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Characteristics of Australian B2B iMarketplaces

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Abstract

Existing research on B2B iMarketplaces (and intermediaries operating them) focuses primarily on viewing US iMarketplace web sites or conducting case studies. This paper extends this work by presenting survey findings of the total identifiable population of Australian B2B iMarketplace intermediaries to describe the iMarketplace characteristics and to determine if the findings provide more generalisable support for the literature.

Keywords

Business-to-business, Internet markets, Internet marketplaces, intermediaries, Australia, electronic commerce.

Introduction

Internet Marketplaces (iMarketplaces) are Internet-based (web in particular) electronic marketplaces where various products/services are traded (Archer & Gebauer 2000a, Archer & Yuan 2000b). In this context, an iMarketplace is not a physical place but rather an online marketplace where business transactions occur (Turban, Lee, King & Chung 1999).

iMarketplaces have received ongoing attention by the eCommerce research community (see, for example, Archer et al. 2000a, Bakos 1997, Baron, Shaw & Bailey 2000, Fingar, Kumar & Sharma 1999, Kaplan & Sawhney 2000, Lucking-Reiley & Spulber 2001, Pant & Hsu 1996). The early iMarketplace literature tended to focus on B2C and C2C iMarketplaces, but has more recently been exploring B2B iMarketplaces because of their potential market size (see Chen & Siems 2001, Lucking-Reiley et al. 2001).

Many of the B2B iMarketplaces today are controlled by intermediaries¹ who mediate trading activities between sellers and buyers in various industries (see Buxmann & Gebauer 1998,

¹ The term 'intermediary' generally refers to economic agents which mediate the parties of a contract (Kalakota & Robinson 2000). In a market context, an intermediary ('broker' or 'middleman') is a firm or market participant which facilitates various trading activities and enables transactions between buyers and sellers (Bailey & Bakos 1997, Chircu & Kauffman 2000).

Chircu et al. 2000, Crowston & Wigand 1999, Klein & Selz 2000, Scott 2000). For our purposes, we excluded intranet-based marketplaces (because they are not open) and simple directory services such as Yahoo! (because they do not mediate trading).

The existing literature on B2B iMarketplaces has tended to focus on:

- their characteristics, including their market functions, business models, value-added services and revenue schemes (eg, Archer et al. 2000a, Carter 2001, Giaglis, Klein & O'Keefe 1999, Gotschall 2000, Lucking-Reiley et al. 2001, Oppelland & Prins 2000, Timmers 1998);
- categorising these iMarketplaces (eg, Archer et al. 2000a, Chen et al. 2001, Farhoomand & Lovelock 2001, Gotschall 2000, Kaplan et al. 2000, Oliver 2001, Ramsdell 2000, Sawhney & Kaplan 1999, Turban, King, Lee, Warkentin & Chung 2002);
- those located in the United States; and
- findings from viewing web sites (eg, Dai & Kauffman 2002) or case studies of one or a few such iMarketplaces (eg, Arbin & Essler 2002, Strader & Shaw 1997).

This highlights the need for more generalisable research in non-US countries. In this paper we therefore present the results of an exploratory survey of the total identifiable population of B2B iMarketplace intermediaries in Australia. The research was intended to determine whether the characteristics of these iMarketplaces identified in the literature were evident in the Australian context. The research was descriptive and determined the (non-)existence of characteristics identified from the literature. Our study was therefore not intended to test hypotheses, to perform any statistical testing nor to test correlations between the characteristics.

This study makes an important contribution because it provides more generalisable results concerning the characteristics of B2B iMarketplaces than the current literature. We also present a preliminary B2B iMarketplace framework resulting from our research which we believe will provide a starting point for researchers in formulating a framework to help intermediaries establish their iMarketplaces. This preliminary framework also provides the basis for future research.

Literature Review

Transaction cost economics is a theory underpinning most research concerning electronic and Internet markets. The theory argues that there are costs associated with certain activities in operating, accessing and using the market such as searching for trading partners and negotiating terms for a contract – broadly defined as 'Transaction Costs' (Coase 1937, Pant et al. 1996, Williamson 1973, Williamson 1975, Williamson 1985).

One of the main driving forces behind the emergence of iMarketplaces is the desire to lower transaction costs (Oliver 2001). Transaction costs occur as there are certain trading activities necessary to complete the transaction in markets (Lindemann & Schmid 1998). This implies that an iMarketplace operator needs to support functions which facilitate various trading activities, such as providing market-making mechanisms, business models and value-added services.

We will examine each area in more detail below:

Functions of B2B iMarketplaces

According to Bakos (1998), the roles of intermediaries are generally based on the functions of a market, regardless of whether they are conventional (physical) or electronic (Internet) markets. He further explains that in general there are three main functions of a market:

- **matching buyers and sellers**, which includes determining product offerings, searching for buyers and sellers, and discovering price;
- **facilitating transactions**, which includes logistics, settlement and trust; and
- **providing an institutional infrastructure**, which includes a suitable legal and regulatory environment.

In conventional B2B markets, the matching and facilitation function is typically performed by intermediaries, whereas the institutional infrastructure function is usually carried out by regulatory bodies or governments (Giaglis et al. 1999). However, iMarketplaces do not necessarily provide digital channels for all functions, with most transactions fulfilled through a combination of physical and digital channels (Petersson 2001).

