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Faculteit Bedrijfseconomische Wetenschappen

master in de handelswetenschappen

Masterthesis

Comparing models of a future economy: Finding similarities, differences, advantages, and shortcomings.

Tom Vervoort

Scriptie ingediend tot het behalen van de graad van master in de handelswetenschappen, afstudeerrichting accountancy, financiering en fiscaliteit

PROMOTOR :

Prof. dr. Stephan BRUNS

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Comparing models of a future economy: Finding similarities, differences, advantages and shortcomings

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Samenvatting:

De dag van vandaag zitten we in een lineaire economie die onhoudbaar is op ecologisch vlak. Er is duidelijk nood aan een andere aanpak voor onze economie. We gaan daarvoor een kijk nemen naar drie modellen die voorgesteld worden als mogelijke oplossingen.

Dit onderzoek bevat een vergelijking bevatten van drie verschillende modellen van een economie van de toekomst. De donut economie (DE), de circulaire economie (CE) en de sociale economie (SE). Door middel van een systematische literatuurstudie zijn gelijkenissen en verschillen tussen de gebieden gevonden. Tegelijkertijd werd er ook gekeken naar de voordelen die ieder model te bieden had tegenover de andere modellen en de tekortkomingen van ieder model. Hierbij werden de drie P's of de triple bottom line gebruikt als kapstok om de vergelijking aan op te hangen.

Uit de resultaten bleek dat de CE samen met DE en SE een overlappend doel heeft op ecologisch vlak. allen proberen vervuiling te verlagen. SE is hier gefocust op lokale oplossingen terwijl dit bij CE niet noodzakelijk het geval is. De DE gebruikte ook hetzelfde circulaire model voor een economie als de CE en stelde ook een herverdeling van middelen voor zoals SE maar is iets minder participatief.

De voordelen van CE waren dat het een aantrekkelijk model is voor bedrijven en beleidsmakers omwille van de economische voordelen. Er werd namelijk op Europees niveau geschat dat een 600 miljard euro aan BNP gecreëerd kon worden door het toepassen van CE. De SE daarentegen was sterk gesteund op het sociale aspect en heeft hier ook de diepste uitwerking van. De oplossingen die aangeboden worden zijn de democratisering van de werkplaats, samenwerkingen op lokaal niveau, meer inspraak voor stakeholders. Deze oplossingen zijn niet enkel impliciet zoals bij CE. Het enige model dat alle drie de P's in acht neemt is DE wat als een voordeel gezien kan worden.

De tekortkomingen van DE waren dan weer dat het een eerder beleidsvormend model was dus met weinig praktische uitvoering. SE had als nadeel dat het economisch niet erg aantrekkelijk is. investeerders hadden bepaalde verwachtingen waar bedrijven met sociale doeleinden niet altijd aan konden voldoen. Omwille van de sociale aard ,waar winst achtergesteld is op sociale doeleinden, is de ROI niet altijd de beste en wordt het moeilijker om financiering binnen te halen bij investeerders. Zoals eerder aangehaald had de CE dan weer als tekortkoming dat er geen goede uitwerking was voor het People gedeelte van het duurzaamheid idee. Het sociale aspect is vaak impliciet in aard: jobcreatie of verbeterde levensomstandigheden door de verbeterde ecologische toestand zonder expliciete voorbeelden te geven.

Uit dit onderzoek blijkt dat er gebieden zijn waar de modellen bepaalde interesses delen zoals het verlagen van de impact die de economie heeft op onze omgeving. Daar vinden we mogelijke samenwerkingsverbanden. De samenwerkingen tussen de modellen kan er ook voor zorgen dat de tekortkomingen van ieder model geadresseerd kunnen worden met andere sterke punten uit de andere modellen. De DE deelt aspecten uit zowel CE en SE en kan daarom ook mogelijk als richtlijn gebruikt worden voor de samenwerking.

Summary

Today we are participating in an untenable linear economy from an ecological perspective. Obviously, we need a different approach to our economy. To do that, we will look at three models which propose possible solutions to our problem.

This research compares the three different models of a future economy. The doughnut economy (DE), the circular economy (CE) and the social economy (SE). Through a systematic literature analysis, areas of similarity and differences were identified. At the same time, we looked at the advantages of each model and their possible shortcomings. The three P's of the triple bottom line were used as a framework for the comparison.

From the results, CE, DE and SE have overlapping goals in the form of their ecological pillars. All of them try to combat pollution in their way. SE focuses on local solutions, whilst CE doesn't necessarily need to be local. DE and CE both use a circular model of economy. DE also proposes redistributing resources like SE but is less participative than an SE model.

The advantages of a CE model were that it was attractive for policymakers and businesses alike because of the economic benefits associated with the CE model. On a European level, there were estimates that the economy's GDP could benefit 600 billion euros by utilising CE. The SE rests on a solid social pillar and has the deepest elaboration on the topic. Some of the offered solutions are the democratisation of the workplace, collaboration on a local level, and more participation for stakeholders. These social benefits are genuine and not only implicit, like with CE. DE is the only model utilising all three pillars in its model, which can be seen as an advantage.

The shortcomings of DE were that it was a policy-shaping model with little practical application. SE could have been more attractive from an economic standpoint. Investors have certain expectations that social enterprises might only sometimes meet. Because of its social nature, where profit is of secondary importance, the ROI might not always be the highest. This makes it more challenging to get financing from investors. CE did not have a good framework for its social pillar of the sustainability paradigm. As previously mentioned, the social aspect is often implicit in nature: job creation or improved quality of life following an improved environment without giving an example.

From this research, it can be surmised that there are certain areas of similarity, like lowering the impact of the economy on our environment. It is here that we find possible avenues of cooperation between the models. The DE shares aspects of bot CE and SE and might be used as a guideline for cooperation.

Acknowledgement

I want to acknowledge Professor Bruns and my supervisor Luca Campion for their professional guidance. They taught me a great deal about scientific research and helped me grow professionally.

I would also like to thank everyone at the University of Hasselt for the opportunities given to me during my time as a student.

Introduction:

At present, we are facing several sustainability challenges on this planet. The depletion of natural resources, greenhouse gas emissions and air pollution come to mind (Markard, 2012). Most of these problems occur in the social and ecological sphere, but economic issues like financial needs for infrastructure also exist l(Markard, 2012). The triple bottom line tries to balance three pillars to reach a sustainable future: people (social), profit(economic) and planet (environmental)(Geissdoerfer, Savaget, Bocken, & Hultink, 2017). Purvis et al. estimated that the current growth-based economies would be unsustainable in the long term as much of the increase in living standards was shifting to inequalities and poverties not in the West, alongside widespread ecological destruction. This creates a need to restructure the current model of the economy. The environment needs to be considered in future development as the current model's lack of environmental concern has negatively impacted biodiversity and the ecosystem. Something must be done about this growth-based economy's inequality. The growth-based model saw a tremendous economic boom in the West, but vast inequality and poverty in these societies remained (Purvis, Mao, & Robinson, 2019). Especially since the growth-based economy was often the cause of these social and environmental problems(Purvis et al., 2019). Therefore a more sustainable future is needed. There have been several propositions for organising future in future economies to create this sustainable future. However, these models often seem to ignore each other's existence. To find new areas of research to help harmonise these models. The paper will search for places of common interest and differences to map future research avenues.

To address sustainability issues within our economy, the circular economy concept has been gaining relevance in the last few decades (Geissdoerfer et al. 2017). The Circular Economy, hereafter referred to as CE, is a system that would replace our current linear economic system. As defined by Geissdoerfer et al., (2017), the CE is "a regenerative system in which resource input and waste emission and leakage are minimised by slowing closing and narrowing material and energy loops. This can be achieved through long-lasting design maintenance, repair, reuse, remanufacturing, refurbishing and recycling." One of the most prominent criticisms of this model is that it lacks the incorporation of a social dimension. (AnnikaMies, 2021). Another factor showing the topic's relevance is the increase in research papers over the last decade, as shown in the graph below.

