

Reconfiguring Production, Governance and Territorial Value Creation through Circular Economy: Institutional Pathways for an Ecological and Solidarity-Based Transition

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Abstract

This paper examines the relationship between the circular economy, ecological transition and solidarity-based development by bringing together contributions from sustainability studies, transition theory, social economy research and environmental governance. The literature shows that circularity cannot be reduced to recycling or resource recovery, since its transformative potential depends on changes in production systems, consumption practices, organizational models, institutions and territorial governance. Particular attention is given to circular business models, community energy, circular cities, cooperatives, social enterprises and just-transition policies. The review indicates that environmental improvements do not automatically generate social inclusion or equitable development. Their contribution depends on ownership structures, participation, employment conditions, distribution of economic value and access to decision-making. Cooperatives, social enterprises and community-based organizations may therefore provide institutional arrangements through which ecological objectives can be combined with territorial value creation and social participation. The paper argues that a solidarity-oriented ecological transition requires coordinated public policies linking resource efficiency with democratic governance, local economic development and distributive justice. Circular economy policies should consequently be assessed through environmental, economic, social and institutional criteria rather than through material-flow indicators alone.

Keywords: Circular economy; Ecological transition; Solidarity economy; Cooperatives; Just transition

JEL classification: Q01; Q56; Q58; P13; O35

Introduction

Growing environmental pressures have increased interest in economic models capable of reducing resource consumption while maintaining economic and social development. Within this context, the circular economy has progressively moved beyond its initial association with recycling toward a systemic approach involving production, consumption, resource management and organizational transformation. Ghisellini et al. (2016) describe

circularity as a transition operating simultaneously at micro, meso and macro levels, while Kirchherr et al. (2017) demonstrate that its interpretation must encompass reduction, reuse and systemic redesign rather than concentrating predominantly on recycling. Reike et al. (2018) similarly emphasize the importance of maintaining materials and products at their highest possible value through shorter resource loops. However, environmental efficiency alone does not guarantee sustainable development. Geissdoerfer et al. (2017), Murray et al. (2017) and Korhonen et al. (2018) draw attention to the social, distributive and institutional limitations of conventional approaches to circularity. These contributions suggest that ecological transition requires a broader perspective in which material efficiency is connected with social welfare, institutional coordination and territorial development. The circular economy can consequently be regarded not simply as a resource-management strategy but as one component of wider transformations affecting economic organization and social relations.

The relationship between circularity and solidarity-based development becomes particularly relevant when ecological transformation is examined through questions of ownership, participation, employment and territorial value creation. Sustainability-transition research emphasizes that environmental transformation involves changes in technologies, markets, institutions, practices and cultural expectations rather than isolated technological substitutions (Loorbach et al., 2017; Geels, 2019; Köhler et al., 2019). At the organizational level, cooperatives and social enterprises provide alternative arrangements through which environmental objectives can coexist with collective governance and social missions. Defourny and Nyssens (2017) demonstrate the institutional diversity of social enterprises, while Moreau et al. (2017) argue that circular-economy approaches remain incomplete when labor relations, governance and wealth distribution are neglected. Recent contributions concerning social and solidarity circular economy further indicate that circular activities may combine material recovery with employment inclusion and community participation (Ziegler et al., 2023; Monciardini et al., 2024). Against this background, this paper examines how circular economy principles, ecological-transition mechanisms and solidarity-based organizational arrangements can be articulated. It focuses on the conditions under which circular transformation can contribute simultaneously to environmental sustainability, territorial development, collective participation and a more equitable distribution of economic opportunities.

1. Circular Economy: Conceptual Foundations, Business Transformation and Social Dimensions

1.1. Conceptual foundations and systemic interpretations of the circular economy

Ghisellini et al. (2016) conceptualize the circular economy as a systemic transition operating across micro, meso and macro levels rather than as a narrow extension of recycling policy. Their perspective emphasizes the reorganization of production, consumption, resource use and environmental relations, making institutional coordination central to circular transformation. Kirchherr et al. (2017) reinforce the need for this broader interpretation by showing that circular-economy definitions frequently privilege recycling while giving considerably less attention to reduction, reuse, systemic redesign and social equity. Reike et al. (2018) provide a complementary resource-value perspective by distinguishing higher-value strategies such as refuse, reduce and reuse from lower-value options including recycling and energy recovery. Blomsma and Brennan (2017) further demonstrate that contemporary circular-economy thinking emerged through the consolidation of previously fragmented approaches to resource productivity and environmental management. Taken together, these contributions imply that ecological transition requires movement beyond downstream waste treatment toward more fundamental changes in production and consumption systems. Public policy should therefore prioritize higher-value circular strategies while creating institutional conditions that enable organizations and territories to redesign resource use rather than merely improve end-of-life management.

