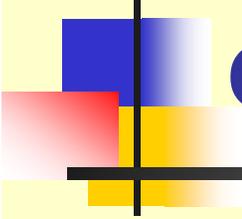


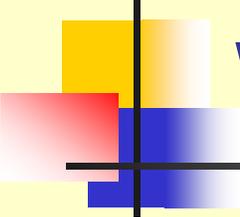
Cultural Networks – real and virtual pathways to cooperation



**Mobility and cultural cooperation in the age of
digital spaces**

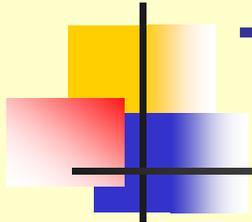
Bucharest, October 2006.

Aleksandra Uzelac, Institute for International Relations,
Zagreb, sandra@irmo.hr



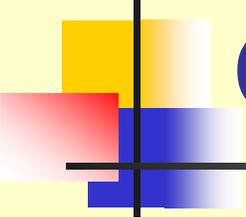
Why talk about networks?

- Network seems to be the widely spread organization structure. Many existing social, technical or biological phenomena are recognized to have a network structure
- In cultural sector networks seams to be recognised as a 'communication infrastructure for European cultural cooperation' (DeVlieg, 2001).
- Virtual networks seam to bring different context to the cultural sector
- Networks are not about phisical but logical structures (they are a point of view on a world phenomena)



Topics covered

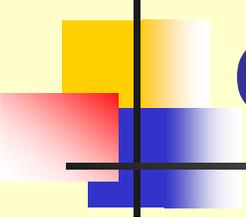
- Cultural networks (real and virtual)
- Introduction to the network theory
- Networking models



Cultural Network - definition

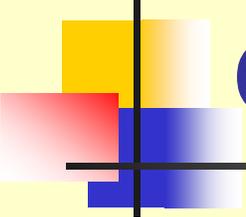
- a structure and work method characterized by non-hierarchical, horizontal cooperation, a transnational orientation, establishment by the grass roots, a non-representational character, diversity and the absence of the powerful central forces.

Raimund Minichbauer and Elke Mitterdorfer. European Cultural Networks and Networking in Central and Eastern Europe, eiPCP, 2000,



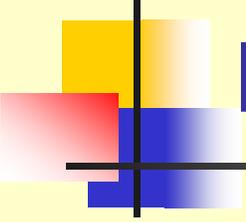
Cultural networks

- structures designed for a long-term cooperation
- the existence of a common goal
- the existence of members and their physical meetings
- loosely defined network borders
- voluntary participation of members
- redundant structure



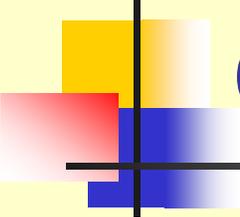
Cultural networks

- flexible structure
- trying to solve concrete problems of their members
- bringing together people with common interests
- through networks existing institutions can be bound together around common projects (**cooperation**)
- networks provide efficient **communication** channels for their members.



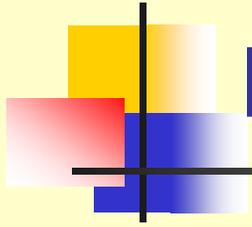
Expectation from networking

- Communication
- Transparency
- Knowledge
- Innovation
- Power



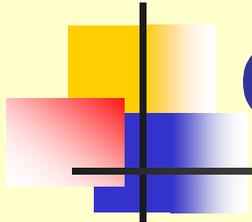
Cultural Networks (opportunities)

- Incubators of ideas
- Confidence factor
- Open-end communication
- Diversity element (different regions, different profiles of members)
- Breakdown of the existing hierarchy – providing opportunity to for people to communicate as peers (outside of their usual roles)



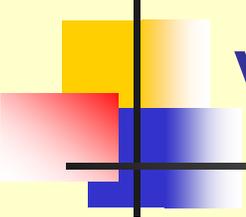
Networking tools

- Network bulletins
- Meetings and conferences
- Information exchange
- Joint studies
- Joint projects
- Lobbying activities



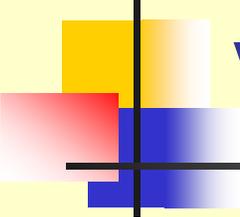
Cultural Networks

- Social networks – communicating with other people (meetings, face-to-face interactions)
- Information networks – access to information resources, channel of information exchange, constant connections



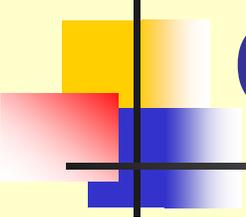
Virtual networking – an added value of cultural networking?

