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Electronic Marketplaces: Focus and operational characteristics

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Electronic marketplaces

Focus and operational characteristics

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Abstract. The literature on electronic marketplaces reveals much confusion around matters of definition and description. In particular, there is a lack of consensus on what constitutes an electronic marketplace, as well as the inter-organisational processes which they support. Despite the disparate, and often contradictory, perceptions of electronic marketplaces in the literature, electronic marketplaces, operating as intermediaries in the market system, are observable in practice. This paper explores the characteristics of eight electronic marketplaces operating as market intermediaries in various business sectors. It builds on existing research to develop and refine a characteristics framework by examining the value proposition, product-market focus, market value activities, management value activities and technology/information value activities, ownership, revenue model and market structure of the eight marketplaces. The paper concludes by outlining a refined characteristics framework and argues that the key characteristics of marketplaces is their ability to aggregate and disseminate knowledge to their participants; a task facilitated by their market, management, and technology value activities.

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1 Introduction

In recent years, the concept of an electronic marketplace as an intermediary emerged in the literature (e.g., Dai and Kauffman 2000; Gengatharen and Standing 2005; O'Reilly and Finnegan 2005; Soh et al. 2006; Verhagen et al. 2006). Researchers such as Kambil et al. (1999) and Klueber et al. (2001) found that electronic marketplaces play a significant role in co-ordinating inter-organisational activities. These intermediaries provide services to buyers and/or sellers operating in a broad range of sectors, most famously the flower sector in the Netherlands. However, the success of such intermediaries has been mixed. Dai and Kauffman (2002) reference a Deloitte research report showing 1,500 electronic marketplaces operational in 2000. However, the failure rate for such ventures was high (cf., Lennstrand et al. 2001). Evidence from emarketservices in August 2008 revealed the existence of 602 independent intermediaries operating electronic markets in various sectors. However, there are numerous inconsistencies and disagreements among researchers in defining electronic marketplaces and the inter-organisational processes which they support (Bakos 1991; Bradley and Peters 1997; Schmid and Lindemann 1998; Dai and Kauffman 2000; Wang et al. 2008). This lack of agreement on the phenomenon makes meaningful cross-study comparisons of research results impossible; making it difficult to build a cumulative research tradition that might help address issues facing practice. Consequently Wang et al. (2008) call for more systematic approaches to electronic marketplace research.

This paper examines the concept of electronic marketplaces as intermediaries in the market system; aiming to provide a detailed characterisation of the phenomenon. It begins by outlining the evolving nature of the electronic marketplace concept and typifies the electronic marketplace phenomenon using eight characteristics derived from existing research. This is followed by a consideration of the research methodology used in the study. Then the data gathered from eight electronic marketplaces operating in different business sectors is examined using the eight characteristics derived in the early part of the paper. Finally, the paper concludes by presenting a revised framework for characterising electronic marketplaces.

2 Conceptualising the phenomenon of electronic marketplaces

Much of the existing research on electronic markets, hierarchies and intermediaries is based on the economic theories of Coase (1937) and Williamson (1975; 1981; 1991; 1999); thus market system governance is viewed as either hierarchies or markets. This is particularly evident in Malone et al.'s (1987) seminal work on electronic hierarchies and markets; referred to as the electronic markets hypothesis (EMH). Researchers such as Clemons and Row (1992), Bakos and Brynjolfsson (1993) and Hess and Kemerer (1994) have criticised the EMH, stating that it ignores key aspects of inter-organisational relationships, including how organisations manage risk and the fundamental nature of buyer/seller relationships. Furthermore, there has been limited empirical evidence confirming this hypothesis. Indeed, researchers such as Bakos

(1991), Hess and Keremer (1994) and Lee and Clark (1996) noted the increasing number of third-party market makers which electronically co-ordinated inter-organisational activities. This development may be partially explained by the work of Hayek (1945) on the emergence of intermediaries in the market system. Hayek believed that one of the key considerations for firms was the process for obtaining and aggregating market knowledge (e.g., price, availability etc); a process that could be facilitated by third party merchants (intermediaries). For the purpose of this study, and in line with the work of Bakos and Bailey (1997) we classify such intermediaries as marketplaces. This concept of electronic intermediaries is empirically supported by the work of Kambil and Van Heck (1998) and Kaplan and Sawhney (2000).

