

UNDERSTANDING CIRCULAR LITERACY AS A DRIVER OF CIRCULAR ECONOMY TRANSITIONS

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Received 12 April 2026; accepted 25 May 2026

Abstract

Research purpose. The circular economy (CE) has emerged as a fundamental framework for advancing sustainable resource consumption, based on the continuous circulation of materials through reduction, reuse, and recycling principles. Its principal goal is to preserve the value of products and materials for as long as possible, minimise resource inputs and waste generation, and eventually return materials to the economic system to create new value.

Design / Methodology / Approach. Using a bibliometric analysis, the study examines publications in the Scopus database to identify key themes, research trends, influential works, leading journals, and prominent authors contributing to this emerging discourse.

Findings. The findings indicate a growing academic interest in circular literacy, including its role as an enabler of societal readiness for CE adoption. Based on the bibliometric results, the article outlines a research roadmap that positions circular literacy as an essential socio-cultural dimension alongside technological and economic CE strategies.

Originality / Value / Practical implications. The study contributes originality and value by synthesising the evolving conceptual landscape, identifying theoretical and empirical gaps, and delineating interdisciplinary linkages between CE, literacy studies, and sustainability transitions research. In practical terms, it provides a conceptual foundation for future empirical models and policy frameworks that may support the development of targeted educational initiatives, public engagement strategies, and institutional interventions.

Keywords: Circular literacy, circular economy, eco-literacy, societal readiness, sustainability transitions.

JEL codes: Q01, Q56.

Introduction

In the transition from a linear to a circular economic model, increasing attention is being paid not only to technological innovation and resource-efficient solutions, but also to society's capacity to understand, adopt, and actively apply circular principles. The circular economy (CE) is commonly framed as a system aimed at maintaining the value of products and materials for as long as possible, minimising resource use, and reducing waste through the reintegration of materials into the economy (Hanuláková et al., 2021; STRATA, 2022). This transformation cannot be achieved solely through technological or economic measures. It essentially depends on the readiness of individuals, organisations, and broader society to engage with and support circular practices.

Existing indicators of circularity, such as material flow measures or the Circularity Index (CI), provide valuable insights into resource efficiency and system-level performance. However, they remain limited in their ability to capture the social dimension of the transition – namely, whether society possesses the

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necessary knowledge, values, and behavioural capacities to sustain and accelerate circular change. This limitation is evident in Lithuania, where the CI reached only 4 per cent in 2021 – 2.9 times lower than the EU average of 11.7 per cent – and is projected to increase only marginally to 4.3 per cent by 2025 in the absence of systemic change (STRATA, 2022). Such stagnation suggests that a deeper societal transformation must complement structural improvements in material use.

One key factor underlying this gap is limited public understanding and engagement with CE principles. For a circular system to function effectively, citizens and organisations must possess a foundational set of competencies that enable them not only to understand circular processes but also to act upon them in everyday and professional contexts. This set of competencies is increasingly conceptualised as *circular literacy*. According to Zwiers et al. (2020), circular literacy refers to the capacity of individuals and societies to understand, value, and implement CE principles in practical life, occupational settings, and decision-making processes.

Importantly, circular literacy extends beyond basic awareness and encompasses multiple interrelated dimensions. First, it includes systemic knowledge, such as understanding resource cycles, material flows, waste prevention, eco-design principles, and the broader regenerative logic of the economy. Second, it involves normative or goal-oriented knowledge, which relates to values, motivations, and the underlying reasons for changing production and consumption patterns, including concerns about climate change, biodiversity loss, and social equity. Third, it incorporates transformative knowledge, enabling individuals to translate their understanding and values into actions – such as making sustainable consumption choices, sorting waste, or initiating circular solutions within professional and community contexts.

This study aims to systematically synthesise existing knowledge on circular literacy and its role in the transition to a CE, and to develop a structured research roadmap based on this evidence that can work as a policy development tool. To achieve this, a systematic literature review (SLR) was conducted, integrating publications indexed in Scopus.

Literature Review

The systematic literature review (SLR) reveals that CE research is structured around a coherent set of interrelated themes, reflecting a clear transition from a predominantly technical concept to a multidimensional, interdisciplinary field. Rather than being fragmented, the identified themes form a layered structure, moving from foundational principles to system-level applications and, eventually, to social and governance dimensions.

At the core of the literature lie CE fundamentals, which establish the conceptual basis of CE through the transition from linear to circular systems, resource efficiency, and lifecycle thinking (Abad-Segura et al., 2020; Iorio et al., 2023). These studies define the logic of value retention and material loop closure, providing the foundation for other research streams. Closely related to this is the theme of environmental sustainability, in which CE is framed as a key strategy for addressing climate change, reducing pollution, and improving resource and energy management (Abina et al., 2022; Anshari, 2025). Together, these themes position CE within the broader sustainability agenda.