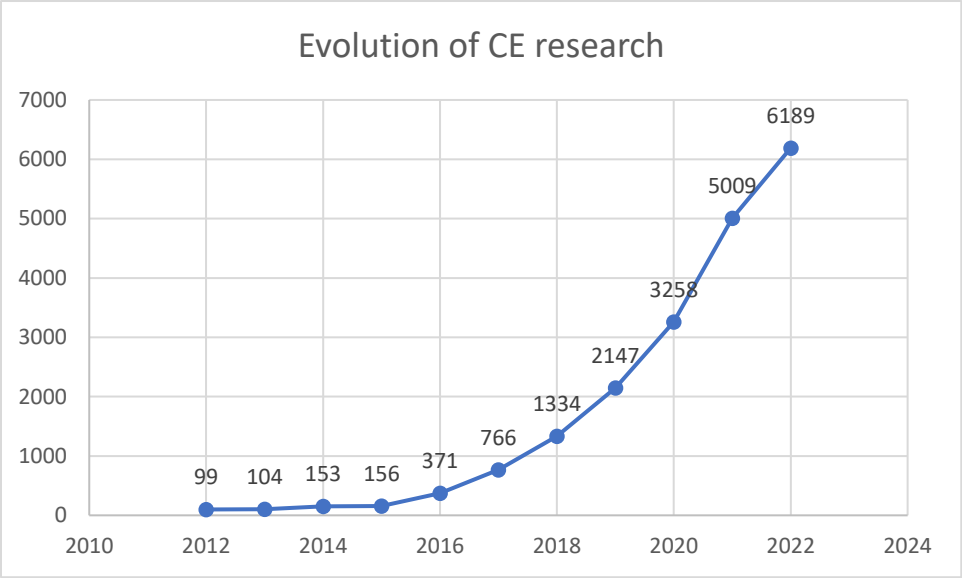


Figure 1: this figure represents the evolution of CE research in the past decade.

Like the CE, the social economy offers an alternative to the current economic model (Bellemare, 2022). The Social Economy, referred to as SE, focuses mainly on this social dimension. The SE is also called the third sector (Madeleine Wahlund & Teis Hansen, 2022). The concept is often defined as the space in the economy between the public economy and the private for-profit economy (Chaves Ávila & Monzón Campos, 2018). The characteristics of the social economy are its democratic decision-making, profit distribution based on labour instead of capital and social aims (Chaves Ávila & Monzón Campos, 2018). The SE puts People and Planet before Profit, which in effect, means that there is a significant emphasis on the needs of the people, and profit is of lesser concern. The Social economy mostly tries to find a closer relationship between society and the economy, as a dichotomy can create several issues (Bouchard, 2012).

Another recent look into sustainability is that of the DE, first presented in Raworth's Doughnut Economics. Kate Raworth wanted to look at the modern economy in a different light, and she explained seven ways we needed to change our look at Economics(Raworth, 2017).

1) Change the goal: Stop focusing on an ever-increasing GDP and instead focus on finding a balance for our economies(Raworth, 2017).
2) Look at the big picture: The economy is more complex than a causal loop diagram. The household plays a central role, along with the state, the market and the community.
3) Stimulate human nature: Humans are social creatures with changing values. We depend on one another. We need to realise that humans are not always logical creatures and that we do not control nature but are a part of it.
4) Understand the systems at play: Instead of balancing points between supply and demand, we should look at feedback loops allowing new insights into the economy. Better showing that economies are ever-changing.
5) Focus on redistribution: We should consider economic inequality a design flaw. We should look into ways to redistribute wealth from companies' wealth power etc.

6) Create to regenerate: Raworth advocates for a circular instead of a linear economy which restores and makes humanity a part of earth's natural life cycle.
7) Do not care about growth: Nothing can grow forever, so we must create an economy that allows humanity to thrive regardless of economic growth.

The model takes the form of a doughnut representing the planet's social foundation and ecological ceiling. Go over the ceiling, and the environment cannot regenerate (Madeleine Wahlund & Teis Hansen, 2022). Falling below the inner circle and poverty does not allow people to see their basic needs in the current economic model (Ross, 2019). Economies are open and require constant inflows of energy and material. Consequently, social and environmental problems should not be seen as separate issues from the economy. In this model, we must also maintain the ecological aspect to achieve these social needs (Madeleine Wahlund & Teis Hansen, 2022). This model introduced by Raworth tries to account for a sustainable economy but does not introduce anything new. It is more of a synthesis, so prevailing criticism of sustainable development also applies to this model(Luukkanen, 2021).

Research purpose:

This research aims to compare the different models of the future economy and analyse how each can contribute to a sustainable economy. All of these models attempt to bring their solution to our issues concerning sustainability in our economies but emphasise a different aspect of the sustainability paradigm. Therefore a comparison will be used to put forth areas of common interest where the models can support one another. The advantages or disadvantages of each model might be uncovered as well. By doing this, we want to check if there are possible solutions these systems can provide to each other's problems and where these models contribute the most toward sustainability on their own.

Research questions:

How can The Circular Economy, The Social Economy and The Doughnut Economy contribute towards a sustainable economy?

To answer this research question, we will answer the different sub-questions. When looking at these similarities and differences, certain shortcomings and advantages of a model can be identified.

Q1: Are there areas of similarity between the models?

Q2: What kind of differences can be found between the models?

Q3: What kind of shortcomings do the different models have concerning sustainability?

Q4: What kind of advantages do the different models have concerning sustainability?

Research method

Triple bottom line

When answering these questions, the triple bottom line will be used as a framework to see which of the three elements of sustainability is satisfied by the different economic models. This way, we can identify areas where each model fulfils the sustainability criteria and where it falls short. This also makes it possible to identify each model's strengths and weaknesses toward a particular part of the sustainability paradigm. After finding these strengths, weaknesses, similarities and differences, the research will be able to put forth areas of possible cooperation between the models in areas where there already is a natural similarity or in areas where one of the models might fall short, allowing the strength of another to fill in the gap.

Article Search

The research was done through a systematic literature review. The collection of literature was done by searching papers in Scopus. The papers were then sorted into search categories about the article's models. The research was limited to articles between 2012 and 2022.

Search query

The following search queries are used to find relevant literature.

(TITLE("Social Economy" OR "Foundational Economy") AND TITLE(compari* OR descri* OR concept* OR paradigm OR review OR analysis OR syner*)

TITLE ("Doughnut Economy" OR "Doughnut Economics") AND TITLE (compari* OR descri* OR concept* OR paradigm OR review OR analysis OR syner*)

TITLE ("Circular Economy") AND TITLE (compari* OR descri* OR concept* OR paradigm OR review OR analysis OR syner*)

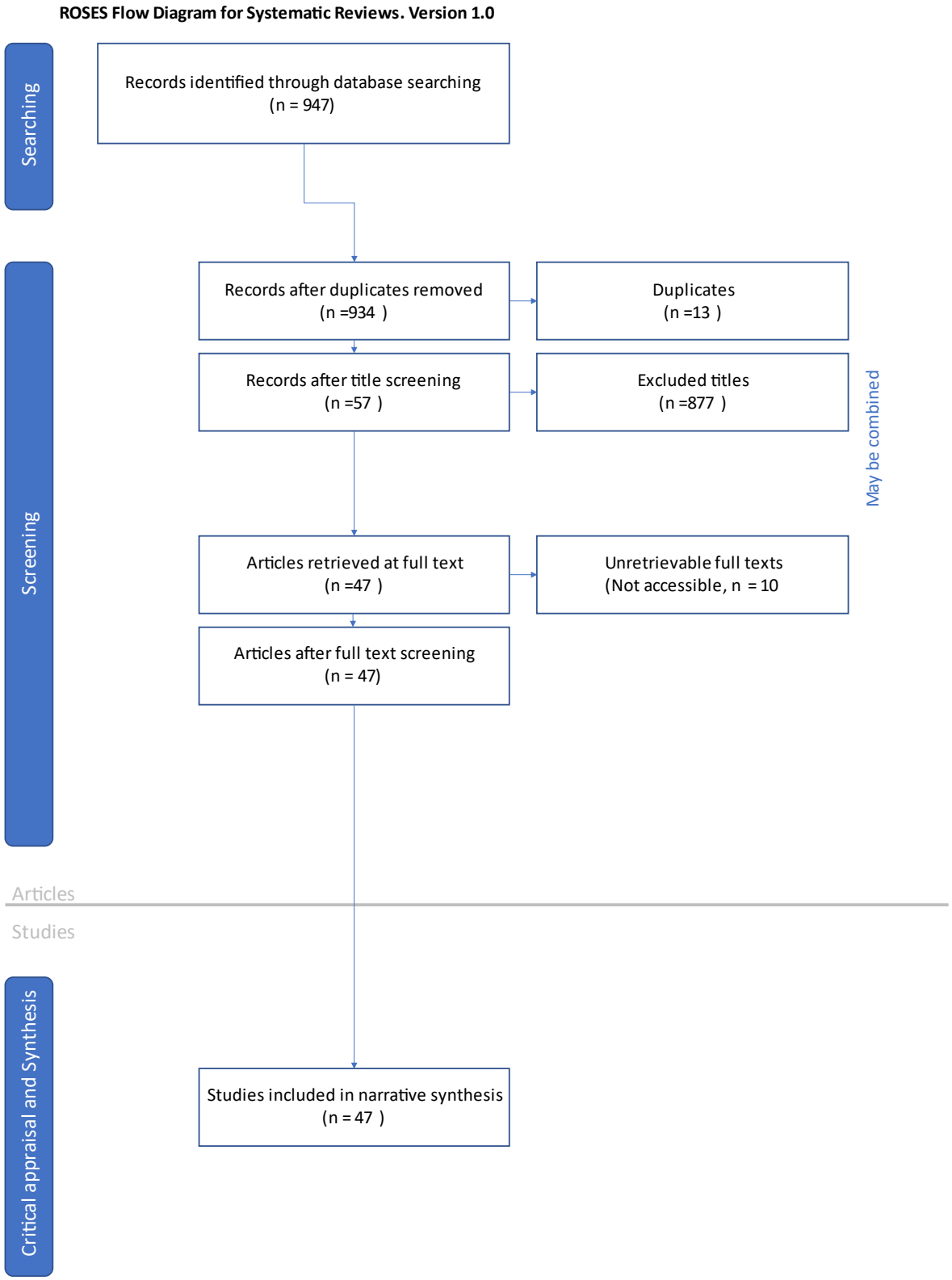
Screening:

These search queries will give us our starting literature found via searching the database. After that, duplicates need to be removed, and screening will be done by scanning the title and abstract of every paper. Our systematic review will include only papers that discuss the models theoretically. Articles will also be excluded when they are not written in English, if they are case studies and have geographical limitations attached to them. The papers will also be excluded in case of a retraction by the author. Afterwards, a full screening will be done of the remaining documents. The remaining literature will form the basis of our review. On the next page, we can find the visual representation in a roses diagram. The table below shows an overview of the listed inclusion criteria.

Table 1: In this table, we find the list of Inclusion criteria used during the screening process.

	Inclusion criteria	Justification
1	The papers need to contain a theoretical discussion about the concepts or models.	To gain relevant information about the model's theory
2	The papers cannot be specific case studies.	To discuss the models utilising theory about the model is more relevant.
3	Papers may not include geographical limitations in their study, locking research to certain countries or continents.	We cannot lock research to specific regions to keep a broad perspective on the different perceptions of the models.
4	Papers need to be written in English.	As the language of the paper is written in English, we want to focus on English literature.
5	Papers need to be written between 2012 and 2022	This is to utilise the latest research in order to remain relevant.
6	The author cannot have retracted the papers.	Papers that have compromised conclusions cannot be utilised for research purposes.

Roses diagram



Roses Diagram for this study (Haddaway NR, Macura B, Whaley P, and Pullin AS. 2017. ROSES flow diagram for systematic reviews. Version 1.0. DOI: 10.6084/m9.figshare.5897389)

Results:

Using the previous search query resulted in 934 papers to be utilised within the paper's research. First, all the papers were screened based on 872 papers excluded from the study based on the exclusion criteria in Table 1. The remaining 57 papers were associated with the three different models for a sustainable economy: Circular economy, Social economy and Doughnut economy. The categories had 50, 7 and 1 paper(s). The roses diagram gives A visual representation on the previous page (figure 1). Some papers belong to multiple categories as they are comparisons of models. What follows is a discussion of specific concepts found in the analysis phase of the three models. This is used to try and identify the advantages, weaknesses, similarities and differences between the models. Thereby trying to answer the four research questions we posed in Q1, Q2, Q3 and Q4.

Circular economy results:

Graphs were made to map the concepts associated with each model. As shown in Figure 2 below. The following are advantages of CE: CE is a research field heavily linked with resource efficiency and economic growth, as 29 of the 50 papers mentioned a link between creating resource efficiency or relating to the 4R concept, which is an application of the resource efficiency concept benefitting the environment and economy. In other cases, the 3Rs are used, a version that usually does not consider recovery or the zero waste concept, containing parts of the R's. 11 papers discussed economic growth. Korhonen et al. (2018) estimated 600 billion in revenue increases. The following are often criticisms of CE: 6 papers mentioned an underdeveloped social framework in CE. In 5 papers, the law of thermodynamics is used as a criticism. Citing that energy will always be lost, making it impossible to be truly circular. 4 papers discussed CE's advantage in attracting policymakers and businesses giving it access to many resources. The rebound effect was mentioned in 2 papers. The rebound effect is when an increase in efficiency creates more demand for those resources, this clashes with the reduction aspect of 4R's.

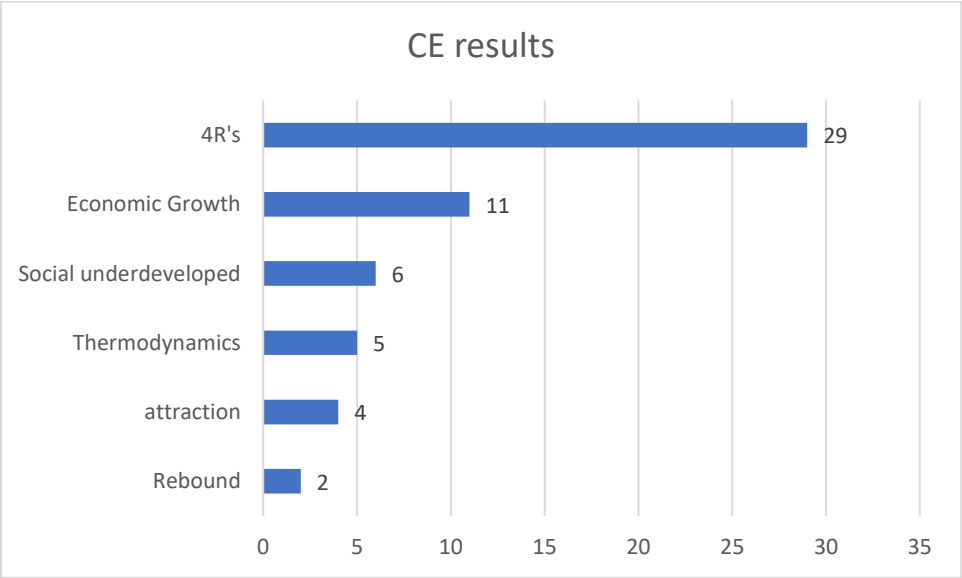


Figure 2: The 4R framework was named during the analysis of the papers. Economic growth represents the number of papers that associated CE with economic benefit. Social underdeveloped represents all papers mentioning an underdeveloped social dimension within the sustainability

paradigm. Thermodynamics refers to the law of thermodynamics. Attraction is the number of papers discussing the advantage of attracting policymakers and businesses to the CE concept because of its economic boons. Rebound refers to the rebound effect.

The 4 R framework stems from the EU's waste directive(Directive, 2008) and contains the following main categories:

- Reduction of resource use.
- Reusing resources focussing on repairs and or refurbishing.
- Recycling with the idea of recycling or remanufacturing current resources.
- Recovery is about recovering energy when actively burning waste resources.

Another form often found in CE literature is the 3R principles, usually lacking the reduction R of the 4R concept (Heshmati, 2017). Another paper discussing this waste management aspect of CE is Lahane, Prajapati, and Kant (2021), which mentions the alarming increase in waste generation and how the EU implements programs to decrease waste generation. Meseguer-Sánchez, Gálvez-Sánchez, Molina-Moreno, and Wandosell-Fernández-de-Bobadilla (2021) Mention the need for urban spaces to move away from a linear model to manage all the local waste effectively. Morales, Batlles-Delafuente, Cortés-García, and Belmonte-Ureña (2021) Makes a connection between the EU's green deal and its embracement of the circular economy. The paper also highlights its interest in sustainable development and the difficulty in predicting what policy interventions will have down the road. Recycling tends to be the most discussed strategy in the R framework, followed by repair and reuse, and only 1% of CE literature accounts for the consumer in the CE framework (Schöggl, Stumpf, & Baumgartner, 2020). Tóth (2019) also mentions the 3Rs and mentions that several sustainability models, like the waste minimisation model, also utilise them. Showing there is possible synergy with different schools of thought which might be applied to the different models in our review.