However, it is notable in the IS literature that the terms 'electronic market' and 'electronic marketplace' are used interchangeably. McCoy and Sarhan (1998) propose that an electronic market "separates the negotiating function from the physical transfer of the product or commodity in which the market operates. It can manage buyers' and sellers' offers and bids, as well as moving products directly from sellers to buyers" (p. 15). Bakos (1991) states that an electronic marketplace is an interorganisational information system "that allows the participating buyers and sellers to exchange information about products offerings" (p. 296). By noting that the market concept of an electronic market includes the governance issue, he differentiates this systems view from Malone et al.'s (1987) concept of an electronic market. In further illustrating the diversity and inconsistencies inherent in defining electronic marketplaces, Bakos' comprehension of an electronic marketplace's traits evolved to incorporate support for the "all-in process of business transactions from initial contacts and negotiation to settlement" (Bakos 1997, p. 1678). The concept of an electronic marketplace as an intermediary emerged in the work of Bailey and Bakos (1997) and later in the work of Dai and Kauffman (2000). Soh et al. (2006) emphasise the role which these intermediaries play in aggregating goods/services, matching buyers and suppliers, providing price transparency, enabling trust, providing market information and; customised, relationship-specific information flows between trading partners.

In order to derive a more internally consistent understanding of electronic marketplaces and to derive a definition, we utilise and extend the work of Soh and Markus (2002) and Dai and Kauffman (2002). Soh and Markus (2002) build on previous research to operationalise the attributes of electronic marketplaces under five characteristics; value proposition, product-market focus, value activities, ownership and market structure. Dai and Kauffman (2002) classify 'e-market' roles as:

1. Basic market functions: aggregation, matching, and facilitation
2. Management needs: procurement expertise & knowledge, business relationships, and business processes
3. Technology adaptation: system integrators, standards providers, and outsourcing vendors

In table 1, Soh and Markus's (2002) work is developed to expand the concept of electronic marketplace value activities using Dai and Kauffman's (2002) e-market roles. Soh and Markus (2002) state that an electronic marketplace's strategy should be aligned with its environment. They argue that the key concepts in achieving this alignment relate to the 5 characteristics out-

lined: value proposition, product market focus, ownership, market structure and value activities. In exploring electronic marketplace value activities further, Dai and Kauffman (2002) argue that an electronic marketplace's value activities can be described in terms of its market, management and technology value activities. Therefore, table 1 is derived through integrating the work of Dai and Kauffman (2002) and Soh and Markus (2002) enabling a detailed electronic marketplace characteristics framework to emerge.

<i>Characteristic</i>	<i>Operational Guises</i>
<i>Value Proposition</i>	An electronic marketplace's value proposition is described in terms of one or more of the following benefits; communication, brokerage, and integration (Dai and Kauffman 2002; Soh and Markus 2002).
<i>Product-Market Focus</i>	Products can be commodity/standardised, differentiated; manufacturing or operating input; high or low cost (Kaplan and Sawhney 2000; Wise and Morrison 2000; Howard et al. 2006 White et al. 2007). Customers include both electronic marketplace buyers and suppliers.
<i>Market Value Activities</i>	Value activities offered by electronic marketplaces can be broadly classified as: search, selection, execution (post-sale transaction automation and logistics), and collaboration/facilitation (Bakos 1998; Choudhury et al. 1998; Lee and Clark 1996; Christiaanse et al 2004; White et al 2007). Basic market functions include; aggregation (public and private e-cataloguing), matching (public bidding and private negotiation), facilitation (financial services, delivery and logistics) (Dai and Kaufmann 2002). Intermediaries can offer trust and assurance services (Bailey and Bakos 1997; White et al 2007).
<i>Management Value Activities</i>	Procurement expertise and knowledge and business process support (workflow, supply chain, and project management, provided to participants through various IT tools (Dai and Kauffman 2002). Expertise and knowledge of marketplace personnel in areas in which the marketplace operates.
<i>Technology / Infrastructure Value Activities</i>	System integration, standards provider and outsourcing services (Dai and Kauffman 2002).
<i>Ownership</i>	Owned by buyers, suppliers or third party, operationalised in the following structures; single company and consortium (Bakos 1997; Lennstrand et al. 2001; Howard et al. 2006; White et al 2007).
<i>Revenue Model</i>	Lennstrand et al (2001) state that sources of revenues for marketplaces may include transaction fees, membership/licence fees, advertising, professional service fees and value added service fees.
<i>Market Structure</i>	Brokered and dealer (Lee and Clark 1996).

