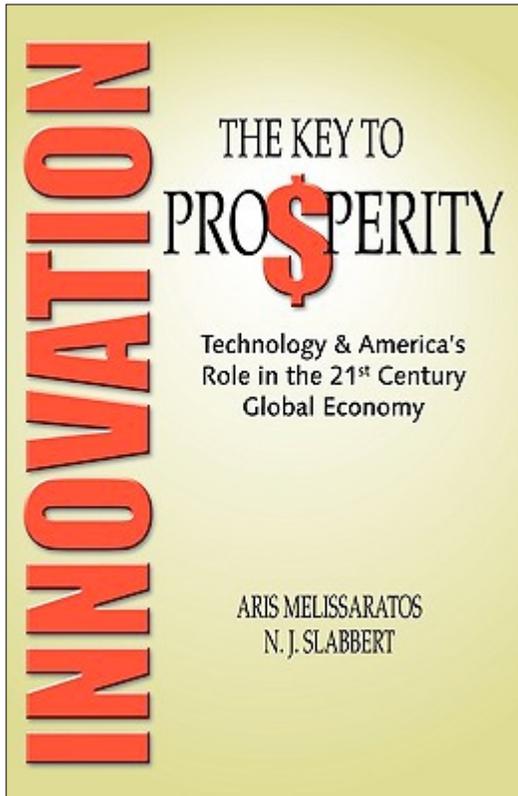


**An acclaimed book discusses  
the Knowledge Economy ... and the  
Virtual Adjacency® ideas of Dr. J.J. Hellman.**



**INNOVATION,  
THE KEY TO PROSPERITY:**  
Technology & America's Role in the  
21<sup>st</sup> Century Global Economy

by Aris Melissaratos and N.J. Slabbert

*A chapter discusses  
the telecommunity work of Dr. Jay Hellman.*

*By kind permission of the publishers,  
Truman Media Publishing Group / Montagu house,  
an excerpt from the book appears here.*

In this part of the book, a discussion of artificial intelligence pioneer **Marvin Minsky** is followed by an explanation of the knowledge economy, and **J.J. Hellman's** work is reviewed in this context. The publishers have allowed the knowledge economy section (Chapter 9, pages 204-217) to be reproduced here as well as the Hellman commentary, so that readers may see the context in which the latter occurs.

## **THE AUTHORS**

**Aris Melissaratos** currently directs **Johns Hopkins University's** technology commercialization program and is former Business and Economic Development **DBED Secretary** of the State of Maryland. **N.J. Slabbert** is a widely published writer and scholar on history, science and technological society. He has a special interest in the urban planning implications of

technology. He has advised the Government of Maryland on this subject and has published many articles in *Urban Land*, the international journal of the **Urban Land Institute**.

In **INNOVATION**, Aris Melissaratos and N.J. Slabbert survey the role of technological innovation in America's growth, past, present and future.

Please see: <http://innovationprosperity.com/>

More information about the authors and their work can be found here [http://www.truman-news.com/INNOVATION\\_book\\_acclaim\\_MZ.html](http://www.truman-news.com/INNOVATION_book_acclaim_MZ.html) .

The following content is copyright © the proprietors of the Truman Media Publishing Group and Montagu house and may not be reproduced in any form or medium without the copyright-owners' written consent, except for brief passages cited for fair academic, journalistic or review purposes. All rights reserved worldwide.

---

INNOVATION book: knowledge economy section (Chapter 9, pages 204-217)

The phrase “knowledge economy” was made fashionable by prolific Austrian-American management writer **Peter F. Drucker** (1909–2005). The senses in which he used it included a basic differentiation between manual laborers and workers whose skills required specialized theoretical knowledge. This meaning is open to the criticism of triviality, in that it embodies a truth which has always been widely known, namely that there are people who just *do work*, without necessarily even knowing what it's for, and those who *manage* work according to a larger plan which is known only to the class of managers, and even then perhaps only to some of them. The age-old practices of the military offer an example.

