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From Ordnungspolitik to Digital Circularity: Governance, Culture and Human Agency in the Transition to Regenerative Business Models

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Abstract

This article develops a governance–culture–agency framework for the transition from linear to regenerative business models by reinterpreting the ordoliberal principle of Ordnungspolitik for the age of digital circularity. Using an integrative literature review and policy document analysis, the study synthesizes insights from ordoliberal political economy, circular economy scholarship, and management/organizational research. Results show that outcome-oriented, technology-neutral framework rules—eco-design and durability requirements, rights to repair and data-for-repair, eco-modulated extended producer responsibility, product passports, and data portability/interoperability—create the enabling conditions for decentralized innovation while safeguarding competition and the common good. Digital tools (AI, IoT, distributed ledgers) can materially enable circular strategies through sensing, prediction, and traceability, but only when embedded in transparent, auditable, and contestable infrastructures that mitigate rebound effects and platform lock-in. Organizational culture and human agency are decisive: leader mindsets, psychological resilience, incentive redesign, and learning routines translate policy signals and digital capabilities into practice. Higher education institutions accelerate diffusion through interdisciplinary curricula, living labs, and standard-setting support. The contribution is a theoretically grounded and actionable architecture that aligns institutional order, technological design, and human development to achieve durable, regenerative outcomes.

Keywords: *Ordoliberalism, Circular economy, Digital governance, Organizational culture, Regenerative business models.*

Dari Ordnungspolitik ke Digital Circularity: Tata Kelola, Budaya, dan Peran Manusia dalam Transisi ke Model Bisnis Regeneratif

Abstract

Artikel ini mengembangkan kerangka kerja tata kelola–budaya–agen untuk transisi dari model bisnis linear ke regeneratif dengan menginterpretasi ulang prinsip ordoliberal Ordnungspolitik untuk era sirkularitas digital. Menggunakan tinjauan literatur integratif dan analisis dokumen kebijakan, studi ini mensintesis wawasan dari ekonomi politik ordoliberal, penelitian ekonomi sirkular, dan riset manajemen/organisasi. Hasil menunjukkan bahwa aturan kerangka kerja yang berorientasi pada hasil dan netral teknologi—persyaratan desain ramah lingkungan dan ketahanan, hak untuk memperbaiki dan data untuk perbaikan, tanggung jawab produsen yang diperluas dengan modulasi ramah lingkungan, paspor produk, dan portabilitas/interoperabilitas data—menciptakan kondisi yang memfasilitasi inovasi terdesentralisasi sambil melindungi persaingan dan kepentingan umum. Alat digital (AI, IoT, ledger terdistribusi) dapat secara signifikan memfasilitasi strategi ekonomi sirkular melalui pemantauan, prediksi, dan pelacakan, tetapi hanya jika terintegrasi dalam infrastruktur yang transparan, dapat diaudit, dan dapat dipertanyakan yang memitigasi efek rebound dan ketergantungan platform. Budaya organisasi dan agen manusia sangat menentukan: pola pikir pemimpin, ketahanan psikologis, perancangan insentif, dan rutinitas pembelajaran mengubah sinyal kebijakan dan kemampuan digital menjadi praktik. Institusi pendidikan tinggi mempercepat penyebaran melalui kurikulum interdisipliner, laboratorium hidup, dan dukungan penetapan standar. Kontribusi ini adalah arsitektur yang didasarkan pada teori dan dapat diterapkan yang menyelaraskan

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tatanan institusional, desain teknologi, dan pengembangan manusia untuk mencapai hasil yang berkelanjutan dan regeneratif.

***Keywords**: Ordoliberalism, Ekonomi Sirkular, Tata Kelola Digital, Budaya Organisasi, Model Bisnis Regeneratif..*

INTRODUCTION

The transition from linear, extractive business models to circular and regenerative ones is unfolding amid profound technological, ecological, and social pressures. A useful—yet underexplored—intellectual lens for governing this transition is the ordoliberal tradition, which emphasizes a rules-based "order policy" (Ordnungspolitik) that safeguards competition and orients markets toward the public good without micromanaging firm-level decisions (Eucken, 1952; Böhm, 1933; Müller-Armack, 1947). In the post-war German Soziale Marktwirtschaft, this translated into a constitutional and regulatory framework designed to prevent market power, ensure price stability, and align economic freedom with social responsibility—an approach that sought to solve the "state versus market" dilemma by specifying the rules of the game rather than the moves themselves (Eucken, 1952; Röpke, 1950). Today's sustainability challenges—climate change, biodiversity loss, resource scarcity, and social fragmentation—reintroduce the same governance puzzle under new conditions: how to design institutional frameworks that steer markets toward long-term societal and ecological goals while preserving innovative dynamism.

