Information—The World's New Currency Isn't Scarce

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Today, information technology innovations have created a global financial casino where as much as $4 trillion of "virtual securities" (derivatives of stocks, bonds, commodities, and currencies) are traded each day—creating new uncertainties such as raids on the dollar, sterling, and other major currencies, as well as scenarios of financial collapse. Worried central bankers and national politicians attempt to stave off such scenarios by resorting to failing economic remedies (such as raising interest rates or buying efforts) to support their domestic economies and currencies. These national players, handicapped by eroding national sovereignty, grope painfully toward the social innovation needed to match the advance of the global casino's computer and satellite-based technological innovation.[1]

Technological and Social Evolution: The Hare and the Tortoise

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The 300-year evolution of Western industrial societies involved a continuous lag between technological innovations and the social innovations needed to accommodate their societal assimilation. From the spinning jenny and the steam engine to the automobile and computer, such technologies have always outpaced and eventually called forth corresponding social innovations: double-entry bookkeeping and accounting protocols, national currencies, central banks, and standardization of rail gauges, highway signs, and electrical fixtures. The computer industry, which underpins today's global casino, is still in its competitive, market-expansion phase—a stage of the technological evolutionary cycle often characterized by incompatibility and mismatches, such as those that exist between computer software and operating systems. This diversity of design—originally a competitive advantage to individual firms—begins to hinder further market expansion into more system-wide applications. Market competition—or in game theory terms, win-lose strategies—begins to *limit* market penetration. Incompatibility often leads to chaotic conditions, such as those produced in the 1800s by nonstandardized railroads and the multiplicity of bank-issued currencies. A more recent example is the separate development, in the 1970s, of a dozen or so different machine-readable product code systems. Paradoxically, textbook market theory inhibits the social innovations that could widen market penetration by characterizing them as "interference in free markets." By contrast, a systems approach views the win-lose market framework as simply entering a transition phase in which cooperation (i.e., win-win strategies such as Sematech and the Universal Product Code) could expand opportunities for all, as well as standardize a regulatory regime, as I have detailed elsewhere.[2]

Such social lag-time actually allowed the rapid germination of the industrial revolution in eighteenth-century Britain. Millions of small, diverse decisions, seeded by the fertile minds of individual inventors, changed the social landscape. No one realized that his or her individual activities were helping to change the world irreversibly. Furthermore, social currents provided a nurturing context, particularly the rise of the Enlightenment, with

its philosophies of individualism and material improvement via scientific and technological progress. As chaos theory shows, such social conditions allowed for the easy diffusion of these early technological innovations. Meanwhile, several Western "cultural DNA code strands" provided a climate that accelerated further technological "colonization" of other European countries, of the U.S., and eventually of many other countries as well. Such "strands" included a culture that rewarded scientific curiosity, the desire to dominate nature, and instrumental Cartesian/Newtonian reductionism within a framework of patriarchy (which, as Boulding, et al[3] point out, forced generations of women inventors to take out their patents in their husbands' names and banned women from scientific societies and pursuits). The response of the Luddites in Britain, famous for breaking the new machines that were taking their jobs, was anything but mindless. Early industrialists were quite frank about their desire to "discipline" workers via fear of unemployment.

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Today, it is not surprising that social efforts to control the rate and direction of technological innovation are still lagging. Even Western societies have been unsuccessful in channeling these now powerfully institutionalized technological drives toward systemic, social, and ecological goals—despite social inventions such as the U.S. Office of Technology Assessment, founded in 1974 on whose original Advisory Council I served until 1980. Indeed, nowhere is this widening lag in social innovation more visible than in the growing gap between the explosion of computerized global financial trading (over 90 percent of which is speculation) and the so-far feeble efforts of finance ministers, bankers, and international bodies such as the Bank for International Settlements (BIS) and the International Monetary Fund (IMF) to create the needed regulatory regime. This regulatory framework is now essential, and it must be global and as "real-time" as the markets themselves. Minimally, it should resemble the functioning of the Securities and Exchange Commission (SEC), which regulates Wall Street in the U.S. Similar capital market regulatory bodies in other countries need to be harmonized into a single "Global SEC." Many ad hoc efforts are ongoing behind closed doors in meetings of the G-7 and in studies underway at the IMF, the BIS, and in academia—such as the "Rethinking Bretton Woods Symposium," held at American

University in June 1994.[4] Bankers Trust chairman Charles Sanford envisions a future in which global information networks—which can now bypass banks—allow entrepreneurs seeking capital simply to upload their business plans onto the Internet.[5] Similarly, I have predicted that, in the near future, financial TV channels will offer "The Venture Capital Show," "The Initial Public Offering Show," and similar programs complete with 800 numbers to complement existing electronic trading systems, such as Instinet, AutEx, and Reuters.

