Abstract

E-commerce allows a level of closeness in customer-to-store interaction that is far greater than imaginable in the physical world, leading to unprecedented data collection, especially about the 'process of shopping'. The desire to understand individual customer's behavior and psychology at a deeper level by mining this data has led to significant advances in on-line customer relationship management (e-CRM). Services like real-time recommendations, faster checkouts, and price/feature comparisons of products across different e-stores or brands, have increased the general awareness of customers and made them more demanding. Web mining is the software technology that has made this possible by providing the means to automatically build sophisticated customer models from Web data collected at on-line stores. e-CRM has shown significant concrete benefits in customer experience and loyalty, leading to improved sales and profits.

Physical stores have taken a note of these benefits of e-CRM, and are interested in exploring similar possibilities. A key barrier to applying e-CRM techniques to the physical world (p-CRM) has been the lack of ability to collect detailed customer data in the p-CRM world, at the same granularity and in real-time manner as in the e-CRM world. With new technologies like radio frequency identification (RFID) and handheld devices like personal digital assistants (PDA) becoming affordable, these technologies are now being used in major stores for inventory management and/or anti-theft purposes. Based on the confluence of these factors, we posit that "given such detailed knowledge of an individual customer's habits provides insight into his/her preferences and psychology, which can be used to develop a much higher level of trust in the customer-vendor relationship, the time is ripe for revisiting p-CRM to see what lessons learned from e-CRM are applicable. In this paper, we present a concrete proposal on how this can be done, and identify directions for future research."