

The Internet Model of Socio-Economic Development and the Emergence of the Netizen

Part I - Preface

In this paper I want to explore a paradigm different from that of the market, as the motivator of economic development. This model is a model that is scientifically oriented and based on the practices developed in technical and scientific research. It is a model that is open, collaborative and directed toward an evolving vision or goal.

I will call this model the Internet socio-economic development model. It is a model very different from the neo-liberal capitalist oriented socio-economic development model. It is a model based on grassroots participation and feedback. Its theoretical foundation was cybernetic feedback theory and communication theory.

It is a model that recognizes socio-economic development as the development of a system, where a change in one part of the system affects other parts of the system. Critical to this model is the goal or vision that provides the orientation for the processes or practices of development. Also critical to this model is the dynamic nature of the goal or vision as a collaborative process.

This paper will explore how this model was used for the Internet's development. It is the model that made it possible to develop the systems and technologies that we now call the Internet. Also this paper will explore the adaptive and generative nature of this model which, among other contributions, has led to the development of the netizen and netizenship as a means of participatory empowerment of the users toward a socially oriented public policy objective.

While this model made it possible to develop the Internet, developing countries who also want Internet development are being told they need to follow a neoliberal model of development . Instead of the lessons of the Internet development model being shared with the developing nations, the developing nations have been directed to adopt a neoliberal economic model, requiring them to liberalize their laws to be attractive to foreign investment and loans.

But commercial or investment sectors were not capable of developing the Internet. Describing the Internet development process, Robert Kahn, one of the pioneers who provided leadership for Internet development, described how the Internet grew and flourished under government stewardship [before the privatization process-ed] because 1) the US government funded the necessary research, and 2) it made sure the networking community had the responsibility for its operation and insulated it from bureaucratic obstacles and commercial matters so it could evolve dynamically. Such a role for government in Internet development is very different from relegating development to the private sector.

Another critical aspect of Internet development was the welcoming of grassroots feedback and taking into account the feedback to make the needed changes in the processes. The netizen and netizenship emerged as an embodiment of this feedback process.

Part II- Introduction

In January 1992 I was fortunate to be able to get a connection from my computer in Dearborn, Michigan to a computer in Cleveland, Ohio, known as the Cleveland Freenet. This was a free connection making it possible to access the Unix based computer network known as Usenet. I

had heard Usenet was filled with interesting and substantial posts and was eager to get access to it.

At the time I was following the economic developments in the US economy and was interested in understanding the problems which appeared serious. When I managed to get a connection to a discussion group on Usenet, which was called the misc.books.technical newsgroup, I sent a post about my interest in economic discussion.

From: au329@cleveland.Freenet.Edu
Newsgroups: misc.books.technical
Date: 10 Jan 92 07:48:58 GMT
Organization: Case Western Reserve University, Cleveland,
Ohio, (USA)
Nntp-Posting-Host: cwns9.ins.cwru.edu

I am interested in discussing the history of economics -- i.e. mercantilists, physiocrats, adam smith, ricardo, marx, marshall, keynes etc. With the world in such a turmoil it would seem that the science of economics needs to be reinvigorated.

Is there anyplace on Usenet News where this kind of discussion is taking place? If not is there anyone else interested in starting a conference.economics and how would I go about doing this. This is my first time on Usenet News.

au329@cleveland.freenet.edu

I received perhaps 10 emails from different people on Usenet telling me in various ways that my post was not appropriate for a newsgroup discussing technical books. Also, however, several who responded told me that my post was interesting and directed me to the newsgroup that was appropriate for the topic I had proposed. The newsgroup they directed me to was the "sci.econ" newsgroup. One of the responses, strikingly representative the culture of Usenet, said:

"Start discussing on sci.econ. We're all ears."(1)

The reason this was significant is that it let me know what was wrong with what I had done, but also that there were those on Usenet who were "listening."

This post was done on January 10, 1992. This was during the period that the Internet was beginning to spread and become a worldwide network. It is perhaps difficult for many to understand the experience of being on the Net in this period before widespread access to the Internet was available.

