

Research has linked consumers' willingness to buy with assurance seals, but so far companies seem lukewarm about having third parties provide them.

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What Companies Are(n't) Doing about Web Site Assurance

Few analysts would debate that the past optimism surrounding business-to-consumer (B2C) e-commerce has dwindled. A March 2002 study conducted by Yahoo and ACNielsen reports that consumers will spend only \$13.8 billion in first quarter 2002—an estimated \$56 billion for the year. Contrast this to Giga Information Group's 2000 estimate of \$152 billion by year's end, and the outlook seems rather bleak.

Even without the false inflation from dot.com fever, this is a huge drop. Part of the reason might be continued struggles with fulfillment and other back end concerns, but it might also be consumers' reluctance to shop in a market where buyer beware takes on a whole new meaning. Indeed, a 2002 survey by Consumer WebWatch (http://www.consumerwebwatch.org/news/1_abstract.htm) reveals that US consumers plain don't trust e-commerce sites. Approximately 29 percent of those surveyed were suspicious of online stores, while 33 percent said they didn't trust sites that gave advice on products or services.

Consumers have reason to be wary. According to a report by the Internet Fraud Complaint Center (a division of the US Federal Bureau of Investigation), the total loss for 2001 was a staggering \$17.8 million, with a median loss of \$435 per com-

plainant. Moreover, some companies are profiting from the sale of personal information, despite pledges against the practice in their consumer privacy policies. Consumers filed privacy violations against now bankrupt e-tailer Toysmart in 2000 and against Toys "R" Us in 2002.

These weaknesses of security and privacy in online commerce do not augur well for the health of e-commerce, and they persist in spite of advances in security technology. An April 2001 study by the Privacy Leadership Initiative shows that these weaknesses aren't going unnoticed: 82 percent of consumers surveyed said they pay attention to online privacy statements. They want e-commerce sites to provide easy-to-find, clearly stated information that will help them judge a site's credibility. They also want to know who runs individual sites, and how that individual or company deals with any problems that may arise. The "Why Information Assurance is Critical" sidebar gives some statistics that underline a shift in trust and trustworthiness.

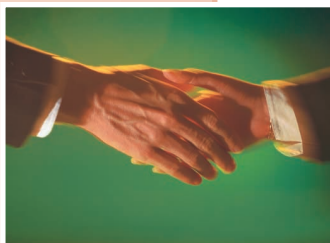
Current consumer attitudes are consistent with a joint study conducted back in 1997 by Yankelovich Partners and the American Institute of Certified Public Accountants. This study linked credible assurance about the business entity to a significant increase in the online purchase of products and services. Of the consumers surveyed in this study, 78 percent said they would be more willing to purchase online if the site contained some kind of trustworthiness seal.

inside

Why Information Assurance is Critical Companies Surveyed with Transactional Web Sites Resources

Why Information Assurance Is Critical

- Of 23,000 panelists, 48% believed their credit card information was at risk and 51% were less likely to give personal or financial information to a Web site after denial-of-service attacks early in 2000 (Gallup poll, Feb. 2000).
- For 60% of respondents to a survey conducted by Market Facts Interactive during 2001 (http://cyberatlas.internet.com/markets/advertising/article/0,,5941_781741,00.html), the existence of a Web site privacy statement would make them more confident that the company would not share personal information in unauthorized ways.
- A Gartner Group study found that 46% of consumers whose privacy was violated by a Web site would not visit that site again (“By the Numbers,” *CIO*, 1 Feb. 2001; http://www.cio.com/archive/020102/tl_numbers.html).
- In 2001, consumers reported \$17.8 million lost to online fraud, according to the US Federal Bureau of Investigation’s White Collar Crime Center (http://www1.ifccfbi.gov/strategy/IFCC_2001_AnnualReport.pdf).
- In an April-May 2002 survey by the US Treasury, 37 state attorney generals asserted that “current law does not adequately protect consumers’ privacy.” The survey was in response to the Gramm-Leach-Bliley Act, which extends the ability of banks, securities firms, and insurance companies to enter each other’s businesses and thus share databases. A financial economist at the US Treasury noted, “There’s quite a bit of awareness that greater clarity is necessary for the consumer” (Joanna Glasner, “Survey: Opt-Out Is a Cop-Out,” *Wired News*, 7 May 2002; <http://www.wired.com/news/privacy/0,1848,52328,00.html>).
- An October 2000 survey of 2,400 consumers in Europe and South Africa found that 62 percent of online shoppers are not confident that their privacy is protected on the Internet. Two out of three consumers were unwilling to provide the personal information necessary to complete high-value sales. Only 20 percent were willing to share information with companies in exchange for products or services (“E-Privacy in the Information Age,” PricewaterhouseCoopers; http://www.pwcglobal.com/gx/eng/ins-sol/survey-rep/etrust/pwc_eprivacysolutions.pdf).



pany characteristics (industry type, size, and reputation) and the presence of these seals.

