

DISSERTATION DEFENSE

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384 Posner Hall

“Essays on Information Technology Management”

Information Technology (IT) has become an integral part of the way firms do business. Equally important is the need to evaluate how firms manage their IT assets. In the first two essays, I try to measure the business value of Information Systems, and develop models that help understand how to use IT most effectively. In the third essay, I tackle a problem that often plagues IT project management – how to select the best project managers.

Essay 1: Electronic Versus Traditional Sales Channels: When to Use, How Much to Use, and How Much to Gain?

Electronic markets enable an upstream seller to sell directly to buyers further downstream. The main drivers for these, amongst others, are touted to be increased revenues due to disintermediation in the supply chain. Yet, we do not see upstream producers (such as manufacturers) selling only via the electronics channel. What makes a firm choose one channel over the other? How does buyer behavior change when they have the option to use either channel? What happens to the revenues and profitability in each channel?

We examine these research questions using a structural model. TPL, a third party logistics company, adopted a B2B electronic channel while still using the traditional physical channel to sell to its customers. Although the margins and revenues on an average are higher for the electronic channel, buyers tend to shift between the two channels and modify their buying patterns.

As a profit maximizing entity, TPL forms expectations on the buyer's channel choice (demand) and then on the price they pay. In particular, we model the buyer's loyalty or stickiness to the channel in determining their choice of channel. Initial findings suggest that channel loyalty is an important factor in this choice. We use the estimates from the first and second stages of the model to examine the profitability and efficacy of the electronic channel. Finally, we incorporate the learning behavior of the

buyer into their choice of channels and model its impact on TPL's channel profits. This work bridges some recent work in consumer theory in Marketing and electronic markets in Information Systems; and provides some intriguing insights.

Essay 2: Assessing the Value and Impact of RFID in Return Center Logistics

RFID technology is being widely embraced in the supply chain, by manufacturers, retailers, and logistics firms. Although its advocates include retail giants like Wal-Mart, not everyone is enthusiastic about its benefits. Indeed, measuring the business value of IT investments, especially for newer technologies like RFID, is difficult yet at the same time essential.

With a view to establishing the real benefits of RFID, we conducted a field study with GENCO, a third party logistics company that deployed RFID at one of its outbound logistics operations with a goal to reducing customer claims. We find that the RFID implementation had a significant impact on the outbound process: The intensity of claims incidence fell substantially after RFID deployment. After controlling for other factors in our model, we confirm that RFID was a key factor that contributed to the positive outcomes at this return center. RFID not only provided operational efficiency, but also reduced transaction costs. We also provide a framework with which the further benefits of RFID technology can be assessed.

Essay 3: How to Select the Best Project Managers

Software vendors are often faced with the need of selecting the right project manager (PM). For larger vendors – who have access to a vast pool of talent and considerable divergence in projects – this is especially important and especially difficult to do well. Poor project managers can impact a firm in a strategic, economic, or cultural manner, jeopardize client relationships, result in project cost overruns, and tarnish a team's spirit. Current techniques for matching managers to projects can be adhoc or at best symptomatic. What kinds of project manager characteristics best fit different project characteristics? What are the consequences of alignment (and misalignment) in assigning managers to projects?

Various theories govern resource allocation. In software engineering domain, resource allocation requires a matching of project characteristics with the skill sets – both hard and soft skills – of the PM. In a two stage analysis, we first define PM – project fit, and then analyze how “fit” affects project outcomes such as financial, qualitative, and client specific outcomes. Using archival and survey data for over 600 projects from a leading Indian IT vendor, we seek to develop a consistent approach to matching project characteristics with project managers, so as to optimize project outcomes.