Liberating the Economy from the Market

Between Induced Desire and Insatiable Growth

By

Leonardo Lavanderos and Alejandro Malpartida

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"To Pamela, whose love and creativity closed the door just in time so these ideas wouldn't be lost."

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Liberating the Economy from the Market

"The first sign of civilization, as illustrated by the story of the broken bone healed by another's care, demonstrates that the viability of a community lies not in individual survival, but in the relations of care and reciprocity that build a sustainable environment for all."

The Economy as a Relation from its Origins

A brief and necessary explanation: The present text requires an understanding of certain words that, due to their translation and often even in Spanish itself, can be superficially understood; namely:

There is a significant difference between the English terms "relationship" and "relation," although they are often treated as synonyms. "Relation" is typically used in a more formal context, often referring to a broader connection such as family ties or international relations, while "relationship" implies a more specific and personal connection between individuals, often describing the nature of their interaction with one another, such as friendship or a personal bond. This latter issue is critical as it lends itself to confusion because, in our conceptual framework, a relation precedes any interaction (in which an action is evidenced through the exchange of energy or mass—the world of impacts). For this reason, we prefer to use "relation" in English and not "relationship." And although "relation" may appear in the text for translation or syntactical reasons, we are always referring to the pure sense of "relation" and not to interaction.

It is crucial to understand that Interaction is, or may not be, the outcome of a preceding cognitive relation. The relation pertains to the acts of distinction by the observer, while interactions concern exchanges, the actions that manifest once, through the established relation, the observer decides and manifests it through action.

Economics, from its philosophical and practical roots, has been understood as a profoundly relational activity. In his work *Politics*, Aristotle defined *oikonomia* as "the art of living well," anchored in the fundamental unity of the *oikos,* the household understood as a natural and necessary community, where individuals share resources and tasks for daily subsistence. This perspective differs radically from *chrematistics,* which the philosopher describes as "the art of acquisition," oriented exclusively towards monetary gain and disconnected from the real needs of the community.

In Aristotelian thought, the *oikos* is more than a physical space, but a network of relations that shape a sense of belonging, reciprocity, and mutual care. This relational model finds echoes in indigenous worldviews of Latin America, such as the Andean *Sumak Kawsay*, which integrates culture and nature into a relational conception of full life. These views emphasize that the economy is not simply a mechanism of exchange, but a configuration of relations that defines the viability of human communities and their environments.

However, with the evolution of the economy toward a modern capitalist system, this intrinsic relation has been fragmented. The separation of culture and nature, driven by chrematistic logic, has transformed resources into mere tradable objects and reduced the economy to an instrument for accumulating exchange value. This shift has generated an extractivist and predatory model, both in

material and epistemological terms, which diverts the economy from its relational foundations and places it on an unsustainable path.

The relational perspective of the economy, reinforced by concepts like the Ecotome and relational viability systems, provides an alternative (Lavanderos & Malpartida, 2023). This approach restores the connection between culture and nature, while also proposing cybernetic and systemic models for sustainable relational management. In this framework, the economy ceases to be a tool of domination and becomes a means of building viable communities.

The concept of *oikos,* understood as the relational and sustainable core of the economy, begins to blur and transform during the transition to modern capitalism. This process originates in European economic thought from the 16th to the 18th centuries, when economic priorities shifted toward a logic of accumulation, competition, and exploitation. Although the "murder" of the *oikos cannot be attributed* to a single historical figure, various moments and actors contributed to its transformation.

First, during the mercantilist period of the 16th and 17th centuries, the economy shifted its focus from the relational sustainability of the *oikos* to the accumulation of national wealth, measured primarily by the ownership of precious metals and control of trade. This shift displaced Aristotelian ideas of *oikonomia,* understood as the management of the household for the common good, toward *chrematistics,* focused on wealth accumulation. The economy began to shift away from the culture-nature relation that defined the *oikos* as a relational and ethical system.

Later, in the 18th century, Adam Smith, in his work *The Wealth of Nations* (1776), went a step further by proposing that individual interest could generate collective benefits through the "invisible

hand" of the market. Although Smith recognized the importance of ethical and relational principles, his emphasis on the market and the individual as drivers of the economy relegated the communal dimension of the *oikos* to a secondary role. This approach consolidated the idea of an economy detached from its relational and ethical roots, orienting it toward a dynamic of competition rather than cooperation.

