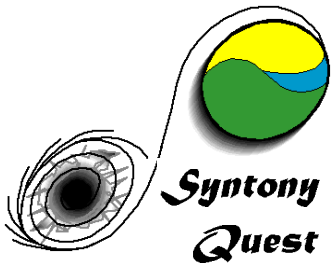

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A Soft Technology for Evolutionary Learning

Alexander Laszlo, Ph.D. and Kathia Castro Laszlo, Ph.D.

Introduction

Technology is a key factor in the quest for attaining a globally interdependent society in the 21st century. The socio-ecological responsibility of those engaged in the development of science and technology must be seen as fundamental to this quest. Policy assessment and formulation needs to be shaped within the context of a planetary ethics — one in service of evolution with distinction, rather than of devolution to extinction (Laszlo, 1995). Such an orientation by which to guide our emerging global community is paramount to the long-term future of humanity (Michael, 1973). This paper presents an initial response to the urgent need for the development of a soft technology, one of human interaction, through which to accomplish this goal of creating community at both regional and global levels.

The critical evolutionary challenge for technology at the dawn of the third millennium is one of designing the vehicles for sustainable human and societal development in partnership with earth. The challenge calls for the conscious creation of "systems of syntony"— not through the "hard technologies" that shape and mold the physical infrastructure of our planet, but through "soft technologies" that augment creative and constructive processes of human interaction. Through them, humanity has the opportunity to connect people, ideas, and resources across communities, and thereby, create to the conditions for the emergence of a truly global society.

This paper explores both the promise and the threat faced by a techno-civilization such as is emerging on our planet in the early 21st century. It points to the need for balancing those aspects of our technologically sustained learning communities that promote an already hypertrophied technological intelligence with a concomitant level of currently atrophied aspects of socio-cultural intelligence.

The human side of technology

Technology is often portrayed as something apart from culture, acting upon individuals and societies in dehumanizing ways. It has been demonized as the machines, tools, and material objects of human production that bend us to their mechanistic will in a relentless drive for increased efficiency, effectiveness, efficacy, and subjugation of nature. The casualties left by the wayside are feared to be ethics, aesthetics, spirituality, and humankindness. Jacques Ellul (1964) warned of this malevolent aspect of technology in the middle of last century, writing reprovingly of how "the machine tends not only to create a new human environment, but also to modify man's very essence."

There is a problem with such views, generally identified with technological determinism. The problem is that they separate technology from culture when in fact, technology is best conceived as a kind of *crystallized culture.* People produce technology — more specifically, individuals and groups in particular cultures produce specific technologies. What they produce, as well as how they produce it, reflects and embodies the values of their culture. That is why technology transfer is no longer considered a legitimate activity; it implies cultural hegemony. When we transfer a technology to others, even within the same culture, we impose our values and our beliefs no less than our artifacts of production.

Little wonder, then, that we decry the dehumanization of work and the malevolent pressures of efficiency and profit maximization in the wake of industrialization and technological advance. These are the very values with which *we* imbue our technological systems. To some, it may appear that technological evolution has become separated from sociocultural evolution, and worse, according to the determinists, that technological evolution is running on its own. We suppose these perspectives must be admitted as ways to interpret the apparent lag in the effective

assessment and harmonious integration of the plethora of technologies that mediate so much of our lives. But rather than charge technology with irresponsible conduct, we need to consider why it is that we have not met the challenge of matching technological intelligence with a commensurate advancement in sociocultural intelligence and wisdom. As Aurelio Peccei noted in 1977, the development of such wisdom is essential in giving direction to technological developments for the benefit of humankind, and indeed, one might add, for the stability and well-being of earth itself.

The central challenge to the evolutionary change agents of today and for tomorrow is the development and nurturing of this sociocultural intelligence. The specific challenge for technology is for us to consciously create it such that its products and processes embody an evolutionary, planetary, and sustainable ethic that affirms life — and the quality of living it. In short, it is a challenge to our cultures; one to which only a life-affirming evolutionary ethos is appropriate.