Geissdoerfer et al. (2017) demonstrate that circularity and sustainability overlap substantially but should not be treated as equivalent, since material efficiency does not automatically generate positive social or distributive outcomes. Murray et al. (2017) reinforce this concern by identifying the social dimension as comparatively underdeveloped within circular-economy thinking, particularly in relation to human welfare, societal needs and distributive justice. Korhonen et al. (2018) extend this critique by emphasizing spatial and temporal boundaries, rebound effects, governance limitations and the possibility that environmental or social costs may be transferred between places or groups. D'Amato et al. (2017) further show that circular economy, green economy and bioeconomy represent overlapping but distinct sustainability narratives, each emphasizing different mechanisms and objectives. Together, these contributions imply that circular-economy strategies become socially and environmentally meaningful only when embedded within a broader sustainability framework. Ecological transition should therefore combine resource circularity with explicit objectives concerning social welfare, environmental protection and distributive consequences. Institutional safeguards are needed to ensure that improved material efficiency does not obscure unequal burdens or substitute one environmental pressure for another.

Stahel (2016) links circularity with product-life extension, maintenance, repair, reuse and remanufacturing, emphasizing

that these activities can preserve material value while generating labor-intensive and geographically embedded economic opportunities. This contribution creates a direct connection between ecological transition and territorial development because higher-value circular activities can support locally anchored employment. Reike et al. (2018) complement this interpretation by showing that short resource loops retain more product and material value than recycling or energy recovery, thereby creating institutional space for repair enterprises, reuse organizations and other locally embedded actors. Ghisellini et al. (2016) further demonstrate that successful circularity requires coordination across organizational and territorial scales, while Geissdoerfer et al. (2017) caution that employment or economic opportunities should not automatically be interpreted as sustainable unless social objectives are explicitly incorporated. Considered jointly, these contributions imply that circular-economy policy can support solidarity-based territorial development when resource preservation is linked with accessible and quality local employment. Repair, maintenance and reuse activities can reduce environmental pressures while strengthening local economies, but their developmental contribution depends on governance arrangements ensuring that circular value creation also produces socially inclusive outcomes.

1.2. Circular business models, organizational innovation and implementation

Bocken et al. (2016) show that circular business models can slow, narrow and close resource loops through strategies such as longevity, repair, reuse, remanufacturing and recycling, thereby translating circular principles into concrete organizational choices. Lewandowski (2016) reinforces this organizational perspective by identifying circular value propositions, reverse logistics, take-back systems and stakeholder participation as components requiring capabilities beyond those of conventional linear models. Urbinati et al. (2017) further demonstrate that firms can adopt circularity at different levels of depth, from incremental adjustments to more extensive restructuring of value propositions and value networks. Pieroni et al. (2019) add that business-model innovation for circularity requires structured methods integrating environmental objectives into value creation, delivery and capture, while social outcomes remain comparatively underdeveloped. Taken together, these contributions imply that circular transition cannot be assessed solely through technological efficiency or isolated recycling initiatives. More advanced circular models require organizational redesign and attention to the social distribution of value. This creates space for cooperative and community-oriented arrangements in repair, sharing, reuse and product-service activities, provided that workers, communities and accessibility are incorporated explicitly into circular business-model design.

Konietzko et al. (2020) conceptualize circular innovation as an ecosystem process in which materials, products, information and capabilities circulate across multiple organizations rather than remaining within individual firms. Their perspective implies that collaboration is structurally necessary for circularity. Frishammar and Parida (2019) reinforce this argument by showing that incumbent firms moving toward circular business models require experimentation, ecosystem collaboration and changes in external relationships with suppliers, customers and institutional actors. Lieder and Rashid (2016) similarly emphasize that manufacturing transition depends on coordinated change involving production systems, business models and consumers, since isolated technical improvements cannot overcome fundamentally linear supply chains. Kalmykova et al. (2018) broaden the perspective across entire value chains by mapping interventions from extraction and production to consumption and resource recovery. Together, these contributions imply that circular development is inherently interorganizational and therefore compatible with territorial forms of collective action. Municipalities, cooperatives, associations, enterprises and citizens can perform complementary roles in reuse, redistribution and recovery systems. Ecological transition policy should consequently promote collaborative infrastructures that enable shared responsibility and resource circulation instead of relying exclusively on firm-centered optimization.

Ranta et al. (2018) demonstrate that regulations, cultural expectations and market arrangements generate different pathways toward circular-economy implementation across China, Europe and the United States, showing that institutional environments strongly condition organizational adoption. Konietzko et al. (2020) complement this institutional perspective by emphasizing that circular ecosystems depend on alignment and complementary capabilities among multiple participants. Lewandowski (2016) further shows that stakeholder participation and network-based organization are essential to maintaining resources within productive loops, while Frishammar and Parida (2019) demonstrate that successful transformation requires external relationships and institutional engagement alongside internal capabilities. Considered jointly, these contributions imply that circularity should be understood as an institutionally embedded collective transition rather than as the diffusion of individual technologies. This perspective is especially relevant to solidarity-based development because organizations combining environmental and social missions may depend heavily on supportive regulation, local partnerships and access to collaborative networks. Public policy should therefore create enabling institutional environments in which circular value chains include com-

munity and solidarity actors as active participants, allowing environmental gains to be accompanied by locally anchored cooperation and more broadly shared economic value.