The term as used by Drucker is also arguably misleading (not to mention somewhat insulting to manual workers) because much manual work requires considerable theoretical knowledge which is just of a different kind from that of non-manual workers. From both these critical viewpoints it's possible to interpret Drucker's concept of the knowledge economy, at least in some of the contexts in which it's been used, as a piece of management-guru gobbledygook, a

profitable consulting and publishing industry of which emerged in the 20<sup>th</sup> century. But for our discussion here what's more important is that whatever the origins of the term were, it's come to have an important meaning for the 21<sup>st</sup> century, although one that's yet to be clearly formulated and explored. *This meaning is inherently tied up with computer, Internet and information age issues that didn't exist when Drucker's use of the term started circulating in the 1960s and 1970s.* It can be summed up in the following 12 points:

1. *Civil society* – that whole complex apparatus of institutions and organized behavior that happens outside government – is now, for all practical purposes, Internet society,<sup>6</sup> and *is evolving globally into a community of broadband networks*. This is so not because of the extent to which the Internet forms the basis of civil society interactions (it's in fact far from an optimal extent), but because of the power it's demonstrated to serve as an efficient tool for these. This power is derived from the Internet's ability to circulate knowledge and, by doing so, to help generate new knowledge. Through infrastructures like broadband telecommunications and fiberoptic cable, the Internet can allow enormous volumes of data for a wide variety of purposes to be shared long-distance quickly, simultaneously and efficiently. The U.S. is lagging badly in its provision of broadband services, however. In a May 22, 2008 article headed *The Sad State of U.S. Broadband*, the magazine *Business Week* reported: "Although the Internet was started here, the U.S. can't seem to catch up with other developed nations when it comes to giving citizens access to high-speed connections. For the second year running, the U.S. ranked 15th among the 30 members of the Organization for Economic Cooperation & Development in terms of broadband availability. Denmark ranked first again in the annual OECD survey, followed by a host of European and Asian nations. Indeed, while the number of Americans with access to broadband service rose 20% last year, to nearly 70 million people, the most in the OECD, that amounted to just 23 of every 100 residents. By contrast, the top five countries in the OECD ranking all sport per-capita penetration rates of better than 30%..."

“The U.S. has good reason to figure out some way to gain on the other OECD countries. A broadband connection is increasingly necessary to take advantage of the Web's interactive and rich media features, and is instrumental for e-commerce. ‘Broadband not only plays a critical role in the workings of the economy, it connects consumers, businesses, governments, and facilitates interaction,’ wrote OECD report authors Taylor Reynolds and Sacha Wunsch-Vincent.”<sup>7</sup>

2. To unlock the knowledge-circulating power of telecommunications technology fully, America must implement the most sophisticated broadband telecommunications grid it can, nationally, and make this cheaply available to everyone everywhere in the country. This step will expedite the evolution of the Internet into a *knowledge grid*.

3. The knowledge grid will work optimally only if an integral part of it is the nation's *education system* at all levels. Schools, universities and other research and education establishments must become virtual as well as physical dispensers of knowledge. Educational telecommunications allow the best teachers to share their expertise with the widest possible audience, with no distance posing no obstacle and without knowledge being shared outside the time limits of conventional classroom hours.

4. *Work patterns* must be redesigned to take full advantage of the knowledge grid. This means, among other things, abandoning high concentrations of personnel in favor of dispersed worker populations into *telecommunities*. Telecommunities are different from telecommuting, as commonly conceived. The latter means allowing workers to work from home periodically. A telecommunity is a community of people who, for example, may work electronically in New York City but live near each other in, say, Connecticut or New Jersey, or even farther afield. They can meet each other personally when necessary, but without going into their corporate center in the metropolis, although serving that center daily and being linked to it twenty-four hours a day by Internet and regular video conversation (which isn't quite the same as videoconferencing).

These knowledge grid circumstances make it possible to use urban space, transportation and other resources more efficiently, taking advantage of the fact that many people are already geographically dispersed (partly as an unintended consequence of the automobile and the highway system). This has profound implications for urban development. Pressure on cities and their transportation and other resource systems can be relieved. It's important to realize that this electronic organization of workers into telecommunities, in areas where *most or many of them already live*, isn't the same thing as urban sprawl. It's in fact the opposite of urban sprawl, since it encourages the development of outlying but densely cohesive communities. Many people still have difficulty in understanding this, though, since the general tendency is to confuse any kind of worker dispersal with sprawl.

5. The telecommunity component of the knowledge grid has huge potential to *revitalize small towns*, which will cease being bedroom communities of commuters who vacate their neighborhoods by day. Instead such towns will become live twenty-four-hour-a-day places, with distinctive characters of their own. They'll regain the self-contained economic vigor that small towns had in the past before they become nocturnal suburban bases for commuters who spent their days in a city or in vehicles crawling along congested highways. This renewed understanding of the importance of *place*, and of how telecommunication can promote rather than diminish it, is at odds with much current misperception of the Internet society. Community life and social lifestyle will be enhanced accordingly, with less time being wasted on long, unproductive commutes.

