Virtual Store Performance Measurement:
A Logical consequence on Strategic and Operational Decisions

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Abstract

Performance measurement is the buzzword in today’s business world. This mechanism has become an essential tool in online marketplace to identify victors and losers. Apparently, virtual stores are searching for decision-oriented performance measures to aid them in addition to identifying strengths, weaknesses, threats and opportunities make sound strategic and operational decisions as they compete with their peers. In that paradigm this study attempt to measure performance of virtual stores using decision-making associated variables sternly to evaluate the impact of the variables or indicators on strategic and operational decisions.

To achieve this purpose, the study used an evaluation framework to identify drivers which have a significant and positive effect on strategic and operational decisions. The study surveyed 100 internet users in Goteborg of a randomly selected four virtual store (EBay Amazon.com, Yahoo and Buy.com).

The results identified three major dimensions: website, product and services and promotion. These dimensions share many common aspects with decision making determinants derived within the context of online market industry. Conversely, these dimensions have unique characteristics inherent in the online marketing environment. The study revealed a significantly positive relationship between the variables on operational and strategic decisions. The conclusion is that the fact that performance measures are assessed to firms’ business activities both operational and strategic decisions initiatives begin with defining users’ needs and preferences, and their related performance variable. If the virtual store understands what dimensions users use to judge quality, they can take appropriate actions to monitor and enhance performance on those dimensions and remedy service failures.

Keywords: Virtual store, Strategic and operational decisions, Decision-oriented performance variables, variable dimensions, Website, product and service and Promotion
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However, the current author would like to make a declaration that this study is an addition to extant literature and was the main contributor of the overall paper. Whenever other peoples work is referred to, they are duly acknowledged. Therefore the author is solely responsible for any error and misrepresentation of facts.

Welford Mensah

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Index of Key Terms

**Operational or short-term decisions** are decisions taken by departmental managers or lower level supervisors in order to put tactical plans into effect and control activities. Examples could include credit control, re-ordering of stocks and determination of delivery routes.

**Strategic or long-term decisions** are concerned with an organization's overall objectives. Such corporate decisions include major capital investments, sources of finance, products and market choices.

“**Net Score**” is simply obtained by the summation of the model items. With reference to the aforementioned criterion, a brokerage firm can get the maximum or minimum score, depending on the presence (1) or absence (0).

**Net Score percentage**, obtained by dividing the Net Score by the maximum Net Score. Thereafter express as a percentage (that is multiply by 100). It reveals the performance among the firms counterparts Chung, W. and Painter J: 2000]

**Numion Stopwatch**: A small utility that can measure the time it takes to download any page on the internet. It saves you the effort of finding a stopwatch.

**Response time**: is measured by calculating the time elapsed while downloading each web page during different stages of transaction process. In effect it is the end to end time (in seconds) to retrieve a Uniform Resource Locator (URL) or transaction from a web site. The goal is to approach the smallest number possible.

1 Background and Rationale

In order to improve a product or services to satisfy a need of a customer, you have to be able to improve or change it to meet their needs. In order to improve or change it, there is the need to know what the customer desire or want. In order to know and understand it, you have to be able to measure it for performance. Therefore performance measurement facilitates early identification and correction of problems at the source. Consequently feedback is central to learning. If you do not know how you are doing, you cannot improve. Yet many researchers use performance measures as a metric to quantify the efficiency and/or effectiveness of an action. While this is a representation of considerable body of knowledge, few of this research extend performance measurement as a multifaceted and dynamic phenomenon that can be used to interact with the business’ strategic and operational decisions. This first chapter will present the background and rationale behind measuring performance and the impact on operational and strategic decisions in the online marketplace. Further this section will present the issue regarding performance measurement which will lead to the purpose of this study.

The inception of Internet has had effect on the way the individuals and organizations communicate around the world (Doole and Lowe, 2004). Nonetheless, it has yielded new opportunities for the marketing sector. The effect has been dramatic on the way firms carry out both their internal and international business (Doole and Lowe, 2004). The sector is arguably regarded gradually as one of the most advanced in the application of new and sophisticated Internet technologies through the provision of internet marketing services (Hagel, 1999).

Further, Hagel (1999) argues that convergence of consummating exchanges and the Internet has created a new marketing channel, posing new challenges to traditional forms of businesses. Yet, the ubiquitous Internet is spreading its tentacles very fast, and it has become imperative for consumers to switch to the online market trading. An evidence is the switch from traditional bookstores to the ‘online book shelves’. Firms are increasingly providing content-rich offerings online. These offerings are equal to, and in some cases surpassing traditional marketing firms in terms of research, transaction execution, and overall services. (Dubelaar et al, 2003).

Nonetheless, within the past decade, the sector has become an increasingly competitive and dynamic business environment. Consumers perceive firms having a web site as more customer-oriented, responsive, informative, high-tech, sophisticated, and likely to stay in business longer (Griffith et al., 1998). These discerning and demanding consumers have led many innovative organizations to look for performance measures of their services on the internet marketplace with the aim of building; on the one hand value into service offerings, satisfying and maintaining loyal customer and on the other hand effectively making strategic and operational decisions thereby increasing the overall business performance. The ability to retain and lock-in customers in the face of competition is a major concern for online businesses, especially those that invest heavily in advertising and customer acquisition stances. However, creation of loyal and a satisfied customer base is an important determinant of marketing success. Research shows that loyal customers buy more of company’s product, they are cheaper to serve, less sensitive to price and brings in more customers by word of
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mouth (Reichheld, 1996). Not surprisingly, therefore, developing, managing and maintaining loyal marketing relationship of the internet market place for instance is harmonious to how well you are doing. Thus knowing how well you are performing as a firm is making performance measurement essential and inevitable in such a marketplace as the internet.

Obviously, decision making is essential to determine the future direction of an organization (Johnson & Scholes, 1997). The prime function of management is perhaps to make the right strategic and operational decisions. According to Johnson & Scholes, (1997) Strategic or long-term decisions are concerned with an organization's overall objectives. Such corporate decisions include major capital investments, sources of finance, and product and market choices. Operational or short-term are decisions taken by departmental managers or lower level supervisors in order to put tactical plans into effect and control activities. Examples could include credit control, re-ordering of stocks and determination of delivery routes. Practically, strategic and operational decisions are likely to affect the long-term and short-term direction of an organisation and are normally about trying to achieve some advantage for the organisation. Therefore, are likely to be concerned with the scope of an organisation’s activities: Does (and should) the organisation concentrate on one area of activity, or does it have many? The issue of scope of activity is fundamental to performance (Johnson & Scholes, 1997).

Performance evaluation therefore, often has major resource implications for an organisation’s strategic and operational decisions. In the 1980s for example, a number of UK retail firms had attempted to develop overseas with little success. One of the major reasons was that they had underestimated the extent of their resource commitments. Strategies, including performance evaluation then, need to be considered not only in terms of the extent to which the existing resource-base of the organisation is suited to the environmental opportunities but also in terms of the extent to which resources can be obtained and controlled to develop a strategy for the future. (Hill & Gareth, 1995)

Consequently, the advent of the internet has prompted a plethora of studies which propose the focused on the strategic importance and competitive advantage of knowledge created and enhanced by internet technologies (Piccoli et al., 2001). Whether and how these strategic importance and competitive advantages will materialise depends largely on how the internet has an impact on creating sustainable marketing advantages. These how and what interactive potentials are key success factors of performance measurement.

Arguably, the Training Resources and Data Exchange (TRADE), 1995 define performance measures as a phenomenon to quantitatively tell us something important about our products, services, and the processes that produce them. They are a tool to help us understand, manage, and improve what our organizations do. Performance measures let us know how well we are doing? If we are meeting our goals? If our customers are satisfied? If our processes are in statistical control? If and where improvements are necessary? Above all to provide us with the information necessary to make intelligent decisions about what we do and have to do.

A performance measure change over the life cycle of a firm (Miller and Friesen, 1984) the measurement systems emerges over time, in response to changes in strategic goals, the business environment and the size of the firm (Miller, 1996). However the question of how much and what ties the performance measures always to a goal or an objective. In this sense what are we measuring performance for? Implicitly, related to the current study performance is evaluation for making crucial decisions. Needless to say, performance measurement should
therefore provide an agreed upon basis for decision making and reflect the customer's needs as well as the firms’ simultaneously. The use of performance measures in business is hardly new. Companies and researches have been measuring costs, quality, quantity, cycle time, efficiency, productivity, etc., of products, services, and processes as long as ways to measure those things have existed and to reflects the customer's satisfaction and needs (Tapinos et al, 2005). What is new and has attracted little attention to some extent is to evaluate performance using decision-making variables and to see the impact on strategic and operational decisions. This clearly shows that all does not rest on just what should be measured but in order to better control, understand, and improve what firms do and must do.

Therefore this study goes beyond just measuring performance using the internet as a market place but is a bold attempt to evaluate performance using decision making variables and to see the impact on strategic and operational decisions.

1.2: Why measure performance

Performance measures are indicators of system performance that are related to the important issues or concerns of those making investment decisions. Basically, performance measures are used as both external and internal organizational metrics to monitor progress toward “success” (Neumann, 2000). In this paradigm, organization strategies and action are very important to achieve organizational goals and organizational control is very vital in pursuing organizational goals. Therefore, measurement and evaluation of performance are central to organizational control and strategy. These are major consequences of long-term decisions (Alastair, 1999).

According to Shaw (2003), performance measurement addresses questions relating to an organization such as; what has happened? Why has it happened? Is it going to continue? What are we going to do about it? These are consequences of short-term decisions. Besides, the performance measure system used in an organization must be in line with their strategy and useful enough to understand the competitive position as well as to incorporate all the stakeholders of an organization (Feurer, 1995). Therefore, some critical essentials of performance measurements are to evaluate the internal and external environments of an organization, to determine the underlying causes behind the existing situation together with their interrelationships, to identify the future trends and their implications for the organization, to identify organization goals in order to determine where to be in the future, to acquire knowledge regarding the relationship between actions and goals, to define and communicate new objectives throughout the organization, to align operations and supporting objectives for instituting a common purpose, to develop a system for rewarding achievements which acts as a catalyst for motivating further adjustments (Feurer, 1995).

In a connecting piece, the problem is that, it is obvious that significant effect can accrue from the use of performance measurement in making operational and strategic decisions. But most researches have not yet found a way to release these theoretical consequences. However the use of performance measurement on virtual store has received some reasonable attention. Yet impact of performance measurement on decision-making is one of the important issues that have been overlooked. Apparently, the identification of decision-making drivers for performance measurement is at the early stage. Consequently, the impact of performance measurement on strategic and operational decision in the online marketplace has not been realised. It is crystal clear therefore that, measuring a firm’s performance to know where firms stand, how they are doing, where they are going is necessary. But what need more attention is
evaluating performance with decision-making associated variables and examines the logical consequence on operational and strategic decisions. Invariably, decision-making is vital in measuring firm’s performance and cannot be overlooked. This therefore leads us to the purpose and the research questions of the current study which is explicitly stated in section 1.3 below.

1.3: Purpose and research questions:

The purpose of this thesis is to measure performance of virtual stores using decision-making associated variables sternly to evaluate the impact on strategic and operational decisions.

From the purpose, the two main research questions addressed are:

- **RQ1.** What influential performance evaluation variables or indicators are associated with decision-making in the online marketplace?
- **RQ2.** How have the identified variables or indicators influenced operational and strategic decisions?

1.4: Delimitation of the Study

The use of performance measures in business is hardly new. This has resulted in that works on performance measurement has been studied from both a general point of view as well as a detailed one. Nonetheless the amount of existing performance measurement theories and models to select from is relatively huge therefore performance measures or indicators are used at different levels for various purposes (Tangen, 2004).

The current research has been limited and concentrated on performance measures up to company-level. The research is focused on evaluating virtual store performance for operational and strategic decisions. Consequently, plethora of researches have measured performance from diverse perspectives such as the financial perspective, process and supplier’s perspective, employee’s perspective, innovation and development perspective.

- The current study mainly focuses on the customer’s perspective.
- The primary focus was on the online marketplace industry where the business model is emerging and fast spreading. Further the focal point will be on business to consumers (B2C). The companies studied involve US firms providing service to Swedish users. The firms studied are EBay.com, Amazon.com, Yahoo.com, and buy.com.
- The study was limited to customers or users within Goteborg the second largest city in Sweden.
2 Research Methodology

In this chapter, the research methodology is presented. The research approach that has been adopted in order to answer the research questions and to meet the purpose is described and motivated. The research methods used in this work are as well described and discussed.

When it comes to determining the method one should use in the research project it is important to use the purpose and the research questions as a starting point. The purpose of the report should determine what kind of approach to use (Patton, 1987). Slife and Williams, (1995) supported this, suggesting that the most appropriate research approach is the one that best fits the question or the problem at hand.

2.1: Research Approach

The qualitative approach and the quantitative approach are the two key approaches when determining the nature of a research project. From the above, it is obvious that the purpose of this thesis aims to answer both the questions “what” and “how”. The focus is more on studying a certain phenomenon, in this case how performance measurement can influence strategic and operational decisions. Quantitative research is often based on measurable numbers (Creswell, 2002). In this kind of research one may draw law-like conclusions and generalisations from the obtained data. All phenomena is however not measurable. A qualitative research nonetheless focuses on more in-depth issues and is aimed to study an occurrence rather than draw population-wide solutions (Saunders et al., 2003). A quantitative and a qualitative approach can be combined in one study, in this way they will complement each other (Creswell, 2002 pp 105).