CE literature focuses on the manufacturing industry, where companies could benefit from reduced inputs (Camilleri, 2019). This is also explained in the following quote from Camilleri (2018) *"The circular economy optimises manufacturing and supply systems as it informs industrial processes and industrial ecology by focusing on the positive restoration of the environment within the industry."* Henry et al. (2021) state that CE authors focus primarily on resource efficiency. The paper is a bibliometric analysis comparing the Sharing economy and CE. It found overlapping themes in sustainability, business models, sustainable consumption and governance. It is found that it is possible to implement circular thinking in Sharing economy models. The paper by Mirzyńska, Kosch, Schieg, Šuhajda, and Szarucki (2021) is a literature review acknowledging its link with production. Through statistical analysis on Twitter and databases, it highlights where most keywords related to the production process and resource management.

CE is based on rethinking the value chain from production to consumption. It shares a common interest with the SE because it acknowledges a need for a societal shift. After all, the status quo is unsustainable. CE also differs from the SE model because it critiques the linear growth model. SE originated with socialist movements trying to democratise the workplace by implementing participatory governance (Bellemare, 2022).

Another significant aspect of CE is that the models focus on economic benefits that can be gained by adopting the system. It is one of the most pervasive themes in the literature analysed, as it was the second most mentioned. However, the CE model also tries to stimulate this growth in an environmentally conscious way. Kirchherr, Reike, and Hekkert (2017) found that in the 114 researched papers, one of the most significant aims was economic prosperity, with 46% of articles citing this. Environmental quality was another vital aim, as 38% of papers mentioned this as a goal. These economic benefits are significant and of crucial interest to institutions. In the EU, these economic benefits are estimated to reach 600 billion € in financial gains (J. Korhonen, Honkasalo, & Seppälä, 2018). The European Commission for the manufacturing sector within the EU established this figure. These 600 billion € comprise 170 000 direct jobs, decreased material requirements, and other measures like reuse and eco-design (Deselnicu, Militaru, Deselnicu, Zăinescu, & Albu, 2018). Ghosh (2019) mentions this economic benefit, but this time, it is 630 billion $ using the calculation of MacArthur (2013). Both support the idea that the CE has a sizeable economic impact. Another paper uses this 600 billion figure and states the possibility of sizeable economic benefit is (Lahane et al., 2021). This was found using different sources as well to come to this conclusion.

The following paper is a systematic research to identify similarities, differences and gaps, allowing for future research Arruda, Melatto, Levy, and Conti (2021). In the paper, a reference is made to Jouni Korhonen (2018), which concluded that the CE concept is a concept that is driven by the actions of the business community and policymakers and also emphasises better communication between policymakers and manufacturing industries. Product life cycles must be elongated for the CE concept to reach circularity, as the input stage produces far more emissions than the life cycle (Arruda et al., 2021). In terms of legislation implementation and public policies, a top-down approach was the most efficient for the economic transition. This will establish a supply chain between the different actors in an urban setting allowing for a smoother transition (Arruda et al., 2021). Skene (2022) criticises how CE is implemented as it differs in Europe and China. They respectively use a bottom-up and top-down approach. Winans Says both are needed for successful implementation. A comprehensive suite of policies in the form of grants, subsidies and financial aid could help ease financial burdens on businesses, help align stakeholder efforts and help the businesses to switch to CE (Tan, Tan, & Ramakrishna, 2022). Doussoulin (2020) mentions that a small wins theory might be applied by policymakers in order to create a larger impact on the environment quicker. This would be done by applying smaller reforms allowing them to cumulate faster than extensive policies. The CE concept is seen as a concept that can unify a lot of different sectors and organisations. With the research community often lagging a bit behind. Making it a model mainly formed by its approach in the industrial production sphere (J. Korhonen, Nuur, Feldmann, & Birkie, 2018). Most CE literature focuses on finding solutions for the production side of the economy. A literature review found that more research needed to be done on how to spread circular ideas, and it also found digitalisation to

be one of the main drivers of CE (Camacho-Otero, Boks, & Pettersen, 2018). Literature also suggests that CE needs sufficient support because of the highly uncertain environment companies are trying to move into. How customers react or behave in this newly established environment is uncertain, explaining why the current model is mainly linear (Lahti, Wincent, & Parida, 2018).

Goyal, Chauhan, and Mishra (2021) tried to identify the most influential institutions in CE research and identify critical drivers. It was found that there are four large groups. Regulatory requirements, market and competition, country academic and institutional and self-realisation. CE was also highlighted as an important research area during a bibliometric analysis in Luis and Celma (2020), where the most significant authors were found.

One of the main critiques of the CE concept is that its social dimension needs to be better developed, as seen in Figure 2. The CE concept often suffers from the fact that economic sustainability is given priority over environmental and social sustainability (Murray, Skene, & Haynes, 2017). The social benefits of implementing the CE concept are implicit; for example, life will improve because of better ecological conditions, more jobs or fair taxation and other assumptions. Meaning there are no set societal goals within this model. That is why researchers find that CE needs to start including a social objective in its goals (Geissdoerfer et al., 2017). Other models compared to CE, like the sharing economy, were found to have more robust social dimensions (Henry et al., 2021). Two of the most mentioned ways social sustainability is implemented are through employment or social equity. Still, the literature needs to be more conclusive in reaching this goal (Padilla-Rivera, Russo-Garrido, & Merveille, 2020). The paper by Geisendorf and Pietrulla (2018) tries redefining CE and discusses its zero-waste concepts. It acknowledges profitability as a desirable outcome but not a necessity of circular systems. It also argues that employment creation and other social benefits should not be a core part of circularity, which goes against much of the previous criticism.

Another paper discussed CE being a closed-loop system with a different resource utilisation method. They utilise a bibliometric analysis to discuss recent trends, a definition emphasising the systems approach and a need to involve stakeholders in the CE process to give it a social dimension. They define CE as a set of organisational rules and processes to deliver products (Alhawari, Awan, Bhutta, & Ali Ülkü, 2021).

Another point of contention within CE literature is the law of thermodynamics. It is impossible to have a truly circular economy where everything is continuously used in the cycle as energy will consistently be expended to utilise waste, as the use of waste will create new waste, increasing entropy. A small number of new resources will be needed; if the economy keeps increasing in scale, pollution will once again reach unsustainable levels (J. Korhonen, Honkasalo, et al., 2018). In combination with the rebound effect, this will create issues. The rebound effect happens when resource efficiency increases. Said resources will then experience a drop in price as we need fewer resources to produce products. These reduced prices will stimulate product demand as prices drop after the lowered resource prices. This increase in demand will drive up the total number of resources we need in the economy to meet demand. So if we do not curb the growth of demand in the end, the total amount of waste generated might exceed the amount we generate today. Ultimately, the

environment will not have benefitted from the switch to CE as waste generation keeps increasing. (Calisto Friant, Vermeulen, & Salomone, 2020). This is seen as an inherent problem for CE, which will be a big challenge to overcome (Sikdar, 2019).

Gardetti (2018) acknowledges the problem of thermodynamics as well. It identifies the waste generated during the production process as the most pressing. Advocating for increased design for reuse and repair to curb this waste generation.

Aguilar-Hernandez, Dias Rodrigues, and Tukker (2021) tries to map the changes in GDP employment and Co2 emissions suggested by literature in implementing CE on a macro scale. They use the selected criteria for assessing economic impact (GDP), social impact (job creation), and ecological impact (Co2 emissions). This also reinforces the idea of implicit social benefit via employment within CE. However, mainly, these papers emphasise an economic and environmental focus on reducing CO2 and increasing GDP. The CE concept is a criticism of the older linear economic model and has garnered attention from practitioners and policymakers alike. Aloini, Dulmin, Mininno, Stefanini, and Zerbino (2020) tried to find relevant drivers of success for CE doing so via a systematic literature review. Fourteen drivers were found and divided into 7 dimensions. With the most focus on increasing profit for the economy, creating jobs and complying with global pressure to be greener in society and global warming concerns in ecology (Aloini et al., 2020). (Gil-Lamata & Latorre-Martínez, 2022) Is a systematic review trying to serve as a foundation for future CE research, talking about CE and its context in specific sectors, drivers and challenges, and mentioning some of the 4Rs in its research and the zero waste idea.

