Sustainable Production and Consumption 51 (2024) 474–483

Contents lists available at ScienceDirect

Sustainable Production and Consumption

journal homepage: www.elsevier.com/locate/spc

Circular economy and the separated yet inseparable social dimension: Views from European circular city experts

Kang Liu

University of Jyväskylä, Kokkolan yliopistokeskus Chydenius, Jyväskylä, Finland

ARTICLE INFO

Editor: Prof Pasquale Marcello Falcone

Keywords:
Circular economy
Social dimension
Sustainable development
Social work
Circular city
Europe

ABSTRACT

Circular economy has received significant attention worldwide for its potential to reconcile ecological limits and economic development. Europe, in particular, has made it a policy focus for achieving its climate ambitions. However, to date, the circular economy remains a loosely defined concept with competing discourses of technocentrism and holistic societal transformation. As the former prevails, its neglect of the social dimension raises concerns about the circular economy's social sustainability and feasibility. Therefore, this study explores how the relationship between the circular economy and the social dimension is perceived by experts directly engaged in the current circular transition process. By uncovering their experiences and perceptions, this study aims to offer empirical insights for the future development of the circular economy. Through qualitatively exploring the views of 14 experts across 11 European cities with a clear circular vision, this study found that although the social dimension is not a primary focus or fundamentally connected with the circular economy, it plays a fundamental role in the transition process and is simultaneously an impacted area. However, there is a significant gap between the ideal social environment required for circular transition and what the current transition can facilitate. As such, the future of the circular economy may be precarious unless it shifts from a technocentric tendency to more holistic, transformational approaches.

1. Introduction

Circular economy (CE) has become a central concept in discussions about sustainable development and the green transition, gaining increasing attention from stakeholders worldwide. Although there is no universally accepted definition, CE is generally understood as a shift from the traditional linear model of 'take-make-waste' to an economy that is regenerative, restorative, and renewable, driven by principles such as recycling, reusing, and repairing (Alizadeh et al., 2023). However, while the economic and environmental potentials of the transition are explicitly reflected in such notions, its relationship with the social dimension has been inadequately explored both theoretically and practically (Kirchherr et al., 2017; Kristensen and Mosgaard, 2020). This gap is particularly evident in Europe, where CE policies at the European Commission and member state levels focus heavily on resource efficiency and economic growth through technological innovations, primarily in recycling and waste management (Alberich et al., 2023; Brusselaers and Gillabel, 2024).

Neglecting the social dimension not only undermines the three-pillar perspective of sustainability but also risks unintended consequences and trade-offs between environmental, economic, and social outcomes (e.g., Chen et al., 2023; World Health Organization, 2018, 2023). More importantly, an overemphasis on technology without considering social reforms may perpetuate and even exacerbate existing inequalities, leading to issues of justice and equity (De Oliveira, 2021; Hartmann et al., 2022). The importance of the relationship between CE and the social dimension does not stem solely from CE's social impacts. Since the transition is rooted in societal changes that involve paradigm shifts in values, cultures, laws, societal structures, and other social norms, the social dimension is also pivotal to CE's success (Mies and Gold, 2021; Moreau et al., 2017; Prieto-Sandoval et al., 2018). Therefore, to ensure that CE entails smooth and just transitions, the relationship between CE and the social dimension demands further exploration, and understanding the experiences and perspectives of frontline experts is a crucial step. This exploration is particularly relevant to social work, a transdisciplinary field not only committed to social cohesion, inclusion, and human well-being but also prioritizing sustainable social change and development over economic growth (International Federation of Social Workers (IFSW), 2014).

Among the various approaches to CE, this study chose the recent

E-mail address: kang.kl.liu@jyu.fi.

https://doi.org/10.1016/j.spc.2024.09.016
Received 24 June 2024; Received in revised form 17 September 2024; Accepted 22 September 2024
Available online 30 September 2024

circular city (CC) initiatives in Europe to explore the relationship between CE and the social dimension for several reasons. Cities, which are home to the majority of Europe's population, are directly impacted by various environmental and social pressures. This makes a meaningful and successful transition in cities essential for achieving a sustainable agenda. Moreover, cities serve as a crucial link between citizens and different levels of governance and are expected to embody a holistic circular approach that goes beyond the sum of urban circular activities (Deutz et al., 2024; Turcu and Gillie, 2020). Additionally, compared to other stakeholders, municipalities have multiple identities when engaging with various parties, including citizens, businesses, and other public institutions. This enables them to offer comprehensive and irreplaceable insights into understanding the relationship between CE and the social dimension. By exploring how various social factors interact with the circular transition from the perspective of CC experts, this study reveals the challenges, risks, and opportunities associated with one of Europe's most highly valued transitions. As a topic that has been marginalized within the CE field, this study also provides valuable empirical evidence to inform both the theoretical and practical development of future CE initiatives.

This article is structured as follows: Section 2 introduces the theoretical background, relevant studies, and the research gap in the current literature; Section 3 describes the method adopted for the study; Section 4 presents the results of the analysis; Section 5 discusses the findings in relation to previous research and outlines the implications for future research, policy, and practice; finally, Section 6 presents the conclusion.

2. Literature review

This section explains the contextual understanding of CE and the social dimension, then introduces how the relationship between them has been reflected through existing literature, highlighting the research gap that this paper intends to address.

2.1. Contested circular economy and the unique role of the social dimension

Despite its popularity, CE, as a developing concept still has numerous interpretations. In some of the most representative efforts at conceptual clarification, Kirchherr et al. (2017, 2023) identified hundreds of CE definitions from both academic and grey literature, with the majority prioritizing economic prosperity and environmental quality through improved resource efficiency, while often neglecting the social dimension—whether in principles, goals, or strategies. Although this quantitative aspect of CE is evident, the continuously growing number of definitions over the past few years suggests that consensus is unlikely to be reached in the near future. This may be because CE has been primarily driven by practitioners rather than academically developed, with its meaning built on a fragmented mix of ideas drawn from various actors, disciplines and semi-scientific theories (Korhonen et al., 2018a; Shivarov, 2020). More importantly, since CE is driven by diverse stakeholders with a wide range of interests, priorities, and preferences, it needs to be understood as an essentially contested concept rather than a fully developed new paradigm at this stage (Korhonen et al., 2018b).