This study was carried out using mixed methodology. This has been derived from the mixed model studies that are the product of the pragmatist paradigm, by combining qualitative and quantitative approaches within different phase of the research (Tashakkori & Teddlie, 1998). This methodology was chosen for the current study due to the researcher’s interest in the questions of ‘what’ and ‘how’. Patton (1987) suggests that the choice of research approach should be appropriate to the subject being investigated. The subject of this study is not only identifying the decision-making oriented performance driver, measure performance of selected virtual firms by way of survey (quantitative) but also how it influence operational and strategic decisions by way of interview (qualitative). In support of mixed methodology, Brewer & Hunter (1989) stated that a multi-method approach allows investigators to attack a research problem with an arsenal of methods that have non-overlapping weaknesses in addition to their complementary strengths. They suggest that a multi-method approach is superior to mono-method research in that it provides grounds for data triangulation.

According to Creswell (2002), there are three types of mixed method approach: the triangulation mixed method design, explanatory mixed method and explorative mixed method design. (i)The triangulation mixed method design is the design that aims to simultaneously collect both quantitative and qualitative data, merge the data and use the result to best understand the research problem. (ii) Explanatory mixed design involves first collecting quantitative data and then collecting qualitative data to help explain or elaborate on the quantitative results. (iii) Exploratory mixed method design is consist of first gathering qualitative data to explore a phenomenon, and then collecting quantitative data to explain relationship found in quantitative data (Creswell, 2002). In this study, the author applied
explanatory mixed method design. By starting with a survey amongst customers and then proceed with an interview on the firms to answer the research questions and consequently fulfil the purpose of the thesis.

There are two central visions of research approaches; the deductive and the inductive approach. The deductive approach intends to test theories whilst the inductive approach aims to build theory (Saunders et al., 2003). These are connected to the qualitative and quantitative approaches mentioned above. A quantitative approach is most often deductive and a qualitative most often inductive in its essence (Creswell, 1994). A combination of the two approaches will be used. In the case of this thesis the author has used some already existing theories and from that modified to develop a working model from which the author uses to analyse and draw conclusions. The time is limited when conducting this thesis and the author is not looking for evolutionary behaviour over time. The time horizon of the research project should be considered. A longitudinal study is research that takes place during a certain time period whilst a cross-sectional study deals with a “snap-shot” of time (Saunders et al., 2003). This study reflects the present situation and hence is a “snap-shot” of time.

2.2: Research methods used in this work

2.2.1: Survey

The goal with a survey is more general as well as the sought answers are of a wider nature than with case studies (Creswell, 2002). Surveys may both include structured interviews and formal questionnaires. In this case, both formal questionnaires have been administered and an in-depth interview survey has been conducted.

a. Questionnaire administration

The first method used in this research is a survey that aims to obtain customers’ perspectives regarding the performance of virtual stores. The questionnaire was designed to incorporate performance measurement drivers that allow customers to rate the performance of their virtual stores. It captures customers’ evaluation of a virtual store’s effectiveness of websites, satisfaction with current virtual store products, quality of online customer services, promotions, users’ demographics and other related issues. The population captures the working populaces ranging between the ages of 20 and 64 in Goteborg. This number forms 66% of the total population in Goteborg (Business region Göteborg, 2007). For this research, the author categorized the respondents into three groups by asking them to select one of the following 3 options:

(1) I have selected and purchased at least one product/service over the Internet (online customers group).
(2) I have searched for product/service information over the Internet but have not purchased a product/service (information searchers group).
(3) I have never used the Internet or used the Internet for purposes other than product/service information search (e.g. e-mail) or purchase (“others” group).

It is believed that only limited categories of people, the computer users, are more likely to have the information that is sought. Therefore, judgment sampling was employed as it allows the choice of subjects who are in the best position to provide the information required (Sekaran, 2000). In total, 89 surveys were fully completed. This forms 89% of the eventual sample size (100) and 11% of non-respondents (these included partial responses). The percent of the non-respondents compared to the respondents is infinitesimal and is unlikely to affect the outcome.
The questionnaire is a nomenclature of three sections relating to both the firm and customers/users. The questionnaire contained 34 closed-end questions regarding performance, satisfaction and decision making. The statements are evaluated on a 5-point Likert Scale. Numerical values are given to each of the response. The values are: (Performance – 0 = do not know, 1 = very poor, 2 = poor, 3 = good, 4 = very good, 5 = Excellent). (Satisfaction - 0 = do not know, 1 = very dissatisfied, 2 = somewhat dissatisfied, 3 = satisfied, 4 = somewhat satisfied, 5 = very satisfied). (Decision - 0 = do not know, 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). The questions were based on relevant performance measurement variables or indicators. The choice of the variables and indicators will be discussed in the frame of reference section.

According to Creswell, (1994) some intriguing reasons for using a questionnaire are that of Patterns, frequency, ease and success of use. However, respondents’ attitudes and opinions are highly subjective. In this study, the questionnaire was aims to obtain customers’ perspectives regarding the performance of virtual stores. These perceptions are subjective and may either weigh some components/elements more highly than others or there must be a perceptible difference in the delivery of these components between the virtual stores. For that matter, the questionnaire depicts one side of the coin and was not enough to show the true picture. Thus an in-depth interview with the respective firms is an additional technique to explore the differences between users’ experiences and outcomes. The conduct of interview is discussed in the subsequent section.

b. Conduct of Interview
The interview is obviously and exclusively an interaction between the interviewer and interviewee subject in which both participants create and construct narrative versions of the social world (Silverman, 1997). In depth Telephone interview were conducted with managers of four randomly selected virtual stores namely, EBay, Amazon.com, Yahoo.com and buy.com at their place of work, and lasted from approximately 45 to one-and-half hours. In all six staff members were interviewed. For tangible reasons the author will not disclose their names. However, all of the staff were jointly responsible for the online marketing activity of the firm and play vital roles in making both short-term and long-term decisions. Notwithstanding, 2 of the interviewees were staff of Amazon.com, two from yahoo.com, a staff of EBay and one from Buy.com. The interviews were semi-structured and involved the use of interview guide which help to retain the focus of the study (Yin, 1994). During the interviews the respondents raised relevant issues that were not foreseen. These were subsequently followed up by the interviewer. The interview questions to the firm were based upon relevant literature, and included but not limited to the following:
1. What is the core value proposition of your business?
2. What performance measurement system(s) associated with decision-making is used?
3. How is performance measurement linked to operational and strategic decision-making?
4. What challenges or problem have you faced in relation to your performance measurement system?
Additional questions concerning customer demographics, website design, navigation, promotion and customer management services were also addressed. Prior to the interview, the researcher examines each firm’s website. The interviews were captured on automated computer recording system.
c. Sample Selection

1) Sampling the respondents (scientific Estimation)

(i) This research adopted census sampling. Customers and users of the internet marketplace were chosen by random sampling in Goteborg, a city in Sweden.

(ii) The sample size was calculated using Yamane’s method (1967). This was to ensure sufficiently large validity.

(iii) The population was 510,840 this captures the working population ranging between the ages of 20 and 64 in Goteborg. This number forms 66% of the total population in Goteborg. This research was intended to establish a confident interval of 90% or an alpha value of 0.1 and whose t-value is estimated at 1.67. The research has to accept the error at 10% due to the variation error from sampling elements instead of all the population elements.

Thus the eventual sample size is: 100 (see appendix A for derivation)

2) Sampling the case firms

In sampling the firms for the study, the author faced a crucial decision regarding the choice of industry as well as the region. One of the reasons for the choice of firms was the researchers aim to delimit the study. Therefore, to begin with, the chosen industry was that of globalised, matured or maturing with escalating demand and supply conditions. These characteristics are important because the more volatility in these factors, the larger the risk that the empirical results will be massaged by this and will not give a clear prediction of the future. The aim has also been to investigate an industry where these measurements had not been previously or extensively conducted. Further, the author was in need of publicly available information and thus preferred an industry and region easily accessible to public information without any legal constraints. With regards to the above criteria, the research concluded choice fell on the online marketplace.

The major determinants for this choice of firms within the industry were that of internationalisation, similar business line, and availability of informative and interpretable reports as well as interim reports. Europe and the US are the major locations of the world’s online marketing or e-commerce (Global Insight). Companies or firms with their base in one of the Euro countries or the US were therefore a natural choice. In order to make the investigation more interesting from a Swedish point of view, it was decided to include firms providing services to the Swedish customers and users.

The study surveyed a sample of 4 retail online Marketing firms. These firms were randomly selected from the yahoo finance. The motivations behind selecting the firms are three folds: i) the selected firms were available on the Internet. Not only did their availability provided necessary and relevant information for the analysis but also made collating of data relatively easy, ii) the firms exhibited advance technology activities and have generated well-known product innovations in recent years, iii) due to backdrop of time the current study resorted to only 4 firms in the same industry with similar line of services. These firms have not less than 250000 customers and/or users. Two reasons for selecting firms with more than 250000 customers were to ascertain a tangible frequency of transaction and accessibility of information from users. The firms include EBay Inc, Buy.com, yahoo.com and Amazon.com.
2.2.2: Direct observation

To gain first hand data, the researcher logged on the sampled firms’ websites to observe the case in the natural setting. According to Yin (1994), observational evidence is often useful in providing additional information about the topic being studied. Observation itself is a process by which a participant observer gradually makes organised sense and become a part of the action (Fox, 1974). The researcher employs this as an additional data collection tool in order to capture a variety of interaction and to openly explore the online market place by witnessing their activities. By far, this technique is necessary in addition to the aforementioned methods due to the reasons that 1) the events, institutional facilities, or processes discussed with the firms and users in the interviews and questionnaires could also be captured in the natural setting, thereby providing a richer understanding and 2) to reveal conditions, problems, or patterns the survey may be unaware of or unable to describe adequately. However, this direct observation according to Yin (1994) is susceptible to observer bias. The very act of observation also can affect the behaviour being studied. In order to avoid the biasness, this technique was used as a supportive method to the survey method to balance the effect.

2.2.3: Literature research

An essential part of performing scientific work is finding relevant and scientific proof in literature. Usually, literature research is an ever-going activity throughout the research, but the most extensive efforts in this area is perhaps made early in a research project. Routio, (2004) argues that the purpose with the literature research is mainly to clarify the problem and to see what others attempts have been like. An important note is that a literature review should be considered to be a mean to an end, and not (as most students think) an end itself. In contrast, experienced investigators usually review previous research to develop sharper and more insightful questions about a topic (Yin, 1994).

Much of this research is, indeed, based on the literature research approach; especially chapter three the frame of reference of the thesis. This is natural, since this section was a basis for the development of the working model. As a matter of the frame of reference in which previous research is reviewed creates a solid theoretical foundation as a starting point. The studied literature includes books, research papers and journal articles as well as articles in other printed media and on the Internet. In addition, the retrieved information from literature has always been used according to its scientific value.

2.2.4: Regression analysis

In order to make a reliable evaluation of the variables a statistical technique is appropriate. The author found regression analysis to be the most appropriate tool because this technique takes into account the relation between the independent variables operational and strategic with the dependent variable decisions the three dimensions (website, products and services and promotion) (Befring, 1994, pp. 142).

Separate regression analyses were performed for two dependent variables, strategic decision and operational decision. The three main variables identified were entered as independent variables and utilized for running the regression analyses (Shaohan and Minjoon, 2003). The two regression equations are shown in appendix A. The overall model fit for each regression
equation was assessed through F statistics. The two regression models were statistically significant at \( p < 0.001 \), respectively (see section four, Tables 4.5. and 4.6).

**2.3: Research Process**

In a connecting piece, to execution of the purpose of the study, the current study has determined to follow a research strategy, illustrated in Figure 2.1 below. Following the discussion in chapter one, it was obvious that, the problem statement and purpose of the thesis stipulates a thorough review and analysis of existing research in the area of performance measurement. The motive was to identify appropriate models and variables for the current research. Consequently, from figure 2.1, models that are considered most appropriate have been chosen to apply to the selected sample that is the case companies and customer/users. The models were reviewed and the variables were factor analysed using Varimax rotation factor analysis in order to attain the right variables and indicators.

![Figure 2.1: The Research Process](image)

With a modified model, decision making variable and indicators were identified. The literature review as a profound basis, the empirical results will subsequently be analysed. This is to determine whether we can reach any conclusions concerning performance measurement and decision-making within the online marketplace.

**2.4: Data Gathering**

The data that has been collected to conduct this study is based on both secondary information and primary data. The literature review is an analysis of research articles and books regarding marketing, online business and performance measurement methods and models. The data used in the empirical study are collected from a survey amongst customer, users, firms and interim reports from company websites. This data was gathered using the information gathering model depicted in figure 2.2 below.
From figure 2.2, the current study formulated precisely question with the emphasis on the research purpose and research questions the author is trying to answer. This was channelled to customers, users and the firms in question. The aim was to collect the data and facts relating to that question for empirical results and analysis. The author analysed the data to determine the factual answer to the question(s) and presented the data in a way that clearly communicates the answer to the question. In the process of data gathering and search for previous studies, articles and useful information, the following key word have been used: performance measurement, online marketing, decision-making, performance indicators and variables.