In sustainability scholarship and policy, the circular economy (CE) has emerged as a prominent paradigm to decouple value creation from virgin resource extraction through strategies of narrowing, slowing, closing, and regenerating resource loops (Ellen MacArthur Foundation, 2013; Geissdoerfer et al., 2017). Yet, despite rapid diffusion of CE discourse, definitional ambiguity and implementation gaps persist—particularly around system boundaries, value retention hierarchies, and rebound effects (Kirchherr et al., 2017). This suggests the need for a governance approach that is neither technocratic planning nor laissez-faire minimalism, but one that sets robust framework conditions (e.g., liability, competition, data and product standards, extended producer responsibility) under which diverse actors can innovate toward regenerative outcomes (OECD, 2016; European Commission, 2020).

Concurrently, digital technologies—AI, IoT, distributed ledgers—are reconfiguring how resources are sensed, coordinated, and valued across product life cycles. Smart, connected products and assets promise predictive maintenance, higher utilization, and traceability—capabilities that can materially enable CE strategies at scale (Porter & Heppelmann, 2014). Blockchain-based ledgers can increase transparency for secondary materials markets and due-diligence claims, while data platforms can orchestrate reverse logistics and product-as-a-service models (Iansiti & Lakhani, 2017). However, without appropriate institutional safeguards (interoperability, competition policy, data rights, and auditability), digital infrastructures risk entrenching market concentration, lock-in, or externalization of social and environmental costs—classic ordoliberal concerns about power asymmetries and the erosion of competitive order (Eucken, 1952; OECD, 2019).

Organizational culture and human agency critically mediate whether these technological and regulatory possibilities translate into real transformation. Research on change and sustainability highlights that values, leadership mindsets, and learning routines often determine the success of CE and ESG implementation more than technical blueprints alone (Schein, 2010; Hart & Dowell, 2011). Leaders require mental models oriented to systems thinking and long-term value; organizations need cultures that reward collaboration, transparency, and stewardship, not merely short-term financial metrics. In this respect, ordoliberalism's insistence on order as a precondition for freedom resonates with contemporary calls for ethical and transparent digital governance that protects competition and the common good while enabling entrepreneurial discovery (Müller-Armack, 1947; European Commission, 2019).

Ordnungspolitik for CE policy design in the age of data-driven coordination; (2) assess how digital technologies can both enable and undermine regenerative business models depending on institutional settings; and (3) examine the psychological and cultural capabilities leaders and organizations need to operationalize CE and ESG principles. By connecting market order,

technological infrastructure, and human factors, we address a gap between macro-level policy discourse and micro-level transformation practices. The contribution is twofold: a theoretically grounded account of how rules, norms, and incentives should be structured to foster regenerative competition, and a practical lens for managers and educators to cultivate cultures and capabilities aligned with that order. In doing so, we align with and extend current CE policy trajectories while cautioning against "tech-solutionism" detached from institutional design and human development (Kirchherr et al., 2017; European Commission, 2020; Hart & Dowell, 2011).

This article integrates ordoliberal political economy with contemporary management and sustainability scholarship to propose a governance-culture-agency framework for the transition to digital circularity. Specifically, the study reinterpret Ordnungspolitik for CE policy design in the age of data-driven coordination; assess how digital technologies can both enable and undermine regenerative business models depending on institutional settings; and examine the psychological and cultural capabilities leaders and organizations need to operationalize CE and ESG principles. By connecting market order, technological infrastructure, and human factors, the study address a gap between macro-level policy discourse and micro-level transformation practices. The contribution is twofold: a theoretically grounded account of how rules, norms, and incentives should be structured to foster regenerative competition, and a practical lens for managers and educators to cultivate cultures and capabilities aligned with that order. In doing so, the study align with and extend current CE policy trajectories while cautioning against "tech-solutionism" detached from institutional design and human development (Kirchherr et al., 2017; European Commission, 2020; Hart & Dowell, 2011).

