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# Global Challenges and Human Opportunities: The Path of Evolutionary Systems Design

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## Abstract

Evolutionary Systems Design (ESD) is a future creating heuristic that, instead of dwelling on global problems, is committed to envision a sustainable and evolutionary future and translate this image into concrete realities by purposeful design. ESD is based on social systems design and informed by general evolution theory and evolutionary learning. Following the commitment of methodological complementarity of critical systems thinking, ESD is metaphorically compared with a flexible scaffolding that can be adapted to serve the particular purposes — aligned with an evolutionary vision of the future — of different designing communities.

**Key words:** critical systems methodology, evolutionary systems design, methodological complementarity, sustainable and evolutionary futures.

## 1. Introduction

Evolutionary Systems Design (ESD) is an ideal-seeking approach that attempts to transcend the entropic tendencies of the world problematique by envisioning an ideal

future and learning how to manifest it through evolutionary social systems. ESD is an expansion of social systems design, informed by general evolution theory, evolutionary learning processes, and critical systems commitments. As a disciplined future creating inquiry, ESD has the explicit purpose of co-creating images of a sustainable and evolutionary future and translating those images into concrete realities.

In contrast to other means for social change, ESD embraces an evolutionary perspective based on the recent developments of the sciences of complexity. The isomorphic nature of evolution, according to General Evolution Theory, informs the process and the content of ESD — and brings hope about the future possibilities regardless of the gloomy present realities. In addition, ESD makes explicit its commitment to lifelong learning. Learning enables design while design encourages learning. There are many paths for the journey toward a sustainable and evolutionary future, and learning is the path finding process. Methodologically, ESD is rooted in social systems design and expanded with a critical systems perspective committed to methodological complementarity and human emancipation.

## **2. Envisioning a sustainable and evolutionary future**

What would be an ideal image of the future? What about a future where humans finally found ways to live in harmony on this planet and are consciously and ethically engaged in the most fascinating explorations of our human potential? This is the possibility of a “sustainable and evolutionary future.” Sustainability and evolution are two closely related and complementary concepts. Sustainability means the capacity to maintain the viability of the biosphere since, without it, there cannot be healthy life and, thus, healthy societies. Evolution, at the socio-cultural level, implies the conscious capacity to unfold into new ways of organization that allow for a fuller expression of the creative potential of the cosmos. Therefore, sustainability is a necessary but not sufficient condition for an evolutionary future. Combined, these two features can be powerful attractors for the ethical co-creation of a desirable future.

In contrast to other social change approaches that project the present into the future, ESD — as per social systems design — tries to transcend the current realities by engaging in the creation of an ideal image of the future. The image, then, serves as the attractor and guide for the design of new social systems. That is why, rather than exploring ways to get “from here to there,” ESD explores ways to get “from there to here.”

### **3. From There to Here through Evolutionary Systems Design**

The creation of a new society based on evolutionary and sustainable images of the future cannot be attained by trying to resolve each of the immensely complex and interrelated global problems. In fact, a “problem-solving” approach can fix us more deeply into the problematique since an understanding of the problems does not necessarily lead to a solution. Yet, evolutionary images of the future can serve as attractors that motivate a quantum leap from the current realities toward the envisioned ones. It is not about defining a goal and planning the steps to get there. Rather, it is about creating the images and designing our way from there to here. In other words, it is about *transcending* the current state into a new one.

#### **3.1 What is Evolutionary Systems Design?**

To begin with, let us explore what Evolutionary Systems Design is *not*:

- ESD is not a scientific method in the classical sense of having clear steps to follow and procedures to complete. It is a flexible heuristic that demands creativity and intuition in addition to rationality;
- ESD is not an algorithmic process with somewhat expected outcomes and does not come with “prepackaged” rules and procedures for any group to use;
- ESD is not focused on problem-solving but rather on envisioning alternatives and transcending unviable situations;

- ESD is different from planning, which projects the present into the future, and has nothing to do with “social engineering” approaches which try to predict the future.

ESD is a heuristic in the sense of it being used to explore possibilities within a set of “generative rules” that involve defining the boundaries of the inquiry and alternative paths of exploration [François, 1997, p. 167]. The heuristic of ESD has three components: a metatheoretical component which provides broad conceptual boundaries for creative exploration; a metamethodological component which provides a universe of potentially complementary approaches (e.g., approaches, models, methodologies, methods, and tools); and a guiding moral component — an evolutionary ethic — which include the explicit evolving values and assumptions that serve as the criteria to guide the inquiry. ESD is open to continuous self-design since it can be seen as a heuristic for creating heuristics appropriate for different designing communities. It relies heavily on intuition as well as on the understanding of the knowledge base that supports it. In contrast to a method which suggest a well-established and standardized scientific procedure, ESD is an approach that *suggests* a flexible and comprehensive way of engaging in disciplined inquiry.