Friant et al. (2020) acknowledged the various schools of thought behind the CE debates and identified distinct discourses that can be classified as CE or circular society. While the former is narrowly defined and predominantly emphasizes resource efficiency through technological solutions, the latter represents a more holistic and politicized approach. This transformative perspective integrates societal structures such as wealth, power, and knowledge as fundamental components of circular transformations, rather than confining circulation solely to material and energy flows. Genovese and Pansera (2020) further points out CE is at a crossroads of technocratic eco-modernism, or social revolution enabled by more critical reflections of the governance of science and innovation as well as the hierarchies in the current economic system. For instance, while a technocratic and depoliticalized CE focuses on more efficient production without questioning the underline growth paradigm, a more fundamental transformation would encourage democratically rethinking what should be produced and why. Similarly, James (2022) urges CE to confront the critics associated with its neoliberal framing and to be embedded in circles of social life including the issues of justice and social meaning. On the one hand, these features of CE discourses demonstrate the vitality and transformative potential represented by the term. On the other hand, the contested interpretations and conflicting ideologies behind the same concept make it unfeasible to investigate CE as a predetermined concept. Rather, it may be critical to consider CE as a term subject to individual stakeholders' interpretations.

The existing theoretical exploration of CE reveals the unique and contradictory position of the social dimension. While social-related topics are generally marginalized in CE discourse, they are a core point of divergence in how different stakeholders envision, define, and plan to develop the concept. Although this highlights the importance of understanding the relationship between CE and the social dimension, determining the scope of latter remains challenging. This difficulty arises from varied perspectives and focuses across different disciplines. For instance, from a business perspective, customer satisfaction might be considered a social aspect, whereas in social work, social topics could include systemic injustice, discrimination, family dynamics, and individual well-being. The distinct understandings from different disciplines of the same term originate from different practices and goals of respective disciplines, implying potential challenges for communication and common understanding. However, for CE to be a truly transdisciplinary topic that has sustainability potentials, exploratory attitude and mutual learning is essential.

Challenges in defining the social dimension also stem from fundamental differences in CE understandings. When CE is viewed through a technocentric lens focused on resource efficiency, social elements are often seen as external or separate, such as necessary conditions for 'closing the loop' or areas potentially benefiting from the process. In this narrowly focused circular thinking, limited attention has been paid to the social dimension, and, more importantly, individuals are often afforded only restricted roles as consumers and recyclers in the so-called systematic shift of the economy, while the relevance of more complex social relationships is neglected in order to protect the wider neoliberal capitalism structure (Niskanen and McLaren, 2021; Zwiers et al., 2020). Conversely, a transformative perspective on CE integrates socio-political aspects as intrinsic parts of the process, valuing social topics like inclusion and equity as integral components of circular changes. Meanwhile, culture, governance and other social factors play critical roles in CE, regardless of the specific discourse it relates to. Therefore, to fully explore the relationship between CE as a contested concept and its relationship with the social dimension, the latter should not be narrowly defined but rather encompass elements from various angles to allow for more open exploration.

2.2. Circular economy and the social dimension: public perspectives and evidence

Although different CE visions and the corresponding role of social dimension has been critically explored from a theoretical perspective, the stakeholders outside of academia seem to be less concerned by the debates. An investigation of young people in Finland shows CE is largely perceived as recycling and reusing activities (Korsunova et al., 2021). Similar findings were also observed among public groups in Saudi Arabia (Almulhim & Abubakar, 2021), multiple stakeholders in Uganda (Geme et al., 2023) and in Australia (Ho et al., 2023). Analysis of CE contents in social media further reveals that the reductionist perspective of CE, focusing on resource efficiency improvement through a few 'R' strategies, may not be limited to certain groups or countries but could represent a major trend in mainstreaming technocentric CE (De Lima,

2022; Mastroeni et al., 2023). Therefore, the social dimension does not seem to be a prominent focus among public's understanding of CE. Possibly due to their unique position, the opinions from the public sector, especially local government, seem to demonstrate a more transformative and holistic view implying radical social changes when compared to those from other stakeholder groups such as academia, industry, and business, even though they share similar technocentric focuses (Arai et al., 2023; Friant et al., 2021; Van Langen et al., 2021).

However, a deeper investigation of the CE situation in European cities reveals only limited evidence of social transformation. Kębłowski et al. (2020) focused on specific sectors in Brussels—food and transport—and found that local institutions mainly framed CE in a way that enhances existing territorialised elite interests, serving entrepreneurial actors and corporate interests. Similar findings also emerged from the Swedish city Gothenburg, where Rask (2022) found that CE measures still presume citizens to be rational consumers who react to economic logic rather than considering them as people within complex political and social contexts. Additionally, while social justice is considered on a global and intergenerational scale, local and intragenerational aspects are often missing. However, Friant et al. (2023), in comparing CE policies from three cities in Europe, identified varying levels of social awareness. Importantly, even in a city explicitly acknowledging the importance of social justice and equity, CE was perceived primarily as a means for social, technical, and economic innovations aimed at decoupling the economy from the environment, rather than as an opportunity for radical transformations in economic and political systems. This indicates that, despite certain levels of awareness among European cities regarding the connection between CE and the social dimension, there is still a tendency to neglect or avoid engaging with more fundamental socioeconomic relationships.

