

Investigating the Impact of Web Site Value and Advertising on Firm Performance in Electronic Commerce

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ABSTRACT: The failure of many B2C companies has triggered widespread concern about the future prospects of such firms. Surviving and newly formed companies are reevaluating their strategies and struggling to build a sustainable business model. This paper empirically examines how customer value created through Web site interface and advertising affects firm performance in an electronic commerce context. Advertising can increase the number of visitors to a Web site. Web site features that facilitate presale, sale, and postsale tasks by increasing visitor-to-customer conversion can augment bottom-line performance measured in terms of economic value added (EVA). The results demonstrate that advertising spending alone has only a negligible impact on firm performance. A more appropriate profit-enhancing strategy for B2C companies is to complement advertising spending with a superior shopping experience that augments the value customers gain from the purchase experience. Advertising spending may act as a stimulus to increase Web site traffic. If complemented with Web site features that support customers' purchase-requirements determination and product-ownership experience, it can enhance the performance of B2C firms.

KEY WORDS AND PHRASES: Advertising expenses, customer value, Economic Value Added (EVA).

The failure of numerous B2C companies has cast serious doubt on the viability of prevailing business models. Among the reasons offered for the failure of B2C companies, overspending on marketing and overemphasis on revenue represent the two predominant perspectives [18]. According to Pegasus Research International, average marketing and sales expenditure for B2C companies (toward the end of the Internet bubble) was 69 percent of revenue in the second quarter of 2000. Although this was down from the 94 percent of revenue in the fourth quarter of 1999, e-tailing companies have been spending lavishly on advertising aimed at acquiring customers and building brands. Further, there is scant evidence regarding the returns generated by B2C companies through advertising-related expenditures [29]. Some research indicates that most B2C companies are not delivering value-added services that on-line consumers desire [28]. Those that do provide such services can augment on-line shopping experience and enhance bottom-line performance [34]. With a critical mass of e-commerce experiences behind us, it is useful to probe a little deeper in exploring the relationships between advertising expenditure, shopping experience, and corporate value.

A company's Web site can be viewed as the delivery mechanism for a collection of services that facilitate various tasks a customer needs to perform in the overall purchase cycle. Such services can augment the value of the overall purchase to the customer and boost business performance [7]. Using value-added

services as key differentiators can provide a company with a much-needed competitive edge. Recent research in the area of Web site effectiveness has focused on how Web site design and features affect on-line purchase behavior [32, 43, 44]. According to Novak et al., a compelling shopping experience may affect competition in Internet markets [42]. Liu and Arnett found information service quality, system use, playfulness, and system design quality to be instrumental in the success of a Web site [34]. Hoque and Lohse highlight the importance of designing Web sites to make the buying process more convenient [23]. Zhang and von Dran [67] indicate that customers have certain quality expectations from different Web sites. Lynch and Ariely show that in an electronic environment, if information is easier to search and compare, shoppers become less price sensitive [36]. Therefore, a strong argument can be made for the hypothesis that enhancing customer value through value-added services operationalized as Web site features is one of the main drivers of business performance for e-tailing companies.

Companies can attract customers by promoting various features of the Web site (thus enhancing its usefulness) or by conveying messages that focus on brand image, product assortment, competitive pricing, and customer service [47]. For example, Next Card has been successful with a banner advertisement campaign emphasizing that customers can get credit approval on the Web site within 30 seconds [6]. Amazon promotes itself as the largest bookstore in terms of number of product offerings. It also emphasizes customer testimonials and product-recommendation tools in its ads. Promoting Web site-specific features solely or in conjunction with other types of messages can be an effective advertising strategy to attract customers and facilitate network effects. Once a customer arrives at the Web site, a superior shopping experience supported by value-added services can induce purchase. Such value-added services enhance the value customers derive from the purchase and also strengthen customer loyalty [51]. Therefore, an effective advertising strategy can augment the relationship between value-added services provided through the Web site interface and business performance by increasing both the incidence and sales conversion of site visitors.

The relationship between Web site interface and advertising, or between Web site interface and business profitability, has not been subjected to empirical testing for companies operating on electronic channels. Such an analysis is important for two reasons. First, in an electronic environment, the Web site is the predominant interface between the company and the customer. Most advertising campaigns are aimed at luring customers to Web sites. However, the viability of the business model of e-tailing companies depends on customers making purchases. Therefore, it is important for organizations to assess how business can be boosted by value-added services (Web site features) offered through the Web site that may induce purchase and by advertising effort to attract customers to the Web site. Second, by providing initial guidance, such analysis can stimulate further research on antecedents that drive performance for companies operating predominantly in cyberspace.

This study explores the effect of Web site interface and advertising on the performance of e-tailing companies. It argues that companies that enhance customer value by providing a compelling shopping experience through aug-

mented services operationalized as features available on the Web site will outperform competitors. Effective advertising strategies will be instrumental in augmenting the relationship between such value-based strategies and firm performance. Data on Web site features were collected through company Web sites, and information on advertising expenditure was collected from financial statements. The empirical analysis shows that advertising expenditure alone has but a negligible impact on firm performance and provides partial support for the contention that comprehensive Web site features that add to customer value complemented with by advertising spending enhances firm performance.

