



Online Trust: State of the Art, New Frontiers, and Research Potential

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Abstract

Online trust is growing in importance as a topic of study and its influence on Internet marketing strategies is increasing. “Online trust includes consumer perceptions of how the site would deliver on expectations, how believable the site’s information is, and how much confidence the site commands.” (Bart, Yakov, Venkatesh Shankar, Fareena Sultan, and Glen L. Urban [2005], “Are the Drivers and Role of Online Trust the Same for All Web Sites and Consumers? A Large-Scale Exploratory Empirical Study,” *Journal of Marketing*, 69(4), 133–152). In this article, we review advances in online trust research based on an overarching framework, outlining the key insights learned so far. These insights include: online trust extends beyond privacy and security, is closely connected to website design, its formation is an ongoing process, and is heterogeneous across individuals and products. We propose several ideas for future research relating to multiple aspects of online research, such as the longitudinal component, multichannel element, global aspect, personalization and cross-disciplinary nature.

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Introduction

Ever since the birth of the Internet, trust has been recognized as a key driver of the Web’s success. As the popularity and usage of the Internet continues to grow, the security and privacy of online transactions bring to light the necessity for trust. Lack of trust is regarded as the greatest barrier preventing consumers from transacting online. To acquire and retain online consumers as well as to build competitive advantage, marketers are challenged with the task of creating and maintaining a climate of trust. This challenge has generated tremendous interest in learning about online trust.

Researchers and online businesses have come a long way in their efforts to understand trust and apply trust-building concepts to remove barriers that inhibit the growth of online sales. The results are encouraging. The U.S. consumer online retail spending is over \$100 billion ([comScore 2007a](#)). Ten years ago, the figure was only at \$8 billion ([Driscoll et al.](#)

1997). Despite a softening economy, [comScore \(2008a,b\)](#) reported that U.S. e-commerce retail sales reached \$63.8 billion during the first half of 2008, up 16% versus 2007 ([comScore 2007b](#)). Another piece of evidence that indicates trust levels have increased on the Internet is the use of credit cards. Historically, consumers have been reluctant to provide personal and credit information, but a [comScore \(2007c\)](#) study revealed that the number of online credit card payments has grown significantly to over 524 million credit card bills being paid online, marking a 73-percent increase from 2004. We can infer that such growth is correlated with increased consumer online trust in general.

Online shopping and buying have overcome some of the traditional trust barriers and are major economic phenomena, but many new and interesting trust issues exist and deserve research. We begin this paper by examining the state of the art of online trust and by reviewing a selected set of findings from the past research that defines the state of the art. Within the state of the art, we describe seven specific research projects that deserve attention. We conclude the paper by discussing four emerging frontiers in the future of online trust, and provide some early research as examples of their potential.

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State of the art

In this section, we review selected articles on trust. We do not attempt to have a comprehensive review of the large literature. Rather, we set the stage for consideration of future research needs by citing the most recent and relevant papers.

Before discussing the literature on online trust, we should have a common definition. Trust in the traditional offline market has been examined from multiple disciplines, and naturally, different definitions of trust emerge within each discipline. Still, these studies have contributed significantly to the study and application of online trust. Rousseau et al. (1998) defined trust as “a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviors of another.” This definition implies that consumers must have a certain level of confidence in the seller’s reliability and integrity, as conceptualized by Morgan and Hunt (1994) early during the emergence of the Internet.

Using the definition of offline trust as a starting point, researchers widened the definition of trust and applied it to online trust. Bart et al. (2005) elaborated upon Rousseau’s definition and emphasized that “online trust includes consumer perceptions of how the site would deliver on expectations, how believable the site’s information is, and how much confidence the site commands.” In essence, trust is developed when consumers form positive impressions of an electronic merchant’s site, and are willing to accept vulnerability. In practice, advertisers also recognized the critical issue of vulnerability and some defined trust as “not being afraid when you are vulnerable.” (Saint Paul Insurance 2000).

In the traditional sense, trust often connotes credibility, integrity, reliability, confidence and benevolence. Researchers examining offline trust were able to establish that such associations also apply to online trust. For example, in an experiment using student subjects, Gefen (2002) found that trust in the online market encompasses three specific beliefs — integrity, ability/competence, and benevolence. Researchers, Lee

and Turban (2001) and Belanger, Hiller, and Smith (2002) also validated these main elements in their studies. Doney and Cannon (1997) included the concept of reputation as part of the definition of trustworthiness since reputation usually suggests competence and integrity. Similarly, McKnight, Choudhury, and Kacmar (2000) define trust as “the belief that another is benevolent, competent, honest, or predictable in a given situation.”

The definition of trust has evolved over the past decade and, although semantics may differ, has now reached general consistency among researchers. Trust can be distilled down to three dimensions: integrity/confidence, ability/competence, and benevolence.

Fig. 1 provides an overall framework of how online trust works. The site affects trust which in turn modifies customer buying actions that lead to firm sales and profit success. Customers learn from their buying experience and product use. These experiences shape trust and their response to the site as well as generating word of mouth communication through social networks.

Fig. 1 emphasizes that trust stands between the Internet site and buying — online trust is a mediating variable. Researchers have found in their studies that trust is an enabler that influences consumers’ behavior, such as the decision to buy or engage online with an electronic merchant or website and its online community. Online trust is an attitude that acts between site characteristics and sales in a way that is intermediary, but nonetheless important.

In the traditional buyer-seller market, Doney and Cannon (1997) found that trust is a mediating variable that affects the decision consideration (or qualifies the supplier), but not the actual purchase behavior (or wins the order). However, in the online market, researchers demonstrated through empirical studies that trust affects purchase intentions (Jarvenpaa, Tractinsky, and Vitale 2000; Schlosser, White, and Lloyd 2005; Shankar, Urban, and Sultan 2002; Yoon 2002).

Wang, Beatty, and Foxx (2004) demonstrated that trust mediates the relationship between trust-building cues and the

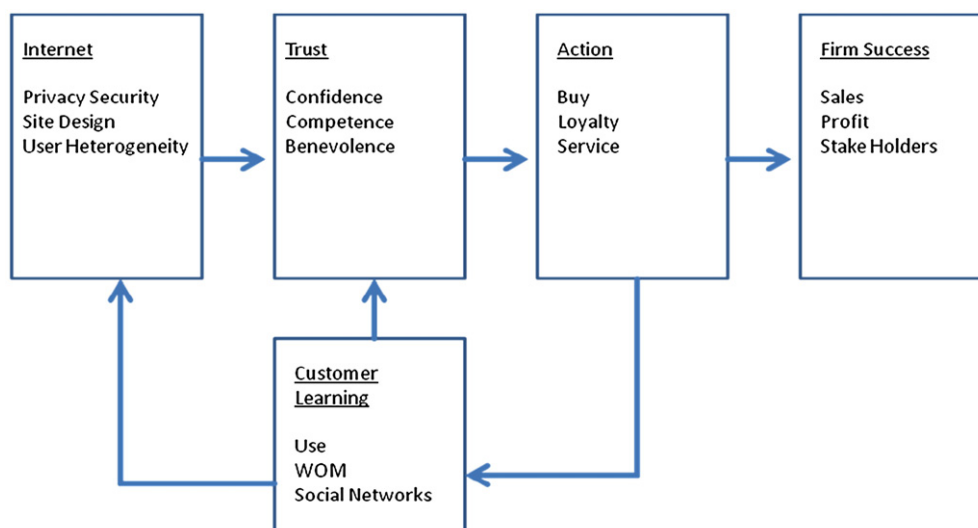


Fig. 1. Trust architecture.

consumer's willingness to provide personal information and book-marking. McKnight, Choudhury, and Kacmar (2000) conceptualized a trust-building model in which they demonstrated that consumers' trust resulted in their willingness to follow advice, share information, and make a purchase. This research identified vendor reputation, website quality and structural assurance of the website as antecedents that build consumers' trust in the electronic merchant. Bart et al. (2005) furthered extant research and found that trust is a mediating construct between antecedents such as website and consumer characteristics and consequences such as behavioral intent. Recent work by Buttner and Goritz (2008) on pharmaceutical products reinforces previous research to show that trust mediates perceived risk and intent to buy.

Trust is more than privacy and security

Fig. 1 also shows that the Internet site influences trust. The most obvious link is the effect of site privacy and security on trust. When the Internet was at its infancy, privacy and security were critical elements that online businesses addressed to earn consumer online trust and they were often cited as antecedents to trust. However, with the maturation of the Internet, consumers have come to expect more from online businesses and their requisites for trust have also increased (Shankar, Urban, and Sultan 2002). Privacy and security have become the new baseline from which one evaluates an online merchant's trustworthiness. While progress has been made in improving security, we continue to see viruses, identity theft, and phishing. Vigilance is required and must be evident in sellers' site efforts — privacy and security are assumed and so this expectation must be fulfilled. For example, Pollach (2005) cautions that privacy policy statements that most sites employ today can undermine company trustworthiness if they are not clear and unequivocal on how data is used. Lack of transparency can be a "trust buster".

Although privacy and security remain important drivers of online trust, other variables are now equally, or more important.¹ Bart et al. (2005) found that brand was an important conveyor of trust. Branded products with strong brand equity enjoy an immediate trust gain when in an online environment. This study also found past experience through order fulfillment was an important determinant of the trust consumers have in the site. Good execution of order fulfillment is expected. If this expectation is not met, trust will decrease.

The formation of trust is multi-dimensional and there are other things that affect trust. Urban, Sultan, and Qualls (2000) recommended the use of: (1) virtual-advisors to gain customer confidence, (2) advocacy features to provide unbiased and complete information, and (3) competitive information to increase transparency. Other best practices to enhance trust include creating online communities that facilitate interactions among consumers for feedback and ratings of online merchants and their products. Consumer empowerment is a compelling force that builds trust, especially in the initial stage of trust

development. Bart et al. (2005) found that there is much to gain by empowering consumers with the tools to manage and understand the information on an online vendor's website. In fact, Hoffman, Novak, and Peralta (1999) predicted that "trust is best achieved by allowing the balance of power to shift toward a more cooperative interaction between an online business and its customers."

Fig. 1 shows the feedback of customer experience and learning on site effectiveness.² For example, online peer and editorial recommendations empower consumers to make decisions based on availability of online information. Smith, Menon, and Sivakumar (2005) revealed that online peer recommendation is an invaluable resource for consumers and that many consumers use peer recommendations to make purchasing decisions. We can infer that the provision of reviews builds confidence in the consumer's mind and subsequently enables him/her to make a purchase. In this environment, transparency and advocacy are strategic dimensions that are reflected in visual communication, advice, information content, and eventually, trust.

Prahalad and Ramaswamy (2004) extend this concept and demonstrate that the traditional system of value creation between the firm and the consumer is evolving from a product- and firm-centric view to one of personalized consumer experience. This is consistent with the shift in consumer power today as online consumers have become more sophisticated and are continually discovering more meaningful ways to use the Internet (e.g., online community, social networking). In traditional marketing though, the company is the driving force in the market behind the exchange of goods and services between the firm and the consumers. In this view, consumers are rarely involved in product development, production, distribution or marketing of the product. Prahalad and Ramaswamy (2004) introduced the concept of co-creation. They suggest a meaningful collaboration between consumers and firms to create unique experiences that will develop new products and subsequently new sources of competitive advantage. This is a win-win approach, as it promotes dialogue interaction, access to information, transparency, and understanding of risk-benefits that ultimately engender trust in the buyer-seller relationship. When taken to the online site, it becomes even more powerful. For example, Urban and Hauser (2004) provide a design pallet online so consumers can design their own cars. Such a co-creating and collaborative process is built on a foundation of trust between the firm and the consumer.³

Site design affects trust

While the privacy and security statements of electronic merchants earn appreciation from consumers, it is the website's design that influences consumer trust and consequently impacts online purchase intentions (Schlosser, White, and Lloyd 2005).

¹ See Peltier, Milne, and Phelps (2009) for greater discussion on online privacy.

² See Hoffman and Novak (2009) for an in-depth discussion on online flow, a construct that is central to a customer's online experience.

³ See Bolton and Saxena-Iyer (2009) for discussion on online interactive services that facilitate such collaboration.

Karvonen's (2000) finding is consistent with this conclusion. Karvonen found that consumers make intuitive, emotional decisions based on their perceptions of an online merchant's website. The look and feel of a website serves as a basis for consumers to form a first impression of the merchant, to develop an opinion of its trustworthiness, and to ultimately form their behavioral intent.

In a marketing study of site design features and trust, Bart et al. (2005) found a number of site variables that affect consumers' trust (in addition to the brand and fulfillment variables discussed above). They confirmed that privacy and security are important in site design, but not as important as user-friendly navigation and presentation. After navigation and presentation, the next most important site design aspect was the perception of a seller's "assistive intent" through interactive tools. This plays an important role in the formation of online trust. In essence, the fact that an online seller has tools that help consumers process and manage the plethora of product information on its website facilitates the belief that the seller has the consumer's interest in mind, and enhances the consumer's willingness to trust the online merchant, especially when the online merchant is new to the consumer. When consumers feel empowered, trust is formed. It may be obvious, but errors in the site (missing links or pages or other inconsistencies) are trust busters and must be avoided by careful quality assurance. Bart et al. (2005) found that absence of errors was just as important as advice in their data set. This factor is probably decreasing in design salience as standards and testing improve along with better privacy and improved security.

Web site design is a broad concept that has been studied by both information systems technology and marketing literature. Web site design literature in information systems site design includes elements such as layout, typography, white space, images, and color schemes. Yang, Hu and Chen (2005) included four dimensions of web site design model in their paper: (1) graphic design dimension (typically providing the first impression to the new users) that includes symmetric/asymmetric framework, the brightness and tone of colors, animations, good shot photographs and size graphs; (2) structural design dimension (concerning the organization and the accessibility of the information on the website) such as logical access to each section of the site, navigation, instructions and guides — avoiding missing pictures and broken links; (3) content design dimension (refers to the informational components included in the site both in textual and in graphical terms) such as brand promotions, third party certificates, representative audio or video clips, buyer's experience and feedback by users/customers; and (4) social-cue design dimension (relating to the embeddedness of some social cues into web site interfaces) such as face-to-face interaction, newsgroup, eventual blogs and synchronous communication media.

In a study with over 2600 participants, the Persuasive Technology group (Fogg et al. 2003) at Stanford University evaluated the credibility of different websites and gathered the comments written by participants about each site's credibility. They found that the design of the site is mentioned most frequently with about 46.1% of the comments covering some aspect of website design.

Since 1940, several social psychology researchers have shown that physically attractive sources (especially people) have been perceived to be credible sources (Berscheid and Walster 1974; Joseph 1982). Starting with Fogg et al.'s (2003) conclusion that "looking good may be good" seems to be true for evaluating the trust and credibility of websites especially when the design look is noticeable. When building a trustworthy website, visual design matters because of two main reasons: (1) A good-looking website (e.g., one with no textual mistakes, right colors, good balance between animation and usability, right brand communication) makes users think they are browsing in a professional environment and helps foster trustworthiness of the company behind the site; and (2) Browsing in a good-looking and user-friendly website encourages users to spend more time on the website, and, the longer they stay, the higher the probability of the site gaining the consumers' trust.

In this scenario, the concept of website visual communication has to be developed from a user-centered perspective, following a fundamental tenet of user-centered design: "don't explain how something works but explain how people can use it!" (Mandel 2002).

A growing number of studies show a positive correlation between the perceived visual communication quality of a website's user interface and overall user satisfaction (e.g., Hartmann, Sutcliffe, and De Angeli 2007; Lindgaard and Dudek 2003; Tractinsky, Shoval-Katz, and Ikar 2000). Other studies (e.g., Fang and Salvendy 2003; Kim and Moon 1998) indicate that "it is possible to manipulate the visual design factors of the website interface in order to induce a target emotion such as trustworthiness."

In general, Internet users like graphical icons, buttons, products' pictures and rich information. Based on Riegelsberger, Sasse, and McCarthy (2003) and Fang and Salvendy (2003), it is possible to categorize a user-centered design website into five main components: (1) Homepage: a simple and clean first page with an effective search tool and up front presentation of the main functions, (2) Categorization: easy location and classification of services, tools and products, (3) Product information: clear pictures, accurate and self sufficient explanations and easy comparison of products, (4) Customer service: easy access and contact for customer related issues and problems, (5) Logout and registration: secure way to access the site by providing only the necessary information. A user-centered website design from both information technology and marketing perspectives is important in generating trust.

Online trust is a process

While the specific site design for an online visit is important, it should be realized that it is rare that trust is built during one online session. Fig. 1 shows this feedback loop of trust–action–learning–trust that is repeated many times as trust is enhanced by good fulfillment of promises and transparency. Usually, trust is developed over a process of repeated visits to a site as a user gains experience and believes that his/her expectations are met during the visits. Emerging research has started to evaluate trust from a process-centric perspective in which the initial and

continuing experience to trust formation are important. In particular, for initial trust, [Bart et al. \(2005\)](#) looked at how trust is built when a consumer first visits a new online merchant's site. Bart et al. found that a primary factor that builds new consumers' trust toward an online merchant is the merchant's ability to empower the consumer to understand and manage product information and complete a given task. On a different spectrum, [Wang, Beatty, and Foxx \(2004\)](#) coined the term "cue-based trust" and defined it as "the trust consumers form based on cues received from an initial encounter with a stimulus. It involves a consumer's beliefs that his or her vulnerabilities will not be exploited." The [Wang et al. \(2004\)](#) online study used 402 subjects and demonstrated that cues such as security disclosures and awards from neutral sources and seals of approval and privacy disclosures are a foundation to building initial trust. Sometimes cues can lower trust. [Grewal, Hardesty, and Iyer \(2004\)](#) show that awareness of price segmentation has a significant negative effect on consumers' perceptions of trust and fairness and therefore willingness to buy. Cue-based trust differs from experienced-based trust, which is defined as trust that is based on repeated interactions with the online merchant. In the beginning of the relationship, when no priors have been established, consumers form trusting beliefs based on cues utilized by online merchants ([Urban, Sultan and Qualls 2000](#)).

Consumers' buying behavior is influenced by the trust initially developed as they interact with a website, but repeat

visits and purchases are just as important. Trust is developed when consumers have a positive experience with an online merchant through such things as order fulfillment, service, product satisfaction, or reputation of the online merchant. For example, [Fassnacht and Köse \(2007\)](#) find empirically that service quality effects trust loyalty and cross buying. Trust is an important component in the buyer–seller relationship that needs to be cultivated and maintained over time. Trusting beliefs are confirmed when online merchants fulfill the order and provide exemplary customer service; trust is also reinforced when the customer experiences satisfaction with the product over time. An intrinsic level of trust is maintained when consumers habitually purchase from the same merchant ([Cheskin 1999](#)).

Individuals and products differ in trust response

Consumers' response to trust varies by individual and by products — heterogeneity is present. Understanding individual and product differences is a state of the art issue that has received some initial attention. [Shankar, Urban, and Sultan \(2002\)](#), conceptualized that consumer characteristics such as self-confidence/Internet savvy, past behavior, Internet shopping experience, and entertainment experience all affect trust. Online trust is likely to be greater for those who have online experience, and shop online. Individuals with these experiences and past behavior are more likely and willing to trust online merchants as

Table 1
Selected papers on online trust 1999–2008.

Authors	Focus	Findings
Hoffman, Novak and Peralta (1999)	How to improve online trust	By giving consumers some control over their personal information, i.e., using opt-in/opt-out policies regarding information exchange is the best way to earn consumer trust, and ultimately impacts online sales.
Jarvenpaa, Tractinsky and Vitale (2000)	Antecedents and consequences of trust in an Internet store	Perceived size and perceived reputation determined online trust; this affected risk perception and buying. Communication of policies of customer satisfaction guarantees, returns, and refunds improve trust.
Urban, Sultan and Qualls (2000)	Trust and advice	Virtual advisors can help build trust with unbiased information. Transparency is important in building trust.
Yoon (2002)	Antecedents and consequences of consumer trust in online purchase decisions	Perceived size and perceived reputation determined online trust; this affected risk perception and buying. Communication of policies of customer satisfaction guarantees, returns, and refunds improve trust.
Shankar, Urban and Sultan (2002)	Stakeholders perspective on trust	Trust is not only important to customers, but also employees, suppliers, distributors, partners, stockholders and regulators.
Wang, Beatty and Foxx (2004)	Trustworthiness of online retailers	Consumer trust examined by proposing the concept of "cue-based trust" model
Smith, Menon and Sivakumar (2005)	Recommendations and Indicators of on online trust	Peer reviews important and used by consumers. To evaluate trust we need indicators as site longevity, selection of items, online community, links to and from other sites, search engine on the site and privacy.
Urban (2005)	Trust and customer advocacy	Provide open and honest information and advice plus competitive comparisons to build trust and mutual customer-firm advocacy.
Schlosser, White and Lloyd (2005)	Consumer trusting beliefs and purchase intentions	Web site investment increases consumer trusting beliefs and online purchase intentions.
Bart et al. (2005)	Trust heterogeneity across sites	Web site and consumer characteristics drive trust, which drives customer Web behavior. Trust mediates the effects of Web site and consumer characteristics on Web behavior. Site determinants vary across sites and customers.
Fassnacht and Köse (2007)	Service quality and trust	Service quality affects trust, behavioral intentions, and willingness to pay more
Buttner and Goritz (2008)	Trustworthiness of online shops	Trustworthiness promotes both intention to buy and actual financial risk taking. Trustworthiness partially mediates the influence of perceived risk on intention to buy.

opposed to novice Internet users. Individuals that consume a great deal of online media are more likely to trust online merchants as these individuals use online chat rooms or social networking communities to share experiences, seek product/vendor advice, and validate their opinions within these communities.

Lee and Turban (2001) conceptualized a model in which the consumer's trust propensity in Internet shopping is a function of the individual's demographics and personality. The three trust antecedents identified in this framework entail trustworthiness of Internet merchant (ability, integrity, and benevolence), trustworthiness of Internet shopping medium (technical competence, reliability, and medium understanding), and contextual factors (effectiveness of third party certification and effectiveness of security infrastructure). The site features that determine trust also can vary in importance across products. Bart et al. (2005) found that privacy and order fulfillment are the most influential determinants of trust for products in which both information risk and involvement are high (e.g., travel sites). Navigation is strongest for information intensive products such as sports, portal, and community sites. Brand strength is critical for high involvement sites such as automobiles and financial services. As discussed above, online trust mediates the relationships between site and consumer characteristics plus behavioral intent. This mediation is strongest for sites oriented toward infrequently purchased, high involvement items, such as computers, and weakest for frequently purchased products.

The literature on trust is vast and we have only looked at parts of it through our framework in Fig. 1. Table 1 shows an even smaller subset of the most influential papers we have reviewed.

Research ideas

In the previous section, we identified some important issues of the state of the art and although much research and field learning have taken place in the last 10 years, many new opportunities exist for further research. Below are a few specific research areas that could be productive.

Longitudinal trust formation

We discussed the notion that trust is a process. This was an early finding by Cheskin (1999), but not much research has been done on the process formation. Much empirical work is based on cross-sectional survey data. What is needed is a longitudinal database of site visits and trust levels. Several firms (e.g. comScore, Compete.com, Hitwise, or Nielsen) monitor the clicks of a large sample of households and may be good sources of longitudinal site visit data. If their click stream data could be supplemented by multiple surveys on trust, the process could be better understood and trust dynamics modeled. Perhaps a structural equation or hierarchical Bayesian model could yield a deeper understanding of the dynamics of trust.

Standard trust scales

Implicit in almost all trust work is a set of attitude scales that can be used to measure trust. No standard set of scales exist, and

past studies have used different items and scales. We need a well-developed attitude bank of questions that can be used to measure trust across multiple environments. We know that overall trust measured with a single scale is not reliable. Using the major components of trust – competence, confidence, and benevolence – with multiple scales for each of them, can provide stronger measures. Shadish, Cook, and Campbell (2002) provide a good guide to multi-dimensional scaling design and validation that could be utilized in developing alternative measures of trust.

Effects of customer ratings and trust

Although some past work has been done on the impact of ratings, Dellarocas (2003) shows that this is a productive area for research and the growing importance of peer ratings indicates that this area deserves more research. When are ratings trusted? Can customers and/or sites detect fraud in ratings? There is a trend for category experts to develop. For example, Amazon is viewed as an expert online merchant for the books category. How does a reviewer on a website get an elite status in the minds of customers? Many sites now “rate the raters.” Is this effective in building trust? Past work could be extended by researchers who survey consumers on their trust attitudes toward specific reviewers and sites and link it to consideration, overall trust and buying. Perhaps an experiment could be conducted that systematically varies the experience/expertise of the reviewer and measure the trust impact.

Third party versus company sites

We tend to think of third party sites when we think of trust and transparency. For example Kelly's Blue Book and Edmonds are often used to support auto purchase decisions, but companies and dealers also maintain extensive sites. Are manufacturer and dealer sites trusted as much as third party sites? Can they be made trustworthy by ensuring transparency and competitive product information? Are the three types of entities used jointly and, if so, what is the role of each type? Survey work and the study of click streams across sites could provide the data to answer such questions.

Multichannel trust

Many marketers maintain multiple channels. For example, Best Buy has physical outlets, catalogs, and a large Internet site. Among sporting goods marketers, Cabela's, LL Bean, and Bass Pro Shops maintain dominant catalogs, but also have physical stores and telemarketing centers. Some firms even use mobile media and channels. How is online trust affected in the presence of multiple outlets and channels? How is trust transferred across the channels? We suspect that if one element in the system of channels is not trustworthy, others will suffer. This prediction could be tested, for example, in the auto category. If dealers are little trusted, how does this affect the related manufacturer's online trust? How do you maintain consistency in trust levels across channels? How can you tap synergy across channels? For

example, Circuit City allows a user to order online and pick up the product almost immediately at a retail outlet. Does this cross-channel fulfillment build trust? How can you influence retailers to ensure that the trust engendered at the manufacturer's site is maintained at the retail level? See Neslin and Shankar (2009) and Shankar and Balasubramanian (2009) for in-depth discussions on multichannel issues and mobile media issues, respectively.

Trust and industrial online selling

Some of the original ideas of trust and success come from industrial selling. It is conventional wisdom in marketing to say that 20% of the sales force sells 80% of the product. If you talk to the best 20% of sales people, they will almost always tell you that “my customer trusts me” and indicate that this is a major factor in their success. Some research on this type of trust building was done in the early 1990s (Morgan and Hunt 1994), but little additional study of industrial markets has taken place. Most research in trust is on business-to-consumer (B2C) markets. There is a need to return to industrial trust building. How does online presence interact with personal selling efforts to build trust? Can routine functions (ordering, bidding, and service) of the salesforce be captured online so that the salesforce's personal time can be devoted to trust building with new customers, or solidifying trust with existing customers? How many sales functions can be substituted by online sites? For example, GE Plastics was an early provider of advice to engineers on design and purchase of customer plastics. Have others followed? How effective are such sites? Many firms use call-in service centers; should a call center build trust with customers or minimize costs per call? How much is it worth to have a great call center service function for building trust and profits?

Privacy and personalization

Studies suggest that trust affects consumers' willingness to provide private information (Cazier, Shao, and St. Louis 2003; Chellappa and Sin 2005; Liu, Marchewka, and Lu 2005; Milne and Boza 1999; Schoenbachler and Gordon 2002). As ad targeting and personalization have become more common, this issue of privacy and willingness to supply information, opt-in or alternatively opt-out, have become important options for online marketers. Fig. 2 shows the relative harm/benefit from gaining personal information versus the consumer's awareness of that gathering of information. The left two quadrants are clearly a violation of customers' privacy that should be regulated because they cause overt harm. The right side shows use of information where the customer is unaware. Ad targeting is in the lower right quadrant because it is usually done without the person being aware (e.g., uses a cookie dropped on their computer). Some find this acceptable because it causes no harm and others see it as a violation of privacy. Targeting can be moved to the upper right quadrant by granting permission to use information (opting-in) or an opt-out capability clearly displayed on the site and easily executed. Few would object to opt-in systems, but some would object to personalization that inconveniences the

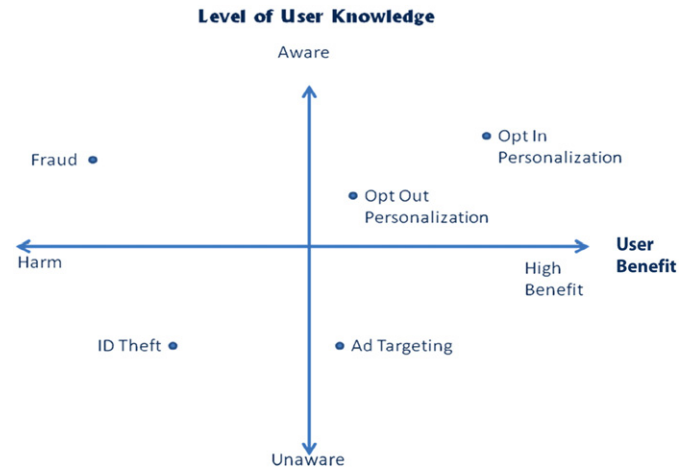


Fig. 2. Privacy and personalization.

customer by having to opt-out. Research on social policy would be useful to conduct so intelligent privacy regulation can be developed. What is the social net good/cost for opt-out in terms of economic system gain versus individual inconvenience? Should ad targeting be allowed without opt-in or opt-out? What are the gains based on increased employment and growth versus individual losses due to being unaware of targeting? Studying trust and personalization in mobile marketing would be a particularly interesting endeavor.⁴

New frontiers in online trust

The above listed topics are only selected issues that could be researched within online trust. These are important, but perhaps the most exciting work will be on the new frontiers in online trust and not within the current state of the art. In this section, we identify four frontiers and give early exemplars of research in each domain.

Trust is more strategic

Initial trust work began with a focus on website trust, in particular, the impact of trust seals on perceptions of privacy and security, and then an expanded set of site design variables. It has become evident that trust is not a tactical or peripheral component, but a core component of effective marketing strategy. Urban (2005) describes a paradigm of “customer advocacy” that is dependent upon online trust. Firms build on a foundation of total quality and customer satisfaction to build trust consistent with the dream of customer relationship management (CRM) to build a new transparent partnering relationship with customers. As a final step, firms move to advocacy where they provide honest open advice and competitive offerings to the firms. This idea is based on the proposition of “if I advocate for you, you will advocate for me” or mutual trust. In other words, it is a realization that customers have the power and the firm must aim to satisfy customers by

⁴ See Montgomery and Smith (2009) and Murray and Häubl (2009) for more information on personalization.



Fig. 3. BT customer advocacy system.

providing them with the best products and honest information to help them make the best choices. Customers will then tell others about the firm, helping the firm to design better products. A three-year project with GM on auto buying and advocacy has shown that consideration, preference and sales of autos can be increased by supplying buyers with full competitive information (e.g., specifications, brochures, and reviews), advice, communities, and competitive test drives (Urban 2005).

Fig. 3 shows a system of customer advocacy for broadband sales in England sponsored by British Telecom. Consumer research shows that consumers who visit this site increase their consideration of BT by one-third and have an improved probability of buying a BT broad band service. This market research indicates that transparency and honest advice to help consumers make the best decision can have a positive effect on firms as well as customers, even in markets that have been characterized by push marketing and less than full information.

In this site, trust is built by supplying the customer with open and honest information about the firm and competitive offerings — it portrays benevolence. Competence and confidence is built through the advice, learning information, and community features. The objective is trust based marketing.

Research on customer advocacy is a new frontier for online trust. What are the most effective advocacy site designs? How can feedback through ratings and communities be effectively captured? How can customer product designs and preferences be encouraged and converted into successful products? How can the old culture of push marketing be changed to the new trust and advocacy strategies? How can advertising expenditures be channeled from mass media advertising to trusted site implementations and improved products and customer service?⁵

⁵ See Varadarajan and Yadav (2009) for details on Internet marketing strategy evolution.

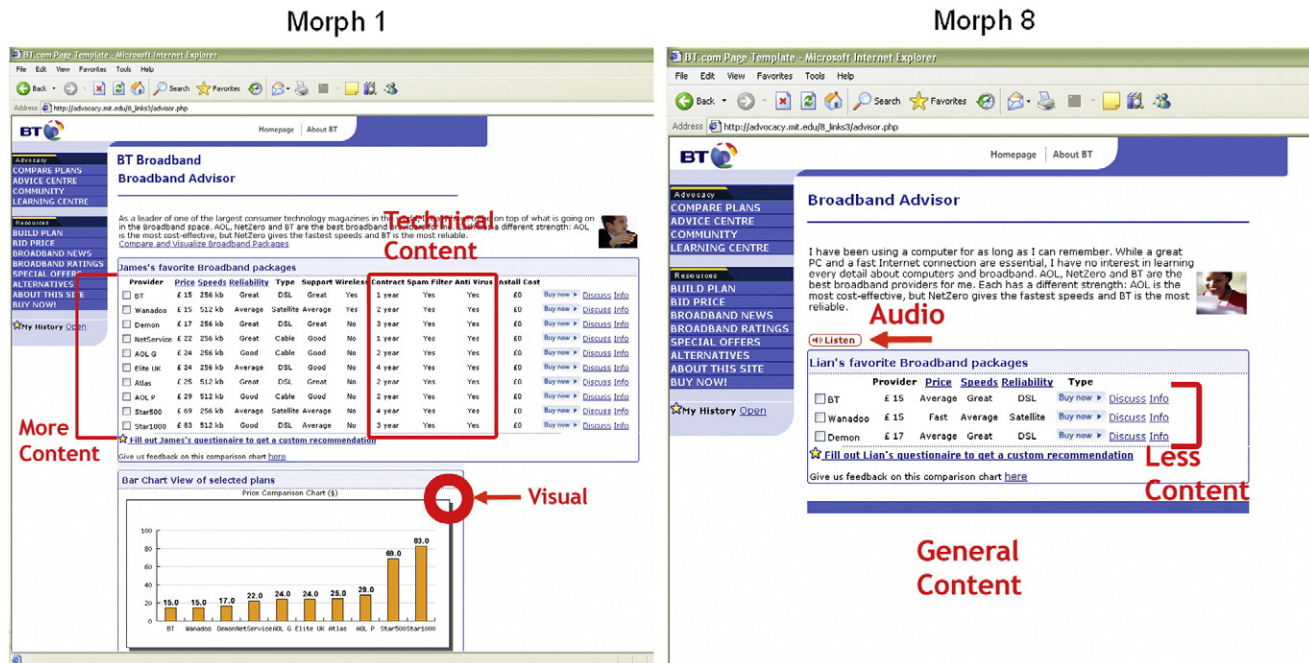


Fig. 4. A side by side comparison of BT's customer advocacy and morphing system.

Cross disciplinary research is needed

Research on online trust has been conducted separately by different fields such as marketing, information technology and computer science. While most of the work has been centered in marketing or information technology, more work needs to add the perspectives of behavioral sciences and economics.

Examples of innovative research in this realm are the work of Ariely and Gneezy (2007) on trust and customer revenge. Customers are more empowered than before and will actually seek revenge through the Internet for being misinformed by manufacturers. Behavioral experimentation on trust phenomena would be very useful and consumer behavior specialists would find this a rewarding area for research. Likewise, the early work by economists, Resnick and Zeckhauser (2002) found that people will bid more for identical goods from auction sellers with high ratings. This work is being built on by Cabral and Hortacsu (2004) who find that the concept of trust is important in explaining online auction behavior.

An example of this cross-disciplinary approach is current research work by the authors of this paper and our MIT colleagues on morphing sites to match cognitive and cultural style (Hauser et al. 2009). Morphing is an attempt to communicate more effectively by talking in the customer's terms (cognitive structure). The effort is to build trust by communicating "on the same wavelength" with the customer. In this methodology, a site dynamically changes/morphs to match an individual's decision style (analytic versus holistic, or impulsive versus deliberative). The sites present alternate levels of information and technical content. For example, if a person is analytic and impulsive, he will receive succinct data on products and be able to make a purchase in a minimum number of clicks. If he is holistic and deliberative, he will receive overall advice and detailed data so

that he can make an informed decision. Fig. 4 shows how the BT site can change to match customer decision style and supports a third dimension of visual versus verbal morphing. The morphing system uses Bayesian updates based on site clicks to infer the cognitive style of a user and optimally serves up the best morph for the consumer using Gitten's algorithms and machine learning theory. Current work is underway to extend the system for cultural dimensions such as egalitarian versus hierarchical, individual versus collective, and emotional versus neutral. The proposition is that we trust sites that "think like" we do — there is empathy. As in life, when real people "get it". If they are communicating with a common framework, we believe and trust them more. This is just one example of how behavioral, marketing, and IT concepts can be integrated to improve the effectiveness of Internet trust strategies.⁶

Side by side comparison

A final example of the frontier of multidisciplinary research is the use of fMRI to understand trust formation. fMRI has been used to identify the areas of the brain that are activated (increased blood flow) by trust or betrayal and has identified the influence of ceritinon and trusting behavior (see Glimcher and Rustichini 2004; King-Casas et al. 2005). Through fMRI research, Kosfeld et al. (2005) have found that oxytocin (in spray vapor form) increases trust in humans by increasing individual willingness to accept risk arising through interpersonal interactions. At MIT, we are involved in an fMRI to determine if the face of an online advisor is more trustworthy when the face is more similar to the consumer's face. This could help understand online trust brain activation and contribute to

⁶ See Bucklin and Sismeiro (2009) for insights into clickstream data analysis.

finding the best personas for online advisors in trust based sites. fMRI and trust is an exciting area for research on trust and online behavior (see [Murtagh and Dimoka 2007](#) for recent thoughts).

Trust is global

Trust is global, and many firms are formulating global Internet strategies. The usual approaches are to have one site for the world with only translation differences for building separate sites for each country. We could do research on country differences and best site design and how determinants of trust vary by country. Some work on this issue has been done (see [Chong, Yang and Wong 2003](#)), but with the growing globalization of Internet strategies, this frontier of research needs greater attention.

Another research frontier is building flexible sites that capture within and across country differences. [Hofstede \(1980\)](#) has shown that there is as much variation within countries as across them, so the concept of morphing by cultural characteristics is attractive. If one had a world wide site with a common backbone that then morphed within and across countries, individual differences could be fully captured. For example, [Fig. 5](#) shows a backbone site for a bank in Japan. While much of Japan is traditional (hierarchical, collective and neutral), many young Japanese are egalitarian, individual, and emotional. One site would not fit all, but morphing could capture differences within the country. Initial research with 1,000 consumers in Japan indicated matching to cognitive style can significantly increase trust (3.1 to 3.7 rating of trust on 5 point scale). The investigation of a true multi-country backbone and morphing within and across countries has not been done and remains a high potential research area.

New media is growing

The Internet is continuing to evolve. The Web 2.0 designation only indicates a recognition of the changes that have been going on and these changes will accelerate. Web 2.0 is characterized by user control and ownership of data (e.g., more customer power), collaborative networks (e.g., lead user innovation — [Von Hippel 2005](#)), and social networks which have evolved out of communities (e.g., Craigslist). While some features are evolutionary, revolutionary phenomena have taken place in Myspace and Facebook, Second Life, blogging, and customer complaint sites. We know from past research that some new media like social communities can increase trust ([Urban 2005](#)), but much more research is needed to understand the impacts of the new social networks. We need to understand the functioning of these networks and their impact on purchasing decisions. Increasingly these sites are being supported by advertising.

Research could be done to find the most effective advertising strategies (e.g., traditional pop up push messages versus trust based copy or customer advocacy) and much money should be allocated to online media versus the traditional mass media. Individual targeting of communication is a hot area with Google search word advertising and bidding and is ripe with research opportunities to determine the effects of trust on search behavior. Another topic that could be researched is whether sponsored links or pop ups should be individualized for decision style and culture and if they should be morphed like a web site. Finally, new media raise the issue of whether online advertising can build brands as well as encourage clicks leading to purchase (called performance advertising). We know brands



Fig. 5. Suruga bank morphing.

are important to trust so research on branding versus performance online advertising would be very useful. For greater discussion on new media, see Winer (2009).

Change is happening rapidly on the Internet and this means many opportunities exist for research on trust and effectiveness. Many ideas exist in the study of the impact of the new frontiers. Authors are encouraged to consider each frontier and define projects that reflect rigor and relevance. Hopefully, these brief descriptions can be a trigger to additional creative efforts.

Conclusion

Much work has been done on online trust and it remains a productive area for future research. We reviewed just a sampling of research possibilities within the state of the art and across some new frontiers. Work is in process at academic institutions with a stream of working papers available online. The industry is also active in trust research although much of it is not published. For example, AOL has a “Chief Trust Officer” and eBay has heavily invested in understanding trust. Companies like Progressive and Fidelity also view trust as a key component in their future strategies (see Fidelitylabs.com for some of their prototype ideas). In addition, consulting companies like Peppers and Rogers, Trust Enabling Strategies Inc, Communispace, Bazaar Voice, and Experion Systems are working on online trust issues. Overall, online trust is a vibrant and growing field with research and commercial opportunities. We can expect continued advancement in the field of online trust research and its impact on improved Internet strategies of firms.

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