The functions vary between different B2B iMarketplaces, but most appear to provide at the very least the matching of buyers and sellers, because this is the basic function of a market (Bailey et al. 1997, Bakos 1998, Buxmann et al. 1998, Mougayar 1998, Timmers 1998). Therefore, many authors seem to agree that the principle role of intermediaries operating iMarketplaces is the matching function, and that roles related to the other market functions are value-added services provided by the intermediaries or third-parties (Archer et al. 2000a, Carter 2001, Giaglis et al. 1999, Gotschall 2000, Lucking-Reiley et al. 2001, Oppelland et al. 2000, Timmers 1998).

The nature of the matching sub-functions (determining product offerings, searching for buyers/sellers, and price discovery) (Bakos 1998) indicates that the role of iMarketplace intermediaries is to coordinate information (Bailey 1998). In order to match buyers and sellers, they create and operate a B2B iMarketplace which allows buyers and sellers to meet each other and which supports the trading of various goods and services. These iMarketplaces employ a number of different market marking mechanisms to match buyers and sellers and to enable price discovery, which will be discussed next. Value-added services relate to the facilitation of transactions and the institutional infrastructure functions, and will be discussed in the *Value-Added Services* section.

Market-Making Mechanisms and Business Models

A market-making mechanism is the means by which demand and supply is matched and by which prices are determined in a market (Gotschall 2000). In a broad sense, market-making mechanisms can be divided into an aggregation or a matching mechanism. The aggregation mechanism is based on a static pricing model in which goods/services prices are generally fixed, whereas the matching mechanism is based on a dynamic pricing model because the demand and price are volatile (Kaplan et al. 2000). Various business models can be used to implement each mechanism, but the most commonly used business models in B2B iMarketplaces, according to the literature, are Electronic Catalogues for aggregation, and Electronic Auctions and Electronic Exchanges for matching (see, for example, Kaplan et al. 2000, Lucking-Reiley et al. 2001, Oliver 2001, Sawhney et al. 1999, Symonds 1999).

Electronic Catalogues

Electronic Catalogues (eCatalogues) are information systems which place emphasis on multimedia presentations of products/services and contain some standard functionality for searching, selecting, and ordering products/services (Koch & Turk 1997). eCatalogue-based B2B iMarketplaces generally provide a common platform for catalogue aggregation, as well as a comprehensive product search capability which navigates multiple catalogues and allows viewing of detailed product information (Baron et al. 2000). Although suppliers can change product/service prices, there is no negotiation between sellers and buyers for the price, so that prices in eCatalogue-based iMarketplaces are generally static (Kaplan et al. 2000). From the supplier's perspective, eCatalogues offer an interactive interface to potential buyers and reduce the costs associated with selling, marketing and distributing products/services (Gosalvez 1997, Shaw & Bailey 2000). From the buyer's perspective, eCatalogues provide comprehensive search capabilities based on multiple criteria (eg, price, quality, service, availability), so that they can find the best offer (Handschuh, Schmid & Stanoevska-Slabeva 1997, Shaw et al. 2000).

Electronic Auctions

Klein and O'Keefe (1999) define auctions as *"... formalised trading procedures in which the trading partners' interactions are governed by specific rules for competitive bidding and trade execution"*. Electronic Auctions (eAuctions) are a special case of automated negotiations, where the auction patterns vary with the trade objectives and rules (Reck 1997). eAuctions have gained popularity in iMarketplaces which trade in unique items, excess inventory, excess demand, used capital equipment, discontinued goods, perishable items and commodity-like products/services (Klein et al. 1999). In most eAuction-based iMarketplaces, the role of the auctioneer is replaced by an automated negotiation system (Klein 1997). However, the same price discovery mechanisms are used to determine the price of products/services. In most eAuction-based iMarketplaces, a closing time for each auction is generally set by intermediaries in advance, so that each auction is completed when the bidding time is closed (Lucking-Reiley 2000).

Electronic Exchanges

eAuctions can provide perfect pricing information because prices of products/services are transparent to buyers and sellers, however they are more time consuming because auctions continue until a specified closing time (Stross 2000). To overcome this drawback, Electronic Exchanges (eExchanges) have emerged which are two-sided marketplaces where buyers and sellers negotiate prices through a bid and ask system, and where prices move both up and down (Costa 1999). eExchanges link many buyers and sellers together simultaneously, with dynamic real-time pricing, and work best with easily definable products without complicated attributes such as commodities and perishable goods. They are especially appropriate when a true market price is difficult to discover (Kalakota et al. 2000).

We can see in this Section that at least three different business models are used in B2B iMarketplaces. Some authors (eg, Sawhney et al. 1999, Symonds 1999) believe the iMarketplaces should offer more than one business model, so that buyers and sellers can choose the most appropriate business model, and predict the merging of these models.

Value-Added Services

As explained in the *Functions of B2B iMarketplaces* section, most value-added services offered by iMarketplace intermediaries are related to the facilitation of transactions, because the institutional infrastructure function is typically performed by regulatory bodies or governments (Giaglis et al. 1999). Bakos (1998) provided further details of the facilitation of transactions function, which includes:

- logistics, or the delivery of goods and services to buyers;
- settlement, or the transfer of payments to sellers; and
- trust, including the credit system, company reputations and rating agencies.

