

August 12, 2009

Network Technologies and Society: CCT 742 Course Description

Instructor: D.
Linda Garcia, Ph. D



Where Next? (courtesy of switchtanc)

New technologies create new possibilities. Hence, they change our expectations about what people can and cannot accomplish, and what we should and should not do. In fact, we have often looked to the development of new technologies to resolve societal problems that heretofore have had no ready solution.

However, past efforts to correctly anticipate the eventual uses and impacts of new technologies have all too often fallen short of the mark. For example, early on many thought that the telephone would be a broadcasting device! Others predicted that there would be no market for the computer. The gap between expectations and actual experience with new technologies can be explained, in part, by our limited understanding of the relationship between technology and society. Attempts to depict this relationship have typically been one dimensional, focusing either on technology as a driving force or on a particular set of social forces that are believed to structure the evolution of technology. Experience has proven such conceptualizations to be far too simplistic, and the consequences of relying on them have been costly. Lacking an adequate understanding of technological development we—as a society—have been unaware of the choices available. Thus, we are often unable to channel technological developments in the most positive directions. Moreover, people have been reluctant to take adequate responsibility for the choices that we make—often treating technological development as “determined” by forces beyond social control, intractable to reasoned deliberation.

August 12, 2009

Today we are witnessing profound changes in communication systems worldwide, brought about, in part, by innovation in a wide range of information and communication technologies. Because communication is central to what people do, these new technologies are likely to profoundly affect our social, economic, and political circumstances. If we are to maximize human potential, we will need to improve our analytical skills for assessing the range of choices available, and for understanding the constraints under which such choices are made.

This course addresses these issues. In it, we will consider existing models of the relationship between technology and society. In addition, we will look at the emergence of new digital media in the context of these models. The implications for society will also be addressed, as will the human possibilities to affect future technological scenarios.

Class Requirements

(photo: light reading by
jamwithsand)



This class requires a considerable amount of reading and class participation. Grades will be determined based on four factors. The first will be an initial paper (25%) that will describe and analyze the ‘frameworks’ that are employed in the mainstream media to portray recent digital technologies. Second, students will be asked to blog the class on a weekly basis, reflecting on the content of their readings and how it relates to their interests. (25%). A final paper will also be required. This is a science fiction story, which employs a certain number of the terms that we have used in the course of the class (25%). The final 25% of the grade will be determined by class participation.

Books to Be Purchased

August 12, 2009



Eric D. Beinhocker. 2006. The Origin of Wealth: Evolution, Complexity and the Radical Remaking of Economics. Boston, MA: Harvard Business School Press.

Daniel Czitrom, 1984. Media and the American Mind: From Morse to McLuhan, North Carolina University Press.

Goldsmith and Tim Wu. 2006. Who Controls the Internet: Illusions of a Borderless World. Oxford, UK: Oxford University Press.

Jordon, J. Michael Jordan, Machine Age Ideology

Hughes, Thomas. 2004. Human Built World: How to Think About Technology and Culture.

David E. Nye, 2006. Technology Matters. Cambridge MA. MIT Press.

Sawyer, Keith. 2008. Group Genius: The creative power of collaboration. New York. Basic Books.

Smith, Merrit Roe, and Leo Marx, eds. Does Technology Drive History: The Dilemma of Technology Determinism, Cambridge, MA: MIT Press.

Sustein, Cass, S. 2006. Infotopia: How many minds produce knowledge? Oxford UK: Oxford University Press.

