Abstract
Many researchers have studied the adoption of business-to-business Electronic Marketplaces (EMs), but agreement on which factors are more important driving forces of EM adoption has not been achieved. This may be because researchers have not adopted multiple perspectives, since the importance of EM driving factors may vary when analytical perspectives change. The objective of this paper is to determine if evidence exists that this might indeed be the case.

This paper explores the adoption of EMs from multiple perspectives, using case studies. Due to its parsimony, the UTAUT framework suggested by Venkatesh et al. (2003) is adopted to guide the case analysis. EM adoption factors fall into four UTAUT super-categories: performance expectancy; effort expectancy; institutional influence; and facilitating conditions. Results from the case studies indicate that performance expectancy is the most important and ease of use is the least important consideration for participating users. The importance of these factors is examined from both seller/buyer and market structure perspectives. Preliminary evidence from the case studies indicates that performance expectancy is the most important and ease of use is the least important consideration for participating users. The importance of these factors is examined from both seller/buyer and market structure perspectives. Preliminary evidence from the case studies indicates that performance expectancy is the most important and ease of use is the least important consideration for participating users. This implies that suppliers tend to be more passive than buyers in EM adoption.

Keywords: electronic marketplaces, adoption, case studies

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INTRODUCTION
Business-to-business electronic marketplaces (EMs) are not new. For example, the Sabre airline reservations system (Gasson 2003) and AHS (American Hospital Supply) (Short and Venkatraman 1992) were among the earliest EMs, based on proprietary networks. But most Internet-based EMs such as Freemarkets (www.freemarkets.com) for auctions, and Quadrem (www.quadrem.com) in the mining industry, appeared after 1995, during a time of significant EM growth. The year 2000 was the golden year of independent EMs. At the end of 1999, 280 non-private EMs were in business in North America and a year later, a peak of 1,520 was reached (Laseter et al. 2001). This was followed by a consolidation period. According to a survey by Day et al. (2003), a large number of EMs disappeared either by acquisition or exiting the market, with an overall survival rate of only 20%.

Although EMs are now relatively more mature and stable, most are still struggling for sustained success and profit. The interests of EM researchers and practitioners still centre on understanding how to promote EM adoption and its
continued usage. Researchers have examined the effects of a range of different factors on EM adoption, such as trust, independent ownership structure (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 EM adoption. Only by aggregating results from the literature, can we can track some preliminary patterns that need further examination. This lack of agreement may be because researchers do not explain EM adoption with a multiple perspective view. When the underlying analytical perspective of each researcher changes, the importance of adoption factors may also change.

This paper explores the adoption of EMs, with a focus on the initial drivers of adoption. We are interested to see, first, which factors drive the adoption of EMs and, second, how the importance of these factors varies if we look at them from different perspectives. The paper is arranged as follows. First, we briefly introduce the concept of EMs. This is followed by a literature review on EM adoption. Next, research questions are provided to guide case data collection and analysis. Our research employs a multiple perspective view of the adoption of EMs, which differs from previous research. Case analysis results are then presented to answer the research questions, followed by conclusions and managerial implications of the study. Due to the limitation of case studies, this should be regarded as only a preliminary study of the research questions. Empirical studies based on larger sample sizes are needed to reach more confirmatory results.

**ELECTRONIC MARKETPLACES: DEFINITION AND FUNCTIONS**

**EM definition and classification**

There is no general agreement on the definition of EMs (Grieger 2003). For simplicity, we have adopted the definition of Holzmuller and Schluchter (2002) that EMs are electronic inter-organizational network platforms through which multiple buyers and suppliers conduct transactions and interact with each other. Independent, consortia-based, and private EMs are the most popular classifications (Grieger 2003; Laseter et al. 2001). Independent EMs are established by independent third party corporations. Consortia-based EMs are established by two or more big industry players for the strategic reasons of sharing IT infrastructure costs and leveraging buying power. Examples include GNX (www.gnx.com) in the retailing industry and Covisint (www.covisint.com) in the automotive industry. Private EMs are established by single big companies to facilitate their own purchasing and/or selling activities. Examples include Walmart’s Retaillink, and GE’s Polyland. In this paper, we focus on the study of independent and consortia-based EMs.