There are also noticeable similarities between Bakos' sub-functions and the B2B iMarketplace value-added services commonly mentioned in the literature, which include:

- **eProcurement Management Services**, in which various procurement activities (such as preparing requisitions, purchasing, approving purchases, deliveries, product comparisons, etc) can be handled through the iMarketplace (see, for example, Giaglis et al. 1999, Weller 2000);
- **Online Payment Services**, which help enable short-term purchases (Choi 1998) and more transactions to speed up the payment processes (Bacheldor, Gilbert, Greenemeier & Nelson 2000) and transaction processes (Giaglis et al. 1999) for buyers and sellers (see also Bakos 1998, Lee 1997, Mougayar 1998 for details on online payment services). Although credit card payments appear to be the most common online payment method for B2C iMarketplace transactions (Giaglis et al. 1999), the popularity of these payments in B2B iMarketplaces does not appear to have been explored in the literature.
- **Logistics Management Services**, in which B2B iMarketplaces are increasingly aligning with logistics providers to offer buyers and sellers with a range of logistics services (eg, Buxmann et al. 1998, Chen et al. 2001, Lucking-Reiley et al. 2001, Mougayar 1998, Palvia & Vemuri 1999, Rayport & Sviokla 1994, Scott 2000), such as calculating delivery costs, accessing shipping schedules and determining delivery statuses in the iMarketplace (Gilbert 2000).
- **Online Escrow Services**, in which trusted third-parties (Bacheldor et al. 2000, Brandt 2000) typically hold payment from buyers until buyers receive and agree to the purchase (Costa 1999, Freeman 2001, see also Giaglis et al. 1999, Karpinski 2000, Levesque 1999). Related services include **Insurance of in-Transit Materials** in which companies provide insurance services to B2B iMarketplaces and guarantee goods are as described (Brandt 2000, Frook 2000, Giaglis et al. 1999, see also Lincke 1998).
- **Supply Chain Management (SCM) Services**, which includes a range of goods/services planning and controlling facilities across the supply chain, and can include the logistics management services mentioned previously (see Copacino 2000, Eyholzer & Hunziker 2000, Ramsdell 2000, Timmers 1998, Turban et al. 2002). The benefits of SCM include lowering the procurement costs of buyers (Chen et al. 2001); improving buying efficiency (Brunell 2000); reducing lead times, reducing inventory levels and improving logistics management (Gotschall 2000); and enhancing collaboration between buyers and sellers (Graham & Hardaker 2000).

Revenue Schemes

B2B iMarketplace intermediaries need to generate revenues for their own survival. The revenue sources they use, however, largely depend on the types of transaction fees and value-added services they provide, as well as advertising and subscription fees.

Following are typical revenues schemes identified in the literature:

- Per-transaction fees, where buyers and/or sellers are charged a certain percentage of each transaction (Wrigley 1997).
- Volume-based transaction fees, where different transaction fee structures can be charged to the buyer, seller or both based on the volume of each transaction (Segev, Gebauer & Färber 1999).
- Flat transaction fees, where a flat charge can be applied to the buyer, seller or both, regardless of the size of each transaction (Wrigley 1997).
- Advertising fees and sponsorships, where the iMarketplaces can generate revenue from advertisers or sponsors, instead of charging fees to the market participants (Morgenthal 2001).
- Subscription fees or annual membership fees, where buyers and/or sellers are charged fees allowing them to participate in the iMarketplace (Segev et al. 1999).
- Fees for value-added services, which vary between the value-added services but can include: set up fees; hosting and systems management fees; process consulting fees; software licensing fees; systems integration fees; and community management fees (Segev et al. 1999).

Research Design

The comparatively small population of businesses in Australia, when compared to countries such as the United States, gave us the opportunity to identify and survey the total population of Australian B2B iMarketplaces. We used non-probability (or purposive or judgemental) sampling (see Babbie 1990, Fink 1995, Henry 1990, Neuman 1997) because the number of organisations in the target population was unknown and because we needed to judge whether the organisations to be surveyed were B2B iMarketplaces.

We attempted to include all Australian B2B iMarketplace intermediaries through an extensive search. The sample was drawn from a range of sources, such as Internet search engines, Internet business directories in Australia, eCommerce community web sites in Australia, various industry reports, Australian newspapers and B2B iMarketplace forum web sites and newsgroups. B2B iMarketplaces which allowed B2C transactions were included in the study if they were still predominantly B2B, however the converse were excluded.

As a result of this extensive search we were able to identify 47 Australian B2B iMarketplaces, which we believed represented the total population of such organisations in Australia. 40 of these organisations agreed to receive the survey when contacted by telephone or email, and 26 completed the questionnaire. Three respondents were removed from the sample because their responses indicated that they did not operate B2B iMarketplaces. 23 out of 44 (minus the three ineligible respondents), or 52%, of the total identifiable population participated in the study.

Findings

Profile of the Participants

The individuals who completed the survey were predominantly in managerial positions in their organisations (57% were executives and 35% were managers, while 8% were analysts). The iMarketplaces were all Australian-based, with 57% entirely Australian, 22% a joint venture between Australian and overseas organisations, 17% were an Australian subsidiary of an overseas organisation and 1% were part of a global business operating in Australian. In all cases the iMarketplaces had an Australian domain name (ie, .com.au) which provided services only to Australian domestic companies.