1.3. Social, institutional and justice dimensions of circularity

Calisto Friant et al. (2020) show that circular-economy discourses differ substantially in their assumptions concerning technological innovation, economic growth, ecological limits and social justice. Their typology demonstrates that circularity can support either incremental efficiency improvements or more fundamental transformations in economic and social organization. Genovese and Pansera (2021) reinforce this distinction by criticizing technocratic versions of circular economy that leave prevailing power relations, consumption patterns and ownership structures largely unchanged. Hobson (2016) similarly emphasizes the importance of experimental spaces in which alternative forms of consumption, sharing and collective provision can develop. Corvellec et al. (2022) further show that circularity contains contested political choices concerning what should circulate, who benefits from transition and who bears its costs. Taken together, these contributions imply that ecological transition cannot be considered transformative simply because material loops become more efficient. A solidarity-oriented circular economy requires democratic participation, changes in consumption and ownership practices, and explicit attention to distributive consequences. Circular policy should therefore create institutional space for collective forms of provision and participation while ensuring that technical innovation is embedded within broader objectives of social justice and ecological responsibility.

Padilla-Rivera et al. (2020) demonstrate that employment, equity, participation, health and community well-being remain substantially less developed than environmental and economic dimensions within circular-economy research. This finding implies that circular-transition assessment requires explicit social indicators rather than assumptions that resource efficiency will automatically improve social outcomes. Mies and Gold (2021) reinforce this perspective by identifying labor practices, human rights, community well-being and stakeholder participation as important but fragmented dimensions of circularity, while highlighting collaboration, education and legislative support as leverage points. Schroeder et al. (2019) broaden the evaluative framework by linking circular practices to multiple Sustainable Development Goals, showing that circularity can contribute to responsible production as well as wider economic, social and environmental objectives. Velenturf and Purnell (2021) further argue that circularity should serve sustainable development through reduced resource consumption, environmental regeneration, social well-being and effective governance. Together, these contributions imply that solidarity-based circular transition requires

multidimensional evaluation. Policies should assess not only waste reduction or material recovery but also employment quality, participation, distribution and community outcomes. Social indicators should therefore become integral to the design and monitoring of circular-economy strategies.

Millar et al. (2019) caution that greater circularity does not necessarily produce environmental sustainability, particularly when rebound effects or continued growth in aggregate consumption offset resource-efficiency gains. Their contribution implies that absolute environmental outcomes should take precedence over circularity indicators considered in isolation. Corvellec et al. (2022) reinforce this concern by showing that thermodynamic limits, conceptual ambiguity and political assumptions constrain claims that circular systems can eliminate environmental pressures. Velenturf and Purnell (2021) respond to such limitations by framing a sustainable circular economy around ecological boundaries, resource reduction, resilience and social welfare rather than resource circulation alone. Genovese and Pansera (2021) further emphasize that meaningful ecological transformation requires changes in economic priorities and participation structures alongside technological modernization. Considered jointly, these contributions imply that circularity should be treated as a means toward ecological and social transformation rather than as an autonomous policy objective. Sustainable transition therefore requires absolute reductions in environmental pressure, democratic governance and institutional mechanisms ensuring that environmental gains are not achieved through higher consumption, displaced costs or persistent social inequalities.

2. Ecological Transition: Governance, Communities and Territorial Transformation

2.1. Sustainability-transition theory and transformative governance

Loorbach et al. (2017) conceptualize sustainability transitions as fundamental changes in technologies, institutions, markets, behaviors and cultures, emphasizing experimentation and the interaction between emerging alternatives and established regimes. This perspective provides a useful foundation for understanding circular and solidarity-based initiatives as niches in which alternative forms of production, consumption and ownership can develop. Geels (2019) reinforces this interpretation through the multi-level perspective, showing that local innovations operate within wider regimes and landscape pressures that can either constrain or enable their expansion. Köhler et al. (2019) broaden the transition agenda by emphasizing actors, institutions, geography, power relations and distributive consequences, thereby demonstrating that sustainability transitions cannot be reduced to technological substitution. Schot and Kanger (2018) extend the argument through the concept of deep

transitions, explaining how shared rules can become institutionalized across multiple socio-technical systems over long periods. Taken together, these contributions imply that circular solidarity transition requires changes extending beyond isolated projects or technologies. Alternative initiatives must be accompanied by shifts in regulations, infrastructures, market arrangements and cultural expectations if linear patterns of resource use and conventional forms of economic organization are to be durably transformed.