### 2.5: Reliability and Validity

Conversely, Olesen (1992) suggest that research results should be evaluated with respect to five aspects. If the research result satisfies all five criteria, then it is possible to view the results as valid with quite good accuracy: (1) internal logic: the results are based on known and accepted theories and there is a connection between the startling point, hypotheses and/or questions and the result. (2) Truth: the theoretical and practical result can be used to explain “real” phenomena. (3) Acceptance: other researchers accept the theories used in the project and professionals use tools based on the theory. (4) Applicability: the use of the tools allows the probability for success to increase with repeated use. It will not necessarily lead to success every time, but will over a period of time give better result than if not used. (5) Novelty value: new solutions are presented, or that new ways of looking at a problem are introduced. These five criteria can be used as a platform when discussing the validity and reliability of the research result. Considering the first criterion (internal logic), a major part of the research result is deeply rooted on and a direct outcome of established theories and models found in literature. The research questions have been formulated based on a problem description that has its origin both in theory and in practise. The choices of theories that have been studied as well as the new framework that have been developed are influenced by the problem and research questions.

When it comes to the second criterion (truth) although difficult, this criterion has mainly been validated through theoretical and logical reasoning regarding the survey result. Though, it is relatively not easy to prove that the result precisely corresponds to the truth or reality.
Throughout the interviews the authors tried not to affect the participants with their own preferences or beliefs. Thus it is believed that the responses reflect the practical and real situation hence this the author believes will increase the validity of the data.

The third criterion (acceptance) is perhaps the criterion that is equally difficult to prove at this juncture. However, most of the models or theories used in this research are well accepted models and theories and are used both practically and academically. The fourth criterion (applicability) has been tested to a minor degree by selected firms.

The final criterion (novelty value) is rather difficult to achieve considering the enormous amount of research that has been done in the field of performance measurement during the last two decades. However, some of the approaches that can be found in the developed method are new or in any case rare. First, from an overall point of view the research has contributed to more knowledge in a field that is clearly not explored to a larger extent, namely the impact of performance measurement on making strategic and operational decisions.
3 Frame of Reference

In the face of the extensive literature review, researchers have yet not reached consensus of which model is most suitable to measure the performance of firms, and what variables are most important to include. Nonetheless, this chapter provides relevant existing theories and models of performance measurement in the online marketplace as well as a model modified by the author. The working model builds upon the presented theories and is used as a foundation for the following analysis.

3.1: Previous Studies

The relative newness of electronic technologies and the speed with which these applications have been adopted, have strained the ability of theoretical research to keep abreast of changes and their impacts (ISCR, 2001). Invariably, this has created pressure to measure something, even though the relevance of what is being measured may not be fully understood. This limits the usefulness of what has been measured.

However, there are many things that need to be measured to assess the economic and social consequences of a firm (e.g. technologies, skills, capacities, information exchanges and uses, substitution and complementarily patterns, etc.). Yet many of these things are not measured, probably due to the fact that they are intangible or because we do not as yet know or understand the causal relationships between things we can see and measure, and the outcomes they engender. Consequently, many of the things that are currently being measured are not satisfactory to the overall economic and social performance, yet they are currently being used as proxies in a relatively unquestioning manner in the pursuit of customer satisfaction and competitive advantage.

Nonetheless there is plethora of research pertaining to online store performance measurement. However the most related studies as far as the current study is concern are An Evaluation of Internet Banking and Online Brokerage in Tunisia (Achour and Bensedrine, 2000), A Performance Measurement System for Planning and Controlling a B2C E-Commerce Strategy (Rangone et al, 2000), The impact of performance measurement in strategic planning (Tapinos et al, 2005) and Performance measurement in Australia on-line securities marketplace (Dubelaar et al, 2003). In order to give an inventory of the current situation in respect of Internet based financial services in Tunisia, Achour, and Bensedrine (2000) attempted to evaluate internet banks in Tunisia and present online brokerage firms in Tunisia. The authors classified and ranked the performance of eight internet banks in Tunisia using a quality evaluation model of Internet banking websites, which is derived from the existing Hersey’s general e-commerce website evaluation tailored model. The researchers modified the model to present a proposed framework for their study to facilitate the determination of the best and worst performing companies. Their findings shows that While developing their Internet Banking sites, banks should take into account the quality of online products and services, the web site usability and its security which is crucial in Internet Banking. One of the reasons is that customers plays an important role and they can make or unmake the banking industry which is why some of the most valued and sophisticated metrics used today evolve around customer behaviour.
Similarly, the current study in the quest to measure performance of virtual stores and determine the essence for decision-making also resorted to Heresy’s general e-commerce website evaluation model and modified it to fit the specific context. This is to confirm and suggest that Heresy’s model is necessary in research involving performance of online business, but not sufficient to achieve the peculiar purpose. Another similarity is that both researches evaluated performance in quality even though the current goes beyond quality including others like efficiency, effectiveness, timeliness and the likes. However, Achour and Bensedrine’s research varied from the current research in the field of the industry, environment and the overall focus. The current study delimited the study to Virtual stores whilst Achour and Bensedrine focus on internet banking. Further they carried their study in Tunisia whereas the current study’s respondents were Sweden based. Finally, though both study in one way and the other evaluated performance, the current study goes beyond just measuring performance but to see the effect on strategic and operational decision making.

Rangone et al, (2000) evaluate performance measurement system on Planning and Controlling a B2C E-Commerce Strategy. The research takes into account both of the decision-making variables available to a company running a B2C e-commerce business and of the indicators for an ex ante evaluation and ex post control of actions on these variables. In order to obtain an overall, synthetic assessment of the effectiveness of an e-commerce site Rangone employed the website evaluation model based on Fuzzy Set Theory. The findings reveal an absence of a framework to integrate decision-making variables and performance indicators that can be used by a company in running a B2C e-commerce business. Thus the development of the e-commerce mix framework is a systemic view of the decision making variables and the performance indicators available to management. This is to support management in the planning and decision making process as they control the effects of action on decision-making variables, so initiating a learning process that might be critical in future decisions. Rangone and Balocco’s paper is perhaps the closest to the current study. Their paper aims to provide a systemic and overall framework both of the decision-making variables available to a company running a B2C e-commerce business and of the indicators for an ex ante evaluation and ex post control of actions on these variables. Likewise, the current study focuses on measuring performance of the e-market store through a systematic and a framework synchronize decision-making variables and performance indicators for strategic and operational decisions. It is therefore obvious that the resemblance rest on the evaluation of firms using decision making variables and performance indicators. However the difference is that, the current study did not only provide a systemic and overall framework inculcating decision-making variables but also evaluated performance using the decision making variable. It is therefore explicable that Ragone and Balocco’s paper was vital to the current study.

Tapinos et al, (2005) investigates the impact of performance measurement in strategic planning process by conducting a large scale survey of online with Warwick Business School alumni. The questionnaire was based on the Strategic Development Process model by Dyson. The questionnaire was designed to map the current practice of strategic planning and to determine its most influential factors on the effectiveness of the process. All questions were close ended and a seven-point Likert scale used. The results indicate that performance measurement stands as one of the four main factors characterising the current practice of strategic planning. This research has determined that complexity coming from organizational size and rate of change in the sector creates variation in the impact of performance measurement in strategic planning. Large organizations and organizations operating in rapidly changing environments make greater use of performance measurement. Conceivably, another
research similar to the current study is that of Tapinos et al, (2005). Tapinos and his colleagues investigated the impact of performance measurement in strategic planning process by conducting a survey. Likewise the current study measured performance of e-marketing store and the effect on strategic and operational decisions which is similar to strategic planning. It is apparent methodologically that both study used a survey. However, Tapinos and his colleagues focused on SMEs and large scale organisations whereas the current study focused on the online market place.

Dubelaar et al, (2003) involving an online market survey reveals that only four of the seven companies were able to articulate a core value proposition and that only two companies used performance measurement in strategic decision-making about the on-line component of their businesses. None of the firms was able to draw a direct connection between the performance measures implemented and the value proposition they claimed to offer to their customers. Similarly, it is obvious that both studies used performance measurement in strategic decision-making about the on-line components of a business. However, the current study focuses on e-marketing store whereas Dubelaar, Tsarenko and Gabbott focus on the online securities market place.

3.2: Different views of measuring Performance in the online marketplace

Having reviewed existing literature, the next important issue is the working model. But before then, the author will like to present the different views on measuring performance of the online market place and the motivation for the working model. Performance has been describes in many diverse ways, but perhaps the best and the most concise way is to ask ‘Have we met our objectives?’ In other words ‘did we accomplish what we set out to do (Dubelaar et al, 2003)? This implicitly shows that the old concept of performance indicators and variables needs adjustments if not a total overhaul to accommodate both the strategic or operation objective and plan of the firm (Neely et al, 1995).

Consequently plethora of studies have been devoted to user evaluation of ecommerce websites (or e-shop’s websites) and the impact of such evaluation upon the customer’s cognition, attitude, shopping intention/behavior, and satisfaction (Chung et al, 2002). Most studies in this research stream have mainly taken a cognitive perspective, emphasizing functionality and usability. Extensive research efforts have been spent on constructs such as perceived usefulness (PU), perceived ease of use (PEOU), trust, perceived security, perceived tangibility, perceived convenience, perceived firmness, and so on (e.g., Bhattacherjee 2001; Chen, et al. 2002; Liang and Lai 2002; Liao and Chung 2002). For example, Gefen and Straub (2000) investigated the influences of PU and PEOU of an electronic store’s website.

Functionality and usability are important. However, as technologies advance and e-commerce rapidly matures, a large proportion of e-shops’ websites are demonstrating satisfactory design features in terms of functionality and usability. Under these conditions, with all other factors being equal, what may allow an e-shop stand out is its ability to engender favourable customer loyalty and retention is perhaps to use performance indicators or evaluation that affects both their strategic and operational decisions.

From observing the theories and model presented one finds that similar idea to evaluate performance using decision – making variable are hidden and not explicitly disclosed.
Website, product and service (information) are for example found in Hersey’s (Chung et al., 2002). All determinants of decision-making relating strategic, operational and as far as customer satisfaction and loyalty are concern are interrelated and none can be completely excluded although more focus can be put on some elements than other ones. The author of this thesis has developed a working model called the tailored Virtual store evaluation framework (See figure 3.2).

Hersey’s general e-commerce web site evaluation model (Whiteley, 2002) which deals with the following components: company information, customer information, product information, negotiation, order, payment, delivery, after-sales service, aesthetic effect, performance, ease of use, innovation and community is a good base for the working model of this thesis. Though it does not show a clear distinction between the decision-making variables, it capacitate most of the crucial decision making variables. From figure 3.2: The tailored e-shop evaluation framework

These set of performance indicators evaluate and monitor the effects of action on e-marketing mix variables. As a matter of fact the indicators monitor action on the decision-making variables constantly and, in the benchmarking phase, compare the performance of its own Web store with that of competitors and assess the performance of its own strategy to ensure improvement. The starting point in the definition is the objective that a company involved in e-marketing sets (Rangone et al., 2000). Strategic literature states that a long-term objective for a company must be the creation of economic value

The literature dealing with web sites evaluation is very large. The author has therefore, focussed the current study on works done specifically for the evaluation of e-commerce or e-marketing store. A brief overview of the related literature shows that e-market store websites can be evaluated from many different approaches such as usability (Wenham et al, 2003, Chin-Shan et al, 2004), reliability (Diniz, 2005), functionality (Diniz, 2005), accessibility (Celic et al 2004) and the likes. Different models have thus, been proposed and used for specific e-commerce or e-marketing store evaluation: to mention as examples (Diniz, 1998), cited in (Balachandhar, 2003). This model divides the functionality of the web sites in such a way to give insights on three different opportunities that the technology could bring to firms: technology could be an information vehicle, a channel for conducting transactions, or a tool to improve customer relationship. Diniz, (2005) have proposed an evaluation approach based on a combination of three dimensions (functionality, reliability and usability). Chung et al, (2002) used a general e-commerce web sites evaluation model by Hersey and have tailored it in order to adapt it to the evaluation of Internet Banking sites.

Considering all these models and studies, the current study have decided to shape an evaluation framework based to a large extent on the tailored Hersey model presented in Chung et al, (2002) and Rangone et al., (2000) decision-making indicators. Indeed, this model uses these as a basis. The motivation is that the general model has two advantages, one is the simplicity of its implementation, and the other is its capacity to measure the overall quality rating of an e-marketing store website. This is the reason why in the current study, the general model is used as a starting basis. The current study however effected some changes to expand some components into additional items (such as information that is product and services, after sales services and promotion to form the decision making variables that is, the e-marketing mix).
3.3: The tailored Virtual store evaluation framework- The working model

The current study proposed an evaluation model which looks at three dimensions of performance: website, product and service, and promotion (stage A, input measure). Each of these was assessed through; a performance indicators by means of analytical survey and/or synthetic indicators (stage B, process measure) and assess the impact of the result on strategic and operational decisions (Stage C, output measure) as depicted in figure 3.2. This procedure is primarily to enable the author choose from the numerous performance drivers or variables relevant for measuring the performance of virtual stores. Subsequently, the step wise measure was practically at each phase to i) identify decision-making variables, ii) measure the performance of the virtual store using the indicators, iii) evaluate the impacts of the variables on strategic and operational decisions. The following stages and phases depict a linear process measure of each level.

