Open standards, economics and innovation

Trans Atlantic Consumer Dialogue
Meeting on Interoperability and Open Standards
Brussels, February 11, 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
(“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
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
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