Building on this foundation, the literature extends toward organisational and system-level transformation. Research on circular business and organisational transformation highlights the role of firms, focusing on circular business models, leadership, and innovation capabilities (Gutberlet et al., 2023). At the same time, studies on supply chains and production systems emphasise the importance of circular supply chains, product design, and industrial symbiosis (Arsawan, 2026; Romagnoli et al., 2023), reflecting a shift toward integrated, system-oriented thinking. Complementing these perspectives, the theme of finance and economic systems addresses the enabling role of investments, financial mechanisms, and economic structures in supporting circular transitions (Munonye, 2017; Maximilian et al., 2024).

Technological advancement further strengthens these transformations through the theme of digitalisation and innovation, which links CE with Industry 4.0/5.0, artificial intelligence, and data-driven solutions (Abina et al., 2022; Abad-Segura et al., 2020). Digital tools are increasingly recognised

as critical enablers for optimising resource flows, improving transparency, and scaling circular business models.

Importantly, the literature demonstrates a clear shift toward human and societal dimensions. The themes of humans, education, and competencies highlight the importance of sustainability skills, knowledge development, and human capital (Serrano-Jim et al., 2023; Abina et al., 2022), indicating that circular transitions depend not only on technological solutions but also on societal capabilities. This is closely linked to the growing body of research on consumer behaviour and communication, which examines how individuals interpret, adopt, and act upon circular principles, emphasising the role of trust, information, and decision-making processes (Nagatomo & Macarthur, 2024).

Although less represented, the theme of tourism and cities points to emerging applications of CE in urban systems and sector-specific contexts, suggesting new directions for future research. Finally, policy, governance, and critique function as a cross-cutting dimension, addressing regulatory frameworks, institutional coordination, and critical reflections on the effectiveness and limitations of CE (Alonso-almeida et al., 2024; Bosone & Nocca, 2022; Brglez & Kova, 2024; Friant et al., 2023; Montocchio et al., 2025; Tomassini et al., 2025). This strand underscores the importance of systemic conditions and governance structures in enabling large-scale transitions.

SLR not only identifies key themes but also reveals a clear trajectory in the evolution of CE research. These trends indicate a gradual shift from a narrowly defined, technology-driven field toward a broader, interdisciplinary, and socially embedded research domain.

A defining feature of this evolution is the rapid growth of CE research after 2015, largely linked to the adoption of the United Nations Sustainable Development Goals (SDGs) (Abad-Segura et al., 2020). This period marks a turning point, as circularity became a central concept in global sustainability discourse, significantly increasing both academic output and policy relevance.

Building on this expansion, the literature shows a fundamental shift from a technical to a socio-organisational perspective. Earlier research primarily focused on waste management, recycling technologies, and resource efficiency, whereas more recent studies increasingly emphasise consumer behaviour, organisational transformation, and societal engagement (Iorio et al., 2023; Carbonell-alcocer et al., 2025; Islam et al., 2024; Marfu et al., 2025). This transition reflects a growing recognition of CE as a systemic socio-economic transformation rather than a purely technical solution, as well as a strong trend toward interdisciplinarity, with CE research integrating perspectives from engineering, environmental sciences, business and management, and social sciences (Abad-Segura et al., 2020; Serrano-Jim et al., 2023; Mele et al., 2026; Sepetis & Parlavantzis, 2025). Such integration reflects the complexity of circular systems, which require simultaneous technological, behavioural, and institutional change.

At the same time, the literature demonstrates increasing integration of digitalisation and sustainability, highlighting the role of artificial intelligence, big data, and digital platforms in enabling circular practices (Parimita et al., 2025; Waqar et al., 2025). Digital technologies are increasingly positioned as key enablers of efficiency, transparency, and innovation within circular systems.

Parallel to these developments, research has expanded toward system-level thinking, particularly in the context of supply chains and ecosystems. Studies emphasise value chain integration, industrial symbiosis, and interconnected production systems. Herdiansyah & Mamola (2025) indicate a move beyond firm-level analysis toward a holistic understanding of circularity.

Another important trend is the growing prominence of consumer-centric research, focusing on behavioural drivers, perception, and decision-making processes (Tran et al., 2024; Wardani et al., 2025; White et al., 2025). This reflects a shift in attention from production to consumption, acknowledging that circular transitions depend equally on how individuals interpret and adopt circular practices.

In parallel, there is a clear expansion of policy and governance research, addressing regulatory frameworks, institutional coordination, and the role of public policy, particularly within the European context (Serrano-Jim et al., 2023). This highlights the importance of systemic, coordinated interventions for enabling large-scale transitions. The literature increasingly incorporates critical and reflexive

perspectives, addressing issues such as social justice, inclusivity, and the structural limitations of the CE concept (Corvellec et al., 2022; Nunes et al., 2018). These perspectives challenge technocentric and growth-oriented narratives, calling for a more systemic, equitable, and transformative approach.

These trends demonstrate a clear maturation of CE research – from a fragmented, technically oriented field to a comprehensive, interdisciplinary, and system-focused domain that integrates technological, economic, and socio-behavioural dimensions.

