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Design and Evaluation of Auto-ID Enabled Shopping Assistance Artifacts in Customers' Mobile Phones: Two Retail Store Laboratory Experiments

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Abstract

There has been widespread use of auto-ID technologies for firm-side applications and operations, such as inventory control. With the increasing diffusion of smartphones, the potential to serve content to shoppers using auto-ID technologies is starting to receive interest among technology firms and retailers alike. Using a design science approach, we design and build, theorize about, and compare six shopping assistance artifacts by manipulating the hardware design—barcode scanner versus radio frequency identification (RFID) reader—and content design—product information versus product review versus both. We theorize about how these artifact conditions will compare to a control condition (no shopping assistance artifact available) across three sets of outcomes: technology adoption, security beliefs, and shopping. We tested our propositions in two experiments—wherein the task was varied: general browsing and shopping (n = 227) versus goal-directed shopping (n = 221)—conducted in a retail store laboratory. We found support for the propositions that the RFID reader was most favorably received in terms of technology adoption outcomes and shopping outcomes, although it was most negatively viewed in terms of security beliefs. We also found support for the propositions that the content design conditions (i.e., product information, product reviews, and both) were perceived favorably. In a *post hoc* analysis, we found a two-way interaction of hardware and content designs such that content fueled by RFID was perceived most favorably in terms of technology adoption and shopping outcomes, whereas it was most negatively viewed in terms of security beliefs. Interestingly, the two-way interaction was most pronounced in the goal-directed shopping condition such that the most positive effects were observed for RFID in combination with both product information and reviews.

Keywords: Auto-ID technologies, RFID, product reviews, technology adoption