- **The input measure - What inputs are required?** (Decision-making variables)

  The e-commerce mix framework provides a systemic view of the decision-making variables that management can use in the planning and decision-making process (Rangone et al, 2000). This e-commerce mix framework according to Rangone and Balocco (2000) provides a systemic view of these decision-making variables and performance indicators. The objective is to support management in the planning and decision-making and to manage the effects of action on decision-making variables. In the context of decision-making regarding the online marketplace, these variables are what firms can act to affect, improve and make the best operational and strategic decisions. These are divided into three categories on the analogy of the concept of ‘marketing mix’ (Kotler, 1997), since these variables strongly affect the attractiveness of online business and, therefore, customer satisfaction:

  1. Website variables;
  2. Products and services variables;
  3. Promotion variables.

  These categories are then broken down hierarchically to give a group of elementary variables. This is clearly shown in figure 3.1

  The author proposed to evaluate the resultant measure in terms of the decision-making variables that is website, Product and service and promotion on the equivalence of the concept of ‘marketing mix’ (Kotler 1997) showed in (Rangon and Balocco, 2000). These input variables or the decision making variable for this context the e-marketing mix due to the reason that, these variables strongly affect the attractiveness of the strategic and operational decisions of the e-marketing store and, consequently, customer satisfaction and loyalty. The purpose of this input measure is to identify the decision-making variables. These comprehensive categories are then broken down hierarchically to give a group of elementary variables or indicators see figure 3.1: the decision making variables.

- **Website** - This variable is broken down into three variables: web interface, transaction management and content. Web interface includes all the web pages and their links in the virtual store (For instance the web design, site architecture between web pages and the organization of content i.e. the use of images, text and frames, and the layout of these elements in the web pages), Navigation system and personalization, i.e. the possibility for users to personalize web pages (e.g. the home page elements) according to their needs and tastes; Dell.com, for instance, allows customers to personalize the support of section of the web store (http://amazon.com) according to their technical skills and computer features
Virtual Store Performance Measurement: The logical consequence on Strategic and operational decisions

(Rangone et al, 2000). Online transactions involve two phases: order process, i.e. how the customer chooses the products to buy and sends the order together with the relevant personal data. Payment includes online by credit card or virtual cash, or offline by bank transfer, cheque, money order or cash-on-delivery (Rangone et al, 2000). Content - The informational content includes commercial information, for example a full description of the product range (images and text), the means of delivery (options, times, costs) and the method of payment (description of the security system used for data transfer) and background content, such as ‘about us’ information, details on the economic sector or other information not strictly related to the business activity.

- **Products and Services** This main variable is broken down into four level variables: products, pre- and after-sales services, pricing strategy and delivery services. Products include the choice of products to offer via the website for instance the product differentials, i.e. the products competitive advantages with respect to online and offline competitors (e.g. quality, brands, etc.), Pre- and after-sales services. Pricing strategy includes the price level, in comparison to online and offline competitors and discounts policies and Delivery services (Rangone et al, 2000).

- **Promotion** This variable concerns all the decision-making variables on which it is possible to act to increase Web store visibility (Rangone et al, 2000).

Source: Rangone et al, 2000pp 132

Figure 3.1: E-marketing mix (decision-making variable)
Figure 3.2: The tailored e-shop evaluation framework – The working model

**E-marketing Mix (decision making variables)**

- Website
- Product & services
- Promotion

**Website Indicators:**
- Analytical survey
- Synthetic indicators

**Product & services indicators:**
- Product range and differentiation
- Pricing
- Delivery

**Promotion indicators:**
- \[ N^i \text{ buyers} / BDG^i = (CTR^i \cdot 1:000 / CPM^i) \cdot ER^i \cdot CR^i \]

**Regression Analysis**
- Operational & strategic decisions against performance drivers

**Comparative Analysis**
- Compare strategic and operational decisions amongst firms

**Sensitivity analysis**
- Access the impact of strategic and operational decisions on the entire variables

**Decision making (Changes for improvements)**

**Input Measure**

**Process measure**

**Output measure**

**Quality**

**Efficiency**

**Effectiveness**
• The Process measure - What indicators are required?
  o Website evaluation indicators
To assess the effectiveness, quality and efficiency of the website, the indicators are classified by analytical survey. The Analytical Survey involves asking users to assess the effectiveness, quality and efficiency of different features of the site. However this action involves the author’s participation by observing the firm’s websites. The synthetic indicators involve combining the decision making variables into one unit and assessing it from both the subjective perspective of the users and the objective view of the researcher’s observational participation. A sample of the synthetic indicators is showed in figure 3.3 below. The company can decide how high or low to score. The customers or users are asked to respond to a questionnaire, which is sent both via e-mail (available as an online form) and a hard copy. Responses can be evaluated using, for example, a points score method. The score for each response can be summed (e.g. as a weighted average) to obtain aggregated assessments or even a full overall evaluation. Or Step 1: Determine the importance weighting of the indicators: by recording the presence (1) or absence (0) of each item. Step 2: Calculate the overall effective total up: using relevant key measures “Net Score” and “Net Score” percentage. Step 3: Calculate the overall efficient, quality or effectiveness total up. Step 4: Rank the firms: by the highest total up and the fastest response and retrieval time.

| 1. Graphical coherence in the various sections of the site | From 1 to 5 |
| 2. Legibility of the web pages | From 1 to 5 |
| 3. Quality of the images | From 1 to 5 |
| 4. Navigation between pages | From 1 to 5 |
| 5. Locating information/products within the site | From 1 to 5 |
| 6. Download speed of the web pages | From 1 to 5 |
| 7. Ordering (system and process) | From 1 to 5 |
| 8. Payment and security system | From 1 to 5 |
| 9. Textual description of the products | From 1 to 5 |
| 10. Product images | From 1 to 5 |
| 11. Background content (about us, information about the sector, other | From 1 to 5 |

Source: Rangone et al, 2000, pp 136
Figure 3.3: Set of indicators

• Performance Indicators for Product and Services
These indicators include Products, pre- and after-sales services, pricing strategy and delivery. These indicators are alterable with the bottom line on the external users. a) Products - To monitor the effectiveness of the online product portfolio: range, i.e. the number of different product types (range width) and variants of each type (range depth) in comparison with online and offline competitors. This is measured directly within competitors’ sites for online competitors. Product competitive differentials, to measures the presence of attractiveness differentials linked to product features in comparison with online and offline competitors (e.g. quality, brands, etc.).

b) Pre- and After-sales Services - number of users accessing a given service/overall number of users; this gives the level of interest in each service; - 1) Percentage of customers which use a pre-sales service prior to purchase; this measures the effectiveness of each presales service; 2) Percentage of customers which use an after-sales service; this measures the usefulness of the service for the customer, but can only be measured if registration is requested to access the service.
c) Pricing - Price differentials with respect to offline competitors. The indicator is obtained by monitoring the prices of competitors operating in traditional channels (for comparable products). It measures the customer advantage in purchasing online rather than through traditional channels. The indicator measures the delivery charge applied by competitors in order to conduct comparative analyses. The indicator is obtained by an online analysis of competitors’ sites.

d) Delivery - The Number of options offered. Delivery time - It measures the delivery time applied by competitors in order to conduct comparative analyses and Distribution of preferences between different delivery options.

- **Online Promotion Indicators**
  - This sub-section presents a set of indicators to assess the effectiveness of online promotion in increasing website visibility and motivation for potential patronizing. The calculation of the effectiveness of the \(i\)th promotional channel is showed in appendix A.
  - **The Output Measure**
    The output measure is related to assessing the impacts of the generated performance variables on strategic and operational decisions respectively.
    a. **Regression Analysis**: Separate regression analyses will be performed for two dependent variables, strategic decision and operational decision. The three dimensions previously identified by factor analysis were entered as independent variables. The overall model (see section 2.2.4) fit for each regression equation was assessed by F statistics. The regression models for overall operational and strategic decisions were both statistically significant at \(p<0.001\) (see Tables 4.5 and 4.6).
    b. **Comparative analysis**: Compare operational and strategic decisions along the performance drives amongst the selected firms.
    c. **Sensitivity analysis** is used to determine the quality of decisions with regards to the performance drivers, factors that mostly contribute to the output variability, The region in the space of input factors for which the variation is maximum Optimal or instability, and the interactions between factors.
4 Empirical Result

In this chapter the results of both the qualitative and quantitative research are presented. The results will follow the outline of the working model. A brief companies’ overview are also presented.

4.1 Companies Brief overview

- **EBay.com**

  EBay was founded in San Jose, California on September 3, 1995 by computer programmer Pierre Omidyar as Auction Web part of a larger personal site that included, among other things, Omidyar's own tongue-in-cheek tribute to the Ebola virus. EBay is an online auction and shopping website where people and businesses buy and sell goods and services worldwide with 11,600 employees. EBay’s online trading platform offers the exchange of goods among buyers and sellers of all types. As eBay’s service has evolved, its applicability has expanded to broader categories of items, and to a broader and more global user base. As a result, eBay’s product mix has shifted from primarily collectible items to practical everyday items, such as household goods, computers, consumer electronics and other items. EBay currently displays more than 18,000 categories of merchandise. The main categories on eBay.com currently include antiques and art, books, movies, music, coins and stamps, collectibles, computers, dolls, dollhouses, jewellery, photo and electronics, pottery and glass, real estate, sports, toys and miscellaneous items. With the shift to a broader product offering, its competition has also broadened, and now includes distributors, liquidators, retailers, import and export companies, catalog and mail order companies, and virtually all online and offline commerce participants (consumer-to-consumer, business-to-consumer, and business-to-business). Specialty marketplaces have also been added to serve the specialized needs of buyers and sellers. For example eBay Motors serves the automotive marketplace, including vehicles, parts and accessories; and Half.com is focused on providing a fixed-price trading environment, initially for books, music, videos and video games. eBay’s revenue at the end of year 2006 was $5.969 billion USD ([http://www.ebay.com/](http://www.ebay.com/), 2007)

- **Aazon.com, Inc.**

  Amazon was founded in 1994 with 13,900 employees, spurred by what Bezos refers to as his "regret minimization framework," i.e. his effort to fend off late-in-life regret for not staking a claim in the Internet gold rush. The company began operating as an online bookstore under the name Cadabra.com (as in abracadabra), a name that Bezos quickly abandoned due to its sounding like cadaver. While the largest brick-and-mortar bookstores and mail-order catalogs for books might offer 200,000 titles, an online bookstore could offer many times more. Bezos renamed his company "Amazon" after the world's most voluminous river. The company was incorporated in 1994 in the state of Washington, began service in July 1995, and was reincorporated in 1996 in Delaware. Amazon has steadily branched into retail sales of music CDs, videotapes and DVDs, software, consumer electronics, kitchen items, tools, lawn and garden items, toys & games, baby products, apparel, sporting goods, gourmet food, jewellery, watches, health and personal-care items, beauty products, musical instruments, industrial & scientific supplies, groceries and more. The company launched Amazon.com Auctions, its own Web auctions service, in March 1999. However it failed to chip away at industry pioneer
eBay's juggernaut growth. However, Amazon's net income at the end of year 2006 was $10.71 billion USD (http://www.amazon.com/, 2007)

- **Yahoo.com**
  Yahoo! Inc. is an American global Internet services company with 11,000 employees. It operates an Internet portal and provides a full range of products and services including a search engine, the Yahoo! Directory and Yahoo! Mail. It was founded by Stanford graduate students Jerry Yang and David Filo in January of 1994 and incorporated on March 2, 1995. The company is headquartered in Sunnyvale, California. In January 1994, Stanford graduate students Jerry Yang and David Filo created a website named "Jerry's Guide to the World Wide Web". Jerry's Guide to the World Wide Web was a directory of other websites, organized in a hierarchy, as opposed to a searchable index of pages. In April 1994, "Jerry's Guide to the World Wide Web" was renamed "Yahoo!". Filo and Yang said they selected the name because they liked the word's general definition, as in Gulliver's Travels by Jonathan Swift: "rude, unsophisticated, and uncouth." By the end of 1994, Yahoo had already received one million hits. Yang and Filo realized their website had massive business potential, and on 2 March 1995, Yahoo was incorporated. On 12 April 1996, Yahoo had its initial public offering, raising $33.8 million dollars, by selling 2.6 million shares at $13 each. Yahoo's revenue at the end of year 2005 was $5.257 billion USD (http://www.yahoo.com/, 2007)

- **Buy.com**
  Buy.com is one of the original multi-channel online retailers in the United States and is based in Aliso Viejo, California. Although it began selling computers and electronics in 1997, the company has diversified its offerings to categories such as software, books, movies, music, games, toys, digital cameras, cellular phones, and magazines. Founded in 1997, Buy.com initially made a splash by selling products below cost. It has since raised its prices but maintains an edge by offering to match any qualified competitor's price. The company distributes Buy Magazine (a monthly digital publication featuring product reviews) to its 3.5 million customers. Founder Scott Blum left in 1999, just before the company first filed to go public. After debuting high, stock values plummeted and in 2001, Blum reacquired Buy.com and took it private (http://www.buy.com/default.asp, 2007).

