Critical Success Factors of B2C Website Storefronts
(Or What Will Make B2C Website Fronts Sell Well or Swelter)

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PROBLEM AND ITS SETTING

Background

The Internet has revolutionized the worldwide business paradigm since the United States government allowed its commercial use in 1994. Today, products are conceptualized, designed, manufactured, marketed, bought and delivered online through what is called *e-business*.

Established businesses and new start-ups around the world compete in the Internet arena. The early and phenomenal success of those who pioneered in the Internet gave rise to an unprecedented growth in new companies, mostly pure play or dotcom (meaning, no traditional business operations, referred to as brick-and-mortar). This phenomenon, considered as the first wave of e-business [Frost], has created a flood of innovative ways for website retailers to entice consumers to purchase and re-purchase their products.

However, these business-to-consumer (B2C) retailers are at a loss as to what factors will make B2C consumers purchase and repurchase from them. This problem has become more significant as shortly after the dotcom boom in 1996 to 1999, the dotcom bust in 2000 saw many B2Cs fall and falter. The e-business bubble burst as sky-rocketing expectations for sales and profits could not be met by many e-business organizations that joined the bandwagon without solid strategies and plan. Those that remained as well as those that joined the second wave realized that e-business, like traditional business, had to rely on well-grounded plan, apply sound business practices using new rules and new tools brought about by the Internet [Strauss, Turban].

Initial attempts have been made to determine what B2C sell well or swelter. [Media Metrix]. Others attempted further by identifying the strategies these well-selling B2Cs adopt [Boston Consulting Group]. None, however, developed an empirical model that would identify factors that are critical to their selling success. This problem prompted this researcher to initially venture into identifying these critical factors.

Problem Statement and Specification

However, initial data gathering revealed that the problem of identifying the factors critical to the success of the website was insurmountable due to two main reasons. First, the depth for which B2C operations use their websites greatly vary: some use websites simply to advertise their products (e.g. Domino's Philippines) while others (e.g., Fedex, M&M) allow consumers to customize the product/packaging, pay online, track delivery, confirm receipt and file complaints. Second, many possible factors are non-website related, such as pricing, product variety, capacity and delivery crew.

Thus, this research decided to zero in on a cluster of factors that could be compared among the cross section of B2Cs. Previous worldwide surveys [Active Media, Boston Consulting Group] identified that a storefront that satisfies the needs of consumers was the factor of B2C operations most critical to the selling effort. They also identified some factors of the storefront as critical [Active Media, Boston Consulting Group, Gallagher] to the customers' satisfaction level. The popularity of website awards such as Webby and Philippine Webby among consumers and businesses is indicative of the storefront's importance. However, the wide disparity of these awards' criteria and the conflicting prescriptions of hundreds of literature only prove that the critical factors of the storefront's design are not universal. Further, the previously mentioned researches have not proven that other factors are not critical and to what extent critical factors determine the effectiveness of the storefront. Thus, the research chose to address these needs.

This research aims to solve
"What are the critical success factors of business-to-consumer website storefront designs and how much does each factor affect the effectiveness of a storefront"

Objectives

The study aims
1. To identify empirically the critical success factors that significantly determine the effectiveness of a website storefront in encouraging consumers to patronize it and its products
2. To develop a statistical model that will determine the effectiveness of a website storefront given the value of each critical success factor

Hypotheses

The research is guided by the following hypotheses:
1. Although there are various website design factors that differentiate B2C storefront from each other, only a number of these factors significantly contribute to the storefront's effectiveness.
2. The different critical success factors affect the effectiveness of a B2C storefront in varying extent.

Based on review of literature and initial survey conducted among 25 B2C consumers, 25 B2C managers and 25 webpage designers, the factors that are hypothesized to be critical are in Table 1.1.

Table 1.1 Factors of Storefronts Hypothesized to Determine Satisfaction Potential