Customer Value and Web Site Interface

Customer value is the net gain accrued by customers from buying and using a seller's product [65]. Services offered by the seller are a distinct component of the value determination. In an e-commerce context, services offered by a seller assume even more importance as price competition intensifies. For example, drugstore.com provides information, updates, product-recall announcements, and refill reminders on prescriptions. The company also sends information on specials and discounts to customers for products they have previously purchased. These Web site-based services play an important role in enhancing customer loyalty and retention [49].

Recent studies on Web shopping have drawn from the literature on retail patronage to identify Web site features that enhance the customer's shopping experience [28, 31, 35, 56]. Among the sources of shopping convenience are better search tools, general suggestion tools, extensive product reviews, and faster checkout service [54]. Previous studies identify a host of important features, but it is important to understand the configuration of the consumer's relationship with a company and how these features or value drivers fit into it [20, 65]. Studies in the marketing domain have proposed several models for the consumer decision-making process that capture consumer-supplier relationships [14, 24, 25, 41]. Engel et al. describe the consumer decision-making process as a set of five steps: problem recognition, information search, evaluation of alternatives, purchase, and postpurchase evaluation and disposal [14]. Each stage involves customer-supplier interaction and thus offers the supplier an opportunity to add value for the consumer [65]. Since customer requirements differ in each stage, tapping into the determinants of value in each stage is important in achieving superior market performance. Organizations that configure Web site features around the drivers of customer value in each stage can enhance the on-line shopping experience and boost their bottom-line performance.

The Customer Service Life Cycle (CSLC), developed by Ives and Learmonth [26] and later refined by Ives and Mason [27], is a framework that integrates the customer decision-making process and the literature on retail patronage into a cohesive model of customer activities. This framework proposes that a consumer goes through a four-stage cycle in purchasing and using a product or service: requirements, acquisition, ownership, and retirement. In the first stage, requirements, the consumer identifies a need and selects an appropriate

product or service to satisfy it. Having decided what to purchase, the customer progresses to the second stage, acquisition, and actually buys the selected product. In the third stage, ownership, the consumer integrates the product within the total system (e.g., inventory). Finally, in the retirement stage, the consumer gets rid of the product by transfer of ownership or actual disposal. CSLC is similar to the Engel model but offers better insight on how information technology can be leveraged to enhance relationships with customers, and that is why it is used in this study [27]. According to Ives and Learmonth [26] and Ives and Mason [27], firms that assume a leading position in the use of information technology to enhance value for their customers in each of the four stages of the CSLC stand a better chance of differentiating themselves from competitors. Firms can develop value drivers (Web site features) associated with each stage of CSLC that tap into different aspect of customer value. Therefore, each stage, with its associated value drivers, has the potential to significantly influence performance. This clearly suggests that instituting a stage-wise relationship with performance is appropriate. Since initial analysis revealed that Web site features supporting the retirement stage were nascent, it was dropped from further analysis because of concern that the results might be an artifact of the emerging nature of these Web features rather than the actual state of affairs.

Advertising and Web Site Interface

As pointed out by Johnson, exorbitant outlays on customer acquisition lead to cash flow problems if the high cost of attracting customers to Web sites is not matched by the inflow of revenue [29]. In light of this, if one is to devise with an effective advertising strategy, it is important to understand how advertising works in an e-commerce context. According to Singh and Cole, the three main components of advertising input are message content, scheduling of media, and repetition, and these constitute an advertising strategy that prompts consumer responses [53]. In an e-commerce context, advertising messages can be developed around traditional approaches, such as brand image, price competitiveness, or customer service. Advertising content can also highlight Web site features.

Consumers are exposed to huge amounts of information and often give only limited attention to advertising messages [60]. According to Jupiter Research, consumers are exposed, on average, to 3,610 advertising messages every day, decomposed into 610 messages on-line and 3,000 off-line impressions. Jupiter predicts that by 2005 the average e-mail advertising rate will reach 1,600 e-mails per year per consumer [13]. Advertising campaigns attempt to increase awareness of the company and influence customers to visit its Web site. Since the focus is to *attract* customers to the Web site, advertising may enable the company to increase traffic on the Web site.

However, B2C companies depend on purchase transactions to generate revenue. Therefore, the effectiveness of advertising spending may be contingent upon whether visitors attracted to the Web site by ads actually make pur-

chases. Web site features that facilitate the purchase process can induce customers to *buy* from a Web site [10, 66]. A high-quality shopping experience can increase the likelihood that customers attracted to a Web site by advertising will make a purchase [16]. Therefore, complementariness between advertising and Web interface may enable the company to convert visitors into customers, increase revenue, and consequently improve performance.

