Development of an Industry Specific Web Site Evaluation Framework for The Australian Wine Industry

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Abstract

This paper presents an industry specific Web site evaluation framework that has been developed for organisations in the Australian wine industry. The framework was developed after taking into consideration features present in existing published frameworks and Web design guides. The development of this framework is part of a larger project that aims to survey a large sample of Australian wine industry Web sites. This project is outlined along with the contribution this framework, and larger project will make.

Keywords

Internet Commerce, Web Site Evaluation Frameworks, Web Site Design, Research Frameworks, Wine Industry

INTRODUCTION

This paper presents an industry specific Web site evaluation framework that has been developed for organisations in the Australian wine industry. This framework has been developed as part of a larger project that is studying the level of development of Web sites, the opinions of visitors to Web sites, and implementation issues associated with Web sites of organisations in the Australian wine industry.

Web site evaluation frameworks are relatively new, as they have only been developed since the mid 1990s. None of the current frameworks described in the literature have been developed for a specific industry. Previously the focus has been on developing a framework that is robust enough to allow it to be used over a broad range of industries. Some frameworks have been tested and used over a broad range of industries while others have been tested and used on specific industries such as the Australian, New Zealand, and Asia-Pacific regional tourism organisations. These Web site evaluation frameworks typically involve placing a site into a broad category or giving it an overall score. These methods allow an overall comparison of sites and they enable inferences to be drawn such as: sites in one industry are generally more developed than sites in another industry; *x* percent of sites in one industry are developed to a certain level of functionality; or one site ranks higher than another.

While there is nothing wrong with the broad nature of existing frameworks, their usefulness is limited to the wine industry. There are over 1400 wineries in Australia of which more than half can be classified as being small in terms of grapes crushed (Winetitles, 2002). In many of these businesses, the owners and their families often perform many roles such as manager, winemaker, viticulturist, production manager, sales director, and IT manager. These people are no doubt proficient when it comes to making wine and managing a vineyard and winery, however, some are left floundering when faced with the task of creating a Web presence and conducting business over the Web. The number of wine producers adopting a Web site has increased dramatically over the past few years from 297, 493, and 719 in years 2000, 2001, and 2002 respectively (Winetitles, 2002). It is little wonder that with nearly half of the wine producers not having a Web site, and the rapid uptake we have seen over the past three years, that organisations like the South Australian Centre for Innovation, Business and Manufacturing (a government initiative whose role it is to help businesses to achieve their goals) are often asked the question "how can I use the Web to help my business, what should I put on a Web site, and how do I go about implementing a Web presence?"

This industry specific Web site evaluation framework will enable personnel in the wine industry to easily see what they should consider when embarking on an Internet commerce project. The framework can also be used as the basis for evaluating existing sites, thus allowing users to make comparisons between sites. Existing frameworks could also be used for this purpose but, due to their generic nature, usefulness is limited by how well the user understands the concepts presented. This industry specific framework clearly states the characteristics of a good Web site that are relevant to the wine industry and presents them in a way that wine industry personnel can easily relate to.

In addition, the existing frameworks do not allow an in-depth comparison of the features between sites. The framework presented overcomes this limitation by breaking the evaluation criteria down into smaller key elements. The framework can then be used to assess the level of functionality of a particular site and compare functionality between sites. It is structured specifically for the wine industry, however, it could easily be adopted by any retail industry that sells goods that are conducive to selling over the Web, such as goods that can be easily digitised (e.g. software and images) and goods that can be easily distributed (e.g. CDs and books).

This paper gives a summary of Web site evaluation frameworks, documents the framework presented, and explains how this framework will be used and the contribution it makes.

BACKGROUND

A search of the literature has uncovered three main ways of classifying Web sites. The first classification schemes are called Web typology, or more commonly electronic or digital business models. These models describe a particular type of Web site. A Web site can be analysed based on these model descriptions and classified as being of a certain type. The 'stages of development models' are another classification method. In this case, there are different stages of development with functionality mapped to each stage. To classify a Web site its functionality is compared to those on the list and the site is slotted into the stage of best fit, i.e. the stage with the most features from the Web site. The third classification method uses a scoring system. In scoring systems specific features of a Web site are identified and given a score. An overall score can then be calculated and used to rank the Web site compared to other sites. Generally the higher the score, the more features the site has, and presumably, the better the site is. These frameworks are similar to the stages of development model in that specific features are listed, the difference being that features are identified and given a score. A list of authors and the names of their models/frameworks are given for each type of evaluation framework in Table 1.