The Industrial Revolution, led by England during the 18th and 19th centuries, institutionalized an economic model based on the intensive exploitation of resources and human labor. This period marked a turning point in the transformation of the *oikos,* which became a system of production and consumption disconnected from its cultural and ecological foundations. The economy began to be perceived as an autonomous and mechanistic system, removed from the human and natural relations that historically sustained it.

Although Karl Marx fiercely criticized this capitalist logic in the 19th century, he also contributed to a new economic abstraction. His analysis focused on human labor as the source of value, reducing the economy to a dynamic exploitation between labor and capital. While his critique was crucial in exposing the inequalities of capitalism, it neglected the complexity of the *oikos* as a web of cultural, human, and ecological interactions. His materialist approach reduced the economy to a conflictual structure and left little room for relational dimensions.

Finally, during the 19th and 20th centuries, classical and neoclassical economic theories, represented by figures such as David Ricardo and Thomas Malthus, consolidated the decoupling from the *oikos.* Economics was mathematically formalized and focused on maximizing individual utility, eliminating considerations of cultural

and ecological interactions that had been central to *oikonomia.* This shift turned economics into a technical and abstract science, detached from its ethical and relational roots.

Modern macroeconomics, since its consolidation in the 20th century, has been designed as a closed, abstract, and self-contained system that ignores the fundamental relations between human communities and their environments—understood as culture-nature systems—operating under the implicit assumption that economic growth can be perpetual, disregarding the planet's biophysical limitations and prioritizing unbridled accumulation that has proven devastating for both nature and the cultural dynamics that sustain life. This disconnect between economics and reality manifests itself in an obsession with indicators such as GDP, inflation, and the trade balance, which have been turned into absolute benchmarks of economic success. Ignoring the fact that these metrics are incapable of capturing the complexity of economic relations, as they measure only economic expenditure, regardless of whether it comes from destructive activities such as war or deforestation, perpetuating a model that values accumulation over relational viability and the well-being of culture-nature relations. In this context, the dissociation between culture and nature has deepened by treating nature as an infinite resource and culture as an accessory phenomenon compared to the supposedly objective laws of the market, which are in reality power-laden cultural constructs that perpetuate inequalities and extractive dynamics. Macroeconomics, with its technocratic approach and abstract models of equations and graphs, has reduced the economy to isolated compartments, eliminating the possibility of understanding it as a system of integral relations involving multiple dynamic layers of meaning. It has fostered an illusion of control that assumes economic policies can

foresee and manage all aspects of economic life through technical adjustments. It ignores the uncertainty inherent in culture-nature systems, which has led to a constant aggravation of the problems it seeks to solve. This fragmented and abstract approach perpetuates a model that not only threatens the relational viability of the planet but also impedes a deeper understanding of the economy as a tool for creating viable communities, shifting the centrality of culture-nature relations to the margins, when they should be the cornerstone of any truly viable economic system.

The **oikos,** as a relational idea, has been replaced by an extractive model that prioritizes capital accumulation at the expense of balance and sustainability. Contemporary attempts to integrate concepts such as well-being economics, degrowth, or sustainability, while valuable, often fail to challenge the structural roots of this disconnect. Therefore, today's economy not only operates as a highly entropic system but also perpetuates unsustainable dynamics that threaten both human and natural life.

Overcoming this fragmentation requires not only a profound critique of the epistemological foundations of the modern economy, but also a reformulation that recovers its relational dimension. Only by reestablishing the connection between culture and nature, between the human and the ecological, will it be possible to build a truly viable economic model, centered on sustainability, equity, and the regeneration of the oikos as the axis of all economic activity.

Contemporary economists' analysis of the culture-nature dissociation reveals a theoretical framework that, although diverse in approach, shares a fundamental flaw: operating on the basis of an imaginary system like the market. This system, presented as

an autonomous and self-regulating entity, has been built on the premise that nature and culture can be separated and treated as independent variables. The schizophrenia of this separation is not only conceptual but also operational, as it defines the economic policies and strategies of modern societies.

