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Effect of Strategy and Internet Business Adoption on Performance

Shu-Hung Hsu
Lynn University

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Shu-Hung Hsu

Lynn University

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Shu-Hung Hsu, Ph.D.

Lynn University, 2007

U.M.I.
300 N. Zeeb Road
Ann Arbor, MI 48106

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By

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Abstract

Organizations that implement competitive strategies and Internet business adoption in the market place can gain a competitive advantage and improved financial performance. The purposes of this explanatory and exploratory, mixed method study, were threefold: 1) to describe the relationship between competitive strategies and Internet business adoption, the relationship between competitive strategy and financial performance, and the relationship between Internet business adoption and financial performance; 2) to examine the effects of the different levels of Internet business adoption (prospecting, business integration and business transformation) and different strategic types (cost leadership and differentiation) on financial performance (profit margin, asset turnover, return on assets and return on equity); and 3) to generate implications for the effect of strategic types and Internet business adoption levels on financial ratios of business organizations.

The entire accessible population of this study was used as a sample; 961 U.S. companies met the eligibility criteria. Among the 961 companies, 327 (34%) provided useable secondary data. This study proposed that strategy types supported by higher levels of Internet business adoption can contribute to financial performance of business organizations. In addition, a hypothesized model was examined. A *paragraph approach* was used to report a firm's strategic types and Internet business adoption levels, and *financial ratios* evaluated a firm's profitability and efficiency. A 2x3 factorial research

design using ANOVA statistical analysis explained the effects of an Internet business adoption level and a strategic type on performance.

The study results revealed that the type of competitive strategy used or the level of Internet business adoption employed, were important factors influencing financial performance of U.S. business organizations. The results indicated that the effect of strategic types and Internet business adoption levels on financial performance of firms was supported. The findings provided useable information that a firm, which implemented a differentiation strategy and a higher level of Internet business adoption, can earn higher profit from the Internet business markets.

The limitations of the study and recommendations for future research were also included. A limitation of the study was the question of the reliability of the secondary data used. Future research should assess the effect of the level of Internet business adoption and type of competitive strategy used in countries other than the Unities States and conducts the data collection procedure with a mail or on-line survey instead of using secondary data. This study could be benefited academic research and provided practical implications for managers.

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CHAPTER I

INTRODUCTION TO THE STUDY

Introduction and Background to the Problem

A business needs to develop strategies that not only achieves long term profitability, but also creates a competitive advantage. A firm with a strategy is better than one without a strategy (Porter, 1980). The successful business strategy is decided on by the marketplace (Aijo & Blomqvist, 2003). Therefore, organizations developing new business strategies have to create organizational capabilities (for example, strategy, and Internet business adoption) to meet market demands.

Garden (2000) stated that a company does not have a business strategy if its plans do not include using the Internet. Today, firms use the Internet to support their business strategies and to achieve a true competitive advantage, which is reflected in their long-term profitability. The Internet itself is neither a competitive advantage nor a distinct business strategy, but it is a method that can enhance a firm's business strategies and create economic value (Apigian, 2003).

It is important for firms to create a competitive advantage, a basic factor used to create economic value and improve performance. Internet business is fundamentally changing the way business and the economy is conducted (Shin, 2001). A strategy supported by the use of Internet business is stronger than one without such support (Porter, 2001). Therefore, it is necessary for a more successful firm to use competitive strategies and to integrate Internet business.

The question of the effect of business strategy and Internet business adoption on performance based on the marketplace is one of the gaps in the current research streams

for linking Internet business adoption and business strategies to performance (Moore, 2002; Teng, 2000). Several researchers (for example, Lages, Lages & Rita, 2004; Lynch, 1998; Marijke, 2004; Zhu & Kramer, 2002) have studied the relationship of businesses strategy and performance, or information technology (IT) information system (IS) and performance. None of them have reported any findings that relate to the use or adoption of competitive strategies and Internet business adoption within the organization that affect performance. The present investigation closed that gap in the literature.

Purpose

The effect of competitive strategies and Internet business adoption on financial performance was explored in this research study. It is important for organizations to use business strategies and Internet business to achieve competitive advantages that lead to enhanced performance. This study investigated how the use of competitive strategies and Internet business adoption in business organizations can increase their value and performance.

The study analyzed and measured the current organizations' use of competitive strategies and Internet business adoption, and how the integration of competitive strategy and Internet business impacts financial performance. The theoretical and empirical literature regarding the effects of business strategies and Internet business adoption on financial performance was examined and presented.

Definition of Terms

Independent Variables

Internet Business Adoption

Theoretical definition. Zwass defined Internet business adoption as "the establishment of a company website to share information, maintain relationships and conduct transformations using electronic networks" (as cited in Parnet & Gemino, 2004, p. 148). Internet business adoption is "the use of electronic networks and associated technologies to enable, improve, enhance, transform or invent a business process or business system to create superior value for current or potential customers" (Sawheny & Zabin, 2001, p. 15).

Operational definition. In this study, the Internet business adoption factor was focused on three levels of Internet adoption: 1) prospecting, 2) business integration, and 3) business transformation. Levels of Internet adoption were measured using three paragraphs description of Internet adoption level known as the *paragraph approach* (Appendix B). These three paragraph descriptions were based on Teo and Pian's (2003) measurement of the level of Internet business adoption.

Prospecting as a type of Internet adoption level. Prospecting was defined as the level a company limits use of the Internet (Teo & Pian, 2003). This was measured by using one paragraph of the *paragraph approach* (Appendix B).

Business integration as a type of Internet adoption level. This level was defined as a company's "business integration and takes into account the integration of business processes marked by the incorporation of the Internet into the business model" (Teo & Pian, 2003, p. 81). This was measured by using one paragraph of the *paragraph*

approach (Appendix B).

Business transformation as a type of Internet adoption level. Business transformation level was defined as a company's aim to "transform the business and represents the highest level of Internet adoption" (Teo & Pian, 2003, p. 81). This was measured by using one paragraph of the *paragraph approach* (Appendix B).

Business Strategies

Theoretical definition. Croteau and Bergeron (2001) defined business strategy as "the outcome of decisions made to guide an organization with respect to the environment, structure and processes that influence its organizational performance" (p. 78). Business strategy, which includes a detailed plan, is the path a company chooses to achieve long-term goals (Formisano, 2003).

Operational definition. The business strategy factor was focused on two types of competitive strategies: 1) cost leadership and 2) differentiation. Types of competitive strategies were measured by using two paragraphs of the strategic type of *paragraph approach* (Appendix B). These two paragraph descriptions were based on Porter's (1980, 1985) definition of competitive strategy.

Cost leadership as a type of business strategy. Cost leadership strategy was defined as a company's targeting of large markets while becoming the low-cost producer in its industry. Successful cost leaders help suppliers and customers reduce their costs (Porter, 1985; Smith, 1990). This type of strategy was measured using one paragraph of the *paragraph approach* (Appendix B).

Differentiation as a type of business strategy. Differentiation strategy was defined as a firm's attempt to be unique in its industry. A firm's products, technology etc.

was perceived as different from prior studies as the objective was to secure higher profit margins by making customers less sensitive to price (Porter, 1985; Smith, 1990). This strategy was measured using one paragraph of the *paragraph approach* (Appendix B).

Dependent Variable

Financial Performance

Theoretical definition. Financial performance measures the economic success of a company (Freeman, 2004). Financial performance refers to economic objectives that are measured through various financial ratios.

Operational definition. Financial performance focused on four ratio components of the *DuPont financial analysis model* instrument: 1) profit margin (PM), 2) asset turnover (ATO), 3) return on assets (ROA), and 4) return on equity (ROE). These four ratios were computed using standard formula.

Profit margin (PM) as a type of financial performance. Net profit margin was measured as "the percentage of each sales dollar remaining available to the firm after all expenses (including taxes) have been deducted" (Brown, Fuller & Kirby, 1999, p. 60). The PM was represented by a ratio and computed using the standard formula: PM = net income/ sales.

Asset turnover (ATO) as a type of financial performance. Asset turnover indicates "the efficiency with which the firm uses all its assets" (Brown, Fuller & Kirby, 1999, p. 60). The ATO was represented by a ratio and computed using the standard formula: ATO = sales/ total assets.

Return on assets (ROA) as a type of financial performance. Return on assets assesses "management's effectiveness in producing profits with all the available assets"

(Brown, Fuller & Kirby, 1999, p. 60). The ROA was represented by a ratio and computed using the standard formula: ROA = [net profit margin] x [total asset turnover].

Return on equity (ROE) as a type of financial performance. Return on equity reflected "the return earned on the owner's investment in the firm" (Brown, Fuller & Kirby, 1999, p. 60). The ROE was represented by a ratio and computed using the standard formula: [net income/ total assets] x [total assets/total equity].

Justification for Research

This study addressed a firm's business strategy model in association with Internet business that can enable a firm to create better marketing opportunities and enhance financial performance. Its original contribution is the identification of the level of Internet business adoption associated with business strategies that positively impacted performance. The research was significant due to the contribution it made to the knowledge of business strategies (Porter, 1980), Internet business adoption (Teo & Pian, 2003), and performance (DuPont model). It is important for business organizations to use Internet business and competitive strategies to build sustainable competitive advantages, and hence enhance financial performance.

This study adopted both a theoretical and empirical perspective. The theoretical framework proposed was based on a modified Porter's (1980) generic strategy theory, Teo and Pian's (2003) Internet business adoption model, and the DuPont financial analysis model (Ellinger, 2005). The study was feasible because the research methods (time, cost, and facility) could be adopted, could be implemented within a reasonable amount of time, contained measurable concepts, and included reasonable costs. The investigator developed a conceptual model to test the effects of strategic types and

Internet business adoption levels on financial performance of business organizations. It was researchable because it asked a research question using variables that could be measured and used it statistical analysis to test the hypotheses and the model. This study was implemented in a reasonable amount of time and the research conceptual framework could be measured. Finally, the human right subjects were protected.

Delimitations and Scope of the Research

1. The geographic area was limited to the United States.
2. The study only used companies listed in Hoover's online United States records in 2005.
3. All of accessible population was used to obtain a larger sample size from the target population. Companies were selected using their three-digit standard industrial classification (SIC) codes and were limited to those with annual sales between $50 and $200 million.
4. On companies that had on Internet business and employed a competitive strategy were used. The research only focused on the specific concepts of Internet business adoption, business strategies, and financial performance.
5. Secondary data analysis was used. An outside researcher audit was employed to analyze the primary data.

The research investigated the relationships among the levels of Internet business adoption, the types of business strategies, and financial performance indicators. Chapter I introduced the study and justified it as significant, researchable, and feasible. Chapter II presents a literature review, the theoretical framework, the research questions and the hypotheses identified for this study of the relationships among Internet business adoption,

competitive strategies, and financial performance.

Chapter III presents the research methodology that includes the research design, sampling plan and setting, data collection procedures, methods of data analysis, and evaluation of methodology. Chapter IV presents the results of the data collection and data analysis. Chapter V discusses the findings and interprets the statistical results. In addition, the limitations of the study and recommendations for future research are included.

CHAPTER II

LITERATURE REVIEW, THEORETICAL FRAMEWORK, RESEARCH QUESTION, AND HYPOTHESES

Review of Literature

The purpose of this literature review was to critically analyze the current literature on competitive strategies, Internet business adoption and financial performance. The review also examined the theoretical and empirical literature regarding the effect of Internet business adoption levels and business strategic types on the financial performance of business organization.

The Internet is an effective method for firms to prepare their entry into global business and an efficient method to help firms conduct global business. The Internet itself is not a competitive advantage, but when used with other business strategies, a sustainable competitive advantage may be achieved (Apigian, 2003).

This chapter reviewed, analyzed and synthesized the literature on strategic typology, competitive advantage, factors and levels of Internet business adoption, financial performance, the effects of competitive strategies on performance, and the effects of Internet business adoption on performance. Different types of business strategy achieve optimal performance in different situations. A mature adoption of Internet business refers to the levels of Internet business adoption that would be presented as different activities affecting performance (Teo & Pian, 2003).

Internet Business Adoption and Business Strategy

The Internet

The Internet is a technology that enables the transmission of multimedia digital

information (Apigian, 2003). The Internet includes e-business, e-commerce, and the Web, in addition to Internet technology, such as electronic mail, wireless technology, peer-to-peer networks, file transfer protocol (FTP), XML technology, and other devices used to deliver information or data (Apigian, 2003). Since the Internet has no territorial boundaries, businesses are able to transmit information by a computer network from place-to-place (Gordon, 2000). The Internet was originally introduced as the World Wide Web and enabled publication and retrieval of information (Marijke, 2004). The Internet provides five services: file transfer protocol (FTP) and Telnet, Electronic mail (e-mail), discussion lists (ListServs) and newsgroups (Usenet), Gopher, and World Wide Web (WWW) (Gordon, 2000). Two of these services, e-mail and WWW links, dominate the Internet. Internet Protocol address (IP-address) and the Domain Name system (DNS) are two of the WWW concepts (Gordon, 2000). No entity owns the Internet; it originated when the United States Department of Defense created ARPANET (Gordon, 2000).

The Internet began in 1957, when the first artificial satellite *Sputnik* was launched by the Union of Soviet Socialist Republics (Cronin, 1996). Inresponse, the United States established a leading position in technology to form the Advanced Research Projects Agency (ARPA) (Cronin, 1996). Lawrence G. Roberts published the first design paper on ARPANET (as cited in Cronin, 1996). On January 2, 1969, the ARPANET was commissioned by the Department of Defense (DoD) to do research into networking (Cronin, 1996), and the network became known as the ARPANET (Gordon, 2000).

The first Internet was a network between UCLA, UC Santa Barbara, Stanford University, and the University of Utah (Apigian, 2003). In 1978, the Computer Bulletin Board System (CBBS) was created and was used until 1991, when the World Wide Web

was invented (Apigian, 2003). As of July 28, 1997, more than 182 countries were connected to the Internet (Gordon, 2000). E-business or Internet commerce is still in its early development stage. Although the Internet has actually existed for more than 30 years, Internet commerce is, only about 10 years old (Apigian, 2003).

Internet Business Adoption

Duan (2000) stated that Internet commerce has become a huge business with the potential to benefit all types of products. Kidd (2001) reported that Internet business technologies help firms improve their knowledge of customer requirements and support customer service. Firms are using this new technology to enter new markets, increase market share, and change the rules of competition (Kidd, 2001). Porter (2001) asserts that the Internet economy provides buyer bargaining power, reduces barriers to entry, and reduces variable costs. Internet marketing service and customer support occur 365 days a year, 7 days a week, 24 hours a day. Silverstein (2002) identified the marketing benefits of the Internet that included expanding firms' markets and territories, developing global marketing partnerships, and providing worldwide customer service.

Wenna (2002) stated that Internet business means doing business electronically. Internet business has evolved from traditional business into electronic technology business (IBM, 2003a; Meckel, Walters, Greenwood & Baugh, 2004) and the use of Internet technology has transformed key business processes (IBM, 2003b). Marijke (2004) defined Internet business as the selling and buying of products on the Internet and the use of information and communication technology (ICT) in external and internal processes to describe external transaction and communication functions relating to flows of information between departments, subsidiaries, and branches. Boonchanya (2000)

defined Internet business as "a combination of electronic commerce, customer relationship management, supply chain management, business intelligence, knowledge management, and collaboration technologies" (p. 14).

Internet business is also known as electronic commerce (EC or e-commerce) or electronic business (e-business). Large businesses and multinationals are very often associated with electronic business (Marijke, 2004). Rogers (2003) indicated that larger organizations are more innovative. However, small and medium enterprises (SMEs) using the Internet have greater flexibility to provide customer service, improve the company image, and increase sales (Riquelme, 2002).

The use or adoption of Internet business is an innovative and revolutionary way to conduct commercial transactions (Marijke, 2004). Internet businesses use electronic networks, a company website, and associated technologies to maintain supplier and customer relationships, share information and conduct transformations to create superior value for current or potential customers (MacKay, Parnet & Gemino, 2004; Sawheny & Zabin, 2001). Marijke (2004) stated that Internet business adoption is about business processes supported with ICTs that create value.

Successful companies have adopted the Internet business model for their market. Marijke (2004) indicated that customer-focused motivation was the most important reason for a firm to adopt e-business. Internet business adoption can promote a firm's competitiveness and economic growth.

Marijke (2004) stated that many researchers conceptualize the e-business integration process as an innovation adoption process. Internet business is a radical innovative method to do business (Teng, 2000; Zhu & Kraemer, 2005). Some researchers

who studied Internet business adoption (for example, Jarrett, 2003; Teng, 2000; Marijke, 2004), used the theory of innovation adoption and diffusion framework for their studies.

Rogers (1962) introduced the seminal theory of Diffusion of Innovation. Rogers' *Diffusing of Innovation Theory* model is broadly used for diffusion of Internet adoption or E-business adoption. Rogers (2003) defined diffusion as "the process which an innovation is communicated through certain channels over time among the members of a social system" (p. 5) and innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (p. 12). Rogers (1962) stated that the *innovation-decision process* has five stages: 1) "knowledge of an innovation", 2) "persuasion to adopt", 3) "making a decision to adopt or reject", 4) 'implementation", and 5) "confirmation of decision to adopt" (p. 170).

Rogers' (1962) model defined five *perceived innovation characteristics* that fit the characteristics of Internet business (Rujinarong, 2000). Rogers (1962) identifies five attributes of innovations: 1) relative advantage- "the degree to which an innovation is perceived as better than the idea it supersedes" ; 2) compatibility- "the degree to which an innovation is perceived as consistent with existing values, past experiences, and the needs of potential adopters"; 3) complexity- "the degree to which an innovation is perceived as relatively difficult to understand and use"; 4) trialability- "the degree to which an innovation may be experimented with on a limited basis"; and 5) observability- "the degree to which the results of an innovation are visible to others" (p. 15-16). Compatibility, relative advantage, and complexity are the characteristics frequently tested related to e-business adoption (Marijke, 2004). Jarrett (2003) viewed Rogers' diffusion of innovation theory as having four steps: 1) beliefs of evaluation, 2) attitude toward

behavior, 3) behavioral intention, and 4) actual behavior.

Rogers (1962) outlined five adopter categories of innovativeness that are related to Internet business adopter categories: 1) innovator- characterized as the pioneers who are interested in new ideas, 2) early adopter- those with greater potential to adopt an innovation, 3) early majority- deliberates adopting new ideas before most others have done so, 4) late majority- is skeptical to adopt until most others have already done so, and 5) laggards- traditionally the last to adopt an innovation. The adopter category is "generally sought by change agents as a local missionary for speeding the diffusion process" (Prammanee, 2006, p. 2).

Marijke (2004) mentioned that previous research characterized e-business adoption from six aspects: 1) activity- the way a company is supported by ICT; 2) application- the use of certain applications e.g. e-mail, WWW, website, and electronic data interchange (EDI) etc.; 3) value creation- the value of using Internet-based applications; 4) intensity use- the number of times the Internet is used per day or the number of departments with an Intranet application; 5) first time use- when the Internet was adopted; and 6) stage of development- the stage or level of the development model.

Davis (1986) introduced the *Technology Acceptance Model* (TAM) that plays a central role in perceived innovation attributions, and was based on Ajzen and Fishbein (1975, 1980) *Theory of Reasoned Action* (TRA). TAM is an individual level adoption model used to explain computer usage behavior. The TRA model postulates that influences and attitudes "consecutively lead to intentions, then direct or make behaviors" (Park, Lee & Ahn, 2004, p. 8). The TAM and TRA models were tested in Internet business adoption related studies (Jarrett, 2003; Marijke, 2003). The ability of TRA and

TAM as tested by researchers (for example, Davis, Bagozzi & Washaw, 1992; Park, Lee & Ahn, 2004) explained and predicted user acceptance or rejection of computer-based technology (Jarrett, 2003).

Goode and Stevens (2000) analyzed the business characteristics of non-adopters and adopters of Internet technology and referred to six business characteristics of Internet adoption: business size, business age, business industry, information technology support, information technology budget, and information technology experience. Teng (2000) identified that various studies have listed the characteristics of e-business adoption as: 1) innovation, 2) organization leaders, 3) organization, 4) environment, 5) organizational context, 6) environmental context, and 7) technological context.

The factors of adoption influence early stages of Internet business adoption (MacKay, Parent & Gemino, 2004). Gatignon and Robertson (1989) cited four factors to explain adoption or rejection behavior for high technology innovation: the supply side competitive environment, the adopter industry environment, organization/task characteristics, and decision-maker information-processing characteristics.

Sohn and Wang (1998) divided the diffusion factors into two groups. The first were internal factors that included the existence of a champion, top management support, inclination toward new technology, cost incentive, and absorptive capacity. The second were external factors that included competitors' moves, institutional support, and customer pressure. An internal factor of diffusion predicted the level of adoption (Sohn & Wang, 1998). Sohn and Wang (1999) indicated that the four categories of adopters are non-adopters, those planning to adopt, limited users, and sophisticated users. Sohn and Wang (1998, 1999) categorized this as the level of adoption.

Teo and Pian (2003) stated that the maturity of Internet business adoption is the level of Internet adoption. Sohn and Wang (1998) found different levels of usage in the Internet market. Different levels of Internet adoption facilitated different kinds of business activities (Teo & Pian, 2003). The value of an Internet business depends on the level of Internet adoption (Teo & Pian, 2003).

A model of the *levels of Internet adoption* presented by Teo and Pian (2003) indicated five levels: level 0 – "e-mail adoption", level 1 – "Internet presence", level 2 – "prospecting", level 3 – "business integration", and level 4 – "business transformation" (p. 80-81). Teo and Pian defined each level as follows: a) e-mail adoption level - when the company dose not have a web site but an e-mail account, b) Internet presence level - when the company has made the adoption decision but still is in the process of implementation, c) the prospecting level - when the company has limited use of the Internet for business, d) business integration level - when that company's business integration takes into account business processes integration marked by the incorporation of the Internet into the business model, and e) business transformation level - when that company intends to transform the business and illustrate the highest level of Internet adoption.

Sohn and Wang (1998, 1999) classified the four levels of adoption in their study as non-adopter, made adoption decision, low-level implementation, and high-level implementation. Nambisan and Wang (1999) identified three levels of adoption of Web technology as information access (level 1) a firm with corporate web sites and intranets, work collaboration (level 2) a firm with a corporate intranet/ extranet, Internet-based EDI, and Internet telephony/video phony, and core business transaction (level 3) a firm

in e-commerce, Internet-based extended Enterprise Resource Planning (ERP).

Sohn and Wang (1998) indicated that a firm with higher levels of Internet adoption better financial opportunities. Zhu and Kraemer (2005) found that a higher degree of Internet business adoption created greater value and improved firm performance.

Grounded in the literature, the diffusion of innovation theory is broadly used in the early-adoption stage, including factors of adoption, decision of adoption or rejection, and characteristics of innovation (Dayton, 2004; Rujinarong, 2000; Teng, 2000). But the post-adoption stage was the basis used for linking to the *Resource-Based Theory* (also known as the resource-based view or RBV) for value creation (Barney, 1991; Zhu & Kraemer, 2005). E-business diffusion can thus be viewed as a multistage process beginning with adoption. The resource-based view (RBV) of E-business can be extended to usage and value creation (Zhu & Kraemer, 2005). The resource-based view of the firm refers to the value of Internet business and links firm performance to organizational Internet business resources and capabilities (Zhu & Kraemer, 2002).

The RBV explains the relationship between Internet business usage and value (Zhu & Kraemer, 2005) and success with adoption and the use of Internet business (Caldeira & Ward, 2003). RBV is used to examine the efficiency and competitive advantage for firm implementation of IT-based resources (Melville, Kraemer & Gurbaxzni, 2004). Resources include "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive and implement strategies that improve its efficiency and effectiveness" (Barney, 1991, p. 101). In the literature, resource-based theory for a prospective firm's

resources were be the "main driver of firm performance" (Ravichandran & Lertwongsatien, 2005, p. 240) and identified various resources (for example, Internet, IT technology) that "served as a potential source of competitive advantage" (Bharadwaj, 2000, p. 171). In a dynamic and competitive environment, a firm's resources (for example, Internet access, IT technology) can be predicted as its competitive advantage with resulting financial performance (Irwin & Hoffman, 1998; Zhung & McCulloug 2005). E-business technology resources can enhance Internet business and firm performance (Zhung, 2000; Zhung & Lederer, 2006).

Marijke (2004) conducted a study of e-business adoption. He used a non-experimental, causal comparative, quantitative design of 1,596 companies. Marijke's literature review compared and contrasted theories about diffusion of the innovation theory, TAM, and e-business adoption theory.

A non-probability sampling plan of nine industry sectors resulted in the self-selected, data producing sample of 614 participants; a response rate of 40%. A 5-points *Likert scale* was used to measure perceived opportunity characteristics, general firm characteristics, and specific firm characteristics, as independent variables, and value creation and e-business adoption as dependent variables. Reliability estimates for Cronbach's alpha for each construct was above 0.7 for internal consistency, and construct and criterion related validity was established. Data collection procedures were clearly described. The data was analyzed using regression analysis. Findings supported the hypothesis and Marijke's interpretations of these findings were that the firm characteristics model and IT sophistication were important determinants of e-business adoption, and business processes were supported by information technology. The

adoption of e-business could promote a firm's competitiveness and contribute to economic growth. The strengths of this study were in the hypotheses testing of propositions in the e-business adoption theory, the reliability and validity of the instrument used to measure the variables, which resulted in a high level of data quality and data analysis, and clearly defined procedures allowing replication. Limitations of the study were in the external validity; findings were limited to the time variables that were ignored in the survey. Marijke (2004) identified continued research to test the firm's characteristics in a different line of business as an area for future study.

Teo and Pian (2003) conducted a study on how contingency factors affected levels of Internet adoption that positively impact on competitive advantage. The researchers used a non-experimental, causal and comparative quantitative design of the "Singapore 1000" and "Small and Medium Enterprise (SME) 500" companies, published by the Data Processing (DP) Information Network 2000. Teo and Pian's (2003) literature compared and contrasted various theories of business technology strategies. Empirical studies of the creation of a competitive advantage were also examined. This examination resulted in Teo and Pian's (2003) testing the proposition of the level of Internet adoption and how Internet adoption affected the five competitive advantages-- differentiation, cost reduction, innovation, growth, and alliance of a competitive strategy.

A non-probability sampling plan of the firm's top executives resulted in a self-selected, data-producing sample of 159 firms with a response rate of 28.8%. Over 90% of the respondents held managerial positions. A 7 points *Likert Scale* was used to measure contingency variables. Data collection procedures were clearly described, except that there were no reports of an institutional review board (IRB).

Teo and Pian (2003) found that business technology strategy had a positive relationship to the level of Internet adoption, and Internet adoption had a positive impact on competitive advantage. This result led to the conclusion that the level of Internet adoption as a business strategy was a significant factor in gaining a competitive advantage and had implications for a firm's business strategy. However, Internet technology adoptions can "never be successful as a competitive advantage resource, if they do not support the right business strategies" (Teo & Pian, 2003, p. 89). The strengths of this study were in its hypotheses testing of the relationship between Internet adoption and competitive advantage, the reliability and validity of the *Likert Scale* measures of variables resulting in a high level of data quality and data analysis, and clearly defined procedures allowing replication. Limitations reported by Teo and Pian (2003) were that the survey was only sent to top management staff, that the survey only examined a subset of contingency factors, and that the study took place in Singapore. The researchers suggested that future studies: collect data from more than one respondent per firm; examine other contingency factors using a longitudinal study; examine the distribution of the level of Internet adoption; and examine the factors influencing Internet adoption.

Zhu and Kraemer (2005) assessed the "diffusion and consequence of e-business at the firm level" (p. 61). They used a non-experimental, causal comparative and quantitative design of 5,400 firms. Zhu and Kraemer examined theories of technology diffusion, innovation and the resource-based view. Empirical studies of e-business use and value were examined, leading to discovery about company spending on Internet-related technology, and the diffusion perception of lacking of e-business value (Zhu & Kraemer, 2005).

A non-probability sampling plan of firm's top executives resulted in a self-selected, data producing sample of 624 valid cases with a response rate of 13%. A 5 points *Likert scale* was used to measure technology context, organization context, environment context, e-business value, and e-business use. Reliability estimate for Cronbach's alpha for each construct was above 0.7 for internal consistency, and construct and criterion related validity was established. Data collection procedures were clearly described. One-way ANOVA and Kolmogorov-Smirnov test findings supported all hypotheses. Zhu and Kraemer's (2005) interpretation of these findings was that antecedents of e-business used are related to firm size, financial resources, international scope, technology competence, regulatory support, and competitive pressure. This result led to the conclusion that e-business values contribute by capabilities both of the back-end and front-end. The strengths of this study were its descriptive conceptual model of the study for audiences, resulting in a high level of data quality and data analysis, and clearly defined and replicable procedures. The limitation of this study was that data responses were provided by firm managers. A recommendation for future study was to expand the research into other industries.

Business Strategy

Porter (1996) stated that strategy involves different sets of activities to create a valuable position. Strategies are designed to achieve a firm's long-term goals and objectives. Therefore, strategy is about the decisions and actions that contribute to the success of a business (Formisano, 2003).

Jouirou and Kalika (2004) classified business strategies into three categories: corporate strategy, business strategy, and functional strategy (see Figure 2-1).