Table 1: Electronic marketplace characteristics framework

Table 1 illustrates that the value activities performed by electronic marketplaces focus on buyer/supplier needs for management support (business process support, supply chain and project management) and technology (standards, integration and outsourcing), in addition to the basic market functions of aggregation, matching and facilitation. Consequently we define an electronic marketplace as:

an organisational intermediary that electronically provides value added communication, brokerage and integration services to buyers and sellers of direct and/or indirect products and/or services in specific horizontal or vertical markets by supporting basic market functions, meeting management needs for information and process support, and/or operating the required IS/IT infrastructure.

3 Research objective and method

The objective of this study is to explore the characteristics of electronic marketplaces. Marshall and Rossman (1989) argue that there is a need for research to focus on 'discovery' and 'theory building', and be 'exploratory' in nature, when the state of knowledge in a field is at an early stage of investigation, as here. We thus adopt a post-positivist epistemology and seek to 'approximate reality' (Guba 1990) using methods that emphasise the verification of existing knowledge and the discovery of new knowledge (Denzin and Lincoln 2000). We have chosen a case study approach as it can provide a rich description of a phenomenon and serves to capture the reality and richness of organisational behaviour in detail (cf., Galliers 1992; Darke et al. 1998). We use multiple case studies to strengthen the research findings and help to allay many of the problems documented in relation to individual case studies (cf., Benbasat et al. 1987). Multiple cases permit replication and extension among individual cases, thus facilitating greater theoretical insights arising from methodological rigour and multiple case comparative logic (Eisenhardt 1989). Our method is consistent with that of Benbasat et al. (1987) and Yin (1994) in that we study the electronic marketplace phenomenon in its natural setting, employing multiple data collection methods to gather information from a few entities, without employing experimental control or manipulation.

Data was gathered on eight electronic marketplaces over a twenty month period from September 2002 to June 2004. Five of the marketplaces studied (BTTransact, IBX, Eutelia, Nordpool and Proceedo) were rated by *emarketservices* (www.emarketservices.com) at the time of this study as being among the leading B2B worldwide marketplaces. The other electronic marketplaces studied, Globalcoal, Dealcotton and Comdaq, were selected to add diversity. We thus adopt Pettigrew's (1989) philosophy that such cases may provide insights which the other electronic marketplaces may not, and are useful in building theory. Data was gathered through semi-structured interviews and document analysis. In order to reduce the possibility of researcher bias, considerable care was taken in designing, wording and sequencing the questions in the semi-structured interview guide. A combination of focussed and open-ended questions were included in the interview guide. In each marketplace, the researchers began by asking broad questions about the electronic marketplace, before proceeding to ask specific questions around the characteristics framework (table 1). This approach has been advocated by Bouchard (1976) and provided the researchers with the flexibility to re-focus during the interview process as advocated by Trauth and O'Connor (1991). In follow up discussions with interviewees, specific issues were clarified and explored further.