The market, in this narrative, is an abstraction that purports to represent the place where supply and demand are balanced, but this representation is deeply biased. Applying mathematical isomorphisms—useful tools in closed, well-defined contexts—to an open and relational system such as the human and natural economy creates an epistemological distortion. Reducing relational complexity to equations and models unrelated to cultural and ecological dynamics turns economics into a theoretical exercise that fails to reflect lived reality.

The modern economy, in its culture-nature schizophrenia, not only reproduces this fragmentation, but amplifies its effects. Instead of functioning as an integrative system that articulates human and ecological relations, it has become a device that maximizes entropy and consolidates structural inequalities. This disconnection is not accidental, but the result of a system that prioritizes capital over life, using the abstraction of the market to justify policies and models that devastate both nature and human communities.

Overcoming this fragmentation requires much more than technical adjustments or alternative models within the same conceptual framework. A profound critique of the epistemological foundations of the modern economy is necessary, challenging not only the primacy of the market as an imaginary system, but also the very separation between culture and nature. The economy must be reformulated from a relational perspective, recovering the oikos

as the axis of all economic activity. This implies reestablishing the connections between human and the ecological, between community and environment, between production and regeneration.

Only through this reformulation will it be possible to build a truly viable economic model, one that not only recognizes but also celebrates the culture-nature relation. This model must be centered on regeneration, equity, and relational viability, integrating the economy into an ethical framework that prioritizes the care of the oikos in all its dimensions.

The Isomorphism Trap: Confusing Interaction and Relation

In the following paragraphs, we will explore how isomorphisms have been misused and misinterpreted in the economic field, generating distortions that have shaped both contemporary economic thought and practices. This confusion stems primarily from the inability to differentiate between the concepts of interaction and relation, which has led to the inappropriate transfer of tools and principles from one domain to the other.

Interaction refers to the observable and argumentative scheme of actions that occur between entities. It is the domain where causality and determinism can be traced with relative clarity. On the other hand, relation underlies the argumentative plane; it is an emergent process that involves distinctions made by an observer in their environment, connecting entities in a profound and non-reducible way. In this sense, relation is not simply a sum of interactions; it is a more complex phenomenon that organizes meaning and coherence among the elements of the system.

Entropy and Unrequired Variety: Different Domains

When we accept that interaction and relation belong to different domains, we can recognize that entropy is a phenomenon of the realm of interactions, while unneeded variety belongs to the world of relations. Entropy measures the degree of disorder and energetic dispersion in a system, typical of interactions observable on a physical plane. In contrast, unneeded variety is a measure of relational waste in human or ecological systems; that is, the degree of inefficiency or redundancy that hinders the viability and harmony of relations in a culture-nature system.

Impact of Isomorphisms on the Economy

The confusion between interaction and relation has led to the inappropriate application of thermodynamic principles, such as entropy maximization, to economic and social systems. This error generates models that promote uncontrolled accumulation and extractivism, based on the assumption that increased productive interactions (or transactions) are equivalent to a viable system. However, this perspective ignores the fact that viability depends not only on the level of interaction, but also on the quality and relevance of the relations that sustain the system.

For example, economic theories based on maximizing Gross Domestic Product (GDP) confuse increased transactions (interactions) with well-being (relations). In relational terms, a system with elevated levels of unnecessary variety—such as the production of superfluous goods or energy waste—is less viable, even though its interactions may appear dynamic. In this sense, the contemporary economy is highly entropic, generating more disorder and wear and tear than harmony and regeneration.

Isomorphisms, useful tools for establishing mathematical correspondences between formal systems, have been applied in economics to simplify and model complex phenomena. However, this practice, which initially seeks to clarify and organize, has resulted in a dangerous reduction of the relational to the merely interactive.

At the heart of this problem lies the assumption that economic dynamics can be treated similarly to closed physical systems, where relations are replaced by quantifiable causal interactions. This uncritical transfer of concepts and methods, such as those of thermodynamics or systems theory, to more complex relational contexts has given rise to models that prioritize mechanical efficiency over the living complexity of human and cultural relations. For example, thermodynamics applied to economic analysis often considers entropy as a universal metric of value and sustainability, ignoring the fact that economic relations are not reducible to energy flows but are emergent systems of meaning, cooperation, and conflict.