These changes also affect architecture, doing away with the need for massive buildings designed to accommodate huge concentrations of on-site workers. The conventional urban worker image of crowds working in enormous office buildings, many in cubicles, beside large windowless spaces for files and libraries, will recede into history. The paradigm of cramming large populations of workers into single buildings will become as obsolete as the idea of a paper-based society in which workers store and transmit information manually, with pens and pencils. The corporate headquarters in our New York City

example will need less space and can devote its resources to management and symbolic representation of the corporation.

6. Because a telecommunity-structured knowledge grid implemented across America will have an immense impact on road traffic by reducing commuter traffic, *environmental pollution* will be reduced.

7. *National security* will be served by dispersing worker populations electronically in this way, since government and private entities providing essential services will be protected against disruption by natural or man-made disasters. Their dispersed workers will be able to function even if the corporate headquarters is put out of commission. This will include, as we've explained, many who are *already* dispersed and will just be empowered by this electronic infrastructure to perform their work more efficiently and securely.

8. By becoming the world's most advanced knowledge grid, the U.S. will position itself as *the world's foremost knowledge exporter*. It will be in the interests of the U.S. to supplement its *commercial* export of knowledge with the *goodwill* export of knowledge via government agencies such as a substantially rebudgeted, expanded and teletechnologically empowered Peace Corps.<sup>8</sup>

9. The knowledge grid must be implemented so as to enable a significant number of its users to appreciate the types and processes of knowledge, and to become aware of *knowledge exchange and production as a cardinal social activity*. This will include a wider understanding of the close, reciprocally reinforcing relationship between *basic research* and *applied research*.

10. The telecommunity component of the knowledge grid, by revitalizing the sense of local community, will encourage the rise of a *new regionalism* and variety among communities, intellectually and culturally. Thus, the effect of the grid will not be culturally and socially uniforming and homogenizing but will rather foster group *diversity, localism, eccentricity and geographically-based distinctiveness of character*.

11. This diversity must extend to *diversity of media*. A vital paradox of the knowledge grid is that *a successful knowledge grid must always transcend its own underlying technology*. Thus, just as telecommunity implementation will necessarily encourage localism rather than a national or global uniformity in which the local community becomes irrelevant or marginalized, so will a knowledge grid empowered by computer technology and fiberoptic telecommunications (if effectively implemented) encourage the survival and prospering of print media, in the form, for example, of *small local newspapers* which will reflect community character and diversity of community opinion. (To fail in this aspect of the knowledge grid will be to imperil a vital element of democracy.)

12. An effective knowledge grid must *extend throughout the fabric of government*. It must be used by government to exchange information among government agencies, to abolish the counterproductive insularity of government fiefdoms and bureaucracies, to encourage government transparency, to promote government efficiency and to foster government-academe-private sector partnerships. This entails breaking with some long-standing habits of governmental thought – a mission which, with the best will in the world, will be difficult, as the example below illustrates. Yet it must be done if the U.S. is to become a knowledge-grid society.

Minsky's work may seem at first glance to be quite remote from these knowledge economy principles, but they're highly convergent with it. The conceptual overlaps between them include the highly *transformative* nature of the computerization of society (of which current telecommunications innovation is part), the *breadth* of this transformation and its positive implications not only for commerce but for *the quality of human life and experience* across a broad canvass. These overlaps are usefully illustrated on a practical level by the urban development thought of Jay Hellman.<sup>9</sup>

Minsky and Hellman (1947-) approach the theme of computerization and its effects from contrasting directions. Minsky, a consummate technologist with impressive patents to his credit, is an

academic thinker whose distinguished career has unfolded in academe. His ideas are set out in an impressive body of publications. Hellman is an entrepreneur. He and Minsky are both applied thinkers, but in different ways. Hellman has spent decades in the private sector. Instead of looking to express his ideas primarily in published form, he has sought to embody them in commercial projects, as a designer and developer of technologically-based real estate projects.

The question of what the intensely practical business of real estate development has to do with complex issues of computerization is the story of Hellman's life. It's a tale that shows how hard it is for America to adjust its conventional thinking in business and public policy to the larger implications of a computerized society.