Lands' End offers an illustrative case of how to balance advertising strategy and services supported by the Web site. Its advertising uses multiple communication channels, and the message content highlights products and services offered through the Web site. The on-line experience is bolstered with services like "Lands' End Live," which allows customers to have live chat sessions with a customer service representative, "Shop with a Friend," which enables two shoppers to access the site and browse or shop together, and "My Virtual Model," which allows customers to save their measurements to facilitate the shopping experience. The company has experienced increased traffic on its Web site and seen a surge in revenues [1].

Economic Value Added as a Measure of Firm Performance

Researchers on information technology performance have pointed out several limitations of measures based on accounting and finance—for example, that they are based on historical information, subject to changes in accounting conventions, and limited in capturing the intangible value created by IT investments [20]. Companies operating on electronic channels may have information technology embedded in their organizational processes. Traditional accounting-based measures that may be appropriate in other contexts can provide only a limited reflection of true shareholder value generated by IT investments [12, 57]. Owing to the unique nature of these companies, measures that are more sensitive to intangibles, such as brand value, and research and development, are more appropriate [37].

The measure known as Economic Value Added (EVA) has won praise for its effectiveness in evaluating wealth created by companies [9, 57, 62]. EVA is based on the concept that if a company's return on capital exceeds its cost of capital, it is creating true value for the shareholder [9, 17, 62]. It is an appropriate measure in the context of this study because most e-tailing companies quite aggressively invest in many projects. Using EVA as the performance measure can help to capture the true shareholder's value these projects generate.

In addition to its appropriateness in the context of the present study, EVA has several other properties that a measure capturing performance should depict. It captures strategic performance, is less susceptible to changes in accounting rules, and is a risk-adjusted performance measure [57, 64]. It also taps into brand value and the intangible value of the company's resources by making adjustments for R&D expenditures and amortized goodwill [58]. These properties and the conceptual orientation of EVA support the appropriateness of its use in this study.

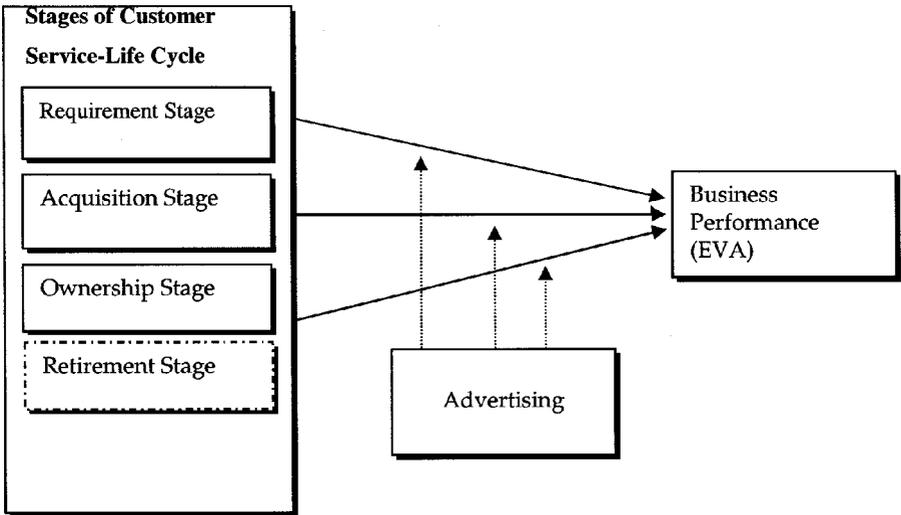


Figure 1. Research Model

Hypotheses

Figure 1 presents the overall research model. The model posits advertising as a moderator between value-added services offered through the Web site interface as organized by the CSLC framework [27] and firm performance measured by EVA. A moderator variable is a qualitative or quantitative variable that affects the direction and strength of the relationship between an independent variable and a dependent variable [4]. Advertising may attract visitors to a company's Web site, and the Web site interface may be instrumental in inducing visitors to make purchases. Thus, advertising is an appropriate moderator variable in the context of the present study. The appropriateness of the moderator model is further indicated by earlier discussions stressing the complementariness of advertising and the Web site interface. The hypotheses related to the model are presented below.

Requirements Stage and Advertising

As Ives and Mason explain, the requirements stage is when consumers decide upon their product requirements [27]. To do this they gather information about the product from different sources [5] and select the product features most suited to their needs. Companies engaged in "e-tailing" can enhance the shopping experience by providing access to in-depth product descriptions, customer testimonials, and pictorial representations of their products [15, 28, 56]. Web site features that allow consumers to compare or recommend products are also valuable [2, 28].

However, since services in the requirements stage are mostly informational, a customer who uses them may actually buy the product from another e-retailer

that offers a lower price. Such services may also serve as a signal of trust and reliability in on-line markets [54]. Johnson et al. posit that such services can be instrumental in enhancing the stickiness of a Web site and may lead to “cognitive lock in” [30]. Reichheld and Schefter differentiate price hunters and repeat customers, stressing that the latter segment hold more promise of generating sustained earnings [51].

For all these reasons, it is contended here that by enhancing the shopping experience in the requirements stage, e-tailing companies can convert prospective visitors attracted to the Web site by advertising into loyal customers and thus augment bottom-line performance. Therefore:

(H1) Provision of valued-added services in the requirements stage is positively related to firm performance.