Isomorphisms, by offering an apparent universality, also tend to homogenize cultural-natural particularities. This is evident in how the concept of the market, a specific cultural construct, has been elevated to a near-universal status, being applied as a model to systems that operate under completely different logics. Community exchange systems, such as those observed in many Indigenous societies, are crushed under the reductive logic of the market, losing their relational and regenerative character. Instead of recognizing these particularities as irreducible to standard mathematical models, they are transformed into anomalies within a predefined theoretical framework.

Furthermore, isomorphisms reinforce modern economic schizophrenia by consolidating the separation of culture and nature.

Equating economic phenomena with mechanical or energetic processes ignores the fact that economies are open and dynamic systems, deeply rooted in relations that transcend direct causality. The tendency to model these relations through formulas and equations reduces them to mere artifacts, denying their intrinsic richness and complexity.

There are often attempts to apply isomorphisms between the laws of physics (such as thermodynamics) and biological phenomena. However, these analogies simplify the **relational dimension** of life and reduce it to mere energetic interactions.

The Law of Entropy or Maximum Entropy Production (LMEP) can explain how physical systems tend toward disorder, but it cannot account for how living systems maintain and generate order in their environment. Rather than simply prioritizing the ability to dissipate energy, species that manage their ecopoiesis —understood as the relational and sustainable regeneration of living conditions—achieve more efficient adaptation by reducing unnecessary variety (waste). This enables systemic and efficient use of available energy resources for relational viability.

Finally, we will see how this reliance on isomorphisms has limited economics' ability to offer coherent solutions to contemporary problems. Far from being neutral, these epistemological tools have shaped a worldview that justifies unbridled accumulation and extractivism as inevitable, thus perpetuating an unviable model for both cultural and natural systems. As we progress, we will analyze concrete examples of this epistemological trap and propose paths to a relational and regenerative economy. We will begin by evaluating the Labor Theory of Value and the Energy Theory of Value.

Critique of the Labor Theory of Value and the Energy Theory of Value from the Difference between Interaction and Relation

Karl Marx's labor theory of value and Stallinga 's energy theory of value (2020) share a fundamental epistemological flaw: they reduce the complexity of living and social systems to a framework of observable interactions, omitting the relational dimension that underlies those systems. This reductionism is rooted in what we will call "the isomorphism trap," where concepts from different domains are assumed to be homologous without recognizing the fundamental differences between them.

The Value-Labor: Reduction from Relational to Productive

Marx defines value as the result of socially necessary labor for the production of a commodity. However, this approach confuses mechanical interaction (human effort applied to production) with the relation that underpins the entire economic system. As Lavanderos and Oliva (2012) point out, relation is a broader process than observable interaction; it includes cultural, social, and ecological configurations that cannot be measured or understood solely through labor.

Work, when conceived as a unilateral interaction between the worker and the object of production, ignores the relations that make it possible: that is, the transition from a relational value to a use or exchange value within the context of meaning of the culture to which it belongs. Thus, the labor theory of value strips the economic system of its relational dimension and reduces it to a linear dynamic of effort and outcome. This approach is insuffi-

cient to explain the sustainability and viability of human communities, which depend on broader and deeper relations than simple productive effort.

Labor theory of value focuses on human labor as the source of value. To translate this theory into energy terms, we need to connect labor to its physical equivalent, that is, the energy expenditure associated with human labor.

We can develop a basic equation that relates the value generated with the energy used during the production process:

$$V = \alpha \sum_{i=1}^{n} (L_i + E_i + C_i)$$

Where:

- V: Total value generated in energy terms.
- α: Coefficient of proportionality that translates work and energy into economic value (may depend on the social or cultural efficiency of converting energy into perceived value).
- Li: Energy associated with human work in the i- th stage of production (in joules or kcal).
- Ei: Non-human energy used in the i -th stage of production, such as mechanical, electrical, or fuel energy.
- Ci: Energy embodied in capital goods (machinery, tools) used in the i- th stage, distributed proportionally over their useful life.