WEBSITE FACTOR	VARIABLE NAME
STRUCTURE	
1. Site name that is easy to recall or associate with the product/company	NAMERECALL
2. Sufficient splash pages before homepage	SPLASHPAGE
3. Fast access to the website from another site	FASTACCESS
4. Attractive logo	LOGOATTRCT
5. Logical layout of every page	LAYOUTLOGC
6. Aligned tables, boxes, buttons	ALIGNTABXB
7. Appropriate font size and style	FONTSZSTTL
8. Appropriate color combination	COLORCOMBI
9. Appropriate categorization of products in product list	PRODUCTCAT
10 Easy to locate and understand navigation buttons	NAVBTTNLOC
11 Fast navigation from one page to another	NAVBETPAGE
12 Minimal dead links or page under construction .	DEADLINKPG
13 Ability to return to homepage in every page	HOMERETURN
14 Appropriate artwork	ARTWORKAPP
15 Appropriate animation and special effects	ANIMATEFFC
16 Ability to play audio clips/streaming video	AUDIOVIDEO
CONTENT	
17 Personalized site	PERSONALIZ
18 Comprehensive site map to locate site's section/pages	SITEMAPCOM
19 Sufficient product general info (models, brands, price)	PRODCTINFO
20 Easy to compare model/brands, their prices & feature	COMPAREMOD
21 Sufficient information on a product's availability	AVAILABLTY
22 Ability to enlarge photos of products	ENLARGEPHO
23 Frequent updating (freshness of information)	FRESHNESSS
24 Sufficient info on new product & promo(What's New)	NEWPRODPRM
25 Sufficient info on Terms of Service (ex. delivery, repair)	TERMOFSERV
26 Sufficient information from Help function or FAQ	HELPFAQNFO
27 Ability to communicate w/others by message board, polls	COMWOTHERS
28 Sufficient external links to related products or info	EXTERLINKS
29 Fast Search function for products/models or info	SEARCHFUNC
30 Ability to put products in shopping cart	SHOPCARTEC
31 Fast and easy checkout after shopping	ECCHECKOUT
32 Ability to accept payments online	ONLINEPAYM
33 Info on alternative ways of ordering offline (fax, phone)	ORDEROFFLN
34 Prestigious and numerous awards the site received	AWARDSRCVD
35 Hits counter has large number of website hits	BIGHITCOUN
36 Sufficient info on firm's trustworthiness (About Us)	TRUSTWORTH
37 Ability to e-mail to webmaster/customer service/etc.	EMAILTOSITE
38 Assurance of security of transaction & customer info	SECUREINFO
39 Fast reply that consumer's order/message was received	FASTREPLY
40 Ability to track status of order/request/delivery	TRAKSTATUS
41 Minimal use of abbreviations and industry jargons	ABBREVJARG
42 Many free file downloads	FREEDLOADS
43 Few adverts of non-related products sold in other sites	ADVEROTHER
44 Breaking News	BREAKNEWS
45 Feature Articles about the product's uses, tips on how to use it properly	FEATUREART

Definition of Terms

The following are the key words and phrases found in the Problem Statement and their operational definitions in this study:

- **B2C (Business-to-Consumer)**. B2C refers to a company that uses its website to market or sell directly to consumers. For this study, B2Cs are limited to those that can accept order via on-line order form or e-mail and are based in Metro Manila, Philippines.
- **Consumer.** The consumer is any individual who uses the Web and has a need for a particular product offered by the B2C. Consumers are those who have purchased online prior to the study, though not necessarily from the B2Cs that are subject of the study.
- **Factor.** A factor is something intrinsic or extrinsic to a storefront that is perceived to actively contribute positively or negatively to the desired result.
- **Critical Success Factor (CSF)**. These are the limited number of factors intrinsic to the storefront in which satisfactory results will ensure competitive performance for the website. For this study, only the factors that were identified in two or more literature reviewed and selected through the initial survey were included as candidates for critical success factors.

Critical success factors are categorized in this study as satisfier and delighter. A satisfier is a factor that the consumer consciously knows makes the storefront effective. A delighter is a factor that the consumer does not consciously know makes the storefront effective but subconsciously motivates the consumer to navigate through its pages, visit the storefront again and plan to buy the product/s the storefront is selling.
- **Storefront**. The part of the website that the consumer interacts with

(sees, hears, writes on); also known as front-end. The rest, such as hardware and software, comprise the backend.
- **Website.** A website (web publication) consists of a homepage and all the electronic pages linked from the homepage and subsequent pages linked to these pages.
- **Storefront Design.** This consists of **Structure (**aggregate relationship of storefront's parts) and **Content (**information in text, picture, video and aesthetic attributes).
- **Effectiveness –**This pertains to the ability to achieve the storefront's objective, that is, to motivate the consumer to navigate through the pages, visit the website again and plan to buy the product/s the website is selling.

Assumptions

It was assumed that as instructed, each subject consumer used the same computer and browser, and accessed within two hour the websites that were studied. Varying the computer unit, Internet connection, browser and time of access affect the speed of access, navigation, color, and alignment, among others. Further, this study assumes that each subject was not influenced by factors outside the storefront's characteristics, such as speed of delivery, product quality, price, and others.

2. METHODOLOGY AND RESULTS

For statistical computations, 95% level of significance and 10% precision error were used.