Unlike the careers of academics, who live largely in landscapes of ideas, the lives of entrepreneurs and other businesspeople are often best understood by looking at the practical projects from which they make money, or hope to. But though he has many significant commercial projects successfully behind him, Hellman can't be understood in any depth without looking at the ideas that drive him and inform his projects. Like Minsky, he's a visionary, motivated by a passion for ideas and social idealism as much as by any purely business consideration. He sees real business success as being impossible if these other forces are absent.

At the time of publication of this book, Hellman is based in Washington D.C., where, since the mid-1970s, he's run his own real estate development and research firm. He's well known to business and political figures on both sides of the Beltway as a tireless promoter of the idea that computers and telecommunication technologies aren't changing only the externals of our infrastructures but also some of the most fundamental aspects of our civilization -- including how we work, what we do with our leisure, how we build towns and cities and how we learn. His technology-driven ideas about

regional and national infrastructure development and urban design are strongly based in a knowledge-economy context. He maintains telecommunications technology will change our world physically and culturally in the 21<sup>st</sup> century, at least as much as the tractor and railroads changed it in the 19<sup>th</sup> century and automobiles, airplanes, telephones and television changed it in the 20<sup>th</sup>. He trademarked the term *virtual adjacency*® to describe the work patterns, social structures and living conditions of an Internet-centered society. Unusually for a real estate entrepreneur, he's conceived and pursued real estate projects as applied examples of his theoretical ideas.

Hellman has championed his ideas in lectures on university campuses, at professional conferences, in the mass media and by personally buttonholing members of Congress, other government leaders, scholars and businesspeople of all kinds. In fact, anyone who will listen, if only for a while. It's impossible to be with him for longer than a few minutes without realizing that unlike most other successful entrepreneurs, he's at least as passionate about ideas as he is about making money. His work has found its way into publications ranging from reports of the National Academy of Sciences to National Public Radio. The *Washington Business Journal* has labeled him a genius. The present Majority Leader in the House of Representatives, **Congressman Steny Hoyer** (Md) sent a file on Hellman's work to **Vice President Al Gore** in 1996 urging that it be used to guide the process of "reinventing government". His many interesting comments on knowledge-economy aspects of infrastructure development include the declaration that we can't possibly have enough bandwidth (i.e., technological ability to distribute volume and diversity of information).

Hellman's career, though financially successful, tells a sobering story of the uphill struggle involved in efforts to introduce knowledge-economy thinking. He foresaw the personal computer and began researching its effects on real estate before it was invented.

His perception of the connection between computerization, telecommunications, social structure, government policy and private sector development options go back to the seventies. He anticipated the rise of the personal computer as a force in economic and social life before it was invented, and in 1970 **the RAND Corporation** published a far-sighted paper that he wrote on the implications of data-gathering technology for privacy. He has five degrees from the **Massachusetts Institute of Technology**, including a doctorate in systems analysis, the study of how mathematics can be applied to the study of how complex systems work.

As a student he was inspired by the ideas of one of America's pioneering computer scientists, **Jay Forrester**, who applied engineering principles to the analysis of social organizations. Hellman similarly developed a holistic, multidisciplinary approach to real estate research and development based on the study of evolving computer and telecommunications technologies, focusing on how these changes affect the nature of work, the physical character of buildings and patterns of land use. On leaving MIT he worked for large real estate development and finance companies before setting up his own firm, whose projects including the research that led the **National Association of Realtors**, the US's biggest real estate trade organization, to build its new \$45 million flagship Washington D.C. offices at **500 New Jersey Avenue**, in 2004, a short distance from the grounds of the **US Capitol**. For years skeptics had dismissed this site in the heart of the metropolis, as undevelopable due to its small size and narrow, unusual shape. Hellman's research indicated otherwise, since it convinced him that teletechnology would make office buildings in cities shift to a largely communications function, making for smaller-footprinted buildings on prime real estate, occupied by far fewer people than in a pre-teletechnology era. He's similarly injected his technology ideas into numerous other successful development projects.

There are several reasons for Hellman's ability to leave an unforgettable impression. One is his sense of mission, the sincerity of which impresses even people who aren't usually attracted to abstract ideas. Another is the fact that even his most theoretical ideas are usually connected to events of great practical importance to society. In particular, Hellman's take on computerization and communication seems helpfully to shed some light on what a knowledge economy really entail. For him, the knowledge economy is where computerization and telecommunications impact the functioning of our everyday life.