Web Site Evaluation Frameworks
Digital Business Models
• Internet business models, Afauh & Tucci, 2001   • Business models for selling on the Web, Schneider & Perry, 2000   • Business models for Internet commerce, Lawrence et al., 2000   • EC models, Turban et al., 2002   • Business models for electronic commerce, Timmers, 2000   • Typology of corporate web users, Hoger et al., 1998
Stages of Development
• Business use of WWW study, Cockburn & Wilson, 1996   • Evaluating the WWW, Ho, 1997   • Model of Internet Commerce Adoption (MICA), Burgess & Cooper, 1999   • Modified MICA, Boon, Hewett & Parker, 2000   • Extended MICA (eMICA), Burgess & Cooper, 2000
Scoring System
• CEC Web Site Evaluation Framework, Elliot, 2002   • Web Site Evaluation Application, Gartner, 2002

Table 1: Existing Web Site Evaluation Frameworks.

Table 2 summarises each of the existing frameworks. The digital business models are all similar, in that they describe ways in which business can be conducted over the Web, but do not include specific functionality details. This was not found to be useful in the context of developing an evaluation framework, as not enough detail is provided for each model. For this reason a summary of only Timmers' (2000) Internet models for electronic commerce is given. The comments in italics relate to this author's view of how useful the method is to developing the industry specific Web site evaluation framework.

Each of these frameworks has been examined in detail to determine the criteria upon which Web sites are classified. The stages of development models and scoring systems provide many examples of functionality that characterise good Web sites. Web usability guides and style manuals were also consulted. The work of notable author Jakob Nielsen (2000) was found to be very comprehensive in that it describes in detail considerations for page, site, and content design. Features from the stages of development models, scoring systems and Nielsen's work are the basis for the industry specific Web site evaluation framework that is presented in this paper.

Author	Method	Where Used	Comments
Digital Business Models			
Timmers (2000)	Internet Business Models	8 e-commerce ventures are documented with reference to what business models they use	• Describes 11 ways of conducting B2B and B2C Internet commerce. • Business models are mapped according to degree of innovation and functional integration. • *Not useful for this study as it does not provide a way of evaluating the level of innovation and functionality within a category of business models.*
Stages of Development Models			
Cockburn & Wilson (1996)	Business Use of WWW	A survey of 300 global Web sites from 18 industry sectors selected from the Yahoo! directory	• Classifies Web sites according to: - Information provided and ordering functionality - Use of multimedia - Utilisation of e-mail • *Identifies important features that also appear in subsequent models.*
Ho (1997)	Value-Purpose Evaluation Matrix	Global study of 1,800 Web sites from 40 industries	• Categorises Web sites into 12 categories on a 3x4 matrix divided by 'purpose' (promotion, provision, processing) and 'value' (timely, custom, logistic, sensational). • Enables a broad comparison of individual sites and across industries. • *Gives good examples of what features to expect in each value/purpose combination.*

Burgess & Cooper (1999)
 	
Boon, Hewett, & Parker (2000)
 	
Burgess & Cooper (2000); Burgess et al. (2001); Doolan et al. (2001a; 2001b)
	Model of Internet Commerce Adoption (MICA)
	
	Modified MICA
	
	Extended MICA (eMICA)
		186 Web sites in the Metal Fabrications industry
		
		222 Australian Local Government Authority Web sites
		
		3 studies of Regional Tourism Organisation Web sites in Aust., NZ, and the Asian Pacific region.
			• The original MICA model has been refined twice and is now presented as eMICA.
			• eMICA presents 3 broad levels of functionality with a further division of 2 and 3 levels in stages 1 and 2.
			• Stage 1 – Promotion: Level 1 – basic information
			                                Level 2 – rich information
			  Stage 2 – Provision: Level 1 – low level interactivity
			                                Level 2 – medium level interactivity
			                                Level 3 – high interactivity
			  Stage 3 - Processing
			• *Useful examples of functionality given.*