© 2008 MCB

TICKET FARES
EFFECTIVE JUNE 1, 1980

Dis- tance From Chi- cago	Between CHICAGO and	ONE WAY				COMMUTATION FARES			
		Coach	First	25 Single Trip	25 Single Ticket	Un- limited Weekly	Un- limited Monthly	Un- limited Quarterly	
2.9	CityCenter	\$.75	\$ 1.50	\$ 4.75	\$ 14.50	\$ 1.50	\$ 10.50	\$ 30.00	
7.5	Irving Park	.75	1.50	4.75	14.50	1.50	10.50	30.00	
8.1	Jefferson Park	.75	1.50	4.75	14.50	1.50	10.50	30.00	
10.1	Griffith Park	.75	1.50	4.75	14.50	1.50	10.50	30.00	
11.4	Norwood Park	.85	1.55	7.45	19.05	1.55	11.30	33.90	
12.4	Edison Park	.85	1.55	7.45	19.05	1.55	11.30	33.90	
13.3	Park Ridge	.85	1.55	7.45	19.05	1.55	11.30	33.90	
15.0	Deer Road	.95	1.75	8.45	21.55	1.75	12.55	37.65	
17.1	Des Plaines	1.00	1.80	9.00	22.50	1.80	13.00	39.00	
18.4	Cumberland	1.05	1.90	9.50	23.45	1.90	13.50	40.35	
20.0	Inf. Prospect	1.10	2.00	10.00	24.40	2.00	14.00	41.70	
22.8	Arlington Heights	1.15	2.10	10.50	25.35	2.10	14.50	43.05	
26.4	Palatine	1.25	2.25	11.25	26.60	2.25	15.25	45.75	
30.0	Barrington	1.35	2.45	12.25	28.00	2.45	16.20	48.60	
37.3	Fox River Grove	1.45	2.65	13.25	29.45	2.65	17.25	51.75	
38.4	Crystal	1.50	2.70	13.50	29.90	2.70	17.50	52.50	
43.2	Crystal Lake	1.70	3.50	15.25	35.60	3.50	20.50	61.50	
51.6	Woodstock	1.85	3.55	16.00	36.40	3.55	21.00	62.70	
54.0	Martinez	2.05	3.70	16.50	37.00	3.70	21.50	63.75	
63.1	Harvard	2.30	4.15	20.75	41.85	4.15	25.00	75.00	
50.8	Moham	1.85	3.55	16.00	36.40	3.55	21.00	62.70	
54.3	Ringwood	1.95	3.65	16.50	37.00	3.65	21.50	63.75	
60.8	Richmond	2.20	4.05	19.00	39.50	4.05	23.50	70.50	
64.4	Genoa City	2.25	4.25	20.25	40.60	4.25	24.25	72.75	
65.5	Hill Lake	2.40	4.35	21.75	42.35	4.35	25.00	75.00	
71.0	Lake Geneva	2.55	4.60	23.00	43.50	4.60	26.00	78.00	

GENERAL TICKET INFORMATION
Tickets should be purchased before boarding train. If ticket office is open at train departure time, conductors are required to charge an additional 15¢ when tickets are purchased on the train. Tickets will be made out for fares collected.

Class Schedule

August 12, 2009

Session One: Overview of the Class



Spyglass by mhartforS

This class will provide an overview of the semester. In it, we will define what we mean by technology and society, and discuss why technology matters, and what makes communication technologies worthy of special attention. In addition, we will briefly describe different ways of assessing technologies, and how they might be used to complement one another. Finally, we will share expectations about the class.

Your first assignment, due on Thursday, October 23rd will entail reviewing the mainstream press to assess the rhetoric being used to characterize a new technology. You will in turn be asked to write a ten-paged paper that summarizes and interprets the results.

Readings:

David Nye, chapters 1-4.

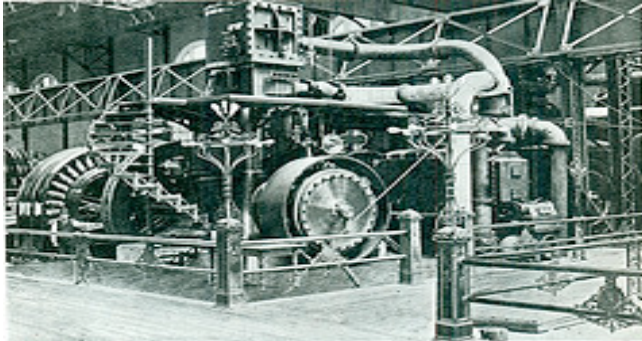
Henrik Bruun and Janne Hukkinen, “Crossing Boundaries: An Integrative Framework for Studying Technological Change.” Posted on Blackbord.

Session 2: Technology in a Cultural Context

In this class we will consider the relationship between technology and culture, and how each serves to structure and reinforce the other. In particular, we

August 12, 2009

will consider how technology has served to define a society, looking specifically at the case in the United States. Glorifying technological advance, the US was not only characterized as a machine culture; its enthusiasm in pursuing technology helped to reinforce this identity.



Columbia Exposition by riowight

Readings

Smith and Marx, eds., 1994. Does Technology Drive History. Cambridge, MA: Introduction, & Chapter 1 & 2.

Thomas P. Hughes, 2004. Human Built World: How to Think About Technology and Culture, Chapters 2 & 3 on e-reserves

Session 3: Innovators & Engineers—Their Motivations and Aspirations



Readings:

J. Michal Jordan, The Machine Age Ideology.

As we have seen, mankind has been associated with technology since the beginning of time. What is it about human nature that promotes innovative efforts? Was it creativity, play, a drive for fame and profit? Schumpeter and Veblen identified ‘innovators’ as the driving force behind human growth and development. In this session we shall consider the role of the engineer and scientist. What led them to their endeavors, and how did they shape the future

August 12, 2009

Session 4: Technological Determinism & Unintended Consequences

The industrial revolution promoted the wide-scale integration of technology into American life, resulting not only in tremendous economic growth, but also a myriad of unintended consequences. As a result, many scholars, philosophers, journalists etc. began to view technology as having a life of its own. In this session, we will review these arguments and discuss the role of human agency in making technological decisions.