The majority (64%) of the iMarketplaces were operated by relatively new organisations (established between 1999 and 2000). The remainder were formed by long-established organisations, but the iMarketplaces themselves were still new, having been launched between 1997 and 2000. Although the literature did not indicate whether more or less B2B iMarketplaces have been established by new organisations, this result does confirm the views in the literature that both traditional intermediaries (ie, reintermediation) and new intermediaries (ie, cybermediation) create and operate B2B iMarketplaces (see Bailey et al. 1997, Buxmann et al. 1998, Chircu et al. 2000, Giaglis et al. 1999).

Details of the iMarketplace industries were not solicited and have not been included in this paper because of the risk of identifying particular organisations.

Transactions Supported

We mentioned previously that iMarketplaces allowing B2C transactions were included, so long as they were predominantly B2B. Not surprisingly, this was typically found in B2B iMarketplaces in which products suitable for businesses and consumers were traded. In the paper we therefore distinguish between B2B-only (74%) and B2B-B2C (26%) iMarketplaces.

Buyer/Seller Registration

Table 1 summarises whether buyers and/or sellers were required to register to trade products/services in the iMarketplaces.

Buyer/seller registration	B2B-only	B2B-B2C	Overall
Buyer and seller registration is mandatory	100% (17)	33% (2)	83% (19)
Seller registration only is mandatory	0%	50% (3)	13% (3)
Buyer registration only is mandatory	0%	17% (1)	4% (1)

Table 1: Buyer/seller registration in Australian B2B iMarketplaces

Table 1 shows that 83% of respondents stated registration is mandatory for both sellers and buyers. Registration appears most critical in B2B-only iMarketplaces, possibly because of the high value of transactions and the need for greater security. In addition, Lee (1997) discusses the importance of transaction execution enforcement in electronic marketplaces, which we

believe would also be essential in B2B iMarketplaces. We anticipate, therefore, that registration is one possible way of enforcing transaction execution.

The comparison of B2B-only and B2B-B2C iMarketplaces suggests that registration was not as strict when the iMarketplaces permit B2C transactions. The three B2B-B2C iMarketplaces requiring only sellers to register also provided online credit card payment services, so that transaction execution enforcement was most likely provided through this mechanism. The B2B-B2C iMarketplace requiring only buyers to register only matched buyers and sellers, where the expectation was that traders would complete the transactions directly themselves.

Business Models Used

Table 2 summarises the business models, identified from the literature, which were used by respondents.

Business models used	B2B-only	B2B-B2C	Overall
eCatalogue Only	35% (6)	83% (5)	49% (11)
eAuction Only	6% (1)	0%	4% (1)
eExchange Only	12% (2)	0%	9% (2)
eCatalogue and eAuction	18% (3)	0%	13% (3)
eCatalogue, eAuction and eExchange	23% (4)	0%	17% (4)
eCatalogue, eExchange and Others	0%	17% (1)	4% (1)
Others	6% (1)	0%	4% (1)

Table 2: Business models used by Australian B2B iMarketplaces.

Table 2 shows that Australian B2B iMarketplaces primarily used one or more business models. There were only two iMarketplace intermediaries which indicated they used models which were not eAuctions, eCatalogues or eExchanges:

- 1 B2B-only respondent used the term ‘aggregated portal’ to describe their business model, where buyers purchase products/services at a price negotiated by the iMarketplace operator with suppliers, rather than searching for the best price themselves. This model is similar to Kaplan and Sawhney’s (2000) ‘reverse aggregators’ model, where iMarketplace intermediaries gather the purchasing power of many buyers and negotiate price reductions with suppliers.
- 1 B2B-B2C respondent stated that buyers purchase goods/services from suppliers within the iMarketplace and suppliers from other iMarketplaces. This business model is similar to Wise and Morrison’s (2000) ‘mega-exchange’ model, which acts as a central hub for the communication and execution of transactions between buyers and sellers in different iMarketplaces.

The existence of these new, less common business models suggests that further research is required to determine the extent of their use, why they are used, and the impact they have on the more common business models.

The results in Table 2 also show that 35% of the iMarketplaces used more than one business model, including 4 which used all three common business models. This result supports the argument made by Symonds (1999) and Sawhney and Kaplan (1999) that some iMarketplaces will provide more than one business model, so that buyers and sellers can choose the most appropriate model. Further research is required to determine whether providing multiple business models is a trend and to explore the value it offers participants.

The comparison of B2B-only and B2B-B2C iMarketplaces in Table 2 also shows noticeable differences. Firstly, it is apparent that B2B-B2C iMarketplaces primarily used eCatalogues in preference to other business models. In addition, the table shows that combinations of business models were only used by 1 (17%) B2B-B2C iMarketplace, but 7 (41%) B2B-only iMarketplaces. This result must be interpreted with caution due to the small number of B2B-B2C iMarketplace respondents, but possible explanations for these findings might be:

- the matching mechanism (eAuctions and eExchanges) is generally far more complicated to develop, and it requires buyers and sellers to understand sophisticated dynamic pricing mechanisms when compared to the aggregation mechanism (eCatalogue), so that it would be more difficult for general consumers to use (Kaplan et al. 2000). However, we believe further investigation is required to determine whether consumers in B2B-B2C iMarketplaces really find eAuctions more difficult to use, especially considering the success of C2C eAuction sites such as eBay.com; and
- due to the nature of products/services traded. For instance, Baron et al. (2000) argued that eCatalogues are particularly suitable for MRO purchasing and these goods (at least) were traded in all the B2B-B2C iMarketplaces.

Value-Added Services Offered

The questionnaire asked respondents to state the value-added services they provide and the results are summarised in Table 3.