METHODS

An integrative review was conducted, complemented by policy document analysis and thematic synthesis, to develop the *governance–culture–agency* framework. Integrative reviews are particularly suitable for connecting fragmented bodies of knowledge and building theoretical coherence across diverse research traditions (Torraco, 2005; Snyder, 2019). The study followed established evidence-informed procedures from management and organizational research (Tranfield, Denyer, & Smart, 2003).

Search and selection process. Two major databases—Web of Science and Scopus—were systematically searched, covering the period from the 1930s to 2025. Google Scholar was used only to trace seminal citations. Search strings combined the terms *ordoliberalism* / *Ordnungspolitik* and *social market economy* with concepts such as *circular* and *regenerative business models*, *digital technologies* (AI, IoT, blockchain), *governance*, *organizational culture*, *leadership*, and *ESG*. The inclusion criteria focused on conceptual or empirical studies addressing (a) market order and competition, (b) circular or regenerative business models, or (c) digital governance and organizational or psychological enablers of sustainability transformation. Purely technical or engineering-oriented papers were excluded. Screening and eligibility decisions followed PRISMA-ScR recommendations (Tricco et al., 2018).

Policy corpus and coding. Key policy documents—such as the *EU Circular Economy Action Plan* and instruments on data, competition, and algorithmic governance—were treated as *organizational artifacts* (Bowen, 2009). They were coded for framework mechanisms (standards, liability, extended producer responsibility, and data/access rights), competition safeguards, and principles of transparency and accountability.

Analytical procedure. The analysis applied an abductive, constant-comparison approach linking ordoliberal concepts with findings from sustainability and management research. Thematic analysis (Braun & Clarke, 2006) and the Gioia methodology (Gioia, Corley, & Hamilton, 2013) were employed to move from first-order concepts to second-order themes and aggregate theoretical

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dimensions. An audit trail documented search strategies, inclusion decisions, and coding iterations to ensure transparency and reproducibility.

Limitations. As a conceptual synthesis without primary fieldwork, the findings depend on the scope and quality of available literature and policy materials. Nevertheless, transparency and methodological rigor were maintained through adherence to established review guidelines (Torraco, 2005; Snyder, 2019; Tricco et al., 2018).

RESULTS AND DISCUSSION

From Ordoliberalism to Contemporary Management Models

Ordoliberalism's central proposition—that competitive markets require an *order policy* (Ordnungspolitik) to prevent distortions from private or public power—offers practical guidance for today's governance of circular and regenerative business models (Eucken, 1952; Böhm, 1933; Müller-Armack, 1947). In the post-war *Soziale Marktwirtschaft*, constitutional rules, independent competition authorities, and monetary stability created an enabling environment in which firms could discover efficient solutions while remaining constrained by clear guardrails against monopolization and rent-seeking (Eucken, 1952; Röpke, 1950). Transposed to sustainability transformations, the same logic implies prioritizing framework conditions—standards, liability regimes, disclosure rules, competition policy, and extended producer responsibility (EPR)—over micromanagement of technologies or firm strategies (OECD, 2016; European Commission, 2020).

Three findings follow. First, framework ordering for circularity: outcome-oriented, technology-neutral rules (e.g., eco-design and durability standards; reparability and data-for-repair access; EPR with graduated fees by recyclability) were found to align incentives across supply chains without specifying organizational "moves." Such rules reduce transaction costs for reverse logistics and secondary materials, enhancing market contestability in remanufacturing and repair services—longstanding ordoliberal priorities (Eucken, 1952; European Commission, 2020). Second, competition safeguards in digital infrastructures: as platforms coordinate product life-cycle data, risks of lock-in and vertical foreclosure increase. Data-access, interoperability, and auditability obligations curb information advantages that could entrench dominant positions, echoing ordoliberal concerns about power asymmetries that erode competitive order (OECD, 2019). Third, discovery and innovation under credible constraints: clear, credible, and stable rules reduce policy risk for firms investing in product-as-a-service, remanufacturing, or materials marketplaces; conversely, volatile or discretionary interventions suppress experimentation and raise capital costs (Müller-Armack, 1947; OECD, 2016).

A common counterargument is that sustainability requires mission-oriented industrial policy that "picks winners." Evidence from circular economy (CE) deployments suggests more robust performance from rule-based instruments that set *ends* (e.g., waste-prevention targets, carbon pricing, recycled-content standards) while leaving *means* to decentralized experimentation, supplemented by challenge funds for pre-competitive collaboration (Geissdoerfer et al., 2017; Kirchherr et al., 2017). The ordoliberal lens therefore does not entail minimal government; rather, it emphasizes a strong but limited state that guards competitive order and the common good through predictable, general rules—now extended to environmental integrity and intergenerational equity.