As a result, ESD is a heuristic approach that supports and guides the participative co-creation of sustainable and evolutionary futures. It does not prescribe what should be designed and how to go about it. Yet, it proposes an evolutionary ethic that sets some “attractors,” such as the value of sustainability, and it suggests possible ways, tools, and resources that may be useful in the design task. The participants in a designing community have to create their own version of ESD — by selecting approaches, combining ideas, and informing their creative exploration with the appropriate resources according to their images. However, even though there can be as many versions of ESD as designing communities, there is a common denominator: the continuous exploration of evolutionary values that inform the inquiry.

### **3.2 Evolutionary systems perspective**

ESD is an approach for learning about evolutionary systems theory and act according to it. Human history has been chance driven and studied retrospectively. Margaret Mead indicated that this is the first time in human history that we are able of explaining what is happening while it is happening [in Montuori, 1989, p. 27]. With this new understanding of evolutionary dynamics, history can be steered. “As evolution becomes history, it can become conscious. As Jonas Salk put it: conscious evolution can emerge from the evolution of consciousness—and from the consciousness of evolution” [E. Laszlo, 1996, p. 139].

ESD is informed by General Evolution Theory [E. Laszlo, 1996] and the knowledge of the sciences of complexity. One of the implications of the evolutionary systems perspective is the recognition that the future is *possibilistic*: at the human level, we have the opportunity and the choice to participate in the co-creation of the future. Without trying to “socially engineer” nor predict the future, ESD seeks to listen to the music of evolution and dance with it, metaphorically speaking. The proverb “we cannot direct the wind, but we can adjust the sails” captures the disposition of this approach.

### 3.3 Lifelong Evolutionary Learning

ESD is an approach for *self*-empowerment and systemic social change. In ESD, learning leads to designing, and designing leads to learning. Learning (and designing) makes possible the autopoietic self-renewal of the designing community, as well as the transcending self-organization into new evolutionary forms of social life.

A. Laszlo [2000] has developed a learning framework for ESD. This framework puts into a learning perspective the stages through which individuals and groups can become evolutionary change agents. The four stages are:

- 1) Evolutionary consciousness: To create an awareness of the evolutionary history, of the changing conditions of change, and of the challenges that sustainable human co-habitation with life on Earth entails.
2. Evolutionary literacy: To develop a basic scientific understanding and an empathic appreciation of the challenges facing humanity that is both personally significant and societally attuned.

3. Evolutionary competence: To gain a sense of responsibility that is coupled with the change management competence of *responsability* so that we can affect purposeful, positive, evolutionary change in the communities within which we work, play, and learn.
4. Evolutionary praxis: To learn how to become catalysts for change by learning what modes, methods, and means are best for clearly articulating and effectively communicating to others the need for change.

ESD could facilitate the realization of the evolutionary vision of a sustainable and evolutionary *learning* society — a *paidea*, as the ancient Greeks called a society where the promotion of (evolutionary) lifelong learning and the achievement of the human potential in the broadest sense is a central priority [Milbrath, 1989, p. 94].

### 3.4 Methodological Roots

In tracing back the origins of ESD, one finds social systems design, as articulated by Banathy [1996], as its methodological roots. Banathy [1996] describes social systems design as a “future creating disciplined inquiry” [p. 45]. He writes, “even if people fully develop their potential, they cannot give direction to their lives, they cannot forge their destiny, they cannot take charge of their future — unless they also develop competence to take part directly and authentically in the design of the systems in which they live and work, and reclaim their right to do so. This is what true empowerment is about” [Banathy, 1996, p. vii].

Systems design is a purposeful and creative process through which a human activity system can transcend its actual situation by translating an ideal image of the future into reality — it is concerned with that which ought to be. As an interactive and participatory process, SSD is based on the premise that we cannot design *for* others: we can only design *with* others. Were we to do otherwise, we would not be engaged in authentic design but rather in the imposition of our visions, values, and proclivities. Systems design involves the use of scientific and intuitive knowledge, rationality and creativity, theory and practice, thinking and conversation, analysis and synthesis,

alternatives exploration and selection, participation and collaboration, evaluation and experimentation.

Social systems design calls for conversation. It is conversation what makes images of the future shared and public [Boulding, 1956, p. 15]. Two complementary modes of dialogue comprise design conversation: generative dialogue and strategic dialogue [Banathy, 1996, p. 218]. One provides a process through which individuals become friends and partners in learning/designing and a community generates common meaning. The other focuses on particular tasks in the creation of solutions for a specific social circumstance. The complementary dynamic between generative and strategic dialogue echoes M. Scott Peck's [1987, p. 104] exhortation: "community-building first, problem-solving second."

### **3.5 Methodological Possibilities**

Theoretical and methodological complementarism proposed by critical systems thinkers emerges from the recognition that problems are "so complex that it is impossible at present to produce a satisfactory, unified body of thought that can assist with all its aspects" [Jackson, 1991, p. 263]. "Complementary implies that parts of different identities fit usefully.... Complementary is typical of very complex and heterogeneous systems, in which numerous functions and structures can operate and maintain themselves only by cooperation" [François, 1997, p. 63]. General Evolution Theory, as a knowledge area emerging from the complementarity and isomorphisms found in different sciences of complexity, can give coherence to ESD in order to go beyond a merely eclectic approach. This complementarist position transcends modernism and postmodernism.

