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Cyberspace After Capitalism

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Cyberspace Definition: Original

n "A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children learning mathematical concepts...a graphical representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind. Clusters and constellations of data. Like city lights receding..."

-- William Gibson
Neuromancer

Cyberspace Definition: Current

n "Cyberspace is the total interconnectedness of human beings through computers and telecommunication without regard to physical geography."
- searchWebServices.com

Capitalism Definition

n "An economic system characterized by private or corporate ownership of capital goods, by investments that are determined by private decisions, and by prices, production, and the distribution of goods that are determined in a free market."

Capitalism: Consequences

- n Constructive cycle of Wealth, Information, Power
- n Destructive cycle of Poverty, Ignorance, Impotence
- n Cyberspace may reinforce both tendencies

Post-Capitalism

Elements:

- n Democracy
- n Socialism and/or Anarchism
- n Centralization v. Decentralization
- n Overcoming Class Barriers

Democracy Definition

n "the belief in freedom and equality between people, or a system of government based on this belief, in which power is either held by elected representatives or directly by the people themselves"
-- Cambridge International Dictionary of English

Socialism Definition

n "Economic system which is based on cooperation rather than competition and which utilizes centralized planning and distribution."
-- investorwords.com

Anarchism Definition

n "The theory or doctrine that all forms of government are unnecessary, oppressive, and undesirable and should be abolished."
-- American Heritage College Dictionary
n "a movement organized on the belief that society should be run entirely by voluntary, organized groups and not by the political state"
-- Modern Prague City Magazine

Infrastructure

How does cyberspace change after capitalism?

Does cyberspace rely on centralized production, distribution, enforcement?

- n Chip fabrication plants (computer, solar)
- n Transoceanic cable maintenance
- n Disappearing copper wire (Argentina)
- n Specialist technologists

Infrastructure: Technical Fixes?

- n Devices merging (PDAs, interactive radio, and interactive television)
- n Cognitive radio
- n Nanotech fabricators
(like Star Trek replicators)
- n Biological computers, wearable computers
- n Quantum computing
- n Renewable energy
- n Virtual reality

Devices Merging

- n Consumer devices will perform multiple functions
- n Personal Digital Assistants (PDAs), interactive radio, and interactive television

Cognitive Radio

- n "Smart" radios: actually all wireless devices (cellphones, PDAs, car radios)
- n Millions of broadcasters
- n Limitless spectrum, rather than crowded and heavily regulated spectrum
- n Capacity increases, not decreases, as number of radio transmitters increases

Cognitive Radio Prototype

Nanotech Fabricators

- n Built from very small components, scale of 10^{-9} meters– 1/80,000th the diameter of a human hair
- n Machine designed to build other machines like it, a self-replicating assembler
- n Requires “recipe” (i.e. information), basic building materials, and power
- n Fear of “grey goo” scenario

Silicon Wires 6 Nanometers Wide

Biological Computer

- n Using molecular technology, not silicon
- n Leech neuron computers
- n DNA computers
- n Carbon nanotubes
- n Rotaxane computers
- n Computers could become wearable or integrated into human body (“chiplants”) and other materials (“RFIDs”)

Leech Computer!

Wearable Computer Prototypes

Quantum Computing

- n Computing with sub-atomic particles
- n Flipping direction of spinning electron to represent 0 and 1
- n Hard to coordinate quantum bits

Renewable Energy

- n Increased solar cell efficiency
- n Nano solar cells
- n Hydroelectric
- n Geothermal

Virtual Reality

- n Interactions in multimedia cyberspace universe
- n Simulations for educational purposes
- n Communication enhanced with multisensory queues

Technology Trends Summary

- n Small embedded devices networked everywhere
- n How to use to enable democracy?

Communications

Which post-capitalist communications are best mediated through online mechanisms?

- n Decisionmaking Transparency
- n Media (access)

Participation

How can cyberspace increase the level of participation of disadvantaged populations?

- n Telephone, videophone, email, instant messaging, teleconferencing, videoconferencing
- n Smart mobs (Philippines SMS protests)
- n Voting systems (encouraging dialog and consensus-based decisionmaking, remote access possibilities)
- n Media (production): Indymedia, Pirate Radio

Right to Information

Do people have a basic right to information? If so, what does that mean for a post-capitalist society?

- n Information economics
- n Asymmetries of information

Right to Information

- n Data Sharing: transparency of govt transactions (privacy considerations)
- n Info Sharing: decisionmaking systems- consensus, voting, system limitations include quantity of macro decisions, informed participants -> quality decisionmaking
- n Knowledge Sharing: education

Trade

- n Mechanisms for trade, resource allocation, currencies, micropayments, microloans
- n Government tuning of capitalist processes to recognize needs beyond just the wealthy

Trade: Intellectual Property

Intellectual property into public domain:

- n Increases innovation (though not necessarily monetary rewards)
- n Increases cooperation
- n Reduces duplication
- n Public domain helps span class divide

Transitions: The Challenge

- n What concrete steps can individuals, NGOs, governments, and businesses take to transform cyberspace toward our post-capitalist vision(s)?

Transitions: Suggestions

- n Fund programs to bridge digital divide: access, education
- n Deploy technology appropriate to local political, social, and economic situation
- n Enhance participation in decisionmaking using appropriate technologies
- n Fund research programs for decentralizable, ecologically sound technologies, esp. nano fabricators, cognitive radio, molecular computing, and renewable energy
- n Relax intellectual property laws to stimulate dialog, innovation, and affordable solutions

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n As the founder and initial Executive Director of the Online Policy Group, Will Doherty has demonstrated a strong commitment to protecting and expanding rights of access, privacy, and safety on the Internet. Doherty has also worked since January 2001 as the Media Relations Director of the [Electronic Frontier Foundation](#). Prior to founding the Online Policy Group, he served as the Director of Online Community Development at the [Gay & Lesbian Alliance Against Defamation](#), where he focused on the online rights of lesbian, gay, bisexual, and transgender communities.

n Will Doherty has twenty years of experience as a computing consultant and online activist. In the early 1980's, he worked on the ARPANET, precursor of the Internet. He served as the Globalization Operations Manager at Sybase, Inc., and as a Localization Program Manager and a Technical Writer for Sun Microsystems, Inc. He has designed and implemented Internet strategies and websites for dozens of nonprofit community and advocacy organizations. Will Doherty holds an MBA from Golden Gate University and a BS in Computer Science and Writing from the Massachusetts Institute of Technology.

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