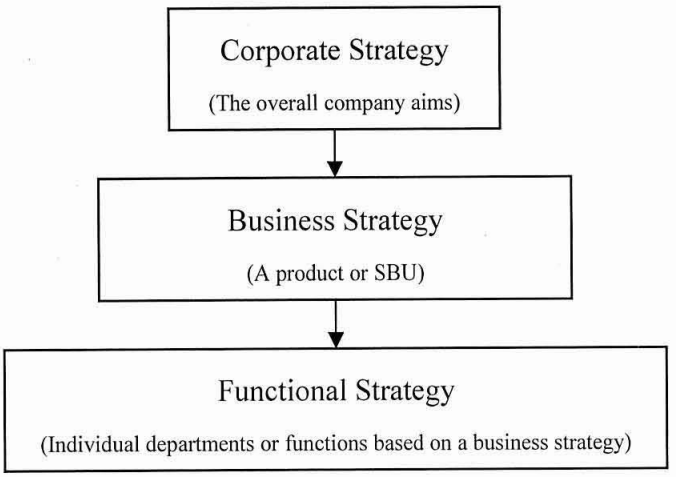

Figure 2-1. Levels of strategy.

Note. From "Internet strategy: An integrated complement to an organization's exiting business practices," by C. H. Apigian, 2003, *Dissertation Abstracts International,* (UMI No. 3085581), p.18. Copyright 2003 by C. H. Apigian. Used with permission of the author.

Corporate strategy is defined as the relationship among business units that deal with policies and plans for the aims of the company (Apigian, 2003; Jouirou & Kalika, 2004). Business strategy is "the way in which a single business firm or an individual business unit of a larger firm competes within a particular industry" (Apigian, 2003, p. 18). Croteau and Bergeron (2001) defined business strategy as "the outcome of decisions made to guide an organization with respect to the environment, structure and processes that influence its organizational performance" (p. 78). Business strategy is the path a company chooses and includes a detailed plan for achieving long-term goals (Formisano, 2003). A business strategy is used for strategic business units (SBUs), which are organizational units (Narver & Slater, 1990). Functional strategy applies to a company's

departments or functional areas, which may include marketing, operations, human resources, finance, engineering, research and development, distribution channel, and supply chain that will support the firm's competitive strategy (Apigian, 2003).

Miles and Snow's (1978) strategic typology is widely accepted, as are Porter's (1980) three generic competitive strategies. Miles and Snow (1978) introduced their seminal theory of strategic typology based on the qualitative, phenomenological studies of four strategic types of originations: *Defenders, Analyzers, Prospectors* and *Reactors*. The major propositions are theories of management and other areas of business (Miles, Snow, Meyer & Coleman, 1978). Miles and Snow (1978) developed the strategic typology as a useful theoretical framework for analyzing organizations' marketing strategies and how they interacted with their environment (McDaniel & Kolari, 1987).

Miles and Snow's (1978) classified four strategic types of originations. First, defenders seek to protect their position in a narrow segment of the total potential market by producing only a stable set of products to create a stable domain, and do not look outside their domains for new opportunities. Second, prospectors explore new product and market opportunities to change the industry (Miles & Snow, 1978). Third, analyzers combine the strengths of the Defenders and Prospectors to minimize risk while maximizing profit. Fourth, reactors lack a consistent or stable strategy and only respond when faced with a changing environment.

Porter (1980) introduced his seminal theory of generic competitive strategy based on his qualitative, phenomenological studies about business strategy. Businesses seek strategies that will make them successful. Porter's (1985) theory of successful business strategies involves three elements that create a competitive advantage: (a) *cost leadership*,

(b) *differentiation*, and (c) *focus*. Conley (2000) calls Porter's three basic generic strategies- cost leadership, differentiation or focus - the keys to a company obtaining a competitive advantage in its industry.

Cost leadership strategy involves a company targeting a large market while becoming the low-cost producer in its industry. Successful cost leaders provide opportunities for suppliers and customers to reduce their costs and prices (Porter, 1985; Smith, 1990).

Differentiation strategy occurs when a firm seeks being unique and different in its market. A firm's products are perceived as different from its competitors' products. As a result, the differentiator's aim is to secure higher profit margins by making customers less sensitive to price (Porter, 1985; Smith, 1990).

Focus strategy creates a specialized focus on a particular market segment. Dess and Davis (1984) defined a focus strategy when the firm "concentrates on a particular group of customers, geographic markets, or product line segments" (p. 465). Differentiation focus and cost leadership focus are the two types of focus strategy that involve concentrating on a particular geographic market, buyer, or product line (Apigian, 2003; Porter, 1985).

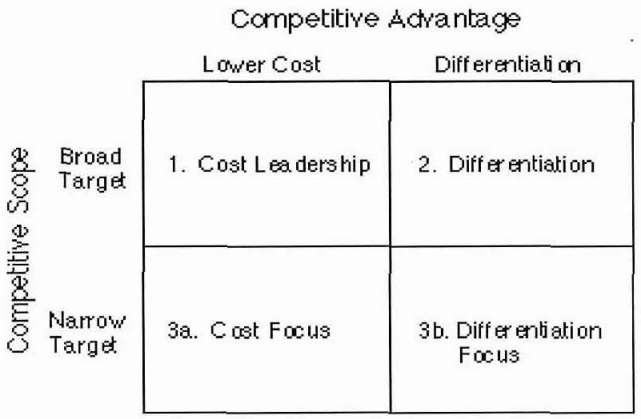

Figure 2-2. Porter's generic competitive strategies.

Note. From Competitive Advantage: Creating and Sustaining Superior Performance (p. 12), by M. E. Porter, 1985, New York: Free Press. Copyright 1985 by Free Press. Used with permission of the author.

In recent years, many researchers (for example, Homburg, Krohmer & Workman, 1999; Obilade, 2002; Slater & Olson, 2001; Zott & Amit, 2004) who studied Porter's three generic competitive strategies condensed the three into cost leadership and differentiation strategies eliminating focus strategy. Cost leadership and differentiation strategy are most likely to be pursued by business organizations (Homburg, Krohmer & Workman, 1999; Slater & Olson, 2000).

Managers select a business strategy position that will most likely distinguish their companies from their competitors (Wilson, 2002). Porter (2001) listed the six principles of a company's strategic positioning: First, "it must start with the right goal: superior long-term return on investment"; second, "a company's strategy must enable it to deliver a value proposition, or a set of benefits from those that competitors offer"; third, "strategy needs to be reflected in a distinctive value chain"; fourth, "robust strategies involve trade-offs; fifth, "strategy defines how all the elements of what a company does fit together"; finally, "strategy involves continuity of direction" (p. 71).

Business strategies include several foundational strategies, such as, marketing strategies. Marketing strategies are a set of decisions by which a business seeks to reach its marketing objectives and connect to the value required by its customers that supports the business purpose (Slater & Olson, 2001). Marketing strategies are concerned with a demonstrated relationship to target market segments and purposes. This leads to a positioning strategy based on an appropriate marketing mix (Slater & Olson, 2001).

McCarthy (1960) introduced his classification of marketing activities based on his qualitative, phenomenological studies of marketing. McCarthy (1960) introduced the marketing mix, or the 4Ps classification, of *product*, *price*, *promotion* and *place* strategies. Product strategy relates to the firm's product or service, including brand, packaging, appearance, quality, functionality, warranty, service, and support. Price strategy relates to competing on price, such as list price, financing, leasing options, allowances, and discounts. Promotion strategy consists of marketing communications, such as advertising, professional selling, direct sales, sale promotion, and public relations. Place strategy means having sales at the right place, such as location, Internet (virtual location), service level, channel member and motivation, logistics, and market coverage (McCarthy, 1960).

Business strategies also include financial strategies. A financial strategy is the result of the firm's financing, and dividend decisions (Slater & Zwirlein, 1996). Modigliani and Miller (1958) (MM) introduced their theory of capital structure of financial strategy. Modigliani and Miller assumed that switching between debt and equity of financing has no material impact on the cost or availability of capital or on the value of the firm (as cited in Myers, 2001). MM theory concluded that a firm's overall cost of capital and its value, is independent of its capital structure (Moyer, McGuigan & Kretlow,

2006). Capital structure is the common stock, preferred stock, and long term debt used to finance a firm (Moyer, McGuigan & Kretlow, 2006). Modigliani and Miller's logic is accepted in the field of finance (as cited in Myers, 2001). MM's theory also clarified the capital structure concept (Brounen & Eichholtz, 2001).

Dess and Davis (1984) studied Porter's generic strategies to support the presence of strategic groups. Dess and Davis used a non-experimental, causal comparative, quantitative design, using the 4-digit Standard Industrial Classification (SIC) code for firms. Dess and Davis's literature review was thorough, comparing and contrasting theories about generic strategies.

A non-probability sampling plan resulted in the self-selected, data producing sample of 78 with a response rate of 79%. A questionnaire was used to measure a set of variables and data collection procedures were clearly described. Dess and Davis (1984) presented a three-stage study. Phase 1 examined the relationship between Porter's generic strategies and a firm's "intended or espoused" strategy (Mintzberg, 1978). Phase 2 consisted of a panel of experts that assessed the importance of generic strategy along with intended strategy. Phase 3 clustered the firms into groups with a similar strategic orientation based on the perception of chief executive officers. Dess and Davis found that performance was related to strategic group membership. This finding led to the conclusion that a strategic group reflected unique strategic and performances orientations which had implications for practice in the identified firm's strategy position. Strengths of the study reported by Dess and Davis were that the importance of performance was impacted by strategic orientation. They suggested that future study: establish the similarities that exist among the strategic typologies to classify firms.

Using the Miles and Snow strategic typology, McDaniel and Kolari (1987) conducted a study of marketing strategy. They used a non-experimental, causal comparative, quantitative design of 1,000 U. S. banks. McDaniel and Kolari's literature review was thorough, comparing and contrasting theories about Miles and Snow's strategic typology. Empirical studies of four strategic types of organizations were examined which led to identifying a major gap and conflict in the literature about strategic types as significant determinants of consumers' behavior. This finding resulted in McDaniel and Kolari's testing the proposition that four strategic types of organizations interacted with their market environment as developed by Miles and Snow (1978). A non-probability sampling plan resulted in the self-selected, data producing sample of 310, a response rate of 31 percent. The *Measure of Strategic Type* questionnaire was used to measure (1) investigator inference, (2) self-typing, external assessment, and (3) objective indictors. Data collection procedures were clearly described. McDaniel and Kolari's (1987) interpretation of findings were that in the banking environment "prospectors and analyzers tend to view each of the four strategies more positively than do defenders" (p. 27). McDaniel and Kolari's conclusion was that strategic typology is a useful tool for organizations to understand the type of strategies in the area of marketing strategy. The strength of the study was a well organized literature review. There were no limitations to the study or implications for future research presented in this article.

Slater and Olson (2000) studied strategy types (cost leadership and differentiation) and performance. Slater and Olson used a non-experimental, causal comparative, quantitative design of 1,000 companies. Slater and Olson's literature review was thorough and current, and compared and contrasted the theories of Miles and Snow's

strategic typologies and Porter's generic competitive strategies. Empirical studies of the relationships between sales force management and performance for each strategic typology was examined.

A non-probability sampling plan resulted in the self-selected, data producing sample of 278, a response rate of 28%. The *strategy type and performance* questionnaire was used to measure performance, two strategy types, selling strategy, internalization of selling activities, compensation, and market turbulence. Data collection procedures were clearly described. Slater and Olson found that different strategic typologies influence sales force management. This finding led to the conclusion that business strategy contributes to marketing. The strength of the study is the matching of marketing practice to business strategy. This study did not identify any limitations or provide recommendations for future research.

Business Strategy and the Internet

Managers need to use the Internet to support their business strategy (Porter, 2001). A firm cannot be successful without strategic support of certain technology capabilities (Lynch, 1998), such as Internet business capabilities (Tallon & Kraemer, 2005). Firms can use Internet technology to enhance a core competency, business strategy and competitive advantage (Evan & Smith, 2004). Internet business can offer firms a considerable advantage over their competitors (Teng, 2000).

Thomas (2005) stated that the best business strategies use Internet technology to overcome the traditional aspect of the business. For example, information technology affects business strategy in three areas: 1) internal strategy, 2) competitive strategy, and 3) business portfolio strategy (Bakos & Treacy, 1986). Internet companies need to create

greater economic value, not imitate rivals (Porter, 2001). Value adding and cost-reducing are two elements of an Internet strategy approach that improves customer stratification (Duan, 2000). The Internet facilitates cost and price advantages that help companies operate efficiently; that is, to do better than a competitor does, and to achieve strategic positions that "deliver a unique type of value" to its customers (Porter, 2001, p. 70).

In the last 40 years, McCarthy's 4Ps classification (product, price, place, promotion) has been adapted by most marketers, and only McCarthy's classification has survived the many classification systems that have been proposed over the years (MacElroy, 2002). MacElroy asserts that the 4Ps classification can be enhanced in the new economy. The 4Ps is socially significant issues regarding strategy in the marketing practice. Thus, it is a comprehensive guide to the new economy. MacElroy (2002) concluded that the Internet promises a reduction in time spent on marketing and offers a useful means of conducting marketing research and implementation, policy implementation, and product development research, pricing, and promotion.

Wilson (2002) elaborated upon McCarthy's 4Ps marketing mix classification for achieving a competitive advantage. This model has been adapted to Internet marketing (Wilson, 2002). Specifically, Wilson asserts that Internet product strategy enables customers to get the information easily on a company's products and services. With an Internet price strategy, customers can compare prices between different products or services across suppliers. With respect to Internet promotion strategies, companies can offer promotions through their Websites. Finally, the Internet can be a distribution channel for a company's supply chain (Wilson, 2002). Wilson (2002) concludes that companies need to integrate the 4Ps into the Internet economy to create profitability.

Allen and Fjermestad (2001) analyzed Nabisco Corporation, which used an Internet strategy framework to integrate its corporate strategy of total brand value into the grocery industry. Company managers integrated the traditional 4Ps classification into an online strategic framework. Allen and Fjermestad (2001) stated that online grocers will be a great retail force in the industry. Their conclusion was that Nabisco should continue its online marketing strategy.

Fernandez and Nieto (2005) studied the Internet to establish it as a useful tool for supporting business strategies. The researchers used a non-experimental, causal comparative, quantitative design study of 176 companies. Fernandez and Nieto's (2005) literature review was thorough and current in comparing and contrasting theories about Internet usage and different strategies, organization changes, inter-organizational relationships and the value chain reconfiguration. Empirical studies of positive relationships between product differentiation and the use of the Internet were examined and resulted in Fernandez and Nieto's study that tested the proposition of Porter's (2001) value chain.

A non-probability sampling plan of 176 companies resulted in a self-selected, data-producing sample of 88 companies for the treatment sample and 88 for the matched control sample from the survey of business strategies (SBS). A firm panel data bank was extracted from the Spanish Ministry of Science and Technology. SBS offered valuable information about companies' characteristics. The study was used to measure four independent variables: differentiation strategy, organizational changes, value chain reconfiguration, and inter-organizational relationships. Using t-tests to analyze the results, findings supported the hypotheses. Fernandez and Nieto's (2005) conclusions were that

the Internet modified a firm's boundaries, significantly reducing transactions costs, and presenting opportunities for differentiation strategy. The strength of this study was its sampling design. There were no limitations reported. The researchers recommended that future studies improve the amount and quality of the information available.

Apigian (2003) conducted a different study of Internet strategies, using a non-experimental, causal comparative, quantitative design of 257 IT professionals, with a response rate of 4.8%. Apigian's literature review was thorough and current in comparing and contrasting the theories of Internet strategy. Empirical studies of Internet use in business suggested that the Internet can enhance a company's strategic position and competitive advantage. Apigian's study tested the proposition of Porter's (1980) competitive strategy theory.

The initial corrected item-total correlation (CITC) and Cronbach's alpha were used to assess each item and each dimension and construct. An ANOVA test was used to compare means, and a Spearman's Rho correlation coefficient was calculated. The Kaiser-Meyer-Olkin (KMO) was used to perform statistical analysis. Reliability estimates for all alpha scores were above 0.98 and KMO values were above 0.86 for internal consistency, and construct and criterion-related validity were established. Data collection procedures were clearly described. Apigian's interpretation found a significant relationship between an integrated Internet strategy and performance.

Apigian (2003) concluded that the best business practice was for a company to first determine its business strategy and then develop an Internet strategy that increased revenues, reduced time and costs, and enhanced business relationships. The strengths of this study were its hypotheses testing of propositions in competitive strategy theory and

the reliability and the validity of Kaiser-Meyer-Olkin (KMO) measures of variables, resulting in a high level of data quality, data analysis, and clearly defined procedures allowing replication. Apigian (2003) stated that future researchers should study the use of the Internet for data collection.

Auger, Barnir and Gallaugher (2003) studied firms that use the Internet to support their strategy. The researchers used a non-experimental, causal comparative, quantitative design of firms from the magazine publishing industry. The Auger et al. (2003) literature review was thorough and current and compared and contrasted theories about strategic orientation, competition, and Internet based electronic commerce (IBEC). The purpose of this study was to investigate the relationships between strategic orientation and IBEC, and the use of the electronic commerce to assist firms in creating a competitive advantage. This research resulted in their study testing the proposition of IBEC to provide firms with innovative tools to establish their market positions.

A non-probability sampling plan resulted in the self-selected data-producing sample of 980 magazine publishers, with a response rate of 15.3%. The companies' Internet-based business activities (IBEC) were used to measure business activities, services, sources of revenues, and use of the Internet (IBEC) including seven control variables that were examined in the research. These variables are the questionnaire, nature of the business, geographical coverage, the circulation of the magazine, the number of periodicals published by the magazine, frequency of publication, and magazine type (Auger et al., 2003).

Reliability estimates were 0.87 for internal consistency, and construct and criterion-related validity were established. Data collection procedures were clearly

described, except there were no reports of an IRB. The study found a positive relationship between technology policy and Internet-based electronic commerce.

Auger et al.'s (2003) interpretation was that an entrepreneurial orientation (EO) and technology policy (TP) had a highly positive relationship to the use of IBEC. This research led to the conclusion that IBEC can create new opportunities and implications for practice with respect to market selection, market scanning, and market entry timing. Strengths of the study reported by Auger et al. (2003) were in hypothesis testing of propositions concerning the relationship between IBEC and strategic success under different industry conditions, a high level of data quality, data analysis, and clearly defined procedures allowing replication. A limitation reported by Auger et al. (2003) was the newness of electronic commerce as a research area. The researchers suggested that future studies investigate the relationship between IBEC and strategy and study the factors enhancing IBEC's effectiveness.

Competitive Advantage

A company's sustainable competitive advantage is a key for its long term success and improves the company's performance (Porter, 1985). Competitive advantage improves firm performance (Evans & Smith, 2004). A company that introduces new abilities and innovations before its competitors has a competitive advantage in the marketplace, at least until its competitors acquire the same abilities (Porter, 1985).

Porter (1985) indicated that competitive sustainability was certain when the challenger was going to close the market share gap before the leader could respond. The sustainable competitive advantage was achieved by the firm's capabilities to make defensible niches (Veliyath & Fitzgerald, 2000). Strategic positioning companies select

and implement strategies that can ensure a sustainable competitive advantage (Schermerhorn, Cattaneo & Templer, 1995).

Of the businesses that use the Internet routinely, many gain traditional competitive advantages (Porter, 2001). The use of Internet business can create economic value and determine a company's sustainable competitive advantage (Porter, 2001). Slater and Olson (2001) indicated that business strategy is concerned with achieving competitive advantage. Bartlett and Ghodhsl (2002) stated that strategy is a resource that allows a firm to build competitive advantage.

Porter (2001) asserted that businesses need to develop strategies using the Internet to obtain a sustainable competitive advantage. Porter (1998) indicated that business strategies using the Internet become the source of sustainable competitive advantage. Evan and Smith (2004) indicated that organizations that adopted an Internet-based competitive strategy proved the Internet to be innovative in sustainable ways.

Porter (2001) introduced a business strategy that used the Internet to enhance a company's ability to create competitive advantage. Porter stated that the Internet provides a better opportunity to establish strategic positioning for companies that makes strategy more essential than ever. This conceptualization identifies the Internet as a powerful tool to influence industry structure and enhance a company's sustainable competitive advantage. Porter's theory explained that industry structure and sustainable competitive advantage can be used to create economic value.

Porter (1985, 2001) indicated that the most important factor for strategy planning is how industry trends affect industry structure. Porter (1985, 2001) claimed that an industry consists of five competitive forces and a value chain. Porter introduced his

theory of *five competitive forces*, based on his qualitative, phenomenological studies on industry environment. This concept identified five constructs and competitive forces including "the entry of new competitors", "the threat of substitutes", "the bargaining power of buyers", "the bargaining power of suppliers", and "the rivalry among the existing competitors" (Porter, 2001, p. 67), see Figure 2-3. Over the years, the five forces model has been adapted to integrate technology into business strategy (Ghemawat, 2002).

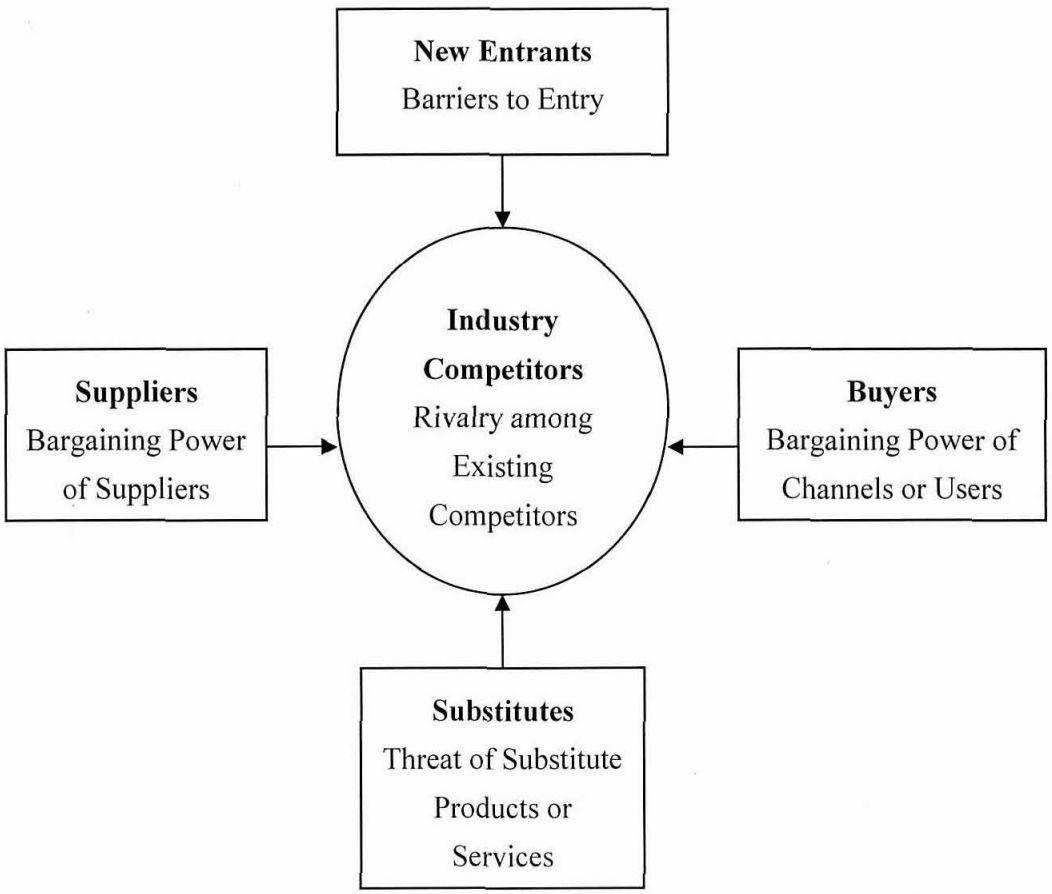

Figure 2-3. The five competitive forces model.

Note. From "How competitive forces shape strategy," by M. E. Porter, 1979, *Harvard Business Review*, *57*(2), p. 141. Copyright 1979 by Harvard Business Review. Used with permission of the author.

Porter (2001) proposed that five forces determined competitive advantage. The theory has been adapted to new (high technology) and old (traditional) organizational situations and populations. Porter (1985) stated that business strategy is embodied in the five competitive forces. Determining the five competitive forces in an industry may contribute to a company's success (Porter, 2001). Porter's five forces approach to understanding an industry environment has been supported by empirical research (Ghemawat, 2002; Karagiannopoulos, Georgopoulas & Nikolopoulos, 2005).

Value chain was used to identify competitive advantage by companies (Evans and Smith, 2004). The value chain is a framework for analyzing the effect of a company's "costs and the value delivered to buyers" (Porter, 2001, p. 74) and for understanding the influence of the Internet (Porter, 2001). Porter (2001) stated that the Internet is the "latest stage in the ongoing evolution of information technology" (p. 74) and will ultimately affect the value chain.

Use of the *value chain* framework's five stages are a) firm infrastructure; b) human resource management; c) technology development; d) procurement; and e) primary activities - inbound logistics, operations, outbound logistics, marketing and sales, and after sales service (Porter, 2001), see Figure 2-4. The value chain with the three generic strategies of a) low cost, b) differentiation, and c) focus (Porter, 1985) can create a sustainable competitive advantage.

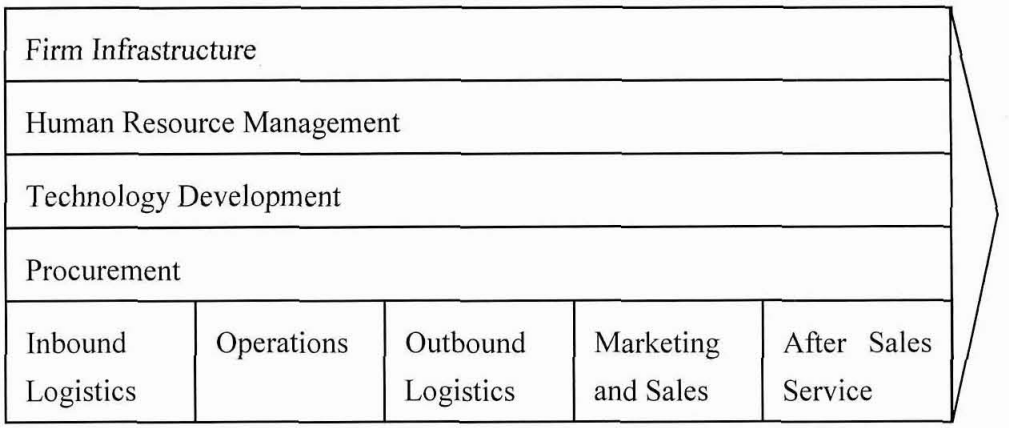

Figure 2-4. Prominent application of the Internet in the value chain.

Note. From "Strategy and the Internet," by M.E. Porter, 2001, *Harvard Business Review*, *79*(3), p. 75. Copyright 2003 by Harvard Business School Publishing. Used with permission of the author.

According to Porter (2001), there were five stages in the evolution of information technology. The first stage was the earliest Internet Technology systems automate transactions such as order entry and counting (Porter, 2001). The second stage involved functional achievement of individual activities such as sales force operations, human resource management, and product design (Porter, 2001). The third stage involved the implementation of cross-activity, such as joint sales activities with other processing (Porter, 2001). The fourth stage was the implementation of the value chain and entire value system in an entire industry, including those of tiers of channels, suppliers, and customers (Porter, 2001). The fifth stage, information technology, connected these activities in the value system and in real time (Porter, 2001).

Table 2-1

Porter's Business Theories

Porter's Theories	**Year**
Value Chain	1985, 2001
Generic Competitive Strategies	1980
Five Forces	1980
Competitive Advantages	1985

Shin's (2001) theoretical study identified Porter's five competitive forces' model and the marketing mix 4Ps classification scheme as having a significant impact on Internet marketing. The study used Porter's five competitive forces classification scheme and the 4Ps model to identify companies' Internet business and strategies that contribute to their increasing profitability and competitive advantage.

Shin's (2001) research posed two questions: 1) what impact does the Internet have on Porter's five competitive forces model and the marketing mix 4Ps classification scheme? and 2) what strategies can be derived from the 4Ps marketing mix that will affect the five competitive forces and thereby bring a competitive advantage to e-businesses? The study argued that companies require unique strategies to gain competitive advantage. Shin (2001) concluded that Internet strategies increased companies' profits and customer purchasing power while lowering customers' search costs and potential competitor's entry barriers. Thus, the five forces model combined with the 4Ps classification scheme brings competitive advantage to the market (Shin, 2001).

Riquelme (2002) conducted a study on firms' competitive advantage in small and medium size Chinese enterprises. The researcher used a non-experimental, causal

comparative, quantitative design to study 378 Chinese SME companies. Riquelme's literature review was thorough and current in comparing and contrasting theories about significant and different benefits between large and small companies. Empirical study of firms' building information technology to contribute to business was examined, leading to the gap and conflict in the literature about the competitiveness of SMEs in this market.

A non-probability sampling plan resulted in the self-selected, data-producing sample of 378 companies that were identified, but only 248 completed the questionnaire, a response rate of 66%. The *t-test* was used to measure an Internet connection to increase the customer base and gain competitive advantage. Data collection procedures were clearly described. Findings supported the hypotheses indicating the different benefits between large and small companies with business strategies and the Internet connection can be a critical source of competitive advantage. Riquelme (2003) stated that the Internet brought many benefits including increased sales and cost savings. This finding led to the conclusion that the Internet itself has no role in gaining competitive advantage; the Internet should be aligned with existing business strategies to achieve competitive advantage and differing practices in the SMEs. Strengths of the study were clear analysis and a discussion of the results and how they related to each other. Weaknesses of the study were not mentioned.

Performance

Performance is an outcome of business processes in an organization and indicates company success (Zhang & McCullough, 2005). A firm's performance is an important component for strategic business management, and it is of interest to both managers and scholars (Dess & Robinson, 1984; Yamin, Gunasekaran & Mavondo, 1999). The linkage

between Internet business and performance or business strategy and performance was studied by Jouirou and Kalika (2004), Teo and Pian (2003), Zhu and Kraemer (2005), and others.