**Functionalities of EMs**

Two classes of functionalities may be supported by EMs: market-oriented and collaboration-oriented. Market-oriented functionalities include aggregating buyers and sellers, and doing match-making activities, where the relationships between buyers and sellers are at arm’s length. They have been studied widely by researchers such as Choudhury and Hartzel (1998), Bailey and Bakos (1997), Bakos (1998), and Archer and Gebauer (2002) and are sometimes called transactional functions (Thoung 2002). With the newer developments, researchers are now recognizing collaboration-oriented functionalities in many EMs (Christiaanse and Markus 2002; Grieger et al. 2003; Rudberg et al. 2002; Soh and Markus 2002). Collaboration-oriented functionalities focus on streamlining business processes between collaborating parties, such as automating contractual purchasing and other collaborative business processes such as project management, supply chain integration, product co-design, Collaborative Planning, Forecasting, and Replenishment (CPFR) and Vendor Managed Inventory (VMI) (Thoung 2002). Wang and Archer’s research (2005) found that EM functions tend to lie on a continuum, with extreme market-oriented functionalities at one end, and extreme collaboration-oriented functionalities at the other.

The appearance of collaboration functionalities poses another question of channel selection for researchers when analysing the adoption of EMs: which functionalities should potential users adopt? The answer to this question is outside the scope of this paper, but interested readers can consult Wang and Archer (2005). In the current paper we have included data collected from EMs that offer both market-oriented and collaboration-oriented functionalities.

**A REVIEW OF ELECTRONIC MARKETPLACE ADOPTION**

**Information system adoption**

Information system adoption is regarded as a mature area of theory in the IS (Information Systems) field. Theories have addressed the adoption of systems from different perspectives. Venkatesh et al. (2003) compared the differences and similarities among the most popular eight adoption theories, and created a Unified Theory of Acceptance and Use of Technology (UTAUT). In UTAUT, four super-constructs preceding the adoption of information systems are developed by summarizing 14 base constructs from eight adoption theories. The super-constructs are: performance expectancy; effort
expectancy; social influence; and facilitating conditions. Table 1 lists these four super-constructs and their respective base constructs. Performance expectancy is the degree to which an individual believes that using the system will help him or her to attain gains in job performance. It is related to five constructs from five base theories, respectively: relative advantage; perceived usefulness; extrinsic motivation; job fit; and outcome expectation. Effort expectancy is the degree of ease associated with the use of the system. Social influence is the degree to which an individual perceives that important others believe he or she should use the new system. Facilitating conditions refer to the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. Full details of the UTAUT model and its base theories are given in the original paper (Venkatesh et al. 2003).

Venkatesh et al. (2003)'s adoption framework is specifically designed for individual information systems. In the context of inter-organizational system (IOS) adoption, performance expectancy, effort expectancy and facilitating conditions are still important (Iacovou et al. 1995; PremKumar and Ramamurthy 1995). Although influence from others is also important, it is not from other important individuals, but from other organizations. Teo et al. (2003) describe three kinds of institutional influences that affect the adoption of IOSs: mimetic pressures; coercive pressures; and normative pressures. The prevalence of adoption practice in the focal industry and the perceived success of other organizations’ adoption cause mimetic pressures on the company that does not adopt. Coercive pressures are defined as formal or informal pressures exerted on organizations by other organizations upon which they are dependent. The shared norm among a group of trading partners increases the likelihood of an individual organization’s adoption of the system due to the increased chance of learning its benefits and costs. This is called the phenomenon of normative pressure. Institutional influences of various kinds have been proved to significantly affect the adoption of IOS such as EDI (Electronic Data Interchange) (Hart and Saunders 1997; Iacovou et al. 1995; Jasperson et al. 2002).

### The adoption of electronic marketplaces

For the purpose of this discussion, we have organized the literature of EM adoption in the form of the revised UTAUT framework. Since an EM is an IOS, we have changed the factor ‘social influence’ in UTAUT to ‘institutional influence’. The literature of EM adoption

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**Table 1. A review of the UTAUT model**