The SLR identifies a set of interconnected research gaps that collectively shape the future agenda of CE research. These directions indicate a clear move toward more evidence-based, systemic, and impact-oriented approaches. A central priority emerging from the literature is the need to evaluate the real-world effectiveness of CE policies. While existing studies largely focus on policy design and strategic frameworks, there is limited empirical evidence on their actual environmental, economic, and social outcomes (Abad-Segura et al., 2020; Corvellec et al., 2022). Addressing this gap requires a stronger focus on impact assessment and policy performance.

Closely linked to this is the persistent lack of robust measurement frameworks and indicators. The literature consistently calls for reliable, multidimensional metrics and composite indices capable of capturing the complexity of circular systems (Brglez & Kova, 2024; Oliveira, 2025). Importantly, such measurement approaches need to extend beyond material flows to include behavioural, institutional, and social dimensions.

To support more generalizable insights, future research must also expand toward cross-sector and cross-country analyses. Given the context-specific nature of CE implementation, comparative studies are essential for understanding how institutional, cultural, and economic differences influence circular transitions (Serrano-Jim et al., 2023; Munonye & Munonye, 2017; Oliveira, 2025). In parallel, there is a growing need for longitudinal and mixed-methods approaches that would allow researchers to capture changes over time and better understand transition dynamics, rather than relying on static, cross-sectional analyses (Romero et al., 2025).

A particularly critical gap concerns the social and behavioural dimension of CE. Although increasingly recognised, issues related to consumer behaviour, education, and participation remain underdeveloped compared to technological and economic perspectives (Kurek et al., 2023; Monciardini et al., 2024; Obakhavbaye, 2025). Future research should therefore focus on how knowledge, attitudes, trust, and social norms shape the adoption of circular practices.

At the same time, the integration of digital and technological solutions remains an important yet underexplored area. The role of artificial intelligence, big data, and smart systems in enabling circularity requires further empirical investigation, particularly in real-world settings. Similarly, advancing circular business models and innovation remains a key research priority, particularly regarding value creation, scalability, and implementation challenges. These developments are closely connected to the need for stronger governance and multi-stakeholder collaboration, as successful circular transitions depend on alignment among actors across the public, private, and societal sectors.

The articles included in the analysis were selected based on their prominence, with particular emphasis placed on recency and citation impact. The most cited study is Corvellec et al. (2022), which has been cited 731 times, and provides a critical examination of the CE concept and circular business models. The author argues that, despite the growing popularity of CE as a sustainability solution, it is characterised by conceptual ambiguity, practical implementation barriers, and underlying ideological biases.

The second most cited article, Sánchez-García et al. (2024), cited 327 times, emphasises the role of emerging technologies as key enablers of the CE. The study demonstrates how digitalisation, data-driven decision-making, and interdisciplinary approaches contribute to the development of more efficient, transparent, and sustainable systems.

The third-most-cited study, Abad-Segura et al. (2020), with 146 citations, provides a comprehensive bibliometric analysis of global research on CE policies and their environmental effects between 2004 and 2019. The findings reveal a rapid increase in academic interest, particularly following the introduction of the United Nations Sustainable Development Goals (SDGs). The study identifies key research areas, including waste management, resource efficiency, life-cycle analysis, and climate change mitigation. It highlights the dominance of China and several European countries in scientific output.

The fourth-most-cited article, Romagnoli et al. (2023), with 88 citations, focuses on the transition of logistics and supply chains toward CE models. The study highlights the importance of closed-loop systems, digital technologies, and stakeholder collaboration in enhancing sustainability and performance.

The fifth-most-cited study, Friant et al. (2023), which was cited 79 times, critically examines CE strategies in urban contexts. The authors argue that, although many cities promote CE initiatives, existing policies remain largely technocentric and growth-oriented, thereby limiting their transformative potential. The study calls for more inclusive, democratic, and systemic governance approaches that integrate environmental, economic, and social dimensions.

Overall, these highly cited studies illustrate the evolution of CE research toward a more critical, interdisciplinary, and system-oriented field, while also highlighting key challenges related to conceptual clarity, technological integration, policy effectiveness, and social inclusion.

Research Methodology

The study's methodological framework is based on the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) guidelines, which are widely used in SLR and meta-analyses. The PRISMA methodology provides a structured four-stage process: identification, selection, eligibility assessment, and inclusion, which enables consistent management of large volumes of bibliographic records. This methodology enables the justified formation of a final sample of publications suitable for analysis, with clearly defined inclusion and exclusion criteria in major international scientific databases (Page et al., 2021). The study aims to define and systematically analyse the field of research in which the dimension of circular literacy is examined as a significant factor in the transition to a CE. The PRISMA flowchart reflects a logical, step-by-step sequence (Figure 1).