Technology driven?

Once we understand that we drive technology and not vice-versa we can start taking responsibility for the way in which we shape our world through it. Clearly, the progress of far-reaching social structures with powerful technologies has allowed us to change the face of the earth. We have adapted our environment to us, molding and modifying our surroundings however we please in order to be more comfortable. In the name of progress and pleasure, this ethic has covered our relations with the biosphere, as well. We have seen fit to do whatever we like with the animals and plants that share our planet. If it entertains us to kill a bull for sport, then we make a glorified spectacle of it, and if we enjoy decorating a Christmas tree in our home, then each year we cut one that has taken years to grow so that it can adorn our house for a month (and often, after that, the tree becomes garbage — stuck in a plastic bag to be carted off as non-recyclable landfill). Those of us who eschew sport hunting may think ourselves to be highly civilized and thoroughly moral planetary citizens, but how often do we act in ways that show we think nothing of taking the life of other living things for our simple pleasure? If we like the smell of wildflowers in our home, aren't we still willing to cut fresh ones every day to please our senses? While each individual act of doing so may

not change the world for good or for bad, the attitude that allows us to engage in such acts could.

By the dawn of the third millennium, this strategy of adapting the environment to us in accordance with our every whim has brought us to the threshold of sustainability with the life support systems of planet earth. Humankind has pursued this strategy more or less consciously in order to gain mastery over nature. We can now live on the north pole, in the tropical rain forests, out on the desert or under the sea. We do not need fur to keep us warm; we can fabricate clothing and we can build houses and install heating. We do not need sharp claws or powerful jaws to get the food we need; we can use forks and knives or chopsticks to eat with and we have tools and machines to harvest and process our provisions. And we do not need piercing voices or specialized antennae to communicate among ourselves: we have developed systems of communication to relay information far and wide. In fact, now that we have found evidence of substantial deposits of water hidden away on the moon, NASA engineers are even considering plans to set up a human colony there.

But where are we going with this show of technological prowess? If it is not leading us, then either we are adrift, or we must accept responsibility for charting the course. Becoming masters of our own destiny is not a quest of foolish arrogance — it is the survival imperative for sustainable co-existence of humankind with the life support systems of planet earth. The mastery entailed is not one of domination but rather one of harmonization. It involves taking to heart and bringing to life the old adage, *"we cannot direct the wind, but we can adjust the sails."*

The next stage in the evolution of technology will involve developing this sort of sociocultural intelligence. It will not mean seeking to play God or thinking we can *direct* evolution by messing with human genes and seeking to do evolutionarily inappropriate things like clone ourselves. We do not understand what the consequences of such actions could be in the larger scheme of things since we simply do not know how such changes would continue to change on their own after our initial interference. An evolutionary consciousness that fosters a life-affirming sustainable ethic would *not* seek to direct evolution. Rather, it would seek to adjust our course in the flow of evolutionary change, mindful of the waves we create — the possible consequences of our actions — as we play our part in the cosmic jam session of being and becoming.

What is Technology?

In past decades the term technology had a very specific, limited, and unproblematic meaning. Persons who employed the term spoke of a "practical art," "the study of the practical arts," or "the practical arts collectively." In the literature of the eighteenth and nineteenth centuries, such meanings were clear; not occasion for deliberation or analysis. In fact, technology was not considered important in descriptions of that part of the world most would now call technological. Most people spoke directly of machines, tools, factories, industry, crafts, and engineering and did not worry about "technology" as a distinctive phenomenon.

Changes in the perception of technology are marked by changes in the meaning of the word itself. Webster's Second International Dictionary of 1909 defines technology as "industrial science, the science or systematic knowledge of the industrial arts, especially of the more important manufactures." More recently, Webster's Third New International Dictionary (1961) includes the following definition: "the totality of means employed by a people to provide itself with the objects of material culture."