Strategy and Performance

An appropriate and well-planned strategy should lead to a firm's success (Chan, 1992; Lynch, 1998). A number of researchers (for example, Dess & Davis, 1984; Homburg, Hoyer & Fassnacht, 2002; Lenz, 1980; Miller, 1987; Segev, 1987; Sharma, 2004; White, 1986; Willis, 2001) have conducted studies on the relationship of strategy and performance. Croteau and Bergeron (2001) indicated that the dimensions of business strategy are positively associated with successful performance. Strategy and distinctive competence are highly related to organizational performance, and researchers have found a positive relationship between them (Robinson & Pearce, 1988; Snow & Hrebiniak, 1980).

Homburg, Hoyer and Fassnacht (2002) reported that the higher the service orientation of the business strategy, the better the performance of the company in the market. Beard and Dess's (1981) study found that a firm's profitability was significantly affected by corporate- or business-level strategy. Venkatraman's (1989) conceptual model identified strategic orientation of business enterprises (STROE) or business strategies that directly impact sales growth and profitability. Doty's (1990) conceptual model found that business strategies impact performance. The study concluded with the dimensions used to determine constructs for strategies based on strategic clarity, futurity, product/market development, and focus on efficiency, scope, and environmental scanning.

Different business strategies required "different configurations of organization

practices to achieve optimal performance" (Slater & Olson, 2000, p. 813). Narver and Slater (1990) reported a valid measure of strategic business unit (SBU) that first analyzed its effects on profitability and then found a positive effect of the type of strategy on profitability. Miles and Snow's (1978) strategic typology has been used to evaluate the impact of business strategies on performance (Croteau & Bergeron, 2001). Conant, Mokwa and Varadarajan (1990) used Miles and Snow's (1978) strategic typology to analyze the relationship between strategic type and firm performance, and found that all of the strategies are equally effective in terms of profitability.

Parnell and Carraher (2001) stated that a firm applying Porter's strategy framework "can maximize performance", either by endeavoring "to be the low cost producer" or "by differentiating its line of products or services" (p. 3). Miller and Friesen (1986) examined Porter's generic strategies and performance to determine whether differentiation, cost leadership, and force type are displayed in a firm's growth and the return on investment. Homburg et al. (1999) stated a firm with a differentiation strategy increased its performance more positively than did a company with a low cost strategy in a dynamic market.

Lynch (1998) conducted a study on the role of capabilities in strategy and firm performance. He used a non-experimental, causal comparative, quantitative design with a sample population of 480. Lynch's literature review was thorough, comparing and contrasting current theories about the generic relationship among capabilities, business strategies and firm performance.

A non-probability sampling plan of firms' top executives resulted in a self-selected, data producing sample of 480 with a response rate of 18%. The *capabilities and*

strategy questionnaire was used to measure the performance capabilities, corporate strategy, logistics strategy, strategic types, business competencies, and corporate performance. Reliability estimates were from .83 to .95, using Cronbach's alpha for internal consistency, and construct and criterion related validity were established. Data collection procedures were clearly described. Lynch's (1998) interpretation of the findings was that the link between cost leadership strategy and firm performance was not significant, but the differentiation strategy had a significant link to performance. This research concluded that a firm's capabilities with an appropriate business strategy created superior firm performance and had implications for practice in business. Strengths of the study were a clear description of the research questions and a clear analysis of data. Limitations reported by Lynch were that only the retail grocery industry was studied and the respondents were at either the CEO/President or Vice President levels. He proposed an examination of strategies and performance relationships of other industries as an area for future study.

Zott and Amit (2004) explored the use of business strategies and business models that enhanced firm performance. The researchers used a non-experimental, causal comparative, quantitative design of Internet-related firms that had public stock offerings in Europe or the U.S. between 1996 and 2000. Zott and Amit's (2004) literature review was thorough and current and compared and contrasted theories about "the contingent effects of product market strategy and business model design on firm performance" (p. 2). They reviewed empirical studies of companies' product market strategies and the design of the firms' business models' to determine the effect on firm performance. The study tested the proposition of product market strategies - the strategy of differentiation, the

strategy of cost leadership, and the effect on performance of the timing of market entry (Zott & Amit, 2004).

A non-probability sampling plan resulted in the self-selected, data-producing random sample of 170 from a total population of 300 firms, with a response rate of 20%. Reliability estimates were a Cronbach's alpha (*a*) of 0.92 and a Pearson correlation coefficient (*r*) of 0.91 for internal consistency. Construct and criterion-related validity were established. Data collection procedures were clearly described, and the study was approved by the INSEAD-Wharton Alliance Center.

Using regression analysis, the researchers' findings supported the hypothesis. Zott and Amit's (2004) interpretation of these findings was that a business model using either differentiation or cost leadership strategies enhances firm performance. These findings led to the conclusion that product market strategy and business model design are important in affecting firm performance. Primary strengths of the study reported by Zott and Amit (2004) were its contributions toward product marketing strategy and the structure of the business model to enhance a firm's competitive advantage. Additional strengths of this study were in the hypothesis testing of propositions in business strategy theory, and the high reliability and validity measures of variables, the data analysis, and clearly defined procedures allowing replication. Zott and Amit (2004) suggested further investigation of the competition among various business models for a single industry.

Internet Adoption and Performance

A number of studies (for example, Croteau & Bergeron, 2001; Tallon & Kraemer, 2005; Wu, Mahajan, & Balasubramanian, 2003; Santhanam & Hartono, 2003; Zhu & Kramer, 2002) examined the effects of Internet adoption or IT related technology

adoption on organizational performance. Wu, Mahajan, and Balasubramanian (2003) indicated that e-business positively affects performance outcome. Zhu and Kramer's (2002) empirical analysis on Internet-enhanced organizations found a significant relationship between EC capability and performance. Some researchers found a positive relationship between information technology and firm performance (Zhang & McCullough, 2005; Zhu & Kramer, 2002). The successful use of IT enables competitive advantage and increases profitability and efficiency (Chen & Zhu, 2004; Croteau & Raymond, 2004; Dehning & Stratopoulos, 2002; Lim, 2006; Melville, Kraemer & Gurbaxzni, 2004; Raghunathan, Raghunathan & Tu, 1999; Schwager, Byrd & Turner, 2000; Tallon & Kraemer, 2005).

The level of Internet adoption positively impacts firms' competitive advantage and performance (Teo & Pian, 2003). Higher levels of Internet business adoption and the capabilities of firms (for example, e-commerce) will enhance firm performance (Zhu & Kraemer, 2005). Zhu and Kraemer (2005) indicated traditional companies' need to adopt e-commerce capabilities to enhance organizational performance.

Zhu and Kramer (2002) conducted a study to assess the value of e-commerce on firm performance. They used a non-experimental, causal comparative, quantitative design of 260 companies from the Fortune 1000 list, and obtained a response rate of 26%. Zhu and Kramer's literature review was thorough in comparing and contrasting theories about dynamic capabilities and resource-based theory for firms. Zhu and Kraemer stated that the level of integration was greater in technology companies than in traditional companies. Empirical studies on the value of the Internet and e-commerce capabilities were examined, leading to a major gap and conflict in the literature about e-commerce

capabilities combined with IT infrastructure contributing to firm performance.

A non-probability sampling plan resulted in the self-selected, data sample of 260, with a response rate of 26%. Confirmatory factor analysis was used to measure independent variables - IT infrastructure metrics and e-commerce capabilities - with four levels of capabilities: 1) information, 2) transaction, 3) interaction and customization, and 4) supplier connection. Control variables were firm size and industry concentration; the dependent variable was firm performance metrics. Reliability estimates were 0.65-0.93 for internal consistency, and construct and criterion related validity were established. Data collection procedures were clearly described. Using regression and correlation analysis the findings supported the hypotheses of a significant relationship between EC capability and firm performance. Zhu and Kramer (2002) found that high EC capabilities and IT infrastructure led to differential performance, and there was a significant relationship between EC capabilities and firm performance. This study concluded that traditional companies needed to improve their EC capabilities and IT infrastructure in order to create more value for the firm. The strengths of this study were in its hypotheses testing of propositions for resource-based theory for net-enhanced organizations, the reliability and the validity of factor analysis measures of variables, the high level of data quality, data analysis, and the clearly defined procedures allowing future replication. Limitations and recommendations for future study were not reported in the study.

Tallon and Kraemer (2005) studied the effect of Internet Technology capabilities on firm performance. They used a non-experimental, causal comparative, quantitative design of IT executives from 1,600 small and medium-sized U.S. firms. Tallon and Kraemer's literature review compared and contrasted theories on how IT capabilities

enhanced a firm's business activities and performance.

A non-probability sampling plan resulted in the self-selected, data producing sample of 241 firms, with a response rate of 15%. A survey instrument was used to measure business strategies, IT capabilities and firm performance. The reliability estimates of Cronbach's alpha for each construct was above 0.7 for internal consistency, and construct and criterion related validity were established. Data collection procedures were clearly described. Tallon and Kraemer's interpretation was that IT strongly related to strategic alignment, and strategic alignment strongly relates to firm performance. The conclusions were a positive relationship between IT capabilities and firm performance and implications for practice in the IT field. Strengths of the study are its contributions to the aspects of IT and the resource-based view (RBV) of the firm. The limitation reported by Tallon and Kraemer was the focus on small and medium-size firms. A future study area suggested was the investigation in information systems conceptual work.

Wu, Mahajan, and Balasubramanian (2003) studied the impact of e-business adoption on business performance. They used a non-experimental, causal comparative, quantitative design of 1,021 U.S. technology firms. Their literature review was thorough in comparing and contrasting e-business adoption theories.

A non-probability sampling plan resulted in a self-selected, data producing sample of 144 firms, a response rate of 13.1%. A survey instrument was used to measure the antecedents of e-business adoption, the intensity of e-business adoption, and performance outcomes. Reliability estimates for each construct's Cronbach's alpha was over 0.7 for internal consistency, and construct and criterion related validity were established. Data collection procedures were clearly described. Using regression analysis,

the findings positively supported all hypotheses of e-business impact on performance. Wu, Mahajan, and Balasubramanian's interpretation of these findings is that a firm's e-business adoption positively affects performance outcomes. The conclusion was a firm's e-business adoption leads to improved performance. The strengths of this study were in the hypotheses testing of propositions in the e-business adoption model, the reliability and validity of factor analysis measures of intensity of e-business adoption and performance, a high level of data quality, and data analysis, and clearly defined procedures allowing replication. A limitation reported by Wu, Mahajan, and Balasubramanian (2003) was that most of the sampled SBUs had fewer than 1,000 employees. An area of was that researchers future study area is considered total assets in the context of e-business.

Internet, Strategy and Performance

Although most firms had less experience using Internet business to support a strategy in the 1990s and the strategic building of an Internet business model was not as widely implemented as had been anticipated, Internet business influence on company performance was significant (Lai & Wong, 2005). Lai and Wong (2005) suggested that the business strategic type (for example, Porter's generic strategy) has a significant effect on company performance. Competitive strategy also has a significant impact on the correlation between business performance and information technology adoption (Jahangir, Yash & Somers, 1996). Information technology's alignment with strategy can improve financial performance (Tallon & Kraemer, 2005). Jouirou and Kalika (2004) found that performance of an SME improved if information technology strategy was aligned with corporate strategy. Internet business strategy had not been widely implemented by the

companies, but it had a significant influence on performance (Lai & Wong, 2005). Kamssu, Reithel and Ziegelmayer (2003) indicated that choosing the Internet to implement business strategy had a significant effect on a firm's financial performance. An e-marketing strategy may impact performance at the firm level and the type of strategy (for example, Porter's competitive strategies) chosen by companies may lead to excellent performance (Lages & Portugal, 2004).

Saini and Johnson (2002) used the Miles and Snow (1978) typology to examine its effect on the performance of an Internet-enabled firm at two levels - the firm's web site performance and its e-commerce performance. Firm e-commerce performance was dependent on profitability, growth, and sales of its Internet adoption (Saini & Johnson, 2002).

Lages, Lages, and Rita (2004) introduced their concept of a strategy framework within the web context based on their qualitative, phenomenological studies of E-market strategy on performance. This theory identifies five factors: "a) internal forces, b) external forces, c) past web performance, d) current web and firm performance, and e) e-marketing strategy" (Lages, Lages, & Rita, 2004, p. 2) that were defined as the 4Ws "Web-Design, Web-Promotion, Web-Price, and Web-CRM" (customer relationship management) (Lages, Lages, & Rita, 2004, p. 2). The propositions of this model depended on the nature of internal and external factors and the relationship between performance levels in past and current years. Lages, Lages, and Rita (2004) claimed that the Internet was an important channel for companies to distribute products and services and provided great opportunities for market testing and optimization.

This model addressed essential issues of business strategy within the e-marketing

strategy and is a well-developed guide to e-marketing strategy. The model strikes a good balance between simplicity and complexity, contributing to its usefulness. The model has been adapted to e-marketing situations and manager populations (Lages, Lages, & Rita, 2004). This is the predominant concept used to examine how impact of e-marketing strategy on performance with well developed propositions (Lages, Lages, & Rita, 2004). The conclusion of this study was that the relationships between Performance to E-marketing effects and E-marketing to Performance effects should be considered. Lages, Lages, and Rita (2004) recommended that contingent forces effect on performance by e-market strategies become an area of future study.

Jouirou and Kalika (2004) studied the concept of the Strategic Alignment Model (SAM), which asserts that alignment of IT with business strategy and organizational structure enhanced performance of small and medium enterprises (SMEs). Such alignment improves production, reduces cost, strengthens the ability to innovate, and ensures customer satisfaction. The authors used a non-experimental, causal comparative, quantitative design of 381 SMEs. Jouirou and Kalika's literature review was thorough, current and compared and contrasted theories on business strategy and IT strategy.

A non-probability sampling plan resulted in the self-selected, data-producing sample of 381 SMEs. Respondent SMEs had between 50 and 500 employees. A 5 point scale *Likert scale* was used to measure corporate strategy, IT strategy, organizational structure and organizational performance. Descriptive analysis was obtained using SPSS software and AMOS 4.0 structural equation modeling software. Data collection procedures were clearly described, except that there were no reports of IRB approval.

Using chi-square to analyze the data, Findings supported the researchers'

hypothesis that IT was aligned with a firm's corporate strategy, organizational structure, and performance improvements. Jouirou and Kalika's (2004) interpretation of these findings were that IT strategy alignment with organizational structure improved firms' performance in the areas of production, cost reduction, innovation, and customer satisfaction. This led to the conclusion that SMEs perform best when IT strategy is aligned with business strategy and organizational structure. The strengths of this study were in hypotheses testing of propositions in strategic alignment theory, the reliability and validity of alignment and structure performance measures of variables, a high level of data quality and data analysis, and clearly defined procedures allowing for replication. The authors recommended future study: focus research on SMEs in only one sector.

Croteau and Bergeron (2001) studied business strategy, using Miles and Snow's Strategies Typology, information system and performance. They used a non-experimental, causal comparative, quantitative design of 1,949 Canadian firms listed in Dun and Bradstreet's. The authors' literature review was thorough and current, and compared and contrasted theories about the alignment of strategic information systems with business strategy that contributed directly to a firm's performance.

A non-probability sampling plan resulted in the self-selected data producing sample of 253 with a response rate of 11.4%. A 7 points *Likert-type scale* questionnaire was used to measure technological deployment, strategic activities, and organizational performance. Data collection procedures were clearly described. Croteau and Bergeron's interpretation of the findings was that information technology involved in prospector and defender strategic activities had no effect on organizational performance. This finding led to the conclusions that technological deployment did not directly enhance performance,

but prospector and analyzer strategic activities could enhance performance. Strengths of the study reported by Croteau and Bergeron (2001) included a well designed framework and clear results analysis. Limitations reported by Croteau and Bergeron were using the Miles and Snow's (1978) instrument and a closed-end questionnaire design.

Financial Performance Measurement

There is no universal recognition of how to measure performance (Yamin, Gunasekaran & Mavondo, 1999). This lack of consensus on the definition of performance makes for difficulties in measuring performance (Zhang & McCullough, 2005). Different researchers or stakeholders (employer, employee, customer, or shareholders) conceptualize performance in different ways and these results in a variety of measurements (Chan, Huff, Barclay & Copeland, 1997; Zhang & McCullough, 2005).

The conceptualization of performance measurement, according to Homburg, Hoyer and Fassnacht's (2002) research indicated that performance measurement is different for a non-financial company and a financial company. Homburg, Hoyer and Fassnacht (2002) stated that they differentiate as:

> Non-financial company performance is related to the effectiveness of an organization's marketing activities and includes variables, such as customer satisfaction, customer loyalty, customer benefit, and market share. Financial company performance essentially is related to profitability measures, including return on sales, return on investment, and return on assets. (p. 89)

Dess and Robinson (1984) stated that objective and subjective measurements are the two ways to measure performance. The objective measurement is based on financial data or results, and the subjective is based on organizational effectiveness (not the

financial data) (Snow & Hrebiniak, 1980; Yamin, Gunasekaran & Mavondo, 1999). Evaluation of performance is related to a firm's results as compared to expectations or goals (Jouirou & Kalika, 2004; Zhang & McCullough, 2005).

Tallon and Kraemer (2005) developed an objective way to evaluate organizational performance in their study to include the return on sales (ROS) or profit margin, the return on assets (ROA), and the relationship of operating income to assets (OI/A). Jouirou and Kalika (2004) developed a subjective way to evaluate organizational performance in their study: improved production, the ability to innovate, cost reduction, and customer satisfaction. Croteau and Bergeron (2001) conducted both objective and subjective measurement studies.

Sales volume, profitability and market share, and perceived satisfaction are involved to establish and measure performance (Chan, Huff, Barclay & Copeland, 1997). Sabherwal and Chan (2001) indicated eight items to measure performance that include: "1) reputation among major customer segments, 2) frequency of new product or service introduction, 3) return on investment, 4) net profits, 5) technological developments and /or other innovations in the business operations, 6) product or service segments, 7) market share gains, and 8) revenue growth," (p. 19).

Obilade (2002) stated that according to the current literature, measuring firm performance could be done by focusing on financial performance in the e-business environment. Financial performance measures the economic success of a company (Freeman, 2004). Various literature studies conducted financial performance measurements reflected by ratios, such as return on assets (ROA), return on investment (ROI), return on equity (ROE), and market share (Paulette, & Rajan, 1987; Yamin,

Gunasekaran & Mavondo, 1999).

Financial performance may also be an objective measurement technique that uses ratios. The objective technique measures various ratios, including leverage ratios, liquidity ratios, turnover ratios, valuation ratios and profitability ratios (Ross, Westerfield & Bradford, 2003). Liquidity ratios measure the ability of business firms to meet their near-term obligations (Ross, Westerfield & Bradford, 2003). One such liquidity ratio is leverage ratios that measure the ability of business firms to cover long-term debt obligations, including leverage multipliers (Ross, Westerfield & Bradford, 2003). Another such ratio is turnover ratios that measure the activity level of a firm in relation to the amount of resources used, for instance asset turnover (Ross, Westerfield & Bradford, 2003). Profitability ratios measure the profit of a firm in relation to the amount of resources used, such as profit margin, return on investment (ROI), return on equity (ROE) and return on assets (ROA) (Ross, Westerfield & Bradford, 2003). Finally, valuation ratios measure the market price of a firm in relation to assets or earnings (Ross, Westerfield & Bradford, 2003).

Companies commonly and widely accept "return on investment" as a method of business success measurement (Dess & Robinson, 1984). Lai and Wong (2005) indicated that "the web site online financial reports of all Growth Enterprise Market (GEM) companies in 2001 were evaluated for three financial performance indicators: Profit margin (PM), return on assets (ROA), and return on equity (ROE)" (p. 82). Higher performance (for example, marketing, operation) reflects higher profitability of the firm (Homburg, Hoyer & Fassnacht, 2002).

The DuPont financial analysis model is a powerful financial tool to analyze a

firm's profitability and efficiency (Milbourn & Haight, 2005). It uses a ratio analysis to evaluate a company's financial position, such as a firm's profitability and return on equity (Scott, Martin, Petty & Keown, 1998). The DuPont analysis is a method that is used to compare the relationship between the balance sheet and the income statement to indicate firm performance, including financial profitability and return (Milbourn & Haight, 2005). The DuPont financial analysis model was created by F. Donaldson Brown in 1914 (Blumenthal, 1998). The DuPont company began using the model to analyze firm financial performance in 1919 (Ellinger, 2005). The DuPont system is also referred to as the DuPont model, the DuPont equation, or the DuPont formula (Brown, Fuller & Kirby, 1999).

The DuPont analysis provides information on a firm's profitability, liquidity, leverage status, and efficiency, and discloses how well a firm is operating as a result of changes in one or more of these factors (Milbourn & Haight, 2005). The DuPont analysis provides a firm the means to understand the relationship of the balance sheet, income statement, and firm profitability and to illustrate how to use a firm's balance sheet and income statement and firm profitability to evaluate performance (Milbourn & Haight, 2005). In addition, the DuPont financial analysis model is useful for researchers, as well as mangers, to analyze firm profitability and firm efficiency (for example, Dehning & Stratopoulos, 2002; Eisemanann, 1997; Soliman, 2003).

DuPont analysis is "an approach to evaluate firm's profitability and return on equity" (Scott et al. 1998, p. 109). The ratio is based on measuring a firm's sales and total assets (Feng, Chen & Liou, 2005). The ratio indicates profit margin, sales volume, and leverage paths that can be used to gain or identify a return for a firm's owners (Eisemann,

1997). The DuPont analysis breaks down return on equity and then analyzes its determinants. This analyzes the firm's return on equity (ROE) and return on assets (ROA) ratios (Scott et al., 1998) and begins by using return on assets (Milbourn & Haight, 2005) and emphasizing the importance of return on equity (Eisemann, 1997). Brown, Fuller & Kirby (1999) indicated that the DuPont system uses two distinct equations: 1) ROA = net profit margin x asset turnover; and 2) ROE = return on assets x leverage multiplier. Return on assets (ROA) focuses on the overall firm performance and measures this as net income divided by total assets (Lim, 2006). When return on assets is higher, that reflects a more profitable firm (Milbourn & Haight, 2005). Return on equity compares "the profits generated by a company to the investment made by the company's stockholders" (Lim, 2006, p. 8).

Four component ratios are use for the DuPont system. These are 1) return on assets, 2) net profit margin, 3) asset turnover, and 4) return on equity (Brown, Fuller and Kirby, 1999). Net profit margin measures "the percentage of each sales dollar remaining and available to the firm after all expenses (including taxes) have been deducted" (Brown, Fuller & Kirby, 1999, p. 60). Asset turnover indicates "the efficiency with which the firm uses all its assets" (Brown, Fuller & Kirby, 1999, p. 60). Return on assets assesses "management's effectiveness in producing profits with all the available assets" (Brown, Fuller & Kirby, 1999, p. 60). Return on equity reflects "the return earned on the owner's investment in the firm" (Brown, Fuller & Kirby, 1999, p. 60).

Soliman (2003) conducted a study on how to use the DuPont analysis to predict future profitability and returns. He used a non-experimental, causal and comparative, quantitative design, of the public data from the Center for Research in Security Prices

(CRSP) and Compustat. Soliman's literature review was thorough and compared and contrasted the process of examining a firm's financial ratios. This research resulted in another Soliman (2003) study that tested the basic proposition of the DuPont analysis.

A non-probability sampling plan resulted in a self-selected, data producing sample of 8,924 companies. Soliman used return-on-net-operating assets (RNOA) to measure a firm's profitability within an industry. The data collection procedures were clearly described. Soliman's interpretation of the findings was that financial statement analysis is useful in predicting future returns and earnings. This result led to the conclusions that the DuPont analysis provided a useful tool when conducted within an industry. The study explored DuPont analysis as a useful tool for measuring profitability. Soliman recommended that future study investigate how the financial market uses industry information when pricing securities.

Based on the literature review, several studies examined the relationship between businesses strategy and performance (Parnell & Carraher, 2001; Zott & Amit, 2004), or information technology (IT) and information system (IS) (Tallon & Kraemer, 2005; Wu, Mahajan & Balasubramanian, 2003; Zhu & Kramer, 2002) and financial performance (Croteau & Bergeron, 2001; Jouirou & Kalika, 2004). However, no study specifically examined or investigated the effect of competitive strategy and Internet business adoption on performance. A gap in the research stream is the effectiveness of business strategies and Internet business adoption on performance.

Theoretical Framework

The theoretical framework is based on the literature that identifies the relationship between competitive strategies and Internet business adoption within an organization and how the use of competitive strategies and Internet business adoption affect financial performance. In this study, the researcher analyzed and measured the effects of Internet business adoption and competitive strategy on business financial performance.

According to Porter (2001), companies develop their strategies and Internet business adoption as a strategy decision to create a competitive advantage to allow them to perform more effectively, ensuring sustainability and financial profitability.

Theorists (for example, Miles & Snow, 1978; Porter, 1980) have introduced their competitive strategy theories. Porter (1980, 1985) defined three generic strategies as cost leadership, differentiation, and focus. Porter's (1980) generic strategy theory is broadly used in academic research and in organizational practices.

Rogers' (1995) theory of the diffusion of innovations examines the role of the adopter for diffusion of Internet business concept. The theory classifies five adopter

categories based on their innovativeness, including "innovators", "early adopters", "early majority", "late majority", and "laggards" (Rogers, 1995, p. 281). Barney's (1991) resource-based theory assumption states that firm resources and capabilities are the main drivers of performance. The resource-based view of a firm can also be used to explain success upon adoption of Internet technology (Caldeira & Ward, 2003). Teo and Pain (2003) provided a level of Internet adoption model identified five categories for success when using the Internet. Those five categories are e-mail adoption level (level 0), Internet presence level (level 1), prospecting level (level 2), business integration level (level 3), and business transformation level (level 4).

Various studies conducted performance measurements that reflected on efficiency and profitability. The DuPont model is a powerful financial tool that uses a ratio analysis to evaluate a company's financial position including a firm's profitability and efficiency (Scott et al., 1998; Milbourn & Haight, 2005). DuPont model analysis is based on financial ratios that include profit margin, asset turnover, return on assets, and return on equity. These four financial ratios are measured using a standardized process.

A theoretical framework was developed based on a review grounded in Porter's generic competitive strategy, the level of Internet adoption model and the DuPont financial analysis model. This framework proposed that the interaction of competitive strategy and Internet business adoption had a positive effect on financial performance. This theoretical framework is comprised of three components: 1) Internet business adoption (Teo and Pain, 2003), 2) competitive strategy (Porter, 1980, 1985), and 3) financial performance (DuPont analysis). Internet business adoption focused on three levels of Internet adoption, namely, 1) prospecting, 2) business integration and 3)

business transformation (Teo and Pain, 2003), as shown in Figure 2-5. Business strategy focused on two primary types of competitive strategies, namely, cost leadership and differentiation. Financial performance (DuPont analysis) focused on four financial ratios that include profit margin (MP), asset turnover (ATO), return on assets (ROA), and return on equity (ROE).

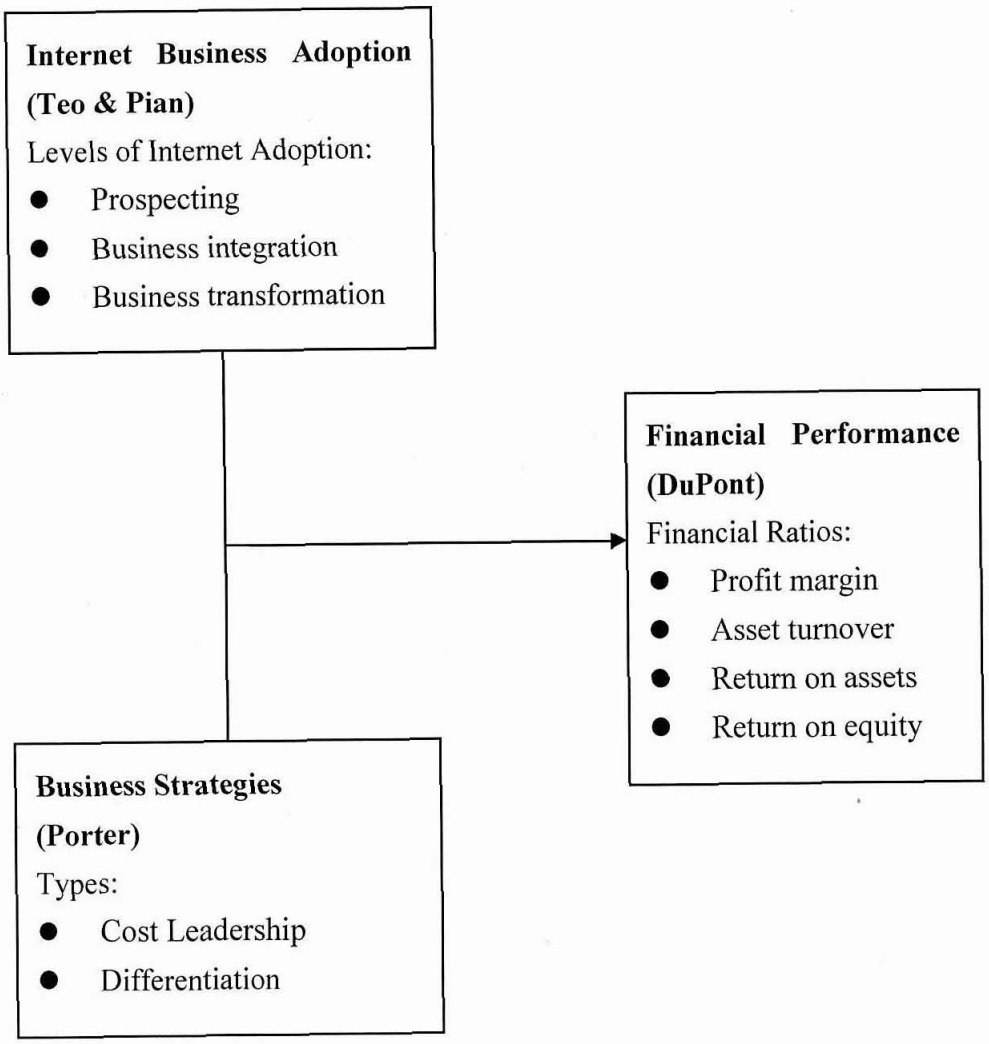

Figure 2-5. Theoretical framework.