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Crises of the Global Casino as Paradigm Problems

Thus, current looming global financial crises have deep systemic roots in the paradigms that underlie industrialism and still drive the so-called postindustrial Information Age. No wonder traditional banking and financial leaders are unable to transcend their "scarcity models" to visualize needed social innovations. Only new paradigms—beyond reductionism, instrumental materialism, nationalistic competition, and other fear- and scarcity-based social strategies, including the drive to subdue nature and perpetuate male domination—will allow social innovation to catch up with rampant technological innovation, whether in computerized global financial markets or in global arms markets and industries. Such new paradigms need to extend beyond such individualistic, scarcity/fear-based economics textbook models as maximizing self-interest as "rational" behavior, and global competitiveness in a "level global playing field" with few rules and "free trade." Today, transitional "hybrid paradigms" oppose regulation of the global information super highway. They justify this reimposition of laissez-faire by saying that free enterprise technological evolution is "as natural as ecosystems." The same hybrid paradigms invoke chaos theory and system dynamics to "prove" that regulatory intervention is too unpredictable. It remains to be seen whether today's chaotic global financial casino and other new technological domains in cyberspace will become even more unpredictable without some regulatory intervention. Hybrid paradigms have grafted a dynamic update onto the "invisible hand" of neoclassical economics. Ironically, arbitrary forms of private regulation and censorship are becoming a problem, limiting the freedoms of cyberspace just as they have al-

ready limited commercial radio and TV. Will cyberspace be regulated as a "common carrier" (i.e., a new electronic commons) in order to prevent such arbitrary private rule making? Freedom in cyberspace attracts conservatives such as House Majority Leader Newt Gringrich, author George Gilder (a father of supply-side economics), and former Reagan science advisor George A. Keyworth, Jr., along with more futurist-oriented authors such as Michael Rothschild, Lewis Perleman, and Alvin and Heidi Toffler. Both groups are drawn to the same platform—one provided by the Progress and Freedom Foundation, a neo-conservative think tank promoting principles for the Information Age. In sum, it is never a matter of *either* rules and regulations *or* freedom and markets. In human societies, rules for interaction are fundamental—it is only a matter of who, what, when, why, where, and how we choose to regulate ourselves. The invisible hand is our own.

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Today's abstracted world trade/global competitiveness model has alienated financial markets from the real economy of "Main Street" (where actual people in real factories produce real shoes or build real houses and grow real food). Thus, the global casino is now spinning off into cyberspace—divorced from any understanding of the whole picture: human societies cooperating and competing, while interacting with other species within webs and ecosystems in a fragile, ever-changing biosphere. Thus, the needed paradigm shifts are toward wholism, systems and chaos theory, and interdisciplinary dynamic change models. Such major shifts must be informed by psychological reintegration of mind-body-spirit to overcome the pervasive fear/scarcity-based strategies of economics. Such new paradigms reintegrate intellect, empathy, intuition, stewardship, and vision in caring for future generations, thereby allowing a rebalancing of motives toward win-win cooperation. These are the conditions for the shift of financial systems away from pervasive GNP-based, "trickle-down" economic growth to diversified, decentralized "trickle-up," sustainable development. Such a shift provides incentives for informal, mutual-aid, cooperative sectors.

These paradigm shifts begin with rethinking scarcity, abundance, needs, and satisfaction and lead inevitably to wholesale redefinitions of money, wealth, productivity, efficiency, and progress. A prerequisite of this new world view is the under-

standing that money isn't scarce and that its apparent scarcity is itself a major social regulatory mechanism: a social innovation, which when functioning well provides a beneficial circulatory system for wider human exchange beyond face-to-face barter. Similarly, designing markets as predominant resource-allocating systems was a brilliant social invention in seventeenth-century Britain, adopted by parliament in a fiercely contested package of social legislation over which a civil war was fought. Adam Smith noted correctly in his *Inquiry Into the Nature and Causes of the Wealth of Nations* (1776) that humans had, from the earliest times, exhibited "a propensity to barter." At that time, marketplace exchanges were localized, and money transactions had only begun to replace earlier systems of human interaction and exchange: reciprocity, kinship, potlatches, mutual aid, and Aristotle's "just prices," as well as redistribution by kings, lords, the church, or simple fiat (feudalism, conquest, and slavery). As Boulding noted in 1968,[6] there are three basic kinds of human interactions: 1) threat, based on fear, 2) exchange, based on barter and reciprocity, and 3) love, based on gifts, altruism, and more comprehensive, long-term value systems. Humanistic psychologists have also noted that economic models based on scarcity fears can erode natural feelings of well being and abundance and even regress whole populations into excessive anxiety, stress and unrealistic motivation for power, "success," wealth-display, and other addictive behaviors.[7]

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Many of the operating principles derived from industrial paradigms remain unexamined: technological innovation is widely encouraged and subsidized; social innovation is suspect (as "planning") and occurs only after crises, such as the Great Depression. Society is assumed to be divided up into a private sector (market competition) and a public sector (government and nonprofits) with a "Berlin Wall" inhibiting interaction between the two (buttressed by antitrust laws). Government is enjoined from "competing" with private sector business. Much creativity and inventiveness is dammed up behind such rigid definitions and restrictive institutions, which operationalize the still-dominant industrial paradigm. In pre-industrial and traditional societies, most land and natural resources were held communally. A prime example is "the commons," or the "village green"—as the common grazing land of feudal England was known. Garrett

Hardin, in "The Tragedy of the Commons," pointed out the problem that occurred when individuals could maximize their self-interest by putting too many of their sheep to feed on the commons; over-grazing destroyed the utility of the commons for all.[8] Hardin failed to dispel the confusion among economists between the commons as "property" and the commons as a freely accessible resource. Either communities could agree on rules to fairly access the commons—or it could be enclosed as private or jointly owned property and plots could be traded in a market. In either case, issues of equity and freedom had to be adjudicated, while the poor and powerless tended to be denied fair access. The world's oceans, the air we breathe, and the planet's biodiversity are also commons, and can be managed only with agreed-upon rules to prevent exploitation. The concept of private property, as I have detailed elsewhere[9] is derived from the Latin word *"privare":* all those goods, lands, and resources that individuals wish to withhold from the community and deprive to common usage.

