

With K. S. Im & J. T. C. Teng. (2013) "Do Large Firms Become Smaller by Using Information Technology," *Information Systems Research*, Vol. 24 (2), 470-491.

The relationship between information technology (IT) and a key organizational design variable, firm size, is an important area of study, particularly given the ongoing transition to an information-based economy. To better understand the more nuanced aspects of the relationship, we formulated a bidirectional and time-lagged model that incorporates different perspectives from organizational theories and transaction cost economics. Our two models—the bidirectional and one-year lagged model and the bidirectional and two-year lagged model—were tested using nine-year panel data on IT spending, IT stock, coordination costs, firm size, and relevant control variables for 277 manufacturing firms. We found a sequential interaction between IT and firm size in both of the two models: as a firm grows in size, its coordination activities increase; the firm then uses more IT to handle the increased activities of coordination; this increased use of IT, in turn, decreases coordination costs, and eventually, the size of the firm decreases. It was also found that the presence of coordination costs is necessary for the sequential interaction between IT and firm size, indicating coordination between and within firms is a major reason for firms to invest in IT and for IT effect to take place on firm size. This study has taken an initial step by attempting to empirically examine dual causality and longitudinal effects between IT and firm size, and to reconcile different theoretical perspectives on the relationship between them. We hope this work can act as a catalyst for developing a better understanding of the complex relationship between