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Recommended Citation

McCarthy, Richard V. and Aronson, Jay E., "Competing in the Virtual World: E-Commerce Factors that affect the Property-Casualty Insurance Industry" (2000). *AMCIS 2000 Proceedings*. 117.

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Competing in the Virtual World: E-Commerce Factors that affect the Property-Casualty Insurance Industry

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Abstract

Electronic commerce has exploded; its expansion projections are consistently understated. We explore the current state of the property-casualty insurance industry use of the Internet for electronic commerce, by analyzing the factors that affect the expansion and use of electronic commerce in the property-casualty insurance industry. The insurance industry has embraced the use of technology to expand its market and to provide better customer service. Competition within the United States has expanded recently to include companies in Europe and Asia.

A survey of property-casualty insurance company web sites was performed to determine what types of services and features are currently offered through the Internet. Thirty-six web sites were sampled and the results showed that while no insurance company currently offers a fully electronic policy purchase process, there are a variety of services that are provided for through their web sites. The more common web based features include the ability to locate an agent, the ability to find information about how to report a claim, and the ability request a quote. Use of the Internet as a tool for electronic commerce within the insurance industry has not yet been fully utilized.

Background

Electronic Commerce (e-commerce) is a process that defines the buying and selling of products, services, and information via computer, including, but not limited to the Internet. Additionally, the concept of e-business, which includes electronically servicing the customer, has begun to emerge (Turban, Lee, King, & Chung, 2000). Estimates of current use and expectations for the future vary, but in each case the actual use continues to exceed expectations. The Gartner Group (1999) projects that information technology spending by companies worldwide will be \$3.3 trillion dollars by 2002, with half being comprised by electronic commerce. E-commerce is emerging as one of the significant areas that information technology is affecting the strategy of a business. Innovative electronic commerce practices have created new marketing opportunities for companies that have a strategy in place to take advantage of them.

In a survey by the International Insurance Society, concerns about e-commerce tied with concerns regarding competing domestically amid global growth, takeovers and consolidations by North American attendees as the key issues facing businesses today (Unsworth, 1999).

Senn (1996) identified that the three significant benefits to the use of electronic commerce were: (1) the reduction of cost of routine business transactions, (2) the reduction in cycle time for the completion of business transactions regardless of geographic dispersion and (3) the elimination of paper and the inefficiencies in handling paper. Each of these benefits is applicable to the business processes associated with the insurance industry. Senn (1996) further defined five business benefit criteria to evaluate the potential for electronic markets including: (1) extending the firm's reach; (2) bypassing traditional channels; (3) augmenting traditional markets; (4) boosting service; and (5) advertising. Extending the firm's reach refers to the ability of the firm to reach any potential customer regardless of geographic location. Bypassing traditional channels refers to the ability to reduce the dependence upon intermediaries. This is particularly significant to insurance companies that are currently dependent on independent agents as their sole channel of distribution. Augmenting traditional markets refers to the emergence of new means for marketing products and services. An example within the insurance industry is the emergence of insurance malls such as ebix.com and insure.com. Boosting service refers to the ability to utilize electronic commerce 24 hours per day. Advertising takes on special significance in an electronic commerce market. Firms are not constrained by boundaries of length, time and place. Advertising can be tied to customized situations, such as offering automobile insurance to customers of automobile retailers web sites.

The use of the Internet as a channel of distribution enables interactive commerce to take place. Deighton (1996) defines the term interactive as consisting of two features of communication: the ability to address an individual, and the ability to gather and remember the response of that individual. The Internet, as a tool for electronic commerce in the insurance industry, has the potential to create new marketing opportunities based upon its ability to capture and transfer information about customers to insurers and agents. When a consumer visits a Web site, many cycles of exchange can occur in a brief time period. Additionally, when a consumer returns to a

web site, exchanges can resume where the previous exchange left off. In addition to time independence, the benefit to the consumer is that they do not have to repeat previously entered information to resume an interrupted transaction.