Table 3 shows that 7 (41%) B2B-only iMarketplaces indicated they did not provide any value-added service, while all B2B-B2C iMarketplaces provided at least one value-added service. This result must be interpreted with caution given the small number of B2B-B2C iMarketplaces, but some possible explanations might be that:

- B2B-only iMarketplace buyers/sellers, being businesses, were expected to have the resources to complete transactions. 3 respondents provided additional information stating that they only match sellers/buyers and that logistics, payments etc are completed directly between sellers and buyers; and
- the iMarketplaces were in the early stages of development. 4 respondents (including 2 from the previous point) stated that they were conducting research into possible value-added services to offer.

Value-added services offered	B2B-only	B2B-B2C	Overall
Supply chain management	29% (5)	33% (2)	30% (7)
Online payment services	29% (5)	100% (6)	48% (11)
eProcurement services	24% (4)	67% (4)	35% (8)

Logistics	24% (4)	33% (2)	26% (6)
Insurance of in-transit materials	12% (2)	17% (1)	13% (3)
Escrow services	12% (2)	17% (1)	13% (3)
<i>Others</i>			
* Other value-added services	12% (2)	0%	9% (2)
* Do not provide any value-added services	41% (7)	0%	30% (7)

Table 3: Value-added services offered by Australian B2B iMarketplaces.

Table 3 also shows that 2 B2B-only respondents provided value-added services which were not included in the questionnaire:

- 1 respondent stated they examined the quality of goods/services for the buyers, which is consistent with the 'quality assurance' value-added service identified in the literature (see Giaglis et al. 1999).
- 1 respondent stated they offered three services which were not listed:
 - a library service of purchasing best practices;
 - control/monitoring reports to reduce rogue spending; and
 - enabling the streamlining of contracts.

These services were not mentioned in the literature, however further research is needed to determine whether these are emerging services in B2B iMarketplaces.

Table 3 also shows that supply chain management (SCM), eProcurement and logistics were the more frequently provided services among the 16 iMarketplaces providing at least one value-added service. These iMarketplaces traded, unsurprisingly, physical products for which these services would be appropriate. Indeed, 60% (or 12) of the 20 iMarketplaces which traded products provided SCM, eProcurement and/or logistics services. Further research is needed to investigate why the remaining 8 product-oriented iMarketplaces did not provide these services. The 3 respondents providing escrow services and the 3 respondents providing insurance services for in-transit materials were also product-oriented iMarketplaces.

We examined online payment services in more detail in the questionnaire by asking participants what types of payment services they offered. We found that of the 11 B2B (5 B2B-only and 6 B2B-B2C) iMarketplaces offering online payment services, they all provided credit card payment facilities but no other online payment method. This result provides indicative confirmation that, as for B2C iMarketplaces, credit cards were the primary online payment service in Australian B2B iMarketplaces.

Our analysis of the 12 B2B-only intermediaries which did not provide online payment services suggests that:

- 3 B2B-only intermediaries did not because the iMarketplaces only match buyers and sellers, and payments were completed between buyers and sellers;
- 4 B2B-only intermediaries were planning to provide online payment services in the near future, such as online credit card payments, online direct debit card systems and electronic letters of credit. This finding suggests that in future some B2B-only iMarketplaces might provide other types of online payment services in addition to credit card payments; and

- the other 5 B2B-only intermediaries respondents did not indicate why they did not provide online payment services.

Revenue Schemes Used

Table 4 shows the frequently used revenue schemes by Australian B2B iMarketplaces.

Revenue schemes used	B2B-only	B2B-B2C	Overall
Transaction fees	76% (13)	33% (2)	65% (15)
Subscription/Membership fees	59% (10)	33% (2)	52% (12)
Fees for hosting and managing the systems	29% (5)	33% (2)	30% (7)
Through other value-added services	18% (3)	50% (3)	26% (6)
Advertising fees	18% (3)	33% (2)	22% (5)
Software licensing and services revenue	18% (3)	33% (2)	22% (5)
Sponsorships	6% (1)	17% (1)	9% (2)
Others (do not generate revenue)	6% (1)	0%	4% (1)

Table 4: Revenue schemes used by Australian B2B iMarketplaces.

It can be seen from Table 4 that transaction fees and subscription/membership fees were more common in Australian B2B iMarketplaces. The popularity of transaction fees is perhaps not surprising when considering that Scherbakovsky and Siegal's (cited in Rayport & Jaworski 2002) study found that the most profitable eCommerce business models were transaction-based ones, because they have the potential to make a profit on each transaction made.

It was also interesting that one respondent stated that its iMarketplace did not generate revenue. A possible reason was that the iMarketplace was operated by a collaboration of large suppliers and it only matched buyers and sellers. The iMarketplace was therefore operated as another sales channel for sellers, with other trading activities being completed between buyers and sellers offline. This possibly suggests that the sellers might have funded the iMarketplace together and did not need to generate additional revenue.

Preliminary B2B iMarketplace Framework

Table 5 below shows a preliminary B2B iMarketplace framework based on the literature and the findings resulting from this research and presented in this paper.

