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ADOPTION OF B2B EXCHANGES: EFFECTS OF IT-MEDIATED WEBSITE SERVICES, WEBSITE FUNCTIONALITY, BENEFITS, AND COSTS

Adoption des échanges “B2B” : effets des services en ligne, fonctionnalités des sites Web, bénéfices et coûts

Research-in-Progress

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Abstract

Prior studies investigating business-to-business (B2B) e-commerce adoption have predominantly focused on institutional and transaction-cost theories while neglecting the influence of IT-based design characteristics on B2B e-commerce adoption. This study probes the design features of B2B exchanges, and their effects on perceived benefits, perceived costs, and intentions to adopt such exchanges. In this paper, we propose that the degree of website functionality provided by a B2B exchange positively influences the intentions of companies to adopt that exchange. Towards supporting this proposition, we identify a set of IT-mediated website services salient to B2B exchanges. We propose a theory that an aggregation of these services, what we refer to as website functionality, impacts potential B2B exchange users' assessments of the costs and benefits of the services as well as their intentions to join the B2B exchange. This paper identifies website functionality in B2B exchanges and explicates the theoretical influences of such functionality.

Keywords: B2B exchanges, IT-mediated website services, website functionality, functionality benefits, functionality costs, adoption benefits, adoption costs

Résumé

Cette étude s'intéresse aux caractéristiques de conception des échanges B2B ainsi que leurs effets sur les bénéfices perçus, les coûts perçus et les intentions d'adoption du commerce électronique B2B. Dans cet article, nous stipulons que le degré de fonctionnalité du site web offert par l'échange B2B influe positivement sur les intentions des entreprises d'adopter ce type d'échange. Pour appuyer cette proposition, les services en ligne facilitant les échanges B2B sont identifiés.

Introduction & Literature Review

Business-to-business (B2B) e-commerce spending in the US has been \$624 billion in 2004, and is expected to grow an additional 53%, or \$1,334 billion, by 2008 (*eMarketer*, 2004). In 2006, 45% of Canadian companies made online purchases representing 68% of the e-commerce amounted CAD\$31.4 billion (*The Daily*, 2007). However, for those companies purchasing online, B2B websites were perceived to suffer from a lack of usefulness, poor usability, and insufficient functionality (*Forrester*, 2008). Thus, B2B websites' users accomplish their purchasing goals only 58%

of the time (*eMarketer*, 2006). These industry statistics and surveys vividly demonstrate both the importance of B2B e-commerce in operations of individual companies and the need for improvements to B2B websites.

The aim of our study is twofold: 1) to understand the IT-mediated website services provided by B2B exchanges; and 2) to understand the effects of such website services functionality on perceived benefits, perceived costs, and on business customer’s intention to adopt a B2B exchange.

An e-market provides three main functions (Bakos, 1998): (1) matching of suppliers and buyers, (2) facilitating transactions, and (3) exercising regulatory and legal powers when necessary. Additionally, e-markets can be categorized according to the number of parties in these e-markets. Hence, B2B e-marketplaces are categorized into four different types: sell-side B2B, buy-side B2B, B2B exchange, and collaborative B2B (Turban et al., 2004). In sell-side (buy-side) B2B, there is one supplier (buyer) operating an e-market to link itself to many buyers (suppliers) (Son and Benbasat, 2007). A collaborative e-market is owned by multiple players; and in addition to product transaction, these e-markets enable product design and production planning among market participants (Turban et al., 2004).

An exchange is a kind of e-marketplace where many buyers and suppliers transact through an intermediary’s website. Since B2B exchanges are not themselves selling or buying products or services,¹ how well they operate their e-marketplaces, and the support they provide for product transactions becomes paramount for the success of these exchanges. Thus, of the four types of e-marketplaces, our focus is on the B2B exchanges, or third party B2B e-markets (Subramaniam and Shaw, 2002), as they are also known. According to a B2B e-market directory, there are 616 B2B exchanges operating online as of April 2008 (www.emarketservices.com).

Acting as a *virtual marketplace* (Grover and Teng, 2001) in which many buyers and suppliers can interact and transact, a B2B exchange compensates for the lack of physical contact between buyers and suppliers (McKinney et al., 2002). Furthermore, A B2B exchange can provide *IT-mediated website services* (Cenfetelli et al., 2008) that help buyer clients of the exchange reach their overall purchasing goals, such as product search, negotiation, product ordering, delivery tracking, and many more. These services are provided through a website and mediated by IT. IT-mediated website services refer to the use of IT to provide an array of additional services which support customers beyond the core products or services (Loveloek, 1994; Cenfetelli et al., 2008). Our study, which extends prior research on the topic of IT-mediated customer services used in B2C e-commerce and e-government contexts (Cenfetelli et al., 2008; Tan et al., 2007), investigates the design of these website services to enhance the business customer experiences with exchanges in B2B e-commerce context. All these website services and tools, henceforth referred to as *website functionality*, are the additional services a business delivers on its website beyond the core products or services provided to its customers (Piccoli et al., 2004; Cenfetelli et al., 2005; Cenfetelli et al., 2008).

IT-Mediated Website Services

Again, our first goal is to understand the IT-mediated website services and website functionality provided by B2B exchanges. To identify IT-mediated website services that can be provided by an exchange’s website, we utilized the *customer service life cycle* (CSLC) framework (Ives and Learmonth, 1984). The CSLC describes the various interactions a customer has with a vendor before, during, and after the purchase of a product or service. The interaction between customer and vendor begins with requirements specification and acquisition of the product, and then continues with the ownership and the retirement of the product (see Table 1).

Table 1. Summary of Customer Service Life Cycle (Ives and Learmonth, 1984)	
Dimension	Description
Requirements: establish requirements, specify	Assisting the customer with product requirements
Acquisition: source, order, pay, obtain, test & accept	Assisting the customer during from the product order to product accepting period
Ownership: train, monitor, maintenance, upgrade	Providing services for the customer needs during the product usage period
Retirement: replace, evaluate,	Assisting the customer during the product replacement, return and

¹ Due to page limitations, we will use the term “product” only rather than “product or service.”

resell/return, account	evaluating the experience with the seller
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Businesses can fulfill a range of needs and expectations of their customers through effective use of website functionality over the course of the CSLC (Ives and Learmonth, 1984; Archer and Yuan, 2000; Piccoli et al., 2004; and Cenfetelli et al., 2008). Similarly, a B2B exchange can improve its relationship with business customers by leveraging IT to provide services that support CSLC interactions (Archer and Yuan, 2000; Cenfetelli et al., 2008).

We found one major limitation of the CSLC to be the absence of support for a negotiation process, given that negotiation is generally the most distinctive difference between B2B and B2C e-commerce (Pham and Fuchter, 2004). We therefore augmented the general services identified by the CSLC to include the requirements of B2B e-commerce activities. Archer and Yuan (2000) provide a useful adjunct framework in the form of the *e-commerce procurement life cycle framework* to help fully identify the potential services that can be deployed using IT within the B2B exchange environment (see Table 2).

Dimension	Description
Information Gathering: searching, observing	Customer searches for suitable suppliers
Supplier Contact: learning, evaluating, comparing	Helping the customer to contact with the potential suppliers
Background Review: testing, evaluating	Helping the customer to evaluate the supplier's product/service offerings.
Negotiation: negotiating, planning	Assisting the customer to negotiate on transactional terms
Fulfillment: tracking, evaluating, installation, paying	Assisting the customer during from the product delivery to product installation period
Consumption, maintenance and disposal: learning, using, evaluating, feedback to supplier, maintaining, disposing	Providing services for the customer needs during the product usage period
Renewal: reviewing, re-order	Assisting the customer during the product re-order and reviewing the experience with the supplier

These two frameworks share similar services for the interacting parties such as sourcing, ordering, paying, and maintenance. Thus, grounded in both the customer service life cycle (Ives and Learmonth, 1984) and e-procurement life cycle framework (Archer and Yuan, 2000), we generated a well-defined set of IT-mediated website services that can be provided by B2B exchanges (see Table 3). To assure a content valid set of identified services, we inductively derived additional services not covered in the literature by conducting a search of best business practices at websites such as Alibaba.com² and a phone interview with an e-market manager. As a result of this inductive analysis, we added "search about B2B exchange" and "preparing to negotiation" functions to our set of IT-mediated website services.

Services	Description
Search for Product	Assisting the customer find the most suitable product
Search for Supplier	Assisting the customer find the most suitable supplier
Search about B2B Exchange	Helping the customer find the information about the exchange platform
Preparing to Negotiation	Helping the customer obtain information about the functioning of the negotiation procedures
Negotiation	Services that enable negotiation between customer and supplier
Order	Helping the customer perform the transaction
Payment	Services that enable customer paying service and transaction fees
Shipment and Delivery	Services that enable customer tracking the product during delivery and shipment

² According to the article published in *Economist* (2006), Alibaba.com has become the largest B2B e-marketplace.

Train	Helping the customer make use of the product to its full extent
Monitor	Helping the customer monitor activities related with the products that customer has bought or customer is interested in buying
Maintenance	Helping the customer get product repaired or keep it in good working condition
Upgrade	Services that inform customer about product upgrades
Account for	Features that enable customer track its spending portfolio
Evaluate	Services that enable customer provide feedbacks about the suppliers and the exchange

Theoretical Development & Research Model

Having determined a content valid set of website services, we next address our goal to understand the effects of such website services' functionality on perceived benefits, perceived costs, and on business customers' intentions to adopt a B2B exchange. Towards this goal, we describe and develop an overall theory for the effects of functionality. Our primary proposition is that website functionality is a significant predictor of business customers' willingness to adopt a B2B exchange's website. Our research model is shown in Figure 1.

