

EVALUATING SELLING WEB SITE PERFORMANCE FROM A BUSINESS VALUE PERSPECTIVE

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ABSTRACT

Current approaches for evaluating the performance of e-commerce Web sites fail to adequately address senior manager concerns about the return on investment (**ROI**) of corporate efforts to develop and deploy IT solutions for Internet-based selling. Our key insight is that the design of Web-based systems and also the management of systems design must be *business value-driven*. Decisions about changes and adjustments that are appropriate and desirable should be based upon measurement approaches that emphasize the managerial actions that are possible as a result of new ways of thinking about Web-based performance assessment via the application of Web usage mining techniques. We examine the qualities of available evaluative approaches and propose a new framework to guide research that aims to formulate a *new value-driven metrics suite for e-commerce Web site performance* that emphasizes ROI outcomes.

1. INTRODUCTION

Since the crash of the DotComs in the American stock market in May and June of 2000, the evaluation of e-commerce Web sites in terms of ROI has become increasingly important. Recent industry analyses, however, point out that e-commerce retailers are earning low ROI scores, by failing to meet consumers' purchase needs with the poor usability and errant designs of their Web-based storefronts. For example, a study by Zona Research recently reported that 60% of Web-savvy users dropped out of the purchasing process because they could not find the products in the e-tailers' Web sites (Zona Research 1999). Another study conducted by Creative Good showed that 43% of purchase attempts ended in failure due to poor usability of the Web sites (Rehman 2000).

This shortfall in realized value compared to the potential value that Web-based selling approaches

offer is dramatic. The Creative Good study points out that this level of failed purchase attempts is consistent with an estimated loss of \$14 billion in sales for e-tailers in the 2000 Christmas-New Year's holiday shopping season alone. Recent academic research reinforces the picture that emerges (Rajgopal et al. 2001).

The purpose of this paper is to present a value-driven framework for e-commerce Web site evaluation. We report an in-depth exploratory case study of an online business to understand how Web site performance evaluation is currently being conducted by e-businesses. This enables us to generate insights into how Web site performance evaluation should be conducted and what tools and techniques need to be developed to guide effective evaluation and management of business performance.

2. LITERATURE REVIEW

Before developing a value-driven framework for Web site performance evaluation, we first turn to the literature that has investigated the evaluation of Web sites in general, as well as of e-commerce Web sites.

2.1. Web Site Evaluation

Recent reports concerning the poor quality and usability of Web sites have led researchers and practitioners to express increasing interests in the methodologies and approaches that are used to conduct the evaluations. Traditional approaches to Web site evaluation fall into three major categories: (Ivory and Hearst 2000).

Testing: Users perform tasks at a given Web site and usability problems are uncovered based on the observed behavior (e.g., Spool et al. 1999).

Inspection: Usability experts use a set of criteria (e.g., Web usability heuristics suggested by Nielsen (1994)) to identify potential usability problems in the Web site design.

Inquiry: Users provide feedback about the site via structured interviews, participation in focus groups, responding to surveys, etc. (Schubert and Selz 1999).

The methods we mentioned above have been adopted from the discipline of user interface testing within the broader field of human-computer interaction. However, even though these approaches have been successfully applied for the evaluation of user interfaces of traditional IS applications, they are not perfectly-suited for Web-based applications. For example, Web sites are very frequently updated and redesigned, which makes the cost of recruiting test users and experts for each redesign overly excessive. Furthermore, it is difficult to reconstruct a representative environment for user testing since developers do not have control over technologies that users employ when they browse. It is also important to point out that Web-based application users are most often customers, which is untypical of traditional IS applications within a firm. Greater constraints are placed on what a designer must do to create a desirable setting for system use by a user/customer.

We conclude that the major focus has been on evaluating the *usability* of Web sites. This restricted concentration on usability limits the applicability of these methods in evaluating performance.

2.2. E-Commerce Web Site Evaluation

The methods for Web site evaluation can also be employed for e-commerce Web site evaluation. For example, in terms of user testing, users may be asked to perform purchasing tasks at an e-commerce storefront (e.g., Rizzuti and Dickinson 2000; Spool et al. 1999). In terms of inspection, GómezTM (www.gomez.com) rates e-commerce Web sites based on multiple criteria including ease of use, customer confidence, on-site resources, and relationship services, among others, depending on the business category of the firm's Web site being evaluated. Finally, Schubert and Selz (1999) have proposed the *Web Assessment Tool*, a survey-based inquiry method that is applied to evaluate the effectiveness of a Web site with respect to different phases of market transactions.

