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Conceptual Framework for Benchmarking Web Storefronts of Internet Retailers

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Abstract

The Web storefront of Internet retailers is the equivalent of a physical storefront of a brick-and-mortar company. It is the Web surfer's first contact with Internet retailers. While much has written about how to develop a good Website, little research has been carried out on the assessment of the effectiveness of Web storefronts. A Web storefront needs to possess not only a pleasing layout and easy navigation, but it also has to include product information, payment system, customer focus, marketing focus, security system and storefront policies. This paper proposes a conceptual framework to benchmark the Web storefronts of Internet retailers. The framework is derived from Herzberg's motivation-hygiene theory, and expanded to assess the effectiveness of Web storefront. The contribution of this research is that Internet retailers would be able to identify specific Website features based on the proposed framework and assist the Internet retailers in improving their Web storefront.

Keywords: Web storefront, Benchmark, Conceptual framework

1. Introduction

With increasing IT-literacy and Internet savvy population, numerous entrepreneurs and traditional mortar companies are attracted to venture into e-commerce¹. Many jump into the bandwagon hoping to make huge profits based on experts from Forrester Research who projected that the e-commerce revenues would be about US\$1.4 to US\$3 trillion by year 2003. This figure represents approximately three percent of the world gross domestic product.

Just as the physical storefront is the first impression a consumer gets of a brick-and-mortar company, the Web storefront² is the window to Internet retailers. A good Website³ design should be clear, informative, concise and graphically appealing (Katerattanakul and Siau, 1999). A Web storefront is not only a good Website, but is also able to assist an Internet consumer in making Web purchases, which would contribute to the satisfaction of an Internet consumer (Lee, 1999). Hence, there arise a need for a tool to assess the effectiveness of Web storefronts.

Current academic Web assessment models fall into two perspectives: content and design (Katerattanakul and Siau, 1999; Zhang et al., 1999; Zhang et al., 2000; Turban, 1999). However, an effective Website is not equivalent to an effective Web storefront, as a Website

¹ Electronic Commerce (or e-commerce) is the exchange of goods and services of any kind through an electronic medium, i.e. buying, selling and delivering services over the Internet (Turban et al., 2000).

² Web storefront is a Website of a retailer that sells its products or services to the Internet consumers.

³ Website is a virtual place on the Internet that provides information on various topics, products or services for free. It is a group of related Webpages.

could refer to an individual's Website that is not doing e-commerce. There are other factors involved in upgrading a Website to a Web storefront, for example, product information, payment system, storefront policies, etc. Storefront policies do matter as they affect the decision of the Internet consumer whether or not to continue buying from the same Web storefront (Frenkel, 2000). An absence of any policies stated above may result in the loss of trust from the Internet consumer. Practitioner ratings of Web storefronts such as ratingWonders.com and BizRate.com do include company profile, but their survey lack theoretical rigor and are not systematically carried out.

This paper proposes a generic framework for benchmarking Web storefront of Internet retailers. The organization of the paper is as follows: in Section 2, we review the literature on current Web assessment models. We develop the framework in Section 3, apply it to several Internet book retailers in Section 4, and conclude in Section 5.

2. Literature Review

As the number of websites increases, it becomes increasingly difficult for Internet retailers to differentiate their Web storefront from their competitors (Greenberg, 1999). For those that have no physical store counterparts (for example, Amazon.com), their Web storefront is the sole link to consumer. Hence, the effectiveness of the Web storefront is particularly important, as it would better assist an Internet consumer towards making a purchase. Thus, researchers and practitioners would need a tool to assess the Web storefront.

There exist numerous papers and articles on how to create effective Websites, but little research has been done on creating an effective Web storefront. Two perspectives to measure the effectiveness of Website are *content*, and *design*. Content perspective refers to the usefulness and quality of content, design perspective refers to the appearance and layout of the website.

An example of a model that focuses on the *content* perspective is Katerattanakul and Siau (1999), who classified the information quality of the Websites. They considered the Internet as a means of communicating information to others. Their framework consisted of four information quality categories: intrinsic (information accuracy), contextual (information to support tasks), representational (information format) and accessibility (information accessibility). However, their proposed framework was tested only on individual Website context and required interview with the subjects involved in the testing to better understand the interpretation of the questions. The result of their proposed framework suggested that contextual and accessibility are major factors of information quality, while intrinsic and representational may be merged when used in the individual Website context.

