Tele-Community Development - Part I: The Nature of Global Villages, Universe Cities and Communities of Learning in the Information Society

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Tele-Community Development - Part I
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Richard Lowenberg on Feb 19 2002   issue 17

A paper given at the International Forum on Townspace Design in Fukuoda, November 22, 2001, Fukuoka, Japan.

1. Introductory Remarks

Konnichi-wa. I very much appreciate being here with you today, and I wish to thank the Forum sponsors and organizers for inviting me. It is a great honor. It has also been a challenge to prepare a presentation that I hope will be appropriate to the context of today's Forum, that will be provocatively informative, and that will translate meaningfully and transcend the differences between our languages and cultures.

The prepared and distributed paper, and my projected slides, will serve as a more detailed point of reference for the informal talk that I am about to give. I will not bore you by simply reading my paper; you may do so on your own. I shall speak today about the nature of the "Information Society", a term first coined in Japan in the late 1960s, with a primary emphasis on its local dimensions and implications, and on our understanding of it as an integrated part of a 'whole systems' ecological approach to community planning and development.

Two basic truths should be evident from this presentation. There are no technical solutions to our shared human problems. And, there is nothing I can tell you that you don't already know.

2. Personal Background and Projects

Since studying architecture, art and filmmaking in the mid-1960s in New York City, I have pursued a mostly independent and non-profit sector course of actions focusing on the local and humane aspects of the so-called Information Revolution. I will briefly note the initiatives listed below, and will use the Davis Community Network as a pragmatic example and reference for the latter part of this talk about Community Networking and Tele-Community Planning.

- Environmental Design, Tele-Community Planning and Demonstration (RADLab)
- Telluride InfoZone and Colorado Rural Telecommunications Project
- Davis Community Network and Yolo Area Regional Network
- U.S. Association for Community Networking and Global CN Congress
- National Research Council "Local Broadband Report"
- Media and Performing Arts Projects: "Information Revolutions" (IR)

3. Global-Local Context and Issues

What is really going on? Information Highways, Digital Cities, Tele-Work, Tele-Villages, Tele-Commuting, Smart Communities, Lone Eagles..... These are catch-phrases;

narrowly defined categorizations that often lack appropriate understanding and contextualization of a much more broadly encompassing and effecting social transformation. We are simply, becoming an increasingly communicative and technologically mediated society.

The fabric of our cities and towns is being rewoven by the digital networking and tele-mediation of global society. This Information Revolution is real. It is a force of powerful social transformation, the effects of which are barely comprehended yet. The transformative power of electrification, flight and of the automobile on our lives over the past century only hint at the impacts and implications that the new communications technologies and services will have on the political, cultural, social, economic and physical makeup of our communities.

Telecommunications infrastructure and services, purely by their nature and implementation at this early stage of their development and integration into society, do not assure urban or rural communities of an improved future. The issues and considerations that surround our increasingly technological and digitally communicative local-global society are complex. Some people are venturing into this new environment, developing "virtual real estate"; treating information as data; a commodity to be bought and sold. Others harbor growing fears and confusion, overwhelmed by an increasing lack of meaning and feelings of unconnectedness.

The future of our communities and societies depends upon our understanding the ecology of this transformation. Such an understanding and intent may be the basis for a real Information Revolution; a revolution rooted in social betterment.

3.1 Ecology

Ecology is the study of the complex interactions between living and non-living, inter-dependent dynamic systems. It describes the fragile balance in which such systems inter-relate and through which they co-evolve.

No seriously intelligent person can dispute what we now know about ecology. The complexity of the chaotically dynamic processes that encompass our lives, imposes a dire need for us to reconsider economic relationships and social values. Some economists are now attempting to understand and to propose a new sense of values; new economic theories, based upon our knowledge of ecological processes. With the Second Law of Thermodynamics, and Entropy as its underpinnings, this new thinking is beginning to have real and immediate effect among 'green' environmental workers. It has had little broad recognition or effect outside of this interest group, however. Much of humanity, attempting mainly to survive, does not have the resources or the time to consider such 'stuff'; and many of the rest of us, unfortunately, have a very limited grasp of our human relationship to nature.

The proponents of 'ecological economics' seem not to comprehend the big picture yet, either. While their theories are 'right on the money' regarding the 'green' matter-energy environment, they have hardly considered the 'information environment' in their attempts to better manage this household.