Research Question

1. What are the types of strategies (cost leadership or differentiation) and levels of Internet business adoption (prospecting, business integration or business transformation) that result in the highest financial performance for a business organization?

Hypotheses

Based on the literature, the degree of Internet business adoption within an organization has a significant positive relationship to a firm's competitive advantage, growth, cost reduction, and higher profitability (Teo & Pian, 2003; Wu, Mahajan & Balasubramanian, 2003; Zhu & Kraemer, 2002). Higher levels of Internet business adoption is associated with improved firm performance (Zhu & Kraemer, 2005). Strategy is even "more important for differentiation and competitive advantage in the Internet era" (Evans & Smith, 2004, p. 69). Lederer et al. (1997) examined the relationship of a firm's business strategy to e-business, suggesting that "firms perceive differentiation but not cost leadership" as a benefit of e-business (as cited in Teo & Pian, 2003). Earning profit is more significant for a differentiation strategy than it is for a cost leadership strategy (HomBurg, Krohmer & Workman, 1999) in Internet business marketing (Teo & Pian, 2003). The hypotheses for this study proposed that 1) the type of strategy and level of Internet adoption have a positive effect on financial performance, and 2) a firm with a differentiation strategies and a high level of Internet adoption will have the greatest effect on financial performance of organizations.

H_1: Effect of type of strategy and level of Internet adoption on profit margin (PM).

H_{1a}: Firms with a differentiation strategy have a greater effect on profit margin than firms with a cost leadership strategy.

H_{1b}: Firms with a business transformation level of Internet adoption have a greater effect on profit margin than firms with a prospecting or a business integration level of Internet adoption.

H_{1c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on profit margin than other combinations of strategy types and Internet adoption levels.

H_2: Effect of type of strategy and level of Internet adoption on asset turnover (ATO).

H_{2a}: Firms with a differentiation strategy have a greater effect on asset turnover than firms with a cost leadership strategy.

H_{2b}: Firms with a business transformation level of Internet adoption have a greater effect on asset turnover than firms with a prospecting or a business integration level of Internet adoption.

H_{2c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on asset turnover than other combinations of strategy types and Internet adoption levels.

H_3: Effect of type of strategy and level of Internet adoption on return on assets (ROA).

H_{3a}: Firms with a differentiation strategy have a greater effect on return on assets than firms with a cost leadership strategy.

H_{3b}: Firms with a business transformation level of Internet adoption have a

greater effect on return on assets than firms with a prospecting or a business integration level of Internet adoption.

H_{3c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on return on assets than other combinations of strategy types and Internet adoption levels.

H_4: Effect of type of strategy and level of Internet adoption on return on equity (ROE).

H_{4a}: Firms with a differentiation strategy have a greater effect on return on equity than firms with a cost leadership strategy.

H_{4b}: Firms with a business transformation level of Internet adoption have a greater effect on return on equity than firms with a prospecting or a business integration level of Internet adoption.

H_{4c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on return on equity than other combinations of strategy types and Internet adoption levels.

Chapter II provided a literature review, the theoretical framework, the research questions and the hypotheses identified for the key concepts of Internet business adoption, competitive strategies, and financial performance. Chapter III presents the research methodology employed to answer the research question and test the hypotheses of the study.

CHAPTER III

RESEARCH METHODOLOGY

Implementing information systems to enhance performance or using business strategies to enhance performance was a popular methodology that had been studied in a number of research literatures (Croteau & Bergeron, 2001; Jouirou & Kalika, 2004). In this study, the research used an exploratory (comparative), mixed methods and secondary data analysis research design to examine the effects of competitive strategies (Porter, 1980) and Internet business adoption (Teo & Pian, 2003) on financial performance (DuPont analysis). In this chapter, the research methods chosen to test the model (Figure 2-5) and measure the variable elements of the model are described. This chapter presents the research methodology that includes research design, sampling plan and setting, measurement, data collection procedures, methods of data analysis, and evaluation of methodology.

Research Design

The theory for this study was based on a review of literature related to the effect of business strategies and Internet business adoption on financial performance. The research design examined the relationships between Internet business adoption, business strategy, and financial performance. The research design enabled the exploration of the relationships between Internet business within organizations and a firm's business strategies using content analysis of Internet sites and data from Internet sources. Included were firm's websites, Securities and Exchange Commission (SEC) Filings, and the EDGAR online database to search for company information (including annual report, level of Internet business adoption and competitive strategy). Companies were selected

from Hoover's *In-Depth* records. The content analysis resulted from the researcher categorizing the strategy type and the level of Internet adoption. A firm's adoption of the Internet and business strategies can affect sustainable competitive advantages (Porter, 2001).

This study used a 2 x 3 factorial design and a secondary data research design, with both qualitative and quantitative methods, to answer the research question and test the hypotheses. Two factors were included as independent variables and determined through content analysis of web sites. The first factor *strategy type* consisted of two levels: cost leadership and differentiation. The second factor, level of *Internet adoption* consisted of three levels: prospecting, business integration, and business transformation. The dependent variable was financial performance measured by the application of the *DuPont Financial Analysis Model.* Factorial design includes "every possible combination of the levels of independent variables" (Kepple, 1991, p. 185). Data analysis used one way and two way (or factorial) ANOVA which permitted examination of the independent effects of each factor on the dependent variable of financial performance and an interaction between the two factors (strategy type and Internet business adoption) on financial performance.

Population and Sampling Plan

Target Population

The target population included the following:

1. The companies listed in Hoover's online U.S. records in 2006; *Hoover's In-Depth* records, which contains a list of approximately 40,000 company records.

2. Geography was focused on only United States based business organizations.
3. Company annual sales must be between $50 million and $200 million.
4. Companies that used Internet business and competitive strategy.

Accessible Population

1. Selected companies must have one of the following three-digit standard industrial classification (SIC) codes: 737 (business services - computer programming, data processing and other related service); and 357 (computer and office equipment). These were chosen for this study.
2. A total of 961 companies was selected from the *Hoover's In-Depth* records to meet the requirement of the target population of United States firms with annual sales between $50 million and 200 million, and with 3-digital SIC codes of 737 and 357.

Sampling Plan

The 961 companies in the accessible population constituted the sample. As sample selection must be representative of the population to avoid sampling bias, the researcher selected an appropriate sample size of 961 from the accessible population.

The general description and purpose of the sampling needed to be concerned with several aspects of this study, including industry sector and firm revenues. General information about the sampling plan is shown in Table 3-1.

Table 3-1

General Information on Sampling

General Information	Specific Information
Region	U.S. firms
SIC codes	737, 357
Annual sales	$50-200 million

The information from *Hoover's In-Depth* records resulted in a self-selected data producing sample. The entire accessible population constituted the sample for this study.

Inclusion Criteria

1. The companies were listed in the *Hoover's In-Depth* 2006 records.
2. The companies were between located in United States.
3. The companies' SIC codes were 737 or 357.
4. The companies' annual sales were between $50 million to 200 million.
5. Companies that used Internet business in one of three categories of Internet adopting according to Teo and Pian levels: Level 2 – prospecting, Level 3 - business integration, or Level 4 - business transformation.

Exclusion Criteria

1. The companies were not listed in the *Hoover's In-Depth* 2006 records.
2. The companies were located outside U.S. organizations.
3. The companies' SIC codes were not 737 or 357.
4. The companies' annual sales were not between $50 million to 200 million.
5. Companies that did not use the Internet business: e-mail adoption or Level 1 - Internet presented only according to Teo and Pian's (2003) levels of Internet adopting.

Measurement

Paragraph Approach for Content Analysis

The approach based on a paragraph description, was first developed by Snow and Hrebiniak (1980) and based on Miles and Snow's (1978) paragraph approach method (Raghuram & Arvey, 1994). It has been used to measure strategic activity or orientation and has been accepted and practiced (Moore, 2002; Slater & Olson, 2000). In this study, instead of a company representative participating in the paragraph approach, the researcher analyzed various Internet sites and determined the strategy type and level of Internet adoption.

Part One: Strategic Type

The strategy was classified as cost leadership or differentiation based on the definition of the strategy as provided by Porter (1980, 1985). The paragraph description used a modified version of the measurement used by Homburg, Krohmer and Workman (1999), Kumar and Subramanian (1998), and Obilade's (2002). The researcher searched for themes on the Internet in order to classify the company strategic type using modifications of strategy type by Homburg, Krohmer and Workman (1999), Kumar and Subramanian (1998), and Obilade (2002) of cost leadership and differentiation strategy as follows (Appendix B):

1. Cost leadership means: the firm is "achieving lower cost of services than competitors", "making services/ procedures more cost efficient", "improving the time/cost required for coordination of various services", "improving the utilization of variable equipment, services and facilities, performing analysis of costs associated with various services", and "improving the availability of

diagnostic equipment and auxiliary services to control costs" (Kumar & Subramanian, 1998, p. 112). The firm "pursues operating efficiencies", "cost advantages in raw material procurement", and "economies of scale" (Homburg, Krohmer & Workman, 1999, p. 356). The firm uses "internal production efficiency", "cost controls", "low costs", and "price reduction" (Obilade, 2002, p. 154). The firm has "a large plant and warehouse", "focuses on the standardization of its products, makes shipments in large lots, has many suppliers", and "aggressively pursues a pricing policy" (Obilade, 2002, p. 154).

2. *Differentiation implies that the firm engages in* "introducing new services/ procedures", "differentiating services from competitors", "offering a broader range of services than competitors", and "utilizing market research to identify new services" (Kumar & Subramanian, 1998, p. 112). The firm is "creating superior customer value through services accompanying the products", "building up a premium product or brand image", and "obtaining high prices from the market", and "advertising" (Homburg, Krohmer & Workman, 1999, p. 356). The firm is focusing on "uniqueness", "brand image", and "quality of its product or service" (Obilade, 2002, p. 154). The firm focuses on "a specific market segment", "emphasizes quality or image rather than low price", "maintains a close relationship with suppliers", and "provides extensive service warranties" (Obilade, 2002, p. 154).

Kumar and Subramanian (1998) reported in their study that the reliability assessments for cost leadership strategy were approximately .85, and for differentiation

strategy, approximately .86. Homburg, Krohmer and Workman's (1999) reported in their study reliability assessments for cost leadership ranging from .84 to .87 and differentiation as approximately .71. Content validity for Kumar and Subramanian's (1998) instrument was highly consistent with items and strategy type.

Part Two: Level of Internet Adoption

The measurement of Internet adoption level used the paragraphs based on Teo and Pian's (2003) study instrument. Teo and Pian identified five levels of Internet adopting including Level 0 – "e-mail adoption", Level 1 – "Internet presence", Level 2 – "prospecting", Level 3 – "business integration", and Level 4 – "business transformation" (p. 80-81). Teo and Pian's (2003) validation check of the paragraph approach for the Internet adoption levels was assessed through pre-testing /pilot testing, interviews with respondents, and by examining the websites of the firms that responded to the survey to ensure the validity of the measurement.

Because the researcher is used the Internet, companies without Internet presence, were excluded as their data was not available. Furthermore, companies identified as Level 1, according to Teo and Pian, are non-strategic. Therefore, only companies that fell into the categories of prospecting, business integration, and business transformation were included in the study. The researcher searched for themes on the Internet in order to classify the company's level of adoption using modifications of Teo and Pian's study description of Internet adoption level as follows (Appendix B):

1. Prospecting: The firm has "established its Web site, and the features provided on the Web site include extensive information about the firm and its products, feedback form, e-mail support and simple search" (Teo & Pian, p. 92).

2. Business integration: The firm's "Internet strategy uses the Internet for business support and cost reduction" (Teo & Pian, p. 92). The web site includes "advanced features, such as interactive marketing and sales, online communities, and secures online ordering" (Teo & Pian, p. 92).
3. Business transformation: The firm has external integration, internal integration, online payment, and online transformation. The firm's business strategy is "transformed by Internet adoption, and there is cross-enterprise involvement with a focus on building relationships and developing knowledge to create new business opportunities" (Teo & Pian, p. 92). The firm is "electronically integrated with key suppliers and customers for procurement and/or supply chain activities" (Teo & Pian, p. 92).

Content Analysis

The procedure for the qualitative content analysis was a coding method. Secondary data involved the coding of the contents. Hoepfl (1997) reported that coding methods used to analyze "words, phrases or events that appear to be similar can be grouped into the same category" (p. 1). In this study, texts from firms' web sites, articles, annual report and 10K reports served as the sources of data.

The researcher identified the type of strategy and level of Internet business adoption pursued by the firms. The type of strategy was coded as cost leadership – A1 and differentiation – A2. A1 classified the first choice and A2 classified the second choice of strategic type in the paragraph approach. The level of Internet business adoption was coded as prospecting – B1, business integration – B2 and business transformation – B3. B1 was classified the first choice, B2 was classified the second choice, and B3 was

classified the third choice of Internet business adoption in the paragraph approach. As the Content Analysis procedure (Appendix B) using in this study was employed in previous studies (Homburg, Krohmer & Workman's, 1999; Kumar & Subramanian, 1998; Obilade's, 2002) to measuring items by the description of a paragraph, content validity of the measurement was enhanced.

Table 3-2

Coding Strategy type and Internet Business Adoption Coding

	Coding Groups
Cost Leadership	A1
Differentiation	A2
Prospecting	B1
Business Integration	B2
Business Transformation	B3

Coding Strategy Types

Two types of strategy were identified from the sample text in the secondary data, including cost leadership and differentiation. This study used Porter's (1980, 1985) definition of the strategy and previous research (Homburg, Krohmer & Workman, 1999; Kumar & Subramanian, 1998; Obilade, 2002) to identify each of strategies.

1. Cost leadership: the company's secondary data has the statement, text or words to express themes such as "achieving lower cost of services than competitors", "making services/ procedures more cost efficient", "improving the time/cost required for coordination of various services", "improving the utilization of variable equipment, services and facilities", "performing analysis of costs associated with various services", "improving the availability of diagnostic equipment and auxiliary services to control costs", "pursuing

operating efficiencies", "pursuing cost advantages in raw material", "pursuing economies of scale", "internal production efficiency", "cost controls", "low costs", "price reduction", "having a large plant and warehouse", "focusing on the standardization of its products", "shipments making in large lots", "having many suppliers", and "aggressively pursuing a pricing policy".

2. Differentiation: the company's secondary data has the statement, text or words to express themes such as "introducing new services/ procedures", "differentiating services from competitors", "offering a broader range of services than competitors", "utilizing market research to identify new services", "creating superior customer value through services accompanying the products", "building up a premium product or brand image", "obtaining high prices from the market", "advertising", "uniqueness", "brand image", "focusing on quality of its product or service", "focusing on a specific market segment", "emphasizing quality or image rather than low price", "maintaining close relationship with suppliers", and "providing extensive service warranties".

Coding Internet Business Adoption Level

Three levels of Internet adoption were identified from the content in the secondary data and web sites, including prospecting, business integration and business transformation. This study used Teo and Pian's (2003) definition of Internet business adoption level to identify each of strategies.

1. Prospecting: the company's secondary data has indicated that the firm has established its web site, and the features provided on the web site include

extensive information about the firm and its products, feedback form, e-mail support, and simple search.

2. Business integration: the company's secondary data has indicated that the firm's Internet strategy uses the Internet for business support and cost reduction. The web site includes advanced features, such as interactive marketing and sales, online communities, and secures online ordering.
3. Business transformation: the company's secondary data has indicated that the firm has external integration, internal integration, online payment, and online transformation. The firm's business strategy is transformed by Internet adoption, and there is cross-enterprise involvement with a focus on building relationships and developing knowledge to create new business opportunities. The firm is electronically integrated with key suppliers and customers for procurement and/or supply chain activities.

Paragraph Approach

Paragraph approaches are commonly used in organizational research (Conant, Mokwa & Varardarajan, 1990; James & Hatten, 1995; King & Teo, 1997; Snow & Hrebiniak, 1980). Paragraph style descriptions are "the most commonly used approach to making classification schemes operational and have been shown to be a reliable and valid measurement approach" (Slater & Olson, 2001, p. 1059). A number of researchers (Conant, Mokwa & Varardarajan, 1990; James & Hatten, 1995; McDaniel & Kolari, 1987; Moore, 2002; Shortcell & Zajac, 1990; Slater & Olson, 2001; Snow & Hrebiniak, 1980) conducted studies to demonstrate that the paragraph approaches were a valid measurement approach. Shortell and Zajac's (1990) study found good reliability by

assessing the convergent validity for a modified paragraph approach (James & Hatten, 1995).

Trustworthiness of Secondary Data

Secondary data was the source of information to analyze a firm's competitive type and Internet adoption level in this study. The sources of the data were archival databases including Hoover's online U.S. records, firm websites, Securities and Exchange Commission (SEC) Filings and EDGAR online database. Those data sources are legal requirements and require accurate reporting and are considered highly reliable. Outside researcher audit analysis primary data was used to establish trustworthiness in this study.

DuPont Financial Analysis Model

The DuPont financial analysis model was used to analyze financial performance. The DuPont analysis was developed by the DuPont Corporation to evaluate a company's financial position based on four financial ratios: profit margin, asset turnover, return on assets, and return on equity. These four financial ratios were measured by a standardized process that explored how successful each firm was. The researcher computed these four ratios by using each firm's balance sheet and income statement for the 2005 fiscal year to evaluate and compare the different financial performance of each firm.

In this study, the four key components of financial ratios are as follows (Brown, Fuller & Kirby, 1999):

1. Profit margin (PM) - the formula is:

   PM = net income/ sales

2. Asset turnover (ATO) - the formula is:

   ATO = sales/ total assets

3. Return on assets (ROA) - the formula is:

   ROA = [net profit margin] * [total asset turnover]

   = [net income/sales] * [sales/total assets]

4. Return on equity (ROE) - the formula is:

   ROE = [net income/sales] * [sales/ total assets] * [total assets/total equity].

   = [net income/ total assets] * [total assets/total equity].

These four key financial variables were the tools used to measure each firm's financial performance through secondary data analysis. This formula indicates the ratios of PM, ATO, ROE and ROA and evaluates a firm's profitability and efficiency. A higher ratio indicated better profitability and greater efficiency and financial performance can indicate the success of a firm.

DuPont Financial Analysis

Researchers commonly use the DuPont model to analyze a firm's profitability and efficiency, for example, Dehning and Stratopoulos (2002), Milbourn and Haight (2005), and Solimen (2003). A number of researchers (Dehning & Stratopoulos, 2002; Eisemann, 1997; Feroz, Kim & Raab, 2003; Lehtinen, 1996; Milbourn & Haight, 2005; Solimen, 2003; Vooehis, 1981) and companies conducted a DuPont analysis as measurement of financial performance and have demonstrated that it is a reliable and valid measurement approach. Previous studies have shown the validity of the DuPont model (profit margin, asset turnover, return on assets, and return on equity) and its correlation with profitability and efficiency. For example, Lehtinen (1996) found strong reliability and validity of the financial ratios in his study. Soliman's (2003) study provided a "predictive validity" of the DuPont model, financial ratios computed by a standard formula that is widely used

for business firms to enhance the reliability and validity of financial ratios.

DuPont analysis is a standardized formula used to compute four financial ratios: profit margin, asset turnover, return on assets, and return on equity. In this study, the researcher used firm websites and the SEC's EDGAR online database to obtain financial information such as a firm's net income, total assets, revenue, equity, income statement, balance sheet and annual report on form 10K.

Procedures: Ethical Considerations and Data Collection Methods

Procedures for the data collection methods and ethical considerations of the study included the following:

1. Used all companies that met eligibility requirements for the accessible population appearing in *Hoover's In-Depth* records.
2. Obtained permission from the instrument developers to use the measurements employed in this study.
3. Analyzed Internet websites to determine the competitive strategy type and Internet business adoption level, and analyzed each firm's financial ratios, to answer the research question and hypotheses. In this study, secondary data was a firm's public websites and annual report for the 2005 fiscal year, which was publicly available and comprised a firm's financial, strategy and Internet adoption information. The purpose of collecting a firm's public records information was to compute financial ratios and to measure, explore, explain, and describe the cause-effect relationship of the variables.
4. Analyzed Internet websites to determine competitive strategy type and Internet business adoption level, using each firm's website, Securities and

Exchange Commission (SEC) Filings and EDGAR online database to search for company information (including annual reports, level of Internet business adoption and competitive strategy).

5. No deception was used in this study. The entire procedure brought no harm to any of the research subjects. For ethical considerations, a current research protocol required that the dissertation design be approved by the University's Institutional Review Board (IRB). Therefore, this procedural statement in the research methods was submitted to Lynn University's IRB concerning any human subjects. The date of approval by the IRB was August 8, 2006.
6. After receiving IRB approval, the researcher used the Internet to gather secondary data. Collection of data, took place during a one- to two-month period, but no longer than one year.
7. Secondary data was the basis for the researcher to analyze a firm's strategic type and Internet adoption level. The researcher used the paragraph approach (see Appendix B) to classify the type of strategy and Internet adoption level that best fit the specifics of each firm.
8. The researcher used income statements and balance sheets in the annual report to calculate each firm's financial ratios (profit margin, asset turnover, return on assets, and return on equity).
9. The researcher conducted data analysis after all the firms' competitive strategies, Internet business adoption levels and financial ratios were obtained.
10. The researcher submitted IRB form 8 on August 8, 2006 and with in five months, data collection was completed (December 31, 2006).

Methods of Data Analysis

Data analysis methods were used to answer the research question and hypotheses in this study. Using qualitative methods, the researcher first content analyzed the strategy type into one of two types, and the Internet adoption level of each firm into one of three levels in preparation for factor analysis. Each factor is nominal data and financial data are quantitative. Quantitative research methods and statistical methods were used to answer the research question and test the hypotheses. The SPSS 11.5 for windows statistical package was used.

The data analysis to answer the research question used Analysis Of Variance (ANOVA) to test for statistical significance. The purpose of ANOVA was to test the difference between the means of more than two groups of variables. The researcher applied ANOVA to compare the financial performance of companies according to six classifications of companies by types of strategy and levels of Internet adoption. When there were significant differences, a post hoc comparison was used.

A 2x3 factorial design was used in this study. Two independent variables were types of strategy and levels of Internet adoption, factor A and factor B. Factor A was the types of competitive strategies including two levels: A1 - cost leadership strategy or A2 - differentiation strategy. Factor B was the levels of Internet adoption, which includes three levels: B1 - prospective level, B2 - integration level or B3 - transformation level. Therefore, there are two (independent) factors for this study including types of business strategy and levels of Internet adoption.

1. Main Effect A was to compare the main effects between 2 groups of strategy (A1 versus A2) on firm performance.

2. Main Effect B was to compare the main effects among 3 groups (B1, B2, and B3) on firm performance.
3. Interaction Effect was determined if there was an interaction between the two independent variables A*B on firm performance (strategy type * level of e-business adoption on firm performance).

There were six-group combinations of variables (see Table 3): A1B1, A1B2, A1B3, A2B1, A2B2, and A2B3. A factorial ANOVA analysis was used to compare the different financial performances among these six groups. For the main effects, Factor A (column) and Factor B (row) was analyzed with factorial ANOVA. Interaction effects between the two factors on financial performance were analyzed with the factorial ANOVA.

Table 3-3

2 x 3 Factorial Design

	Strategy (Factor A)	
Adoption(Factor B)	A1 = Cost leadership	A2= Differentiation
B1 = Prospecting	A1*B1 = firm performance	A2*B1 = firm performance
B2 = Integration	A1*B2 = firm performance	A2*B2= firm performance
B3 = Transformation	A1*B3 = firm performance	A2*B3 = firm performance

Through content analysis, the researcher classified the types of strategy for a company as either a 1 or 2; the levels of Internet adoption was classified as 1, 2, or 3; and financial performance was measured by four ratios.

Table 3-4

Company Type and Level

Company Name	Type	Level	Performance
Company A	1 or 2	1, 2, or 3	ratio
Company B	1 or 2	1, 2, or 3	ratio
Company C	1 or 2	1, 2, or 3	ratio

Ratios were used to analyze data to normalize differences in company profitability. Each of these six combination groups had an average financial ratio in their group, and the analysis compared and analyzed financial performance (profit margin, asset turnover, return on assets, and return on equity) of companies. The six combination groups were: Group 1 were firms with a cost leadership strategy and a prospecting level of Internet business adoption, Group 2 were firms with a cost leadership strategy and a business integration level of Internet business adoption, Group 3 were firms with a cost leadership strategy and a business transformation level of Internet business adoption, Group 4 were firms with a differentiation strategy and a prospecting level of Internet business adoption, Group 5 were firms with a differentiation strategy and a business integration level of Internet business adoption, and Group 6 were firms with a differentiation strategy and a business transformation level of Internet business adoption.

The SPSS version statistical software package was used for analysis of the hypotheses. H_{1a}, H_{2a}, H_{3a}, and H_{4a} used one-way ANOVA to explore the relationship between cost leadership and differentiation strategy. H_{1b}, H_{2b}, H_{3b}, and $H4_{b}$ used one-way ANOVA to examine the financial performance among the three levels. H_{1c}, H_{2c}, H_{3c}, H_{4c} used 2x3 factorial ANOVA to determine the effects of strategy types and Internet adoption levels on four profitability ratios.

Evaluation of Research Methods

The following points describe the strengths and weakness of this study's research methods:

1. The large population strengthened the reliability of this study.
2. The research used the entire accessible population to strengthen internal validity and reduce selection bias.
3. The prediction model considered the influence of predictor variables to enhance the internal validity.
4. As the study used statistical procedures to answer the research hypotheses, it strengthened the internal validity.
5. The study adopted a non-experimental research design to avoid the weaknesses of other research methods.

Chapter III presented the research methodology that addressed the hypotheses regarding the effects of strategy and Internet business adoption on firm performance. This chapter described the research design, the population and sampling plan, measurement, data collection procedures, and methods of data analysis. The results of the study are presented in the next chapter.

CHAPTER IV

RESULTS

This chapter presents the results of the data collection and data analysis described in Chapter III regarding the use of a competitive strategy and Internet business adoption to result in successful financial performance. Each of the independent and dependent variables were assessed using a descriptive statistical analysis in which descriptive statistics were computed.

Secondary data were collected and used to analyze each firm's profitability ratios, competitive strategies, and Internet business adoption. The statistical methods used in this study to answer the research question and hypotheses included descriptive statistics, mean comparison tests, and factorial ANOVA to answer the research question and hypotheses.

The research question and hypotheses were tested using ANOVA which had several varieties including one-way, two-way and factorial ANOVA. ANOVA is a flexible statistical technique that enables the researcher to examine the effect of the independent variables. One-way (or one factor) ANOVA comprises only one independent variable with one dependent variable. Two-way (or two factors or factorial) ANOVA comprises more than one independent variable with only one dependent variable. ANOVAs compare groups formed by the levels of independent variables or factors; that is, each single independent variable or factor involved two or more levels, such as two types of strategies (cost leadership and differentiation), or three levels of Internet adoption (prospecting, business integration, and business transformation).

In the ANOVA testing, the main factors were the independent variables. A 2x3

factorial ANOVA, which had only one dependent variable with two independent variables, was used to test each of the observed variables. The two independent variables can define the interactions between two independent variables. The researcher used factorial ANOVA to study the main effect of variables, including the main independent variables with multiple levels or distinct values in each variable. Two independent variables were crossed with each other to become pairs; this study involved six pairs. This analysis was designed to assess the strategy type independent variables (cost leadership or differentiation) at the three Internet adoption levels (prospecting, business integration, or business transformation) to determine their effect on the dependent variable (profit margin, asset turnover, return on assets, and return on equity).

ANOVA employs *F*-value, degrees of freedom, and *p*-values. Statistically significant results using ANOVA were accepted. In testing a hypothesis, a *p*-value was used to define the level of significance of a measure of a specific statistical outcome. If *p* was at or above the .05 level, the hypotheses were rejected, meaning that there were no significant differences between groups. The ANOVA study result is reported as the *F* value, followed by the *p*-values. A *p*-value equal to or less than .05 means there were significant differences between groups. A *p* value less than .05 as the level of confidence means that the given outcome could have occurred by chance less then 5 in 100 times.

Secondary Data Collection

The experimenter used secondary data (including firm websites, SEC filings, EDGAR online database, and annual reports for the 2005 fiscal year) to analyze the independent and dependent variables. When the secondary data were collected, the researcher reviewed each firm's data to analyze and code its types of strategies and levels

of Internet adoption. Then the researcher used the paragraph approach (see Appendix B) to classify strategy type and Internet adoption level that best fits specifics of each firm.

The classified data were used to describe each firm's type of competitive strategy and level of Internet business adoption. The income statements and balance sheets in the annual reports were used to calculate each firm's financial ratios by the DuPont formula. The researcher used these classified data and financial reports to answer the research question and test the hypotheses.

