

Social Innovations and Civilizational Processes in the Findhorn Ecovillage, Scotland: Fractals for Sustainable Societies and Responses to Multiple Contemporary Crises.

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Abstract— The Findhorn Ecovillage, founded in 1962 in Scotland, stands as one of the world's longest-standing community experiments in sustainability, ecological spirituality and social innovation. This article analyzes Findhorn as a micro civilizational process unfolding over time, drawing on Norbert Elias's process sociology and the Transformative Social Innovation Theory (TSI). A qualitative methodology was adopted—comprised of participant observation, semi-structured interviews and document analysis—allowing the identification of sociocultural and ecosystemic patterns that sustain the community over six decades. Findings indicate enduring practices of cooperation, ethical self-regulation, participatory governance and experiential learning, expressed through four fractal patterns of social innovation: ecological regeneration, solidarity economy, reflexive governance and spirituality as public ethics. These patterns correspond to concrete responses to environmental, social, institutional and symbolic crises. We conclude that Findhorn functions as a civilizational laboratory offering principles with potential for translation to other contexts.

I. INTRODUCTION

Contemporary societies face a set of interdependent challenges that constitute what several scholars have referred to as “civilizational crises” (Collin, 2013). The intensification of climate change, the erosion of trust in political institutions, the widening of socio-economic inequalities, and the growing sense of collective meaninglessness reveal the structural limits of the prevailing model of modernity. These transformations call into question the sustainability of hegemonic ways of life and demand the formulation of alternatives capable of

integrating social, ecological, cultural, and spiritual dimensions into more resilient configurations.

In this context, community-based experiments emerge as privileged spaces for observing and testing new forms of social organization. Among them, ecovillages represent living laboratories that articulate sustainable practices, participatory governance, cooperation, and experiential pedagogies. Previous studies on ecovillages and transition movements have highlighted their role as experimental arenas for social innovation, as well as their relevance for broader processes of cultural transformation and environmental awareness (Manzini & Tassinari, 2013;

Haxeltine et al., 2015). Nevertheless, analyses that connect these experiences to long-term sociological perspectives—particularly through Norbert Elias’s process sociology—remain underexplored in the literature.

The Findhorn Ecovillage, founded in 1962 in Scotland, stands out in this landscape for its longevity, scale, and international recognition. Unlike more transient community initiatives, Findhorn has consolidated systems of cooperation, reflexive governance, ecological spirituality, and educational practices over six decades, offering a unique case for examining long-term cultural processes in environments of social innovation. Previous work on the ecovillage has emphasized its role in holistic education, the development of social technologies, and the dissemination of regenerative practices. However, there is still a lack of an integrated analysis that examines its trajectory through the lens of civilizational processes and social transformation.

This article aims to address this gap by analyzing Findhorn as a micro-civilizational process and investigating how its practices, values, and institutional structures articulate in response to multiple contemporary crises. The theoretical framework combines Norbert Elias’s process sociology, the Transformative Social Innovation Theory (TSI), and the ecosystem services approach. This combination enables an understanding not only of the innovative nature of community practices, but also of their long-term stability and relevance to global debates on sustainability and social transformation.

The central contribution of this study lies in identifying sociocultural patterns—here referred to as civilizational fractals—that emerge from the Findhorn experience and hold potential for adaptation in other contexts. These patterns reveal principles that transcend the local experience and offer insights into possible systemic responses to today’s crises.

To structure this discussion, the article is organized as follows: the next section presents the theoretical foundation, articulating Elias, TSI, and ecosystem services; the third section describes the methodology; the fourth section discusses the research findings, identifying socio-civilizational processes, social innovations, and emerging fractals; and finally, the conclusions and implications of the study are presented, contributing to the understanding of contemporary civilizational alternatives.

II. THEORETICAL FRAMEWORK

2.1 Long-Term Socio-Civilizational Processes

Norbert Elias’s process sociology constitutes the epistemic foundation of this investigation, as it understands social life as organized through constantly evolving webs of interdependence. From an Eliasian perspective, individuals are not isolated entities, nor can structures be treated as rigid totalities; rather, both are mutually constituted within long-term historical dynamics (Elias, 1994; 1997). This conception breaks with the subject–structure dichotomy and allows for the interpretation of community-based experiences as ongoing civilizational processes. In this context, Elias serves as a key reference for understanding the socio-historical processes that shape behaviors, norms, and collective sensibilities.