Even though these approaches to e-commerce Web site evaluation can be useful, the fundamental limitations of each approach still hold. User testing often is not cost-effective, and in many situations, it fails to properly measure the outcomes associated with a range of users' or customers' experience with a Web site. Inspection and inquiry, on the other hand, may generate useful insights about where to focus the firm's efforts for site maintenance and future additions to the software functionality, however, may not be as effective in showing the details of what actually needs to be done to improve the Web site to increase ROI.

Furthermore, the narrow focus on usability only also limits their relevance. So, even though the quality of the online customer experience has been shown to positively affect firm performance (e.g., financial performance), it still is unclear *how* the usability of e-commerce Web sites translates into increased ROI and organizational performance. Thus, we believe that it is imperative for e-commerce firms to understand how their site is performing against business value metrics.

Recent research in Web usage mining is showing promise toward this end. *Web usage mining* is the application of data mining techniques on Web data to understand usage behaviors and better serve the design needs of managers who are responsible for Web-based applications. Recent research on Web usage mining have broadened the scope of analysis to perform sophisticated pattern extraction related to site usage such as:

Association rules: These are rules extracted by a Web usage mining tool by correlating the set of Web pages within a site that are accessed within single or multiple user sessions (e.g., Borges and Levene 1998).

User clustering capabilities: Enables inferences to be made about customer demographics for market segmentation based on observed clickstream behavior (e.g., Fu et al. 1999).

Classification gauges: Supports the development of individual and group-member user profiles (e.g., Murray and Durrell 1999).

Sequential pattern identification: Predicts future site navigation patterns based on observed clickstream data (e.g., Pitkow and Pirolli 1999; Schechter et al. 1998).

Dependency modeling: Develops preliminary descriptive models representing dependencies that occur among variables describing Web site use and the Web site user (e.g., Büchner et al. 1999).

Market Basket Analysis. Examines the content of Web shopping carts to infer patterns of product co-occurrence so that cross-sells and up-sells may be targeted on the fly (e.g., Berry and Linoff 1997)

Even though Web usage mining techniques may be capable of extracting interesting Web site usage patterns to deepen our understanding of how customers are actually using the Web site, the link to business performance is still lacking. Likewise, market basket analysis enables the evaluation of final business performance, but is incapable of linking this to actual usage patterns of the website. Overall, our assessment of the strengths and weaknesses of Web usage mining tools suggests the importance of finding a new "common ground" for techniques of Web assessment that will better align with the corporate

need of justifying investments in Web-based applications and achieving higher ROI. We next turn to an exploratory case study to see if we can discover new ways to think about e-commerce Web site evaluation that will inform our efforts to better align measurement practices with management practices.

3. AN EXPLORATORY CASE STUDY OF AN INTERNET-BASED GROCERY SELLER

For our exploratory case study, we chose to examine the operations of an Internet-based seller of groceries. We collected rich background information and detailed descriptions of the design, operation and current approaches to the evaluation of the company's e-business. To increase the validity of the findings, we used multiple data sources and informants whenever possible (Eisenhardt 1989). We interviewed the CEO, the CIO, an operations manager, an IT manager, a technology architect, a web content specialist and also a web developer. We also used additional sources of data, including company documentation and reports, which were used to complement the interviews.

3.1. Online Grocery Industry Overview

The online grocery market is a fast-growing retail sector with estimated revenues of \$500 million in 1998 expanding to \$70 billion by 2007, representing 12% to 15% of all grocery purchases (Andersen Consulting 1998). Even though groceries are not associated with the typical product mix for e-commerce (e.g., near-commodity books and music CDs, low cost-of-delivery information goods, and hard-to-find and niche trade goods, etc.), the online grocery business has the potential to become a highly profitable business for e-tailers – Average order sizes in Internet-based grocery selling often are as high as \$100 or more, and customers frequently make repeat orders once a week or each fortnight to replenish their stocks (Barsh et al. 2000). Apparently, the key to success for online grocers is to generate sufficient volume while keeping delivery costs low (Palmer et al. 2000).

Despite the opportunities that we describe, firms that compete in the online grocery market also need to overcome significant challenges to reach the necessary operational scale size. The primary reason consumers do not adopt online grocery delivery is that they feel that they need to see and touch what they are buying (Food Marketing Institute 2000). However, despite this potential threat to initial adoption, 90% of customers rate their initial online grocery purchasing experience as good or better than their in-store shopping experience, and 85% say that they are likely to repeat the online grocery purchase. Hence, it is

essential for online grocers to offer attractive promotions backed with quality products and services to convert potential customers to actual shoppers.