B2B iMarketplace Functions	Implementation Suggestions
<i>Matching (Business Models)</i>	
• eCatalogues	B2B-B2C and B2B-only (always)
• eAuctions	B2B-only (optional)
• eExchanges	B2B-only (optional)

B2B iMarketplace Functions	Implementation Suggestions
• Reverse Aggregators	B2B-only (optional)
• Mega-Exchange	B2B-B2C (optional)
• Combined business models	Consider relevant combinations
<i>Facilitating Transactions</i>	
• Transaction types	
○ B2B transactions	Required in B2B iMarketplaces
○ B2C transactions	If products/services suited to consumers
• Registration	
○ Buyer-only	B2B-B2C (matching service only)
○ Seller-only	B2B-B2C (if provide online payments)
○ Buyer and Seller	B2B-only (always), B2B-B2C (optional)
• Value-added services	
○ eProcurement	Product-based B2B iMarketplaces
○ Supply chain management	
○ Logistics	
○ Escrow	
○ In-transit insurance	
○ Online payments	Support credit card payments (always). B2B-only consider additional methods
○ Quality assurance	Optional service
• Revenue schemes	
○ Transaction fees	B2B-only (always), B2B-B2C (optional)
○ Subscription/membership fees	Additional optional revenue sources
○ Fees for hosting/managing systems	
○ Advertising fees	
○ Software licensing/services	
○ Other value-added services revenue	
○ No revenue	Seller-driven/funded B2B iMarketplaces

Table 5: Preliminary B2B iMarketplace Framework.

The purpose of the preliminary framework in Table 5 is to provide the starting point for research into approaches and strategies which might assist/guide intermediaries in establishing B2B iMarketplaces. The framework lists B2B iMarketplace functions on the left and preliminary suggestions on which functions intermediaries might consider implementing, depending on whether they support B2C transactions and offer products or services.

Further research is required to expand on this framework and to provide more detailed insight, for instance, into success factors and the reasons behind the selection (and the success

or otherwise) of particular business models, revenue schemes and value-added services in the B2B iMarketplaces. This research can include case studies to generate in-depth insight, surveys in other countries to widen the framework's applicability, and longitudinal surveys to study long-term success factors.

Conclusion

In this paper we have examined the existing research concerning the characteristics of B2B iMarketplaces (and the intermediaries which operate them), which has tended to focus on viewing US iMarketplace web sites or conducting case studies. This paper has extended this work by conducting a survey of the total identifiable population of Australian B2B iMarketplace intermediaries. The findings from this survey indicate that:

- the intermediaries are relatively new, the majority use either eCatalogues, eAuctions or eExchanges (with some using combinations of the three), many offer one or more value-added services (with half only providing online payment services), and the most common revenue schemes were transaction fees and subscription/membership fees; and
- these (and other) characteristics of Australian B2B iMarketplaces are consistent with the findings and trends identified from the existing literature.

The paper has also presented a preliminary B2B iMarketplace framework to stimulate research which might assist/guide intermediaries in establishing their iMarketplaces.

References

- Arbin, K, & Essler, U (2002), 'Emerging Industrial eMarkets: The Case of Covisint in Europe', in *Proceedings of the 15th International Electronic Commerce Conference*, Bled, Slovenia, 17-19 June, pp. 279-292.
- Archer, N, & Gebauer, J (2000a), 'Managing in the context of the new electronic marketplace', in *Proceedings of the 1st World Congress on the Management of Electronic Commerce*, Hamilton, Canada.
- Archer, N, & Yuan, Y (2000b), 'Managing business-to-business relationships throughout the e-commerce procurement life cycle', *Internet Research: Electronic Networking Applications and Policy*, vol. 10, no. 5, pp. 385-395.
- Babbie, E (1990), *Survey Research Methods*, 2nd edn, Wadsworth, Belmont, California.
- Bacheldor, B, Gilbert, A, Greenemeier, L, & Nelson, MG (2000), 'Bills For The 21st Century', *InformationWeek*, no. 784, 1 May, pp. 22-24.
- Bailey, JP (1998), *Intermediation and Electronic Markets: Aggregation and Pricing in Internet Commerce*, PhD thesis, Massachusetts Institute of Technology.
- Bailey, JP, & Bakos, Y (1997), 'An Exploratory Study of the Emerging Role of Electronic Intermediaries', *International Journal of Electronic Commerce*, vol. 1, no. 3, pp. 7-20.
- Bakos, Y (1997), 'Reducing Buyer Search Costs: Implications for Electronic Marketplaces', *Management Science*, vol. 43, no. 12, pp. 1676-1692.
- Bakos, Y (1998), 'The Emerging Role of Electronic Marketplaces on the Internet', *Communications of the ACM*, vol. 41, no. 8, pp. 35-42.

- Baron, JP, Shaw, MJ, & Bailey, AD, Jr (2000), 'Electronic Catalogs in the Web-Based Business-to-Business Procurement Process' in *Handbook on Electronic Commerce*, eds. M Shaw, A Whinston, R Blanning & T Strader, Springer Verlag, New York.
- Brandt, A (2000), 'Auction Payment Sites', *PC World*, vol. 18, no. 7, July, p. 64.
- Brunell, MA (2000), 'Fifty-Plus Consumer Products Firms Will Form B2B E-marketplace', *Purchasing*, vol. 128, no. 6, pp. 93-94.
- Buxmann, P, & Gebauer, J (1998), 'Internet-Based Intermediaries: The Case of the Real Estate Market', in *Proceedings of the 6th European Conference on Information Systems*, Aix-en-Provence, France, 4-6 June, pp. 60-74.
- Carter, PL (2001), 'Create the right relationship with B2B e-marketplaces', *Industrial Distribution*, vol. 90, no. 2, p. 23.
- Chen, AH, & Siems, TF (2001), 'B2B eMarketplace Announcements and Shareholder Wealth', *Economic and Financial Review*, no. 1st Quarter, pp. 12-22.
- Chircu, AM, & Kauffman, RJ (2000), 'Reintermediation Strategies in Business-to-Business Electronic Commerce', *International Journal of Electronic Commerce*, vol. 4, no. 4, pp. 7-42.
- Choi, S-Y (1998), 'Intermediation, Contracts and Micropayments in Electronic Commerce', *International Journal of Electronic Markets*, vol. 8, no. 1, pp. 20-22.
- Coase, RH (1937), 'The nature of the firm', *Economica*, vol. 4, pp. 386-405.
- Copacino, WC (2000), 'Understanding online marketplaces', *Logistics Management & Distribution Report*, vol. 39, no. 7, p. 37.
- Costa, D (1999), 'Do You Know To Escrow?' *Computer Shopper*, vol. 19, no. 9, September, p. 79.
- Crowston, K, & Wigand, R (1999), 'Real Estate War in Cyberspace: An Emerging Electronic Market', *International Journal of Electronic Markets*, vol. 9, no. 1.
- Dai, Q, & Kauffman, RJ (2002), 'Business Models for Internet-based B2B Electronic Markets', *International Journal of Electronic Commerce*, vol. 6, no. 4, pp. 41-72.
- Eyholzer, K, & Hunziker, D (2000), 'The Use of the Internet in Procurement: An Empirical Analysis', in *Proceedings of the 8th European Conference on Information Systems*, Vienna, Austria, 3-5 July, pp. 335-342.
- Farhoomand, A, & Lovelock, P (2001), *Global e-Commerce: Text and Cases*, Prentice Hall, Singapore.
- Fingar, P, Kumar, H, & Sharma, T (1999), '21st Century Markets: From Places to Spaces', *First Monday [Online]*, vol. 4, no. 12.
- Fink, A (1995), *The Survey Handbook*, vol. 1, Sage Publications, Thousand Oaks, California.
- Freeman, EQ (2001), 'B2B's operational and risk implications', *Financial Executive*, vol. 17, no. 3, pp. 14-16.
- Frook, JE (2000), 'The Point: Big names join to offer exchange insurance', *B to B*, vol. 85, November, p. 3.
- Giaglis, GM, Klein, S, & O'Keefe, RM (1999), 'Disintermediation, Reintermediation, or Cybermediation? The Future of Intermediaries in Electronic Marketplaces', in *Proceedings of the 12th International Electronic Commerce Conference*, Bled, Slovenia, 7-9 June, pp. 389-407.
- Gilbert, A (2000), 'Marketplace Providers Add Global Logistics Services', *InformationWeek*, no. 791, 19 June, p. 91.
- Gosalvez, MG (1997), 'Electronic Product Catalogues: What is missing?' *International Journal of Electronic Markets*, vol. 7, no. 3, pp. 3-5.
- Gotschall, MG (2000), 'B2B Exchanges', *Electric Perspectives*, vol. 25, no. 5, pp. 46-52, 55.

- Graham, G, & Hardaker, G (2000), 'Supply-chain management across the Internet', *International Journal of Physical Distribution & Logistics Management*, vol. 30, no. 3/4, pp. 286-295.
- Handschuh, S, Schmid, BF, & Stanoevska-Slabeva, K (1997), 'The Concept of a Mediating Electronic Product Catalog', *International Journal of Electronic Markets*, vol. 7, no. 3, pp. 32-35.
- Henry, GT (1990), *Practical Sampling*, vol. 21, Sage Publications, Newbury Park.
- Kalakota, R, & Robinson, M (2000), *E-Business 2.0: Roadmap for Success*, Addison-Wesley, Boston.
- Kaplan, S, & Sawhney, M (2000), 'E-Hub: The New B2B Marketplaces', *Harvard Business Review*, vol. 78, no. 3, pp. 97-103.
- Karpinski, R (2000), 'E2open.com picks PartMiner', *B to B*, vol. 85, October, p. 2.
- Klein, S (1997), 'Introduction To Electronic Auctions', *International Journal of Electronic Markets*, vol. 7, no. 4, pp. 3-6.
- Klein, S, & O'Keefe, RM (1999), 'The Impact of the Web on Auctions: Some Empirical Evidence and Theoretical Considerations', *International Journal of Electronic Commerce*, vol. 3, no. 3, pp. 7-20.
- Klein, S, & Selz, D (2000), 'Cybermediation in Auto Distribution: Channel Dynamics and Conflicts', *Journal of Computer Mediated Communication [Online]*, vol. 5, no. 3.
- Koch, N, & Turk, A (1997), 'Towards a Methodical Development of Electronic Catalogues', *International Journal of Electronic Markets*, vol. 7, no. 3, pp. 28-31.
- Lee, HG (1997), 'AUCNET: Electronic Intermediary For Used-Car Transactions', *International Journal of Electronic Markets*, vol. 7, no. 4, pp. 24-28.
- Levesque, D (1999), 'Escrow firm protects online auction', *Providence Business News*, vol. 14, no. 11, June, p. 28.
- Lincke, D-M (1998), 'Evaluating Integrated Electronic Commerce Systems', *International Journal of Electronic Markets*, vol. 8, no. 1, pp. 7-11.
- Lindemann, MA, & Schmid, BF (1998), 'Framework for Specifying, Building, and Operating Electronic Markets', *International Journal of Electronic Commerce*, vol. 3, no. 2, pp. 7-21.
- Lucking-Reiley, D (2000), 'Auctions on the Internet: What's being auctioned, and how?' *The Journal of Industrial Economics*, vol. 48, no. 3, pp. 227-252.
- Lucking-Reiley, D, & Spulber, DF (2001), 'Business-to-Business Electronic Commerce', *Journal of Economic Perspectives*, vol. 15, no. 1, pp. 55-68.
- Morgenthal, JP (2001), 'Which B2B Exchange Is Right For You?' *Software Magazine*, vol. 21, no. 1, pp. 30-34.
- Mougayar, W (1998), *Opening Digital Markets: Battle plans and business strategies for Internet Commerce*, 2nd edn, McGraw-Hill, New York.
- Neuman, L (1997), *Social Research Methods: Qualitative and Quantitative Approaches*, 3rd edn, Allyn and Bacon.
- Oliver, RW (2001), '2B or not 2B', *The Journal of Business Strategy*, vol. 22, no. 3, pp. 7-9.
- Oppelland, HJ, & Prins, R (2000), 'Death of the Intermediary?' - Strategies for Insurance Business in the Internet Era', in *Proceedings of the 13th International Electronic Commerce Conference*, Bled, Slovenia, 19-21 June.
- Palvia, SC, & Vemuri, VK (1999), 'Distribution Channels in Electronic Markets: A Functional Analysis of the 'Disintermediation' Hypothesis', *International Journal of Electronic Markets*, vol. 9, no. 2, pp. 118-125.
- Pant, S, & Hsu, C (1996), 'Business On The Web: Strategies and Economics', in *Proceedings of the 5th International World Wide Web Conference*, Paris, France.