Patterson et al. (2017) place governance and politics at the center of sustainability transformations, emphasizing that environmental change involves conflicts among actors possessing different interests, resources and values. Scoones et al. (2020) reinforce this political perspective by combining structural, systemic and enabling approaches, thereby connecting political economy and inequality with complex systems and local agency. Fazey et al. (2018) add that transition research should be collaborative, reflexive and action oriented, treating communities and practitioners as active participants in knowledge production rather than passive recipients of externally designed solutions. Kivimaa et al. (2019) further demonstrate that transition intermediaries can facilitate networking, learning, expectation formation and institutional change between innovative initiatives and established systems. Together, these contributions imply that ecological transition requires participatory governance structures capable of coordinating heterogeneous actors while strengthening the agency of communities and locally embedded organizations. Municipalities, cooperative federations, associations and development agencies can perform intermediary functions linking small-scale circular initiatives with broader institutional change. Solidarity-based transition therefore depends not only on technological innovation but also on collective decision-making, knowledge sharing and institutional arrangements capable of addressing unequal power relationships.

Turnheim et al. (2015) show that sustainability-transition pathways require methodological approaches combining quantitative modeling with socio-technical perspectives because technological and economic projections alone cannot capture institutional dynamics, political processes and actor strategies. Köhler et al. (2019) similarly emphasize that transition impacts must be studied through multiple dimensions, including institutions, power, geography and ethics. Scoones et al. (2020) further demonstrate that systemic change must be understood together with structural inequalities and the practical agency of actors developing alternatives, while Schot and Kanger (2018) show that transformations may involve long-term changes in shared rules spanning several interconnected systems. Considered jointly, these contributions imply that circular solidarity transitions should be evaluated through integrated frameworks capable of

connecting material flows with institutional, territorial and social change. Measuring resource efficiency alone cannot reveal whether circular innovations alter ownership relations, strengthen local participation or reduce inequalities. Research and policy evaluation should therefore combine environmental indicators with evidence concerning governance, institutional transformation and distribution so that ecological transition is assessed according to both physical sustainability and the societal structures through which new economic practices become established.

2.2. Community energy, cooperative ownership and collective ecological action

Bauwens et al. (2016) show that community renewable-energy initiatives are shaped by institutional frameworks, organizational forms and social motivations rather than by technological performance or profitability alone. Their contribution demonstrates how cooperative ownership can transform citizens from passive consumers into producers and decision-makers while retaining a greater share of economic value locally. Hewitt et al. (2019) reinforce this perspective by conceptualizing community energy as a form of social innovation capable of reshaping relationships among citizens, markets and public authorities and generating benefits extending beyond carbon reduction. Van der Schoor and Scholtens (2015) further show that locally organized energy initiatives can mobilize community knowledge and collective capabilities to create bottom-up pathways toward greater energy autonomy. Magnani and Osti (2016) add that grassroots renewable-energy initiatives depend on civic mobilization and territorial social capital, although institutional and market barriers may limit their development. Taken together, these contributions imply that decentralized energy transition can become a solidarity-based territorial process when communities obtain substantive roles in ownership, governance and value creation. Public policy should therefore support collective organization and local capacity building alongside renewable-energy investment so that decarbonization strengthens community agency rather than merely replacing one technological system with another.

Brummer (2018) demonstrates that community energy can generate local participation, social acceptance, economic benefits and community empowerment, while financial and regulatory barriers strongly condition its expansion across different national settings. Wierling et al. (2018) reinforce the institutional dimension by documenting considerable cross-country variation in European energy cooperatives, indicating that national environments influence the capacity of citizens to organize as investors, producers and decision-makers. Koirala et al. (2016) complement this perspective by showing that integrated

community-energy systems depend on interactions among technological, socioeconomic, institutional and governance factors, particularly as decentralized generation, storage and smart management expand the possibilities for active consumer participation. Dóci and Vasileiadou (2015) add that participation in community renewable-energy initiatives reflects environmental and social motivations alongside financial considerations. Together, these contributions imply that community-centered ecological transition relies on an enabling combination of technology, institutions and plural motivations. Financing mechanisms and regulation should therefore accommodate organizational models in which citizens pursue economic, environmental and community objectives simultaneously. The viability of cooperative energy cannot be inferred from technology costs alone because participation also depends on institutional accessibility, organizational capacity and citizens' willingness to support collective forms of ecological investment.