Although there is a general lack of transformative social vision and engagement connected to CE, some European cities have integrated principles of social equity and inclusion into their more practical CE activities, for instance in encouraging community-led initiatives, improving the accessibility of city services, and offering opportunities and spaces for sharing economy (Bolger and Doyon, 2019; Prendeville et al., 2018). However, few studies have examined the social impacts of transition measures, regardless of the level of social integration, and even fewer have focused on European cities (Vanhuyse et al., 2021). Vanhuyse et al. (2022) partially addressed this gap by investigating the social impacts of CE practices in a Swedish city. They found that CE initiatives often lead to mixed social outcomes, such as an increase in employment accompanied by precarious working conditions. Furthermore, they observed that certain CE activities can have unforeseen social consequences, influenced by social norms and individual status. However, their study also highlighted a dearth of attention on the negative and unintended effects of CE, as well as the importance of civil society involvement and citizen engagement. These findings suggest a potentially problematic future or limited potential for the social dimension of the circular transition. However, it remains unclear whether this is a unique case or a common situation, and whether the existing levels of social awareness and reflections among key stakeholders in cities are sufficient to address these challenges.

2.3. Research gaps and this study

Overall, while CE is a popular yet contested concept that reflects diverse interest, preferences and even ideologies, the social dimension is a crucial point of contention regarding how CE should be envisioned and developed in the future. Though some research suggests that local governments exhibit relatively more interest in a transformative direction involving social reform, evidence in practice remains scarce, and the social dimension is still largely neglected in the cities investigated by existing studies. With different cities displaying varying levels of social consideration and some CE activities showing mixed social impacts, there is a pressing need for a deeper understanding of how the social dimension manifests in the circular transition across various European cities. Additionally, it is unclear how the experts directly involved with this contested concept, as well as the diverse interest groups, perceive the dynamics between CE and the social dimension. Addressing these gaps will not only enhance more comprehensive understanding of the potentials and limitations of the current circular transition but also provide valuable empirical evidence to guide the future theoretical and practical development of CE. Therefore, this paper answers the research question: What is the perspective of European circular city experts on the relationship between the social dimension and circular economy? The next section depicts the methods and design of the study.

3. Material and method

To address this question, the signatories of the *European Circular City Declaration* (Circular City Declaration, n.d.) were selected for investigation. Although many cities in Europe have expressed circular ambitions or implemented various plans, the declaration offered a relatively unified vision for a transition filled with distinct approaches, which offers a clear standard for selection. Compared to many other versions of the concept, the CC definition presented in the declaration also seems to have improved the social dimension through stressing human well-being and social justice as part of the goals for CE, indicating more possibilities for exploring the topic. Sixty-nine cities from more than 22 countries across Europe have signed the declaration, a number that has been expanding during the preparation and data collection period of the study. The full list is available and updated on the declaration website (Circular City Declaration, n.d.).

The recruitment of participants and data collection posed both ethical and practical challenges. On one hand, there was no prior estimation of the potential response or participation rate. On the other hand, it was important to avoid the risk of over-recruitment by contacting too many cities simultaneously. To address these challenges, a multi-step recruitment strategy was employed, adjusting to the research needs and response rates (see Fig. 1 for details).

Initially, two cities from different countries were selected for convenience, serving as a pilot study to assess the relevance and appropriateness of the interview questions. In the first official recruitment stage, the goal was to gather diverse opinions from different regions while minimizing selection bias. Cities were randomly selected from each country using an online random selector; if a country had only one signatory city, that city was automatically included. After city selection, the Circular City Declaration website and individual city websites were searched to identify relevant experts. Invitation emails introducing the study's background, purpose, method, and other details were sent to specific individuals or departments. If no experts could be identified, emails were sent to general city offices or departments requesting assistance in locating the appropriate contacts. For cities that did not respond, a two-week follow-up period was applied, followed by an additional two weeks before excluding non-responding cities. For experts who expressed interest in participating, recruitment documents—including the Research Notification, Consent Form, Privacy Notice, and a sample of interview questions—were sent. Online meetings were then arranged after their agreement.

Due to the low response rate, the aforementioned process was repeated for countries with multiple signatory cities until more than two-thirds of all signatories had been reached (Stage 2, indicated by green cells in Fig. 1). Since responses remained limited after Stage 2, all remaining cities that had signed the declaration were subsequently contacted (Stage 3).

A total of 14 participants from 11 cities in nine countries across Europe agreed to participate in the study, nine females and five males. There was one participant from Eastern Europe, three from Southern Europe, and five each from Western and Northern Europe. The cities vary in size from small municipalities to capitals. In terms of population, two have populations under 100,000, three have populations ranging

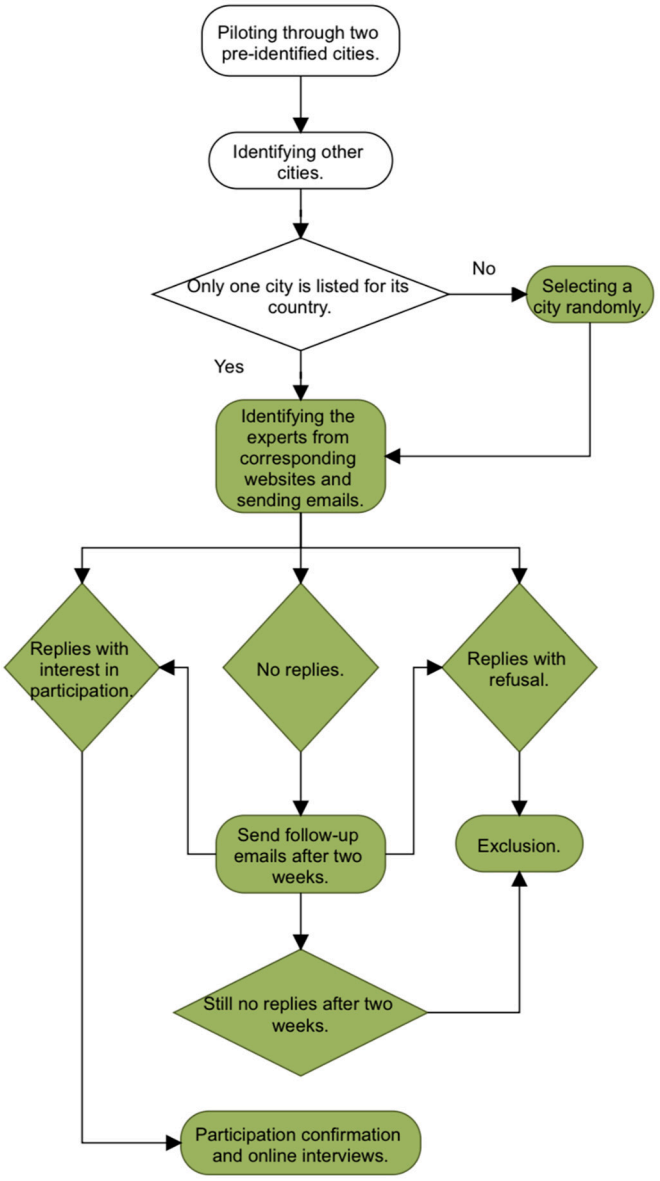

Fig. 1. The recruitment and data collection process.