Sustainable Development and Digitalization – Tensions and Synergies

Digital technologies create new affordances for circularity while introducing fresh governance risks. Synergies materialize through (a) *sensing and prediction*: IoT telemetry and AI-based predictive maintenance extend asset lifetimes and raise utilization rates, supporting "slowing" and "narrowing" resource loops (Porter & Heppelmann, 2014); (b) *traceability and verification*: distributed ledgers can provide tamper-evident provenance and chain-of-custody records for secondary materials and critical minerals, enabling market trust (Iansiti & Lakhani, 2017); and (c) *coordination at scale*: data platforms orchestrate reverse logistics, sharing models, and dynamic

matching between supply and demand for by-products and components (Ellen MacArthur Foundation, 2013; European Commission, 2020). When embedded in credible frameworks (eco-design, EPR, due-diligence), these capabilities operationalize CE strategies beyond pilots.

However, tensions arise when digitalization is pursued as "tech solutionism." First, rebound effects can offset efficiency gains if lowered operating costs stimulate additional consumption (Geissdoerfer et al., 2017). Second, data concentration and proprietary standards can undermine contestability of circular markets (e.g., parts, repair, refurbishment), conflicting with ordoliberal protections against private economic power (Eucken, 1952; OECD, 2019). Third, opacity in algorithmic decision-making can externalize social or environmental risks—e.g., optimization for short-run margin rather than lifecycle sustainability.

Results point to three design implications. (1) Interoperability and data-portability by design: common schemas for product passports, repair/maintenance records, and material composition create a level playing field for third-party service providers and secondary markets, reducing lock-in (European Commission, 2020). (2) Transparency and auditability: explainability and independent auditing of algorithms relevant to CE outcomes (e.g., routing priorities, quality grading of secondary materials) mitigate perverse incentives and enable regulatory oversight aligned with ordoliberal transparency norms. (3) Pricing the externalities: digital infrastructures are most effective when embedded within carbon pricing, eco-modulated EPR fees, and recycled-content standards that internalize environmental costs—turning data-enabled efficiency into *regeneratively aligned* profitability (Kirchherr et al., 2017; OECD, 2016).

In short, digital tools are neither inherently circular nor extractive. Their net effect depends on institutional embedding that preserves competitive order, protects rights to access/repair/data, and orients optimization toward long-term societal objectives—precisely the terrain of an updated Ordnungspolitik for the digital age.

Psychology and Organizational Culture in the Transformation of Business Models

Technical roadmaps underperform without commensurate shifts in mental models, leadership capabilities, and culture. Evidence from sustainability and change research indicates that deeply held assumptions about value creation (e.g., "growth through volume") often block circular strategies that prioritize durability, service, and multi-life revenues (Hart & Dowell, 2011). Results from the thematic synthesis highlight three levers.

First, leader mindsets and resilience: transformation entails uncertainty, iterative learning, and resistance. Psychological resilience—self-regulation under pressure, tolerance for ambiguity, and reflective learning—correlates with persistence of CE initiatives through early setbacks and market noise. Leaders who frame CE as long-term value creation (lower lifecycle costs, risk hedging, customer lock-in through service quality) mobilize cross-functional commitment more effectively than compliance-oriented messaging (Hart & Dowell, 2011).

Second, cultural operating systems: organizational culture functions as the "hidden OS" that governs daily choices (Schein, 2010). Cultures that reward cross-boundary collaboration, transparency, stewardship, and experimentation enable redesign for modularity, reparability, and reverse flows. Conversely, cultures that valorize short-term sales and individual heroics tend to underinvest in design-for-circularity and data quality, producing "pilot graveyards." Embedding CE/ESG into routines—stage-gate criteria for eco-design, supplier codes, incentives that recognize lifetime margin and residual value—converts values into behavior.

Third, capabilities and incentives: material flow analysis, lifecycle costing, and systems thinking are teachable capabilities; however, incentive redesign is pivotal. Shifting KPIs from unit sales to service uptime, refill rates, or component recovery aligns local decisions with circular outcomes. Thematic evidence also underscores the importance of psychological safety for surfacing trade-offs (e.g., margin vs. durability) and avoiding greenwashing traps (Schein, 2010).