Primary data gathering was done through Internet-interactive survey among 32 consumers on July 1-6, 2002. B2Cs studied were those based in Metro Manila, Philippines to minimize extraneous variables. Two industries were covered in the study, because these industries accounted for approximately 50% of B2Cs in the Philippines [Atienza. 2001; NielsenRatings]. Two competing websites from each industry were studied to allow comparison between industries. The industries were
- Personal Interest – books, music, videos, movies, gifts, publication, etc.
- Fashion & Style – clothing, jewelry, accessories, home and garden supplies, etc.

This survey required 32 consumers to surf the four subject websites within a prescribed time of the day and days of the week. Only a few instructions were given to the respondent to discover some structures or contents of the storefront. Outside of these instructions, respondents were free to surf the pages in their usual way. Then, they evaluated each website by answering two questionnaires. (Earlier, the questionnaires were pre-tested among eight consumers. Using the Reliability module of Statistica, question items that were difficult to answer indicated by extreme means and near-zero standard deviation, were identified and later reworded by the researcher. The final questionnaire and the glossary of terms referred to by the respondents are not shown in this paper for brevity.)

Factor Rating

Each candidate factor was rated by respondents according to its Importance and Performance [Kotler].
- Importance - Respondents were asked "How important is this factor of a website in motivating you to surf the storefront and buy from it now or in the near future?"

Ratings ranged from 9 (Extremely Important) to 5 (Important) to 1 (Not Important)
- Performance- After surfing a website for 40 minutes, as prescribed by Nielsen Norman Group [2002], respondents were asked "How satisfied are you on this factor of this website storefront as far as motivating you buy from it now or in the future". Ratings ranged from 9 (Extremely Satisfied) to 5 (Satisfied) to 1 (Not Satisfied).

After answering the Performance questionnaire for 20 minutes, the respondent then surfed immediately into its competitor's website and evaluated that website in terms of Performance.

Factors that were rated at least Important (rated 5 in a scale of 9) were classified as "high stated importance" ; otherwise, they had low stated importance. [Klein] Of the 45 factors, 26 had high stated importance. This meant that majority of the hypothesized critical factors were considered by the consumers as important. The average importance rating for these 26 factors was 7.6 in a 9-point scale. The standard deviation of the mean ratings was 1.2, a relatively high disparity of ratings. The overall importance rating for the 45 factors was 6.4 with standard deviation of 1.8

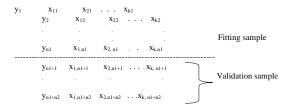| FASTACCESS	NAVBETPAGE	PRODCTINFO	SEARCHFUNC
LAYOUTLOGC	DEADLINKPG	AVAILABLTY	ONLINEPAYM
ALIGNTABXB	HOMERETURN	ENLARGEPHO	ORDEROFFLN
FONTSZSTTL	ARTWORKAPP	FRESHNESSS	TRUSTWORTHY
PRODUCTCAT	ANIMATEFFC	NEWPRODPRM	SECUREINFO
NAVBTTNLOC	PERSONALIZ	TERMOFSERV	FASTREPLY
		HELPFAONFO	TRAKSTATUS

Average overall performance rating of the four websites was 4.2, indicating a moderate satisfaction with the websites studied. The average of the average performance ratings of the 45 factors was 3.6. The significant difference between the two average ratings implies that there is a difference between what factors are stated or perceived as important and factors that are really important to the consumer.

Critical Success Factors: Satisfiers and Delighters

To determine the revealed importance of a factor, the overall consumers' effectiveness ratings of the websites were correlated with the consumers' performance ratings on the factors. A high correlation indicated the revealed importance of this factor was high; otherwise it was low.

The ratings in revealed importance and stated importance on each factor was used to identify what were critical (satisfiers, delighters).

To allow for cross validation, splitting of the data into two subsamples (a fitting sample and a validation sample) was employed.

$$
\begin{array}{cccccc}
y_1 & x_{11} & x_{21} & \cdots & x_{k1} \\
 & y_2 & x_{12} & x_{22} & \cdots & x_{k2} \\
 & \cdot & \cdot & \cdot & \cdot \\
 & y_{n1} & x_{1,n1} & x_{2,n1} & \cdots & x_{k,n1} \\
\end{array}
$$

Fitting sample

$$
\begin{array}{cccccc}
y_{n1+1} & x_{1,n1+1} & x_{2,n1+1} & \cdots & x_{k, n1+1} \\
\cdot & \cdot & \cdot & \cdot \\
y_{n1+n2} & x_{1,n1+n2} & x_{2,n1+n2} & \cdots & x_{k, n1+n2} \\
\end{array}
$$

Validation sample

The candidate model was derived using the fitting sample. Since there is no universally accepted rule for the relative size of the two samples, a sufficient number of observations should exist in the fitting sample to provide an adequate number of residual degrees of freedom for the fit. A rather liberal rule here is to make n ^{3} 2p + 20, where p is the number of model parameters and n the total sample size, and split the sample roughly equally for validation and fitting. [Myers]. Since the number of samples, 128=4*32, is greater than the minimum, 110 =2*45 + 20, the samples were divided equally into 64 fitting samples and 64 validation samples.