- Petersson, J (2001), 'The Local Electronic Marketplace - a Framework for Understanding', in *Proceedings of the 6th Annual COLLECTeR Conference on Electronic Commerce*, Coffs Harbour, Australia, 3-4 December, pp. 132-137.
- Ramsdell, G (2000), 'The Real Business of B2B', *McKinsey Quarterly*, no. 3, pp. 174-184.
- Rayport, FJ, & Jaworski, BJ (2002), *Introduction to e-commerce*, McGraw-Hill/Irwin MarkspaceU, Boston.
- Rayport, FJ, & Sviokla, JJ (1994), 'Managing in the Markspace', *Harvard Business Review*, vol. 72, no. 6, pp. 141-150.
- Reck, M (1997), 'Trading-Process Characteristics of Electronic Auctions', *International Journal of Electronic Markets*, vol. 7, no. 4, pp. 17-23.
- Sawhney, M, & Kaplan, S (1999), 'Let's Get Vertical', *Business 2.0*, viewed 1 March 2000, <<http://www.business2.com/content/magazine/indepth/1999/09/01/11854>>.
- Scott, J (2000), 'Emerging Patterns from the Dynamic Capabilities of Internet Intermediaries', *Journal of Computer Mediated Communication [Online]*, vol. 5, no. 3.
- Segev, A, Gebauer, J, & Färber, F (1999), 'Internet-Based Electronic Markets', *International Journal of Electronic Markets*, vol. 9, no. 3.
- Shaw, MJ, & Bailey, AD, Jr. (2000), 'Web-based E-catalog systems in B2B procurement', *Communications of the ACM*, vol. 43, no. 5, pp. 93-100.
- Strader, TJ, & Shaw, MJ (1997), 'Characteristics of electronic markets', *Decision Support Systems*, vol. 21, no. 3, pp. 185-198.
- Stross, RE (2000), 'The Auction Economy', *U. S. News & World Report*, vol. 128, no. 25, p. 44.
- Symonds, M (1999), 'The Rise of the Infomediary', *The Economist*, vol. 351, no. 8125, 26 June, pp. 21-24.
- Timmers, P (1998), 'Business Models For Electronic Markets', *International Journal of Electronic Markets*, vol. 8, no. 2, pp. 3-8.
- Turban, E, King, D, Lee, J, Warkentin, M, & Chung, MH (2002), *Electronic Commerce 2002: A Managerial Perspective*, Prentice Hall, Upper Saddle River, New Jersey.
- Turban, E, Lee, J, King, D, & Chung, MH (1999), *Electronic Commerce: A Managerial Perspective*, Prentice-Hall. Inc.
- Weller, TC (2000), 'BtoB eCommerce: The Rise of eMarketPlaces', Legg Mason Wood Walker, viewed 31 July 2000, <www.netmarketmakers.com/documents/BtoBSpring2000.pdf>.
- Williamson, OE (1973), 'Organizational Forms and Internal Efficiency', *American Economic Association*, vol. 63, no. 2, pp. 316-325.
- Williamson, OE (1975), *Markets and hierarchies, analysis and antitrust implications: a study in the economics of internal organization*, Free Press, New York.
- Williamson, OE (1985), *The Economic Institutions of Capitalism*, Free Press, New York.
- Wise, R, & Morrison, D (2000), 'Beyond the exchange: The Future of B2B', *Harvard Business Review*, vol. 78, no. 6, pp. 86-96.
- Wrigley, CD (1997), 'Design Criteria For Electronic Market Servers', *International Journal of Electronic Markets*, vol. 7, no. 4, pp. 12-16.