(H2) Advertising expenditure strengthens the relationship between requirements facilitation and firm performance.

Acquisition Stage and Advertising

After deciding what product to purchase, the customer must order the product, pay for it, and get it delivered. These steps cumulatively define the acquisition stage [27]. Web site features that can be a source of value to the customer relate to providing information about the ordering process, order cancellation procedures, payment options, and delivery options [3, 28, 35, 38, 52, 56]. Other features, such as shopping carts, one-click purchase options, and order-tracking mechanisms, can be instrumental in enhancing (simplifying) the on-line shopping experience. Thus, providing a superior purchase experience in the acquisition stage to customers attracted to the Web site by mass media campaigns can improve business performance.

(H3) Provision of valued-added services in the acquisition stage is positively related to firm performance.

(H4) Advertising expenditure strengthens the relationship between acquisition facilitation and firm performance.

Ownership Stage and Advertising

Reichheld and Schefter assert that postsale service and support is an important factor in customer retention [51]. Loyal customers are not only a continuous source of revenue but an important source of new customers generated by good word-of-mouth recommendations. Web site features that facilitate product returns and complaint handling, and provide information on ongoing management of the product and possible upgrades could induce customers to purchase [3, 28, 34, 55, 61]. Thus, a company can tempt the customer to make a purchase by promising an enhanced product-ownership experience.

Subsequently, the actual delivery of such an experience can build customer loyalty. Advertising that induces Web shoppers to visit a Web site along with Web site features that augment the product-ownership experience and leverage existing customers to promote the company can positively influence business performance.

(H5) Provision of valued-added services in the ownership stage is positively related to firm performance.

(H6) Advertising expenditure strengthens the relationship between ownership facilitation and firm performance.

Research Methodology

The measurement issues involve capturing the Web site features at each stage of the CSLC, identifying advertising expenditures, and assessing company performance. An extensive literature review was iteratively conducted, and 50 Web sites were observed to identify Web site features at each stage of the CSLC that create value for customers and thus enhance performance. This method is deemed objective and appropriate in the context of this study. It is objective because the Web site features are visible services offered by companies, and the probability of disagreement on their existence is minimal. It is appropriate because the Web site features aim at providing a compelling shopping experience, enhancing customer value and thus affecting performance. Table 1 lists the functionalities categorized for each stage together with the literature references. An index value for each stage in the CSLC was developed based on the presence or absence of the Web site feature in a particular stage. Advertising is operationalized as advertising expenditure as a percentage of total sales [8, 45].

Financial performance was measured by EVA. Operationally, EVA is the net operating profit after tax (NOPAT) minus a capital charge (*see Figure 2*). Thus, EVA is the net gain (loss) that remains after levying a charge against after-tax operating profits for the opportunity cost of all capital (*i.e.*, equity and debt used to produce those profits). In calculating EVA, certain adjustments need to be made [9, 59] (*see Table 2*). The main objective of these adjustments is to transform performance measurement from an accounting to an economic perspective.

A panel of nine members (management information systems doctoral students and faculty) was provided with a randomly mixed list of Web site features and the definitions of each stage of the CSLC and were asked to categorize the items in each stage. This was done to ascertain the content validity of the items in the instrument. The panel, on average, categorized 86 percent of the items correctly. The instrument was modified based on the panel's recommendations. As pointed out before, some of the Web site features transcend the complete CSLC, thus raising discriminant validity issues. To tackle this, the researchers agreed before data collection to take extra care in evaluating the stage specificity of common Web site features. For example, the FAQ section was checked to ascertain whether it answered questions relating to all the