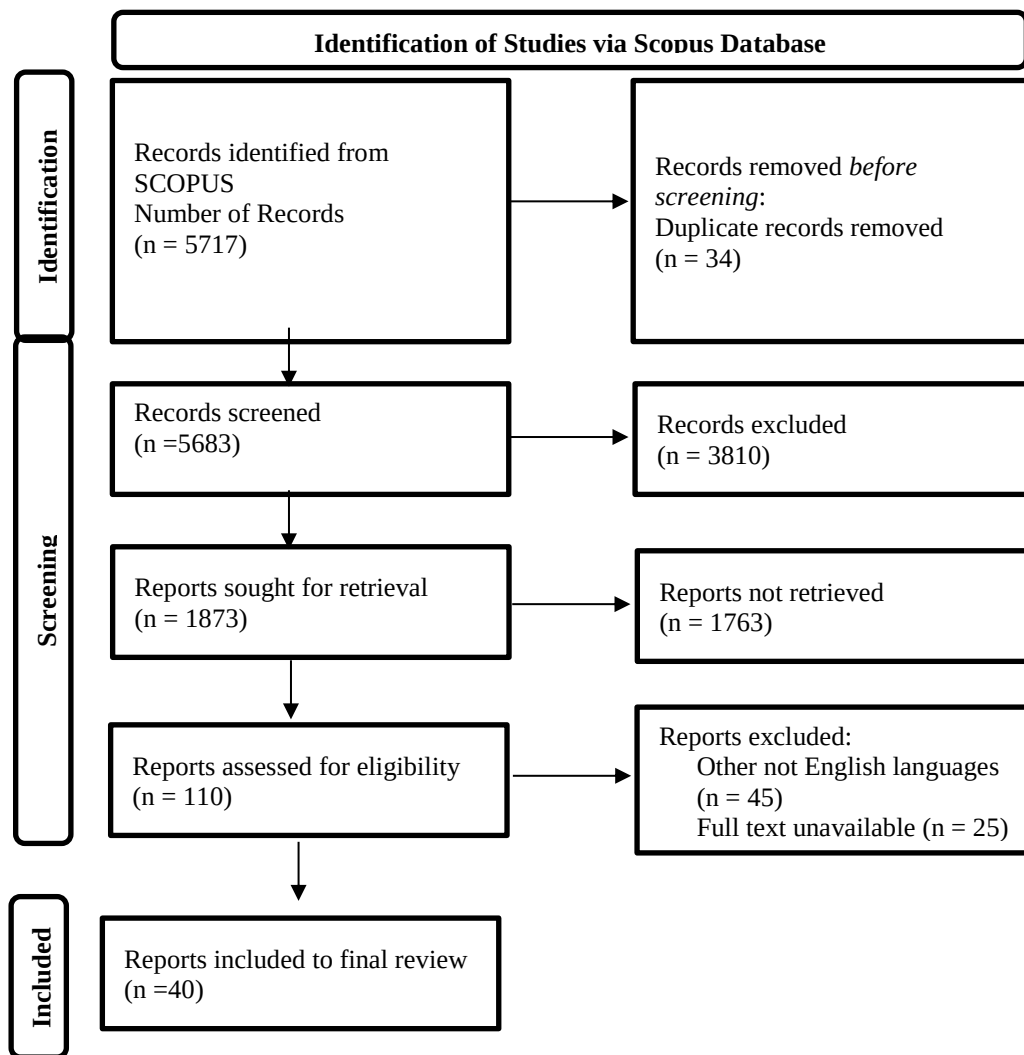


Figure 1: Article Selection Flow Chart (PRISMA) (Source: composed by the authors based on Page et al. (2021))

1. Identification: At this stage, a comprehensive search was conducted in the Scopus scientific database. The search query was applied to all fields using the keywords “literacy” AND “circular economy.” This search yielded 5,717 records, which constituted the initial set of potentially relevant studies. This set of potentially relevant studies was narrowed down by identifying and removing duplicate records across the different Scopus databases.

2. Screening and Eligibility: During the selection phase, the dataset was refined using several filtering criteria. First, documents that did not align with the study’s objectives were excluded, including conference papers, conference proceedings, book chapters, editorial articles, notes, short surveys, letters, and withdrawn publications. The selection was further narrowed down to include only articles from scientific journals. By applying subject-area filters, studies were selected from the social sciences, business, management, and accounting, environmental sciences, economics, econometrics, and finance. Furthermore, only publications that were available in full text and written in English were included.

3. Inclusion: The studies remaining at this stage of the selection process were included in the final analysis sample, covering the period from 2017 to 2026. Final n = 40

A systematic review of the scientific literature was conducted using a clearly defined search strategy in the Scopus database to identify relevant studies on circular literacy and the transformations of the CE. The collected articles were then processed using text-mining methods, identifying and grouping key

terms into thematic clusters that reflect the main dimensions of circular literacy and their roles in promoting the transition to a CE (Rodriguez-Andara & Río-Belver, 2018).

