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**Determinants of Marketer Satisfaction with the Choice of Electronic
Marketplace Type**

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**A Thesis Submitted to the
Faculty of Graduate Studies and Research, Carleton University
in Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy (Management)**

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Abstract

The application of Internet technologies for business transactions has given rise to a boom in electronic markets. Electronic marketplaces (EMs) are increasingly important to the organization for procurement and sales. As EMs become more pervasive, adoption or non-adoption becomes a less critical decision for the firm (Truman 2000) than the decision of which type of market structure to adopt.

Transaction cost theory (TCT) has contributed to understanding of this problem via prescriptive models (Malone et al, 1987; Bakos, 1991 and Mahadevan, 2003) that suggest which types of electronic marketplaces that are optimal based on product/market characteristics. Recent literature has suggested that company size (Hadaya, 2004), prior experience (Hadaya, 2004; Corbitt, 2003), and role (buyer or seller) (Rask and Kragh, 2004; Wang, Archer and Zheng, 2005) all impact marketer's perceptions of performance for electronic marketplaces.

This thesis, however, also posits that while TCT models based on fit with product/market characteristics offer explanatory value regarding marketers' judgments of an electronic marketplace choice performance, these characteristics are not explicit considerations in forming performance expectations a priori. The author suggests instead that formal and informal management expectations are most strongly driven by management perceptions of fit with the broad internal and external environments of the firm, as per Clark (2000) in the general marketing literature and Wang, Archer and Zheng (2005) and Christainaase and Markus (2003) in the EM literature.

Firstly, Confirmatory Factor Analysis demonstrated performance evaluation of Electronic Marketplace choice appears to be multi-dimensional in nature, revealing additional dimensions beyond those suggested by Clark (2000). Secondly, structural equation modeling showed that company size, prior experience and fit of product/market characteristics were found to directly impact marketers perceptions of performance of a given choice of electronic marketplace, although they did not influence *a priori* considerations in forming expectations. Thirdly, numerous constructs designed to capture both external and internal phenomena were shown to influence effectiveness judgments, which drive performance judgments. Effectiveness judgments are posited to form the basis of goal and expectation setting. Finally, the strength between performance judgments and satisfaction judgments is positively related to depth and specificity of performance expectations.

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Chapter 1 Introduction

Electronic marketplaces (EM) are transforming the way many businesses operate. While more and more businesses are adopting them for both procurement and sales, the rationale for why and how various forms of EM are chosen by managers has received little study. Moreover, how managers evaluate the success of their EM initiatives is not at all understood. Of particular concern is how differences in product/market characteristics of the business are related to the choice of EM marketplaces. This dissertation proposes that while Transaction Cost Theory (TCT) models based on fit with product/market characteristics do offer explanatory value as to whether marketers will rate performance of an electronic marketplace choice highly or not, these characteristics may not be an explicit or formally stated consideration in the formation of *a priori* performance expectations by marketers. It is suggested from a disconfirmation of expectations perspective (Churchill and Superant, 1982) that the product/market characteristics suggested by TCT models, as well as company size and prior experience with EMs, have little direct impact on goal setting for EM type choice. In fact, a variety of marketing literature (Clark, 2000) and EM literature (Wang, Archer and Zheng, 2005 and Christainaase and Markus, 2003) suggests instead that formal and informal management expectations are more strongly driven by management perceptions of fit with the broad internal and external environments of the firm.

This dissertation is organized into seven chapters. It begins after this introductory chapter by providing the rationale, based on the relevant literature, for the proposed

research framework. It continues to present the framework, the survey methodology utilized for testing the framework, the analysis and findings of the survey, their implications for managers and for future research, and also includes a discussion of the limitations of the research.

Chapter 2 provides a review of relevant literature. It is noted that the application of Internet technologies to the conduct of business transactions has given rise to a boom in electronic markets they are increasingly important to the organization for procurement and sales activities. Researchers attempting to explain the growth of EMs and the factors leading to their adoption have focused on a range of different factors such as trust (Koch, 2002), external influences (Deeter-Schmelz et al. 2001; Joo and Kim, 2004) and relative advantage (Joo and Kim, 2004). However, there is no agreement on which factors are the most important in determining whether a firm will adopt EMs. As EMs become more pervasive, adoption or non-adoption becomes less a critical decision for the firm (Truman, 2000) than the decision as to which type of market structure to adopt becomes more critical.

A review of marketplace structures or types is also provided. For example, Mahadevan (2003) enumerated 13 distinct classifications of EMs based on the degree of collaboration desired, as well as product-market characteristics. Transaction cost theory (TCT) has contributed to understanding of the matching of product-market characteristics to the type of EM employed via numerous prescriptive models (Malone et al 1987;

Bakos, 1991 and Mahadevan, 2003). In addition, recent literature has indicated that company size (Hadaya, 2004), prior experience (Hadaya, 2004; Corbitt, 2003), and role (buyer or seller) (Rask and Kragh, 2004; Wang, Archer and Zheng, 2005) all impact marketers' perceptions of performance for electronic marketplaces once they have been adopted.

In Chapter 3, Clark's (2000) model is utilized and expanded in this thesis to build an integrative framework. The perspectives of population ecology theory, institutional theory, network theory and transaction cost theory are employed to assess the multi-dimensional nature of performance evaluation in the specific context of the choice of EM type. The network, institutional, and population ecology perspectives suggest that numerous internal and external influences determine explicit goal setting and expectations a priori and that judgments of effectiveness (Clark, 2000) based on variance from expectations and in turn drive performance judgments. In contrast, it is posited that from the transaction cost theory perspective that fit with product/market characteristics only impacts ultimate performance evaluations (post hoc) and that product/market characteristics are not implicitly considered in effectiveness judgments due to limited knowledge, experience and research on how to utilize to set expectations for EM choice. In addition, the sizeable body of literature on consumer and employee satisfaction (Arnemann, 1994; Churchill and Superant, 1982) is also employed, extending Clark's (2000) model to incorporate the relationship between the performance of and satisfaction with participation in electronic marketplaces. More specifically, the proposition is

examined that the more clearly specified and in depth performance expectations are set, the stronger the relationship that will exist between performance and satisfaction.

Chapter 4 describes the web platform used to host the survey instrument, the sampling frame and the methods used to create a contact list that would be representative of the sampling frame, are also discussed in this section. A sizeable body of research (Garson, 2006; O'Rourke, 2003; Kline, 2006 and Thomas, 2006) suggests that prior to engaging in the multivariate, confirmatory factor and structural model building analyses that are also outlined in Chapter 4, that various procedures be followed to assure suitability of the raw data set and cases within the data set. These procedures include tests for multivariate normality of the indicators, multicollinearity, and possible biases within the data set derived from the responses of early versus late respondents. Appropriate procedures are also utilized to impute data for missing cases and eliminate outliers. Chapter 4 also outlines the data analysis plan, including discussion of how each construct within the research framework was to be validated, outlining the planned multivariate and structural equation modeling techniques and the sample size required to validate the proposed framework.

Chapter 5 discusses the respondents and response rate for the survey, outlines the data preparation process and summarizes the findings. The desired response rate for traditional mail surveys, to ensure valid representation of the sampling frame, has often been suggested as being a minimum 5% of all distributed surveys (Dillman, 2000)

however, different standards may be appropriate to evaluate the response rate of web-based surveys delivered by email (Rand Corp., 2006). The respondents roles, the size of the company they are employed by, their perceptions of their experiences with EMs, and the intensity and geographical spread of competition within the product-markets in which they compete, are also presented.

Chapter 5 also describes the pretest procedure utilized and the methods used to contact and recontact the sampling frame as well as systematically outlining the results of the analysis, starting with exploratory data analysis and then proceeding to analysis of convergent, discriminant and nomological validity of the constructs. This analysis is followed with the two-stage approach of structural equation modeling suggested by Garson (2006) and Kline (2006) of first determining the fit of the confirmatory factor model and, if the fit is suitable, then proceeding to the evaluation of alternative structural models. In conclusion, Chapter 5 summarizes the results of the analysis in terms of the research propositions posited in Chapter 3.

Chapter 6 outlines the limitations of the research which encompass, reliance on respondent recall (Arnemann, 1994), production of the survey in only one of Canada's official languages, a lack of discussion of perceptions of risk in EM participation, limitations of the sample size, potential lack of representativeness of the population of Canadian B2B Marketers, and lack of suitable convergent and discriminant validity among a small number of constructs.

Chapter 7 discusses the implications and contributions of the research. In terms of key implications, the research indicates that evaluation of performance of EMs is clearly multidimensional and that improved balanced scorecards are required. Additionally it is important for marketers to match to product/market factors to the appropriate market structure chosen, although marketers do not explicitly consider these factors in setting effectiveness goals for EMs. This might suggest that more case studies, research and guidance for marketers regarding important product/market factors are clearly required. As well, the depth and specificity of performance objectives was shown to strengthen the performance-satisfaction relationship suggesting that setting clear standards matters for marketers to make satisfactory EM choices.

Chapter 7 also contends that this research makes a strong contribution to discussion of value of different explanatory perspectives of EM Choice. It is the only work to empirically assess the role of both TCT and Network/Institutional Theory in performance evaluation of and satisfaction with EM choice. Finally, in terms of the multi-dimensional nature of marketing performance evaluations no research to date has validated as many explanatory measures.

Chapter 2

Literature Review

2.1 Electronic Marketplaces-Definition, Importance and Key Trends

In its broadest sense,” an electronic market is a market that is implemented using electronic media, such as computers and communications systems” (Rosenthal et al. 1993, p.321). Malone et al. (1987) predicted information technology would increase the amount of activity coordinated by electronic markets, which could evolve from a non-electronic market or from an electronic hierarchy spanning firm boundaries. This evolution was evident during the 1990s when research such as Hess and Kemerer (1994) and Lee and Clark (1996) noted the increasing number of third-party firms facilitating interfirm transactions via electronic markets.

The interchangeable use of the terms ‘electronic market’ and ‘electronic marketplace’ was evident in the literature. Bakos (1991) defined an electronic marketplace as “an interorganisational information system that allows the participating buyers and sellers to exchange information about product offerings” (Bakos, 1991, p. 301). Bakos (1998) later proposed a wider range of functions in explaining that electronic marketplaces support the “all-in process of business transactions from initial contacts and negotiation to settlement” (Bakos 1998, p.38). This wider role was expanded upon by Bailey and Bakos (1997) who emphasized the role of intermediaries in electronic markets for aggregating, matching suppliers and customers, providing trust, and providing interorganizational market information. Soh and Markus (2002) built on previous research to operationalize attributes of electronic markets under five constructs; value

proposition, product-market focus, value activities, ownership and market structure.

Similarly, Dai and Kauffman (2002) classified EM functionalities as being basic market functions, management needs, and technology adapters.

Synthesizing the oft cited definitions of an EM above, an operational definition for the purpose of this study is *an interorganizational intermediary that electronically provides value added communication, brokerage and integration services to buyers and sellers of direct and/or indirect products and/or services in specific horizontal or vertical B2B markets by supporting basic market functions, and meeting management needs for information and process support*. This definition includes private highly restricted EMs such as Private Transaction Networks and Extranet, which may be implemented but not necessarily managed by third party software vendors on an ongoing basis.

Although there are many success stories concerning the adoption of EMs that have been reported over the past several years, the progress of electronic markets has been hindered by unanticipated technical, organizational, economic and legal challenges that diminish their value (Dai and Kaufman, 2002). Additionally, electronic market structures have often been misaligned with industry structures, even proposing to disintermediate key industry players while failing to recognize the role they play in an industry. As Day, Fein and Ruppensberger (2003, p.141) succinctly described the case of online B2B exchanges, "B2B exchanges have discovered that their greatest competition is not other B2B exchanges, but rather existing ways of doing business". To address this

shortcoming, a variety of electronic markets have been developed more recently to more effectively match industry structures (Mahadevan, 2003).

Though the evolution of new B2B market structures is indicative of greater acceptance among practitioners, it also introduces newer issues for detailed study. Perhaps the most significant is that of making sense of emerging electronic marketplace structures and answering the crucial question for marketers of when and how to exploit them to maximally take advantage of their inherent value propositions (Mahadevan, 2003). These value propositions, however, can be incredibly complex to evaluate. As a case in point, consider Hewlett's Packard's (HP) decision to switch to its own private exchange (www.getsupply.com) after it realized that the consortium-led EM it helped found (www.converge.com) was not the suitable choice given its transaction needs. Other firms in the IT industry such as Solectron have been satisfied participants in consortium led EMs (www.converge.com, www.e2open.com). The existence of successful third-party run exchanges such as FreeMarkets, as well as successful private and consortium-led EMs demonstrates that the need for some organizations to have a governance role varies greatly from firm to firm and product to product. For example, HP uses a private exchange for the majority of its transactions. However, it pays a fee to Converge, a consortium-led exchange to be able to use its online auction system to procure scarce parts and liquidate excess inventory.

2.2 Value Propositions in Electronic Markets-Transaction Cost Theory (TCT)

B2B trade is often extremely complex involving countless transactions along the supply chain. Derived demand (Mohr, Sengupta and Slater, 2005) triggered by one customer may generate hundreds of B2B transactions that occur before the purchase is completed. Furthermore, each transaction typically involves multiple parties beyond the buyer and the seller including providers of insurance, inspection, escrow, credit, warehousing and transportation. The main goal of electronic markets is perhaps then not only to give an electronic form to existing business processes and relationships but also, more importantly, to help firms lay a foundation for establishing new relationships much more efficiently.

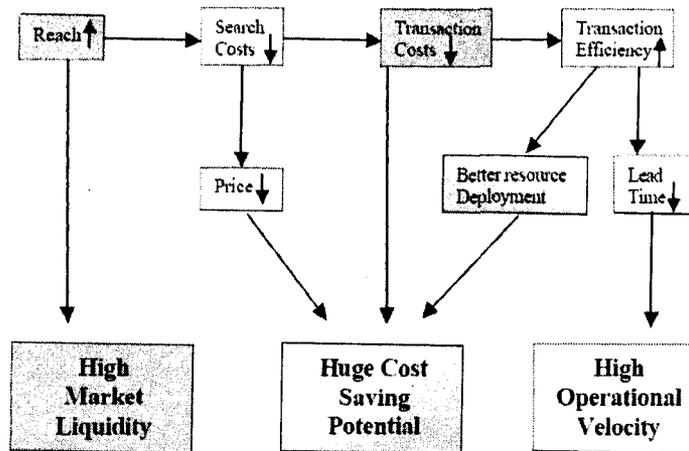
Many early studies from a TCT perspective predicted that electronic markets would allow organizations to discover new value propositions (Bakos, 1991; Gurbaxani and Whang, 1991). Predictions based on the peculiar nature of information economics stated that electronic markets would enable organizations to mitigate the trade-off between “richness” and “reach” typical of traditional markets (Evans and Wurster, 1997). Reduced search costs would create new market structures that would allow organizations to discover better prices (Bakos, 1991). Organizations would then tend to deal more with competitive and open market mechanisms (Malone, Yates, and Benjamin, 1987).

Mahadevan’s (2003) B2B study indicated, in fact, that many of the early predictions (Malone et al 1987, Bakos 1991), from a transaction cost perspective,

regarding the value propositions offered by electronic marketplaces, did actually, come to fruition. However, the manner in which these factors were exploited differed with alternative market structures. Elimination of the “richness/reach” trade off allowed catalogue aggregators, such as Amazon.com, to facilitate deep customization capabilities resulting in improved transactional efficiency. Auction sites, such as EBay, increased the reach of the market and made the price discovery process efficient. For example, it is estimated that since the advent of EBay in 1995 the average price of collectables has decreased by 30% because of improved ability to fix market prices to worldwide demand (Mohammed et al, 2004). In a B2B context, General Electric’s US lighting division moved within a 12-month period in 1996 from having no foreign suppliers to foreign companies supplying over 30% of their components (Koprowski, 2003). Online exchanges, such as Vertical Net, effectively addressed fragmentation of the supply chain and reduced search costs for fragmented industries such as the electronics, pharmaceutical and aeronautics industries.

In summary, according to Mahadevan (2003), these improved capabilities did, in fact, enable organizations to discover new value propositions. Firstly, dramatically increased reach provided by electronic markets ensured high market liquidity. Secondly, reduced transaction costs translated into new cost-reduction opportunities. Finally, deep customization capabilities improved transactional efficiency leading to improved operational velocity due to reduced lead-times (Fig 1).

Figure 1
Value Creation Opportunities in Electronic Marketplaces -Mahadevan (2003)



2.3 Risks in electronic marketplace participation

Whereas expected benefits may drive electronic market usage, the perception of risk can act as a barrier. “The success of electronic market adoption is as dependent on the management of barriers as it is on the benefits enabled by IT” (Lee and Clark, 1996, p. 129). Some risks are inherent in any market transactions while others are more specific to electronic marketplaces. Transaction cost economics (Williamson, 1975) views opportunism as a risk inherent in market transactions. Preventing opportunism necessitates measures that can often increase transaction costs. Another source of risk is asset specificity (Williamson, 1985). Explained in transaction cost economics as a predictor of market-versus-hierarchy preference, asset specificity references the extent to which assets are specialized to certain applications and cannot be used for alternative purposes without sacrificing productive value. Moving activities to electronic marketplaces may require the company to commit resources to building IT applications

and infrastructures that link its internal business processes and enterprise systems to an electronic marketplace's trading platform. These resources will become more relationship-specific as supply chain integration increases.

In the purchasing literature, Zsidisin (2003) found that buyers view risk as a multidimensional construct, which encompasses both its source and outcomes. Similarly, Saeed (2003) describes buyers' perceptions of source risk as being comprised of three dimensions: transaction, security and privacy. Security and privacy are somewhat more specific to electronic marketplaces. Transaction risk is driven by adverse selection processes (due to incomplete and/or misleading information about the supplier) and possible moral hazards (or opportunism) that could be complicated as a result of contract and legal issues. Security risk stems from authentication problems such as unauthorized access to a trading platform and data security problems such as insecure data transmission and storage. Privacy risk references inappropriate information collection and unwanted information visibility, such as the case where electronic market trading activities could reveal the buyer's purchase behaviour.

From a transaction cost economics perspective, information technology has enabled electronic marketplace mechanisms, such as reverse auctions, to allow buyers to announce purchasing requirements and select suppliers based on the bids that the suppliers offer, typically focusing on the lowest bid. However, the importance of non-

contractible factors and /or network effects is also not recognized within this perspective (Rask and Krogh, 2004).

Non-contractible factors are product or supplier characteristics that buyers can readily observe but that third parties such as arbitrators or courts cannot easily verify. Some examples of non-contractible factors in a buyer-supplier relationship include quality attributes, supplier innovativeness, information sharing, responsiveness, trust, and flexibility. Such non-contractible factors are often difficult or impossible to specify in advance (Rask and Krogh, 2004) but are important to understanding the motivations and expectations for participation in an EM.

2.4 Electronic marketplace structures

Today, there is some consensus that the term electronic marketplace includes three types of arrangements 1) private trading exchanges, by which individual companies manage electronic relationships with their suppliers and/or customers, 2) industry consortia, in which some or all companies in an industry group support a common technology platform for trading and/or collaboration and 3) independent electronic marketplaces, that is, private entrepreneurial ventures (dot-coms) that facilitate trading and/or collaboration for an industry or industries (e.g., Global Sources, a multi- vertical marketplace) (Brooks and Dik, 2001).

Markets can also be classified on the degree to which brokerage (facilitating individual transactions) and integration (developing long term collaborative structures) are relatively important. Mahadevan (2003) cites three classes on this basis: market; quasi-market and collaborative structures. Similarly, Wang and Archer (2004) suggest that buyers and sellers both have goals for participation in EMs, which vary from basic cooperation to enable some degree of transacting to co-ordination, which facilitates ongoing commerce to collaboration, which facilitates strong, enduring relationships being buyers and sellers.

Early taxonomies to classify EM types were mostly descriptive in nature (Mahadevan 2003). In contrast, Task-technology fit (TTF) theory published in the same general period held that IT in general is more likely to have a positive impact on performance and be used if the capabilities of the IT (supply) match the tasks that the user must perform (Goodhue & Thompson, 1995). Tasks are defined as the actions carried out by individuals in turning inputs into outputs (Goodhue & Thompson, 1995). In the absence of relating a classification scheme to firm level operational issues, such as dealing with product complexity and market fragmentation, managers might have trouble in choosing appropriate market structures for their requirements.

Proposed typologies of EMs began to evolve as Barrat and Rosdahl (2002) presented a brief overview of alternative taxonomies to classify B2B markets based on product complexity and market fragmentation. The focus of Mahadevan's (2003) study

was to enumerate B2B market sites to show that given certain market and product/service characteristics, a specific type of market structure could be gainfully exploited.

Mahadevan (2003) also analyzed the implications of ownership versus co-operative or third-party arrangements for these structures.

Mahadevan's 2003 study appeared to provide the most robust enumeration of how and when to exploit various types of electronic marketplaces, at least given the limitations cited in the introduction regarding the TCT perspective, and accordingly was the taxonomy used in model development for this research.

2.5 A Taxonomy of Electronic Marketplace Structural Fit

Mahadevan's (2003) study of how and when to exploit various types of electronic marketplaces found that there are several types of markets structures operating in the B2B electronic market domain. Each B2B site typically operates multiple market structures. This significant shift to multiple market structures in a single B2B site appears to provide multiple revenue streams and ensures viable operation of these sites. These market structures could be reduced to a set of 13 dominant market structures that could be further classified as being quasi- market, collaborative market, or neutral market structures. Table 1 has a list of these with examples. As Mahadevan's (2000) model is broadly conceptual, the dissertation survey instrument required more precise definitions of some of the thirteen marketplace structures he enumerated. Accordingly, additional sources were cited (Masson, 2001; Schneider, 2003).

Table 1
Typologies of Electronic Marketplace Structures- Mahadevan (2003)

Sl. No.	Name of the market structure	Remarks & Examples*
Collaborative Mechanisms 1-3	1	Extranet www.aventail.com www.adventnet.com www.cinix.com
	2	Trading Partner Network (TPN) www.geis.com www.nexprise.com
	3	Web EDI www.ledisource.com www.geis.com
Quasi-Market Mechanisms 4-8	4	Buyer Centric Private Market www.ariba.com
	5	Supplier Centric Private Market www.i2.com www.commerceone.com www.verticalnet.com
	6	Consortia Market Place www.avendra.com www.aeroexchange.com
	7	Seller-oriented (Forward) Auction Sites www.fedsales.gov
Neutral Market Mechanisms 9-13	8	Buyer oriented (Reverse) Auction Sites www.freemarkets.com
	9	Neutral Auctions www.dovebid.com www.assettrade.com
	10	Exchanges www.eSTEEL.com (Now renamed as New View), www.HoustonStreet.com
	11	Catalogue Aggregators www.sciquest.com www.officedepot.com
	12	On-line community www.creativethought.com www.dentalarena.com www.electronicweb.com
	13	Click & Mortar Office Depot

* The URLs given against the first five market structures point to the service providers that enable firms to create these market structures. They provide several supply chain collaboration tools to enable the features required for such market structures.

Collaborative Market Mechanisms

Collaborative mechanisms are market structures that facilitate effective electronic integration (Mahadevan 2003). This includes Extranets, Trading Partner Networks (TPN), and web Electronic Data Interchange (EDI). According to Mahadevan (2003), these three types of electronic marketplaces are enabled when interorganizational information systems are networked through Internet infrastructure for the purpose of sharing vital information to network members. These market structures increase the collaboration capability of the network members and help in speeding up business processes. They also help eliminate duplication of resources, cut costs and improve

responsiveness of the supply chain (Mahadevan, 2003). Wang and Archer (2004) suggest that collaborative mechanisms require joint creation of structures by buyers and sellers, which encourage both high levels of trust and relational contracts to facilitate long-term relationships.

An extranet is a private network that uses the Internet protocols and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's wholly owned intranet that is extended to users outside the company (Masson, 2001).

A Trading Partner Network is also a private network that uses the Internet protocols and the public telecommunication system to link together buyers, suppliers & customers. However, it is typically co-managed and owned by a number of members of a supply or value chain rather than simply being an extension of one organization's Intranet. It is generally typified by design collaboration, demand aggregation and product standardization, expanded revenue-generating activities, leveraged physical distribution & storage including just in time delivery, comprehensive global inventory visibility, reduction of transactions, adherence to standardized processes and an integrated supply approach (Masson, 2001).

EDI is the application system to application system transfer of business data from one organization to another in a structured data format. Web EDI is distinguished from a TPN in that the ability and willingness to adopt the EDI standard is a key driver of participation as opposed to strategic advantages and relational norms that tend to drive participation in a TPN.

Quasi-market Mechanisms

In the second set of market structures, Mahadevan (2003) suggests that one or a small group of either the buyers or sellers will initiate the marketplace, host and monitor, enroll market participants, and moderate the market behavior, if required. In a buyer centric marketplace, buyers take the initiative to host the market and appropriate greater benefits than other market participants and similarly the suppliers in a supplier centric market do so. Two well-known variations of seller and buyer centric market places are forward and reverse auction sites respectively. A forward auction is a traditional auction where a seller offers a product. Bidding starts at an established price and increases until no higher successive prices are offered. In a reverse auction, the buyer enters into online price discussions with multiple qualified offerors, with lowest bidder at the conclusion of the auction winning the contract.

In another case, a few buyers or a few suppliers belonging to a sector of an industry could create a consortium market place. Examples include www.covisint.com (auto) and www.transora.com (consumer packaging industry).

Neutral Market Mechanisms

The third set of market structures that Mahadevan (2003) outlines includes Exchanges, Catalogue Aggregators and Online Communities. Potentially, a large number of buyers and suppliers participate in these market structures. Therefore, Mahadevan (2003) suggests these markets are characterized by neutrality, in contrast to quasi-market mechanisms that typically favour buyers or sellers depending on ownership and/or control of the marketplace. Neutral Market Mechanisms would most closely mirror the traditional definition of a free market in economic terms (Smith, 1776). In addition to these, Mahadevan (2003) introduces a new market structure through his definition of neutral auctions. A neutral auction is one in which several forward and reverse auctions are hosted simultaneously. Bidders understand that substitutable products are available for the item that they may be bidding for in one such auction. Neutral auctions have contextual relevance only in electronic markets (Mahadevan, 2003). In traditional markets, it is practically not possible to know the existence of such substitutable auctions and to participate in those auctions due to the high search costs that would be incurred.

Exchanges function as third-party intermediaries between buyers and sellers. They improve the procurement process by: reducing order cycle times, reducing costs, e.g., inventory holding requirements, promoting uniformity in the purchasing process, improving procurement planning and providing buyers and sellers with global reach and visibility. Exchanges are usually focused on specific commodity areas and/or geographical regions. An example would be TradeRanger.com (petrochemicals).

Online communities may also act as third party intermediaries between buyers and sellers but also typically offer value added portal services such as industry forums, research information and market and product trends and also facilitate non-transactional communications between industry participants. By contrast, catalogue aggregators simply accumulate listings of items for sale from many vendors and present them in a web based catalogue accessed by many buyers.

Classification of B2B Market Structures

For the most part, earlier studies on alternative market structures focused on *describing* market structures and the benefits that they offer to organizations.

Alternatively, Mahadevan (2003) attempted to shift the discussion to *when* various market structures are appropriate, notwithstanding the limitations in TCT in guiding marketer's decisions as outlined in the introduction. Based on these considerations, he identified fragmentation, asset specificity, complexity of product assessment, and complexity of value assessment as the factors for classification.

Degree of Fragmentation

Mahadevan (2003) defined degree of fragmentation with two key attributes of the market; the number of players and geographical spread. A market with a large number of buyers (sellers) will be considered to have a high degree of fragmentation of buyers (sellers) and vice versa. A market for a firm with a high geographical spread will also indicate a greater degree of fragmentation. The key motivation behind this definition of

Figure 4
Classification of Optimal Electronic Marketplaces by Asset Specificity and Degree of Fragmentation- Mahadevan (2003)

		Asset Specificity		
		High	Medium	Low
Fragmentation of Buyers and Sellers	Sup - Low Buy - Low	Extranet/ Web EDI	Extranet/ TPN	Not Relevant
	Sup - High Buy - Low	Buyer centric Private Market	Reverse Auctions	Buyer Consorta
	Sup - Low Buy - High	Supplier centric Private Market	Forward Auctions	
	Sup - High Buy - High	Not Relevant	Neutral E Market Places	

Classification of Neutral Markets

Neutral markets are seen by Mahadevan (2003) to suffer from poor market liquidity due to the complexity of product description and complexity of value assessment. Clearly, electronic markets add substantial value in situations involving complex product characteristics.

Complexity of Product Description

According to Mahadevan (2003), complexity of product description refers to the amount of information a buyer needs to understand the functional and technical specifications of the product/service. Communicating numerous specifications that differentiate one variation from the other, communicating price changes to clients, managing stock keeping units, and improving stock visibility are all seen by Mahadevan

(2003) as factors that contribute to complex product characteristics. Further, such a large menu of offerings induces additional costs related to maintaining price lists and repeated communication of changes in price lists usually known as menu costs (Mahadevan, 2003).

Complexity of Value Assessment

According to Mahadevan's (2003) definition, complexity of value assessment refers to the amount of information needed to estimate accurately the worth of an item and use the information to either arrive at a price or select items offered at a price. For example, it is typically simpler to assess the value of a new item than to assess the value of used items or unique products. In addition, products with little complexity in product description can pose significant complexity in value assessment, as might be the case for some commodities.

Mahadevan (2003) suggests that complexity occurs due to three factors. Firstly, the price setting protocols could be dynamic through iterations of bids and offers. In this case, benefits of operating in these markets are a function of market participant size. The second factor leading to complexity is the amount of information and pre-assessment required before making a choice, as in the case of auctions and exchanges. Finally, the complexity of value assessment is also due to information asymmetry problems. Electronic markets are seen by Mahadevan (2003) to substantially eliminate these problems and help reduce the complexity of value assessment.

Figure 5 shows the classification of neutral markets on this basis. Catalogue aggregation seeks to address the problems arising out of complexity in product description through provision of detailed descriptions of products. On the other hand, exchanges address value assessment problems stemming from dynamic price setting through exposure of products to a wide array of knowledgeable industry participants in the exchange (Mahadevan, 2003). Auction sites address both the problems of medium complexity in product description as well as value assessment (Mahadevan, 2003).

Figure 5
Classification of the neutral markets- Mahadevan (2003)

		Product Description		
		Simple	Moderate	Complex
Value Assessment	Easy	Exchanges	Catalogues	
	Moderate	Auctions		Online Community
	Difficult	Click & Mortar		

Limitations of the TCT Perspective

Lee and Park (2004) surveyed 164 South Korean companies with a web presence and found, though they held favourable attitudes towards their web presence (i.e. degree of ecommerce enablement), the overall level of satisfaction with their ecommerce programs was only moderate. More specifically, in relation to electronic marketplaces, Le, Rao and Troung (2004) reported that though 54% of 286 firms surveyed had utilized an electronic marketplace, only 31% of those users found them as having lived up well to

their expectations, suggesting that the clear and detailed understanding of major processes and drivers of EMs noted as being required by Huber, Sweeney and Smyth (2004) is lacking. Lack of understanding of the benefits of EM participation, management resistance, inadequate application tools, expense of hardware and software, business process change, lack of supporting infrastructure, employee resistance, and customer/supplier resistance were found to be the primary disappointments (in the rank order indicated) stemming from participation in electronic marketplaces by 53 marketers in the US paper industry (Vlosky, 2006).

Marketing managers may, to some degree, intuitively recognize the importance of asset specificity, fragmentation and complexity of product assessment and value assessment and be able to select an optimal electronic marketplace structure accordingly. However, operationally there are clearly difficulties in being able to situate one's product/market factors within the universal B2B "marketspace". In fact, Huber, Sweeney and Smyth (2004) suggest that effective participation in electronic marketplaces has the potential to enhance competitive advantage but that implementation requires a clear and detailed understanding of the major process structures and drivers. Fit or lack thereof with market characteristics, as per Mahadevan's (2003) typologies certainly would appear to be a strong determinant affecting judgments of performance with the choice of electronic marketplace type.

However, expectations for performance from a firm's participation in a specific electronic marketplace type that are driven primarily by product/market characteristics may be difficult to specify in any depth given the bounded rationality of humans (Simon, 1976). Simon's own account of rationality aims to describe the ways in which human rationality is bounded while also eschewing any reduction of rationality to the ultimate course of action taken. Simon (1976) contends that the bounds of our rationality include limitations on our knowledge of the consequences of the actions we consider, our ignorance regarding what value we will ultimately attach to those consequences we do foresee, and our capacity to take into account only some of the alternatives available in any choice situation.

All of the above factors would seemingly be typical of challenges present in setting detailed expectations for an EM choice, based on rational product/market factors suggested as being relevant by the TCT perspective, encouraging what Simon (1976) calls satisficing behaviour. When satisficing managers will only take into account factors that we can rationally account for, given the limits of human cognition and limited human ability for to foresee the consequences of our actions.

Firstly, the goals of brokerage and integration outlined by TCT models are often in conflict (Christianaase and Markus, 2003). Structures that maximize short-term profitability and flexibility for both buyer and sellers may not be those that facilitate the

strengthening of long term relationships and enduring competitive advantage, despite the fact that marketers often wish to achieve both goals simultaneously.

Secondly, explicit consideration of the product market factors suggested by TCT explanations of EM type chosen such as Mahadevan's (2003) rely on the practical ability of marketers to accurately and objectively situate the product market characteristics of their offerings, with concern for market fragmentation and asset specificity, on a continuum of all product markets.

Thirdly, given the plethora of electronic marketplace options and the inherent complexity of many B2B transactions, there is relatively little validated research to provide sellers with prescriptions of how to choose an optimal electronic business marketplace type based on product/market factors alone (Rask and Krogh, 2004).

Finally, in the context of this dissertation, which focuses upon determinants of seller rather than buyer satisfaction with the choice of electronic marketplace type, sellers are shown to be more passive, giving less consideration to product/market factors than buyers do and placing greater emphasis on institutional factors (Wang, Archer and Zheng, 2004).

Clearly, performance expectations are determined to a large degree by the motives for participation in any type of business venture (Fahy, Shipley, Egan and Neale, 1998).

Rask and Kragh (2004) found that supplier motives for incorporating EMs as a sales tool are determined to a greater degree by external influences, such as compliance with industry norms, than are buyer motives. The primary difference between buyers' and sellers' motivations was that sellers were substantially more driven by legitimacy motives, i.e. to appear as a credible and substantial enterprise, than were buyers. Rask and Kragh (2004) suggest that power effects and legitimacy motives are quite closely intertwined, and they also found that some suppliers did not join electronic marketplaces out of free will but rather out of fear of potential consequences of the alternative of not joining.

In fact, at least in the case of adoption of Financial Electronic Data Interchange Systems, Wang and Archer (2004) find that the institutional environment in which a firm is situated is more important than rational intra-organizational criteria, particularly for sellers. Sellers in particular are seen by Wang and Archer (2004) to make decisions regarding 'market-making' IT investments, motivated strongly by institutional factors, such as coercion by powerful buyers, mimicking "best in class" sellers and compliance with supply chain and industry norms.

This is important because research on e-marketplaces has largely focused on the benefits available to buyers from e-marketplaces. As the debate only infrequently considers suppliers as much as it does buyers (Rask and Krogh 2004), potential benefits

for buyers may be assumed to be common knowledge to a larger extent than the benefits for suppliers of moving activities online.

In addition to a fit with marketplace and product characteristics, there are a number of other influences that have been posited as affecting sellers' perceptions of performance of and satisfaction with the choice of electronic marketplaces. These include the effects of company size and prior experience with electronic marketplaces.

Corbitt (2003) found in an ethnographic study of how decisions about electronic commerce investments are made that managerial misunderstanding about electronic commerce has created unrealistic expectations of the value of the innovation by management, particularly when there is a strong influence from consultants. Past use of electronic marketplaces by a firm may be negatively related to expectations for future use of electronic marketplaces. Accordingly, at a given level of perceived marketing effectiveness (see Section 2.6 re: effectiveness), those who have had previous experience with electronic marketplaces may consider performance to be higher than those who have not. Neophytes will have higher expectations and thus will perceive performance lower at a given level of marketing effectiveness.