Ghisellini, Cialani, and Ulgiati (2016) Is a worldwide literature review to try and understand if CE would solve environmental problems. The paper also concludes that much emphasis is placed on recycling and improving resource efficiency but also adds that the rebound effect decreases the potential benefits. Another paper states that the CE has an ecological pillar, as mentioned before. The CE attains this by reducing the consumption of finite resources from our biosphere. CE aims for an economic model with 0 waste. It is proposed that CE can inspire policy actions, societal and material needs are met by innovative systems, and CE contributes to sustainability's economic and environmental pillars. Redesigning the way materials flow to keep them as resources. CE was also found lacking in the social department of sustainability by Borrello, Pascucci, and Cembalo (2020). Ogunmakinde, Sher, and Egbelakin (2021) Identify the pillars of CE and find that all contribute to decreased pollution, Showing that CE is partially focused on environmental solutions. This focus on reducing waste and reusing resources focuses on the environmental pillar in its considerations. Scholars also tend to handle CE to harmonise economic growth with environmental issues and resource scarcity (Merli, Preziosi, & Acampora, 2018).

CE research is varied in that it is done on three different levels. Them being the Micro, Meso and Macro levels. The micro level refers to specific solutions that can be applied in a practical company, such as circular design business models. On the other hand, the macro sphere refers to a larger scale, general things like policy design and process modelling(Mahanty, Boons, Handl, & Batista-Navarro, 2019). The meso level is usually research and solutions for specific industries like manufacturing (Khitous, Strozzi, Urbinati, & Alberti, 2020). The difference lies mainly in the approach to implementing CE measures. On a macro level, this happens via policies that influence the economy

as a whole, whilst meso measures tend to target specific industries. Micro-level intervention occurs in the form of designing particular solutions for specific problems. These three levels are typically handled separately, and rarely is there research or an implementation on all three levels for CE (Khitous et al., 2020). These three approaches show how the CE literature can be based on localised solutions. Another paper looking into these three approaches is Heshmati (2017). Mahanty et al. (2019) highlights the evolution in CE research and shows that in 2014-2015, we see a change from Chinese macro research to mainly dominant European research on a micro level. This research change also shows CE's different approaches to its sustainability ideas.

Social economy:

One of the main themes of the SE is democratisation; All company members are included in the decision-making process. In this way, democratic control is established for company members (Shin, 2016). By establishing democratic control, the organisation will serve communities and individuals before capital and income distribution. This is a consequence of giving stakeholders like employees a voice in the organisation's economic activity and decision-making process. (Hudon & Huybrechts, 2017). This is a good way of empowering social change (Hudon & Huybrechts, 2017). This can be seen as the most common concept in the SE literature. Another reason for this is the participation of the socially excluded and giving far greater citizen participation within the economy (Shin, 2016).

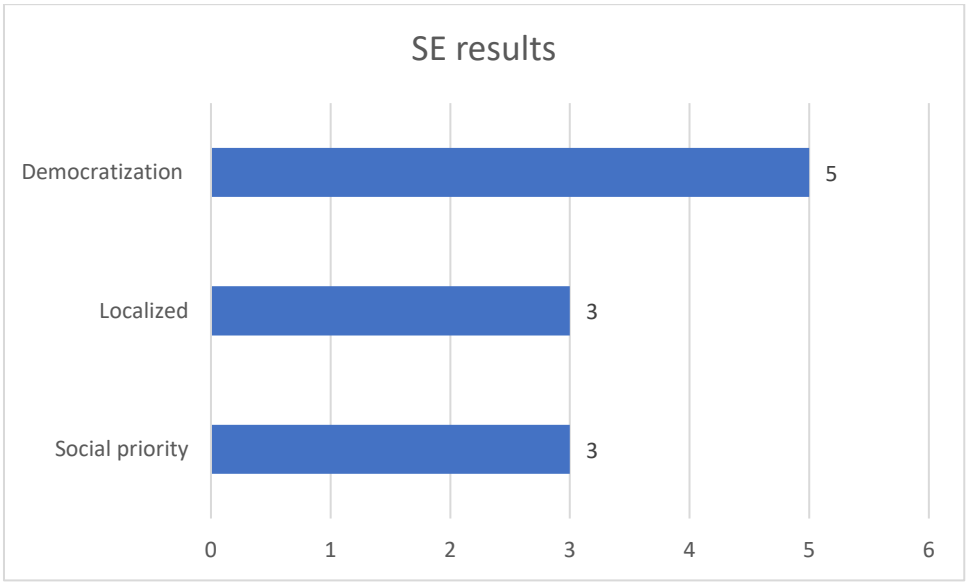


Figure 3: Democratization is about the number of papers discussing democratisation. Localised refers to the focus on localised solutions in local communities, SE papers offered to sustainability problems. Social priority stands for articles that discuss the SE'S tendency to serve communities and social needs within these communities before profit.

Another core approach of SE is localised solutions and participation in the economy and environment. As quoted by Shin (2016)"The social economy is relatively oriented more toward locality, reciprocity and participation." Because it often takes a bottom-up approach to sustainable development and considers local social and environmental issues. Its participatory model reinforces this, and cooperatives are the most common way social enterprises are structured, resulting in local and shared prosperity. Other options are less participatory, like social business and entrepreneurial associations (Bellemare, 2022). The SE also tries to consider the ecological pillar in its model. For example, the ground-up approach of the social economy also helps involve the local communities in energy transitions. This can be seen as a positive environmental influence (Hudon & Huybrechts, 2017). This is why it is also evident that, just like the CE, it considers ecological concerns. In Q1, we looked for similarities. The ecological pillar can be seen as one of those.

The social aims of enterprises active in the SE model have priority over specific profit-making incentives (Shin, 2016). However, when one of the main ideas is people over profit, one can ask if the SE properly considers the Economic pillar of sustainable development when creating its model. A challenge SE enterprises face when is reaching financial stability in the long term. An example is enterprises that rely heavily on subsidies or donations for their business model. If there is a decline in public support, in this case, the company will struggle financially. Revenue diversification is a priority for SE enterprises. This can happen by increasing revenue from trading activities and not relying on a single or a couple of influential customers/donors(Hudon & Huybrechts, 2017). Scaling up is also more challenging for SE enterprises; investors' financial expectations make it harder to access financing. Another reason is its participatory governance which becomes harder to retain when the enterprise grows (Hudon & Huybrechts, 2017).

Doughnut economics:

After screening, there was only one paper discussing the DE, which met all the criteria. This is also one of the limitations of our current research. However, we believe this is due to the limited research available about the Scopus topic, as shown in Figure 4. The number will decline even further after implementing a search query and inclusion criteria.

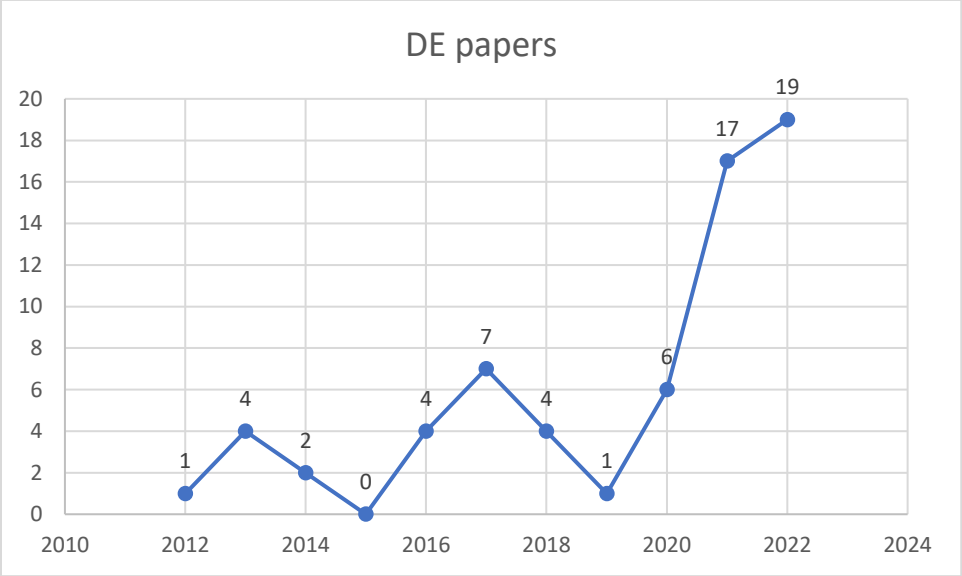


Figure 4: As we can see in this figure, between 2022 and 2012, there were only 66 results for the search terms Doughnut Economics and Doughnut economy

This model attempts to encompass all three drivers of sustainability by using the doughnut. Raworth uses 12 basic human needs representing the social aspect. Nine planetary boundaries represent the ecological pillar, and the space between can be seen as where all economic activity occurs (M. Wahlund & T. Hansen, 2022).