<table>
<thead>
<tr>
<th>Super-constructs in UTAUT</th>
<th>Meaning of constructs</th>
<th>Base constructs</th>
<th>Base theory</th>
<th>Base theory references</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance expectancy</td>
<td>The degree to which an individual believes that using the system will help him or her to attain gains in job performance</td>
<td>Relative advantage</td>
<td>Innovation diffusion theory</td>
<td>Rogers (1995), Moore and Benbasat (1991)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived usefulness</td>
<td>Technology acceptance model</td>
<td>Davis et al. (1989), Bagozzi et al. (1992)</td>
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<tr>
<td></td>
<td></td>
<td>Extrinsic motivation</td>
<td>Motivational model</td>
<td>Taylor and Todd (1995)</td>
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<td></td>
<td></td>
<td>Job fit</td>
<td>Model of PC utilization</td>
<td>Thompson et al. (1991)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outcome expectation</td>
<td>Social cognitive theory</td>
<td>Compeau and Higgins (1995)</td>
</tr>
<tr>
<td>Effort expectancy</td>
<td>The degree of ease associated with the use of the system.</td>
<td>Perceived ease of use</td>
<td>Technology acceptance model</td>
<td>Davis et al. (1989), Bagozzi et al. (1992)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease of use</td>
<td>Innovation diffusion theory</td>
<td>Moore and Benbasat (1991)</td>
</tr>
<tr>
<td>Social influence</td>
<td>The degree to which an individual perceives that important others believe he or she should use the new system</td>
<td>Subjective norm</td>
<td>Theory of reasoned action</td>
<td>Davis et al. (1989)</td>
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<tr>
<td></td>
<td></td>
<td>Image</td>
<td>Innovation diffusion theory</td>
<td>Moore and Benbasat (1991)</td>
</tr>
<tr>
<td>Facilitating conditions</td>
<td>The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.</td>
<td>Perceived behavioral control</td>
<td>Theory of planned behavior</td>
<td>Ajzen (1991, Mathieson (1991)</td>
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<tr>
<td></td>
<td></td>
<td>Facilitating conditions</td>
<td>Model of PC utilization</td>
<td>Taylor and Todd (1995)</td>
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<td></td>
<td></td>
<td>Compatibility</td>
<td>Innovation diffusion theory</td>
<td>Moore and Benbasat (1991)</td>
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</table>

Source: Adapted from Venkatesh et al. (2003)
is summarized in Table 2. The factors examined by each EM adoption article are assigned to the relevant categories from the revised UTAUT framework.

Choudhury and Hartzel (1998) studied the adoption of an aeroplane replacement parts EM, ILS (Inventory Locator Service), and concluded that market variability, product value, product specificity, complexity of product description, and frequency explained why airlines used ILS. These factors are assigned to the Performance Expectancy category since the authors assumed that products with the above mentioned characteristics could benefit most from EMs.

Kollmann (2001) studied the effects of three performance-related factors (database quality, intermediation service, actual transformation rate) on the adoption of an EM by buyers and suppliers. Using a LISREL model, he showed that the acceptance of an electronic marketplace can be illustrated with the above constructs. Grewal et al. (2001) built a motivation-ability model to explain participating company use of an EM. Motivation in this case includes performance motive (‘efficiency motive’ in the original paper) and institutional influence (‘legacy motive’ in the original paper). Ability, which serves as a facilitating condition, includes company IT capability and learning ability. The paper suggested that these factors can affect the dynamic

<table>
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<th><strong>Table 2. Summary of the EM adoption literature</strong></th>
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<tr>
<td><strong>Performance expectancy</strong></td>
</tr>
<tr>
<td>Choudhury and Hartzel (1998)</td>
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<td>Grewal et al. (2001)</td>
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<td>Holzmuller and Schluchter (2002)</td>
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<td>Hadaya (2004)</td>
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<td>Koch (2002)</td>
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<tr>
<td>Deeter-Schmelz et al. (2001)</td>
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<td>Min and Galle (1999)</td>
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</table>


 change of company status in the EM over time, through: exploration state, expert state or passive state. The authors surveyed 306 users in a market-driven jewellery EM, Polygon, and concluded that companies should have the right motive and the right IT capability in order to evolve to the expert state and avoid the passive state. This model emphasized the efficiency motive and de-emphasized the legacy motive.