The Industrial Revolution from bluesboy

Readings:

Langdon Winner, The Whale and the Reactor, chapter 1,2 & 4

Robert Heilbroner, “ Do Machines Make History,” & “Technology Determinism Revisited,” in Smith and Marx, eds.,

Thomas Hughes, Technological Momentum, in Smith and Marx, ed.

Session 5: Assessing Technology: The Social Constructivist Approach



02.Another social construction?! from CYH05

Reacting to the broad generalizations made by technology determinists, a number of scholars argued that technology was, in fact, socially constructed, and can be studied by looking at the stakeholders involved, and how they form a consensus around a given interpretation of technology. In this class, we will explore this approach, assess how it has helped to expand our understanding of technology advance, as well as consider some critiques of it.

August 12, 2009

Readings:

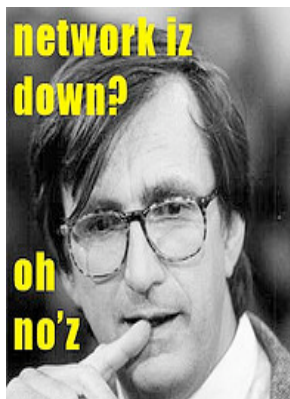
Wiebe Bijker and Trevor Pinch. (eds.) 1987. "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other, in Bijker, Pinch, and Hughes, *The Social Construction of Technological Systems: New directions in the sociology and history of technology*. Cambridge MA: MIT Press. Chapter posted on Blackboard.

Langdon Winner, "Upon Opening the Black Box and Finding it Empty: Social Constructivism and the Philosophy of Technology." *Science, Technology and Human Values*, v. 18, n. 1, Summer 1993: 362-378. Posted on Blackboard

David Nobel, "Social Choices in Machine Design: The Case of Automatically Controlled Machine Tools,' in Donald MacKenzie and Judy Wajcman, eds. *The Social Shaping of Technology*. Open University Press. Posted on Blackboard

Michael Haard, 1993. "Beyond Harmony and Consensus: A social conflict approach to technology." *Science, Technology, and Human Values*, 18: 408-32. Article posted on e-blackboard.

Session 6: Assessing Technology: Actor Network Theory



Latour: Barefootinshit

Actor Network Theory (otherwise known as ANT) is often viewed as a social constructivist approach. However, it differs from SCOT in a number of significant ways. Like SCOT, it views technology as being socially constructed by key actors. Interestingly enough technology and other inanimate things are viewed as actors. As in the case of SCOT, ANT discounts the importance of the larger institutional context in which technologies evolves. However, unlike SCOT, it takes power into account. To understand the evolution of technology, one must trace how ideas are passed along and translated among the network of actors and "actants" that must be 'brought on board' in order for technologies to come to fruition. In this class, we will consider the ways in which ANT enhances the social constructivist approach.

August 12, 2009

Readings:

Shirley Strum and Bruno Latour, "Redefining the Social Link from baboons to humans," in Donald MacKenzie and Judy Wajcman,

John Law, "On the Social Explanation of Technical Change: The Case of the Portuguese Maritime Expansion. *Technology and Culture*, iv. 28, n. 2, Apr. 1987. pp. 227-52. Available on Blackboard

Michael Callon, John Law, "On Interests and Their Transformation: Enrolment and Counter-Enrolment. *Social Studies of Science*, v. 12, n. 4, November 1982, pp. 615-625. Posted on Black Board

Stephen Shapin, "Following Scientists Around," *Social Studies of Science*, v. 18, n. 3. (Aug, 1988), pp. 533-550. Posted on Blackboard.

Michael Callon, "Some Elements of a sociological translation: domestication of the scallops and the fisherman of St. Brieuç Bay," Posted on Blackboard

Session 7: Assessing Technology: Evolutionary Theory.

Evolutionary theory borrows from the biological sciences in terms of its overall perspective. It views technology advance as a complex, cumulative process. In contrast to SCOT and ANT, evolutionary theory takes context into account. Because it views technology evolution as a complex process, it considers outcomes to be indeterminate. In this class, we will examine evolutionary theory as it relates to technology, as well as to the above approaches with respect to technology-related issues

A clue to Darwin's theory

Domesticated plants and animals provided Darwin with an important clue to the way evolution might have occurred.

By breeding together selected individuals, breeders are able to change the characteristics of domesticated plants and animals.

Dachshunds, for example, have changed a lot over the last hundred years or so, as breeders have preferred sleeker, more lightly-built animals with shorter legs and more elegant heads.