Zhang et al. (2000), Zhang et al. (1999) and Turban (1999) developed Web assessment models that deal with the *design* perspective of an effective Website. Zhang et al. (2000) used presentation, navigation, and quality to assess the homepage of companies listed in the Fortune 500. Their arguments for evaluating only the homepage were that a homepage was liken to the cover report of the company, it was time consuming and difficult to have an in-depth evaluation and lastly, the homepage set the tone and theme of the Website. The findings of their research revealed that differences do exist among certain types of Web homepages with respect to presentation, navigation and quality and provided empirical evidence of relationships between companies at different positions in the supply chain and the information quality of their Web homepage.

Zhang et al. (1999) proposed that the underlying goals for creating a website that motivates users to revisit the Websites are similar to those for creating a motivating workplace: to provide the conditions and environment that would maximize user satisfaction. Their framework proposed that the user's satisfaction or dissatisfaction with a Web interface is determined by three components: Website features, user characteristics and information seeking tasks. Using the Herzberg's motivation-hygiene theory, Website features can be classified as hygiene features and motivational features. The authors asserted that individual psychological characteristics would affect the impact of the Web features on the user satisfaction. In the information seeking tasks, they found that browsing tasks were more dependent on Web interface design while analytical tasks were dependent on the search engine. Their conclusion is that Websites with more motivation features may prove to have a competitive advantage with increasing competitors and identification of important Website features would add value to the existing list of design features.

Turban (1999) made a list of recommendations for the determinants of a successful website design. The list was developed from literature and consumers' surveys due to the lack of academic research in e-commerce, and the determinants are page-loading speed, business content, navigation efficiency, security, and marketing/customer focus. His research and surveys indicated that the trend in designing Websites is toward simplicity and that page-loading speed is the most important category.

From a customer's point of view, he is not concerned with the design of the Website, but rather, the satisfaction that he derives from the consumption of the services and products provided by the Internet companies. There are a few assessment models to measure the Internet customer satisfaction. Lee (1999) developed a comprehensive model based on the assumption that a repeated Web purchase was determined by the Internet customer satisfaction. Internet companies should develop appropriate consumer relationship and increase customer satisfaction so as to induce repeated Web purchases. Factors affecting customer satisfaction include the Web storefront, pricing attractiveness, customer service, and logistics support. The Web storefront is then determined by variables like security, speed of operation, ease of use, content and quality.

A practitioner, BizRate.com, has developed similar assessment model for Internet customer satisfaction. BizRate.com conducts surveys with customers who have made Web purchases and the surveys are related to the shopping experience, how satisfied the customers are with Internet companies (Warner, 1999). It consolidates the results of the surveys and reviews the storefront policies of Internet companies to give an overall rating for each Internet company. Hence, BizRate.com looks into the Website features on the Web storefront as well as additional factors such as after-sales customer service, expected versus actual delivery, product received is exactly as its description on the Web storefront. The constraint of this rating is that an extensive survey would have to be conducted and for a certain period of time as each customer's transactions would differ at different situations.

The common factor between Lee's (1999) model and BizRate.com is that both include features of the business model of the Internet companies in their assessment on Internet customer satisfaction. The features of the business model are the storefront policies, the online customer service, and the discounts and incentives, which are shown on the Web storefront. Thus, for a Web storefront to be effective in assisting an Internet consumer to purchase, it would require these features of the business model. Hence, another perspective for an effective Web storefront is business.