Similarly, Hadaya (2004), in a survey of 1200 Canadian marketing managers, found that the complexity of sophisticated e-commerce implementations negatively influences the future level of use of marketplaces for SMEs, but not for large firms. He

explained this finding by suggesting that large firms are less subject to knowledge barriers than SMEs. Though all firms may underestimate the extent of change to processes and technologies required to effectively participate in electronic marketplaces, large firms possess more diversified technical knowledge and are better able to react to unanticipated hurdles in adoption. Prior experience with electronic marketplaces, therefore, would appear to have a negative influence on expectations for adoption of electronic marketplaces by a firm, but only for small firms.

Neither company size nor prior experience would seem to be explicitly incorporated, *a priori*, into performance expectations that are set for adoption of a particular EM type to any great extent. Some research shows that smaller firms, in general, have been less able to cope with unanticipated difficulties in adoption than larger firms (Hadaya, 2004). Small firms, however, would not be likely to explicitly set informal or formal expectations lower for EM adoption than larger firms based solely on the body of current research which outlines these potential difficulties. Similarly, firms with no experience in EM adoption would not likely moderate their performance expectations downward simply because of research (Corbitt 2003; Hadaya 2004) showing that first time users are more apt to be dissatisfied with results. In other words, company size and prior experience may impact *post hoc* perceptions of EM performance, as prior research has suggested, but these factors would not seem to be explicit considerations in goal or expectation setting for an EM choice.

2.6 Marketer's Expectations, Goal Setting and Measures of Performance as Multi Dimensional and Multi-Disciplinary Constructs

The motivations and expectations of managers towards new technologies like electronic marketplaces are important as they not only drive whether and when these new technologies are adopted but also how and to what ends, they are applied (Goode et al, 2002). Chandy, Prahu and Antia's (2003) study showed that individual managers have widely divergent expectations of the same new technology. Clearly, individual and corporate motivations and expectations play a role in both the decision to participate in a particular electronic marketplace and how this participation will be evaluated.

Clark (2000) suggests that the manner in which marketers engage in performance measurement of marketing initiatives has implications for both consequences and content. Clark (2000) cites research (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1986; Hart and Banbury, 1994) suggesting that managers are capable of making subjective estimates of financial measures, but he also cites organizational literature which describes 'success' as a function of managerial interpretation. Clark (2000) suggests that "subjective measures of performance may therefore differ from objective ones" (Clark, 2000, p.4). In fact, some studies have found that results using subjective and objective measures of performance can be quite different (e.g. Jaworski and Kohli, 1993), and Jaworski and Kohli (1993) suggest that subjective measures are most salient to marketers. Understanding subjective differences in individual measures of marketers' perceptions regarding a given set of objective performance measures would

seem crucial to understanding managerial perceptions of the success of participation in specific electronic marketplace models.

Clark (2000) suggests that the proposition that marketers use outputs (e.g. sales, unaided recall of ads, market share etc.) in measuring performance is well accepted, but less is known about what referents those outputs are actually compared with. Marketing performance assessment is evaluated by Clark (2000) as comprising three types of measures—efficiency, adaptability to the environment, and effectiveness. Efficiency and adaptability are both found by Clark (2000) to be multidimensional, and both constructs had a strong moderating effect on the construct of marketing effectiveness and ultimately on the measurements of performance. Top management priorities were also found to have an impact on measurement of performance. Each of Clark's (2000) three measures refers to a unique referent to compare with outputs. Clark (2000) explored whether managers subjectively utilize each one and to what degree.

This view of managerial expectations and performance as being multi-dimensional is particularly germane to providing a broad scope and a unique contribution to the study of EM satisfaction. There are some guidance and precedence for this approach in the electronic markets literature in the research of Christianaase and Markus (2002) and Wang, Archer and Zheng (2005). In both works, "super constructs" (from a blended theory perspective) are used to explain formation of and motivations for participation in electronic marketplaces. These constructs mirror quite well those

suggested by Clark (2000) as being general determinants of marketers expectations and performance. For example, Clark (2000), Wang, Archer and Zheng (2005) and Christianaase and Markus (2003) all suggest that effectiveness (informally or formally stated goals or targets) and efficiency (fit with and amount of internal resources used to achieve those goals or targets) are key salient variables in determining managerial perceptions of performance. Both Clark (2000), from a population ecology perspective, and Christianaase and Markus (2003), from a strategic networks theory perspective, also cite internal and external influences as being salient to shaping notions of managerial performance. Christianaase and Markus (2003) further divide these factors into economic and political factors based on their incorporation of political economy theory into their synthesized model. Christianaase and Markus (2003) suggest the theory of political economy distinguishes between economic factors and non-economic factors that affect the structure of interfirm relationships. Clark's (2000) model can be used in part to develop a testable model for future research, since it has received limited testing. Models using similar constructs have been suggested (Christianaase and Markus, 2003) but not yet tested in the EM literature.

The Efficiency Perspective

Clark (2000) suggests that efficiency references the difference between outputs and inputs of marketing initiatives, with the objective of optimizing outputs versus inputs. Walker and Ruekert (1987) defined efficiency as "the outcome of a business program in relation to the resources employed" (p.19), citing return on investment (ROI) as a

measure. The principal-agency theory, derived from economic theory, conceives of managers as agents acting for the owners of the firm (the principals) who invest their capital primarily in the hope of increasing its value (Jensen and Meckling, 1976; Fama and Miller, 1972 and Quinn and Jones, 1995). The underlying assumption is that in efficient markets, private enterprise conducted for wealth creation in this way will lead to the most desirable social outcome (known in economics as the Pareto optimum). Thus, the normative condition here is that managers should act only in such a way as to maximize the net present value (NPV) of the firm, and accordingly, most work in agency theory has focused on the relationship between owners and managers.

However, there are various inputs (e.g. money, skill and time) that could be used as referents beyond the principal-agency theory perspective (Jensen and Meckling, 1976, Fama and Miller, 1972 and Quinn and Jones, 1995). For example, Clark (2000) believes managerial effort is an important input referent. Clark (2000) cites Bonoma and Crittenden (1988) and Cespedes (1990) who note that management effort is often a scarce resource in organizations. Clark (2000), therefore, suggests that initiatives which require greater management effort than others will be viewed as less efficient than others at the same level of output. Wang, Archer and Zheng (2005), citing prior work from Kolmann (2001) and Hadaya et al (2001), also describe management effort in relation to EM adoption utilizing the term “effort expectancy.” Clark (2000) also draws from the psychology literature (e.g. Fiske and Taylor, 1991; Hutchinson and Alba, 1991) suggesting that effort is salient to managers. Saliency is also a typical measure used by

marketers themselves to segment markets and position products and brands based on the salience of possible features and benefits to potential buyers (Belch, Belch and Guolla, 2005):

A second component of efficiency regarding a marketing program suggested by Clark (2000) is the level of support the firm's systems and standard operating procedures provide to the program, which he calls structural support. A marketing initiative which requires little or no adaptation of the firm's existing distribution system would provide better structural support than one which required substantial changes. Structural support is viewed by Clark (2000) as being analogous to the company's resource system and its fit with the unique value proposition provided by the program (Porter, 1985, Venktraman and Callumus, 1984). Related to EM adoption, Wang, Archer and Zheng (2005) term this, pre-existing conditions, i.e. the level of support the firm's systems and Standard Operating Procedures provide to the program in the context of EM adoption.

Structural support is seen by Clark (2000) to have two efficiency consequences. First, a program, which uses existing systems, obviously requires fewer inputs than a program, which requires new resources to be acquired. At a given level of output, the former should be seen as more efficient and, thus, as higher performing than the latter. Participation in EMs often requires a change in order fulfillment, billing and customer service and other functions, as well as the acquisition, implementation and maintenance of new software and hardware. Therefore, the efficiency consequence would seem to be a

salient one for marketing managers. Second, to the extent that the program is well-supported by existing systems and procedures, managers may, in fact, put less effort or investment in time and personal resources into the program (Bonoma and Clark, 1988).

Finally, Clark (2000) suggests that a key determinant of effort is the priority placed by top management on the program. Top management direction guides marketing efforts (Bonoma and Crittenden, 1988), and should have a strong influence on managerial effort. This is quite consistent with Christianaase and Markus's (2003) view of "internal polity" as being a determinant of electronic market adoption from a political economy view of the firm.

The Adaptability Perspective

Clark (2000) suggests that an adaptability perspective uses an external referent, rather than an internal referent as used in the efficiency perspective. Adaptability is based on how well the marketing program is adapted to the external environment. Christianaase and Markus's (2002) political economy view of electronic marketplace selection considers factors both internal and external to the interfirm relationship, the latter allowing for consideration of such factors as industry-wide data standardization agreements in electronic marketplaces. Clark (2000) also considers both internal and external factors incorporating discussion of external factors into the notion of adaptability as a determinant of perceptions of performance. Clearly, the external environment of the firm is relevant to any evaluation of marketing performance.

Consistent with Clark's (2000) population ecology/environmental external perspective, previous studies based on agency theory (Hirshleifer and Thakor, 1989; Stulz, 1990 and Mehran, 1992) have extended the exploration of management relationships to other external stakeholders in an attempt to address the potential conflicting interests of various stakeholders (for example, shareholders and managers over suboptimal investment and overspending; debt holders and equity holders over under leveraging; creditors and corporate managers over delaying debt settlement). As well, in contrast to the conventional agency-principal model of the firm, stakeholder theory suggests that there are multiple groups that have a legitimate stake in the firm's activities. According to Post et al. (2002), the term, "stakeholder management," references the development and implementation of organizational policies and practices that adapt to the goals and concerns of all relevant stakeholders (i.e. the "environment"). All of these stakeholders are entitled to consideration in managerial decision-making.

Post et al's (2002) view is consonant with the broader strategy literature, which suggests the appropriateness of an organization's strategy can be defined in terms of its strategic fit with the organizational contingencies facing the firm (Venkatraman and Camillus, 1984). One means by which strategic fit may be achieved involves matching or aligning the strategic resources of the firm with the environmental opportunities and threats the firm faces (Venkatraman and Camillus, 1984). Adaptability to the interests of relevant stakeholders, such as vertical and horizontal partners including suppliers and

alliance partners, should therefore also be considered as salient referents for perceptions of performance of a marketing program.

In the context of EM adoption, Wang, Archer and Zheng (2005) characterize environmental fit or adaptability as “institutional influence,” citing various components such as legitimacy motives (Grewal 2001), business relationships with trading partners (Hadaya, 2004), system marketing, key player involvement and external pressure (Koch, 2002), influence from suppliers (Deeter-Schmelz et al., 2001) and pressure from big buyers (Min and Galle, 1999).

Similarly, in the general context of marketing performance evaluation, Clark (2000) examines three specific domains of the environment as being a referent to marketers’ perceptions of adaptability. These are the role of: 1) competitors, 2) trends in the overall environment (e.g. regulation, consumer trends, etc.), and 3) the role of marketing partners (e.g. distribution channel members, suppliers and service firms) in supporting the marketing program. Marketing partners have become increasingly important as new forms of marketing organizations and interorganizational alliances have blossomed in the marketplace (Achrol, 1991; Piercy, 1998).

Clark (2000) views a favourable adaptability response as one where the external environment supports a given marketing initiative more than others, citing Dess and Beard’s (1984) term “munificence”. An example of a favourable competitive response to participation in an electronic marketplace would be a competitor dropping out of a

market due to an inability to compete effectively within the electronic marketplace the marketer has chosen. A favourable environmental trend would be if trends in buyer behaviour were compatible with a new marketing initiative. As an example, there has been a strong trend towards participation in electronic marketplaces by buyers over the past five years in the pharmaceutical and aeronautical industries. In the case of partner favourability, channel members including alliance partners and key suppliers to the firm, might be enthusiastic about shifting relevant business processes to an electronic marketplace. This could provide the focal firm with greater potential to develop network externalities (Mohr, Sengupta and Slater, 2005) to support the marketing of their good and services.

Clark's (2000) view of overall environmental favourability is extended by Christianaase and Markus's (2003) contention that the theory of political economy combined with relational exchange theory provides a robust view of external relationship structures present in electronic marketplaces. Christianaase and Markus (2003) define relationship structures as a continuum of relationships ranging from discrete (market-like, as in transaction cost theory) to relational (or network-like) in the work of Mohr and Nevin (1990), and as having the two dimensions of decision making structure and operational integration (Stern and Reve, 1980). Christianaase and Markus (2003) also suggest that operational integration must include uniquely IS issues, like external systems integration and common EDI platforms (Markus 2000).

Similarly, Williamson (1985) suggested that transaction cost theory's focus on dyadic relationships might increase the likelihood that interdependencies among a series of related trading relationships would be missed in this research perspective. Citing this focus on dyadic relationships, Christianaase and Markus (2002) suggest that as useful as the transaction cost theory approach proposed by Bakos (1991) and Mahadevan (2003), among others, is for the analysis of electronic marketplaces, it has two notable limitations. Christianaase and Markus (2002) suggest that relational exchange theory helps overcome transaction cost theory's inability to accommodate both the effects of pre-existing supply chain relationships and the effects of the relative power of buyers and sellers. These constructs should be considered as being additional direct effects on the adaptability construct proposed by Clark (2000).

Supply Chain Relationships and Norms

Neither Mahadevan's (2003) transaction cost theory based model nor Clark's (2000) population ecology model explicitly addresses the influence of pre-existing and extended supply chain relationships among transacting firms. Through this lack of consideration, there tends to be sole focus on dyadic B2B sales transactions. Dyadic B2B sales transactions exist in extended supply chains with at least three parties, for example, buyer, supplier, and customer, or a company with two or more supplier tiers. In reality, supply chain relationships in industries such as computing, aeronautics and pharmaceuticals often involve dozens or even hundreds of pair-wise relationships (Mohr, Sengupta and Slater, 2005).

Organizations can encounter problems by focusing solely on pair-wise relationships, as Cisco learned when it racked up huge inventory losses through lack of insight into the ordering behavior of its first tier suppliers (Kaihla, 2002). To avoid such problems in the future, Cisco built an “eHub” to automate the flow of information between Cisco, its contract manufacturers, and its component suppliers (Kaihla 2002). In response to problems such as those experienced by Cisco, electronic marketplaces are developing similar multiparty collaborative planning, forecasting, and replenishment capabilities to address the extended supply chain (Christianaase and Markus, 2002). A characteristic of extended supply chains is that optimizing the performance of the chain overall may result in what one or more partners may perceive as a suboptimal relationship with an adjacent party (Christianaase and Markus, 2002). For example, companies might be willing to make tradeoffs in their dealings with first tier suppliers if the higher performance of the chain as a whole resulted in the value proposition of customer loyalty or profitability. Transaction cost theory does not explicitly address these important extended supply chain effects nor does Clark’s (2000) partner favourability construct, at least in a manner which is appropriately specific to EMs. Accordingly, a construct should be developed to measure the effect of extended supply chain effects on the adaptability construct.

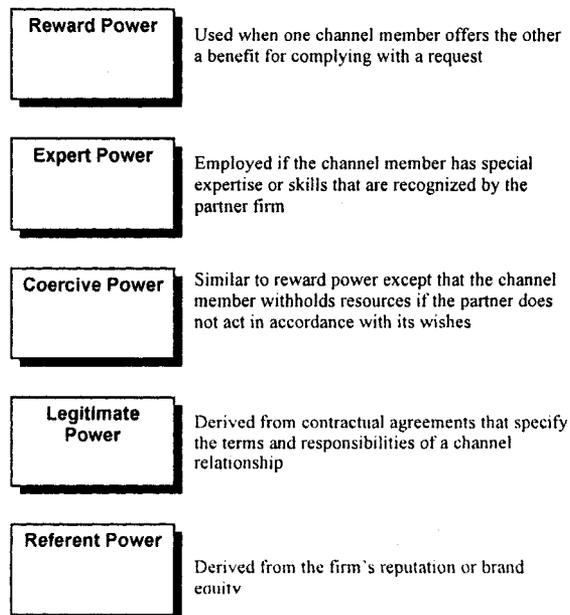
Channel Power Interrelationships

Christianaase and Markus (2003) also suggest that channel power interrelationships are not adequately addressed by a transaction cost view of electronic

marketplaces. In fact, Mahadevan's (2003) model does not explicitly consider power relationships among firms, which can influence the structure of interfirm transactions (perhaps implicitly at best through consideration of the relative number of buyers and sellers in a marketplace) and neither does Clark's (2000) adaptability measure of environmental fit.

French and Raven (1959) identified five types of social power that channel members can use to achieve their objectives (Figure 5). Each one of the types of power could be exerted by channel members to influence the marketer's choice of an electronic marketplace.

Figure 5
Types of Channel Power
French and Raven (1959)



Christianaase and Markus (2002) found that power relationships are commonly considered in treatments of interorganizational systems like EDI. For example, it has often been observed that powerful suppliers like Sears or Wal-Mart can mandate the use of EDI by suppliers.

One aspect of power in supply chain relationships is asymmetry. According to resource dependence theory, companies usually have more power over their suppliers than over their customers (Conner, 1996). In some cases, however, suppliers of scarce and critical inputs may have greater power over their customers (Kraljic, 1983). Power relationships are likely to be reflected in an organization's choice of electronic marketplaces. Firms may, for instance, prefer private trading exchanges to service customers, because these arrangements give them greater control (Davenport, Cantrell et al. 2001). However, asymmetry in power could also mean that the company's preferences are frustrated. For example, the customers of a firm that wants to use a private exchange might prefer to transact through a catalogue aggregator to improve reach and choice of suppliers. Some firms, therefore, can be forced into a less than optimal electronic relationship, irrespective of preferences or transaction costs. In addition, some firms may suffer sanctions from powerful buyers should they choose a type of electronic marketplace which is viewed as unfavourable by those buyers. As an example of coercive power, Montgomery Ward and Target Stores in the U.S. threatened to de-list all Levi

Strauss jeans from their stores unless Levi Strauss immediately stopped selling their clothing online through their website (Schneider, 2003).

Transaction cost theory and in particular Mahadevan's (2003) model does not explicitly address these important power effects. Therefore, a construct is needed to measure the effect of channel power on the adaptability construct to better understand performance expectations for the choice of an EM type.

The Effectiveness Perspective

Clark (2000) suggests measures of performance from an effectiveness perspective are based on the decision makers' objectives. Revenues, market share, and/or profits, as well as intermediate measures that can predict these outcomes, such as number of inquiries generated or measures of customer satisfaction derived from EM participation, are all common marketing objectives of the firm and are used as benchmarks of performance (Dwyer and Tanner, 2006). These measures may also include formalized balanced scorecards (Figure 6), which assess both periodic financial performance as well as factors which have been shown to be predictive of longer term financial performance (Dwyer and Tanner, 2006).

Figure 6
Typical Balanced Scorecard Measures-Dwyer and Tanner (2006)

<p><u>FINANCIAL RESULTS</u> Net income Profit margin Return on investment Return on assets managed</p>	<p><u>CUSTOMER RESULTS</u> Revenue per customer Account share Customer satisfaction Intent to repurchase</p>
<p><u>INTERNAL BUSINESS PROCESS</u> Employee satisfaction Data availability New product development cycle Credit approval cycle</p>	<p><u>LEARNING & GROWTH MEASURES</u> Completed training programs New patents obtained New products introduced</p>

In addition, Clark (2000) cites research on the relationship between performance and expectation levels (Lant, 1992; Greve, 1998) that indicates the expectations of managers about the likelihood of achieving objectives are also salient to measures of performance.

Clark (2000) suggests that effectiveness may act as a mediating variable in measures of marketing performance, where aspects of the program drive an effectiveness measure, which in turn drives the performance measure. Clark (2000) further suggests that efficiency and adaptability are a part of managers' expectations and will influence effectiveness measures. Efficiency and adaptability will, therefore, only act as mediating

variables on perceived performance via effectiveness. In fact, this is the relationship that Clark (2000) found in a survey of 130 marketing managers.

Performance as a Dependent Variable

Marketing activities may only affect some aspects of perceived performance but not others (Jaworski and Kohli, 1993). Consideration must be given to effects that may be explanatory of performance measurements but due to the bounded rationality of managers, (Simon, 1976), they may not be explicit considerations in marketing program design and thus *a priori* expectations (in this case for the choice of electronic marketplace). These influences could include the unforeseen impact of a poor fit of electronic marketplace choice with the prevailing structure of the market, per Mahadevan's (2003) typologies. For example, marketers may be unable to rationally and objectively consider how fragmented their markets are or how asset specific their buyer/seller relationships are in comparison to "typical" or "average" B2B marketplaces. As previously discussed, inflated expectations based on having no prior experience with electronic marketplaces (Hadaya, 2004; Corbitt, 2003), might also be difficult for marketers to recognize.

Clark (2000) and Oliver (1980) both suggest that satisfaction judgments are found across many domains. Clark (2000) further suggests that managers will make satisfaction judgments regarding the performance of marketing initiatives similar to the

manner in which customers compare experiences with products and services with expectations and form satisfaction judgments.

Clark (2000), however, does not validate a specific link between perception of performance and managerial satisfaction in his study. One must look to other literature, such as the consumer satisfaction literature and the job satisfaction literature, to build a more robust typology for this relationship.

2.7 The Performance Satisfaction Link

Arnemann (1994) draws upon the information in two areas of literature, the consumer satisfaction literature and the job satisfaction literature, to build a more general model of the relationship between performance and satisfaction. Concurrent with other previous research and similar to Clark's (2000) observation, she found that judgments of managerial satisfaction were neither subjective, like those suggested by Tse and Wilson (1988), nor objective, like those used by Kernan and Lord (1991), but were in fact a combination of both.

Arnemann (1994) found, similar to Churchill and Superant (1982) and Bolton and Drew (1991), that the strength of the relationship between performance and satisfaction is based on the depth and specificity of prior expectations. For marketers this suggests that clear standards matter. Ambiguity makes it too easy for managers to interpret results in

their favour (Levitt and March, 1988) and provides little guidance for employee behaviour.

Clarity and specificity of objectives (Arnemann, 1994) prior to implementing participation in a new electronic marketplace may be key indicators of the strength of the relationship between satisfaction with and perceived performance of that electronic marketplace.

2.8 Key Implications of the Literature Review in Developing the Proposed Framework.

The literature regarding adoption and choice of EMs clearly implicates both the perspectives of network/institutional/population ecology theories and transaction cost theory as having value in understanding how sellers are satisfied by EM choices. From the network/institutional/population ecology perspective, numerous internal and external influences are suggested to determine explicit goal setting and expectations a priori. Guided by this perspective, Clark (2000) suggests that judgments of the effectiveness of marketing programs are based on variance from expectations and that these effectiveness judgments drive performance judgments.

In contrast, this research suggests that although transaction cost theory posits that fit with product/market characteristics also impacts ultimate performance evaluations, they do so only on a *post hoc* basis. Product/market characteristics are not implicitly

considered in effectiveness judgments due to limited knowledge, experience and research on how to utilize to set expectations for EM choice.

The relevant literature as discussed in Chapter 2 has been synthesized to suggest 18 distinct research hypotheses for validation in Chapter 3.

Christianaase and Markus (2003) suggest that channel power interrelationships and network (or supply chain effects) are not adequately addressed by a transaction cost (Mahadevan, 2003) view of electronic marketplaces and should be incorporated into any discussion of EM adoption and evaluation. However, Clark (2000) does not consider the influence of power or supply chain relationships on an adaptability construct or as an external referent of effectiveness. This research posits that power and supply chain effects do impact an adaptability construct.

Consideration, however, must also be given to factors that may be explanatory of performance and satisfaction measurements, but due to the bounded rationality of managers, (Simon, 1976), may not be explicit considerations in setting *a priori* expectations for the effectiveness of adoption of a certain EM type. These factors include the effects of company size, prior experience with electronic marketplaces, and the fit of EM type chosen with product market characteristics. These factors are all hypothesized in this dissertation to directly impact judgments of performance, but not judgments of effectiveness from a disconfirmation of expectations perspective.

The research methodology used to test these new propositions follows a positivistic approach, which attempts to increase the predictive understanding of phenomena based upon the evidence of formal propositions, quantifiable measures of variables, and testing of hypotheses. To build a broad research framework, theoretical

perspectives of electronic markets including transaction cost theory, strategic networks theory, relational exchange theory, principal-agency theory and population ecology theory are synthesized in this dissertation to provide a more robust understanding of the determinants of marketer or vendor satisfaction with their choice of EM.

3.2 Research Hypotheses

Clark (2000) views management effort as being highly salient to marketers as do Wang, Archer and Zheng (2005) for electronic marketers. An electronic marketplace that requires a high level of effort would be viewed by Clark (2000) as being less efficient than one requiring little attention. Therefore:

H1: The higher the managerial effort put into facilitation of participation in an electronic marketplace, the lower a marketing manager will perceive the efficiency of participation in that electronic marketplace.

Structural support is seen by Clark (2000) to have two efficiency consequences. First, a program which necessitates the acquisition of new resources is seen to be less efficient than one which utilizes existing resources at the same level of output, what Wang, Archer and Zheng (2006) term effort expectancy in relation to EMs. Second, effort expended by managers may be lower if the program requires fewer new resources. Therefore:

H2: The higher the internal structural support that participation in an electronic marketplace receives, the higher a marketing manager will perceive the efficiency of participation in that electronic marketplace.

H3: The higher the internal structural support that participation in an electronic marketplace receives, the lower the level of management effort that will be exerted by a marketing manager on participation in that electronic marketplace.

Clark (2000) suggests that senior management objectives provide direction for the nature and level of effort that marketers expend on marketing initiatives. This is quite consistent with Christianaase and Markus's (2003) view of internal polity as being a determinant of electronic markets perceived performance from a political economy view of the firm. Corbitt (2003) and Hadaya (2004) also indicated that top management priority, including the influence of consultants on top management, was a significant factor influencing adoption of and expectations for electronic marketplaces. Therefore:

H4: The higher priority top management places on participation in an electronic marketplace, the higher a marketing manager will perceive the efficiency of that electronic marketplace.

H5: The higher the priority top management places on participation in an electronic marketplace, the higher the effort a marketing manager will exert on participation in that electronic marketplace.

Clark (2000) identifies three referents to the perceptions of marketers of the adaptability of a marketing initiative to the overall environment 1) competitive favourability, 2) favourability of environmental trends and 3) partner favourability. Service firms and “complementors” (Mohr, Sengupta and Slater, 2005) have different motivations for participation in electronic marketplaces than vertical market suppliers and customers (Mohr, Sengupta and Slater, 2005). Clark’s (2000) definition of marketing partners is therefore revised to encompass only complementors and service firms (horizontal relationships). A more robust definition of the effects of pre-existing supply chain and channel power (vertical) relationships is proposed by H10. Therefore:

H6: The higher the favourable competitive response is to participation in an electronic marketplace, the higher a marketing manager will perceive the adaptability of that electronic marketplace.

H7: The higher the level of support from marketing partners that participation in an electronic marketplace receives, the higher a marketing manager will perceive the adaptability of that electronic marketplace.

H8: The higher the favourability of overall environmental trends is to participation in a certain electronic marketplace, the higher a marketing manager will perceive the adaptability of that electronic marketplace.

The notion of power relationships are likely to be reflected in an organization's choice of (or preference for) electronic interconnection arrangement. To improve understanding of specific determinants of the choice of and perceptions of performance of electronic marketplaces, the power of buyers is clearly an important element (Christianaase and Markus, 2003) in measuring the perceived adaptability of a chosen electronic marketplace to the environment. Therefore:

H9: The higher the level of power is that could be exerted by buyers to sanction or restrict the choice of electronic marketplace by a marketer, the lower a marketing manager will perceive the adaptability of an electronic marketplace to be.

Neither population ecology theory (Clark 2000) nor transaction cost theory (Malone et al, 1987; Bakos, 1991) explicitly considers the influence of preexisting and extended supply chain relationships among transacting firms. Transaction cost theory tends to focus on dyadic sales transactions only. Dyadic transaction sets in the extended supply chain context number at least three and perhaps as many as dozens or hundreds (Christianaase and Markus, 2003). This suggests that suboptimal relationships with

adjacent parties are almost inevitable in the light of overall supply chain objectives.

Therefore:

H10: The higher the impact that supply chain contractual agreements and norms have on restriction of the choice of electronic marketplace by a marketer, the lower a marketing manager will perceive the adaptability of an electronic marketplace to be.

Clark (2000) found that efficiency and adaptability will only affect perceptions of performance indirectly via their effects on effectiveness. Therefore:

H11: The higher the perceived adaptability of an electronic marketplace choice by marketing managers, the higher a marketing manager will perceive effectiveness of that electronic marketplace choice.

H12: The higher the perceived efficiency of an electronic marketplace choice by marketing managers, the higher a marketing manager will perceive effectiveness of that electronic marketplace choice.

Corbett (2003) found in an ethnographic study that managerial misunderstanding about the nature of electronic commerce has created unrealistic expectations of the innovation by management, particularly when there is a strong influence from

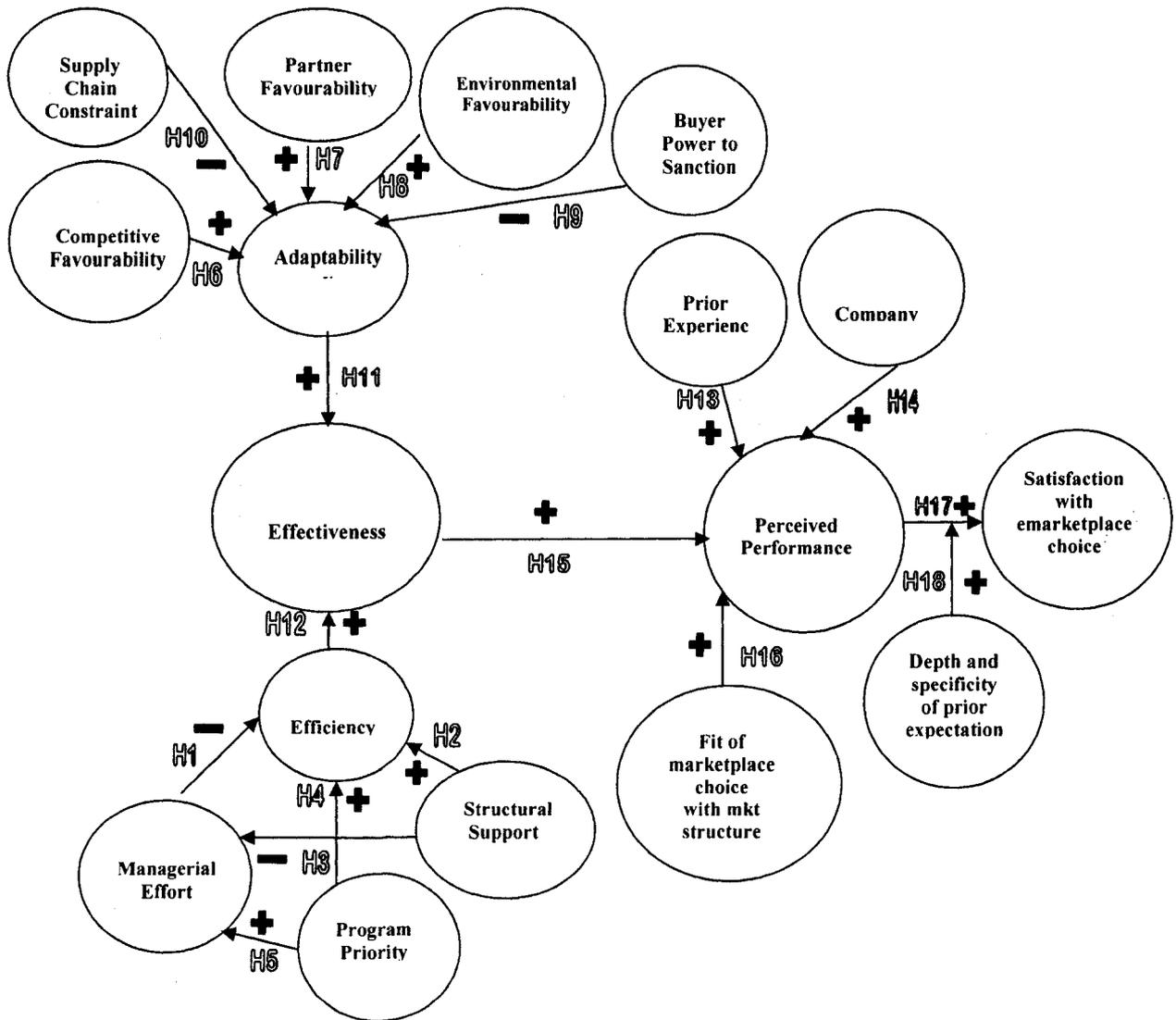
H15: The higher the level of perceived effectiveness by marketing managers derived from participation in an electronic marketplace, the higher a marketing manager will perceive performance of that electronic marketplace.

Huber, Sweeney and Smyth (2004) suggest that effective participation in electronic marketplaces can have the potential to enhance competitive advantage but that implementation requires a clear and detailed understanding of the major process structures and drivers. From the transaction cost theory perspective, fit or lack thereof with market characteristics, as per Mahadevan's (2003) typologies, appears to be a determinant affecting perceptions of performance with the choice of electronic marketplace type. Although these fit characteristics may be important, given the complexity of B2B markets and the absence to date of guiding typologies or rules for electronic marketplace selection, these structural characteristics may be beyond the bounded rationality (Simon, 1976) of most marketers in terms of setting expectations *a priori*. Therefore:

H16: The higher the degree of market fit, the higher a marketing manager will perceive performance of participation in that electronic marketplace. This degree of fit, however, will not strongly impact effectiveness judgments relative to *a priori* expectations.

Clark (2000) to analyze the specific case of evaluation of EM type choice, and also proposes many new indicators to validate the hypotheses drawn from Clark (2000).

Figure 7
Framework for Marketer Satisfaction with Choice of Electronic Business Marketplace-
Knight (2005)



Chapter 4

Data Collection and Analysis Plan

Section 4.1 describes the web platform used to host the survey instrument. The sampling frame and the methods used to create a contact list that would be representative of the sampling frame, are also discussed in this section.

Section 4.2 discusses design of the survey, including the rationale for questions, the number of questions or indicators used to measure each construct, and considerations regarding ease of survey completion by respondents. This section also outlines the pretest procedure utilized and the methods used to contact and recontact the sampling frame.

Section 4.3 outlines the data analysis plan, including discussion of how each construct within the research framework was to be validated. This section also details the multivariate and structural equation modeling techniques that were planned and sample size required to validate the proposed framework.

4.1 Data Collection and Sampling

Data was collected by means of an electronic questionnaire. It offered some considerable advantages compared to mail surveys as it eliminated data re-entry errors while reducing the costs and the response cycle time (Dillman, 2000).

Survey Monkey Service-Email and Web Link Co-ordinates

Survey Monkey's (www.surveymonkey.com) survey service was used for questionnaire administration. It is an online survey facilitation program that includes survey development, hosting, tracking and data management services. Email contact can be personalized, e.g., Dear John. Personalization was deemed important to reinforce the image of a personal communication in order to increase the likelihood recipients would respond.

The service also includes a fully automated opt-out process, so clients can be confident that all opt-out requests are handled promptly and professionally. In addition to collecting and recording all the survey data, Survey Monkey also can send a customized follow up message to list members who have not completed and/or have partially completed the survey.

Sampling Frame and Plan

The objective of the sampling plan was to sample a very large and representative proportion of Canadian Business-to-Business Marketers. A sizable contact list was deemed necessary for three reasons:

- 1) Based on US experience (Le, Rao and Troung, 2004), it was expected that roughly only 50% of Canadian B2B firms had participated to date in EMs.

2) To qualify to complete the survey, the contact must have been directly involved in the choice of and ongoing management of participation in an electronic marketplace within the last 3 years, as the reliability of recall could be seriously compromised otherwise (Arneemann, 1994; Conway, 1990), but not within in the last three months (as it was deemed that experience would be too limited to knowledgably be able to assess EM performance).

3) The survey was rather long and in-depth and completion rates were expected to be low.