Scoring Systems			
Elliot (2002)	CEC Web Site Evaluation Framework	A study of 100 Danish Web sites in 10 industry sectors. A global study of 30 Web sites from 6 countries	• Uses a binary scoring approach. • A point is awarded for each of 5 levels of functionality across 6 categories (company information and functions, product/service information and promotion, buy/sell transactions, customer service, ease of use, and innovation in services and technology). • Used 2 analysts who had to agree on the same score. Guidelines on how points are awarded are subjective – how much of something is needed for a point to be awarded? • Stricter guidelines would compromise the flexibility of the framework for use across industry sectors. • *Categories of functionality and scoring ideas useful.*
Gartner (2002)	Gartner's Web Site Evaluation Application	Used internally by the Gartner Group	• Functionality is mainly rated on a Likert scale of 1 to 9, a binary score is used for some features. • 76 features listed under 3 main categories (site design, site functionality, customer value). • Categories and sub-categories are given weightings. • Separate list of functions for specific industry sectors. • The scores from 3 analysts are averaged. • Implemented in an Excel spreadsheet. • *Comprehensive list of functions.*

Table 2: Summary of Frameworks

THE FRAMEWORK

Functions relevant to the Australian wine industry were selected from the existing frameworks and Nielsen's (2000) usability studies and incorporated into the industry specific framework presented in this paper. These factors fall under eight broad categories: company information; product information; sales and ordering; content, organisation and timeliness; value-added features; investor information; navigation; and aesthetics. These categories are further subdivided into sections as shown in Figure 1. Each section is further divided into elements. The eight categories and their respective sections and elements are listed in Table 3. For instance, category "Company Information" contains 4 sections, and each of these sections contains between 1 and 8 elements.
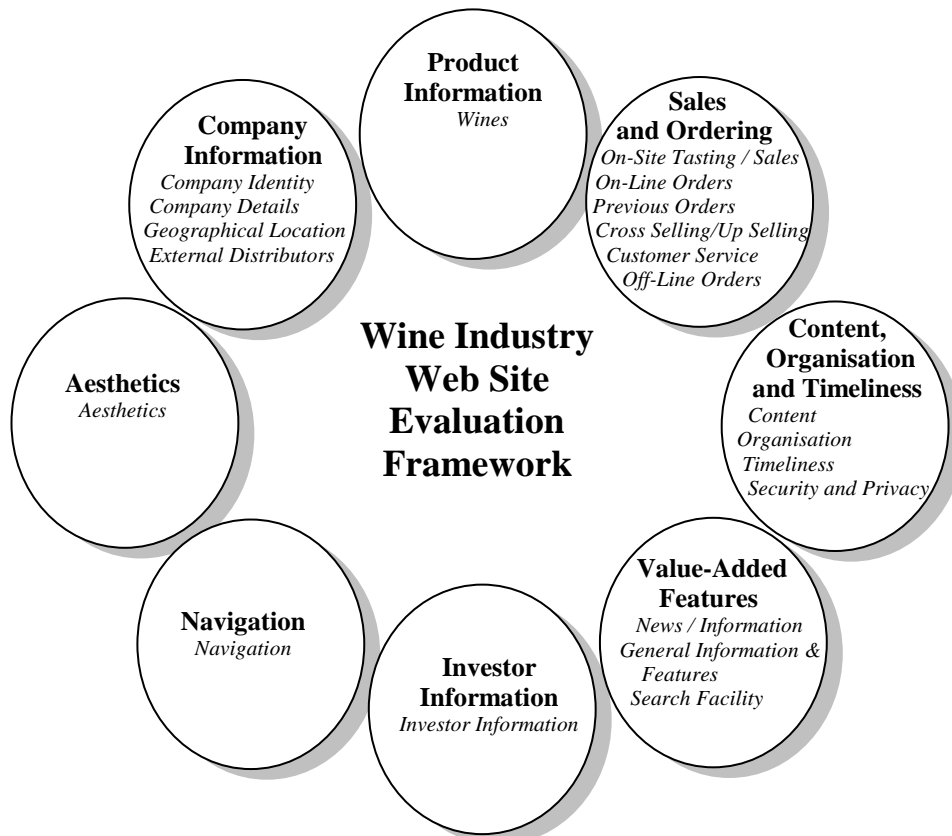
Figure 1: Wine Industry Evaluation Framework – Categories and Sections