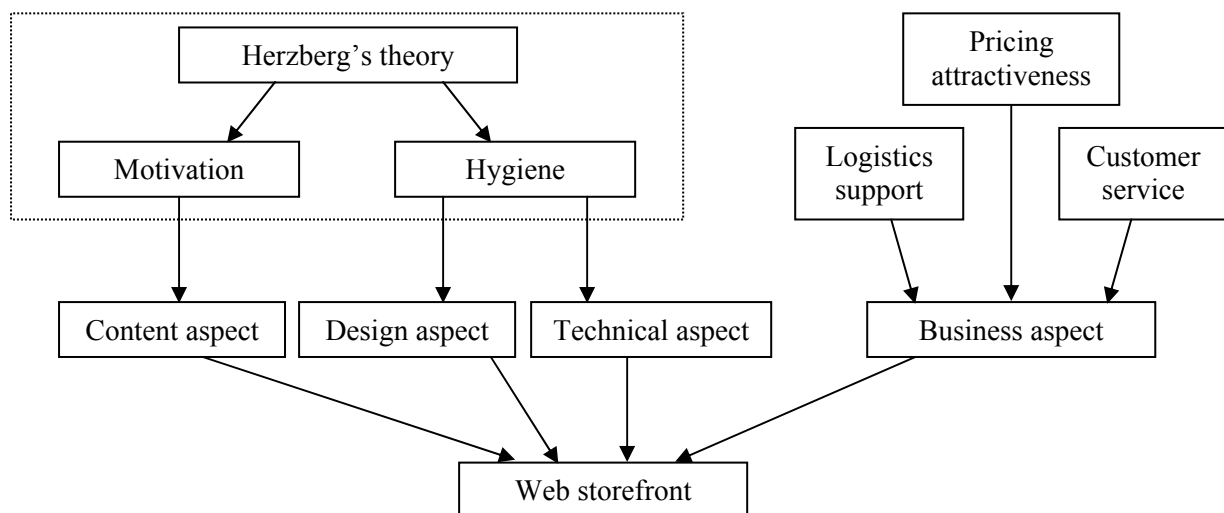
Practitioner, ratingWonders.com, has developed a Web storefront assessment model with regard to the *business* perspective. ratingWonders.com is a division of eWonders.com that has developed a list of eight rating criteria to rate Internet companies. The eight rating criteria are product information, customer service, site quality, ordering methods, payment methods, shopping features, shipping facilities and return policy. Each criterion comprises a set of attributes that scores a point for the presence of each attribute. These points add to a cumulative score that is converted to an equivalent score on a scale of one to ten for a particular criterion. The final scores are considered for two purposes: to obtain the rating of an Internet company based on each criterion, and the overall rating of an Internet company.

However, the model of ratingWonders.com is inadequate as the questions asked in their surveys are very general, focusing on the customer’s overall impression of the Web storefront, rather than specific Website features.

3. Web Storefront Assessment Model

The focus of the Web assessment models reviewed in Section 2 mainly lie on the consumer’s interaction with the Website – how the Web surfer perceives the Website’s appearance, ease of navigation, and effectiveness in accomplishing his/her tasks. Some of the models are for generic Websites, not just company Websites (Katerattanakul and Siau, 1999). The relationship between the company and its Web storefront is implicitly stated at best. Our framework introduces a link between the company and its Web storefront by translating the company policies into Web storefront policies (Beale, 1999a; Beal, 1999b; Greenberg, 2000; Saliba, 2001; Dembeck, 2000a; Dembeck, 1999; Dembeck, 2000b), which is part of the business aspect of an effective Web storefront.

[Figure 1] Herzberg’s motivation-hygiene theory and the aspects of Web storefront



Our model integrates the three perspectives from the above section (see Figure 1). Three of our aspects are derived from Herzberg’s motivation-hygiene theory. The hygiene features are necessary, but not sufficient to ensure user satisfaction with the Web interface, and motivation features contribute to the user’s satisfaction with and continued use of a Website. The *design* and *technical* aspects relate to the hygiene features, as a good Website design is necessary to attract the user’s attention. The *content* aspect relates to the motivation factor since the information content displayed on the Website influences the user decision whether

to prolong his/her stay on the Website. Certain elements in the *content* and *technical* aspects are concerned with the business model of the Internet retailers, such as the payment system, the security and privacy. For the proposed framework, these elements are removed and placed into the fourth aspect, the *business* aspect. Hence, the fourth aspect of the proposed model, the *business* aspect, is derived from the Internet company profile including its customer service, the logistics support, and pricing attractiveness (see italicized elements in *content* and *technical* aspect). However, only some of these can be translated into Website features to be displayed on the Web storefront. The four aspects, content, design, technical and business, determine the effectiveness of the Web storefront. From Lee's (1999) model, the Web storefront, together with trust in Web shopping contribute towards the *Internet customer satisfaction*.

3.1. Web Storefront Policies

The company policies are expressed in the form of Web storefront policies including safety or security policy, privacy policy, return policy and shipping policy, as described below.

Safety or security policy is important for online shopping. The most prevalent payment method for online buying is still credit card payment (Turban et al., 2000). The increase in the number of hacking and credit card fraud cases have caused more than half of the Internet consumers reservations in buying online and giving their particulars (Beale, 1999a; Beal, 1999b). Hence, Internet retailers should assure their customers by informing them about the security features that the Web storefront have and their stand on this issue.

Privacy worries arise from the personalization and customization of the users. Out of 100,000 online consumers interviewed by Forrester Research in 1999, 67% of them expressed "very" or "extremely" concerned about privacy (Greenberg, 2000). Internet consumers are reluctant to release their particulars for fear of invasion of privacy. The US Federal Trade Commission (FTC) investigated Real Networks on the charge of misuse of Internet consumers' information by selling its customers' information collected over the Web to outside marketers (Hillebrand, 1999). The Personalization Consortium set a list of "best practices" that should be adopted by companies to ensure consumer's confidence in the Internet companies' privacy policies (Saliba, 2001; Dembeck, 2000a).

