

Open standards, economics and innovation

Open Forum Europe

Standards and the Future of the Internet

February 26, 2008

Rishab Aiyer Ghosh (ghosh@merit.unu.edu)

United Nations University - MERIT

Economics of standards

- Network effect: benefits to single user proportional to number of users
- Network externality: added value of network effect

Economics of standards

- Network effects can form entry barriers for new technologies
- Path dependence, QWERTY, intel 8086, linux/unix...

Economics of standards

- Network effects can form entry barriers for new technologies
- Path dependence, QWERTY, intel 8086, linux/unix...
- Natural monopolies to maximise welfare from network effects
- Monopolies can capture the profits from network externalities, so consumers don't benefit

Economics of standards

- Alternative approach: separate 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

Economics of standards

- *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 deserves a different term: **open standard**

Types 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

Types of standards

- (“Semi-open”?) Standard technologies
 - Natural monopoly in technology arises (*de facto*) or is defined (*de jure*) but some competition provided for in market for products and services
 - Results when access to the technology is available to players other than the rights holders/originators, *perhaps retaining advantages for the rights holders*
 - still possibility of a *double monopoly*

Types of standards

- 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*

Economic effect of policy

- Relationship between the natural monopoly of the technology and the extent of competition possible among suppliers of the technology
- Policies towards technologies and standards can achieve different economic effects
- For policy makers it is useful to distinguish between types of standards and the economic effects they can achieve

Standards and innovation

- *Standards inherently limit innovation!*

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)

Standards and innovation

- *Standards inherently limit innovation!*
- This is also the value of standards:
 - Network externality accrues to a fixed technology
 - Value to customers (network)
 - Value to producers: (large market)

Standards and innovation

- *Standards inherently limit innovation!*
- This is also the value of standards:
 - Standards provide a platform that can be assumed
- *A standard provides a platform above which innovation can take place freely*

Standards and innovation

- *A standard provides a platform above which innovation can take place freely*
- Innovation in the standard itself (*across the network*) is successfully achieved only by controllers of the standard
- This can prevent others from innovating above the standard
- (pulls the rug out from under their feet)

Policy strategies

- Interoperability is theory maybe ineffectual – many customers prefer “compatibility” in practice, which is anti-competitive and costly in the long term
- Interoperability with software from multiple vendors should be the sole “compatibility” criterion for (public) software procurement

Policy strategies

- standards used in public procurement, and *de jure* standards, may result in *double monopolies*: public recognition reinforces the monopolies of IPR already granted by the state
- when the monopolies are held by firms in some countries, this could form a non-tariff trade barrier

More information

EC FLOSSPOLS report (including “An economic basis for Open Standards”):

<http://flosspols.org/deliverables.php>

EC report on “Economic impact of open source:”

www.flossimpact.eu

Rishab Aiyer Ghosh:
ghosh@merit.unu.edu