8-1-2010

The Decision to implement self-service technology and its impact on service performance and operating costs

David A. Cranage
Pennsylvania State University - Main Campus

Alinda Kokkinou
NHTV Breda University of Applied Sciences

The Decision to Implement Self-Service Technology and its Impact on Service Performance and Operating Costs

David A. Cranage and Alinda Kokkinou

Executive Summary

Problem

As the initial investment required by SST is high, decision-makers have increasingly been asked to anticipate whether the objectives of SST implementation, namely waiting time reduction and operating cost reduction can be achieved. However, it is difficult to estimate how adding a SST alternative to an existing service delivery process will impact these performance measures.

Objectives

The purpose of this study was to investigate, using simulation, how the implementation of self-service technology in a service delivery process would impact customer waiting times and system operating costs in the context of luxury resort check-in. This required the development of a model linking characteristics of the service delivery process, customer usage and outcomes of interest such as operating costs and waiting times. Three studies were conducted. The purpose of study one was to gain a deeper understanding of the role that SST could play in a resort setting. The purpose of study two was to identify how customers decide between using a service employee and using SST to check-in in a hotel for the purpose of modeling this process. Study three aimed to estimate the impact that SST implementation would have on the performance of an existing process.

Methodology

Study one used a qualitative approach. Focus groups were conducted with guests and staff of a high end resort. The focus groups were then transcribed and thematic analysis was conducted. Study two used a scenario based survey to manipulate the length of the waiting lines that were described to participants. Using binary logistic regression, conditional probabilities were computed to be used in the simulation study. Study three was a simulation study that modeled the check-in process, from the moment a guest entered the waiting line to be served, to the moment he or she left the front desk area with a key in hand. The impact of adding a self-service kiosk on operating costs and waiting times was measures and analyzed using ANOVA.

Results

Study 1 identified several themes in participants' responses that were used in subsequent research. These included factors that led participants to prefer self-service over personal service or vice-versa , situations in which they preferred one over the other, and stages in the service delivery process. Participants indicated that they liked self-service technology in situations where they felt that a service employee would not be able to add value to the transaction. Self-service technology was also frequently mentioned as a way to save time or to conduct transactions outside of a firm's

normal operating hours. However, the consensus amongst participants was that a high end resort should not replace high quality personal service by self-service.

Study 2 found that waiting lines play an important role in customers' decisions to use self-service. However, other factors previously examined in the literature such as perceived usefulness, need for interaction, and expected quality are also important. Study 2 found that, when offered the choice, and no waiting was involved, 19% of respondents would prefer to use the self-service kiosk. When some waiting was involved, this percentage increased to more than 50%.

Despite conservative assumptions, study 3 found that replacing one service employee by a self-service kiosk would provide the best compromise between cost and service level. However, replacing one service employee with one self-service kiosk would reduce service level from 84.06% to 78.07%.

Managerial Implications

While luxury resorts may not be the most intuitive places to implement self-services as their value lies mostly on the intangible service experience they provide, there are possible applications of self-service technology, including self-service check-in. Study 1 showed that there are many subjective factors that decision-makers should consider when deciding whether to implement self-service technology. Guests of upper scale hotels and resorts perceive that they pay a service premium and insist on receiving that extra service once they arrive at the property. However, guests would prefer to be able to perform more of the pre-arrival transactions (such as booking the room, activities, and dining) online, without interacting with service employees on the telephone.

Despite this strong preference for interpersonal service in luxury resorts, study 2 found that even in settings where personal service is generally preferred, a large sub-segment of the study population would still prefer to use self-service if they perceived they could save time doing so.

Study 3 showed that tools such as simulation can be used to obtain objective data to support the decision-process. A short simulation study comparing four possible service configurations using two performance measures: service level and financial savings was presented.