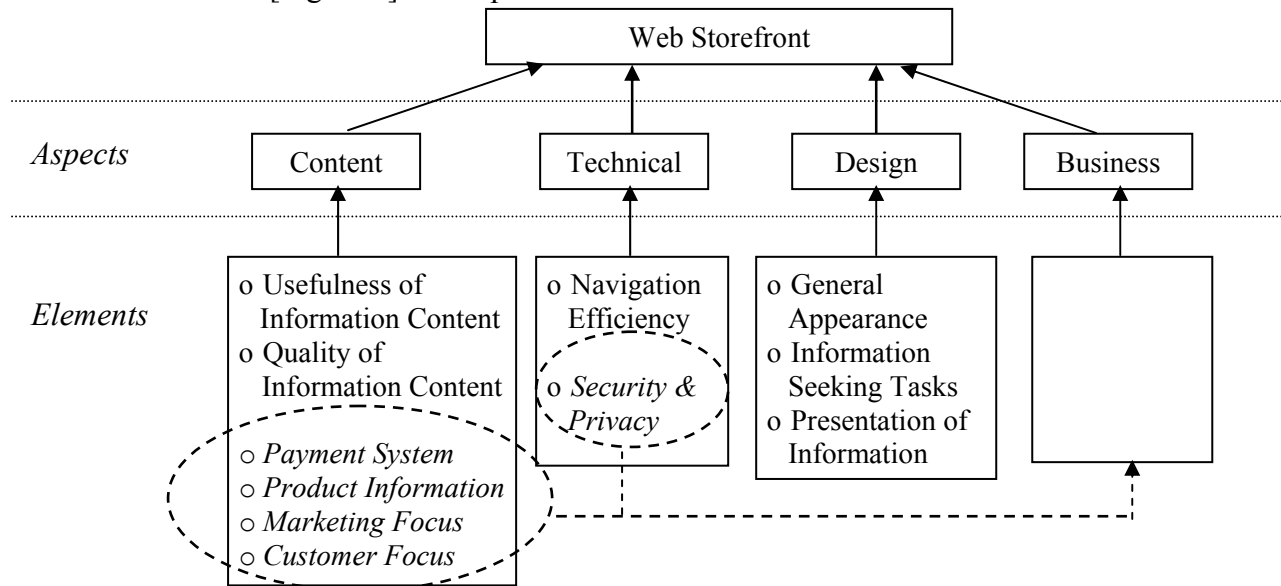
Bad return policy drives away customers. BizRate.com surveyed 9,800 Internet consumers and found out that 90% of the Internet consumers surveyed considered the return policy of an Internet retailer to be a strong factor in deciding whether they would repeat their Web purchases from the same Internet retailer (Dembeck, 1999). Many consumers found the process of returning a product to be very cumbersome. In the PricewaterhouseCoopers survey, 41% of the consumers who wanted to return the products bought online, but only a small 4% of consumers actually returned the products (Pastore, 2000). Barnes & Noble has earned the reputation of having a very good return policy and this makes the Internet consumers feel comfortable shopping with Barnes & Noble.

Shipping policy affects consumer's buying decision. Another survey by Forrester Research showed that 82% of 5,831 Internet consumers considered shipping costs when buying online (Dembeck, 2000b). At present, only a few Internet retailers offer free shipping for orders placed online (Romeo, 1999; Hollander and Wang, 1999). Internet retailers should also provide order tracking facility. BizRate.com reported that approximately 26% out of a total of 34 million online orders arrived late (Lawrence, 2000).

3.2. Web Storefront Assessment Framework

The proposed Web storefront assessment framework covers four aspects, content, technical, design, and business aspects. Strictly speaking, the Web storefront policies in the previous sections modify either the *content*, such as product information and marketing focus, or *technical* aspect, such as security policies (see the italicised elements in Figure 2). In the framework, these elements are extracted and categorized under the business aspect as they are concerned with the business model of the Internet retailers. Table 1 shows the elements that comprise each of these aspects and their reasons.

