Theory Workshop #3
Information and Networks

Comm 181F
San Jose State U
Dr. T.M. Coopman

This Workshop

These workshops are self-paced overviews and information references that provide critical knowledge to help you succeed in this course.

This workshop covers tips theories of technology that provide background for your course research project.

This workshop is based in part on material from:

Burentt, R. and Marshal, P.D. (2003). *Web Theory: An Introduction.* New York: Routledge

Information Networks

Cyber comes from the Greek which means to steer.

Cybernetics is the science of systems of control and communications in animals and machines.

Initially, the idea of linking information and networks came from the problem of shooting down planes in WWII, which was difficult. The solution was to think of the gunner/missile/plane not a separate units but an information system with a central objective - shooting down the plane.

Cybernetics

The concept of cybernetics is very complex. Highly simplified it is the idea of systems and processes that interact with themselves and produce themselves from themselves.

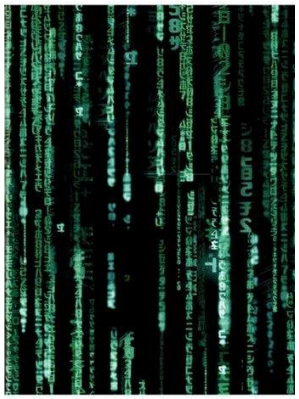
That is, automation such as your heart pumping, cells dividing, or algorithms than run Google searches. For the internet, it is the idea that it exists of many elements that do not need external control to operate and in fact cannot really be controlled externally. They operate and react to each other independently. For further confusion see http://en.wikipedia.org/wiki/Cybernetics

Information

The internet is a massive network of computer, fiber optics, and other hardware on which the software of the web operates.

The Web is information both as software running code (Facebook) and information (pictures on your Facebook page) contained within it. All of which is still digital code.

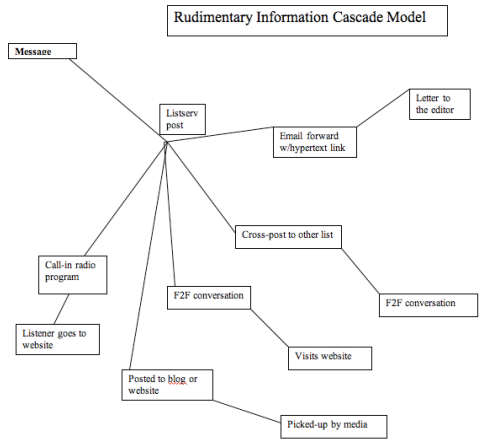
Information is input (sight) and as a pattern that transforms information (touch hot stove, get burned, in the future do not touch stoves or tother hot things).



Castells covers this in some detail, but as an overview:

Communication networks consist of links and nodes arranged so information may travel over multiple paths between any node or combination of nodes.

Information normally moves through networks in a variety of ways.



Web Culture

The web culture:

- represents a new concentration on information and its directional flow
- can produce dislocations of identity and community
- Facilitates the flow of information for the objectives of globalization

Network approach to Communication

Barry Wellman's (1988) 5 fundamental Principles:

An individuals **web of relationships** are the best predictor of behavior

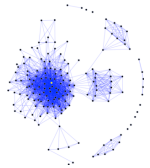
The focus of the analysis should be on **the relationship between units** - it is difficult to understand units in isolation

Interdependence rather than independence is assumed

Informational flows between two sources **depend on other sources** within their cluster as much as each other

Organizations have **fuzzy** borders

That is, your Facebook page yields some information, but your Facebook friends network is what give FB utility and provides much more information about you



Social Networks

In many ways, computer networks mimic social networks.

The Concept of Strong and Weak Ties (Granovetter)

Strong Ties: (family/friends) These are people in your immediate actual network

Intermediate Ties: (secondary trust) (Wellman) Casual friends, closer co-workers or fellow students, most neighbors

Weak Ties: (Acquaintances) Service people (eg. waiters at your favorite cafe) you know, most instructors, UPS delivery person

Latent Ties: (community affiliation) fellow SJSU students, people from your church, neighborhood group

Strength of weak ties: weak ties provide more novel information because they connect you outside your normal social circle

Granovetter's study found that people had better luck finding work via weak ties than strong ties because weak ties had more and different leads/contacts.

The Network Effect

The more people who adopt an item/system/method the greater the **value** to each user

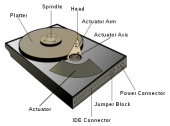
Inherent value = my value as a user

Network Value: my value from you as a user (email, texting, IM)

The **more** people who use eBay, Craig's List, Facebook, etc. the more useful it is to users, advertisers, data-miners (externalities - beyond primary use)

Negative: resource limits (eg. freeways) however...

Unitary cost of technology (per megabyte storage / per megabit per second) is halving every 18 months (1 GB=500k pages of messages)



Ex: Web Email

2002 per gig cost $2.25 - income per user $15

2004 per gig cost $1 - income per user $40 (1 gig free begins)

2007 per gig cost.40 cents - income per user $90 (unlimited free)

More users=more ads=more revenue

Task

To earn credit you need to post a substantive 100+ word comment on this workshop's wiki page and complete the following tasks and bring them to class.

For the in class workshop think about how these concepts and ideas reflect, contradict, or interact with the week's readings and your own experiences with networks.

1. List the first 5 friends that come to mind. Under each name list the friends or acquaintances those friends introduced you to or (if none) plot out who introduced you to them. This is an example of your social network. Think about these people, who they are, what they do, and what this says about you. Try to give two examples per person (item to turn in).

2. In your teams, compare the name on your lists to see if your social networks overlap. Then discuss if there are any other connections such as similar people (eg. instructors, etc.), or places (eg. workplaces, cafe's, etc.).

3. Your report to the class will be the connections you found within your group and what these similarities say about who each of you are as individuals.

4. Teams will discuss and compare their tasks and prepare a 10 minute presentation on the topic of the workshop. This is not just a reading of each students task submission but a coherent discussion where the elements interact and support each other. One team will be chosen at random to present.

5. Turn in tasks sheets for credit.