Today, commons are still widely evident in traditional agricultural societies and many developing countries. Indeed, the march of industrialism has involved the enclosure of commons begun by force in seventeenth-century Britain when peasants were driven off common lands by the Enclosure Acts, as described by Karl Polanyi in *The Great Transformation* (1944). Today, market forces seek to enclose such declining commons as ocean fish stocks (by allocation to fisheries) and biodiversity (by continually encroaching on natural habitats and by patenting life forms and species)—thus short-changing indigenous people and future generations via current market discount rates. Markets are the focus of economics textbooks, since economics arose as an epistemological justification for early capitalism and industrialization. Commons are still barely examined, even in much more recent "green" economics texts, except as common property.[10]

From a systems viewpoint, "markets" are merely open systems with abundant resources that can be used individually and competitively, while commons are closed systems—such as national parks, air, oceans, satellite orbits, and the earth's electromagnetic spectrum—where resources are used indivisibly. According to economics textbooks, commons conceived of as "common property" can be rationally managed only if *owned* by

somebody. Thus, economists rely on private ownership and property rights schemes as "market-based regulations" (e.g., taxes and subsidies), leading them to lobby governments to set up such "markets." For example, the Clean Air Act of 1991 allows polluting companies to sell and trade their "licenses to pollute" the common air to other companies. Needless to say, many local environmental groups point out that these polluting companies did not "buy" the air, and they have no right to sell a common resource such as air. Air, which is a condition of *survival,* is protected as a human *right* along with liberty and the pursuit of happiness in the US Constitution.[11] Current issues of markets versus commons still concern equity, accountability, democratic access to public assets and essential services. Debates on the information superhighway typify the now bankrupt polarization of the concepts of public versus private and open market versus regulation. Even free market Wall Street analysts characterize the telecommunications sector as "balkanized and fragmented" and "needing national standardization" in order to develop further. The tug-of-war is between regulation by the Federal Communications Commission (FCC) versus successive waves of mergers and acquisitions leading to de facto national standardization via a private sector oligopoly with little public accountability. There is a long history of antitrust laws, in the U.S. and other OECD countries, to prevent such powerful centralized monopolies from controlling and administering prices of essential utility services. However, an equally long history of government-owned or franchised regulated monopolies has shown similar abuses of power and price-gouging. Today, the potentially decentralizing effects of information technology and the spreading democratic revolutions it has spawned are restructuring hierarchical, bureaucratic, monopolistic institutions—whether private megacorporations or malfunctioning government agencies. At last, we can transcend the public-private sector dichotomies and design multilevel decision making and organizations based on systems principles, plugging in feedback and "feedforward" from users for a more democratic Information Age. Examples of such organizational design include the United Nations Security Insurance Agency (UNSIA) described later in this paper, the proposed Global Resource Bank advertised in The Economist, April

Air, which is a condition of survival, is protected as a human right...

30, 1994, and the United Nations "universal citizen income currency" proposed by Peter Kooistra in *The Ideal Self-Interest.*[12]

New Spectacles for Exploring New Terrain in Both Global and Local Information Societies

More expansive, systemic frameworks can help reconceptualize today's great globalizations and the restructuring processes they engender: the globalization of industrialism and technology, of finance and information, of work and migration, of human effects on the biosphere, of the arms race, and the emergence of global consumption and culture. Three concepts help to provide a context for the rise of information societies and the eclipse of industrialism and its now dysfunctional economic paradigm:

1. The shift from conventional, equilibrium-based economics to chaos and systems modelling and game theory—seeing evolving, adaptive human societies and their cultural DNA codes and decision processes within equally dynamic ecological systems—governed by both positive and negative feedback loops. The worldwide rush of politicians to adopt markets and democracy is instinctively correct: complex societies are best governed by feedback from individual actors to decision centers at every level. The two key forms of such feedback are *prices* and *votes.* But prices must be corrected to reflect social and environmental costs while democracies must reflect choices of voters rather than rich, powerful special interest groups. Other forms of feedback are now necessary, including new indicators and statistics to measure outcomes and signal early warnings, as well as mass media to amplify and spotlight such new issues and concerns. All economies today are "mixed;" they are mixtures of markets and regulations about which today's economists have no theories. In reality, what we call "economies" are simply sets of rules derived from various cultural DNA codes representing the differing goals and values of various societies. Economists would need to defer to cultural anthropologists to understand the differing development patterns of, for example, Sweden, Taiwan, Germany, Japan, China, and Russia. This un-

derstanding of the many cultural faces of capitalism has reintroduced creativity into sterile thinking and left-right debates carried over from the Cold War era. For example, "socialism with Chinese characteristics" still guides markets in China, whose people seem to understand that markets, like technologies, are good servants but bad masters.[13] Market socialism has much in common with the social markets familiar in G-7 countries and with the $700 billion socially responsible investment movement in the USA.[14] There is widely shared understanding that social safety nets, which have evolved over the past fifty years, are necessary in every society to tame markets.