Marketing on the Web dilutes the difference between large and small companies, enabling companies to perform one-on-one marketing. Gillenson, Sherrell and Chen (1999), define one-on-one marketing as the ability to use information about an individual to market specific products or services to that individual that are assumed to be of interest. This is not a new concept, however, the use of the Internet has opened a new channel of distribution for this concept. It is based upon the premise that if a company can somehow develop a personal relationship with a consumer then the consumer will continue to buy more products or services from that company. Gillenson, Sherrell and Chen (1999) define two categories of data as essential in the enablement of one-on-one marketing. The first is the variety of needs an individual consumer is looking to satisfy through the products or services of the firm. The second is the *value skew* of the distribution of profits the current customers generate for the firm. Dividing the variety and value presents a customer differentiation matrix. The matrix of low to high value and skewness can help define the electronic commerce strategy for the firm. Lines of insurance (e.g. workers compensation, automobile) have differing differentiation characteristics and therefore may require different electronic commerce strategies. One of the useful outcomes of this approach is that a company can learn from the data it collects. If an insurer begins with the wrong electronic commerce strategy but effectively monitors and controls their Web site, they can more easily make interim adjustments until the right mix of differentiation is achieved.

There are several areas must be evaluated in order to understand the impact of e-commerce on the insurance industry. The first is Web site design. According to Gehrke and Turban (1999), there are several factors that affect web site design. The most important factor is page loading speed. Consumers, who are doing business electronically, do not want to wait while web pages are downloaded. They recommend that the use of graphics, animated gifs, and files that require plug-in device drivers be limited to maximize page-loading speed. The use of plug-ins should be avoided because the average person does not want to have to download and install software to return to a web site to access it successfully. Graphics should not be ignored, because they are an important way to distinguish one Web site from another. To compete in an electronic commerce environment effectively, a company should have an e-commerce strategy that addresses, among other things how they will handle graphics. One way to handle graphics is through the use

of thumbnails, which can be expanded into a larger picture. Consumers who are doing business electronically have a myriad of options available to them. An effective Web site strategy takes into account expected transmission speed that a consumer is likely to be utilizing and design appropriately.

An e-commerce strategy should also define other factors that affect Web site design. According to the study by Gehrke and Turban (1999), these include: the business content of the site, navigation, efficiency, security and customer focus. Shelanski (1999), points out that it is important to consider the telecommunications infrastructure that is in place when defining an e-commerce strategy. Telecommunications bandwidth is being consumed at a rapid rate. This should be considered when designing resource intensive Web sites. Marketing to businesses that are utilizing T1 lines to access a company web site may present different design options than marketing to consumers who are accessing the Web site via a 28.8 modem. Recent studies suggest that more than 75% of Internet traffic is HTTP related. Network planning is critical to getting acceptable user response time (Kant and Yon, 1999).

Business content of the site should contain clear concise language that readily describes the business. It should also include contact information, via telephone and or email should the user want to follow up. The content of the website should be changed on a regular basis so that it remains interesting to repeat customers.

Navigation efficiency refers to the ease of use of the entire set of web pages. There should not be any broken links with a well-defined Web site (a broken link is one in which the location to be linked to no longer exists). Gehrke and Turban (1999) found that the use of frames had mixed responses. Frames break up the Web page and provide more flexible functionality. They also provide a means to display a company logo across each page. One disadvantage to frames is that older browsers do not support them. In addition they make bookmarking more difficult. Frames can add horizontal and vertical scrolling to a page. Whether or not frames are used navigation should be consistent throughout a well-defined Web site.

Strategic Implications of E-Commerce

Electronic commerce has the potential to enable business transformation within an organization. Venkatraman (1994) proposed a framework based upon two dimensions for IT-enabled business transformation. These dimensions consist of the range of information technology's potential benefits and the degree of organizational transformation. The underlying premise is that the benefits from IT deployment will be marginal if they are merely layered onto an existing organizational

structure. Organizations need to identify the transformational level where the benefits are in line with the costs for the changes that are needed. Five levels of organizational change were identified. These consist of (1) localized exploitation, (2) internal integration, (3) business process redesign, (4) business network redesign, and (5) business scope redefinition. The benefits of electronic commerce to an organization are expected to be significant, however, further study is needed to determine if the appropriate corresponding transformational change occurs with the implementation of an electronic commerce business process. For example, Lee (1998) found that the expected benefit of lower costs through the implementation of electronic commerce did not occur within the second-hand automobile market in Japan. It was expected that the cost per vehicle would be reduced as a result of the elimination of intermediaries and increased competition, but the results proved to be the opposite.

