

8-16-1996

Commerce on the Web: How is it Growing?

Barbara J. Haley

Management Department, University of Georgia

Traci A. Carte

Management Department, University of Georgia

Richard T. Watson

Management Department, University of Georgia

Follow this and additional works at: <http://aisel.aisnet.org/amcis1996>

Recommended Citation

Haley, Barbara J.; Carte, Traci A.; and Watson, Richard T., "Commerce on the Web: How is it Growing?" (1996). *AMCIS 1996 Proceedings*. 93.

<http://aisel.aisnet.org/amcis1996/93>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 1996 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Commerce on the Web: How is it Growing?

Barbara J. Haley*, Traci A. Carte*, and Richard T. Watson
University of Georgia
Management Department
Athens, GA

Introduction

Commercial activity on the World Wide Web (Web) is a hot topic. A September 1995 *Information Week* cover story described the large revenues that Web businesses realize, listing eleven companies that made a total of 25 million Web-related dollars in 1995 (Maddox, Wagner, and Wilder, 1995). While many researchers have investigated Web end-users (Booker, 1995), few systematically have studied the companies conducting Web commerce.

Popular sources refer to tremendous growth of Web commercial activity, but this growth measurement is simply the number of new users and Web sites. While this number highlights the magnitude of growth, perhaps a better measurement would be whether the companies who were among the first to jump on the electronic commerce band wagon have seen their Web sites evolve, move forward, and become more sophisticated in addressing customer needs.

This study reports the findings of a two-phase analysis of Web commercial activity conducted in the final quarter of 1994 and 1995. Initially, we examined 98 businesses listed on the Commercial Sites Index (CSI) by content analyzing Web sites. A year later, we revisited the sites and recorded changes. In the following sections, we present research questions, methods, and findings. Because of little theory and few published studies, this study was designed to gain an initial understanding of Web commercial activity.

Research Questions

The popular press suggests that an increasing number of businesses are conducting electronic commerce. The Web growth rate interests practitioners and researchers because it provides an assessment of the Web's magnitude. Therefore, we ask, *How quickly is commercial Web activity growing?*

Our preliminary scan of Web sites found businesses ranging from night clubs to motorcycle dealers to information systems providers. These businesses' Web use ranged from one page of basic product information to sophisticated multi-page offerings with interactive order entry, and on-line newsletters. We ask, *What types of businesses are using the Web?* and *How are businesses using the Web?*

The growth of Web sites does not indicate that Web commercial application is evolving. A better indication may be whether sites are becoming more sophisticated in customer interaction. We ask, *How is commercial Web activity changing?*

Methods

Growth of Web commercial site listings such as CSI should reflect the commercial Web activity growth. Weekly, we recorded the number of CSI companies from September 23, 1994 until February 9, 1996.

The first phase of this longitudinal study took place in the final quarter of 1994. A sample of 98 companies systematically were selected from the 835 listed on CSI on November 4, 1994. The sample was selected by determining a random starting point and then selecting every eighth company from an alphabetical listing. The researchers each visited 49 Web sites and collected demographic data, such as company type and location, site complexity, and site content.

To determine what types of businesses were using the Web, one researcher classified the companies by Standard Industrial Code. The results were reviewed by another researcher; conflicts were discussed and resolved. These codes were grouped based on prior research (King, 1996).

Data were gathered that indicated how a business was using the Web to interact with customers. Each company's Web site was classified using the phases of the Customer Service Life Cycle (CSLC) (see Figure 1), a variation on the customer resource life cycle (Ives and Learmonth, 1984; Ives and Mason, 1990).

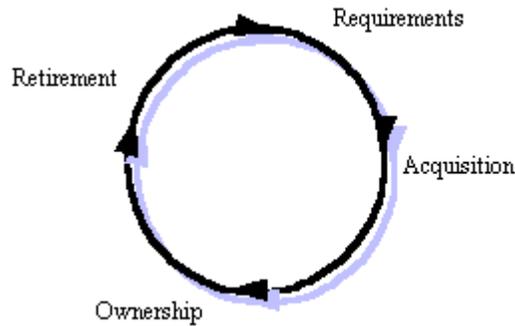


Figure 1: Customer Service Life Cycle

The CSLC separates the service relationship with a customer into requirements, acquisition, ownership, and retirement. We assessed which phase or phases of CSLC each business supported (see Table 1).

requirements	assisting the customer to determine needs(e.g., product photographs, sound bytes, files);
acquisition	helping the customer to acquire a product or service (e.g., on-line order entry);
ownership	supporting the customer (e.g., on-line user groups, resource libraries);
retirement	assisting the client to dispose of the service or product (e.g., on-line resale).

Table 1: CSLC phase examples

In the final quarter of 1995, the same researchers conducted a second analysis of the 98 sample Web sites to identify how the sites had changed. Each site was revisited by the original reviewer, who recorded data about site complexity, site content, and customer

interaction. Ten businesses could not be accessed, and data were collected regarding why the sites were inaccessible.

Each researcher collected descriptive information on half of the sample, using predetermined categories to identify CSLC phases. After individual coding was completed, the researchers categorized the data for the other half of the sample. The results of coding were compared and discussed "to provide a form of analytical triangulation" (Patton 1990, pg. 383).

Findings

How quickly is commercial Web activity growing?