Writing in the Introduction to the Internet Society conference proceedings in 1993 (INET '93), one of the Internet pioneers, Lawrence Landweber writes (2):

"INET '93 the annual conference of the Internet Society is the first global networking

Conference to take place since the existence and availability of networks and their services have become known to the general public... We welcome you to INET'93 and hope you will enjoy the people and the look into the future that you will encounter."

What is significant about this statement and the conference it is introducing is that it helps to mark the time period, 1993 when a significant new economic development had been achieved, primarily outside of and without any significant role being played by the market. Most of the discussion in research and academic circles focuses on the impact of the Internet, or issues about the difficulties of having it spread to all. It is similarly important to focus on the understanding for economics of the significance of the Internet development processes which took place over a more than 20 year period of time involving thousands of researchers, students and others around the world. By exploring the development model that made it possible to create the Internet and to spread it around the world, one can consider if there are lessons from this process toward not only the continued scaling of the Internet, but also toward solving other problems of economic and technical development.

Part III – The Role of Government in the Creation of the Internet

In trying to understand the nature of the government role in the creation of the Internet, I came across an anomaly. Indeed there had been a government role, but this role was intimately tied up with the concept of governance. In his book *Nerves of Government*, the political scientist Karl Deutsch reminds the reader, "Let us recall that our word 'government' comes from a Greek root that refers to the art of the steersman." (3)

Deutsch elaborates on the significance of looking at the concept of government as "steersman".

"The same underlying concept," he says, "is reflected in the double meaning of the modern word 'governor' as a person charged with the administrative control of a political event, and as a mechanical device controlling the performance of a steam engine or an automobile." (4)

The institutional structure at the core of the government role in the Internet's development was known as the Information Processing Techniques Office (IPTO) created as a civilian office in the Department of Defense. This office provided the protective institutional form to nurture the early development of computer science, and then of the Internet.

Describing this office, the authors of a study done by the National Research Council of the National Academy of Science write (5):

"The entire system displayed something of a self-organizing, self-managing system."

The explanation of the anomaly is that the Information Techniques Processing Office embodied the concepts of governance and communication science that the first director of the Office, J C R Licklider, had encountered in his research and scientific work as part of an international community of scientific researchers.

The office, writes Robert Fano, one of the researchers who was part of the research community pioneering developments in computer and communication science, “was structured like no other government research program, akin to a single, widely dispersed research laboratory with a clear overall goal.”(6)

Fano credits the director, Licklider, for establishing the program so that it was “on the right track with policies from which his successors did not materially depart.”

Licklider, acted, “as its director and intellectual leader. He fostered close communication and collaboration among all parts of his far-flung laboratory.” In this way he created a significant research community.

Fano explains how Licklider "further instilled in that community the sense of adventure, dedication, and camaraderie that he had learned to value in his research career. He also made sure that the availability of computer resources would not be a limiting factor in the research program, And that plenty of funds would be available for the support of graduate students, whom he correctly regarded as a most important and precious resource."

Licklider was part of a community of researchers who studied the conceptual models for feedback, learning and adaptation systems. Licklider, as a psychologist who had done pioneering brain research had become intrigued with the potential of the computer for the scientific community he was part of.

In a paper he wrote with computer science researcher Wesley Clark, Licklider set as the objective to provide for the coupling of the general purpose human information processing system with the general purpose computer information system. Their object was to “amalgamate the predominantly human capability and predominantly computer capability to create an integrated system for goal oriented online inventive information processing.” (7)

Licklider had a broad conception for what the computer was to be able to do and the role for the human in the close human computer partnership he envisioned. He was able to understand the technical and conceptual needs to start a far ranging research program to implement the vision he had. Critical to the program was the research community he created. He started the Information Processing Techniques Office in the Fall of 1962. He had two years to demonstrate progress in the new form of computing he was proposing.