Requirement	Acquisition	Ownership
Simple search function {15, 21, 56}	Mechanism that helps the customer in understanding the product buying process {28, 52, 56}	Mechanism that guides the customer on how to return and exchange defective products {33}
Advanced search function with pull-down list boxes {15, 21}	Shopping cart mechanism {35, 52}	Mechanism that allows the customer to write up reviews on product and purchase experience {35, 61}
Advanced search features that turn incorrect queries into correct results {35}	Mechanism that provides financing options (Web site-specific credit cards) {28, 35, 38}	Mechanism that sends e-mails on product upgrades {55}
Help features for search operations {35}	Mechanism that helps customer apply for credit {38}	Mechanism that contacts company representatives for after-sales service {55}
Personalized product recommendation function {2}	One-click mechanism {35, 52}	Mechanism that accesses literature on maintaining product {55}
Mechanism that reviews recommendations from other customers {5, 28, 35}	Shipment-tracking mechanism {28, 38}	Registration mechanism {30}
Mechanism that sends customized newsletters and product news {28}	Mechanism for canceling an order {3}	e-mail mechanism {22, 28, 56}
Mechanism that searches product literature and product news {28, 56}	Registration mechanism {30}	FAQ mechanism {28, 56}
Mechanism that saves list of products for future purchase {30}	e-mail mechanism {22, 28, 56}	FAQ mechanism {56}
Mechanism that displays announcements for customers {56}	FAQ mechanism {56}	Mechanism that supports real-time interaction with Web sites {22, 39}
Mechanism that compares products {28, 35}	Telephone response mechanism {22, 39}	Telephone-response mechanism {22, 39}
Mechanism for viewing products {28, 56}	Mechanism for developing customized Web pages {30}	Chat mechanism that enables communication with other customers {46}
e-mail mechanism {22, 28, 56}	Mechanism that integrates customer's intended purchases with purchases already made from on-line store {30}	Mechanism that develops customized Web pages {30}
FAQ mechanism {56}	Mechanism that supports real-time interaction with Web sites {22, 39}	Mechanism that develops customized Web pages {30}
Mechanism that supports real-time interaction with Web sites {22, 39}	Telephone response mechanism {11, 22, 35}	Mechanism that develops customized Web pages {30}
Telephone response mechanism {11, 22, 35}	Chat mechanism for communication with other customers {46, 63}	Mechanism that helps customers integrate intended purchases with purchases already made from on-line store {30}
Chat mechanism for communication with other customers {46, 63}	Mechanism that develops customized Web pages {30}	Mechanism that helps customers integrate intended purchases with purchases already made from on-line store {30}
Mechanism that develops customized Web pages {30}	Mechanism that helps customers integrate intended purchases with purchases already made from on-line store {30}	Mechanism that helps customers integrate intended purchases with purchases already made from on-line store {30}

Table 1. Web Site Features in Each Stage of CSLC.

Total functionalities for requirement = 19, acquisition = 13, and ownership = 12. An index value is computed for each stage (e.g., if a company has 12 features in the requirements stage, the index value is 12/19 = 0.632). Some Web site features (value drivers) transcend the complete CSLC. Examples are e-mail contact, the FAQ section, live question and answer sessions through the Web site with a sales representative or an intelligent agent, instant telephonic conversation through the Web site, chat mechanisms, creating and managing account, and customized Web page options {21, 28, 31, 35, 46, 56, 63}.