- With fast development of Internet different virtual networks and portals have become a part of virtual landscape in the cultural sector.
- can we consider cultural portals to be networks, in a sense described before, i.e. as a structure supporting cultural cooperation?



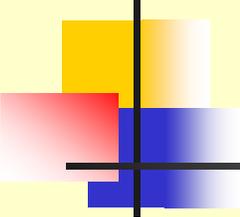
Virtual networks and mobility issues

- Mobility substitution – doing things at distance that we would otherwise move to do
- This is an added extra and not a viable alternative to real life mobility (in transportation, as well as, in activities sense)
- Being there still matters (face-to-face communication cannot be efficiently replaced)
- We are sensory creatures and purposive communication is only a part of our communication patterns. (A lot of important communication is informal and it happens by chance)
- In virtual space we are compelled to reduce human knowledge and experience to symbolic form.



Change of scale

- The process of organization of human activities in global world-wide interwoven structures, results in networks the size of which goes beyond the descriptive power of traditional network analysis tools.
- For instance the Internet consists of several millions of nodes and WWW consist of several billions of nodes.
- As a consequence cultural professionals are not only working with their peers but also with a range of other stakeholders.



Definitions of network

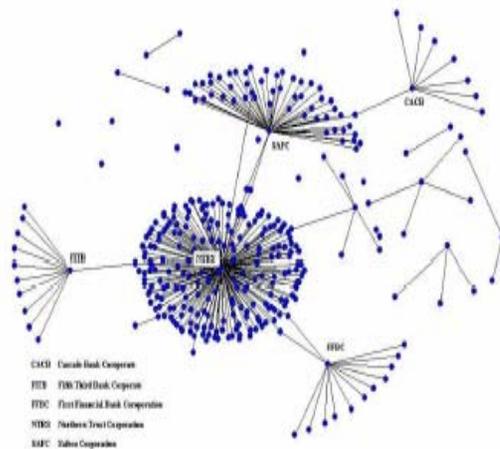
- **SOCIAL SCIENCES APPROACH**
- "Networks embody a set of fundamental principles for the ordering, distribution and coordination of different components, whether chemical, natural, social or digital" (Network Logic, 2004: 12).
- "...networks provide a 'platform' for coordinating highly diverse activities, many of which are not predicted in advance" (Network Logic, 2004: 17).
- social networks are networks of communications (Network Logic, 2004: 29).
- **GRAPH THEORY** views a network as a graph structure consisting of nodes (vertices) and ties (edges) - nodes being individual actors within networks and ties being relationships or links between actors.

Network theory

With Graph theory it is possible to describe and analyse a series of different systems

- SOCIAL INTERACTIONS
- Actors, Scientists cooperating
- Sexual relationships
- TECHNOLOGICAL NETWORKS
- WWW, Internet
- e-mail
- BIOLOGICAL NETWORKS
- Protein and Metabolic networks
- Food Webs
- Taxonomies

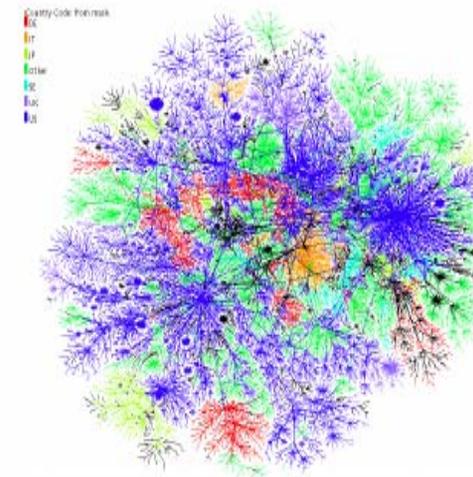
Very different systems can be described through graph topology as networks



