



Openness: beyond the simple idea of network effects

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What we know from network effects

- “Network” effect: benefits to single user are proportional to the number of users of the network; the network externality is the added value of network effect
- However, network effect can form entry barriers for new technologies; IT has been characterized by strong path dependency and “locking in” effects
- “Natural” monopolies will emerge and actually maximise welfare from network effects. However, monopolies can also capture the profits from the network externalities, so that consumers don't or only partially benefit from the network advantages
- Alternative approaches: separate the technology from producer. *Interoperable standards* allow natural monopolies of technologies (standards) while providing for competition among *vendors*.



Economics of standards

- Standards and IPR: rights over a standard (*de jure* or *de facto*) allow control or rent-seeking over the standard, thus reducing the competitive effect. Standards bodies try to limit this controlling behaviour by rights-holders, e.g. by requiring RAND or royalty-free terms
- *If* no competitive advantage is held by some players just because they own rights over a standard,
 - *then* a natural monopoly of technology can coexist with full competition in the supply for the technology
- Only such a *different* economic effect has a different term: **open standard**



Type of standards

- Proprietary (“standard”) technologies
 - Natural monopoly in technology leads to natural monopoly in market for products and services based on that technology
 - Results when access to the technology is available only to the rights holders
 - the natural monopoly in the technology combined with the state-granted monopoly of IPRs leads to a *double monopoly* on the technology
- Open standard technologies
 - Natural monopoly in technology arises (*de facto*) or is defined (*de jure*) but *full* competition ensured in market for products and services
 - Results when access to the technology is available to all (potential) players on equal terms providing *no a priori advantages based on ownership of rights, or definition of the technology*



Standards and innovation

- *Standards inherently limit innovation!*
- This is in the nature of standards:
 - Path dependence (qwerty; intel 8086; linux/unix; tcp/ip)
 - Natural monopolies and inertia (technology used by everyone)
- This is also the value of standards:
 - Network externality accrues to a fixed technology
 - Value to customers (network)
 - Value to producers (large market)
 - Standards provide a platform that can be assumed
- *A standard provides a platform above which innovation can take place freely*



Knowledge accumulation and openness

- “Public good-”ness of knowledge is ultimately realized under *openness*.
 - It would be good to carry out a study like the one in the late 80’s about the “cost of non-Europe” (so-called 1988 Cecchini report) which estimated the economic advantages of the abolition of non-tariff barriers between the EU member states on the cost of “non-openness” for the knowledge economy. At this stage we can only provide hints as to the costs of non-openness...
- The generation of novelty by recombination requires interoperability
- Knowledge grows cumulatively, so archives must be open and accessible
- “Distributed information processing” and “distributed problem solving” are different. The first depends on common standards for recompiling information; the second’s power comes from the heterogeneity of knowledge/capabilities that can be mobilized



Moral for policy

- Open access in a social as well as technical sense enables maintenance of variety which, as in genetics, is the ultimate source of novelty. It prevents excess correlation in thinking, perceptions which avoids “lock-in” to simple modes of thought or action.
- But technical inter-operability is ultimately not enough... the institutional infrastructures must be designed so as to support “global” collaboration and cooperation when and where the need for it emerges, e.g. in response to SARS or in the monitoring of an approaching Tsunami or in reactions to deal with emerging liquidity crises in international financial centres.