Interviews were held with senior management and other personnel responsible for policy formulation. In total, over 100 hours of interviews with 36 people in 8 marketplaces took place

(see table 2). At the time of the study, average revenues across the 8 marketplaces studied were in excess of €3.5m per year with the number of participants using the various marketplaces ranging from 15 to over 1200. Once an interviewee's permission had been granted, conversations were recorded using a dictaphone in order to ensure accurate information gathering and to facilitate improved data analysis. However, as noted by Walsham (1995), a key disadvantage of tape recording interviews is that respondents may feel inhibited by the presence of the recording machine. Cognisant of these limitations, the researchers followed the advice of Walsham (1995) who advocated the combination of tape recording and note taking. On a number of occasions interviewees requested that the machine be switched off in order to facilitate discussion of matters of a sensitive and confidential nature. When asked, the interviewer duly obliged, as this enabled greater insights into the electronic marketplace's characteristics.

<i>Organisation & Product/sector</i>	<i>Interviewees</i>	<i>Documentation Analysed</i>
BTTransact (5 employees) Indirect goods in the Irish and British Markets.	Senior Manager (2 interviews, email correspondence): 5 hrs Manager (2 interviews, email correspondence): 5 hrs	Business Plan Internal Pricing Policy documents Various Technology Reports and Plans & Assorted Press releases
Comdaq (4 Employees) Commodities (coffee, sugar, cocoa etc) for global markets	Chairman (1 interview): 4 hrs Director (1 interview): 2 hrs	Internal Financial Accounts Assorted Press Releases
DealCotton (7 Employees) Cotton – Global markets	President /CEO (1 interview): 2 hrs Head of Business Development (5 interviews, phone conversations, email correspondence): 12 hrs Chief Financial Officer (2 interviews phone conversations, email correspondence): 2 hrs Director CIS (Eastern Europe) operations (1 interview): 1 hr Chief communications Officer (1 interview): 3 hrs 4 Marketplace Participants (4 interviews): 5 hrs	Business Plan Internal Financial Accounts

<i>Organisation & Product/ sector</i>	<i>Interviewees</i>	<i>Documentation Analysed</i>
Eutilia (20 Employees) Indirect goods for the European utility sector	Chief Executive Officer (1 interview): 2 hrs System Delivery Programme manager (2 interviews, phone conversations and email correspondence): 4 hrs Chief commercial officer (1 interview): 2 hrs Auction manager (2 interviews, phone conversations, email correspondence): 2 hrs Business analyst (2 interviews, email correspondence): 2 hrs Chief Financial Officer (1 interview): 1 hr	Business Plan Technology Papers Internal Presentations Financial Reports Marketing Documentation Press Releases
Globalcoal (8 Employees) Coal – European and Asia/Pacific markets	CEO (1 interview, email correspondence): 3 hrs Chief Operations Officer (1 interview): 2 hrs Technology Officer (1 interview): 1 hr	Assortment of Presentations Third Party Commissioned Consultant Report on Marketplace Technology Documentation Press releases
IBX (80 Employees) Indirect goods for multinationals in Nordic region	Chief Communications Director (2 interviews, email correspondence): 5 hrs President/CEO (1 interview): 1 hr	Assortment of Presentations Assortment of Papers: Value proposition, technology papers Assortment of reports
Nordpool (50 Employees) Electricity – Nordic markets	President/CEO (1 interview): 1.5 hrs President of Nordpool Clearing (1 interview): 1 hr Head of Financial Markets (1 interview): 1 hr Senior Manager (Head of Research and Analysis) (1 interview, email correspondence): 7 hrs Communications Officer (2 interviews, email correspondence): 3 hrs Markets Analyst (1 interview): 2 hrs	Annual Reports (12 years) Assorted Press releases
Procedo (20 Employees) Indirect goods for mid- sized Nordic companies	Chief Executive Officer (1 interview): 2 hrs Vice President (2 interviews, email correspondence): 8 hrs Project Manager (2 interviews, email correspondence): 3 hrs	Business Plan Assortment of papers documenting value proposition and technology offering Various press release