2. The shift from human progress as equated with quantitative GNP growth to more complex qualitative goals of quality of life and sustainable development. This requires a new scorecard and the reclassification of the "economy" beyond textbook definitions of public versus private sector, and market versus regulations. Each society sets up such boundaries between sectors and rules of interaction according to its specific cultural DNA codes. Reclassifying the total productivity of social systems expands the mapping of productive sectors to include the unpaid" love economy" and the undergirding productivity of nature, both of which are currently hidden subsidies to the GNP, money-denominated public and private sectors.
3. Reframe the private market versus public sector model, as I have described elsewhere,[15] to reflect a systems view of markets as open systems and commons as closed systems. This would help to clarify policy options and new strategies for entrepreneurs. Most enterprises geared to meet today's needs and those of future sustainable development will require restructuring and cooperative linking in networks and consortia of *both* public and private actors and institutions. There will be as many new types of enterprise charters as human imagination can devise: joint stock companies, consortia, employee stock ownership plans, worker-owned enterprises (such as TransWorld Airlines), holding companies, profit/non-profit institutions and franchise chains, private/government corporations (such as the World Bank and Intelsat),

community development banks, cooperatives (such as Ace Hardware), team-based decentralized enterprises, networks of cooperating small businesses (such as those in Italy and Denmark), task forces of all kinds, and "virtual" corporations—networks of self-employed entrepreneurs and consulting groups. As is appropriate to the Information Age, the new productive institutions will be knowledge intensive, communications intensive, and increasingly widely distributed both locally and globally. The key to all these new productive institutions will be their cultural DNA codes: their rules, values and goals, as well as codes of conduct that may be initially voluntary and self-proclaimed. As they become increasingly explicit, these new enterprises and networks and their new rules will help organize many of today's currently failing or saturated win-lose markets into win-win new commons. These new enterprises will be "thinking bigger" as they reconceptualize large-scale systemic human needs and sort out how those needs can be served through markets or through reorganizing commons: peace keeping, reforestation, desert greening, community health and care giving, public water supplies, clean air, and the new "electronic commons" of the global information highway. Economics textbooks need to reflect systems theory and teach how to recognize when markets become saturated (i.e., all niches are filled), and they turn into commons. A sure sign of the need to reorganize a market from win-lose competition to broader win-win rules for all players is the pervasive appearance of cutthroat competitiveness or lose-lose strategies, such as current competitive global economic warfare, conflicts over the earth's cluttered electromagnetic spectrum, or increasing global arms sales that make no one more secure.

Breakup of the Global Money Cartel

Today we see the rise of nonmoney, information economies (local, regional, and global networks for barter, counter trade, reciprocity, and mutual aid) wherever macroeconomic management is failing in societies.[16] From G-7 countries such as Canada, Brit-

ain, and Italy, to Russia and Eastern European countries, people are creating their own local information societies. These include the Internet and other networks in which users are increasing 25 percent per month. Businesses are issuing discount coupons and other scrip, just as cities all over the U.S. did during the Great Depression of the 1930s. In the Information Age of the 1990s, following the end of the Cold War, democracy is sweeping the planet. People everywhere can see on satellite TV how politics, economics, money, and cultural traditions interact to control human affairs from the global to the local level. A global civil society made up of millions of citizen groups linking electronically is challenging both governments and corporations as a kind of third "independent sector." Many in government and at the local level are realizing the implications of the global Information Age: money and information are now equivalent—if you have one, you can get the other. In fact, information is often *more* valuable than money. Today, money often follows information (and sometimes misinformation), and markets are no longer so "efficient." Indeed, psychology and game theory now often explain markets better than economics—for example, all the 1994 Nobel economics prizes went to game theorists.

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Thus, the global money monopoly is breaking up, even as it becomes more unstable because of bouncing currencies, derivatives, and increasing volatility. Governments can now circumvent the money monopoly and conduct sophisticated barter and counter-trade deals directly (as do corporations) using computer-based trading systems similar to those used by Chicago's commodity traders. Indeed, according to industry estimates, some 10–25 percent of all world trade is already conducted this way. Thus, the "need to earn foreign exchange," which hung over governments like a sword of Damocles, can now be lifted. Complicated four-, five-, and six-way trading deals between multiple partners can be executed with almost the ease of money. Computers keep the audit trails of who promised to "pay" for which commodity in exchange for what other commodity on what dates—which is what money is and does.

Money, essentially, is a unit of account entered on various ledgers to track and keep score of human production, services, and transactions as they interact with each other and with nature's resources. As central bankers know, money is not "scarce," and

it can serve as a stable store of value if its supply is controlled to correspond with and track expanding production and exchange transactions. It is well known that, when governments and central banks "supply" too much money or invest too much on short-term or unsustainable projects and public services (exceeding tax receipts), money loses its purchasing power in higher inflation. Budget deficits and minimal rates of inflation have routinely been accepted by governments since John Maynard Keynes showed that some investment might be necessary to "prime the pump" of national economies, which can sink into an equilibrium at well below full employment.[17] Economic theory is, however, notoriously deficient in providing any workable, repeatable formulas for how to invest *wisely* in creating future societal assets (whether in producing healthy, educated citizens or productive infrastructure or in maintaining natural resources and environmental quality). This is because so many social and environmental costs are still deemed "externalities" and not internalized in corporate balance sheets to arrive at full-cost prices. Today, few will defend economics as a science, since its "principles," as I have shown elsewhere, are neither verifiable nor disprovable. Economics is a profession whose practitioners are unlicensed and whose mistaken macroeconomics is too often adopted as social engineering beyond the accountability demanded of lawyers, doctors, engineers, and other professions.

Today, such national macroeconomic management tools as fiscal and monetary policy become ever more erratic as national borders are swamped by waves of trillions of hot electronic money in the global casino. People everywhere are realizing that money is useful as a political tool to create incentives and substitute for some regulation, but that it can no longer effectively be used as the major tool to denominate broader indicators of quality-of-life and progress or to provide accurate data to manage national economies or the world trade system. Thus, non-governmental grass roots organizations (NGOs) all over the world are now challenging the political underpinnings of the global financial system. At the Earth Summit in Rio in 1992, NGOs pointed out that the global financial system has changed little since its founding under the United Nations in 1945 at the famous Bretton Woods Conference.