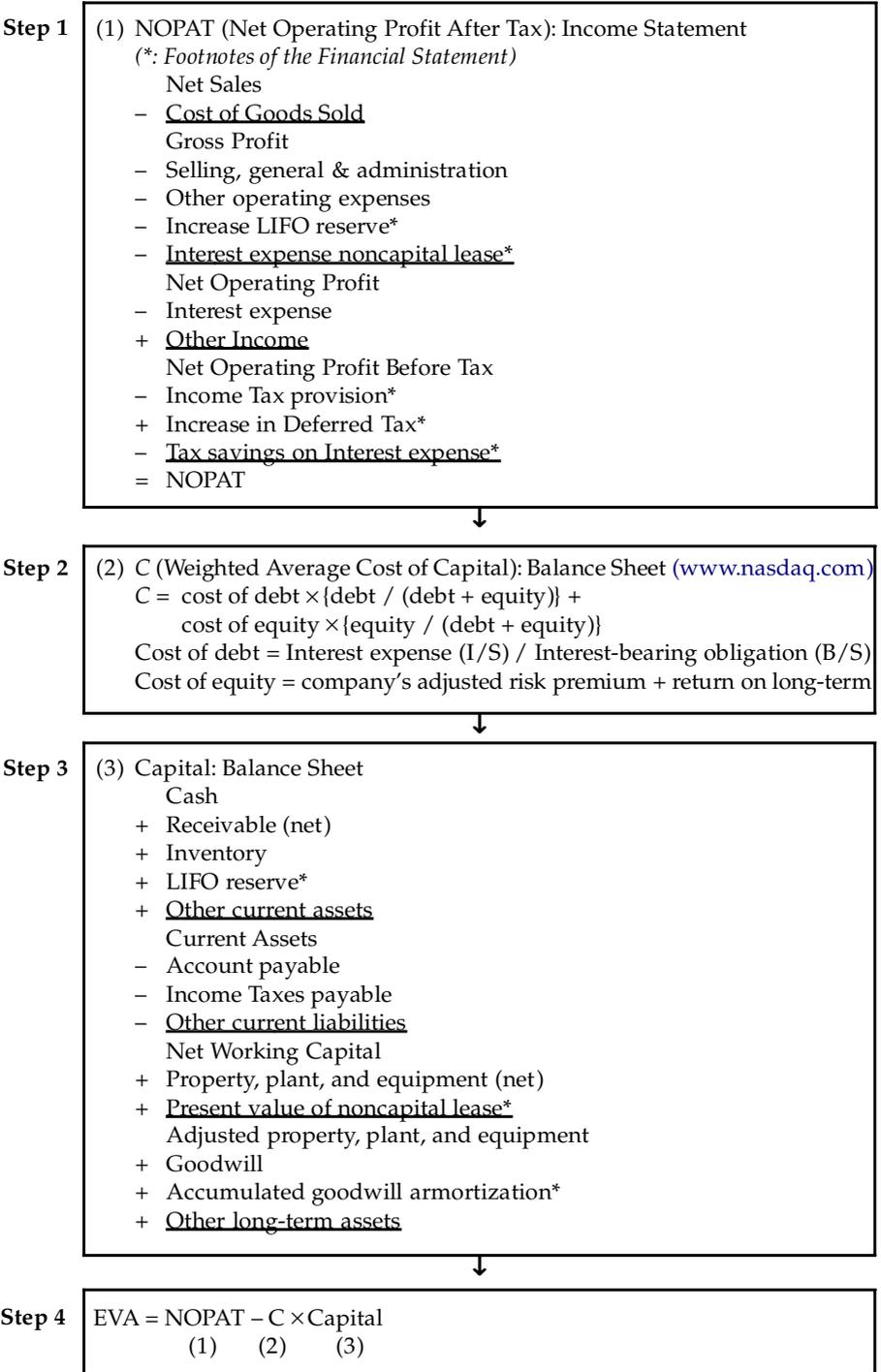


Figure 2. Calculation of Economic Value Added (EVA)

Adjustment	Impact
Research and development expenditure*	Add to operating profit Capitalize last 2 years R&D expenditure
Increases in deferred tax	Add to operating profit Add to shareholder's equity with total deferred tax reserve
Amortization of goodwill	Add to operating profit Add accumulated goodwill to the shareholder's equity
Last in first out reserve	Add increased amount to operating profit Add total amount to the shareholder's equity
Operating lease	Multiply by the average interest rate of the debt of the company and add to the operating cost Add to the shareholder's equity
Rental expense	Multiply by the average interest rate of the company's debt and add to the operating cost Add to the shareholder's equity

Table 2. Adjustments in Calculating Economic Value Added (EVA).

*R&D investments ideally should be charged to the period when their benefits start to accrue. In this case, this type of information is very difficult to get. A compromise approach was to add only the last two years of R&D investments, on the assumption that such investments are in projects for which future benefits will accrue.

stages or just one. Three researchers then collected the data by independently visiting each company's Web site. This multiple evaluator approach was adopted to enhance the reliability of the measurement. Data were tabulated based on a voting scheme where the Web site feature was included if two researchers agreed on its presence. In cases where some companies had more than one Web site, the assessment for each Web site was averaged for each stage. The average inter-rater reliability across the three researchers was computed at about 0.90, reaffirming the objectivity of the process [48].

Three main criteria were laid out for sample selection. The first criterion specified that the companies should be in operation for at least one year. Given the nascent phase of electronic commerce, this was done to aid effective assessment of the model. Second, only public companies were targeted, so as to facilitate the collection of financial information. The third criterion specified that the companies should be operating only on the Internet and selling similar physical products.¹ This approach was followed to include companies that supported the entire CSLC rather than one specific phase and control for other antecedents of performance that may exist for hybrid companies (i.e., those with both a physical and Internet presence). This yielded a final sample of 67 companies that met the overall criteria.

Regression Models

Six regression models (shown below) were used to test the hypotheses. The added interaction effect in each regression allowed for testing the moderating impact of advertising expenditure on the base relationship proposed (e.g., between requirements facilitation and firm performance). For the variable to be a moderator, it has to be uncorrelated with the predictor (i.e., independent)

variables [4]. Table 3 shows that this condition was met, because the variables in correlation with the advertising expenditure ratio do not explain the response. For a moderator model to be valid, the interaction between the independent variables and the moderator has to be significant in a regression of the independent variable on the dependent variable [4]. The significance of the interaction term (equivalent to the difference in r^2) tests for the moderating effect [19]. Further, the significant or nonsignificant main effects for the predictor and moderator in the moderator model are not directly relevant conceptually to testing the moderator hypothesis [4].

$$\text{EVA} = \beta_0 + \beta_R X_R + \varepsilon \text{ [BASE MODEL]} \quad (1)$$

$$\text{EVA} = \beta_0 + \beta_R X_R + \beta_{AD} X_{AD} + \beta_{RAD} X_R X_{AD} + \varepsilon \text{ (MODERATOR MODEL)} \quad (2)$$

$$\text{EVA} = \beta_0 + \beta_A X_A + \varepsilon \text{ [BASE MODEL]} \quad (3)$$

$$\text{EVA} = \beta_0 + \beta_A X_A + \beta_{AD} X_{AD} + \beta_{AAD} X_A X_{AD} + \varepsilon \text{ [MODERATOR MODEL]} \quad (4)$$

$$\text{EVA} = \beta_0 + \beta_O X_O + \varepsilon \text{ [BASE MODEL]} \quad (5)$$

$$\text{EVA} = \beta_0 + \beta_O X_O + \beta_{AD} X_{AD} + \beta_{OAD} X_O X_{AD} + \varepsilon \text{ [MODERATOR MODEL]} \quad (6)$$

Dependent Variables

EVA—Economic Valued Added.

Independent Variables

X_R : index for requirements stage (see Table 1 for operationalization)

X_A : index for acquisition stage (see Table 1 for operationalization)

X_O : index for ownership stage (see Table 1 for operationalization)

X_{AD} : advertising expenditure ratio (advertising expenditure/sales).

