Development of IT-Standards

--Effectiveness of Standardization Processes--

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Question

- How to evaluate the outcomes of standardization processes?

Points of departure

- Conflict resolution in committees
- Negotiation speed in committees
- “Success” of a standardization process
- Lock-in (technical inferiority)

Evaluating Lock-in

- Making investment errors (users are stranded with “losing” specifications)
  - Switching costs vs. benefits of changing
  - Regretting a choice vs. lock-in

- Switching would be beneficial but does not take place (because of failure to act collectively)
  - True externality => importance of transaction costs
  - The QWERTY story -- revisited

The QWERTY Story

- David, Paul A. (1985): Clio and the Economics of QWERTY. In: American Economic Review, Vol. 75, No. 2, pp. 332-337.
- Conversion needs of weapons manufacturers
- Purpose of first designs unclear
- Design of first models favours slower typing speeds
- Positive feedback between training of secretaries and diffusion of office machines

An Empirical Assessment of QWERTY

(Liebowitz and Margolis)

- Historical evidence of experiments mixed and biased
- Ergonomics literature cannot distinguish between QWERTY and Dvorak
- Competition between manufacturers (including training) intense
- Typing speed contests abundant and popular

Overcoming or Preventing Lock-in

(Liebowitz and Margolis)

- “Owning” a standard through patents or proprietary design
  - Price discrimination (turning in old equipment)
  - Sponsoring, training
  - Conversion
- Market growth
- Competition between technologies

Evaluating the QWERTY Story

(Liebowitz and Margolis)

- History matters
- But …
  - … history should not be seen through the lenses of a simple model
- Institutions for internalizing externalities important
  - Role of entrepreneur
  - Guarantees, rental markets, mergers, advertising, market research
- Buyers have strong incentives to evaluate the future of competing standards (they are not blind with regard to externalities)

History matters …

“David’s overriding point is that economic theory must be informed by events in the world. On that we could not agree more strongly. But ironically, or perhaps inevitably, David’s interpretation of the historical record is dominated by his own implicit model of markets, a model that seems to underlie much economic thinking.” (Liebowitz and Margolis, 1990, p. 22).

Criteria for the “Success” of a Standardization Process

- A standard should incorporate innovative technology
  - Participants do not have to choose between innovative and standardized technology
- A standard should be universal
  - Participants do not have to evaluate a product with regard to the availability of complementary products/markets
- Costs of standardization processes
  - Effectiveness vs. efficiency

Standardizing Innovative Technology

- Problem of marketing new technology
  - Concept of “Trade-off” positions
    - Example: Computing power vs. mobility

- Type I transaction costs: The costs of educating buyers about new trade-off positions

→ How effective are standardization processes with regard to sharing Type I transaction costs?

Creating Universal Standards

- Problem of assessing market development:
  - Vendors: the costs of evaluating the likely sizes of markets for compatible products
  - Buyers: the costs of evaluating future availability of complementary products

- Type II transaction costs: the costs of assessing future market development

→ Do standardization processes lead to universal adoption of a given specification (which would eliminate Type II transaction costs.)?

References

- Reimers, Kai; Li, Mingzhi (2007): Effectiveness of the International 3G Standardisation Process and Implications for China's 3G Policy. In: International Journal of Public Policy, Vol. 2 Nos. 1/2, pp. 124-139.

- Liebowitz, Stan J.; Margolis, Stephen E. (1990): The Fable of the Keys. In: Journal of Law and Economics, Vol. 33 (April 1990), pp. 1-25.