from 100,000 to 250,000, three have populations between 250,000 and 500,000, and three have more than half a million inhabitants. All the participants work directly or indirectly with local governments, generally holding a leadership or specialist role in the circular transition of their respective cities. Although each city has distinct approaches to circular transition, most interviewed CE experts work with diverse stakeholders from various fields, while a few focus more on specific areas of practice. Table 1 presents the details of participants.

As mentioned, a sample of interview questions was sent to the participants before the interviews to help them better understand the context. The questions mainly consist of three parts: 1) Theoretical understanding of CE; 2) The practical situation of circular transition in each city; and 3) Envisioning the future transition. Qualitative data was collected through semi-structured interviews conducted though Zoom and Teams online meetings, with one exception, where the participant answered the questions in writing because they were unavailable for the meeting. The interviews lasted from 60 to 120 min. All interviews were recorded with participants' permission and transcribed for analysis. The transcripts ranged from 10 to 26 pages each, with a total combined length of 209 pages. All the data was processed and stored in line with our institution's data management protocol to protect the confidentiality of participants.

Table 1
Details of participants.

Participant code	Method	Position	CE-related tasks or focuses
1	Interview	Coordinator/ Head of Department	Preparing and implementing the strategy or action plan regarding CE.
2		Expert/ Consultant	Coordinating and supporting the different city sectors and other actors for CE.
3		Coordinator/ Head of Department	Coordinating the city's development of CE.
4		Coordinator/ Head of Department	Steering and implementing environment and energy policies for the city and companies in the region.
5		Coordinator/ Head of Department	Implementing local transition projects in collaboration with the city.
6		Coordinator/ Head of Department	Urban energy and CE transition,
7		Coordinator/ Head of Department	Climate policymaking and implementation, knowledge production.
8		Coordinator/ Head of Department	Coordinating circular projects of the city.
9		Coordinator/ Head of Department	Coordinating circular projects of the city.
10		Expert/ Consultant	Technological innovation aspects of CE.
11		Expert/ Consultant	Climate and environmental impacts mitigation, company engagement.
12		Coordinator/ Head of Department	Research and environmental education.
13		Coordinator/ Head of Department	Developing, coordinating and researching circular transition of the city.
14	Written answers	Expert/ Consultant	Developing circular projects, specialises in waste management and recycling.

In line with a qualitative design, thematic analysis was selected as the method for the following analytical process, given its effectiveness in identifying patterns from data related to experiences, views, and perspectives (Clarke and Braun, 2016). Also, thematic analysis can be used to uncover both semantic and latent meanings of the data (Braun and Clarke, 2012), which is crucial for learning the opinions of people in unique positions of dealing with a contested topic. This analysis is mostly inductive though a reflexive process (Byrne, 2021). The transcriptions were initially read repeatedly for familiarisation with the data. ATLAS.ti software was then employed to facilitate manual coding, whereby data relevant to the research question was identified and marked with descriptive and interpretive codes. The coded data underwent thorough review and analysis to identify connections and generate themes: some codes were adjusted or merged during this process. Themes and codes were then further reviewed to ensure coherence and clarity, leading to the generation of a new theme from the dataset. The subsequent section presents the results of the analysis.

4. Results

This section presents the findings on how the interviewed CC experts perceive the relationship between CE and the social dimension. Although the social dimension is not a direct focus of the participants'

roles, and this study did not predefine the term, a relatively consistent understanding of its scope and concepts emerged. This understanding encompasses a wide range of elements at both individual and structural levels, as well as the interactions between them, such as values, behaviour, social inclusion, equity, and governance. Overall, the data analysis revealed four major themes that depict a seemingly contradictory relationship between CE and the intertwined yet separated social dimension. The first theme suggests that although CE has been frequently linked to sustainability, the social dimension is largely isolated from or neglected by current circular practices and debates, with a few exceptions. On the other hand, the second and third themes emphasise the interaction between CE and the social dimension during the transition. The last theme indicates how the social dimension will be strengthened in the future CE. The specific indications from these findings are discussed in the next section.

4.1. The social dimension as a separated topic for circular economy

The separation of the social dimension from CE does not entail its complete dismissal or neglect; rather, it often receives relatively less attention than other dimensions, or it is frequently contextualised differently from the ongoing circular transition. In essence, CE itself has been predominantly emphasized as resource efficiency. The separated relationship is also reflected through policy focus, form of implementation and stakeholder perceptions.