Another method used in this study is roadmapping, which encompasses both the process and the resulting roadmap. A roadmap is a structured representation of science and technology development plans presented in visual form, while roadmapping is the systematic process of preparing these plans. Although such plans can be expressed in various formats, they are most often presented as a multi-layered graphical model that integrates and interlinks technological solutions, products, and market opportunities. Despite the popularity of roadmapping, there are gaps in the methodological framework: the arguments for its benefits are insufficiently developed, and there is no unified taxonomy that brings together the key concepts, applied tools, and methodological practices into a coherent whole.

Roadmapping is used in the CE as a strategic planning tool. This method is structured into sequential phases: defining goals and a vision, analysing the current state (e.g., assessing resource flows and impacts), developing strategies, and implementing and monitoring them. Roadmapping helps identify priority areas of action, establish clear indicators, and align the actions of different stakeholders. Furthermore, it integrates interdisciplinary approaches (e.g., systems thinking and sustainability science) that ensure the management of complex CE transformations. In this way, the roadmap becomes a key tool for implementing a coordinated, long-term, and data-driven strategy for the transition to a CE (Abubakar, 2024; Montag, 2023).

Several limitations of this study should be acknowledged. The literature search was first performed in the Web of Science and Scopus databases using the keywords “literacy” and “circular economy” across all searchable fields. While the Web of Science search yielded 63 records, only 29 articles remained after identification, screening and eligibility. Conversely, the Scopus database offered a significantly greater amount of relevant literature. Consequently, the study was limited to Scopus as the primary data source. Although Scopus is recognised as one of the most comprehensive multidisciplinary databases, reliance on a single database may have led to the exclusion of relevant studies indexed in other databases, potentially affecting the completeness of the literature review.

Second, the manual screening process identified 105 articles that met the predefined inclusion and exclusion criteria and were considered relevant to the study's objectives. However, because of space limitations and the scope of the article, only 40 studies were ultimately included in the final review and used to underpin the proposed conceptual roadmap. Importantly, these studies were not selected randomly. The final selection was based on their conceptual contribution, citation impact, thematic relevance, and ability to support the development of the Circular Literacy roadmap. Priority was given to publications that provided foundational theoretical insights, introduced relevant conceptual frameworks, or offered significant empirical evidence related to circular literacy and circular economy transitions. Furthermore, efforts were made to avoid the repetition of similar findings and arguments across multiple studies. However, excluding additional relevant publications likely narrowed the scope of the evidence and limited the diversity of perspectives, methods, and contextual insights available in the broader literature.

Finally, the proposed roadmap is primarily based on a qualitative synthesis of the selected literature and therefore reflects the current state of knowledge within the identified research field. Although the selection criteria were designed to promote transparency and conceptual rigour, some researcher judgment was inevitably involved during the screening and synthesis processes. Future research could enhance and confirm the proposed framework by conducting more extensive multi-database searches, combining bibliometric mapping with systematic review methods, involving expert panel assessments, and testing empirically in various societal and geographic settings.

Research Results

Based on the SLR findings, societal circular literacy can be evaluated through a staged roadmap that moves from conceptual clarification and baseline diagnosis to indicator development, segmentation, longitudinal monitoring, and policy feedback. Such a roadmap links communication, education, and

behavioural mechanisms to broader socio-ecological transformation, treating circular literacy not only as knowledge but also as a measurable capability for societal transition.

Society's circular literacy is understood not merely as knowledge about recycling but as a broader capacity to apprehend systems, recognise sustainability goals, and apply transformative actions in practice. Figure 2 illustrates the roadmap logic: the development of the circular literacy index stems from past perceptions that inform present actions for future implementation.

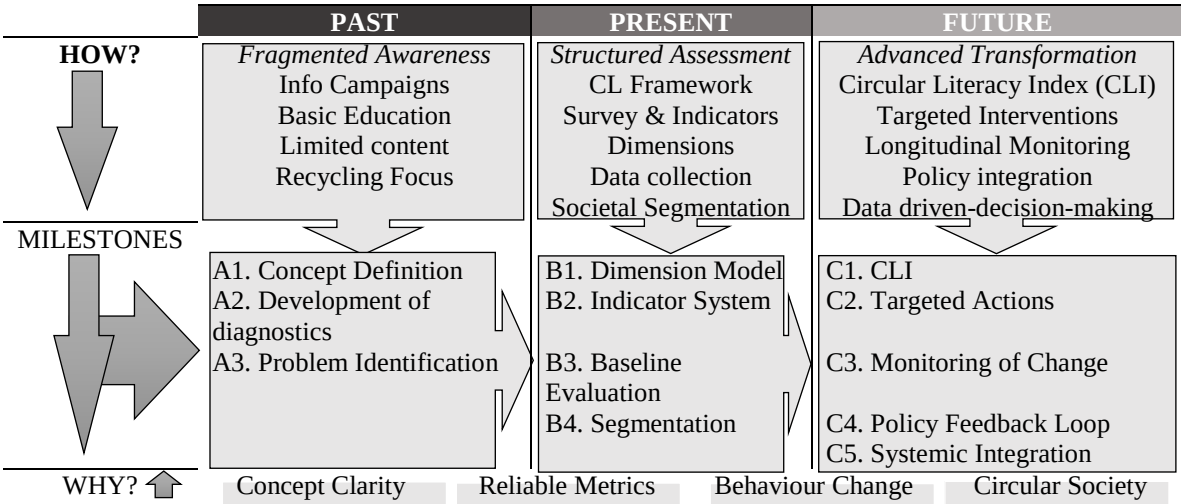


Fig. 2. Societal circular literacy roadmap (Source: composed by the authors)

The PAST fragmented awareness (Figure 3) suggests that public understanding of the circular economy (CE) has long been fragmented and largely reduced to a narrow waste-management discourse, most commonly associated with “reduce-reuse-recycle” practices. Many consumers equate CE with sorting or recycling, overlooking broader systemic aspects such as product life cycles, value retention, and alternative consumption models (e.g., sharing, repair, remanufacturing) (Hofmann, 2022).

Empirical studies show that consumer awareness tends to be partial and context-specific rather than reflecting a holistic understanding of circular systems. Research also indicates that effective engagement depends not only on information provision but on trust, clear communication, and actionable guidance, as these factors shape how individuals interpret and apply circular principles in everyday decisions (Alonso-Almeida et al., 2024; Anshari, 2025).

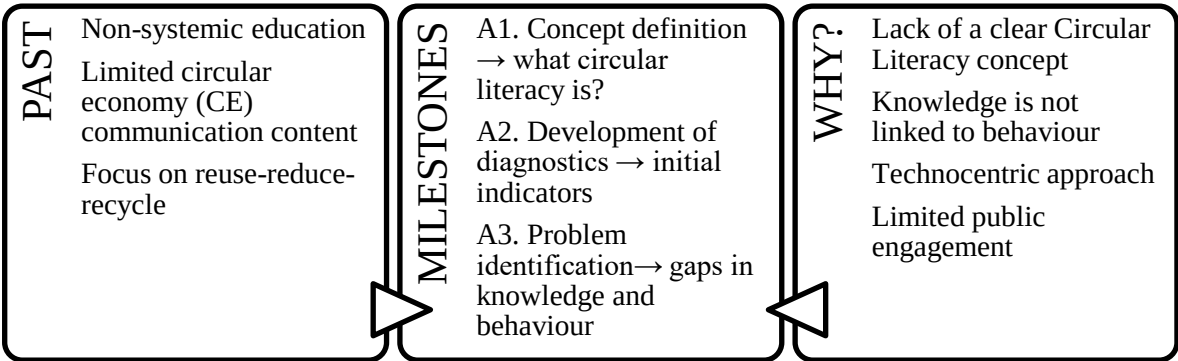


Fig. 3. PAST: fragmented awareness (Source: composed by the authors)

The first milestone focuses on defining societal circular literacy and distinguishing it from related concepts such as environmental awareness and sustainability literacy. Circular literacy extends beyond general environmental concern by incorporating system-level understanding and the application of

circular practices in everyday contexts. Establishing conceptual clarity is essential for developing consistent indicators and enabling reliable assessment (Gutberlet et al., 2023).

The second milestone involves designing a multidimensional diagnostic instrument to assess circular literacy. The set of indicators should capture not only knowledge but also attitudes, behaviours, information-seeking practices, and trust. This reflects findings that circular behaviour depends on a combination of cognitive and contextual factors rather than knowledge alone. Such an approach enables a more comprehensive evaluation of societal engagement in circular practices.

The third milestone identifies key gaps limiting societal circular literacy. The literature highlights a gap between awareness and actual behaviour, as well as a fragmented understanding of CE concepts. In addition, limited public engagement and unequal levels of circular literacy across groups suggest that social and behavioural dimensions remain insufficiently integrated into CE practices.

The PAST stage is necessary to identify structural limitations in public understanding of the CE, including fragmented knowledge, a weak link between awareness and behaviour, and the dominance of technocentric perspectives. Recognising these gaps provides the foundation for developing more comprehensive measurement frameworks and targeted interventions to improve societal circular literacy.

At the PRESENT stage (Figure 4), the focus shifts from problem identification to developing a structured assessment model.