[Figure 2] The aspects and elements of a Web storefront



[Table 1] Elements of each aspect for an effective Web storefront

Aspects	Elements of each Aspect	Reasons for each Element
Content	1. Usefulness of information content	Content comprises of the quality of presentation and the usefulness of the content such that good business content will be able to attract a potential consumer (Turban, 1999).
	2. Quality of information content	Quality of the information content refers to the content that is clear, concise, informative and graphically appealing such that consumers can have a better understanding of the Web storefront (Zhang et al., 2000).
Technical	1. Navigation efficiency	Having navigation efficiency is to ease the consumer in navigating the Web storefront. The Web storefront should be efficient and user-friendly such that the consumer would not get confused, lost or frustrated and leave the Web storefront (Turban, 1999).
Design	1. General appearance	A good general appearance of the Web storefront would result in a good first impression and catch the consumer's eye (Zhang et al., 1999).
	2. Information seeking tasks	The Web storefront should be designed such that it would attract consumers to browse or explore for information (Zhang et al., 1999).

	3. Presentation of information	Presentation of information describes how the Web storefront covers information whether it has a concise and consistent representation of the information. This would allow the consumer to understand and interpret easily (Zhang et al., 1999).
Business	1. Payment system	The payment system affects the ease of purchasing. With more different types of payment methods like digicash, credit card, and simple steps to purchase, the Web storefront will be able to make it easier for more consumers to purchase (Turban et al., 2000, pp. 284-295).
	2. Product information	Product information helps consumers in evaluating the product. Product sample, in particular, let the consumer try out the product before committing to the purchase (Lewis, 1999).
	3. Marketing focus	Marketing focus is ability of the Web storefront in attracting consumers. Hence marketing can help to create awareness of the Web storefront, generate traffic, and drive sales of Web storefront (Turban, 1999).
	4. Customer focus	Customer focus is about the Web storefront being able to understand customers and customizing the Web storefront to suit different customers (Patton, 1999). The return and shipping policies are under the customer focus (Turban, 1999).
	5. Security & Privacy	Security on the Web storefront is particularly important when it involves privacy and transactions. Loss of privacy and credit card numbers would be a great turn-off for consumers (Turban, 1999).

The complete Web storefront assessment framework that we have developed is available in Appendix. As far as possible, the most important information should be placed on the first level of Web storefront, which is the homepage (Zhang et al., 2000). Website features that require additional information would be looked into the second level or more if necessary. Most of the Website features are adapted from models reviewed in Section 2 and are further refined after a comparison with the rating criteria list set by ratingWonders.com. Majority of the Website features may be objectively quantified by visiting the retailer's Web storefront, like whether the Web page is legible. The Website features in the Design aspect, and the Quality of Information Content element of the Content aspect cannot be objectively measured as they differ depending on Web surfer's needs and preference. A survey or experiment has to be carried out to benchmark these features (see italicized Web features in Appendix).

Each Website feature is assessed by whether it exists on the Web storefront and given points. The proposed framework is measuring the hit rates of Website features, not absolute value of the Website features, we need to refer to the framework when assessing Web storefronts. The Website features are of equal importance in this framework. The importance of the Website features is not measured in the proposed framework due to the need to tailor weightings for different Internet retailers and for different industries. The contribution of proposed framework is that it is a preliminary study and a guide for Internet retailers to identify the strengths and weaknesses of their Web storefront. The weightings of the Website features could be easily added to the framework.

4. Application of the Web Storefront Assessment Framework

The application of Web storefront assessment framework is demonstrated in this section. The books industry was selected for testing, as books are the hottest products among the small-ticket items that are selling on the Internet. Secondly, popular Internet book retailers also have an amazing record of over 28 million unique visits logged in December 1999, according to statistics from Top9.com (Brand, 2000).

The Internet retailers selected in the books industry are classified into international, regional and local. The international Internet retailers are retailers that have an international market and for the click & mortar retailers, they should have over a hundred physical stores. The international retailers selected are Amazon.com, Barnes & Noble, Borders and Books-A-Million.com. As for the regional Internet retailers, they target a smaller region. For the click & mortar retailers, they generally have less than a hundred physical stores. The regional Internet retailers selected are AcmaBooks.com, 1BookStreet.com, AllDirect, MPHOnline, Kinokuniya, and Powell's Books. Two local Internet retailers are also chosen, ComicsPal.com and Wonder Box. Their market size is limited to Singapore and they have only one physical store. The business models of selected Web storefronts are considered as well to better understand the results of the benchmarking.

4.1 Validity & Reliability of Web Storefronts

Since there is no validated instrument available in the literature to measure the validity of the Web storefront assessment framework, the practitioners' ratings of the Web storefronts are used to test the reliability of the results of the proposed framework. The reliability analysis is done using the correlation analysis to check whether the ratings given by the practitioners, ratingWonders.com and BizRate.com, are correlated. The Internet book retailers are chosen whereby both practitioners have given a rating for (in total, 29). Based on the ratings given, the correlation coefficient is +0.100 showing that the practitioners do not correlate.