It is also worth considering a few pertinent definitions developed by federal agencies in the United States. Clyde J. Behney, former Program Manager for Health at the Office of Technology Assessment (OTA — established in 1972 in order to conduct evaluations of technological change in American society, and dissolved by Congress in 1995 in a blatant demonstration of sociocultural stupidity), defines technology very broadly as "organized knowledge applied to practical purpose," qualifying that it "need not be in the form of a machine or physical implement." (Behney, 1986, p. 20-21).

We can best understand technology as both a product and process of society. Its manifestation varies in accordance with the dominance of cultural conceptions in given segments of society at any given time. For example, in areas of North America, the contemporary nationalist conception of science and technology, labeled "techno-nationalism" (Reich, 1987 & 1998), illustrates one perspective that is not universally shared. In Denmark, as in France, Japan, the Netherlands, Norway, Switzerland, and the United Kingdom, carefully structured participatory processes that engage everyday citizens in decision making about science and technology have been underway for more than a decade (Sclove, 1998). While such processes are not 'technology' in the same way

as is airplane design, they nonetheless have equal claim to the term. However, without further precision or specificity, such broad usage would only lead to confusion and ambiguity. As Langdon Winner pointed out, “there is a tendency among those who write or talk about technology in our time to conclude that technology is everything and everything is technology... the word has come to mean everything and anything; it therefore threatens to mean nothing” (Winner, 1978).

Traditionally, then, technology refers to a machine, tool, or artifact of human production. But as linguistic conventions have gradually changed, the concept of technology has expanded in both its denotative and connotative meanings. It is now widely used in both ordinary and academic parlance to discuss a broad range of phenomena — tools, instruments, machines, organizations, methods, techniques, systems, and the totality of all these and similar things in our experience — without necessarily becoming specious.

Tornatzky concludes that technology refers to “any tool or technique, any physical equipment or method of doing or making, by which human capability is extended” (Tornatzky, 1983). With this definition in mind, the term technology should be understood to pertain to a complex system composed of people, organizations, role structures, skills, and knowledge bases, in addition to the hardware produced in workshops and factories.

Such a definition allows for the broad range of processes and products currently identified as some form of technology. In order to gain clarity in our consideration of the term, we now need to sort through and separate some of these forms. Table 1 presents a brief categorization of the more common frames of reference to which the term lends itself.

Table 1. *A Classification of Technology*

Low-Tech	small-scale technologies which do not require complex infrastructure, are relatively simple to use, cost little to construct or obtain and next to nothing to operate.
Hi-Tech	sophisticated technologies which require complex infrastructure, technical expertise to construct and/or to use, and are often costly to obtain and to operate.
Alternative Technology	equipment or organizational forms that represent viable alternatives to existing 'main-stream' technologies. For example, small-scale organic farming instead of large-scale energy and chemical-intensive cultivation techniques.
Intermediate Technology	technologies that stand halfway between traditional and modern technology. The ox-drawn plough is an intermediate technology; more sophisticated than the traditional hoe, but less complex than the tractor.
Appropriate Technology	technologies characterized by organizational simplicity, high adaptability to a particular social or cultural environment, sparing use of natural resources, low cost of final product, and/or high potential for employment.
Blended Technology	a form of appropriate technology designed for culturally sensitive introduction in societies other than that in which it originated. Technology that has been adapted to the norms and values of local cultural conditions.
Hard Technology	The tools, implements, machines, devices and equipment that are the physical embodiment of technology, and/or technological process based on engineering techniques and principles: 'know-how.'
Soft Technology	The 'scaffolding' (support systems, group process techniques, design methodologies, decision making processes) for individual and collective self-determination: 'know-why,' 'know-what-for,' 'care-why.'

It is important to note that these categories are neither exhaustive nor mutually exclusive. A given technology may fall into some other category (such as "traditional," "modern," or "main-stream") or into several categories at once. For example, computerized virtual reality technologies are at once both hard and high-tech, although they may be used as part a broader soft technology. By contrast, the virtual reality technology of a puppet show is at once low-tech, intermediate, and often soft, as well. The categories are also context-relative, that is, the decision as to whether or not a technology is, for example, appropriate, blended, alternative, soft, or any one or all of these depends to a large extent on the cultural context in which it is found and on the particular experience of those who live the technology. For example, the horse-drawn plough may be an intermediate technology in parts of Africa while it may be a traditional technology in parts of South-Eastern Asia. The bicycle may fit into any one or several of the above categories depending upon the sophistication of the bicycle itself and society in which its operation is considered (Carr, 1985).

Such a categorization of technology admits the consideration of technological process relating to social systems design. Developed with the orientation of a soft technology, that form of social systems design known as evolutionary systems design (ESD) can lead to self-empowering and ecosystemically sustaining pathways for the development of human activity systems with the life support systems upon which they depend. This, then, is the promise of ESD — as a future creating technology of change, for humans, with earth.

Technology and the Nature of Change

There is a marked trend in the dynamics of socio-cultural change over time; a trend clearly linked to the dynamic of technological advancement. The so called "global problematique" provides a descriptive orientation of change and the processes of change that characterize global civilization at the beginning of the 21st century (Meadows, 1991). However, an extrapolation of the trends that characterize the current problematique point toward ecological catastrophe and social disintegration. From an interpretative framework, we can explain why the global problematique is developing as it is — and develop policies and strategies to create a future that is both desirable and

sustainable. This framework is based on the sciences of complexity, and in particular, on evolutionary systems theory (e.g., Goerner, 1994; Capra, 1998).

It is important to consider the potential as well as the limitations of technological solutions to the challenges posed by the global problematique. "Technological fixes" represent nonviable strategies for the sustainable development of a global learning society. Alternative technological strategies need be considered, especially those involving technologies of human interaction, such as Social Systems Design (SSD) (Banathy, 1996) and, more recently, Evolutionary Systems Design (ESD) (Laszlo & Laszlo, 2002).

The evolution of technology and society

Tornatzky's (1983) definition of technology allows us to make a key distinction between hard and soft technologies. Hard technology relates to the tools, implements, machines, devices and equipment that are the physical embodiment of technology, and/or technological process based on engineering techniques and principles: what is sometimes called 'know-how.' Soft technology, in contrast, is the 'scaffolding' (support systems, group process techniques, design methodologies, decision making processes) for individual and collective self-determination: what is sometimes called 'know-what-for,' 'know-why,' or 'care-why' (Laszlo, 1999). The development of soft technologies goes hand in hand with the appearance of new challenges and opportunities in society, as represented in Figure 1, below.

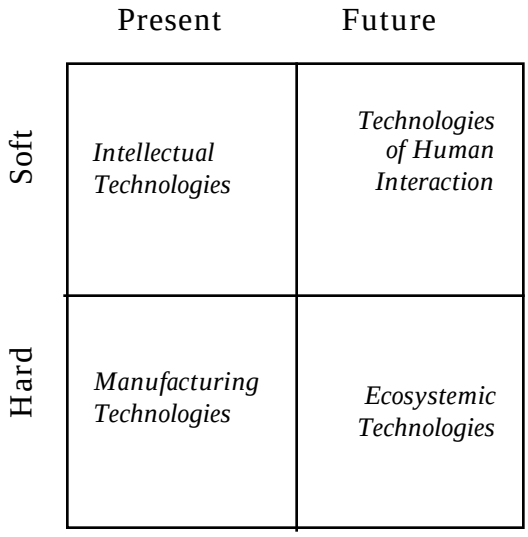

Figure 1. *The Evolving Orientations of Hard and Soft Technologies*

The industrial revolution witnessed the development of machine technologies which human societies have been able to use to increase and improve productive processes. Since the mid-1900s, machine technologies have evolved from augmenting physical power to augmenting cognitive powers. In today's world, group process technologies that aid in all manner of human interaction and decision making are both more prevalent and more needed than ever before. From John Warfield's Interactive Management and its commercialization in Aleco Christakis' Cogniscope™, to Stafford Beer's Syntegration Process based on his viable systems model, to Marvin Weisbord's Future Search technology and many other such inventions that facilitate social and interpersonal interaction, all are coming to the fore.

Based on such a strong dissemination of hard and soft technologies, we are beginning to see indications of the emergence of a new generation of technology. Manufacturing technologies are becoming ever more ecological and sustainable. Intellectual technologies are beginning to emphasize not only information processing but *meaning creation* among groups of people by enhancing human interactions. The role of these new technologies in the consolidation of knowledge economies and the formation learning societies is crucial at this juncture in our global civilization. From the perspective of strategic technology policy formulation, the task at hand is to provide the vision and the guidelines for the development of new and appropriate technologies

for the globalization of a highly interconnected learning society. This is the task to which the emerging soft technologies most readily lend themselves.

An important characteristic of future-oriented soft technologies is their fusion of scientific and ethical knowledge. Instead of just answering questions of "know how," these soft technologies provide the means to start to answers questions of "know why" and "care why." For this reason, it is essential that their function and impact in societal development be made explicit: these new technologies will have to be in syntony with their socio-cultural and bio-physical milieu, or else they will fail.

William Irwin Thompson (1989), in his analysis of the role of tools and artifacts in the evolution of human consciousness, presented a powerful argument for the role of ethics and technology in the creation of a viable global society. He believes that "nothing less than truth, goodness, and a ... universal compassion are going to get us through this transition from industrialization to planetarization. Our level of consciousness has now become the biggest obstruction to the continuity of human existence. We have made normalcy nonviable, so we have opted for an 'up or out' scenario in cultural evolution. We either shift upward to a new culture of a higher spirituality to turn our electronic technologies into cathedrals of light, or we slide downward to darkness and entropy in a war of each against all" (p. 10).

In a way, Thompson is calling for the development of soft technologies that augment the efficacy of human interaction and serve as compasses for socio-cultural evolution. Syntony, in evolutionary systems thinking, is conscious intention aligned with evolutionary purpose (Laszlo, 2002). It provides a guide for creating and sustaining evolutionary consonance in the dynamics of socio-cultural development, and as such, can serve as the ontological underpinning for a soft technology of sustainability. The role syntony plays in societal development is akin to that of an evolutionary guidance system for effective engagement in purposeful evolutionary action (Laszlo, 2002).

Based on the promise of the principles of sustainability to be derived from a study syntony, a methodology for future creation has been developed. This methodology is known as Evolutionary Systems Design (ESD), and its goal and ultimate objective is to serve as a scaffolding for learning and design in service of a global learning society informed by an evolutionary ethic (Laszlo, 2000). In particular, ESD is a methodology for the design of evolutionary learning community (ELC) — a

socio-technical system designed with the explicit purpose of facilitating transformation toward a learning oriented and sustainable global society (Laszlo & Krippner, 1998; Laszlo, 2000).

Evolutionary Systems Design

Evolutionary Systems Design is a soft technology oriented to the creation of evolutionary pathways for the sustainable development of life on earth. Given the theoretical constructs of general evolution theory, and the methodological constructs of social systems design approaches, ESD confronts the challenges posed by purposeful stewardship of the earth's life support systems. The orientation of this technology is captured in a writing that dates from well before the emergence of ESD: "having become conscious of evolution, we must now make evolution itself conscious. If we so willed it, the next leap in the development of human society can be intentionally guided." To do so, we must create a "holarchic path where individuals and communities collaborate of their own accord in flexible social systems." (Laszlo, 1991, p. 104.)

ESD seeks to develop "evolutionary competence" (Banathy, 1996; Montuori, 1989). Evolutionary competence refers to the state of self-actualization of individuals and groups that is marked by the mastery of the knowledge, the abilities, the attitudes, and the values required for co-evolutionary actions, and therefore, for the pursuit of sustainable modes of being. Designers of social systems for global and societal sustainability must be able to empathize with the values and desires that shape the disposition of the people with whom they work. Of equal importance, the designer of change must not impose personal preferences, visions, and judgments on others. If he or she does, the future toward which they strive may not in fact be a true expression of their desires, but rather a fulfillment of the desires that the designer/change agent has for them.

Although these notions relate generally to ESD, they are very much in accord with contemporary perspectives on development. As the ancient Taoist proverb says, "a leader is best not when people obey and acclaim him, but if — when the work is done — the people say, 'we did it ourselves'." In the case of ESD, as with any

developmental technology, significant social changes can be brought about only if those who are most likely to be affected participate in soliciting the changes, choosing how they shall be made and implemented. Only then is it possible to foment fundamental transformations in social systems since, in such systems, human beings are the critical factor, and change must necessarily both emanate from and incorporate them.

How can we consciously create the conditions that will inspire, involve, and empower others? The first step is to explore ways to challenge and be challenged to think creatively, interactively, and holistically. To begin with, we need to recognize the extent to which subjectivity is a crucial and welcome feature in the design process. The classical emphasis on objectivity provides no ground for empathy and the awareness of differences in methods of doing and ways of thinking. Daring to imagine possible futures is key to ESD.

To dream — not the impossible dream, but one that draws the future to us by giving us an inspirational vision and a purpose in seeking to bring it to life. This is part of the shift from 'power over' to 'power to' — the power to dream. Creativity requires a fertile imagination. But it also requires feet that are firmly planted in pragmatic reality, or else our dreams will remain nothing more than that.

ESD represents a new co-creative soft technology that seeks confirmation "in contemplation of *what must be,*" to borrow a phrase from Anatol Rapoport. People engage in ESD in order to create a system that has a "goodness of fit" with the dynamics of their larger society, with their own expectations, and with the expectations of their systemic environment.

ESD is based on a vision of sustainable development that conceives of true progress as that which redresses current needs without placing at risk the needs of future generations. This involves activities that integrate environmental, technological, and strategic planning. Such transdisciplinary interventions aim to provide the means to build capacity for the continuing provision of benefits. This implies a rate of development that is capable of promoting an ongoing process of socio-cultural and politico-economic betterment. ESD holds that there is really only one type of sustainable development: continuous self-development.

For any ESD effort to be evolutionarily sustainable, it must ensure that both the products and the processes of change are:

- Socially desirable
- Culturally acceptable
- Psychologically nurturing
- Economically sustainable
- Technologically feasible
- Operationally viable
- Environmentally friendly
- Generationally sensitive
- Capable of continuous learning

By monitoring all these aspects simultaneously, a process of design (individual, societal, or global) can be said to be socio-ecologically sustainable if it involves an adaptive strategy that ensures the evolutionary maintenance of an increasingly robust and supportive environment. To foster this condition, ESD sets objectives that identify the opportunities for increasing the dynamic stability and self-sufficiency of an individual, a group, or a society by indicating the areas of socio-economic potential that could be developed to the advantage of all the stakeholders involved — both those who benefit from the system at present, as well as those who stand to benefit from the system in the future.

Systems of syntony

We gain basic evolutionary competence through learning syntony. Syntony is a purposeful creative aligning and tuning with the evolutionary flows of which we are a part. The term is currently relegated to the realms of radio engineering to denote tuning to radio frequency signals or creating effective signal resonance by harmonizing the frequency of wave emission patterns. But it has been used by others, including Teihard de Chardin and Erich Jantsch, to denote a process central to evolutionary competence. Jantsch, for example, proclaims that “as we have learned (though not too

well) to design social roles, we shall have to learn now to design systems of syntony" (Jantsch, 1975, p. 270).

Syntony involves listening to the rhythms of change and learning how to play our own melody in ways that harmonize with the larger piece. It is finding and creating meaning and evolutionary opportunity, both individually and collectively. Just as the jazz musician playing improvisations feels and knows how to jam in interaction with both fellow musicians and audience response, so can we learn to co-create with the dynamics of change, neither forcing the process nor being swept away by it. Jantsch suggests that "... we are in the process of learning to take seriously those responses which are no longer innate, but emerge from tuning in to general evolutionary forces. Syntony" he says, "is on the verge of becoming more conscious" (Jantsch, 1975, p. 270). Nevertheless, he also points out that "an understanding of the internal (coordinative) factors in the evolution of human consciousness will probably become possible only in the framework of a wider theory of evolution" (Jantsch, 1975, p. 200).

It is this framework that ESD seeks to provide in the form of a soft technology that can be used by individuals and groups to create systems of syntony. ESD promotes thinking globally, acting morally, and living responsibly. Groups of people engaged in ESD form an evolutionary learning community (ELC) — an example of a system of syntony. If ESD is the design technology, ELC is the concrete manifestation of the design outcomes. ELC arises when two or more individuals with a shared purpose and a common identity co-create evolutionary competence and sustainability by learning how to learn in harmony with the dynamics of their physical and sociocultural milieu. An ELC does not adapt its environment to its needs, nor does it simply adapt to its environment. Rather, it adapts with its environment in a dynamic of mutually sustaining evolutionary co-creation. Situations of uncertainty are turned into opportunity — provided a basic level of evolutionary competence that permits understanding of the principles relating to the patterns of change described by all complex dynamic systems with a throughput of information and energy. In her book, *A Mythic Life,* Jean Houston quotes Margaret Mead on her death bed:

> Forget everything I've been telling you about working with governments and bureaucracies! I've been lying here being an anthropologist in my own dying — fascinating experience, by the way; there is no hierarchy to

> it — and I've had an important insight into the future. The world is going to change so fast that people and governments will not be prepared to be stewards of change. What will save them is *teaching-learning communities* [italics mine]. They come together in churches or businesses or even in families. They could meet weekly and do your kind of exercises, especially ones that develop their capacities. There must be humor, laughter, games and good food as well. That will keep the participants coming back. Then, when they feel ready, they will choose projects to work on to help their *communities*. The *only way to have a possible society*, Jean, is to develop the *possible human* at the same time.

A glimpse of the future

Imagine if we were able to form and then live in communities that learn how to learn in harmony with the dynamics of the larger processes of which we are a part. These would be learning communities, ones where the boundaries between work, play, and learning are blurred in a lifelong engagement with dynamic and harmonic processes. The communities would be comprised of groups of people with a shared identity and a common purpose, committed to the joint creation of meaning. If such learning communities adopted an evolutionary ethos that heeded homeostatic principles of ecosystemic sustainability, that drew on evolutionary understanding of complex dynamic systems to inform decision making, and that sought to create the conditions for the full development of the potential of its members in a process of continuous and never-ending self-design, then we would witness the emergence of a new form of community: evolutionary learning community (ELC). And imagine if several ELCs began working together, learning from and co-designing with each other, in a dynamic of syntony, synergy, and mutual interdependence. We would then have a community of ELCs or an evolutionary learning ecosystem. This would, in effect, mark the emergence of a fundamentally new type of human activity system. One that serves as a steward of evolution in its primary self interest.

The evolutionary challenge for technology in the third millennium is one of designing the vehicles for sustainable human coevolutionary development in partnership with earth. It will involve the conscious creation of systems of syntony through such soft technologies as evolutionary systems design. Through them, we will be able to create the conditions for the emergence of true evolutionary learning

community, and eventually, of evolutionary learning ecosystems. Remember, we cannot direct the wind, but we ~~can~~ *must* adjust the sails.

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