Our results show that most companies are only marginally interested in Web assurance. Of the 72 companies with transactional Web sites (28 sites offered information only), fewer than half the companies in all but one industry sector have assurance seals of any kind. Most companies are interested only in privacy seals, electing not to assure consumers about security or business integrity. Also, for the most part, only large companies with an established reputation seemed willing to invest in even a privacy seal.

ASSURANCE SERVICES

To obtain an assurance seal, companies hire a neutral third party to certify that the business is trustworthy and that consumers can be certain that the data they provide will remain

private and secure. In short, the assurance service makes it easier for the consumer to “trust” the business entity. One definition of trust is “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (R.C. Mayer and colleagues, “An Integrative Model of Organizational Trust,” *Academy of Management Rev.*, July 1995, pp. 709-734).

Web assurance services are based on the idea of making the vulnerable party (the consumer) more comfortable with the transaction and ensuring that “the other” (the company) follows through on its promises. The most well known services are WebTrust, TRUSTe, VeriSign, and BBBOnline. Other services like BizRate.com and Gomez.com rely on the ratings of consumers who have bought products or services at that site. The Online Privacy Alliance is a group of corporations and associations that have come together to uphold self-established privacy standards. The idea is to foster trust through self-regulation to meet the alliance’s requirements rather than relying solely on third parties.

Regardless of how they implement assurance practices, all assurance services tend to have core minimum requirements. They derive some privacy elements from the US Federal Trade Commission’s Fair Information Practice Principles; other practices have arisen without government intervention.

- *Notice/awareness.* A company must give consumers notice

Yet despite growing evidence that trustworthy Web sites are integral to e-commerce, we have seen little research into what companies are doing to incorporate consumer assurances into their sites. To address this gap, we surveyed 100 Fortune 1000 companies to see how many carried assurance seals and what types—privacy, security, or business integrity. We also looked for patterns between com-

of its information practices before collecting any personal information from them.

- *Choice/consent.* The company must provide consumers with options about how their personal information might be used beyond fulfilling the service or transaction.
- *Access/participation.* Consumers must have access to personal information about themselves and be able to contest the data's accuracy and completeness.
- *Integrity/security.* Consumer data must be accurate, and the company must maintain it safely and securely using the physical, electronic, and managerial or procedural measures necessary.
- *Enforcement/redress.* Companies must be subject to mechanisms that enforce other privacy principles. These include self-regulation, private remedies, and governmental enforcement. Web sites aimed at children younger than 13 years, for example, must comply with the Children's Online Privacy Protection Act (COPPA), which states that sites can collect information from these young visitors only with verifiable parental consent.

Selecting a service

Services vary widely in what they offer. Nonprofit assurance services like BBB and TRUSTe do not provide advice or consulting. They merely evaluate their client's privacy policy to make sure that it conforms to the set of assurance requirements established by the service. WebTrust, developed jointly by the American Institute of Certified Public Accountants (AICPA) and the Canadian Institute of Chartered Accountants (CICA), uses licensed public accountants who complete special training in how to issue a WebTrust seal. Its auditors offer consulting services that help clients create an assurance program and ensure that their policies are legally sound.

Because the sole intent of an assurance seal is to foster trust and gain credibility, an assurance service's reputation, honesty, and integrity are key to the consumer's willingness to accept it. The BBB, for example, asserts that it is "an organization renowned for its expertise and experience in conducting successful national self-regulation and dispute resolution." BBB's longevity and proven reputation give it a level of consumer confidence that a relative newcomer like TRUSTe will find hard to duplicate. The importance of reputation is evident in the recent Enron case. After Arthur Andersen's indictment, 240 of its client companies switched to other financial auditors. Even the suggestion of ques-

tionable integrity is enough to sway the public.

