

Development of IT-Standards

--Dynamics of Committee-based Standardization Processes--

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Question

- How can committee-based standardization processes be analyzed?

Game Theory

- Focus on conflict-resolution in committees
- Other functions of standardization committees
 - Information sharing
 - Product development
 - Compliance testing
 - Performance testing

Reasons for Conflict

- Firms are competitors and focus on different market segments
- Some firms hold intellectual property rights (IPRs)
- Individuals have different opinions regarding technological characteristics
- Country delegates may want to protect domestic vendors

The Basic Structure: Battle of the Sexes

- Two actors prefer joint action but each actor prefers a different type of action
- Examples:
 - Vertical compatibility: Supplier and customer prefer electronic document exchange; each has a proprietary system (interface)
 - Horizontal compatibility: Competitors prefer a common interface; each prefers a different type (because of IPRs, special capabilities, installed base, ...)
 - Joint product development: engineers jointly prefer the technologically best solution but differ on what the best solution is

Battle of the Sexes: Pay-off Matrix

		Player 2	
		Option A	Option B
Player 1	Option A	4, 3	2, 2
	Option B	1, 1	3, 4

Extensions

- Committee: Players can meet many times; each time they announce “insist” or “concede”; if both insist or if neither does, they meet again
- Market (bandwagon): In each period, a player decides to wait or to commit to one choice; if one waits and one commits, the latter may start a “bandwagon”
- Hybrid: Two stages
 - (I) In each period, players commit to one choice or decide to collaborate in a committee; if one commits and the other doesn’t, the first may start a bandwagon
 - (II): If both decide to collaborate, the committee game follows

Predictions

- Committees better than markets
 - Intuition: Greater speed of markets is outweighed by fewer errors of committees
- Hybrid better than pure committee
 - Intuition: If neither starts a bandwagon in the first game, they have a chance to talk before next stage
 - If both fail to coordinate in committee, they can still coordinate through starting a bandwagon in the next stage

Limitations

- Periods for bandwagons and committees may differ in length
- When players have asymmetric pay-offs they may pursue “pure-strategy equilibria”, i.e. one player becomes dominant and the other can only follow
- Players may not know the pay-offs of their actions

Results of Empirical Research

- The institution of committee coordination is different from hierarchical and market coordination
- National political interests play a crucial role in international standardization
- Technical argumentation constitutes an autonomous discourse in committee standardization
- Economic interests and technical perceptions are often diffuse; participation is therefore seen as a learning opportunity
- Existing models unsatisfactory

An Alternative View

- The other functions of committees are important too, namely:
 - Committee standardization reduces collective uncertainty about technological developments
 - Cost sharing through collective product development
 - Genuine interest in technical issues

=> Committee standardization as joint market development

References

- Farrell, Joseph; Saloner, Garth (1988): Coordination Through Committees and Markets. In: RAND Journal of Economics, Vol. 19, No. 2 (Summer 1988), pp. 235-252.
- Schmidt, Susanne K.; Werle, Raymund (1998): Coordinating Technology -- Studies in the International Standardization of Telecommunications. Cambridge (MA) and London: MIT Press, Chapter 4 (Standard Setting).