The major global financial institutions—the World Bank, the IMF, the BIS, and GATT—were hammered out to reflect conditions in that era. Many compromises were also made, such as excluding some countries from GATT rather than the inclusive International Trade Organization (ITO) originally envisioned. Today these institutions still form the political machinery that undergirds the global economy. They are widely accused, not only by NGOs but also by many governments, of being undemocratic and skewed in favor of the rich and powerful. Such views first consolidated in the Group of Seventy-Seven meeting in Lome, Togo, in 1972. There the global financial community heard the first shot ring out demanding a New International Economic Order (NIEO). OPEC then quadrupled the price of oil in 1973—the second salvo in challenging the assumptions of the global money game.

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Today, calls for democratizing the World Bank, the IMF, and GATT, as well as for opening up the still-private BIS, have grown out of the failure of the United Nations Third Development Decade. Instead of progress, the 1980s saw development in Africa, Asia, and Latin American bog down in mountains of unrepayable debt (often incurred by cronyism among international elites), widening gaps between rich and poor, and hastening ecological devastation. The World Bank and the IMF responded with "structural adjustment loans" conditional upon painful belt tightening within these indebted countries so they could maintain their interest payments on their debts. Given the undemocratic structure of many governments, such "austerity" programs squeezed the poor and powerless while protecting affluent, influential groups from similar hardships.[18]

Demands for overhauling the UN's Bretton Woods financial institutions culminated in 1994, in "Fifty Years is Enough," a global, grass roots campaign, to shut down the World Bank. Protests will become more strident as more people see that money is not in short supply, that credit and liquidity often follow politics, and that credit could be made more widely and equitably available rather than simply being channeled to governments to shore up alliances and pander to bond traders and other special interests. Democratic reformers seek wider access to credit for private groups, local enterprises, villages, and many other NGOs for "trickle-up" development. Campaigns to democratize the secretive governance of the

World Bank, the IMF, and GATT will persist until their political assumptions are teased out of their economic models and their relationships with governments, banks, securities traders, stock exchanges, and bond holders are made clearer.

Local Information Societies as Safety Nets

As the crises and failures of macroeconomic management become more evident worldwide, people at the grass roots are rediscovering the oldest, most reliable safety net: the nonmoney, information economy. Over half of all the world's production, consumption, exchange, investments, and savings are conducted outside the money economy—even in industrial countries (for example, some 89 million American men and women volunteer an average five hours each week, saving taxpayers millions in social programs). Such data on unpaid work in the US is tracked by the Independent Sector, Washington, DC. In many developing countries, the official money-denominated economies tracked by national accounts and Gross National Product (GNP) are less than a quarter of all the economic activity of these often traditional subsistence economies and societies. The failure of many World Bank and other development projects is related to the tendency to overlook these nonmoney sectors. Meanwhile, the European Union countries face 11 percent average unemployment rates, economic "shock treatment" roils Eastern Europe and Russia, and debt problems worsen in "developing" countries. Lower U.S. jobless rates reflect the part-timing of the work force and lagging wages. People are responding pragmatically to these economic hardships by resorting to barter, alternative currencies, community exchange, consumer-contracted agriculture, and mutual aid assisted by computers, radio, and phone banks. Most economics textbooks excoriate such informal local economies as backward or inefficient and ignore the rich history of such information-based alternatives to central banks and national currencies.

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Independent urban money systems have always flourished whenever central governments mismanaged national affairs. Independent money systems based on the theories of economist Silvio Gesell were implemented in the city of Worgl, in Austria, and on the Channel Islands of Jersey and Guernsey off the southern coast of Britain. All three became enclaves of prosperity and

survived botched national policies of the 1930s. Today, Jersey and Guernsey still survive as examples of how independent, local credit and money systems can maintain full employment, public services, and low inflation. Economists and bankers, rather than fighting such local initiatives, today may need to rely on them to stabilize sputtering national economies. Another example of alternative currencies is contained in *Depression Scrip of the United States* (1984), which documents the hundreds of American cities as well as cities in Canada and Mexico that recovered from the unemployment of the 1930s by issuing their own money. In 1933, the U.S. had over 140 scrip-based barter exchanges serving over one million people. A more recent experiment with local currency in the U.S, involved the "constant," issued in Exeter, New Hampshire, in 1972 and 1973 by economist Ralph Borsodi and World Business Academy Fellow Terrence Mollner. Following the monetary theories of Irving Fisher, the equivalent of $160,000 was put into circulation. The constant was to have been backed by a "basket" of commodities, but Borsodi's death ended the Exeter experiment. Other U.S. commodity-backed currencies included the "energy dollars" issued by the Technocracy movement, which flourished in the 1950s. In the 1890s a local barter system flourished in Cincinnati, Ohio, called the Time Store—a forerunner of many of today's local exchange systems.[19] A large network in the U.S. seeks to reform the debt-backed, bank-created U.S. currency system to smooth out the boom-bust cycles it creates. This group would reform the Federal Reserve Act of 1913, which granted to the twelve private-member banks of the Federal Reserve System the power to issue debt-free currency, and return that power to Congress.