Another potential obstacle to the success of online grocers relates to the complexity of the purchase process. Typical supermarkets carry on the order of 40,000 to 45,000 different sale items. Grocery shopping typically involves the purchase of numerous items in multiple product categories on a regular basis, in contrast to bookstore and music store purchases, where the customer only seeks out a small number of items on an infrequent basis. The typical problems that arise are difficulties with site navigation and the customer's inability to find the products she seeks to buy (Zona Research 1999). Furthermore, the target segment for online grocery shopping adoption is the common grocery shopper, so online grocers need to make their Web sites extremely easy to use.

3.2. OnlineGrocery.com: Company Overview

Founded in October 1997, OnlineGrocery.com¹ is a pure-play Internet-based retailer that delivers groceries directly to the customer's doorsteps with the mission of "taking the dread out of grocery shopping." The company made its first delivery in April 1999, and by mid July 2000, it had over 9000 customers generating more than \$16 million in revenue. Currently, OnlineGrocery.com operates only in one metropolitan area in the upper Midwest, where it is the only online service within its regional market.

OnlineGrocery.com employs a route-based system for delivering groceries. Its registered customers select a delivery time and shop for groceries online before a specified cut-off time. This is typically one day prior to an assigned once-per-week delivery date. OnlineGrocery.com strives to distinguish itself through its uniquely high quality, individualized service so that existing customers return to the OnlineGrocery.com's Web site for their regular grocery shopping. Its primary mechanism is a marketing approach that positions the company's truck-based grocery delivery staff as friendly and accessible "delivery boys" who come to know the customer and can provide individualized services.

3.3. Web Site Design at OnlineGrocery.com

OnlineGrocery.com's Web site is a typical hierarchically structured catalog-based dynamic Web application in which customers can drill down pre-defined product categories to find the products they wish to order.

The Web site has gone through significant and frequent changes, upgrades and redesigns since its

¹ The name of the organization has been disguised for confidentiality.

launch in April 1999. To better manage its development process, OnlineGrocery.com has adopted the Unified Modeling Language (UML) and Rational Software's unified process approach, the *de facto* standards for object-oriented systems design.

A significant source of ideas for redesign is OnlineGrocery.com's employees who are also regular customers. Other sources of ideas to improve the Web site include the online feedback forms that permit customers to post suggestions, the customer service call center, and occasional customer focus group sessions. These sources produce many more proposals for development projects than the software development staff and the IS budget at OnlineGrocery.com can handle.

To prioritize and decide on what development projects to pursue, OnlineGrocery.com holds monthly "Web Board" meetings where senior executives discuss potential development projects and set high-level priorities. A "Web Team" meeting is also held weekly, and the staff members discuss details of the development projects that are underway. This process results in development projects being prioritized based on estimated impact on key business performance metrics (e.g., customer acquisition, customer conversion, dollar ring etc.), which act as loose proxies for ROI. However, the estimation is ad hoc, and intuition plays a more significant role than it should, given the critical importance of ensuring that the firm has a high-performance Web site as the front-end presence for interacting with its customers.

3.4. On-Site Web Site Performance Evaluation

Performance evaluation of the firm's Web site at OnlineGrocery.com has multiple purposes. *First*, performance evaluation is carried out to assess and manage the business, and to assure investors that their invested funds are deployed in a manner that has the potential to create significant returns. *Second*, performance evaluation of the Web site is employed to find ways to improve the business process that customers participate in when they shop, and, as a result, firm performance. Similar to many other Web-based businesses, OnlineGrocery.com has adopted the attitude that competent measurement is a precursor to formulation of effective management policy for the firm's Web operations. With this goal in mind, management spends time to do Web site performance evaluation so that it can generate insights into *how* the Web site is operating, *what* changes are required to improve service quality, and *why* one change might be given a greater priority another, due to the relative leverage on ROI that each may provide. To this end, OnlineGrocery.com has defined several key business

metrics: *conversion* (customer acquisition), *dollar ring* (actual sales), *margin* (profitability of sales items) and *frequency* (loyalty).

