



Service Science

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Service Spotlights

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Inventory and Shipment Policies for the Online Movie DVD Rental Industry (p. 249)

When a new movie (DVD) title is released by an online DVD-by-mail rental firm such as Netflix, determining the initial order quantity for the title, allocating copies of the ordered DVDs to distribution centers, and efficiently shipping the DVDs to subscribers are major operational decisions. While the movie-rental industry is clearly undergoing a transition into the more-modern streaming service, a substantial fraction of subscribers continues to prefer the traditional DVD-by-mail service. This article studies the problem of how to efficiently manage this sort of traditional DVD delivery operation. It develops a model for making the following important decisions: (i) the initial order quantity of a new movie title and (ii) the daily shipment size of the title after its release. Based on the structure of this model, it devises a heuristic procedure that is shown to yield optimal or near-optimal solutions for typical problem regimes. The procedure is simple, easy-to-understand, and easily implementable in practice. The study is also potentially applicable to other firms providing subscriber-based rental service for video games, books, and more.

Organizational Buyers' Acceptance of Electronic Procurement Services—An Empirical Investigation in Indian Firms (p. 272)

Electronic procurement (e-procurement) of goods and services by large organizations has the potential to improve organizational performance by simplifying and streamlining procurement processes. E-procurement is important to both research and practice because of potential links between user-level and organization-level productivity. Although the direct influence of e-procurement systems on firm performance has been debated for years, successful implementation of these complex systems depends clearly on acceptance (or adoption) by end users (i.e., organizational buyers). The primary objective of this article is to investigate empirically the impact of managerial interventions (user training, top management support, and technical support) and user-level cognitive belief factors (perceived usefulness, perceived ease of use, perceived complexity and trust) in influencing organizational buyers' behavioral intention to accept e-procurement services, and to develop fine-grained insights regarding the mediating roles of the cognitive belief factors in the relationship between managerial interventions and behavioral intention. The work

extends the *Technology Acceptance Model* (TAM), yet unlike most prior e-procurement research, it focuses on individual buyers' acceptance intention, rather than on e-procurement implementation and adoption issues at the organizational level. Using survey data collected from 132 organizational buyers using e-procurement services, the analysis shows (a) perceived usefulness, perceived ease of use, perceived complexity, and trust are direct predictors of organizational buyers' behavioral intention to accept e-procurement services, and (b) no direct effect of managerial interventions on behavioral intention to accept e-procurement services.

Comparisons of Perceptions and Behavior in Ticket Queues and Physical Queues (p. 294)

Ticket queues are popular systems that issue tickets to the customers upon their arrival, and they have been implemented in the public and private sector (e.g., Department of Motor Vehicles, banks). In this article, the authors compare the customer perceptions, preferences and behavior in ticket queues and physical queues (stand in line systems) under various waiting contexts characterized by traffic intensity, value of service and existence of alternative methods to complete service. The authors also investigate the validity of the traditional queuing assumption that the customers have a static willingness to wait. The analysis reveals that participants in a study prefer ticket queues over physical queues, particularly in high traffic or high value service settings. Participants are also more willing to wait in ticket queues than in physical queues, and they are willing to wait longer after spending some time in line. Thus, there is a dynamic willingness to wait. The insight for management is that the type of queue customers prefer and customer willingness to wait depend on the characteristics of the waiting environment, and that customers consider the time already spent in line to adjust their willingness to wait in a queue.

Service Design for Improved Satisfaction: Decoding the Mechanism for Impact of Patient Callback in Emergency Healthcare (p. 315)

Healthcare delivery is becoming a significant proportion of the service economy around the world. Within healthcare, the emergency department (ED) constitutes one of the most challenging areas of service delivery. Patient arrival is highly unpredictable, job scope is variable, and timely response is essential to save lives. In addition, emergency physicians and hospitals are compensated

based on patient satisfaction measured after service delivery. In this paper, the authors seek to understand how a process design piloted at two academic EDs—involving the addition of a new process step that uses health provider follow-up patient calls after discharge from the emergency department—influences patient assessment of the service. The study examines the overall impact of this process redesign on patient satisfaction as measured by the “likelihood to recommend” question on patient surveys and develop an identification strategy to uncover the mechanism by which callbacks influence patient satisfaction. The findings indicate that the follow-up call back design improves patient appraisals across the board, and not just as a service recovery tool where it moderates assessment of select patients. These findings can help hospitals redesign the ED service to add call back in an effective manner. Underlying implications and future work are discussed.

Workforce Management and Scheduling Under Flexible Demand (p. 331)

In this paper, the authors develop a mathematical model for planning and scheduling staff using a time window

rather than a fixed point in time. The model also takes account of individual staff characteristics, preferences, and availability. The authors develop a decision-support tool that uses the model, and implement it in real-world a healthcare back-office services provider, considering additional operational practices such as team leader scheduling. Through a computational study, the authors develop insights regarding trade-offs between the on-time demand fulfillment and the quality of the staff schedule, the effect of a change in demand-fulfillment time window, the impact of client behavior (e.g., batch arrivals of demand), and the consequences of considering additional preferences and operational constraints. The robustness of the generated staff schedule under different demand scenarios is also evaluated. The key insight is that even a small change in the demand-fulfillment time window can have a significant effect on the demand fulfillment and the quality of the schedule. After the implementation, the healthcare back-office services provider reported a 25% increase in staff productivity. The presented model and methodology can be applied in service settings such as warehouses, fulfillment centers, and other back-office services.