Company Information
♦ **Company Identity**
  • *Web site address*
  • *Company name*
  • *Size*
♦ **Company Details**
  • *Name*
  • *Address*
  • *Phone*
  • *Fax*
  • *E-mail*
  • *Contact name*
♦ **Geographical Location***
  • *Region**
♦ **External Distributors**
  • *Name*
  • *Location*
  • *Address*
  • *Phone*
  • *Fax*
  • *E-mail*
  • *Contact name*
  • *Web site link*
Product Information
♦ **Wines***
  • *Description**
  • *Tasting notes**
  • *Price**
  • *Technical notes**
  • *Reviews**
Sales and Ordering
♦ **On-Site Tasting and Sales***
  • *Opening hours**
  • *Address**
  • *Map**
♦ **On-Line Orders**
  • *Easy to find*
  • *Clear procedure*
  • *Easy to edit/view order*
  • *Order retained while within site*
  • *Order retained between sessions*
  • *Price & freight calculated*
  • *Order confirmation*
  • *Payment options*
  • *Secure transaction*
♦ **Previous Orders**
  • *Previous orders remembered*
  • *Customer details remembered*
♦ **Cross Selling / Up Selling**
  • *Similar products*
  • *Complementary products*

♦ **Customer Service**
  • *Flexible purchasing**
  • *On-line customer service*
  • *Delivery/order status on-line*
  • *Customer wish list*
  • *Surprise bonus/discounts on ordering*
  • *Choice of delivery*
  • *Loyalty discounts*
♦ **Off-Line Orders**
  • *Telephone*
  • *Print post/fax order form*
Content, Organisation, and Timeliness
♦ **Content**
  • *Home page clearly indicates "where I am"*
  • *Company name in title*
  • *Page description in title*
  • *Contact on each page*
  • *URL on each page*
  • *Mailing address on each page*
  • *Long pages*
  • *Clarity*
♦ **Organisation**
  • *Use of screen space*
  • *Flexible width design*
  • *Printer friendly*
  • *Supports different browsers*
  • *Supports different monitor sizes*
  • *Readily located by search engines*
♦ **Timeliness**
  • *Last updated date on each page*
  • *Download time (< 10 seconds)*
♦ **Security and Privacy**
  • *Security statement*
  • *Privacy statement*
Value-Added Features
♦ **News / Information**
  • *Press releases*
  • *Employment opportunities*
  • *Wine making information**
  • *Wine storage information**
  • *Wine ageing information**
  • *Wine show awards**
  • *Complementary food**
  • *Special offers*
  • *New product announcements*
  • *Best buys*

♦ **General Information & Features**
  • *Contact facility*
  • *FAQs*
  • *Members club*
  • *Electronic newsletter subscription*
  • *Chat room*
  • *Discussion forum/bulletin board*
  • *Virtual tour of winery**
  • *Contests/giveaways*
♦ **Search Facility**
  • *For particular wine**
  • *For word or phase in Web site*
  • *For word or phase on WWW*
  • *For predefined keywords*
  • *Advance search*
Investor Information
♦ **Investor Information**
  • *Annual financial reports*
  • *Quarterly financials*
  • *Aust. Security & Investment Commission filings*
  • *Analyst reports*
  • *Stock quotes*
Navigation
♦ **Navigation**
  • *Navigation menu on each page*
  • *Primary and secondary menus*
  • *All navigation paths visible*
  • *Can see where you are in the site structure*
  • *Site map*
  • *Error statements*
  • *Links to home page on every page*
  • *Links to external Web sites*
  • *Link descriptions meaningful*
  • *Standard link colours*
  • *Broken links*
  • *No frames*
Aesthetics
♦ **Aesthetics**
  • *Interesting*
  • *Aesthetically pleasing*
  • *Contrasting colours*
  • *Font sizes not fixed*
  • *Goals/objectives of Web site met*
  • *Same branding/logos used across site*
  • *Text only option*
  • *Sensational effects*

* denotes an element that is specific to the wine industry

Table 3: Wine Industry Web Site Evaluation Framework – Categories, Sections, and Elements

This framework has been developed for the specific purpose of evaluating wine industry Web sites by both the researcher and personnel in the wine industry. However, it could be easily adopted by any retail sector. Most of the elements in this framework are applicable to any Web site in any industry. Some elements are more relevant to the retail sector; especially those that sell goods conducive to selling over the Web. A few elements are specific to the wine industry and these are marked with an asterisk in Table 3. The following narrative expands on the sections and elements from each category. Each gives an insight into where the ideas originated from, the justification for it being included in the framework, and any specific relevance to the wine industry.