Goedkoop and Devine-Wright (2016) show that shared ownership does not automatically create legitimate community participation, since trust, procedural justice and the ability of local populations to influence decisions are central to the acceptance of renewable-energy projects. This finding implies that solidarity-based ecological transition requires substantive governance rights rather than symbolic financial participation. Bauwens et al. (2016) similarly demonstrate that collective ownership and organizational arrangements determine how citizens participate in community-energy systems, while Hewitt et al. (2019) show that such initiatives can strengthen democratic participation and local networks when they alter relationships among public authorities, markets and communities. Brummer (2018) further emphasizes community empowerment as one potential benefit of locally owned renewable energy while identifying institutional barriers capable of restricting it. Considered jointly, these contributions imply that community energy should be evaluated not only through renewable capacity or financial returns but also through the distribution of decision-making power and benefits. Effective policy should therefore promote transparent governance, trustworthy institutional relationships and fair benefit-sharing arrangements so that renewable-energy transition strengthens local participation, territorial value retention and collective control over environmental infrastructure.

2.3. Circular cities, territorial development and place-based ecological transition

Prendeville et al. (2018) show that urban circular-economy strategies depend on political leadership, experimentation, stakeholder engagement and knowledge of local resource flows rather than on the replication of standardized technical models. This place-based perspective is reinforced by Williams (2019),

who demonstrates that the implementation of reuse, recycling and recovery practices varies according to local infrastructure, governance capacity, economic conditions and social organization. Marin and De Meulder (2018) add that circular-city strategies embody different spatial and political interpretations of sustainability, meaning that planning choices influence who participates in and benefits from circular infrastructures. Paiho et al. (2020) further conceptualize circular cities as interconnected systems involving material, energy and other resource flows that require coordinated governance and suitable indicators. Taken together, these contributions imply that territorial circular transition is fundamentally institutional and spatial rather than merely technical. Municipalities should therefore design circular strategies around local resource configurations, governance capacities and stakeholder relationships. Such an approach can create greater space for cooperatives, associations and community organizations to participate in circular systems while ensuring that urban ecological transformation remains responsive to local development conditions and social priorities.

Cramer (2020) demonstrates that transition brokers can coordinate fragmented market actors and stimulate collective circular initiatives that individual organizations might be unable to develop independently. This intermediary role is especially relevant at metropolitan level, where multiple public, private and community actors must align their activities around shared resource objectives. Morseletto (2020) complements this governance perspective by showing that clearly defined targets can translate broad circular ambitions into operational action and guide organizations toward specific forms of resource reduction, reuse and recovery. Petit-Boix and Leipold (2018) add that urban circular initiatives require stronger empirical assessment because policy practices and scientific evaluations do not always correspond, raising questions about the actual environmental effects of local strategies. Camacho-Otero et al. (2018) further demonstrate that user acceptance and everyday consumption practices influence whether sharing, reuse, repair and access-based systems succeed. Together, these contributions imply that urban circular governance requires coordination, measurable objectives and citizen engagement simultaneously. Territorial policy should therefore combine transition intermediaries and clear indicators with mechanisms encouraging participation and behavioral change, while evaluating whether circular initiatives deliver both environmental benefits and socially distributed local value.

Pomponi and Moncaster (2017) identify the built environment as a strategic meso-level domain connecting product-level circularity with wider industrial and territorial systems. Their framework implies that refurbishment, material recovery and

building reuse can generate locally embedded activities while reducing resource demand. Paiho et al. (2020) reinforce this systemic interpretation by showing that buildings must be considered alongside energy, mobility, consumption and other interconnected urban flows within circular-city strategies. Marin and De Meulder (2018) further emphasize that spatial planning determines how circular infrastructures are distributed and accessed, while Cramer (2020) shows that intermediaries can connect municipalities, firms and other organizations around collective transition initiatives. Considered jointly, these contributions imply that the circular city should be understood as a socio-spatial development project rather than a collection of isolated environmental technologies. Urban policy can use refurbishment, reuse and resource recovery to connect ecological objectives with local employment and economic activity, but this requires coordinated planning and collaborative governance. Circular urban development becomes more compatible with solidarity-based transition when locally rooted actors can participate in shaping infrastructures, retaining economic value and determining how environmental benefits are distributed across territories.

3. Solidarity-Based Development: Social Economy, Cooperatives and Just Transition

3.1. Social and solidarity economy, social enterprise and collective value creation

Defourny and Nyssens (2017) demonstrate that social enterprises take diverse institutional forms according to their missions, resources, economic interests and governance arrangements, providing an organizational basis for integrating environmental activities with explicit social objectives. Chaves and Monzón (2018) reinforce this perspective by distinguishing the social economy from related concepts such as circular economy, collaborative economy and social enterprise while showing important areas of interaction among them. Hlady-Rispal and Servantie (2018) add that social enterprises create and distribute multiple forms of value that cannot be reduced to financial returns, a particularly relevant consideration for circular activities generating environmental benefits, employment and community value simultaneously. Saebi et al. (2019) further show that social entrepreneurship operates across individual, organizational and institutional levels, connecting entrepreneurial initiatives with wider processes of social value creation and institutional change. Taken together, these contributions imply that circular ecological activities become more compatible with solidarity-based development when organizational design explicitly incorporates social missions and stakeholder-oriented value distribution. Repair, reuse, recycling and other circular activities should therefore be assessed not only through profitability and material efficiency but

also through their capacity to generate inclusive employment, community benefits and institutional change.