Connection with Entropy:

In a relational approach, the efficiency of the production process can be assessed not only by the amount of energy used, but also by the reduction of unnecessary variety (energy waste). This can be integrated into the equation through an efficiency factor (η):

$$V = \eta \cdot \alpha \sum_{i=1}^{n} (L_i + E_i + C_i)$$

Where η is a fraction between 0 and 1 that represents the energy and relational efficiency of the production system.

In the original labor theory of value, value is a function of socially necessary labor time. In this energy framework, this time translates into human and non-human energy consumption, also integrating the impact of the means of production. However, the key criticism is that this equation fails to capture the relational complexity of the economy, as it focuses on measurable quantities, such as energy and labor, while ignoring cultural, social, and ecological aspects.

This equation serves as a bridge to discuss the limitations of classical theory and explore viable relational approaches to value.

The Theory of Energy Value: Confusion between Physics and Living

Stallinga ‘s theory (2020) proposes that the value of goods and services is directly related to the amount of energy used in their production. Although attractive due to its apparent physical rigor, this theory makes the same mistake as the labor theory of value: it confuses interaction with relation and applies inappropriate isomorphisms.

Thermodynamics, the basis of Stallinga 's theory, explains how physical systems transform energy and generate entropy. However, living, and social systems cannot be fully described by thermodynamic laws. While energy interactions can be measured and quantified, the relations that shape living and social systems are irreducible to physical parameters. For example, the production of goods cannot be explained solely by the energy expenditure involved, as this ignores the cultural, social, and ecological relations that underpin and give meaning to production.

Stallinga falls into the isomorphism trap by assuming that the physical laws of entropy can be applied linearly to social systems. As Lavanderos and Malpartida (2023) argue, relations are not equivalent to interactions, and living systems operate outside of thermodynamic equilibrium, generating relational configurations that cannot be reduced to simple energy flows.

Both theories share a tendency to use isomorphisms between non-equivalent domains. The labor theory of value applies a linear, productive logic to relational systems, while the energy theory of value extrapolates physical laws to living and social processes. This epistemological error is based on the need for certainty, which leads theorists to condense the complexity of life into reductionist models.

As an example, Stallinga interprets the economy as a system that maximizes entropy production (LMEP). While this may be valid in closed thermodynamic systems, it does not capture the nature of living systems, which are characterized by operating far from equilibrium. Life, as Prigogine points out, does not seek to maximize entropy but rather to maintain dynamic configurations that allow its viability.

The equations that Stallinga uses to describe the production of entropy in social and economic systems are the following:

Total entropy production in a system of agents:

$$\Delta S = \sum_{i=1}^{N} \Delta S_i = \sum_{i=1}^{N} \Delta U_i \cdot \left(\frac{dS}{dU} \right)_i$$

Where:

- ΔS: Total entropy production of the system.
- ΔSi : Entropy production by agent i.
- ΔUi : Energy used by agent i.
- dU / dS : Efficiency of agent i in converting energy into entropy.
- N: Total number of agents in the system.

Interactions of individual agents with diverse strategies: Each agent seeks to optimize its contribution to ΔS (total entropy), and it is argued that this reflects selfish behavior in social systems:

- Agents are **lazy** (ΔUi tends to decrease).
- Agents are **greedy** (ΔSi tends to increase).
- Agents are **inventive** (they maximize dU / dS while minimizing ΔUi).

This optimization implies that agents tend to maximize their efficiency in producing entropy with the least possible energy expenditure.

Relation between happiness, wealth, and entropy: According to Stallinga , entropy is associated with “happiness” or “wealth” in

psychological or economic terms. This is based on the idea that agents seek to maximize their entropy production as a reflection of their subjective well-being:

$$\text{Happiness} \propto \Delta Si$$

Wealth, from this perspective, is redefined as an agent's ability to consume energy and generate entropy.

System Optimization: A system is considered optimal if it maximizes total ΔS. This leads to Stallinga 's conclusion that capitalist systems, which allow for greater consumption and entropy generation, tend to prevail over alternative systems, such as communism, which restrict entropy production.

This approach, however, is highly open to criticism from relational and sustainable perspectives, as it assumes that the success of a system is measured solely by its capacity to generate disorder (entropy), ignoring the impacts on the relational viability of that model.