Part IV - The Scientific Technical Community

The IPTO funded researchers and encouraged them to develop programs that came to be known as Centers of Excellence. IPTO funded a program at MIT known as Project MAC. It funded a program at Stanford in Artificial Intelligence. At Carnegie Mellon University, Alan Newell and Herb Simon headed the program also in Artificial Intelligence. Other programs were funded at other universities. Part of the research program was for the researchers to use different computer and software systems but to collaborate and share the problems and work they were doing to find the questions they had in common, so as to identify what were the generic issues of computer science.

At the essence of Licklider's quest was to gain an understanding of the computer as a communication device. Along with the effort to form a community of researchers who would collaborate and work together, was the commitment to disseminate widely the results of the research. Along with support for publication of research in journals, and participation in conferences, researchers were sent abroad when invited. It was during a meeting in Great Britain organized by the British Computer Society, where 10 IPTO researchers participated, that the British researcher, Donald Davis, first began to think of the ideas for the creation of computer networking technology that came to be known as packet switching.

In a paper Licklider wrote with another researcher Robert Taylor in 1968, Licklider outlined a vision for a network of networks. (8) Licklider's vision was of the creation and development of a human-computer information utility. For this to develop and be beneficial, everyone would have to have access. The network of networks would be global. It wouldn't be just a collection of computers and of information that people could passively utilize. Rather his vision was for the creation of an online community of people, where users would be active participants and contributors to the evolving network and to its development. To Licklider, it was critical that the evolving network be built interactively.

Also Licklider believed that there would be a need for the public to be involved in the considerations and decisions regarding network development. He recognized that there would be problems with pressure being put on government from other sectors of society and that active citizen participation would be needed to counter these pressures. Licklider, writes:

many public spirited individuals must study, model, discuss, analyze, argue, write, criticize, and work out each issue and each problem until they reach consensus or determine that none can be reached -- at which point there may be occasion for voting.

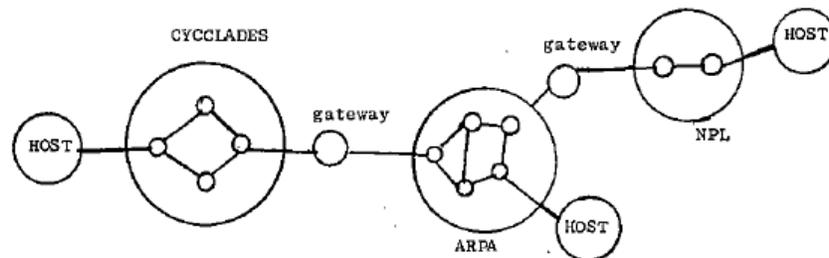
Licklider believed that those interested in the development of the global network he was proposing, would have to be active in considering and determining its future. He also advocated that the future of politics would require that people have access to computers to be involved in the process of government. Licklider writes, "Computer power to the people is essential to the realization of a future in which most citizens are informed about, and interested and involved in the process of government."(9)

Part V – Internet Research Community International from Its Beginnings

The Internet development started in 1973 and involved researchers in a number of different countries. The development of a protocol to make communication possible across the boundaries of diverse national networks required the close collaboration of researchers in an international community.(10) The resulting computer communication network made it possible to send data across the boundaries of diverse technical and administrative networks. Thousands of researchers, students and others were involved in the development processes from around the world.

At a meeting in Sept 1973 at the University of Sussex, in Brighton, England, two US researchers, Bob Kahn and Vint Cerf presented a draft of a paper proposing a philosophy and design to make it possible to interconnect different networks. The basic principle was that the changes to make communication possible would not be required of the different networks, but of the packets of information that were traveling through the networks.

To have an idea of the concept they proposed it is helpful to look at a diagram to show what the design would make possible,



(This diagram is from a memo by Vint Cerf, but it is not an actual plan for the Internet)

In the gateways, changes to the packets would be made to make it possible for them to go through the networks. Also the gateways would be used to route the packets.

The philosophy and design for an Internet was officially published in a paper over 30 years ago, in May 1974. The paper is titled "A Protocol for Packet Network Intercommunication" by Vinton Cerf and Robert Kahn with thanks to others including several from the international network research community for their contributions and discussion.

