Abstract

In e-commerce, the role of customer relationship building becomes prominent with the formation of trust between any parties being the essential prerequisite. Designed around principles derived from a series of trust related constructs, it is posited that agent-oriented information systems could provide the environment and facilitate the expressiveness demanded for the establishment and support of lasting commercial relationships. This research-in-progress paper synthesizes a series of concepts and establishes the key issues that need to be addressed for successful relationship building in agent-mediated e-commerce.

Keywords:
Trust, E-Commerce, agent-oriented information systems
Introduction

The frantic pace of Internet commercialization has turned e-commerce into a battlefield for business prevalence. To leverage the full potential of business-to-consumer e-commerce, companies have to focus on finding novel approaches for building strong and long-term relationships with the global consumer. Building and managing customer relationships is hardly a new challenge. Relationship marketing principles and tactics have been adopted and institutionalized at various levels by organizations operating in competitive commercial contexts. According to Berry (1983) “Relationship marketing is attracting, maintaining, and – in multi service organizations – enhancing customer relationships” (p.25), and Jackson (1985) defines relationship marketing as “marketing oriented toward strong, lasting relationships with individual accounts” (p.2). For a bricks-and-mortar company this largely means a concentrated marketing effort in establishing a brand image via controlled messages mediated to customer segments at an often-prohibiting cost.

However, the application of well tested control mechanisms aiming to influence and strengthen relationship building are currently being challenged by the interactive nature of web-enabled commercial transactions being conducted in an environment characterized by a two-way communication channel. The addition of an unprecedented accessibility to information increases the bargaining power of consumers, diminishing at the same time the level of control previously exerted on them by organizations. In this new setting, where control shifts from the company to the consumer (Ingari, 1999), customer relationships constitute an important new asset category. They form a key factor for competitive differentiation in the digital economy, as the value inherent in them is recognized as being more important than conventional revenue driving material in the bricks-and-mortar world. As the relationship capital accumulates, increasingly providing a new foundation for marketing and sales revenue (Tapscott et al., 2000), organizations are faced with the challenge of finding effective ways for making relationship investments that will be profitable. The return on this relationship investment will be determined by the organizational ability to engage customers in a relational exchange within the electronic commerce environment.

Simply put, traditional marketing strategies build around the four pillars of product, price, place and promotion, are not adequate for customer attraction, acquisition and retention. Discontinuity imposes a need for radically new approaches, which are more appropriate to the needs of the environment as it evolves. Online trading empowers a direct, one-to-one, personalized interaction with the customer that should be leveraged towards making a relationship investment to gain customer loyalty, which ultimately forms relationship capital. Building loyalty, an economic and competitive necessity in the e-commerce arena, presupposes the existence of trust between the business and the customer (Reichheld and Schefter, 2000). The role of trust has early been identified as being central to loyalty in relationship marketing literature (Morgan and Hunt, 1994; Doney and Cannon, 1997), which has served as the basis for our conceptualization of trust formation in business-to-consumer e-commerce relationships. In conjunction with a set of trust constructs and trust building processes, our research effort is oriented towards examining the applicability of agent technology and virtual reality in an e-commerce environment allowing for customer relationship building based on trust.

This research-in-progress paper advocates that agent-oriented information systems, enhanced by virtual reality techniques, could provide the environment and facilitate the establishment and support of lasting relationships. In the next section we clarify the reasons as to why we believe the design of such systems can be informed by principles derived from a series of trust related constructs, whilst in the final section we identify the issues that are currently being addressed by our research efforts.

Trust formation in e-commerce

In e-commerce, the unidirectional, one-to-many communication style with mass undifferentiated advertising messages has to be replaced with a two-way, interactive dialogue that is based on rich information flow between the business and the customer, providing at the same time discriminating customization of available offerings. Customers can no longer be treated as passive recipients of mass broadcast advertising messages, but as active members of an e-market with specific needs and preferences. In this setting, the bi-directional disclosure of information to and from the customer is in essence a value exchange and provides the foundation for the development of a relationship with the customer (Abela and Sacconaghi, 1997).

The variable that will largely determine the success or failure of such a relationship is trust, especially during the initial fragile phase of its establishment, when the perception and disposition of the customer is inherently fluid. It is during this short time period that the infusion of trust could determine the customer’s future behavior and ensure loyalty towards the business (Keen et al., 2000). “Customer-company relationships require trust” (Berry and Parasuraman, 1991, p.144) which “is the basis for loyalty” (Berry, 1993, p.1). According to McKnight et al., (1996), the formation of trust starts with trusting beliefs with the underlying support of disposition to trust and institution-based trust. Trusting beliefs (benevolence, competence, honesty/integrity, predictability) lead to trusting intention, which in turn becomes manifest in trusting behavior. As parties gain experience replacing assumptions made during the initial phase of a relationship, trusting beliefs evolve to provide a firm foundation for a trusting relationship. Customer perceptions of a vivid e-commerce experience (trusting beliefs) should thus be carefully managed to make the customer develop a consistent disposition towards the business (a trusting intention), so that he/she will be induced to engage in the online buying process in a repeated manner (a trusting behavior). Doney and Cannon (1997) argue that trust can develop by five distinct processes, the calculative, prediction, capability, intentionality and transference process. Building on Doney and Cannon’s work, we have identified another trust
building process, the *credibility* process. It is our belief that the effective deployment of these processes can assist in the establishment of trusting beliefs; the first prerequisite for relationship formation.

