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Recommended Citation

Kim, Joung Yeon, "Study of Business Strategies in the Digital Economy" (2005). *AMCIS 2005 Proceedings*. 75.
<http://aisel.aisnet.org/amcis2005/75>

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Study of Business Strategies in the Digital Economy

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ABSTRACT

This dissertation considers two research problems that Information Technology (IT) service firms and IT-intensive products manufacturers face in the digital economy.

The first essay deals with the yield management for IT service firms. Given a fixed capacity of the IT workforce within a firm, the nature of IT projects, the demand uncertainty, and the growing competition among IT vendors, IT service firms cannot avoid occasionally holding the excess workforce. We propose an analytical model which prescribes an optimal policy for yield management to manage the excess capacity of an IT vendor’s labor pool by using online reverse auction marketplaces such as Elance (www.elance.com). Our model considers an IT service firm which receives projects through two channels: a conventional procurement channel and an online auction spot market. The proposed model determines optimal online auction participation and bidding (pricing) policies.

The second essay considers the sequential and overlapping introduction of IT-intensive products such as software or computer components. Pricing the overlapping generations of a product line is highly correlated with the extent of innovation over generations because consumers face a “buy or wait” decision problem and the producer faces a cannibalization problem among overlapping generations. Our analytical model intends to examine the relationship between the pricing and the extent of innovation of IT-intensive goods.