Cost is another consideration in selecting a service. Table 1 shows the fees charged by four services. In most cases, cost depends on the size of the company seeking certification; the larger the company, typically the more complex the evaluation, and the higher the cost. BBBOnline pricing can be as high as \$7,000, for example, and TRUSTe's upper range is close to \$8,000. TRUSTe also bases cost on the type of certification desired, such as the Children's Privacy Seal program or the European Union's Safe Harbor program. Pricing

Table 1. Characteristics of Web assurance services.

Characteristic	WebTrust	TRUSTe	VeriSign	BBBOnline
Year started	1998	1997	1995	1997*
Privacy	X	X		X
Security	X		X	X
Business Integrity	X			X
Duration of seal (months)	6	12 or 24	12 or 24	12
Audit required?	Yes	No	No	Possibly
Cost	Variable	From \$399	From \$650	From \$200

* BBBOnline Reliability began in 1997; BBBOnline Privacy began in 1999.

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TECHNOLOGY SOLUTIONS FOR THE ENTERPRISE

Table 2. Information assurance areas, issues they address, and potential remedies.*

Assurance area	Issues addressed	Potential remedies
Security	Unauthorized access Distributed denial-of-service attacks	Intrusion detection software Firewalls, traffic management software, backup servers and IP numbers, proper password-generation guidelines, prompt application of software patches, and proxy servers
Transaction integrity	Alteration/deletion/duplication of documents Diversion/nonreceipt of documents	Software controls Encryption and electronic receipts for senders
Authenticity of transacting parties	Identity theft	Digital signatures/certificates (such as those from VeriSign) and encryption
Privacy compliance	Unauthorized access Inappropriate use	Software/electronic controls Physical controls, managerial controls/restrictions to access data that could aid in profiling; and privacy seals like TRUSTe, BBBOnline, and WebTrust
Business integrity	Grievance redress	Comprehensive audit of business practices, role of arbitrator/mediator, and seals like BBBOnline reliability
Financial settlements	Diversion of payments Breach of contract Unauthorized use of financial data Nonrepudiation	Escrow services

* This table is not comprehensive; a full analysis is beyond this article's scope.

for VeriSign varies according to the number of Secure Sockets Layer IDs a company requires. Each ID starts at around \$650. WebTrust's fees depend on the CPA firm chosen, as well as on the company's size and revenue.

Finally, companies should select a service according to what assurances they want to provide. As Table 1 shows, only WebTrust and BBBOnline provide seals in all three critical areas: privacy, security, and business integrity. TRUSTe is concerned only with privacy, and VeriSign provides only digital ID services, which certify the electronic merchant's authenticity.

Assurance verification

As Table 1 shows, only WebTrust mandates a formal audit. TRUSTe requires only that the company do a self-assessment and then discuss its privacy policy with a TRUSTe representative. BBBOnline could perform an audit as part of its requirements, but the BBBOnline representative decides when an audit is necessary. VeriSign requires only that the company provide its Dunn and Bradstreet number.

A WebTrust auditor is typically a certified public account-

ant or other certified financial expert who received special training in how to issue a WebTrust seal. Audits include a visit to the company's physical site to confirm its legitimacy and to ensure that it has processes in place to meet the service's assurance requirements. The auditor looks at both current and historical data on how the business deals with its customer data and determines if the company complies with its stated privacy policy. The auditor looks at the grievance resolution process, number of dissatisfied customers, and actions taken to resolve the complaints. Finally, the auditor looks at the system itself to determine if it matches WebTrust's requirements, is immune to various security vulnerabilities, and has the proper mechanisms to minimize damage if security breaches occur.

ELEMENTS OF ASSURANCE

Every third-party assurance service must satisfy certain dimensions of information assurance. Table 2 shows the factors that the Yankelovich study found to influence online purchasing. Although the table lists six elements, standard industry practices tend to cluster security, trans-

action integrity, and authenticity of parties into one overarching area—security. Business integrity and financial settlements combine to form the business integrity area, and privacy compliance forms the third area, privacy.

Security

Security means being able to safeguard proprietary and personal data from unauthorized or inadvertent access or disclosure. Standard security practices include disclosing information about registration; establishing identification through user names and passwords; using industry-standard encryption to transmit sensitive data; applying software patches in a timely manner; using firewalls or intrusion-detection software; and using digital signatures or certificates. A company should also have mechanisms in place to communicate to consumers if their data has been compromised.

Privacy

The *Oxford English Dictionary* defines privacy as “a state or condition of being free from public attention as a matter of choice.” In the online arena, this means that companies must disclose their information collection and dissemination practices, and provide consumers with a choice about how a company can use their information. Companies must also adopt measures to protect the integrity of personal information and protect children by complying with governmental laws and regulations.