Table 2: Marketplaces and personnel interviewed

The data was analysed using open and axial coding (Strauss and Corbin 1990). The goal of open coding is to reveal the essential ideas found in the data. The first task is the labelling of phenomena. This task involves decomposing a fact into a number of ideas or incidents. Each idea receives a label or a code that represents the phenomena (cf., Strauss and Corbin 1990). The next task involved in open coding is to take these codes and group them together. For this study, this task was informed by constructs outlined in table 1. This process enabled categories and sub-categories/properties to emerge. Allan (2003) notes that by investigating the connections between concepts theory emerges. Developing a better understanding of the relationship between a category and its subcategories (condition, context, actions taken, outcomes) is the purpose of axial coding. The validity of these hypothesised relationships was examined through relational and variational sampling (Strauss and Corbin 1990; Mataviren and Brown 2008). This process was conducted in a recursive manner resulting in the modification of categories and relationships.

4 Analysis

The value proposition (“the set of benefits a marketplace offers its customers”, Soh and Markus 2002) of the marketplaces studied are documented in table 3. Table 3 also shows the aspect of the value proposition that differentiates each marketplace from others that operate in the same sector. Extant research (Dai and Kauffman 2002; Soh and Markus 2002) has described the value proposition of an electronic marketplace in terms of whether it provided communication, brokerage and integration benefits to participants, with such services being used to distinguish different types of electronic marketplaces. All of the marketplaces studied here offered communication and brokerage services, except Proceedo, which offered communication but not brokerage. In addition, all marketplaces offered integration except Globalcoal and Nordpool. Thus, our analysis shows the usefulness of these functions for distinguishing between electronic marketplaces as market system intermediaries is limited. Indeed, the description of such functions provide, at best, a high level view of electronic marketplaces. Instead our analysis revealed that market, management, and technology value activities provided greater insight into an electronic marketplace’s value offering, as discussed below.

Product descriptions (see table 1) have traditionally been used to describe an electronic marketplace’s *product-market* focus. Table 4 aggregates the various descriptors used to illustrate the product-market focus of electronic marketplaces in the extant literature. These descriptors are utilised in table 4 to characterise the marketplaces. Using this table, each marketplace was analysed in terms of its product and market focus. This analysis extends the existing view of product-market focus by revealing that, in addition to physical characteristics, contractual characteristics may be usefully included to reflect an electronic marketplace’s *product-market* focus. This is illustrated by the fact that some electronic marketplaces (Globalcoal and Nordpool) design physical and financial contracts, for trading on their marketplace. These marketplaces offer financial products (swaps, futures, forwards) on the back of physical contracts in order to enable traders to better manage their price and volume risk. Consequently, while previous research (Bakos 1997; Kaplan and Sawhney 2000) categorised electronic marketplace participants

<i>Marketplace</i>	<i>Value Proposition</i>	<i>Differentiator</i>
<i>BTTransact</i>	Centrally hosted service. Request for quote and once off on-line auctions. Catalogue creation and content management solution.	Provides solutions in the UK market to large buyers and sellers of goods facilitating improved access to new markets together with improved economies of scale.
<i>Comdaq</i>	Key value proposition is supplying software. Operates a number of electronic markets in various commodity sectors.	Develops bespoke software for parties involved in commodity trading. Personnel also have in-depth knowledge of the appropriate commodity sectors.
<i>DealCotton</i>	Automation of the cotton trading process. Unbiased 'neutral' entity in cotton trading.	The only neutral marketplace operating in the cotton industry.
<i>Eutilia</i>	Facilitates the introduction of increased levels of competition and transparency to the European utilities market.	Facilitates improved efficiency for large European utility organisation through specialising in the procurement needs of such organisations.
<i>Globalcoal</i>	Seeks to add value to the coal industry by facilitating trade in standardised (commoditised) coal products.	The only B2B marketplace operating in the coal sector.
<i>IBX</i>	To automate and simplify procurement for buying organisations.	The leading Nordic marketplace in indirect goods facilitating buyers in accessing thousands of suppliers.
<i>Nordpool</i>	Operates a physical and financial market for trading electricity in the Nordic region. It also offers clearing services.	The largest B2B marketplace facilitating electricity trading in the Nordic region.
<i>Procedo</i>	Facilitates organisations in procuring indirect goods. Procedo supports the following elements of the supply chain: product search, requisition, approval, ordering and electronic invoicing.	Nordic based electronic marketplace which enables organisations to streamline their procurement processes and facilitates improved economies of scale

Table 3: Electronic marketplaces' value proposition

as buyers and sellers, we reveal a sub-category; speculators who buy and sell financial contracts in the hope of financial gain.