The study and practice of ecology must take into full account the energy-information flux to, from, and on the Earth. Information, thus considered, poses difficult questions as to its potentially increasing physical and social influence, and as to a determination of its value within the broader economic sphere. An economy-ecology of information is as critical to life as that of watersheds, air quality, forests or migrating populations. Understandably, there is little support for research that might tend to undermine the existing economic order.

3.1.1 Nature and Human Being

The generalized terms 'nature' and 'natural' are infused with accepted meaning and depth of beliefs. They are also the source of essential questioning and controversy that underlies the most fundamental developments in human evolution and its impacts on all that surrounds and nurtures us.

What is nature? Are there limits to nature? Are human beings separate from nature? Are our inventions and technologies natural? And, what is the nature of growth and progress?

3.1.2 Sustainability

Conservation, regeneration, stewardship, and learning are the foundation upon which to build strategies for sustainability. To not consume more resources than can be replaced in a relatively equal period of time is a fundamental precept.

Sustainability is at best, a simplistically understood concept. It may be a moot issue if we are to believe in the social and terrestrial effects of entropy, turbulence and complexity. Sustainability is a goal being set as we recognize our evolutionary fragility. It may in fact, not be achievable.

All sustainability is local.

3.1.3 Information Ecology

All too often, in considering our environment, we think of the Earth: soil, water, air, living things, etc.; a material, tangible environment. But these material systems are bound together in a flow of sustaining energy and information: the Earth-Sun-Universe connection. It is this thermodynamic life force, this radiant electromagnetic environment, and its impacts on the body and mind, to which a sense of ecology must be acknowledged.

Information can be considered in a number of ways. Mechanistically, information has qualities much like mass or energy. It is transmitted and received with some force or action. Information channels may be compared to the nerves and bones in living systems. They are the web of social communications. The flow of information determines the course of dynamic social evolution. According to this view, information may be treated as a useful natural resource; a commodity that can be transported, bought and sold, and regulated.

Information, however, must also be considered as patterns of perception, relationships and differences. In coming to terms with an ecology of the information environment, with an ecology of the force, the message and the medium of this most natural resource, accounting for such dynamic cognitive-sensory processes must be integral to any comprehensive formulation.

Information ecology extends our basic understandings of ecology to the physical, social and economic transformations being wrought by the rapid developments in information technology, networking, and by our becoming an increasingly tele-networked 'society of mind'.

The Information Revolution, as a technologically driven revolution, will likely result in increased social systematization, bureaucracy and waste. The more energy consuming, and less ecologically interdependent, the more fragile technological progress becomes; and ultimately more disruptive in its potential (inevitable) failure.

3.2 Economics

In this age, increasingly shaped by communications and technology, humanity is becoming acutely sensitive to its frail security. The rationalism of science continues to accelerate the conflict between global mind and local body. Energy and information are now our major exchangeable natural resources. They constitute the primary components of the value system in a newly emerging economic structure.

There is no denying the miraculous evolutionary history of our belief systems, but our current political economies, fictions of ideology, have become an unmanageable misunderstanding of life, sustaining resources and values. Capitalism, Communism, Socialism, etc. are political contrivances; catch-phrases that deny a comprehensive knowledge of the value of human life and work in a complex and dynamic universe. They are, more directly, sophisticated systems for social control. Intellectual impositions on society-as-system, they do not adequately account for turbulence, random effects or failure. These systems are, in fact, the antithesis of true freedom and democracy; social concepts and goals that ought to carry a profound responsibility for us to be more creatively intelligent and humane.

Society is experiencing accelerated, consumer-driven, post-industrial, technological communications development. Often labeled the Information Revolution, this ongoing process has been largely supported by a military-industrial power base, and driven by a selfishly motivated , catch-up minded technocratic elite. Though not an overt conspiracy, the results of this evolutionary tragedy-of-errors is that increasing populations of people around the world are confused and frightened by newly emerging tensions, class differences and imposed controls, while being torn from their historic sense of culture, and knowledge of place.

The economic and societal threats of 'globalism', and the potential for escalating and globally affecting conflicts are increasingly upon us all. We are being confronted by wars of misplaced ideologies and reactionary mal-intentions. These frightening possibilities must provoke us as never before to address the challenge of right-livelihood, and to foster regional self reliance through interdependent, co-evolving whole-systems thinking and actions, with ever greater understanding and respect for differences and difficulties.