Business integrity

Businesses with integrity disclose their information privacy practices prominently on their sites. They inform consumers about the specific types of actively and passively collected data, and how the company might use that information. They make consumers aware of possible third-party dissemination and how consumers can restrict a company’s use of their information and correct any errors. They reveal how the use of cookies or other technologies could identify a consumer. Finally, they provide contact information to resolve consumers’ questions and concerns about privacy policies, and explain how consumers can redress grievances.

In measuring business integrity, assurance services use four criteria as a minimum:

- Communications are truthful and accurate with no deceptive marketing.
- The company is forthcoming about its business policies, such as refunds, returns, and exchanges, and it provides easy-to-access information about its business policies, products, and services.
- Information security and privacy practices aim to preserve the integrity of consumer data, provide consumers with choices about how the company may or may not use their data, and apply electronic and managerial meas-

Companies Surveyed with Transactional Web Sites

Computers and Office Equipment

Apple Computer
Compaq
Dell
Gateway
Hewlett-Packard
IBM
Iomega
Lexmark
Maxtor
PC Connection
Pitney Bowes
Seagate Technology
Sun Microsystems
Symbol Technologies
Systemax
US Office Products
Western Digital
Xerox

General Merchandisers

Belk
Costco Wholesale
Dillard’s
JC Penney
Kmart
Kohl’s
Saks
Sears Roebuck
Target
Wal-Mart Stores

Specialty Retailers

Albertson’s
Amazon
AutoNation
AutoZone
Barnes & Noble
Bed Bath & Beyond

Best Buy
Borders Group
Brown Shoe
Circuit City Stores
CSK Auto
Footstar
Home Depot
Jo Ann Stores
Linens ‘N Things
Lowe’s
Michael’s Stores
Nike
Office Depot
OfficeMax
Payless Shoesource
PetsMart
Radio Shack
Service Merchandise
Sports Authority
Staples
The Neiman Marcus Group
Tiffany & Co
Toys “R” Us
Trans World Entertainment
Venator and Footlocker
Williams-Sonoma
Zales

Apparel Retailers

Abercrombie & Fitch
Burlington Coat Factory
FDS and Bloomingdale’s
Gap
Lands’ End
Limited and Victoria’s Secret
May Department Stores
Men’s Wearhouse
Nordstrom
Polo Ralph Lauren
Reebok International

- ures to keep the data from falling into the wrong hands.
- The company answers queries promptly and redresses grievances in a timely and responsible manner, thereby demonstrating that customer satisfaction is important.

CURRENT ASSURANCE PRACTICES

In our survey, we looked at companies from four industry sectors that focus on B2C e-commerce: computers and office equipment, general merchandisers, specialty retailers, and apparel. The “Companies Surveyed with Transactional Web Sites” sidebar lists the companies in each sector.

We categorized companies according to industry sector,

Table 3. Surveyed companies with assurance seals—industry sector grouping.

Industry sector and no. of companies	No. of companies with assurance seals for		
	Security	Privacy	Business integrity
Computer and office equipment (18)	1	7	1
General merchandisers (10)	2	3	0
Specialty retailers (33)	14	2	7
Apparel retailers (11)	1	0	0

Table 4. Surveyed companies with assurance seals—size grouping.

Company size* and no. of companies	No. of companies with assurance seals for		
	Security	Privacy	Business integrity
Top (33)	7	11	3
Middle (19)	5	0	1
Low (20)	6	1	4

* The top grouping is a Fortune ranking of from 1 to 333; middle, 334 to 666; and low, 667 to 1,000.

Table 5. Surveyed companies with assurance seals—reputation grouping.

Reputation* and no. of companies	No. of companies with assurance seals for		
	Security	Privacy	Business integrity
Top (18)	1	7	1
Middle (41)	15	5	6
Low (13)	2	0	1

* The top grouping is a Google ranking of from 8 to 10; middle, 7; and low, 1 to 6.

size, and reputation, as Tables 3 through 5 show. To represent size, we assigned Fortune rankings on the basis of a company's revenues. This measure is in line with previous research, which shows that consumers are positively influenced by a company's size, which the Fortune rankings

adequately reflect.

than firms with low reputation rankings. Interestingly, companies in the computer and office equipment industries have more privacy seals than specialty or apparel retailers. This could be because computer firms are much more sensitive to consumers' privacy

adequately reflect.