Currently, performance evaluation is conducted via two separate systems. One is the customer data warehouse and the other is a Web site analysis tool that is provided as a bundled service by the application service provider that hosts the firm's Web site. The data warehouse, which contains customer and sales data, is used for market basket analysis – final sales statistics are used to answer questions such as: "what are our best selling products?" and "what is the average profitability for each customer segment?" This analysis is valuable for assessing the overall performance of the online service. However, it provides little managerially-actionable information about how to improve OnlineGrocery.com's Web site.

The Web site analysis tool is employed towards this second goal. The Web site analysis tool, *WebTrends*, compiles Web server logs to generate Web site hit/visit statistics. The analysis tool offers a series of pre-packaged reports that show various aspects of online activity. For example, the tool reports the most requested pages, whether the page hits originate from external "referring" sites, the browsers that are used by the customers, the number of hits/visits for a given date range on different areas of the Web site, and the most frequently occurring HTTP errors. A shortcoming of the ready-made reports is that they are designed to only list a set of 200 statistics, constraining the extent to which the tool can extract useful data to support a variety of managerial decision and evaluation tasks.

Thus, we see that the analysis tools and techniques that OnlineGrocery.com currently can use are limited. They provide two extreme views of performance. The analysis performed with the customer data warehouse is only able to convey information about high-level business performance, whereas the Web site analysis tool is only capable of depicting inflexible, low-level raw statistics of site usage. It is difficult to bridge the gap between high-level business performance and low-level site usage.

Substantially all of the most actionable information that Web site evaluation and usage mining tools need to deliver to improve management is in an unmapped "middle ground." This kind of information is not available at OnlineGrocery.com, and also at other firms given the limitations of the tools and techniques that currently exist.

Even though our criticism of the limited set of capabilities that OnlineGrocery.com has for identifying the key drivers that will enhance the ROI of its Web site has been harsh, we should point out as

we close our case discussion that the technical state-of-the-art in this area is still somewhat lacking. For example, to more fully understand the “inner workings” of online consumer behavior at OnlineGrocery.com’s Web site would require *multi-session pattern mining*. This differs from the approaches that we have discussed in that data, which might enable an analyst to make sense of the observed clickstream behavior, would need to come from a time-series of sessions in which usage data are mined by a tool. Understanding human behavior in this context, and being able to take the next step—to discerning what it means in terms of the ROI consequences for the Web site—are more challenging.

As a result, determining exactly what to do to optimize service quality, enhance the product selection, improve the usability characteristics and maximize ROI for the firm’s Web site requires debate and discussion, as well as a “gut feel” for what the next steps ought to be. The staff prioritizes development projects based on estimated impact on key business performance metrics (e.g., customer acquisition, customer conversion, dollar ring etc.), which act as a loose proxy for ROI. However, the estimation is rather *ad hoc*; intuition plays a key role.

4.5. Managerial Findings

Our case study of OnlineGrocery.com reveals several interesting insights about value-driven Web site performance evaluation metrics:

Metrics should reflect business value. OnlineGrocery.com’s Web site analysis tool provides information to infer customer interaction with the Web site. However, it is hard to associate behavior with an ROI outcome. Appropriate measures should show more directly how the tie-in works.

Metrics need to be managerially-actionable. The goal of performance evaluation is ultimately to devise ways to improve business performance. The metrics that are obtained in Web site evaluation should guide the generation of ideas for improving the site. Knowing that product X is the best selling product for this week is good to know, but there is nothing that can be done about it. It would be better to have specific information that indicates the effectiveness of the placement of product promotions, and the kinds of placement that create sales impact.

Measurement should be at appropriate operational level. OnlineGrocery.com’s technology support for performance evaluation was either too high-level (i.e., customer data warehouse) or low-level (i.e., weblog analysis). The pressing questions were at the middle ground where low-level clickstream information is mapped with high-level site performance. The appropriate metrics are those

that make “light up” the dark pockets of opportunity to enhance selling effectiveness and increase revenues.

Metrics should be flexible. The maintenance and upgrade of an e-commerce Web site is performed at increasingly fast rates. Accordingly, the goals of, and questions related to site redesign will change continuously. Hence, the metrics that will be employed need to be flexible to adapt to changing goals and questions on the part of senior management.

4. A WEB SITE EVALUATION FRAMEWORK

Our case study offers a basis for theorizing about what a value-based framework for e-commerce Web site evaluation should consist of. The major emphasis in our framework is on *business value* and *ROI*.

4.1. Extrapolating from OnlineGrocery.com: Making Sense of Web Performance Metrics

Our findings from the prior discussion of OnlineGrocery.com’s efforts to measure its Web site performance suggest to us that there are a number of important considerations that will help us build towards a theoretical basis for a new Web site metrics suite proposal. They include: customer participation in different phases of a transaction at a Web site, the extent to which different customer segments use the site, the time-series nature of customer interactions and experiences, and the tension between observable, measurable aspects and unobservable and difficult-to-measure aspects of customer behavior on a Web site. Taken together, these things help of to make sense of what Web performance metrics should be like.

First, in order to better understand how and where value is created via the Web site, we need to break the online customer interaction with the site based on different *phases of the transaction*. Unlike informational Web sites, the e-commerce Web site is composed of various functions to facilitate the consumer purchase process (Miles et al. 2000). Schubert and Selz (1999) characterize the three transaction phases of information, negotiation and settlement. If all three phases of the transaction process are not effectively supported by the Web site, then *value leakages* may occur.

Web performance metrics need to identify the sources of value leakages so that senior management may plan for and implement refined designs that restore the necessary qualities of the Web site to achieve an acceptable level of ROI. For example, one of the major questions that management at OnlineGrocery.com has asked is where customers most often “abort” the shopping process. Their concern is that customers have every intention to actually place an order with the firm, but various

aspects of the business process, Web site service quality and customer information requirements “defeat” the customer’s best efforts. As a result, customers may become dissatisfied at various stages (e.g., signup, browsing, checkout and product use).

Second, to better assess the potential for value creation, Web performance metrics should take into consideration the heterogeneous nature of different *customer segments*. Customers at e-commerce sites are not homogeneous. Different customer segments have different preferences, spending budgets and habits. For example, when considering what new products to offer, OnlineGrocery.com frequently makes use of feedback from customers requesting that new items be offered, and also indirectly infers this need by analyzing search terms that customers use. Even though this is valuable information for identifying the needs of customers, it is difficult to prioritize what products are essential and what products can wait. To properly support a value-driven discipline for Web site design this information must be linked in some way to customer demographic profiles, so that the impact of each new product introduction may be estimated.

Third, Web performance metrics should be sensitive to changes in the customer life-cycle of interaction at a Web site, and hence, must be *time-series* in nature. Customer segments are not static; instead they progress through an observable (or, at least, a discoverable) life-cycle. For example, customers start as “aware non-tryers” when they become aware of the site through advertising or word-of-mouth. Later they become “tryer non-buyers” when they come to the Web site to take a look around to assess whether the online service might be of value. Still later, they may become “converted customers,” when they actually submit an order for the first time. Thereafter, they may become “repeat customers” or even habitual-buying “loyal customers.” Not only do the different stages of the customer life-cycle offer different levels of value creation potential, important behavioral changes (e.g., familiarity and expertise with the Web site) occur as customers progress through the life-cycle.

Web performance metrics need to be *measurable* from observations of online customer behavior. We remind the reader that the major shortcoming of the analysis tools employed at OnlineGrocery.com was that the observed behavior for the analysis was either too high (e.g., final sales data) or too low (e.g., page views). In order to precisely attribute online consumer behavior to the sources of value creation or leakages, data at multiple levels of operation must be integrated. Only then can we accurately measure the

value of the Web site that brings about the resulting consumer behavior. (See Table 1.)

Table 1. Key Metrics Characteristics to Support Value-Driven Web Site Design

DIMENSIONS	RATIONALE
Phase-focused	Infer where value creation and leakages occur
Customer-specific	Assess the relative potential for value creation
Time-series in nature	Consider changes in customer behavior
Measurable from observations	Attribute consumer behavior to value sources

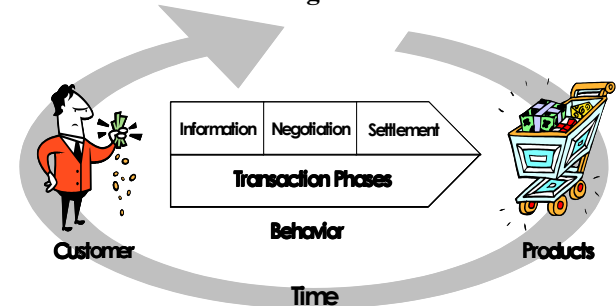
4.2. A New Framework for Value-Driven E-Commerce Web Site Design

Now that we have established what characteristics the Web performance metrics should possess, we may start to think about a more general framework.