3.2.1 Old Economy

Today, urban and rural communities are being swept up in a socio-economic transformation that is affecting the whole world. The often espoused linear progression of economic waves, from agricultural, to industrial, to information-based, is too simplistic to be an accurate assessment of human evolution. One system does not in fact, replace another. If our fundamental motivations and desires are for a healthier, more intelligent and sustainable society, then we must invest with an appropriately reconsidered understanding of economic valuation.

Agriculture is not going away; it is evolving. Industry is not going away; it is being transformed. Information is not replacing these previous cornerstones of our socio-economic foundation. It is, like water flooding our fields and turning our wheels, flowing through all aspects of society, irrigating our minds and fueling social processes, making six billion (and more) flowers bloom. Might the resulting harvest nurture and sustain us?

3.2.2 Solar Economy

All aspects of our economic systems must be considered as derived from an ecologically holistic solar economy. The agricultural, the industrial, and the new information economies are incomplete systems unless incorporating the nature of value inherent in the over-arching Sun-Earth relationship. Continuing to deny this is counter-intelligent and counter-productive, and further supports the description of economics as "the dismal science". To better understand and implement a solar economy, is to be on the path toward ecological enlightenment.

3.2.3 New Economy

The "new economy" is not the "digital economy". It is the recognition and internetworking of many diverse and interdependent economies. The "digital economy" is a vitally restructuring part of a "new economy". The digital internetworking of economic flows and exchanges is going to permeate much of the way the world works and how human societies distribute resources, assign value and acknowledge the complex ecological balance between competition and cooperation. Properly considered, ecological economics takes full account of value: use value, exchange value, and inherent value.

If the "new economy" is in fact, moving towards recognition of knowledge as a newly valued economic resource and social objective, then the unique qualities of our very humanity require us to acknowledge the symbiotic relationships between matter, energy and information, as the foundation for the reorganization of our local-global economic systems.

3.3 Technology

Materials processing and tool making has been an inherent part of human development from its beginnings, and has taken many forms in response to evolving needs, understandings and creative imagination. We are sensing and communicating creatures, driven by unknown forces and limited by our physical presence. Over time, we human beings have developed tools, sensory aids, to reach beyond ourselves and to re-create the world in our own image; from impressions in clay to cave paintings, from the stylus to the pencil to the telegraph, from computers to cyborgs to …..

3.3.1 Technological Evolution

Technological evolution, from electronic to photonic and bio-genetic processing systems will continue to significantly alter our foreseeable political, economic and cultural futures.

Being is not digital. We are becoming complex and dynamic societies of more; not either-or, if-than, or on-off. Societies will be more specialized and more generalized; more centralized and more distributed; more competitive and more cooperative; more efficient and more wasteful; more open and more closed; and everything in between.

The Gutenberg Revolution, to which our present day Information Revolution is often compared, was followed by a very long period of warfare and social turbulence in Europe. Might there be a comparable possibility today?

There is a real potential for increasing regional conflicts, warfare and resulting ecological destruction around the world, as the free flow of ideas and information are confronted by powerful, vested-interest belief systems and regimes of control. The only counteraction to such an inevitability of circumstance is the promotion and exemplification of ecological intelligence, and of a culturally and environmentally based economic value system. The networked society has an obligation to serve and foster a new ecology of mind and action. It may be overstatement, but not to do so, is to

potentially be guilty of war crimes against society and nature.

3.3.2 ~~Last Mile~~ First Mile

Most telecommunications service providers currently refer to the home, office, neighborhoods and communities as the "Last Mile". They indicate that providing "Last Mile" enhanced connectivity, especially in rural areas, is not economically viable. They have their economic models backwards. The greatest source of value in most peoples lives is local, derived from self, family and community. In a globally networked and communicative society, local environments have the opportunity to generate new economic resources, value and benefits. The local realm must be considered the "First Mile".

The commonly applied term, "Last Mile" represents a supply-side driven concept. It is a top-down, national and corporate, technical and engineering perspective on telecommunications infrastructure deployment. It is based on legacy hierarchical thinking, intent and actions.

The "First Mile" is based on a demand-side driven understanding. It describes a local geographic orientation for telecommunications infrastructure and services deployment, with a democratic social and economic perspective, that focuses on the difference these systems and services will make in the quality of peoples' lives. The "First Mile" is rooted in realizations about the newly emerging 'hyper-archical' nature of networked local-global relationships and actions; with the provocative intent that the Information Revolution must ultimately be a "people's revolution".