### **An example: the Department of Homeland Security**

An example is a prototype telecommunity project for the town of **La Plata, Md.**, which illustrates both telecommunity principles and the prevailing resistance to them. Hellman's project grew out of a long process of thought in which he envisaged the replacement of a road-centered work culture by a teletechnology-centered one. Its premise is to use teletechnology as the basis of a new Washington, D.C., headquarters for the Department of Homeland Security (DHS).

American public administration historically favors iconic buildings whose massiveness symbolizes institutional power. The Pentagon, for example, has three times the floor space of the Empire State Building. The Department of Defense proudly proclaims that the Pentagon is "virtually a city in itself." Some 23 000 military and civilian workers converge on it daily in over 8 700 cars requiring 16 parking lots, and by rail and bus. It has offices for around 3 000 more support personnel, and 17.5 miles of corridors. "This," Hellman comments, "is the epitome of the paper-based manual-labor paradigm of work."

The Pentagon was conceived over a single weekend in the early 1940s, at a time when gigantic structures were made appropriate by America's seeming domestic impregnability. Computers and fiberoptic telecommunications weren't available, nor was there the massively documented understanding of environmental pollution (a product of road traffic, among other sources) and energy waste that exists today. And few recognized that giant buildings on U.S. soil aren't only citadels but also targets. We've learned otherwise since September 11, 2001. Nevertheless, DHS is, as of this writing, planning an enormous \$3.5+ billion headquarters in Anacostia, Washington, D.C. – a Homeland Security Pentagon. (This budget reflects construction cost only, excluding the environmental and social costs of a commuter work force.)

The project's basic thinking is open to serious challenge. It shows the great difficulty government planners have in understanding telecommunity and the knowledge grid or, if they do understand it, in taking it seriously.

The DHS plan represents outdated thinking inappropriate to an era of high U.S. vulnerability to terrorist attack. It rests on obsolete assumptions about huge, fortress-like buildings and the reliability of roads to transport vital personnel. Ironically, **President Dwight Eisenhower** created the highway system in the 1950s with rapid transport in mind, hence its being called the **Defense Highway System**. But this infrastructure is now so congested it *impedes* strategic mobility and communication. A technologically driven, dispersal-based alternative to DHS' current Anacostia plan based on Hellman's work was proposed in 2004 by Hellman and **Alan Feinberg** (1944-), an architect, professional planner and former Department of Defense planning expert. (Feinberg, who's also interested in using knowledge economy principles to devise a new approach to small town revitalization, is currently working to develop another prototype 21<sup>st</sup>-century community next to **Frederick, MD**.)

The Hellman-Feinberg plan envisages distributing DHS' National Capital Region workplaces throughout Maryland, Virginia and elsewhere. These would enable staff to work close to home full-time, connected to headquarters 24 hours a day by secure fiberoptic Internet. This nationally implementable plan offers DHS security, efficiency, budget, environmental, transportation and staff working condition benefits.

In 2005, **Admiral William Owens**, former vice chairman of the **Joint Chiefs of Staff** assigned to modernize the Department of Defense, described Hellman's telecommunity plan as "a fine example of the direction in which we should be heading," adding that government must "work with the private sector imaginatively on pioneering projects of this kind if we are to maintain our world leadership in terms of prosperity and security." In 2008 **David Silverberg**, editor of the homeland security affairs magazine *HSToday*, commented that the telecommunity plan for DHS had merit and "would keep DHS robust and functioning in the event of a disaster or attack." He also made the point that DHS needed flexibility to site its headquarters closer to the political center of the national capital. The telecommunity would allow this by enabling the headquarters to be physically much smaller.

The Hellman plan envisions DHS's headquarters as a small, high-security "front office," not a huge complex dependent on a horde of daily commuters. DHS employees would staff regional workplaces full time, linked to headquarters around the clock by the internet. The town of La Plata was studied as a prototype teleworking hub. Many of La Plata's 8,400-plus residents work in Washington and drive 30 miles twice a day on congested roads. But four intersecting fiberoptic networks make a La Plata broadband grid possible immediately. In principle the Hellman plan has a wide array of potential benefits of national scope far beyond Washington, D.C. But as of this writing DHS seems wedded to the obsolete big-building concept, encouraged

by D.C. politicians who hope that the siting of a major new government complex within D.C. will bring economic benefits to locals. (A report on the present DHS plan by the independent **Brookings Institution** has offered reasons why it will in fact be bad for the city, including a warning of unrealistic local economic expectations. “All in all,” the Brookings report has said, “the economic impact on neighborhood commercial establishments nearby could well be next to nothing.”)