Santos et al. (2015) show that hybrid social enterprises must align organizational design with their combined commercial and social objectives if mission drift is to be avoided. This issue is especially important for circular social enterprises because growing markets for recycling, renewable energy and reuse may create commercial incentives that progressively overshadow social purposes. Battilana et al. (2015) reinforce this concern by demonstrating that work-integration social enterprises can reconcile social performance and economic productivity through differentiated responsibilities and organizational spaces in which competing demands are negotiated. Mitzinneck and Besharov (2019) provide a directly ecological illustration by showing how German renewable-energy cooperatives manage tensions among environmental, community and commercial values through structural, temporal and collaborative compromises. Hlady-Rispal and Servantie (2018) further emphasize that value creation must be accompanied by attention to how benefits are captured and shared among different stakeholders. Together, these contributions imply that solidarity-based circular organizations require governance mechanisms capable of managing plural objectives rather than assuming their automatic compatibility. Economic viability remains necessary, but organizational arrangements should preserve environmental and social missions while ensuring that generated value is distributed among workers, members and communities.

Pel et al. (2020) conceptualize transformative social innovation as a process that changes social relations, institutions and forms of empowerment rather than merely introducing new products or services. This perspective implies that circular solidarity initiatives become transformative when they alter ownership, participation and decision-making structures alongside material practices. Bretos and Marcuello (2017) reinforce this territorial dimension by showing that cooperatives can promote local stability, social cohesion and sustainable development while retaining economic benefits within communities. Mitzinneck and Besharov (2019) demonstrate how renewable-energy cooperatives operationalize such possibilities by combining collective ownership with environmental and economic objectives. Defourny and Nyssens (2017) further show that the institutional diversity of social-enterprise models creates multiple organizational pathways for pursuing these combined purposes. Considered jointly, these contributions imply that ecological transition can become socially transformative when circular activities are embedded in organizations that democratize economic participation and strengthen territorial relationships. Cooperatives and social enterprises can therefore contribute more than environmental services: when governance, ownership and



value distribution are collectively structured, they can reshape the social relations through which ecological transition is organized.

3.2. Socially embedded circularity, cooperatives and the circular society

Moreau et al. (2017) provide a direct conceptual bridge between the circular economy and the social and solidarity economy by showing that market-centered circular approaches often neglect labor, governance, institutions and the distribution of wealth. Their contribution implies that circularity becomes socially meaningful only when material recovery is accompanied by fair arrangements concerning who works, decides and benefits. Ziegler et al. (2023) reinforce this position by arguing that the social economy can embed circular practices within alternative ownership and governance structures oriented toward justice, sustainable scale and collective objectives. Monciardini et al. (2024) provide empirical substance through the concept of a social and solidarity circular economy, showing how Italian social cooperatives combine the valorization of discarded materials with the inclusion of marginalized people through networked action and participatory scaling. Ziegler et al. (2023) further demonstrate that cooperatives can participate across reduction, reuse, repair and other circular strategies rather than remaining confined to recycling. Taken together, these contributions imply that solidarity-based circular development requires organizational forms capable of integrating material preservation with democratic governance, social inclusion and equitable value distribution. Cooperatives and social enterprises can therefore become central actors when circular transition is designed as a socioeconomic transformation rather than as a technical resource-management process.

Jaeger-Erben et al. (2021) argue that a sustainable circular economy requires the emergence of a circular society in which citizens participate actively in reshaping resource use, sharing and consumption rather than functioning merely as purchasers of circular products. Hobson and Lynch (2016) reinforce this transformative perspective by questioning whether circularity can overcome ecological pressures while remaining embedded within expansionary consumption patterns and by emphasizing sufficiency and alternative social practices. Pla-Julián and Guevara (2019) broaden the normative foundations of transition through care ethics, showing that gender, social reproduction and human interdependence should accompany technological and organizational change. Valencia et al. (2023) complement these arguments through a capabilities-oriented perspective that incorporates equity, diversity, collaboration, quality of life, governance and reconsideration of ownership and value chains. Together, these contributions imply that circular transition

should involve changes in social practices and economic priorities alongside changes in material flows. A solidarity-based circular society therefore requires institutions that recognize care, participation and collective capabilities while encouraging sufficiency and shared responsibility. Such an approach moves circularity beyond efficiency toward a broader restructuring of how societies define needs, distribute resources and organize economic participation.