Cultural change cannot be outsourced to branding or CSR; it is a governance question inside the firm. Where external frameworks (e.g., eco-design standards, right-to-repair, disclosure) are strong, they reinforce internal culture by reducing ambiguity and rewarding early movers—mirroring ordoliberal co-dependence between rules and entrepreneurial discovery (Eucken, 1952). The

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intersection of psychological resilience, purpose-driven culture, and credible external rules appears decisive in converting digital tools into regenerative business practice.

The Role of Higher Education and Research Institutions

Higher education institutions (HEIs) shape the human capital, norms, and knowledge required for digital circularity. The synthesis identifies four roles.

(1) Curriculum integration for systems literacy. Embedding lifecycle thinking, industrial ecology, data governance, and ethics across management, engineering, and design programs develops T-shaped graduates who can translate between technical and organizational domains. Project-based courses with firms on product-as-a-service, product passports, and reverse logistics accelerate skill formation and produce open educational resources for diffusion (UNESCO, 2021; Ellen MacArthur Foundation, 2013).

(2) Interdisciplinary research and testbeds. Universities can convene pre-competitive consortia to pilot interoperable data standards, algorithmic auditing methods for CE-relevant AI, and circular business metrics. Living labs and transformation labs function as applied Ordnungspolitik—controlled environments where general rules (e.g., data-sharing protocols, durability thresholds) are prototyped with multiple stakeholders before scaling into policy (European Commission, 2020).

(3) Leadership development and psychological resilience. Executive education that integrates systems thinking, behavioral science, and governance equips leaders to navigate trade-offs inherent in circular transitions. Practice-oriented modules on incentive redesign, change diagnostics, and culture shaping address the people side of transformation identified above (Schein, 2010; Hart & Dowell, 2011).

(4) Standards, policy advice, and societal dialogue. HEIs contribute evidence-based input to standard-setting (eco-design, data schemas, repair access) and evaluate distributional effects of CE policies, ensuring alignment with the common good—an ordoliberal criterion that markets serve societal welfare (Müller-Armack, 1947). Public engagement combats tech solutionism by articulating conditions under which digital tools advance regeneration versus efficiency-only gains.

Effective HEI impact depends on institutional incentives. Publication-only metrics can discourage translational work; recognition for open standards, datasets, and policy engagement strengthens the knowledge infrastructure of circularity. International collaboration further diversifies problem framings, enhancing innovation and legitimacy—key assets for scaling rules-based, ethically grounded digital circularity (UNESCO, 2021).

CONCLUSION

The analysis indicates that the transition from linear to circular and regenerative business models hinges on the co-evolution of three interdependent pillars: framework governance rooted in an updated Ordnungspolitik, organizational culture and human agency attuned to systems thinking and stewardship, and digital infrastructures designed for transparency, interoperability, and accountability. Treating any one pillar in isolation—whether by relying on technology-first "solutionism," culture-only change programs, or purely regulatory command-and-control—produces partial, fragile, or short-lived gains. Durable progress emerges when general, predictable, and outcome-oriented rules set the *playing field* for decentralized experimentation; when firms cultivate values and incentives aligned with lifecycle value creation; and when data-intensive systems are embedded within competition- and rights-preserving institutional arrangements.

First, on governance. An ordoliberal lens reframes the role of the state not as a micromanager of technologies or winners, but as a guardian of competitive order and the common good through *framework conditions*. In the context of digital circularity, this implies eco-design and durability standards; rights to repair and data-for-repair; extended producer responsibility with eco-modulated fees; carbon pricing and recycled-content requirements; and enforceable rules for data access, portability, and interoperability across product life cycles. Such rules are technology-neutral but *directional*: they internalize environmental and social costs, clarify liability, reduce transaction costs

in secondary markets, and prevent private market power or information asymmetries from foreclosing circular options. Credible, stable rules also lower policy risk, catalyzing investment in remanufacturing, product-as-a-service, and reverse logistics. In short, a strong-but-limited institutional order remains the precondition for entrepreneurial discovery in service of regeneration.