The researcher used the Internet to collect secondary data from the entire accessible population of 961 companies. Of the 961 companies, there were 327 with valid data collected and 634 companies with invalid data collected. These 634 companies were either missing an annual report (not a publicly listed company), or didn't have a website. Valid data gathered from 327 of the 961 companies were found to be usable. Therefore, 34% of the sample was usable and this percentage was acceptable for this research. The results are shown in Table 4-1 which gives frequency distribution of the sample.

Table 4-1

Statistics Frequencies of Samples (N=961)

		Frequency	Percentage
N	Valid Sample	327	34%
	Missing Sample	634	66%
	Total	961	100%

SPSS was utilized to analyze the 327 valid datasets. The version was statistically descriptive of each of the independent and dependent variances. As shown in Table 4-2, the 327 datasets had 147 companies (45%) with a cost leadership strategy (paragraph 1 of part one of Appendix B), and 180 companies (55%) with a differentiation strategy

(paragraph 2 of part one of Appendix B). More companies utilized a differentiation strategy than a cost leadership strategy.

Table 4-2

Frequencies of Types of Competitive Strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cost Leadership	147	15.3	45.0	45.0
	Differentiation	180	18.7	55.0	100.0
	Total	327	34.0	100.0	
Invalid	System	634	66.0		
Total		961	100.0		

As shown in Table 4-3 for the levels of Internet business adoption, these 327 datasets had 53 companies (16.2%) with a prospecting level (paragraph 1 of part two of Appendix B), 120 companies (36.7%) with a business integration level (paragraph 2 of part two of Appendix B), and 154 companies (47.1%) with a business transformation level (paragraph 3 of part two of Appendix B). In addition, as Table 4-4 indicates, more companies incorporated a business transformation level of Internet adoption than the other two levels of Internet business adoption.

Table 4-3

Frequencies of Levels of Internet Business Adoption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Prospecting	53	5.5	16.2	16.2
	Integration	120	12.5	36.7	52.9
	Transformation	154	16.0	47.1	100
	Total	327	34.0	100.0	
Invalid	System	634	66.0		
Total		961	100.0		

As shown on Table 4-4, there were six combination groups for these 327 datasets with 24 companies (7.3%) in Group 1 (a firm with a cost leadership strategy and a prospecting level of Internet business adoption), 65 companies (19.9%) in Group 2 (a firm with a cost leadership strategy and a business integration level of Internet business adoption), 58 companies (17.7%) in Group 3 (a firm with a cost leadership strategy and a business transformation level of Internet business adoption), 29 companies (8.9%) in Group 4 (a firm with a differentiation strategy and a prospecting level of Internet business adoption), 55 companies (6.8%) in Group 5 (a firm with a differentiation strategy and a business integration level of Internet business adoption), and 96 companies (29.4%) in Group 6 (a firm with a differentiation strategy and a business transformation level of Internet business adoption). More companies belonged to Group 6 than to the remaining groups. Figure 4-1 shows the frequency distribution of groups.

Table 4-4

Frequencies of Distribution Groups

	Groups	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Group 1(Cost and Prospecting)	24	7.3	7.3	7.3
	Group 2 (Cost and Integration	65	19.9	19.9	27.2
	Group 3 (Cost and Transformation)	58	17.7	17.7	44.9
	Group 4 (Differentiation and Prospecting)	29	8.9	8.9	53.8
	Group 5 (Differentiation and Integration)	55	16.8	16.8	70.6
	Group 6 (Differentiation and Transformation)	96	29.4	29.4	100.0
	Total	327	100.0	100.0	

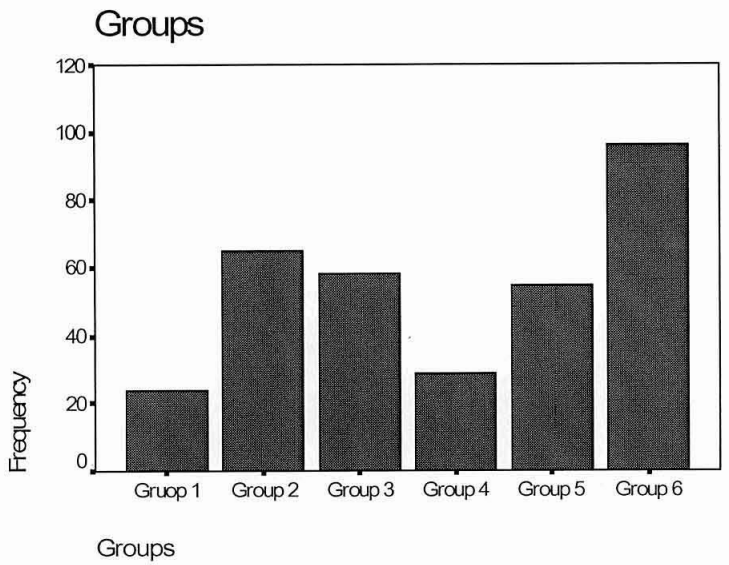

Figure 4-1. Frequency distribution of groups (N=327)

Research Question Test Results

What are the types of strategies and levels of Internet business adoption that result in the highest financial performance for a business organization?

Statistical analysis for this research question included testing three results: 1) the effect of types of strategies on financial performance, 2) the effect of levels of Internet business adoption on financial performance, and 3) the effect of competitive strategies and Internet business adoption on financial performance.

Descriptive Statistics

This study conducted a descriptive statistics analysis on several key variables using two types of strategies, three levels of Internet adoption and four ratios. The DuPont analysis formula was used to compute the four ratios: profit margin (PM), asset turnover (ATO), return on assets (ROA), and return on equity (ROE).

A higher average of PM, ATO, ROA, or ROE ratio was due to the fact that business organizations had higher financial performance. A higher mean for the ratios

(PM, ATO, ROA, and ROE) indicated higher financial performance of business organizations. This study was also statistically descriptive for means of the four financial ratios of each strategy type, Internet business level, and combination group.

In the 327 datasets, the mean profit margin (PM) was 1.53 percent. As shown in Table 4-5, a mean profit margin (PM) ratio was higher for firms with a differentiation strategy than for firms with a cost leadership strategy. Table 4-5 showed the means, standard deviation, maximum value, and minimum value of the profit margin for Internet business adoption, which were higher for firms with a business integration level of Internet adoption than firms with a prospecting level and a business transformation level of Internet business adoption. The business integration level of Internet adoption had the highest mean for the profit margin (PM) ratio.

Analyzing the profit margin (PM) ratio, Table 4-5 reflected a higher mean for the profit margin (PM) ratio for the differentiation strategy, and business integration level, and business transformation level of Internet adoption. The findings suggest that a firm's profit margin ratio depends on strategy. Additionally business integration level and business transformation level of Internet adoption should be taken into account.

Table 4-5

Descriptive Statistics of Profit Margin

Variables	Variables	Std. Deviation	Minimum	Maximum
Types of Competitive Strategy				
Cost Leadership	-.01788	24.72828	-135.82993	96.08871
Differentiation	2.79830	21.54318	-191.12302	55.17977
Level of Internet Business Adoption				
Prospecting	-3.58290	30.54817	-191.12302	40.83208
Business Integration	2.89532	17.84902	-98.65830	96.08871
Business Transformation	2.23065	23.55243	-135.82993	83.72309

For the 327 datasets, the mean of asset turnover (ATO) was 99.98 percent. As reflected in Table 4-6, the cost leadership strategy had a higher mean, standard deviation, and maximum value of asset turnover (ATO) ratio than did the differentiation strategy. Among the three levels of Internet adoption, firms with a prospecting level of Internet adoption demonstrated a higher mean than those with either a business integration level or a business transformation level of Internet business adoption. However, the business prospecting level of Internet adoption had the highest mean for the asset turnover (ATO) ratio in Table 4-6.

In analyzing the asset turnover (ATO) ratio, two strategy types and three Internet business adoptions showed higher means. The finding suggested that the asset turnover (ATO) ratio appeared to be more dependent on cost leadership strategy or business prospecting level of Internet adoption than differentiation strategy, business integration level, or business transformation level of Internet adoption.

Table 4-6

Descriptive Statistics of Asset Turnover

Variables	Mean	Std. Deviation	Minimum	Maximum
Types of Competitive Strategy				
Cost Leadership	105.31146	74.782098	1.50165	510.41925
Differentiation	95.61854	67.97660	3.49826	399.3482
Level of Internet Business Adoption				
Prospecting	124.51690	83.9545	16.76166	399.3482
Business Integration	90.10158	58.17863	1.50165	369.60998
Business Transformation	99.22426	74.01671	3.49826	510.41925

For the 327 datasets, the mean of return on assets (ROA) was -1.07 percent. As shown in Table 4-7, the mean, standard deviation, the minimum and maximum values of return on assets (ROA) ratio. Table 4-7 showed a low and negative mean of return on assets ratio for the two types of competitive strategies. Among the three levels of Internet adoption, firms with a business integration level of Internet adoption had a higher mean than firms with other levels of adoption; however, business integration level of Internet adoption has the highest mean of return on assets (ROA) ratio. Analyzing the return on assets (ROA) ratio, two strategy types and three Internet business adoptions indicated lower means, as shown in Table 4-7. The results indicated that the return on assets ratio was higher for a firm with a business integration level of Internet adoption rather than a firm with prospecting or business transformation level of Internet adoption.

Table 4-7

Descriptive Statistics of Return on Assets

Variables	Mean	Std. Deviation	Minimum	Maximum
Types of Competitive Strategy				
Cost Leadership	-1.90224	20.73305	-139.20228	31.51798
Differentiation	-.39415	25.25732	-233.33666	31.00883
Level of Internet Business Adoption				
Prospecting	-5.55869	30.51224	-157.25818	26.71936
Business Integration	2.04286	10.68098	-45.30961	31.00883
Business Transformation	-1.95525	27.15175	-233.33666	31.51798

For the 327 datasets, the mean of return on equity (ROE) was 14.08 percent. As shown in Table 4-8, the means of return on equity (ROE) for the different types of

strategies are given. Results indicate that the cost leadership strategy had a higher mean and standard deviation than the differentiation strategy. For the levels of Internet adoption, the prospecting level of Internet adoption had a higher return on equity (ROE) ratio than the business integration or business transformation levels of Internet adoption. However, the prospecting level of Internet adoption had the highest mean for the return on equity (ROE) ratio. The findings suggested that a firm's return on equity (ROE) ratio depends on competitive strategy. Additionally Internet business adoption should be taken into account.

Table 4-8

Descriptive Statistics of Return on Equity

Variables	Mean	Std. Deviation	Minimum	Maximum
Types of Competitive Strategy				
Cost Leadership	31.77686	356.85698	-320.00365	4216.12903
Differentiation	-.37900	128.96888	-1474.2701	803.16329
Level of Internet Business Adoption				
Prospecting	91.90324	590.99629	-306.88600	4216.12903
Business Integration	6.09943	64.88536	-255.76132	601.94611
Business Transformation	-6.49237	130.26922	-1474.2701	400.76108

Comparing among the six combination groups, Table 4-9 revealed that Group 5 (a firm with a differentiation strategy and a business integration level of Internet adoption) had the highest mean for the PM ratio; Group1 (a firm with a cost leadership and a prospecting level of Internet adoption) had the highest mean for the ATO ratio; Group 5 had the highest mean for the ROA ratio; and Group 1 had the highest mean for the ROE

ratio.

Table 4-9

Means of PM, ATO, ROA, and ROE Ratios in Groups

Groups	PM	ATO	ROA	ROE
Group One	-3.21051	127.84708	-4.00090	176.10266
Group Two	1.77088	87.29534	1.12708	5.50240
Group Three	-.70144	116.17685	-4.42876	1.50136
Group Four	-3.89106	121.76090	-6.84790	22.22097
Group Five	4.22421	93.41805	3.125134	6.80501
Group Six	4.00211	88.98207	-.46083	11.32192

A higher mean for the ratios indicated a higher level of performance; a negative mean for the ratios indicated a lower level of performance. Analyzing the four ratios among the six combination groups, the results revealed higher means in the asset turnover (ATO) and return on equity (ROE) ratios. These findings suggested that a firm with a competitive strategy type and Internet business adoption level impacted financial performance.

ANOVA

One-way and factorial ANOVA statistic analysis was used to test the research question and hypotheses in this study. One-way ANOVA compares the means between group differences. Factorial ANOVA tests means and interaction factors that affected the levels of the factor category. If the results shown a significance level at $p = .05$ or $p < .05$, then this is acceptable for the study. When the p level was less than 0.05 there was statistical significance between the groups.

In Table 4-10, the one-way ANOVA showed the effect of competitive strategy on

the four financial ratios. The results revealed no significant differences in the effect of competitive strategy on the four profitability ratios. This finding suggested a firms' financial performance was not dependent on a firm's competitive strategy.

Table 4-10

One–Way ANOVA (Competitive Strategy)

		Sum of Squares	df	Mean Square	F	Sig.
Profit Margin (PM)	Between Groups	641.748	1	641.748	1.210	.272
	Within Groups	172352.622	325	530.316		
	Total	172994.369	326			
Asset Turnover (ATO)	Between Groups	7602.409	1	7602.409	1.503	.221
	Within Groups	1643611.370	325	5057.266		
	Total	1651213.779	326			
Return on Assets (ROA)	Between Groups	184.035	1	184.035	.338	.561
	Within Groups	176949.363	325	544.460		
	Total	177133.398	326			
Return on Equity (ROE)	Between Groups	83668.604	1	83668.604	1.261	.262
	Within Groups	21569950.262	325	66369.078		
	Total	21653618.886	326			

From the one-way ANOVA shown in Table 4-11 of the effects of Internet business adoption on the four financial ratios, there was a significant effect on asset turnover (ATO) (F= 4.405, p= .013) and ROE (F= 3.001, p= .051). However, the table showed no significant effects of Internet business adoption on profit margin (PM) and return on assets (ROA) ratios. These findings suggested that firms with Internet business

adoption positively influenced asset turnover (ATO) and return on equity (ROE) ratios; therefore, Internet business adoption was important for financial performance for a business organization.

Table 4-11

One-Way ANOVA (Internet Business Adoption)

		Sum of Squares	df	Mean Square	F	Sig.
Profit Margin (PM)	Between Groups	1684.801	2	842.400	1.593	.205
	Within Groups	171309.569	324	528.733		
	Total	172994.369	326			
Asset Turnover (ATO)	Between Groups	43707.090	2	21853.545	4.405	.013
	Within Groups	1607506.688	324	4961.440		
	Total	1651213.779	326			
Return on Assets (ROA)	Between Groups	2351.332	2	1175.666	2.179	.115
	Within Groups	174782.066	324	539451		
	Total	177133.398	326			
Return on Equity (ROE)	Between Groups	393811.240	2	196905.620	3.001	.051
	Within Groups	21259807.626	324	65616.690		
	Total	21653618.866	326			

A factorial ANOVA was conducted on the two main factors that affect the dependent variables of this study. The factorial ANOVA tables illustrated the interaction of competitive strategy and Internet business adoption on the four performance ratios.

Table 4-12 and Figure 4-2 showed the interaction of strategy types and Internet business adoption level, while factorial ANOVA found no significant difference effects

on profit margin (PM). The finding suggested that the interaction of strategic types and Internet business adoption levels had no guaranty for a higher PM performance.

Table 4-12

*Factorial ANOVA (Competitive Strategy and Internet Business Adoption * PM)*

Source	Sum of Squares	df	Mean Square	*F*	Sig.
Corrected Model	2670.086	5	534.017	1.006	.414
Intercept	35.046	1	35.046	.066	.797
Strategy (S)	305.320	1	305.320	.575	.449
Internet Business Adoption (I)	1597.139	2	798.570	1.505	.224
S * I	291.608	2	145.804	.275	.760
Error	170324.283	321	530.605		
Total	173762.155	327			
Corrected Total	172994.369	326			

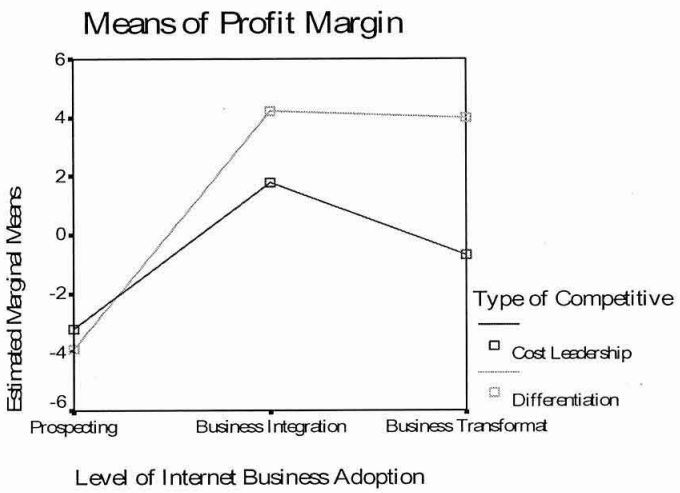

Figure 4-2. Interaction plots for means of profit margin.

Table 4-13 and Figure 4-3 revealed the interaction of the main factors effect on asset turnover (ATO). As shown in the table, factorial ANOVA found no significant difference effect on asset turnover. The finding suggested that the interaction of

competitive strategy types and Internet business adoption levels have no guaranty for a higher ATO performance.

Table 4-13

*Factorial ANOVA (Competitive Strategy and Internet Business Adoption * ATO)*

Source	Sum of Squares	df	Mean Square	*F*	Sig.
Corrected Model	72049.628	5	14409.926	2.929	.013
Intercept	2939679.106	1	2939679.106	597.555	.000
Strategy (S)	5369.077	1	5369.077	1.091	.297
Internet Business Adoption (I)	43484.031	2	21742.016	4.420	.013
S * I	18532.751	2	9266.376	1.884	.154
Error	1579164.151	321	4919.514		
Total	4919638.331	327			
Corrected Total	1651213.779	326			

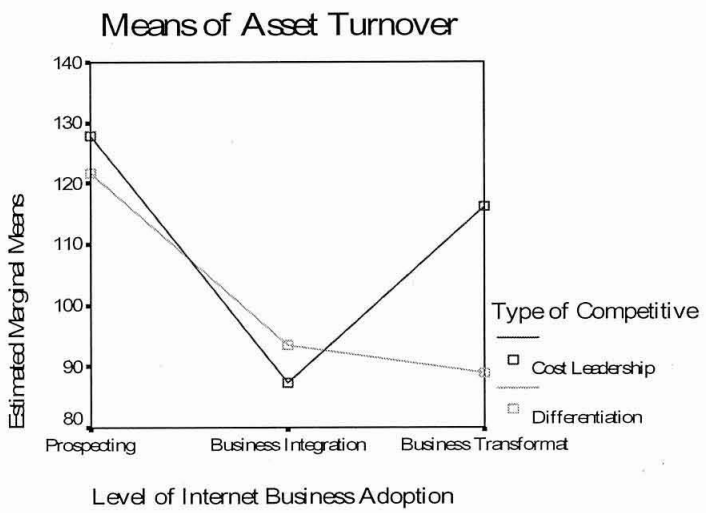

Figure 4-3. Interaction plots for means of asset turnover.

The observation of interaction of the two factors as they effect on return on assets (ROA) was shown in Table 4-14 and Figure 4-4. As shown in Table 4-14, factorial ANOVA found that the two factors had no significant different effect on return on assets.

This factorial ANOVA testing result suggested that the interaction of strategic types and Internet adoption levels had no guaranty in higher ROA performance.

Table 4-14

*Factorial ANOVA (Competitive Strategy and Internet Business Adoption * ROA)*

Source	Sum of Squares	df	Mean Square	*F*	Sig.
Corrected Model	3145.963	5	629.193	1.161	.328
Intercept	960.388	1	960.388	1.772	.184
Strategy (S)	70.815	1	70.815	.131	.718
Internet Business Adoption (I)	2479.738	2	1239.869	2.288	.103
S * I	447.840	2	223.920	.413	.662
Error	173987.434	321	542.017		
Total	177509.249	327			
Corrected Total	177133.398	326			

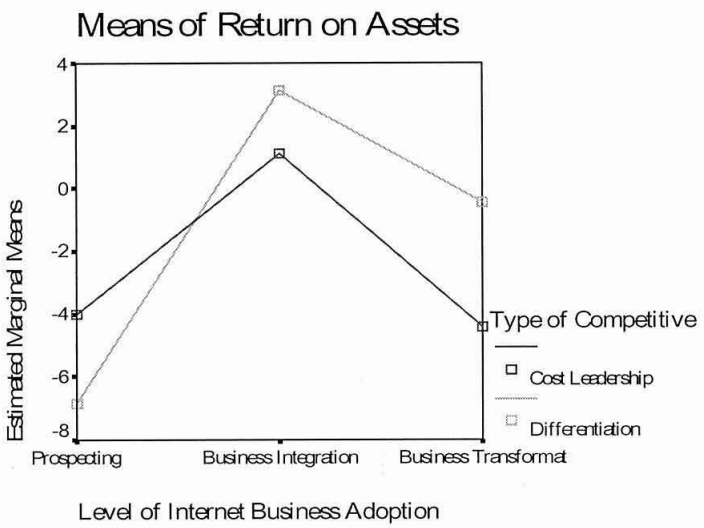

Figure 4-4. Interaction plots for means of return on assets.

The factorial ANOVA in Table 4-15 and Figure 4-5 revealed the interaction of competitive strategies and Internet business adoption on ROE. This table showed no significant different effects of competitive strategy and Internet business adoption on

ROE.

Table 4-15

*Factorial ANOVA (Competitive Strategy and Internet Business Adoption * ROE)*

Source	Sum of Squares	df	Mean Square	*F*	Sig.
Corrected Model	710769.113	5	142153.823	2.179	.056
Intercept	293540.838	1	293540.838	4.499	.035
Strategy (S)	199149.488	1	199149.488	3.052	.082
Internet Business Adoption (I)	437975.754	2	218987.877	3.357	.036
S * I	241324.754	2	120662.377	1.849	.159
Error	20942849.754	321	65242.523		
Total	21718412.172	327			
Corrected Total	21653618.866	326			

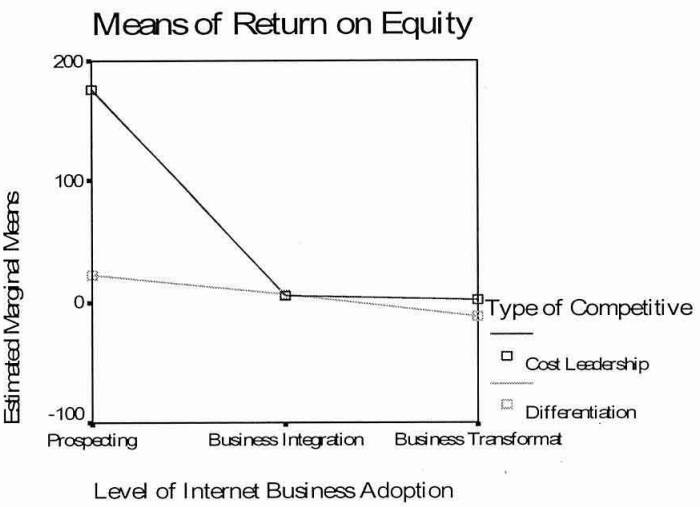

Figure 4-5. Interaction plots for means of return on equity.

Results of the effect of types of competitive strategies and levels of Internet business adoption on financial performance revealed that a firm with a competitive strategy type and Internet business adoption level had no guaranty of greater financial performance for a business organization.

Hypotheses Test Results

ANOVA was used to analyze the 327 datasets for the hypotheses. A 2x3 factorial ANOVA was conducted to evaluate the two main effects and interaction effects of the experimental variables. The procedures were utilized to determine whether these competitive strategies and Internet business adoption had a significant effect on PM, ATO, ROA and ROE ratios, and whether the interaction between these two main factors had a significant effect on these four ratios.

Factorial ANOVA statistics using six combination groups of strategy types (cost leadership and differentiation) and Internet business adoption levels (prospecting, business integration, and business transformation) examined the different effects on financial performance (profit margin, asset turnover, return on assets, and return on equity). Examination of the significant differences (*F*-values, *p*-value) revealed which combination group differed from the other groups.

A 2x3 factorial ANOVA tested the hypotheses and each of the two main effects on the four financial performances was measured. Examining the significant results for the hypotheses, the study made three observations: 1) The one-way ANOVA statistically described the different levels of the main factor A's effect the dependent variables including H_{1a}, H_{2a}, H_{3a}, and H_{4a}, 2) The one-way ANOVA statistically described the different levels of the main factor B's effect on the dependent variables including H_{1b}, H_{2b}, H_{3b}, and H_{3b}, and 3) The 2x3 factorial ANOVA statistically described the interaction of the main factors A and B' different effects on the dependent variables including H_{1c}, H_{2c}, H_{3c}, and H_{4c}.

H_1: Effect of type of strategy and level of Internet adoption on profit margin (PM).

H_{1a}: Firms with a differentiation strategy have a greater effect on profit margin (PM) than firms with a cost leadership strategy.

This study proposed that a firm's competitive strategy type should be considered as a key factor in examining the effect on its financial performance. One-way ANOVA was conducted to test each type of competitive strategy for its effects on four ratios. For competitive strategy, the firms were classified as using a cost leadership or a differentiation strategy. In Table 4-16, the ANOVA analysis indicated these two strategies types had no significant differential effects on profit margin. This table showed that H_{1a} was not supported at the 0.05 significance level.

The data analysis indicated that the type of competitive strategy was not always a key factor that positively influenced the profit margin ratio. The findings suggested that firms with a differentiation strategy had no greater effect on profit margin than those with a cost leadership strategy. Therefore, H_{1a} was not supported by these results.

Table 4-16

*One-Way ANOVA (Types of Competitive Strategies * Profit Margin)*

		Sum of Squares	df	Mean Square	*F*	Sig.
Cost Leadership	Between Groups	479.708	2	239.854	.389	.678
	Within Groups	88797.484	144	616.649		
	Total	89277.192	146			
Differentiation	Between Groups	1548.630	2	774.315	1.681	.189
	Within Groups	81526.799	177	460.603		
	Total	83075.429	179			

H_{1b}: Firms with a business transformation level of Internet adoption have a greater effect on profit margin (PM) than firms with a prospecting or a business integration level of Internet adoption.

For Internet adoption levels, the firms were classified as using a prospecting level, business integration level, or business transformation level. One-way ANOVA was conducted to test each level of Internet adoption and its effect on PM. In Table 4-17, the one-way ANOVA analysis showed no statistically significant effect on profit margin among the three levels of Internet adoption. Results found that H_{1b} was not supported at the 0.05 significance level. Comparing the three levels of Internet adoption, the results revealed business transformation levels had no greater effect on PM than do prospecting or business integration levels. Consequently, H_{1b} was not supported by these results.

Table 4-17

*One-Way ANOVA (Levels of Internet Business Adoption * Profit Margin)*

		Sum of Squares	df	Mean Square	*F*	Sig.
Prospecting	Between Groups	6.082	1	6.082	.006	.937
	Within Groups	48519.841	51	951.369		
	Total	48525.923	52			
Business Integration	Between Groups	179.313	1	179.313	.561	.455
	Within Groups	37732.603	118	319.768		
	Total	37911.916	119			
Business Transformation	Between Groups	799.891	1	799.891	1.446	.231
	Within Groups	84071.839	152	553.104		
	Total	84871.730	153			

H_{1c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on profit margin (PM) than other combinations of strategy types and Internet adoption levels.

For the combination of competitive strategy types and Internet business adoption levels, the firms classified with the six combination groups are Group 1 through Group 6. A 2x3 factorial ANOVA was conducted to examine the interaction of the two factors' effect on the dependent variables. A 2x3 factorial ANOVA procedure examined differences in the effectiveness of each of the six groups on the four ratios.

As shown in Table 4-18, the 2x3 factorial ANOVA testing result revealed that Group 5 ($F = 12.928$, $p = .001$) and Group 6 ($F = 3.885$, $p = .052$) had a significant effect on profit margin (PM). Of the six groups, the results indicated that only Group 5 and Group 6 were significant for an effect on profit margin (PM). The significant findings in these six combination groups indicated that a firm with a differentiation strategy and business integration level of Internet adoption (Group 5) or a firm with a differentiation strategy and business transformation level of Internet adoption (Group 6) had a greater profit margin (PM) performance. Therefore, H_{1c} was supported by these results.

Based on the results of the analysis for H_1, it appeared that a firm with a differentiation strategy and a high level of Internet adoption (e.g., business integration or business transformation) can expect positive effects on the profit margin. These findings suggested that two main factors affect the profit margin (PM) ratio. Therefore, H_1 was partially supported.

Table 4-18

*Factorial ANOVA Tests of Between-Subjects Effects (Groups * Profit Margin)*

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Prospecting	Group 1 (Cost * Prospecting)	Corrected Model	.000	0			
			Intercept	247.378	1	247.378	.655	.427
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	8689.241	23	377.793		
			Total	8936.619	24			
			Corrected Total	8689.241	23			
Cost Leadership	Business Integration	Group 2 (Cost * Integration)	Corrected Model	.000	0			
			Intercept	302.840	1	302.840	.388	.536
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	33633.077	64	525.517		
			Total	33836.917	65			
			Corrected Total	33633.007	64			

Table 4-18 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Transformation	Group 3 (Cost * Transformation)	Corrected Model	.000	0			
			Intercept	28.537	1	28.537	.035	.852
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	46475.16	57	815.354		
			Total	46503.70	58			
			Corrected Total	46475.16	57			
Differentiation	Prospecting	Group 4 (Differentiation * Prospecting)	Corrected Model	.000	0			
			Intercept	439.072	1	439.720	.309	.583
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	39830.60	28	1422.521		
			Total	40269.67	29			
			Corrected Total	39830.60	28			

Table 4-18 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Integration	Group 5 (Differentiation * Integration)	Corrected Model	.000	0			
			Intercept	981.420	1	981.420	12.928	.001
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	4099.526	54	75.917		
			Total	5080.947	55			
			Corrected Total	4099.526	54			
Differentiation	Business Transformation	Group 6 (Differentiation * Transformation)	Corrected Model	.000	0			
			Intercept	1537.625	1	1537.62	3.885	.052
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	37596.673	95	395.754		
			Total	39134.297	96			
			Corrected Total	37596.637	95			

H_2: Effect of type of strategy and level of Internet adoption on asset turnover (ATO).