In a Delphi study, Holzmuller and Schlucher (2002) surveyed 140 experts to predict the use of EMs, when EMs offer different economic benefits (better process or better product price), when EMs target different products (in terms of standardization, strategic importance and complexity), or when EMs target different markets (fragmented vs. concentrated markets). The conclusion favoured EMs in fragmented industries, and those offering better processes, and standardized and unimportant products. Since Holzmuller and Schlucher’s study mainly concerned what kind of economic gains, products and markets can benefit most from EMs, these factors are assigned to Performance Expectancy in Table 2. Based on a survey of 1,200 senior managers in Canada, Hadaya (2004) found three factors affecting future intention to use EMs: complexity of the EM implementation, the level of present use of e-commerce, and business relationships (including relationships with suppliers, customers and outside consultants). Fitted into the revised UTAUT model, these three factors could be interpreted as effort expectancy, facilitating conditions, and institutional influences, respectively.

Joo and Kim (2004) tested the effects of five factors on company adoption of EMs: relative advantage; external pressure; buying power; slack resources; and firm size. This study found support for relative advantage and company size, but not buying power, external pressure or slack resources. Koch (2002) proposed some factors that could affect company adoption and use of an EM. These factors included: performance expectancy such as relative advantage; independent ownership structure (in a buyer/seller oriented EM, benefits are perceived to be biased toward one side); institutional influences such as system marketing, external pressure, key player involvement; and facilitating conditions, such as compatibility, uniform standards, and some organizational factors such as top management support, champion existence, and adequate resources. Two more works showed that institutional influences are important in firms’ adoption decision. Deeter-Schmelz et al. (2001) suggested that suppliers play an important role in influencing buyer adoption of EMs for purchasing. Min and Galle’s (1999) study provided evidence that influence from big buyers strongly affects the adoption of EMs.

A glance at Table 2 shows that researchers have studied the effect of many different factors on the adoption of EMs. These factors can be approximately grouped into four categories: performance expectancy; effort expectancy; institutional influence; and facilitating conditions. By aggregating their work, we have arrived at the superficial conclusion that effort expectancy is a less studied factor, while performance expectancy and institutional influences of any kind have been shown to be important. However, researchers have not agreed on what kind of institutional influences and performance expectancy drive EM adoption. More formal and explicit examination is needed to determine the relative importance of the factors that influence EM adoption decisions.

RESEARCH QUESTIONS

To determine which factors are more important than others in influencing EM adoption decisions, one needs a multiple perspective view since adoption factors have different importance when the analytical perspective changes. For example, suppliers and buyers may have different attitudes toward EM adoption, so factors affecting their adoption decisions may differ. Another example is changing EM market conditions that could also change EM adoption factors. One reason why researchers have not achieved agreement on the driving forces of EM adoption may be explained by a lack of multiple perspectives. Most empirical works in the literature have implicit perspectives, which are determined by their choice of different type of EMs, markets and subjects. Many have infused different perspectives into one, such as analysing buyer and seller motives as a whole. Only a few researchers have studied the adoption of EMs from a multi-perspective. Hadaya (2004) found that the relative influence of some determinants differs according to firm size. For example, the complexity of EM implementation and the level of present use of e-commerce play a more important role for SMEs than bigger companies. Kollmann (2001) showed that for suppliers, intermediation service, readiness to use and transformation rate are more important, while for buyers, the database quality, intermediation service and transportation rates are more important. At the same time, some authors pointed out that different market structures affect the success of EMs. In this paper, we will not only study the factors driving the adoption of EMs, but also how the importance of these factors varies when we view it from different perspectives. Specifically, we ask the following research questions:

1. What are the factors driving the adoption of EMs?
2. How do these factors differ in their importance between buyer and supplier perspectives?
3. How do these factors differ in their importance for EMs in different industries that have different market structures?
RESULTS

Factors affecting the adoption of EMs

We developed two levels of codes predicting the adoption of EMs. The first level was the four super categories suggested by UTAUT, and all the reasons for initial adoption in the case study fall into the UTAUT categories. Second, within each super category, we used open coding to develop the sub-categories (level two codes), and then assigned each to its relevant super category.

Performance expectancy. Out of 28 companies surveyed, 23 mentioned that they adopted an EM because of the economic benefits that this EM offers. The economic benefits are identified as:

- **Reach**: Some users adopted EMs because they could bring buyers and sellers to a central place, reducing search cost. As a result, these users can search for more products and reach more trading partners. This benefit is further enhanced by the value added services offered by an EM. For example, EM B, a used equipment auction site, offers guaranteed inspection reports, reducing the potential risk of participating in anonymous, virtual Internet auctions. Most users use the reach capability of EMs at an operational level, to find suppliers and products on a daily basis, but some suppliers use EMs to pursue new customers aggressively, thus using it at a strategic level.

