

# AN EMPIRICAL ANALYSIS OF WEB SITE PRIVACY AND SECURITY BY INDUSTRY

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## ABSTRACT

This paper presents the results of research into the privacy policies of organizations based on a questionnaire completed after site visits. Results were analyzed and presented by industry category. The model used was the four criteria of notice, access, choice and security that were designated by the FTC as Fair Information Practices. The data demonstrate that in the sample from nine industry categories that there is a wide disparity in compliance. This state of events dictates that the consumer has a long way to go before they can be confident that their information is kept private and secure.

**Keywords:** Privacy, security, fair information practices, compliance

## INTRODUCTION

WWW privacy policies have received a significant amount of attention in the literature (1,3,5,6). Organizations race to balance the desire to collect useful consumer data and the consumers' desire for privacy (9,13). McGraw states "usability can often be compromised in the attempt to ensure privacy"(7). Alan Westin recently stated in an interview that "he thinks that it is the beginning of the end of the target marketing era (10). The key issue is whether or not organizations are making an honest attempt at complying with FTC guidelines on information privacy and security (4,13). This paper presents the analysis of the findings of 179 organizations' privacy and security guidelines' compliance. Tables 1 and 2 present the percentages by industry category and an average total for three key portions of the research study.

The questionnaire in Table 3 decomposes the four FTC criteria into sub-categories or dimensions that are used to determine if the company is fully compliant, partially compliant or non-compliant with the criteria. The definitions for the degree of compliance are listed on the questionnaire. The results indicate that on the average none of the criteria were at the 50% full compliance level. Some industry groups, as expected, are much more compliant than others. Some of the explanatory factors might include specific government regulations by industry and the existence of some global companies and, finally, some relatively low profile or rapidly expanding groups that do not have the awareness of the need and importance of strong policy and security practices (11,12).

	<b>Industry Category</b>									
	<b>Airlines</b>	<b>Banks</b>	<b>Car Rentals</b>	<b>Elec- tronics</b>	<b>Life Insurance</b>	<b>Pharma- ceuticals</b>	<b>Teen Health</b>	<b>Tobacco</b>	<b>Utilities</b>	
<b>NOTICE</b>										
<b>Compliance</b>										<b>Total</b>
<b>Full</b>	37%	80%	75%	80%	100%	65%	0%	45%	25%	55%
<b>Partial</b>	58%	0%	25%	20%	0%	15%	100%	20%	75%	35%
<b>Non</b>	5%	20%	0%	0%	0%	30%	0%	35%	0%	10%
<b>CHOICE</b>										
<b>Compliance</b>										
<b>Full</b>	42%	80%	65%	80%	50%	40%	10%	30%	50%	50%
<b>Partial</b>	42%	0%	20%	15%	0%	15%	35%	10%	20%	17%
<b>Non</b>	16%	20%	15%	5%	50%	45%	55%	60%	30%	33%
<b>ACCESS</b>										
<b>Compliance</b>										
<b>Full</b>	42%	80%	35%	65%	25%	35%	0%	5%	15%	34%
<b>Partial</b>	11%	0%	35%	10%	35%	10%	10%	10%	15%	15%
<b>Non</b>	47%	20%	30%	25%	40%	55%	90%	85%	70%	51%
<b>SECURITY</b>										
<b>Compliance</b>										
<b>Full</b>	37%	80%	35%	75%	65%	40%	30%	10%	30%	45%
<b>Partial</b>	53%	0%	45%	25%	30%	5%	30%	45%	50%	31%
<b>Non</b>	10%	20%	20%	0%	5%	55%	40%	45%	20%	24%

**Table 1 Percentage Compliance By Industry to Four FIP Criteria**

**SURVEY METHOD**

Over five hundred web sites were visited, reviewed and evaluated using a two-page assessment questionnaire (See Table 3). An attempt was made to group the web sites by industry type so as to facilitate data analysis and comparisons. The following categories were selected for the overall study:

- |                             |                           |
|-----------------------------|---------------------------|
| <b>Car Rental Companies</b> | Online Clothing Retailers |
| <b>Global Banking</b>       | <b>Tobacco</b>            |
| Entertainment               | General Retailers         |
| <b>Global Utilities</b>     | Computer Industry         |
| Auto Financing Sites        | Beverage Industry         |

<b>Life Insurance</b>	Sports Sites
<b>Teen Health Sites</b>	Music Industry
<b>Electronics Industry</b>	Financial Sites
<b>Airlines</b>	Credit Unions
<b>Pharmaceuticals</b>	Investment Brokerage Sites.

For this paper, only the industries in bold type were analyzed. The questionnaire contained both factual type information (URLs, link existence, site focus, type of trust employed) as well as subjective issues relating to ease of access to privacy policy and an overall evaluation of the sites' privacy policy (2). All data were collected during February, 2003.

The questionnaire was a modification of the one employed by the FTC (4) and Ryker, et al (8). It used the Fair Information Practices (Notice, Choice, Access and Security) set forth by the FTC. Each factor was subdivided into two or three specific attributes of the web site's policy on privacy and security.

### OVERALL SITE ASSESSMENTS

Table 2 presents the results of two key summary measures of each web site. The first question concerned the ease or difficulty of locating the organization's policy on privacy. A five- point scale was used to classify each site ranging from very easy to very hard. On average, seventy-five percent of the sites across industry categories were deemed to have either very easy or easy to locate privacy policy statements. Not shown but also part of the research, 76% of the sites under review had a hyperlink on the home page to the privacy policy. It is interesting to note that the range was from 100% (Car Rental Companies) to 37% (Tobacco Sales Sites).