In policy terms, the reasons for adopting CE primarily stem from environmental pressures, particularly those related to climate change, and economic opportunities, such as enhancing city image and attracting business and investment. The transition is largely initiated through technological and sectoral changes involving waste management, construction, transportation, food, public procurement and business engagement. Correspondingly, the evaluation of outcomes primarily relies on environmental indicators, while measurements of social impacts are lacking. Although the possibility of integrating social considerations such as inclusion and equity into these circular activities or changes is valued by the participants, it remains a challenge to be broadly accepted by some other stakeholders. For instance:

> We need to innovate in this area… not only because of the environment but also because of social benefits. Because sometimes, for policymakers, we have the two axes, the social dimension and the environmental dimension, but they don't look at them in the same line. And they think that it's not comparable, it's different axes. No, it can be the same axis, because it's sustainability. And if we are talking about sustainability, we are talking about the economy, about the social, and about the environment. So, sometimes it is difficult to talk about this with them.
>
> (Participant 12)

Some persistent obstacles to integrating the social dimension and CE as either discourses or practices were also identified. These include practical challenges such as administrative difficulties and financial constraints with adding social targets. It was also pointed out that people have diversified social needs, and it takes time to understand the interaction between circular transition and the social dimension. More importantly, the political nature of certain social topics brings more complexity: 'It's a difficult question because it's not only social, it's also a political question. And some political parties want to exclude social groups from the society. So, it's a difficult task to tackle' (Participant 3). Therefore, the separation of the social dimension may not always be intentional but a choice forced by the current governance and broad social-political environment. However, this also suggests that CE is primarily perceived in terms of material resources, with the social dimension often seen as an optional add-on that can be isolated.

The tendency to distance the social dimension from CE is also challenged from two perspectives. The first originates in the unique position of cities, as a CC is expected to be more than resource efficiency, essentially involving improving the welfare of people and communities. In some cases, CE itself is not the ultimate purpose but a tool for the city to become more liveable. The other contradiction is shown in the potential discrepancy between official policies and the experts' personal values. As Participant 10 put it, 'Also, for me personally, not as a vision of the city. It's also a new chance for the economy to enhance equity, equality, and life quality in cities, I think, in our system, where we came from is very much a capitalist system, but capitalism is based on constant extracting. This was sometimes forgotten'. This perspective seems to present a more holistic understanding of CE that not only considers material cycles but also questions a social-political system that maintains unstainable patterns of resource usage. Nevertheless, as such views remain personal to a limited number of stakeholders, the social dimension remains a separable and marginalized topic for CE.

4.2. The importance of the social dimension to circular economy

Even though CE is largely promoted and implemented from the perspective of resource efficiency, the social dimension constitutes necessary conditions and exerts a fundamental impact on realizing CE as a systematic shift in resource consumption and management.

From the cities' perspective, the importance of the social dimension is firstly shown through the well-connected and collaborative environment CE demands: 'CE actually means that you are connecting people, collaborating, sharing and so on. So, there is really a need to go out of our silos and collaborate' (Participant 1). Also, behavioural and value changes play a critical role in improving resource efficiency, as 'technology is not always far enough [advanced] to reuse all these materials with the least possible energy and water and everything' (Participant 8). Sometimes this means individuals will need to compromise convenience in order to consume less or make economic sacrifices like paying higher prices for more responsible products. This suggests social changes, from individualised thinking to substantial efforts for collective visions. However, such expectations are often contradicted by the low awareness and voluntary participation level of citizens. Further, due to the divergent attitudes toward the transition and difficulties of reaching critical mass, CE is far from being the systematic transition that was hoped for: 'Because so far, we really work in a linear system… we are only able to make pilot projects which you basically cannot upscale very much. We can replicate them, but not really upscale in a sense that we create more of a systemic change' (Participant 9).

While education and communication are often cited as necessary tools for facilitating cultural and value changes, deeper reflections on socioeconomic contexts reveal additional complexities:

> But also, from the ecological point of view, if we want people to think about the environment, make sustainable choices, if you have to think about struggling in your everyday life and how to make the money to go for food and whatever, you don't have the strength to think about anything else. So we have to make sure that people have what they need and that they are doing fine. If you can take care of yourself, you can also better take care of the environment and the nature and other people.
>
> (Participant 2)

Through acknowledging the interconnections between life circumstances and choices, this view indicates the necessity of a social environment that enables and empowers everyone to enact change. However, after acknowledging similar points, Participant 5 further indicated that solely focusing on economic wealth as a country may not be sufficient: 'They don't have the time, they don't have the financial means… it's an everyday struggle with life that comes first… even if we're a developed country, so to say, plus a very rich country… there's still 20% of people that live below a certain poverty rate, which is huge for such a rich country'. This indicates that an ideal social environment for a successful transition may inherently demand equity, cohesion and inclusion.

The political structure and trends were also found to be highly intertwined with CE. First, there seems to be significant tension between CE as a policy-driven topic and its grassroots dependency:

> I think the city today sees circular economy as a goal. That's something that we have to work towards… because, of course, as a democratic system, you have to act out the words and the wishes of the people. So I mean, of course there are people who say the circular economy is how we should live, but that's not the majority today. So there is this tension… because we [the city] feel it's important… But how are we going there without overstepping our democratic boundaries?
>
> (Participant 10)

Although some participants took a more definite stand, stressing the necessity of forced changes rather than just convincing people, it was also acknowledged by Participant 6 that 'The problem will be, this for sure never will happen, because this will mean that you are committing political suicide. So it needs very, very, excuse the expression, big balls from our politicians. And that will never happen, because… It will interact with the life of the people in such a way that they will not tolerate it'. This view illustrates a full cycle of politics, policy, social impact, and back to politics and politicians, highlighting how reconciling a democratic system with an effective transition emerges as a wicked problem.

However, addressing social justice in CE may offer a constructive perspective for the situation, as it ensures integrity of the transition and contributes to a political environment that supports the possibility and continuity of CE in a democratic society.

> We either have a just transition or we don't have any transition at all. And I see that this connects to the political opinions about citizens. And I mean, if there is no socially inclusive and not a better life prospect ahead of you, and you start to suffer from the decisions that are made under transition or even fear this, it makes the political atmosphere more chaotic and very much more difficulty to do anything like climate work or circular economy transition or nature or anything, even though every citizen likes nature, but then, once you weigh your own well-being and nature, then your own well-being, of course, is the priority. And we always have to remember that… how we all are.
>
> (Participant 4)

Ensuring justice and benefit for all will also reduce resistance by incentivising people rather than 'being told what you're supposed to do' (Participant 7). These opinions suggest strong inherent connections between social justice and CE through the democratic system, as people are not just consumers but also political actors. Meanwhile, there are noticeable concerns about the rise of right-wing ideologies, posing a threat not just to CE but to social inclusion and justice. This trend further undermines the societal foundations for CE and other sustainability efforts, underscoring the importance of the social dimension from a different perspective.