Results and Discussion

Initial analysis revealed that the data complied with the model assumptions for conducting ordinary least-squares regression [40]. Table 3 provides the descriptives for the variables. The results of the six regression equations are presented in Tables 4, 5, and 6.

Requirements Stage and Advertising (H1 and H2)

The results supported the contention that Web site features that facilitate the requirements phase directly affect business performance, and that advertising moderates this relationship: H1 (P -value = 0.003) and H2 (P -value = 0.006; $\Delta r^2 = 0.19$). Thus, high advertising spending complemented by better requirements facilitation increased firm performance. Web site features that facilitate the requirements stage provide the first exposure to a customer attracted to the Web site by advertising. Companies invest in mass media campaigns to

CSLC stage	Average	s	r
Requirements stage	0.60	0.15	0.13 { $P = 0.21$ }
Acquisition stage	0.64	0.05	0.03 { $P = 0.74$ }
Ownership stage	0.42	0.12	0.07 { $P = 0.47$ }
Advertising expenditure ratio	0.58	1.23	1

Table 3. Descriptives.

attract customers to their Web sites. If this approach is complemented by providing customers with search tools, product-recommendation systems, product descriptions, product reviews, and other features that enhance the shopping experience related to the requirements stage, visitors can be converted into customers, thereby enhancing performance.

Some studies point out that Web site features supporting the requirements stage are relatively advanced in terms of providing a superior on-line shopping experience [52]. This contention is also evident if one compares the adjusted r^2 of the three moderator models. The model involving requirements, advertising, and the interaction terms explains the most variance in firm performance (adjusted $r^2 = 0.33$). However, the purchase process involves more than attracting a customer to a Web site and assisting the customer to make a choice. It is instrumental to the success of the company that customers make their choices on the same site because it provides them with an overall superior shopping experience.

Acquisition Stage and Advertising (H2 and H3)

The results did not support the hypothesis related to acquisition stage and performance, H2 (P -value = 0.14), and the moderating effect of advertising, H3 (P -value = 0.060; $\Delta r^2 = 0.07$). The lack of support for H2 prompted further investigation. This revealed that most companies had similar Web site features facilitating the acquisition stage (registration mechanism, shopping cart mechanism, payment options, etc.). This is also apparent in the relatively low standard deviation for the acquisition stage in Table 3. Standard Web site features offered by a large number of companies rapidly become a competitive necessity for companies operating in e-tailing segment. Therefore, the combination of large expenditures on advertising with a standard shopping experience will certainly not enhance firm performance. However, this does not necessarily mean that the acquisition stage cannot be leveraged to enhance the shopping experience. It may actually point to an opportunity for companies to develop and customize Web site features that support the acquisition stage by going beyond the standard options currently offered.

Ownership Stage and Advertising (H5 and H6)

The results only supported the impact of interaction between facilitation of the ownership phase and advertising on firm performance, H5 (P -value = 0.46)

Variable	Standardized estimate	t-value	P-value	r ²	r ² (adjusted)	Δr ²
Base model requirements	0.46	5.126	0.0001*	0.17	0.16	—
Moderator model						
Requirements	0.39	2.87	0.003*			
Advertising expenditure ratio	0.14	1.90	0.060			
Requirements x advertising expenditure ratio	0.32	2.59	0.006*	0.36	0.33	0.19

Table 4. Results of Regression Models 1 and 2.

n = 67* (*P* ≤ 0.05) Based on directional hypotheses, one-tailed *P*-values are reported.

Variable	Standardized estimate	t-value	P-value	r ²	r ² (adjusted)	Δr ²
Base model/acquisition	0.21	1.71	0.092	0.05	0.03	—
Moderator model						
Acquisition	0.09	1.09	0.140			
Advertising expenditure ratio	0.15	1.95	0.054			
Acquisition x advertising expenditure ratio	0.15	1.90	0.060	0.12	0.09	0.07

Table 5. Results of Regression Models 3 and 4.

n = 67 (*P* ≤ 0.05) Based on directional hypotheses, one-tailed *P*-values are reported.

Variable	Standardized estimate	t-value	P-value	r ²	r ² (adjusted)	Δr ²
Base model/ownership	0.15	1.24	0.22	0.02	0.008	—
Moderator model						
Ownership	0.03	0.11	0.46			
Advertising expenditure ratio	0.14	1.88	0.063			
Ownership x advertising expenditure ratio	0.34	2.62	0.006*	0.17	0.13	0.15

Table 6. Result of Regression Models 5 and 6.

$n = 67^*$ ($P < 0.05$) Based on directional hypotheses, one-tailed P -values are reported.

and H6 (P -value = 0.006; $\Delta r^2 = 0.15$). The lack of a significant relationship between facilitation of ownership and firm performance is perplexing. One explanation for these results holds that ownership-related Web site features are of more value to existing customers of the company. Since companies have only recently begun to shift their focus from enhancing their customer base to customer retention, the result may be reflective of the nascent stage of the changing focus on retaining customers.