Market value activities have traditionally been represented as aggregation, matching, and facilitation. Our analysis revealed that all those studied offered aggregation and matching, with only one marketplace, Nordpool, providing facilitation services. For example, in terms of its *market value activities*, BTTransact aggregates onto a single platform all supplier catalogues, thus migrating the existing buyer/supplier relationship onto the BTTransact platform. Negotiation typically has already taken place in a non-electronic setting between buyers and suppliers; therefore BTTransact does not become involved in this aspect of buyer-supplier relationships. BTTransact can also organise single or multiple attribute reverse auctions for buyers. Buyers may also request a quote using BTTransact's source module.

<i>Marketplace</i>	<i>Commodity</i>	<i>Standardised</i>	<i>Differentiated</i>	<i>Direct</i>	<i>Indirect</i>	<i>Buyer as Customer</i>	<i>Seller as Customer</i>
<i>BT-Transact</i>	No	Yes	No	No	Yes	Yes	Yes
<i>Comdaq</i>	Yes.	Yes	No	Yes	No	Participants	Participants
<i>Deal-cotton</i>	Yes: Cotton	Yes	No	Yes	No	Participants	Participants
<i>Eutilia</i>	No	Yes	Yes	Yes	Yes	Yes	Yes
<i>Global-coal</i>	Yes. Designs coal contracts that are traded on its physical and financial electronic markets	Yes	No	Yes (coal may either be a direct or indirect product)	Yes	Yes. Buyer of coal for use and buyers / sellers of contracts (speculation)	Yes
<i>IBX</i>	No	Yes	Yes	No	Yes	Yes	Yes
<i>Nordpool</i>	Yes. Designs electricity contracts that are traded on its financial and physical markets	Yes	No	Yes	Yes	Yes. Buyer of electricity for use and buyers/ sellers of contracts (speculation)	Yes
<i>Proceedo</i>	No	Yes	No	No	Yes	Yes	Yes

Table 4: Analysis of electronic marketplace's product-market focus (Note the issue of low and high cost is excluded as such characteristics did not apply to any of the marketplaces studied)

Nordpool clears both contracts that are traded on the marketplace and bilaterally traded OTC contracts. Clearing means that Nordpool acts as an intermediary in clearing contracts; making Nordpool the legal counterparty for all parties to a contract. Nordpool requires security from the parties utilising this service and guarantees settlement of contracts. Clearing reduces the risk of credit and settlement problems, for example, the risk that the seller will not be able to pay on the settlement day or may go bankrupt before settling. In terms of matching, the most common mechanisms used were single and multi-variable auctions, and private negotiation using business process solutions. There was no evidence of electronic marketplaces providing delivery and logistics services. Based upon the data gathered on the eight marketplaces studied, aggregation and matching are the dominant market value activities provided by the electronic marketplaces.

Research on management value activities predominately focused on the information provided to managers through the reporting capabilities of the technology solutions (cf., Dai and Kauffman 2002). Our study revealed that an electronic marketplace must have personnel who