- **Business process improvement**: Some users adopted EMs because EMs could greatly improve their business processes, resulting in more reliable information, supply chain cost reductions, and improved forecasts due to the use of CPFR. A few users adopted EMs to improve their business processes because they were not satisfied with their existing EDI systems, which were less flexible than EM systems. Users reported benefits like this mostly used transaction facilitation and CPFR functionalities in EMs C, D and E, but were not restricted to these two. For example, some of the EM A users reported that the use of EM A reduced the time to supply their products to customers since customers could use online electronic catalogues and need not wait for mailed catalogues.

Effort expectancy.

- **Ease of use**: Users may adopt EMs if they are easy to use and implement. However, this factor was not a concern of most users, and only three users mentioned it. We believe this is to be expected since the technology has become more mature. System usability is a factor that can be controlled partially by EM operators and IT infrastructure developers. They would increasingly realize the importance of this issue and put a substantial effort into creating systems
Table 3. Case overview

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Industry environment</th>
<th>EM description</th>
<th>EM functionalities</th>
<th>Buyers/Suppliers/Total</th>
</tr>
</thead>
</table>
| EM A | Independent | Promotional product industry (Fragmented on both buy and sell sides) | EM A was established in 2001 by an influential promotional product association to support its supplier and distributor members. It has 1,500 members. Each member pays a monthly fee to EM A for its Web services. This EM is essentially an online marketplace that dispenses promotional product information only. | Product catalogue | B: 4  
S: 1  
T: 5 |
| EM B | Independent | Used heavy construction equipment (Fragmented on both sides) | Founded in 1999, EM B has grown into a famous equipment auction site offering used construction equipment online including Caterpillar bulldozers, Case backhoes etc. More than 7,000 auction attendees from across the US and 25 other countries registered to bid on over 500 construction equipment items at the online auction. The auction sessions are hosted every two weeks. Other services include guaranteed equipment inspection report and financing. | Forward auctions | A user can play both roles  
T: 5 |
| EM C | Supplier Consortia-based | Hospital industry (Concentrated on both sides) | EM C was founded by several major medical surgical suppliers, and began providing service in 2000. It has a presence in both Canada and the US. Currently many Canadian hospitals and a majority of the large medical surgical suppliers participate with this EM. Its suppliers represent 70% of the Canadian med-surgical market. | Transaction facilitation (order processing) | B: 3  
S: 2  
T: 5 |
| EM D | Buyer consortia-based | Mining industry (Concentrated on buy side) | EM D is a private company founded by some large mining, mineral and metal companies to provide sourcing solutions to the mining industry. It began its operation in 2000 and now has developed into a fully functional global EM, with a substantial number of employees worldwide, thousands of active suppliers, and more than 20,000 invisible suppliers who can be brought active upon request. Since there is no direct input needed for mining company production, their purchasing needs focus on mostly indirect product purchases. | Transaction facilitation (Order processing) | B: 3  
Reverse auctions | S: 3  
T: 6 |
| EM E | Buyer consortia-based | Retail industry (Concentrated on buy side) | EM E was established in 2000 and sponsored by several big retailers. It was a successful EM in the retail industry. It has offices across many countries, including North America, Europe and Asia. It has many thousands of active users. Currently EM E has merged with another EM to gain more liquidity. | Reverse auctions | B: 4  
CPFR (Collaborative Planning, Forecasting and Replenishment) | S: 3  
T: 7 |
that were easy to use, in order to survive. On the other hand, users are becoming familiar with computers, the Web, search engines, software systems, etc, so they may find that EM systems are easy to use and do not consider this factor to be a problem when making adoption decisions.

**Institutional influence.** Fourteen companies reported institutional influences of three kinds: following B2B trends; customer requests; and other influences from suppliers, sister companies, etc.

- **Trend followers:** Trend followers are companies who adopted EMs just to follow the B2B e-commerce hype, sometimes without careful justification. We found this to be typical in some companies. For example, some interviewees stated that they adopted EMs because ‘it is the right direction’, or because they ‘feel the trend that everybody else is kind of going to the online market place more often’, or ‘The only reason is, this is an emerging way of doing business, (we) would be able to follow the troops, would like to be the first, upfront, first core channel of using e-commerce’.

