

# Privacy Risk in E-Commerce

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## INTRODUCTION: PRIVACY

Privacy, or the right to hold information about oneself in secret (Masuda, 1979; O'Brien & Yasnof, 1999), has become increasingly important in the information society. With the rapid technological advances and the digitalization of information, retrieval of specific records is more rapid; personal information can be integrated into a number of different data files; and copying, transporting, collecting, storing, and processing large amounts of information is easier. Additionally, the advent of the World Wide Web and the fast-paced growth of the Internet have created further cause for concern. The vast amounts of digital information and the pervasiveness of the Internet facilitate new techniques for gathering information—for example, spyware, phishing, and cookies. Hence, personal information is much more vulnerable to being inappropriately used. This article outlines the importance of privacy in an e-commerce environment, the specific privacy concerns individuals may have, antecedents to these concerns, and potential remedies to quell them.

## PRIVACY: AN IMPORTANT ASPECT OF E-COMMERCE SUCCESS

When individuals conduct transactions on the Internet, there are various risks that must be evaluated (see Table

1 (Jacoby & Kaplan, 1972)), recent research has also included privacy as a new risk factor (Featherman & Pavlou, 2003).

People enjoy the convenience of purchasing products online; however, to do so they are risking the confidentiality of their personal information. This occurs since an individual and an organization have different objectives. Businesses collect vast amounts of information for many different purposes:

- To serve their customers more successfully;
- Personalize products and offerings; and
- Build long term relationships (Resnick & Montania, 2003).

This can benefit individuals by enabling them to experience the convenience of online shopping and personalize products. However, when divulging personal information to any entity they must weigh the benefits and risks in each situation since any disclosure of information has the potential of making them more vulnerable to privacy loss.

Individuals generally do not want to share personal information (Hoffman, 2003), and with regard to e-commerce, research has linked privacy to shopper's purchase intent (Eastlick, Lotz, & Warrington, 2006; Kuhlmeier & Knight, 2005; Liu, Marchewka, Lu, & Yu, 2004; Ranganathan & Ganapathy 2002), willingness to transact (Dinev & Hart, 2006; Van Slyke, Shim,

*Table 1. Types of risk (adapted from Jacoby & Kaplan, 1972)*

Risk Type	Definition
Performance	Product will not perform as described
Financial	Monetary loss
Time/Convenience	Waste time researching the product and potentially make a bad decision
Psychological	Negative affect on the person's self-perception, loss of self-esteem
Social	Loss of status in social group
Physical	Bodily harm
Privacy	Loss of personal information

Johnson, & Jiang, 2005), and willingness to provide information (Meinert, Peterson, Criswell, & Crossland, 2006). Therefore, to build successful relationships businesses must address their customer’s privacy concerns so that their customers will trust them (Resnick & Montania, 2003). They must also protect any information they have access to, since this is what consumers expect of them (Hoffman, Novak, & Peralta, 1999). This trust is the key to building a valuable relationship with customers (Hoffman et al., 1999; Liu et al., 2004). In fact, trust serves to reduce perceived privacy risk (Malhotra, Kim, & Agarwal, 2004; Van Slyke et al., 2005). Therefore, it is evident that privacy is an important factor in an individual’s decision to disclose information on the Internet, and hence an important aspect of e-commerce success.

### INDIVIDUAL CHARACTERISTICS

The privacy issue is of concern to many types of people and individuals from different backgrounds. There are many different factors that can have an affect on the amount of privacy risk an individual perceives. Many of these factors are individual characteristics such as age, gender, education level, marital status (Liebermann & Stashevsky, 2002), and culture (Choi & Gestfeld, 2004; Milberg, Smith, & Burke, 2000; Smith, 2001). For example, older people tend to be more concerned about supplying their personal information on the Internet (Liebermann & Stashevsky, 2002; Nowak & Phelps, 1992), and women are less willing to disclose information (Cazier, 2002). In addition, the amount of experience an individual has using the Web (i.e., frequency accessing the Internet, number of purchases made via the Internet, satisfaction with past Internet purchases) influences the nature of the information considered private (Hoffman et al., 1999) and risk perceived (Liebermann & Stashevsky, 2002; Kuhlmeier & Knight, 2005).

### TYPES OF INFORMATION

There are several different types of information that individuals may be reluctant to share—Table 2 summarizes some examples of these types of information. It is important to realize that *quality* of information is very important, since “not all personal information is

equal” (Berghel, 2000). There are three categories of information:

- Personally identifiable, such as social security number, or full name;
- Information that is not identifiable unless it is combined with other information, such as first name or date of birth; and
- Anonymous information, such as IP address (FTC, 2000).

Individual’s concerns are directly related to the specificity of information, where personal and individually specific information is mainly what individuals are most concerned about protecting (Nowak & Phelps, 1992).

### PRIVACY CONCERNS: COLLECTION, CONTROL, AND AWARENESS

When interacting with a Web site, individuals as consumers are now more wary about protecting their data, and have many concerns regarding personal information misuse. Table 3 lists the various concerns individuals have and threats to information misuse. Many of these concerns have become major problems, due to the abundance of information readily accessible on the Web and the ability to easily collect new information. For example, new information can be collected via cookies, keyloggers, spyware, phishing, and many other types of malicious software and hardware. In addition, data-mining tools facilitate the analysis of

Table 2. Private information

<ul style="list-style-type: none"> <li>▪ Address</li> <li>▪ Click streams</li> <li>▪ Cookies</li> <li>▪ Credit card numbers</li> <li>▪ Date of birth</li> <li>▪ Demographic information</li> <li>▪ E-mail</li> <li>▪ Health care information and medical records</li> <li>▪ Name</li> <li>▪ Phone number</li> <li>▪ Real time discussion</li> <li>▪ Social security number</li> <li>▪ Usage tracking</li> </ul>
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