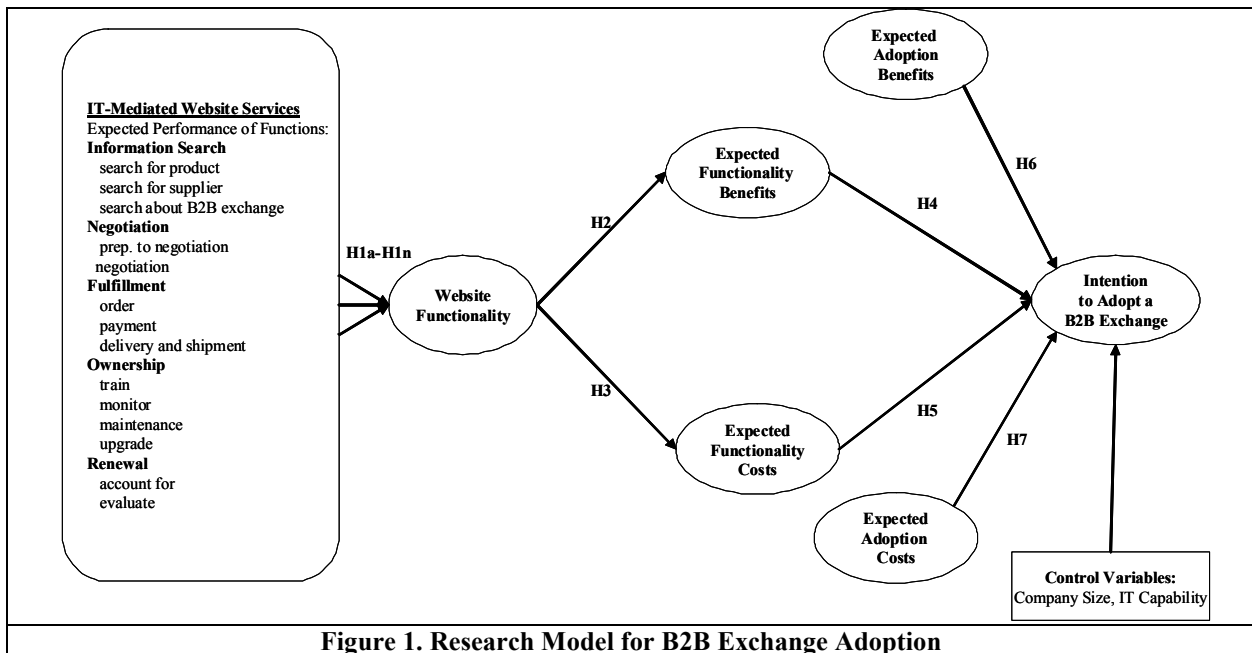


Figure 1. Research Model for B2B Exchange Adoption

Research Model of B2B Exchange Adoption

Adoption of a B2B exchange is usually an organizational level decision. Iacovou et al. (1995) proposed three factors that impact the technology adoption decision of organizations: interorganizational, organizational, and technological. In their study, they used determinants of EDI adoption, external pressure, organizational readiness, and perceived benefits as interorganizational-, organizational-, and technological-level factors respectively. Previous literature extensively examined the effects of *interorganizational* and *organizational* factors on adoption of B2B e-commerce solutions. Impacts of interorganizational factors, competitive pressures (Premkumar and Ramamurthy, 1995; Grewal et al., 2001; Chwelos et al., 2001; Teo et al., 2003; Son and Benbasat, 2007), external pressures (e.g. dependency, trust) (Saunders and Clark, 1992; Iacovou et al., 1995; Hart and Saunders, 1998; Chwelos et al., 2001; Teo et al., 2003; Son et al., 2005), and impacts of organizational factors, organizational abilities (Grewal et al., 2001, Chwelos et al., 2001; Son and Benbasat, 2007), top management support (Premkumar and Ramamurthy, 1995; Chatterjee et al., 2002), and efficiency motives (Premkumar and Ramamurthy, 1995; Grewal et al., 2001) on adoption decision have been extensively investigated. Although the saliency of the factors varied in different study contexts, previous

studies show that interorganizational and organizational factors influence organizations' technology adoption decisions.

Despite this extensive research, little has been investigated in terms of the core IT design attributes and characteristics of technology that play a role in B2B exchange adoption. This is especially surprising given such IT design attributes should be a focal area for IS research (Benbasat and Zmud, 2003; Hevner et al., 2004; Benbasat and Barki, 2007). Although B2B e-commerce solutions provide benefits to the organizations, such as transaction-cost economics (Malone et al., 1987), organizations delay in the adoption of these solutions (Dai and Kauffman, 2002; Angeles and Nath, 2007). One of the important barriers to B2B e-commerce solutions adoption is that whether the e-marketplaces are ready to support the *organizational buying process* (Dai and Kauffman, 2002).

Prior research in website functionality has thus far been limited to the individual consumer context (Cenfetelli et al. 2008). The organizational buying behavior typical to business customers differs from individual consumer behavior, due to the nature of business concerns about budgets, costs, profits, potential involvement of many people in the buying decision, and target goals (both individual and organizational) (Webster and Wind, 1972). Unlike individual consumers, organizations need to carry out more tasks and any type of B2B e-commerce solution implemented by the organizations need to accommodate these tasks. E-marketplaces, therefore, need to provide the *complete line of services* such as product and supplier search, electronic request for quotes, negotiation, and payment, etc. (Kyte, 2000).

IT-Mediated Website Services and Website Functionality

As discussed earlier, we identified IT-mediated services by using the customer service life cycle and e-procurement life cycle frameworks (see Table 3). A customer's expectations about whether a B2B exchange will provide any or all of the IT-mediated services will improve the customer's perception of that B2B exchange's website functionality. The extent of each individual service will enhance the general level of website functionality of a B2B exchange. This leads to the following hypothesis regarding the relationship between individual services and the website functionality.