Implementation Considerations

Effective web site design can be more rapidly developed utilizing prototyping. Jefferson (1997) defined web site prototyping as consisting of four steps. Prototyping is useful for developing a proof of concept in order to quickly determine if the web site will be cost effective. The first step, define needs, involves getting the client needs description of what the users need. The second step, define ideas, extracts concepts from all of the participants and puts them into something meaningful. Step three, design, builds something that is the culmination of all of the ideas. The final step, deliver, is the delivery of specifications to the client so that they can construct the application. This is based upon the assumption that once the prototype is developed (as part of the design step) then the client will take over turning it into a production ready application (Jefferson, 1997). This can be useful as a means to determine the cost-benefit for web site development and support.

The rapid expansion of electronic commerce has allowed existing industries, such as telecommunications providers to expand their support services. It has also resulted in new industries, such as infomediaries, that help consumers find businesses on-line to emerge (Shelanski, 1999). New markets have been created and increased usage of electronic commerce has resulted in businesses having to transform themselves in order to remain competitive. Companies that are full cybermarketing organizations have rapidly begun to emerge. A full cybermarketing company is one that exclusively operates through the Internet (Turban, Lee, King and Chung, 2000). A well designed web site will result in the development of a customer base that will be more likely to purchase goods and services online. Customers are expected to purchase more due to the complete, timely

and effective presentation of information from the web site (Jefferson, 1997).

The Insurance Industry: E-Commerce Barriers

One reason why insurance companies may be slow in entering into the world of e-commerce is the lack of international standards (Kilarsky, 1998). CEFACT develops the UN/EDIFACT standards that are used in Europe, while ANSI X.12 is used within the United States. ACORD, an insurance industry standards setting body, has been working to solve this problem through the development of object-oriented standards for electronic commerce development, referred to as ACORD ObjX. It has not yet been determined how effective these standards will be. XML suggests that it will be easier to create business transactions due to self-documenting messages (Kaukal and Bichler, 1999). It will be possible for document forms and messages to be interoperable. The complexity of insurance forms will require this type of technology in order to be able to utilize interactive electronic commerce. XML combines the standards of EDI with the simplicity of HTML through the use of a document type definition (DTD). The DTD defines a set of attributes and the relationships of the attributes within a document though a set of element tags. The advantage of XML technology is that it is widely supported by web browsers, and there is a wide range of free software available. However, there has not yet been widespread acceptance and usage of XML within the property-casualty insurance industry (dePlanque, 1999).

Legal Issues Affecting Insurance E-Commerce

Insurance is a complex contract, and as such adds legal issues into the consideration for what must be considered in order to be able to sell this service electronically. At present, the insurance industry lags behind other financial services industries in their use of the Internet for sales and service (Independent Insurance Agents of America, 1999). The insurance industry within the United States is primarily regulated at the state government level. Currently, each state prohibits the sale of insurance by anyone other than an insurance company or insurance agent that holds a valid license within that state. This implies that any insurance company or agent that establishes a web site in order to sell insurance will have to be licensed in all fifty states. One option for handling this requirement that has been documented by the Independent Insurance Agents of America (1999) is to provide a list of all of the states that the insurance company is licensed to operate in at a conspicuous point on their web site. In addition, security that will protect the personal information that is gathered, as part of the

solicitation of insurance is a concern to companies that utilize electronic commerce. Many web sites document disclosure statements that specify the security procedures used by that company. These include, but are not limited to information regarding disclosure authorization, who has access to personal information and how that information will be used.