Contact email listings of Canadian B2B marketers were developed using listings from Scott's directory (www.scottsinfo.com), a commercial contact list provider, and Strategis (<http://strategis.ic.gc.ca>), a service provided by Industry Canada. Further verification through a review of company websites and other web resources was conducted to ascertain the appropriate contact email when this was not available through Scott's directory or Strategis. Both list providers strive to provide current, comprehensive listings, and given the size of the email list, it was expected that the percentage of the target population that would be sampled was well above average for this type of research (i.e. compared to Le, Rao and Troung, 2004 and Clark, 2000).

An email list of 12,237 marketing, sales/marketing and business development managers located in Canada, whose firms of over 10 employees were supplying products

and/or services to business markets (B2B) was compiled. Judgments were made for each individual listing as to whether the companies operated in B2B markets based on the nature of products and services offered. Qualifying questions in the survey also determined whether the respondents were appropriate (See Appendix 1 for the draft survey and Appendix 2 for the survey question summary).

4.2 Survey Design, Pretest and Contact Plan

The survey instrument was developed to include multiple measures of all constructs, information about the respondents, their electronic marketplace experience and the organizations for which they were employed. Except for categorical indicators for size of the firm, and past use of electronic marketplaces (Appendix 1 and 2), a seven-point Likert scale was used for all responses to measures. Seven-point scales are strongly preferred to facilitate Structural Equation Modeling techniques (Kline, 2006; Garson, 2006). A number of questions were reverse coded to provide greater confidence in the reliability or internal consistency of the constructs each item was designed to measure (Dillman, 2000). Unstructured questions were deemed superfluous to the survey and given that the sampling frame was comprised of busy managers, the survey was designed to be completed as quickly as possible. Questions were also not disguised in any form as the purpose of the survey was clearly stated to participants (Appendix 1 and 2).

In terms of functionality of and engagement in the survey, the funnel approach (Cooper and Schindler, 2004) was generally used throughout the questionnaire to move

questions reliably on the basis of poor Cronbach's alpha values. Questions 33, 36 and 53 (Appendix 1 and 2) were eliminated due to evidence of poor Cronbach's alpha measures, a non response rate of 10 percent or more, as well as respondent comments indicating confusion about the meaning of the question.

Contact Plan

Survey Monkey, as a part of their standard package, provided for tracking of respondent behaviour. Rather than performing follow up required for non respondents with mail surveys (Dillman, 2000), respondents who opened the survey link but had not completed the survey were automatically targeted for a reminder email recontact. Bounced emails, which comprised approximately thirteen percent of the initial email contact of 12,437, were deleted from the list automatically. Different contact and recontact email messages were used and assessed on an ongoing basis to determine which were most effective, based on responses rates within the first week of the canvass. As well, 604 potential respondents were contacted by phone at random to introduce the survey in an effort to increase response rates. The number contacted was limited by the researcher's time and financial constraints. Only 152 of these potential respondents were reached in person with the balance being left voice messages, and 51 of those were qualified to complete the survey. In all cases, the purpose of the call was merely to inform the contact of the nature of the email that was to be sent to them within a few hours introducing the survey. Due to the confidentiality of respondents, it is unknown how many of the phone contacts completed the survey.

Excluding invalid email addresses and a few respondents who asked to be removed from the list, the initial contact list was sent up to five waves of email contact over a five-month period. A redirect link from the Sprott School of Business (Carleton University) website to the Survey Monkey website for the survey was constructed to assure all those contacted that the survey was indeed affiliated with the Sprott School of Business. Some contact emails also originated from either the lead researcher's Carleton University email address (selected cases nationally) as well as some from his email address as complementary faculty at the University of Ontario Institute of Technology in Oshawa, Ontario (for contacts in the Greater Toronto area) to reinforce that the email contact supported a legitimate academic research affiliation.

4.3 Data Analysis Plan

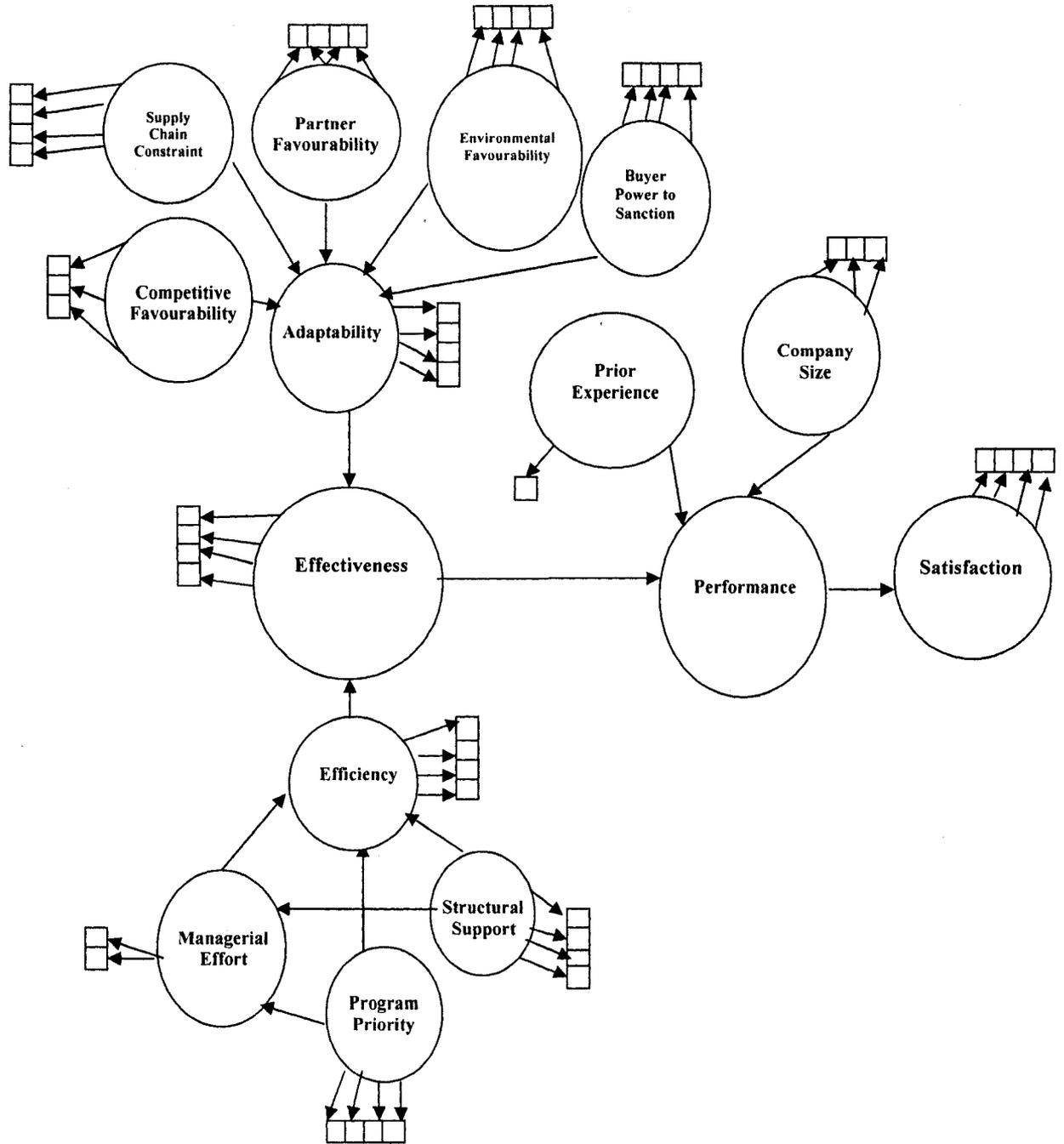
General Approach

The data set is analyzed through both multivariate analysis using SPSS version 14 and structural equation modeling utilizing LISREL 8.7. PLS (Partial Least Squares) was considered as an option for analysis of the measurement and structural models as research in the realm of information technology (King and Leske, 2006) has frequently employed this technique and smaller samples are required to gain a tractable solution (Chin, 1998), which was a potential benefit to this research. However, PLS has a number of disadvantages compared to Lisrel. PLS is not covariance-based, but variance-based and focuses more on prediction than on causality which was not appropriate given the nature of the framework (Hulland, 1999). Moreover, the measurement error cannot be modelled

in PLS. Other important limitations of PLS are that no proper overall goodness-of-fit measures exist for the models estimated (Hulland, 1999) and that the PLS procedure represents a certain bias and a lack of consistency in obtaining parameter estimates (Thomas, Lu and Cedzynski, 2005). This bias tends to manifest itself in higher estimates for component loadings and lower estimates at the structural level (Chin, 1998).

Similarly, the decision was also made to utilize reflective rather than formative indicators for all constructs. In the proposed framework all items are modeled as reflective indicators because they are viewed as measurable effects (not causes) of latent variables (Bollen & Lennox, 1991). PLS is considered by many (Chin, 1998) to be more robust in analyzing formative measures, but this benefit was not relevant to the planned research. The constructs are measured by three or four (primarily four) indicators (with the exception of management effort, for which only two indicators were employed due to poor pretest of the questions, and prior experience, which was a categorical response to one “yes or no” indicator). The construct measures were based on both previously validated questions (Clark, 2000; Arnemann, 1994) and newly constructed ones whose design was guided by an extensive review of constructs and measures proposed by others (Mahadevan 2003, Rask and Krogh, 2004; Christianaase and Markus, 2003 and Wang, Archer and Zheng, 2005). The source and rationale for each question are listed in detail Appendix 2 and the full SEM Model is shown in Figure 8.

Figure 8
Full SEM Model



□ = Indicator each with its own unique measured error term

Table 2
Summary of Measures

Construct	Measure	Measure Synopsis	Source
EXPERIENCE	prior1	Participated in EM prior to current EM	Author
SIZE	size1	Sales Volume	AMA categories
	size2	Number of Employees	AMA categories
	size3	Number of Branches	AMA categories
PERFORMANCE	perf1	How would you personally describe performance of EM choice	Clark (2000)
	perf2	How would you rate the performance of EM choice	Author
	perf3	How would senior management describe the performance of EM choice	Clark (2000)
	perf4	How would subordinates involved describe performance of EM choice	Author
SATISFACTION	satis1	How would you personally describe your satisfaction with EM choice	Clark (2000)
	satis2	How would you rate your satisfaction with EM choice	Author
	satis3	How would senior management describe satisfaction with EM choice	Clark (2000)
	satis4	How would subordinates involved describe satisfaction with EM choice	
EFFECTIVENESS	effect1	Results of EM choice better or worse than expected	Author
	effect2	Results of EM choice better or worse than marketing plan	Clark (2000)
	effect3	Results of EM choice better or worse than senior management expected	Clark (2000)
	effect4	Results of EM choice better or worse than subordinates expected	Author
DEPTH AND SPECIFICITY	depspec1	How clearly defined were personal objectives for EM choice	Arnemann (1994)
	depspec2	How clearly defined were marketing plan objectives for EM choice	Arnemann (1994)
	depspec3	How detailed were personal objectives for EM choice	Arnemann (1994)
	depspec4	How detailed were marketing plan objectives for EM choice	Arnemann (1994)
MANAGEMENT EFFORT	maneff1	Exception handling required from EM choice	Clark (2000)
	maneff2	Skill required to implement EM choice	Clark (2000)
COMPETITIVE FAVOURABILITY	comp1	What was the strength of the competition's responses to participation	Clark (2000)
	comp2	What was the speed of the competition's responses to participation	Author
	comp3	What was the impact of the competition's responses to participation	Clark (2000)
PARTNER FAVOURABILITY	part1	Was partner feedback about EM good or bad	Author
	part2	Degree of support for EM by partners	Author
	part3	How quickly did partners support EM	Author
	part4	What level of investment did partners make to support EM	Author
ENVIRONMENTAL FAVOURABILITY	environ1	How much have trends in your environment hurt participation in EM	Clark (2000)
	environ2	How will trends in your environment hurt participation in EM in 2 years	Clark (2000)
	environ3	In your environment stable or volatile	Author
	environ4	Will your environment be stable or volatile in next two years	Author
MANAGEMENT PRIORITY	manpri1	To top management how high a priority was success of EM	Clark (2000)
	manpri2	To top management how visible was success of EM	Author
	manpri3	To top management under how much scrutiny was success of EM placed	Author
	manpri4	How much pressure was placed by top management regarding EM	Clark (2000)
STRUCTURAL SUPPORT	struc1	How strongly did your SOPS and systems support participation this EM	Clark (2000)
	struc2	How did you have to change SOPS and systems support to participate	Clark (2000)
	struc3	How good a fit today are your SOPS and systems support with this EM	Author
SUPPLY CHAIN FAVOURABILITY	supp1	To what degree to supply chain norms restrict choices of marketing	Author
	supp2	To what degree to supply chain contractual obligations restrict choice	Author
	supp3	To what degree does the depth of your supply chain restrict choice	Author
	supp4	To what degree do technology standards of your supply chain restrict	Author
BUYER POWER FAVOURABILITY	power1	How much power do buyers exert over your choice of distribution	Author
	power2	Compare this to what you think is normal for a B2B marketplace	Author
	power3	How much risk of sanction do you face from buyers re choice of	Author
	power4	How much threat of sanction buyers exert over your choices in 2 yrs years	Author
ADAPTABILITY	adapt1	What do you think fit of EM is with external factors	Clark (2000)
	adapt2	What do you think fit of EM will be with external factors in next 2 years	Clark (2000)
	adapt3	What do others within company think fit of EM is with external factors	Author
	adapt4	What do others within company think external fit of EM in 2yrs	Author
EFFICIENCY	effic1	What do you think fit of EM is with internal factors	Clark (2000)
	effic2	What do you think fit of EM will be with internal factors in next 2 years	Clark (2000)
	effic3	What do others within company think of internal fit of EM	Author
	effic4	What do others within company think of internal fit of EM in 2 years	Author
FIT	fit1	Measures of asset specificity, fragmentation, ease of description and value assessment	Author from Mahadevan's model

One frequently employed technique to attain four indicators for constructs tested by Clark (2000) with only two indicators was to ask respondents to also consider their perceptions of how subordinates and more senior managers viewed the performance, effectiveness, adaptability, efficiency of and satisfaction with EM choice. These new constructs were important as typically, for structural equation modeling, four or more indicators per construct are recommended, three is acceptable and common practice, two can be problematic. Models using only two indicators per latent variable are more likely to be under-identified and/or fail to converge, and error estimates may be unreliable (Garson, 2006). For reasonably large samples, when the number of Likert categories is four or higher and skew and kurtosis are within normal limits, use of maximum likelihood estimation (the default in SEM) is justified (Kline, 2005). Indicators for all proposed constructs are shown in Table 2 on page 62, with a brief summary of each.

Annual sales, total company locations, and number of employees were used as indicators of company size. Similar studies have used similar metrics of company size (Dozier and Chang, 2006; Hadaya, 2004). Other indicators such as assets, financial position, and profits may have negatively impacted response due to lack of knowledge and concerns about confidentiality.

Sample Size Required

A rule-of-thumb, based on Stevens (1996), is to have at least fifteen cases per measured construct. There are fourteen measured constructs in the proposed structural

model (the effects of Fit and Depth and Specificity are measured by techniques other than SEM) which would assume a minimum of 210 completed responses were required. As a basic standard, to merely compute the asymptotic covariance matrix, one needs $k(k+1)/2$ observations, where k is the number of variables (Garson, 2006). In this case, the minimum tractable requirement would be $15(16)/2=120$ responses. In fact, 201 responses with 90% or more of the questionnaire completed were collected, which is very close to the required rule of thumb and above the requirement for computing the asymptotic covariance matrix.

Single Indicator Index-Hypothesis 16

A scale for the closeness of fit of the primary electronic marketplace type employed (survey Question 5) to the optimal electronic marketplace type suggested by Mahadevan (2003) was developed (Table 3). This fit scale was based on what might be considered the median scale value for a response of low or high (and in some cases medium) to the seven-point Likert Scale responses for each of those questions.

These scale values were based on what Mahadevan (2003) suggested as the normative or ideal response to these questions (Figure 4 and Figure 5) based on the respondent's answer to Question 5 regarding marketplace type actually employed by the respondent. The mean response to the indicators for each variable was compared with the value suggested by Mahadevan (2003) based on the respondent's answers to question five (marketplace type employed). Absolute value differences between the two were calculated and summed for use of the measure of fit.

employed instead of a comparison of SEM models derived from split samples of respondents scoring best and worst on the depth and specificity measures (Joreskog, 2007) due to limited sample size (N= 97 for each split half sample). Neither model was expected to be tractable based on the minimum requirement of 120 responses (refer to page 57).

Mediating Variables in SEM-Hypothesis 15

Efficiency and adaptability are both hypothesized to drive a performance judgment via the mediating effectiveness measure. Clark (2000) cites Baron and Kenny (1986) to outline the necessary conditions for determining the existence of mediating relationships:

- (1) An independent variable explains the variance in a dependent variable, prior to considering the effect of the mediating variable.
- (2) Variance of the independent variable explains the variance of the mediating variable.
- (3) Variance of the mediating variable explains the variance in the dependent variable.
- (4) If the first three conditions have been successfully met, variance between independent and dependent variables must now be non-significant for full

mediation or significantly reduced for partial mediation once the mediating variable is included in explaining the variance between independent and dependent variables.

Clark (2000) noted that Baron and Kenny (1986) suggest that structural equation modeling is an appropriate technique for examining the satisfaction of these conditions. Clark (2000), however, did not validate an adaptability or efficiency variable directly. Clark (2000) classified two indicators each of environmental unfavourability, partner unfavourability and competitive unfavourability variables as being measures of adaptability and two indicators each of structural support, managerial effort and management priority variables as being measures of efficiency. Clark (2000) found that some of these six variables did meet all four conditions, suggested by Baron and Kenny (1986) thus proving the mediating relationship. Unlike Clark (2000), this research measures adaptability and efficiency variables directly through four indicators each. The presence of the mediating relationships are tested on the basis of the observed variables of adaptability and efficiency.

Single Indicator Variable-Hypotheses 13

The prior experience construct is incorporated into the structural model measured by a single indicator (Question 2- refer to Appendix 1 and 2). In the case where there is a construct in a SEM model which has only a single indicator (i.e. Gender as measured by the survey item "Sex of respondent") it is represented like any other latent variable,

except the error term for the single indicator variable is constrained to have a mean of 0 and a variance of 0 (Garson, 2006). This was the planned approach for assessing the impact of prior experience construct on the research framework.

Clearly, the sample size precluded evaluation of the structural model in total suggesting that a sample size of 400 or more would be required for future research and validation of this complete framework or similar frameworks which would require split sample techniques. This level of response could be difficult to achieve for such an in-depth survey in the Canadian Marketplace alone, given the low percentage response discussed in Chapter 5. Chapter 5 also outlines validation of the current research framework in depth, commencing with a with a review of the results of data preparation, followed by an analysis of survey respondents, tests of validity of the constructs, concluding with the results of validation of Hypotheses 1-18 through structural equation modeling, ANOVA and Paired Sample T Tests.

Chapter 5

Data Preparation and Analysis

A sizeable body of research (Garson, 2006; O'Rourke, 2003; Kline, 2006 and Thomas, 2006) suggests that prior to engaging in the multivariate, confirmatory factor and structural model building analyses outlined in Chapter 4, various procedures be followed to assure suitability of the raw data set and cases within the data set. These procedures include tests for multivariate normality of the indicators, multicollinearity, and possible biases within the data set derived from the responses of early versus late respondents. Outliers should also be eliminated if Mahalanobis Distances prove outside of tolerances (Thomas, 2006), and missing values in the data set must be either eliminated on a casewise or listwise basis, or alternatively, imputed (Garson 2006, Kline 2006). Section 5.1 outlines the data preparation process.

Section 5.2 discusses the response rate for the survey. The desired response rate for traditional mail surveys, to ensure valid representation of the sampling frame, has often been suggested as being a minimum 5% of all distributed surveys (Dillman, 2000). Different standards may be appropriate to evaluate the response rate of web-based surveys delivered by email (Rand Corp., 2006). The response rate is analyzed in the context of different methods of evaluation.

Section 5.3 discusses the respondents, including their roles, the size of the company they are employed by, their perceptions of their experiences with EMs, and the

intensity and geographical spread of competition within the product-markets in which they compete.

Section 5.4 systematically outlines the results of the analysis, starting with exploratory data analysis and then proceeding to analysis of convergent, discriminant and nomological validity of the constructs. The section concludes with the two-stage approach of structural equation modeling suggested by Garson (2006) and Kline (2006) of first determining the fit of the confirmatory factor model and, if the fit is suitable, then proceeding to the evaluation of alternative structural models. The maximum likelihood (ML) estimation procedure of LISREL 8.7 is used to assess the structural model. While the ML method assumes continuous indicators, semantic differential scales, as employed in this research, can be treated as interval data (Cooper and Schindler, 2004). When the number of scale points is greater than four (primarily seven for all indicators in this study), the data behave more closely to interval data (Hair, et al, 2005; Heck and Thomas, 2000). In addition, ML estimates are rather robust against moderate violations of normality provided sample sizes are larger than 100 (Anderson and Gerbing, 1988; Steenkamp and van Trijp, 1991).

Section 5.5 summarizes the results of the analysis in terms of the research propositions posited in Chapter 3.

5.1 Data Preparation

Multivariate Normal Distribution of the Indicators

In the case of structural modeling techniques, lack of multivariate normality, and in particular a high degree of kurtosis, usually inflates the chi-square statistic such that the overall chi-square fit statistic for the model as a whole is biased toward Type I error (rejecting a model which should not be rejected). The same bias also occurs for other indices of fit beside the model chi-square. Violation of multivariate normality, most particularly multivariate kurtosis, also tends to deflate (underestimate) standard errors moderately to severely (Garson, 2006). Mardia (1970) defined a measure of multivariate kurtosis and derived its asymptotic distribution for samples from a multivariate normal population. Estimates from PRELIS 2.56 (Jöreskog, Sörbom et al, 2001) (kurtosis score=18.34, $z=2.32$, $p=.01$), based on the significance test for Multivariate Kurtosis, developed by Mardia (1970), indicated that multivariate kurtosis was not severe.

Missing Data

It has been suggested that cases where at least 90% of required responses have been provided are the only ones that should be included (O'Rourke, 2003; Little and Rubin, 1987) in analysis of survey results. Although this procedure was initially planned, additional considerations were subsequently identified when data preparation proceeded. Garson (2006) suggests that missing response data when using LISREL should be handled by listwise or pairwise deletion or data imputation. The pairwise method can result in correlations or covariances which are outside the range of the possible (Kline,

2006). This, in turn, can lead to covariance matrices which are singular (i.e., non-positive definite), preventing such mathematical operations as inverting the matrix, because division by zero will occur. This problem does not occur with listwise deletion. A rule of thumb is to use listwise deletion when this would lead to elimination of 5% of the sample or less. In this case, 8.1 % of cases (the responses of 16 respondents) would be eliminated from the raw data file, if only cases which 90 to 100% of the polled responses were provided.

As listwise deletion could not be used, some form of data imputation where the values are estimated was appropriate. The data was imputed for missing values using the Expectation-Maximization (EM) approach in SPSS Missing Values Analysis (SPSS version 14). This procedure did not reduce the number of cases, but for a small amount of cases, respondents not answering one question did not also answer one or more other questions. In the case of three particular questions over 5% of respondents failed to answer a particular pair of questions (Table 4). It should be noted that the values of these cases were imputed.

Table 4
Cases with no Response to Pairs of Indicators-Incidence >5%

Indicator	% no response and no response SIZE2	% no response and no response ADAPT3	% no response and no response SIZE 1
ADAPT3	5.47		6.47
SIZE1	9.95	6.47	
SIZE2		5.47	9.95

Outliers

When using structural equation modeling techniques, data outliers can sometimes create negative variance, (Garson 2006). Although the true value of the variance is positive, data variability may be large enough to produce a negative estimate. Seven of the 201 cases were eliminated due to statistically significant ($p < .05$) Mahalanobis distance measures to prevent this possible outcome (Table 5).

Table 5
Cases Removed Due to Significant Mahalanobis Distances

CASE NUMBER (RANKED BY DATE)	MAHALNOBIS DISTANCES	SIGNIFICANCE
39	25.29	.00000
53	29.49	.00000
106	31.21	.00000
131	33.61	.00001
137	36.41	.00007
160	37.96	.00016
197	38.38	.00020

Multicollinearity

Complete multicollinearity is assumed to be absent when using SEM and, in fact, SEM is appropriate even in the face of relatively high levels of multicollinearity (Garson, 2006). Complete multicollinearity, however, will result in singular covariance matrices, which one cannot perform calculations such as matrix inversion, because division by zero will occur, preventing a SEM solution. Initially, all indicators in the proposed model, with the exception of Satis1-4, were regressed against the mean of the performance indicators (Perf1-4), as these indicators were hypothesized to ultimately influence

performance directly or via moderating or mediating variables. The results are shown in

Table 6.

Table 6
Collinearity Statistics- Average Performance Measure Regressed Against Related Indicators

Indicator	Collinearity Statistics	
	Tolerance	VIF
Satis 1-4/4 and:		
Perf 1	.061	13.456
Perf 2	.057	14.428
Perf 3	.053	16.219
Perf 4	.053	16.578
Perf-1-4/4 and:		
Size1	.166	6.017
Size2	.143	6.974
Size3	.269	3.723
Effect1	.107	9.337
Effect2	.158	6.342
Effect3	.120	8.305
Effect4	.116	8.607
Maneff1	.378	2.642
Maneff2	.322	3.103
Comp1	.349	2.868
Comp2	.282	3.550
Comp3	.280	3.568
Partner1	.227	4.415
Partner2	.164	6.105
Partner3	.215	4.646
Partner4	.242	4.129
Environ1	.181	5.533
Environ2	.183	5.462
Environ3	.161	6.220
Environ4	.227	4.409
Manpri1	.129	7.770
Manpri2	.116	8.634
Manpri3	.157	6.375
Manpri4	.146	6.827
Struc1	.295	3.391
Struc2	.172	5.812
Struc3	.173	5.771
Supp1	.276	3.625
Supp2	.215	4.662
Supp3	.229	4.366
Supp4	.278	3.596
Power1	.225	4.447
Power2	.234	4.282
Power3	.223	4.488
Power4	.208	4.799
Adapt1	.192	5.215
Adapt2	.181	5.515
Adapt3	.142	7.029
Adapt4	.181	5.540
Effic1	.107	9.351
Effic2	.101	9.858
Effic3	.124	8.067
Effic4	.110	9.061

Early versus late respondents

Armstrong and Overton (1977) also suggest that late respondents, or those who require more prodding or requests to complete the survey, are more likely to exhibit the characteristics of and respond in a similar way to non-respondents than are those who respond based on the first request to complete the survey. Since the data collection occurred over approximately a five month period, split half samples (prior to March 11, 2007; n=97 and March 13, 2007 onward; n=97) of the raw data set were analyzed to determine whether significant differences in means and variances existed for each indicator. Equality of Means T-tests showed no significant differences in means of responses from early and late respondents for each indicator. Only the responses of early and late respondents to size2 and manpri2 were found to have statistically significant difference in variances. As split-half samples showed little apparent difference, it appears that the impact of non-response bias on model analysis was relatively low despite the very low complete and usable return to contact rate (194 completed surveys from 12,237 email addresses on initial contact list). The results are shown in Appendix 3.

5.2 Response Rate

As noted in the previous section, the initial sampling frame to which the survey instrument was intended to be distributed to was composed of 12,237 email addresses and the ultimate response rate was 201. On this basis, the ultimate response rate would be calculated as 1.56%, well below the accepted standard of five percent suggested by Dillman (2000). It should be noted, however, that over 1500 email addresses bounced on

the first email wave which reduced the number of valid contacts to approximately 10,700. Similarly, returned ground mail surveys would not typically be included in the calculation of response rates (Dillman, 2000). Additionally, 167 respondents attempted to complete the survey, but were not qualified as they had not participated in the initiation of an electronic marketplace within the past three years. These respondents were sent a message via Survey Monkey excusing them from further completion of the survey based on their response to Question 1. This result was not unexpected, as previous research, based in the US three years prior to this survey, (Le, Rao and Troung, 2004) indicated that 54% of survey respondents (managers with B2B organizations) had not yet participated in an electronic marketplace. A similar level of participation in EMs as was expected among the sampling frame of Canadian B2B marketers in 2007.

Therefore, inclusion of non-qualified respondents in calculation of the response rate was deemed as appropriate. The response rate is calculated as follows:

$$\frac{(\text{non-qualified respondents} + \text{qualified respondents})}{\text{non-bounced contact emails sent}} = \frac{(167+201)}{\text{approximately } 10,700} = \text{approximately } 3.44\%$$

Some studies suggest that response rates for e-mail and Web surveys may not match those of other survey methods (Cook, Heath, and Thompson 2000, Couper, 2000) and therefore comparisons of web survey and mail survey response rates may not be appropriate. One explanation for these differences in response rates may be that less time

and attention have been spent developing and testing motivating tools to increase Web survey response, compared to the time spent studying tools employed in mail surveys (e.g., the use of personalization, pre-contact letters, follow-up postcards, and incentives). The widely followed elements of the "tailored design method" for mail surveys (Dillman, 2000) were the product of years of research and intensive study. However, the implementation approaches that are beneficial for mail surveys may not translate directly to response rate benefits for Web surveys (Couper, 2000). For example, research has revealed concerns on the part of potential survey participants that are particularly relevant for Web users, including Internet security and the receipt of electronic "junk mail" or "spam" (Sills and Song, 2002).

A related consideration in comparing web and mail survey response rates, which was seemingly highly relevant to this survey, is the higher likelihood a document will reach an intended business recipient via ground mail than via email. This phenomenon has been noted by other researchers (Rand Corporation, 2006). Despite dozens of hours spent in searching for and validating personal email addresses of potential respondents by the researchers, almost half of the email list accumulated was "non-personalized" and many of the links to the survey would have likely been initially received by an individual other than for whom it was intended. It was unknown how many emails were forwarded to the correct individual. Therefore, it may be appropriate to surmise that the effective response rate among those intended to receive the survey was substantially higher than 3.44%, although response rate is noted as a limitation of the research (Chapter 6).

5.3 The Respondents

The 194 respondents were prequalified through validation of titles and email addresses in the sampling frame compilation process as those working in a marketing related function at a managerial level. This approach differed from many sampling frames utilized in studies assessing perceived performance of electronic marketplaces where senior management from a variety of functional areas were polled (Hadaya, 2004, Wang and Archer, 2004; Wang and Archer, 2007 and Vlosky, 2006), or both buyers and sellers were polled (Rask and Krogh 2004, Wang, Archer and Zheng, 2005). The focus on marketers only was purposeful, with the object of utilizing a similar sample to that used by Clark (2000), to expand on his examination of marketing performance evaluation as a multi-dimensional phenomenon, while also examining factors specific to electronic marketplace type selection.

The distribution of the size of the firm where the respondents were employed was quite dispersed, with 22.7 % of firms that the respondent was associated with having less than 1 million dollars in annual sales and 13.5% having over 300 million dollars in annual sales. Similar levels of dispersion were found in the number of branches and employees (Figure 9, 10 and 11).

Figure 9
Annual Sales Volume of Respondent's Firm

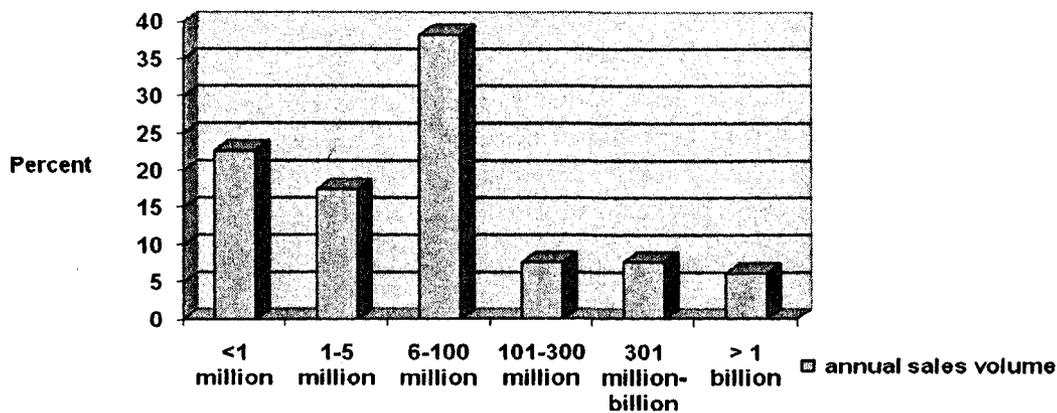


Figure 10
Number of Employees of Respondents Firm

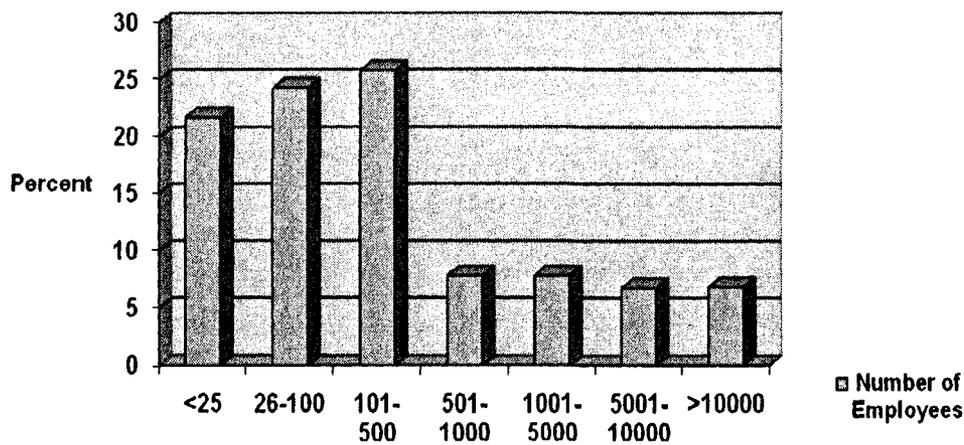
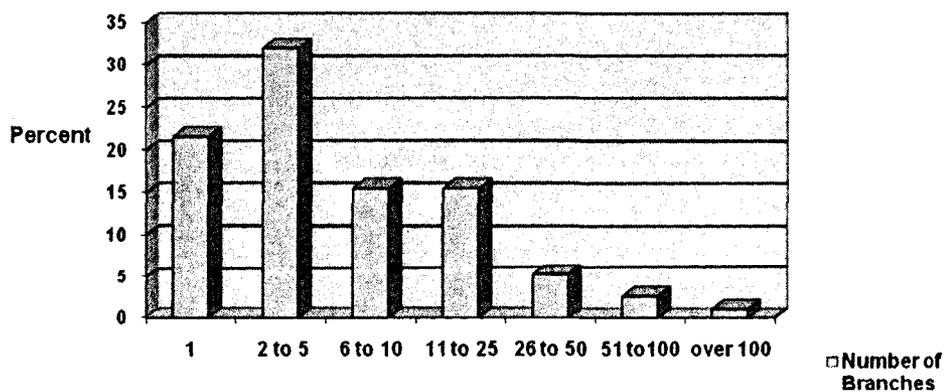


Figure 11
Number of Branches of Respondent's Firm



Electronic Marketplaces are suggested to offer extended reach for local, regional, national and global marketers (Bakos, 1991). Therefore, it was of interest to determine the primary competitive arena in which the respondent's firms operated. The primary location of the firm's competitors (Question 70) and customers (Question 72) are illustrated in Figure 12 and Figure 13 respectively. Eighty-one percent of the firms reported the largest concentration of customers, and 66.9% reported the largest concentration of buyers within North America.