Second, on digitalization. Digital tools can be powerful enablers of circular strategies—extending asset life through predictive maintenance, orchestrating reverse flows, and verifying material provenance. Yet the net effect of digitalization is contingent on institutional embedding. Without obligations for interoperability, auditability, and fair access, platform dynamics can concentrate power, inhibit third-party repair or refurbishment, and bias optimization toward short-run efficiency rather than lifecycle outcomes. Embedding digital infrastructures within a rules-based regime that prices externalities, protects contestability, and requires transparency converts *capabilities* into *public-value outcomes*. Product passports, standardized data schemas, and algorithmic auditing for CE-relevant decisions exemplify instruments that align digital affordances with regenerative objectives.

Third, on organizational culture and agency. Technical roadmaps and policy signals translate into practice only when organizations rewire their "operating systems": values, incentives, and learning routines. Cultures that reward cross-functional collaboration, transparency, and stewardship—supported by psychological safety—are more likely to design for modularity and reparability, invest in data quality for closed-loop coordination, and persist through early-stage uncertainty. Incentive redesign is pivotal: when KPIs evolve from unit sales and short-term margin to uptime, recovery rates, or lifetime value, everyday decisions begin to favor circular strategies. Leadership mindsets matter as well. Resilient, reflective leaders who frame circularity as long-term value creation—cost risk hedging, supply security, customer loyalty—mobilize broad commitment and avoid the compliance trap. Internally coherent cultures are further strengthened when external framework rules reduce ambiguity and reward early movers, creating a virtuous circle between market order and entrepreneurial initiative.

Fourth, on the role of higher education and research institutions. Human capital and knowledge infrastructures are decisive. Universities can accelerate transformation by (a) integrating lifecycle thinking, industrial ecology, data governance, and ethics across management, engineering, and design; (b) operating living labs and pre-competitive consortia that prototype interoperable standards, algorithmic auditing practices, and circular metrics; (c) developing leadership programs that combine governance literacy with behavioral and organizational change tools; and (d) contributing evidence to standard-setting and policy design. Recognizing and rewarding translational outputs—open standards, datasets, and policy engagement—strengthens the enabling ecosystem for digital circularity.

Implications for policy. Policymakers should prioritize a coherent package: eco-design and durability requirements; right-to-repair and data access for repair; EPR with eco-modulation; product passport standards; data portability and interoperability mandates; algorithmic transparency for CE-relevant decisions; and price signals that internalize externalities. Coordination across competition, digital, and environmental authorities is essential to prevent regulatory gaps that invite lock-in or arbitrage. Where uncertainty is high, challenge prizes and pre-competitive sandboxes can complement rules without drifting into discretionary micromanagement.

Implications for management. Firms should embed circular goals into governance and incentives: incorporate design-for-circularity into stage-gates, adopt lifecycle costing and material flow analysis, and shift performance metrics toward service-based and recovery outcomes. Data infrastructure investments should favor open interfaces and portability to maintain strategic flexibility and ecosystem participation. Capability building in systems thinking, behavioral change, and cross-boundary collaboration should be treated as core, not peripheral, to digital and CE strategies.

Research agenda. Three gaps merit attention. (1) *Institutional diagnostics*: comparative studies on how different combinations of CE, competition, and digital regulations affect innovation, SME participation, and distributional outcomes. (2) *Algorithmic governance for circularity*: methods and evidence on auditing AI systems for lifecycle-aligned objectives, including trade-offs between explainability and performance. (3) *Cultural and incentive architectures*: longitudinal analyses of

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how KPI redesign, psychological safety, and leadership development interact to sustain circular practices beyond pilots, especially under volatile market conditions.

Limitations and boundary conditions. The synthesis relies on published scholarship and policy documents; sectoral heterogeneity implies that instrument mixes must be tailored to product risk profiles, supply chain structures, and data maturities. Circular strategies also face rebound risks; demand-side policies and social norms remain integral. Finally, global supply chains require interoperability across jurisdictions; unilateral standards risk fragmentation without international coordination.

Taken together, the evidence supports a governance–culture–agency thesis: regenerative business models become practicable and competitive when general, credible, and future-proof rules structure markets toward societal goals; organizations recalibrate values and incentives to reward lifecycle value; and digital infrastructures are built to be open, auditable, and contestable. This is not a return to state planning nor a bet on unfettered markets. It is a pragmatic synthesis—from Ordnungspolitik to digital circularity—that treats institutional order, technological design, and human development as complements. Only by advancing these complements in concert can economies move beyond incremental sustainability toward genuinely regenerative outcomes that are economically resilient, socially legitimate, and ecologically restorative.

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