### 4.2: Profile of respondents and factor Analysis

#### 4.2.1: Profile of respondents

The survey questionnaires were distributed to 100 respondents; 89 usable questionnaires were collected, resulting in an 89 percent response rate. The demographic characteristics of the respondents are summarized in Table 4.1. Of the 89 respondents, approximately 76.4 percent (68) were online customers and the remaining 23.6 percent (31) represented non-online customers (a combination of the information searchers and "others" groups). As for the age group, 50.7 percent of the respondents were in the range of 16-24; 22.6 percent, 25-34; 10.7 percent, 35-44; and 16 percent, 45 years or more. In terms of the average frequency of Internet usage, 39.3 percent of the respondents had accessed the Internet from one to four times a day; 13.4 percent, two to five times a week; 14.6 percent, five times or more a day; 11.2 percent, once a week; and 5.6 percent, once a month. Since this study focused on online customers and users of e-shop services quality, both the responses from the 68 online customers and 31 information searcher were utilized for the analysis of this study. Of the 68,
31 were students and the remaining 37 were professionals. To ascertain whether there are any perceived differences between the student and professional groups regarding the survey questionnaire items, a Multivariate Analysis of Variance (MANOVA) and subsequently a series of t-tests were performed on the data collected from the two groups of online customers.

<table>
<thead>
<tr>
<th>Classification</th>
<th>No.</th>
<th>Percent</th>
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<tr>
<td>Gender (n = 89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>54</td>
<td>60.7</td>
</tr>
<tr>
<td>Female</td>
<td>35</td>
<td>39.3</td>
</tr>
<tr>
<td>Education (n = 86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or lower</td>
<td>4</td>
<td>4.7</td>
</tr>
<tr>
<td>Some College</td>
<td>25</td>
<td>29.1</td>
</tr>
<tr>
<td>College graduate</td>
<td>18</td>
<td>20.9</td>
</tr>
<tr>
<td>Graduate School</td>
<td>39</td>
<td>43.3</td>
</tr>
<tr>
<td>Age (n = 75)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-24</td>
<td>38</td>
<td>50.7</td>
</tr>
<tr>
<td>25-34</td>
<td>17</td>
<td>22.6</td>
</tr>
<tr>
<td>35-44</td>
<td>8</td>
<td>10.7</td>
</tr>
<tr>
<td>45-54</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>55-64</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>65 or over</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>On average, how often do you use the Internet for information search, online shopping, or other purposes? (n = 89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once a month</td>
<td>5</td>
<td>5.6</td>
</tr>
<tr>
<td>Once a week</td>
<td>10</td>
<td>11.2</td>
</tr>
<tr>
<td>2-5 times a week</td>
<td>12</td>
<td>13.4</td>
</tr>
<tr>
<td>1-4 times a day</td>
<td>35</td>
<td>39.3</td>
</tr>
<tr>
<td>5-8 times a day</td>
<td>13</td>
<td>14.6</td>
</tr>
<tr>
<td>9 times a day</td>
<td>14</td>
<td>15.9</td>
</tr>
<tr>
<td>Classification of the respondents based on purchase types (n = 86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online purchaser (student 31; professional 37)</td>
<td>68</td>
<td>76.4</td>
</tr>
<tr>
<td>Non-online purchaser(a combination of the information searchers and “others” groups)</td>
<td>31</td>
<td>23.6</td>
</tr>
</tbody>
</table>

Table 4.1: Profile of Respondents

### 4.2.2: Factor analysis

Since the performance indicators focuses highly on decision making variable, Principal component factor analysis with a Varimax rotation was employed to examine those dimensions. The initial factor analysis extracted several factors based on Hersey’s variables. The author further eliminated those items that did not load strongly on any factor (below 0.5)
or had cross-loadings. A total of 8 additional items were deleted after three iterations. Three factors were generated and accounted for 100 percent of the total explained variance (see appendix). All items of a scale strongly loaded on one factor and weakly on all the other factors, thereby satisfying the requirements of convergent and discriminant validity (Cohen et al., 1992).

As shown in Table 4.2, the three derived factors were:
(1) Website.
(2) Product and Services.
(3) Promotion.

As measured by Cronbach’s alpha, reliability analysis results for the three extracted factors were, 0.82, 0.73, and 0.77, respectively. The results demonstrated that all the scales had relatively high reliability and were suitable for further analysis. The first factor, website, accounted for (45.139 percent) of the total explained variance, the largest proportion and was considered important. This factor was defined by three main scale items (web interface, transaction and content) with sub-items and was primarily related to the concept of providing quality, reliable, prompt, and timely services to customers or users. The second factor, product and service, explained (32.642 percent of the variance was constructed by four scale items that are product and service portfolio and differentials, pre-&-after-sales service, pricing strategy and delivery). The third factor, Promotion accounted for 22.219 percent of the variance and comprises two scale items which are primarily associated with well-organized online search engines and offline traditional channel concise contents. (See appendix B)

4.2.3: The importance of each element of the variables

The importance of each element to the virtual store is measured in the survey. The mean for each element is measured by a scale from 1 indicating very unimportant to 7 indicating very important. Results show that all the elements are important. This confirms that all the determinants of decision making with respect to the e-shop are interrelated and none can be completely excluded although more focus can be put on some elements than other ones.

4.3 Website Evaluation Results

Direct observation: The Website evaluation is divided into web interface, Transaction and Content. The listed in table 4.2 captures the Internet capabilities/offerings of the Virtual stores by direct observation. This inculcates the evaluation of the firm’s effectiveness, efficiency and quality in terms of current design, navigability, personalization means of payment, means of order, commercial content, information availability, the quality of online customer services and other related issues.
Table 4.2: Website Evaluation – web interface, Transaction and Content.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EBay</th>
<th>Amazon</th>
<th>Yahoo</th>
<th>Buy.com</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WEB INTERFACE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic effects (Graphical &amp; Animation)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Navigation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of finding information (Search engines, Help, FAQ, etc.)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ease of navigation (links to pages, no scrolling)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Compatibility (browser, operating systems, monitor, other interface)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Personalization</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TRANSACTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means of payment (online, secured, credit/debit card)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Means of order (shopping cart, online/e-mail)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>CONTENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial content (product or service description, means of delivery, means of payment)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Background content (information on company, information on sector)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Legal statement (legal disclaimer, privacy policy, security policy)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>10</strong></td>
<td><strong>10</strong></td>
<td><strong>8</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

The result shows that all the websites provided general information about their respective firm, information regarding product, services and links to other sites as well as advertisement (new products, special offers). However, the websites buy.com lacks the information on the compatibility of the operating systems, other interface, personalization and information regarding the company’s specifics. Yahoo has links to other websites which help uses to reach sources such as business news, and other shopping stores, but fail to provide a function to allow users to personalize their shopping traits.

Items related to products and services were evidently displayed on the respective firms’ websites. The result showed that all the websites provided at least some kind of basic products to their customers or users at large. However, there are some products that are peculiar to some of the firms. Consequently, each firm provided a function for a shopping cart to enable users to basket their selected or purchased items into except yahoo.

Although it is relatively easy to assess the website of these firms, some firms stood out astounding providing additional facilitating competence to their respective customers or users which enable them to navigate effortless on their respective site. Despite, a lack of navigable compatibility on buy.com it provided all the navigable functions just as EBay, Amazon and Yahoo.

**Survey results:** However, the web site evaluation results (Table 4.2) denote the Internet capabilities/offers of the Virtual stores in an objective manner. Subjective customers’ or users opinions were also surveyed. Their perceptions must either weigh some components/elements more highly than others or there must be a perceptible difference in the
delivery of these components between the firms. This next paragraph describes the survey results.

Figure 4.1 shows that 39 percent use the e-shop website content (that is commercial, background, and legal statement). This is the most frequently used service. The second frequently used website items are the payment and order items which is categorized under transactions forming 31 percent. Though web interface formed 30 percent, the navigability activities facilitated the use of the other items and it form 40 percent of the web interface.

![Usage of e-shop website items](image)

**Figure 4.1: Usage of e-Shop website items**

**Survey & Direct observation results:** Efficiency of the firms’ website was measured by assessing how long it takes to load a firm’s webpage, respond to emails and telephones both by customers view and direct observation. Customers or users often want to spend little or no waiting time as the firms’ website gets loaded and responses to their questions via email or telephone. This denotes that the faster the website loading time or email response time, the higher the efficiency of the firm in that perspective. After the several trials at different times in different days as against users perception the results were clocked using nomiun stopwatch to monitor each firms’ website, the result clearly discloses in figure 4.3 that yahoo was the fastest, with the average loading time of 0.172 second, followed by buy.com recording an approximate time of 0.326 second. Next was Amazon clocking an approximate time of 0.420 sec. EBay recorded the slowest time comparatively in loading its website, taking 1.606 seconds on the average. Table 4.3 shows the average web site loading time and the email and telephone response time.
Table 4. 3: Efficiency Evaluation – Website loading, Email and Telephone response.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EBay</th>
<th>Amazon</th>
<th>Yahoo</th>
<th>Buy.com</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Website Loading Time (in seconds)</strong></td>
<td>1.606</td>
<td>0.420</td>
<td>0.172</td>
<td>0.326</td>
</tr>
<tr>
<td><strong>Users perception</strong></td>
<td>Fast</td>
<td>Fast</td>
<td>Very fast</td>
<td>Fast</td>
</tr>
<tr>
<td><strong>E-mail Response time</strong></td>
<td>00:00:05:30</td>
<td>00:00:06:21</td>
<td>00:00:04:56</td>
<td>01:04:00:30</td>
</tr>
<tr>
<td><strong>Users perception</strong></td>
<td>Quick</td>
<td>Quick</td>
<td>Quick</td>
<td>Slow</td>
</tr>
<tr>
<td><strong>Telephone Response time</strong></td>
<td>00:07:46</td>
<td>00:05:25</td>
<td>00:00:07:56</td>
<td>00:00:10:33</td>
</tr>
<tr>
<td><strong>Users perception</strong></td>
<td>Fast</td>
<td>Fast</td>
<td>Fast</td>
<td>Slow</td>
</tr>
</tbody>
</table>

The results on response after a number of emails sent to the respective firm regarding their operations were interesting. Similar responses came from the users as well. Yahoo was the quickest to response. On average it responded to the email in approximately 4 minutes 56 seconds. Similarly, EBay and Amazon were second and third to respond with an average response times of 5 minutes 30 seconds and 6 minutes 21 seconds respectively. Buy.com was slow in responding within a period of 1 day 4 hours and 30 seconds.

The telephone response time refers to the time a firm takes to pick up its phone. Amazon was the fastest to answer the phone with average response time of 5 minutes and 25 seconds. It was followed by EBay. It had an average response time of 7 minutes and 46 seconds. Yahoo closely follows EBay with response time of 7 minutes and 56 second. Buy.com responded at last with an average response time of 10 minutes and 33 second.

**Interview:** An interview with the customer service department Yahoo.com concerning firms website, revealed that the firm has developed an e-mail management system that utilizes algorithms and set pattern-matching criteria to automate as many processes as possible before an e-mail reaches a user service representative, thereby automatically answering 30 to 45 percent of all incoming e-mails.

Mr. X of EBay also disclosed in an interview that the speed of the website is not solely dependent on the resolution of the graphic but also on the speed of the user’s internet. For instance a dial-up connection will slowly load a site than a high broadband.

The interview also depicted that most of the virtual stores focus on continuous innovation to provide further convenience for customers. For instance Amazon work to earn repeat purchases by providing easy-to-use functionality, fast and reliable fulfilment, timely customer service, feature-rich and authoritative content, and a trusted transaction environment. Key features of the websites include editorial and customer reviews; manufacturer product information; gift guides; Web pages tailored to individual preferences, such as recommendations and notifications; 1-Click technology; secure payment systems; digital content; searching on our websites as well as the Internet; browsing; and the ability to view selected interior pages and citations, and search the entire contents of many of the books we offer with our “Look Inside the Book” and “Search Inside the Book” features.
4.4: Products and Services Evaluation Results

Survey results: The Product and service evaluation results (Table 4.4) denote the e-shop capabilities/offerings of product, pre & after –sales service, pricing and delivery in a subjective customers’ or users’ opinion. Their perceptions must either weigh some components/elements more highly than others or there must be a perceptible difference in the delivery of these components between the firms.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EBay</th>
<th>Amazon</th>
<th>Yahoo</th>
<th>Buy.com</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Range (%)</td>
<td>36</td>
<td>28</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>Product competitive differential (%)</td>
<td>30</td>
<td>32</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td><strong>Pre &amp; after-sales service:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of customers or users which use the pre-sales service</td>
<td>98</td>
<td>95</td>
<td>96</td>
<td>91</td>
</tr>
<tr>
<td>% of customers or users which use the after-sales service</td>
<td>92</td>
<td>91</td>
<td>95</td>
<td>90</td>
</tr>
<tr>
<td><strong>Pricing:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price differentials with respect to online competitors</td>
<td>94</td>
<td>91</td>
<td>90</td>
<td>93</td>
</tr>
<tr>
<td>Discount and shipping cost with respect to online competitors</td>
<td>28</td>
<td>36</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>Price differentials with respect to offline competitors</td>
<td>96</td>
<td>90</td>
<td>89</td>
<td>87</td>
</tr>
<tr>
<td><strong>Delivery:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of options offered with respect to offline competitors (%)</td>
<td>97</td>
<td>89</td>
<td>96</td>
<td>97</td>
</tr>
<tr>
<td>Delivery time with respect to distance per time</td>
<td>10days</td>
<td>10days</td>
<td>10days</td>
<td>10days</td>
</tr>
</tbody>
</table>

Table 4.4: Product and service evaluation- product, Pre & after-sales serves, pricing and delivery

The figures in (Table 4.4) with respect to product range and product competitive differentials denote that the higher the percentage the higher the customers perceived a firm to have a wide range of different product types (range width) and variants of each type (range depth) and also the higher presence of attractiveness differentials linked to product features and vice versa. To this end, the results indicate that EBay and Amazon scored about 36 and 28 percent respectively. This is higher than Yahoo and Buy.com with approximately 14 and 22 percent respectively. Similarly, Amazon and EBay again displayed a higher percentage in the product competitive differentials of about 32 and 30 respectively. Buy.com and Yahoo were not too prominent in that respect but grabbed approximately 20 and 18 percent.