Guerreschi and Díaz López (2023) show that the intersection between cooperatives, circular economy and eco-innovation remains comparatively underdeveloped despite strong theoretical compatibility between cooperative principles and circular practices. Their findings point to the need for stronger empirical evidence on whether democratic governance and community orientation actually produce superior ecological and social outcomes. Monciardini et al. (2024) contribute directly to this gap by demonstrating how circular social cooperatives can simultaneously reintegrate wasted materials and marginalized people through social circular innovation and collaborative networks. Moreau et al. (2017) provide the institutional foundation for interpreting such models by emphasizing that labor relations, governance and distribution must be incorporated into circular-economy design. Valencia et al. (2023) further show that capabilities, equity and quality of life should form part of the evaluation of circular strategies. Considered jointly, these contributions imply that future assessment of solidarity-based circular development should move beyond conventional indicators of recycling or resource productivity. Research and policy should examine whether cooperative and social-enterprise models improve participation, employment inclusion, capabilities and distribution while also delivering measurable environmental gains.

3.3. Circular policy, just ecological transition and sustainable supply chains

Milios (2018) shows that circular-economy transition requires coordinated policy intervention across reuse, repair, remanufacturing, public procurement and secondary-material markets rather than reliance on market incentives alone. Hartley et al. (2020) reinforce this policy-mix perspective by identifying standards, fiscal incentives, circular procurement, eco-industrial support and awareness measures as complementary instruments operating across production and consumption systems. Touil et al. (2023) provide a Moroccan firm-level extension by showing that stakeholder pressure, economic and energy efficiency, profitability and government incentives can influence green-supply-chain adoption among SMEs. Touil et al. (2024) further demonstrate that sourcing management, sustainability-oriented contracts, green technologies, transparency and traceability can contribute to financial performance, indicating that en-

vironmental transition can be compatible with organizational viability. Taken together, these contributions imply that ecological transition depends on policy coherence and firm-level implementation simultaneously. Public authorities should therefore combine regulatory, fiscal and procurement instruments with measures that help enterprises reorganize supply chains. Such policy mixes can also support locally embedded cooperatives and social enterprises when procurement and circular-market instruments are designed to distribute transition opportunities beyond large incumbent firms.

Healy and Barry (2017) show that decarbonization must be evaluated through its effects on workers and territories because environmental transformation inevitably creates differentiated costs and benefits. Their just-transition perspective therefore makes employment, participation and distribution integral to ecological policy rather than secondary compensation issues. McCauley and Heffron (2018) deepen this interpretation by distinguishing distributional, procedural and restorative justice, thereby broadening transition beyond the creation of green jobs. Carley and Konisky (2020) similarly demonstrate that communities differ substantially in their exposure to transition burdens and their capacity to access emerging opportunities. Wang and Lo (2021) further show that just transition encompasses labor, integrated justice, socio-technical change, governance and public perception, confirming that justice can be embedded directly within transition frameworks. Together, these contributions imply that circular and ecological policies should be designed around the social distribution of opportunities, risks and decision-making authority. A solidarity-based transition therefore requires mechanisms protecting vulnerable workers and places while enabling them to participate in new forms of employment, investment and governance generated by environmental restructuring.

Hartley et al. (2020) demonstrate that circular transition requires coordinated intervention across the life cycle, meaning that policy can influence not only material flows but also which actors gain access to emerging circular markets. Milios (2018) reinforces this point by identifying public procurement and support for repair and reuse as instruments capable of directing demand toward locally embedded economic activities. Healy and Barry (2017) add that such restructuring becomes socially legitimate only when alternative employment and territorial opportunities accompany the decline of environmentally damaging activities. Carley and Konisky (2020) further emphasize that disadvantaged communities often possess fewer resources to capture the benefits generated by low-carbon transformation. Considered jointly, these contributions imply that circular policy should combine ecological effectiveness with deliberate distributional

design. Procurement, taxation, innovation support and secondary-material markets can accelerate resource conservation, but their social contribution depends on whether SMEs, cooperatives, workers and vulnerable territories can participate meaningfully in the resulting economic opportunities. Circular transition therefore becomes more consistent with solidarity-based development when environmental modernization is accompanied by equitable access to markets, employment, infrastructure and institutional support.

4. Discussion

The literature first establishes that the environmental contribution of circularity depends on the depth of the transformation undertaken. Bocken et al. (2016) demonstrate that organizations can narrow, slow and close resource loops through longevity, repair, reuse, remanufacturing and recycling, while Lewandowski (2016) emphasizes that such strategies require modifications to value propositions, logistics and stakeholder relationships. However, circularity should not be interpreted as an environmental outcome in itself. Millar et al. (2019) warn that rebound effects and growing aggregate consumption may offset efficiency gains, and Corvellec et al. (2022) underline the physical and political limitations surrounding expectations of complete circularity. These arguments support the position of Velen-turf and Purnell (2021), who associate a sustainable circular economy with resource reduction, environmental regeneration, social welfare and governance. The transition must therefore prioritize absolute environmental improvements rather than increasing circulation rates without reducing overall pressures. This interpretation also changes the role assigned to business-model innovation. Circular firms cannot be evaluated solely according to resource productivity or economic performance. Their contribution should include their effects on employment, accessibility, participation and territorial value creation. Circular transformation consequently becomes part of a broader sustainability agenda in which environmental performance and socioec-onomic outcomes must be considered jointly.