However, the interaction between advertising and ownership facilitation is significant. Web site features related to ownership are mainly lock-in mechanisms designed to provide an enhanced post-purchase experience that will trigger future purchases and use satisfied customers as a source for attracting new customers. Many companies offer existing customers incentives or discounts to review products they have purchased. Another trend that is catching on is the use of purchase histories to undertake targeted e-mail advertising to existing customers. This tactic builds a bridge between advertising content and Web site by providing a hyperlink that directly takes the customers to a certain section of the Web site. If an existing customer decides to make a purchase, account information is automatically pulled up and the consumer only verifies that it is correct to execute the purchase. Another trend is the development of referral systems. Many Web sites allow visitors to send product or service information to family members or friends, thus using the Web site as an advertising forum [50]. Companies engaged in e-tailing need to improve Web site features that facilitate the ownership experience. If companies are able to tap into the complementary aspects of ownership-related features and advertising, this may significantly affect performance.

Implications

Some limitations should be noted. First, the study made the simplifying assumption that all Web site features are weighted equally. In reality, when consumers make purchases on-line, they may value certain Web site features more than others. However, given the lack of research in this area and the context-specific issues, any weighting scheme would have been arbitrary. Second, the probable usage of the same Web site features in several different stages raises concerns about discriminant validity. During the data-collection phases, the researchers carefully ascertained the stage specificity of such features. This approach, along with the high inter-rater reliability scores, partially alleviated the discriminant validity issues. Third, the advertising budget used was a "macro" measure. While it would have been desirable to have greater granularity in the metric (e.g., mass advertising vs. banner ads), this information was extremely hard to obtain. Attempts to approach companies directly were not successful.

The study summarized in this article explored two variables that enhance business performance in e-commerce. Several avenues for future research have emerged from it. For example, research is needed to identify and test other antecedents of performance in an e-commerce context. By helping to build up

a comprehensive list of variables, such studies will facilitate the development of a holistic model for examining performance in an e-commerce context.

The present study suggests an organized approach for configuring Web site features into a value-based framework. Further research is required to clarify the relative contributions of Web site features to the overall value consumers gain from using them. Such studies can be instrumental in providing prescriptive implications for enhancing the on-line shopping experience. Another area for research pertains to the "interaction" between advertising and the shopping experience. This can be evaluated in a number of ways that focus on how advertising can include information on the shopping experience, and also on how the shopping experience can breed further advertising. Such a study may involve the use of more micro-level measures of advertising expenditure (i.e., medium, message content, target market) and investigations of how they interact with the Web site interface to enhance visitor-to-customer conversion rates. Such information would be immensely helpful to companies seeking to develop effective strategies for aligning advertising campaigns (that go beyond the excessive Super Bowl ads) and Web site interfaces. Research can also focus on evaluating the effectiveness of Web site features and incentives that motivate customers to promote the company.

Managers are responsible for deciding what Web site features to offer and how much to spend on advertising. The results of this study can help them to make such decisions. The main implication of the study for managers emerges from the complementary aspects of Web site interface and advertising. The results show that the direct impact of advertising on firm performance (for e-tailing companies only) is statistically weak (see Table 7). Therefore, while spending on advertising can be a successful strategy for increasing the number of hits or the number of pages viewed on a Web site, this study suggests the benefit of a more diversified investment. In other words, a more effective strategy is to complement increased spending on advertising with a superior shopping experience provided through Web site features that augment the value customers derive from transacting with the company. A value-based strategy of this kind may enable the firm to improve customer loyalty and retention and increase business profitability.

Another important issue for managers is to decide which CSLC stage deserves attention. The results show strong complementariness between advertising and Web site functionalities that support a customer's requirements determination. In addition, companies also need to view the existing customer base as an important part of their overall advertising strategy. This can be done by enhancing the product-ownership experience and customer-supplier relationship by employing Web site features that induce existing customers to promote the company.

Conclusion

This study investigates how two antecedents affect firm performance and interact in an e-commerce context. The Web site interface is the primary point of contact between the consumer and the e-tailing company. Companies that

Variable	Standardized estimate	t-value	P-value	r ²	r ² (adjusted)
Advertising expenditure ratio	0.24	1.99	0.052	0.06	0.04

Table 7. Advertising and Performance.

provide a superior shopping experience by developing Web site features that cater to the consumer's purchase-related task requirements enhance the overall value consumers derive from their purchases. This can induce purchases and also lead to customer retention.

Expenditures on advertising are intended to increase the number of visitors to the Web site. Companies that conduct effective advertising campaigns are able to attract more Web shoppers to their Web sites. If the increased visitation is complemented with an enhanced shopping experience, more visitors will become customers. Thus, complementariness between the Web site and advertising is likely to boost performance. Performance is influenced by prudent spending on advertising complemented by Web site features that facilitate product search, product choice, and the product-ownership experience. Traditional mass media campaigns may induce new customers to visit a Web site, but by providing a better product-ownership experience, companies can leverage the loyalty of their existing customer base to execute effective advertising strategies and augment bottom-line performance.

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