Figure 12
Primary Location of Respondent Firms Competitors

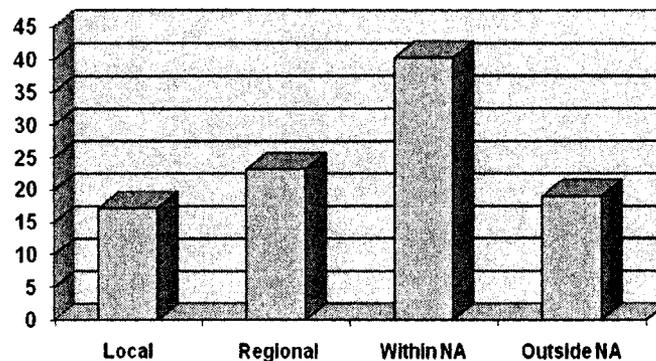
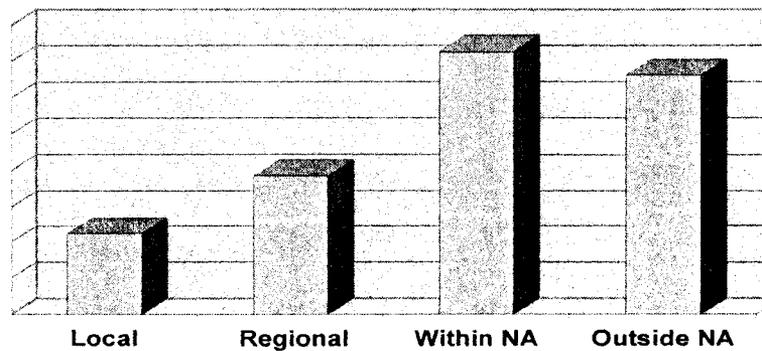


Figure 13
Primary Location of Respondent Firms Buyers



Experience with and Usage of Electronic Marketplaces

The sample was also prequalified via screening questions to have some reasonable ability derived from first hand implementation experience within the past 3 years with electronic marketplaces, to report knowledgably regarding their judgments of performance of the EM type. 80 of 194 respondents had previous experience with implementing an EM other than the most recent one reported.

In terms of the primary EM type utilized most recently, the respondents identified Extranets most often followed by Supplier Centric Marketplaces. Importantly, respondents seemed able to identify which of a number of possible EM structures they were utilizing based on the descriptions provided by questions 4-12. The EM types identified by respondents were well dispersed, although no respondent reported using Mahadevan's (2003) hypothesized neutral auction structure (Table 7).

Table 7
Type of Most Recent EM Type Employed (Within past 3 Years)

TYPE REPORTED	FREQUENCY N=194	PERCENT FREQUENCY
Web EDI	14	7.0
TPN	22	10.9
Extranet	33	16.4
Forward Auction	13	6.5
Reverse Auction	7	3.5
Supplier Centric Private Market	30	14.9
Buyer Centric Private Market	18	9.0
Supplier Consortia	15	7.5
Buyer Consortia	10	5.0
Online Exchange	13	6.5
Online Community	20	10.0
Catalogue	4	2.0
Click and Mortar	2	1.0
Neutral Auction	None Reported	None Reported

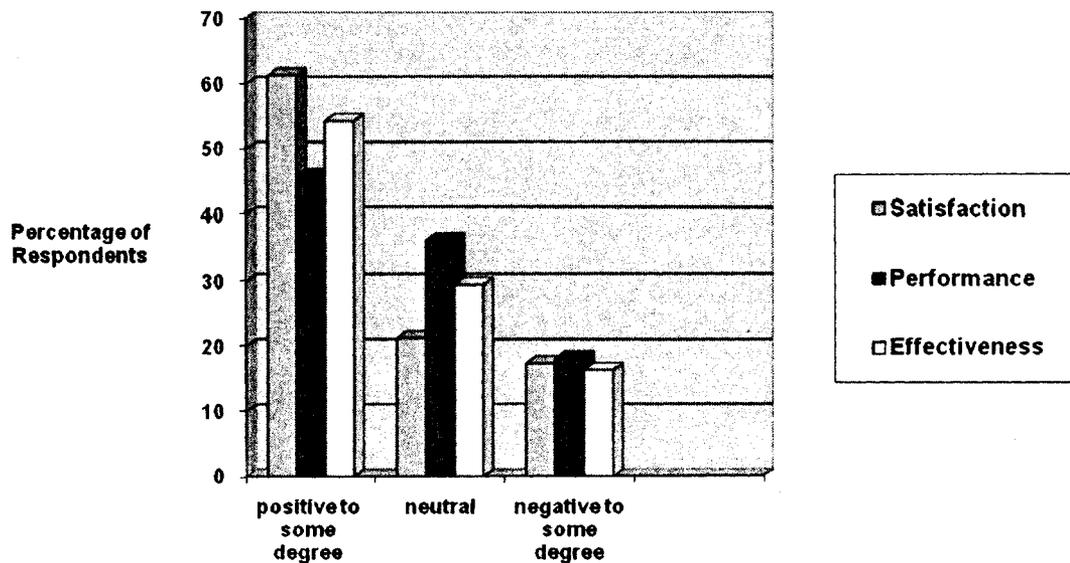
Marketing Manager's Judgments of Satisfaction, Performance and Effectiveness

In terms of overall ratings of satisfaction with the choice of an EM type selected, 61.3% of respondents expressed some degree of satisfaction, while 17.4% expressed some degree of dissatisfaction. The remainder was neither satisfied nor dissatisfied. This finding is based on Question 18 that asked "How personally satisfied have you been with the results of participation in this electronic marketplace?", as it was most similar in nature to the question posed in previous, related research (Vlosky, 2006; Hadaya, 2004). The respondents, comprised of marketers, were generally more satisfied with their most recent electronic marketplace choice than managers performing a variety of roles in two earlier studies. Among 53 senior managers from a variety of functional areas in the pulp and paper industry only 39% reported they were satisfied (Volsky, 2006) and among a sample of 1200 senior Canadian executives only 43% reported they satisfied (Hadaya, 2004).

In terms of overall ratings of marketing performance regarding the choice of an EM type, 45.8% of respondents indicated that performance was better than expected while 18.1% stated that performance was worse than expected. This finding was based on the most direct indicator of performance, question 14 which asked "How would you personally describe the performance of your choice of Electronic Marketplace?" The remainder felt performance was as expected.

In terms of overall ratings of marketing effectiveness versus plan regarding the choice of an EM type selected, 54.3% of respondents expressed that results were better than expected while 16.3% replied that results were worse than expected. This finding is based on question 22 which asked “Would you say that the results from participating in this electronic marketplace were better or worse than you expected when you first decided to participate in the market?” The remainder felt results were as expected. This question was chosen as it was most similar to the question by Le, Rao and Troung (2004). They reported though 54% of 286 firms surveyed had utilized an electronic marketplace, only 31% of those users found them as having lived up well to their expectations. Figure 14 summarizes the distribution of the reported levels of satisfaction, performance and effectiveness.

Figure 14
Perceptions of Satisfaction, Performance and Effectiveness Regarding EM Choice



Representativeness of the Sample.

Is the sample representative of the population of Canadian B2B Marketers? The small response rate certainly raises questions about representativeness, despite analysis of early and late respondents. Moreover, the relatively high rate of satisfaction with EMs when compared to other studies (Hadaya, 2004 and Vlosky, 2006) combined with the unprecedented length and complexity of the questionnaire compared to studies on similar research topics (Clark, 2000, Wang and Archer, 2007, Hadaya, 2004) might suggest that respondents were perhaps among the most engaged and interested in and knowledgeable about EMs. It would be expected that respondent wear out would be lower among those not as engaged in the topic and in fact only 201 of 353 qualified respondents starting the survey actually completed 90% of the questions. Accordingly, although there are no quantitative measures confirming or disconfirming this proposition, it may be that survey respondents can be viewed as key informants, as opposed to a probability sample.

5.4 Model Testing

The section begins with exploratory tests of convergent and discriminant validity of indicators. These can aid in diagnosing and explaining poor results in a confirmatory factor model (Costa et al, 2004). Next, the two stage approach of structural equation modeling, suggested by Garson (2006) and Kline (2006), of first determining the fit of the confirmatory factor model and, if the fit is suitable, then proceeding to the evaluation of alternative structural models, is outlined.

Exploratory Tests for Convergent and Discriminant Validity of Indicators

Prior to conducting confirmatory factor analysis, exploratory tests for both convergent and discriminant validity utilizing Pearson correlations were conducted for all indicators. As in similar research (Costa et al, 2004), this analysis was performed as an initial evaluation of the factor structure to determine whether indicators measured the construct they were designed to measure significantly better than constructs they weren't designed to measure. A cut-off point of a Pearson correlation of .5 or less (Hair et al, 2005) was specified to test for absence of discriminant validity between indicators. Convergent validity was identified by Pearson correlations above .5 (Hair et al, 2005) between indicators intended to measure the same construct.

The vast majority of Pearson correlations for indicators expected to measure the same construct fell between .6 and .95 indicating strong convergent validity for most indicators. The only pairs of indicators not exhibiting a Pearson correlation of at least .5 were comp1 and comp2, and comp1 and comp3 (Tables 8a through n). Convergent validity measures were suitable to proceed with analysis of the factor structure and ultimately validation of the structural model, if the factor structure was within acceptable limits (Garson 2006).

Indicator discriminant validity measures were also strong for many constructs. In the case of nine of the 14 constructs none of the expected indicators exhibited a Pearson correlation above .5 with an indicator expected to predict a different construct. In the case of the other five constructs, some inter-construct correlations of indicators were high.

Indicators of Performance, Satisfaction and Effectiveness were fairly strongly correlated, suggesting that perhaps they were measuring similar phenomena (Tables 8b, 8c and 8d). The causal relationship between Satisfaction and Performance is a matter of much debate (Arnemann, 1994, Burton et al, 2003) and Clark (2000) did not test the relationship between a Satisfaction and a Performance construct. This suggested that alternative structural models might be tested regarding the relationship between these three constructs.

In addition, a strong correlation was exhibited between indicators designed to measure partner favourability and those designed to measure competitive favourability. This relationship may also have nomological validity based on relevant literature as increasingly network partners have a strong vested interest in the competitive favourability of the firm's marketing programs (Mohr, Slater and Sengupta, 2005). This finding also suggests that alternative structural models might be tested regarding the relationship between these two constructs.

Table 8a
Convergent and Discriminant Validity – Size

SIZE	SIZE1	SIZE2	SIZE3	CORRELATIONS WITH OTHER INDICATORS >.5
Size1		.859	.701	None
Size2	.859		.765	None
Size3	.701	.765		None

Convergent and Discriminant Validity – Performance

PERF	PERF1	PERF2	PERF3	PERF4	CORRELATIONS WITH OTHER INDICATORS >.5
Perf1	1	.918	.875	.852	Satis1(.810), Satis2 (.803), Satis3, (.796) Satis4 (.822) , Effect1 (.636) , Effect2(.631), Effect3(.590), Effect4(.587)
Perf2	.918	1	.908	.902	Satis1(.823), Satis2(.822), Satis3(.799), Satis4(.806), Effect1(.586), Effect2(.616), Effect3(.581), Effect4(.544)
Perf3	.875	.908	1	.920	Satis1(.840), Satis2(.839), Satis3(.831),Satis4(.834), Effect1(.606), Effect2 (.599),Effect3(.597), Effect4(.578)
Perf4	.852	.902	.920	1	Satis1(.836), Satis2(.832), Satis3(.821),Satis4(.799), Effect1(.578), Effect2(.556), Effect3(.537), Effect4(.531),

**Table 8c
Convergent and Discriminant Validity – Satisfaction**

	SATIS1	SATIS2	SATIS3	SATIS4	CORRELATIONS WITH OTHER INDICATORS >.5
Satis1	1	.963	.876	.824	Perf1(.810),Perf2(.823),Perf3(.840),Perf4(.836), Effect1(.595),Effect 2(.570),Effect3(.576), Effect 4(.532)
Satis2	.963	1	.872	.816	Perf1(.803),Perf2(.822),Perf3(.839),Perf4(.832), Effect1(.602), Effect 2(.597),Effect3(.576),Effect4(.531)
Satis3	.876	.872	1	.891	Perf1(.796),Perf2(.799),Perf3(.831),Perf4(.821), Effect1(.644), Effect2(.584),Effect3(.605),Effect4(.582)
Satis4	.824	.816	.891	1	Perf1(.822),Perf2(.806),Perf3(.834),Perf4(.799), Effect1(.696),Effect2(.602),Effect3(.603),Effect4(.569)

**Table 8d
Convergent and Discriminant Validity – Management Effort**

	MANEFF1	MANEFF2	CORRELATIONS WITH OTHER INDICATORS >.5
Maneff1	1	.562	
Maneff2	.562	1	

Table 8e
Convergent and Discriminant Validity – Effectiveness

	EFFECT1	EFFECT2	EFFECT3	EFFECT4	CORRELATIONS WITH OTHER INDICATORS >.5
Effect1	1	.811	.801	.799	Perf1(.636),Perf2(.586),Perf3(.606),Perf4(.578), Satis1(.595),Satis2(.602),Satis3(.644),Satis4(.696), Effic2(.509)
Effect2	.811	1	.826	.792	Perf1(.631),Perf2(.616),Perf3(.599),Perf4(.556) Satis1(.570),Satis2(.597),Satis3(.584),Satis4(.602)
Effect3	.801	.826	1	.812	Perf1(.590),Perf2(.581),Perf3(.597),Perf4(.537), Satis1(.576),Satis2(.576),Satis3(.605), Satis4(.603)
Effect4	.799	.792	.812	1	Perf1(.587),Perf2(.544),Perf3(.578),Perf4(.531), Satis1(.532),Satis2(.531),Satis3(.582),Satis4(.569),

Table 8f
Convergent and Discriminant Validity – Competition

	COMP1	COMP2	COMP3	CORRELATIONS WITH OTHER INDICATORS >.5
Comp1	1	.712		
Comp2		1	.584	
Comp3	.712	.584	1	Partner1(.765),Partner2(.671),Partner3(.631)

Table 8g
Convergent and Discriminant Validity – Partner

	PARTNER1	PARTNER2	PARTNER3	PARTNER4	CORRELATIONS WITH OTHER INDICATORS >.5
Partner1	1	.772	.650	.513	Comp3(.765)
Partner2	.671	1	.750	.556	Comp3(.671)
Partner3	.631	.650	1	.639	Comp3(.631)
Partner4	.513	.556	.639	1	

Table 8h
Convergent and Discriminant Validity – Environment

	ENVIRON1	ENVIRON2	ENVIRON3	ENVIRON4	CORRELATIONS WITH OTHER INDICATORS >.5
Environ1	1	.819	.530	.530	
Environ2	.819	1	.608		
Environ3	.530	.608	1	.782	
Environ4	.530		.782	1	

Table 8i
Convergent and Discriminant Validity – Management Priority

	MANPRI1	MANPRI2	MANPRI3	MANPRI4	CORRELATIONS WITH OTHER INDICATORS >.5
Manpri1	1	.858	.785	.774	
Manpri2	.858	1	.801	.803	
Manpri3	.785	.801	1	.852	
Manpri4	.774	.803	.852	1	

Table 8j
Convergent and Discriminant Validity – Structural Support

	STRUC1	STRUC2	STRUC3		CORRELATIONS WITH OTHER INDICATORS >.5
Struc1	1	.691	.744		
Struc2	.691	1	.836		
Struc3	.744	.836	1		

Table 8k
Convergent and Discriminant Validity – Supply Chain Effects

	SUPP1	SUPP2	SUPP3	SUPP4	CORRELATIONS WITH OTHER INDICATORS >.5
Supp1	1	.629	.646	.534	
Supp2	.629	1	.687	.638	
Supp3	.646	.687	1	.590	
Supp4	.534	.638	.590	1	

Table 8l
Convergent and Discriminant Validity – Power Effects

	POWER1	POWER2	POWER3	POWER4	CORRELATIONS WITH OTHER INDICATORS >.5
Power1	1	.655			
Power2	.655	1	.636	.598	
Power3		.636	1	.807	
Power4		.598	.807	1	

Table 8m
Convergent and Discriminant Validity – Adaptability

	ADAPT1	ADAPT2	ADAPT3	ADAPT4	CORRELATIONS WITH OTHER INDICATORS >.5
Adapt1	1	.785	.685	.609	
Adapt2	.785	1	.767	.659	
Adapt3	.685	.767	1	.782	
Adapt4	.609	.659	.782	1	

Table 8n
Convergent and Discriminant Validity – Efficiency

	EFFIC1	EFFIC2	EFFIC3	EFFIC4	CORRELATIONS WITH OTHER INDICATORS >.5
Effic1	1	.886	.837	.825	
Effic2	.886	1	.850	.855	
Effic3	.837	.850	1	.883	
Effic4	.825	.855	.883	1	

Measurement Model/Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) (Anderson and Gerbing, 1988) was used to test the fit and construct validity of the proposed measurement model. The factor structure was tested by a congeneric measurement model consisting of 14 unidimensional constructs with no cross-loadings. All items are reflective. Items that did not load well onto a proposed construct were re-examined as indicators for alternate constructs where this appeared to be reasonable, i.e., if the interpretation of the item is similar to some aspect of the alternate construct.

Maximum likelihood estimation (MLE) is by far the most common method to estimate the factor structure (Garson, 2006) and was the method selected in LISREL 8.7

to perform the CFA. MLE makes estimates based on maximizing the probability (likelihood) that the observed covariances are drawn from a population assumed to be the same as that reflected in the coefficient estimates (Pampel, 2000).

Goodness of fit tests were utilized to determine if the model being tested should be accepted or rejected. These overall fit tests do not establish significance of particular paths within the model. If the measurement model is reasonable the second step is to interpret the path coefficients in the structural model. The measures of prior experience (a single categorical measure-Hypothesis 13) were not included in the CFA as they are variables based on a single indicator (Garson, 2006).

The originally hypothesized factor structure suggested by Clark (2000) fit very marginally on an absolute basis (RMSEA= .087). Clark (2000) suggested that an RMSEA of less than 0.09 could be considered a marginal fit though other research has suggested that RMSEA should be less than .06 (Garson 2000) to be considered an adequate fit. The CFA for the expanded model in this research fit marginally better than Clark's (2000) model. The RMSEA measure was .079 per Table 9 (vs. 087 for Clark's model) demonstrating that a more complex, multidimensional representation of the factor structure of performance evaluation had a slightly better fit even though RMSEA does penalize for model complexity (Garson, 2006).

Other measures of fit suggest a poor to acceptable model fit (Table 9). Kline (2005) suggests that GFI values greater than 0.90 indicate a good fit. The GFI of 0.700

precludes the assumption of a good fitting model. An SRMR value of less than .08 indicates a good fit (Hu and Bentler, 1989) and for this model the SRMR value is 0.0778. The Normed Chi Square value of 2.15 is also indicative of an acceptable fit. NFI, NNFI and CFI are commonly used incremental fit measures. NFI and NNFI values of greater than .095 are recommended (Hoyle, 1995) and reported values of 0.857 and 0.900 respectively for these two measures suggest a poor and marginal fit respectively. The reported CFI value of 0.907 is greater than 0.90 standard suggested by Hu and Bentler (1999) as being indicative of a good model fit.

In terms of the significance of the indicators, importantly, all but six of the 56 one-tailed T values of the indicators were significant at the .05 level. The exceptions were Effect1, Adapt1, Effic1, Manpri1, Size2, and Struc2, which weren't significant. In the case of the Size2 (number of branches), it might be suggested that sales volume, in today's technology driven environment, may be a more accurate measure of size than number of branches, as many firms are able to generate high levels of revenue without the requirement of localized distribution or production due to the digital nature of their business. Adapt1, Effic1 and Manpri1 were designed to be the most direct indicators of the constructs they measured and did appear to be measuring somewhat different phenomena than the remaining indicators of those phenomena. Given this finding, the other indicators for each construct could have been dropped. This may have led to a non-tractable structural model (Garson, 2006) as single indicator constructs can only be

included in small numbers in a structural model. Lack of significance of the indicators is noted as a limitation of the research.

Standardized regression estimates are also shown in Table 9. Unstandardized estimates are highly sensitive to model constraints, whereas the standardized regression estimates allow more direct comparisons (Joreskog and Sorbom et al, 2001). For example, number of branches (Size2) has a low standardized estimate of the Size construct (.07) while sales volume (Size1) has a quite high standardized estimate (.77) demonstrating that sales volume is a strong indicator of the Size construct values. Other indicators having high standardized estimates include strength of support (Struc1) on the Structural Support construct (.65), accepted ways of doing business (Supp1) on the Supply Chain Favourability construct (.98), (Environ1) current changes (.88) and (Environ2) future changes expected (.72) on the Environmental Favourability construct and strength of competitive reaction to the Competitive Favourability construct (.92).

The individual constructs showed good reliability based on LISREL 8.7 analysis. All were greater than .07 (Table 9). If this measure is greater than or equal to .6, then the items are considered unidimensional and may be combined in an index or scale (Garson 2006).

Table 9
Analysis of Fit-Construct Measures-Convergent Validity and Reliability

CONSTRUCT	Indicator	Standard Estimate	T Value <i>*Non sig. at 05 one-tailed</i>	Unrotated Factor Loadings	Unique Variance Explained	Minimum Fit Function Chi-Square	Construct Reliability Measure
SIZE	size1	.77	6.13	.88	.20	.000	.933
	size2	.07	0.56*	.76	.06		
	size3	.28	2.91	.80	.38		
PERFORMANCE	perf1	.09	3.73	.98	.14	.001	.970
	perf2	.11	5.23	.97	.07		
	perf3	.08	5.52	.90	.09		
	perf4	.10	7.10	.94	.11		
SATISFACTION	Satis1	.15	6.98	.89	.21	.000	.975
	Satis2	.14	7.69	.77	.07		
	Satis3	.10	6.46	.79	.38		
	Satis4	.12	7.17	.89	.21		
EFFECTIVENESS	effect1	.07	1.07*	.89	.20	.001	.945
	effect2	.21	7.05	.90	.18		
	effect3	.15	5.70	.92	.18		
	effect4	.24	7.51	.89	.21		
DEPTH AND SPECIFICITY	depspec1	.13	5.23	.81	.17	.000	.711
	depspec2	.14	5.34	.86	.16		
	depspec3	.44	6.40	.94	.19		
	depspec4	.11	1.78	.92	.21		
MANAGEMENT EFFORT	maneff1	.21	2.16	.58	.57	.004	
	maneff2	.43	5.42	.96	.05		
COMPETITIVE FAVOURABILITY	comp1	.92	8.97	.30	.91	.000	.860
	comp2	.43	5.26	.98	.02		
	comp3	.14	1.38*	.59	.66		
PARTNER FAVOURABILITY	part1	.29	5.14	.81	.34	.000	.900
	part2	.25	7.04	.88	.22		
	part3	.30	7.15	.88	.23		
	part4	.32	7.02	.78	.37		
ENVIRONMENTAL FAVOURABILITY	environ1	.88	8.78	.87	.21	.000	.935
	environ2	.72	9.43	.90	.19		
	environ3	-.23	-2.72	.68	.52		
	environ4	.54	8.68	.62	.60		
MANAGEMENT PRIORITY	manpri1	.01	-0.22*	.90	.20	.000	.916
	manpri2	.23	5.64	.91	.16		
	manpri3	.15	5.16	.91	.20		
	manpri4	.14	5.00	.90	.19		
STRUCTURAL SUPPORT	struc1	.65	6.18	.78	.40	.000	.911
	struc2	.09	1.56*	.87	.23		
	struc3	.20	3.56	.95	.10		
SUPPLY CHAIN FAVOURABILITY	supp1	.98	8.00	.76	.42	.003	.889
	supp2	.31	5.20	.83	.32		
	supp3	.44	7.10	.82	.31		
	supp4	.06	6.46	.73	.48		
BUYER POWER FAVOURABILITY	Power1	-.32	-1.74	.57	.68	.000	.912
	Power2	.40	8.17	.72	.48		
	Power3	.12	3.10	.91	.18		
	Power4	.29	6.20	.87	.27		
ADAPTABILITY	adapt1	-.06	-0.40*	.81	.33	.000	.924
	adapt2	.29	7.45	.88	.23		
	adapt3	.12	3.23	.89	.22		
	adapt4	.33	7.54	.82	.36		
EFFICIENCY	effic1	-.09	-1.08*	.92	.16	.001	.961
	effic2	.18	7.50	.94	.13		
	effic3	.11	5.14	.93	.14		
	effic4	.14	6.66	.92	.15		

Degrees of Freedom = 1109, Minimum Fit Function Chi-Square = 2283.471 (P = 0.0), Normed Chi Square = (2387.838/1109)=2.15, RMSEA = 0.0792, 90 Percent Confidence Interval for RMSEA = (0.0746 ; 0.0837,) P-Value for Test of Close Fit (RMSEA < 0.05)= 0.000, NFI = 0.857, NNFI = 0.900, CFI = 0.907, GFI=0.700, SRMR=0.0778

Factor loadings and reliability analysis are used to assess the extent of convergent validity of the constructs (Table 9). All factors loadings of the final indicators are above .5, which is the minimum acceptable value for a loading according to Hair et al (2005), with exception of Comp1 which appeared to measure a rather different phenomenon than Comp2 and Comp3. The complete variance/covariance matrix which presents the complete factor structure is shown in Appendix 5. Convergent validity is noted as being poor among the three indicators, though nomologically, it seems reasonable that the speed and strength (Comp1 and Comp2) and speed and impact (Comp1 and Comp3) of the competition's response to participation in an EM may measure different phenomena. This problem wasn't evident in the pretest and is included as a limitation of the research and resultant structural model.

Discriminant Validity of the Constructs

In addition to testing the discriminant validity of the indicators, interconstruct correlations were analyzed utilizing LISREL 8.7. Anderson and Gerbing (1988) suggest that interconstruct discriminant validity is poor if the 95% confidence interval of the Pearson correlations between two constructs contains the value of 1. Only in the case of the correlation between satisfaction and performance (Pearson correlation 0.9-95% confidence interval of Pearson correlation = .768-1.0) did that occur, suggesting that these two constructs have poor discriminant validity with respect to each other (Table 10).

Table 10
Discriminant Validity of the Constructs

Construct	size	perf	satis	Effect	dep-spec	man-eff	comp	part-ner	env-iron	man-pri	struc-sup	supp	power	adapt	effic
Size	1	.22	.21	.12	.14	.05	-.081	.19	-.05	.09	-.06	.00	-.22	.34	.17
Perf	.22	1	.90	.48	.10	-.03	-.059	.07	.11	-.09	.05	.07	-.08	.37	.32
Satis	.21	.90	1	.48	.04	-.02	-.041	.03	.08	-.18	.13	.06	-.07	.37	.40
Effect	.12	.48	.48	1	.13	.06	-.026	.080	.12	-.45	.72	.53	.75	.18	.29
Depspec	.14	.10	.04	.13	1	.33	.243	.13	.27	.33	-.28	-.03	-.03	.00	-.14
Maneff	.05	-.03	-.02	.06	.33	1	.250	.19	.08	.10	-.11	.11	.15	.08	.05
Comp	-.08	-.06	-.04	-.03	.24	.25	1	-.06	.13	.20	-.76	.07	.18	-.15	-.14
Partner	.19	.07	.03	.78	.13	.19	.057	1	-.02	.10	-.34	-.05	-.19	.39	.14
Environ	-.05	.11	.08	.12	.27	.08	.134	-.02	1	.18	-.14	.18	.01	-.17	-.11
Manpri	.09	-.09	-.18	-.45	.33	.10	.195	.10	.18	1	-.39	.27	.08	-.09	-.32
Strucsup	-.06	.05	.13	.72	-.28	-.11	-.076	-.34	-.14	-.39	1	.00	.11	-.04	.29
Supp	.00	.07	.06	.59	-.03	.11	.071	-.05	.18	.27	.00	1	.23	-.13	-.10
Power	-.22	-.08	-.07	.75	-.03	.15	.179	-.19	.01	.08	.11	.23	1	-.34	-.05
Adapt	.34	.67	.37	.18	.00	.08	-.150	.39	-.17	.09	-.04	-.13	-.34	1	.30
Effic	.17	.32	.40	.29	-.14	.05	-.140	.14	-.11	-.32	.29	-.10	-.05	.30	1

The Confirmatory Factor Analysis demonstrates a marginal but acceptable fit in the context of Clark's (2000) prior research and guidelines provided for assessing model fit by others. Convergent validity and reliability are also within reasonable limits with the exception of the competition construct. Indicators could have been dropped for the competition construct, but as with the adaptability, efficiency and management priority constructs, inclusion of additional single indicator constructs may have prevented potentially adequately fitting structural models from being identified (Garson, 2006). As with the adaptability, efficiency and management priority constructs, the poor convergent validity of the competition construct is noted as a limitation of the research. Discriminant validity between all constructs except for satisfaction and performance is also good. The second step of testing the hypothesized structural model and, if the fit is reasonable, to compare fit with that of different possible structural models was undertaken as it was

deemed that the measurement model was reasonably sound despite the limitations noted above.

Hypothesized Structural Model

This section reviews the evaluation of the proposed and alternative structural models, utilizing the model-building and model-trimming procedures suggested by Kline (2005) and Garson (2006). The structural model, as suggested by Hypotheses 1 through 17, with the exception of Hypotheses 13, 15 and 16 is summarized in Table 11 and illustrated in Figure 15. In addition, both model building and model trimming approaches based on this model were utilized in the effort to find the best fitting structural model that considers both face validity and theory (Garson, 2006).

Prior experience (Hypothesis 13) is subsequently added through a model building approach, as a single indicator construct that was not included in the confirmatory factor analysis (Garson, 2006). Hypothesis 15 is analyzed by a specific test determining the existence of mediating variable (Baron and Kenny, 1986). The impact of the fit construct (Hypothesis 16) is analyzed using two categories of techniques. Firstly, the impact of the fit constructs on the “outcome” constructs of effectiveness, performance and satisfaction was tested using t tests of the best fitting and worst fitting responses, as well as ANOVA tests of the quartile groupings to determine if the differences were significant.

In terms of model fit, the model fit marginally on an absolute basis (RMSEA=.0714). Clark (2000) suggested that an RMSEA of less than 0.9 could be considered a

marginal fit though other research has suggested that RMSEA should be less than .06 (Garson, 2000) to be considered an adequate fit (Table 11). Other measures of fit suggest a poor to acceptable model fit. Kline (2005) suggests that GFI values greater than 0.90 indicate a good fit. The GFI of 0.684 precludes the assumption of a good fitting model. An SRMR value of less than .08 indicates a good fit (Hu and Bentler, 1989) and for this model the SRMR value is 0.108. The Normed Chi Square value of 2.014, however, is indicative of an acceptable fit. NFI, NNFI and CFI are commonly used incremental fit measures. NFI and NNFI values of greater than .095 are recommended (Hoyle, 1995) and reported values of 0.871 and 0.921 respectively for these two measures again suggest a poor and marginal fit respectively. The reported CFI value of 0.929 is greater than 0.90 standard suggested by Hu and Bentler (1999) as being indicative of a good model fit. Only the effect of Management Priority on Effectiveness ($t=1.43$) and of Environmental Favourability ($t=.067$) were found to be non-significant at the .05 level (two-tailed). Hypothesis 18 requires separate techniques designed to assess moderating variables as previously outlined. The LISREL 8.7 syntax used to generate this analysis is shown in Appendix 4.

Figure 15
The Hypothesized Structural Model Without Fit, and Prior Experience
(standard parameters and p values)

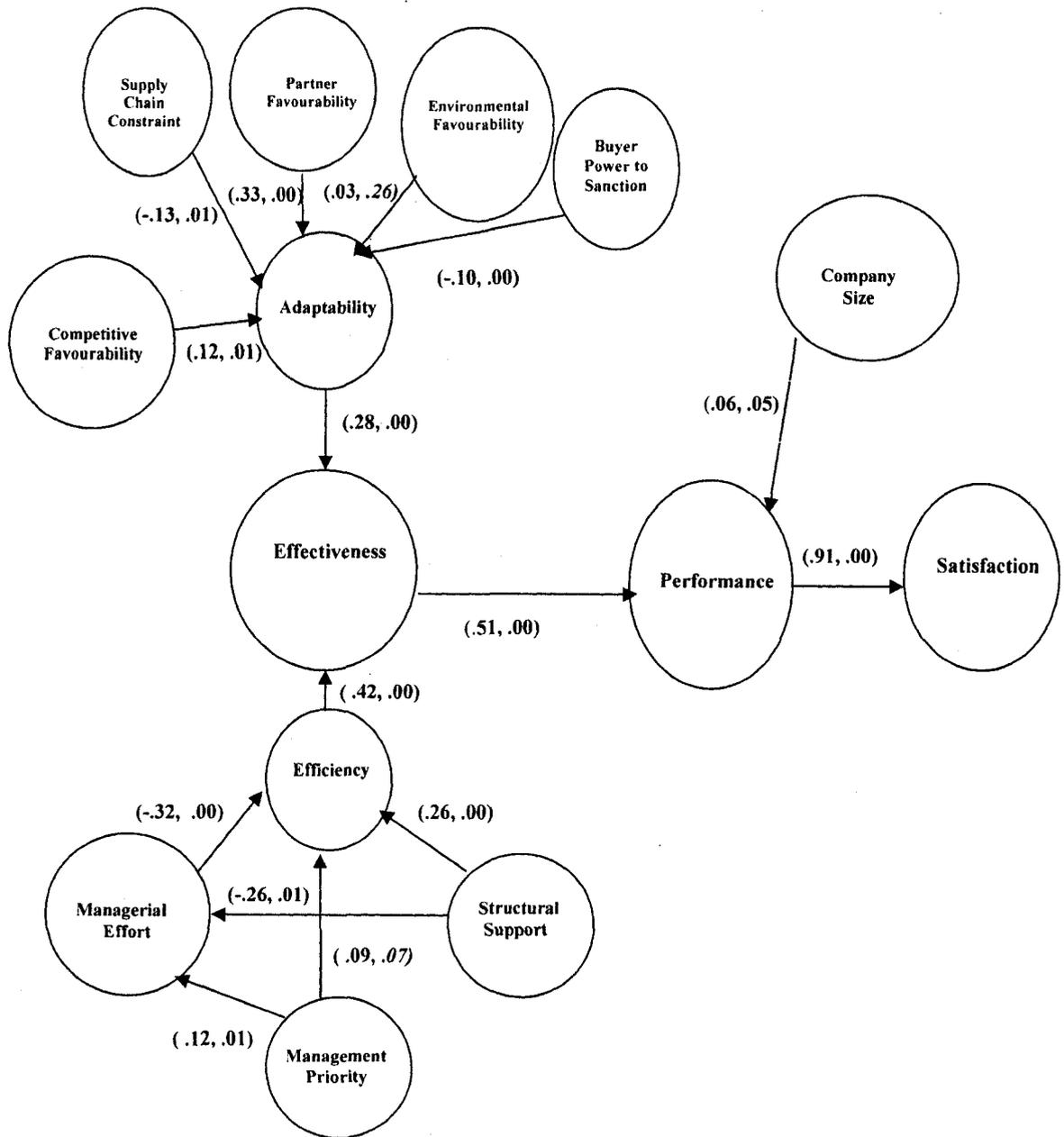


Table 11
Summary of the Proposed Model and Hypotheses

	HYPOTHESIZED MODEL STD. PARAMETERS (T VALUE, P VALUE-1 TAIL)	HYPOTHESIS	SUPPORT
Satisfaction Equation			
Performance→Satisfaction	.91 (17.77, .00)	H17	Yes
Performance Equation			
Size→Performance	.06 (1.64, .05)	H14	Yes
Effectiveness→Performance	.51 (9.05, .00)	H15	Yes
Effectiveness Equation			
Efficiency→Effectiveness	.42 (6.30, .00)	H12	Yes
Adaptability→Effectiveness	.28 (4.39, .00)	H11	Yes
Adaptability Equation			
Partner Favourability→Adaptability	.33 (5.55, .00)	H7	Yes
Competitive Unfavourability→ Adaptability	-.12 (-2.30, .01)	H6	Yes
Environmental Favourability→ Adaptability	.03 (0.67, .26)*	H8	No
Buyer Power to Sanction→ Adaptability	-.10 (-2.54, .00)	H9	Yes
Supply Chain Constraint→ Adaptability	-.13 (-2.00, .01)	H10	Yes
Efficiency Equation			
Managerial Effort → Efficiency	-.32 (-4.07, .00)	H1	Yes
Management Priority→ Efficiency	.09 (1.43, .07)*	H4	No
Structural Support→ Efficiency	.26 (3.87, .00)	H2	Yes
Managerial Effort Equation			
Program Priority→ Managerial Effort	.12 (2.00, .01)	H5	Yes
Structural Support→ Managerial Effort	-.26 (-2.97, .00)	H3	Yes

Degrees of Freedom = 1144, Minimum Fit Function Chi-Square = 2351.25 (P = 0.0), Normed Chi-Square=(2301.32/1144)= 2.014, RMSEA = 0.0714, 90 Percent Confidence Interval for RMSEA = (0.0672 ; 0.0754). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.872 NNFI = 0.921 CFI=0.929, GFI=0.684, SRMR=0.108, *Not significant at p= 0.05 one tailed

Structural Equation Modeling to Test Hypotheses 15

Hypothesis 15 posits the existence of a mediating relationship where efficiency and adaptability are both hypothesized to be causally related to effectiveness.