Relational Criticism:

These equations do not integrate the concept of unnecessary variety or relational efficiency, and therefore favor highly entropic systems. In a relational viability model, it would be essential to include terms that reduce the production of unnecessary entropy and focus optimization on sustainability and the regeneration of cultural and ecological relations.

Entropy, understood as a measure of disorder or energy dispersion in a system, takes on a different meaning when the concept of unnecessary variety is incorporated into a relational approach.

This approach forces us to analyze how entropy is generated and managed in economic systems, considering both the interactions and the underlying relations.

Entropy in systems with highly unrequired variety

When a system has an elevated level of unnecessary variety, entropy tends to increase due to the waste and inefficiency inherent in the lack of cohesion in relations. This happens because:

- **Misdirected Energy:** Energy is used on redundant or non-essential processes that do not contribute to the value or viability of the system.
- **Relational disconnection:** The dissociation between elements of the system (culture-nature or human-ecological) generates redundancies that amplify energy waste.

In economic terms, systems with a high unrequired variety are usually:

- Highly extractive (they consume more energy than necessary).
- Less sustainable since they generate entropy without contributing to the relational viability of the system.

Result:

- The system becomes less efficient and viable, with a tendency to collapse if the excess of unnecessary variety is not corrected.

Entropy in systems with low unrequired variety

A system that manages to minimize unnecessary variety can better manage entropy by:

- **Maximize energy efficiency:** Energy is used only in essential and productive processes.
- **Strengthen relations:** The connection between system elements aligns with a common purpose, reducing redundancy and waste.

In this case, the entropy generated is minimal and is distributed in such a way that:

- It allows the system to stay away from equilibrium (a necessary condition for life).
- Optimizes energy and matter flows, aligning them with the needs of the relational system.

Result:

- A more viable and resilient system, capable of adapting to changes more efficiently.

Relation between Entropy and Unrequired Variety

In mathematical terms, we can express the total entropy (S) in terms of the Non-Required Variety (Vnr):

$$S = S_{useful} + S_{Vnr}$$

Where:

- S_{useful}: Entropy generated by necessary and productive processes.
- S_{Vnr}: Additional entropy generated by the unrequired manifold.

In an efficient system:

- $S_{Vnr} \rightarrow 0$, which means that most of the energy contributes directly to the viability of the system.

In an inefficient system:

- $S_{Vnr} \gg S_{useful}$, which implies a significant increase in clutter and waste.

Relational Impact

From a relational approach:

1. **Entropy is inherent to interactions, but its management depends on relations.**
    - Linkage- robust system minimizes unnecessary variety and thus manages entropy efficiently.
2. **The modern economy amplifies unnecessary entropy.**
    - Economic systems that prioritize extractive accumulation increase S_{Vnr}, deteriorating both human and ecological relations.
3. **Ecopoiesis offers an alternative.**
    - It proposes a system where relations are the center, minimizing unnecessary variety and aligning entropy production with relational viability.

Entropy is not the enemy; it is an inevitable consequence of any process. However, managing entropy by reducing unnecessary variety allows us to design more efficient and sustainable economic and biological systems. This relational approach invites us to rethink the economy as an integrated system, where culture and nature are not dissociated, and where entropy production is a measure of resilience, not collapse.

From Repetition to Progress: Spiral Economy as the Evolution of Circular Thinking

The circular economy, in its proposal to close material loops through recycling, reuse, and waste minimization, presents an inherent paradox that reveals its profound limitations. Although it seeks to reduce environmental impact, it generates a new layer of complexity by introducing unnecessary variety in the form of additional energy consumption, specialized infrastructure, and high management costs. This type of variety, which represents waste within a relational system, hinders the efficiency of the processes it seeks to optimize. For example, plastics recycling involves industrial processes that often consume more energy than they save, without completely eliminating waste or dependence on virgin materials.

From a thermodynamic perspective, the circular economy fails to overcome the barrier of losses inherent in production cycles. Recycling is not 100% efficient, which means there are always energy and material losses. This phenomenon results in a constant increase in entropy, particularly because circular systems require energy to operate. This energy generates more entropy in the overall system, paradoxically increasing the environmental impact. In its attempt to minimize losses, the circular economy finds itself

trapped in a dynamic in which its own processes generate internal contradictions that limit its effectiveness.