The second part of the table presents the results of an overall assessment of site compliance with privacy and security guidelines. A review of the average demonstrates that less than fifty percent of the sites were rated as either Very Strong or Strong. The ratings ranged from a low of fifteen percent (Tobacco) to a high of eighty-five percent (electronics). A very interesting observation is that the sites might be easy to locate but not contain the appropriate degree of information privacy compliance that would be expected or required by the user.

	Airlines	Banks	Car Rentals	Electronics	Life Insurance	Pharmaceuticals	Teen Health	Tobacco	Utilities	Total
<b>How Easy to Find Privacy Policy</b>										
Very Easy	80%	40%	5%	65%	40%	15%	90%	5%	70%	46%
Easy	5%	25%	80%	10%	45%	55%	10%	30%	0%	29%
Neutral	0%	5%	15%	5%	10%	5%	0%	10%	15%	7%
Hard	10%	0%	0%	20%	5%	0%	0%	15%	5%	6%
Very Hard	5%	20%	0%	0%	0%	10%	0%	35%	10%	8%
No Policy	-	10%	-	-	-	15%	-	5%	-	4%
<b>Overall Evaluation of Privacy Policy</b>										
Very Strong	40%	0%	10%	50%	15%	10%	5%	5%	10%	16%
Strong	5%	80%	30%	35%	60%	10%	25%	10%	15%	30%
Neutral	20%	0%	20%	5%	20%	15%	30%	5%	25%	16%
Weak	15%	0%	20%	5%	5%	20%	0%	35%	30%	14%
Very Weak	20%	0%	20%	5%	0%	30%	40%	40%	20%	20%
No Policy	-	20%	-	-	-	15%	-	5%	-	4%

Table 2 Overall Evaluation of Site by Industry Category

**RESULTS FOR SELECTED INDUSTRIES**

Airlines: Companies failed to define how information was secured in transit, how personal information was stored and secured in their facilities. They did not provide how a customer could access, modify or delete their personal information. They did not define how companies shared information with third parties and how consumers were notified for their approval to share their information. Overall, not a great level of detail was provided.

Banks:(12 U.S.,2 UK,1Can,1Ger,1 Bel,1 Israeli,1Pak). The non European International banks had weak or no policies. EU banks were strong since they follow the EU Directive on Data Protection. Solid U.S. compliance. All U.S., Canadian and EU banks were 100% compliant.

Car Rentals: Some companies spent little time and effort in compiling their statements as evidenced by the length and generality. Terms like demographic data and personal data were used. Enterprise had a particular noteworthy site.

Electronics: One third of the sample had an easy to find policy as well as a very strong rating regarding compliance to the four factors. A very wide range of compliance was found.

**Table 3**  
**The Questionnaire**

**Hagan School of Business**  
**Survey on Privacy Policies in E-Commerce**

**Background Information**

Industry Category: \_\_\_\_\_

Company Name: \_\_\_\_\_

URL: \_\_\_\_\_

Date Visited (m/d/yy): \_\_\_\_\_

Site Focus: (Check One) B – C \_\_\_\_\_  
B - B \_\_\_\_\_

**Site Information**

Location of Policy Statement in Site: \_\_\_\_\_

Privacy Hyperlink on the home page of the site? Yes \_\_\_\_ NO \_\_\_\_

Method of Trust Employed? Seal,etc. \_\_\_\_\_

How easy is it to find the privacy policy? Very easy \_\_\_\_\_  
(Choose one) Easy \_\_\_\_\_  
Neutral \_\_\_\_\_  
Hard \_\_\_\_\_  
Very Hard \_\_\_\_\_

What is your overall evaluation of the site's privacy policy?  
(Choose one) Very Strong \_\_\_\_\_  
Strong \_\_\_\_\_  
Neutral \_\_\_\_\_  
Weak \_\_\_\_\_  
Very Weak \_\_\_\_\_

Complete the following table regarding Fair Information Practices:

	<b>Assessing Decision</b>	<b>Compliance Rules</b>		
<b>CRITERIA</b>		<b>FULL</b>	<b>PARTIAL</b>	<b>NON</b>
<b>NOTICE:</b> Does the policy say anything about				
What personal information is collected?		YES	YES/No	No
Whether communications are sent to customers, other than those associated with an order?		YES	YES/No	No
Whether information is disclosed to third parties?		YES	YES/No	No
<b>CHOICE:</b>				
Internal Use-If the firm sends communications to the consumer, can s/he opt in or opt-out?		YES	YES/No	No
3 <sup>rd</sup> Party Use-If information is disclosed to 3 <sup>rd</sup> parties, can the consumer opt-in or opt-out?		YES	YES/No	No
<b>ACCESS:</b> -Can Consumers:				
Review at least some personal information?		YES	YES/No	No
Correct at least some personal information?		YES	YES/No	No
Delete at least some personal information?		YES	YES/No	No
<b>SECURITY:</b>				
Does the domain secure personal information?		YES	YES/No	No
Is information secured in-transit?		YES	YES/No	No
Is information secured in-house?		YES	YES/No	No

Note: To achieve **full compliance** for a FIP, a policy must receive a designation of “yes” for all of the questions associated with that FIP.

To achieve **partial compliance**, a privacy policy must receive a “yes” in at least one of the criteria but not all of them.

Policies in **noncompliance** with a FIP must receive a “no” for all questions associated with that FIP.

## CONCLUSION

This research study presented the results of an analysis of almost two hundred web sites and tabulated the degree of compliance to the four criteria that constitute the basis of fair information practices. It is clear that substantial progress has been made on the part of organizations to enable consumers to better understand what is happening to their personal information. What is also clear is that there is a significant gap in the consistency both within and between industries.

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