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Today, ordinary people are not sitting idle hoping centralized economic managers can help them. Local communities see the confusion at the top and are taking action. In Russia, as the ruble declined, barter and flea markets became pragmatic substitutes for currency. Oil flows from Kiev, Ukraine, to Hungary, where it is used to purchase trucks; Russian engineers design power plants in exchange for Chinese coal. The main lesson of the Information Age is being learned: information can substitute for scarce money. Information networks operate barter systems in the U.S. worth $7.6 billion per year. The number of U.S. companies engaged in barter services has increased from 100 in 1974

to 600 in 1993.[20] According to *At Work* newsletter, these barter companies range from the Barter Corporation, a trade exchange network in the Chicago area, to the innovative Ron Charter of Costa Mesa, California. Ron Charter exchanges recycled appliances and sports equipment for Green Card credits good toward payment for goods and services at more than 200 participating businesses in Orange County. Some exchanges are for the education and health care of employees of participating groups. Goods bartered range from trucks, office furniture, and carpeting to clothing, travel, hotel rooms, dental and optical services. At the local level, barter clubs now keep track of credit, investment, and exchange transactions. These information networks function like commodity exchanges, just as payments unions and trade agreements do for governments. These nonmoney and scrip-based economies are leading indicators signalling the decline of macroeconomic management.

Such decentralized, local ingenuity still alarms bankers and central monetary authorities. In the past, such local "currencies" and ad hoc, alternative economies in the past have been stamped out by governments as illegal or as tax dodges. Yet, whenever local producers and consumers are faced with hyper-inflating national currencies or jobless economic growth policies, they resort to such pragmatic ways of clearing local markets, creating employment, and fostering community well-being. These local information societies are not only attempts to create safety nets and homegrown economies, but are also a resurgence of kinship systems. Thus they are understood better from anthropological and cultural perspectives than as merely financial/currency systems (an excessively reductionist view). These local information societies are rooted in the "love economy" and are derived from the systems of reciprocity, mutual aid, and self-reliance found in traditional societies; they are based on attempts to reknit community bonds and relationships.[21] Now that information has become the world's primary currency—both on international computer trading screens and in local PC networks and exchange clubs—people are at last beginning to understand money. For example, grass roots groups in many countries have supported the Global Resource Bank (GRB) and UN "citizen income currency" proposals mentioned earlier.

Organizers of such local and informal economies have realized an important fact: if central bankers, the "croupiers" of national economies, can't provide the needed "chips" (i.e., money supply, credit, and liquidity) for local people to complete their transactions, then alternative local "chips" and information systems can fill the gap. These groups are even willing to pay taxes to municipalities in the local "currencies," and in cash to national tax authorities when commercial barter is profitable. Exchanging community services in mutual aid is generally exempted from taxation. While it is potentially useful to increase grass roots exchanges and extend their benefits to more communities, immediate problems arise in interfacing with the more powerful market and financial institutions. Banks and companies may see these new grass roots networks merely as potentially profitable new markets—thus missing their "love economy" traditions of trust and mutual aid. Attempts to co-opt or competitively exploit these homegrown, safety-net systems will rapidly shrink them or drive them underground. Interfaces with market sectors can develop only as far as trust is established and market competitors respect the local groups' cooperative codes of conduct and honor their community concerns and values: for example, decision making and rules must be democratic and participatory; codes of conduct and grievance procedures must be clear; management and transactions must be open and transparent; and scrip "currencies" must be free of manipulation, brokering, and other inflationary influences. With scrip, as with all currencies, trust is the basic factor. We must believe in our money—or it becomes worthless. Some examples of the new global trend in grass roots organizations include the following:

- One of the oldest, most sophisticated exchange systems is WIR-Messen, a fifty-year-old Swiss cooperative with thousands of members. Its full-color, glossy monthly, *WIR Magazin,* lists hundreds of ads for a vast range of goods and services, ranging from insurance, banking, credit, and transport to manufactured goods, furs, and antiques. Everything is offered for sale in WIRs, the cooperative's scrip. In 1993 trades conducted in WIRs were equivalent to 19.7 million Swiss francs. The organization has been acclaimed for helping to create thousands of jobs and many new businesses, and for foster-

ing community self-help programs in Bern, Zurich, St. Gallen, Luzerne, Lenzburg, and other Swiss cities. Owned by its members, WIR maintains a very low profile, even though its membership network includes many Swiss companies that accept WIRs as partially interchangeably with Swiss francs. However, according to economist Hank Monrobey, a problem arose when WIR currency became inflated after as some of the member enterprises accumulated the scrip and began trading it at a 40 percent discount for Swiss francs. WIR-Messen's management responded with aggressive action against such unauthorized trading—causing dissention in the cooperative. Nevertheless, WIR has continually interfaced with the dominant market economy while managing to maintain its cooperative value system.

- The Seikatsu Club of Yokohama, Japan, is a consumer cooperative founded more than twenty years ago by Japanese women to contract with local farmers to produce organically grown fruits and vegetables. Seikatsu has grown into a multimillion dollar network of farmers, canners, food preparers, and distributors directly linked by truck deliveries to hundreds of thousands of consumers. Its principles include a holistic view of life and world harmony based on cooperation rather than competition. The Club is committed to small farmers and producers, to a safer, healthier environment (through the use of its nonpolluting soap products) and to empowering workers and women. Costs of organically grown and prepared foods are kept minimal by using collective buying contracts and by offering only a single brand of each of the Club's 400 food products. Seikatsu is one of some 700 similar co-ops in Japan and one of the larger investors in nonprofit production companies. Seikatsu clubs have spread to many local, autonomous groups called "han," which are composed of from six to thirteen families. By 1987, thirty-one Seikatsu members had become elected public officials in Yokohama, Tokyo, and Chiba. Seikatsu has been able to blend with Japan's dominant, competitive economy without losing either its social concern or its vision of building a cooperative, peaceful world. In-

deed, Seikatsu's members travel the world articulating their vision at many meetings and forums.

