

Development of IT-Standards

--An Integrated View of Standardization Processes--

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Question

- How to theoretically describe standardization processes from negotiation to adoption?

Empirical Puzzles

- Plethora of standardization initiatives
 - Inconsistency with collective action theory
- Colliding standardization initiatives
 - Example: EDI-Experiences in Europe
 - Retail initiatives in Italy, Spain, Germany and Denmark compared
 - Role of institutional structure important
 - Inconsistency with concept of positive network externalities

Leveraging an Institutional Perspective

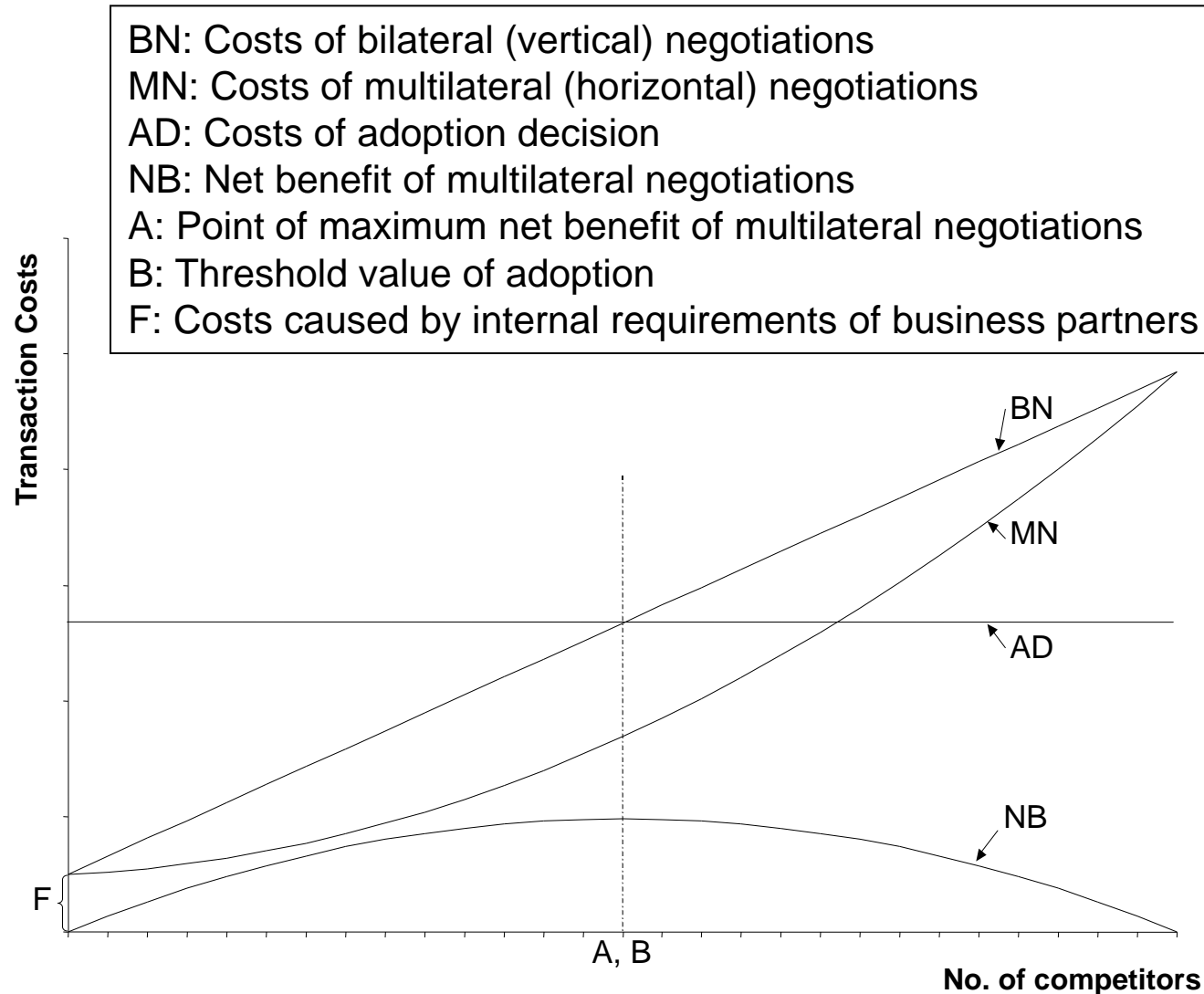
- Standards as generalized cost-/benefit-sharing agreements regarding interconnecting systems/components
- Benefits of standards: Saving transaction costs of bilateral negotiations
 - (Negative) network externalities as transaction costs
- Costs of standardisation:
 - Negotiating generalized interface specifications
 - Evaluating published interface specifications

Predicting Costs/Benefits

- Competition intensity as main determinant of transaction costs of bilateral interface specification
- Number of competitors involved in standards negotiation main influence on negotiation costs
- Benefits of standards increase with the number of competitors who adopt a standard

=> Both costs and benefits of standardization are driven by the number of competitors

An Idealized Standardization Process



Three Archetypical Problems

- Negotiation phase
 - Initiation of a standard process => free-riding
 - Negotiating a standard candidate => negotiation complexity
- Diffusion phase
 - Adoption of a standard candidate => critical mass
- Linking both negotiation and diffusion phase
 - Smaller negotiation group => easier initiation and agreement
 - Larger negotiation group => adoption more likely

Strengths and Limitations of the Model

- Ignoring the impact of
 - Powerful business partners
 - Switching costs
 - Characteristics of individual competitors
- Integrating
 - Negotiation and diffusion phase
 - Role of institutional structures
- Conditions for useful application
 - If competition is an important factor
 - If market power is shared equally among several competitors

Difference between the “Physical” and the Institutional View

Physical View

- Vertical linkages matter
- Positive network externalities
- Number of (vertically linked) business partners relevant
- Benefit realized during use of good
- Choice: participate in network or not
- Standards adoption: physical implementation of interface specification

Institutional View

- Horizontal linkages matter
- Negative network externalities
- Number of (horizontally linked) competitors relevant
- Benefit realized during transaction of good
- Choice: unilateral vs. multilateral interface specification
- Standards adoption: adherence to a specification in business negotiations

References

- Reimers, Kai; Li, Mingzhi (2005): Antecedents of a Transaction Cost Theory of Vertical IS Standardisation Processes. In: Electronic Markets, Vol. 15, No. 4 (Special Issue on Vertical Industry Information Technology Standards and Standardization), pp. 301-312.
- Reimers, Kai; Li, Mingzhi (2005b): Should Buyers Try to Shape IT Markets Through Non-Market (Collective) Action? Antecedents of a Transaction Cost Theory of Network Effects. In: International Journal of IT Standards & Standardization Research, Vol. 3, No. 1 (January-March 2005), pp. 44-67.