Using the ratings in stated importance and revealed importance, factors could then be classified as [Klein]
- Critical
    Satisfiers   - High stated importance and high revealed importance
    Delighters   - Low stated importance and high revealed importance
- Non-Critical
    Insignificant - Low stated importance and low revealed importance
    Dissatisfiers - High stated importance and low revealed importance (It is a factor that causes dissatisfaction when absent but does not increase consumer satisfaction when present).

Using multiple regression on the fitting sample set, those factors that were retained in the final regression equation were considered as

significant [Statsoft]. These significant factors were considered as having "high revealed importance". The others were of "low revealed importance". The final regression equation obtained was later validated using the validation set and applying test of mean of differences.

The final regression model is:

PERFORMANCE = -3.3145 + 0.8765FASTACCESS + 0.6748ARTWORKAPP + 1.0468NAVBETPAGE + 0.7852DEADLINKPG + 0.5880COMPAREMOD + 1.0245ARTWORKAPP + 0.9381COLORCOMBI + 0.5235TRUSTWORTH + 0.8764ADVEROTHER + 0.4863SECUREINFO

Using the results of the final regression, the factors are then classified as critical (satisfiers and delighters) and non-critical (dissatisfiers and insignificant), as shown in Table 1.2. Looking closely at the Satisfiers, the presence of FASTACCESS, NAVBETPAGE and DEADLINKPG shows the importance placed by consumers on speed of surfing into and within the storefront. Similarly, SECUREINFO and TRUSTWORTH reiterate that trust is a virtue that consumers look for in the website, and must be perceived as present through the storefront's design and information provided. ARTWORK and COLORCOMBI are proofs that storefronts must also be visually appealing. COLORCOMBI and COMPAREMOD turn out to be delighters: they are not consciously being looked for by the consumers but subconsciously affect the consumer's behavior in surfing the storefront and buying its products.

CONCLUSIONS

Active Media [2001] estimated that US$22 Billion were spent globally in 2000 to establish websites and maintain presence in the Web. Storefront design and programming accounted for 33% of this cost. B2Cs accounted for 70% of websites. Using these figures, developing storefronts cost the world at least US$4.37 Billion annually. Some of these investments will not payoff because the storefronts are not designed well enough to motivate consumers to visit, navigate and entice the consumer to buy the product being sold by the site. A word of caution through: a well-designed storefront is a necessary but not a sufficient condition to entice the consumer to patronize a website and its products (Activemedia).

In 2000, approximately US$132 Billion of sales were generated by the websites. Considering that at least 35% of sales were generated by B2Cs, B2C storefronts contributed to worldwide sales an approximate US$46.2 Billion. These would have been more if the storefronts were designed satisfactorily.

Thus, total social benefits of the study is expected to be at US$900 million. These do not include the unnecessary costs incurred by the web developers in developing and consumers in buying through the web.

The greatest benefit from this study is that the consumers will find shopping and buying from the web more time- and cost-efficient and enjoyable. Further, he will not be deprived of bargains, new products and other benefits that he would have not obtained simply because of a poorly designed storefront.

Table 1.2 Critical Success and Non-Critical Factors of Storefront Design

Critical Success Factors	
Satisfier	**Delighter**
FASTACCESS	COLORCOMBI
NAVBETPAGE	COMPAREMOD
DEADLINKPG	
ARTWORKAPP	
TRUSTWORTHY	
SECUREINFO	
ADVEROTHER	

RECOMMENDATIONS FOR FURTHER STUDY

Future researches can be done on the following:

1. Further analysis of the factors and the statistical model by consumer demographics (such as : by sex, age bracket, by profession)
2. Further analysis of the factors and the statistical model by industry
3. More comprehensive scope that can be done by expansion of respondents, inclusion of website companies based outside the Philippines, and expansion of industries covered
4. More in-depth studies on what are the specific values (e.g. what color combination) of the critical success factors that are favored and not favored by consumers

B2C executives and web developers should ensure that their storefronts possess the critical success factors without forgetting the dissatisfiers, and de-emphasize the insignificant factors to optimize their investments on their storefronts. The sales to be generated will be bigger if consumers become more satisfied with their storefronts. Even if competitors use similar storefront features based on this study's recommendations, the B2Cs will still realize bigger sales because the competitive sales pie is expected to get bigger as consumers find buying online in that industry more enjoyable.

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