In the DE model, economic growth takes place between two layers. The social foundations wherein every person's necessities are met and the ecological ceiling represents the planet's capacity to regenerate from resource usage. The DE criticises the linear economic model because it does not consider these and perceives them as unsustainable. The DE focuses on allowing everyone to participate in everyday life on equal footing (M. Wahlund & T. Hansen, 2022).

Doughnut economics is a broad theoretical approach to help policymakers shape the future. It does this by providing conceptual tools and models that consider socioenvironmental problems. It advocates for a circular economy design where businesses strive for net zero impact or give back more than they take. Moving away from a conventional growth-based system is also a priority in the model. The conventional model is seen as insufficient to tackle the challenges of climate change and rising inequality. The model acknowledges that redistributive efforts are needed to curb inequality. Otherwise, the main benefactors of the transition would be the privileged. Therefore wealth redistribution is advised via various methods. An example would be redistributing wealth by investing

in long-term projects that benefit social and environmental issues, such as carbon-neutral housing. DE also acknowledges that the economy is embedded within the environment with its finite and renewable resources. Saying they are better collectively managed means that economic policy should try to include social and environmental unease into its model (M. Wahlund & T. Hansen, 2022).

Areas of similarities & differences

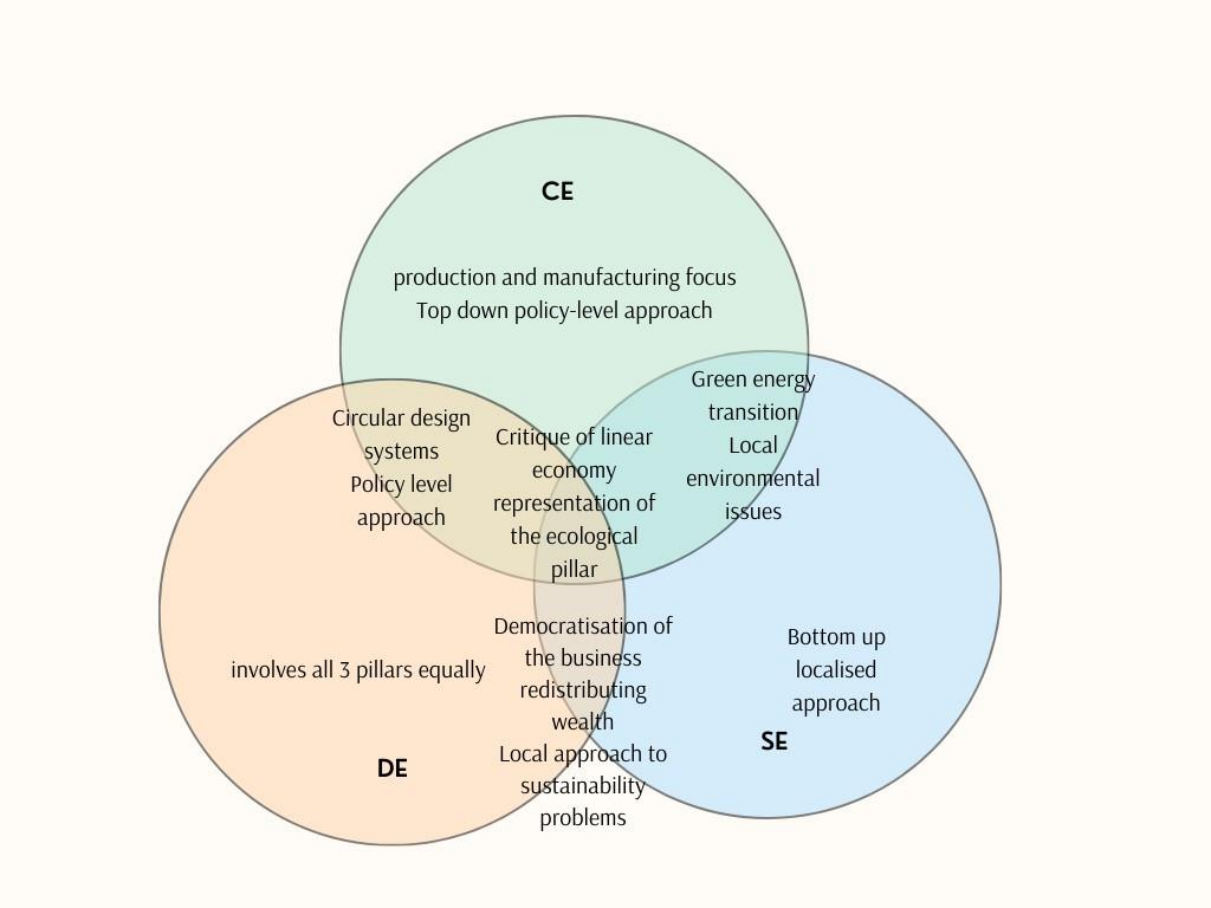


Figure 5: This figure visually represents the similarities and differences found in the models.

DE tries implementing circular design systems into its environmental concerns for a future economy. It shares a common ground for the economic and ecological solutions it tries to pursue with CE making them have significant areas of overlap (M. Wahlund & T. Hansen, 2022).

Another aspect DE, SE, and CE have in common is their criticism of the current linear economic growth model—both advocate for decoupling from continuous growth (M. Wahlund & T. Hansen, 2022).

SE and DE, then again, have their social goals in common. Both advocate for collective management and democratisation of the current business environment, making social equity a point on their agenda. They might have different means as SE tries to achieve this by heavily emphasising participation and to reduce the influence of capital. DE also tries to redistribute asset wealth but has less of an emphasis on participation. The DE emphasises regulation and taxation of the affluent as

the root problem, according to DE, is not income inequality but asset inequality (Madeleine Wahlund & Teis Hansen, 2022).

The CE and SE share common interests in environmental issues (Bellemare, 2022). This includes green energy transitions or localised environmental concerns, as mentioned in the results phase.

DE utilises both local approaches and approaches on a policy-making level when appropriate (M. Wahlund & T. Hansen, 2022). SE is also rooted in a local approach and has this in common with the DE (Hudon & Huybrechts, 2017). On the other hand, CE has a policy-making level approach in its implementation of CE (Mahanty et al., 2019).

Where the SE tries to solve environmental issues locally(Bellemare, 2022), CE focuses more on optimising the manufacturing process, which can be something other than a local application for solving environmental problems (Kirchherr, Reike, & Hekkert, 2017). On the other hand, this also does not rule out local models existing within the CE concept, allowing for future cooperation between the models.

Another difference observed between CE and SE is that CE efforts often come from policymakers and businesses(Arruda et al., 2021), whereas the efforts of SE are often more localised (Shin, 2016).

Advantages

The DE differs from other models because it might be the only paradigm involving all three pillars in its model (M. Wahlund & T. Hansen, 2022).

SE and CE focus on localised production and manufacturing with advice for practitioners (Camilleri, 2018). DE, In contrast, is a broader theoretical attempt to help policymakers rethink their conceptions of economic development(M. Wahlund & T. Hansen, 2022).