Effectiveness is also posited to be a mediating variable between adaptability and efficiency which drives a performance judgment via the effectiveness measure.

The hypothesized model in this paper validates indicators as being either measures of adaptability and efficiency by analyzing the association of these indicators

with observed adaptability and efficiency constructs rather than merely classifying them as Clark (2000) did. Accordingly, the test for the existence of mediating relationships in this thesis involves tests based on the latent constructs of adaptability and efficiency rather than indicators of these constructs per Clark (2000).

Clark (2000) cites Baron and Kenny (1986) to outline the necessary conditions for determining the existence of mediating relationships. Four alternative models are analyzed to facilitate this analysis. The first, designated as Model 1 eliminates the effectiveness construct and assesses the direct effect of adaptability and efficiency on performance. The second, Model 2, assesses the direct effects of the adaptability and efficiency constructs on the mediating variable effectiveness when the path from effectiveness to performance is removed. The third, designated as Model 3, assesses the effects of the mediating variable effectiveness on the variance in the dependent variable performance. The fourth model, designated as Model 4, includes the direct effects of adaptability and efficiency on both effectiveness and performance. Table 12 summarizes the analysis performed to determine the existence of this mediating relationship.

Reviewing the conditions for the presence of a mediating variable (Baron and Kenny, 1986):

- (1) An independent variable explains the variance in a dependent variable prior to considering the effect of the mediating variable. Model 1 does reveal that both

adaptability ($t=4.53$) and efficiency ($t=3.17$) both have significant direct effects on performance perceptions.

- (2) Variance of the independent variable explains the variance of the mediating variable. From Model 2, the hypothesized model, both adaptability ($t=4.39$) and efficiency ($t=6.30$) have significant direct effects on the mediating variable effectiveness when the path from effectiveness to performance is removed.
- (3) Variance of the mediating variable explains the variance in the dependent variable. Effectiveness explains performance in Model 3 the hypothesized model ($t=9.05$) when the paths from adaptability and efficiency to effectiveness are removed.
- (4) If the first three conditions have been successfully met, variance between independent and dependent variables must now be non-significant once the mediating variable is included in explaining the variance between independent and dependent variables.

This proposition is partially supported. For a mediated relationship to occur the parameters that were significant in Model 2 should be non-significant in Model 4. This, in fact, did occur in the case of efficiency ($t=-0.97$) but not in the case of adaptability ($t=3.07$). This finding suggests that the relationship of the perceived efficiency (internal

to the firm factors) of an EM choice on performance judgments is fully mediated by stated or informal goals and expectations (effectiveness). Effectiveness judgments only partially mediate the relationship between perceived adaptability (external to the firm factors) and performance judgments.

Table 12
Analysis of Hypothesis 15-Standardized Parameters (t values, p values)

	MODEL 1	MODEL 2	MODEL 3	MODEL 4 DIRECT AND MEDIATED EFFECTS
Performance Equation				
Effectiveness → Performance			.55 (7.07)	.59 (7.34, 0.0)
Efficiency → Performance	.24 (3.17, 0.0)			-.06 (-.97, 0.17)*
Adaptability → Performance	.31 (4.53, 0.0)			.17 (3.07, 0.0)
Effectiveness Equation				
Efficiency → Effectiveness		.40 (6.30, 0.0)		.36 (6.08, 0.0)
Adaptability → Effectiveness		.26 (4.39, 0.0)		.24 (3.45, 0.0)
Adaptability Equation				
Partner Favourability → Adaptability	.33 (5.55, .00)	.38 (6.77, .00)	.30 (5.14, .00)	.22 (3.87, .00)
Competitive Unfavourability → Adaptability	-.12 (-2.24, .01)	-.17 (-3.34, .00)	-.19 (-4.31, .00)	-.09 (-1.99, .01)
Environmental Favourability → Adaptability	.03 (0.74, 0.22)*	.06 (1.09, .15)*	.08 (1.43, .07)*	.02 (0.42, .32)*
Buyer Power to Sanction → Adaptability	-.10 (-2.54, .00)	-.10 (-2.59, .00)	-.10 (-2.33, .01)	-.10 (-2.88, .00)
Supply Chain Constraint → Adaptability	-.13 (-2.00, .01)	-.15 (-2.22, .01)	-.13 (-2.01, .01)	-.13 (-2.07, .01)
Efficiency Equation				
Managerial Effort → Efficiency	-.30 (-4.00, .00)	-.34 (-4.54, .00)	-.30 (-3.26, .00)	-.26 (-2.87, .00)
Management Priority → Efficiency	.09 (1.43, .06)*	.10 (1.65, .05)*	.07 (1.13, 0.12)*	.09 (1.49, .06)*
Structural Support → Efficiency	.27 (3.99, .00)	.30 (4.07, .00)	.22 (3.00, .00)	.26 (3.34, .00)
Managerial Effort Equation				
Program Priority → Managerial Effort	.12 (2.06, .02)	.11 (1.84, .04)	.12 (2.00, .01)	.10 (1.76, 0.04)
Structural Support → Managerial Effort	-.28 (-2.97, .00)	-.27 (-2.17, .01)	-.26 (-2.07, .01)	-.24 (-2.00, .01)

* Not significant at $p=0.05$

Improvements to Model Fit-Model Building and Model Trimming

Three criteria suggested in the relevant literature (Garson, 2006; Kline, 2005; Thomas, 2006) were used to identify possible model modifications to improve fit:

- (1) incorporating new paths suggested by modification indices generated by LISREL 8.7 output. Paths considered should also possess nomological justification.
- (2) dropping non-significant paths in the original model to assess the impact on model fit and
- (3) proposing alternative paths suggested on the basis of prior research and first level analysis.

Firstly modification indices suggested by LISREL 8.7 output from the original model (Figure 16) were reviewed. The usual procedure in model building based on suggested modification indices is to change only one parameter at a time based on the modification indexes, and then drop paths one at a time based on the chi-square difference test of the significance of the structural coefficients (Garson, 2006). Additional paths suggested between latent constructs were as follows:

- (1) Competitive Favourability to Management Effort

- (2) Partner Favourability to Efficiency
- (3) Environmental Favourability to Effectiveness
- (4) Effectiveness to Adaptability (feedback loop)
- (5) Satisfaction to Performance (feedback loop)
- (6) Satisfaction to Adaptability

Nomologically, the potential relationship of satisfaction being a cause of performance has support in the relevant literature (Burton, Sheather and Roberts, 2003) who suggest a non-recursive relationship between the two constructs. A review of relevant literature determined that none of the other modification indices suggested appeared to have support. The addition of the satisfaction to performance path suggested by the modification indices was not found to improve model fit significantly based on differences in Chi Square significantly and the path was not included in the model building process (Table 13).

Table 13
Summary of Model Building-
Test of Nomologically Valid Paths Suggested by Modification Indices

PATH ADDED	T-VALUE	RMSEA	CHI SQUARE-HYPOTHESIZED MODEL=2351.25	DF-HYPOTHESIZED MODEL=1144	P VAL. DIFF. (REJECT)	ACTION
Satisfaction to Performance	-0.68 NOT SIG	.0710	2314.18	1142	.00	Don't Include Suggested Path

Garson (2006) suggests that dropping non-significant paths in the original model to assess the impact on model fit is another valid technique to assess the structural model. The effect of Management Priority on Efficiency ($t=1.43$) and of Environmental Favourability ($t=.067$) were found to be non-significant at the .05 level (one-tailed). Each path was dropped and the model fit was reassessed to determine if the model fit improved significantly (Table 14).

Table 14
Summary of Model Trimming-
Test of Path Deletions Suggested by Figure 15 Model

PATH Dropped	RMSEA	Chi Square- Hypothesized Model=2351.25	DF- Hypothesized Model=1144	P val. Diff. (Reject)	Action
Management Priority to Efficiency	.0708*	2320.13	1136	.01	Retain Path
Environmental Favourability to Adaptability	.0700**	2294.14	1134	.05	Drop Path

*Normed Chi-Square= (2274.56/1136) = 2.012, RMSEA = 0.0708, 90 Percent Confidence Interval for RMSEA = (0.0668; 0.0749). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.879 NNFI = 0.926 CFI=0.931, GFI=0.696, SRMR=0.104

** Normed Chi-Square= (2264.12/1134) = 1.997, RMSEA = 0.0700, 90 Percent Confidence Interval for RMSEA = (0.0659; 0.0741). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.886 NNFI = 0.932 CFI=0.937, GFI=0.704, SRMR=0.105

Dropping the path from Environmental Favourability to Adaptability did, in fact, improve model fit marginally, though in a statistically significant manner. However, dropping the path from Management Priority to Efficiency did not improve fit in a statistically significant manner (Table 14). No previously significant paths became insignificant with the deletion of Environmental Favourability to Adaptability path. The Environmental Favourability to Adaptability path was, therefore, dropped to improve model fit.

Additionally, the partial rejection of Hypothesis 15 (that effectiveness does not act as a mediating variable between adaptability and performance) suggested that a direct path between adaptability should be assessed for the impact on model fit and to determine whether the coefficient of this path was significant. Creating a direct path between Adaptability and Performance on a new model which did not include the Environmental Favourability to Adaptability path did improve model fit significantly and the path coefficient of the new path was also significant. No previously significant paths became insignificant with the addition of the Adaptability to Performance path. This model was the best fitting tested to this point. The analysis of the stepwise addition is shown in Table 15.

From a nomological perspective, the link between adaptability and performance seems intuitively appealing. External factors such as the impact of changes in the competitive landscape, breakthroughs in technology or sudden political changes in global markets may be much more difficult to quantify in setting expectations as opposed to internally controllable factors such as management priorities and investment to support technologies and changes in procedures related to participation in a new electronic marketplace type, although clearly the two are related.

In addition to model trimming or building based on modification indices and first level analyses, nomological justification in the literature suggested additional paths to be tested. These relate to the addition of the prior experience (Hypothesis 13) and fit (Hypothesis 16) constructs.

Table 15
Summary of Model Building-Path Suggested by First Level Analysis

Path Added	T-VALUE	RMSEA	Chi Square- Hypothesized Model=2351.25	DF- Hypothesized Model=1144	P val. Diff. (Reject)	Action
Adaptability to Performance	2.23	.0689	2227.18	1128	.06	Include Suggested Path

** Normed Chi-Square= (2264.12/1128) = 1.978, RMSEA = 0.0689, 90 Percent Confidence Interval for RMSEA = (0.0648; 0.0731). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.889 NNFI = 0.936 CFI=0.942, GFI=0.705, SRMR=0.092

Addition of the Prior Experience Variable-Hypothesis 13

The fit variable was added via the model building process subsequent to initial structural model fitting as it was not included in the original measurement model specifications. The single indicator scale values were based on what Mahadevan (2003) suggested should be the normative or ideal response to these questions based on the respondents answer to Question 5 regarding marketplace type actually employed by the respondent. The mean response to the indicators for each variable was then compared with the value suggested by Mahadevan (2003), based on the respondents response to question five (marketplace type employed) and the absolute value differences between the two were calculated and summed. In the case where there is a latent variable in a SEM model which has only a single indicator variable (ex., Gender as measured by the survey item "Sex of respondent") it is represented like any other latent, except the error term for the single indicator variable is constrained to have a mean of 0 and a variance of 0 (or an estimate based on its reliability). The Lisrel 8.7 syntax to generate this model as shown in Appendix 4.

Addition of the Prior Experience Variable-Hypothesis 13

Inclusion of the path from prior experience to performance did not improve model fit on the best fitting model to date. In fact, model fit based on RMSEA (0.0697 vs. 0.0689 for Model shown in Table 15) became slightly poorer. Nonetheless, the coefficient of this path was significant, confirming Hypothesis 13. Accordingly, this model was retained, although subsequent tests, other than Structural equation modeling were performed regarding Hypotheses 16 and 18. A summary of analysis of addition of the prior experience to performance path is shown in Table 16 and the effect on all constructs is summarized in Table 17.

The addition of the prior experience construct did not create any changes in the significance of the paths in the first level analysis (Figure 15), except the Management Priority to Efficiency path became significant. All Hypotheses confirmed in the first level structural model analysis (Figure 14) were confirmed in this model (Figure 16). The Adaptability to Performance path remained significant with the addition of the Prior Experience path.

In terms of model fit, the final model fit marginally on an absolute basis (RMSEA= .0697). Clark (2000) suggested that an RMSEA of less than 0.9 could be considered a marginal fit though other research has suggested that RMSEA should be less than .06 (Garson, 2000) to be considered an adequate fit.

Table 16
Summary of Model Building-
Addition of Prior Experience to Performance Path

PATH ADDED	T-VALUE	RMSEA	Chi Square- Hypothesized Model=2351.25	DF- Hypothesized Model=1134
Prior Experience To Performance.	-2.16	.0697	2245.17	1134

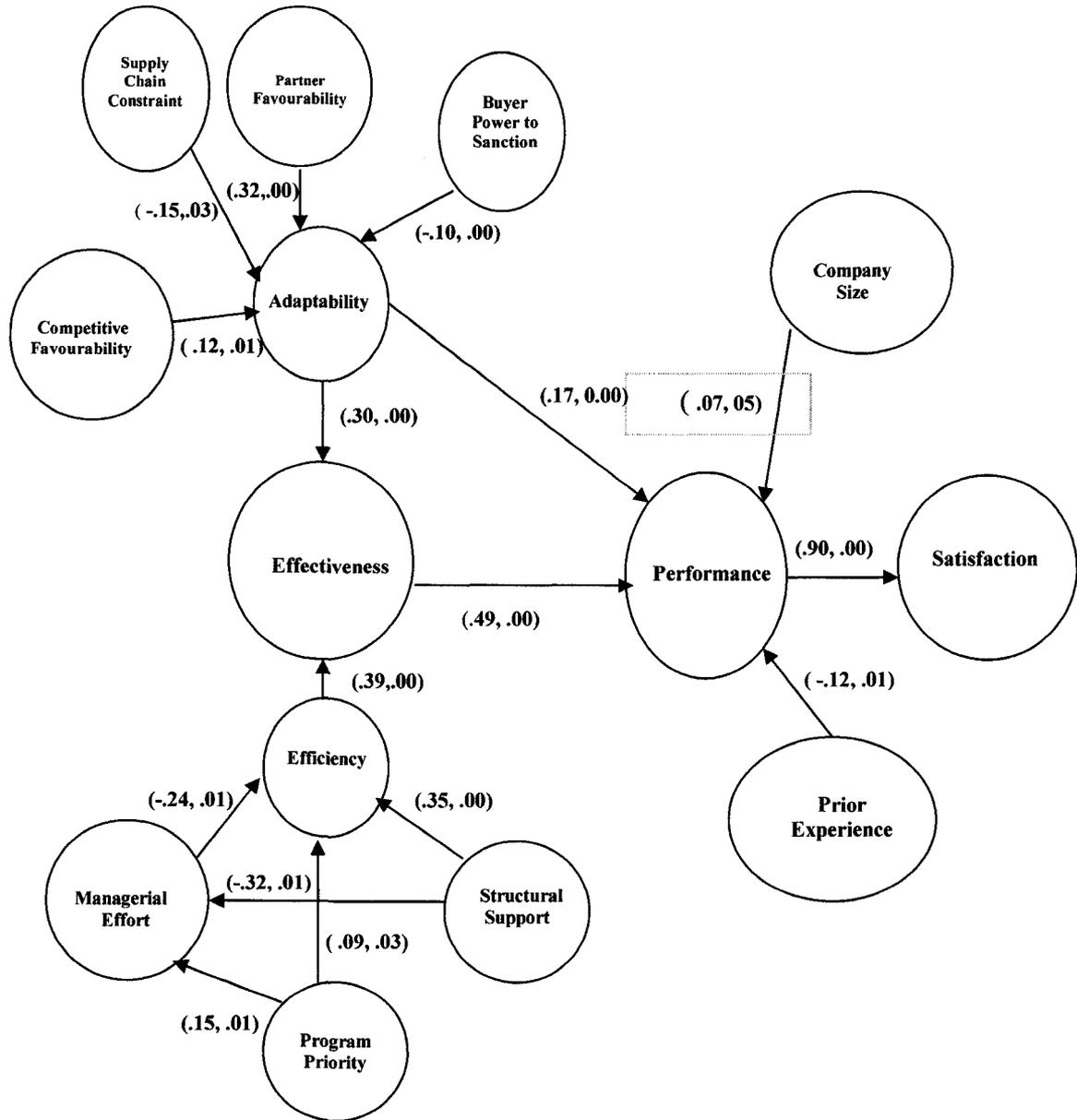
Normed Chi-Square= (2245.17/1134)=1.980, RMSEA = 0.0697, 90 Percent Confidence Interval for RMSEA = (0.0656; 0.0739). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.884 NNFI = 0.931 CFI=0.937, GFI=0.700, SRMR=0.096

Table 17
Summary of the Revised Structural Model and Hypotheses

	HYPOTHESIZED MODEL STD. PARAMETERS (T VALUE, P VALUE)	HYPOTHESIS	SUPPORTED
Satisfaction Equation			
Performance→Satisfaction	.90 (17.32, 0.00)	H17	Yes
Performance Equation			
Size→Performance	.07 (1.75, 0.05)	H14	Yes
Effectiveness→Performance	.49 (8.45, 0.00)	H15	Yes
Prior Experience→ Performance	-.12 (-2.16, .001)	H13	Yes
Adaptability→ Performance	.17 (3.12, .000)	NEW	Yes
Effectiveness Equation			
Efficiency→ Effectiveness	.39 (5.84, 0.00)	H12	Yes
Adaptability→ Effectiveness	.30 (4.61, 0.00)	H11	Yes
Adaptability Equation			
Partner Favourability→Adaptability	.32 (4.97, 0.00)	H7	Yes
Competitive Unfavourability→ Adaptability	-.12(-2.21,0.01)	H6	Yes
Buyer Power to Sanction→ Adaptability	-.10 (-2.76, 0.00)	H9	Yes
Supply Chain Constraint→ Adaptability	-.15 (-2.31, .01)	H10	Yes
Efficiency Equation			
Managerial Effort → Efficiency	-.24 (-2.08, 0.01)	H1	Yes
Management Priority→ Efficiency	.09 (1.87, 0.03)	H4	Yes
Structural Support→ Efficiency	.35 (5.01, 0.00)	H2	Yes
Managerial Effort Equation			
Program Priority→ Managerial Effort	.15 (2.32, 0.01)	H5	Yes
Structural Support→ Managerial Effort	-.32 (-4.07, 0.00)	H3	Yes

Normed Chi-Square= (2245.17/1134)=1.980, RMSEA = 0.0697, 90 Percent Confidence Interval for RMSEA = (0.0656; 0.0739). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.884 NNFI = 0.931 CFI=0.937, GFI=0.700, SRMR=0.096

Figure 16
Structural Model
Results of Model Building and Trimming



Other measures of fit suggest a poor to acceptable model fit. Kline (2005) suggests that GFI values greater than 0.90 indicate a good fit. The GFI of 0.700 precludes the assumption of a good fitting model, although again marginally better than the first level model (0.0684). An SRMR value of less than .08 indicates a good fit (Hu and Bentler, 1989) and for this model the SRMR value is 0.096. Although not a good fit based on SRMR, this value is superior to the SRMR value of 0.110 found in the first level model. The Normed Chi Square value of 1.980 is marginally indicative of an acceptable fit. NFI and NNFI values of greater than .095 are recommended (Hoyle, 1995) and reported values of 0.884 and 0.931 respectively for these two measures again suggest a poor and marginal fit respectively, though marginally better than the first level model (reported values of 0.871 and 0.921 respectively). The reported CFI value of 0.937 is greater than 0.90 standard suggested by Hu and Bentler (1999) as being indicative of a good model fit.

Addition of the Fit Variable- Hypothesis 16

The fit variable was added via the model building process subsequent to initial structural model fitting as it was not included in the original measurement model specifications. The scale values were based on what Mahadevan (2003) suggested should be the normative or ideal response to these questions based on the respondents answer to Question 5 regarding marketplace type actually employed by the respondent. The mean response to the indicators for each variable was then compared with the value suggested by Mahadevan (2003), based on the respondents response to question five (marketplace type employed) and the absolute value differences between the two were calculated and

summed. The absolute differences were grouped by both split sample techniques (best fitting 50% of responses versus poorest fitting 50% of responses) and quartile groupings of fit from best to worst. Although dichotomous single indicator constructs, as utilized to test Hypothesis 13, can be included in small numbers in the structural model (Garson, 2006), inclusion of single indicator constructs based on scaled data is not advisable (Thomas, 2006).

Accordingly, these groupings were subsequently utilized to measure the impact of fit on the final structural model in two different ways. Firstly, the impact of the fit constructs on the “outcome” constructs of effectiveness, performance and satisfaction was tested using t-tests of the best fitting and worst fitting responses, as well as ANOVA tests of the quartile groupings to determine if the differences were significant. Paired T-tests demonstrated that fit of product/market characteristics to the appropriate EM type suggested by Mahadevan (2003) did significantly and positively impact performance and satisfaction judgments, but not effectiveness judgments (Table 18, 19, 20).

Table 18
Paired Samples T Test
Performance vs. Best Fit/Worst Split Half -Fit1

	Mean (Perfl-4)/4	N	Std. Deviation
Worst Fit Split Half Fit1 < absolute value 0.97	4.42	97	1.41
Best Fit Split Half Fit1 > absolute value 0.97	4.87	97	1.52

t = 2.14 df = 192, p = 0.03 (significant-1 tailed)

Table 19
Paired Samples T Test
Satisfaction vs. Best Fit/Worst Split Half -Fit1

	Mean (Satis1-4)/4	N	Std. Deviation
Worst Fit Split Half Fit1 < absolute value 0.97	4.32	97	1.38
Best Fit Split Half Fit1 > absolute value 0.97	4.74	97	1.41

t = 2.04 df = 192, p=0.04 (significant-1 tailed)

Table 20
Paired Samples T Test
Effectiveness vs. Best Fit/Worst Split Half -Fit1

	Mean (Satis 1-4)/4	N	Std. Deviation
Worst Fit Split Half Fit1 < absolute value 0.97	4.29	97	1.36
Best Fit Split Half Fit1 > absolute value-0.97	4.61	97	1.43

t = 1.654, df = 192, p= 0.10 (not significant)

Table 21
ANOVA Test
Performance vs. Quartile Groupings -Fit1

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	52.721	10	5.272	2.586	.006
Within Groups	373.037	183	2.038		
Total	425.758	193			

Table 22
ANOVA Test
Satisfaction vs. Quartile Groupings -Fit1

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	48.747	10	4.432	2.807	.002
Within Groups	287.347	182	1.579		
Total	336.094	193			

Table 23
ANOVA Test
Effectiveness vs. Quartile Groupings -Fit1

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	24.739	10	2.473	1.432	.08
Within Groups	333.026	183	2.095		
Total	357.713	193			

A Central Proposition-Product/Market Factors, Company Size and Prior Experience do not Influence Effectiveness Judgments

In addition to model trimming or building based on modification indices and first level analyses, nomological justification in the literature suggested additional paths to be considered. A central argument in this dissertation is that while TCT models based on fit with product/market characteristics do offer explanatory value as to whether marketers will rate performance of an electronic marketplace choice highly or not, these characteristics may not be an explicit or formally stated consideration in the formation of *a priori* performance expectations by marketers. As noted previously, performance expectations are predictive, indicating expected product/service attributes at some point in the future (Spreng et al., 1996) which may be manifest in either formal budgets or

plans or informal and implicit managerial goals as described by the Effectiveness construct (Clark, 2000). It is posited in this thesis that product/market characteristics suggested by TCT models (Mahadevan, 2003), as well as company size (Corbitt, 2003) and prior experience (Corbitt, 2003; Hadaya, 2004) with EMs, have little direct impact on goal setting for EM type choice and accordingly on the Effectiveness construct.

Modification indices in LISREL 8.7 for the first level structural analysis (Figure 15) did not suggest that paths representing an influence of company size on *apriori* judgments of effectiveness or explanatory constructs of effectiveness, such as adaptability and efficiency would improve model fit. In addition, T tests (Table 20) and ANOVA (Table 23) suggested that the Fit construct did not have a significant influence upon the Effectiveness construct, while it did have a significant influence on the Satisfaction and Performance constructs.

A thorough and complete test of this proposition required testing whether the Company Size and Prior Experience influenced the Effectiveness construct in the structural model. The results of this test are shown in Table 24. The addition of paths to the best fitting (revised as per Table 17) model to test this proposition was performed one-by-one as per Garson (2006). The proposition was partially supported as the Size to Effectiveness coefficient was not significant, while the Prior Experience to Effectiveness coefficient was. In neither case was model fit improved over the revised and best fitting model. Although this was not the best fitting model, this finding would suggest that only prior experience influences goal setting or expectations exhibited by the effectiveness

construct. Company size and fit with product/market characteristics are not explicitly considered when setting goals or expectations for EM choice.

Table 24
Summary of Model Building-
Addition of Prior Experience to Effectiveness and Size to Effectiveness

PATH ADDED	T-VALUE	RMSEA	NORMED CHI SQUARE- REVISED MODEL=2245.17	DF- REVISED MODEL=1134
Prior Experience to Effectiveness*	2.32 (.04)	.0731	2323.15	1138
Size to Effectiveness**	1.21(.07)	.0745	2349.17	1138

Normed Chi-Square= (2323.17/1138)=2.04, RMSEA = 0.0731, 90 Percent Confidence Interval for RMSEA = (0.0697; 0.0771). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.869 NNFI = 0.907 CFI=0.922, GFI=0.667, SRMR=0.099

Normed Chi-Square= (2349.17/1138)=2.07, RMSEA = 0.0745, 90 Percent Confidence Interval for RMSEA = (0.0713; 0.0786). P-Value for Test of Close Fit (RMSEA < 0.05) = 0.000, NFI = 0.884 NNFI = 0.931 CFI=0.937, GFI=0.700, SRMR=0.110

The Influence of Depth and Specificity of Prior Expectations on the Performance/Satisfaction Relationship-Hypothesis 18

Regression analysis utilizing SPSS version 14.0 is employed to examine the influence of Depth and Specificity as a moderating variable on the performance satisfaction relationship. For there to be evidence of moderation, the interaction term must be significantly different from zero. This requires centering the relevant variables to reduce the likelihood of multicollinearity problems (Baron and Kenny, 1986). Using the transform/compute option in SPSS 14.0 new variables were created (satiscent, perfcnt and depthspeccnt). This approach assumed that the moderating effect of depth and

specificity on the performance satisfaction relationship was linear rather than quadratic, which would have necessitated different techniques (Baron and Kenny, 1986).

This technique was used rather than structural equation modeling analyses, due to a marginal sample size (N= 194) for SEM, and the increased power requirement when considering multiple nonlinear (quadratic) and interaction parameters. The debate surrounding the most appropriate methods for testing interactions and nonlinear effects in SEM analyses (Rigdon, Schumacker, & Wothke, 1998, Little et al, 2006) also suggests that there is yet no broadly accepted method for handling this analysis, even if power requirements had been reasonably met through collection of a larger sample. In addition, following Cohen and Cohen (1983), the antecedent variables are standardized before creating the interaction terms and the quadratic term to reduce multicollinearity problems inherent in higher order terms.

Table 25
Performance/Satisfaction Relationship
with Depth/Specificity as Moderating Variable

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Beta
Intercept	15420.23	1	15432.52	1893.43	.000	.1542
Perfcent	2042.94	43	46.57	14.14	.000	8.21
Depspecent	219.01	20	10.48	1.89	.003	.6287
Perfcent*depspecent	619.01	56	12.42	3.29	.001	.1598
Error (d)	181.01	74	2.232			

The interaction of depth and specificity and performance (Percent*depspecent) have a significant (.00) and positive (beta=. 16) effect on the performance/satisfaction relationship. It also should be noted that the direct effects of depth and specificity on satisfaction are positive and significant, although this finding was not posited in the hypotheses.

The findings reiterate what Clark (2000) and Jaworski and Kohli (1993) found in terms of marketing programs in general and also what has been suggested frequently in the EM literature (Wang and Archer, 2004; Corbitt, 2003; Christianaase and Markus, 2002; Wang, Archer and Zheng, 2005), specifically that criteria for setting performance expectations and evaluations are both complex and multidimensional. Though the revised model provided a variety of new insights into Electronic Marketplace choice and resultant judgments of performance and satisfaction it only provides a starting point for further research on this topic. The RMSEA measure of 0.0697 for the best fitting model, which includes all phenomena of interest, is marginal. The lack of a clearly best fitting model suggests that understanding of the phenomenon of marketing performance evaluation and more specifically evaluation of the choice of electronic marketplace type are realms with great potential for further construct and model development.

Nonetheless, the adaptability and efficiency constructs as suggested by Clark (2000), and as measured in this research, do appear to provide a reasonable representation of important subjective and qualitative factors that impact performance expectations and evaluations. In all alternative models analyzed, both adaptability and efficiency were

significantly related to an effectiveness judgment which would often be manifest in formal plans and budgets or informal targets. Adaptability explained 19.4% of the variance in the Effectiveness construct and the Efficiency construct explained 12.9% of variance in the Effectiveness Constructs, as indicated in Squared Multiple Correlations for Reduced Form output from LISREL 8.7 for the revised (Table 17) model. Moreover, the efficiency construct was shown not only to influence an effectiveness judgment, but also to influence perceptions of performance through effectiveness judgments as a mediator variable. The lack of a mediating role of the Effectiveness construct on the Adaptability to Performance constructs, however, requires further study beyond what was examined in this dissertation.

Though Clark's (2000) finding of an Effectiveness construct acting as a mediating variable in the relationship between the Adaptability construct which indirectly drives a performance judgment was not confirmed, a number of previously unvalidated constructs were shown to be relevant to performance and satisfaction judgments of marketing programs. These new constructs were based on the specific problem of performance evaluation of Electronic Marketplace type choices (buyer power to sanction, supply chain compatibility, partner favourability, company size, fit with product/market characteristics to marketing program characteristics and prior program experience). In combination with Clark's (2000) general typology of marketing performance evaluation, these newly validated constructs should encourage researchers to think more broadly about multi-dimensional models for performance evaluation of a wide array of marketing programs as well as more robust and better fitting and generalizable models.

Clark (2000) suggested various constructs as measures of adaptability and efficiency without validating the Adaptability or Efficiency constructs. This research demonstrated that partner favourability, competitive favourability, buyer power to sanction and supply chain favourability are all constructs which significantly influence a construct that was designed to measure the perceived adaptability of an electronic marketplace type choice. The percentage variance of the Adaptability construct explained by each construct was as follows: partner favourability (35%), competitive favourability (11.3%), buyer power to sanction (10.5%) and supply chain favourability (12.6%) as indicated per Squared Multiple Correlations for Reduced Form output from LISREL 8.7 for the revised (Table 17) model. Environmental favourability was not proven to have a significant influence which, given the strong influence of the Partner Favourability construct on adaptability, might suggest that Partner Favourability and Environmental Favourability constructs measure the same phenomena. However, tests of discriminant validity (Table 10) would seem to refute this notion as the Pearson correlation between the two constructs was minimal (-.02). More likely perhaps, with the growth of complex interfirm networks (Christianaase and Markus, 2003) typifying the environment of firms participating in electronic marketplaces, the consideration of the compatibility of an EM type with an extended network that includes a wide array of alliance partners, complementors and other members of the firms business network is a highly salient (Jaworski and Kohli, 1993) consideration. Partner favourability is likely an important consideration in EM choice. On the other hand, the impact of environmental trends on the

EM choice may often be hard for marketers to both forecast and consider given the dynamic nature of B2B markets (Dwyer and Tanner, 2006).

In terms of the Efficiency construct, managerial effort, structural support and management priority were found to be constructs that significantly influence a construct that is designed to measure the perceived efficiency of an electronic marketplace type choice in the “final” model (Table 17). The percentage variance of the efficiency construct explained by each construct in the final model was as follows: managerial effort (19.0%), structural support (35.1%) and management priority (11.5%). The importance of structural support in explaining an efficiency construct may reflect what Vlosky (2006) found as being the primary disappointments and thus perhaps most salient factors in evaluating an EM choice. Inadequate application tools, expense of hardware and software, business process change, lack of supporting infrastructure were found to (in the rank order indicated) the third through sixth greatest disappointments stemming from participation in electronic marketplaces by 53 marketers in the US paper industry (Vlosky, 2006). Torkzadeh and Dhillon (2002) found that infrastructure incompatibility was the most important reason for lack of success of EM participation.

The influence of management priority (positive) and structural support (negative) on management effort exerted was consonant with the research of Clark (2000), as related generally to marketing programs and to the suggested typologies of Christianaase and Markus (2003) and Wang, Archer and Zheng (2005) regarding EMs. The somewhat weaker influence of management priority on the efficiency construct, and accordingly the

mediating effect of efficiency on performance perceptions, is rather puzzling. Great importance has been placed over the past ten years by influential business leaders, such as Jack Welch (Tung, 2002) on adoption of EMs to provide competitive advantage. Additionally, a strong influence from paid consultants (and thus perhaps expected higher prioritization by management) on EM adoption has also been noted (Corbitt, 2003). It was, therefore, hypothesized that management priority may be a stronger influence on evaluations for first time adoption of EMs, as opposed to subsequent adoptions, as top management develops more knowledgeable expectations for EM adoption. In other words, new to company adoptions of any marketing program may have higher management priority. An exploratory analysis comparing the means of Likert scaled responses to the average of the Management Priority questions between experienced and non experienced adopters was conducted to guide further research (Table 26). There was no significant difference between the two groups although no survey question addressed the prior experience of top management with EMs (as opposed to marketing managers surveyed in this dissertation). This analysis left the question somewhat unresolved.

Table 26
Statistics- Management Priority-No Experience vs. Prior Experience with EMs

	First Adoption	N	Mean	Std. Deviation	Std. Error Mean
(Manpri1,2 and 3/3)	Yes	114	3.84	1.31	.12
(Manpri1,2 and 3/3)	No	80	3.85	1.39	.16

$$t=-.071 (df=195) p=.10$$

This research also illustrates, consonant with Jaworski and Kohli (1993) and Clark (2000), that performance evaluations are clearly multi-dimensional. Company size

(marginally), prior experience with EMs, fit with product/market factors (at least per Mahadevan's 2003 typologies), effectiveness judgments, adaptability and efficiency (as mediated by effectiveness judgments) judgments all influence managers perceptions of the performance of an Electronic Marketplace choice.

Moreover, there is no evidence provided in this research that product/market factors and company size influence *a priori* expectations for performance, expectations that may be stated explicitly through formalized plans or implicitly through informal expectations and goals i.e. the Effectiveness construct. This finding largely confirmed an important premise of this dissertation. Among the Size, Fit and Prior Experience constructs, only the Prior Experience construct was shown to significantly affect the Effectiveness construct in any of the models tested.

This point is important for a variety of reasons. For example, smaller companies may want to incorporate the lessons learned by other smaller companies that have been well documented. Smaller companies are more likely to face disappointment with initial adoption of EM (Hadaya, 2004). This was finding was confirmed by Multivariate analysis conducted in SPSS 14.0 (Table 27) which utilized the four Performance indicators as dependent variables, the three Size indicators as fixed factors and Prior Experience as a covariate. As per Hadaya (2004), this analysis demonstrated that prior experience will have less of a negative effect on performance judgments for large firms than for small firms.

