

The Hong Kong University of Science and Technology  
Department of Information Systems,  
Business Statistics and Operations Management

Seminar Announcement

*Strategic Release and Pricing of Software in the Presence of  
Bugs and Quality-Sensitive Customers*

by

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**Date: 23 January 2009 (Friday)**

**Time: 11:00 am – 12:30 pm**

**Venue: Room 4379, ISOM Conference Room (L17/18)**

~~~~~ All interested are welcome ~~~~~

Abstract

Recognizing the impact and peculiarities of the developer-user dynamics in the software industry, this paper introduces a novel modeling framework for the adoption and maintenance of software in the presence of bugs and quality-sensitive customers, and explores the optimal time to market and pricing strategies. In nowadays' realistic context of post-release patching, we distinguish between the bug detection efforts of the firm and those of the users, and allow the software demand and the associated costs to be dynamically influenced by network, quality and/or price effects. Under static pricing policies, we derive a closed-form solution for the adoption path. We show that releasing earlier yields a higher cumulative sales volume pointwise, regardless of the magnitude of the quality effect on the adoption process. We use this and other similar results to explore how the release time and various market shocks affect the profit, and we link the direction of the effect to primitives such as firm's coding practices or users' contribution to the debugging process. We derive monotonicity properties for the single-control optimization solutions, provide an upper bound for the optimal release time, and, ultimately, solve several particular instances of the profit maximization problem when the firm controls both price and release time. In the dynamic pricing setting, we solve for the optimal release time and link parameters such as user debugging contribution and software quality/complexity to various structural properties of the optimal pricing function under both discounting and non-discounting scenarios.

Biography

Marius Florin Niculescu received his M.S. in Financial Mathematics from Stanford University and B.A. in Applied Mathematics from Harvard University. He is now a Ph.D. candidate at the Graduate School of Business, Stanford University. His research interests include Supply Chain Management and Coordination, Dynamic Quality and Pricing, Economics of IT, Management and Diffusion of Technological Innovation, Dynamics and Evolution of Digital Goods Markets.