Within the scope of this study, Eliasian categories—such as social interdependence, civilizing process, gradual and cultural transformations, mutual constitution of structures and individuals, and long-term trajectories—provide a lens through which to observe how practices, values, and institutions emerge, persist, and adapt over time. These categories are not only conceptually appropriate but also empirically expressed in the very materiality of the Findhorn experience, whose spiritual, organizational, and ecological practices have become increasingly complex and institutionalized over the course of decades.

By applying Elias’s framework to the analysis of the ecovillage, the community’s continuity is understood not as a product of static stability but as a result of internal renewal within a processual logic. Practices of collective self-regulation, rituals of ecological spirituality, participatory governance, and transformative education constitute civilizational movements that take on specific forms in the context of Findhorn, while simultaneously resonating with universal patterns of cultural transformation as described by Elias (2001)

2.2 Transformative Social Innovation Theory TSI

The Transformative Social Innovation Theory (TSI) complements process sociology by explaining how change emerges from networks of actors who challenge dominant structures and experiment with new forms of social life (Haxeltine et al., 2015). This theory was employed as an analytical pillar of the research, enabling the identification of four central dimensions of social innovation: meanings, practices, modes of governance, and forms of knowledge.

TSI understands social innovation not as an isolated product but as a relational process involving new ways of doing, organizing, framing, and knowing. In the research

conducted, these dimensions emerged organically from the field experience itself, as evidenced by the moments in which meanings, practices, and governance appeared not as imposed categories, but as insights derived from direct engagement with members of the ecovillage.

Thus, TSI enables an understanding of Findhorn as an ecosystem of social innovation, in which social technologies, community practices, and spiritual epistemologies are interwoven to produce long-term cultural transformations. This perspective directly engages with Elias's process sociology, as it reveals how innovations emerge within webs of interdependence and become consolidated as civilizational patterns.

2.3 Design for Social Innovation and Sustainability

Design for social innovation, particularly as formulated by Manzini and Tassinari (2013), plays a central role in the theoretical framework of this research. These authors identify sustainable qualities—such as relationships, time, work, collaboration, scale, place, and complexity—that support behavioral change and social reorganization oriented toward sustainability.

Findhorn provides a privileged setting for observing these qualities. Collaboration is evident in collective community work; the relationship with time is expressed through mindfulness practices; work takes on hybrid forms that are both spiritual and productive; scale is deliberately maintained at a human level; and place—both physical and symbolic—holds a central role in shaping the ecovillage's identity.

Here, social design is not understood as a set of planning techniques, but rather as a relational approach that observes how networks, practices, and meanings emerge and reorganize. In Findhorn, design for social innovation manifests as an architecture of coexistence, guided by ecological spirituality and community values.

2.4 Ecosystem Services and Ecological Rationality

The analytical framework of ecosystem services, incorporated into the theoretical and methodological trajectory of this research, enables the assessment of how social practices directly and indirectly affect ecosystem functioning. It encompasses categories such as provisioning, regulating, supporting, and cultural services, emphasizing their role in sustaining human societies.

By situating Findhorn within this framework, it becomes clear that its social innovations not only promote ecological sustainability but also represent a model of ecological rationality (Altieri, 2018). Agroecological practices regenerate soils; natural sanitation systems contribute to ecological regulation; spiritual rituals and

contemplative practices enhance cultural services; and local biodiversity is strengthened.

III. METHODOLOGY

The methodology adopted in this research was guided by a qualitative, process-oriented, and ethnographic approach, grounded in the articulation between Norbert Elias's figurational sociology, Transformative Social Innovation Theory (TSI), and design for social innovation and sustainability. The methodological trajectory was designed to ensure longitudinal and interpretative coherence, allowing the investigative process—from data collection to analysis and inference—to reveal the historicity and complexity of the experience under study. The processual perspective was crucial for understanding the Findhorn ecovillage as a dynamic field of gradual transformations, where relationships between individuals, institutions, practices, and values are continuously constituted and reconfigured over more than six decades.

The empirical work was based on three main data collection strategies: participant observation, document analysis, and semi-structured interviews. Participant observation, carried out in 2017, enabled direct engagement with community routines, spiritual rituals, ecological practices, and collaborative work forms. This immersion facilitated an in-depth understanding of the existing social and ecological technologies, the pedagogical devices employed, and the hybrid organizational forms that emerge from the ongoing interaction between spirituality, collective action, and regenerative practices. The interviews expanded this understanding by capturing the narratives of residents, educators, visitors, and other actors connected to the ecovillage, revealing motivations, internal tensions, organizational challenges, and perceptions regarding the centrality of spirituality and cooperation in daily community life.