Hypothesis 1_(a-n): *The individual dimensions of website functionality will each have a positive effect on a customer's perceptions of website functionality.*

As discussed above, organizations typically delay the adoption of B2B e-commerce solutions (Angeles and Nath, 2007). Additionally, e-marketplaces are perceived by potential buyer clients as not ready to support B2B transactions (Dai and Kauffman, 2002), thus leading organizations to postpone adopting e-marketplaces. The belief as to whether a B2B exchange can support its customers with technology during online purchasing process is a critical matter for customers to consider in adopting a B2B exchange. An organization has expectations to be fulfilled by a B2B exchange by its IT supported services so the organization can accomplish its organizational purchasing. In other words, besides interorganizational and organizational factors, the perception of a business customer as to whether a B2B exchange can provide the functions that support its procurement activities will impact its intentions to adopt that B2B exchange. The "website functionality" is a belief of a business customer that using a B2B exchange's website services will lead to supporting its organizational purchasing. Thus, we propose that the belief of a business customer about the extent of *website functionality*³ supporting business-to-business transactions will increase (decrease) the intention of B2B exchange adoption of that business customer through the mediation of functionality benefits (costs).

In previous literature, B2B e-commerce benefits are categorized as *increased reach* (Garicano and Kaplan, 2001; Mahadevan, 2003), *reduced transactional costs* (Garicano and Kaplan, 2001; Mahadevan, 2003; Ordanini, 2005), *efficiency-related benefits* (Chwelos et al., 2001; McLaren et al., 2002; Eng, 2004), *strategy-related benefits* (Eng, 2004; Ordanini, 2005), *responsiveness to the market* (Chwelos et al., 2001; McLaren et al., 2002). Whereas *costs* are grouped as *system ownership costs* (McLaren et al., 2002), *partnership instability costs* (McLaren et al., 2002; Lam et al., 2004), *switching costs* (McLaren et al., 2002; Lam et al., 2004).

³ Constructs similar to website functionality, *maturity of marketplaces* (Angeles and Nath, 2007) and *e-marketplace preparedness* (Peter Weill, pg.72 in Dai and Kauffman, 2002) have been proposed, which refer to whether a marketplace is ready to provide the complete line of services to support the electronic B2B procurement transactions.

In our research model, however, we undertook a different approach to benefits and costs by differentiating them according to their sources as to whether they were functionality related or adoption related. We specifically define these benefits and costs next.

Functionality Benefits and Functionality Costs

By leveraging IT, a B2B exchange can support a core product or service transaction to help customers reach their online purchasing goals. However, the availability and the performance of the tools and functions supporting the organizational buying process can vary among different B2B exchanges. Accordingly, the differences in B2B exchanges' website functionalities lead to organizations accruing different benefits or costs. For example, in addition to other website functions, if a B2B exchange supports online ordering, customers benefit from paper cost reduction, order accuracy, and error reduction in purchase orders (McLaren et al., 2002; Eng, 2004). Similarly, each additional website function requires an organization to adapt its own system and procedures accordingly. Thus, higher level website functionality requires an organization to incur more system ownership costs such as time and money spent for implementing and integrating to its system (McLaren et al., 2002), and the time spent for understanding and using the website. Therefore, we define functionality benefits and costs as:

"Functionality benefit is the value that an organization gains by using the IT-mediated website services provided by a B2B exchange's website. Functionality cost is the cost that an organization incurs as a result of using a functional website."

Depending on the degree of website functionality of a B2B exchange, a business customer benefits from transactional efficiencies in terms of money, time, and effort. On the other hand, depending on the degree of website functionality of a B2B exchange, a business customer has to adapt its purchasing processes and systems accordingly. Thus, a client company would spend more money to modify and implement its systems to make it compatible to a website that is more functional, and its purchasing professionals would spend more time and effort to learn and use such a website. In our model, we defined a link between website functionality and functionality benefits, and a link between website functionality and functionality costs because a B2B exchange's technological capability in supporting a transactional task will lead to organizations being subjected to functionality associated advantages and costs. Therefore, we posit that the degree of website functionality of a B2B exchange will enhance the expected functionality benefits and costs of a B2B exchange.

Hypothesis 2: *The degree of website functionality will have a positive impact on expected functionality benefits.*

Hypothesis 3: *The degree of website functionality will have a positive impact on expected functionality costs.*

As discussed earlier, website functionality will provide benefits such as reduced paper costs, and transaction processing time. On the other hand, website functionality will require that organizations invest time, effort, and money. Beliefs about the consequences of using the object, namely behavioral beliefs, determine the intention to adopt that object (Ajzen and Fishbein, 1980; Davis 1989; Wixom and Todd, 2005). In this case, beliefs about the consequences of using a functional B2B exchange's website will affect the intention to adopt that B2B exchange. Therefore, we posit that the degree of expected functionality benefits will enhance a business customer's willingness to adopt a B2B exchange, whereas, the degree of expected functionality costs will diminish a business customer's willingness to adopt a B2B exchange.