The contractual nature of insurance requires a written signature in many states in order for the contract to be valid. In the world of electronic commerce this is handled through the use of a digital signature. A digital signature is a means to sign an electronic document. The sender signs the document by encrypting it with a private key prior to it being sent across the Internet. The resulting encrypted document is referred to as the digital signature. The receiver utilizes a public key that has been previously given to them by the sender in order to be able to access the document (Turban, Lee, King and Chung, 2000). Many states do not accept a digital signature in place of a written signature, creating an impediment to transacting electronically. The legal environment is changing to help alleviate this problem. The Internet Growth and Development Act of 1999, House Bill H.R. 1685, has been proposed to recognize the validity of digital signatures. It states, "all electronic signatures that have been authenticated through the use of a means of electronic authentication that complies with subsection (d) shall have standing equal to paper-based, written signatures, so that (1) any rule of law which requires a record to be in writing shall be deemed satisfied; and (2) any rule of law which requires a signature shall be deemed satisfied" (Library of Congress, 1999). Subsection (d) defines the methods of proof of compliance as "(A) uses an identification methodology that is unique to the person making, sending, originating a document a communication; (B) the identification methodology shall be capable of verifying the identity of such person; and (C) the identification methodology is linked to the data communication transmitted in such a manner that if such data communication has been altered, the authentication becomes invalid" (Library of Congress, 1999). If this act passes then the legal barrier regarding entry to the electronic commerce market as a result of signature requirements will be broken. The act is not specific to contracts of insurance, but applies to all electronic contracts transacted within the United States. Some states have already acted upon this issue. In 1995, Utah became the first state to pass legislation recognizing the validity and enforceability of digital signatures (Belgium, 1999).

The legal environment addresses electronic options for the payment of premiums. No state prohibits the payment of premium by electronic funds transfers, however licensing requirements imply that the insurer must build

in logic to only allow payments from states that they are licensed in.

For a contract to be valid an offer must be made and accepted. For an insurance contract to be valid in an on-line environment, this requires that the contract be 'accepted'. A common way to handle this is by requiring the purchaser to hit an "I Accept" button. Belgium (1999) points out that the Uniform Commercial Code requires that contracts in excess of \$500 be in writing. Thus far the courts have held that on-line contracts are considered to be valid and in written form. Contracting on the web is usually an interactive process. This will eliminate the 'mailbox rule' of acceptance. When an offer is being accepted, courts have ruled that the mailing of an acceptance constitutes a legal contract regardless of when the acceptance is delivered. On-line contracting removes the inherent time delay that exists in a contract delivered through the mail.

The United States is not the only country that is taking advantage of the Internet as a means for electronic commerce. The European Union is looking to consolidate the insurance regulations of a dozen countries in order to make it easier to implement technology solutions for all members of the insurance industry operating within the union (Macaig, 1999).

As of July 1998, eighteen states enacted laws to protect the privacy of information gathered as part of the application for insurance. It is recognized that insurance companies gather a significant amount of personal information that is used to determine insurability. None of these states has addressed the issue of protection of this information when it is transmitted electronically (Zinkewicz, 1999). This issue will need to be addressed either at the state or federal level in order to support expanded use of electronic commerce within the insurance industry.

The Investigation

The web sites from thirty-six property-casualty insurance companies were sampled to determine what services they provided to their customers. The thirty-six companies represented a cross section of the property-casualty insurance industry within the United States. These included the top fifteen property-casualty insurers, based upon total premium dollars written in 1998, as well as several regional insurers who do not operate in all of the states within the United States. Specific criteria was defined prior to the investigation of the web sites, in addition the web sites were also investigated to see if they contained any additional features that were not part of the specific search criteria. The specific criteria that was searched for included the ability to request a quote for total policy cost, the ability to purchase a policy, the

ability to obtain a copy of an existing policy (actual copies were not obtained as the request process usually required that a policy number and/or identifying information about the policyholder be input), the ability to pay insurance premiums, the ability to obtain a copy of the automobile insurance card, the ability to report a claim, the ability to obtain information on how to report a claim (where the claim report was not captured on-line through the Internet), the ability to locate an agent, and the ability to link directly to the agent. Insurance malls were not considered as part of this evaluation. In order to complete the evaluation, each web site was accessed searching for the aforementioned criteria. Additionally, any features or supports not specifically listed that were provided by any of these companies were noted (see Table 1).

Results

The majority of the web sites surveyed provided a product-service update that listed the policies that they offered along with additional coverage information. Of the thirty-six companies that were surveyed, the most prevalent support that was obtained from these web sites was the ability to locate an agent. Twenty-six of the thirty-six (72%) companies surveyed provided the ability to locate an agent, while only 30.5% included the ability to further directly link to an agents web page. One company, Great American Insurance, requested information and would forward it directly to their agent via email without first prompting the customer to select an agent. The ability to obtain information on how to report a claim was found on 55.6% of the web sites surveyed, while only twenty-five percent of the web sites surveyed included the ability to directly report a claim through the insurance companies web site. There were no companies that provided the ability to purchase an insurance policy directly on-line. Most of the companies surveyed provided information about the policies that they sold, or specific coverage's for those policies. Eleven of the thirty-six companies (30.6%) that were surveyed provided the ability to obtain a price quote directly via their web site.