4.3. The social dimension as an impacted area of circular economy

The other aspect of the interactions between the social dimension and CE is shown through CE's various current and expected social impacts. As several interviewees pointed out, CE not only has the potential to enhance social inclusion through providing economic opportunities including jobs and entrepreneurship to people remote from the labour market, it can also improve disadvantaged groups' access to resources in share and reuse activities. Besides economic and material benefits, CE can also facilitate social cohesion and connection by breaking cultural and social barriers: 'Other cultures… coming from places with less consumption… have different ways and they have good ways of reusing and understanding materials in a different way than us. So you can include other cultures' (Participant 7). Furthermore, CE is expected to provide health and safety benefits by reducing environmental anxiety, as well as improving environmental and product qualities. CE also has the potential to induce cultural change, for instance, a change of lifestyle and normalisation of reduced consumption. Social justice is also affected, as prioritizing responsible local practices may alleviate the hidden social costs often associated with less regulated areas. More importantly, CE is closely connected to the existing climate justice debates and encourages reflection of social equality from the ecological footprint perspective.

However, it was also noted that the social impacts of CE might be limited, conditional or simultaneously associated with certain risks. For example, the transition could result in some sectors being disadvantaged, and the emergence of new opportunities may necessitate acquiring new skills and reskilling, which may not be suitable for or desired by everyone. Additionally, new methods and products may introduce unforeseen health risks. Beside the challenges associated with direct impacts, the social potentials of CE are also limited by some contextual factors. Financial goals and social benefits do not always align, and compromises are often made in favour of economic interests or other needs deemed more urgent by cities. Moreover, at its core, the current official support for CE depends on economic growth based on pre-existing economic structures that are neither environmentally nor socially sustainable. This implies that the scope and extent of social impacts is not only restricted by the incremental scale of CE but also consistently constrained by the mainstream economic relationships and interest, as 'you don't want to bite the hand that feeds you… But the wealth being produced there is not distributed equally' (Participant 5).

4.4. Strengthening the social dimension in the future transition

The participants unanimously agreed on the importance of the social dimension as well as the need to strengthen it in the future. Regarding the reasons for this, besides its aforementioned functional significance to CE, the social dimension was stressed for its intrinsic values that can be independent from CE, in comments like 'Without the people, all of them, why are we making all the sustainable changes' (Participant 14). 'I feel I'm thinking about ethics. I think it's also kind of a fundament of the democratic and free society. The test to include this egality aspect and this... Yeah, I think it's... It's in the same lane as democratic freedom, system and it's caring about people, it's caring about the planet, it's caring about... yeah, about all people, not just some people' (Participant 8). The specific social topics believed to be critical include social equity, equality, inclusion, justice, quality of life, well-being, and the welfare of vulnerable and disadvantaged groups.

It was also pointed out that integrating these topics into CE should be reflected in CE guidelines and strategies, target and measurement, as well as the conceptual development of CE. To more effectively engage with the social concerns, there is a clear need for targeted resources and investment, and more attention and coordination at local, national and EU levels. Further expanding the disciplinary backgrounds of CE including social work is also seen as critical, including in socially focused CE research:

> It is a hard question, again. But I think there should be studies like you are doing, for example, and we should have a research base, so we can rely on scientific research under that issue. Then, from that, I think it would be very useful for us to use it as a stepping stone to integrate also the social issues in the city… And for me, this interview, like I said, is the first time that I am discussing these issues. Before the interview, I read the questions, and I started thinking about those questions. So, it takes time to mature. But I see already that it is a very important thing.
>
> (Participant 3)

Nevertheless, participants have generally been enthusiastic and discussed plans for enhancing the connection between the social

dimension and CE. However, confidence levels regarding the extent of integration in the near future vary due to anticipated practical and political obstacles, such as difficulties with measurement and tensions surrounding social topics.

5. Discussion

By outlining four contradictory themes that highlight the paradoxical yet interconnected relationship between CE and the social dimension, this study identifies both the irony and critical challenges that require deeper reflection on the current mainstream CE. The following sections discuss these key findings in relation to existing literature, and then present more practical implications for future CE policy and practice.

5.1. Asocial circular economy and its inherent social connections

Echoing findings from prior studies (e.g., Bækgaard et al., 2024; Melles et al., 2022; Salminen et al., 2020), the primary motivation for the cities involved in this study to engage in circular transitions is addressing the ecological limits of economic development, rather than tackling the interconnected social, environmental, and economic challenges facing contemporary society. Consequently, CE in urban contexts is predominantly framed as a response to climate and environmental concerns, with the expectation that sectoral and procedural changes will alleviate ecological pressures without fundamentally altering existing socio-political structures or economic interests. Therefore, the current circular transition in European cities exhibits a similar technocentric tendency as the CE framework at the EU level (e.g., Alberich et al., 2023), with minimal attention given to the social dimension.

Although not being prominently emphasized at official levels, the social dimension's critical role in the circular transition has been highlighted from both practical and ethical perspectives. The functional value of the social dimension is firstly shown through the collaboration required by various circular strategies, as circulation cannot be achieved if everyone stays in their silos. While collaboration across value chains, sectors, and organizations is often emphasized (e.g., Schöggl et al., 2023), this study highlights the importance of collaboration between communities and diverse social groups. Unlike businesses driven primarily by economic interests, the implementation of CE in cities involves projects and stakeholders who may not share similar economic incentives for collaboration. Instead, it relies on well-connected communities and individuals willing to work together and share resources for environmental benefits that may not be immediately, directly, or individually rewarding. Therefore, a coherent and collaborative social environment that connects diverse social groups is essential for the circular transition of cities.