Describing the process of creating the TCP/IP protocol, Cerf explains that the effort at developing the Internet protocols was international from its very beginnings. Peter Kirstein, a British researcher at the University College London (UCL) presented a paper in Sept 1975 at a workshop in Laxenburg, Austria, describing the international research process. This workshop was attended by an international group of researchers, including researchers from Eastern Europe. Kirstein reports on research to create the TCP/IP protocol being done by US researchers, working with British researchers and Norwegian researchers. There is a diagram that Kirstein presents showing the participation of US researchers via the ARPANET, along with British researchers working at the University College London (UCL) and Norwegian researchers working at NORSTAR.

Describing such an international collaboration in building a packet switching satellite network as part of the Internet, Bob Kahn writes:

SATNET...was a broadcast satellite system. This is if you like an ETHERNET IN THE SKY with drops in Norway (actually routed via Sweden) and then the UK, and later Germany and Italy.

Networking continued to develop in the 1980s. Among the networking efforts were those known as Usenet (uucp), CSnet, NSFnet, FIDONET, BITNET, Internet (TCP/IP), and others.

By the early 1990s TCP/IP became the protocol adopted by networks around the world

Part VI Emergence of the Netizen

It is also in the early 1990s that the co-author of the book *Netizens: On the History and Impact of Usenet and the Internet*, Michael Hauben, did some pioneering online research as part of class projects in his studies at Columbia University. He explored where the networks could reach and what those who were online felt was the potential and the problems of the developing Internet.

In the process he discovered that there were people online who were excited by the fact that they could participate in spreading the evolving network and contributing so that it would be a helpful communication medium for others around the world. Michael saw these users as citizens of the net or what at the time was referred to as net.citizens

Shortening the term to 'netizen,' he identified and documented the emergence of a new form of citizenship, a form of global citizenship that is called netizenship.

Describing these online citizens, the netizens, Michael writes:

They are people who understand that it takes effort and action on each and everyone's part to make the Net a regenerative and vibrant community and resource. Netizens are people who decide to devote time and effort into making the Net, this new part of our world, a better place. (Hauben and Hauben, 1997)

The concept of Netizens has spread around the world. There are many examples of users who have identified the participatory potential of the Internet as a means for them to try to explore how they can contribute to a more democratic and just society. Netizens in South Korea (11) and China (12) are particularly active in exploring the potential of the Internet to give them the ability to monitor those with power in their societies.

Part VII – Netizens Providing Hope for Future Development

In his article "Social Science and the Social Development Process in Africa" Charly Gabriel Mbock, critiques the structural adjustment model of development that has pauperized Africa. He describes how loans were made by western countries which benefited a small segment of African society and the western nations that made the loans. These left a debt of not only the loan but

also continuing interest payments which the people of Africa have to pay back despite the fact they never benefited from the loans themselves. (13)

In place of the "structural adjustment program" that brought the people of Africa so much trouble, Mbock proposes a "democratic adjustment program". (14)

"No one can stop the globalization process," Mbock writes, "But perhaps a world of global netizens could help to mitigate the consequences of the global economy." (15)

Will the situation improve," Mbock asks, "if the future brings 'netizenship' to Africans?"

He writes (16):

Michael and Ronda Hauben are of the opinion that the Net and the new communications technologies will encourage people to shifting from citizenry to netizenry, away from 'geographical national definition of social membership to the new non-geographically based social membership (Hauben and Hauben, 1997, pp. x-xi)

"The dream of worldwide 'netizenry', Mbock writes, "is the creation of a global community devoted to a more equitable sharing of world resources through efficient interactions."