A second finding concerns the territorial and institutional conditions governing ecological transformation. Sustainability-transition research demonstrates that innovations develop within institutional systems that can either facilitate or restrict their diffusion (Geels, 2019; Köhler et al., 2019). Patterson et al. (2017) and Scoones et al. (2020) further show that transformations contain political and distributive dimensions because actors differ in resources, interests and capacities to influence change. Community-energy research provides a concrete illustration of these dynamics. Bauwens et al. (2016) show that cooperative renewable-energy initiatives depend on institutional frameworks, organizational arrangements and social motivations, while Hewitt et al. (2019) interpret community energy as

a form of social innovation capable of modifying relationships between citizens, markets and public authorities. Goedkoop and Devine-Wright (2016) nevertheless demonstrate that shared ownership does not automatically generate meaningful participation because procedural justice and trust remain determining conditions. Comparable considerations apply to circular cities. Prendeville et al. (2018) and Cramer (2020) emphasize political leadership, intermediaries and stakeholder coordination in the development of local circular systems. Ecological transition therefore becomes territorial when local actors participate substantively in governance and when environmental investments generate locally retained economic and social benefits rather than merely introducing cleaner technologies.

A third finding is that solidarity-based organizations can provide institutional mechanisms for connecting environmental objectives with social inclusion, although such compatibility cannot be presumed. Moreau et al. (2017) argue that conventional circular-economy frameworks often insufficiently address labor, governance and wealth distribution. Ziegler et al. (2023) respond to this limitation by demonstrating the potential contribution of social-economy organizations to circular strategies based on alternative ownership structures and collective objectives. Monciardini et al. (2024) provide empirical support by showing how Italian social cooperatives combine material valorization with the inclusion of marginalized populations. This potential nevertheless creates organizational tensions. Santos et al. (2015) and Battilana et al. (2015) show that organizations combining social and commercial objectives require governance mechanisms capable of preventing mission drift and managing competing demands. Mitzinneck and Besharov (2019) identify similar tensions within renewable-energy cooperatives combining environmental, community and commercial values. Public policy consequently becomes important in shaping whether ecological opportunities remain accessible to solidarity-based actors. Milios (2018) and Hartley et al. (2020) indicate that procurement, fiscal measures, standards and support for repair and reuse can structure emerging circular markets. Their design can therefore influence how economic opportunities and environmental benefits are distributed.

Conclusion

The literature examined in this paper indicates that circular economy, ecological transition and solidarity-based development constitute distinct but potentially complementary fields. Circular-economy principles contribute to environmental transformation by extending product life, reducing material consumption and promoting reuse, repair, remanufacturing and resource recovery. Ecological-transition research demonstrates, however, that such changes cannot be sustained through technical improvements alone because production systems are embedded



within institutions, markets, infrastructures, territorial relations and political arrangements. Solidarity-based development adds a further dimension by directing attention toward collective ownership, democratic participation, employment inclusion and the distribution of economic value. The intersection of these perspectives therefore provides a broader framework for evaluating environmental transformation. Circularity becomes more compatible with sustainable development when resource preservation is accompanied by measurable reductions in environmental pressure and when economic opportunities are accessible to workers, communities and locally embedded organizations. Co-operatives, social enterprises, associations and community initiatives can contribute to this process because their institutional structures allow environmental activities to be connected with social missions. Their contribution nevertheless depends on effective governance, economic viability and their capacity to preserve collective objectives as circular markets expand.

These findings also have implications for public policy and future research. Ecological policies should avoid assuming that environmental modernization automatically produces socially equitable outcomes. Healy and Barry (2017), McCauley and Heffron (2018), and Carley and Konisky (2020) demonstrate that transition costs and benefits are unevenly distributed among workers, communities and territories. Circular policy should consequently combine environmental targets with explicit objectives concerning employment quality, participation, access to markets and territorial development. Public procurement, repair and reuse incentives, secondary-material markets, financing instruments and institutional support can be designed to facilitate participation by SMEs, cooperatives and social enterprises rather than concentrating emerging opportunities among established market actors. Research should similarly move beyond indicators centered exclusively on recycling rates, material productivity or technological adoption. Following Padilla-Rivera et al. (2020), Mies and Gold (2021) and Valencia et al. (2023), evaluation should incorporate equity, capabilities, participation, community well-being and governance alongside environmental performance. A solidarity-based circular transition can therefore be understood as a coordinated transformation in which resource conservation, institutional change and social participation jointly shape the organization and distribution of ecological development.

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