H_{2a}: Firms with a differentiation strategy have a greater effect on asset turnover (ATO) than firms with a cost leadership strategy.

This hypothesis analyzed the effects of different types of competitive strategies on asset turnover. As shown in Table 4-19, one-way ANOVA procedures found that cost leadership strategy had a significant effect (F = 3.722, p = .027) on ATO. The results indicated that the cost leadership strategy can enhance ATO performance. Therefore, strategy type was a key factor in determining the effect on asset turnover.

Comparing the two types of competitive strategies, firms with a cost leadership strategy had a better asset turnover than firms with a differentiation strategy. The data indicated that each type of competitive strategy does not equally effect the asset turnover ratio. The analysis suggested that a differentiation strategy demonstrated less significant influence on asset turnover than the cost leadership strategy. Therefore, H_{2a} was not supported by these results.

Table 4-19

*One-Way ANOVA (Types of Competitive Strategies * Asset Turnover)*

		Sum of Squares	df	Mean Square	*F*	Sig.
Cost Leadership	Between Groups	479.708	2	20066.768	3.722	.027
	Within Groups	88797.484	144	5391.329		
	Total	89277.192	146			
Differentiation	Between Groups	24313.683	2	12156.841	2.680	.071
	Within Groups	802812.806	177	4535.666		
	Total	827126.489	179			

H_{2b}: Firms with a business transformation level of Internet adoption have a greater effect on asset turnover (ATO) than firms with a prospecting or a business integration level of Internet adoption.

In Table 4-22, the one-way ANOVA analysis showed the effects of different levels of Internet business adoption on asset turnover (ATO). As revealed in Table 4-20, business transformation level (F = 5.009, p = .027) had a significant effect on ATO. Table 4-20 reflected no significant differences for business integration and prospecting levels on ATO.

Comparing these three levels of Internet adoption, the results indicated that firms with a business transformation level had a significantly greater effect on asset turnover (ATO) than firms with prospecting or business integration levels. Therefore, H_{2b} was supported by these results.

Table 4-20

*One-Way ANOVA (Levels of Internet Business Adoption * Asset Turnover)*

		Sum of Squares	df	Mean Square	F	Sig.
Prospecting	Between Groups	486.434	1	486.434	.068	.796
	Within Groups	366028.300	51	7177.025		
	Total	366514.734	52			
Business Integration	Between Groups	1116.818	1	116.818	.328	.568
	Within Groups	401668.797	118	3403.973		
	Total	402785.615	119			
Business Transformation	Between Groups	26739.285	1	26739.285	5.009	.027
	Within Groups	811467.054	152	5338.599		
	Total	838206.339	153			

H_{2c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on asset turnover (ATO) than other combinations of strategy types and Internet adoption levels.

A significant finding was observed for the interaction between the two main effects (competitive strategy and Internet business adoption) on asset turnover (ATO). Table 4-21, 2x3 factorial ANOVA analysis indicated that each of the six groups had a significant effect on asset turnover (ATO), Group 1 (a cost leadership and a prospecting level) $F = 65.834$, $p = .000$, Group 2 (a cost leadership and a business integration level) $F = 238.144$, $p = .000$, Group 3 (a cost leadership strategy and a business transformation level) $F = 88.152$, $p = .000$, Group 4 (a differentiation strategy and a prospecting level) $F = 52.574$, $p = .000$, Group 5 (a differentiation strategy and a business integration level) $F = 96.514$, $p = .000$, and Group 6 (a differentiation strategy and a business transformation level) $F = 236.538$, $p = .000$. All of the six groups had a significant effect on asset turnover.

In addition, a firm's type of competitive strategy and level of Internet business adoption served as key factors in affecting asset turnover (ATO). The analysis suggested that firms with a differentiation strategy and a business transformation level of Internet adoption had a greater effect on asset turnover (ATO). Consequently, H_{2c} was supported by these results.

The results of this study found that the type of competitive strategy and level of Internet business adoption affected financial performance. Based on the H_2 analysis, the findings provided evidence that the type of competitive strategy and level of Internet adoption affected asset turnover (ATO). Therefore, H_2 was partially supported.

Table 4-21

*Factorial ANOVA Tests of Between-Subjects Effects (Groups * Asset Turnover)*

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Prospecting	Group 1 (Cost * Prospecting)	Corrected Model	.000	0			
			Intercept	392277.033	1	392277.033	65.834	.000
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	137046.632	23	5958.549		
			Total	529323.665	24			
			Corrected Total	137046.632	23			
Cost Leadership	Business Integration	Group 2 (Cost * Integration)	Corrected Model	.000	0			
			Intercept	495330.951	1	495330.95	238.144	.000
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	133117.867	64	2079.967		
			Total	628448.818	65			
			Corrected Total	133117.867	64			

Table 4-21 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Transformation	Group 3 (Cost * Transformation)	Corrected Model	.000	0			
			Intercept	782829.559	1	782829.55	88.152	.000
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	506186.846	57			
			Total	1289016.40	58			
			Corrected Total	506186.846	57			
Differentiation	Prospecting	Group 4 (Differentiation * Prospecting)	Corrected Model	.000	0			
			Intercept	429945.752	1	429945.75	52.574	.000
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	228981.668	28	8177.917		
			Total	658927.421	29			
			Corrected Total	228981.668	28			

Table 4-21 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Integration	Group 5 (Differentiation * Integration)	Corrected Model	.000	0			
			Intercept	479981.277	1	479981.27	96.514	.000
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	26855.930	54	4973.165		
			Total	748532.207	55			
			Corrected Total	268550.930	54			
Differentiation	Business Transformation	Group 6 (Differentiation * Transformation)	Corrected Model	.000	0			
			Intercept	760109.607	1	760109.60	236.538	.000
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	305280.208	95	3213.476		
			Total	1065389.815	96			
			Corrected Total	305280.208	95			

H_3: Effect of type of strategy and level of Internet adoption on return on assets.

H_{3a}: Firms with a differentiation strategy have a greater effect on return on assets (ROA) than firms with a cost leadership strategy.

Shown in Table 4-22 is the one-way ANOVA for the effects of different types of competitive strategies on return on assets (ROA). As reflected in Table 4-22, the ANOVA analysis found no significant differences for the cost leadership strategy or differentiation strategy and H_{3a} was rejected at the 0.05 significance level. The results further suggested that the type of competitive strategy did not positively contribute to return on assets (ROA). According to the analysis, the type of competitive strategy was not an important factor affecting return on assets (ROA).

Comparing the two strategic types, the significant finding was that a firm with a differentiation strategy had no better return on assets than a firm with a cost leadership strategy. Consequently, no single strategy type was identified that can guarantee a higher return on assets (ROA). Therefore, H_{3a} was not supported by these results.

Table 4-22

*One-Way ANOVA (Types of Competitive Strategies * Return on Assets)*

		Sum of Squares	df	Mean Square	*F*	Sig.
Cost Leadership	Between Groups	1072.429	2	536.24	1.252	.289
	Within Groups	61687.025	144	428.382		
	Total	62759.453	146			
Differentiation	Between Groups	1889.500	2	944.750	1.489	.228
	Within Groups	112300.410	177	634.466		
	Total	114189.909	179			

H_{3b}: Firms with a business transformation level of Internet adoption have a greater effect on return on assets (ROA) than firms with a prospecting or a business integration level of Internet adoption.

Table 4-23 shows the one-way ANOVA testing for the effects of different levels of Internet business adoption on return on assets (ROA). As shown in Table 4-25, one-way ANOVA analysis found that the prospecting level, business integration level, and business transformation level had no significant effect on return on assets (ROA). The result revealed that H_{3b} was rejected at the 0.05 significance level. Comparing the three levels of Internet adoption, firms with a business transformation level had no different effect on return on assets (ROA) than did firms with prospecting and business integration levels. Therefore, these results did not support H_{3b}.

Table 4-23

*One-Way ANOVA (Levels of Internet Business Adoption * Return on Assets)*

		Sum of Squares	df	Mean Square	*F*	Sig.
Prospecting	Between Groups	106.441	1	106.441	.112	.739
	Within Groups	48305.398	51	947.165		
	Total	48411.839	52			
Business Integration	Between Groups	118.935	1	118.935	1.043	.309
	Within Groups	13456.976	118	114.042		
	Total	13575.911	119			
Business Transformation	Between Groups	569.225	1	569.255	.771	.381
	Within Groups	112225.060	152	738.323		
	Total	112794.316	153			

H_{3c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on return on assets (ROA) than other combinations of strategy types and Internet adoption levels.

For this hypothesis, a significant finding was seen in the interaction of two of the main factors on return on assets (ROA). In Table 4-24, the results for the six groups, the 2x3 factorial ANOVA analysis shows that Group 5 ($F = 9.236$, $p = .004$) had a significant effect on return on assets (ROA). This result suggested that a particular combination of the competitive strategy type and Internet business adoption level affected return on assets (ROA).

However, in comparing the six combination groups, the results did not indicate that firms with a differentiation strategy and a business transformation level of Internet adoption affected return on assets (ROA) more than other combination groups. Significant findings indicated that a firm with the combination of a differentiation strategy and a business integration level of Internet adoption (Group 5) had a better return on assets (ROA) than did other combinations of strategy types and Internet adoption levels. Therefore, H_{3c} was not supported by these results.

Based on the analysis of H_3, strategy type and Internet adoption level had an apparent effect on return on assets. The findings indicated that a firm with a differentiation strategy and a business integration level of Internet adoption experienced a significant effect on the return on assets ratio. Therefore, H_3 was partially supported by the results.

Table 4-24

*Factorial ANOVA Tests of Between-Subjects Effects (Groups * Return on Assets)*

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Prospecting	Group 1 (*Cost * Prospecting*)	Corrected Model	.000	0			
			Intercept	384.173	1	384.173	1.169	.291
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	7556.387	23	328.539		
			Total	7940.559	24			
			Corrected Total	7556.387	23			
Cost Leadership	Business Integration	Group 2 (Cost * Integration)	Corrected Model	.000	0			
			Intercept	82.570	1	82.570	.512	.477
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	10316.328	64	161.193		
			Total	10398.899	65			
			Corrected Total	10316.328	64			

Table 4-24 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Transformation	Group 3 (Cost * Transformation)	Corrected Model	.000	0			
			Intercept	1137.609	1	1137.609	1.480	.229
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	43814.310	57	769.672		
			Total	44951.919	58			
			Corrected Total	43814.310	57			
Differentiation	Prospecting	Group 4 (Differentiation * Prospecting)	Corrected Model	.000	0			
			Intercept	1359.918	1	1359.918	.934	.342
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	40749.011	28	1455.322		
			Total	42108.929	29			
			Corrected Total	40749.011	28			

Table 4-24 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Integration	Group 5 (Differentiation * Integration)	Corrected Model	.000	0			
			Intercept	537.157	1	537.157	9.236	.004
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	3140.648	54	58.160		
			Total	3677.805	55			
			Corrected Total	3140.648	54			
Differentiation	Business Transformation	Group 6 (Differentiation * Transformation)	Corrected Model	.000	0			
			Intercept	20.387	1	20.387	.028	.867
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	68410.751	95	720.113		
			Total	68431.138	96			
			Corrected Total	68410.751	95			

H_4: Effect of type of strategy and level of Internet adoption on return on equity.

H_{4a}: Firms with a differentiation strategy have a greater effect on return on equity (ROE) than firms with a cost leadership strategy.

Finally, the study proposed that a firm's competitive strategy type should be a factor that affects return on equity. As shown in Table 4-25, for each type of competitive strategy (cost leadership and differentiation), one-way ANOVA indicated both competitive strategy types had no significant effects on return on equity and H_{4a} was rejected at the 0.05 significance level. The results indicated no single competitive strategy type affected return on equity.

Significant findings for the type of competitive strategy indicated that a firm with a differentiation strategy had no different effect on return on equity than did a firm with a cost leadership strategy. The findings suggested that these competitive strategy types were not guaranteed to affect return on equity. Therefore, H_{4a} was not supported by these results.

Table 4-25

*One-Way ANOVA (Types of Competitive Strategies * Return on Equity)*

		Sum of Squares	df	Mean Square	*F*	Sig.
Cost Leadership	Between Groups	597954.206	2	298977.103	2.393	0.95
	Within Groups	17994693.898	144	124963.152		
	Total	18592648.104	146			
Differentiation	Between Groups	29146.302	2	14573.151	.875	.419
	Within Groups	2948155.855	177	16656.248		
	Total	2977302.158	179			

H_{4b}: Firms with a business transformation level of Internet adoption have a greater effect on return on equity (ROE) than firms with a prospecting or a business integration level of Internet adoption.

In Table 4-28, the one-way ANOVA examined the effects of different levels of Internet adoption on return on equity (ROE). As shown in Table 4-26, one-way ANOVA analysis found that the prospecting level (F =.888, p =.035) had a significant effect on return on equity. Significant findings for the three Internet adoption levels indicated that a firm with a prospecting level had a greater effect on return on equity than a firm with business integration or business transformation level. Furthermore, firms with a business transformation level of Internet adoption demonstrated no better effect on return on equity than the other two levels. Therefore, H_{4b} was not supported by these results.

Table 4-26

*One-Way ANOVA (Levels of Internet Business Adoption * Return on Equity)*

		Sum of Squares	df	Mean Square	F	Sig.
Prospecting	Between Groups	310961.985	1	310961.985	.888	.035
	Within Groups	17851421.729	51	350027.877		
	Total	18162383.714	52			
Business Integration	Between Groups	50.550	1	50.550	.012	.913
	Within Groups	500951.599	118	4245.361		
	Total	501003.149	119			
Business Transformation	Between Groups	5945.337	1	5945.337	.349	.556
	Within Groups	2590475.426	152	17042.601		
	Total	2596420.763	153			

H_{4c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on return on equity (ROE) than other combinations of strategy types and Internet adoption levels.

The hypothesis examined the interaction between the two main effects (competitive strategy and Internet business adoption) on return on equity (ROE). A 2x3 factorial ANOVA examined the effects of differences of the six combination groups on return on equity. Table 4-27 shows that Group 5 had a significant effect on return on equity ($F = 10.721$, $p = .002$). Therefore, a firm's type of competitive strategy and level of Internet business adoption affected return on equity (ROE).

Significant findings for these six combination groups indicated that a firm with a differentiation strategy and a business integration level of Internet adoption (Group 5) had a higher return on equity (ROE) than did firms with other combinations of strategy types and Internet business adoption levels. However, firms with a differentiation strategy and a business transformation level of Internet adoption did not demonstrate a greater return on equity (ROE) effect than other combinations. Therefore, H_{4c} was not supported by the results.

From this analysis of H_4, no single combination group appears to be uniquely effective in return on equity performance. In other words, the results indicated that a firm's differentiation strategy and business integration level of Internet adoption affected return on equity. The finding suggested that the type of strategy and level of Internet adoption affected return on equity. Therefore, H_4 was partially supported by the results.

Table 4-27

*Factorial ANOVA Tests of Between-Subjects Effects (Groups * Return on Equity)*

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Prospecting	Group 1 (Cost * Prospecting)	Corrected Model	.000	0			
			Intercept	744291.554	1	744291.554	1.000	.328
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	17122982.571	23	744477.503		
			Total	17867274.125	24			
			Corrected Total	17122982.571	23			
Cost Leadership	Business Integration	Group 2 (Cost * Integration)	Corrected Model	.000	0			
			Intercept	1967.969	1	1967.969	.258	.613
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	488124.425	64	7626.944		
			Total	490092.394	65			
			Corrected Total	488124.425	64			

Table 4-27 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Transformation	Group 3 (Cost * Transformation)	Corrected Model	.000	0			
			Intercept	130.736	1	130.736	.017	.890
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	383586.902	57	6729.595		
			Total	383717.639	58			
			Corrected Total	383586.902	57			
Differentiation	Prospecting	Group 4 (Differentiation * Prospecting)	Corrected Model	.000	0			
			Intercept	14319.370	1	14319.370	.550	.464
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	728439.158	28	26015.684		
			Total	742758.528	29			
			Corrected Total	728439.158	28			

Table 4-27 (continued)

Type of Strategy	Level of Internet Adoption	Group	Source	Type III Sum of Squares	df	Mean Square	*F*	Sg
Cost Leadership	Business Integration	Group 5 (Differentiation * Integration)	Corrected Model	.000	0			
			Intercept	2546.940	1	2546.949	10.72	.002
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	12828.174	54	237.559		
			Total	15375.123	55			
			Corrected Total	12828.174	54			
Differentiation	Business Transformation	Group 6 (Differentiation * Transformation)	Corrected Model	.000	0			
			Intercept	12305.839	1	12305.839	.530	.469
			Strategy (S)	.000	0			
			Internet (I)	.000	0			
			S * I	.000	0			
			Error	2206888.52	95	23230.406		
			Total	2219194.36	96			
			Corrected Total	2206888.52	95			

This study used mixed methods (quantitative and qualitative) and secondary analysis to investigate the relationships among competitive strategy type, Internet business adoption level, and financial performance. This evidence from the hypotheses tested indicated that competitive strategy type and Internet business adoption level were major factors affecting financial performance.

The theoretical framework of this study indicated that business integration level and business transformation level are the higher levels of Internet business adoption (Teo & Pian, 2003), and that differentiation strategy is more important in earning profit in the Internet business market than is the cost leadership strategy (HomBurg, Krohmer & Workman, 1999; Obilade, 2002). Study hypotheses suggested that a differentiation strategy and a higher level of Internet business adoption would lead to greater financial performance for an organization.

The findings of the research question and the hypotheses showed that different combinations of strategy types and Internet business adoption levels had differing effects on the four ratios. In testing the hypotheses, the findings revealed that: 1) firms with the combination of a differentiation strategy and a business integration level of Internet adoption (Group 5) had better performance on profit margin (PM), asset turnover (ATO), return on assets (ROA), and return on equity (ROE) than did firms with other combinations of strategy types and Internet adoption levels, 2) firms with a differentiation strategy and a business transformation level of Internet adoption (Group 6) showed a greater effect on PM and asset turnover (ATO) performance, and 3) All of the six combination groups of competitive strategy types and Internet business adoption levels had a greater asset turnover (ATO). Consequently, these findings supported the

proposed hypotheses.

The results indicated that higher levels of Internet business adoption created better profit opportunities for business organizations; firms with a differentiation strategy and a higher level of Internet business adoption were more likely to demonstrate greater financial performance in the e-market than firms with a cost leadership strategy and a lower level of Internet business adoption. Consequently, the findings indicated that different combinations of competitive strategy types and Internet business adoption levels had an effect on financial performance.

Chapter IV presented the results of the data collection and data analysis. Chapter V discusses the findings and interprets the statistical results, and includes the limitations of the study and recommendations for future research.

CHAPTER V

DISCUSSION

The summary of the study's results in the previous chapter identified the key findings for the research question and hypotheses. This chapter described the purposes of this research, discussed the findings and interpreted the statistical results of the effect of competitive strategy and Internet business adoption on performance.

This study examined how the use of the types of competitive strategy and the levels of Internet business adoption in business organizations may increase value and performance. The independent variables were the competitive strategy (including cost leadership and differentiation), and Internet business adoption (including prospecting, business integration and business transformation). The dependent variable was financial performance: profit margin (PM), asset turnover (ATO), return on assets (ROA), and return on equity (ROE). Business organizations which implemented competitive strategies in the Internet business market had a significant impact on financial performance (Kamssu, Reithel & Ziegelmayer, 2003; Lai & Wong, 2005; Porter, 2003). Different types of competitive strategies (Porter, 2003; Slater & Olson, 2000) or levels of Internet adoption (Teo & Pian, 2003; Sohn & Wang, 1999) effected business performance.

The three purposes of this study were: 1) to describe the relationships among competitive strategy, Internet business adoption, and financial performance, 2) to examine the effectiveness of competitive strategy (cost leadership and differentiation) and Internet business adoption (prospecting, business integration and business transformation) on four financial ratios (profit margin, asset turnover, return on assets and

return on equity), and 3) to explore the importance of the combination of strategic types and Internet business adoption levels which may result in creating profitability for U. S. business organizations.

Among U.S. business organizations, 961 companies met the eligibility criteria of this study with annual sales between 50 to 200 million dollars, and the 3-digital SIC codes of 737 and 357. As a result of using the entire accessible population as a sample, this study was strengthened by decreased error, associated with selection bias. The secondary data and *paragraph approach* for content analysis had been successfully utilized to assess two main factors (two strategic types and three business adoption levels), and the DuPont analysis formula was useful in calculating the four financial ratios.

The study found that financial ratios were achieved by firms with competitive strategies and Internet business adoption. Chapter 5 discusses the study limitations, results interpretations, practical discussion, theory implication, and future research recommendations concerning the effect of competitive strategies and Internet business adoption on financial performance.

Interpretations

The entire accessible population was used as a sample in which each firm had an equal chance of being selected. Among the 961 companies, 327 (34%) provided usable secondary data. These secondary data were used to categorize the main factors and to compute four financial ratios, and then to answer the research question and test the hypotheses.

A 2 x 3 factorial design, secondary data research design, mixed method study was

used to answer the research question and test the hypotheses. The study had two independent variables, competitive strategy (including, cost leadership and differentiation) and Internet business adoption (including, prospecting, business integration and business transformation), and the dependent variable of financial performance (including, profit margin, asset turnover, return on assets, and return on equity). Six combination groups were used to compare and analyze financial performance (profit margin, asset turnover, return on assets, and return on equity) of companies. Group 1 was a firm with a cost leadership strategy and a prospecting level of Internet business adoption, Group 2 was a firm with a cost leadership strategy and a business integration level of Internet business adoption, Group 3 was a firm with a cost leadership strategy and a business transformation level of Internet business adoption, Group 4 was a firm with a differentiation strategy and a prospecting level of Internet business adoption, Group 5 was a firm with a differentiation strategy and a business integration level of Internet business adoption, and Group 6 was a firm with a differentiation strategy and a business transformation level of Internet business adoption.

Research Question

The purposes of this study were to statistically analyze the effects of strategy type on financial performance, the effects of Internet business adoption levels on financial performance, and the effects of the combination of competitive strategies and Internet business adoption levels on financial performance. According to the statistical descriptive analysis of 327 companies' data, more companies had a differentiated strategy (55 percent) than a cost leadership strategy (45 percent); furthermore, more companies had a business transformation level (47.1 percent) of Internet business adoption than a business

integration (36.7 percent) or a prospecting (16.2 percent) level of Internet adoption. Of the six combinations of groups, most companies belonged to Group 6 (a firm with a differentiation strategy and a business transformation level of Internet adoption); 29.4 percent higher than the percentage for the other groups.

The researcher collected data from the 2005 fiscal year annual reports from each of the 327 companies and utilized the DuPont formula to compute each firm's four financial ratios. The study examined the means of financial ratios for each of two strategy types, three Internet adoption levels, and six combination groups. A higher mean for the profitability ratio indicated higher financial performance. Comparing the two types of competitive strategy, the differentiation strategy had a higher mean for the profit margin ratio (PM) than a cost leadership strategy. Among the three Internet business adoption levels, the business integration level had a higher mean for the profit margin ratio (PM) and return on assets (ROA) ratio than the prospecting and business transformation levels of Internet adoption. Of the six combination groups, the results indicated that Group 5 (a firm with a differentiation strategy and a business integration level of Internet business adoption) had the highest mean for the margin ratio (PM) and return on assets (ROA) ratio. The one-way ANOVA analysis findings suggested that Internet business adoption was important for financial performance. The factorial ANOVA analysis findings suggested that a firm with competitive strategies and Internet business adoption had no guarantee of the highest financial performance for business organization.

Hypotheses

The hypotheses compared the effects of strategies on four financial ratios, the effects of Internet business adoption on four financial ratios, and the effects of six

combination groups of competitive strategy types and Internet business adoption levels on four financial ratios. The purpose of this study was to find the strategy type and Internet business adoption level that had a positive impact on the financial performance of business organizations.

For the two types of competitive strategy, the one-way ANOVA analysis indicated that the cost leadership strategy had a significant effect on the asset turnover (ATO) ratio, which was statistically significant at the $F = 3.722$, $p = 0.027$ level. Therefore, the findings supported the effect of strategy types on financial performance reported by Porter's (1980) generic strategy theory and the empirical findings reported by Homburg, Krohmer, and Workman (1999), Kunar and Subramanian (1998), and Obilade (2002).

For the three levels of Internet business adoption, the one-way ANOVA analysis indicated that the business transformation level had a significant effect on asset turnover (ATO), which was statistically significant at the $F = 5.009$, $p = 0.027$ level. The prospecting level of Internet business adoption demonstrated a significant effect on the return on equity (ROE) ratio, which was statistically significant at the $F = 0.888$, $p = 0.035$ level. Therefore, the findings supported the effects of the Internet adoption level on financial performance reported by Teo and Pian's (2003) model of level of Internet adoption.

For the six combination groups, the 2x3 factorial ANOVA analyses indicated that Group 5 (firms with a differentiation strategy and a business integration level of Internet business adoption) had a significant effect on profit margin ($F = 12.928$, $p = 0.01$), asset turnover ($F = 96.514$, $p = 0.00$), return on assets ($F = 9.236$, $p = 0.04$), and return on

equity ($F = 10.721$, $p = 0.02$) ratios. Group 6 (firms with a differentiation strategy and a business transformation level of Internet business adoption) had a significant effect on profit margin ($F = 3.885$, $p = 0.05$) and asset turnover ($F = 236.538$, $p = 0.00$) ratios. Group 1 - firms with a cost leadership strategy and a prospecting level of Internet business adoption - ($F = 65.834$, $p = 0.00$), Group 2 - firms with a cost leadership strategy and a business integration level of Internet business adoption - ($F = 238.144$, $p = 0.00$), Group 3 - firms with a cost leadership strategy and a business transformation level of Internet business adoption - ($F = 88.152$, $p = 0.00$), and Group 4 - firms with a differentiations strategy and a prospecting level of Internet business adoption - ($F = 52.574$, $p = 0.00$) had a significant effect on the asset turnover (ATO) ratio in this study. The findings indicated that firms with a differentiation strategy and a high level of Internet business adoption increased their financial performance more significantly.

The results revealed that all different combinations of strategies types and Internet business adoption levels affected financial performance, while Group 5 (firms with a differentiation strategy and a business integration level of Internet business adoption) demonstrated statistical significance at the $p = < 0.05$ level on four ratios. Therefore, the finding suggested that Hypotheses 1, 2, 3, and 4 were partially supported. This study examined 12 hypotheses of which; three (H_{1c}, H_{2b}, and H_{2c}) were supported, while the other nine were not. Table 5-1 outlines the results of the hypotheses.

Table 5-1

Results of Hypotheses

Hypotheses	Results
H_1: Effects of type of strategy and level of Internet adoption on profit margin (PM).	Partially Supported (Group 5 and 6)
H_{1a}: Firms with a differentiation strategy have a greater effect on profit margin than firms with a cost leadership strategy.	Not Supported
H_{1b}: Firms with a business transformation level of Internet adoption have a greater effect on profit margin than firms with a prospecting or a business integration level of Internet adoption.	Not Supported
H_{1c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on profit margin than other combinations of strategy types and Internet adoption levels.	Supported
H_2: Effects of type of strategy and level of Internet adoption on asset turnover (ATO).	Partially Supported (Group 5)
H_{2a}: Firms with a differentiation strategy have a greater effect on asset turnover than firms with a cost leadership strategy.	Supported
H_{2b}: Firms with a business transformation level of Internet adoption have a greater effect on asset turnover than firms with a prospecting or a business integration level of Internet adoption.	
H_{2c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on asset turnover than other combinations of strategy types and Internet adoption levels.	Supported
H_3: Effects of type of strategy and level of Internet adoption on return on assets (ROA).	Partially Supported (Group 5)
H_{3a}: Firms with a differentiation strategy have a greater effect on return on assets than firms with a cost leadership strategy.	Not Supported
H_{3b}: Firms with a business transformation level of Internet adoption have a greater effect on return on assets than firms with a prospecting or a business integration level of Internet adoption.	Not Supported

Table 5-1 (continued)

Hypotheses	Results
H_{3c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on return on assets than other combinations of strategy types and Internet adoption levels.	Not Supported
H_4: Effects of type of strategy and level of Internet adoption on return on equity (ROE).	Partially Supported (Group 5)
H_{4a}: Firms with a differentiation strategy have a greater effect on return on equity than firms with a cost leadership strategy.	Not Supported
H_{4b}: Firms with a business transformation level of Internet adoption have a greater effect on return on equity than firms with a prospecting or a business integration level of Internet adoption.	Not Supported
H_{4c}: Firms with a differentiation strategy and a business transformation level of Internet adoption have a greater effect on return on equity than other combinations of strategy types and Internet adoption levels.	Not Supported

The hypotheses of this study suggested that firms with a differentiation strategy and a high level of Internet business adoption can enhance their financial performance more than firms adopting a cost leadership strategy and a low level of Internet business adoption. In this study, the business integration level and business transformation level of Internet adoption was representative of the high level of Internet business adoption (Teo & Pian, 2003). A business organization with a high level of Internet business adoption may encounter more profit opportunities (Shon & Wang, 1998). Furthermore, the differentiation strategy is even more competitive than cost leadership strategies in the Internet business market (Evans & Smith, 2004).