Table 27
Tests of Between-Subjects Effects
Performance and Prior Experience-Size as Fixed Factor

Independent Variable	Dependent Variable	Type III Sum of Squares	df.	F	Sig.
Prior Experience*Size	PERF1	15.064	1	8.96	.003
Prior Experience*Size	PERF2	22.178	1	13.46	.000
Prior Experience*Size	PERF3	14.417	1	8.52	.004
Prior Experience*Size	PERF4	17.991	1	10.40	.002

Pillai's Trace value = .091, F=3.463, Hypothesis df=4.000, Error df=138.000, p=.010
Wilks' Lambda value=.909, F=3.463, Hypothesis df=4.000, Error df=138.000, p=.010
Hotelling's Trace value=.100, F=3.463, Hypothesis df=4.000, Error df=138.000, p=.010
Roy's Largest Root value=.100, F=3.463, Hypothesis df=4.000, Error df=138.000, p=.010

Large firms are less subject to knowledge barriers than SMEs (Hadaya, 2004).

Though all firms may underestimate the extent of change to processes and technologies required to effectively participate in electronic marketplaces, large firms possess more diversified technical knowledge and are better able to react to unanticipated hurdles in adoption. Prior knowledge and incorporation of this reality can lead to more realistic expectations for EM adoption by smaller firms and thus more accurate budgeting and forecasting which also acknowledges the increased level of risk for smaller firms.

Chapter 6

Limitations of the Research

There are a number of limitations of this research. Some are typical of most retrospective studies utilizing SEM analysis, such as reliance on respondent recall and the requirement of using multiple indicators to measure complex behavioural phenomena which necessitates lengthy questionnaires that often have low response rates. Other limitations, however, are more unique to this research. Both typical limitations of this type of study and limitations which are rather more unique to this research are outlined in this chapter.

One limitation of the research is that it relies on respondent recall (Arnemann, 1994). In the case of the subjective disconfirmation of expectations it has been suggested that relying on determination of expectations after performance has occurred to predict an individual's satisfaction with that performance is inappropriate because of the potential for biased recall. Conway (1990) found that people tend to bias their recall, or recall behaviours in ways that increase their consistency with subsequent outcomes. This phenomenon is noted, and it could be addressed in future research through a longitudinal study of managers' decision making processes about Electronic Marketplaces. This impact of this limitation cannot be measured or it's direction hypothesized from the extant literature.

A second limitation of the survey and the sample was perhaps that the survey was produced in only one of Canada's official languages, English. The contact email list included respondents in the Province of Quebec on a proportionate basis, but it was expected that response rate among Francophones might be lower within the prescribed sampling frame due to resistance or difficulty with Francophones answering a survey published in English. Respondents were only identified in about 30 percent of cases by IP addresses (which cannot always identify exactly geographically or the corporation where the respondent is located and in some cases they may be responding outside of their workplace i.e. at home or traveling) unless they provided contact information to forward the report of findings offered (58 of the 198 valid responses did). Development of a French version of the survey was considered, but given cost estimates provided to translate a lengthy survey and contact message accurately and reliably the idea was abandoned.

Thirdly, as previously noted, though benefits may drive electronic market usage, perceptions of risk can act as a barrier. Some risks are inherent in any market transaction; while others are more specific to the electronic environment marketplaces. Risks related to opportunism (Williamson, 1975) and asset specificity (Williamson, 1985) intensify as supply chain integration through adoption of EMs increases. The model analyzed in this dissertation does not explicitly consider or measure how marketers ameliorate these risks to maximize satisfaction with the choice of EM type. It is suggested that these factors should be included in future research on this topic. It is suggested that the impact of inclusion of risk factors into this framework would reduce the size of the coefficients of

many of the variables and that some variables may become insignificant, although nothing in the extant literature seems to suggest which variables might be impacted.

Fourthly, there are also suggested limitations (Little et al, 2006) in the methodology employed by Clark (2000) and originally suggested by Baron and Kenny (1986) for measuring the presence of mediating variables in a structural model. The presence of a mediating relationship of effectiveness to performance via indirect effects of the adaptability and efficiency constructs is a lynchpin of the proposed model in this dissertation. Little et al. (2006) suggest that the method employed by Baron and Kenny (1986) may overestimate the presence of a mediating relationship, which would suggest that Hypothesis 15 might not be fully supported.

Fifthly, the sample size was inadequate to perform a small number of analyses which could have potentially provided a more robust validation of the hypothesized framework. In particular, the inability to compare structural models on split samples to validate the effect of the depth and specificity and fit constructs on the entire structural model, due to inadequate sample size is noted as a limitation of the research. Is the sample representative of the population of Canadian B2B Marketers? The small response rate certainly also raises questions about representativeness, despite analysis of early and late respondents. Moreover, the relatively high rate of satisfaction with EMs when compared to other studies (Hadaya, 2004 and Vlosky, 2006) combined with the unprecedented length and complexity of the questionnaire compared to studies on similar research topics (Clark, 2000; Wang and Archer, 2007; Hadaya, 2004) might suggest that

respondents were perhaps among the most engaged and interested in and knowledgeable about EMs. Accordingly, although there are no qualitative measures confirming or disconfirming this proposition, it may be that survey respondents can be viewed as key informants, as opposed to a probability sample.

Sixthly, neither all the indicators nor the constructs utilized by the measurement model and structural model exhibited a high degree of convergent and discriminant validity. As previously noted, the competition construct exhibited poor convergent validity and a small number of indicators appeared to poorly measure the construct they were intended to measure. Due to sample size limitations, as noted in the previous paragraph, it seemed ill-advised to drop either the competition construct or the indicators in question. Lack of significance of these indicators as well as the competition construct is noted as a limitation of the research. Elimination of the construct would have improved the fit of the measurement model.

Finally, a related limitation and one also of the most important limitations of the model and findings stems from the particularly poor discriminant validity of the Satisfaction, Performance and Effectiveness constructs. The performance-satisfaction relationship is a matter of much debate (Brady, Cronin, and Brand 2002; Page and Spreng 2002, Burton et al, 2003). Although this dissertation provides new insight into this debate, the inability to distinguish clearly between these three constructs suggested that improved measures are necessary to identify 1) if they are indeed distinct phenomenon and 2) if they are, what relationships exist among them.

Some limitations of the research are typical of most retrospective studies utilizing SEM analysis. All retrospective studies suffer from reliance on respondent recall. Many studies utilizing SEM have limitations due to the requirement of multiple indicators used validation of complex behavioural phenomena which necessitates lengthy questionnaires that often have low response rates that are often answered by those most engaged in the topic (Kline, 2006). The limitations which are more unique to this particular research would appear to be lack of adequate convergent and divergent validity among certain constructs, particularly the performance, satisfaction and effectiveness constructs, and the omission of one or more constructs in the model which would have assessed the effect of risks in EM participation on effectiveness, performance and satisfaction judgments. Regarding the former, poor convergent validity of the competition construct could be improved by simply developing indicators which better measure similar phenomena, while improved convergent and discriminant validity of the effectiveness, performance and satisfaction constructs requires improved nomological validity derived from further debate and extensive validation of these phenomena across a variety of disciplines. The competition construct generally explained a much lower percentage of the variance in the proposed framework than either of the effectiveness, performance and satisfaction constructs. Accordingly, poor convergent validity of the competition construct would appear to be less critical to development of a best fitting model. Regarding risk averseness, this is seen to be a critical component of performance and satisfaction judgments of EM participation (Rask and Krogh, 2004) and inclusion of these constructs may have impacted a best fitting model substantially.

Despite some limitations of the research, there are a number of findings which have strong implications for both managerial and academic inquiry regarding marketing program performance evaluation and more specifically, evaluation of EM type choice. These are outlined in Chapter 7. These implications include expanded understanding of the multi-dimensional nature of EM performance evaluation, important new discussion regarding the specific contribution and relevance of Transaction Cost Theory and Institutional Theory to the study of EM adoption and evaluation as well as new insights for practitioners into the impact of product/market factors and company demographics on satisfaction with EM type choice.

Chapter 7

Implications and Conclusions

7.1 Research Implications

This research makes an important and unique contribution to the study of how marketers judge marketing performance. Clark (2000) found marketers use multiple performance measures. He found a mean number of 2.68 measures and with just 21% of respondents reporting one measure. No research since the publication of Clark's (2000) paper has found more measures of marketing performance evaluations. While the science of marketing is strongly grounded in a plethora of underlying psychological and sociological constructs such as brand performance, consumer satisfaction and buyer expectations, the study of marketing has not fully investigated similar determinants of its own practitioners' perceptions of these constructs.

This research also demonstrated that two distinct and broad theoretical perspectives influence performance judgments of marketing programs. Broadly based perspectives of environmental fit (Ventraman and Callumus, 1984) exemplified by theories such as population ecology (Clark, 2000), network (Christianaase and Markus, 2003; Thorelli, 1986) and institutional theory (Wang, Archer and Zheng, 2005; Grewal, 1991) and more specific product/market perspectives which are largely transaction cost theory based (Williamson, 1975; Williamson, 1985) such as product/market characteristics (Mahadevan, 2003) are both shown to have explanatory value. This is a similar approach to that offered by Barringer and Harrison (2000), in an oft-cited paper, who suggested a multi-theory approach to relevant influences on intra-organizational

relationships. They further suggested that each of six theories had relevance to the study of intra-organizational relationships dependant on the issue studied.

Similarly, this dissertation suggests, in what may be its most distinct and valuable contribution, that TCT models and market structure have relevance to ultimate or *post hoc*, evaluations of marketing program performance, but not any great extent to *a priori* goal or expectation setting for marketing programs. Broader perspectives of environmental fit, such as those provided by population ecology, network, institutional and political economy theories appear to have a more direct impact on goal setting and expectations.

Clearly, understanding the role of product/market factors in selecting an appropriate EM type is also important, but consideration of these factors does not appear to be explicit when expectations are set as benchmarks for effectiveness judgments. Huber, Sweeney and Smyth (2004) suggest that effective participation in electronic marketplaces has the potential to enhance competitive advantage but that implementation requires a clear and detailed understanding of the major process structures and drivers. Many firms participate in multiple structures, perhaps due to a lack of clarity about which structures are most appropriate, and to compound the complexity of choosing EM types, EM structures are constantly evolving (Mahadevan, 2003). Making rational choices about matching product/market factors to constantly evolving EM structures may be beyond the 'bounded rationality' (Simon 1976) of many managers. However, given the importance of matching product/market characteristics to EM type on ultimate perceptions of performance as indicated by this research, it appears that it would behoove many

marketers to learn more about how various product/market characteristics match to various EM types. More research and guidance is also needed in the popular and academic press to guide these decisions (Mahadevan, 2003). Data collected for this dissertation should enable a more specific examination of this issue.

Additionally, although the effect of performance on satisfaction has been well established, the way in which it influences satisfaction is not clear (Burton et al 2003). Similar to H18 in this thesis, Oliver (1997) identified studies that have shown a direct effect of performance on satisfaction as well as indirect effects via disconfirmation based on prior expectations. This dissertation found that increased depth and specificity of expectations and their confirmation or disconfirmation strengthened the performance/satisfaction relationship. More recent studies, however, have argued that performance effects should be modeled directly, rather than by a disconfirmation effect (e.g., Brady, Cronin, and Brand 2002; Page and Spreng 2002). Burton et al (2003) suggest part of the reason for conflicting results on the effect of performance may be that very few studies have differentiated between actual and perceived performance, even though the limited research available suggests that actual performance may be often inaccurately estimated (Hornik 1984). In light of the findings of this study that performance evaluations are multidimensional and that current research does not guide managers to set clear and comprehensive performance standards to the extent that they could, this proposition is an interesting one. Burton et al (2003) suggest that the extent to which actual performance influences perceived performance and thus satisfaction is based on the “accuracy” of perceptions of performance. This thesis would suggest that the disconfirmation of

expectations approach to assessing the performance remains a valid one contingent on improved understanding of how managers evaluate performance.

7.2 Managerial Implications

In general, this research suggests that all marketers, from firms both large and small, should perhaps “do their homework” to a greater extent when setting initial expectations for EM adoption, learning from the lessons of other similar firms who have recently adopted EMs; the risks, the potential hurdles and disappointments. Many case histories are available in the popular and academic press, though as Corbitt (2003) found, consulting firms and their communications can often set expectations for EM adoption quite high while minimizing adoption hurdles and potential disappointments. This research appears to indicate that managers with prior experience in EM selection and adoption seem able to set expectations at a more appropriate level, which ultimately leads to higher performance judgments.

The impact of depth and specificity of prior expectations on the strength of the performance/satisfaction relationship was found to be significant. When marketers judge performance of marketing programs such as adoption of EMs, the question is whether they are assessing the right dimensions for their business. Clear standards seem to matter. Ambiguity makes it too easy for marketers to interpret results in their favour (Levitt and March, 1988) and provides little guidance for future behaviour, including choosing an electronic marketplace type in which to participate. In a fast-moving environment like electronic marketplaces it is worth increasing understanding not only about what are

reasonable and relevant goals for the firms but also having the knowledge and improved management techniques to accurately set more precise, multi-dimensional goals upon which to evaluate EM participation.

Clark (2000) suggests that understanding how perceptions of performance are developed should be useful in two senses. First, it is relevant to know what performance measures marketers attempt to maximize. Second, as marketing performance evaluation moves to multi-dimensional techniques such as balanced scorecards and executive support systems, these systems should use measures that are reflective of how marketers judge performance in reality. Clark (2000) has provided a strong research framework by demonstrating that marketers' judgments of performance are multidimensional but how do we begin to operationalize those dimensions to improve our understanding of specific marketing activities are judged?

This dissertation takes a notable step towards answering this question through improved understanding of the multi-dimensional nature of performance evaluation criteria for marketing programs. A thorough review of the related literature suggested that this dissertation may have been the first research in seven years to both validate and expand upon the framework suggested by Clark (2000) and also to offer significant advancement in suggesting new constructs and frameworks to aid in understanding marketing program performance evaluation.

In choosing an EM type and setting expectations for it, marketers appear to moderate formal and informal performance expectations based on internal and external considerations. In other words, what is viewed as a desirable and quantifiable marketing program performance outcome (sales, market share etc) can vary depending on internal resources and effort required for adoption and ongoing participation as well as external factors such as consonance with the needs of supply chain members, partners and other stakeholders, and the strategic impact on competitors. Marketers do not, however, appear to situate or categorize their products or markets or company size to guide them as to what their expectations should be for a particular EM type. Given a lack of consensus or robust theory to guide them they currently appear to satisfice (Simon, 1976), as these considerations maybe beyond bounded rationality. Only marketers most recently graduated from academic marketing programs would likely have had much exposure to the theory of Electronic Marketplaces.

However, these considerations are important regarding how marketers ultimately judge the performance of the EM chosen. Huber, Sweeney and Smyth (2004) suggest that effective participation in electronic marketplaces has the potential to enhance competitive advantage but that implementation requires a clear and detailed understanding of the major process structures and drivers. Fit with product/market characteristics as per Mahadevan's (2003) typologies does offer some explanatory value as to whether marketers will rate the performance of their choice of EM highly or not. This finding may or may not be generalizable to evaluation of other types of marketing programs. Further research is clearly required. The conflicting goals of market integration and brokerage,

the risk of market power effects and the growth of complex interfirm networks (Christianaase and Markus, 2003) typify the environment of firms participating in electronic marketplaces, although the same could be said of many types of B2B programs.

Nonetheless, participation in electronic marketplaces, requires the use of processes which are still a relatively new to most marketers Only 80 respondents had prior experience with EMs as opposed to 114 who completed the survey as first time users and 167 who tried to complete the survey but were disqualified as not have participated in an EM yet. Additionally, participation is fraught with uncertainty and risk (Rask and Krogh 2004) and marketers would seem to make decisions about the type of participation based on a great deal of uncertainty in a highly dynamic environment. Only within the last five years have a variety of perspectives been posited as being explanatory of electronic marketplace formation and participation.

7.3 Conclusion

Given the important role that EMs will continue to play in B2B commerce, research which improves understanding of how marketers can optimize satisfaction derived from participation in various Electronic Marketplace types, should be an increasingly important focus of IS and Marketing researchers. This dissertation takes a notable step towards addressing this problem through improved understanding of the multi-dimensional nature of performance evaluation criteria for EM participation However, refinement of the constructs and framework through both large sample studies

that can facilitate analysis of complex, multi-dimensional models and more specific studies of the nature of constructs such as adaptability and efficiency should provide important insights to improve understanding of this problem.

Based on the findings of this research it also appears to be critical that marketers to do better “homework” to keep abreast of current research in the popular and academic press to help set realistic and measurable expectations for EM type adoption.

Consideration of Product-Market factors, company size, the experience with EM adoption of other organizations, as well as improved balanced scorecards which reflect compatibility with internal resources and external influences, are all requisites of making the right EM type choice and setting realistic goals for that choice. Our global, networked economy will inevitably demand that those companies, who strive to fully capitalize upon the competitive advantages available from EMs, must engage in well planned and informed participation in the appropriate EM structure.

REFERENCES

- Achrol, R.S. (1991), "Evolution of the marketing organization: new forms for turbulent environments," *Journal of Marketing*, 55(4), 77-93.
- Ambler, T. and Kokkinaki, F. (1997), "Measures of marketing success," *Journal of Marketing Management*, 13 (4), 665-78.
- Anderson, J. C., & Gerbing, D. W. (1988), "Structural equation modeling in practice: A review and recommended two-step approach," *Psychological Bulletin*, 103 (3), 411-423.
- Armstrong, J.S. and Collopy, F. (1996), "Competitor orientation: effects of objectives and information on managerial decisions and profitability," *Journal of Marketing Research*, 33(2), 188-99.
- Armstrong J.S. and Overton, T.S. (1977), "Estimating Nonresponse Bias in Mail Surveys," *Journal of Marketing Research*, 14,(3), 396-402.
- Arnemann, A.M. (1994), "Expected performance as a predictor of satisfaction with performance," Unpublished PhD thesis, Hofstra University.
- Bakos, J.Y. (1991), "A strategic analysis of electronic market places," *MIS Quarterly*, 15(3), 295 -310.
- Bakos, J.Y. (1997), "Reducing buyer search costs: Implications for electronic market places," *Management Science*, 43(12), 1676-92.
- Bakos, J.Y. (1998), "The Emerging Role of Electronic Marketplaces on the Internet," *Communications of the ACM*, 41(8), 35-42.
- Bailey, J. and Bakos, Y.(1997), "An exploratory study of the emerging role of electronic intermediaries," *International Journal of Electronic Commerce*, 1(3), 7-20.
- Barratt M. and K. Rosdahl (2002), "Exploring business-to-business market sites," *European Journal of Purchasing and Supply Management*, 8(2), 111-22.
- Barringer, B.R. and Harrison J.S. (2000). "Walking a Tightrope: Creating Value Through Interorganizational Relationships" *Journal of Management* 26(3), 367-403
- Baron, R. M., & Kenny, D. A. (1986), "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations," *Journal of Personality and Social Psychology*, 51(6), 1173-82.

- Belch, George E., Belch, Michael A., and Guolla, Micheal (2005), *Advertising and Promotion: An Integrated Marketing Communications Approach, 2/e*, Whitby: McGraw Hill Ltd.
- Bollen, K.A. (1989), *Structural Equations with Latent Variables*. New York: John Wiley & Sons.
- Bollen, K.A. (2001), "Two-Stage Least Squares and Latent Variable Models: Simultaneous Estimation and Robustness to Misspecifications." in R. Cudeck, S. du Toit and D. Sorbom (eds) *Structural Equation Modeling: Present and Future: A Festschrift in honor of Karl Joreskog*, Lincolnwood: Scientific Software International, Ch 7, 99-138.
- Bolton, R.N. and Drew, J.H. (1991), "A longitudinal analysis of the impact of service changes on customer attitude," *Journal of Marketing*, 55(4), 1-9.
- Bonoma, T.V. (1985), *The Marketing Edge: Making Strategies Work*. New York: Free Press.
- Bonoma, T.V. and Clark, B.H. (1988), *Marketing Performance Assessment*. Boston: Harvard Business School Press.
- Bonoma, T.V. and Crittenden, V.L. (1988), "Managing marketing implementation," *Sloan Management Review*, 29(2), 7-14.
- Boulding, W., Moore, M.C., Staelin, R., Corfman, K.P., Dickson, P.R., Fitzsimons, G., Gupta, S., Lehmann, D.R., Mitchell, D.J., Urbany, J.E. and Weitz, B.A., (1994) "Understanding managers' strategic decision-making processes," *Marketing Letters*, 5(4), 413-26.
- Brady, Michael K., Cronin J.J., and Brand R.R. (2002), "Performance-Only Measurement of Service Quality: A Replication and Extension," *Journal of Business Research*, 55(1), 17-31.
- Brooks, J., & Dik, R. (2001), *B2B eMarkets: The Smart Path Forward*. Boston, MA: Accenture Institute for Strategic Change.
- Burton, S, Sheather, S. and Roberts J. (2003), "Reality or Perception? The Effect of Actual and Perceived Performance on Satisfaction and Behavioral Intention," *Journal of Service Research*, 5(4), 292-302.
- Cespedes, F.V. (1990), "Agendas, incubators and marketing organization," *California Management Review*, 33(1), 27-53.
- Cespedes, F.V. and Piercy, N.F. (1996), "Implementing marketing strategy," *Journal of Marketing Management*, 12, 135-60.

- Chandy, Rajesh K., Jaideep, C. Prabhu, K and Antia, D. (2003), "What Will the Future Bring? Dominance, Technology Expectations, and Radical Innovation," *Journal of Marketing*, 67(3), 7-27.
- Chin, W. (1998) "Issues and Opinion on Structural Equation Modeling" *Management Information Systems Quarterly*, 22(1), 3-22.
- Christianaase, E. and Markus, L.M. (2003), "Participation in Collaboration Electronic Marketplaces" Abstracts Proceedings, January 6-9, 2003, Big Island, HI, USA. IEEE Computer Society, 2003, ISBN 0-7695-1874-5 - Track 7.
- Christianaase, E. and Venkatraman, N. (2002), "Beyond Sabre: An Empirical Test of Expertise Exploitation in Electronic Channels," *Management Information Systems Quarterly*, 26(3), 15-38.
- Churchill, G.A and Suprenant, C. (1982), "An investigation into the determinants of customer satisfaction," *Journal of Marketing Research*, 19, 491-504.
- Clark, B. (2000), "Managerial perceptions of marketing performance: efficiency, adaptability, effectiveness and satisfaction," *Journal of Strategic Marketing*, 8(1), 3-25.
- Clark, B.H. and Montgomery, D.B. (1996), "Perceiving competitive reactions: the value of accuracy (and paranoia)," *Marketing Letters*, 7(2), 115-29.
- Clark, T., Varadarajan, P.R. and Pride, W.M. (1994), "Environmental management: the construct and research propositions," *Journal of Business Research*, 29(1), 23-38.
- Clemons, E.K.; Reddi, S.P.; and Row, M.C. (1993), "The Impact of Information Technology on the Organization of Economic Activity: The "Move to the Middle" Hypothesis," *Journal of Management Information Systems*, 10(2), 9-35.
- Cohen, J., & Cohen, P. (1983), *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd edition). Hillsdale, NJ: Erlbaum.
- Conner, K. R. P., and Prahalad C.K. (1996), "A resource-based theory of the firm: knowledge versus Opportunism," *Organization Science*, 7(5), 477-500.
- Cook, C, Heath, F. and Thompson, R.L. (2000) "A Meta-Analysis of Response Rates in Web- or Internet-Based Surveys". *Educational and Psychological Measurement*, 60,821-26.
- Cooper, D. R. and Schindler, P. S. (2003), *Business Research Methods*, 8th ed., Boston: Irwin/McGraw-Hill.

- Couper, M. P. (2000) "Web Surveys: A Review of Issues and Approaches," *Public Opinion Quarterly*, 64,464–94.
- Corbitt B.J. (2000), "Developing intraorganizational electronic commerce strategy: an ethnographic study," *Journal of Information Technology*, 15(2), 119-30.
- Cyert, R.M. and March, J.G. (1963), *A Behavioral Theory of the Firm*. Englewood Cliffs: Prentice-Hall.
- Dai, Q. and Kauffman, R.J.(2002), "Business models for Internet-based B2B Electronic markets," *International Journal of Electronic Commerce* 6(4), 41-72.
- Damsgaard, J. and Lyytinen K. (1998), "Contours of diffusion of electronic data interchange in Finland: Overcoming technological barriers and collaborating to make it happen," *The Journal of Strategic Information Systems* 7, 275-97.
- Damsgaard, J. and Lyytinen K. (2001), "The Role of Intermediating Institutions in the Diffusion of Electronic Data Interchange (EDI): How Industry Associations Intervened in Denmark, Finland, and Hong Kong," *The Information Society*, 17(3), 195-210.
- Damsgaard, J. and Truex D. (2000), "Binary Trading Relations and the Limits of EDI Standards: The Procrustean Bed of Standards," *European Journal of Information Systems*, 9(3), 173-88.
- Davenport, T. H. and Cantrell, S. (2001), *The Dynamics of Ecommerce Networks*, Accenture, Institute for Strategic Change, No. 26.
- Day, G. S., Fein, A. J. and Ruppertsberger, G. (2003), "Shakeouts in Digital Markets: Lessons from B2B Exchanges," *California Management Review*, 45, 131–50.
- Deeter-Schmelz, D. R., Bizzari, A., Graham, R. and Howdyshell, C. (2001), "Business-to-Business Online Purchasing: Suppliers' Impact on Buyers' Adoption and Usage Intent," *The Journal of Supply Chain Management* 37, 4–10.
- Dess, G.G. and Beard, D.W. (1984), "Dimensions of organizational task environments," *Administrative Science Quarterly*, 29(1), 52–73.
- Dess, G.G. and 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), 265–73.
- Dillman, D.A. (2000), *Mail and Internet Surveys: The Tailored Design Method*, New York: John Wiley.

- Dozier, K. and Chang, D., (2006), "The Impact of Information Technology on the Temporal Optimization of Supply Chain Performance," *JITTA : Journal of Information Technology Theory and Application* 8(1), 33-47.
- Drucker, P. (1974), *Management: Tasks, Responsibilities, Practices*. New York: Harper & Row.
- Dwyer, F. and Oh, S. (1988), "A Transaction Cost Perspective on Vertical Contractual Structure and Interchannel Competitive Strategies," *Journal of Marketing*, 52(4), 21-34.
- Dwyer, F. R and Tanner, J.F. (2006), *Business Marketing: Connecting Strategy, Relationships, and Learning*, 3rd Edition, McGraw-Hill/Irwin.
- Dwyer, F. R. and Welsh M.A. (1985), "Environmental Relationships of the Internal Political Economy of Marketing Channels," *Journal of Marketing Research*, 22(11), 397-414.
- Evans, P.B. and Wurster, T.S. (1997), "Strategy and the new economics of information," *Harvard Business Review*, 75(9), 71 – 82.
- Fahy, J, Shipley D., Egan C., and Neale, B.(1998), "Motives and experiences of international joint venture partners in Hungary," *The Journal of Business and Industrial Marketing*, 13(2), 155-65.
- Fama, E., Miller, M., (1972), *The Theory of Finance*, Hinsdale: Dryden Press.
- Fan, X., B. Thompson, and Wang, L. (1999), "Effects of sample size, estimation method, and model specification on structural equation modeling fit indexes," *Structural Equation Modeling*, (6) 56-83.
- Fiske, S.T. and Taylor, S.E. (1991), *Social Cognition*, 2nd ed. New York: McGraw-Hill.
- French, J.R.P. and Raven, B. (1959), *The bases of social power. Studies in Social Power*. Ann Arbor: Institution for Social Research.
- Garson, D. (2006) Electronic Course Notes, PA 765, Structural Equation Modeling, North Carolina State University, <http://www2.chass.ncsu.edu/garson/pa765/structur.htm>.
- Goodhue, D.L., and Thompson, R.L. (1995), "Task-technology fit and individual performance," *MIS Quarterly*, 19(2), 213-23.
- Grandon, E.E., and Pearson J.M, (2003), "Perceived Value and Adoption of Electronic Commerce: An Empirical Study of Small and Medium Sized Firms", IEEE, Proceedings of HICSS-36, Computer Society Press, Hawaii, January 2003.

- Greve, H. (1998), "Performance, aspirations, and risky organizational change," *Administrative Science Quarterly*, 43(1), 58–86.
- Grewal, R., Corner, M. and Mehta, R. (2001), "An Investigation into the Antecedents of Organizational Participation in Business-to-Business Electronic Markets," *Journal of Marketing*, 65,17–33.
- Gurbaxani V and Whang S., (1991), "The impact of information systems on organizations and markets," *Communications of the ACM*, 34(1), 59 – 73.
- Hadaya, P., Lefebvre, L.A., Léger, P.M., Cassivi, L and Lapointe, R.(2001), "Electronic commerce business impacts project, the Canadian information and communication technology sector: The optical connectivity equipment value chain" Prepared for Industry Canada and the OECD.
- Hadaya , P (2004), "Determinants of the Future Level of Use of Electronic Marketplaces among Canadian Firms", 37th Hawaii International Conference on System Sciences (HICSS-37 2004), Big Island, HI, USA. IEEE Computer Society, Track 7.
- Hair, J.F, Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2005). *Multivariate Data Analysis*, Pearson Prentice Hall: Upper Saddle River.
- Hart, S. and Banbury, C. (1994), "How strategy-making processes can make a difference," *Strategic Management Journal*, 15(4), 251–69.
- Heck, R. and T.L. (2000), *An Introduction to Multilevel Modeling Techniques*, Mahwah, NJ: Lawrence Erlbaum.
- Heide, J. B. and John, G.J. (1990), "Alliances in Industrial Purchasing: The Determinants of Joint Action in Buyer Supplier Relationships," *Journal of Marketing Research*, 27(1), 24-36.
- Helson, H. (1964), *Adaptation-level theory*, New York: Harper & Row.
- Hess, C. M.and Kemerer, C. F.(1994), "Computerized Loan Origination Systems: Study of Electronic Market Hypothesis," *MIS Quarterly*, September 1994, 251-75.
- Hirshleifer, D. and Thakor, A.V., (1992), "Managerial Conservatism, Project Choice, and Debt," *Review of Financial Studies*, Oxford University Press for Society for Financial Studies, 5(3), 437-70.
- Hornik, J. (1984), "Subjective vs. Objective Time Measures: A Note on the Perception of Time in Consumer Behavior," *Journal of Consumer Research*, 11(3), 615-18.
- Hoyle, R.H. (1995), *Structural Equation Modeling*, SAGE Publications: Thousand Oaks.

- Hu, L., & Bentler, P. M. (1999). "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives," *Structural Equation Modeling*, 6, 1-55.
- Huber, B., Sweeney E and Smyth A. (2004), "Purchasing Consortia and Electronic Markets - A Procurement Direction in Integrated Supply Chain Management," *Electronic Markets*, 14(4), 284- 94.
- Hulland, J. (1999). "Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies," *Strategic Management Journal*, 20 (1),195–204.
- Hutchinson, J.W. and Alba, J.W. (1991), "Ignoring irrelevant information: situational determinants of consumer learning," *Journal of Consumer Research*, 18(4), 325–45.
- Jaworski, B.J. (1988), "Toward a theory of marketing control: environmental context, control types, and consequences," *Journal of Marketing*, 52(1), 23–39.
- Jaworski, B.J. and Kohli, A.K. (1993), "Market orientation: antecedents and consequences," *Journal of Marketing* 57(1), 53–70.
- Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure," *Journal of Financial Economics*, 3, 303-60.
- Joo, Y.-B. and Kim, Y.G. (2004), "Determinants of Corporate Adoption of E-Marketplace: An Innovation Theory Perspective," *Journal of Purchasing & Supply Management*, 10: 89–101.
- Joreskog, K.G. (2007) "Continuous variables and complex survey data"
<http://www.ssicentral.com/lisrel/example4-2.html>
- Joreskog K.G., Sorbom D., Du Toit S. and Du Toit, M. (2001) *LISREL 8 New Statistical Features*.
Scientific Software International: Lincolnwood, IL
- Kaihla, P. (2002), "Inside Cisco's \$2Billion Blunder". *Business 2.0*, March,
<http://www.business2.com/articles/mag/print/0,1643,37745,FF.html>.
- Kaplan, S. and Sawhney, M. (2000), "E-Hubs: The new B2B market places," *Harvard Business Review*, 78, 97 – 103.
- Kenny, D.A. (2002), Personal website, <http://www.davidakenny.net> (retrieved Nov. 20, 2007)

- Kernan M.C. and Lord R. (1991), "An application of control theory to understanding the relationship between performance and satisfaction," *Human Performance*, 4(3), 173-85.
- Kim, K.H. (2005), "The Relation Among Fit Indexes, Power, and Sample Size in Structural Equation Modeling" *Structural Equation Modeling: A Multidisciplinary Journal*, 12(3), 368-90.
- King, W. and Lekse, W. (2006), "Deriving Managerial Benefit from Knowledge Search: A Paradigm Shift?" *Information & Management*, 43, (1), 874-83.
- Kline, R.B. (2005), *Principles and practice of structural equation modeling*, New York: Guilford Press.
- Koch, H. (2002), "Business-to-Business Electronic Commerce Marketplaces: Participation and Use Drivers", 23th International Conference on Information Systems Doctoral Consortium, Barcelona, Spain.
- Kollmann, T. (2001), "Measuring the Acceptance of Electronic Marketplaces: A Study Based on a Used Car Trading Site," *Journal of Computer Mediated Communication*, 6, 234-51.
- Koprowski, G. (2003), "General Electric's Tech: Past, Present, Future." March 13, 2003 www.TechNewsWorld.com, Part of the ECT News Network Retrieved September 4, 2005.
- Kraljic, P. (1983), "Purchasing Must Become Supply Management," *Harvard Business Review*, (September-October): 109-17.
- Lambkin, M. and Day, G.S. (1989), "Evolutionary processes in competitive markets: beyond the product life cycle," *Journal of Marketing*, 53, 4-20.
- Lant, T.K. (1992), "Aspiration level adaptation: an empirical investigation," *Management Science*, 38(4), 496-523.
- Le, T (2002), "Pathways to leadership for Business-to-Business Electronic market places," *Electronic Markets*, 12, 112 - 119.
- Lee, G.H. and Clark, T.H. (1996), "Impacts of Electronic Marketplace on Transaction Cost and Market Structure," *International Journal of Electronic Commerce*, 1(1), 127-49.
- Lee, Y and Park, J. (2004), "Consequences of commercial web presence: an exploratory study of South Korean business adopters of websites," *International Journal of Advertising*, 23, 253-76.

- Levitt, B. and March, J.G. (1988), "Organizational learning," *Annual Review of Sociology* 14, 319–40.
- Lewin, K. (1958), "Psychology of Success and Failure," In CL Stacey and DF Demartino (eds.) *Understanding Human Motivation*, Cleveland: Howard Allen.
- Lewin, A.Y. and Minton, J.W. (1986), "Determining organizational effectiveness: another look, and an agenda for research," *Management Science*, 32(5), 514–38.
- Little, R. & Rubin, D. (1987), *Statistical Analysis with Missing Data*. New York: John Wiley & Sons.
- Little, T. D., Bovaird, J. A., & Widaman, K. F. (2006), "On the merits of orthogonalizing powered and product terms: Implications for modeling latent variable interactions," *Structural Equation Modeling*, 13, 479-519.
- Mahadevan, B. (2000), "Business models for Internet based E Commerce: An anatomy" *California Management Review*, 42 (4), 55 – 69.
- Mahadevan, B. (2003), "Making Sense of Emerging Market Structures in B2B E-Commerce" *California Management Review*, (46), 1, 86-100.
- Malone T.W, Yates J. and Benjamin R.I. (1987), "Electronic markets and electronic hierarchies," *Communications of the ACM*, 30, 484 – 97.
- March, J.G. and Sutton, R.I. (1997), "Organizational performance as a dependent variable," *Organization Science*, 8(6), 698–706.
- Mardia, K. V. (1970), "Measures of multivariate skewness and kurtosis with application," *Biometrika*, 57, 519-30.
- Markus, M. L. (2000), "A Paradigm Shift in E-business/Systems Integration," *Communications of the AIS*, 4 (10).
- Masson, D.J. (2001), Web-Based EDI and Electronic Commerce Workshop, EC2001 Conference San Francisco CA, Jan. 2001, Session: SU02.
- Mehran, H. (1995), "Executive compensation structure, ownership and firm performance," *Journal of Financial Economics*, 38 (2), 163-84.
- Min, H. and Galle, W. P. (1999), "Electronic Commerce Usage in Business-to-Business Purchasing," *International Journal of Operations & Production Management* 19, 909–21.