Document analysis complemented the fieldwork by incorporating institutional records, educational materials, governance guidelines, historical narratives, and other documents produced by the community throughout its trajectory. This phase was fundamental for reconstructing the institutional evolution of the ecovillage, identifying historical continuities, cultural transformations, and the institutionalization of sustainable practices.

Data analysis was organized into three key stages. The first involved mapping the pillars of social innovation—meanings, practices, governance, and knowledge—as defined by TSI. The second stage identified the relationships between the observed social innovations and the categories of ecosystem services, recognizing that

these practices generate ecological, cultural, and organizational benefits that extend beyond the community. Finally, the third stage assessed the replicability potential of the observed sociocultural patterns, distinguishing essentially universal principles from those requiring symbolic, institutional, or technical adaptation to different contexts.

Importantly, the analytical categories used were not imposed a priori, but emerged from the intersection of theory and fieldwork. This hybrid methodological construction integrated Eliasian categories with the pillars of transformative social innovation, enabling an interpretation of Findhorn not as an isolated case study, but as a concrete manifestation of emerging civilizational processes in which spirituality, sustainability, and cooperation intertwine into innovative forms of social organization.

IV. RESULTS

4.1 Socio-Civilizational Processes Observed in Findhorn

The analysis of the socio-civilizational processes present in Findhorn reveals that, over the course of six decades, the ecovillage has developed as a complex web of social and ecological interdependencies. This characteristic aligns with Norbert Elias's figurational perspective, in which societies are historically constituted through dynamic networks of interdependence that shape sensibilities and behaviors (Elias, 1994). In Findhorn, these interdependencies are expressed through daily cooperation, the continuous division of tasks, shared responsibilities, and the communal practice of collective rituals, all of which reinforce both symbolic unity and social cohesion.

Shared spirituality plays a central role in forming this communal ethos, functioning as a mechanism of emotional self-regulation and ethical orientation, through which individuals internalize norms that guide social coexistence. According to Elias (1997), self-control and emotional regulation are constitutive elements of long-term civilizing processes; in Findhorn, these elements are embodied in the ongoing practice of inner listening, conflict mediation, and self-awareness as part of an interdependent collective.

The consolidation of participatory governance systems, solidarity-based economics, and holistic education over time reflects a pattern of gradual transformations, consistent with Elias's conception that profound cultural changes unfold through slow, cumulative processes that are often imperceptible in the short term (Elias, 2001). In this sense, Findhorn's trajectory expresses both continuity

and renewal—essential characteristics of long-duration civilizational processes.

4.2 Social Innovations: Meanings, Practices, Governance, and Knowledge

The social innovations identified in Findhorn are manifested in an integrated manner across the dimensions of meaning, practice, governance, and knowledge, as described by Transformative Social Innovation Theory (Haxeltine et al., 2015). At the level of meanings, an ecological spirituality stands out as the foundation of community values and provides ethical guidance for collective action. This spirituality functions as a cultural matrix that articulates notions of shared purpose, care for nature, and the recognition of interdependence between human beings and ecosystems.

In terms of practices, the community operates through ways of life that include regenerative agriculture, permaculture, community work, consensus-based deliberation processes, and formal exercises of inner listening. These practices are not merely techniques for everyday management, but rather expressions of a model of social action in which sustainability is lived as a holistic experience. The interaction between practice and meaning aligns with what Manzini and Tassinari (2013) describe as "sustainable qualities," characterized by collaboration, sense of place, and conscious use of time.

Governance in Findhorn is organized through horizontal decision-making structures, deliberative circles, and distributed leadership processes. This reflexive governance demands a high degree of self-regulation, responsible autonomy, and ongoing participation, reaffirming the Eliasian notion that social structures are inseparable from the individual dispositions that sustain them. As such, the ecovillage has developed an institutional framework that combines formal and informal mechanisms, grounded in both processual rationality and the symbolic legitimacy derived from collective spirituality.

Finally, knowledge production in Findhorn occurs predominantly through experiential means, involving holistic pedagogical practices, intercultural knowledge systems, and continuous reflective processes. This situated epistemology operates through the interweaving of theory and practice, aligning with what scholars of social innovation describe as learning ecologies (Westley et al., 2017). Therefore, Findhorn is not merely an alternative community but constitutes a pedagogical space and a site of sociocultural experimentation with the capacity to radiate into global networks.

4.3 Contributions to Ecosystem Services

The practices developed in Findhorn significantly contribute to various categories of ecosystem services—provisioning, regulating, supporting, and cultural—as systematized by international frameworks for urban and territorial sustainability (Rall et al., 2017). In terms of provisioning services, the community produces agroecological food, operates water management systems based on conscious use, and employs renewable energy sources, ensuring autonomy while minimizing environmental impact.