Their focus of the survey, participation of the Internet retailers and size of the customers surveyed could explain this result. The survey set by BizRate.com looks mainly into the shopping experience of the Internet customers, including after-sales service, and less on the Web storefront (Warner, 1999). For ratingWonders.com, they focus mainly on effectiveness of the Web storefront. As stated by BizRate.com, some of the Internet retailers do not allow their customers to continuously evaluate their purchase experiences. In addition, BizRate.com only surveys customers who have bought from the Internet retailers. However, it may not be possible to survey all the customers as they can choose not to do the survey. Hence, the sample size for each Internet retailer is not the same. As for ratingWonders.com, only a team of management staff evaluates the Web storefronts of the Internet retailers. Thus, ratingWonders.com and BizRate.com do not correlate.

Next, a rank order correlation analysis is done between the proposed framework and ratingWonders.com. Since ratingWonders.com has a similar focus as the proposed framework, a rank order correlation analysis is done between them. BizRate.com is not chosen for the analysis as they focus on additional factors like profile of the Internet retailers. For this analysis, there are 7 Internet book retailers that overlap between the framework and ratingWonders.com. The Pearson Correlation coefficient is 0.896, indicating that there is a strong positive correlation between the ranking of the Internet retailers by ratingWonders.com and the proposed framework. Thus, the benchmark results using the

proposed framework are reliable as it is consistent with the practitioner's, ratingWonders.com. This would imply that the proposed framework is valid when compared against that of ratingWonders.com.

4.2 Assessment of Web Storefronts

The twelve Internet book retailers are benchmarked⁴ and given a final scoring. This is a partial benchmark as we consider only the *technical* and *business* aspects as well as the Usefulness of the Information Content of the *content* aspect. A complete benchmark should include surveys or experiments to rate the *design* aspect and the Quality of the Information Content of the *content* aspect. Additional company profile information may aid us in better interpretation of the benchmark. However, we can still make some observations from our partial benchmark. Table 2 shows the three Internet retailers that scored the highest, median and lowest, and they are Amazon.com, 1BookStreet.com, and ComicsPal.com respectively.

[Table 2] Scores of each element and aspect of the assessed Web storefronts

Aspect	Element	Amazon.com	1BookStreet.com	ComicsPal.com
Content	Usefulness Of Information Content	7/8	7/8	6/8
	Quality Of Information Content	1/1	1/1	0/1
Technical	Navigation Efficiency	15/16	12/16	9/16
Business	Payment System	5/5	4/5	0/5
	Product Information	3/3	1/3	1/3
	Marketing Focus	6/7	4/7	2/7
	Customer Focus	13/14	7/14	0/14
	Security	5/5	5/5	0/5
Content Total		8/9	8/9	6/9
Technical Total		15/16	12/16	9/16
Business Total		32/34	21/34	3/34
Total Score		55/59	41/59	18/59

Amazon.com almost scores full marks in all elements of the aspects. The strengths of Amazon.com's Web storefront are that it has a 1-Click setting for ordering online, has a book community for members, an effective search engine, a Wish list for members, a good return policy and a person-to-person auction forum for members. The only suggested improvement for their Web storefront is in the Usefulness of Information Content of the Content aspect, Amazon.com has different registration forms for purchasing, auction forum and the book community. It would be good if Amazon.com could design a registration form such that Internet consumers would only need to fill in their particulars once for these services.

ComicsPal.com has the lowest score among the assessed Web storefronts. The strengths of ComicsPal.com are that it has established a forum and an auction place for all consumers. Based on its *content* and *technical* aspects, ComicsPal.com has a Website that is more effective than others. However, as a Web storefront, ComicsPal.com is not effective. It is lacking in the *business* aspect which composed the Web storefront functions that are necessary for Internet transactions. As for Product Information, only the images of the comic

⁴ The full results of the benchmarking are available upon request.

books are placed on the Web storefront, essential information of the comic books like title, author, price, are not shown.

Since ComicsPal.com is only a local retailer, its Web storefront does not offer other languages or internal Web pages that are local to a region. Thus, a suggestion for ComicsPal.com is to increase its enhancements of the purchase experience. Although ComicsPal.com has set up a forum and auction, there is hardly any member participating in it. ComicsPal.com scores badly in the Customer Focus. It is important for Internet retailers to have personalisation for their customers as each customer is unique and has different preferences. Hence, ComicsPal.com should implement some of the Website features in the Customer Focus, such as using cookies, has customer reviews, and build a comic books community.