Hypothesis 4: *The degree of expected functionality benefits will have a positive impact on intention to adopt a B2B exchange.*

Hypothesis 5: *The degree of expected functionality costs will have a negative impact on intention to adopt a B2B exchange.*

Adoption Benefits and Adoption Costs

Regardless of a B2B exchange's website functionality, organizations would still consider adopting a B2B exchange, for example if it enables them to source globally (Eng, 2004), or if by participating in a B2B exchange, an organization would increase its chance to identify new supply sources (Ordanini, 2005). On the other hand, by adopting a B2B exchange, an organization would incur partnership instability costs due to changing suppliers frequently (McLaren et al., 2002). Therefore, we define adoption benefits and costs as:

“Adoption benefit is the value that an organization gains by joining to an e-marketplace. Adoption cost is the cost that an organization incurs as a result of joining to an e-marketplace.”

A benefit of adopting an exchange is that an organization will have the opportunity to purchase from multiple suppliers. A potential cost, however, is a decrease of the savings from gross volume purchasing due to smaller purchases spread over multiple suppliers. Regardless of the availability of website functions and how well these functions support specific purchasing goals, an organization gains benefits and incurs costs simply by being in the exchange. We postulate that these adoption-related benefits will enhance a business customer’s willingness to adopt a B2B exchange, and we argue that adoption-related costs will diminish a business customer’s willingness to adopt a B2B exchange. This is supported by the concept from behavioral beliefs (in this case adoption benefits and costs) linked to intention to adopt (Davis 1989; Wixom and Todd, 2005).

Hypothesis 6: *The degree of expected adoption benefits will have a positive impact on intention to adopt B2B exchange.*

Hypothesis 7: *The degree of expected adoption costs will have a negative impact on intention to adopt B2B exchange.*

Control Variables: IT Capability and Organization Size

Grounded in previous empirical studies on IS adoption and usage in organizations, we will control the effects of two variables, *IT capability* of an organization, and *organization size*. Both of these two control variables are expected to influence the intention to adopt B2B exchange positively. However, we will not test the effects of the control variables.

Method

So far we have discussed the theoretical foundations of our research model. We plan on testing the research model by using a field survey methodology. Our intent is to gather data from purchasing professionals, who have experience in organizational purchasing and have knowledge about B2B exchanges and their website services. The structural equation modeling technique will be employed to validate our model.

Instrument Development for Survey

In our research model, adoption of B2B exchange website is determined by the factors: (1) website functionality, (2) expected functionality and adoption benefits, and (3) expected functionality and adoption costs. Where available, the questionnaire items were adapted from previous literature, otherwise, new items were developed. The measurement items for the constructs are provided in the Appendix.

Item Development for IT-Mediated Website Services

In addition to the items adapted from Cenfetelli et al. (2008), we initially generated 60 items for 15 website functional dimensions. To verify the construct validity of the life cycle framework dimensions, we employed the card sorting technique (Moore and Benbasat 1991). For this technique, we recruited nine judges from MBA and PhD students who are familiar with the B2B e-commerce concept for three card sorting rounds. The judges were asked to assign each item to one of the 15 functional dimensions or to an “ambiguous” category if they were unsure about the meaning of the item or about the placement of the item. After combining delivery and shipment dimensions, the overall “hit ratio”⁴ averaged 83.3% across resulting 14 dimensions while Cohen’s Kappa⁵ averaged 0.81, well above than acceptable level of 0.70 (Boudreau et al., 2001). The appendix shows the list of items of website services.

To develop the measurement scale for functionality benefits and costs, and adoption benefits and costs constructs, we derived items from the literature (please see the appendix for the sources of measurement items). Card sorting for

⁴ The hit ratio is the ratio of “correct” item placement to its target dimension across all dimensions (Moore and Benbasat, 1991).