We observed a steady growth of CSI. The number of businesses increased from 466 on September 23, 1994 to 22,500 on February 9, 1996. Using linear regression, we found that a quadratic curve, compared to linear and exponential, was the best explanation of variation in the data ($R^2 = .97$, $p < .0001$, $sites = 28.2 + 23.4x + 4.84x^2$).

What types of businesses are using the Web?

Web businesses are listed by industry group in Table 2. The sample included 35 business types, varying from Hotels/Motels to Computer Integrated Systems Design. Most sample companies are associated with the information industry, and 24 of the companies were classified as computer integrated systems design. This category includes companies that provide Web services. This is not surprising given that our sample was drawn when the Web was a relatively new phenomenon. Early adopters of this new technology likely would be technology-related companies.

Consumer	7	7.1%
Financial	3	3.1%
Industrial	7	7.1%
Information	58	59.2%
Media	8	8.2%
Service	4	4.1%
Miscellaneous	11	11.2%
Total	98	100.0%

Table 2: Industry group breakdown of CSI companies

How are businesses using the Web?

Initially, the companies represented different phases of CSLC and different levels of complexity. All of the companies conveyed information about a product or service,

exhibiting characteristics of the requirements phase. However, the complexity of the Web sites demonstrating similar life cycle phases varied greatly. For example, the Mouseboard's Web site contained a single page with a product picture and a textual description. Promus, a holding company for multiple hotel chains, presented a complex hierarchy of information that included photographs of hotel rooms, rate listings, press releases, and an employee directory.

Twenty-six percent of the companies demonstrated characteristics of the acquisition phase. This acquisition figure is comparable to the number of Fortune 500 companies that conduct sales over the Web (King, 1996). One company demonstrating acquisition characteristics, Lane and Lenge Florists, offered the customer a mail order catalog look and feel. It presented photographs of floral arrangements and textual descriptions, and it offered an order push-button alongside each product to add a product to an interactive order form. The customer added payment or billing information to complete the order and electronically sent the form to Lane and Lenge to close the deal.

Although none of the companies in 1994 displayed characteristics of the retirement phase, 15% demonstrated ownership. Ownership consisted of unique ways to support Web customers. Citicorp, for example, offered an interactive process for reordering checks.

How is commercial Web activity changing?

In 1995, we investigated whether companies had changed their level of customer service. All sites remained in the requirements phase and the number of companies demonstrating acquisition was approximately the same. This could be due to the lack of sales occurring via the Web or to security concerns. Lane and Lenge demonstrated acquisition, but the site contained a detailed explanation of the security issues involved in using a credit card number in Web transactions.

31% of the companies displayed ownership characteristics. Lighthouse Design added FAQ indices and on-line training materials; Mathworks offered on-line conference sign-up and on-line product support. Dell Computer was the only company displaying retirement with an on-line technology replacement program.

Although many companies had more advanced Web sites, two companies moved *backwards* in the CSLC. Citicorp discontinued acquisition phase activities, including the check ordering and automatic loan application, citing lack of security as the reason for the decreased service.

The change in complexity of sites was dramatic, with 61% of the sites displaying more complexity. The Mouse Board, for example, no longer had a picture and textual description; the site contained graphical diagrams of the parts that comprise the product, interactive contact forms, and multiple pages of information. Others added context sensitive maps, on-line forms, external links, graphics, and surveys. Most companies that did not become *more complex* either started off with highly complex sites or seemed to

exist for a single purpose. For example, the National Library of Poetry maintains a site that is used only in conjunction with its annual poetry contest.

In 1995, ten companies' sites from the original sample were considered inaccessible after repeated attempts to reach the site, using multiple browser software packages, utilizing two popular search engines, Yahoo and Alta Vista, and trying to contact the company. Five companies could not be located; four companies no longer conduct business on the Web because of lack of sales. One company, the Hyatt Regency, Washington DC, discontinued its site when it was included on the corporate Hyatt Web site.

Conclusion

The overall picture indicates continued rapid Web development by organizations both in terms of new adopters and expansion by early adopters. Both are signs that the Web contributes to organizational performance. Possibly due to general perception of poor security, acquisition of goods and services via the Web is not progressing at the same rate of development as other CSLC phases. The next year portends even greater change with the recent release of new Web tools that significantly expand an organization's capability for electronic interaction with stakeholders.

References

Booker, Ellis. "Web users cruising for information, not purchases," *Computerworld*, 1995, (2:20), p. 6.

Ives, B.; Learmonth, G. P. "The information systems as a competitive weapon," *Communications of the ACM*, 1984, (27:12), pp. 1193-1201.

Ives, B.; Mason, R. "Can information technology revitalize your customer service?" *Academy of Management Executive*, 1990, (4:4), pp. 52-69.

King, Dave. "Fortune 500 on the Web: the road to second level effects," *Hawaiian International Conference on System Sciences*, 1996, (4), pp. 463-470.

Maddox, Kate; Wagner, Mitch; Wilder, Clinton. "Making money on the Web," *Information Week*, 1995, (Sept), pp. 31-40.

Patton, Michael Quinn. "Qualitative Analysis and Interpretation," Chapter 8, *Qualitative Evaluation and Research Methods*. 1990 second ed. Newbury Park, CA: Sage. p 371-459.

* The first two authors contributed equally to this paper.