PREEMPTIVE LEARNING, COMPETENCY TRAPS AND INFORMATION TECHNOLOGY ADOPTION: A REAL OPTIONS ANALYSIS


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**ABSTRACT**

Many previous real options studies suggest that increase in investment uncertainties makes deferral options more valuable. We propose a new real options model where organizational capabilities and technological learning are both emphasized. Our model demonstrates that, when a company is capable of reaping sufficient benefits from preemptive learning of a new information technology, it will expedite its adoption of the technology under greater uncertainty. When exogenous gains created by technology advance are independent of technological learning, they tend to have minimal impact on the company’s optimal adoption strategy. The results of our analysis also support the view that existing technology capabilities may lead to competency traps hindering a company’s technological adaptation.

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Dr. Xiaotong Li is an Associate Professor of Information Systems at the University of Alabama in Huntsville. He received his Ph.D. in MIS from the University of Mississippi. His research has appeared in many journals including Communications of the ACM, Marketing Science, IEEE Transactions on Engineering Management, Journal of Management Information Systems, Information Resource Management Journal, Electronic Commerce Research, Journal of Systems and Software, Industrial Marketing Management and others. His major research interests are in applied game theory and Economics of IT. He has been invited to give research seminars at University of Minnesota (MIS Research Center), Rensselaer Polytechnic Institute, Hong Kong Polytechnic University and other major universities. He won the best paper award from IEEE Transactions on Engineering Management in 2006. He is currently on the editorial boards of Marketing Science and Electronic Commerce Research and Applications.