August 12, 2009

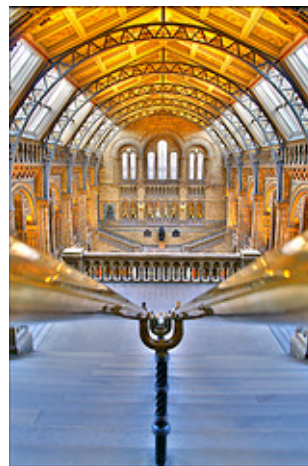
Readings

George Basalla, The Evolution of Technology, chapters 1, posted on blackboard

Erick Beinhocker 2007. The Creation of Wealth: Evolution, Complexity and The Radical Remaking of Economics. Chapter 9.

Session 8: Communication Technologies from An Historical Perspective.

In this session, we will consider the history of 'old media.' The discussion in this class will not only help us to identify the factors that need to be taken into account in anticipating and assessing technology; it will also provide a baseline against which we can speculate about whether today's context is significantly different, so as to lead to alternative results.



Natural History Museum - London from nick.garrod

Readings

Daniel Czitrom, Media and the American Mind. Part One.

Session Nine: Anticipating the Future: The Networked Economy

Today's network economic infrastructure has facilitated a reorganization of the global economy, in which firms are organized increasingly in global networks and alliances. Some have argued that these networks have served to increase competitiveness and the driving forces that promote capitalism. In contrast others, such as Yochai Benkler, argue that networking technologies can enhance economic growth by promoting greater incentives for collaboration. In this class, we will examine these arguments in light of the theories that we have discussed.

August 12, 2009

roads and railways series #1 from
woodleywonderworks



Readings

Yochai Benkler. 2006. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven, CT: Yale University Press. Pages 1-91. [Readings can be found on Yochai Benkler's website.](#)

Session 10: Anticipating the Future: Wither Control?



The advent of the Internet gave rise to numerous utopian visions about the freeing of individuals from the hierarchical systems that had suppressed them in the past. Freedom for the individual was the watchword, whether in the cultural, political or economic sphere. In this session, we examine this vision, and trace how it has come to pass that the Internet has spawned so many surprises in this regard. We will consider whether and how our analytical frameworks might have anticipated today's outcomes

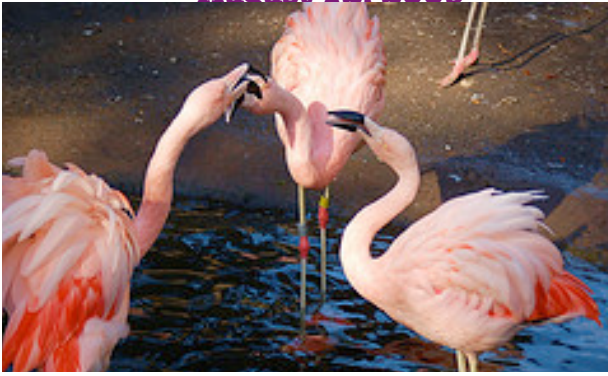
Control Room from Chris Hoare.

Readings:

Jack Goldsmith and Tim Wu, 2006. *Who Controls the Internet?*

Final Assignment, due the last day of exams.
In this assignment, you will write a science fiction story (10-15 pp) employing a given number of terms that will be drawn from the semester's readings and discussions.

August 12, 2009



Flamingo Deliberations from Todd.Schiele

Session 11: Anticipating the Future: Collaborative Democracy

Web technology, such as blogs and wikis, have been heralded as a platform for enhancing the public sphere and allowing for greater participation and deliberation in politics. In this session, we shall examine this claim, asking our selves under what conditions such might be the case. In addition we shall consider what kind of unintended consequences these technologies have contributed to.

Readings:

Cass R. Sustein. 2006. Infotopia: How Many Minds Produce Knowledge. Oxford, UK: Oxford University Press.

Session 12: Anticipating the Future: Collaboration & Creativity

According to some predictions, new media will allow us, not only to take charge of our own lives, but also to enhance our creativity, by engaging and interactive with new people, new types of information, and new life formats. In this session, we will examine some of these possibilities focusing on collaboration and play.

Readings:

Keith Sawyer, Group Genius: The Creative Power of Collaboration



August 12, 2009

THANKSGIVING BREAK

Session 13: Networks and Complexity

All networks exhibit some common characteristics. Given what we know about them, and how they behave, can we use this knowledge to think about their impacts on society.

READINGS

Beinhocker, pp. 79-185.



complexity from J. Star

Session 14: Coping with Complexity

This class will be a wind-up session. Taking into account what we have learned, we will identify and discuss public policy issues related to new networked technologies.

Final Paper Due Last Day of Exams