Company Information

The company information category mainly includes items that would be standard for any Web site. The most obvious thing you would expect to find on a site is the company's details. Promotion of the company is found in

all of the frameworks mentioned above. The "geographical location" is specific to the wine industry. The official geographical indications describe Australian wine zones (Winetitles, 2002). Some of the better-known regions in Australia are the Barossa Valley, Coonawarra, Hunter Valley, and Margaret River. The area that a wine comes from is important because it adds to the reputation of the winery. A little known winery from a well-respected wine growing area such as the Barossa Valley is likely to generate more interest and have more credibility than a winery from an area that is not known for producing wines. For example, the Coonawarra area is well known for producing excellent red wines. It is advantageous for wineries promoting their product to also promote the fact that they are from this region. In contrast, a customer buying a product like CDs or books over the Web has little interest in knowing the region of the retailer. It makes no difference to the customer whether the product is shipped from Sydney or the outback, other than being concerned with freight and delivery time.

Product Information

Any organisation selling over the Web will need to supply product information. All frameworks refer to promotion of the product. The elements listed in this framework are specific to wine. Description, tasting notes, price, reviews etc. might seem to be common sense, yet an initial browsing of Winery sites by the researcher indicates that this information is not always presented. Hence, they are listed here to ensure all are accounted for in the survey of Australian wine industry Web sites and to assist those implementing a Web presence. Reviews can include reports from journalists, postings by customers, and recommendations from the company itself. If this framework were to be used for another industry such as music, then the elements would include things like artist, soundtrack listing, demo audio files, and reviews from critics, customers, and the company.

Sales and Ordering

Sales and ordering is a large category that includes six sections. The first deals with traditional cellar door tasting and sales. Wineries are unlike "normal" businesses that keep standard opening hours. They will usually be open all weekend and for a limited time during the week. A map of the area showing the winery's location is also a useful addition, as wineries are often in the country where sometimes a street address is of limited use.

The section on on-line orders would be standard for any business selling over the Web. The elements here cover the ordering procedure, payment, and confirmation of the order.

If customer details and previous orders are remembered it assists the customer when they are making further orders. If a bottle of wine was previously purchased that the buyer liked but couldn't remember the name of, they only have to look up the old orders to find out what it was. This is similar to grocery shopping on the Web where the buyer can simply go to an old order and reorder their favourite foods without having to search the "virtual isles" to find them again.

Cross selling and up selling can be applied to most retail sectors. If a customer is placing an order for a particular type of wine, they obviously like that type so it makes sense to tell them about similar wines. Similarly, it is good marketing to tell the customer about complementary products. Unlike selling over the counter where the salesperson can have a conversation with the customer and say, "Oh, you like sweet whites, have you tried this…", over the Web this kind of information can be dynamically generated and presented on the screen.

Customer service is of course important in any business. Flexible purchasing is specific to the wine industry and refers to the ability to place orders for mixed dozens rather than having to order a case of the one variety. It also refers to being able to place orders for amounts other than in one dozen lots. On-line customer service enables customers to contact the business and get instant answers to enquiries. The customer can also be keep informed on the status of their order. A wish list is an added benefit to the customer and has the potential to produce sales at a later date. When the customer is browsing, they can place anything they are interested in on a wish list. This list is remembered across sessions so that when they revisit the site they can see what they choose on previous visits. Loyalty discounts can also increase sales and enhance customer relations. Loyalty discounts could be for frequent buyers or members of a club. This idea has been applied to other retail sectors such as bookshops that have "book clubs."

Content, Organisation, and Timeliness

The elements in this section are described by Nielsen (2000) as being essential to good design. They are also listed in part by Gartner (2002). Elliot (2002), who awards points for the inclusion of items, awards no points if details are not comprehensive and timely. He doesn't actually specify how to determine comprehensive or timely such as "all Web pages should have a last updated date on them so that the user knows how old the information is." Nielsen (2000) is much more specific in stating what design elements should be present. He clearly states essential elements for pages and justifies their inclusion. For instance, company name and page description should be in the title, because they are displayed by search engines and become the names of bookmarks. This section also includes technical considerations such as ensuring the site can be viewed on different browsers and

monitor sizes, that Web pages will print on standard A4 size paper, and that download time is keep to a minimum as users will lose interest if it takes over 10 seconds to retrieve a page.