This example illustrates the great difficulty experienced by government planners in thinking within a knowledge economy / telecommunity framework. This difficulty is obviously not due to any shortage of intellectual power in government. It's caused rather by long-standing habits of thought and federal government culture coupled with a desperate desire of local government leaders to grasp at any straw in the hope of encouraging local economic development. These factors, combined with the unfamiliarity of telecommunity concepts, create a wall against new kinds of thinking.

An intriguing illustration of both the practical benefits and the social context of a digitized knowledge economy is the experience of **Grantham University**, an accredited online educational institution whose courses are used by serving and former members of the U.S. military. Grantham's Slidell, Louisiana, campus was destroyed by Hurricane Katrina in 2005. However, following Hurricane Ivan two years earlier, Grantham CEO Thomas Macon had arranged for the university's data to be digitized and stored on a secure server in Reston, Virginia. With all essential data thus protected, Grantham quickly converted a prior plan for a satellite campus in Kansas City, Missouri, into an emergency relocation plan. The Kansas City site was adopted as Grantham's new home. Some employees left Louisiana to staff the Missouri campus with newly hired locals. The institution re-established itself with remarkable speed, demonstrating how digital technology can enable organizations to survive physical catastrophes which might have been fatal in a pre-digital age.

However, the physical storm that destroyed Grantham's Louisiana campus was followed by a social and psychological one. Grantham's physically successful relocation triggered a barrage of negative Internet comment by former staff who'd lost their jobs to the move, as well by some students who were angry about disruptions caused by the upheaval. Most interesting from a digital economy point of view is that this wave of criticism seems to have been caused at least partly, if not wholly, by Grantham's adroitness in using technology to survive a disaster. It's debatable whether the school would have been bombarded by criticism if its digitization hadn't enabled it to survive Katrina. It's as if it were being penalized for its technological expertise. If Grantham hadn't been digitized, and as a result had been completely obliterated as an institution, presumably it would have received universal sympathy. But its use of technology to avoid obliteration exposed it to the anger of people who'd been impacted by the hurricane's devastation.

There's nothing new in the understandable rage felt by catastrophe victims toward fellow victims who survived the same catastrophe or came out of it seemingly better than many others. What's new in the Grantham case, and interesting for students of American attitudes to advanced technology in general and digitization in particular, is two points. First, the school's critics seem not to have seen its technology-empowered survival as in any way exceptional. They seemed rather to view it as a normal or expected response which the school should have managed better, so that more people derived benefit. This point illustrates again the tendency, which we've noted earlier, for Americans to see advanced technology not as something extraordinary but as a given which we're all entitled to regard as readily available to enable us to deal with any contingency. Secondly, the Grantham experience illustrates vividly the fact that moving into a digital economy isn't just a matter of technological implementation; it's also a profoundly human issue. It's unlikely that Grantham ever expected its successful use of digitization to expose it to criticism. But every implementation of advanced digital or other technology

brings new human implications. Building a knowledge economy thus calls not only for technological change per se but also for a major philosophical, social and cultural reorientation. Without this, organizations may become victims of their own technological expertise, as appears to have happened to Grantham.<sup>10</sup>

The convergence of all our current telecommunications infrastructures into a unified knowledge economy with far-reaching human implications has been well expressed by **David A. Irwin**, Director of the Institute for Communications Law Studies at The **Catholic University of America's Columbus School of Law**, in Washington, D.C.

“Telecommunication is transforming the world politically, socially and individually,” he says. “Breaking news from virtually anywhere on the planet is instantly available. We can live history as it happens. As print journalism, traditional wireline telephone networks, broadcasting and other legacy media decline, FaceBook, YouTube, Twitter, e-mail and instant messaging give new meaning to ‘keeping in touch’.

"In the past, industry and the U.S. government have promoted universal access to wireline telephone service as a social goal. Telephone ‘universal service’ was an engine of U.S. economic growth in the 19<sup>th</sup> and 20<sup>th</sup> centuries. In the 21<sup>st</sup> century public policy should similarly promote universal broadband access. This can help re-energize the economy.

