally. Then, the relevant literature was read and examined/systematised in order to identify trends, challenges and gaps. Finally, a new framework was developed.

3. VARIOUS SCIENTIFIC APPROACHES TO SUSTAINABILITY, CIRCULAR ECONOMY AND TRIPLE BOTTOM LINE PARADIGMS

The notion that there is a need for S, CE and TBL to be thoroughly explored has of late resonated with industry stakeholders on different levels (national and global) as well as academics – from less than 100 articles researched and published on the topic ten years ago, 2022 saw more than 4000 articles published (Figge et al., 2023) defining, or trying to define, CE and its application. First article was published in 2007, over two-thirds of papers on CE were published 2015-2017 (Reike et al., 2018). Stahel, MacArthur, and Elkington are among the pioneers while Figge and Svenson Thrope stand out when it comes to recent CE articles. The *Journal of Industrial Ecology* was the first one to rebrand and incorporate CE, while the *Journal of Cleaner Production* is the one that publishes most scientific papers that deal with CE and S (Kirchherr et al., 2023). This section has been divided into subsections to classify relevant information that explain CE, analyse S, identify the TBL relevance (and challenges) and lastly, it contains the relevant findings.

Figure 1. The stages of methodology.



Source: Author's.



3.1. Circular Economy

According to Figge et al. (2023), more than 100 CE definitions are available, nevertheless, the two major ones have been shared here. Kirchherr et al. (2017) reviewed the existing definitions and proposed their own according to which CE refers to a framework that consists of business models which no longer deal with end-of-life principles; instead, this concept aims to minimise waste through reduction, reuse, recycling and material recovery through the mechanisms of consumption, distribution and production. This approach, according to the authors, works through various levels including companies, products and consumers at the micro level, eco-industrial parks at the meso level and cities, regions, nations at the macro level. The ultimate goal is to achieve sustainable development which encompasses fostering social equity, ensuring economic prosperity and promoting environmental well-being to bring meaningful outcomes for current and generations to come.

Figge et al. (2023) argue that former definition is insufficient, confusing, broad but also too narrow. They offer their own definition stipulating that the CE is a multi-tiered mechanism that uses resources so that all loops are ultimately closed. Reusing, recycling, and other methods help with resource optimisation and flow, adding to effective circularity. Ideally, all resource loops will be closed and there will be no waste and no need for more resources. However, sourcing virgin materials seems unavoidable.

First half of 20th century saw the conception of CE in a form of recycling in Germany, closed loop (waste management) in Switzerland, products life cycle in Belgium (Reike et al., 2018). However, it was not until 1970s that circularity started being seen as necessary, and Stahel considered its founding father (Ekins et al., 2020). Finally, Stahel (2016) writes it is high time CE was introduced through vocational and academic training – all must be aware of it and start ap-

plying it. One of the attempts to regulate CE activities was done by MacArthur (MacArthur, 2013) who made a shift to the circular economy in industry and academia. Starting with the Ellen MacArthur Foundation, CE has therefore been perceived as a tool, a business model for Sustainable Development (*How to Build a Circular Economy* | Ellen MacArthur Foundation, n.d.-b).

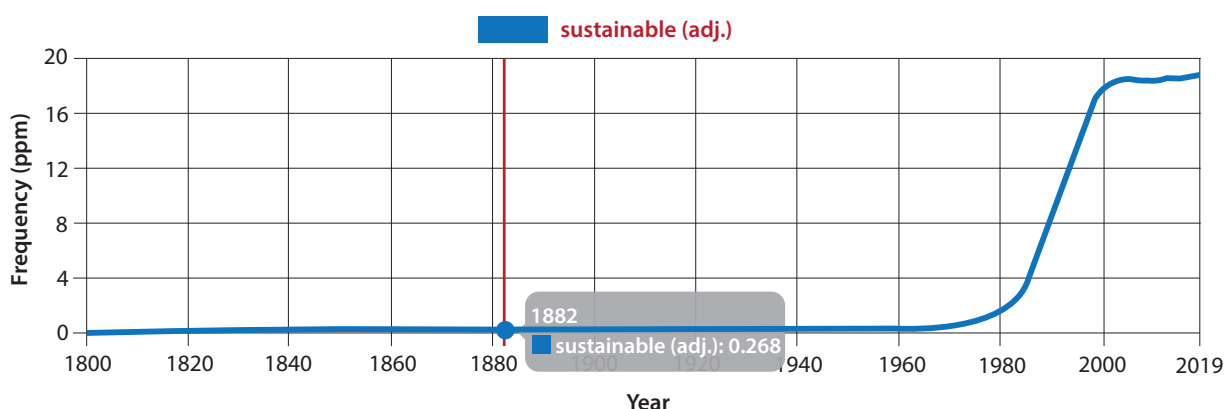
3.2. Sustainability

It is relevant to note that the usage of the word *sustainable* rises exponentially after the year 1980, as seen in the Figure 2.

A possible explanation of this trend can be that the term sustainable development was for the first time used in the UN World Commission on Environment and Development (WCED) report published in 1987 by Leal Filho et al. (2015) when the so-called Brundtland Report (another title given after the then Prime Minister of Norway who chaired WCED) defined the phrase as development that fulfils present requirements while preserving the capability of coming generations to meet their requirements (Reike et al., 2018).

Social, economic, and environmental issues were finally recognised, while their interrelation and the importance of finding an equilibrium between economic expansion, social well-being, and environmental protection emphasised. Initially, the term sustainable was mostly used in connection with economic development; however, after the Eco-Rio, a UN Conference on Environment and Development held in Brazil in 1992 (United Nations, n.d.), the meaning of the phrase became more holistic referring to the enhancement of the social and economic variables like poverty relief, unemployment, inequality, health, better food, housing and education (United Nations, n.d.-b). Both S and CE concepts attempt to include non-economic components into development (Geissdoerfer et al., 2017).

Figure 2. The use of the word sustainable.



Source: Taken from Online Etymology Dictionary.



3.3. Triple Bottom Line

TBL was founded in 1994 by John Elkington, a British entrepreneur and author, one of the leading figures in social responsibility and sustainability. People, Planet and Profit are balanced and essential elements representing sustainability (Admin & Admin, 2023). The framework below shows that the financial bottom line that businesses are concerned with is too limited, and this framework offers a holistic approach leading to sustainable development (Elkington, 2013a).

Elkington (2013) felt the framework has been criticized mostly for not contributing to the people and planet aspects. Eventually, the founder decided to 'recall' the concept in the article he published in Harvard Business Review (2018).

Although the CE concept appears to be the oldest of the three, it only developed in the current form in the last decade. It is the most limited in nature as it does not deal with the social aspect but mostly with disposing of pollution and waste efficiently, materials and products circulation, and nature regeneration according to MacArthur (2010). However, it has been gaining momentum – the academia has recognised its importance and many research papers have been published recently. Sustainable development deals with a wider scope and especially after the formation of Sustainable Development Goals in 2012, CE has been seen as a mechanism to promote sustainability goals (Nikolaou et al., 2021a). The TBL appeared, says its founder Elkington, as a response to the need to clarify S and bring it closer to business decision-makers.

3.4. Findings

This paper analyses the three frameworks in the way they are understood and presented in literature, their timeline and the way they are applied. Arruda et al. (2021) believe that it is difficult to predict how the CE evolution will develop due to lack of clarity in interpreting the term. However, they speak about different periods in CE development and have noticed the pattern in publications and different aspects of CE from 2015 to 2020 (Table 1 below).

Reike et al. (2018) gave account of the CE publications from 2004 to 2015 (Figure 4). It can be seen that the majority of literature has been written on recycling and waste management, followed by waste recycling, while a large number of other concepts have not appeared in scientific papers until the 1990s. Notably, CE emerges only around or after the year 2000 which calls for the conclusion that this might be the time when the CE foundations are laid.

Upon these foundations, the CE structure was built. This was reflected in Nombre et al. (2021), in their attempt to define CE and its development, as well as present the publication history. They showed the rise in publications on CE (Figure 5.) where it can be observed that CE has clearly been increasingly recognised and written about. In 2020, for instance, a comprehensive literature review was written to analyse and classify various CE models (Geissdoerfer et al., 2020).

Figure 3. TBL framework and the interconnection of elements.



Source: Open source license: CC BY 4.0.



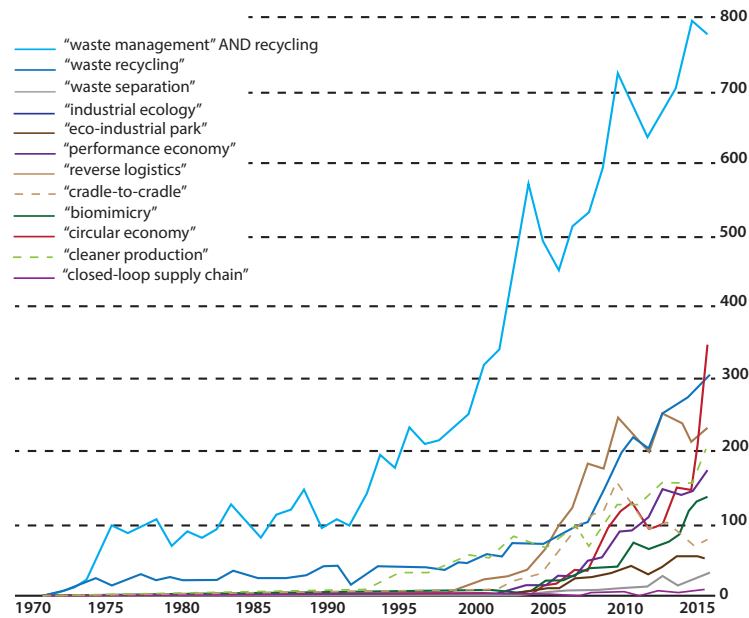
Table 1. Time frames and different periods of CE.

Year(s)	Period name
1960-1985	Preamble period
1985-2013	Excitation period
2013-Present*	Validity challenge period

*The periods researched ended with 2020

Source: Aruda et al., (2021).

Figure 4. SCOPUS publication on CE and related themes.

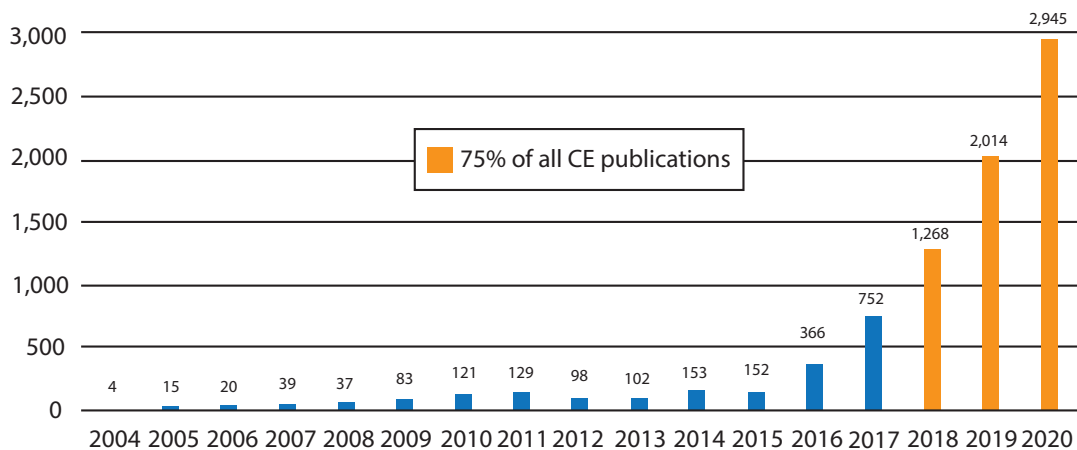


Source: Reike et al., (2018).

The Rio conference played a pivotal role in redefining the concept of S and incorporating it into the global policy-making system and documentation. Only after this conference, and (re)defining of the term sustainable, did the other aspects and frameworks come into being –

socio-economic and environmental. Thus, the term CE has been coined (Ekins et al., 2020). Finally, TBL framework, founded by Elkington in 1994, influenced CEOs and CFOs to move from profit making to ‘people making’ and ‘environment making’.

Figure 5. The CE publications, expansion over the years.



Source: Nombre et al. (2021).



Throughout the literature, there is consistent evidence that there are currently not enough policies (or in most countries, no policies at all) to regulate Corporate Social Responsibility (CSR) through CE, TBL and sustainability practices and reporting (Shnayder et al., 2015). Indeed, in some countries the policies are there, Germany did integrate CE into legislation in 1996 (“Closed Substance Cycle and Waste Management Act”), China in 2002 (with the aim to regulate energy efficiency) and Japan in 2002 (The Basic Law for Establishing a Recycling-Based Society) (Su et al., 2013). Although websites increasingly advise on clothes or electronics repair and some companies (e.g. Philips) offer repair for advanced technology equipment, it appears that most organisations, and countries, choose sustainable and CSR activities haphazardly and report on them in a way which benefits their image rather than society.