There are indications that ComicsPal.com's status of Website may be raised to Web storefront by the message displayed that online ordering and renting would be available soon. ComicsPal.com would need to provide the necessary information for a customer to order or rent online, such information would be the Website features from all elements of the *business* aspect that should be implemented, especially Payment System, Security and Privacy, and Customer Focus. This is to build up the trust in the Internet consumers to do transactions online with them. Another suggestion for ComicsPal.com would be to update the content on their Web storefront more frequently to provide the consumers with more news in order to maintain their interest.

For 1BookStreet.com, its strengths are that it provides good discounts on books, and has free shipping for domestic orders. The benchmark shows that its weaknesses are in its Product Information, and the Customer Focus of the *business* aspect. A closer look reveals that it does not have detailed description of the books, only the images of the books and the basic information like author, title, ISBN number and price, are displayed. It should provide details like abstract of the book, table of contents such that the customers would know what kind of books they are purchasing. For its Customer Focus, 1BookStreet.com should have an auto responder as it takes more than two days to reply a customer's enquiry. When a book is ordered, the customer would like to know whether the order has been processed and if the book is being sent to the customer. Thus, 1BookStreet.com should have an order tracking for their customers. Customers may be persuaded to purchase a book if certain forms of advice have been given, for example good book reviews that have been written. The reviews do not simply come from the publishers but from other customers who have bought that book as well. This would raise the confidence level in purchasing the book. Hence, another suggestion for 1BookStreet.com is to include a book community or customer reviews on its Web storefront.

4.2.1. Other Observations

Besides identifying the strengths and weaknesses of Web storefronts, other observations could be made regarding the business models adopted by the Internet retailers. Based on its year of establishment of the Web storefronts, it may be possible that the amount of experience of the Internet retailers have could affect their Web storefronts. The size of the Internet retailers could also affect the Web storefront. Amazon.com is on the higher end of benchmarking and the small local retailer ComicsPal.com is on the lower end. The target market of the Internet retailers may influence some of the Website features implemented on their Web storefront. Most of the assessed Internet retailers are targeting an English-speaking

population, and the click-and-mortar retailers have their physical stores located in English-speaking countries. This is partly the reason for the Web storefronts not offering any other languages.

Hence, the size of the Internet retailer, year of establishment on the Internet, and the target market may affect the effectiveness of the Web storefront. However, the results of the assessment are not significant enough to make a conclusive statement. Secondly, the results are preliminary as it is based on the information displayed on the Web storefront. More specific information such as the history of the Web storefront policies that are implemented and theoretical support would be needed in order to confirm that the business model of the Internet retailer would contribute to the effectiveness of the Web storefront.

5. Conclusion

In the coming era of Internet shopping, it is imperative for Internet retailers to develop Web storefronts, which assist customers in making Web purchases. Hence, a Web storefront assessment framework is needed to help Internet retailers to identify their strengths and weaknesses. Our framework classifies the Website features of the Web storefront into four aspects, *content*, *design*, *technical*, and *business*. We applied the framework to Internet book retailers and made some observations for improving their Web storefront, which is the contribution of our research. Due to time constraint, we could only benchmark certain aspects. The next phase of the research is to carry out surveys or experiments to benchmark those Websites features that are based on Internet consumer preferences. From the benchmarking results, the business models adopted by the Internet retailers could affect the Website features implemented. Furthermore, Lee's (1999) model stated that the Internet retailer's profile would affect the Internet customer satisfaction, thus a more in-depth research of the business models of the Internet retailers would assist in the interpretation of the benchmark.

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Appendix - Framework for benchmarking Web storefronts