Beside collaboration between different stakeholders, the importance of the social dimension is underscored by the irreplaceable role of behaviour and value changes of each individual, as technology alone has limitations in improving resource efficiency. However, consumer awareness and willingness have consistently been highlighted as major obstacles to CE in recent years (e.g., Dace et al., 2024; Grafström and Aasma, 2021; Kirchherr et al., 2018). This study confirms this argument to some extent, as people were found to hold diverse views on the transition, and the level of voluntary participation remains far from reaching a critical mass. Unlike previous studies, which often frame these challenges as cultural barriers and propose technological or market-oriented solutions, the findings of this study suggest that a more holistic view of people's circumstances should be adopted. This is not only because consumption patterns and choices are closely linked to social factors such as educational levels, age, and subjective norms (Ioannidis et al., 2023; Liu et al., 2009; Mykkänen and Repo, 2021; Neves et al., 2024; Singhal et al., 2019), but also because there is a potential gap between individuals' willingness to change and their capacity to do so. It is clear that not every member of society is equally prepared to bear the costs associated with circular transitions, regardless of their intentions. Therefore, while education and communication are frequently cited as an important tool to improve awareness and increase participation, a more comprehensive understanding of people's socio-economic status as the context for their choices may offer more constructive reflection points for the participation challenge. Moreover, this perspective clearly refutes individualised responsibility and establishes the connections between tangible material circulation targets and less tangible social changes, such as equity and inclusion.

Beyond the implementation level, the social dimension has a more fundamental impact on CE as an emerging movement. Possibly due to their unique roles as public employees, the participants of this study did not solely perceive people as consumers of services and products in the economic process. Instead, they also view people as active citizens in a democratic system who can embrace, resist, or refuse the policies applied to them. This perspective bridges the gaps between various roles of people and emphasizes that political and cultural consensus among diverse groups is essential for ensuring the stability and continuity of CE policies. Therefore, although CE has been policy-driven and practitioner-led (Velenturf and Purnell, 2021; Belmonte-Ureña et al., 2021), a holistic understanding of people's identity in the circular transition suggests that the momentum or even existence of CE should not be taken as granted, rather, they ultimately depend on the ethos and political preference of the public.

One specific direction for this mindset shift is recognising the multiple identities of individuals during the transition, rather than simply viewing them as consumers. This entails considering the social, economic, and cultural foundations influencing their decisions and behaviour. Achieving this requires avoiding oversimplified CE thinking and approaches. For instance, although Mies and Gold (2021) found education, participation and legislative support are the most valued social leverage points for CE, this study reveals these are highly conditional and subject to deeper social dynamics such as economic interest and ideological positions. This indicates education and legislation are merely social tools for influencing CE, while justice and inclusion can be more fundamental leverage points for how those tools are shaped. Compared to perspectives that often view people as passive recipients who need to be educated and changed to better achieve CE, this finding not only delineates the political context, but also highlights that how people feel and experience the transition process is a more critical concern for CE. Consequently, the boundary between CE's practical and ethical connections with the social dimension appears to be further blurred by the democratic system and multiple identities of people.

However, such intertwined social dynamics behind CE seem to present an uncertain future for its accomplishment. On the one hand, successful and systematic transition necessitates an almost perfect social environment characterised by fairness, justice, and inclusivity, enabling everyone to collaborate and participate in circular changes for the long-term, collective benefit of society rather than short-term and individual gain. On the other hand, while social inequality is considered as the most pressing challenge of contemporary world, environment and climate related topics are among the core topics that reflect social division (Dunlap et al., 2016; Lalot et al., 2022; United Nations, n.d.). Mainstream CE tends to sidestep this significant gap by focusing on technological changes and depicting transition scenarios where everyone benefits. Yet, incremental and segmented transitions may have limited impact on improving the social environment required for CE to be systematic. More importantly, technological changes of material flows cannot address broader social challenges such as inequality and injustice, even when relevant targets are intentionally included in the transition process. In other words, improved resource efficiency cannot address issues unrelated to resource inefficiency, such as structural inequality and social incoherence, even though the later can significantly affect material flows and the potential for CE to become a long-lasting, systematic transition.

The identified social impact of this study suggests that the current CE

in urban contexts seems capable of bridging the gap between the desired social environment and the existing social conditions to some extent by offering opportunities to enhance inclusion and equity. However, the presence and scale of these opportunities is contingent upon the discretion of relevant initiatives, as social concerns are not inherently linked to a technocentric CE. Moreover, while CE can bring about mixed and unintended social impacts, the field often presents more optimistic estimations than critical reflections (Gregson et al., 2015). This imbalance may lead to unplanned social consequences such as unequal burden transfers that undermine support for CE. In addition to the social sustainability of CE activities, it remains uncertain how a capitalism-dependent CE can effectively address social exclusion and inequalities beyond isolated niches. As pointed out by Deutz et al. (2024), circular flows do not alter the market-driven class dynamics inherent in capitalism, even when the localised development of CE opens avenues for new cross-sector synergies accompanied by social and distributional benefits.

As CE itself is unable to generate sufficient social momentum or public support for its progress, the question of how to deepen the transition remains pressing. While enforcement from authorities is suggested as a potential tool, its feasibility and practicality are of concern, as top-down radical changes are often not considered as politically sustainable. To some extent, this reflects a form of democratic myopia that frequently hinders effective responses to long-term challenges, such as environmental governance (Bührs, 2012). However, it also reveals the risk of decoupling the social dimension - especially in terms of fundamental social reforms from CE, as the binary approach may encounter incompatibility between different systems and goals, without the ability to dynamically reconcile them. Nevertheless, concerns about the compatibility between CE and democracy not only reflect CE advocates' frustrations with social challenges but also highlight the paradox of a depoliticized approach, which fails to resolve the controversy and acceptance issues surrounding CE while still questioning its political dimension. Conversely, strengthening the social-ethical aspects of CE, such as justice, may face initial political and practical obstacles but is more likely to win over the critical mass and provide lasting momentum in democratic societies.