According to the statistical results, the most effective combination group was Group 5 (firms with a differentiation strategy and a business integration level of Internet business adoption); however, Group 1 (firms with a cost leadership strategy and a

prospecting level of Internet business adoption), Group 2 (firms with a cost leadership strategy and a business integration level of Internet business adoption), Group 3 (firms with a cost leadership strategy and a business transformation level of Internet business adoption), Group 4 (firms with a differentiation strategy and a prospecting level of Internet business adoption), and Group 6 (firms with a differentiation strategy and a business transformation level of Internet business adoption) also demonstrated an effect on financial performance. The findings of the hypotheses tested indicated that the effects of the types of competitive strategies and levels of Internet business adoption on financial performance confirmed Porter's generic strategies (2001) theories and the empirical findings reported by Homburg, Krohmer, and Workman (1999), Kunar and Subramanian (1998), and Obilade (2002), as well as Sohn and Wang (1998, 1999), and Teo and Pian's (2003) Internet adoption level model.

Practical Implications

1. This study had both practical and academic implications. The study was based on theoretical implications that are applicable and extend to real businesses. Because the findings were theoretical, the consequences for practice implications are implied.
2. Internet business adoption is the use of the Internet to conduct a firm's daily business. According to the study results, firms with a high level of Internet business adoption see improved business performance in the Internet business market. Higher levels of Internet business adoption could improve companies' e-business service, whereas, a higher level of Internet business adoption along with a better website design and checkout system may allow for business

support, lower costs, and create new business opportunities.

3. The findings indicate that firms could improve their profitability and competitive advantage by using a differentiation strategy and a business integration level of Internet adoption to enable them to maximize their profitability. This should be a fundamental requirement for business organizations. Firms with a differentiation strategy and a business transformation level of Internet adoption can also improve their profitability. The results of this study contribute to the literature regarding how firms in many industries compete.

Conclusions

1. The type of competitive strategy used may be a factor influencing financial performance of U.S. business organizations. Cost leadership has a great effect on asset turnover (ATO); firms with cost leadership may increase their value and performance. These results supported Porter's (1980) generic strategies theory and the empirical findings reported by Homburg, Krohmer, and Workman (1999), Kunar and Subramanian (1998), and Obilade (2002).
2. Internet business adoption can be an important factor influencing financial performance. Firms adopting a prospecting level of Internet business will have a great effect on their profit margin (PM) and return on equity (ROE) ratios. Firms adopting a business transformation level of Internet business will generate a great effect on their asset turnover (ATO) ratio. These finding supported the model of level of Internet adoption reported by Sohn and Wang (1998, 1999), and Teo and Pian (2003).

3. Firms with a differentiation strategy and a business integration level of Internet business adoption (Group 5) had positive influences on their profit margin (PM), asset turnover (ATO), return on assets (ROA), and return on equity (ROE); Firms with a differentiation strategy and a business transformation level of Internet business adoption (Group 6) had positively influences on its profit margin (PM) and asset turnover (ATO); and firms with a cost leadership strategy and a prospecting level of Internet business adoption (Group 1), a cost leadership strategy and a business integration level of Internet business adoption (Group 2), a cost leadership strategy and a business transformation level of Internet business adoption (Group 3), and a differentiation strategy and a prospecting level of Internet business adoption (Group 4) had positive influences on its asset turnover (ATO). Therefore, the type of competitive strategy and the level of Internet business adoption had a significant positive relationship with financial performance.
4. A high tech firm with the combination of a differentiation strategy and a higher level of Internet business adoption (business integration or business transformation) will increase financial performance and improve its value; that is the key to success.
5. A higher level of Internet business adoption creates positive improved financial performance for business organizations.
6. Firms with a low cost strategy can perform better than these with a differentiation strategy in a real world market but not in the e-market. A differentiation strategy is more important in the Internet business than a low

cost strategy. With a differentiation strategy (such as unique product, advertising, high price or building brand image) firms can be succeed in the cyber world market.

7. The results indicated that the contributions of this study could benefit academic research and provide practical implications for managers.

Limitations

1. The fact that this study used only selected researchers from a significant body of literature may limit the results.
2. The interpreted variables were limited to the theoretical and statistical analysis selected. Identifying the effects of competitive strategy and Internet business adoption on financial performance in this study was limited to the detection of how financial performance was affected by competitive strategy types and Internet business adoption levels.
3. The use of the DuPont analysis to calculate the financial ratios (profit margin, asset turnover, return on assets, and return on equity) might have affected the results of this study.
4. This study was limited to U.S. business organizations reporting annual sales between $50 and $200 million with the three-digit SIC codes of 737 and 357. A larger sample might provide better results. Arranging 327 companies into six combination groups may have limited the opportunity for equal sizing to compare effectiveness on financial performance. For example, Group 1 (firms with a cost leadership strategy and a prospecting level of Internet business adoption) included 24 companies while Group 6 (firms with a differentiation

strategy and a business transformation level of Internet business adoption) had 96 companies.

5. A limitation in this study was the reliability of the secondary data used. Firms' strategic type and Internet adoption levels were drawn from their annual reports and websites. In using archival data, the conclusion may have been affected by errors in the secondary data.

Recommendations for Future Study

1. This study was narrowed to examine the two strategy types (cost leadership, and differentiation), three Internet adoption levels (prospecting, business integration, and business transformation) and four profitability ratios (profit margin, asset turnover, return on assets, and return on equity). Future studies should test McCarthy's 4Ps strategies: product, price, promotion and place strategies.
2. Future studies should explore a target population located outside of the U.S. as well as business organizations whose annual sales are not within the $50 to $200 million range, and whose three-digit SIC code is not 737 or 357 in order to provide a comparison group for the findings of the current study, i.e., researchers should select a larger sample, possibly one with greater annual sales and no SIC code limitations, in order to increase the entire accessible population. Such a larger sample may produce different results.
3. This study tested four financial ratios: profit margin (PM), asset turnover (ATO), return on assets (ROA), and return on equity (ROE). Future studies should examine other financial ratios as well, such as liquidity and leverage

ratios, thereby continuing the research that this study has begun.

4. As this study was limited to firms in the U.S., a suggestion for future is to assess the level of Internet adoption in other countries' business organizations.
5. Having more than one researcher obtain and code the data is another suggestion for future researchers.

Chapter V had discussed the research question and hypotheses as well as interpreted the findings. The implications for theory and practice were addressed. In addition, the limitations of the study and recommendations for future research were included.

REFERENCES

Aijo, T., & Blomqvist, K. (2003). *Integrating a customer-oriented technology strategy with general business strategy.* Lappeenranta, Finland: Lappeenranta University of Technology, Telecom Business Research Center. Retrieved January 20, 2005, from http://www.fintra.fi/uploads/oyanuh.pdf

Ajzen, I., & Fishbein, M. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research.* Boston: Addison-Wesley.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Allen, E., & Fjermestad, J. (2001). E-commerce marketing strategies: An integrated framework and case analysis. *Logistics Information Management*, *14*(1/2), 14. Retrieved February 10, 2005, from ProQuest database.

Apigian, C. H. (2003). Internet strategy: An integrated complement to an organization's exiting business practices. *Dissertation Abstracts International,* (UMI No. 3085581). Retrieved October 21, 2004, from ProQuest database.

Auger, P., Barnir A., & Gallaugher, J. M. (2003). Strategic orientation, competition, and Internet-based electronic commerce. *Information Technology and Management*, *4*(2-3), 139-164. Retrieved February 20, 2005, from ProQuest database.

Bakos, J. Y., & Treacy, M. E. (1986). Information technology and corporate strategy: A research perspective. *MIS Quarterly*, *10*(2), 107-119. Retrieved May 20, 2005, from ProQuest database.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120. Retrieved March 1, 2005, from ProQuest database.

Bartlett, C. A., & Ghoshal, S. (2002). Building competitive advantage through people. *MIT Sloan Management Review*, *43*(2), 34-41.

Beard, D. W., & Dess, G. G. (1981). Corporate-level strategy, business-level strategy, and firm performance. *Academy of Management Journal*, *24*(4), 663-688. Retrieved February 1, 2005, from ProQuest database.

Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. *MIS Quarterly*, *24*(1), 169-196. Retrieved June 24, 2005, from ProQuest database.

Blumenthal, R. G. (1998). Tis the gift to be simple (DuPont's framework for financial analysis). *CFO, The Magazine for Senior Financial Executives*, *14*(1), 1-3. Retrieved March 30, 2007, from http://www.webster.edu/~charngil/DuPont.pdf

Boonchanya, P. (2000). *ECommerce for automotive industries*. Paris, France: Atos Origin Inc. Retrieved March 12, 2006, from http://www.ecommerce.or.th/event/automotive/origin.pdf

Brounen, D., & Eichholtz, P. (2001). Capital structure theory: Evidence from European property companies' capital offerings. *Forthcoming in Real Estate Economics, 21*(4), 1-23. Retrieved February 25, from ProQuest database.

Brown, L., Fuller, F., & Kirby, F. W. (1999). DuPont and the IRS useful information from the tax return. *The Journal of Bank Cost & Management Accounting*, *12*(1), 57-67. Retrieved March 12, 2005, from ProQuest database.

Caldeira, M. M., & Ward, J. M. (2003). Using resource-based theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises. *European Journal of Information Systems*, *12*(2), 127-141. Retrieved December 23, 2004, from ProQuest database.

Chan, Y. E. (1992). *Business strategic orientation, information systems strategy, and strategic fit: measurement and performance impacts* [Electronic version]. Unpublished doctoral dissertation, Western Business School, University of Western Ontario, London, Ontario, Canada.

Chan, Y. E., Huff, S. L., Barclay, D. W., & Copeland, D. G. (1997). Business strategic orientation, information systems strategic orientation, and strategic alignment. *Information Systems Research*, *8*(2), 125-150. Retrieved May 27, 2005, from ProQuest database.

Chen, Y., & Zhu, J. (2004). Measuring information technology's indirect impact on form performance. *Information Technology and Management*, *5*(1-2), 9-22. Retrieved July 17, 2005, from ProQuest database.

Conant, J., Mokwa, M., & Varadarajan, P. R. (1990). Strategic types, distinctive marketing competencies, and organizational performance: A multiple measures-based study. *Strategic Management Journal*, *11*(5), 365-383. Retrieved May 23, 2005, from ProQuest database.

Conley, J, G. (2000). *Foundations of sustainable competitive advantage*. Auckland Park, South Africa: University of Johannesburg, management department. Retrieved December 1, 2004, from http://www.ranjaygulati.com/new/resources/present/present-fourpillars.pdf

Cronin, M. J. (1996). *The Internet strategy handbook*. Boston: HBS Press.

Croteau, A. M., & Bergeron, F. (2001). An information technology trilogy: Business strategy, technological deployment and organizational performance. *Journal of Strategic Systems*, *10*, 77-99. Retrieved March 16, 2005, from ProQuest database.

Croteau, A. M., & Raymond, L. (2004). Performance outcomes of strategic and IT competencies alignment. *Journal of Information Technology*, *19*(3), 178-190. Retrieved February 12, 2005, from ProQuest database.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, *22*(14), 111-1132.

Davis, F. D. (1986). *A technology acceptance model for empirically testing new end-user information system: Theory and result* [Electronic version]. Unpublished doctoral dissertation, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA, USA.

Dayton, D. (2004). Electronic editing in technical communication: A model of user-centered technology adoption. *Technical Communication*, *51*(2), 207-223. Retrieved February 12, 2005, from ProQuest database.

Dehning, B., & Stratopoulos, T. (2002). Dupont analysis of an IT-enabled competitive advantage. *International Journal of Accounting Information*, *3*(3), 165-176.

Dess, G. G., & Davis, P. (1984). Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance. *Academy of Management Journal*, *27*(3), 467- 488. Retrieved May 18, 2005, from ProQuest database.

Dess, G. G., & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, *5*(3), 265-179. Retrieved September 12, 2005, from ProQuest database.

Doty, D. H. (1990). *Context, structure, and strategy: A configurational approach to organizational effectiveness* [Electronic version]. Unpublished doctoral dissertation, Graduate School of Business, Austin, TX, USA.

Duan, J. (2000). Internet strategies and product type: a content information focus. *American Marketing Association*, *11*, 95-101. Retrieved October 26, 2004, from ProQuest database.

Eisemann, P. C. (1997). Return on equity and systematic ratio analysis. *Commercial Lending Review*, *12*(3), 51-57. Retrieved December 20, 2005, from ProQuest database.

Ellinger, P. (2005). *Ratio analysis: Look among the numbers*. Retrieved October 2, 2005, from http://www.farmdoc.uiuc.edu/finance/Issues/Analysis6.PDF

Evans, D. M., & Smith, A. C. T. (2004). Augmenting the value chain: Identifying competitive advantage via the Internet. *JITTA: Journal of Information Technology Theory and Application*, *6*(1), 61- 79. Retrieved September 20, 2005, from ProQuest database.

Feng, K., Chen, E. T., & Liou, W. (2005). Implementation of knowledge management systems and firm performance: an empirical investigation. *The Journal of Computer Information System*, *45*(2), 92-104. Retrieved January 22, 2006, from ProQuest database.

Fernandez, Z., & Nieto, M. J. (2005). The Internet: Strategy and boundaries of the firm. *Business Economics Series*, January, 1-23.

Feroz, E., Kim, S., & Raab, R. (2003). Financial statement analysis: A data envelopment analysis approach. *Journal of the Operational Research Society*, *54*, 48-58. Retrieved December 5, 2005, from ProQuest database.

Formisano, R. A. (2003). *The Manager's Guide to Strategy*. Retrieved March 10, 2005, from http://www.briefcasebooks.com/formisano.htm

Freeman, L. N. (2004). Financial performance metrics guide owners, managers. *Ophthalmology Times*, *29*(12), 69. Retrieved December 15, 2005, from ProQuest database.

Garden, A. (2000). Why you need an Internet strategy. *New Zealand Management*, *47*(4), 20.

Gatignon, H., & Robertson, T. S. (1989). Technology diffusion: An empirical test of competitive effects. *Journal of Marketing*, *53*(1), 35-49. Retrieved December 15, 2004, from ProQuest database.

Ghemawat, P. (2002). Competition and business strategy in historical perspective. *Business History Review*, *76*, 37-74. Retrieved November 5, 2004, from ProQuest database.

Goode, S., & Stevens, K. (2000). An analysis of the business characteristics of adopters and non-adapters of World Wide Web technology. *Information Technology and management*, *1*(1-2), 129-168. Retrieved January 12, 2005, from ProQuest database.

Gordon, B. (2000). *The legal challenge of regulation of Internet fact or fallacy?* Retrieved February 2, 2005, from http://www.geocities.com/Athens/Academy/5090/chapter2.html

Hoepfl, M.C. (1991). Choosing Qualitative Research: A Primer for Technology Education Researchers. *Journal of Technology Education*, *9*(1). Retrieved December 13, 2006, from http://scholar.lib.vt.edu/ejournals/JTE/v9n1/hoepfl.html

Homburg, C., Hoyer, W. D., & Fassnacht, M. (2002). Service orientation of retailer's business strategy: Dimensions, antecedents, and performance outcome. *Journal of Marketing*, *66*(4), 86-101. Retrieved April 22, 2005, from ProQuest database.

Homburg, C., Krohmer, H., & Workman, J. P. (1999). Strategic consensus and performance: The role of strategy type and market-related dynamism. *Strategic Management Journal*, *20*(4), 339-357. Retrieved January 15, 2005, from ProQuest database.

IBM. (2003a). *About e-business*. Retrieved October 9, 2003, from http://www-5.ibm.com/e-business/uk/about_e-buiness/

IBM. (2003b). *What is e-business?* Retrieved October 9, 2003, from http://www-8.ibm.com/e-business/nz/whatis.html

Irwin, J. G., Hoffman, J. J., & Geiger, S. (1998). The effect of technological adoption on organizational performance: organizational size and environmental munificence as moderators. *The International Journal of Organizational Analysis*, *6*(1), 50-64. Retrieved April 25, 2005, from ProQuest database.

Jahangir, K., Yash, G., & Somers, M. T. (1996). The congruence between a firm's competitive strategy and information *technology leader's rank and role. Journal of Management Information System, 13*(1), 63-88.

James, W., & Hatten, K. (1995). Further evidence on the validity of the self typing paragraph approach: Miles & Snow strategic archetypes in banking. *Strategic Management Journal*, *16*(2), 161-168. Retrieved September 12, 2005, from ProQuest database.

Jarrett, S. M. (2003). Factors affecting the adoption of E-business in the aerospace industry. *Dissertation Abstracts International,* (UMI No. 3096349). Retrieved April 20, 2005, from ProQuest database.

Jouirou, N., & Kalika, M. (2004). *Strategic alignment: A performance tool (an empirical study of SMEs)*. Retrieved February 10, 2005, from http://www.dauphine.fr/crepa/ArticleCahierRecherche/Articles/MichelKALIKA/AMCIS2004NJMK.pdf

Kamssu, A. J., Reithel, B. J., & Ziegelmayer, J. L. (2003). Information technology and financial performance: The impact of being an Internet-dependent firm on stock returns. *Information System Frontiers*, *5*(3), 279-288. Retrieved April 22, 2005, from ProQuest database.

Karagiannopoulos, G. D., Georgopoulas, N., & Nikolopoulos, K. (2005). Fathoming Porter's five forces model in the Internet era. *Info: the Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media*, *7*(6), 66-77.

Keppel, G. (1991). *Design and analysis: A researcher's handbook.* Englewood Cliffs, New Jersey: Prentice-Hall.

Kidd, P. T. (2001). *E-business strategy: Case studies, benefit and implementation.* Retrieved February 10, 2005, from http://www.cheshirehenbury.com/publications/ebmanrep/ebmrexexsum.html

King, W. R., & Teo, T. S. H. (1997). Integration between business planning and information systems planning: Validating a stage hypothesis. *Decision Sciences*, *28*(2), 279-308. Retrieved May 25, 2005, from ProQuest database.

Kumar, K., & Subramanian, R. (1998). Porter's strategic types: Different in internal processes and their impact on performance. *Journal of Applied Business Research*, *14*(1), 107-124.

Lages, C., Lages, L. F., & Rita, P. (2004). *The relationship between e-market strategy and performance: A conceptual framework in a web context.* Retrieved January 5, 2005, from http://portal.fe.unl.pt/FEUNL/bibliotecas/BAN/WPFEUNL/WP2004/wp446.pdf

Lai, V. S., & Wong, B. K. (2005). Business types, E-strategies, and performance. *Communications of the ACM*, *48*(5), 80-85. Retrieved June 18, 2005, from ProQuest database.

Lederer, A., Mirchandani, D., & Sims, K. (1997). The link between information strategy and electronic commerce. *Journal of Organizational Computing and Electronic Commerce*, *7*(1), 17-34.

Lehtinen, J. (1996). *Financial ratios in an international comparison: Validity and reliability* [Electronic version]. Unpublished doctoral dissertation, University of Vaasa, Acta Wasaensia, Vaasa, Finland.

Lenz, R. T. (1980). Environment, strategy, organization structure and performance: patterns in one industry. *Strategic Management Journal*, *1*(3), 209-226. Retrieved September 28, 2005, from ProQuest database.

Lim, J. H. (2006). *A meta-analysis of the effects of IT investment on financial firm performance*. Retrieved January 19, 2006, from http://aaahq.org/infosys/conferences/midyear06_papers/Lim%20AIS2006.pdf

Lynch, D. F. (1998). *The integration of firm resources the role of capabilities in strategy and firm performance. Dissertation Abstracts International,* (UMI No.9920315). Retrieved December 8, 2004, from ProQuest database.

MacElroy, W. H. (2002). *How the Internet will kill three of the four Ps of marketing.* Retrieved March 01, 2005, from http://www.psych.uni-goettingen.de/congress/gor-2001/contrib/mcElroy-william/mcElroy-william Document.

MacKay, N., Parent, M., & Gemina, A. (2004). A model of electronic commerce adoption by small voluntary organizations. *European Journal of Information Systems*, *13*(2), 147-159. Retrieved December 12, 2004, from ProQuest database.

Marijke, V. (2004). *Explain e-business adoption.* Retrieved January 20, 2005, from http://www.utwente.nl/nikos/research/dissertations/veen/summarymvdv.pdf

McCarthy, E. J. (1960). *Basic marketing: A managerial approach.* Homewood, IL: Richard D. Irwin, Inc.

McDaniel, S. W., & Kolari, J. W. (1987). Marketing strategy implications of the Miles and Snow strategic typology. *Journal of Marketing, 51*(4), 19-30. Retrieved March 10, 2005, from ProQuest database.

Meckel, M., Walters, D., Greenwood, A., & Baugh, P. (2004). A taxonomy of e-business adoption and strategies in small and medium sized enterprises. *Strategic Change, 13*(5), 259-269. Retrieved January 15, 2005, from ProQuest database.

Melville, N., Kraemer, K. L., & Gurbaxzni, V. (2004). *Information technology and organizational performance: an integrative model of IT business value* [Electronic version]. Irvine, CA: University of California, Center for Research on information Technology and Organizations.

Milbourn, G., & Haight, T. (2005). Providing students with an overview of financial statements using the Dupont analysis approach. *Journal of American Academy of Business, 6*(1), 46- 50. Retrieved December 12, 2005, from ProQuest database.

Miles, R. E., & Snow, C. C. (1978). *Organizational strategy, structure, and process.* New York: McGraw-Hill.

Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman, H. J. (1978). Organizational strategy, structure, and process. *Academy of Management, 3*(3), 546-562. Retrieved May 27, 2005, from ProQuest database.

Miller, D. (1987). Strategy making and structure: Analysis and implications for performance. *Academy of Management Journal*, *30*(1), 7-32. Retrieved May 12, 2005, from ProQuest database.

Miller, D., & Friesen, P. H. (1986). Porter's (1980) generic strategies and performance: An empirical examination with American data – part I: Testing Porter. *Organization Studies*, *7*(1), 37-56. Retrieved July 22, 2005, from ProQuest database.

Mintzberg, H. (1978). Patterns in strategy formation. *Management Science*, *24*(9), 934-948.

Modigliani, F., & Miller, M. (1958). The cost of capital, corporate finance and the theory of investment. *The American Economic Review*, *48*(3), 261-97. Retrieved September 25, 2005, from ProQuest database.

Modigliani, F., & Miller, M. (1963). Corporate income taxes and cost of capital: A correction. *The American Economic Review*, *53*(3), 433-443. Retrieved October 12, 2005, from ProQuest database.

Moore, M. (2002). *Effect of strategic orientation on innovation and performance: The case of multiple channels retailing (MCR)* [Electronic version]. Knoxville, TN: University of Tennessee.

Moyer, R. C., McGuigan, J. R., & Kretlow, W. J. (2006). *Contemporary Financial Management* (10th ed.). Cincinnati: South-Western College Publishing.

Myers, S. (2001). Capital structure. *Journal of Economic Perspectives*, *15*(2), p. 81-102. Retrieved February 16, 2005, from ProQuest database.

Nambisan, S., & Wang, Y. M. (1999). Roadblocks to web technology adoption? *Communications of the ACM, 42*(1), 98-101.

Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing, 54*(4), 20-35. Retrieved December 23, 2005, from ProQuest database.

Obilade, S. O. (2002). Alternative E-commerce business models and firm performance in competitive and hypercompetitive environments. *Dissertation Abstracts International,* (UMI No. 3083245). Retrieved October 22, 2004, from ProQuest database.

Park, K., Lee, D., & Ahn, J. (2004). Risk-focused E-commerce adoption model: A cross-country study. *Journal of Global Information Technology Management, 7*(2), 6-30. Retrieved April 16, 2005, from ProQuest database.

Parnell, J. A., & Carraher, S. (2001). The role of effective resource utilization on strategy's impact on performance. *International Journal of Commerce & Management, 11*(3/4), 1-34. Retrieved October 22, 2004, from ProQuest database.

Paulette, D., & Rajan, V. P. (1987). Diversification and measure of performance: addition al empirical evidence. *Academy of Management Journal, 30*(3), 597-608. Retrieved May 15, 2005, from ProQuest database.

Porter, M. E. (1979).How competitive forces shape strategy. *Harvard Business Review, 57*(2), 137-145.

Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competitors.* New York: Free Press.

Porter, M. E. (1985). *Competitive advantage: creating and sustaining superior performance.* New York: Free Press.

Porter, M. E. (1996). What is strategy? *Harvard Business Review*, *74*(6), 61-78.

Porter, M. E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, *76*(6), 77-99.

Porter, M.E. (2001). Strategy and the Internet. *Harvard Business Review*, *79*(3), 62-78.

Prammanee, N. (2006). A critical analysis of the adoption and utilization of the Internet in Thailand for educational purposes. *Peer-Reviewed Journal on the Internet.* Retrieved January 20, 2005, from http://www.firstmonday.dk/ISSUES/issue8_1/prammanee/index.html

Raghunathan, B., Raghunathan, T. S., & Tu, Q. (1999). Dimensionality of the strategic grid framework: The construct and its measurement. *Information System Research*, *10*(4), 343-355. Retrieved May 10, 2005, from ProQuest database.

Raghuram, S. & Arvey, R. D. (1994). Business strategy links with staffing and training practices. *Human Resource Planning, 17*(3), 55-74. Retrieved July 21, 2005, from ProQuest database.

Ravechandran, T., & Lertwongsatien, C. (2005). Effect of information system resources and capabilities on firm performance: a resource-based perspective. *Journal of Management Information Systems*, *21*(4), 237-276. Retrieved April 11, 2005, from ProQuest database.

Riquelme, H. (2002). Commercial Internet adoption in China: Comparing the experience of small medium and large businesses. *Internet Research*, *12*(3), 276-287. Retrieved October 11, 2004, from ProQuest database.

Robinson Jr, R. B., & Pearce, J. A. (1988). Planned patterns of strategic behavior and their relationship to business-unit performance. *Strategic Management Journal*, *9*(1), 43-60. Retrieved April 22, 2005, from ProQuest database.

Rogers, E. M. (1962). *Diffusion of innovation*. New York: Free Press.

Rogers, E.M. (1995). *Diffusion of innovations* (5th ed.). New York: Free Press.

Rogers, E. M. (2003). *Diffusion of innovation* (5th ed.). New York: Free Press.

Ross, S. A., Westerfield, R. W. & Bradford, D. J. (2003). *Fundamentals of corporate finance*. Boston: McGraw-Hill/Irwin.

Rujinarong, M. (2000). *Examination of applicability of Rogers' model for diffusion of E-business*. Retrieved January 20, 2006, from http://mis.uis.edu/Abstracts/Examination%20of%20Applicability%20of%20Rogers'%20Model%20for%20Diffusion%20of%20E-business.doc

Sabherwal, R., & Chan, Y. E. (2001). Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders. *Information Systems Research*, *12*(1), 11-33. Retrieved November 16, 2004, from ProQuest database.

Saini, A., & Johnson, J. (2002). Casting a strategic net: The influence of strategy type on performance in e-commerce. *American Marketing Association, Conference Proceedings*, *13*, 431-432. Retrieved December 16, 2004, from ProQuest database.

Santhanam, R., & Hartono, E. (2003). Issues in linking information technology capability to firm performance. *MIS Quarterly*, *27*(1), 125-253. Retrieved December 10, 2004, from ProQuest database.

Sawheny, M., & Zabin, J. (2001). *The seven steps to Nirvana*. New York: McGraw-Hill.

Schermerhorn, R. S., Cattaneo, R. J., & Templer, A. (1995). *Management: The competitive advantage*. Toronto: John Wiley & Sons.

Schwager, P. H., Byrd, T. A., & Turner, D. E. (2000). Information technology infrastructure capability's impact on firm financial performance: an exploratory study. *The Journal of Computer Information Systems*, *40*(4), 98-105. Retrieved June 10, 2005, from ProQuest database.

Scialli, A. L. (2002). Parent perceptions of the effectiveness of therapeutic horseback riding for children with varying disabilities. *Dissertation Abstracts International,* (UMI No. 3059032).

Scott, D.F., Martin, J. D., Petty, J. W., & Keown, J. (1998). *Basic financial management*. New Jersey: Prentice Hall.

Segev, E. (1987). Strategy, strategy-making, and performance in a business game. *Strategic Management Journal*, *8*(6), 565-577. Retrieved June 10, 2005, from ProQuest database.

Sharma, B. (2004). Marketing strategy, contextual factors and performance: An investigation of their relationship. *Marketing Intelligence & Planning*, *22*(2/3), 128-143. Retrieved August 12, 2005, from ProQuest database.

Shin, N. (2001). *Strategies for competitive advantage in electronic commerce*. New York, NW: Pace University, Department of Information Systems. Retrieved March 1, 2006, from http://www.csulb.edu/web/journals/jecr/issues/20014/paper4.pdf

Shortell, S., & Zajac, E. J. (1990). Perceptual and archival measures of Miles and Snow's strategic types: a comprehensive assessment of reliability and validity. *Academy of Management Journal*, *33*(4), 817-832. Retrieved May 16, 2005, from ProQuest database.

Silverstein, B. (2002). *Business-to business Internet marketing*. Gulf Breeze: Maximum Press.

Slater, S. F., & Olson, E. M. (2000). Strategy type and performance: The influence of sales force management. *Strategic Management Journal*, *21*(8), 813-829. Retrieved October 28, 2005, from ProQuest database.

Slater, S. F., & Olson, E. M. (2001). Marketing's contribution to the implementation of business strategy: An empirical analysis. *Strategic Management Journal*, *22*(11), 1055-1067. Retrieved May 25, 2005, from ProQuest database.