Quoting from Netizens, he writes :

A Netizen (Net citizen) exists as a citizen of the world thanks to the global connectivity that the Net makes possible. You consider everyone your compatriot. You physically live in one country but you are in contact with much of the world via the global computer network. Virtually you live next door to every other single Netizen in the world. Geography and time are no longer boundaries (...) A new, more democratic world is becoming possible as a new grassroots connection that allows excluded sections of society to have a voice. (Mbock referring to Hauben and Hauben, 1997, pp. 3, 4-5)

"If such a global community were to become reality, then community ways would prevail over market values," writes Mbock. As an efficient and democratic breakthrough, technological innovation would lead to deep-seated social transformations resulting in global change...." (p. 165)

"The hypothesis of a new world order," he proposes, "is an opportunity for catch-up of countries in Africa to create "a forum through which people influence their governments, allowing for the discussion and debate of issues in a mode that facilitates mass participation." (Hauben and Hauben, 1997, p. 56)

"The outcome would be netdemocracy," Mbock writes, "with a three-pronged system of dialogue; dialogue among the citizens of a given country, dialogue among these citizens and their local or national government, and dialogue among 'netizens'. The world as a global

community of 'netizens', would then, 'at last' possess its long-awaited engine for effective and social development in Africa." (p. 165)

"To Sean Connell," Mbock writes, referring to a quote from Connell in Netizens, "the Net is a highway to real democracy, "a means to create vocal, active, communities that transcend race, geography and wealth", a mechanism through which everybody can contribute to the governing of his or her country" (Hauben and Hauben, 1997, p. 249).

Mbock argues that:

(A)s a new paradigm shift from citizenship to genuine 'netizenship' is the worldwide innovation that social scientists should herald, and not only for Africa. This implies looking beyond national citizen passports, to negotiate global, 'netizen' ones."(16)

VIII – Conclusion

In his article on basic research published in 1959, Richard R. Nelson considers the economic value of scientific research. He writes (17):

What are the social benefits derived from the activity of science? It is sometimes argued that most of our great social and political problems would simply evaporate if all citizens had a scientific point of view and, hence, that the benefits derived from scientific research only in small part reflected in the useful inventions generated by science for science helps to make better citizens.

Similarly, Nelson describes a common view of scientific activity. He writes (18):

And many scientists and philosophers take the point of view that the very activity of science – considered as the search for knowledge -- is itself the highest social good and that any other benefits society might obtain are just by-products of the activity of science – social gravy.

After noting that there is much dissent on these views, Nelson proposes a definition for economics regarding benefits from science to society, but his definition focuses mainly on the effect on the firm. Nevertheless, he recognizes that government support for university research is needed for the advances that will benefit private enterprises. (19)

Nelson's discussion of the economics of scientific research is narrowed by his emphasis on the private appropriation of the fruits of that research.

The question being considered in this paper, on the contrary, is how to understand the process of Internet research over a 20 period of time as socio-economic phenomena.

In his article on the Buddhist economic approach to development of community enterprises, Wanna Prayukvong, looks at three community enterprises that demonstrate what he calls the Buddhist economic model.(20)

His case study discusses how Buddhist economics “seeks a balanced equilibrium which aims to achieve the satisfaction of achieving quality of life instead of the satisfaction of maximizing consumption.”(21)

Such an economic option, he argues, gives human beings “a high quality of life that complements nature and society.” This Buddhist economic framework, he proposes, is a challenge to the neoclassical economic assumption that “human nature can be represented by an ‘economical man’ (i.e. homo economicus – ed) who is rational and self-interested.”(22) Prayukvong argues that this assumption is unreliable. In his case study, “rational behavior only develops, after ‘right views’ or understanding has been obtained.” (23)

For the Buddhist, he explains, the meaning of “self interest in the Buddhist context is... not limited to the individual, and since it also applies to nature and society, it equates to quality of life.”(24)

This presents a broader view of the human being as the basic unit of Buddhist economics. In a similar way, Michael Kitson raises the importance of economic analysis engaging directly with “politics culture and values” as a means of offering a critique of the rational self interested human being, i.e. the homo economicus, that is the core unit of economic analysis in neoclassical economics. (25)

There has been much criticism of the neoliberal economic paradigm especially of the structural adjustment policies carried out by the Bretton Woods Institutions.