For pre & after-sales service, percentage of customers which use a pre-sales service prior to purchase this measures the effectiveness of each presales service. The percentage of customers which use an after-sales service measures the usefulness of the service for the customer, in effect the higher the percentage, the higher the effectiveness and the usefulness of the service to the customer. The results in (Table 4.4) indicate that both services are highly effective and useful to the users. Obviously all the firm scored above 90 percent.

The indicators used to monitor pricing strategy measure the differentials with respect to online and offline competitors, as well as discounts handling and shipping charges applied by competitors. For price differentials amongst the firm and their offline competitors, the higher the percentage, the higher the lower possibility of users or customers switching from one firm to another and vice versa. With respect to discount, the higher the percent the higher the discount rate which has a spiral effect on the price differentials. The figures in (table 4.4) indicate that all the firm score above 90 percent. This denotes that prices are relatively the same with respect to similar products. However, the differentiation was in terms of the
discount. Amazon and EBay scored 36 and 28 percent respectively higher than yahoo (22) and Buy.com (14).

The figures relating to delivery in (Table 4.4) depict that the higher the percentage the numerous option offered by the online firm with respect to offline competitors. Obviously, the entire firm showed a percent above 80 denoting that there are numerous alternative offers than to purchase offline.

**Interview:** All the participant virtual stores in the interview by far disclosed that, certain products or services appear more suitable for online sales others remain more suitable for offline sales. therefore most of the virtual stores deal with digital products, including information storage, retrieval, and modification, music, movies, office supplies, education, communication, software, photography, and financial transactions. Typical evidence are EBay, Amazon and Buy.com. However, for the tangible goods Amazon refund and numerous sellers on eBay use Drop shipping or Affiliate marketing techniques to facilitate transactions of tangible goods without maintaining real inventory. Nonetheless products which can easily go through a standard letterbox such as music CDs, DVDs and books are particularly suitable for a virtual marketer, and indeed Amazon.com, one of the few enduring dot-com companies, has historically concentrated on this field.

According to the interview, some virtual stores endeavour to offer their retail customers the lowest prices possible through low everyday product pricing and free shipping offers. Amazon.com for instance strives to improve their operating efficiencies so that they can pass along the associated savings to the customers in the form of lower prices. one way of doing this is to enable third-party sellers to offer products on their sites, in many instances alongside the product selection, and to set their own retail prices.

For delivery service, the virtual stores are striving to fulfil customer orders quickly and accurately, and to provide intuitive self-service features that assist customers when they have questions. buy.com communicate fulfillment promise in several ways, such as presenting up-to-date inventory availability information, delivery date estimates, and options for expedited delivery, as well as delivery shipment notifications. Customers can use the “Your Account” website features to track order and shipment status, review estimated delivery dates, cancel items not yet shipped, change delivery instructions and payment options, combine orders, edit gift options, and return items. Additionally, when customers have questions, the firm provide an intuitive click-to-call feature on our help pages so customers can quickly and conveniently speak with a customer service representative.

### 4.5: Promotion Results

**Survey results:** Obviously, the assessment of the effectiveness of the e-shop promotional channel by means of the ratio (the number of buyers and the budget) presupposes that the company’s objective is the increase site sales. Other minor issues, which a promotional campaign might provoke, e.g. increased brand awareness, are not considered.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>EBay</th>
<th>Amazon</th>
<th>Yahoo</th>
<th>Buy.com</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness of the promotional channel</td>
<td>3.56</td>
<td>4.90</td>
<td>2.81</td>
<td>1.73</td>
</tr>
<tr>
<td>[ \text{N}^i \text{ buyers /BDG}^i = (\text{CTR}^i . 1:000 / \text{CPM}^i) . \text{ER}^i . \text{CR}^i ]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.5: Effectiveness of promotional channel

<table>
<thead>
<tr>
<th>Promotion Channel</th>
<th>EPO(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBay</td>
<td>4.90%</td>
</tr>
<tr>
<td>Amazon</td>
<td>3.56%</td>
</tr>
<tr>
<td>Yahoo</td>
<td>2.81%</td>
</tr>
<tr>
<td>Buy.com</td>
<td>1.72%</td>
</tr>
</tbody>
</table>

Figure 4.2: Effectiveness of promotional channel

The numbers in (Table 4.5) denote that the higher the ratio the higher the number of buyer purchase via the promotion channel and hence the effectiveness of the promotion campaign. Amazon.com recorded the highest effective rate of 4.90%. EBay, yahoo and buy.com recorded 3.56, 2.81 and 1.72 percent effective rate respectively.

Interview: The interview disclosed that some virtual store promotion strategy is to increase customer traffic to their respective websites, drive awareness of products and services they offer, promote repeat purchases, develop incremental product and service revenue opportunities, and strengthen and broaden the firm’s brand name. Amazon.com disclosed that the most effective marketing efforts result from the focus on continuously improving the customer experience, which drives word-of-mouth promotion and repeat customer visits. Likewise Amazon.com, Yahoo.com also delivers personalized Web pages and services and employs a variety of media, business development activities, and promotional methods. By far Amazon.com have employed various means of advertising, which consist primarily of online advertising including through; Associates program, sponsored search, portal advertising, e-mail campaigns, and other initiatives. The Associates program directs customers to the websites by enabling independent websites to make millions of products available to their audiences with fulfilment performed by us or third parties. Endeavour to pay commissions to participants in our Associates program for click through customer referrals and customer referrals resulting in product sales, subject to the terms of the specific commission agreement.

4.5: Impact on decision making

Regression analysis: The second research issue is related to assessing the impacts of the generated performance variables on strategic and operational decisions respectively. The results of regression analysis strategic decision against the independent variables are presented in (Table 4.6). This regression equation explained 49.2 percent of the variance of
the dependent variable \((F = 25.721, p < 0.001)\). The three independent variables, such as website, product and services and promotion had statistically significant and positive relationships with the overall strategic decisions. The website responses dimension was the most significant independent variable with the largest beta coefficient, followed by the product and services and promotion.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Standardized coefficients Beta</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td>0.459</td>
<td>6.677</td>
<td>0.000*</td>
</tr>
<tr>
<td>Product and services</td>
<td>0.408</td>
<td>5.834</td>
<td>0.000*</td>
</tr>
<tr>
<td>Promotion</td>
<td>0.346</td>
<td>4.776</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Notes: Dependent variable: Strategic decision \((F = 25.721 p < 0.001, \text{adj. } R^2 = 0.4925, * p < 0.001)\)

Table 4.6: Regression analysis results between strategic decision and the performance variables

The results of regression analysis on operational decision are summarized in (Table 4.7). This regression equation explained 51.3 percent of the variance of the dependent variable \((F = 28.27, p < 0.001)\). All the independent variables were significantly and positively associated with operational decision. The product and service responses dimension was the most influential factor that impacted operational decision, followed by the website and promotion.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Standardized coefficients Beta</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td>0.500</td>
<td>5.688</td>
<td>0.000*</td>
</tr>
<tr>
<td>Product and services</td>
<td>0.523</td>
<td>6.257</td>
<td>0.000*</td>
</tr>
<tr>
<td>Promotion</td>
<td>0.486</td>
<td>5.409</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Notes: Dependent variable: operational decision \((F = 28.27 p < 0.001, \text{adj. } R^2 = 0.5125, * p < 0.001)\)

Table 4.7: Regression analysis results between operational decision and the performance variables
5 Analysis

In this chapter the analysis and discussion of the empirical data will be presented. The analysis is assessed through the two major issues in the study along with the working model.

5.1: Performance indicators

The first issue addressed in this study focused on identifying the influential performance evaluation indicators or variables associated with decision-making in the online marketplace and measure performance along that stream of variable or indicators. The results identified three major dimensions with important variables: website, product and services and promotion. These dimensions and their respective variables share in their meaning many common aspects with decision making determinants derived within the context of online market industry by Prior research (for example Rangone et al, 2000). Conversely, all three dimensions also have their own unique characteristics inherent in the online marketing environment.

First, the website dimension captures, dependable, prompt, and timely information core competence of the product and/or services. Online users or consumers apparently want to receive the right quality and right quantity of items that they will order within the time frame displayed on the web page by the virtual store, and they expect to be billed accurately by them.

Second, product and service capture the product differentiation, pricing, and delivery of the item. Practically product and service qualities fulfillment still remains the most troublesome area for the online marketing firms and most online users feel frustrated with the poor service reliability provided by virtual stores (Jedd, 2000). The primary reasons are the lack of strong internal and external collaboration. Internal collaboration includes tight integration of Web sites with customer service operations and effective communication among different functional departments. In turn, external collaboration means integration of supply chain partners (e.g. suppliers, packaging and shipping companies).

Third, promotion presupposes the ability that the company’s objective to increase site sales and increased brand awareness materializes.

5.1.1: Website Evaluation

The structure of a successful Web site should allow users to easily shop and search products; quickly locate a certain brand; and conveniently checkout (Ernst & Young, 2001). Both the direct observation and the survey result identifies important aspects and structure of the e-shops websites that are influential to decision making such as the web interface, transaction and content. These are select variables which can be incorporated in the firm’s operational and strategic decisions.

<table>
<thead>
<tr>
<th>Name of the Firms</th>
<th>Total Net Score (%)</th>
<th>RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBay</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Amazon</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Yahoo</td>
<td>80</td>
<td>3</td>
</tr>
<tr>
<td>Buy.com</td>
<td>70</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 5.1: Total Net percentage Score and Rank
In all 10 variables were observed to evaluate the firms’ website. Table 5.1 shows the total net score in relative terms from empirical results. According to the model used, EBay and Amazon had the highest total net score. Their total score were 100%. Yahoo is ranked third with a total net score percentage of 80%. Last on the list was Buy.com with a total net score of 70%.

However, the different rank positions of the various firms under the website indicators suggest that all firms were at least performing successfully in one segment or the other. It is therefore worth mentioning that the Virtual stores have been implementing changes to improve navigation, and to provide more sophisticated trading tools, and have made a quantum leap on educating the customers through their websites. A typical example is Amazon Web Service (AWS), a popular feature of Amazon is the ability for users to submit reviews to the web page of each product and Search inside the Book is a feature which makes it possible for customers to search for keywords in the full text of many books in the catalog. The feature started out with 120,000 titles (or 33 million pages of text). Consequently, some firms have also made inroads into integrating their online marketing platforms, allowing users faster access to their websites to ascertain information.

According Dellaert and Kahn (1999), successful online firms respond promptly to their respective users and it is well advised that online retailers improve their customer service response time via e-mail automation. From the survey, online users expect the online retailers to respond promptly to their inquiries, especially e-mail inquiries. For example, according to Mr. X of customer service department, yahoo.com has developed an e-mail management system that utilizes algorithms and set pattern-matching criteria to automate as many processes as possible before an e-mail reaches a user service representative, thereby automatically answering 30 to 45 percent of all incoming e-mails.

Another important facet of the website is related to information downloading time. Previous studies revealed that there is a significant positive correlation between the information downloading speed and the Web user’s satisfaction (Page and Lepkowska-White, 2002; Van Riel et al., 2001). Dellaert and Kahn (1999) conducted four computer-based experiments to show that waiting time could affect evaluations of Web sites negatively if there was uncertainty about the wait, as in the case of no countdown information available. Likewise from the survey most users said that switching between e-shops can be attributed to the speed of loading the firm’s sites. However, Doherty et al., (1999) suggest that the online marketing firms should choose an efficient host server and avoid using extensive high-resolution graphics. But the response from the firms for instance Mike Tramco of EBay said that the speed of the website is not solely dependent on the resolution of the graphic but also on the speed of the users internet. For instance a dial-up connection will slowly load a site than a high broadband.