⁵ It is the measure of the level of agreement between judges in categorizing items (Cohen, 1960).

the validation of these constructs is continuing. Please refer to the appendix to see the example items of the benefits and costs constructs.

Sample

For data collection, the assistance of purchasing professionals will be asked. We have contacted these professionals through two professional associations in North America: Purchasing Managers Association of Canada (PMAC) and Institute of Supply Managers (ISM) in U.S. We have sent invitations to the lists provided by PMAC and ISM for our online survey by mails and e-mails.

Discussion

Many e-marketplaces did not survive the dotcom bust. These e-marketplaces could not achieve a critical mass of suppliers and buyers, and their technology did not fulfill the market participants' expectations (Day et al. 2003). In fact, technological incapability of supporting organizational buying can act as a barrier for organizations to adopt e-marketplaces (Dai and Kauffmann, 2002; Angeles and Nath, 2007). Therefore, in our paper, we aimed to identify a set of B2B exchange's website services that will enhance a business customer's intention to adopt a B2B exchange.

Limitations

Prior dealings with B2B exchange(s) or other online shopping experiences of purchasing managers may affect their expectations from a B2B exchange. We do not control these factors in our study that may help explain the dependent variables. However, to capture the relevant effects of pertinent website functions, our study will include purchasing managers who have at least accessed to a B2B exchange(s).

Future Research

This study looked at website functionality in the context of B2B exchanges and their business customers. A similar study evaluating the B2B exchange websites' functionalities provided to their suppliers and suppliers adoption of a B2B exchange can be done. A follow-up study on influences of website functionality on users' continue-to-use behaviors can unfold different results.

Conclusion

B2B exchanges play an important role in procurement activities of suppliers and customers. They assist their customers in procuring low cost products and services, incurring less search costs, facilitating transactions between geographically separated parties, reducing paper work, and decreasing the duration of the procurement cycle. In this paper, based on B2B exchanges, we investigated the nature of IT design attributes, specifically website services functionality, in enhancing B2B exchanges. We have identified a wide array of IT-mediated website services provided by B2B exchanges that can enhance service to their business customers. Additionally, we introduced a research model postulating that mediated by functionality benefits and costs, website functionality will be an important predictor of intention of a business customer to adopt a B2B exchange.

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APPENDIX

A) IT-Mediated Website Services of B2B Exchanges:

I expect that the tools and functions provided by the B2B exchange's website...

Search for Product:

- ... will help my company to establish the product requirements.
- ... will enable my company to search for my company's product needs.
- ... will aid in identifying which product(s) best fits my organization's needs.

Search for Supplier:

- ... will help my company search for appropriate suppliers with whom my company can transact.

- ...will enable my company to find suppliers that best suit my company's needs.
- ...will allow my company to specify a supplier according to my company's criteria.

Search about B2B Exchange:

- ...will provide information about the rules and policies (e.g. security, guarantee, privacy) of the B2B exchange's website.
- ...will aid in finding information about the B2B exchange's provider, partners, suppliers and customers.
- ...will help my company find information about how to use the B2B exchange's website effectively.

Preparing to Negotiation:

- ...will provide useful tips about how to negotiate with the suppliers.
- ...will enable my company to obtain information about the rules and the instructions for negotiating with suppliers.
- ...will provide relevant information from prior negotiations (e.g., spend data, currency rates, international trade and customs regulations) to assist in future negotiations.

Negotiation:

- ...will enable my company to contact online with suppliers for negotiation.
- ...will enable my company to negotiate with suppliers online.
- ...will support different types of negotiation such as auction or online bidding.

Order:

- ...will allow my company to conduct online procurement transactions.
- ...will send purchase order requests to the suppliers on behalf of my company.
- ...will allow my company to order a product online.

Payment:

- ...will allow my company to make an online payment to the suppliers.
- ...will provide multiple options for payment methods.
- ...will allow my company to make online payment for other than order payment such as payment of transaction commission fee.

Shipment and Delivery:

- ...will allow my company to track the shipment of the product.
- ...will enable my company to check the status of a shipment.
- ...will enable my company to determine when the delivery will be completed.