In the context of the philosophical debate between modernism and postmodernism, GET offers a different way of looking at the assumptions of these two currents of thought and provides the basis for considering ESD a dialectical synthesis of the two. On the one hand, "modernism essentially believes in the order of things and searches for unity, identity, and consensus. It offers security through rational explanations of what is happening.... Seriousness and depth are characteristics of modernism as it plans

and charts the onward march of rationality and progress.” On the other hand, “postmodernism offers no security. Rather, it thrives on instability, disruption, disorder, contingency, paradox, and indeterminacy.... [it] emphasizes superficiality and play instead of seriousness and depth” [Jackson, 1991, p. 32-33]. This comparison between modernism and postmodernism resembles the two main incommensurable assumptions about the nature of society and social science articulated by Burrell and Morgan [1979]: either society is a stable system and social theory concerns regulation or society is an unstable system and social theory concerns radical change. However, from a evolutionary systems perspective, we can understand social processes as having periods of dynamic stability *and* periods of turbulent change — making the assumptions of different social approaches commensurable and, thus, complementary. Through this evolutionary lens, we can see that modernism emphasizes integration while postmodernism emphasizes differentiation, both of which are essential stages in evolutionary dynamics. The new understanding of evolutionary processes puts an end to the old quest for absolute predictability and control and it offers the possibility for improved anticipation of the consequences of human actions, improved guides for interventions, participatory approaches for problem resolution, clearer sense of purpose, and positive images of the future [Loye & Eisler, 1987, p. 57] all of which are integral part of ESD.

Rather than discussing the development of ESD on the grounds of philosophy, designing communities need to face the practical challenges of socio-ecological survival and move “toward what will work to provide answers where no reliable guides exist” [Salner, 1996, p. 8]. Complementarism, however, should be distinguished from a pragmatist strategy which is eclectic at the methodological level and that disregards the need of a coherent body of theory to inform practice [Jackson, 1991, p. 261]. ESD, as a complementarist critical approach, empowers evolutionary agents which are neither activists, nor theorists, but a synthesis of the two. Laszlo and Krippner [1998] have argued that ESD, drawing from soft systems thinking and emancipatory systems thinking, “serves to enable evolutionary systems designers to align the systems they create with the dynamics of civilizational change and the patterns of sustainable environmental development” [p. 62].

### 3.5 ESD as a Scaffolding

In ESD, after defining “what” to design, the designers need to define “how” to go about it. There are many alternative configurations of methods and tools that can be useful for the different purposes of evolutionary systems designers. In a way, ESD is like a general pattern from which designing communities need to adapt their own version. The myriad of possible adaptations of ESD share the explicit value imperative of designing social systems for a *sustainable and evolutionary future* and the common knowledge base that informs the design endeavors.

The general pattern of ESD from which each designing community can adapt its own version can be explored by the metaphor of a scaffolding (this metaphor originated in the context of the work of Group D of the International Systems Institute [see Castro, et. al [1994]; and Laszlo, Laszlo, et. al. [1995]). A scaffolding is a temporary platform or a flexible structure, either supported from below or suspended from above, on which individuals sit or stand when performing tasks at heights above the ground and that can change together with the design work. ESD, as an approach that begins by envisioning a sustainable and evolutionary future, is certainly a task at heights above the ground of current realities. By metaphorically equating the creation of the future with the artistic task of creating a monumental and ever changing sculpture, we can appreciate the importance of the scaffolding.

## 4. Conclusion

ESD is a synthesis of future creating ideas that have been developed over the last decades, when it became clearer that the trajectory of human civilizations are not sustainable. There is already a significant body of knowledge and approaches developed for conscious and ethical ecosystemic change. But this knowledge is currently restricted or confined to circles of a few scientists and intellectuals. The

challenge is to make this knowledge available to wide numbers of people so that the promises that evolutionary learning and design offer, in terms of a possible sustainable and evolutionary future, can become a reality. To do this, ESD needs to be further developed.

In an age when the overwhelming complexity of contemporary global problems could leave us without much hope for the future, ESD provides a path for transcending problems and embracing opportunities. A successful evolutionary future in partnership with Earth depends on our capacity to hold the creative tension between our ideal images of the future and our crude present realities without either sliding into fatalistic pessimism or wishing it away with a wave of utopian optimism:

“Pessimism is premature; optimism is naive. Voltaire was right: the optimist believes that we have the best of all possible worlds, and the pessimist is afraid that this is true. Neither does anything about it — the one because nothing *needs* to be done about it, and the other because nothing *can* be done.” [E. Laszlo, 1996, p. 140]

ESD calls for a new kind of realism; that is, an “evolutionary realism.” Evolutionary change agents know that they can shape their world and destiny, and so, they act accordingly.

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