- Mirchandani, A.A., and Motwani, J. (2001), "Understanding Small Business Electronic Commerce Adoption: An Empirical Analysis," *Journal of Computer Information Systems*, Spring 2001, 70-73.
- Mohr, J. and J. R. Nevin (1990), "Communication Strategies in Marketing Channels," *Journal of Marketing*, 54 (4), 36-51.
- Mohr J., Sengupta S. and Slater S. (2004), *Marketing of High-Technology Products and Innovations*, Upper Saddle River: Prentice Hall.
- Mohammed, R.A., Fisher, R.J., Jaworski, B. and Paddison, G. (2004), *Internet Marketing Building Advantage in a Networked Economy*, 2nd ed., New York: Irwin-McGraw-Hill.
- Noordewier, T. G., and John, G., (1990), "Performance outcomes of purchasing arrangements in industrial buyer-vendor relationships," *Journal of Marketing*, 54(1), 80-93.
- Oliver, R.L. (1980), "A cognitive model of the antecedents and consequences of satisfaction decisions," *Journal of Marketing Research* (17), 460-9.
- O'Rourke, T. (2003), "Methodological techniques for dealing with missing data," *American Journal of Health Studies*, Spring/Summer 2003.
- Page, Thomas J., Jr. and Spreng, R.A. (2002), "Difference Scores versus Direct Effects in Service Quality Measurement," *Journal of Service Research*, 4(3), 184-92.
- Pampel, F. C. (2000), *Logistic regression: A primer*. Thousand Oaks, CA: Sage.
- Philips J. and Meeker, M. (2000), "The B2B Internet report: Collaborative commerce," April 2000, <http://www.morganstanley.com/institutional/techresearch/pdfs/b2bp1a.pdf>.
- Piercy, N.F. (1997), *Market-led Strategic Change*, 2nd edn. Oxford: Butterworth-Heinemann.
- Piercy, N.F. (1998), "Marketing implementation: the implications of marketing paradigm weakness for the strategy execution process," *Journal of the Academy of Marketing Science* 26(3), 222-36.
- Porter, M.E. (1981), "The contribution of industrial organization to strategic management," *Academy of Management Review*, 6(4), 609-20.
- Quinn, D. P. and Jones, T. M. (1995), "An agent morality view of business policy," *Academy of Management Review*, 20(1), 22-42.

Rand Corporation (2006) "Literature Review of Response Rates" Monographs, www.rand.org/pubs/monograph_reports/MR1480/MR1480.appa.pdf
http://www.rand.org/pubs/monograph_reports/MR1480/MR1480.appa.pdf

Rask, M. and Kragh, H. (2004), "Motives for e-marketplace Participation: Differences and Similarities between Buyers and Suppliers," *Electronic Markets*, 14(4), 270 – 83.

Reve, T. and Stern, L.W. (1986), "The Relationship between Interorganizational Form, Transaction Climate, and Economic Performance," In *Vertical Interfirm Dyads*. Oxford :Butterworth-Heinemann.

Saeed, P. (2003), "Technological Change and Institutions: A Case Study," Research Memoranda 036, Maastricht : MERIT, Maastricht Economic Research Institute on Innovation and Technology.

Schneider, G. (2003), *Electronic Commerce, Fourth Edition*, Boston, MA: Thomson Course Technology.

Scott's Info.com (2007), Business Directory
<http://www.scottsinfo.com/scottshome/default.aspx>

Sills, S.J., and Song, C. 2002. "Innovations in Survey Research: An Application of Web Surveys," *Social Science Computer Review*, 20.22–30.

Simon, H.A. (1976), *Administrative Behaviour* (3rd ed.), New York, NY: The Free Press.

Smith, A. (1776), *The Wealth of Nations*, London: Strahan and Cabell.

Soh, C., and Markus, L.M.(2002), "B2B Marketplaces–Interconnection Effects, Strategic Positioning, and Performance," *Systèmes d'Information et Management*, 1 (7 Mars), 77-103.

Strategis Website, Government of Canada, strategis.ic.gc.ca/engdoc/main.html

Steenkamp, J, Benedict E. M., and van Trijp, H.C.M. (1991), "The use of LISREL in validating marketing constructs," *International Journal of Research in Marketing*, 8 (4), 283-99.

Stevens, J. (2002), *Applied multivariate statistics for the social sciences*, Mahwah, NJ: Lawrence Erlbaum Assoc Inc.

Stulz, R. (1990), "Managerial discretion and optimal financing policies," *Journal of Financial Economics*, 26 (1), 3-27.

Swatman P.M.C. and Swatman P.A. (1991), "Electronic Data Interchange: Organisational Opportunity - Not Technical Problem," In B. Srinivasan and J. Zeleznikow (Eds.), *Databases in the 1990's: 2*, Singapore, World Scientific Press, pp. 354-74.

Thomas, R. (2006), Course Notes, Structural Equation Methods (PhD Seminar), Sprott School of Business. Carleton University, Ottawa, Canada.

Thomas R, Lu, I. and Cedzynski, M. (2005). "Partial Least Squares: A Critical Review and a Potential Alternative", Proceedings of the Administrative Studies Association of Canada, Toronto, Ontario. May 2005.

Thorelli, H. B. (1986), "Networks: Between Market and Hierarchies," *Strategic Management Journal*, 7 (January-February), 37-51.

Thuong T., Le, S. Subba, R. and Truong, T.T. (2004), "Industry-Sponsored Marketplaces Electronic Marketplaces," *Electronic Marketplaces*, 14 (4), 295-307.

Torkzadeh, G. & Dhillon, G. (2002), "Measuring Factors that Influence the Success of Internet Commerce," *Information Systems Research*, 13 (2), 187-204.

Tse, D.K. and Wilton P. (1988), "Models of consumer satisfaction formation: An extension," *Journal of Marketing Research*, 25 (2), 204-12.

Tung, R.L. (2002), "Building effective networks," *Journal of Management Inquiry* 2 (11), 94-101.

Ullman, J. B. (2001), Structural equation modeling. In Tabachnick, B.G., & Fidell, L.S. *Using Multivariate Statistics* (4th ed.): 653- 771. Needham Heights: Allyn & Bacon

Venkatraman, N., and Camillus, J.C. (1984), "Exploring the concept of "fit" in strategic management," *Academy of Management. The Academy of Management Review*, 9(3), 513-21.

Venkatraman, N. and Ramanujam, V. (1986), "Measurement of business performance in strategy research: a comparison of approaches," *Academy of Management Review*, 11(4), 801-14.

Vlosky, R. (2006), "eBusiness in the Forest Products Industry Opportunities and Realities," *Forestry On The Grow Conference and Expo*, Baton Rouge, Louisiana USA, May 3, 2006.

Walker, O.C. and Ruekert, R.W. (1987), "Marketing's role in the implementation of business strategies: a critical review and conceptual framework," *Journal of Marketing*, 51 (1), 15-33.

- Wang, S. and Archer, N. (2004), "Supporting Collaboration in Business-to-Business Electronic Marketplaces," *Information Systems and e-Business Management*, 2(2&3) 271-88.
- Wang, S. Archer, N. and Zheng, C. (2005), "The Impact of Internet-Based Electronic Marketplaces on Buyer-Supplier Relationships," *Journal of Internet Commerce*, 4 (3), 41-68.
- Wang, S. and Archer, Norm (2007), "An Exploratory Study of Electronic Marketplace Adoption: A Multiple Perspective View," *Electronic Markets*, 16(4), 546-67.
- Webster, J. (1995), "Networks of collaboration or conflict? Electronic data interchange and power in the supply chain," *Journal of Strategic Information Systems*, 4(1), 32-42.
- Williamson, O. E. (1975), *Market and Hierarchies: Analysis and Antitrust Implication*, New York: The Free Press.
- Williamson, O. E. (1985), *The Economic Institutions Of Capitalism: Firms, Markets, Relational Contracting*. New York: Free Press.
- Winklhofer, H. and Diamantopoulos, A. (2002), "Managerial Evaluation of Sales Forecasting Effectiveness: A MIMIC Modelling Approach," *International Journal of Research in Marketing*, 19 (2), 151-66.
- Yi, Y. (1990), A critical review of consumer satisfaction. In V.A. Zeithaml (ed.) *Review of Marketing 1990*. Chicago: American Marketing Association, 68-123.
- Zank G.M., Vokurka, R.J., (2003), "The Internet: Motivations Deterrents and Impact on Supply Chain Relationships," *SAM Advanced Management Journal*, 68(2), 33-40.
- Zeithaml, C.P. and Zeithaml, V.A. (1984), "Environmental management: revising the marketing perspective," *Journal of Marketing*, 48, 46-53.
- Zhu, K. (2004), "Information Transparency of Business-to-Business Electronic Markets: A Game-Theoretic Analysis," *Management Science*, 50(5), 670-85.
- Zsidisin. G.A (2003), "A Grounded Definition of Supply Risk," *Journal of Purchasing and Supply Management* 9 (5/6), 217-24.

Appendix 1- The Survey

It is estimated by the end of 2005, electronic (online) marketplaces may have accounted for more than 50% of all online B2B ecommerce, perhaps over 4 trillion USD volume worldwide (Zank and Vokurka 2003) and that over 50% of Business to Business firms in North America are participating in electronic marketplaces. These marketplaces vary from forward and reverse auctions to online exchanges and portals to industry sponsored consortia as well as many other variations. Yet we still know very little about the drivers that create satisfying electronic marketplace programs for marketers!

You have a unique opportunity to participate in a survey project designed to provide both you as a respondent, and the business research community in the general, with important new insights into how satisfying participation in electronic marketplaces is achieved.

In gratitude for your participation you will receive an exclusive and comprehensive executive summary in PDF format of this unique study when the results are analyzed, incorporating the responses of roughly 500 Business to Business marketers participating in electronic marketplaces across Canada. This report will address a number of important issues such as:

- How marketers set performance expectations for participation in electronic marketplaces
- What types of electronic marketplaces are most satisfying based on industry, firm and product characteristics
- What are the key drivers that lead to satisfying participation in electronic marketplaces

You are therefore asked to participate in a questionnaire administered by Peter Knight, a PHD Candidate, at the Sprott School of Business, Carleton University. You were selected as a possible participant in this research because you work in a marketing function for your firm.

If you volunteer to participate in this study, we would ask that you answer 80 multiple-choice questions presented in an online survey. You will be allowed to review all subsequent documents produced as a result of this survey. Respondents would have the opportunity to withdraw or amend information they have provided. The nature of the questions is not personal or confidential and should pose no risks or discomfort to you. In addition, the survey can be completed at any time online and should cause you no inconvenience.

Any information that is obtained in connection with this study is not considered personal or confidential, your name or the fact that you participated will not be disclosed and responses will be aggregated.

You can choose whether to complete this survey or not. If you volunteer to complete this survey, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still complete the survey. If you have any questions or concerns about the research, please feel free to contact:

Research Lead:

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Survey distributed online

1. Have you been involved in your firm's participation in a new Business-to-Business electronic marketplace within the last 36 months? This would include any new to the firm marketing initiative that utilized internet technology to facilitate transactions with business customers other than a corporate website. This WOULD also include establishment or significant expansion of a corporate extranet to your buyers.

Yes No

2. How long ago in months did you finalize your most recent participation?

Section 1

Information about your participation in electronic marketplaces

3. Annual Sales Volume of your Company

Under 1 million 1 million-5 Million 6-100 million 101-300 million 301-1 billion
over 1 billion

Number of Employees

Under 25 26-100 101-500 501-1000 1001-5000 5001-10,000 over 10,000

Number of Locations World Wide

1 2-5 6-10 11-25 26-50 51-100 over 100

4. Before this latest participation were you involved in implementing start up of participation in a Business to Business electronic marketplace?

Yes No

The next questions deal with the most recent electronic marketplace you have participated in.

5. Can anyone in your industry participate in this marketplace?

Yes No

6. Is the marketplace SOLELY operated by your company as a part of your extranet?

Yes No

7. Does the market place solely use the web or does it use the web to link to your EDI system ?

Solely uses the web Uses web to link to EDI system

8. Is the electronic marketplace an auction ?

Yes No

9. Is it a forward auction, reverse auction or both?

Definitions:

Forward auction: A traditional auction where a seller offers a product. Bidding starts at an established price (could be zero) and increases until no higher successive prices are offered.

Reverse auction: The buyer enters into online price discussions with multiple qualified offerors, with lowest bidder at conclusion of the auction winning the contract. or both.

Forward auction Reverse auction Both

10. Is the marketplace operated by:

Buyers Sellers Buyers and Sellers co-operatively A third party who is not a producer in the industry

11. Is the electronic marketplace simply a catalogue listing of items for sale posted by sellers or does it offer other resources such as technologies to help reduce order cycle times, reducing costs, inventory holding requirements, promote uniformity in the industry purchasing process, improved procurement planning. (Choose the one answer below that fits best)

Simply a catalogue listing Offers other services as described in the question

12. Does the marketplace also offer industry forums, research information and market and product trends?

Yes No

13. Is the electronic marketplace also known to offer products for sale at a physical location?

Yes No

Section 3-Ratings of your electronic marketplace experience

These questions deal with your expectations for and satisfaction with participation in the electronic marketplace you responded to questions about in Section 2

14. How would you personally describe the performance of your participation in this electronic marketplace?

- 7. Excellent
- 6.
- 5.
- 4. Average
- 3.
- 2.
- 1. Extremely poor

15. How would you rate the performance of your participation in this electronic marketplace compared to other recent marketing initiatives?

7. Excellent
- 6.
- 5.
4. Average
- 3.
- 2.
1. Extremely poor

16. How would senior management (other than yourself) with knowledge of this initiative within your company describe the performance of your participation in this electronic marketplace?

7. Excellent
- 6.
- 5.
4. Average
- 3.
- 2.
1. Extremely poor

17. How would subordinates involved in the management of this electronic marketplace describe performance of this electronic marketplace?

7. Excellent
- 6.
- 5.
4. Average
- 3.
- 2.
1. Extremely poor

18. How personally satisfied have you been with the results of participation in this electronic marketplace?

7. Extremely Satisfied
- 6.
- 5.
4. Neither Satisfied or Dissatisfied
- 3.
- 2.
1. Extremely Dissatisfied

19. How would you describe your level of satisfaction with participation this electronic marketplace compared to other recent marketing initiatives?

- 7. Extremely Satisfied
- 6.
- 5.
- 4. Neither Satisfied or Dissatisfied
- 3.
- 2.
- 1. Extremely Dissatisfied

20. How would senior management within your company (other than yourself) with knowledge of this initiative describe their satisfaction your participation in this electronic marketplace

- 7. Extremely Satisfied
- 6.
- 5.
- 4. Neither Satisfied or Dissatisfied
- 3.
- 2.
- 1. Extremely Dissatisfied

21. How do you think subordinates involved in the management of this electronic marketplace describe their satisfaction with their participation in this electronic marketplace?

- 7. Extremely Satisfied
- 6.
- 5.
- 4. Neither Satisfied or Dissatisfied
- 3.
- 2.
- 1. Extremely Dissatisfied

22. Would you say that the results from participating in this electronic marketplace were better or worse than you expected when you first decided to participate in the market?

- 7. Much better than expected
- 6.
- 5.
- 4 As expected
- 3.
- 2
- 1 Much worse than expected

23. Would you say that the results from participating in this electronic marketplace results for the period were better or worse than any formal marketing plan led you to expect at the beginning of the period?

7. Much better than expected
- 6.
- 5.
- 4 As expected
- 3.
- 2.
1. Much worse than expected

24. Would you say that the results from participating in this electronic marketplace were better or worse than expected by senior management with knowledge of this initiative?

7. Much better than expected
- 6.
- 5.
4. As expected
- 3.
- 2.
1. Much worse than expected

25. Would you say that the results from participating in this electronic marketplace were better or worse than expected by subordinates with knowledge of this initiative?

7. Much better than expected
- 6.
- 5.
4. As expected
- 3.
- 2.
1. Much worse than expected

26. How clearly defined in terms of your marketing plan were the stated objectives for participation in this electronic marketplace? Compare to a typical marketing initiative for you

- 1.Highly defined
- 2.
- 3.
4. Typical
- 5.
- 6.
7. Highly undefined

27. How clearly defined were your internal or personal objectives for participation in this electronic marketplace? Compare to a typical marketing initiative for you.

1. Highly defined
- 2.
- 3.
4. Typical
- 5.
- 6.
7. Highly undefined

28. How detailed in terms of your marketing plan were the stated objectives for participation in this electronic marketplace? Compare to a typical marketing initiative

1. Very detailed
- 2.
- 3.
4. Typical
- 5.
- 6.
7. Very much lacking in detail

29. How detailed were your personal objectives for participation in this electronic marketplace? Compare to a typical marketing initiative.

1. Very detailed
- 2.
- 3.
4. Typical
- 5.
- 6.
7. Very much lacking in detail

30. Would you say that participation in this electronic marketplace required a great deal of managerial 'exception handling' and special intervention or was it routine, where many of the firm's established marketing procedures and systems operated normally?

Please compare to what you think is 'normal' for your organization

1. Much more interventional than normal
- 2.
- 3.
4. As normal
- 5.
- 6.
7. Much less intervention than normal

31. Now compare yourself to what you think might be found at your best existing competitor.

1. Much more intervention than normal
- 2.
- 3.
4. Average
- 5.
- 6.
7. Much less intervention than normal

32. How much skill did the marketing managers responsible for this electronic marketplace have to exercise to implement it? Please compare yourself to what you think is 'normal' for your organization.

1. Much more skill than normal
- 2.
- 3.
4. Average
- 5.
- 6.
7. Much less skill than normal

33. Now compare yourself to what you think might be found at your best existing competitor

1. Much more skill than normal
- 2.
- 3.
4. Average
- 5.
- 6.
7. Much less skill than normal

34. In regard to the competition's response to your participation in this electronic marketplace what would you say was the impact of the competition's responses?

1. High negative impact
- 2.
- 3.
4. Neither negative or positive
- 5.
- 6.
7. High positive impact

35. In regard to the competition's response to your participation in this electronic marketplace what would you say was the speed of the competition's response has been?

1. Much faster than normal
- 2.
- 3.
4. Average
- 5.
- 6.
7. Much slower than normal

36. In regard to the competition's response to your participation in this electronic marketplace how direct would you say was the competition's response was to your participation? i.e. did they engage in a very similar program?

1. Much more direct than normal
- 2.
- 3.
4. Average
- 5.
- 6.
7. Much less direct than normal

37. In regard to the competition's response to your participation in this electronic marketplace what would you say was the impact on your customers? Compare to what might be considered normal

1. Very Strong
- 2.
- 3.
4. Normal
- 5.
- 6.
7. Very weak

38. Regarding feedback from outside partners (distributors, suppliers and service firms) regarding your participation in this electronic marketplace what would you say?

1. They were much more positive than for a normal marketing initiative
- 2
- 3
4. They were neither positive nor negative
- 5
- 6
7. They were much more negative than for a normal marketing initiative

39. Regarding how outside partners (distributors, suppliers and service firms) actions supported your participation in this electronic marketplace, what would you say?

1. Much greater support than a normal marketing initiative
- 2
- 3
4. Support would be as normal
- 5
- 6
7. Much less support than a normal marketing initiative

40. Regarding how quickly outside partners (distributors, suppliers and service firms) reacted to your participation in this electronic marketplace, what would you say?

1. Reacted much more quickly than for a normal marketing initiative
- 2
- 3
4. About as quickly as normal
- 5
- 6
7. Reacted much less quickly than for a normal marketing initiative

41. Regarding how much investment outside partners (distributors, suppliers and service firms) made related to your participation in this electronic marketplace, what would you say?

1. More than normal
- 2
- 3
4. About as normal
- 5
- 6
7. Less than normal

42. How much have changes in the external environment (market trends, new internet technologies and markets and regulatory issues both domestic and international) hurt your participation in this electronic marketplace during the period since you first participated in this electronic marketplace?

1. Hurt a great deal
- 2
- 3
4. Hurt moderately
- 5
- 6.
7. Did not hurt at all

43. How do you expect changes in the external environment (market trends, new internet technologies and markets and regulatory issues both domestic and international) will hurt your participation in this electronic marketplace in the **next two years**?

1. Hurt a great deal
- 2
- 3
4. Hurt moderately
- 5,
- 6.
7. Did not hurt at all

44. Compared to what you think might typical for a business to business market would you consider your environment (market trends, new internet technologies and markets and regulatory issues both domestic and international) to be stable one?

1. Very unstable
- 2
- 3
4. Moderate
- 5
- 6.
7. Very stable

45. Compared to what you think might be typical for a business to business market would you consider your environment market trends, new internet technologies and markets and regulatory issues both domestic and international) to be stable one in the next two years?

- 1 Very unstable
- 2
- 3
- 4 Moderate
- 5
- 6.
7. Very stable

46. To top management of your organization, how high a priority was successful execution of participation in this electronic marketplace?

1. Very high priority
- 2.
- 3.
4. Average priority
- 5.
- 6.
7. Very low priority

47. To top management of your organization, under how visible was successful execution of participation in this electronic marketplace?

1. Very visible
- 2.
- 3.
4. Average priority
- 5.
- 6.
7. Not very visible

48. To top management of your organization, under how much scrutiny was successful execution of participation in this electronic marketplace?

1. Under a lot of scrutiny
- 2.
- 3.
4. Average priority
- 5.
- 6.
7. Not under very much scrutiny

49. How much pressure did you receive from top management to make participation in this electronic marketplace a success?

1. A great deal of pressure
- 2.
- 3.
4. Average
- 5.
- 6.
7. Very little pressure

50. How strongly did your organization's standard marketing procedures and systems support participation this electronic marketplace?

1. Very strongly
- 2.
- 3.
4. Average
- 5.
- 6.
7. Very weakly

51. How much did you have to change your organization's standard marketing procedures and systems to support participation this electronic marketplace?

1. A great deal
- 2.
- 3.
4. Somewhat
- 5.
- 6.
7. Not at all

52. How good a fit with your organization's standard marketing procedures and systems do you think participation this electronic marketplace was?

1. An excellent fit
- 2.
- 3.
4. Average fit
- 5.
- 6.
7. A very poor fit

53. How good a fit with your organization's planned standard marketing procedures and systems in the **next two years** do you think participation this electronic marketplace will be?

1. An excellent fit
- 2.
- 3.
4. Average fit
- 5.
- 6.
7. A very poor fit

54. How much do supply chain norms restrict your ability to utilize distribution channels that you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.

1. To a much greater degree that I think would be typical of a business to business market
- 2.
- 3.
4. To about the same degree that I think would be typical of a business to business market
- 5.
- 6.
7. To a much lesser degree than I think would be typical of a business to business market

55. How much do supply chain contractual obligations restrict your ability to utilize distribution channels that you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.

1. To a much greater degree that I think would be typical of a business to business market
- 2.
- 3.
4. To about the same degree that I think would be typical of a business to business market
- 5.
- 6.
7. To a much lesser degree than I think would be typical of a business to business market

56. How much does the depth of your vertical market restrict your ability to utilize distribution channels that you think may be more favourable for your marketing

activities? Compare this to what you think might be average for a business to business market.

1. To a much greater degree that I think would be typical of a business to business market

2.

3.

4. To about the same degree that I think would be typical of a business to business market

5.

6.

7. To a much lesser degree than I think would be typical of a business to business market

57. How much do supply chain technologies or platforms (i.e. EDI supply chain software) restrict your ability to utilize distribution channels that you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.

1. To a much greater degree that I think would be typical of a business to business market

2.

3.

4. To about the same degree that I think would be typical of a business to business market

5.

6.

7. To a much lesser degree than I think would be typical of a business to business market

58. How much power do you think your buyers are able to exert over your choice of marketing activities. Compare this to what you think might be average for a business to business market.

1. Much more power than average

2.

3.

4. Average

5.

6.

7. Much less power than average

59. How much does the power of buyers restrict your ability to utilize distribution channels that may be favourable to your marketing activities. Compare this to what you think might be average for a business to business market.

1. Restricts much more than average
- 2.
- 3.
4. Average
- 5.
- 6.
7. Restricts much less than average

60. How much does the threat of sanction or penalty by buyers affect your choice of distribution channels. Compare this to what you think might be average for a business to business market.

1. Effects much more than average
- 2.
- 3.
4. Average
- 5.
- 6.
7. Affects much less than average

61. How much power do you think your buyers will be able to exert over your choice of marketing activities over the **next two years**? Compare this to what you think might be average for a business to business market.

1. Much more power than average
- 2.
- 3.
4. Average
- 5.
- 6.
7. Much less power than average

62. In general how good a fit do you think this electronic marketplace is with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, ability to provide a competitive advantage)?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

63. In general how good a fit do you think this electronic marketplace will be with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, and ability to provide a competitive advantage) over the next two years?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

64. In general how good a fit do you think others within the company think this electronic marketplace is with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, ability to provide a competitive advantage)?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

65. In general how good a fit do you think others within the company think this electronic marketplace will be with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, and ability to provide a competitive advantage) over the next two years?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

66. In general how good a fit do you think this electronic marketplace is with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

67. In general how good a fit do you think this electronic marketplace will provide over the next 2 years with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

68. In general how good a fit do you think others within the company think this electronic marketplace is with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

69. In general how good a fit do you think others within the company think this electronic marketplace will provide over the next 2 years with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?

1. A very poor fit
- 2.
- 3.
4. A fair fit
- 5.
- 6.
7. A very good fit

Section 4

Your market and products

70. Roughly how many firms would you consider to be competitors through all methods of distribution for the products or services you currently offer in these electronic marketplaces?

1-4, 5-20, 21-50, 51-200, OVER 200

71. How would you best characterize geographically where the largest % of sellers in your market is located

Locally Regionally Within North America Outside North America

72. Roughly how many firms would you consider to be buyers through all methods of distribution for the products or services you offered in these electronic marketplaces?

1-4, 5-20, 21-50, 51-200, OVER 200

73. How would you best characterize geographically where the largest % of buyers in your market is located

Locally Regionally Within North America Globally

74. To do business on an ongoing basis with typical buyers of your products or services (those sold in the electronic marketplace, but consider all distribution channels not just the electronic marketplace) to what degree do you think that you have to specialize or customize for each customer. Compare yourself to what you think might be average in all business to business markets.

a) We have to customize products or services sold to each customer

1. To a much greater degree that I think would be typical of a business to business market

2.

3.

4. To about the same degree that I think would be typical of a business to business market

5.

6.

7. To a much lesser degree than I think would be typical of a business to business market

b) We have to develop employee skills specific to each customer

1. To a much greater degree that I think would be typical of a business to business market

2.

3.

4. To about the same degree that I think would be typical of a business to business market

5.

6.

7. To a much lesser degree than I think would be typical of a business to business market

c) We have to develop internal business processes (ie.billing, warehousing, and delivery) specific to each customer

1. To a much greater degree that I think would be typical of a business to business market

2.

3.

4. To about the same degree that I think would be typical of a business to business market

5.

6.

7. To a much lesser degree than I think would be typical of a business to business market

d) We have to develop IT and data exchange processes specific to each customer

1. To a much greater degree that I think would be typical of a business to business market

2.

3.

4. To about the same degree that I think would be typical of a business to business market

5.

6.

7. To a much lesser degree than I think would be typical of a business to business market

75. Again considering all your distribution channels do you believe that it is difficult for buyers to assess the value of your products and services relative to the price listed?

1. Much more difficult than I think would be typical of a business to business market

2.

3.

4. About as difficult as would be typical of a business to business market

5.

6.

7. Much less difficult than I think would be typical of a business to business market

76. Again considering all your distribution channels for the products and services you sell in the electronic marketplace do price fluctuate greatly

1. Fluctuate much less compared to what I think would be typical of a business to business market

2.

3.

4. Fluctuate about as dynamic as would be typical of a business to business market

- 5.
- 6.
7. Fluctuate much more compared to what I think would be typical of a business to business market

77. Again considering all your distribution channels for the products and services you sell in the electronic marketplace are there strong industry pricing norms?

1. Very strong compared to what I think would be typical of a business to business market

2.

3.

4. About as strong as would be typical of a business to business market

5.

6.

7. Much less strong compared to what I think would be typical of a business to business market

78. Again considering all your distribution channels how complex do you think the descriptions are for products or services that you are selling in this electronic marketplace?

1. Much more complex than I think would be typical of a business to business market

2.

3.

4. About as complex as would be typical of a business to business market

5.

6.

7. Much less complex than I think would be typical of a business to business market

79. Again considering all your distribution channels how detailed do you think the descriptions are for products or services that you are selling in this electronic marketplace?

1. Much more detailed than I think would be typical of a business to business market

2.

3.

4. About as detailed as would be typical of a business to business market

5.

6.

7. Much less detailed than I think would be typical of a business to business market

80. Again considering all your distribution channels how technical do you think the descriptions are for products or services that you are selling in this electronic marketplace?

1. Much more technical than I think would be typical of a business to business market
- 2.
- 3.
4. About as technical as would be typical of a business to business market
- 5.
- 6.
7. Much less technical than I think would be typical of a business to business market

Appendix 2
Summary of Survey Questions and Constructs

Variable (number of indicators)	Scale	Data Type	Type of Variable	Comments
Q1. Have you been involved in your firm's participation in a new Business to Business electronic marketplace within the last 36 months? This would include any new to the firm marketing initiative that utilized internet technology to facilitate transactions with business customers other than a corporate website. This WOULD also include establishment or significant expansion of a corporate extranet to your buyers	Dichotomous	Nominal	Screening	Recall beyond 3 years may be unreliable.
Q2. Did you finalize your most recent participation in an electronic marketplace within the last 3 months?	Dichotomous	Nominal	Screening	IF THE RESPONSE IS 3 MONTHS OR LESS THE SURVEY WILL BE TERMINATED AS THE RESPONDENT WOULD LIKELY NOT BE TO FORM PERFORMANCE JUDGMENT YET.
Company Size(1) Q3-Annual Sales Volume of your Company?	Categorical	Nominal	Observed	Per AMA website assuming similar distribution of responses. Dollar volume more relevant than employees today
Prior Experience(1) Q4 -Before this latest participation were you involved in implementing start up of participation in a Business to Business electronic marketplace?	Dichotomous	Nominal	Observed	
Marketplace Type (9) 5.Can anyone in your industry participate in this marketplace? NO SKIP TO 6 YES SKIP TO 8 6.Is the marketplace SOLELY operated by your company as a part of your extranet? Yes No SKIP TO 7	Categorical	Nominal	Observed and Moderating	Per Mahadevan's classification-made descriptions as simple and discrete as possible Private Marketplace?