With regard to regulating services, Findhorn implements natural sanitation techniques, promotes carbon sequestration through reforestation, and applies ecological architectural methods that help regulate microclimates. These processes demonstrate the built environment’s capacity to operate symbiotically with natural systems, constituting a form of ecological infrastructure.

Cultural services emerge as a central dimension, as spirituality, holistic education, and the formation of collective identity become foundational elements of the community’s relationship with its territory. This type of cultural ecosystem service, often overlooked in conventional literature, is highlighted by scholars examining the link between social practices and ecological meanings (Chan et al., 2012).

Lastly, supporting services include soil regeneration, the promotion of biodiversity, and the creation of healthy habitats. These processes illustrate the ecovillage’s capacity to function as an integrated socio-ecological system, in which social practices support natural dynamics, and vice versa. Thus, social innovation in Findhorn extends beyond the social sphere, encompassing the ecological relationships that sustain community life itself.

4.4 Fractals of Emerging Civilization

From the integrated analysis of process sociology, Transformative Social Innovation Theory (TSI), and the ecosystem services framework, four fractals of social innovation emerge that synthesize the civilizational principles present in Findhorn: ecological regeneration, solidarity economy, reflexive governance, and spirituality as public ethics. The concept of the fractal, used here as an analytical metaphor, allows for the identification of self-similar patterns that recur across different scales of the community experience, reflecting both structural coherence and adaptive flexibility.

Ecological regeneration represents a concrete response to the contemporary environmental crisis, combining regenerative practices, appropriate technologies, and an ethic of care for the Earth. The solidarity economy, in turn, operates as an alternative to dominant economic paradigms by repositioning values such as reciprocity, trust, and collaboration at the center of economic life.

Reflexive governance emerges as a response to the global crisis of institutions, embodying a search for transparent, participatory, and consensus-oriented decision-making processes. Finally, spirituality as public ethics addresses symbolic voids produced by late modernity, offering shared meaning, social cohesion, and moral guidance for everyday practices. This dimension reinforces Elias’s thesis that civilizational processes depend not only on institutions but also on the subjective dispositions internalized by individuals.

The adaptability of these fractals to other contexts suggests that Findhorn functions as a civilizational microcosm, in which replicable principles for transforming social worlds are tested. These fractals, in essence, serve as structuring axes that enable not only the replication of Findhorn’s social innovations but also the emergence of future innovations.

V. FIGURES AND TABLES

Table 1: Summary of Replicable Elements of Social Innovations from Findhorn

Prepared by: authors

Transferable / Replicable Element	Replicability Scale	Analytical Justification
Element: Solidarity Economy and Cooperation in Work Related Social Innovation: Participatory governance models and solidarity economy based on trust-based relationships	High	Experience characterized by consolidated cooperation. Organizational model widely replicable. Requires trust and reciprocity rather than complex formal structures. Can be translated into cooperatives, collective work efforts, and local productive arrangements.
Element: Practice of Empathic Listening and Nonviolent Conflict Resolution	Intermediate	Experience dependent on centralized leadership. Replicable, but requires mediation and social

Related Social Innovation: Participatory governance models and solidarity economy based on trust-based relationships		training. Essential in contexts aiming to strengthen community cohesion and prevent conflict. Supports the ecology of human relationships.
Element: Ethics of Care and Ecological Co-responsibility Related Social Innovation: Rules of coexistence and self-regulation practices tied to collective life and environmental respect	High	High level of internalization capacity. A universal value present across various cultures. Can be reinterpreted as a principle of “care” and “reciprocity” with nature. Supports the practices of self-regulation and environmental respect observed in Findhorn.
Element: Spirituality as Public Ethics and Principle of Coexistence Related Social Innovation: Rules of coexistence and self-regulation practices tied to collective life and environmental respect	Intermediate	For internalization, there is a dependence on oversight or institutional encouragement. Requires symbolic translation according to local forms of spirituality (ancestrality, popular religiosity, Indigenous wisdom). Replicable principle, variable form.
Element: Experiential Learning and Ecological Pedagogy (“learning by doing”) Related Social Innovation: Sustainable educational and institutional system	High	Changes with the capacity for depth and rootedness. An educational model adaptable to any context, as it is based on observation and direct experimentation within local ecosystems. It is a cornerstone of Findhorn’s sustainable educational system.
Element: Integration of Environmental Regeneration and Social Practices (Agroecology, Ecological Sanitation) Related Social Innovation: Sustainable educational and institutional system	High	Changes with the capacity for depth and rootedness. A practice with strong replicability potential, as it relies on basic technical training and does not depend on specific cultural values. A direct example: organic agriculture and ecological sanitation in Findhorn.
Element: Participatory Governance and Consensus-Based Decision-Making Related Social Innovation: Decision-making structures that balance personal autonomy and collective consensus	Intermediate	Decision-making structure exhibits an unstable balance—at times overly hierarchical, at other times fragmented. Requires a culture of dialogue and trust. Can be adapted in simplified forms (community assemblies, deliberative councils). Example: sociocratic consensus practices in Findhorn.
Element: Reflexive and Adaptive Governance: Sociocratic Circles of Partial Convergences Related Social Innovation: Decision-making structures that balance personal autonomy and collective consensus	Intermediate	Decision-making structure demonstrates an unstable balance—at times overly hierarchical, at others fragmented. A sophisticated structure, it requires organizational maturity and continuous participatory practice. Only partially replicable through simpler models of community deliberation.
Element: Principle of Continuity and Intergenerational Transmission of Knowledge Related Social Innovation: Consolidation of Findhorn as a global ecovillage model and environmental education center with its own practices.	High	Intergenerational continuity, mechanisms of continuous learning, and institutional resilience are observed. A universal value that ensures the cultural sustainability of ecological practices. Can be adapted into educational programs and intergenerational collective efforts. Example: consolidation of the Findhorn Foundation as an educational center.