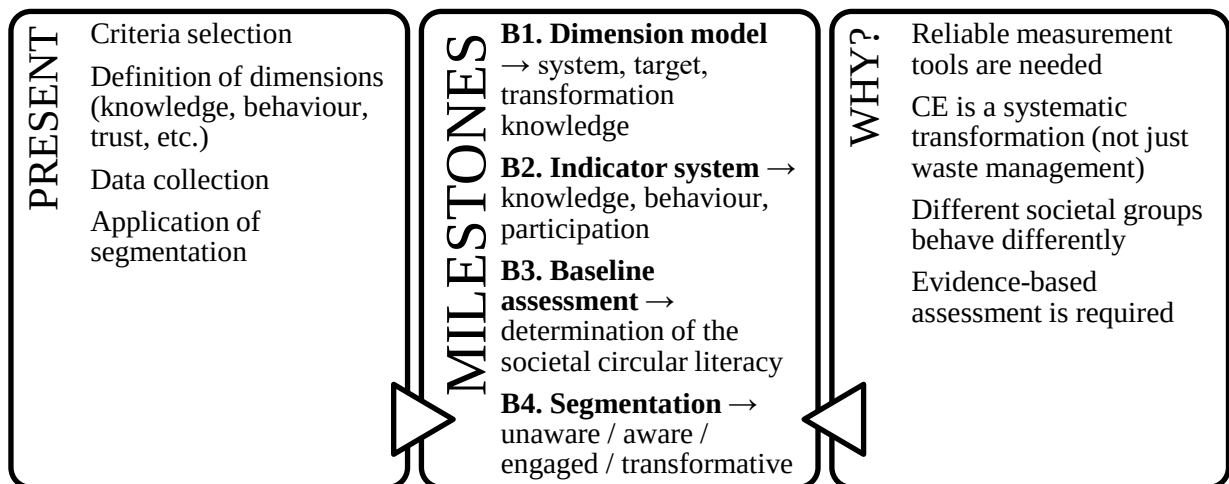


Fig. 4. PRESENT: baseline assessment of societal circular literacy (Source: composed by the authors)

The first milestone involves developing a multidimensional framework of societal circular literacy, including system, target, and transformation knowledge, complemented by critical, behavioural, and participatory dimensions. This approach aligns with the literature, which emphasises that CE transitions depend on knowledge-based capabilities and the ability to translate understanding into action within socio-technical systems.

The second milestone focuses on operationalising the framework through measurable indicators. These include knowledge and awareness levels, exposure to information, behavioural practices, and participation in circular initiatives. The literature stresses the need for improved measurement tools and integrated indicators to capture the multidimensional nature of CE performance and societal engagement (Abad-Segura et al., 2020). In addition, growing attention is being given to consumer-oriented indicators, such as awareness, behavioural drivers, and willingness to adopt circular practices, reflecting the increasing importance of demand-side dynamics (Sánchez-García et al., 2024).

The third milestone involves conducting a baseline assessment to determine the current level of societal circular literacy. Using the developed framework and indicators enables the identification of differences

in knowledge, behaviour, and engagement across society. Given the variability in consumer awareness and participation highlighted in the literature (Islam et al., 2024), such an assessment is essential for identifying gaps, supporting targeted interventions, and enabling longitudinal evaluation of CE transitions.

The last milestone suggests segmentation of societal groups. Based on the collected data, the population can be segmented into four groups: unaware, aware but passive, practically engaged, and transformative citizens. This typology reflects differences in knowledge, engagement, and behavioural capacity observed across CE research, particularly in studies that highlight the diversity of consumer roles and responses to circular practices.

In the FUTURE stage (Figure 5), assessment evolves from a diagnostic tool into an instrument for managing societal transformation. The aim is to embed circular literacy into policymaking, education, and communication strategies, enabling continuous evaluation and improvement of interventions.

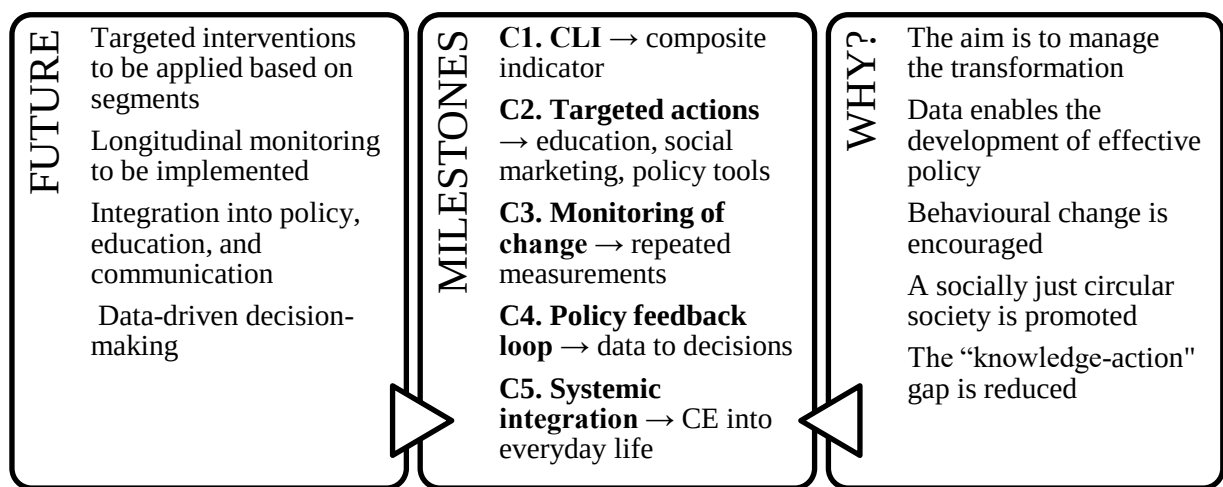


Fig. 5. FUTURE: towards a mature circular literacy society (Source: composed by the authors)

The first milestone involves constructing a composite Circular Literacy Index (CLI) based on the identified dimensions. Initially, equal weighting can be applied, followed by expert-based or statistical weighting approaches as the model matures. The index enables classification of literacy levels (e.g., very low to mature), providing a standardised tool for comparison across groups, regions, and time periods.