Wanninger *et al.*, (1997) suggest that building customer relationships in e-commerce involves meeting customer expectations of service encounters that take place in an electronic servicescape, one of the three primary components that comprise an e-commerce information system. The other two are the supporting infrastructure plus the customer database and analytical tools to support the relationship marketing. Within this electronic environment the separate but partially overlapping functions of making, enabling and keeping customer promises are integrated. Based on this conceptualization of an e-servicescape we propose that agents and virtual reality technologies can be used to provide a virtual environment oriented towards building trust. The advanced level of interactivity of such an environment allows for a direct communication between the business and the potential customer through information sharing resulting in a relationship investment that will return customer trust and loyalty. Thus, web sites should be transformed to customer-centric servicescapes, offering a digital experience that should contribute towards the development of an indelible relationship between the business and the customer (Papadopoulou *et al.*, 2000). As this environment allows for iterative reciprocal interaction, it is considered ideal for the evolutionary nature of trust formation based on the fulfillment of made promises. Leveraging a customer’s pre-existing trusting beliefs, a promise such as the provision of a product or service is made aiming to augment the customer trusting intention towards the servicescape. Keeping the promise is fundamental in nurturing a customer’s trusting beliefs in the business leading to a repeated use of the servicescape (Figure 1). During customer’s interaction with each stage of promise fulfillment as well as the overall experience within the virtual servicescape each one of the trust building processes is activated to strengthen customer’s trusting beliefs about the business (Figure 2). Trust evolves as the customer engages in repeated interactions with promises being fulfilled within the servicescape, which are then evaluated to further enhance trusting beliefs. It is through this cyclic interactive process, and the intertwining of promise fulfillment and trust formation that customer loyalty is eventually achieved.

In conjunction with a set of principles stemming from a thorough understanding of the above series of trust related constructs, agent orientation can inform the design of information systems serving such environments. The personalized, autonomous, adaptive and proactive nature of agents provides for the high level of interactivity and expressiveness that is needed for an effective and fulfilling customer experience within the e-servicescape, leading to a trusting relationship. Using agent concepts and techniques, an implementation of such a servicescape will be a three-dimensional virtual environment aiming not only to be an alternative to the physical experience, but also ultimately to surpass it.
Research Directions

The main purpose of our research is to investigate the extent to which the agent paradigm and virtual reality technologies can serve as the platform for managing customer interactions with promises made, enabled and kept within a virtual servicescape. Initially, agents facilitate customer navigation and action within the virtual servicescape contributing to the creation of an illusionary sense of a realistic spatial commercial context. By being consistent with the customer’s mental model of the physical shopping experience, the virtual environment allows for the preservation of existing trusting beliefs about the business. This results in a trusting intention to use agents, culminating to a trusting behavior, and hence loyalty. We have identified the following four key research themes. These are:

- In what ways and how the principles derived from the trust related constructs, and those described by the agent paradigm could inform the design of the virtual servicescape?
- What sort of business services could be provided through the servicescape, and how should its performance be evaluated in terms of added value to the business?
- How should the spatial context of the virtual servicescape be designed to provide a satisfying customer experience?
- How can promises be depicted in the virtual servicescape and in which ways can agents assist in their fulfillment?

Regarding the first, research should focus on how the bi-directional communication between the business and the customer could be enhanced using agent-oriented techniques. More specifically, it should be examined how agent-orientation extends the current level of expressiveness offered by conventional systems and applications to include conceptualizations of trust and promises. For example, avatars or different kinds of actors representing customers in the virtual e-commerce world can be implemented as agents, supporting the customer through all the stages of the buying process according to the Consumer Buying Behavior (CBB) model, or acting as consumer surrogates using predefined criteria to perform shopping-related activities (Maes et al., 1999). Furthermore, research should identify the ways in which agent functionality can be used to empower the servicescape to mediate trust, thus setting the foundation of a robust customer relationship.

Once the servicescape is in place, the products/services offered through it should be defined in relation to macro business goals and objectives. With the objective of establishing trust and offering a more sophisticated form of experience, research should examine the viability of such services as mix and match service and product offerings from business partners or even competitors, and the creation of customer communities endorsing communication between existing and potential customers. The content of the offerings has to be carefully specified to guarantee a continuing growth of customer trust and loyalty to the business.
Moreover, issues associated with the spatial design of the virtual servicescape should be examined. The level of realism and detail provided should be defined to allow for the design and implementation of a usable and attractive interface that will facilitate customer interaction. The virtual environment should be developed with an aim to offer the customer a fulfilling experience that can be valued by the customer and have a positive influence on his/her perception and behavior towards the servicescape.

Finally, the means by which promises will be presented to the visitor of the virtual servicescape have to be determined. Aiming to entice the customer to engage in a commercial relationship with the organization, the policies and methods for creating and mediating product and service offerings within the virtual environment have to be carefully examined. Research should also focus on the ways in which agents, as part of the underlying supporting infrastructure, can contribute to developing, communicating and delivering promises to the customer.

Traditional marketing practices in use today are derived from principles and concepts relevant to a very different commercial context from the one that businesses will compete in the new economy. Understanding the need to reconsider their validity in view of the emergent changes, our research aims to contribute to the theory and practice of customer relationship building in agent-mediated e-commerce.

References