- **Customer requests:** Customer requests refer to supplier adoption of an EM due to customer explicit requests. Customer requests could come in the form of a contract, or with an invitation letter. For example, one interviewee stated: ‘In this case we got a letter from the customer saying we like your business, and we appreciate what you do for us, but from now on we would like to transact with you this way. Basically we don’t have that much of a choice’. For some organizations, their decisions were based on both economic considerations and customer requests, but in some cases suppliers adopted the EM only because of customer requests.

- **Other influences:** Drivers for EM adoption also came through recommendations from other important parties in addition to clients, such as suppliers, sister companies, or parent companies. For example, one company adopted EM D because its parent company had invested in EM D and recommended that they used it. ‘We were initially more influenced by our old corporate parent to get involved in (EM D), because of their involvement’. One hospital that used EM C admitted that their adoption decision was affected by a supplier recommendation. Supplier influence was rarely seen in our case studies and this hospital was the only user that mentioned this particular driving force. In the case of EM B, a participating dealer already bundled its equipment for sale with its sister company, and the sister company suggested using this EM to auction off their equipment.

**Facilitating conditions.** Fourteen companies reported diverse facilitating conditions that affected their adoption decisions, including special offers from EMs, system compatibility, familiarity with business practices, and others.

- **Special offers from EMs:** Some users received extra benefits by being involved in pilot programmes, or getting special offers from EMs to encourage their adoption decisions. For example, one supplier decided to become involved in an EM pilot programme because it expected that the EM would work closely with them and develop an understanding of their business processes.

- **System compatibility:** One client adopted an EM system because it used the same software system in its internal operation.

- **Familiarity with business practices:** Familiarity with online business practices was one reason for the
adoption of EMs. For example, some users adopted EM B because they were accustomed to using auctions even before adopting it, so they thought that adopting EM B would improve and not disrupt their businesses.

- **Others**: Other reasons for adoption included: First, EM A, which was owned by a trade association, was provided as one of the benefits to its members. Some EMs adopted this EM simply because it was free once they joined the association. Second, several companies were shareholders of certain EMs, so adopting the use of these EMs was natural. Three of the EMs we studied were consortia-based EMs, whose consortium membership included mainly shareholders. In our case studies, four companies attributed their adoption to the shareholder status of the company. Third, one company adopted EM D because convenient outside funding was available at that time.

Coding results showed that performance expectancy, including search and business process improvement expectancy, appeared to be the most important adoption determinant, and effort expectancy the least important. This overall trend partially matches findings from the literature, especially for the lower importance of ‘effort expectancy’. Although equal numbers of companies reported facilitating conditions and institutional influences in the case studies, we found that, for facilitating conditions, the second level codes were not as concentrated as they were for institutional influences. In ‘facilitating conditions’, four codes were developed and most of these were included in ‘others’ category, but in ‘institutional influences’, most companies fell into ‘trend follower’ and ‘customer request’ categories. These findings suggest that institutional influences might be similar for many companies, but facilitating conditions might be different for each company.

**View from the supplier/buyer perspective**

We investigated how the factors affecting EM adoption differ between suppliers and buyers. Figure 1 shows the percentage of suppliers/buyers reporting one of the four super-categories that were important to their decision making. We excluded EM B in this calculation since for EM B a user could play the role of either a buyer or a seller. A total of 9 suppliers and 14 buyers were included in this result. From this figure we can see that, for buyers, performance expectation appears to be the most important factor, but for suppliers, institutional influence and facilitating factors tend to be the most important.

These results could be explained by supplier reluctance and the increased bargaining power of buyers. Suppliers are said to be at a disadvantage in EM environments, so they are more reluctant than buyers to adopt EMs (Memishi 2001). To be persuaded to adopt an EM, they need ‘push’ in the form of certain influences (very likely buying power) or facilitating conditions of any kind. On the other hand, with the increased bargaining power of buyers, the influence is more likely to come from the buy side. From interview data, we also saw that a few suppliers adopted EMs simply because of customer requests, without consideration of economic benefits. Some buyers seemed to exert significant power over suppliers. To find more information about how suppliers were influenced in EM adoption, we coded the companies who exerted influences on other companies (the code is ‘influence others’) and who were influenced by others (the code is ‘influenced by’), and then grouped these two codes by suppliers and buyers (see Figure 2). Our case data indicate that buyers were mostly the ones who exerted power on their trading partners, and suppliers were in a position to be influenced by others. Buyers were more autonomous in their decision, so most of them adopted
EMs only if they thought that EMs could improve their performance (see Figure 1).

**View from market structure perspective**

Figure 3 shows adoption factors grouped by industry. Specifically, data for fragmented industries come from EMs A and B, and data for concentrated industries come from EMs C, D and E. In fragmented industries, performance expectancy seems to be the number one reason for adoption, and its importance from our observations is obviously greater than the other three factors. But in concentrated industries, the mix of performance expectancy, institutional influence, and facilitating conditions seems to play an important role. This may be because of the power imbalance existing in concentrated industries and the greater effort a company has to make when adopting an EM in these industries.

In fragmented industries, companies are small but of a similar size. Few companies have significant power over other companies, so companies in fragmented industries are less likely to be subject to substantial power from trading partners. They are thus more likely to make autonomous decisions. On the other hand, considering the small size and the limited resources of potential users, EMs within fragmented industries may offer only simple functions such as auctions, and product catalogues that need to be updated less frequently, so they require less adoption effort and resources from users.

This may de-emphasize the importance of facilitating conditions. In our case study, we found that the two EMs (EM A and B) in fragmented industries needed much less commitment of resources from adopting users than the three EMs (EMs C, D and E) in concentrated industries. The latter required significant investment from users, especially when system integration was involved.

In concentrated industries, dominance or power imbalance is common. Some consortia-based EMs might be established with the expectation that big companies in the consortia would force their trading partners to adopt the EM, thus achieving critical mass quickly. Institutional influence would, therefore, be important for suppliers who were in a weak position. In fact, with an analysis of the code ‘customer request’, we found that six out of eight suppliers from concentrated industries fell into this category. Therefore, the power imbalance that is characteristic of concentrated industries may explain why institutional influence is important for companies adopting EMs in these industries. On the other hand, EMs in concentrated industries are more likely to offer integration and collaboration functionalities that require significant resource investment from users. This may enhance the importance of facilitating conditions for users in these industries, helping to reduce/support their investments, gather company resources (including top management attention), or make the best of their investments when the required amount can not be reduced.

**Figure 2. Influences grouped by buyers/suppliers (coding results)**

**Figure 3. Adoption factors grouped by market structure (coding results)**

*Note: The number of participating companies in concentrated industries and fragmented industries was 18 and 10 respectively*
CONCLUSIONS AND MANAGERIAL IMPLICATIONS

This paper reports on a multiple perspective study of the adoption of EMs. This approach was adopted since adoption factors may take on different levels of importance when studied from different perspectives. A case study approach was used since the EM phenomenon is still relatively new. The limited data from the five case studies suggest, for the four categories of the UTAUT framework, that performance expectancy is the most important consideration for participating users, followed by institutional influence and facilitating conditions. Ease of use was indicated as the least important consideration for users, probably because most EM operators themselves have given due attention to this factor. Based on this preliminary study, there appears to be indicative evidence that the importance of adoption factors might vary depending on the perspective being considered. From a buyer/supplier perspective we found that, for buyers, performance expectancy is the most important, but for suppliers, influence and facilitating conditions of any kind are important. This result may suggest that suppliers are more passive in adopting EMs than buyers. For companies in fragmented industries, performance expectancy appeared to be the most important factor, but for companies in concentrated industries, performance expectancy, institutional influence and facilitating conditions all contributed to the adoption of EMs. Another finding from our limited data was that, for suppliers in concentrated industries, customer requests were the most important driver for adopting EMs.

The findings from our research are limited since we examined only five cases. The results may be generalized to support EM adoption theory, and also inter-organizational system adoption. However, caution is advised when generalizing the results to the whole EM population (Lee 1989, Yin 1994). Further research, involving larger sample sizes, would be needed before more confirmatory conclusions could be reached. This research has some managerial implications for EM operators. Since performance expectancy appeared to be the most important determinant in the case studies, EM operators should focus on providing real value to users, including greater reach and business process improvement. Among these EM benefits, business process improvement seems to be especially important. This should provide a caution for EM operators who count on big players to bring liquidity, but do not manage to offer real value in exchange. Moreover, influence from trading partners appears to be important, especially for suppliers in concentrated industries. Therefore, to be successful, EMs in these industries should still consider leveraging the power of big players to promote adoption, while at the same time offering real value to users.

References