Overall, a contradictory relationship between the current circular transition and the social dimension is clear: while CE has been mostly promoted as an asocial and depoliticized framework that focuses on technological changes for economic and environmental targets, its implementation, effectiveness, and duration all depend on what the social dynamics allow. Given that the current social environment falls short of providing these conditions, the gap between the required social environment and actual social conditions is not merely theoretical but presents tangible difficulties in promoting CE. Yet, the social obstacles cannot be addressed by the current circular transition alone, while overstretching the existing political tools to enforce changes is neither possible nor practical, integrating social reforms around justice and inclusion seem to be an unavoidable path for the future transition to be successful. However, it means confronting the deep ontological and epistemological bases of circular thinking and consider more holistic and radical approaches (Temesgen et al., 2019). Unless the mainstream CE discourse changes its ecological modernisation assumptions and integrates holistic transformation of societal structure, or such reforms are initiated under other banners, the requisite social conditions for achieving the closed loop of material circulation at systematic levels may remain elusive in the near future. And if CE fails to undergo systematic change now, it may eventually perish, just as previous greening attempts by the EU (Fitch-Roy et al., 2019).

5.2. Implications for policy and practice

Although achieving a fundamental shift in the CE discourse may be a long-term and challenging process, there are starting points for reconciling the tension between the current circular transition and the social dimension. For policymakers, it is crucial to acknowledge that CE remains a contested concept with competing visions. While the mainstream approach driven by techno-optimism is not only challenged by social contradictions, it also presents several fundamental flaws, such as overlooking the principles of thermodynamics, downplaying the inefficiencies and energy demands associated with recycling and extending product life, and relying on market mechanisms subject to path dependencies and rebound effects (Korhonen et al., 2018a; Skene, 2017). Thus, rather than focusing solely on material circulation and sectoral changes, future policies should address these ongoing debates and promote social experiments and innovations that can more organically address intertwined challenges. Even when the transition is framed primarily around resource efficiency, it remains essential to integrate social considerations throughout strategies, goals, and measurement frameworks. Such considerations should not be limited to quantitative and economic targets like jobs and income but should be grounded in principles of justice and inclusion to ensure the integrity of the transition. Additionally, future CE policy development needs to broaden its expertise base by including the voices and experiences of frontline implementers and experts from diverse backgrounds, beyond the technical, industrial and business perspectives.

Various stakeholders and initiatives, as essential links in the transition, also need to assume their roles in addressing the contradictions between CE and the social dimension. For instance, cities should more comprehensively consider CE as encompassing multidimensional local changes, rather than merely business opportunities or ways to reduce environmental pressures. This requires balancing attention to both the potential benefits and risks involved in the transition and allocating resources to support disadvantaged and marginalized groups that may be unprepared for the changes. To achieve this, cities should evaluate the social impacts of various circular projects from the perspective of citizens' lived experiences, rather than relying solely on numerical indicators. More importantly, a democratic process that involves grassroots stakeholders in decision-making is crucial—not only for fostering effective changes with minimal resistance but also for preventing potential burden shifts that could exacerbate existing inequalities between different communities. Furthermore, integrating circularity goals with social concerns can be a two-way street: while exploring the social potential of CE practices, socially oriented initiatives such as social enterprises and community groups can also be organically integrated into circular changes. In addition, facilitating the transition requires intermediaries, such as the Circular City Declaration initiative. Such initiatives may need to establish clearer criteria for joining and realizing their visions—such as promoting human well-being and social justice—to avoid the marginalization and trivialization of these concerns.

6. Conclusion

By examining the relationship between CE and the social dimension through insights from European CC experts, this study highlights a key contradiction: CE both neglects and intertwines with the social dimension simultaneously. Although CE is technocentrically framed around improving resource efficiency, it is evident that its goals cannot be achieved without a collaborative and supportive social environment. While current transitions show some potential to enhance social cohesion and justice, their impacts are often limited, contextual, and sometimes mixed. Furthermore, as the current CE framework lacks the transformative perspectives needed to address structural inequality and social division, there remains a clear 'deficit' between what CE demands from the social dimension and what it provides in return. Consequently, the future and full potential of CE are precarious, with challenges in scaling and systematizing already becoming evident. As the CE field stands at a crossroads with competing discourses, these gaps and challenges are significant but not without promise. However, they do require all stakeholders involved in the transitions to fundamentally reflect on their understanding, expectations, and implementations of CE and to

shift toward a more holistic paradigm that integrates social reforms.

The present study has several limitations. Due to its theoretical focus, this study did not further explore more practical measures in local contexts, so future research should investigate the obstacles and challenges to enhancing social considerations in circular transition within heterogeneous contexts. This is crucial for ensuring the social sustainability of CE and providing empirical insights for developing a more comprehensive circular vision. Another limitation is the limited geographical representation, as only a small number of eligible cities were included, predominantly from Western and Northern Europe. While the sample size is appropriate for qualitative studies and provided in-depth findings, broader geographical diversity could offer a more comprehensive perspective.

The study also identifies specific gaps for future research. For instance, although participants' professional roles align with the mainstream understanding of CE, their perspectives on the social dimension reveal a notable gap between individual and institutional awareness. Investigating the reasons for and resolutions to this discrepancy would be valuable. Additionally, there is a gap between ongoing academic reflections on the social dimension of circular thinking and persistent biases in the field. Exploring methods to bridge this gap is essential for advancing both CE research and practice. Moreover, while the importance of integrating disciplines such as social work is recognized, the professional disparities in targets and methods remain unclear. Small-scale action research efforts could be valuable in addressing this gap.

Overall, the findings of this study contribute to the future theoretical and practical development of CE through valuable empirical evidence. While CE may not provide solutions to all social and ecological issues, how we frame and apply the term fundamentally reflects how we respond to the critical and complex challenges of society. For a movement that expects everyone to be an active and collaborative agent, it would be somewhat ironic if CE did not integrate social inclusion and justice as part of its core principles and mandates. Without such integration, CE may serve as a distracting illusion for maintaining an unsustainable socioeconomic structure.

CRediT authorship contribution statement

Kang Liu: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

This study is conducted as part of the ASTRA project, which has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 955518.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.spc.2024.09.016.

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