The advantage of CE is its potential for significant economic benefits and the clear focus on the 4R concept attracting businesses and policymakers alike, as was found in Kirchherr et al. (2017), and J. Korhonen, Honkasalo, et al. (2018). CE can realise this with cost-saving measures. Examples include reduced waste disposal costs and buying virgin materials (Sinha, 2022). Meanwhile, SE has a robust social dimension allowing for the reduction in inequality and building on the social pillar of sustainability,

Shortcomings

As found in the results, CE as a concept tries actively to promote sustainability via the economic and ecological pillars. However, it needs to be more active in the social aspect of the sustainability idea (Murray et al., 2017). In contrast, the SE actively advances sustainability via the sustainability paradigm's social and environmental pillars. The economic pillar is often seen as of lesser concern in the SE (Hudon & Huybrechts, 2017). On the other hand, SE lacks an economic dimension, as social enterprises can rely on donations and subsidies. Another disadvantage SE has is inherent in its participatory model alongside difficulties getting funding because of market expectations on return

investment. Because of this, scaling up becomes more complex (Hudon & Huybrechts, 2017). We could see this as its shortcoming. Both these models are criticised for these gaps in their sustainability paradigms.

While DE might give lots of fitter economic practices and inspiring alternatives to the social problems we face. It does not give examples of an appropriate mix of policies or how they should be led to stop social polarisation. The same can be seen in her approach to wealth distribution, which is much broader than specific, as argued in the areas of similarity and differences.

Conclusion:

This research aimed to find similarities, differences, advantages and shortcomings of the CE, SE and DE. When we look at similarities between the models (Q1), we can see an overlap between all models as SE, CE, and DE try to account for environmental issues. Although in different ways for SE and CE. DE finds common ground with CE in decoupling from the linear economy and using circular design models. DE also finds common ground with SE. Whilst it also advocates for democratisation and redistribution of wealth as SE does. We can see that the DE utilises some of the advantages of each model to consider all 3 pillars of sustainability equally. Possible avenues of cooperation exist for the three models in the environmental pillar. An example would be a local cooperative active in the production sector utilising CE to decrease resource usage and pollution. Another area of common interest is the transformative view of society, as all 3 models accept that the status quo is unsustainable. We suggest further research into possible cooperation between the models on these issues.

In Q2, we asked about the differences between the different models. We found that DE is the only model truly accounting for all 3 pillars of the sustainability paradigm. We also found that SE focuses on people and planet, whereas CE concentrates heavily on the profit and planet aspect of the three P's.

This brings us to the shortcomings of the models (Q3). We identified a lack of attention to the profit pillar for SE. This hurts SE because it might not meet investor expectations meaning it struggles to get funding. For CE, we found that the implicit social benefit of creating jobs and a better environment is insufficient to account for the people pillar in the sustainability paradigm.

Whereas each model was found to have shortcomings, they each also held their advantages (Q4). In contrast to SE, CE was found to be very attractive to policymakers and businesses because of its economic benefits. SE's comprehensive research and ideas on alleviating Social issues were far greater than CE's.

The weaknesses of SE tend to be the strengths of CE and the other way around. Therefore seeking cooperation between these models might help alleviate some of their shortcomings. DE had many examples of better policies and was a theoretical toolbox for setting policies. It uses methods from both CE and SE in its model, making it a possible guideline for harmonising both CE and SE. Both of whom have advice and research for practitioners.

Bibliography

Aguilar-Hernandez, G. A., Dias Rodrigues, J. F., & Tukker, A. (2021). Macroeconomic, social and environmental impacts of a circular economy up to 2050: A meta-analysis of prospective studies. *Journal of Cleaner Production, 278*. doi:10.1016/j.jclepro.2020.123421

Alhawari, O., Awan, U., Bhutta, M. K. S., & Ali Ülkü, M. (2021). Insights from circular economy literature: A review of extant definitions and unravelling paths to future research. *Sustainability (Switzerland), 13*(2), 1-22. doi:10.3390/su13020859

Aloini, D., Dulmin, R., Mininno, V., Stefanini, A., & Zerbino, P. (2020). Driving the transition to a circular economic model: A systematic review on drivers and critical success factors in circular economy. *Sustainability (Switzerland), 12*(24), 1-14. doi:10.3390/su122410672

Arruda, E. H., Melatto, R. A. P. B., Levy, W., & Conti, D. D. M. (2021). Circular economy: A brief literature review (2015–2020). *Sustainable Operations and Computers, 2*, 79-86. doi:10.1016/j.susoc.2021.05.001

Bellemare, M.-F. (2022). Synergizing Social Economy and Circular Economy. *Canadian Journal of Nonprofit and Social Economy Research, 13*(1), 5. doi:10.29173/cjnser591

Borrello, M., Pascucci, S., & Cembalo, L. (2020). Three propositions to unify circular economy research: A review. *Sustainability (Switzerland), 12*(10). doi:10.3390/SU12104069

Bouchard, M. J. (2012). Social innovation, an analytical grid for understanding the social economy: The example of the Québec housing sector. *Service Business, 6*(1). doi:10.1007/s11628-011-0123-9

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*. doi:10.1016/j.resconrec.2020.104917

Camacho-Otero, J., Boks, C., & Pettersen, I. N. (2018). Consumption in the circular economy: A literature review. *Sustainability (Switzerland), 10*(8). doi:10.3390/su10082758

Camilleri, M. A. (2018). Closing the loop for resource efficiency, sustainable consumption and production: A critical review of the circular economy. *International Journal of Sustainable Development, 21*(1-4), 1-17. doi:10.1504/IJSD.2018.100802

Camilleri, M. A. (2019). The circular economy's closed loop and product service systems for sustainable development: A review and appraisal. *Sustainable Development, 27*(3), 530-536. doi:10.1002/sd.1909

Chaves Ávila, R., & Monzón Campos, J. L. (2018). La economía social ante los paradigmas económicos emergentes: innovación social, economía colaborativa, economía circular, responsabilidad social empresarial, economía del bien común, empresa social y economía solidaria. *CIRIEC-España, revista de economía pública, social y cooperativa*(93), 5. doi:10.7203/ciriec-e.93.12901

Deselnicu, D. C., Militaru, G., Deselnicu, V., Zăinescu, G., & Albu, L. (2018). *Towards a circular economy–a zero waste programme for Europe.* Paper presented at the Proceedings of the 7th International Conference on Advanced Materials and Systems, Bucharest, Romania.

Directive, E. (2008). Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. *Official Journal of the European Union L, 312*(3), 22.

Doussoulin, J. P. (2020). A paradigm of the circular economy: the end of cheap nature? *Energy, Ecology and Environment, 5*(5), 359-368. doi:10.1007/s40974-019-00145-2

Gardetti, M. A. (2018). Introduction and the concept of circular economy. In *Circular Economy in Textiles and Apparel: Processing, Manufacturing, and Design* (pp. 1-11).

Geisendorf, S., & Pietrulla, F. (2018). The circular economy and circular economic concepts—a literature analysis and redefinition. *Thunderbird International Business Review, 60*(5), 771-782. doi:10.1002/tie.21924

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production, 143*, 757-768. doi: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. doi:10.1016/j.jclepro.2015.09.007

Ghosh, S. K. (2019). Introduction to circular economy and summary analysis of chapters. In *Circular Economy: Global Perspective* (pp. 1-23).