The second milestone focuses on aligning interventions with identified societal segments. Different groups require tailored approaches: basic education for unaware individuals, behavioural nudges and social marketing for passive groups, deeper knowledge for engaged individuals, and participatory or ambassador-based models for transformative actors.

The third milestone involves repeating the assessment at regular intervals (e.g., every 1-2 years) to monitor changes in knowledge, behaviour, and engagement. This allows evaluation of intervention effectiveness and comparison across demographic or regional groups.

The final milestone establishes a feedback loop between assessment results and policymaking. CLI outcomes can inform public communication strategies, educational programmes, and policies promoting circular consumption and production. Studies show that successful CE transitions depend on coordination among stakeholders, including public institutions, businesses, and society, as well as supportive governance frameworks.

Conclusions

The identified themes reveal a clear evolution of CE research – from a focus on resource efficiency and technological solutions toward a more integrated framework that combines environmental, economic, technological, and socio-behavioural dimensions.

Communication and education are essential because they shape the core dimensions of societal circular literacy. These dimensions influence individuals' attitudes, perceptions, and levels of trust, which in turn determine their willingness and ability to engage in circular behaviours. As behavioural change and active participation increase, they contribute to broader societal engagement, ultimately supporting the transition toward a circular society. Thus, circular literacy acts as a mediating mechanism between information and systemic change, linking knowledge, behaviour, and collective transformation.

If the goal is to achieve a mature level of societal circular literacy, a structured and iterative approach is required. This involves developing a composite index and a set of indicators to measure circular literacy, followed by a baseline assessment to determine current levels across society. Based on these results, societal groups should be segmented by knowledge, attitudes, and behaviours. Targeted communication and educational interventions can then be designed and applied to each segment. Finally, the assessment should be repeated over time to monitor progress and inform continuous policy adjustments. This iterative process ensures that circular literacy is not only measured but actively developed and embedded within societal and policy frameworks.

This logic is strongly supported by the findings of the SLR, which highlight the need for more robust measurement tools, a broader and more socially embedded understanding of the CE, and a stronger emphasis on communication, education, and behavioural research. Existing studies highlight the limitations of current indicator systems and call for the development of integrated, multidimensional assessment frameworks. At the same time, the literature increasingly emphasises the importance of incorporating social, cultural, and governance dimensions into CE research and practice, moving beyond purely resource- and technology-focused approaches.

Furthermore, research highlights the critical roles of communication, stakeholder coordination, and public engagement in enabling behavioural change and supporting circular transitions. In addition, growing attention is being paid to consumer perspectives, awareness, and behavioural drivers, indicating the need for more comprehensive, empirically grounded approaches to understanding societal participation in the CE. Together, these findings justify the proposed roadmap structure, which links measurement, segmentation, communication, and policy feedback into a coherent framework for advancing societal circular literacy.

Regarding practical applications, the CLI can assist policymakers in creating, implementing, and evaluating circular economy policies by assessing whether these measures are aligned with adequate public awareness, understanding, and engagement. This can help close the gap between policy goals and societal acceptance, boosting the success of circular economy efforts. Educational institutions, NGOs, and public authorities can utilise the CLI to assess educational programs and awareness campaigns, pinpoint knowledge gaps, and create targeted learning materials and communication strategies tailored for various stakeholder groups.

The CLI can function as a shared platform to facilitate collaboration among governments, businesses, educational institutions, and civil society organisations. This collaboration is becoming more vital because competitiveness now depends not only on efficiency and productivity but also on adaptability, resilience, innovation, and sustainability. By enhancing shared understanding and engaging stakeholders, the CLI can help build collective capacity and bolster societal resilience against environmental, economic, and technological challenges.

Over time, the CLI could serve as an additional tool alongside current circular economy measures, such as circularity rates and material flow metrics. While traditional indicators focus on the outcomes of implementing a circular economy, the CLI evaluates the human and societal capacities that underpin these outcomes. This offers a more comprehensive understanding of how societies transition to circular economies and their readiness for sustainable change.

Disclosure statement

No potential conflict of interest was reported by the authors.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

No funding was received for this research.

Declaration of generative AI in scientific writing

During the preparation of this work, the authors used Grammarly and ChatGPT in order to improve the readability and grammatical accuracy of the text. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the publication's content.

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