“The growing ubiquity of fiberoptic connections to our offices and homes, augmented by broadband wireless, offers us immediate access to movies, video, images and all manner of voice and data services. Infusing Internet telecommunications into the generation and use of electric power will produce an economically powerful smart grid.

“Additionally, wireless technologies hold much promise. The machines that provide CAT scans and MRIs will become untethered,

coming to us instead of our being transported to them. Managed radio spectrum offers an interface between industrial and commercial audio-video and our home theaters. Orbital satellites working into terrestrial telecommunications enables technology like NASA's SERVIR, a global system that allows communities around the world to share massive geospatial data banks concerning natural disasters, climate change and public health management.<sup>11</sup>

"These technological developments mesh closely with human issues, reflected in social policy and law. As information is circulated in new ways, the creators or owners of intellectual property need new forms of protection for their rights and legitimate profits. Government and the institutions of law must champion the privacy and security of personal information. Yet these interests of individuals and special groups must be balanced against the need of the public to share fully in this information bonanza. We must, for example, ensure universal access to broadband lest we create a class of 'technopeasants' – people denied ready access to the flood of information enjoyed by the rest of the world."<sup>12</sup>

Irwin's summary resonates strongly with Hellman's vision of telecommunity -- in which telecommunications technology is used not to homogenize the world but to enrich geographically distinctive social experience and cultural diversity - will, he believes, soon reshape all corners of our cultural life.

Hellman's ideas, for example, form the basis of a new Los Angeles-based start-up, *SoundTrak Station*®, or STS, which has begun creating destination communities that will enable musicians and music lovers from around the world to interact in cyberspace and face to face, in physical STS locales around the world. Each physical STS location will reflect the character of that city, town, or neighborhood. Thus, the Nashville and Los Angeles communities will be very different from each other and from their counterparts in Stockholm and Amsterdam.

Hellman's dream is to see both government and the private sector adopt the telecommunity model as a standard approach. "It will transform America for the better," he says, "creating a cleaner, less congested society with a more efficient use of material sources and time, including leisure time. Computerization and telecommunications technology together have the power to liberate us if we let them."<sup>13</sup>

---

NOTES

1. <http://discovermagazine.com/2007/jan/interview-minsky>
2. Hutchins, John, *ALPAC: the (in)famous report*, in MT NEWS INTERNATIONAL 14 (June 1996), reprinted in READINGS IN MACHINE TRANSLATION, ed. Nirenburg, S., Somers, H., Wilks, Y (2003) <http://www.hutchinsweb.me.uk/ALPAC-1996.pdf>
3. *IRE Transactions on Human Factors in Electronics* (Vol.HFE-1) <http://groups.csail.mit.edu/medg/people/psz/Licklider.html>
4. <http://web.media.mit.edu/~minsky/papers/VirtualMolecularReality.html>
5. <http://query.nytimes.com/gst/fullpage.html?res=9806EED81F39F93BA15754C0A96E958260>
6. Slabbert, N.J., *The Technologies of Peace*, HARVARD INTERNATIONAL REVIEW (May 2, 2007), <http://www.harvardir.org/index.php?page=article&id=1336&p=> ; and *Civil Society As Internet Society: A Philosophical Redefinition* (Oct.2005), TRUMAN LIBRARY REPORTS
7. Holahan, Catherine, *The Sad State of U.S. Broadband*, BUSINESS WEEK (May 22, 2008) [http://www.businessweek.com/print/technology/content/may2008/tc20080522\\_340989.htm](http://www.businessweek.com/print/technology/content/may2008/tc20080522_340989.htm)
8. Slabbert, N.J., *ibid*
9. There is a most pressing need to apply knowledge economy principles and aggressive technological innovation to the reconstruction of America's cities. The economic, infrastructural, environmental and social impacts of such a mission would be enormously positive. See e.g. Ouroussoff, Nicolai, *Reinventing America's Cities: The Time Is Now*, THE NEW YORK TIMES (Mar.25, 2009) <http://www.nytimes.com/2009/03/29/arts/design/29ouro.html?emc=eta1&pagewanted=print>
10. Numerous personal contacts with Grantham sourced this section.
11. [http://www.nasa.gov/mission\\_pages/servir/index.html](http://www.nasa.gov/mission_pages/servir/index.html)
12. Personal communication with David Irwin
13. Numerous personal interviews with Jay Hellman 2002-2009 sourced this section.