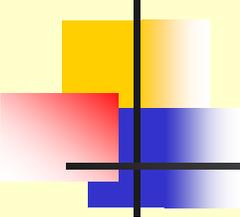
Stock Markets



Food Webs



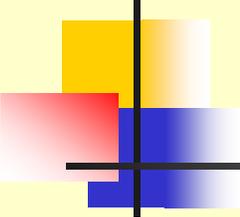
Internet



Network theory - Types of Networks

- **Social networks** are sets of people or groups of people with some pattern of interrelations between them (eg. the patterns of friendships between individuals, **different kinds of collaboration networks**). A particular type of social network is an **affiliation network** in which participants collaborate in groups, and links between pairs of individuals are established by common group membership.
- **Information networks** – eg. **WWW** - a network of a web pages containing information, linked together by hyperlinks from one page to another or a network of citations between academic papers.
- **Technological networks** - a man made networks designed for distribution of some commodity or resource (**eg. Internet** is a physical network of computers linked together by optic fibre and other data connections for distribution information).
- **Biological networks** – eg. a network of metabolic pathways, genetic regulatory networks, neural networks, food web, etc.

M.E.J. Newman, The structure and function of complex networks, 2003



Networks' characteristics

Connectivity (degree) a total number of ties of a particular node (a number of nearest neighbours).

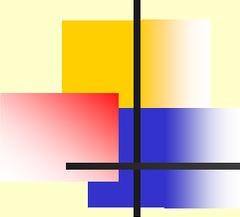
Clustering (transitivity) – clustering coefficient is the probability that two nearest neighbours of a particular node are also nearest neighbours of one another.

Mixing patterns – assortative mixing - people tending to associate themselves preferentially with people who are similar to themselves in some way. This can lead to a '**community structure**' (groups of nodes having high density of ties within them and with a lower density of ties between groups).

A small-world effect - the shortest path through the network (or network diameter), observed in large number of different networks. It has implications for the dynamics processes taking place in real world networks – eg. speed of spreading information across the network, etc.

Network navigation – In social networks people can find the shortest path through the network (a small world effects).

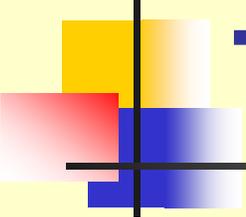
(Newman, 2003)



Dynamic processes in networks

- **Networks growth** - the growth process (adding nodes as well as links) leads to the specific structural features of particular networks – eg. **scale-free networks** that follow power-law distributions.
- **Network resilience to the deletion of nodes or links** - Networks having power law distribution were observed to be robust to the random removal of nodes, but if in such a network a node with high connectivity would be removed this would greatly impact functioning of such a network, making them vulnerable to targeted attacks.
- **Network search** - affects how effectively we can communicate or get the relevant information in a large networks. (exhaustive search techniques; or guided searches - searching a small part of a network, deliberately seeking the nodes that are most likely to contain relevant information and presuming that pages containing information on a particular topic will be clustered together).

(Newman, 2003)