Furthermore, the circular economy often reduces problems to technical issues, ignoring the cultural and ecological relations that are fundamental to relational viability. This disconnect is reflected in the way it treats materials as independent objects, disconnected from human and natural dynamics. For example, a company may implement recycling programs that ignore both the social impact of working conditions and the devastation of local ecosystems. By focusing solely on waste and resource management, it perpetuates a fragmented view that fails to address the structural causes of the problem, such as the consumerist model inherent to capitalism that fuels unsustainable patterns of production and consumption.

The circular economy fails to recognize the relational dimension of economic systems. By operating within the confines of mechanical interaction rather than systemic relations, it promotes partial solutions that do not adequately integrate into a system designed for accumulation and competition. Its reliance on the market as a mediator generates additional distortions, as the market prioritizes economic profit over relational regeneration. Simplistic isomorphisms, such as the idea that closing a material loop equates to achieving sustainability, ignore the complexity of culture-nature systems and perpetuate their disconnection.

In practice, the circular economy faces multiple obstacles. Companies, driven by immediate economic incentives, often find it more profitable to discard materials than to invest in circular processes. Circular initiatives are also energy-intensive, contradicting the goal of reducing environmental impact. Finally, by operating within a paradigm of economic growth, the circular economy reinforces a

vicious cycle in which the benefits of circularity are outweighed by the constant increase in global consumption.

The circular economy, as currently conceived, is trapped in the contradictions of the system it seeks to reform. Only a transformation toward a relational economy can offer a viable solution. This entails reducing unnecessary variety at all stages of the economic cycle, restoring the culture-nature link, and prioritizing sustainable and regenerative relations over accumulation and consumption. A relational economy must integrate a systemic and culturally aware vision, transforming the foundations of the economic system rather than simply patching up its symptoms. Without this transformation, the circular economy will remain a limited ideal, unable to address the destructive dynamics it threatens to perpetuate.

The spiral economy proposes a dynamic and evolutionary approach that integrates principles of regeneration and systemic relation, overcoming the limitations of linear or circular economic models by focusing on the restoration and improvement of ecological and social systems instead of limiting itself to mitigating negative impacts through regeneration. It seeks not only to minimize damage but also to revitalize ecosystems and communities

Aspect	Circular Economy	Spiral Economy
Main Objective	Minimize waste and close loops	Regenerate systems and foster viable relationships
Approach	Mechanistic	Relational
Entropy	Reduced but inevitable	Minimized through optimal relationships
Culture–Nature	Implicit separation	Relational unity
Growth	Quantitative	Qualitative
Application	Predominantly technical	Systemic and cultural

as a whole by proposing processes based on eco-spontaneity that reduce unnecessary variety and prioritize relational efficiency and

contextual adaptation. It also replaces the paradigm of quantitative growth with one that emphasizes qualitative growth by focusing on the quality of relations and relational viability as a key measure of economic success, recognizing the integration between culture and nature as an inseparable relational unit. This model considers that economic systems cannot be separated from the ecosystems in which they operate, proposing an economy that is not extractive, but regenerative. Among the advantages of the spiral economy is its ability to operate as an open and dynamic system, which recognizes the economy as an interconnected and context-adaptive process, rather than a static or closed one. Its design allows for the reduction of unnecessary variety by integrating processes that optimize relations, minimize energy and material waste, and improve overall efficiency. It ultimately seeks to restore the essential connection between culture and nature, returning the economy to its relational and interdependent nature as the basis for truly sustainable and regenerative viability. This table compares the core characteristics of the *Circular Economy* and the *Spiral Economy* across six key aspects: objective, approach, entropy, culture-nature relationship, type of growth, and application. The *Circular Economy* focuses on minimizing waste through mechanistic strategies, while the *Spiral Economy* emphasizes regeneration through relational and systemic-cultural approaches.

While the circular economy represents a crucial step toward sustainability, the spiral economy offers a deeper and more transformative paradigm, integrating relational and regenerative principles as the basis for a viable future. The transition to this approach requires a fundamental shift in how we understand and organize the economy, moving from an extractive and closed system to a dynamic, regenerative, and relational one.