Online customers prefer to have multiple ways to contact online retailers, such as e-mail addresses, telephone and fax numbers. Burke (1997) and Cox and Dale (2002) found that online consumers often need to contact a customer representative over the telephone and by other conventional communication means. Further, from the survey results online users time and again want to access a variety of informative sources, such as chat rooms and bulletin boards, to obtain up-to-date and useful information for making informed purchasing decisions. Both the direct observation and the survey depict that ease of navigation is enormously a unique characteristic of the online systems. Specifically, a website should be configured to allow users to reach a desired web page from anywhere in the Web site’s
hierarchy easily (Kim and Eom, 2002). Otherwise, the results are often appalling as customers would have considerable difficulty in navigating pages and would be unlikely to complete transactions.

The survey results of the present study indicated that online customers are yearning for attention from online shops. This is evidenced in the efficiency measure in the empirical survey results. In effect, users need specific response to their e-mail and telephones than general answers. Moreover, the e-shops need to maintain message areas on their Web sites in order to listen to individual customers’ voices, thereby better understanding their changing preferences and predicting their future requirements. The results of the current study shows that Online firms need to offer more personalized services to their customers in order to build customer loyalty, since they can automatically track, through the Internet, customers’ purchasing behaviours and gather information from their integrated database.

5.1.2: Product and services

Although a Web site is basically an impersonal medium, in order to attract and retain users, a company needs to differentiate its products and services from those of its competitors based on its personalized services to customers (Zeithaml, 2002). In all 9 indicators were observed to evaluate the firms’ product and services. From the survey results of this study it was obvious that the product and services dimension was relatively imperative. Users regarded every indicator very crucial. One of the main objectives of a customer is to get what he or she pays for and at the right quality right time and at the right place. Therefore the mechanisms for handling product and services should be highly guaranteed (Zeithaml, 2002).

In reality, product and service order fulfilment still remains the most troublesome area for online marketing firms, and most online users feel frustrated with the poor service reliability provided by virtual stores (Jedd, 2000 pp 505). The primary reasons are the lack of strong internal and external collaboration. Internal collaboration includes tight integration of Web sites with customer service operations and effective communication among different functional departments. In turn, external collaboration means integration of supply chain partners (e.g. suppliers, packaging and shipping companies).

From the survey (interview with the firms) results, certain products or services appear more suitable for online sales others remain more suitable for offline sales. Most of the virtual stores deal with digital products, including information storage, retrieval, and modification, music, movies, office supplies, education, communication, software, photography, and financial transactions. Typical evidence is the selected firms used in the current study (EBay, Amazon and Buy.com). However, for the tangible goods Amazon refund and numerous sellers on eBay use Drop shipping or Affiliate marketing techniques to facilitate transactions of tangible goods without maintaining real inventory. Nonetheless products which can easily go through a standard letterbox such as music CDs, DVDs and books are particularly suitable for a virtual marketer, and indeed Amazon.com, one of the few enduring dot-com companies, has historically concentrated on this field.

The higher the percentage of users of the pre and after sales service the higher the effectiveness of the service to both the user and the firm (Rangone et al, 2000). From the survey, the percentages of users or customers which use a- pre & after-sales service were relatively high, Denoting a high effectiveness and usefulness the service to users and
customers. The comparative parameter was offline service providers. However, the high after sales service was not solely related to the product but also to the service in delivery or attaining the products. For instance, the survey results bring to bare that though Amazon.com does not publish its toll-free customer service number (+1-800-201-7575) on its own web site. Customers are instead asked to submit written service requests (which are answered by e-mail) or to use a Click-to-Call service to be connected by phone to an available service representative. In addition, there are numerous Web pages that exist solely to publish the Amazon.com customer service phone numbers, one of which received in excess of 23,000 visits in December 2004 alone. Despite the perceived difficulty in reaching customer service by phone, “no retailer or service provider in ACSI (Abstract Communication Service Interface) has higher customer satisfaction than Amazon” (Jeffery P. Bezos, CEO Amazon.com). In all, Most users appreciated the fact that product gets to their door-step. To this end they avoid the item pick-up stress.

A source of frustration for some eBay users is that despite the company's size, it offers no customer support by telephone, instead referring all ordinary members to its online help features. Apart from a library of self-help resources, these features consist mainly of e-mail contact forms and "Live Help," which lets users chat with customer service representatives via instant messaging. In fact, most visitors to the eBay site will not find any company phone number listed at all. eBay does, in fact, have a phone support department, but that service is limited to members of the rank "Gold PowerSeller" and above, the company's term for members who sell at least $10,000 worth of goods per month on the site. The telephone number for that service is kept closely guarded, though ordinary users persistent enough to discover it will usually be offered help as a one-time courtesy. Amazon.com permits third-party sellers to sell items for more than their MSRP. For instance, as of April 27, 2007, several third-party sellers offer the Wii video game console which is out of stock at Amazon proper - for prices starting at $369.00 versus an MSRP (Manufacturer Suggested Retail price of $249.00. Although unconfirmed, it has been widely reported that Buy.com has begun routing "free shipping" items in a circuitous manner in order to deliberately delay the delivery time for "free" shipped items. It is believed that this practice started in an attempt to manipulate customers into paying for faster shipping. Small items that are shipped for "free" often used to (<2006) arrive within 2-3 days, despite the claim that it could take between 5-7 days. Now (2007) due to the change in shipping practice, items are being sent from further away, shipped using multiple carriers (e.g. UPS->USPS), and sometimes even being held by the shippers before being delivered. Additionally, Buy.com has increased the "free shipping" time to 7-9 days.

In the nutshell, failing to understand why and how users or customers buy will collapse the virtual store. Even a product with a sound value proposition can fail if producers and retailers do not understand customer habits, expectations, and motivations (Chaudhury et al., 2002). The virtual stores must provide an enjoyable and rewarding experience to its customers.

5.1.3: Promotion

The promotion dimension refers to the extent to which online marketing firms provide personalized services to their customers. As Lueki (1997) and Madu(2002) argued, the fierce competition in the Web marketplace places. Online marketing firms are in a position where simply posting product or service catalogs on the Web is not enough to ensure their survival but combining them with an interactive order processing facility, to process orders and
capture payments. For instance Yahoo Search Marketing provides services such as Sponsored Search, Local Advertising, and Product/Travel/Directory Submit that let different businesses advertise their products and services in the Yahoo network. This advertising tool enables online publishers to place advertisements relevant to their content to monetize their websites.

5.2: Impact on decision making

The second issue in this research focused on understanding impacts of the identified variables on operational and strategic decisions. Addressing these issues will help online marketing firms develop and implement effective decisions operationally and strategically within their virtual stores. From the regression analysis in the empirical results section, all the dimensions had significant and positive impacts on strategic and operational decisions. These dimensions were found to be, in relative order of importance. This finding parallels the results of similar studies such as (Minjoon, 2003, 2001). Thus, online retailers need to pay special attention to these dimensions.

Minjoon, (2003) argues that firm’s website is perhaps the backbone of the virtual store in all aspects. This can make or unmake the firm. Therefore overlooking a firm’s websites could significantly bring negative repercussion on the firm. Importantly, our study revealed that the Virtual Store’s Web sites play a vital role and can convert an ordinary user that is information searcher into extraordinary users/customers that is buyers. Thus, in both strategic and operational decisions, the virtual stores must highly consider their “storefront”. In the short run, they must fully utilize their “storefront” to serve the needs of the users. For example, the virtual stores could use the search engines on their Web sites to address users’ primary concerns, such as security risks, on-time delivery, and return policies. In the long run, the virtual stores can adapt their interfaces with the users’ by using the so-called “personalization software”. This software utilizes a self-learning engine to evaluate visitors’ real-time behaviours, such as “what a visitor is looking at” and “where the visitor comes from”, and allows online retailers to offer relevant suggestions to customers who are not frequent visitors (Koller, 2001).

Significantly, from both the survey and direct observation results, the product and service dimension point out that the virtual stores should provide users/customers with variety of products with both inbound and outbound services (pricing, delivery service and user or customer services. The failures of these often result from the lack of synchronizing online (e.g. marketing and sales functions) with offline (e.g. inventory and logistics management functions) business processes (Van Hoek, 2001). Therefore, it is obvious that issues concerning products and services are vital in making both long-term (strategic) and short-term (operational) decisions. The virtual store should therefore, strategically implement information systems as part of their core competence that integrate all their online and offline operations to improve their products and services. It is also imperative that the virtual stores have a smooth physical distribution channel. If the virtual store lacks enough resources for building such a channel, it may outsource its logistics function to a third party specializing in logistics management to ensure timely and accurate service deliveries.

Pen ultimately, the promotion dimension suggests that the virtual stores should be able to sell themselves in order to make for instance sales increase and brand increase a variety of online and offline media. Besides the widely used promotion channel such pop-ups (advertising), live user/customer service, such as live text chat, co-browsing, and page pushing (Waltner, 2000). Therefore, instead of waiting for users/customers to respond to the pop-ups, the virtual
store can have their customer representative monitoring the behaviours of online shoppers, and proactively offering them new products or service (Marriot, 2000). This is a potential element to be considered in a short term decisions.

Finally, from the discussion above, it is obvious that performance measurement indeed has significant impact on strategic and operational decisions. Table 5.2 below show a synopsis of some vital operational and strategic decisions undertaken by the selected firms as a consequence of performance measurement.

<table>
<thead>
<tr>
<th>companies</th>
<th>Operational Decisions</th>
<th>Strategic Decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBay</td>
<td><strong>Customer Support:</strong> EBay endeavor to devote significant resources to providing personalized, accurate and timely support services to the community of users. Buyers and sellers can contact us through a variety of means, including email, online text chat and, in certain circumstances, telephone. We are focusing our resources on increasing our accessibility and capacity, expanding our category specific support, extending our online self-help features, and improving our systems and processes to allow us to provide the most efficient and effective support possible.</td>
<td>To make significant investments to grow existing categories and to expand the number of categories in the eBay marketplace. For example provide complete understanding of the products or services offered which not only includes complete product information, but also sound advisors and selectors. Also focusing on development, marketing and customer support efforts around major categories. Providing value to customers. V by offering a product or product-line that attracts potential customers at a competitive price, as in non-electronic commerce.</td>
</tr>
<tr>
<td></td>
<td><strong>Value-Added Services:</strong> to enable EBay users have access to a variety of “pre-trade” and “post-trade” services to enhance their user experience and to make trading faster, easier, and safer for them. “Pre-trade” services simplify the listing process and include photo hosting, authentication and seller productivity software. “Post-trade” services, which make transactions easier and more comfortable to complete, include payment processing, insurance, vehicle inspections, escrow, shipping and postage. We currently provide these services directly or through contractual arrangements with third parties.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Trust and Safety Programs:</strong> endeavor to improve and develop a number of programs, including our Feedback Forum and Safe Harbor program, to make eBay users more comfortable dealing with unknown trading partners and completing commerce transactions on the Internet.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Feedback Forum:</strong> to improve EBay’s Feedback Forum encourages each user to provide comments on other eBay users with whom he or she trades and lets every user view other users’ profiles, which include feedback ratings and comments by other users. Every registered eBay user has a feedback profile containing compliments, criticisms and other comments by users who have conducted business with the person.</td>
<td>To widen the scope of the paypal network</td>
</tr>
</tbody>
</table>
Following a completed transaction, eBay buyers and sellers can exchange funds by the payment method of their choice, most frequently through our PayPal global payments platform, but in some cases using check, money order or merchant credit card accounts. PayPal enables any business or consumer with email to send and receive online payments securely, conveniently and cost-effectively. PayPal’s email-driven system builds on the legacy financial infrastructure of bank accounts and credit cards to create an online payment network available to users in 38 countries. PayPal’s global payments platform also provides those individuals and businesses conducting e-commerce transactions on sites other than eBay the same ability to exchange funds in settlement of such transactions.

| Amazon | Pricing: We endeavour to offer our retail customers the lowest prices possible through low everyday product pricing and free shipping offers. We also strive to improve our operating efficiencies so that we can pass along the associated savings to our customers in the form of lower prices. We enable third-party sellers to offer products on our sites, in many instances alongside our product selection, and to set their own retail prices.  

Ease-of-use: Our software engineers, computer scientists, merchandisers, and management team focus on continuous innovation to provide further convenience for our customers. We work to earn repeat purchases by providing easy-to-use functionality, fast and reliable fulfilment, timely customer service, feature-rich and authoritative content, and a trusted transaction environment. Key features of our websites include editorial and customer reviews; manufacturer product information; gift guides; Web pages tailored to individual preferences, such as recommendations and notifications; 1-Click technology; secure payment systems; digital content; searching on our websites as well as the Internet; browsing; and the ability to view selected interior pages and citations, and search the entire contents of many of the books we offer with our “Look Inside the Book” and “Search Inside the Book” features.  

Orders: We endeavour to fulfil customer orders in a number of ways, including through the U.S. and international fulfilment centres and warehouses that we operate; through fulfilment centres operated under co-sourcing arrangements, including our fulfilment centres supporting www.amazon.co.jp; | Setting up an organization strategy of sufficient alertness and agility to respond quickly to users need.  
Operating on or near the cutting edge of technology and staying there as technology changes in other to provide a top notch service to our loyal users.  
Providing a 360-degree view of the customer relationship, defined as ensuring that all employees, suppliers, and partners have a complete view, and the same view, of the customer. However, customers may not appreciate the big brother experience |
through outsourced fulfilment providers, including our fulfilment providers supporting www.amazon.ca; and through other third-party fulfilment arrangements.