3.3.3 Broadband: Wired and Wireless

Broadband is one of many current technological developments that promise and assure us of a life that is "more, faster, and better." It is the highly anticipated and desired next phase of telecommunications infrastructure and services development. Questions abound as to the best and most cost-effective means of delivery. Will it be wired or wireless; fiber or satellites; DSL or cable modems; and when will we get it?

Deployment is now expected to move more slowly than originally projected by companies and some nations. Recent investments and large up-front capitalization have proven to be more at risk, and expectations of competition from emerging ventures seems to be giving way to consolidation by a few large near-monopoly providers who are also in control of content . Government regulators, reaping large rewards from the sale of public spectrum, are slow to step in, hoping that free market forces will reign.

- Korea has the highest penetration and use of broadband (DSL), spurred by new competition.
- Canada ranks second in broadband adoption, spurred by government-corporate partnering and the CANARIE fiber consortium.
- Japan is having a boom in adoption of mobile wireless, voice and data systems (Dokomo).
- In the U.S., only 8% of the population, concentrated in urban areas, currently use primarily DSL or cable modem services.

Broadband systems include:

- DSL (various flavors)
- Ethernet / Coaxial Cable (10-40 Mb)
- Optical Fiber
- DBS (Direct Broadcast Satellite); and LEO (Low Earth Orbit) Satellites
- Terrestrial Wireless (3G; 802.11, other)
- Free Space (IR) Lasers
- Interior Wireless (various standards and solutions)
- Airborne Communications Platforms (aircraft, blimps, balloons)
- LMDS: local multipoint distribution service; fixed broadband wireless (20+ Ghz)
- MMDS: multichannel, multipoint distribution service (2-3 Ghz)

3.4 Society

As the flow of information makes political boundaries obsolete and nation-states less relevant, we are becoming simultaneously more global and more tribal. Our natural common fears are of becoming homogenous; of becoming ecologically fragile mono-

cultures. Difference is therefore critical. Wise societies respect and value differences. It is less than ironic that Charles Babbage called his early computing system the "differential engine", and that the pioneering cybernetic theorist, Gregory Bateson, defined information as "the difference which makes a difference."

3.4.1 Re-organization and Convergence

As already stated, all areas of social and economic infrastructure are being reorganized by the flow of information. Major changes in utilities, institutions and ways of livelihood will in turn, further drive the flow of information deeper into all other roots and branches of society, by fueling capital investments and returns. A new ecological reorganization and convergent balancing of top-down and bottom-up, competition and cooperation, centralized and distributed, public and private, and global and local systems will significantly affect all aspects of society.

The internetworking of local-global society may promote greater democracy, by integrating both distributed and centralized information resources, conversation, decisionmaking, action and response. Contrary to currently dominant thinking, newly networked forms of social reorganization, and greater convergence of public and private sectors at the local sphere of influence, may have powerful "trickle up" effects on national and global organizational structures and initiatives.

3.4.2 Digital Divides: Have Nots and Want Nots

The 'Digital Divide' is a moving target. It is an evolutionary outgrowth of complex economic, educational, racial and ethnic, cultural and political differences and resulting inequities thereof. Though belief in large scale effective solutions may be naïve at best, and potentially dangerous in some cases, the problem never-the-less begs our caring attention and shared efforts.

Timely attention and initiatives are now being applied globally to the economic, political and social disparities of access and opportunity in our internetworked society. The rift between the haves and have-nots is highly complex and potentially treacherous when considered globally. Concern over potential impacts of the 'digital divide', and optimism about the potential benefits of bridging the chasm, are fueling increased actions. Alliances of governments, foundations, corporations and civic groups are partnering to leverage resources and assure success, through programs bringing computers, telecommunications infrastructure and access, education, job opportunities, social services and community information to underserved rural and urban populations.

The Digital Divide may in fact get wider and more troublesome as rapid technological development, related economic changes, conflicts between belief systems, escalating population growth, inadequate natural resources distribution, environmental tensions and catastrophes, and resulting disparities of social status and desires, increasingly speed seemingly out of control past our most well intentioned mitigating initiatives. Though the disparities in computer and Internet access and use between gender, racial and ethnic populations in some countries are lessening, new gaps are arising or may be expected to. As broadband infrastructure and services deployment rapidly develops over the coming years, new demographic patterns and associated affects will likely become evident between those with and without broadband access. Some speculations about broadband related inequities and impacts, foresee ever greater strains upon the nuclear family (as each member has personal systems and individualized programming delivery and interests).

There is also an increasing potential for an anti-technology, anti-corporate media backlash. A growing sector of society may "opt out", as ongoing consumer and market driven technological change and wasteful information overload does not fulfill the promise of "improved quality of life for all"; bringing instead, greater fragmentation of community and family; increasing noise to signal in our lives; and evermore confusing complexity and speed.

There is no going back, however. One important answer to these challenging issues, is to create networked "communities of learning"; the necessary long first step along the path of becoming a "knowledge based society". To meet this objective, leadership will have to promote a "grand convergence" between technology and ecology. The implications of doing so may be extremely controversial, and inherently run counter to our current economic vested interests, near-sighted individual desires and ecologically unhealthy ways of life. The grand challenge is in determining how we get from here to there in least harmful ways?

What will the future look like, and which side of the Digital Divide will you be on?

- Will you continue to purchase the next technical upgrade to your computer, mobile device, software application, faster bandwidth connection and online

service every two years for the foreseeable future?

- Will you be able to keep up with the demands of increasingly technologically dependent job markets and work places, while continuing to take online classes to reinvent your resume?

- Will you invest in the dynamically internetworked and turbulent global stock market, and feel secure that you will stay a winner in the ever-newer economy?

- Will you fashionably wear the latest in 'smart clothing, and will you install 'smart' appliances and sensors in your home, alternative fuel vehicle and children's pets?

- Will you agree to get neural implants someday?

- Will you keep up with the techno-jargon and politically-correct catch phrases of the times, becoming one of the photonically enlightened, or will you fall into the quantum quagmire?

3.4.3 Surveillance, Security and Privacy

Control is antithetical to an information based society. Information flows like water around any barrier. The Information society must be an "Open Society" composed of open systems. Information ecology is qualitatively based upon truth, intelligence and creativity. Deception, ignorance and confusion are the waste products in the information environment. Trust and responsibility are the cornerstones of community.

In coming years we will witness great turbulence, and we will make many mistakes as we come to terms with the inherent realities of information flow and knowledge building throughout the world. Information warfare will proliferate, terrorizing the popular mind. Creativity, imagination and the power of the human spirit is the only antidote. In this environment, healthy communities will have extended the application of the medical profession's oath: "do no harm."

3.4.4 ~~Artificial~~ Artful Intelligence

Within the broad framework of information theory, the arts are recognized for their communicative efficiency and transcendence. The processes of creativity, though elusive, have lead mankind through historical mazes of uncertainty. In an information based society, creative development may assume an economic value comparable to that of the military in an industrialized society. Having learned to recognize the complex ecological interdependence of living systems and the environment, creative individuals and artistic ventures now have an all-important opportunity to take full advantage of the great independence and freedom inherent in their calling, to take a more active personal responsibility to be proponents of a true sense of ecology; a cultural ecology.

Art has now become an almost indefinable term. It is the irony of the Information Age, that reflecting the crisis of meaning in our lives, the arts are being relegated to the marketplace of mass-appeal superficiality; having become popularly synonymous with entertainment, fashion and commercial product. At the same time, the richness and diversity of indigenous cultures around the world, is increasingly being valued for its scarcity and novelty, while being exterminated and replaced by the greed of progress and 'new world orders'.

If we take the incentive of applying our creative talents towards an ecologically considered future, we must be comprehensive. Society is in need of clear, intelligent, inspired visions. Such nonmaterial information resources constitute the true wealth and aspirations of a culturally secure community. As technological development shapes our concepts of the future, those artists working with new tools and processes, need to weigh the eco-cultural worth of their endeavors, against their merely being narrow-minded advocates of media based consumerism.

To call oneself 'artist', is either a grand conceit, or a bold decision to assume greater individual creative freedom. That freedom ought to carry with it, a responsibility for honesty and transformatively influencing intelligence. Artists, having chosen a freedom of aesthetic and intellectual vision and pursuit, are almost always at odds or in conflict with the prevailing social norm. This is precisely the artist's value. The artist is in a way, the personification of society's means of checks and balances; the promoter of individuality and nonconformity, amid the ever threatening systematization of an information-based world. Many artists and cultural institutions are working with deep, sincere integrity and dedication. Their perseverance and efforts must be encouraged.

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