<p>7. Does the market place solely use the web to does it use the web to link to your EDI system ?</p> <p>Web only EDI SKIP TO 14</p> <p>8.Is it an auction format?</p> <p>Yes SKIP TO 9 No SKIP TO 10</p> <p>9. Is it a forward auction, reverse auction or both?</p> <p>forward auction reverse auction both ALL SKIP TO 14</p> <p>10.Is the marketplace operated by:</p> <ul style="list-style-type: none"> -Buyers -Sellers -Buyers and Sellers co-operatively (ALL SKIP TO 14) -Third party who is not a producer in the industry (SKIP TO 11) <p>11.Is the electronic marketplace simply a catalogue listing of items for sale posted by sellers or does it offer extensive other resources such as technologies to help reduce order cycle times, reducing costs, inventory holding requirements, promote uniformity in the industry purchasing process, improved procurement planning</p> <p>Catalogue only (SKIP TO 13) Other Services as above (SKIP TO 12)</p> <p>12 Does the marketplace also offer industry forums, research information and market and product trends?</p> <p>Yes No (SKIP TO 14)</p>	<p>Multiple Choice-</p>			<p>Yes classifies as extranet</p> <p>Web =TPN, EDI= Web EDI</p> <p>Auction</p> <p>Forward auction Reverse auction or Neutral auction</p> <p>Buyers: Private Network Buyer Centric Sellers: Private Network Seller Centric Buyers and Sellers co-operatively: Consortia, Third party who is not a producer in the industry Skip to 12</p>
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<p>13. Is the electronic marketplace also known to offer products for sale at a physical location?</p> <p>Yes No</p>				<p>YES= Online Community NO= Online Exchange</p>
<p>Performance (4) Q14. How would you personally describe the performance of your participation in this electronic marketplace?</p> <p>Q15. How would you describe the performance of your participation in this electronic marketplace compared to other recent marketing initiatives?</p> <p>Q16. How would senior management (other than yourself) with knowledge of this initiative within your company describe the performance of your participation in this electronic marketplace?</p> <p>Q17. How would subordinates involved in the management of this electronic marketplace describe performance of this electronic marketplace?</p>	7 Point Likert	Interval	Observed	14 and 15 are Clarks (2000) performance measures. 16 and 17 newly constructed
<p>Satisfaction (4) Q18. How personally satisfied have you been with the results of participation in this electronic marketplace?</p> <p>Q19. How would you describe your level of satisfaction with participation this electronic marketplace compared to other recent marketing initiatives?</p> <p>Q20. How would senior management within your company (other than yourself) with knowledge of this initiative describe their satisfaction your participation in this electronic marketplace</p>	7 Point Likert	Interval	Observed	18 is Clarks (2000) satisfaction measure The other 3 are newly constructed

<p>Q 21 How do you think subordinates involved in the management of this electronic marketplace describe their satisfaction with their participation in this electronic marketplace?</p>				
<p>Effectiveness (4) Q 22. Would you say that the results from participating in this electronic marketplace were better or worse than you expected when you first decided to participate in the market?</p> <p>Q 23. Would you say that the results from participating in this electronic marketplace results for the period were better or worse than any formal marketing plan led you to expect at the beginning of the period?</p> <p>Q 24. Would you say that the results from participating in this electronic marketplace were better or worse than expected by senior management with knowledge of this initiative?</p> <p>Q 25 Would you say that the results from participating in this electronic marketplace were better or worse than expected by subordinates with knowledge of this initiative</p>	<p>7 Point Likert</p>	<p>Interval</p>	<p>Observed and Mediating</p>	<p>22 and 23 are Clarks (2000) effectiveness measures. 2 are newly constructed</p>
<p>Depth and Specificity of Expectations (4) Q26. How clearly defined in terms of your marketing plan were the stated objectives for participation in this electronic marketplace? Compare to a typical marketing initiative for you</p> <p>Q27 How clearly defined were your internal or personal objectives for participation in this electronic marketplace? Compare to a typical marketing initiative for you</p>	<p>7 Point Likert</p>	<p>Interval</p>	<p>Observed</p>	<p>Newly constructed per Mahadevan's (2003) Schneider (2003) and Masson's (2001) definitions</p>

<p>Q.28 How detailed in terms of your marketing plan were the stated objectives for participation in this electronic marketplace?</p> <p>Q29. How detailed were your internal or personal objectives for participation in this electronic marketplace? Compare to a typical marketing initiative.</p>				
<p>Management Effort (4)</p> <p>Q30. Would you say that participation in this electronic marketplace required a great deal of managerial 'exception handling' and special intervention or was it routine, where many of the firm's established marketing procedures and systems operated normally?</p> <p>Please compare to what you think is 'normal' for your organization</p> <p>Q31. Now compare yourself to what you think might be found at your best existing competitor.</p> <p>Q32. How much skill did the marketing managers responsible for this electronic marketplace have to exercise to implement it? Please compare yourself to what you think is 'normal' for your organization</p> <p>Q33. Now compare yourself to what you think might be found at your best existing competitor</p>	7 Point Likert	Interval	Observed	30 to 33 re Clarks validated effort measures
<p>Competition (4)</p> <p>Q34. In regard to the competition's response to your participation in this electronic marketplace what would you say was the strength of the competition's responses?</p>	7 Point Likert	Interval	Observed	34 re Clarks validated effort measure. 35-38 are newly constructed

<p>Q35. In regard to the competition's response to your participation in this electronic marketplace what would you say was the speed of the competition's response has been?</p> <p>Q36. In regard to the competition's response to your participation in this electronic marketplace how direct would you say was the competition's response was to your participation? i.e. did they engage in a very similar program</p> <p>Q37. In regard to the competition's response to your participation in this electronic marketplace what would you say was the impact on your customers? Compare to what might be considered normal</p>				
<p>Partner Favourability (4)</p> <p>Q38.Regarding feedback from outside partners (distributors, suppliers and service firms) regarding your participation in this electronic marketplace, what would you say?</p> <p>Q39. Regarding how strongly outside partners (distributors, suppliers and service firms) actions supported your participation in this electronic marketplace, what would you say?</p> <p>Q40.Regarding how quickly outside partners (distributors, suppliers and service firms) reacted to your participation in this electronic marketplace, what would you say?</p> <p>Q41 Regarding how much investment outside partners (distributors, suppliers and service firms) made related to your participation in this</p>	7 Point Likert	Interval	Observed	38 re Clarks (2000) effort measure. 28 and 29 are newly constructed

<p>electronic marketplace, what would you say?</p>				
<p>Environmental Favourability (4) Q42. How much have changes in the external environment (market trends, new internet technologies and markets and regulatory issues both domestic and international) hurt your participation in this electronic marketplace during the period since you first participated in this electronic marketplace?</p> <p>Q43. How do you expect changes in the external environment (market trends, new internet technologies and markets and regulatory issues both domestic and international) will hurt your participation in this electronic marketplace in the next two years?</p> <p>Q44. Compared to what you think might be typical for a business to business market would you consider your environment (market trends, new internet technologies and markets and regulatory issues both domestic and international) to be stable or volatile?</p> <p>Q45. Compared to what you think might be typical for a business to business market would you consider your environment market trends, new internet technologies and markets and regulatory issues both domestic and international) to be stable one in the next two years?</p>	<p>7 Point Likert</p>	<p>Interval</p>	<p>Observed</p>	<p>42 re Clarks validated environmental favourability measure. 43-45 are newly constructed</p>
<p>Management Priority (4) Q46. To top management of your organization, how high a priority was successful execution of</p>	<p>7 Point Likert</p>	<p>Interval</p>	<p>Observed</p>	<p>46 re Clarks (2000) management priority measure others are newly constructed</p>

<p>participation in this electronic marketplace?</p> <p>Q47.To top management of your organization, under how visible was successful execution of participation in this electronic marketplace?</p> <p>Q48.To top management of your organization, under how much scrutiny was successful execution of participation in this electronic marketplace?</p> <p>Q49. How much pressure did you receive from top management to make participation in this electronic marketplace a success?</p>				
<p>Structural Support (4)</p> <p>Q50.How strongly did your organization's standard marketing procedures and systems support participation this electronic marketplace?</p> <p>Q51. How much did you have to change your organization's standard marketing procedures and systems to support participation this electronic marketplace?</p> <p>Q52. How good a fit with your organization's standard marketing procedures and systems do you think participation this electronic marketplace was?</p> <p>Q53. How good a fit with your organization's planned standard marketing procedures and systems in the next two years do you think participation this electronic marketplace will be?</p>	7 Point Likert	Interval	Observed	50 re Clarks structural support measure. 51-53 are newly constructed
<p>Supply Chain Effects (4)</p> <p>Q54. How much do supply chain norms restrict your ability to utilize distribution channels that</p>	7 Point Likert	Interval	Observed	New Constructs per Christianaase and Markus (2003)

<p>you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.</p> <p>Q55.How much do supply chain contractual obligations restrict your ability to utilize distribution channels that you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.</p> <p>Q56.How much does the depth of your vertical market restrict your ability to utilize distribution channels that you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.</p> <p>Q57. How much do supply chain technologies or platforms (i.e. EDI supply chain software) restrict your ability to utilize distribution channels that you think may be more favourable for your marketing activities? Compare this to what you think might be average for a business to business market.</p>				
<p>Power Effects (4) Q58 How much power do you think your buyers are able to exert over your choice of marketing activities. Compare this to what you think might be average for a business to business market.</p> <p>Q59.How much does the power of buyers restrict your ability to utilize distribution channels that may be favourable to your marketing activities. Compare this to what you think might be average for a business to business market.</p>	7 Point Likert	Interval	Observed	New Constructs per Christianaase and Markus (2003)

<p>Q60. How much does the threat of sanction or penalty by buyers affect your choice of distribution channels. Compare this to what you think might be average for a business to business market.</p> <p>Q61 How much power do you think your buyers will be able to exert over your choice of marketing activities over the next two years. Compare this to what you think might be average for a business to business market.</p>				
<p>Adaptability (4)</p> <p>62. In general how good a fit do you think this electronic marketplace is with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, ability to provide a competitive advantage)?</p> <p>63. In general how good a fit do you think this electronic marketplace will be with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, and ability to provide a competitive advantage) over the next two years?</p> <p>64. In general how good a fit do you think others within the company think this electronic marketplace is with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, ability to provide a competitive advantage)?</p> <p>65. In general how good a fit do you think others within the</p>	7 Point Likert	Interval	Observed	<p>New Constructs. Clark(2000) classified this as formative. Need to make latent to examine other paths.</p>

<p>company think this electronic marketplace will be with your external environment (risk of buyer sanctions, support of partners, support of supply chain members, industry trends, and ability to provide a competitive advantage) over the next 2 years?</p>				
<p>Efficiency (4)</p> <p>66. In general how good a fit do you think this electronic marketplace is with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?</p> <p>67. In general how good a fit do you think this electronic marketplace will provide over the next 2 years with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?</p> <p>68. In general how good a fit do you think others within the company think this electronic marketplace is with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?</p> <p>69. In general how good a fit do you think others within the company think this electronic marketplace will provide over the next 2 years with your internal environment (management objectives, internal IT systems, policies and procedures, skills of employees)?</p>	7 Point Likert	Interval	Observed	New Constructs. Clark(2000) classified this as formative. Need to make latent to examine other paths.
	Categorical	Nominal	Observed	55 through 58 measure Market

<p>Market Fragmentation (4)</p> <p>Q70. Roughly how many firms would you consider to be competitors through all methods of distribution for the products or services you currently offer in these electronic marketplaces?</p> <p>Q71. How would you best characterize geographically where the largest % of sellers in your market is located</p> <p>Q72. Roughly how many firms would you consider to be buyers through all methods of distribution for the products or services you offered in these electronic marketplaces?</p> <p>Q73. How would you best characterize geographically where the largest % of buyers in your market is located</p>				<p>fragmentation per Mahadevan (2003). New constructs.</p>
<p>Asset Specificity (4)</p> <p>Q74 To do business on an ongoing basis with typical buyers of your products or services (those sold in the electronic marketplace, but consider all distribution channels) to what degree to do you think that you have to specialize or customize for each customer. Compare yourself to what you think might be average in all business to business markets.</p> <p>a. We have to customize products or services sold to each customer</p> <p>b. We have to develop employee skills specific to each customer</p> <p>c. We have to develop internal business processes (ie. billing, warehousing, delivery) specific to each customer</p> <p>d. We have to develop IT and data exchange processes specific to each customer</p>	<p>7 Point Likert</p>	<p>Interval</p>	<p>Observed</p>	<p>Asset specificity per Mahadevan (2003) Newly Constructs. Uses definition for asset specificity of Rask and Krogh (2004)</p>

<p>Value Assessment and Product Description (6) Q75. Again considering all your distribution channels do you believe that it is difficult for buyers to assess the value of your products and services relative to the price listed?</p> <p>Q76. Again considering all your distribution channels are prices dynamic and market driven as compared to there being very strong industry pricing norms.</p> <p>Q77. Again considering all your distribution channels for the products and services you sell in the electronic marketplace do price fluctuate greatly</p> <p>Q78 Again considering all your distribution channels how complex do you think the descriptions are for products or services that you are selling in this electronic marketplace?</p> <p>Q79 Again considering all your distribution channels how detailed do you think the descriptions are for products or services that you are selling in this electronic marketplace?</p> <p>Q80. Again considering all your distribution channels how technical do you think the descriptions are for products or services that you are selling in this electronic marketplace?</p>	7 Point Likert	Interval	Observed	Per Mahadevan's (2003) Value Assessment and Product Description.
Marketplace fit	Formative Indicators		Unobserved	Formative from 5 variables suggested by Mahadevan and markets actually chosen-

Appendix 3-Equality of Means Early and Late Respondents

Indicator	Levene's Equal Variance	Sig.	Inequality Means t	Sig. (2-tailed)
Size1	.584	.446	-1.650	.102
Size2	4.660	.033	-1.081	.282
Size3	2.507	.116	-1.289	.200
Satis1	.554	.458	.877	.382
Satis2	3.563	.062	1.304	.195
Satis3	2.242	.137	.235	.815
Satis4	1.034	.311	.342	.733
Perf1	.596	.442	.307	.760
Perf2	2.296	.132	1.059	.292
Perf3	3.040	.084	.734	.465
Perf4	.389	.534	.540	.590
Effect1	1.034	.311	.342	.733
Effect2	2.064	.153	.502	.617
Effect3	2.245	.137	.776	.439
Effect4	.260	.611	1.373	.172
Maneff1	.381	.538	-969	.334
Maneff2	.057	.811	-876	.383
Comp1	.149	.700	-849	.398
Comp2	.841	.361	-.051	.959
Comp3	1.107	.295	-1.184	.239
Partner1	.109	.742	-.482	.631
Partner2	.115	.735	-.183	.855
Partner3	.281	.597	.201	.841
Partner4	.445	.506	.181	.857
Environ1	.133	.716	.173	.863
Environ2	.846	.360	.123	.902
Environ3	.009	.923	.244	.808
Environ4	2.461	.119	.156	.876
Manpri1	2.368	.127	-1.312	.192
Manpri2	5.228	.024	-1.339	.183
Manpri3	.036	.850	-1.241	.217
Manpri4	2.007	.159	-1.740	.084
Struc1	.558	.457	.253	.801
Struc2	.570	.452	-.004	.997
Struc3	.043	.835	-.055	.956
Supp1	1.153	.285	.068	.946
Supp2	.002	.967	-.477	.634
Supp3	1.352	.247	-.988	.325
Supp4	.007	.934	.239	.812
Power1	.279	.598	.788	.432
Power2	1.875	.174	1.308	.193
Power3	.018	.893	-.299	.765
Power4	2.295	.132	-.529	.598
Adapt1	.041	.840	.104	.917
Adapt2	.016	.901	-.242	.810
Adapt3	1.953	.165	.385	.701
Adapt4	.830	.364	.793	.429
Effic1	.804	.372	-.070	.944
Effic2	2.283	.133	-.161	.873
Effic3	1.340	.249	-.062	.951
Effic4	.907	.343	.131	.896

Appendix 4-LISREL 8.7 Syntax Output

Confirmatory Factor Analysis-Table 12

```
Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
```

The Hypothesized Structural Model w/o Fit, and Prior Experience-Table 15

```
Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
satis=perf
perf=size effect
effect=adapt effic
adapt=part comp suppch power environ
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
```

```

set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram

End of Problem

```

LISREL 8.7 Syntax Model 1 Hypothesis 15

```

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
perf=size adapt effic
adapt=part comp suppch power environ
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free

```

```

set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram

End of Problem

```

LISREL 8.7 Syntax Model 2 Hypothesis 15

```

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
perf=size
effect=adapt effic
adapt=part comp suppch power environ
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free

```

```

set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram

```

LISREL 8.7 Syntax Model 3 Hypothesis 15

```

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
perf=size
effect=adapt effic
adapt=part comp suppch power environ

```

```

effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram

```

End of Problem

LISREL 8.7 Syntax Model 4 Hypothesis 15

```

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part

```

```

environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
perf=size
effect=adapt effic
adapt=part comp suppch power environ
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram

```

End of Problem

LISREL 8.7 Syntax-Table 13
Summary of Model Building-Test of Nomologically Valid Path Suggested by
Modification Indices
Satisfaction to Performance

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
satis=perf
perf=size effect satis
effect=adapt effic
adapt=part comp suppch power environ
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE

```

set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram End of Problem

```

Table 14
Summary of Model Trimming-Test of Path Deletions Suggested by Figure 15

1) Management Priority to Efficiency

```

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
environ1 environ2 environ3 environ4=environ
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
satis=perf
perf=size effect
effect=adapt effic
adapt=part comp suppch power environ
effic=struc maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free

```

```

set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
set the error covariance of environ1 and environ2 and environ3
and environ4 Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram End of Problem
2) Environmental Favourability to Adaptability

```

```

Raw Data from from File forlis1.psf
Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
satis=perf
perf=size effect
effect=adapt effic
adapt=part comp suppch power
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free

```

set the error covariance of manpri1 and manpri2 and manpri3 and manpri4 Free
 set the error covariance of strusup1 and strusup2 and strusup3 Free
 set the error covariance of perf1 and perf2 and perf3 and perf4 Free
 set the error covariance of satis1 and satis2 and satis3 and satis4 Free
 set the error covariance of size1 and size2 and size3 Free
 set the error covariance of effect1 and effect2 and effect3 and effect4 Free
 set the error covariance of comp1 comp2 comp3 FREE
 set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
 set the error covariance of power1 and power2 and power3 and power4 Free
 set the error covariance of supp1 and supp2 and supp3 and supp4 Free
 Lisrel Output ND=3 SC MI AD=OFF
 Path Diagram End of Problem

Table 16
Summary of Model Building-
Addition of Prior Experience to Performance Path

Latent Variables perf effic effect adapt size satis maneff manpri
 struc comp suppch part power environ
 Relationships
 satis1 satis2 satis3 satis4=satis
 perf1 perf2 perf3 perf4 = perf
 effic1 effic2 effic3 effic4 = effic
 effect1 effect2 effect3 effect4 = effect
 adapt1 adapt2 adapt3 adapt4 = adapt
 size1 size2 size3 = size
 maneff1 maneff2=maneff
 comp1 comp2 comp3=comp
 part1 part2 part3 part4=part
 manpri1 manpri2 manpri3 manpri4=manpri
 strusup1 strusup2 strusup3=struc
 supp1 supp2 supp3 supp4=suppch
 power1 power2 power3 power4=power
 satis=perf
 perf=size effect adapt
 effect=adapt effic
 adapt=part comp suppch power
 effic=struc manpri maneff

```

maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram End of Problem

```

Table 16
Summary of Model Building- Addition of Adaptability to Performance Path

```

Latent Variables perf effic effect adapt size satis maneff manpri
struc comp suppch part power environ
Relationships
satis1 satis2 satis3 satis4=satis
perf1 perf2 perf3 perf4 = perf
effic1 effic2 effic3 effic4 = effic
effect1 effect2 effect3 effect4 = effect
adapt1 adapt2 adapt3 adapt4 = adapt
size1 size2 size3 = size
maneff1 maneff2=maneff
comp1 comp2 comp3=comp
part1 part2 part3 part4=part
manpri1 manpri2 manpri3 manpri4=manpri
strusup1 strusup2 strusup3=struc
supp1 supp2 supp3 supp4=suppch
power1 power2 power3 power4=power
satis=perf
perf=size effect adapt

```

```
effect=adapt effic
adapt=part comp suppch power
effic=struc manpri maneff
maneff=struc manpri
set the error covariance of effic1 and effic2 and effic3 and
effic4 Free
set the error covariance of manpri1 and manpri2 and manpri3 and
manpri4 Free
set the error covariance of strusup1 and strusup2 and strusup3
Free
set the error covariance of perf1 and perf2 and perf3 and perf4
Free
set the error covariance of satis1 and satis2 and satis3 and
satis4 Free
set the error covariance of size1 and size2 and size3 Free
set the error covariance of effect1 and effect2 and effect3 and
effect4 Free
set the error covariance of comp1 comp2 comp3 FREE
set the error covariance of adapt1 adapt2 adapt3 adapt4 FREE
set the error covariance of power1 and power2 and power3 and
power4 Free
set the error covariance of supp1 and supp2 and supp3 and supp4
Free
Lisrel Output ND=3 SC MI AD=OFF
Path Diagram
```

End of Problem

Appendix 5
Covariance Matrix for LISREL 8.7 Printout-Measurement Model

size1	size2	size3	perf1	perf2	perf3	

size1	1.980					
size2	1.829	2.242				
size3	1.464	1.660	1.800			
perf1	0.322	0.474	0.417	2.168		
perf2	0.249	0.466	0.443	2.025	2.243	
perf3	0.323	0.550	0.547	1.968	2.078	2.343
perf4	0.176	0.371	0.364	1.853	1.996	2.082
satis1	0.269	0.400	0.402	1.665	1.700	1.773
satis2	0.195	0.343	0.369	1.692	1.742	1.807
satis3	0.205	0.382	0.392	1.626	1.646	1.755
satis4	0.233	0.430	0.462	1.511	1.515	1.611
effect1	0.407	0.509	0.466	1.198	1.114	1.185
effect2	0.208	0.318	0.341	1.132	1.113	1.124
effect3	0.185	0.343	0.302	1.145	1.145	1.221
effect4	0.211	0.465	0.348	1.180	1.105	1.221
maneff1	0.006	0.067	0.083	-0.058	-0.096	-0.066
maneff2	0.051	0.185	0.125	-0.001	-0.019	-0.001
effic1	0.183	0.184	0.249	0.487	0.494	0.582
effic2	0.206	0.153	0.243	0.515	0.549	0.598

effic3	0.307	0.291	0.324	0.403	0.442	0.550
effic4	0.342	0.356	0.352	0.512	0.546	0.690
manpri1	0.186	0.428	0.226	-0.012	0.089	0.147
manpri2	0.146	0.404	0.247	0.109	0.194	0.180
manpri3	0.117	0.362	0.221	-0.106	0.033	0.137
manpri4	0.204	0.481	0.279	0.089	0.156	0.295
strusup1	-0.178	-0.227	-0.096	-0.101	-0.163	-0.126
strusup2	0.028	-0.046	0.160	0.364	0.265	0.303
strusup3	-0.163	-0.263	-0.025	0.132	0.014	0.055
supp1	-0.057	-0.051	0.125	0.047	-0.011	0.134
supp2	-0.213	-0.066	0.037	-0.078	-0.096	0.011
supp3	-0.302	-0.149	-0.072	0.094	0.081	0.164
supp4	0.015	0.179	0.078	0.270	0.256	0.440
power1	-0.290	-0.176	-0.178	-0.224	-0.220	-0.252
power2	-0.375	-0.407	-0.296	-0.179	-0.177	-0.218
power3	-0.432	-0.397	-0.319	-0.078	-0.132	-0.153
power4	-0.421	-0.388	-0.316	-0.151	-0.154	-0.179
adapt1	0.420	0.474	0.490	0.695	0.653	0.777
adapt2	0.419	0.500	0.501	0.519	0.523	0.696
adapt3	0.337	0.476	0.405	0.520	0.549	0.720
adapt4	0.419	0.513	0.518	0.356	0.443	0.537
comp1	0.110	0.055	0.059	-0.109	-0.068	-0.003
comp2	-0.140	-0.086	-0.119	-0.220	-0.200	-0.162

comp3	-0.261	-0.125	-0.105	-0.098	-0.084	-0.012
part1	0.239	0.276	0.182	-0.042	-0.059	0.087
part2	0.168	0.292	0.125	0.127	0.099	0.133
part3	0.200	0.373	0.246	0.220	0.284	0.307
part4	0.219	0.384	0.358	0.159	0.119	0.209
environ1	-0.229	-0.133	-0.276	0.086	0.078	-0.072
environ2	0.071	0.061	-0.078	0.123	0.094	0.012
environ3	-0.067	0.039	0.097	0.401	0.385	0.394
environ4	-0.178	-0.040	-0.041	0.346	0.313	0.236

perf4 satis1 satis2 satis3 satis4 effect1

perf4	2.209					
satis1	1.713	1.943				
satis2	1.746	1.906	2.009			
satis3	1.672	1.709	1.743	1.927		
satis4	1.497	1.489	1.496	1.564	1.570	
effect1	1.096	1.079	1.108	1.119	1.114	1.662
effect2	1.007	0.985	1.036	0.995	0.926	1.261
effect3	1.055	1.089	1.106	1.110	1.010	1.356
effect4	1.076	1.058	1.066	1.092	1.004	1.422
maneff1	0.018	-0.048	-0.070	-0.040	-0.074	-0.225
maneff2	0.068	-0.040	-0.018	0.003	-0.064	-0.130

effic1	0.584	0.616	0.635	0.657	0.647	0.848
effic2	0.608	0.596	0.612	0.661	0.637	0.804
effic3	0.542	0.563	0.556	0.633	0.619	0.690
effic4	0.645	0.614	0.601	0.697	0.675	0.808
manpri1	0.110	-0.064	-0.133	-0.079	-0.044	0.004
manpri2	0.130	-0.013	-0.094	-0.090	-0.039	-0.032
manpri3	0.080	-0.063	-0.153	-0.055	-0.051	-0.074
manpri4	0.171	0.018	-0.066	0.082	0.078	0.120
strusup1	-0.100	-0.061	-0.056	-0.017	0.054	0.168
strusup2	0.239	0.311	0.389	0.386	0.455	0.466
strusup3	0.098	0.130	0.161	0.223	0.304	0.331
supp1	-0.019	0.079	0.035	-0.028	0.042	-0.058
supp2	-0.038	-0.016	-0.006	-0.033	-0.027	-0.388
supp3	0.058	-0.004	-0.002	0.053	-0.028	-0.068
supp4	0.291	0.389	0.376	0.378	0.277	0.156
power1	-0.202	-0.299	-0.255	-0.195	-0.193	-0.144
power2	-0.204	-0.148	-0.119	-0.057	-0.155	-0.069
power3	-0.154	-0.124	-0.091	-0.091	-0.055	0.012
power4	-0.118	-0.118	-0.106	-0.045	-0.067	-0.008
adapt1	0.605	0.636	0.620	0.605	0.662	0.704
adapt2	0.507	0.425	0.426	0.427	0.514	0.492
adapt3	0.582	0.536	0.538	0.520	0.579	0.439
adapt4	0.434	0.390	0.420	0.404	0.455	0.455

comp1	-0.048	0.052	0.007	-0.033	-0.001	-0.099
comp2	-0.117	-0.104	-0.139	-0.088	-0.100	-0.206
comp3	0.015	-0.044	-0.081	0.021	0.022	-0.082
part1	-0.025	-0.080	-0.142	-0.040	0.019	0.028
part2	0.019	-0.052	-0.158	-0.074	-0.004	0.014
part3	0.224	0.191	0.132	0.192	0.204	0.137
part4	0.150	0.119	0.085	0.166	0.243	0.148
environ1	-0.030	-0.085	-0.123	-0.173	-0.061	0.011
environ2	-0.025	0.027	-0.036	-0.164	-0.055	0.071
environ3	0.307	0.445	0.437	0.420	0.354	0.335
environ4	0.203	0.286	0.270	0.292	0.244	0.180

effect2 effect3 effect4 maneff1 maneff2 effic1

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effect2	1.515					
effect3	1.341	1.789				
effect4	1.335	1.498	1.923			
maneff1	-0.104	-0.050	-0.006	1.416		
maneff2	-0.035	0.086	0.183	1.029	1.770	
effic1	0.729	0.816	0.578	-0.561	-0.506	1.573
effic2	0.683	0.683	0.561	-0.551	-0.472	1.371
effic3	0.620	0.664	0.523	-0.427	-0.383	1.263
effic4	0.718	0.763	0.683	-0.372	-0.316	1.342

manpri1	-0.119	0.122	0.080	0.044	0.204	-0.078
manpri2	0.059	0.263	0.196	0.105	0.255	-0.134
manpri3	-0.039	0.190	0.055	0.027	0.121	0.037
manpri4	0.156	0.386	0.344	-0.027	0.136	-0.007
strusup1	0.054	-0.014	-0.084	-0.254	-0.370	0.341
strusup2	0.476	0.369	0.239	-0.283	-0.485	0.618
strusup3	0.234	0.158	0.081	-0.293	-0.474	0.578
supp1	0.150	0.103	0.128	0.222	0.148	-0.137
supp2	0.020	-0.114	-0.300	0.240	0.060	-0.084
supp3	0.293	0.182	0.295	0.297	0.204	-0.158
supp4	0.366	0.458	0.370	0.243	0.232	0.093
power1	-0.070	0.050	0.090	0.192	0.196	0.015
power2	0.084	0.215	0.139	0.219	0.199	0.064
power3	0.073	0.215	0.245	0.083	0.138	-0.067
power4	0.013	0.157	0.087	0.004	-0.014	0.104
adapt1	0.534	0.582	0.591	-0.176	0.026	0.389
adapt2	0.334	0.443	0.372	-0.119	0.142	0.207
adapt3	0.306	0.470	0.323	-0.046	0.109	0.290
adapt4	0.261	0.439	0.169	-0.247	0.038	0.505
comp1	-0.061	-0.041	-0.083	0.081	0.015	0.035
comp2	-0.177	-0.078	-0.014	0.417	0.269	-0.144
comp3	-0.004	0.002	0.209	0.486	0.321	-0.282
part1	-0.032	0.091	0.050	-0.052	0.140	0.059

part2	0.090	0.176	0.189	-0.187	0.094	0.006
part3	0.152	0.186	0.248	-0.027	0.199	0.101
part4	0.080	0.179	0.176	0.044	0.205	0.254
environ1	0.136	0.054	0.251	-0.132	0.189	-0.258
environ2	0.294	0.217	0.404	-0.053	0.176	-0.208
environ3	0.490	0.512	0.654	0.157	0.290	-0.044
environ4	0.245	0.160	0.404	0.107	0.167	-0.198

effic2 effic3 effic4 manpri1 manpri2 manpri3

effic2	1.526					
effic3	1.261	1.439				
effic4	1.348	1.369	1.673			
manpri1	-0.144	-0.122	-0.053	1.989		
manpri2	-0.201	-0.203	-0.118	1.757	2.015	
manpri3	-0.010	0.023	0.094	1.629	1.621	1.999
manpri4	-0.062	0.031	0.079	1.678	1.741	1.838
strusup1	0.315	0.294	0.241	-0.217	-0.276	-0.276
strusup2	0.572	0.510	0.451	-0.514	-0.436	-0.534
strusup3	0.534	0.456	0.384	-0.490	-0.454	-0.497
supp1	-0.159	-0.173	-0.141	0.072	0.266	0.165
supp2	-0.223	-0.154	-0.194	0.235	0.342	0.316
supp3	-0.195	-0.211	-0.099	0.239	0.474	0.218

supp4	-0.027	0.095	0.105	0.094	0.239	0.245
power1	-0.058	-0.042	-0.148	0.106	0.109	-0.002
power2	0.030	0.041	-0.078	-0.040	0.028	-0.041
power3	-0.111	-0.101	-0.210	0.029	0.124	-0.118
power4	0.028	0.026	-0.082	0.106	0.118	0.043
adapt1	0.358	0.383	0.447	0.035	-0.014	0.105
adapt2	0.218	0.300	0.394	0.146	0.089	0.223
adapt3	0.242	0.416	0.481	0.246	0.110	0.318
adapt4	0.443	0.478	0.542	0.155	0.009	0.274
comp1	-0.056	-0.042	0.014	0.038	0.047	0.098
comp2	-0.276	-0.177	-0.181	0.272	0.221	0.132
comp3	-0.342	-0.305	-0.330	-0.037	-0.051	-0.087
part1	0.145	0.126	0.183	0.135	0.067	0.216
part2	0.091	0.096	0.158	0.410	0.411	0.501
part3	0.124	0.218	0.275	0.330	0.228	0.316
part4	0.220	0.351	0.408	0.375	0.231	0.298
environ1	-0.157	-0.279	-0.262	0.329	0.546	0.360
environ2	-0.050	-0.192	-0.117	0.245	0.513	0.364
environ3	0.023	0.011	0.066	-0.063	0.208	-0.044
environ4	-0.201	-0.202	-0.242	0.073	0.205	-0.049

manpri4 strusup1 strusup2 strusup3 supp1 supp2

```

-----
manpri4  2.311
strusup1 -0.481  1.562
strusup2 -0.634  1.233  2.044
strusup3 -0.639  1.324  1.711  1.949
  supp1  0.216  0.030  0.127  0.019  1.368
  supp2  0.308  0.017  0.095 -0.018  0.955  1.898
  supp3  0.325 -0.082  0.009 -0.156  1.038  1.298
  supp4  0.340 -0.080 -0.006 -0.061  0.813  1.187
power1   0.049 -0.026 -0.053 -0.004  0.042  0.113
power2  -0.097  0.030  0.126  0.079  0.211  0.085
power3  -0.033 -0.023  0.166  0.121  0.237  0.072
power4   0.041  0.051  0.186  0.225  0.232  0.128
adapt1   0.103 -0.108  0.131  0.001  0.076 -0.235
adapt2   0.238 -0.170  0.008 -0.108  0.002 -0.201
adapt3   0.345 -0.174 -0.075 -0.200 -0.043 -0.064
adapt4   0.192 -0.005  0.065 -0.029 -0.236 -0.311
comp1   -0.016 -0.103 -0.048 -0.039 -0.027  0.084
comp2    0.138 -0.171 -0.207 -0.199 -0.040  0.115
comp3   -0.091 -0.065 -0.043  0.055 -0.066 -0.024
part1    0.110 -0.274 -0.363 -0.380 -0.099 -0.142
part2    0.517 -0.386 -0.554 -0.607 -0.056 -0.045

```

part3	0.291	-0.313	-0.407	-0.499	-0.044	-0.015
part4	0.220	-0.285	-0.445	-0.452	-0.104	0.027
environ1	0.440	-0.265	-0.506	-0.462	0.034	0.008
environ2	0.435	-0.322	-0.377	-0.411	0.204	0.081
environ3	0.012	-0.090	0.132	-0.043	0.141	0.162
environ4	-0.016	-0.088	0.035	-0.067	0.086	0.108

	supp3	supp4	power1	power2	power3	power4
	-----	-----	-----	-----	-----	-----
supp3	2.056					
supp4	1.122	1.857				
power1	0.331	0.303	1.324			
power2	0.313	0.234	0.963	1.369		
power3	0.294	0.185	0.962	1.097	1.702	
power4	0.307	0.294	0.893	1.005	1.364	1.794
adapt1	-0.171	-0.043	-0.427	-0.179	-0.157	-0.192
adapt2	-0.161	-0.002	-0.433	-0.285	-0.236	-0.239
adapt3	-0.189	0.022	-0.519	-0.394	-0.445	-0.477
adapt4	-0.554	-0.164	-0.567	-0.423	-0.564	-0.548
comp1	-0.055	0.161	0.101	-0.016	0.104	0.062
comp2	0.040	0.202	0.337	0.178	0.342	0.314
comp3	0.152	0.131	0.412	0.136	0.380	0.381

part1	-0.154	-0.038	-0.108	-0.082	-0.255	-0.155
part2	-0.069	-0.025	-0.235	-0.185	-0.302	-0.248
part3	-0.102	0.105	-0.068	0.005	-0.154	-0.103
part4	-0.071	0.070	-0.098	-0.081	-0.192	-0.115
environ1	0.232	0.041	0.035	-0.074	-0.012	-0.177
environ2	0.332	0.174	-0.017	-0.029	0.039	-0.112
environ3	0.499	0.403	0.025	0.144	0.138	0.035
environ4	0.361	0.193	0.083	0.089	0.164	0.091

adapt1 adapt2 adapt3 adapt4 comp1 comp2

adapt1	1.313					
adapt2	1.095	1.462				
adapt3	1.030	1.223	1.561			
adapt4	0.900	1.008	1.192	1.483		
comp1	-0.049	-0.059	-0.085	-0.074	0.989	
comp2	-0.221	-0.225	-0.147	-0.263	0.697	1.275
comp3	-0.193	-0.195	-0.358	-0.468	0.698	1.040
part1	0.426	0.496	0.498	0.437	0.045	-0.111
part2	0.404	0.434	0.534	0.457	-0.049	-0.126
part3	0.424	0.427	0.543	0.403	0.055	0.068
part4	0.466	0.464	0.598	0.481	0.042	0.082
environ1	-0.181	-0.195	-0.244	-0.203	-0.002	-0.022

environ2	-0.062	-0.098	-0.256	-0.304	0.042	-0.111
environ3	0.057	-0.016	-0.142	-0.273	0.074	0.157
environ4	0.011	-0.144	-0.236	-0.362	-0.017	0.153

comp3 part1 part2 part3 part4 environ1

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-----
comp3    1.766
part1    -0.111    1.506
part2    -0.362    1.202    1.667
part3    -0.101    1.051    1.101    1.516
part4    -0.091    0.912    0.990    1.082    1.418
environ1    0.032    -0.206    0.209    -0.013    0.062    2.050
environ2    -0.003    -0.077    0.188    0.002    -0.035    1.677
environ3    0.345    -0.067    -0.103    0.128    0.131    1.033
environ4    0.387    -0.246    -0.181    0.014    0.015    0.950

```

environ2 environ3 environ4

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environ2    2.061

```

environ3	1.176	1.818	
environ4	0.862	1.353	1.646

Appendix 6-Construct Means and Standard Deviations

	N	Minimum	Maximum	Mean	Std. Deviation
EFFECT1	194	1	7	4.58	1.320
EFFECT2	194	1	7	4.40	1.255
EFFECT3	194	1	7	4.42	1.353
EFFECT4	194	1	7	4.33	1.398
PERF1	194	1	7	4.56	1.485
PERF2	194	1	7	4.66	1.509
PERF3	194	1	7	4.61	1.544
PERF4	194	1	7	4.71	1.490
SATIS1	194	1	7	4.73	1.415
SATIS2	194	1	7	4.69	1.440
SATIS3	194	1	7	4.74	1.408
SATIS4	194	1	7	4.54	1.276
DEPSPEC1	194	2	7	4.24	.979
DEPSPEC2	194	2	7	4.07	1.138
DEPSPEC3	194	2	7	4.01	1.296
DEPSPEC4	194	1	7	4.09	1.567
MANEFF1	194	1	7	3.50	1.248
MANEFF2	194	1	7	4.23	1.494
COMP1	194	1	7	4.08	1.131
COMP2	194	1	6	3.75	1.166
COMP3	194	1	6	3.43	1.388
PART1	194	1	7	3.97	1.253
PART2	194	2	7	4.26	1.311
PART3	194	1	7	4.28	1.315
PART4	194	1	7	4.53	1.209
ENVIRON1	194	1	7	4.09	1.461
ENVIRON2	194	1	7	3.99	1.465
ENVIRON3	194	1	7	3.70	1.364
ENVIRON4	194	1	7	3.62	1.313
MANPRI1	194	1	7	3.53	1.426
MANPRI2	194	1	6	3.47	1.407
MANPRI3	194	1	7	3.65	1.450
MANPRI4	194	1	7	3.72	1.526
STRUSUP1	194	1	7	3.82	1.315
STRUSUP2	194	1	7	3.90	1.495
STRUSUP3	194	1	7	4.05	1.459
SUPP1	194	2	7	3.93	1.209
SUPP2	194	1	7	4.15	1.438
SUPP3	194	1	7	3.96	1.497
SUPP4	194	1	7	4.17	1.404
POWER1	194	1	7	3.97	1.219
POWER2	194	1	7	3.88	1.209
POWER3	194	1	7	4.25	1.398
POWER4	194	1	7	4.13	1.486
ADAPT1	194	2	7	4.48	1.170
ADAPT2	194	2	7	4.46	1.242
ADAPT3	194	2	7	4.61	1.282
ADAPT4	194	2	7	4.55	1.245
EFFIC1	194	2	7	4.75	1.263
EFFIC2	194	2	7	4.62	1.259
EFFIC3	194	2	7	4.61	1.209
EFFIC4	194	2	7	4.60	1.316
ASSSPEC1	194	1	7	3.74	1.655
ASSSPEC2	194	1	7	4.27	1.434
ASSSPEC3	194	1	7	4.11	1.504
ASSSPEC4	194	1	7	3.63	1.611
VALASS1	194	1	7	4.15	1.630
VALASS2	194	1	7	3.28	1.624
VALASS3	194	1	7	3.61	1.324
PRODDES1	194	1	6	3.41	1.438
PRODDES2	194	1	6	3.67	1.562
PRODDES3	194	1	6	3.40	1.425