- Local Exchange Trading Systems (LETS) founded in Vancouver, Canada, by social entrepreneur Michael Linton now operate in other English-speaking nations as well. Great Britain now has more than 200 LETS, and new groups are being launched in such regional towns as Bristol, Cardiff, Manchester, Sheffield, and Swindon, according to LETS LINK, (61 Woodcock Road, Warminster, Wiltshire, BA12 9DH). In Totnes, Devon, the LETS now provides instruction in courses on ecological economics, taught by this author and others at Schumacher College. LETS link their communities via phone banks and personal computer bulletin boards where people post notices of the services and goods they need and have to offer in trade. Computers keep account of the transactions, and each system names its own unit of account, such as "Links" instead of pounds. Some 200 LETS systems are operating in Australia, where the First National Conference on LETS was held in 1992. In New Zealand, the largest LETS system, in Auckland, has over 2,000 members. It staff of forty-five is paid in the organization's own currency: Green Dollars.
- In the U.S. (where at least 50 million consumers participate in cooperative enterprises)[22], a new scrip system—Service Credits or Time Dollars, invented by law professor Edgar Cahn of the University of Miami—has been introduced in retirement communities in Florida and in New York City.[23] Time Dollars allow people who wish to help their neighbors and volunteer for community service to register their hours worked in a central computer account system. Then they may call on the system when they need help and arrange for another Time Dollar volunteer to assist them. The potential of such service credit systems is enormous for cities wishing to put unemployed people to work on local rehab, fix-up, and community service programs. For example, city governments can issue City Credit Cards to unemployed people who sign up. As they earn work credits on city projects, they can use their City Credit Cards on public transit and for ad-

mission to parks, libraries, recreation facilities and other city-supported training and education programs. This system allows cities to capture fuller value of their tax and bond-issue supported local infrastructure and services—such as public transit, parks, education and recreation facilities—many of which have periods of under-utilization. A bus seat not sold is a loss that can be partially recovered when it is filled by a rider using discounted Time Dollars or a City Credit Card. The same is true for hotel rooms, and for movie and theater seats. Airline seats are now being filled by private scrip systems, such as the frequent-flyer mileage awards offered by most airlines. (All such scrip, whether mileage awards, discount coupons, or rebates, are subject to abuses, such as unauthorized resale.) Local Chambers of Commerce and local merchants can cooperate in City Credit Card programs by offering reduced prices for such things as movies, meals, and hotel rooms during slow business periods. The City of Curitiba, Brazil, and its innovative mayor, Jaime Lerner, became world famous for instituting many such local programs linking the city's unemployed and poor to unmet city needs, such as street cleaning and garbage recycling. In return, its citizens gained fuller use of city buses and services. In 1986, the economy of Dallas, Texas, was depressed by low oil prices and high unemployment. At a public symposium, "Money, Myth, and Manna," sponsored by the Dallas Institute of Culture and Humanities, I urged the city to create a "Dallas Money Card" program. At that time, however, the concept was too unfamiliar to be acceptable.

***The cooperative's credit union has over a thousand members and makes loans in* Ithaca Hours.**

- *Ithaca MONEY* circulates via a community newspaper/directory in Ithaca, New York. The directory lists all businesses and services that accept payment in *Ithaca Hours,* which are worth $10 each. Members range from architects, accountants, auto mechanics, computer specialists, caterers, and chiropractors to businesses, including grocery stores, heating and air conditioning contractors, sheet metal shops, restaurants, and trucking companies. The cooperative's credit union, in operation since 1980, has over a thousand members and makes

loans in *Ithaca Hours.* This cooperative exchange system has received nationwide attention on television and on the libertarian radio news syndication, "The Paul Harvey Show." Key theorist and organizer Paul Glover reports that 300 kits designed to help other communities have been distributed. The June/July 1994 issue of *Ithaca MONEY* featured grateful letters from kit recipients in Ulan Bator, Mongolia; Ankara, Turkey; Bujumbura, Burundi; Ferguson, Missouri; and the Kootenay Barter Bank in Nelson, B.C., Canada.

Such simple solutions to local self-reliance are invisible to World Bank economists.

- In Ahmedabad, India, Nandini Joshi, an economist with a Ph.D from Harvard who spent over a decade at the World Bank, now helps a nearby village barter its goods, services, and employment via the Hank Bank, which stores hanks of cotton grown and spun in the village. Dr. Joshi has designed a much simplified version of Ghandi's famous spinning wheel, which any poor or unemployed villager can make from wooden sticks and simple fasteners. Thus, even children, shut-ins, and the old or infirm can meet their needs by spinning—which many enjoy. Villagers exchange their hanks of thread for rice, flour, and other local foods and commodities. Such simple solutions to local self-reliance are invisible to World Bank economists.[24]
- Commonweal, Inc., of Minneapolis, Minnesota, is a privately held, for-profit corporation founded in 1993, with a new technology in its experimental phase. Commonweal's founder, Joel Hodroff, has developed an innovative, dual-currency transaction system combining cash with a scrip that is earned as service credits and is backed by contracted goods and services. The system is designed for use in an alliance of individuals, businesses, and community organizations called a Currency Exchange Network (CEN). Within the CEN individuals earn service credits—by working for businesses and community organizations—that they can spend at participating businesses. The CEN pilot project has gained important local endorsers, including bankers, trade associations, and the influential Minnesota Center for Corporate Responsibility (affiliated with the University of St. Thomas).