Framework Elements. Our framework is based upon a model of online consumer buying behavior. The first element of the framework is the *customer* coming to the Web site to address some unmet need, which may be satisfied by the acquisition of a *product*. Next, for the customer to acquire the product, she must go through a *transaction process* which consists of three phases: information, negotiation and settlement. This process may repeat itself over *time*, thereby changing the level of expertise the customer has related to the site design.

Our framework is depicted in Figure 1 and includes customer, product, transaction process, behavior and time. (See Figure 1.)

Figure 1. Framework Elements for Value-Driven Web Site Design



Customers. To achieve high levels of ROI, it is important to understand customer characteristics. Customers have *demographic particularities*, such as preferences for items, spending budgets and spending habits, which make some more profitable to target than others for a firm. In addition, we need to consider the dynamic nature of customer relationships. Customers go through a *life-cycle* from

potential customers, to acquired customers, to converted buyers, to repeat buyers, to loyal customers.

Products. Merchandising is important for the success of e-commerce Web sites. Customers look for a wide *assortment* of items on a Web site, but the firm must select a value-maximizing bundle of products. Products also have varying levels of *margins*, which make some items more profitable than others. An online seller must also consider the *circumstances of the product purchase and usage*.

Transaction Process. The customer needs to go through a transaction process of information, negotiation and settlement in order to satisfy her need of acquiring some product. The effectiveness of a Web site must be evaluated based on the separate and individual efficacy of the component phases. Each component phase may have different requirements for success. In the information phase, the *quality of product description* and the *ease of navigation* within the Web site may be the most important factors for the customers. In the negotiation phase where the trade terms are agreed upon, however, the key elements may shift; *security* concerns, for example, may take on an increased importance. *Convenience* and *efficiency* may also play significant roles. Most customers are unwilling to tolerate processing delays. Finally, for settlement processes involving instances in which the product is delivered to the customers, *flexibility* may be the critical factor.

Behavior. To support transaction processes that bring together customers and products, the Web site should be designed to afford the types of behaviors that lead to the success of the transaction processes. Users are heterogeneous in terms of the patterns of behaviors they exhibit when interacting with a Web site. In addition, patterns of usage may differ across customer segments and also within individual customer segments. Hence we need to think about how the design of the Web site will affect user-site interaction, and link this information back to customer profiles so as to assess what types of behavior will increase the ROI of the company and what types of site designs generate such behaviors.

Time. Customer interactions with a Web site are not static; they change over time in various (and, we imagine), predictable ways. As customers increasingly interact with the site, their familiarity with the site increases. As a result, the customers build expertise related to their site use and develop shortcuts for attaining shopping goals. Customers also progress through the life-cycle. Consequently, patterns of site usage evolve. At the same time as patterns of site usage evolve on the customer's part, the online seller becomes more *knowledgeable* about

the customers' needs and patterns of site usage, enabling the seller to provide more customized services. The product dimension changes as time passes as well. Finally, the transaction processes can also change over time. (See Table 2.)

Table 2. Framework Elements

ELEMENTS	COMPONENTS
Customers	Customer demographics Customer life-cycle
Products	Assortment Margins Circumstances of purchase and usage
Transaction process	Information quality Usability Security Convenience Efficiency Flexibility
Behavior	Patterns of usage Site Design
Time	Change in patterns of usage Change in customer life cycle stage Increasing knowledge about customers

At the heart of this framework lies the ability to bridge the gap between high-level business performance metrics and low-level site usage metrics. On the low-level end, Web usage mining can be conducted to identify recurring site usage patterns. These patterns of site usage can then be used to determine problems or potential enhancement ideas for site redesign. On the high-level end, data mining and profiling can be performed on marketing data to extract multi-dimensional customer profiles that express the customers' life-cycle stages, shopping habits and profitability. The two analyses should be integrated to identify site usage patterns by different customer profiles, which are estimate the ROI of site design initiatives.

5. CONCLUSIONS

Our case study of OnlineGrocery.com offers interesting insights into the evaluation of Web sites and web-based services. Effective performance evaluation is imperative for effective management of the business. The key to winning is acquiring the knowledge about the needs of potential and existing customers and then taking advantage of the ability to cost-effectively establish products and services that satisfy those needs.

The only difference is that e-businesses need to micro-manage the delivery of their products and services. They especially need to understand and manage the way their customers behave online, so that they come to appreciate how to respond effectively and satisfy customer needs. To progress toward this goal, firms that are focused on Internet-based selling

should not just track and evaluate business performance. They should also work towards linking ROI performance to an analysis of online consumer behavior, so that they may understand why the business performance resulted and design new ways to increase performance.

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