Should Buyers Try to Shape IT Markets Through Non-Market (Collective) Action?
Antecedents of a Transaction Cost Theory of Network Effects

Kai Reimers, RWTH Aachen University, Germany
Mingzhi Li, Tsinghua University, China

ABSTRACT

This paper develops a transaction cost theoretic model of network effects and applies it to assessing the chances of users to influence the range of technological choices available on IT markets through collective action. The theoretical basis of the model is formulated by a number of empirically refutable propositions which overcome a number of conceptual and empirical difficulties encountered by the traditional interpretation of network effects as (positive) network externalities. The main difference between our model and modeling network effects as network externalities is that network effects are seen as caused by the costs of purchasing/marketing new technology, that is, transaction costs, rather than by the benefits of using new technology. A preliminary application of the model suggests that users can significantly improve the chances of replacing an established technology by a new, potentially superior one if they set up an organizational structure that serves as a conduit of information exchange and knowledge sharing. This, however, would call for a rather different type of collective user action than exists today in the form of user groups.

Keywords: collective action; new technology; IT management; IT procurement; standardization

INTRODUCTION

As information technology (IT) increasingly permeates all kinds of business operations, firms’ dependence on IT increases, too. This would be of no concern if IT markets were perfectly elastic, not only in terms of quantity supplied but also in responsiveness to new requirements as they arise. However, throughout its history, the IT industry has been characterized by the emergence of “de facto” standards, which proved rather long-lived and difficult to replace. Bresnahan and Greenstein (1999) have described this phenomenon as
the dominance and persistence of technological platforms and shown how the IT industry can be described as a history of long periods of stable platforms punctuated by rare events of platform replacement. While Bresnahan and Greenstein have refrained from evaluating this phenomenon from a normative point of view, corporate IT users should be worried by it in light of much of the rich economic theory of standards. Specifically, that theory is built around the concept of positive network externalities (PNE) according to which network products become more valuable to buyers as the network grows in size (Katz & Shapiro, 1985). As the PNE concept has also been applied to standardization processes in IT where standards ensure that components can easily be assembled into larger systems (ibid.), it seems that users quickly get “locked into” a particular platform; even though other technologies may have emerged that could much better serve their needs, were it not for the accumulated benefit of the existing technology’s large “installed base” that prevents that new technology from being successful on the market. Thus, apart from hoping for favorable idiosyncratic historical events, the only way to have users dislodge an existing platform and replace it with one based on a “better” technology would be to have users jointly specify a new platform and collectively commit themselves to these specifications. This form of collective user action would be an instance of user-driven ex ante standardization. Although such collective action has been attempted in the past (Dankbaar & van Tulder, 1992), to our knowledge there is no successful instance of it so far. Also, from a theoretical point of view, it has been argued that users do not have the ability to engage in such action, individually nor collectively (Jakobs, 2000).

This reasoning, at least, would apply if the emergence and dominance of technological platforms in the IT industry were driven by positive network externalities. Bresnahan and Greenstein (1999) have convincingly shown how the structure and evolution of the IT industry can be explained by the phenomenon of sunk costs; that is, costs related to the production of system components that are irreversible, such as investments in programming, training and research. In this paper we want to extend that analysis from a transaction cost perspective, which is largely excluded from Bresnahan and Greenstein’s work but which we deem a necessary complement. We will also link that perspective with the discussion of network effects by providing a transaction cost interpretation of network effects as an alternative to the standard interpretation of network effects as positive network externalities. We will show that the interpretation of network effects as positive network externalities leads to a number of conceptual problems that are avoidable through a transaction cost-based interpretation. We also show how that new interpretation allows for a different form of collective user action, one aimed at stimulating the offering of alternative technological platforms and thus increasing the range of choices corporate users have on IT markets.

In the next section we will briefly recapitulate the literature on network externalities as it is relevant to the focus of this paper. Then, several problems resulting from interpreting network effects as network externalities will be identified. Afterward, we will discuss antecedents of a transaction cost theoretic model of network effects and provide some empirically refutable propositions. The model then is applied to analyzing the way users of technological products can influence the range of
End-Users’ Acceptance of Biometrics Authentication to Secure E-Commerce within the Context of Saudi Culture: Applying the UTAUT Model
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