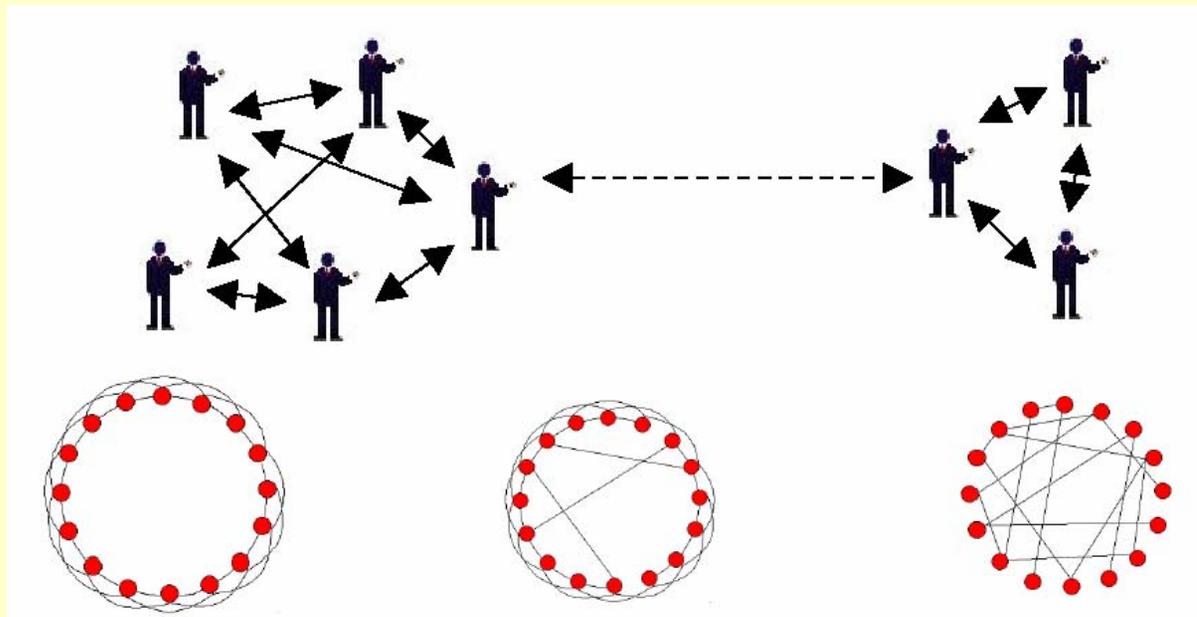


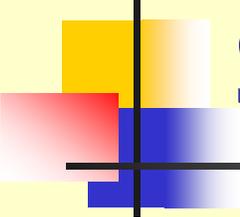
The small world problem

- In 1967, American social psychologist Stanley Milgram devised an experiment which he called "the small-world problem".
- Randomly selected people in the United States, the task is to send postcards to one of two targets: one in Massachusetts and one in the American Midwest.
- The senders knew the recipient's name, occupation, and general location. They were instructed to send the card to a friend who they thought was most likely, out of all their friends, to know the target personally. That person would do the same, and so on, until the postcard was delivered to the target. Although the participants expected the chain to include at least a hundred intermediaries, 80% of the successfully delivered packages were delivered after four or fewer steps. Almost all completed chains were less than six steps.

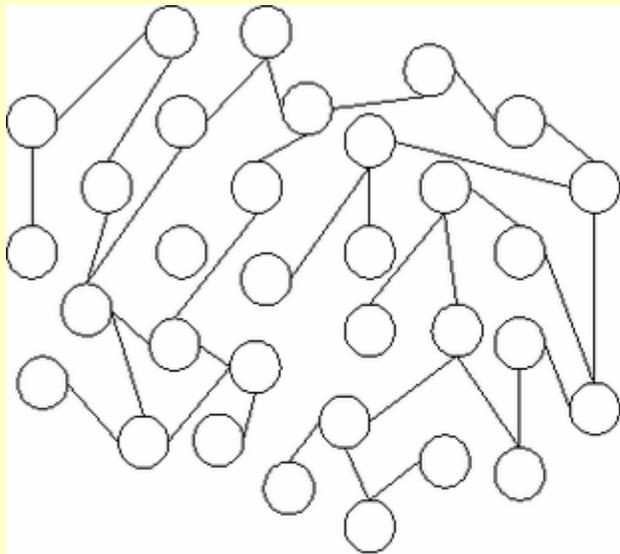
Social (cultural) networks as a structure supporting weak ties

- Granovetter (sociologist at Stanford) : famous work in networks theory "The strength of weak ties". The basic argument is that relationship to family members and close friends ("strong ties") do not supply you with as much diversity of knowledge as relationships to acquaintances, distant friends and the like ("weak ties").

