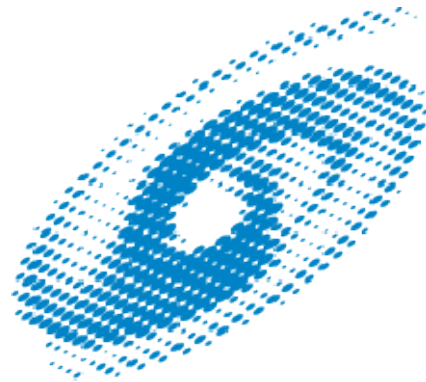


Information = Network?

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Netzeffekte auf Informationsmärkten...

- What does this phrase mean?
- Normally, Netzeffekte or Network Effects (“NEs”) refers to demand-side phenomena
- i.e. consumer utility is (in)directly increasing in the number of other consumers using the same product.
- Telecom networks exhibit direct demand-side network effects, e.g. the value of the network to any single user \uparrow as the number of customers using the network \uparrow .
- Indirect network effects arise in markets for computer operating systems, e.g. the supply of compatible software applications \uparrow as the number of OS users \uparrow

Netzeffekte auf Informationsmärkten...II

- Informationsmärkten or Markets for Information refers to markets in which information goods or products are exchanged.
- Information goods (“IGs”) are typically characterized by high “first copy” costs and relatively low reproduction and distribution costs.
- Examples include text, music, video, data, etc.

Ein Widerspruch?

- But IGs do not usually exhibit demand-side NEs!
- Consumer utility from reading a newspaper or listening to music is not related to total demand for the IG.
- Rather, demand-side NEs normally arise from the use of *infrastructure*, e.g. Deutsche-Telekom's array of landlines.
- Of course, information is communicated over a telecom network, but the NEs are not related to this fact.
- Note – software exhibits IG-like production costs *and* generates NEs

Nur ein semantischer Unterschied?

- No!
- Although many infrastructure-based demand-side NEs affect markets for IGs – and deserve attention (e.g. see Shapiro and Varian)...
- ...recognition of the distinction between infrastructure and IGs helps us identify *another type* of NE.

$$\text{SNE} \cap \text{IG} = \text{SNIG}^*$$

- supply-based network effect or *SNE*.
- supply-based networked information good or *SNIG*.
- A *SNE* exists when the value of some product *X* (typically an *IG*) to any single user \uparrow as the number of *producers* creating *X* \uparrow .

* not to be confused with the Australian verb “snig”: to drag (a felled log) by a chain or cable

Some examples...

- Several classic cases: scientific journals, print encyclopedias (Britannica) and newspapers, weather data, etc., where producer = author/observer.
- More recent, web 2.0-enabled examples: Wikipedia, Digg, Slashdot, Amazon book reviews, Yahoo! Answers, Google

Not all IGs are SNIGs, etc.

- There are many IGs that do not (yet) exhibit SNEs, e.g. music, most books, film, etc.
- May want to distinguish between direct and indirect SNEs.
- An indirect SNE arises when a SNIG is created that complements some other pre-existing (SN(I))G, e.g. user-contributed book reviews at Amazon complement consumption of books, music, DVDs, etc.

SNIG Economics: How should a SNIG be produced?

Various modes of production possible

- Markets
- Hierarchies/Firms
- Commons-based peer production (CBPP)

(See Benkler, 2002)

Pre-internet: markets v. hierarchies

Consider the case of newspapers

In the US, most major newspapers (e.g. NYT, WSJ) relied on hundreds of in-house employees (“hierarchy”) to produce the daily news.

In contrast, smaller local newspapers outsourced much of the news gathering to 3rd parties, like the AP (“markets”)

Coasian solution...

For a given outcome, compare the relative costs of organizing production using each mode...

...and choose the cheapest alternative

The PC/Internet Cost Shock

- **Shock**: the emergence of low cost computing and content distribution (affecting fixed *and* variable costs)
- **Impact**: the cost of collecting, sharing and commenting on “news” has declined precipitously..
- ...leading to the creation of the blogosphere, and various hybrid news websites (like Digg)
- ...traditional news organizations have begun to incorporate CBPP mechanisms

Commons-Based PP of IGs: Pros

- Compared to markets and hierarchies, CBPP offers
 - A. Information Gains (PP is better at identifying the best individuals within a given population to produce some piece of a product/project; Eureka system at Xerox)
 - B. Allocation Gains (CBPP accesses larger sets of resources and agents). Note that SNEs flow from this allocation gain...

Commons-Based PP of IGs: Cons

- CBPP faces a number of challenges:
 - A. **Motivation**. Incentives are primarily non-economic in origin. Contributions must be small and modular.
 - B. **Quality Control**. how do you keep the good stuff in and the bad stuff out, when anyone can participate?

A few words about Scientific Journals

- As mentioned earlier, they represent one of the oldest forms of CBPP of an IG.
- Subscribers willingness to pay increases with the number of articles, so the SNIG framework applies
- The **Internet Shock** has transformed the pricing and bundling strategies of publishers...
- ...but unlike with most other SNIGs, the peer review process remains largely unchanged.
- i.e. for journals in most disciplines, quality control is still maintained by a few expert editors and referees.
- Why? And will this last? Alternatives?