To represent reputation, we used Google rankings, which research also shows has a bearing on how consumers respond to online stores. Google bases its reputation score on links between Web pages. For example, if page A contains a link to page B, Google considers that page A's "vote" for page B. Google also considers the importance of the page that casts the vote—votes cast by important pages weigh more heavily and help make other pages important.

To gain a broader perspective, we tried to include rankings by BizRate and Gomez, but close to a third of the companies were not ranked, and the scores assigned to companies we did find varied only slightly.

Table 6 shows the total number of seals categorized by the service that awarded them.

Assurance and company characteristics

To determine if patterns exist between company characteristics (company type, size, and reputation) and assurance dimensions (security, privacy, and business integrity), we applied a statistical test using Statistical Package for the Social Sciences (SPSS) Version 10.

We found that statistically the number of security seals differs significantly across industry types and reputation rankings, and the number of privacy seals differs significantly across industry types, company sizes, and reputation ranking. These results reveal several interesting trends.

Privacy. Large companies have significantly more privacy seals than mid-size or small firms. Predictably, firms with middle to high reputation rankings have more privacy seals

Table 6. Number of assurance seals for companies surveyed.

Area	Assurance seal**	Industry sector* and no. of companies				Company size (Fortune ranking) and no. of companies			Reputation (Google ranking) and no. of companies		
		COE (18)	GM (10)	SR (33)	AR (11)	Top (33)	Mid (19)	Low (20)	Top (18)	Mid (41)	Low (13)
Security	VeriSign	1	2	13	1	7	5	5	1	14	2
	WebTrust	0	1	0	0	1	0	0	0	1	0
	BizRate.com certified	0	0	3	0	1	1	1	1	2	0
Privacy	TRUSTe	2	2	1	0	4	0	1	2	2	0
	BBBOnline Privacy	4	0	1	0	5	0	0	4	1	0
	Online Privacy Alliance	2	0	0	0	3	0	0	2	0	0
	WebTrust	0	1	0	0	1	0	0	0	1	0
Business Integrity	BBBOnline Reliability	1	0	4	0	2	0	3	0	4	0
	BizRate.com certified	0	0	3	0	1	1	1	1	2	0

* COE – Computer and office equipment; GM – general merchandisers; SR – specialty retailers; AR – apparel retailers.

** A Web site may have more than one seal in the same assurance dimension.

wishes than other retail firms.

Security. The many privacy seals among companies in the computer and office equipment industries are a strong contrast to the dearth of security seals in the same companies. Perhaps computer and office equipment companies do not believe that third-party assurance adds anything; they are confident enough in their own Web security. Indeed, all the sectors but specialty retailers seemed unwilling to invest in security seals. Specialty retailers had 14 security seals, relative to seven business integrity seals and only two privacy seals.

As Table 6 shows, VeriSign is by far the most popular seal, a clear front-runner among specialty retailers. Company size seemed to have no bearing on the number of security seals. Firms with middle reputation rankings were most willing to invest in security seals; hardly any companies with high reputation rankings had them. Perhaps, highly reputed firms feel their reputation is sufficient proxy for security assurance.

Business integrity. We saw no differences in the use of business integrity seals among industry type or company size and reputation. This could be because all the companies surveyed view themselves as worthy of their Fortune 1000 ranking. They may be assuming that consumers believe this ranking ensures their integrity.

Some of the companies have been around for decades and may be relying on their longevity to assure consumers that they will deliver the products and services as promised.

Clearly Web assurance is important, yet our study shows a nonchalance toward Web assurance that is alarming. Companies must become more proactive in obtaining assurance seals. Web assurance services must be careful not to compromise their reputations. There is always the temptation to overlook irregularities or noncompliance in the face of large fees or other financial incentives. Thomas Dunfee, director of Wharton School of Management's Zicklin Center for Business Ethics Research, says, "huge fees paid ... can entice CPAs to overlook improper activity for fear of jeopardizing a lucrative business relationship." (<http://knowledge.wharton.upenn.edu/articles.cfm?catid=10&articleid=410>).

Indeed, Dunfee's words seem to have come true. Arthur Andersen, a company since 1913, has been implicated in the Enron scandal (along with companies such as Waste Management and Sunbeam). Observers attribute Andersen's misconduct to the high consulting fees it reaped from companies like Enron. The lucrative relationship caused the firm to ignore various irregularities, and thus the financial "assurance" it provided was meaningless.