Shnayder et al. (2015) demonstrate how CSR and S efforts of an organization can be misinforming. The foundation of the issue is measuring - there has been a challenge in finding the right way to measure the impact of applied sustainability mechanism such as TBL accurately, meaningfully, and consistently. Thus, reporting on the impact and benefits might have to be taken sceptically. Realising these challenges, the founder of TBL framework, Elkington decided to recall the concept (Elkington, 2018). In June 2018, he expressed in Harvard Business Review that the concept had not been utilised as its core value suggested and as the author intended; he felt that stakeholders still calculated mostly profit (finances) using the TBL paradigm. The TBL was meant to inspire reflection on capitalism and its prospects, but the accountants and reporting consultants diluted the concept which was

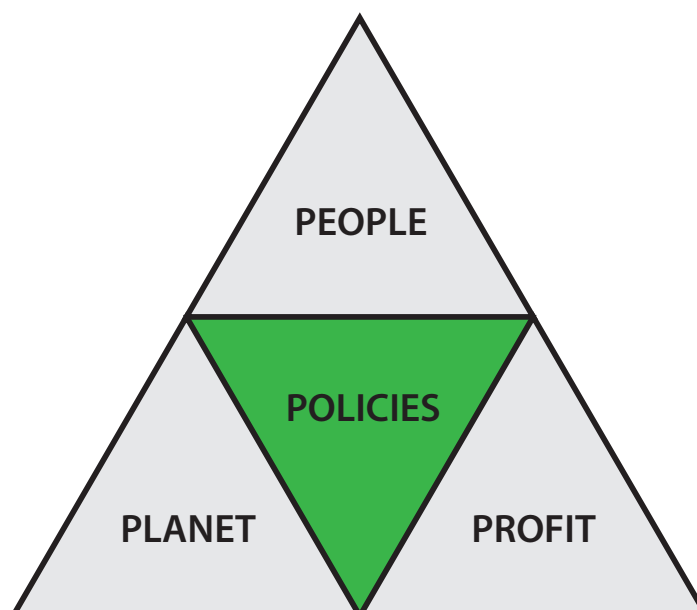
meant to add a genuine value to decision-makers in their managing of activities and by doing so, contribute to the improvement of human conditions. In short, while everyone was still focused on profit margins, people and planet ‘margins’ were not made priority.

Consequently, the conclusion was made by the authors that the TBL needs to be enhanced in order to be applied systematically across sectors. This study disagrees with recalling the TBL concept; instead, a paradigm shift is needed. To that end, an additional element has been proposed, the fourth P that stands for policy - a prerequisite for other Ps (Figure 6). This new P will ensure that legislation is in place to regulate fair, meaningful, and sustainable benefits for all. Crucially, the Four Ps Pyramid proposes firm policy implementation – detailed and strictly regulated legislative system that oversees the execution and measurement of SDGs, including clear incentives and penalties. The new framework must be distinguished from Quadruple Bottom Line (QBL) which comprises People, Planet, Profit and Purpose (Tiller et al., 2022) as the P in our framework is not bottom-line; indeed, it is a basis for Elkington’s paradigm to be successful.

4. CONCLUSION

Based on the above analyses of the CE, S and TBL concepts and frameworks, a conclusion has been drawn that the concepts are often not fully understood and the resemblances and contrasts between them unclear. Occasionally, reporting on implementation has been found misleading. Having read several papers, this research paper hopes to have clarified these ambiguities and will be

Figure 6. Four Ps Pyramid.



Source: Author's.



able to offer insights that bring benefits to the policy makers, industry and academia stakeholders.

Hitherto, there have not been clear and definite policies on a macro level that would offer adequate direction. Fundamental tenets to be taken into consideration include: engaging all stakeholders such as clients, employees, local communities and society at large; financial sustainability; diversity and inclusion; cost-efficiency; involvement in society; innovation and growth; ROI; employee well-being; long-term profitability; ethical practices. Therefore, a new framework was developed and introduced in this study adding another, fundamental P to the existing TBL – the one that stands for Policies. This approach is based on the premise that economic development and prosperity are not a goal; economic viability should serve humanity. Consequently, a regenerative economy reaching sustainable development goals, promoting healthy living conditions, is built.

Although an important step has been taken through this study, future research recommendation is related to the missing concept uncovered – the lack of focus on social and economic aspects and their relationship, i.e. people and profit within People, Planet, Profit (PPP) framework is observed. Identified policy gaps and proposed changes will ideally promote sustainable business practices, incentivise circular economy initiatives, and create an enabling environment for people-centred and profitable circular models. Prioritising balance of social equity and economic sustainability is a holistic approach which can lead to more sustainable, profitable, ethical and thus, successful businesses in the long run.

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