

Antecedents of a Transaction-cost Theoretic Theory of Vertical IS Standardisation Processes: Erratum

Kai Reimers and Mingzhi Li

RWTH Aachen University and Tsinghua University, December 2016

Recently, we have discovered a flaw in a model that we published in 2005 (Electronic Markets, Vol. 15, No. 4, pp. 301-312). Because we believe that the overall approach described in that article – comparing the transaction costs of a bilateral approach to connecting information systems between business partners, e.g. along a supply chain, with those of negotiating and adopting a “vertical IS standard” that is then used for such interconnection – is still valid and useful we decided to publish this erratum which presents a corrected and much simpler formulation of our transaction cost-theoretic model. The error in the model arose from failing to clearly specify the meaning of the X-axis. In essence, the X-axis was used to express two different constructs simultaneously, the level of competitive intensity in an industry and the number of firms participating in the standardization process. The new formulation treats the level of competition intensity as exogenously determined which allows for giving up a number of assumptions necessary in the earlier formulation and to present the core ideas in a much more straightforward manner. The following text presents that simplified model and replaces the text in the article beginning with the second paragraph in column two on page 305 up to the end of the first paragraph in the first column on page 307.

The question then is how transaction costs of engaging in a multilateral standards negotiation process among competitors can be evaluated relative to the alternative of connecting systems through bilateral negotiations with business partners. If one accepts Porter’s premise that all but one competitors in a market have to follow a differentiation strategy while only one firm can sustain a cost leadership strategy (Porter, 1980 and 1996), each new participant in the negotiation process except the cost leader will have to ensure that their competitive position in the market is not undermined through agreeing on a common interface specification that might deny differentiation possibilities which are crucial to that particular firm. It is therefore reasonable to assume that costs of multilateral negotiations increase with the number of competitors involved in a negotiation process because each new participant might prefer a slightly different specification.

A firm considering whether or not to participate in a multilateral negotiation process with competitors will then have to assess how the costs of participating in that process compare to the costs of connecting systems through bilateral negotiations with business partners. According to Proposition 1, the latter kind of costs depends on the level of competition intensity pertaining in the industry. A firm that considers participating in multilateral negotiations with competitors must compare the costs involved in such negotiations with the sum total of all bilateral negotiation processes with business partners with whom it intends to integrate operational systems. When the level of competitive intensity is assumed to be exogenously determined and thus independent of the way how firms approach the task of interconnecting systems and if the costs of multilateral negotiations with regard to the first few competitors with whom a firm engages in such negotiations are lower than the costs of interconnecting systems through bilateral negotiations with business partners, then the following proposition can be formulated:

Proposition 2: There is a point A beyond which no further competitors should be involved in multilateral negotiations aimed at agreeing on a common interface specification lest the costs of these negotiations outweigh the costs of the bilateral approach (see Figure 1).

We now turn to the situation of a firm which considers to adopt a specification that was agreed on in a multilateral negotiation process. The question then is how the costs of that adoption decision can be evaluated relative to a bilateral approach. In principle, these costs arise from having to evaluate how the firm's competitive position might be affected by that particular specification, as we have argued above. If there is only a single standard candidate which the firm has to evaluate, the task is straightforward. Conversely, that task is made more difficult if there likely will be more such candidates which the firm must consider and compare with regard to their impact on the firm's competitive position. As a particular specification becomes adopted more widely in the industry, the chances of other candidates to eventually become a standard in the industry diminish. Therefore, the costs of evaluating a particular specification will be lower as more other firms in the industry have also adopted it since the firm can be more confident that this specification will eventually become a standard and can therefore ignore further candidates. We therefore propose:

Proposition 3: There is a point B at which the costs of adopting a particular specification, e.g. the specification proposed by a consortium of firms through a multilateral negotiation process, are just as high as the costs of interconnecting systems through bilateral negotiations with business partners, as depicted in Figure 1. Beyond that point, the firm will always choose to adopt the specification in the expectation that it eventually becomes a standard.

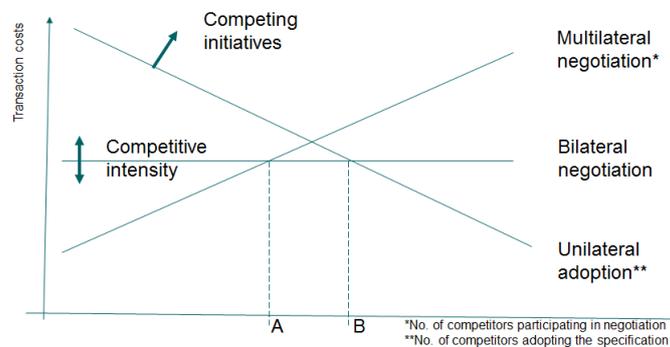


Figure 1: A simple model of a standardization process

A few observations can be directly derived from this model. First, the particular situation depicted in Figure 1 implies that the specification agreed on in a multilateral negotiation process will likely not be adopted in the industry because point B lies beyond point A. The number of firms participating in the multilateral negotiation process, who are likely to also adopt the standard, is too small in order to induce the other industry members, who did not participate in the negotiation process, to also adopt that specification as a standard candidate. We can therefore specify the condition for a successful standardization process as follows:

Proposition 4: For a standardization process which is initiated through multilateral negotiations between competitors to be successful point A must coincide with or lie to the right of point B.

Proposition 4 identifies a dilemma for firms organizing multilateral negotiations among competitors aimed at specifying a common interface to connect internal systems. Specifically, the larger the group of competitors allowed to join the negotiation process becomes, the more difficult it will be to initiate and successfully conclude the negotiation process; at the same time, the smaller the group of competitors participating in such negotiations is, the lower are the chances that other firms that did not participate in these negotiations will later on decide to adopt those specifications.

Second, the level of competitive intensity pertaining in the industry has a strong effect on the likelihood that a standardization initiative succeeds, which yields:

Proposition 5: The lower competitive intensity is in a particular industry the further apart the points A and B come to lie and thus the lower the chances of success for the standardization initiative are.

Finally, the simultaneous presence of multiple standardization initiatives shifts the costs of unilateral adoption to the right because firms now have to consider the probability that a particular initiative succeeds, which yields:

Proposition 6: Competing standardization initiatives move the points A and B away from each other and thus diminish the chances of success for any given initiative.

References

Porter, Michael E. (1980): *Competitive Strategy*. New York: Free Press.

Porter, Michael E. (1996): What Is Strategy? In *Harvard Business Review* 74 (6), pp. 61–78.