Gil-Lamata, M., & Latorre-Martínez, M. P. (2022). The Circular Economy and Sustainability: A Systematic Literature Review. *Cuadernos de Gestion, 22*(1), 129-142. doi:10.5295/CDG.211492MG

Goyal, S., Chauhan, S., & Mishra, P. (2021). Circular economy research: A bibliometric analysis (2000–2019) and future research insights. *Journal of Cleaner Production, 287*. doi:10.1016/j.jclepro.2020.125011

Henry, M., Schraven, D., Bocken, N., Frenken, K., Hekkert, M., & Kirchherr, J. (2021). The battle of the buzzwords: A comparative review of the circular economy and the sharing economy concepts. *Environmental Innovation and Societal Transitions, 38*, 1-21. doi:10.1016/j.eist.2020.10.008

Heshmati, A. (2017). A review of the circular economy and its implementation. *International Journal of Green Economics, 11*(3-4), 251-288. doi:10.1504/IJGE.2017.089856

Hudon, M., & Huybrechts, B. (2017). FROM DISTANT NEIGHBOURS TO BEDMATES: EXPLORING THE SYNERGIES BETWEEN THE SOCIAL ECONOMY AND SUSTAINABLE DEVELOPMENT. *Annals of Public and Cooperative Economics, 88*(2), 141-154. doi:10.1111/apce.12170

Khitous, F., Strozzi, F., Urbinati, A., & Alberti, F. (2020). A systematic literature network analysis of existing themes and emerging research trends in circular economy. *Sustainability (Switzerland), 12*(4). doi:10.3390/su12041633

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling, 127*, 221-232. doi:10.1016/j.resconrec.2017.09.005

Korhonen, J. (2018). Circular Economy: The Concept and its Limitations. *Ecological Economics, 143*, 37-46. doi:https://doi.org/10.1016/j.ecolecon.2017.06.041

Korhonen, J., Honkasalo, A., & Seppälä, J. (2018). Circular Economy: The Concept and its Limitations. *Ecological Economics, 143*, 37-46. doi:10.1016/j.ecolecon.2017.06.041

Korhonen, J., Nuur, C., Feldmann, A., & Birkie, S. E. (2018). Circular economy as an essentially contested concept. *Journal of Cleaner Production, 175*, 544-552. doi:10.1016/j.jclepro.2017.12.111

Lahane, S., Prajapati, H., & Kant, R. (2021). Emergence of circular economy research: a systematic literature review. *Management of Environmental Quality: An International Journal, 32*(3), 575-595. doi:10.1108/MEQ-05-2020-0087

Lahti, T., Wincent, J., & Parida, V. (2018). A definition and theoretical review of the circular economy, value creation, and sustainable business models: Where are we now and where should research move in the future? *Sustainability (Switzerland), 10*(8). doi:10.3390/su10082799

Luis, E. C., & Celma, D. (2020). Circular economy. A review and bibliometric analysis. *Sustainability (Switzerland), 12*(16). doi:10.3390/SU12166381

Luukkanen, J. (2021). Quantification of Doughnut Economy with the Sustainability

Window Method: Analysis of Development in Thailand. *Sustainability (Switzerland), 13*(2), 18. Retrieved from https://www-scopus-com.bib-proxy.uhasselt.be/record/display.uri?eid=2-s2.0-85099816014&origin=resultslist&sort=cp-f&src=s&st1=doughnut+economy&nlo=&nlr=&nls=&sid=b0b29f46c5138fc20578979b57e0bb0a&sot=b&sdt=cl&cluster=scopubyr%2c%222022%22%2ct%2c%222021%22%2ct%2c%222020%22%2ct%2c%222018%22%2ct%2c%222017%22%2ct&sl=31&s=TITLE-ABS-KEY%28doughnut+economy%29&relpos=4&citeCnt=6&searchTerm=

MacArthur, E. (2013). Towards the circular economy. *Journal of Industrial Ecology, 2*(1), 23-44.

Mahanty, S., Boons, F., Handl, J., & Batista-Navarro, R. (2019) Studying the Evolution of the 'Circular Economy' Concept Using Topic Modelling. In*: Vol. 11872 LNCS. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* (pp. 259-270).

Markard, J. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy, 41*(6), 13. doi:10.1016/j.respol.2012.02.013

Merli, R., Preziosi, M., & Acampora, A. (2018). How do scholars approach the circular economy? A systematic literature review. *Journal of Cleaner Production, 178*, 703-722. doi:10.1016/j.jclepro.2017.12.112

Meseguer-Sánchez, V., Gálvez-Sánchez, F. J., Molina-Moreno, V., & Wandosell-Fernández-de-Bobadilla, G. (2021). The Main Research Characteristics of the Development of the Concept of the Circular Economy Concept: A Global Analysis and the Future Agenda. *Frontiers in Environmental Science, 9*. doi:10.3389/fenvs.2021.704387

Mirzyńska, A., Kosch, O., Schieg, M., Šuhajda, K., & Szarucki, M. (2021). Exploring concomitant concepts in the discussion on the circular economy: A bibliometric analysis of web of science, scopus and twitter. *Technological and Economic Development of Economy, 27*(6), 1539-1562. doi:10.3846/tede.2021.15801

Morales, M. E., Batlles-Delafuente, A., Cortés-García, F. J., & Belmonte-Ureña, L. J. (2021). Theoretical research on circular economy and sustainability trade-offs and synergies. *Sustainability (Switzerland), 13*(21). doi:10.3390/su132111636

Murray, A., Skene, K., & Haynes, K. (2017). The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. *Journal of Business Ethics, 140*(3), 369-380. doi:10.1007/s10551-015-2693-2

Ogunmakinde, O. E., Sher, W., & Egbelakin, T. (2021). Circular economy pillars: a semi-systematic review. *Clean Technologies and Environmental Policy, 23*(3), 899-914. doi:10.1007/s10098-020-02012-9

Padilla-Rivera, A., Russo-Garrido, S., & Merveille, N. (2020). Addressing the social aspects of a circular economy: A systematic literature review. *Sustainability (Switzerland), 12*(19). doi:10.3390/SU12197912

Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. *Sustainability Science, 14*(3), 681-695. doi:10.1007/s11625-018-0627-5

Raworth, K. (2017). *Doughnut Economics. Seven ways to think like a 21st-Century Economist* (R. Hartmans, Trans.): Random House Business Books.

Ross, F. (2019). Kate Raworth - Doughnut Economics: Seven Ways to Think Like a 21st Century Economist (2017). *Regional and Business Studies, 11*(2). doi:10.33568/rbs.2409

Schöggl, 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*. doi:10.1016/j.resconrec.2020.105073

Shin, C. (2016). A conceptual approach to the relationships between the social economy, social welfare, and social innovation. *Journal of Science and Technology Policy Management, 7*(2), 154-172. doi:10.1108/JSTPM-08-2015-0027

Sikdar, S. (2019). Circular economy: Is there anything new in this concept? *Clean Technologies and Environmental Policy, 21*(6), 1173-1175. doi:10.1007/s10098-019-01722-z

Sinha, E. (2022). Circular economy—A way forward to Sustainable Development: Identifying Conceptual Overlaps and Contingency Factors at the Microlevel. *Sustainable Development, 30*(4), 771-783. doi:10.1002/sd.2263

Skene, K. R. (2022) The Circular Economy: A Critique of the Concept. In*. CSR, Sustainability, Ethics and Governance* (pp. 99-116).

Tan, J., Tan, F. J., & Ramakrishna, S. (2022). Transitioning to a Circular Economy: A Systematic Review of Its Drivers and Barriers. *Sustainability (Switzerland), 14*(3). doi:10.3390/su14031757

Tóth, G. (2019). Circular economy and its comparison with 14 other business sustainability movements. *Resources*(4). doi:10.3390/resources8040159

Wahlund, M., & Hansen, T. (2022). Exploring alternative economic pathways: a comparison of foundational economy and Doughnut economics. *Sustainability: Science, Practice and Policy, 18*(1), 171-186. doi:10.1080/15487733.2022.2030280

Wahlund, M., & Hansen, T. (2022). Exploring alternative economic pathways: a comparison of foundational economy and Doughnut economics. *Sustainability: Science, Practice, and Policy, 18*(1), 171-186. doi:10.1080/15487733.2022.2030280

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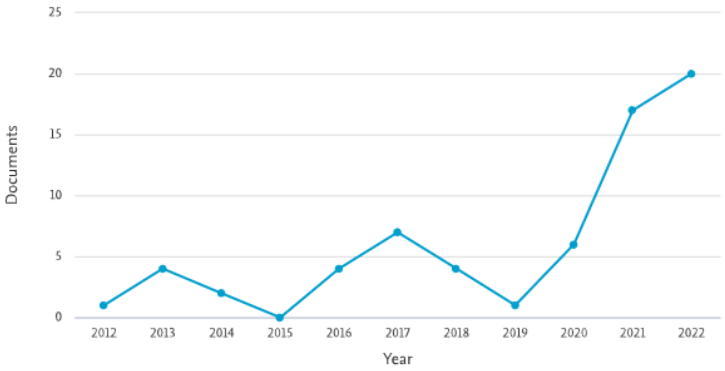
2013	4

Documents by year



TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012))

19.586 document results

Select year range to analyze: 2012 to 2022 Analyze

Year ↓	Documents ↑
2021	5009
2020	3258
2019	2147
2018	1334
2017	766
2016	371
2015	156
2014	153
2013	104
2012	99

Documents by year