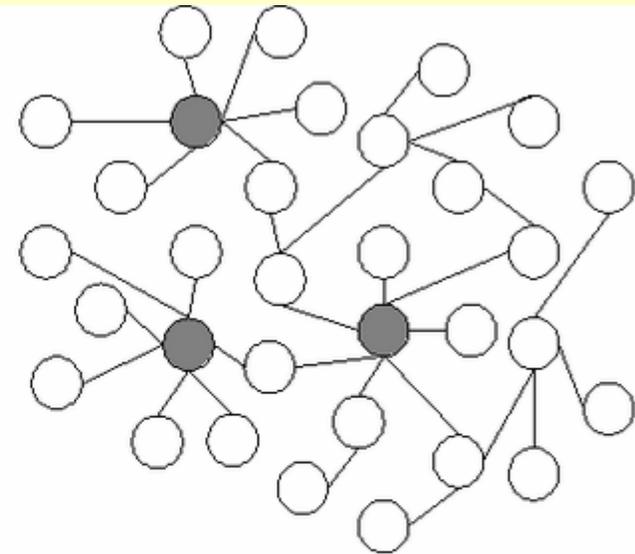




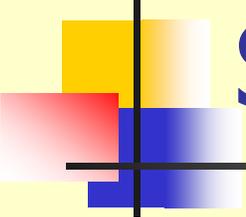
Scale-free networks



(a) Random network

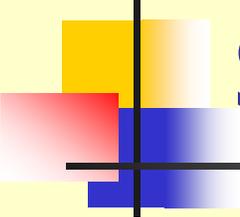


(b) Scale-free network



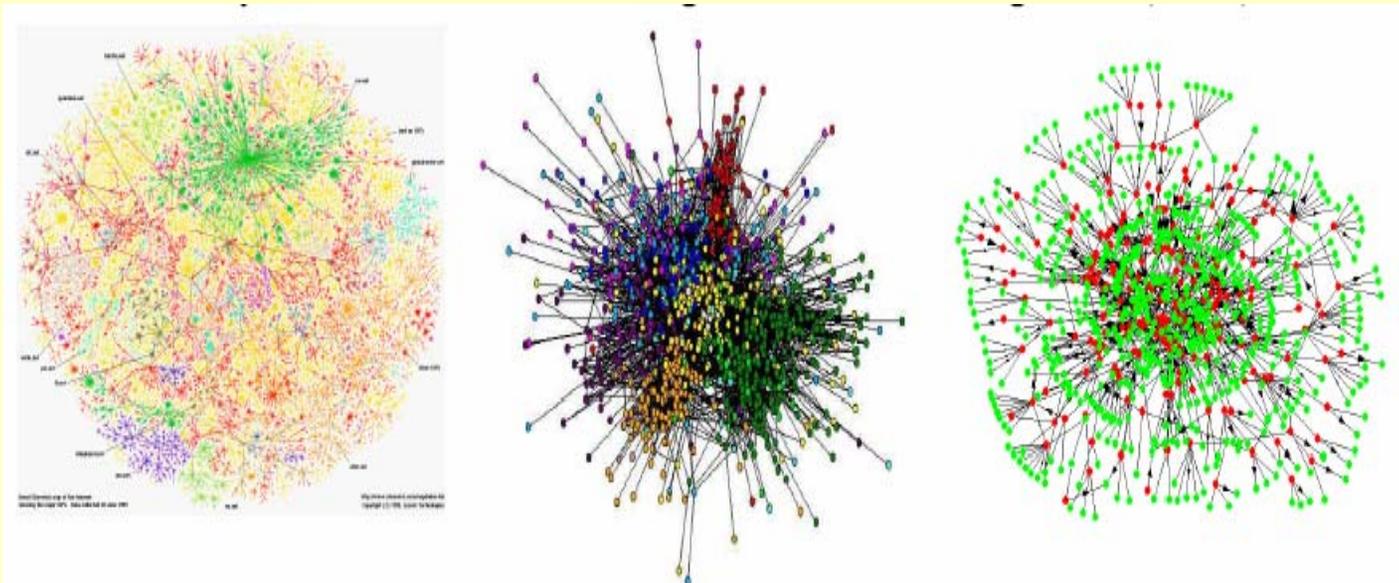
Scale-free networks

- In real world networks connectivity of particular nodes differs in scale as often it follows power law (rich get richer rule) that leads sometimes to the, so called, **scale-free networks** i.e. ones having power-law link distributions, containing a few nodes that have a very high degree and many with low degree of connectivity.
- Eg. - citation networks, WWW, Internet, metabolic networks, telephone call graphs, human sexual contacts, collaboration networks, etc.

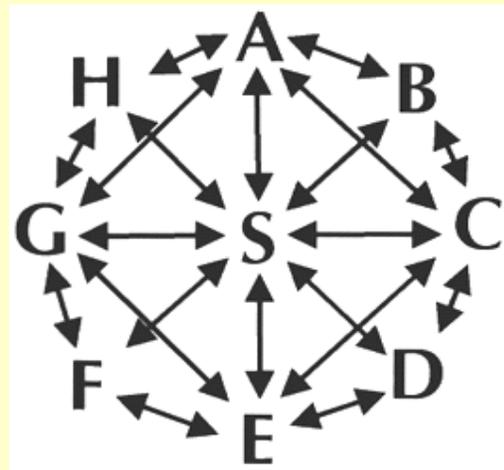
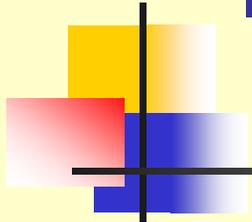


SCALE-FREE NETWORKS

- IN ALMOST ALL REAL NETWORKS the connectivity degree (i.e. frequency distribution of links per node) is **similar**. Many nodes have small degree (few links), few have large one (hubs).



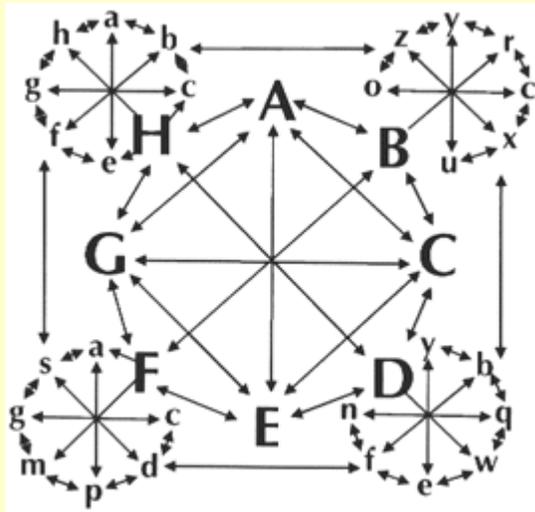
Networking meta-structures logic behind cooperation networks



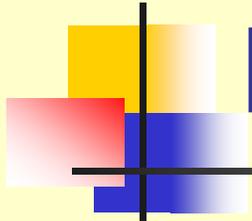
- Cultural networks correspond to this model where network secretariat just facilitates members' joint activities and cooperation projects.

Illustrations used by Paul Starkey

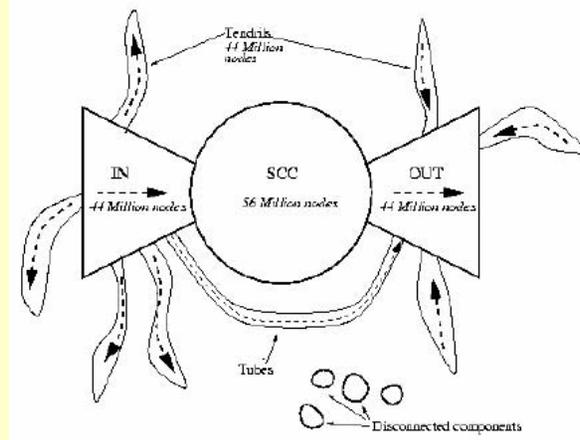
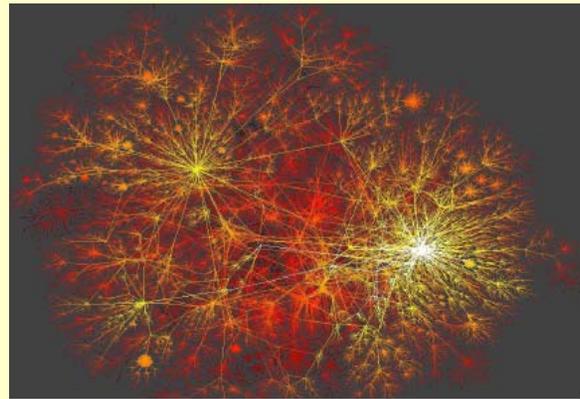
Decentralised model



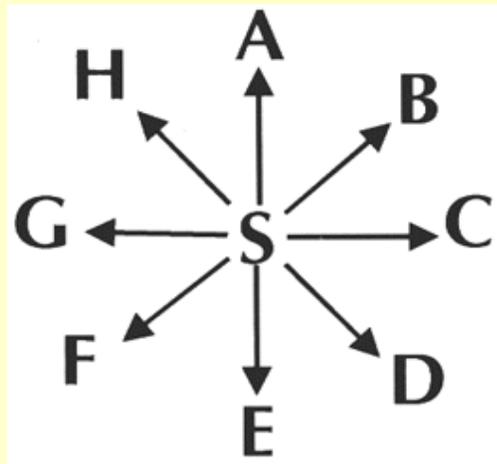
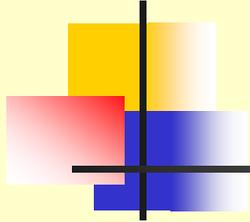
- Different national networks interact with each other and secretariat responsibilities can be delegated and rotated after a period of time.



Map of Internet

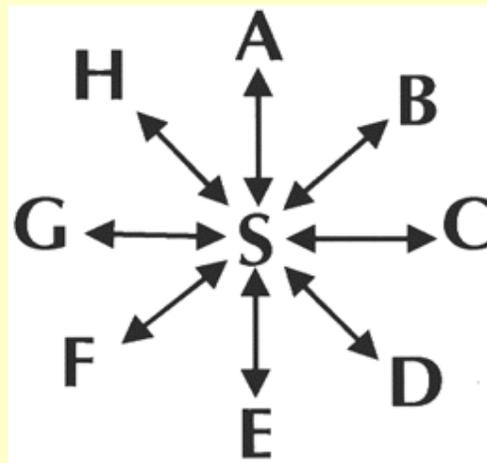
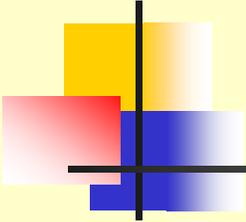


Website logic – a broadcasting model



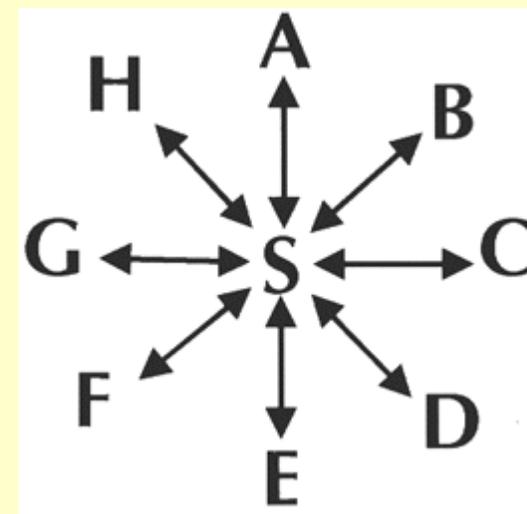
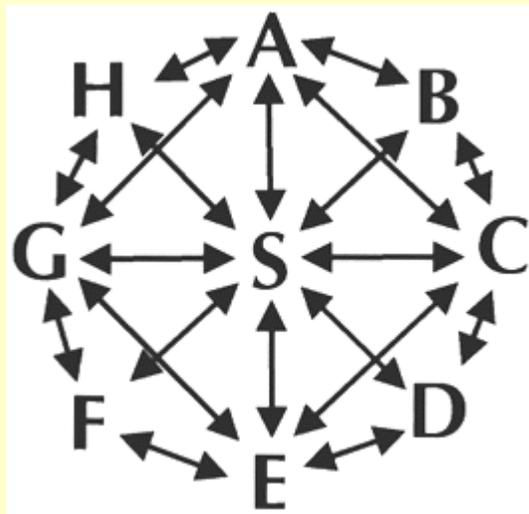
- a service for information dissemination (not providing for reciprocity of communication).

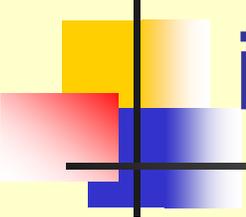
Professional portals networking structure



- A model of portals targeted at professional communities where members/users are all communicating with the portal secretariat, but they do not network with other users/members through the portal.
- Not a real cooperation but information exchange channelled through a portal.

Cultural Networks – cooperation or information networks?



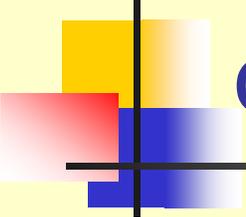


Portals and networks – infrastructure and communities?

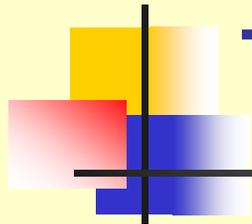
- COMMUNITY
- members
- common aims
- communication
- cooperation

- INFRASTRUCTURE
- access to
information
- dissemination of
information

Achieving cooperation in the network environment – sharing vs. cooperating?



- Is networking networking?
- Active vs. passive uses of networks
- Instrumental use of Internet infrastructure very helpful in our work for sharing as well as cooperating.
- Doing continuous joint projects in a virtual sphere is less common for the moment.



Thank you for your attention!

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