*Promotion* - Our marketing strategy is designed to increase customer traffic to our websites, drive awareness of products and services we offer, promote repeat purchases, develop incremental product and service revenue opportunities, and strengthen and broaden the Amazon.com brand name. We believe our most effective marketing efforts result from our focus on continuously improving the customer experience, which drives word-of-mouth promotion and repeat customer visits. We also deliver personalized Web pages and services and employ a variety of media, business development activities, and promotional methods. We will employ various means of advertising, which consist primarily of online advertising, including through our Associates program, sponsored search, portal advertising, e-mail campaigns, and other initiatives. Our Associates program directs customers to our websites by enabling independent websites to make millions of products available to their audiences with fulfilment performed by us or third parties. Endeavour to pay commissions to participants in our Associates program for click through customer referrals and customer referrals resulting in product sales, subject to the terms of the specific commission agreement.

**Yahoo**

*Invest in new and existing offerings to further improve user experience:* Redesigned our front page (www.yahoo.com) with new and enhanced features and an easy-to-navigate design. Rolled out Yahoo! Answers—our free platform that allows users to ask and answer questions in an easy-to-use environment—internationally to now include 13 countries. Launched the next generation Yahoo! Messenger, which expands beyond free PC-to-PC calling to high quality PC-to-phone and phone-to-PC in many countries throughout the world for our U.S. users. Launch quick access to their personalized Internet content. Launch our enhanced Maps product, with an improved user interface, which provides users an interactive look and feel with new features such as multi-point driving directions, local content integration, larger main map and dynamic pan, zoom and re-center technology, aerial satellite imagery and international maps coverage.

*Enhanced offerings and systems to improve*
**monetization:**

- Launch our new search marketing system, known as Project Panama, in the U.S. in the fourth quarter of 2006. This new system is designed to provide a more relevant search experience to users, more valuable customer leads to advertisers, and additional opportunities to our distribution partners.
- Initiated beta launch of search and display advertising to mobile devices in test markets, including the

<table>
<thead>
<tr>
<th>Buy.com</th>
<th><strong>Delivery service:</strong> We endeavour to fulfil customer orders quickly and accurately, and to provide intuitive self-service features that assist our customers when they have questions. We communicate our fulfilment promise in several ways, such as presenting up-to-date inventory availability information, delivery date estimates, and options for expedited delivery, as well as delivery shipment notifications. Customers can use the “Your Account” website features to track order and shipment status, review estimated delivery dates, cancel items not yet shipped, change delivery instructions and payment options, combine orders, edit gift options, and return items. Additionally, when customers have questions, we provide an intuitive click-to-call feature on our help pages so customers can quickly and conveniently speak with a customer service representative.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment into technology, and intellectual properties. Providing personal attention. Personalized web sites, purchase suggestions, and personalized special offers may go some of the way to substituting for the face-to-face human interaction found at a traditional point of sale</td>
</tr>
</tbody>
</table>
6 Conclusion

This chapter includes the conclusions of the research as well as reflections for recommendations, a discussion of the limitations and suggestions for further studies.

The purpose of this thesis is to measure performance of virtual stores using decision-making associated variables and evaluate the impact of the variables on strategic and operational decisions. It is apparent that performance measurement systems of online virtual stores cannot stand in a vacuum, since these systems sources information from other activities as an input and produces output for other activities. As in any other industry, performance measurement systems occupy an important position in this industry. It promotes and integrates different business activities of online marketing and installs the business decisions throughout the firm.

In this study, it was obvious that online users and customers can have unlimited access to the information they require and may enjoy a wider range of choices in selecting products and services with highly competitive prices. Therefore, it is by far not easy for the virtual stores to gain and sustain competitive advantages based solely on a cost leadership strategy in rival-driven online marketing. Rather, measuring performance with decision-oriented variables or indicators have increasingly become a key driving force in enhancing customers’ satisfaction and in turn in expanding their user/customer bases. The finding of this research confirmed that there is a strong and positive relationship between performance measurement (decision-making variables) and operational and strategic decisions (see section four, figures 4.6 & 4.7).

Base on the findings of this study, it was obvious that both operational and strategic decisions initiatives begin with defining users/customers’ needs and preferences, and their related performance variable (decision-making) dimensions. If the virtual store understands what dimensions users/customers use to judge quality, they can take appropriate actions to monitor and enhance performance on those dimensions and remedy service failures. This study identified three main virtual store dimensions with sub-variables. The lists of variables presented in chapter 4 are supportive evidence. Moreover, these variables were appropriate to paint a practical performance picture and the impact on making decisions. Obviously, in order to make an appropriate decision both strategic and operational to maintain a high level of overall service quality and satisfy the users/customers at their utmost, the virtual store should pay attention to all three dimensions identified in this study.

Pen ultimately, the different rank positions of the various firms under the different performance drivers in section 5.1.1 suggest that all firms were at least performing successfully in one segment. It is therefore worth mentioning that the virtual stores have been implementing some changes to improve navigation, and to provide more sophisticated trading tools, and have made a quantum leap on educating the user/customers through their websites.

In the nutshell, the findings disclosed that a virtual store will survive not only based on its product, good post-sales services, well-organized business structure, network infrastructure, a secured, well-designed website but also having a competent decision oriented management team. Naturally, the e-commerce vendor must also perform such mundane tasks as being truthful about its product and its availability, shipping reliably, and handling complaints promptly and effectively. A unique property of the Internet environment is that individual customers have access to far more information about the seller than they would find in a brick-and-mortar situation. (Of course, customers can, and occasionally do, research a brick-
and-mortar store online before visiting it, so this distinction does not hold water in every case.)

6.1: Reflection for Recommendations

More specifically, the author reflected on some issues for recommendations. First, Web sites play a vital role and can convert an ordinary user that is information searcher into extraordinary users/customers that is buyers. Therefore, it is recommended that virtual stores implement information systems that integrate all their online and offline operations to improve their delivery performance. It is also of the essence that virtual stores have a smooth physical distribution channel. By far if the virtual lacks sufficient resources for building such a channel, it may outsource its logistics function to a third party specializing in logistics management to ensure timely and accurate service deliveries. The products and services dimension suggests that virtual store should do their best to provide personalized or individualized services to their users/customers, even though they use an impersonal medium, a Web site, as their primary marketing and distribution channel. It is well advised that the virtual store must have enough staff members to answer users/customers’ diverse questions via telephones and e-mails. In addition, while maintaining message functions on their web sites in order to listen to individual users/customers’ voices, the virtual store should have their customer representative monitoring the behaviors of online shoppers.

The virtual store management should focus on easy navigation for their online systems, well-organized online catalogs, and concise contents. Invariably, a well-designed navigability can facilitate users’ acuity of online control and enjoyment. For instance the “front store” should clarify the meaning of interactive messages in order to facilitate the “flow”. In addition, virtual store managers may encourage users to share their views on products. For example, they may create online communities for their customers, which would allow customers to access experts and other customers with similar interests and experiences.

6.2 Limitation and Suggestion to further studies

Arguably, it is hard to make a study that provides detailed investigation in all elements causing a phenomenon. Instead some important elements are touched upon to reach a holistic view of what is going on. Digging deeper into these elements can be a suggestion for making further studies in this field of study. One major limitation is in sampling. Since the survey was given to a random sample of people residing in Goteborg a city in Sweden, the prudent reader may need to interpret the results of the study with caution, particularly with respect to the generalization of research findings to Sweden online users/customers as a whole.

Future research should make several extensions of the current study. First, to verify the performance measurement variable/indicator dimensions (decision-making variables) derived in this study and to enhance the generalizability of the research findings. Future research needs to use more diversified random samples and should employ a confirmatory factor analysis.
Subsequently, a future study needs to examine the causal relationships, rather than simple associations, between performance variable/indicators dimensions, operational and strategic decisions by employing a more rigorous research methodology, such as a structural equation modeling technique or causal models. Finally, the same research issues addressed in this study may need to be explored in the business-to-business e-commerce setting.
Virtual Store Performance Measurement: The logical consequence on Strategic and operational decisions

References:
Achour, H., and Bensedrine, N., (2000), An Evaluation of Internet Banking and Online Brokerage in Tunisia, Computer Science Department Institut Supérieur De Gestion – Tunis


http://www.ebay.com/

http://www.yahoo.com/

http://www.amazon.com/

http://www.buy.com/default.asp
Appendix A : Sampling estimation, regression analysis & promotion indicator

Sampling the respondents (scientific Estimation)

\[ n = \frac{N}{1 + N(e)^2} \]

Where \( n \) = the sample size
\( N \) = the population
\( e \) = error estimation

Source: Adopted from Yamane’s (1967)

\[ n = \frac{510,840}{1 + 510,840(0.1)^2} \]
\[ = 99.9804 \]

The eventual sample size is \( \approx 100 \)

Regression analysis

\[ Y_{sd} = \beta_0 + \beta_1 \text{VAR1} + \beta_2 \text{VAR2} + \beta_3 \text{VAR3} + \varepsilon \]
\[ Y_{od} = \gamma_0 + \gamma_1 \text{VAR1} + \gamma_2 \text{VAR2} + \gamma_3 \text{VAR3} + \varepsilon \]

Where: \( \text{VAR1} = \) website
\( \text{VAR2} = \) Product and Services
\( \text{VAR3} = \) Promotion
\( \beta_i \) and \( \gamma_i \) are the parameters to be estimated
\( Y_{sd} = \) strategic decision
\( Y_{od} = \) operational Decision

Promotion indicator

- \( \frac{N_i^{\text{buyers}}}{BDG^i} \)

Where:
- \( N_i^{\text{buyers}} \) is the number of buyers who entered the site via the \( i \)th promotional channel
- \( BDG^i \) is the budget allocated for the \( i \)th promotional channel. Evidently, the assessment of the effectiveness of the given promotional channel by means of the ratio the number of buyers and the budget presupposes that the company’s objective is the increase site sales.
- The equation (1) can be further broken down into some basic components:
  - \( \frac{N_i^{\text{buyers}}}{BDG^i} = (N_i^{\text{impression}} / BDG^i). \text{CTR}^i \times \text{ER}^i \times \text{CR}^i \) ............................ (2)
  - \( = (\text{CTR}^i \times 1:000 / \text{CPM}^i). \text{ER}^i \times \text{CR}^i \) ............................ (3)

Where:
- \( N_i^{\text{impression}} \) is the number of times that the promotional message is seen by potential customers through the \( i \)th channel; \( \text{CTR} \) (click through rate) is the percentage of visitors entering the site after having seen the promotional message through the \( i \)th channel; \( \text{ER}^i \) (exit rate) is the number of visitors arriving through the \( i \)th channel who leave the site after seeing the access page; \( \text{CR}^i \) (conversion rate) is the percentage of visitors arriving through the \( i \)th channel who make a purchase; \( \text{CPM}^i \) (cost per million) is the cost of 1000 impressions through the \( i \)th channel (Rangone et al, 2000).
Appendix B: Varimax factor analysis

Cronbach's alpha measures how well a set of items (or variables) measures a single unidimensional latent construct. When data have a multidimensional structure, Cronbach's alpha will usually be low. Technically speaking, Cronbach's alpha is not a statistical test - it is a coefficient of reliability (or consistency). Cronbach's alpha can be written as a function of the number of test items AND the average inter-correlation among the items. Below, for conceptual purposes, we show the formula for the standardized Cronbach's alpha:

\[
\alpha' = \frac{N \cdot \bar{r}}{1 + (N - 1) \cdot \bar{r}}
\]

Here \(N\) is equal to the number of items and \(\bar{r}\) is the average inter-item correlation among the items. One can see from this formula that if you increase the number of items, you increase Cronbach's alpha. Additionally, if the average inter-item correlation is low, alpha will be low. As the average inter-item correlation increases, Cronbach's alpha increases as well. This makes sense intuitively - if the inter-item correlations are high, then there is evidence that the items are measuring the same underlying construct. This is really what is meant when someone says they have "high" or "good" reliability. They are referring to how well their items measure a single unidimensional latent construct. Thus, if you have multi-dimensional data, Cronbach's alpha will generally be low for all items. In this case, run a factor analysis to see which items load highest on which dimensions, and then take the alpha of each subset of items separately.

To compute Cronbach's alpha for all three items - q1, q2, q3, - use the RELIABILITY command:

```
RELIABILITY
/VARIABLES=q1 q2 q3 .
```

Here is the resulting output from the above syntax:

```
RELIABILITY ANALYSIS - SCALE (ALL)

Reliability Coefficients

N of Cases = 60.0  N of Items = 3

Alpha .77, .73 and .82

(Note that a reliability coefficient of .70 or higher is considered "acceptable" in most Social Science research situations). Perhaps the data are multidimensional? To check the dimensionality of the data, use the factor command:

```
FACTOR
/VARIABLES q1 q2 q3
/FORMAT SORT BLANK(.35).
```
Virtual Store Performance Measurement: The logical consequence on Strategic and operational decisions

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
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<td>Cumulative %</td>
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Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization