The Influence of Partnership Attributes on the Perceived Benefits of Business-to-Business Electronic Commerce

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Abstract

Partner relationships in business-to-business electronic commerce (B2B e-commerce) are important issues for both practitioners and academicians. However, empirical studies have seldom addressed the influence of various partnership factors on perception of B2B e-commerce benefits. This study employs the structural equation modeling to examine how partnership attributes (e.g. partner interdependence, coordination, trust, and commitment) influence perceived benefits of B2B e-commerce, which has three dimensions, namely informational, transactional, and strategic benefits. Data collected from 157 IS executives in large Taiwanese organizations were used to test the relationships between the research model constructs. The results indicate that partner interdependence, coordination and trust influence the perception of B2B e-commerce for informational, transactional and strategic benefits, whereas partner commitment contributes only to perceived strategic benefits of B2B e-commerce. The results of this study could help e-business managers or policy-makers to implement B2B e-commerce effectively in their organization and with trading partners.

Keywords: B2B e-commerce; Partnership attributes; Perceived benefits; Structural equation modeling

1. Introduction

Partner relationships in the e-commerce context are important issues for both practitioners and academicians (Futla et al., 2002; Marshall and Mckay, 2002). Even if partner relationships have been traditionally associated with successful buyer-seller relationships, partnerships have been recently regarded as the foundation of Internet-based business-to-business electronic commerce (B2B e-commerce) (Leidner, 1999; Ratnasingam and Pavlou, 2003). Moreover, Gebauer and Shaw (2002) proposed that the B2B e-commerce is characterized by the following elements: sharing of business information with trading partners, maintaining interorganizational relationships, conducting business transactions by means of communication technology, and incorporating the Internet and open communication standards. According to these characteristics, B2B e-commerce greatly increases inter-firm dependency between the firm and trading partners, which has the potential to significantly influence business operations and logistical activities, thus creating the need to determine the relationship between partnerships factors and perceived benefits of B2B e-commerce.

The existing information systems/information technology (IS/IT) management literature suggests that interorganizational relationships can be used to enhance the organizational benefits of IS. For example, Mackay (1993) found that the level of cooperation in buyer-supplier relationships was positively related to the scope of electronic data interchange (EDI) use. Dewett and Jones (2001) have identified five categories of interorganizational relations that enabled organizational outcomes of IT: improved ability to link and enable employees, improved ability to codify the organization’s knowledge base, improved boundary spanning capabilities, improved information processing that leads to increased efficiency, and improved collaboration and coordination that promotes innovation. A more recent survey by Ratnasingam and Pavlou (2003) demonstrated that technology trust and trading partner trust are positively related to increased economic and relational B2B e-commerce performance. Although the above studies have detected an increased interest in partnerships among trading partners and its influence on organizational benefits of information systems, little has been done on investigating the influence of various partnership factors on perception of B2B e-commerce benefits.

Following previous studies, this study attempts to examine how partnership attributes (e.g. partner interdependence, coordination, trust, and commitment) affect the perceived benefits of B2B e-commerce. The research model and hypothesized relationships are empirically
tested using the structural equation modeling (SEM) approach, supported by the LISREL software. Moreover, since B2B e-commerce resembles a networked community of organizations that are governed by specific policies and strategies, this study contributes to B2B e-commerce literature by examining a unique set of partnerships that arise from online interorganizational collaboration and transaction. From an empirical perspective, this study contributes to B2B e-commerce research by clarifying the relationship between partnerships attributes and perceived benefits of B2B e-commerce. The managerial contribution comes from the study’s findings that enable e-business managers or policy-makers to implement B2B e-commerce effectively in their organization and with trading partners.

2. Literature Review

2.1 Partnership Attributes

Partnerships have received a considerable attention from multiple literature streams. In strategy and marketing studies, partnerships have been related to desirable outcomes such as competitive advantage, organizational performance, and economic advantages (Ko and Rho, 2003; Mohr and Spekman, 1994; O’Toole, 2003; Tuten and Urban, 2001). In organizational literature, interorganizational relations have been posited to increase organizational efficiency and enhance organizational innovation (Dewett and Jones, 2001). From the IS/IT perspective, partnership was an important factor behind effective use of interorganizational information systems (de Klerk and Kroon, 2005; Hart and Saunders, 1998). In sum, partnerships have been associated with fundamental positive organizational outcomes.

Extant literature has focused on interdependence, coordination, trust, and commitment as important attributes of partnership (Anderson and Narus, 1990; Mohr and Spekman, 1994; Tuten and Urban, 2001). When these attributes exist in a partner relationship, the trading partners recognize their mutual dependence and are committed to achieve a beneficial relationship (Tuten and Urban, 2001). Partnership attributes were described as follows. First, interdependence is the extent to which both the firm and trading partners perceive a need for their relationship, value each other’s contribution of skills, resources, or value-added, and perceive that the relationship cannot be readily replaced (Anderson and Narus, 1990). It has been found to serve as a predictor of selling partner relationships (Smith, 1997), organizational outcomes (Nicolaou, 2000), and EDI performance (Lee and Lim, 2003). Second, Anderson and Narus (1990) suggest that successful working partnerships are marked by coordinated actions directed at mutual goals. Coordination is needed to maintain stability between participants in the online transaction environment (Chatterjee et al., 2002; Mohr and Spekman, 1994). Third, trust refers to the confidence or predictability in the firm’s expectations about a party’s behavior, and confidence in a party’s goodwill (Doney and Cannon, 1997). It is viewed as a critical element in exchange relations (Mohr and Spekman, 1994) and has been liked to a variety of positive relationship outcomes including customer satisfaction (Pavlou, 2002) and e-commerce performance (Ratansingam and Pavlou, 2003). Finally, commitment has been identified as the variable that refers to the willingness of trading partners to exert effort on behalf on the relationship (Mohr and Spekman, 1994). It has been linked to satisfaction in business-to-business partnerships (Tuten and Urban, 2001) and to EDI implementation success (Lee and Lim, 2003).

2.2 Measuring the Benefits of E-commerce

Mirani and Lederer (1998) proposed that the benefits of IS implementation can be classified into three objectives: informational, transactional and strategic benefits. Informational benefits comprise information access, information quality, and information flexibility. Transactional benefits are broken down into communication efficiency, systems development efficiency, and business efficiency. Finally, strategic benefits are also of three types: competitive advantage, alignment, and customer relations. According to the above theory, Lederer et al. (2001) investigated that organizations using the website to achieve informational, transactional and strategic efficiency can create strategic advantage through improved customer relations. Raymond (2001) conducted an empirical analysis to identify various factors determining the assimilation of e-commerce by 54 Canadian travel agencies in the form of informational, transactional and strategic functions of a website. Informational functions provide customers with available information on the agency’s products. Transactional functions allow customers to make orders and payments online. Strategic functions help the organizations to maintain or increase market share and enter new markets.

Following the recognition of the wider range of potential benefits of e-commerce, Moodley (2003) conducted an extensive review of the literature on B2B e-commerce benefits, and classified the potential benefits of B2B e-commerce into the following categories: lower costs, network scale, and improved services levels. Moreover, DeLone and McLean (2003) synthesized a six-dimensional taxonomy of e-commerce success. The dimensions were: systems quality, information quality, service quality, use, user satisfaction, and net benefits. “Net benefits” denote the balance of positive and negative impacts of e-commerce on firm’s customers, suppliers, and employees, markets, industries, economies, and even societies. The assessment of net benefits of e-commerce involves five sub-dimensions: cost savings, expanded markets, incremental additional sales, reduced search costs, and time saving.

3. Research Model and Hypotheses
This study developed a research model, shown in Figure 1, which examines the relationship between partner interdependence and perceived benefits of B2B e-commerce. Following Mohr and Spekman (1994), this study posited that interdependence attributes include the dimensions of partner interdependence, coordination, trust, and commitment. Moreover, B2B e-commerce applications are similar to general Internet-based information systems that have a significant impact on organizational decision-making behaviors and buyer-seller relationships (Moodley, 2003; Pinnegan et al., 2003). Thus, based on the research framework by Mirani and Lederer (1998), this study considers the benefits of B2B e-commerce as a three-dimensional construct, involving informational, transactional, and strategic benefits. The individual relationships involved in the research model and hypotheses are detailed below.

3.1 Partner Interdependence

Interdependence results from a relationship in which both organizations perceive mutual benefits from interacting (Bensaou and Venkatraman, 1995; Lee and Kim, 1999). Both parties recognize that the advantage of interdependence provides benefits greater than could be attained by each party on its own (Mohr and Spekman, 1994). Moreover, Nicolaou (2000) indicated that improving interorganizational dependence was essential to enhancing effectiveness of accounting information systems. Furthermore, Lee and Lim (2003) examined the impact of EDI use on trading partner relationships, and found that the level of interdependence was positively related to EDI performance through its effect on the implementation of EDI. Accordingly, a high level of interdependence is believed to increase the advantages of B2B e-commerce. The following hypotheses thus are formulated:

**H1a**: Partner interdependence positively affects the perceived informational benefits of B2B e-commerce.

**H1b**: Partner interdependence positively affects the perceived transactional benefits of B2B e-commerce.

**H1c**: Partner interdependence positively affects the perceived strategic benefits of B2B e-commerce.

3.2 Partner Coordination

Developing effective coordination within and beyond organizational boundaries maximizes the potential for converting competitive advantage into profitability (Dyer and Singh, 1998; Wu, 2004). Simatupang et al. (2002) studied interorganizational coordination processes characterized by information sharing, incentive alignment, collective learning, partnering and performance monitoring for supply chain integration. Moreover, previous marketing research has identified coordination as the mechanism by which business-to-business supplier organizations can influence the level of channel conflict, both externally with their distribution partners, and internally among the subunits responsible for managing various channels. (Webb, 2002). A more recent survey by Chatterjee et al. (2002) examined the degree to which coordination mechanisms positively influenced organizational assimilation of web technologies in e-commerce strategies and activities. Thus, the benefits of B2B e-commerce can be achieved through enhanced coordination between trading partners. The following hypotheses are formulated:

**H2a**: Partner coordination positively affects the perceived informational benefits of B2B e-commerce.

**H2b**: Partner coordination positively affects the perceived transactional benefits of B2B e-commerce.

**H2c**: Partner coordination positively affects the perceived strategic benefits of B2B e-commerce.

3.3 Partner Trust

Morgan and Hunt (1994) defined trust as being one party having confidence in the reliability and integrity of the other partner involved in an exchange. The importance of trust in interorganizational and commercial relationships is evidenced by various fields such as marketing (Morgan and Hunt, 1994; Tuten and Urban, 2001), EDI (Hart and Saunders, 1998; Lee and Lim, 2003) and e-commerce (Papadopoulou et al., 2001; Ratnasingam, 2005; Tjader et al., 2004). Moreover, Shankar et al. (2002) proposed that online trust on the Internet is assuming increasing importance. Because of the high uncertainty associated with e-commerce, companies can behave opportunistically on the Internet, leading to unpredictable behavior. Ratnasingam and Pavlou (2003) examined that a trusting relationship is a critical factor for e-commerce performance. Consequently, this study expects a high level of partner trust to increase the benefits of B2B e-commerce. The following hypotheses are formulated:

**H3a**: Partner trust positively affects the perceived informational benefits of B2B e-commerce.

**H3b**: Partner trust positively affects the perceived transactional benefits of B2B e-commerce.

**H3c**: Partner trust positively affects the perceived strategic benefits of B2B e-commerce.

3.4 Partner Commitment

Partner commitment has been defined as the degree of relationship continuity pledged between trading partners. Partner commitment includes a strong belief in and acceptance of the mutual objectives in successful trading relationships, and the willingness to exert considerable efforts on behalf of the relationship (Lee and Kim, 1999). Numerous IT studies have demonstrated that successfully solving the problems associated with IS development is widely believed to depend on organizational commitment to IS implementation (Angeles et al., 2001; Sabherwal and Elam, 1995). Moreover, Lee and Lim (2003) examined
that partner commitment affects the extent to which firms undertake EDI use and performance. Therefore, this study expects that a strong partner commitment appears to increase the benefits of B2B e-commerce. The following hypotheses are formulated:

- **H4a**: Partner commitment positively affects the perceived informational benefits of B2B e-commerce.
- **H4b**: Partner commitment positively affects the perceived transactional benefits of B2B e-commerce.
- **H4c**: Partner commitment positively affects the perceived strategic benefits of B2B e-commerce.

**4. Research Methodology**

4.1 Samples and Data Collection

A draft questionnaire was pilot tested by three MIS professors to ensure that the content and wording were free of problems. Five IS executives then examined the revised questionnaire for its meaningfulness, relevance, and clarity.

In this study, the criteria for defining a large firm were adopted from the 2003 Common Wealth directory of the 1000 largest firms in Taiwan. A large business must meet the following two criteria: (1) the number of employees in the firm should exceed 100; and (2) the annual sales of the firm should exceed NT$100 million. Moreover, the questionnaire was targeted at IS executives (including CIO/vice president for IS, IS managers, project leader for e-commerce, and senior e-commerce specialists) who have wide experience and are best positioned to assess their organizational e-commerce activities, benefits, and trading partner relationship perceptions (Ranganathan et al., 2004; Ratnasingam and Pavlou, 2003). They were asked to respond based on their perceptions of their relationships with self-selected trading partners. However, the 2003 Common Wealth directory of the 1000 largest firms in Taiwan did not contain information on IS department. Consequently, to ensure that IS executives received the questionnaire and to maximize response rate, two research assistants spent two weeks telephoning these 1000 firms. The research assistants asked the target firms whether they had formal IS departments and sought the name of IS executives to whom a questionnaire should be mailed. Firms with no formal IS departments were removed from the sample. The final questionnaires were mailed to 820 IS executives in the summer of 2003. A cover letter explaining the study objectives and a stamped self-addressed envelope were enclosed. Follow-up letters were sent approximately three weeks after the initial mailing.

4.2 Measures

Table 1 lists the definitions of the constructs in this study and the related literature. All constructs were measured using multiple items. Meanwhile, all items were measured using a five-point Likert-type scale (ranging from 1 = strongly disagree to 5 = strongly agree). The Appendix lists all of the survey items. Moreover, partnership attributes were measured as follows. First, partner interdependence was measured with an original two-item scale that was consistent with Anderson and Narus (1990). These items assessed mutual need recognition between the firm and trading partners. Second, partner coordination was measured using a four-item measure modified from Lee and Kim (1999) and Chatterjee et al. (2002) that assessed the extent of harmonious work between the firm and trading partners. Third, partner trust was defined as the extent to which the confidence and willingness existing between the firm and trading partners. A four-item measure taken from the work of Lee and Kim (1999) was
modified to assess partner trust. Finally, partner commitment was measured using four items derived from Lee and Lim (2003), which focused on willingness of the firm and trading partners to expend effort on making the relationship successful. This study followed the research framework by Mirani and Lederer (1998) and considered the B2B e-commerce context (DeLone and McLean, 2003; Gebauer and Shaw, 2002; Kafer and Bendoly, 2004; Moodley, 2003; Pinnegan et al., 2003). All the benefits of B2B e-commerce were classified according to the organizational outcomes they would help achieve. Three types of objectives were identified namely informational, transactional and strategic benefits. Informational benefits were measured using four items to assess the enhancement of useful, accurate, and reliable information by implementing B2B e-commerce. Five-item measures assessed the transactional benefits, indicated by the decrease in transaction costs and reduction in delivery time due to implementing B2B e-commerce. Finally, strategic benefits were measured using four items, which assessed the degree of creating linkages with other organizations (such as customers, suppliers and competitors) by implementing B2B e-commerce.

4.3 Statistical Analysis

The research model shown in Figure 1 was analyzed primarily using structural equation modeling, supported by the LISREL software. Numerous researchers have proposed a two-stage model-building process for applying structural equation modeling (Anderson and Gerbing, 1988; Hair et al., 1998; Hoyle, 1995; Joreskog and Sorbom, 1996; Maruyama, 1998), in which the measurement models (or confirmatory factor models) were tested before testing the structural model. The measurement models specify how hypothetical constructs are measured in terms of the observed variables. The structural model depicts the hypothesized relationships between the latent constructs.

5. Data Analysis and Results

5.1 Sample Characteristics

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Definition</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner interdependence</td>
<td>The degree of mutual needs recognition between the firm and trading partners.</td>
<td>Anderson ad Narus (1990)</td>
</tr>
<tr>
<td>Partner coordination</td>
<td>The degree of harmonious work between the firm and trading partners.</td>
<td>Chatterjee et al. (2002); Lee and Kim (1999)</td>
</tr>
<tr>
<td>Partner trust</td>
<td>The degree of mutual confidence between the firm and trading partners.</td>
<td>Lee and Kim (1999)</td>
</tr>
<tr>
<td>Partner commitment</td>
<td>The degree of efforts to continue the relationships between the firm and trading partners.</td>
<td>Lee and Lim (2003)</td>
</tr>
<tr>
<td>Strategic benefits</td>
<td>The degree of creating linkages with other organizations (such as customers, suppliers and competitors) by implementing B2B e-commerce.</td>
<td>DeLone and McLean (2003); Mirani and Lederer (1998)</td>
</tr>
</tbody>
</table>

Of the 820 questionnaires distributed, 202 completed and usable questionnaires were returned, representing a response rate of 24.6%. All respondents were IS executives, and had worked in the IS field for an average of 13.1 years. Out of the 202 respondents, 157 respondents had implemented B2B e-commerce such as individual supplier catalogues, Internet-based extranet, Internet-based enterprise resource planning, and supply chain management. A comparative analysis of number of employees and sales turnover was conducted in order to see if responding firms have significantly different characteristics from non-respondents. T-tests showed no significant difference between the two groups of respondents in terms of number of...
employees ($t = 0.98, p = 0.378$) and sales turnover ($t = 1.14, p = 0.183$) at the 5 percent significant level, suggesting that non-response bias was not concern in this study.

The characteristics of the sample are shown in Table 2. The values in the table indicate that the respondents were fairly distributed across various industry groups, sales revenue levels, employee size, and B2B e-commerce experience. There is a wide distribution of firms ranging from 19 percent with sales revenue between NT $100 million and NT $500 million to 10 percent having over NT$5 billion sales. Likewise, this study noticed a fair distribution of firms with respect to employee size also, ranging from 30 percent of the firms with 100-500 employees to 13 percent to them having more than 5000 employees. Moreover, this study had firms who were relatively new to the B2B e-commerce of operations (23 percent had less than one year B2B e-commerce), as well as firms who had used it for a number of years (18 percent had greater than three years experience). These values enable this study to generalize the analytical results to a wider cross-section of the population.

5.2 Measurement Model

The research instrument used confirmatory factor analysis (CFA) to examine the reliability and validity of the proposed constructs. Table 3 lists the results of measurement model CFA. As can be seen, the composite reliability of all scales exceeds the 0.70 thresholds for acceptable reliability, as suggested by Bagozzi and Yi (1988). Convergent validity is indicated by the fact that items factor loading significantly (i.e., $t > 1.96$) on their corresponding latent construct, with the lowest $t$-value being 9.68 (Bagozzi et al., 1991). Furthermore, discriminant validity reflects the extent to which the measures for each construct distinctly with the lowest $t$-value being 9.68 (Bagozzi et al., 1991). Other fit indexes include the goodness-of-fit index (GFI) and comparative fit index (CFI) exceed the recommended cut-off level of 0.9 (Bagozzi and Yi, 1988). The adjusted goodness-of-fit index (AGFI) also exceeds the recommended cut-off level of 0.8 (Chau and Hu, 2001). The root mean square error of approximation (RMSEA) is below the cut-off level of 0.08 recommended by Browne and Cudeck (1993). The combination of these results suggests that the demonstrated measurement model fits the data well.

5.3 Testing the Hypotheses

The structural model relating the model constructs shown in Table 5, has a good fit as judged from the goodness-of-fit indices (GFI = 0.90; AGFI = 0.84; CFI = 0.92; RMSEA = 0.077), and its Chi-square index is significant ($\chi^2 = 885.98$; $df = 360$; $\chi^2/df = 2.46$) (Bagozzi and Yi, 1988).

Table 5 lists the analytical results of the estimation structural model. The analytical results showed that partner interdependence positively affects the perceived B2B e-commerce informational benefits ($\beta = 0.34, p < 0.05$), transactional benefits ($\beta = 0.52, p < 0.01$) and strategic benefits ($\beta = 0.61, p < 0.01$), providing support for H1a, H1b and H1c. The analytical results also support H2a, H2b, and H2c, as partner coordination positively affects the perceived B2B e-commerce informational benefits ($\beta = 0.69, p < 0.01$), transactional benefits ($\beta = 0.63, p < 0.01$) and strategic benefits ($\beta = 0.69, p < 0.01$), as well as firms who had used it for a number of years (18 percent had greater than three years experience). These values enable this study to generalize the analytical results to a wider cross-section of the population.

### Table 3. Results of Measurement Model CFA

<table>
<thead>
<tr>
<th>Latent construct</th>
<th>Item</th>
<th>Factor loading</th>
<th>t-value</th>
<th>Composite reliability$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner interdependence (INTER)</td>
<td>INTER1</td>
<td>0.71</td>
<td>10.63</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>INTER2</td>
<td>0.77</td>
<td>11.87</td>
<td>0.91</td>
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<tr>
<td>Partner coordination (COORD)</td>
<td>COORD1</td>
<td>0.74</td>
<td>11.86</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>COORD2</td>
<td>0.77</td>
<td>12.49</td>
<td>0.89</td>
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<tr>
<td></td>
<td>COORD3</td>
<td>0.84</td>
<td>14.24</td>
<td>0.87</td>
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<tr>
<td></td>
<td>COORD4</td>
<td>0.84</td>
<td>14.06</td>
<td>0.91</td>
</tr>
<tr>
<td>Partner trust (TRUST)</td>
<td>TRUST1</td>
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<td>13.63</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>TRUST2</td>
<td>0.87</td>
<td>15.09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRUST3</td>
<td>0.84</td>
<td>14.34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRUST4</td>
<td>0.80</td>
<td>13.24</td>
<td></td>
</tr>
<tr>
<td>Partner commitment (COMMI)</td>
<td>COMMI1</td>
<td>0.86</td>
<td>14.98</td>
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<td></td>
<td>COMMI2</td>
<td>0.87</td>
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<tr>
<td></td>
<td>COMMI3</td>
<td>0.82</td>
<td>13.78</td>
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<tr>
<td></td>
<td>COMMI4</td>
<td>0.63</td>
<td>9.68</td>
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<tr>
<td>Informational benefits (INFOR)</td>
<td>INFOR1</td>
<td>0.88</td>
<td>15.13</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>INFOR2</td>
<td>0.88</td>
<td>15.40</td>
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</tr>
<tr>
<td></td>
<td>INFOR3</td>
<td>0.79</td>
<td>12.95</td>
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<td></td>
<td>INFOR4</td>
<td>0.69</td>
<td>10.84</td>
<td></td>
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<tr>
<td>Transactional benefits (TRANS)</td>
<td>TRANS1</td>
<td>0.76</td>
<td>12.29</td>
<td>0.86</td>
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<tr>
<td></td>
<td>TRANS2</td>
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<td></td>
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<td>0.71</td>
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<td></td>
<td>START2</td>
<td>0.73</td>
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<td></td>
<td>START3</td>
<td>0.70</td>
<td>10.53</td>
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<tr>
<td></td>
<td>START4</td>
<td>0.82</td>
<td>13.70</td>
<td></td>
</tr>
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</table>

$^a$Composite reliability: (square of the summation of the factor loadings)/{(square of the summation of the factor loadings) + (summation of error variances)}
Table 4. Intercorrelations Among Study Constructs

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Partner interdependence</td>
<td>1.00</td>
<td></td>
<td></td>
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<tr>
<td>(2) Partner coordination</td>
<td>0.58</td>
<td>1.00</td>
<td></td>
<td></td>
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<tr>
<td>(3) Partner trust</td>
<td>0.43</td>
<td>0.68</td>
<td>1.00</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(4) Partner commitment</td>
<td>0.41</td>
<td>0.63</td>
<td>0.52</td>
<td>1.00</td>
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<tr>
<td>(5) Informational effectiveness</td>
<td>0.17</td>
<td>0.42</td>
<td>0.58</td>
<td>0.47</td>
<td>1.00</td>
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<tr>
<td>(6) Transactional effectiveness</td>
<td>0.11</td>
<td>0.46</td>
<td>0.60</td>
<td>0.55</td>
<td>0.67</td>
<td>1.00</td>
</tr>
<tr>
<td>(7) Strategic effectiveness</td>
<td>0.33</td>
<td>0.53</td>
<td>0.64</td>
<td>0.57</td>
<td>0.64</td>
<td>0.76</td>
</tr>
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</table>

Table 5. Results of Structural Model

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Path from</th>
<th>Path to</th>
<th>Path Coefficients</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a Partner interdependence</td>
<td>Informational benefits</td>
<td></td>
<td>0.34</td>
<td>3.59*</td>
</tr>
<tr>
<td>H1b</td>
<td>Transactional benefits</td>
<td></td>
<td>0.52</td>
<td>4.78**</td>
</tr>
<tr>
<td>H1c</td>
<td>Strategic benefits</td>
<td></td>
<td>0.61</td>
<td>5.12**</td>
</tr>
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<td>H2a Partner coordination</td>
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<td></td>
<td>0.69</td>
<td>6.41**</td>
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<td>0.63</td>
<td>5.79**</td>
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<tr>
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<td>Strategic benefits</td>
<td></td>
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<td>2.08*</td>
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<tr>
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<td>Informational benefits</td>
<td></td>
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<td>4.86*</td>
</tr>
<tr>
<td>H3b</td>
<td>Transactional benefits</td>
<td></td>
<td>0.65</td>
<td>5.27**</td>
</tr>
<tr>
<td>H3c</td>
<td>Strategic benefits</td>
<td></td>
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<td>2.73*</td>
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<tr>
<td>H4a Partner commitment</td>
<td>Informational benefits</td>
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<td>H4c</td>
<td>Strategic benefits</td>
<td></td>
<td>0.24</td>
<td>2.53*</td>
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</table>

* p<0.05  ** p<0.01

strategic benefits (β = 0.19, p < 0.05). As predicted by H3a, H3b, and H3c, partner trust positively affects the perceived B2B e-commerce informational benefits (β = 0.55, p < 0.01), transactional benefits (β = 0.65, p < 0.01) and not significantly affects the perceived B2B e-commerce strategic benefits (β = 0.23, p < 0.05). However, no support is found for H4a and H4b, as partner commitment does informational benefits (β = 0.14, p > 0.05) and transactional benefits (β = 0.03, p > 0.05). Partner commitment affects the perceived B2B e-commerce strategic benefits (β = 0.24, p < 0.05), supporting H4c.

6. Discussion

This study examined the influence of partnership attributes (e.g. partner interdependence, coordination, trust, and commitment) on the perceptions of informational, transactional, and strategic benefits about B2B e-commerce. Of the 12 hypothesized relationships, 10 were statistically significant. The analytical results are discussed below.

The analytical results showed that partner interdependence significantly influenced the perceived informational, transactional, and strategic benefits of B2B e-commerce. The finding that partner interdependence was a key factor is consistent with interorganizational relationship theory and research which suggests that interorganizational dependence is more committed to the success of IS implementation and that interdependence gives trading partners a reason to cooperate (Nicolaou, 2000; Skinner et al., 1992). That is, the more mutual dependence between the firm and trading partners can improve information quality and transactional efficiency for B2B e-commerce, thus enhancing the strategic opportunities provided by B2B e-commerce applications.

Significant partner coordination was found for all three aspects of B2B e-commerce benefits. The finding that partner coordination is the essential factor is consistent with previous studies that identified coordination as the key to success of e-commerce applications (Chatterjee et al., 2002; Kim, 2001). Mutual coordination becomes more important for cooperation mechanisms since it involves interaction with trading partners and the creation of business agreements regarding the use of B2B e-commerce activities. Additionally, the coordination approach enabled trading partners to overcome the trading conflicts and share explicit understanding about overall e-commerce transaction processes.

The results of this study support the hypotheses that
Partner trust has significant and positive influence on perceived informational, transactional, and strategic benefits of B2B e-commerce. Moreover, similar results have also been found in previous studies on the use of interorganizational information systems (Hart and Saunders, 1998; Lee and Lim, 2003). The findings of this study demonstrate the importance of building and maintaining positive partner trust relationships to achieve improved information quality, increased business efficiency and improved trading partner relations in the B2B e-commerce context. Partner trust can upgrade a simple short-term exchange relationship into a more mature long-term association, which is mutually beneficial to suppliers and customers (Warrington et al., 2000). Furthermore, an undertaking of the integrity and confidentiality transaction is crucial to B2B e-commerce organizations wishing to meet their strategic goals. To summarize, high trust improves organizational outcomes of B2B e-commerce through better partner relationships.

Partner commitment was found to significantly influence the perceived strategic benefits of B2B e-commerce, but not informational and transactional benefits of B2B e-commerce. This finding might result from the fact that partner commitment considers more B2B e-commerce visions and strategies than existing B2B e-commerce activities, because partner commitment is involved more in strategy making than in operational management. This finding might also be explained by the fact that the mutual commitment in a trading relationship is more conducive to B2B e-commerce, in which the objective is forging alliances with trading partners, establishing improved links with suppliers and customers, and developing new product or service offerings.

7. Conclusions

This study makes a theoretical and empirical contribution to the emerging literature on partner relationships in the B2B e-commerce context by examining how partnership attributes affect the perceived benefits of B2B e-commerce. The implications for practitioners and researchers and the limitations of this study are discussed below.

7.1 Implications for Practitioners

This study has some important implications for practitioners who are initiating or currently conducting B2B e-commerce. First, since the future of most B2B e-commerce settings relies on high liquidity and trade volume, success of partner relationships is an important determinant of firm’s survival in the digital age. Hence, this study offers a useful framework for practitioners to understand partnership attributes (such as partner interdependence, coordination, trust, and commitment) influence on perceived benefits of B2B e-commerce. Specifically, e-business managers or policy-makers should utilize the findings of this study to improve the mechanism of partner relationships to achieve the objective of B2B e-commerce implementation. Second, the results show that partner interdependence is a fundamental to successful B2B e-commerce. Wu et al. (2004) suggested that trading partners desire to maintain a relationship with the firm may be influenced by the extent to which the firm fulfills its needs. Thus, managers should pay more attention to what trading partners’ need to generate higher level of mutual dependence between the firm and trading partners that contributes to perceived benefits of B2B e-commerce. Third, as the findings of this study show that partner coordination have impact on B2B e-commerce performance. Corporate executives must be aware that the coordinate efforts provide larger benefits than the individual firm can attain alone in the competitive global environment of B2B e-commerce. Fourth, the findings of this study provide evidence that partner trust significantly impact on perceived benefits of B2B e-commerce. Competent and well-trained trading partners to exhibit trustworthy ways of implementing B2B e-commerce that contribute to information, operational and strategic-related benefits. Finally, the results point out that partner commitment lead to greater strategic benefits but not to informational and transactional benefits of B2B e-commerce. This implies that strategic value of B2B e-commerce investment could be affected by the mutual commitment in a trading relationship. Thus, this study informs managers that establishing partner commitment should be strategically managed to realize business value beyond transaction efficiencies and cost reduction.

7.2 Limitations and Future Researchers

This study has some important limitations. First, results of this study are based on the perceptions of IS executives rather than top managers, because all of the respondents were IS executives. However, given that the research constructs examined partnership attributes and B2B e-commerce benefits, IS executives were appropriate respondents (Ratnasingam and Pavlou, 2003). Future research can examine the perceptions of top managers with regard to the relationship between partnerships factors and perceived benefits of B2B e-commerce. Second, the sample population only included large enterprises in Taiwan. Large organizations have greater B2B e-commerce system maturity than small and medium-sized enterprises (SMEs) (less than 100 employees and annual sales of the firm to exceed NT$100 million), thus the analytical results presented may have limited generalizability for SMEs. Moreover, some e-commerce literature has also indicated differences between large organizations and SMEs in e-commerce applications (Riquelme, 2002). Similar studies of SMEs therefore should be conducted to examine these differences. Third, despite the scale used to measure the partner trust being similar to existing scales, further researchers could consider methods of cultivating trust-related beliefs (e.g. credibility and benevolence) to
increase sense of partner trust (Pavlou, 2002). Fourth, since this study use of a single respondent from each target firm, without collecting and cross-validating responses from other information in the same firm. The use of single respondents is questionable, because relying on only one informant to make complex social judgments about partnership attributes increases random measurement error. However, the cost of using multiple informants and the possibility of lower response rates were deterrents against the use of multiple respondents. The survey was targeted to IS executives in an attempt to minimize the common method variance. IS executives are more objective and knowledgeable about the organizational operations and strategies, and thus were in a position to answer questions pertaining to partnerships and e-commerce performance. Future research can mitigate the problem of common method bias by collecting data from more than one respondent per firm and comparing the perceptions of different stakeholders in B2B e-commerce implementation. Finally, future research could consider the effects of additional partnership attributes on B2B e-commerce benefits identified from the existing literature in terms of social exchange models such as age of relationship, information sharing, participation and open communication (Lee and Kim, 1999).

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References


Appendix: Questionnaire items

**Partner interdependence**
INTER1: Our company and trading partners both recognized that we need each other to accomplish our objectives.
INTER2: Our company and trading partners are both dependent on the other to be successful.

**Partner coordination**
COORD1: Our company has coordination mechanisms for solving problems together with trading partners.
COORD2: Our company and trading partners partner provide mutual encouragement to solving business problems.
COORD3: Our company and trading partners solve exceptional problems through mutual discussion.
COORD4: Our company recognizes the needs of trading partners.

**Partner trust**
TRUST1: Our company and trading partners always aim to achieve mutual benefit.
TRUST2: Our company highly trusts its trading partners.
TRUST3: Our company expects a fair deal from trading partners.
TRUST4: Our trading partners are sincere at all times.

**Partner commitment**
COMM11: Our company and trading partners always try to keep promises made to each other.
COMM12: Our trading partners perform specified agreements very well.
COMM13: Our company strongly desires to continue its relationship with trading partners.
COMM14: Our trading partners are worthy of us spending maximum effort possible to maintain e-commerce initiatives.

**Informational benefits**
Implementation of B2B e-commerce, our company…
INFOR1: enable faster access to information.
INFOR2: enhance information flexibility.
INFOR3: enhance accuracy or reliability of information.
INFOR4: reduce information search costs.

**Transactional benefits**
Implementation of B2B e-commerce, our company…
TRANS1: increase in efficiency of interorganizational transaction processing.
TRANS2: reduce transaction costs.
TRANS3: reduce communication costs.
TRANS4: avoid need to increase workforce.
TRANS5: shorten delivery time.

**Strategic benefits**
Implementation of B2B e-commerce, our company…
STRAT1: enable better supply chain management and logistics.
STRAT2: create linkages with other organizations (such as customers, suppliers and competitors).
STRAT3: increase in efficient and effective customer service.
STRAT4: provide better products or services.