VI. CONCLUSION

The analysis carried out throughout this study demonstrates that the Findhorn Ecovillage constitutes a unique and enduring example of community-based

transformative innovation, whose civilizational relevance extends far beyond its geographical boundaries. According to the empirical evidence synthesized in the research, Findhorn expresses fractal patterns of ecological and

relational rationality capable of inspiring new ways of living and organizing socially in response to contemporary crises. Its sixty-year trajectory reveals that the community has not only preserved its founding values—cooperation, spirituality, ecological discipline—but also continuously adapted them, consolidating its position as an international reference in sustainability education and social innovation.

The strengths of this study include its ability to articulate diverse analytical frameworks—Elias’s civilizing processes, Transformative Social Innovation Theory, design for sustainability, and ecosystem services—into a coherent interpretative model capable of illuminating long-term sociocultural transformations. The theoretical contribution lies in demonstrating that Findhorn functions as a micro-civilizational prototype, where interdependence, self-regulation, and ecological awareness are not abstract ideals but lived social arrangements. From an empirical perspective, the research identifies mechanisms of cooperation, governance, and ecological practice that operate as transferable elements, relevant for communities, policy makers, and sustainability initiatives seeking systemic responses to multifaceted crises. Furthermore, the analysis reveals that sustainable civilizational alternatives are already emerging in micro-contexts, pointing to potential pathways for large-scale transitions.

However, the study also presents limitations. Firstly, the specificity of Findhorn’s cultural and spiritual context limits the generalizability of some practices; not all communities possess comparable symbolic frameworks or institutional trajectories. Secondly, the research primarily focuses on internal dynamics and does not explore quantitative indicators of long-term ecological impact, which would strengthen the sustainability assessment. Thirdly, the reliance on ethnographic immersion and qualitative data—while essential for understanding long-term processes—limits the ability to establish causal explanations or conduct comparative statistical analyses. Additionally, the recent institutional transition from the Findhorn Foundation to the New Findhorn Foundation introduces uncertainties regarding governance continuity and long-term stability.

Despite these limitations, the study’s practical applications are significant. The analytical matrix developed—distinguishing universal principles from contextual adaptations—offers a methodological tool for policymakers, civil society organizations, and emerging intentional communities to design, evaluate, or strengthen sustainable social innovations. The identification of four civilizational fractals (ecological regeneration, solidarity economy, reflexive governance, and spirituality as public ethics) provides actionable guidelines for structuring

community development programs, regenerative design initiatives, and educational curricula oriented toward socioecological transformation. The study also contributes to broader sustainable development debates, suggesting that community experiments, when examined longitudinally, reveal institutional and cultural capacities relevant to both national and global agendas.

In summary, the research demonstrates that Findhorn represents not merely a case of community sustainability, but a living expression of civilizational transition, where social, ecological, cultural, and spiritual dimensions converge to form prototypes of emerging futures. Understanding these micro-civilizational experiments offers valuable insights into how societies might navigate the “multiple crises” of the present and cultivate modes of coexistence based on interdependence, cooperation, ecological rationality, and collective meaning. As the findings emphasize, the alternatives of the future already exist in embryonic form within communities like Findhorn; the challenge ahead is to recognize, nurture, and scale these seeds of transformation.

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