In his Nobel Prize speech, Joseph Stiglitz addresses the difficulty of creating a new paradigm in economics. “To develop a new paradigm,” he says, “we had to break out from the long established premises, to ask what should be taken as assumptions and what should be derived from analyses.” (26)

There is recognition that it is not adequate to critique this paradigm, but thought has to be given to the set of assumptions and analyses that have dominated the neoliberal economic paradigm for several decades. (26)

In an article on his comprehensive development paradigm, Stiglitz considers the long standing debate on the relationship between democracy and development. Arguing that it is not necessary to sacrifice democracy to achieve development, Stiglitz notes the need for and potential of a more participatory process in society given new developments like the Internet. (27) But while he is arguing in favor of the benefit to development of more democratic processes, he also notes how difficult it may be to achieve these.

While Stiglitz refers to some examples of participatory processes aiding economic development, the process of the development of the Internet and of the various technologies it helped to bring about, provide a significant source of experience to understand the potential and problems of these new processes. And just as other members of this panel, demonstrate in their papers, the Internet Model of Socio-Economic Development and the Emergence of the Netizen establishes

the basis to recognize that the *homo neticus*, or the netizen rather than the egoistic, short-sighted *homo economicus*, may provide a better theoretical role model for social science and economics

Notes

1. Michael Hauben and Ronda Hauben, "Netizens: On the History and Impact of Usenet and the Internet," p. 61-62.
2. *Proceedings of INET'93*, editor: B. Leiner, International Networking Conference, San Francisco, CA, August 17-20, 1993, p. 8
3. Karl Deutsch, *Nerves of Government*, p. 182.
4. Ibid.
5. *Study of IPTO by National Research Council of National Academy of Science*, 1999, p. 105.
6. Robert Fano, "Joseph Carl Robnett Licklider March 11, 1915—June 26, 1990",
<http://www.ais.org/~jrh/licklider/lick-fano.html>
7. Wesley Clark and JCR Licklider, "Online Man Computer Communication", AFIPS, *Proceedings of May1-3, 1962, Spring Joint Computer Conference*, San Francisco, Calif, pp113-128
8. JCR Licklider and Robert Taylor, "The Computer As a Communication Device".
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10. Author, "The Internet: On its International Origins and Collaborative Vision, (A Work In Progress)" http://www.columbia.edu/~rh120/other/birth_tcp.txt
11. Author, "On Grassroots Journalism and Participatory Democracy in South Korea, in *Korea Yearbook 2007: Politics, Economics and Society*, edited by Ruediger Frank et al, Brill, 2007.
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<http://www.egpa2009.com/documents/psg1/YU.pdf>
13. Charly Gabriel Mbock, "Social Science and the Social Development Process in Africa", *Social Science and Innovation*, OECD, 2001, p. 161.
14. Ibid, p. 160.
15. Ibid, p. 165.
16. Ibid. p. 166.

17. Richard R. Nelson, "The Simple Economics of Basic Scientific Research, *The Journal of Political Economy*, Vol 67, No 3. (June 1959), p. 298.
18. Ibid., p. 298-299. 17 Richard R. Nelson, "The Simple Economics of Basic Scientific Research", *The Journal of Political Economy*, Vol 67, No 3. (June 1959), p. 298.
19. Ibid., p. 306.
20. Wanna Prayukvong, "A Buddhist economic approach to the development of community enterprises: a case study from Southern Thailand", *Cambridge Journal of Economics*, 2005, 29, p. 1177.
21. Ibid., p. 1174.
22. Ibid., p. 1173.
23. Ibid., p. 1174.
24. Ibid.
25. Michael Kitson, "Economics for the Future, *Cambridge Journal of Economics* 2005, 29, p. 830.
26. In his Nobel Prize speech, Joseph Stiglitz addresses the difficulty of creating a new paradigm in economics. "To develop a new paradigm," he says, "we had to break out from the long established premises, to ask what should be taken as assumptions and what should be derived from analyses." Joseph Stiglitz, "Information and the Change in the Paradigm in Economics," Prize Lecture, December 8, 2001, p. 487.
27. Joseph Stiglitz, "Participation and Development: Perspectives from the Comprehensive Development Paradigm", *Review of Development Economics*, 6(2), 2002, p. 169.

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