Security and privacy is also an ever increasing important issue and all sites should have a clearly written policy defining how security is achieved when transmitting information as well as details on how any information collected will be used and kept private. Again, this should be standard for any web site.

Value-Added Features

Burgess and Cooper (2000) refer to "value-add" information in their eMICA models (including Boon et al.'s 2000 modified MICA and Burgess & Cooper's 1999 original MICA). Their "Provision" stage includes on-line enquiry, FAQs, value-add information and links, and technical information. This had been encapsulated in this category and further defined to be specifically relevant to the wine industry. Information specific to the wine industry has been listed such as information on making, ageing, and storing wine, and listing complementary foods that go with different varieties of wine.

Another feature specific to the wine industry is virtual tours. It is possible to give visitors to the Web site an insight into the business by taking them on a virtual tour. This could take the form of a videos clip or 360° images that can be viewed in full by moving the mouse across the image. Any business could of course do this but it is particularly appealing to wineries as it allows the visitor to feel more involved in the experience. Done well it can give the visitor a sense of being there and add to the mystic and aura surrounding wine. Another example of an industry that this is particularly relevant to is the travel industry. For instance, P & O Cruises (www.pocruises.com.au) gives the visitor a sense of being on a cruise with their "Sky Cam" which transmits real-time images from a cruise ship.

Investor Information

All of the frameworks listed investor information to some extent. For any industry sector, you have to have investors for this to be relevant. Many of the wineries are small family owned businesses and have no reason to publish their financial information for the world to see and so this will not be relevant. However, it may be relevant for some of the larger wineries that have shareholders and various other stakeholders.

Navigation

Navigation is a very important issue for any Web site, not just the wine industry. Elliot (2002), Gartner (2002), and Nielsen (2000) consider navigations issues. This section lists elements that ensure that a site is easy to use, That is, that the user can find their way around it, can easily locate what they want, and importantly the user always knows where they are in the site and that they don't get a feeling of being lost.

Aesthetics

Aesthetics, like navigation are important for all Web sites and were given attention by Elliot (2002), Gartner (2002), and Nielsen (2000). Elements in this section are concerned with ensuring that visiting the Web site is a pleasant experience; mainly that the visit was interesting, pleasing on the eye, and easy to read.

CONTRIBUTION

This paper presents work in progress; the next stage for this framework is further refinements after consultation with Web site designers/developers and personnel responsible for the implementation of a Web presence in the Australian wine industry. The framework will then be used to evaluate a large sample of Australian wine industry Web sites. This framework will be the basis of a survey instrument that will be used to collect data about existing wine industry sites.

The framework and the research that it is being used in, contribute in two areas; it develops theoretical knowledge and has practical implications.

From a scholarly viewpoint, this research brings together theoretical and industry practices to develop an industry specific Web site evaluation framework for the Australian wine industry. It is believed that such a framework has not previously been published.

Practically, this framework is being used in research that will benefit the Australian wine industry. The results of this study will be useful to explain to those responsible for implementing Internet commerce innovations in the Australian wine industry the experiences of others.

The framework itself and the survey instrument could be useful to those responsible in the wine industry for implementing a Web presence. They could use the framework as a starting point to determine what functionality

their Web site will have. For those with existing Web sites, they could use the survey instrument to evaluate their site. They could use this information to identify areas that could be improved and to compare their site to those of their competitors.

The results of the survey from the larger project will give a detailed picture of where the Australian wine industry is in terms of Web site development. It is intended that a very large sample of Australian wineries listed in the Australian and New Zealand Wine Industry Directory (Winetitles, 2002), if not all, that have Web sites listed will be surveyed. As this directory provides accurate information on geographical regions and size of winery (tonnes of grapes crushed) it will be possible to break the data up into regions and winery sizes for comparative purposes.

There is also the potential to do further surveys in subsequent years, thus providing longitudinal data, and to widen the field of the survey to include other countries. This research may also be of interest to companies in the wine industry in other countries. In addition, this framework could be easily adapted for other industries, particularly those that sell goods that are conducive to selling over the Internet. Therefore, this research may by of interest to enterprises in other industries, and generally anyone embarking on adopting an Internet presence.

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