Aspects	Elements	Website Features	Level	Range of Results
Content	Usefulness Of Information Content	1. Text has proper spelling and grammar	1	Yes/No
		2. Legible and readable Webpage	1	Yes/No
		3. Provide free services or useful information	1	Yes/No
		4. Has registration forms	2	Yes/No
		a) Purpose? Buy product/ enter chatroom/ access restriction.		a) List purpose
		b) Information required? Basic are name, email, address, and password. Require extra personal information?		b) List information required
		5. Create FAQ	2	Yes/No
	Quality Of Information Content	6. Has no 'Under Construction' signs	2	Yes/No
		7. Number of ads	1	Number
		8. Make regular changes	1	Yes/No
		9. <i>Has task-relevant information</i>	2	Yes/No
		10. <i>Has relevant links</i>	2	Yes/No
		11. <i>Number of irrelevant links</i>	2	Number
		12. <i>Has precise and referenced information</i>	2	Yes/No
		13. <i>Has novelty and interesting information</i>	2	Yes/No
		14. <i>Has understandable information</i>	2	Yes/No
15. <i>Has appropriate detail level</i>	2	Yes/No		
16. <i>Has coherent content to support Web storefront's intended objective</i>	2	Yes/No		
Technical	Navigation Efficiency	17. Time to download Webpage	1	Time
		18. Size of single Webpage kept to 60KB	1	Yes/No
		19. Web storefront requiring plug-ins	1	List plug-ins
		20. Usage of thumbnails for graphics	1	Yes/No
		21. Provide 'text-only' choice	1	Yes/No
		22. Use progressive rendering	1	Yes/No
		23. Number of broken links	2	Number
		24. No usage of frames	1	Yes/No
		25. Navigation consistent	2	Yes/No
		26. Provide effective search engine	1	Yes/No
		27. Use distinctive hot buttons	1	Yes/No
		28. Has site maps/guides	1	Yes/No
		29. No links that open up new browsers or pop-up ads	2	Yes/No
		30. Stability of Web storefront	1	Yes/No
		31. Has support for basic browsers (Microsoft IE and Netscape)	1	Yes/No
		32. Number of navigation aids not working	1	Number
		33. Easy to get started with Web storefront's primary features for a first visitor	1	Yes/No

Design	General Appearance	34. <i>Brightness of the Web storefront</i>	-	Yes/No
		35. <i>Matching background colour and pattern</i>	-	Yes/No
		36. <i>Has eye catching images or title that attracts exploration of Web storefront</i>	-	Yes/No
		37. <i>Consistent usage of colour and graphics</i>	-	Yes/No
	Information Seeking Tasks	38. <i>Browsing task is interesting</i>	-	Yes/No
		39. <i>Browsing task is challenging</i>	-	Yes/No
		40. <i>Browsing task is useful to job or school</i>	-	Yes/No
		41. <i>Browsing task is meaningful</i>	-	Yes/No
		42. <i>Web storefront is fun to explore</i>	-	Yes/No
	Presentation Of Information	43. <i>Has a logical organization of information</i>	-	Yes/No
		44. <i>Use of familiar terminology</i>	-	Yes/No
		45. <i>Has scannability of page</i>	-	Yes/No
46. <i>Has visually pleasing screen layout</i>		-	Yes/No	
47. <i>Has visually pleasing colour use</i>		-	Yes/No	
48. <i>Has multimedia that adds information value</i>		-	Yes/No	
Business	Payment System	49. Number of payment methods	2	List methods
		50. Number of steps to purchase for new customer	2	List steps
		51. Has express checkout	2	List steps
		52. Has shopping cart	2	Yes/No
		53. Has order confirmation email	2	Yes/No
	Product Information	54. Has product specifications (eg. Abstract, table of content)	2	Yes/No
		55. Has picture of product	2	Yes/No
		56. Has product sample (eg. Excerpt of book or music, ability to manipulate product)	2	Yes/No
	Marketing Focus	57. Has games/puzzles/contests	1	Yes/No
		58. Domain name that is easy to remember	1	Yes/No
		59. Has no visible hit counters	1	Yes/No
		60. Show discounts, incentives etc	1	Yes/No
		61. Other languages available for Website	1	Yes/No
62. Other internal Webpages that are local to a country		1	Yes/No	
63. Enhancement of purchase experience (eg online mix-match, flash, eBooks)		1	List enhancements	

Customer Focus	64. Has personalization for customers (use cookies, temporary IP number)	1	Yes/No
	65. Has an auto responder	2	Yes/No
	66. Has a community	2	Yes/No
	67. Has a return policy stated	2	Yes/No
	68. Time taken to response to customers' queries	2	Time
	69. Has order tracking	2	Yes/No
	70. Has a shipping policy stated	2	Yes/No
	71. Has different shipping methods	2	List methods
	a. Has express shipping	2	Yes/No
	b. Has international shipping	2	Yes/No
	72. Has advice		
	a. Customer reviews	2	Yes/No
	b. Expert advice	2	Yes/No
c. Recommendations	2	Yes/No	
73. Provide contact information	2	Yes/No	
Security & Privacy	74. Type of security (SSL, SET)	2	List types
	75. Has copyrights	1	Yes/No
	76. Has confirmation page after consumer makes a purchase	2	Yes/No
	77. Inform users of data collection	1	Yes/No
	78. Declaration of specific use of data collected from users	2	Yes/No