The CEN links businesses, consumers, workers, and community service organizations using a plastic debit card that handles both earning and spending transactions. The CEN organizes diverse sectors of the economy into a "win-win" commons where all parties benefit. Community organizations receive new human and financial resources. Businesses receive new customers and create new jobs to serve them, while using current overhead more fully to increase profitability. Employees earn raises from the increased volume of goods and services, and train and mentor new workers in the network. Individuals with more time than money can participate in their local economies and meet more of their basic needs. Participation by all parties is entirely voluntary. The Commonweal dual-currency system combines the best features of several existing "alternative" currencies, and modifies such standard business tools as frequent-flyer miles and cause-related marketing (e.g., buying Girl Scout cookies). Once operational, the CEN encourages consumers, as in a buying club, to make purchases within the network to benefit the community. Commonweal has filed a patent application for the dual-currency transaction technology, and plans to launch the pilot project in 1995.

Like all other local exchange systems, Commonweal's eventual success will hinge on the preservation of its kinship, "love economy" base, and the cooperation of all its diverse membership. It will also require well-defined codes of conduct, rules and operating principles, all of which have been found essential in operating such systems elsewhere. Many other local exchange systems include those inspired by Robert Swann, Susan Witt, and Terrence Mollner and those associated with such organizations as the Community Land Trust and Schumacher Society.

New Information to Operationalize Sustainable Societies—Globally and Locally

The implications of the new global information currency are shattering our former assumptions about central banks, money, credit, liquidity, and trade. This fast-moving information has circumvented fiscal and monetary tools, and calls into question macroeconomic management models, statistical apparatus, and conventional measures of progress such as money-denominated

GNP and GDP. This helps account for the recent flurry of new indicators, such as the United Nations Human Development Index (HDI) and the Index of Sustainable Economic Welfare (ISEW), proposed by economist Herman Daly, which seek to correct GNP and GDP. In 1995, my own Country Futures Indicators (CFI) will appear in its first U.S. version: the forthcoming Calvert-Henderson Quality-of-Life Indicators, which go beyond economics and money coefficients.[25]

These broader interdisciplinary indicators measure pollution, literacy rates, political participation, human rights, and other quality-of-life factors that can never be reduced to mere money or numbers in a single index. New indicators are also proliferating in towns and communities—for example, the Healthy Cities indicators movement tracked by the World Health Organization. Other innovations include the Jacksonville Quality Indicators for Progress, a social innovation pioneered by social entrepreneur Marian Chambers, which has helped guide the development of Jacksonville, Florida, since 1983. These new indicators plug voters back into local politics as the global democractic revolution demands, so that people themselves can measure these different aspects of progress and hold politicians accountable for diverse local and national goals. A survey in March 1993 by the Americans Talk Issues Foundation on thirty-eight democratic reform proposals found 72 percent in favor of such new indicators. A survey in April 1994 repeated the questions on new indicators, offering detailed arguments for and against them. Opposing arguments knocked public support for these quality-of-life indicators from 82 percent approval to 79 percent approval.[26] Meanwhile, a Yankelovich survey released the same month found that Americans equated "quality of life" with "healthy communities."[27]

Globally, the United Nations itself stands to benefit the most from the new Information Age. The UN is being called upon daily to assume even larger burdens of peacekeeping from Bosnia and Somalia to Cambodia, Cypress, and El Salvador. Member countries making these demands include the wealthy G-7 countries, which collectively are in arrears by almost a billion dollars in dues owed to the UN. Secretary General Boutros Boutros Ghali has noted in *Agenda for Peace* (1993) and *Agenda for Development* (1994) that a strengthened UN capable of meeting the new burdens being placed upon it requires more secure and predict-

able financing. Logically, the UN should be able to mandate its dues, impose penalties on arrears, and collect taxes. For example, the 0.5 percent tax proposed by economist James Tobin would yield over $1 trillion per year—funding for all UN programs from peacekeeping to health, education, and children's and humanitarian aid.[28]

There are few good arguments against the UN being able to issue its own bonds. The $700 billion of socially responsible investment demonstrates that globally concerned investors and bond traders could create a viable market for UN bonds. The power to issue bonds would recognize the UN as a mature global institution that provides its 184 member countries with indispensable services. Unfortunately, a high-level Advisory Group on UN financing convened by the Ford Foundation in 1993, representing many players in the now-dying global financial order (including former central bankers Paul Volcker of the U.S. and Karl Otto Pohl of Germany's Bundesbank), rejected such pragmatic new UN funding mechanisms. Nevertheless, the debate about democratizing the global financial system in the Information Age has been joined.[29] Social innovations to enhance UN functions and provide secure financing will be debated at the UN Social Summit in Copenhagen, in March 1995. The innovations include plans for restructuring the Bretton Woods institutions, decentralizing and democratizing the World Bank, the IMF, and the World Trade Organization (the newly named GATT); shifting GNP/GDP statistics toward broader, multidisciplinary, quality-of-life indicators; and authorizing a new public/private agency, the United Nations Security Agency (UNSIA), which could provide a substantial source of revenue for peace keeping and peace making and provide member states more security for less money.[30] Initial calculation suggest that this new UNSIA (a newly organized global commons) could eventually cut national defense budgets by as much as 50 percent, provide enormous new markets for subcontracting insurance companies, and allow former defense budgets to be redirected toward investments in health and education—recognized at last by economists to be keys to development.

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Many new markets and new commons will provide opportunities in the emerging global playing field. New agreements can raise the floor under this global playing field by building on

the girders already in place, such as the AGENDA 21 treaties and other UN agreements, so that we can build a win-win world where the *most ethical* companies and countries can prosper. The growing global civil society, linked in a planetary information network, can show that all our self-interests are becoming identical. The new "earth ethics" is simply becoming pragmatic.

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