Conclusions

Based upon the sample of insurance company web sites that were analyzed, the property-casualty insurance industry appears to be slow to enter the world of electronic commerce through the Internet. The majority of the companies surveyed provided very little functionality to their web sites, relying mostly on product and service update information as the basis for their web sites. The few sites that offered additional features included maps to the location of their agents and site maps for their web site. In addition, Fireman's Fund insurance offered an automobile game in an attempt to

distinguish their site and make it more interesting. Progressive Insurance offered an on-line demo in addition to their insurance related web pages.

No company has developed a full service web site that will provide a quote, sell and issue a policy and handle claims on-line. It will be necessary for insurance companies to develop web based performance metrics to determine the cost effectiveness of such a web site. In addition, aside from the legal issues regarding licensing, signatures, and protection of information, insurance companies that compete on-line must also contend with managing traditional channels of distribution. Many insurance companies utilize the independent agency system that may feel threatened by an insurance company that is also selling directly to customers online.

Implications for the Future

Future work could include infomediaries that are acting as insurance malls. In addition, complimentary businesses that include links to insurance services could also be investigated to determine specific features that they are providing. For example, on-line automobile purchasing web sites are now starting to include information and links to companies that are selling automobile insurance at the point of purchase. One additional measure that could be evaluated is to track which companies are using cookies to maintain information about customers and how effective are their usage in improving the sales and service of an insurance company.

Future work could also be expanded to include financial services. The recent passage of the financial services reform act enables banks to enter into the property-casualty insurance business. It is to soon to determine what type of impact this will have on insurance companies, particularly those competing through electronic commerce.

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Table 1. Survey Results

Company Name	Request Quote	Purchase Policy	Obtain Copy of Policy	Make Payments	Obtain Auto Insurance Card	Report Claim Online	Obtain Information on Reporting a Claim	Locate Agent	Link to Agent
<i>Safeco Insurance</i>			Y	Y	Y		Y	Y	
<i>Travelers Insurance</i>	Y					Y		Y	Y
<i>Hartford Insurance</i>	Y					Y	Y	Y	
<i>Geico</i>	Y			Y					
<i>Zurich</i>						Y	Y	Y	
<i>All State</i>	Y		Y			Y	Y	Y	Y
<i>Phoenix Mutual</i>								Y	
<i>Kemper</i>							Y	Y	
<i>Guardian Insurance</i>								Y	
<i>Liberty Mutual</i>	Y					Y	Y	Y	
<i>Firemans Fund</i>								Y	Y
<i>Beacon</i>									
<i>Ohio Casualty</i>				Y		Y	Y	Y	Y
<i>AIG</i>	Y							Y	
<i>Chubb</i>						Y	Y		
<i>Nationwide</i>	Y						Y	Y	Y
<i>CNA</i>								Y	
<i>St Paul</i>						Y	Y	Y	Y
<i>Progressive Insurance</i>	Y			Y			Y	Y	Y
<i>ACE Insurance</i>									
<i>State Farm</i>	Y						Y	Y	
<i>USAA</i>									
<i>Erie Insurance</i>							Y	Y	Y
<i>Cincinnati Insurance</i>								Y	
<i>Harleysville Group</i>								Y	
<i>Philadelphia Insurance</i>									
<i>Atlantic Mutual</i>							Y	Y	
<i>General Casualty</i>							Y	Y	
<i>Lumber Insurance</i>	Y						Y		
<i>Integon Insurance</i>				Y			Y	Y	
<i>Foremost Insurance</i>	Y					Y	Y		
<i>Great American Insurance</i>									Y
<i>Middlesex Mutual</i>							Y	Y	Y
<i>Royal & Sun Alliance</i>							Y	Y	Y
<i>Commercial Union</i>								Y	
<i>Reliance</i>									
Totals	11	0	2	5	1	9	20	26	11
%of Totals	30.56%		5.56%	13.89%	2.78%	25.00%	55.56%	72.22%	30.56%