Train:

- ...will help my company to learn about the best way to utilize the product.
- ...will demonstrate how to use the product.
- ...will provide an interface to the supplier to provide training directly my company on how to use the product.

Monitor:

- ...will inform my company about new selling leads or auctions or biddings about the products that my company has bought or plan to buy.
- ...will provide my company reminders about the deadlines for concluding transactions (e.g. last day of payment) or about the deadlines for participating in an online bidding event or an auction.
- ...will inform my company when a certain product that my company is interested in is available.
- ...will monitor inventory level of the product(s) that my company has procured from the B2B exchange.

Maintenance:

- ...will provide information that helps my company to maintain the product in good working condition.
- ...will help my company to repair the product.
- ...will help my company to perform maintenance on the product.

Upgrade:

- ...will allow my company to upgrade the product.
- ...will notify my company when improvements to the product are available.
- ...will advise my company when the product requires an upgrade.

Account for:

- ...will allow my company to track its spending portfolio.
- ...will allow my company to track the spending records of the different products that my company has purchased.
- ...will allow my company to track my company's spending history such as the suppliers negotiated with, the transactions and the payments made.

Evaluate:

- ...will provide mechanisms for my company to provide feedback about the B2B exchange.
- ...will provide mechanisms for my company to provide feedback about the suppliers.
- ...will allow my company to provide feedback about the performance of the procurement experience.

B) Functionality and Adoption Benefits/Costs:

Functionality Benefits:

- I expect that using B2B exchange’s website tools and functions will reduce transaction process time.
- I expect that using B2B exchange’s website tools and functions will reduce transaction process costs.
- I expect that using B2B exchange’s website tools and functions will reduce error rates.
- I expect that using B2B exchange’s website tools and functions will improve my company’s order accuracy.
- I expect that using B2B exchange’s website tools and functions will reduce the cost of searching suppliers and products.

Adoption Benefits:

- I expect that joining to a B2B exchange will provide dynamic and global sourcing for my company.
- I expect that joining to a B2B exchange will increase the number of suppliers that my company can reach.
- I expect that joining to a B2B exchange will enable my company to gain and share knowledge with the exchange participants.
- I expect that joining to a B2B exchange will enable my company to exploit market opportunities for future alliances.

Functionality Costs:

- I expect that using B2B exchange’s website tools and functions will lead to incur system implementation- and integration-related costs.
- I expect that using B2B exchange’s website tools and functions will lead to incur new procurement data translation- and integration-related costs.
- I expect that getting used to B2B exchange’s website tools and functions will be time consuming and difficult.

Adoption Costs:

- I expect that savings from gross volume procurement will diminish due to fragmented volume procurement.
- I expect that procurement from many suppliers will result in my company incurring partnership instability costs because of changing suppliers frequently.
- I expect that fee of joining to a B2B exchange will be expensive.
- I expect that joining to a B2B exchange will be expensive in the long-term due to qualification and maintenance of a large number of suppliers.

C) Measurement Constructs of B2B Exchange Adoption Model

Constructs	Type	Source	Items
Intention To Adopt	Reflective	Son and Benbasat, 2007	3
IT-Mediated Business Customer Services	Formative	Cenfetelli et al. 2008; Developed for the Study	43
Website Functionality	Reflective	Adapted from Cenfetelli et al. 2005	3
Expected Functionality Benefits	Formative	Adapted from Chwelos et al. 2001; McLaren et al. 2002; Mahadevan, 2003; Eng, 2004; Ordanini 2005	5
Expected Adoption Benefits	Formative	Adapted from Chwelos et al. 2001; Garicano and Kaplan, 2001; McLaren et al. 2002; Mahadevan, 2003; Eng, 2004; Ordanini 2005;	4
Expected Functionality Costs	Formative	Adapted from McLaren et al., 2002; Lam et al., 2004	3
Expected Adoption Costs	Formative	Adapted from McLaren et al., 2002; Lam et al., 2004	4
Organization Size	Formative	Chwelos et al. (2001)	2
IT Capabilities	Reflective	King and Teo (1996)	4