

# Open standards, economics and innovation

Collaborative Advantage

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# 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: once a technology becomes a standard, it can be hard to adopt a better one
- Examples: QWERTY keyboard, 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
- But monopolies can capture 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

# 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*

# 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 advantages based on ownership of rights, or definition of the technology*

# Economic effect of policy

- Different technologies have different economic effects
- 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 increases if the technology remains fixed
  - 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 and collaboratively*

# Standards and innovation

- *A standard provides a platform above which innovation can take place freely*
- Innovation in the standard itself 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)

# Standards and collaboration

- *A standard provides a platform above which innovation can take place freely*
- When the standard is equally accessible to everyone, everyone can collaborate to innovate above the standard

# Standards and collaboration

- Collaboration between small open source companies allows them to do more together than they could alone
  - e.g. Orixo, Zope networks in Europe
- Collaboration allows cost savings for large users
  - e.g. governments developing technology solutions together

# More information

Full FLOSSPOLS report (including “An economic basis for Open Standards”):  
<http://flosspols.org/deliverables.php>

Economic impact of open source:  
[www.flossimpact.eu](http://www.flossimpact.eu)

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