Slater, S. F., & Zwirlein, T. J. (1996). The structure of financial strategy: Patterns in financial decision making. *Managerial and Decision Economics*, *17*(3), 253-266. Retrieved October 21, 2005, from ProQuest database.

Smith, J. G. (1990). *Business strategy*. Oxford: Blackwell.

Snow, C. C., & Hrebiniak, L. G. (1980). Strategy, distinctive competence and organizational performance. *Administrative Science Quarterly*, *25*(2), 317-336. Retrieved April 12, 2005, from ProQuest database.

Sohn, C., & Wang, T. W. (1998). *Factors which facilitate a firm to adopt the Internet market*. Carbondale, IL: Southern Illinois University, Department of Management.

Sohn, C., & Wang, T. W. (1999). *Diffusion factors and adoption levels of the Internet market: Empirical analysis for the computer retailing companies*. Carbondale, IL: Southern Illinois University.

Solimen, M. T. (2003). *Using industry-adjusted Dupont analysis to predict future profitability and returns*. Ann Arbor, MI: University of Michigan.

Tallon, P. P., & Kraemer, K. L. (2005). *The impact of IT capabilities on firm performance: Perspectives on the mediating effects of strategic alignment* [Electronic version]. Irvine, CA: University of California, Graduate School of Management.

Teng, K. L. (2000). *Factors and their influence on determining the level of Internet commerce adoption in a small business: An empirical examination* [Electronic version]. Memphis, TN: University of Memphis.

Teo, T., & Pian, Y. (2003). A contingency perspective on Internet adoption and competitive advantage. *European Journal of Information System*, *12*(2), 78-92. Retrieved April 21, 2005, from ProQuest database.

Thomas, W. Y. (2005). *Internet business strategy*. Retrieved March 1, 2005, from http://www.salestrainingplus.com/salesmark/articles/biz_strategy.htm

Veliyath, R., & Fitzgerald, E. (2000). Firm capabilities, business strategies, customer preferences, and hypercompetitive arenas: The sustainability of competitive advantages with implications for firm competitiveness. *Competitiveness Review*, *10*(1), 56-82. Retrieved May 11, 2005, from ProQuest database.

Venkatraman, N. (1989). Strategic orientation of business enterprises: The construct, dimensionality, and measurement. *Management Science*, *35*(8), 942-962. Retrieved April 12, 2005, from ProQuest database.

Voorhis, K. R. V. (1981). The Dupont model revisited: a simplified application to small business. *Journal of Small Business Management*, *19*(2), 45-51. Retrieved September 30, 2005, from ProQuest database.

Wenna, C. (2002). Strategic issues of B2B e-business. *NetGenerationBusiness.net*.

White, R. E. (1986). Generic business strategies, organizational context and performance: An empirical investigation. *Strategic Management Journal*, *7*(3), 217-231. Retrieved March 10, 2005, from ProQuest database.

Willis, A. (2001). Aligning performance measurements with organizational strategies. *Hospital Material Management Quarterly*, *22*(3), 54-63. Retrieved March 25, 2005, from ProQuest database.

Wilson, R. F. (2002). *Planning your Internet marketing strategy*. New York: John Wiley & Sons.

Wiseman, C. (1989). *Strategic information systems*. Illinois: Irwin.

Wu, F., Mahajan, V., & Balasubramanian, S. (2003). An analysis of e-business adoption and its impact on business performance. *Academy of Marketing Science Journal*, *31*(4), 425-447. Retrieved January 28, 2005, from ProQuest database.

Yamin, S., Gunasekaran, A., & Mavondo, F. T. (1999). Relationship between generic strategies, competitive advantage and organizational performance: An empirical analysis. *Technovation*, *19*(8), 507-518.

Zhang, M., & McCulloug, J. (2005). *Effect of learning and information technology capability on business performance*. Retrieved June 20, 2005, from http://blake.montclair.edu/~cibconf/conference/DATA/Theme7/Usa.pdf

Zhu, K., & Kraemer, K. L. (2002). E-commerce metrics for Net-enhanced organizations: Assessing the value e-commerce to firm performance in the manufacturing sector. *Information Systems Research*, *13*(3), 275-295. Retrieved January 12, 2005, from ProQuest database.

Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of E-business by organizations: Cross-country evidence from the retail industry. *Information System Research*, *16*(1), 61-84. Retrieved January 10, 2006, from ProQuest database.

Zhuang, Y. (2000). A resource-based view of electronic commerce. *Dissertation Abstracts International,* (UMI No. 9986031). Retrieved January 21, 2005, from ProQuest database.

Zhuang, Y., & Lederer, A. L. (2006). A resource-based view of electronic commerce. *Information & Management*, *43*(2), 251-261.

Zott, C., & Amit, R. (2004). *Business strategy and business model: Extending the strategy-structure performance paradigm*. Retrieved January 20, 2004, from http://www-management.wharton.upenn.edu/amitresearch/documents/New_Folder/Business%20Strategy%20and%20Business%20Model%20111504.pdf

BIBLIOGRAPHY

Abukhader, S.M., & Jonson, G. (2003). The environmental implications of electronic commerce. *Management of Environmental Quality*, *14*(4), 460-476.

Ajit, K. (1995). Electronic commerce: Implications of the Internet for business practice and strategy. *Business Economics*, *30*(4), 27-34.

Allen, B. (2000). E-environment; hype and promise. *Environmental Quality Management*, *9*(4), 37-43. Retrieved April 2, 2005, from ProQuest database.

American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: Author.

Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, *22*(6/7), 493-520. Retrieved March 10, 2005, from ProQuest database.

Anderson, T., & Kanuka, H. (2003). E-Research: methods, strategies and issues. *Journal of Distance Education*, *18*(1), 81. Retrieved May 13, 2005, from ProQuest database.

Bagchi, S., & Tlskie, B. (2000). *E-business models: Integrating learning from strategy development experiences and empirical research.* Retrieved January 20, 2005, from http://researchweb.watson.ibm.com/strategy/pub/ebbb.pdf

Bakos, J. Y., & Nault, B. (1997). Ownership and investment in electronic networks. *Information Systems Research, 8*(4), 1-35.

Behrendt, S., & Fichter, K. (2001). *Sustainable business innovation in the Internet economy.* Retrieved January 23, 2005, from http://www.itas.fzk.de/e-society/preprints/esociety/Fichter_Behrendt.pdf

Bredillet, C. N. (2005). *Enacting strategy though projects: An archetypal approach.* Retrieved April 1, 2005, from http://www.bettermanagement.com/library.aspx?library=12021&pagenumber=2

Burn, D. J. (1992). The end for sensation and the adoption process. *The Mid-Atlantic Journal of Business*, *28*(1), 15-29.

Buzzell, R. D., Gale, B. T., & Sultan, R. G. M. (1975). Market share - A key to profitability. *Harvard Business Review*, *53*(1), 97-106.

Chaharbaghi, K., & Lynch, R (1999). Sustainable competitive advantage: Towards a dynamic resource-based strategy. *Management Decision, 37*(1), 45-55. Retrieved November 23, 2005, from ProQuest database.

Chen, J., Zhu, Z., & Xie, H. Y. (2004). Measuring intellectual capital: A new model and empirical study. *Journal of Intellectual Capital, 5*(1), 195-213. Retrieved December 18, 2005, from ProQuest database.

Chow, C. W., Wu, A., & Yuen, S. (2002). *The benefits and determinants of success in information technology applications: Exploratory evidence from a Pacific Rim country* [Electronic version]. San Diego, CA: San Diego State University.

Danny, M. (1987). Strategy making and structure: analysis and implications for performance. *Academy of Management Journal*, *30*(1), 7-32. Retrieved May 15, 2005, from ProQuest database.

Davis, T. C. (1949). How the DuPont organization appraises its performance. *Financial Management Series*, *94*, 3-23. Retrieved March 23, 2005, from ProQuest database.

Day, G. S. (1994). The capabilities of market - driven organizations. *Journal of Marketing*, *58*(4), 37-52. Retrieved March 12, 2005, from ProQuest database.

Devaraj, S., & Kohli, R. (2003). Performance impacts of information technology: Is actual usage the missing link? *Management Science, 49*(3), 273-290.

Everett, A. M., & Lo, W. C. W. (2001). Thriving in the regulatory environment of e-commerce in China: A Guanxi strategy. *S.A.M. Advanced Management Journal, 66*(3), 17-24. Retrieved August 30, 2004, from ProQuest database.

Figueiredo, J. M. (2000). Finding sustainable profitability in electronic commerce. *Sloan Management Review*, *41*(4), 41-52. Retrieved October 30, 2004, from ProQuest database.

Fong, T. S. (2004). The impact of Web site design on consumer loyalty in business-to-consumer (B2C) Internet commerce: A rhetorical approach. *Dissertation Abstracts International,* (UMI No. 3123911)

Fruhling, A. L., & Digman, L. A. (2000). The impact of electronic commerce on business-level strategies. *Journal of Electronic Commerce Research*, *1*(1), 13-22.

Gadiesh, O., & Gilbert, J. L. (2001). Transforming corner-office strategy into frontline action. *Harvard Business Review*, *79*(5), 73-79.

Galbraith, C., & Schendel, D. (1983). An empirical analysis of strategy types. *Strategic Management Journal*, *4*(2), 153-173.

Gary, L. (2002). How to think about performance measures now. *Harvard Management Update*, *7*(2), 3-6.

George, D., & Mallery, P. (2002). *SPSS for windows step by step* (4th ed.). Harlow: Pearson Education.

Grover, V., & Ramanlal, P. (1999). Six myths of information and markets: information technology networks, electronic commerce, and the battle for consumer surplus. *MIS Quarterly, 23*(4), 465-496. Retrieved October 21, 2004, from ProQuest database.

Hambrick, D. C. (1983). Some tests of the effectiveness and functional attributes of Miles and Snow's strategic types. *Academy of Management*, *26*(1), 5-26.

Hambrick, D., & Frederickson, J. (2001). Are You Sure You Have a Strategy? *The Academy of Management Executive. 15*(4), 48-59.

Hamel, G., & Prahalad, C. K. (1993). Strategy as stretch and leverage. *Harvard Business Review*, *71*(2), 75-84.

Hamel, G., & Prahalad, C. K. (1994). Competing for the future. *Harvard Business School Press*, *68*(3), 79-91.

Harrigan, K. R., & Porter, M. E. (1983). End-game strategies for declining industries. *Harvard Business Review*, *61*(4), 111-120.

Heskett, J. (2003). Southwest Airlines 2002: An Industry Under Siege. *Harvard Business School, 803*(113), 24.

Hofer, C. W., & Schendel, D. (1978). *Strategy formulation: Analytical concepts*. St. Paul: West Publishing Company.

Horngren, C. T., Foster, G., & Datar, S. M. (2000). *Cost accounting: A managerial emphasis* (10th ed.). New Jersey: Prentice Hall.

Hyvonen, S. (1995). Competitive advantage, bargaining power, and organizational performance: the case of Finnish food manufacturing firms. *Agribusiness*, *11*(4), 333-348. Retrieved January 17, 2005, from ProQuest database.

Jones, D. (2000). Businesses should see Internet as tool of the trade today's topic: electrify your Internet strategy. *USA TODAY*, McLean, Va., June 19, 9.

Jutla, D. N., Craig, J., & Bodorik, P. (2001). *Methodology for creating e-business strategy*. Retrieved February 10, 2005, from http://www.hicss.hawaii.edu/HICSS_34/PDFs/INIEB02.pdf

Kaplan, R. S., & Norton, D. P. (1996). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, *74*(1), 75-85.

Konsynski, B. R. (1993). Strategic control in the extended enterprise. *IBM Systems Journal, 32*(1), 111-143.

Kotler, P., & Andreason, A. R. (1996). *Strategic marketing for nonprofit organizations*. New Jersey: Prentice Hall.

Lee, S., & Leifer, R. P. (1992). A framework for linking the structure of the information systems with organizational requirements for information sharing. *Journal of Management Information Systems, 8*(4), 27-45. Retrieved May 20, 2005, from ProQuest database.

Levenburg, N. M., & Magal, S. R. (2005). Applying importance- Performance analysis to evaluate e-business strategies among small firms. *E-Service Journal*, *3*(3), 29-105. Retrieved January 22, 2005, from ProQuest database.

Luftman, J. N. (Ed.). (2003). *Competing in the information age: Align in the sand.* New York: Oxford University Press.

McLean, J. (2006). *Addressing faculty concerns about distance learning. Pennsylvania College of Technology*. Retrieved March 1, 2006, from http://www.westga.edu/~distance/ojdla/winter84/mclean84.htm

Miller, D., & Friesen, P. H. (1986). Organization studies Porter's (1980) generic strategies and performance: An empirical examination with American data -- part II: Performance implications. *Organization Studies*, *7*(3), 255-261.

Miller, M. (1963). *The corporate income taxes and corporate financial policies*. Chicago, IL: University of Chicago.

Miller, M., & Modigliani, F. (1961). Dividend policy, growth and the valuation shares. *Journal of Business*, *34*(4), 411-33.

Montgomergy, C. A. (2001). Newell Company: Corporate strategy. *Harvard Business School*, September, 1-22.

Murray, A. (2000). Create an Internet strategy for your future. *Insurance Brokers' Monthly and Insurance Adviser*, *50*(11), 18-19. Retrieved May 17, 2005, from ProQuest database.

Nancy, N. M., & Magal, S. R. (2005). Appling importance-performance analysis to evaluate E-business strategies among small firms. *E-Service Journal*, *3*(3). 29-48.

Porra, J. (2000). Electronic commerce Internet strategies and business models- A survey. *Information System Frontiers*, *1*(4), 389-399. Retrieved May 18, 2005, from ProQuest database.

Porter, M. E. (1990). *The competitive advantage of nations*. New York: Free Press.

Porter, M. E. (1998). *On competition*. New York: Free Press.

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, *23*(8), 79-91.

Prananto, A., Mckay, J., & Marshall, P. (2001). *Frameworks to support e-business growth strategy.* Retrieved January 20, 2005, from http://is.lse.ac.uk/Support/ECIS2001/pdf/121_Prananto.pdf

Preston, D. S. (2004). *Shared mental models between the chief information officer and top management team: towards information systems strategic alignment.* Athens, GA: University of Georgia, MIS Department. Retrieved May 20, 2005, from http://www.terry.uga.edu/cisl/siglead/papers/preston.doc

Rask, M. (2003). *Internet and competitive advantages*. Retrieved January 20, 2005, from http://www.morten-rask.dk

Rayport, J. F., & Jaworski, B. J. (2001). *E-commerce*. New York: McGraw-Hill/Irwin.

Reading, C. (2002). *Strategic business planning* (2nd ed.). London: Kogan Page.

Rogers, E. M. (1986). *Communication technology: The New Media in Society*. New York: Free Press.

Rogers, E. M. (1986). New product adoption and diffusion. *Journal of Consumer Research, 2*(4), 290-302.

Rogers, E. M. (1986). The nature of technology transfer. *Science Communication, 23*(3), 323-341.

Rogers, E. M., & Rekha, A. R. (1976). *Communication in organizations*. New York: Free Press.

Romm, J. (1999). *The Internet economy and global warming: a scenario of the impact of e-Commerce on energy and the environment*. Retrieved January 20, 2005, from http://www.greenbiz.com/toolbox/reports_third.cfm?LinkAdvID=39093

Samson, D., Maguire, M., & Terziovski, C. (2001). *Reshaping the organization based on E-commerce strategy*. Retrieved March 1, 2005, from http://www.fsed.org/researchprojects/project2.html

Soufani, K., & Tse, T. (2003). Business strategies for small firms in the new economy. *Journal of Small Business and Enterprise Development*, *10*(3), 306-321. Retrieved March 10, 2005, from ProQuest database.

Talluri, S., & Ragatz, G. L. (2004). Multi-attribute reverse auction in B2B exchanges: A framework for design and implementation. *Journal of Supply Chain Management, 40*(1), 52-61. Retrieved April 16, 2005, from ProQuest database.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509-533.

Tiller, E. H., & Jarvenpaa, S. L. (2005). *The new frontier in e-business: integrated Internet strategy*. Retrieved January 30, 2005, from http://btl.mccombs.utexas.edu/IBM%20Course%20modules/IBMIntegratedModule2a.pdf

Tilson, W. (2001). *Strategy creates sustainable advantage.* Retrieved January 30, 2005, from http://www.fool.com/news/foth/2001/foth010306.htm

Tse, T., & Soufani, K. (2003). Business strategies for small firms in the new economy. *Journal of Small Business and Enterprise Development*, *10*(3), 306-321.

Willis, A. K. (2001). Aligning performance measurements with organizational strategies. *Hospital Materiel Management Quarterly*, *22*(3), 54-63. Retrieved February 17, 2005, from ProQuest database.

Yao, D., Rukstad, M., & Reavis, C. (2003a). Toys "R" Us (A). *Harvard Business School*, February, 1-16.

Yao, D., Rukstad, M., & Reavis, C. (2003b). Toys "R" Us (B). *Harvard Business School*, February, 1-6.

Zahra S. A., & George, G. (2002). The net-enabled business innovation cycle and the evolution of dynamic capabilities. *Information Systems Research*, *13*(2), 147-150. Retrieved May 18, 2005, from ProQuest database.

Appendix A

Business Strategy Theories

Authors	Business Strategy Theories
Buzzell, Gale & Sultan (1975)	1. Building 2. Holding 3. Harvesting
Miles & Snow (1978) Aaggressiveness Strategies	1. Defenders 2. Prospectors 3. Analyzers 4. Reactors
Hofer & Schendel (1978)	1. Share increasing 2. Growth 3. Profit 4. Market concentration and asset reduction 5. Turnaround 6. Liquidation
Barney (1980)	Resource Based View
Porter (1980) generic strategies	1. Cost leadership 2. Differentiation 3. Focus
Prahalad & Hamel (1990)	Core Competencies
Day (1994)	Distinctive Capabilities
Kotler & Andreason (1996) Dominance Strategies	1. Leader 2. Challenger 3. Follower 4. Nicher
Teece, Pisano & Shuen (1997)	Dynamic Capabilities

Appendix B

Paragraph Approach for Content Analysis

Part One

Strategic Type

Content analysis of Internet websites for each company will result in checking one of the following two types of strategies:

_____ The firm is achieving lower cost of services than competitors, making services/ procedures more cost efficient, improving the time/cost required for coordination of various services, improving the utilization of variable equipment, services and facilities, performing analysis of costs associated with various services, and improving the availability of diagnostic equipment and auxiliary services to control costs. The firm pursues operating efficiencies, cost advantages in raw material procurement, and economies of scale. The firm uses internal production efficiency, cost controls, low costs, and price reduction. The firm has a large plant and warehouse, focuses on the standardization of its products, makes shipments in large lots, has many suppliers, and aggressively pursues a pricing policy.

_____The firm engages in introducing new services/ procedures, differentiating services from competitors, offering a broader range of services than competitors, and utilizing market research to identify new services. The firm is creating superior customer value through services accompanying the products, building up a premium product or brand image, and obtaining high prices from the market, and advertising. The firm is focusing on uniqueness, brand image, and quality of its product or service. The firm focuses on a specific market

segment, emphasizes quality or image rather than low price, maintains a close relationship with suppliers, and provides extensive service warranties.

_____ Other. Describe.

_____

_____

_____

Note: Sources are from

"Strategic Consensus and Performance: The Role of Strategy Type and Market-Related Dynamism," by C. Homburg, H. Krohmer and J. P. Workman, 1999, *Strategic Management Journal*, *20*(4), p. 356. Copyright 1999 by Strategic Management Journal. Used with permission of the author.

"Porter's Strategic Types: Different in Internal Processes and Their Impact on Performance," by K. Kumar and R. Subramanian, 1998, *Journal of Applied Business Research*, *14*(1), p. 112. Copyright 1998 by Journal of Applied Business Research. Used with permission of the author.

"Alternative E-commerce Business Models and Firm Performance in Competitive and Hypercompetitive Environments," by S. O. Obilade, 2002, *Dissertation Abstracts International,* (UMI No. 3083245), P. 154. Copyright 2002 by S. O. Obilade. Used with permission of the author.

Part Two

Internet Business Adoption

Content analysis of Internet websites for each company will result in checking one of the following three levels of Internet adoption for each company.

_____ The firm has established its website, and the features provided on the website include extensive information about the firm and its products, feedback form, e-mail support, and simple search.

_____ The firm's Internet strategy uses the Internet for business support and cost reduction. The website includes advanced features, such as interactive marketing and sales, online communities, and secures online ordering.

_____ The firm has external integration, internal integration, online payment, and online transformation. The firm's business strategy is transformed by Internet adoption, and there is cross-enterprise involvement with a focus on building relationships and developing knowledge to create new business opportunities. The firm is electronically integrated with key suppliers and customers for procurement and/or supply chain activities.

_____ Other. Describe.

_____

Note: Source is from "A Contingency Perspective on Internet Adoption and Competitive Advantage," by T. Teo and Y. Pian, 2003, *European Journal of Information System, 12*, p. 92. Copyright 2003 by European Journal of Information System. Used with permission of the author.

Appendix C

Institutional Review Board Approval Letters

Lynn University

Principal Investigator: Shu-Hung Hsu

Project Title: Effects of Strategy and Internet Business Adoption on Performance

IRB Project Number 2006-030:
APPLICATION AND PROTOCOL FOR REVIEW OF RESEARCH INVOLVING HUMAN SUBJECTS OF A NEW PROJECT: Request for Exempt Status __ Expedited Review __ Convened Full-Board _X_

IRB ACTION by the CONVENED FULL BOARD

Date of IRB Review of Application and Research Protocol 08/08/2006
IRB ACTION: Approved _X_ Approved w/provision(s)_____ Not Approved_____ Other_____

COMMENTS
Consent Required: No _____Yes _X_ Not Applicable _____ Written _X_ Signed _____
Consent forms must bear the research protocol expiration date of 08/08/2007.
Application to Continue/Renew including an updated consent, is due:
(1) For a Convened Full-Board Review, two months prior to the due date for renewal___X___
(1) For an Expedited IRB Review, one month prior to the due date for renewal_____
(3) For review of research with exempt status, one month prior to the due date for renewal

Name of IRB Chair (Print) _____Farideh Farazmand_____

Signature of IRB Chair_____[redacted]_____ Date: 08/08/06

Cc. Dr. Norcio

Institutional Review Board for the Protection of Human Subjects
Lynn University
3601 N. Military Trail Boca Raton, Florida 33431

Lynn University

Principal Investigator: Shu-Hung Hsu
Project Title: Effects of Competitive Strategy and Internet Business Adoption on Performance

IRB Project Number 2006-030
APPLICATION FOR PROCEDURAL REVISIONS OF OR CHANGES IN RESEARCH PROTOCOL AND/OR INFORMED CONSENT FORM 1 OF A PREVIOUSLY APPROVED PROJECT

Initial Review: Full X Expedited Exempt___ Date of most recent continuation approval:___

IRB ACTION by the IRB Chair or Another Member or Members Designed by the Chair

Procedural Revision(s): Approved _X_; Approved w/provision(s)
Referred For Convened Full-Board Review _____

COMMENTS
Consent Required: No X Yes ___Not Applicable _____ Written ___Signed _____
Consent Form Revised: No_ _ Yes _____. If yes, the Consent forms must bear the research protocol expiration date of _____.
Date for Application to Continue/Renew is as noted on initial application or most recent renewal

Name of IRB Chair Farideh Farazmand .

Signature of IRB Chair [redacted] Date: 12/14/06

International Review Board for the Protection of Human Subjects
Lynn University
3601 N. Military Trail Boca Raton, Fl 33431

Appendix D

Permission Letters to Use the Measurement

-----Original Message-----
From: Shu-Hung Hsu [redacted]
Sent: Wednesday, December 13, 2006 2:58 AM
To: Kumar, kamalesh
Subject: Request Permission

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "Porter's Strategic Types: Differences in Internal Processes and Their Impact on Performance," an invaluable resource for developing my research study. I would greatly appreciate your permission & use the instrument in your study to measure strategic types, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Kumar, kamalesh [redacted]
Sent: Wed 12/13/2006 11.32 AM
To: Shu-Hung Hsu
Subject: Re: Requesting Permission

That will be fine. Good luck.

-----Original Message-----
From: Shu-Hung Hsu [redacted]
Sent: Wednesday, December 13, 2006 2:05 AM
To: Workman, John P.
Subject: Requesting Permission

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "Strategic consensus and performance: The role of strategy type and market-related dynamism," an invaluable resource for developing my research study. I would greatly appreciate your permission & use the instrument in your study to measure strategic types, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Workman, John P. [redacted]
Sent: Wed 12/3/2006 11.20 AM
To: Shu-Hung Hsu [redacted]
Subject: Requesting Permission

Permission granted.

Dr. Workman

Dr. John P. Workman, Jr.
Professor of Marketing
Creighton University
College of Business Administration
2500 California Plaza
Omaha, NE 68178
Phone: [redacted] Fax: [redacted]
Office: Eppley Building, Room 413
E-mail: [redacted] Website:
http://people.creighton.edu\~workman

-----Original Message-----
From: Shu-Hung Hsu
Sent: Wed 12/13/2006 2:16 AM
To: [redacted]
Subject: Requesting Permission

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "Alternative E-commerce business models and firm performance in competitive and hypercompetitive environments," an invaluable resource for developing my research study. I would greatly appreciate your permission & use the measurement in your study to measure strategic types, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,

Amanda (Shu-Hung) Hsu

From: Obilade, Sandra [redacted]
Sent: Thursday 12/14/2006 4:16 AM
To: Shu-Hung Hsu [redacted]
Subject: Re: Requesting Permission

Hi Amanda,

Thanks for your e-mail. You certainly have my permission to use the measurement in my study as you requested.
Let me know if I can be of further assistance.

Good luck with your Ph.D. program.

Sandra

Sandra Obilade, Ph.D.
Director, Master of Science in Management Program
William H. Thompson School of Business
Brescia University

-----Original Message-----
From: Shu-Hung Hsu [redacted]
Sent: Wed 12/13/2006 2:46 AM
To: Thompson Sian Hin Teo
Subject: Requesting Permission

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "A contingency perspective on Internet adoption and competitive advantage," an invaluable resource for developing my research study. I would greatly appreciate your permission & use the instrument in your study to measure the intensity of Internet adoption, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Thompson Sian Hin Teo [redacted]
Sent: Wed 12/13/2006 8:30 AM
To: Shu-Hung Hsu
Subject: RE: Requesting Permission

Hi Amanda,
Yes certainly.

Good luck.

TT

Appendix E

Permission Letters to Use the Figures

-----Original Message-----
From: Shu-Hung Hsu [redacted]
Sent: Friday 6/1/2006 12:52 PM
To: Charles H. Apigian
Subject: Requesting the permission to use figure of the levels of strategy

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "Internet strategy: An integrated complement to an organization's exiting business practices," an invaluable resource for developing my research study. I would greatly appreciate your permission and use the figure of "levels of strategy and Internet" in your study to define of level of strategy, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Charles H. Apigian [redacted]]
Sent: Friday 6/1/2007 9:58 PM
To: Shu-Hung Hsu
Subject: RE: Requesting the permission to use figure of the levels of strategy

Nice to hear from you. You have my permission but please make sure to properly cite.

Charles H. Apigian, PhD.
Associate Professor of IS
MTSU

-----Original Message-----
From: Shu-Hung Hsu
Sent: Friday 6/1/2006 1:56 PM
To: Michael E. Porter
Subject: Requesting the permission to use the figure of generic competitive strategies

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your book, "Competitive Advantage: Creating and Sustaining Superior Performance," an invaluable resource for developing my research study. I would greatly appreciate your permission and use the figure of "Generic Competitive Strategies" in your study to define of competitive strategies, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Michael E. Porter [[redacted]]
Sent: Friday 6/1/2007 2:37 PM
To: Shu-Hung Hsu
Subject: RE: RE: Requesting the permission to use the figure of generic competitive strategies

You have my permission to use the figure, with citation of the book. Good luck with your work.

Michael Porter

-----Original Message-----
From: Shu-Hung Hsu
Sent: Friday 6/1/2006 1:17 PM
To: Michael E. Porter
Subject: Requesting the permission to use the figure of five competitive forces model

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "Strategy and the Internet," an invaluable resource for developing my research study. I would greatly appreciate your permission and use the figure of "Five Competitive Forces Model" in your study to define of competitive forces, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Michael E. Porter [redacted]
Sent: Friday 6/1/2007 2:40 PM
To: Shu-Hung Hsu
Subject: RE: Requesting the permission to use the figure of five competitive forces model

You should be aware that the five forces model was originated in the Harvard Business Review article "How Competitive Forces Shape Strategy" in 1979, as well as in my book Competitive Strategy (1980). The figure in the Strategy and the Internet article was an application. You can use whatever you like, but please be aware of the original citation.

Michael Porter

-----Original Message-----
From: Shu-Hung Hsu
Sent: Saturday 6/2/2006 3:15 PM
To: Michael E. Porter
Subject: Requesting the permission to use figure of the prominent application of the Internet in the value chain

Dear Sir,

I am a doctoral student in the Ph. D. program at Lynn University in Boca Raton, Florida.

I found your paper, "Strategy and the Internet," an invaluable resource for developing my research study. I would greatly appreciate your permission and use the figure of "Prominent Application of the Internet in the Value Chain" in your study to define of application of the Internet in the value chain, as it relates to my study.

Your consideration of this request is greatly appreciated.

Regards,
Amanda (Shu-Hung) Hsu

From: Michael E. Porter [redacted]
Sent: Sunday 6/3/2007 2:42 PM
To: Shu-Hung Hsu
Subject: RE: RE: Requesting the permission to use figure of the prominent application of the Internet in the value chain

You have my permission.

Michael Porter