The consequences of giving into such temptation are far-reaching and dangerous for e-commerce in general. Consumers' distrust of companies has never been stronger. As *Time* stated in "You're On Your Own, Baby," (28 Jan. 2002), "The risks of inaction or unwise action are rising, even as many of the professionals on whom we would like to rely for guidance are proving untrustworthy and even



Resources

Internet Fraud and Privacy Violations

- ▶ Princeton Survey Research Associates Consumer WebWatch, 2002; http://www.consumerwebwatch.org/news/1_abstract.htm.
- ▶ “DoubleClick Settles Privacy Suits,” *CNN Money*, 29 Mar. 2002; <http://money.cnn.com/2002/03/29/technology/doubleclick/index.htm>.
- ▶ “FTC Announces Settlement With Bankrupt Website, Toysmart.com, Regarding Alleged Privacy Policy Violations,” Federal Trade Commission, 21 July 2000; <http://www.ftc.gov/opa/2000/07/toysmart2.htm>.
- ▶ “Toys R Us.com Enters into Agreement with State,” New Jersey Division of Consumer Affairs, 3 Jan. 2002; <http://www.state.nj.us/lps/ca/press/toysrus.htm>.
- ▶ “You’re On Your Own, Baby,” D. Kadlec, *Time*, 28 Jan. 2002; <http://www.time.com/time/covers/1101020128/intro.html>.
- ▶ “IFCC 2001 Internet Fraud Report,” National White Collar Crime Center, 2002; http://www1.ifccfbi.gov/strategy/IFCC_2001_AnnualReport.pdf.

Assurance Service Requirements

- ▶ 2000—*WebTrust v3.0 Principles & Criteria*, American Institute of Certified Public Accountants; <http://www.aicpa.org/assurance/webtrust/princip.htm>.
- ▶ “Frequently Asked Questions—How is the BBB-Online Privacy Program Different From Other Programs on the Internet, Such as the TRUSTe

Seal?” “Privacy Program Eligibility Requirements,” and “Pricing Information,” Better Business Bureau; <http://www.bbbonline.org/privacy/threshold.asp>.

- ▶ “How to renew the TRUSTe Program—Pricing,” TRUSTe; <http://www.truste.org>.
- ▶ “Fair Information Practice Principles,” “Gramm-Leach-Bliley Act,” and “Children’s Online Privacy Protection Act,” US Federal Trade Commission, Washington, D.C.; <http://www.ftc.gov>.

Additional Reading

- ▶ “Electronic Commerce Assurance: Attitudes toward CPA WebTrust,” AICPA and Yankelovich Partners, 1997; <http://www.aicpa.org/webtrust/yankel.htm>.
- ▶ “The CPA and the Computer,” L.L. Larson and S.D. Hall, *The CPA J.*, June 2000, pp. 72-73.
- ▶ “Content of Corporate Web Pages as Advertising Media,” A.F. Salam, H.R. Rao, and C.C. Pegels, *Comm. ACM*, Mar. 1998, pp. 76-77.
- ▶ “Do High Consulting Fees Compromise the Independence of CPA Firms?” Knowledge@Wharton.net, 2001; <http://knowledge.wharton.upenn.edu/articles.cfm?catid=10&articleid=410>.
- ▶ “Bridging E-Business and Added Trust Keys to E-Business Growth,” H. Hsiung, S. Scheurich, and F. Ferrante, *IT Professional*, Mar.-Apr. 2001, pp. 41-45.
- ▶ “US Confidence in Internet Falls,” A. McLindon, *ElectricNews.net*, 26 Mar. 2002; <http://www.electricnews.net/news.html?code=6784626>.

corrupt.” If consumers transfer their distrust to e-commerce, no amount of convenience or product variety will entice them to try online shopping. They will return to the relative security of brick-and-mortar stores, and B2C e-commerce will eventually die.

Our survey is only a first step in examining Web assurance practices. We are conducting another study that involves more industry sectors, surveying Internet shoppers to see which of the three assurance areas—privacy, security, or business integrity—has the most influence on their ability to trust Web sites.

If consumers have no confidence in assurance seals, they are likely to avoid online transactions. Affirmative action by the government, coupled with self-imposed reforms by assurance service providers, could possibly discourage future corrupt practices, renew consumer confidence in assurance seals, and boost the health of e-commerce in the next decade. ■

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