have knowledge of information systems, yet more importantly have knowledge of, and contacts in, the sector in which the electronic marketplace is operating. We thus conclude that the expertise, knowledge and contacts of an electronic marketplace's personnel represent the critical element of an electronic marketplace's management value activities. For example, the replacement of Dealcotton's management team in 2001 meant that cotton industry experts rather than venture capitalists ran the marketplace. With the change in ownership, the management team also changed, as did their expertise. As a result of this change, Dealcotton's management team not only consists of personnel who are experts in the fields of business, information systems, and finance but have vast experience of the cotton industry and possess numerous contacts in the area. Our analysis revealed that this expertise and knowledge has been critical to Dealcotton's growth. Similarly, IBX's current management team are experts in the areas of technology, change management, and eprocurement. All the senior management team were formally Ericsson employees and were involved in the development and implementation of Ericsson's proprietary e-procurement solution in the mid 1990s. The importance of the industry contacts which marketplace personnel possess is further reflected in the comments of Proceedo's Vice President in relation to Proceedo's board of directors when he revealed that "the work of the board for a company like Proceedo apart from financing the company is assistance with selling ... you always need assistance with selling."

In terms of technology value activities, many marketplaces studied act as application service providers and provide systems integration and software development services. None of the marketplaces develop technology standards. However, developing information systems applications is not a strategy pursued by all electronic marketplaces; many pursue a strategy of partnering with technology organisations and utilising their applications to provide value to marketplace participants. For example, Eutilia offers their technology solutions in conjunction with CommerceOne and Poet. CommerceOne delivers electronic marketplace and procurement technology for Eutilia's transaction services. Poet is a software company that provides solutions for creating, managing and distributing electronic catalogue data. This technology enables the creation, maintenance, and distribution of customised catalogues on a supplier self-service basis. Likewise, Nordpool have partnered with a number of software vendors in relation to providing technology services. For example their electronic trading infrastructure is provided by OM Gruppen.

It is evident that the issue of ownership has been used in the electronic marketplace literature to categorise electronic marketplaces based on ownership structure and bias, and has been shown to impact upon access to marketplaces (cf., Bakos 1997; Lennstrand et al. 2001; Howard et al. 2006; White et al 2007). Our analysis (see table 5) revealed that electronic marketplaces may be owned by buyers or suppliers with the following structures; single company, consortium, and third party. Furthermore, it revealed that all marketplaces studied have investors who operate in the electronic marketplace's business sector, and investors in some marketplaces have a background in technology.

The importance of investor characteristics is reflected in the comments of Globalcoal's and IBX's staff. IBX's President stated that "over 80% of revenues in the initial year were contracted volume from our owners, which was a very safe way of developing the company." However, this scenario is not replicated in Globalcoal. Globalcoal's Chief Operating Officer stated that "the biggest single fault with the way that Globalcoal was set up was that there was no contractual market making obligation on the shareholders. None of them had any obligation to do anything

<i>Marketplace</i>	<i>Buyer/Supplier or Third (3rd) party owned</i>	<i>Single Company or Consortium</i>
<i>BTTransact</i>	3 rd party	Entity within the BT group
<i>Comdaq</i>	Entrepreneur. Buyer and seller of commodities.	Single
<i>Dealcotton</i>	Owned by a company who have investors who are market participants	Single
<i>Eutilia</i>	Owned by 6 utilities (buyers)	Consortium
<i>Globalcoal</i>	Owned by a consortium of 4 coal producers and 4 coal consumers	Consortium
<i>IBX</i>	Owned by 5 large buyers and 1 investor organization	Consortium
<i>Nordpool</i>	Owned by Nordic electricity transmission and grid operators	Consortium
<i>Procedo</i>	3 rd party (also happens to be a buyer)	Single

Table 5: Analysis of electronic marketplaces' ownership characteristics

other than the moral one. To many of them this didn't mean anything". Therefore, our analysis suggests ownership may be a very significant way of characterising electronic marketplaces as it appears to have a significant impact on the success of individual marketplaces.

Lennstrand et al. (2001) note that there are several possibilities in relation to how an electronic marketplace can earn revenue. They identify transaction fees, membership/licence fees, advertising, and value-added service fees as being the major sources of revenue for marketplaces and state that a marketplace's income model is built using a combination of these. The importance of a marketplace's revenue model is reflected in the comments of BTTransact's Senior Manager who states that "it's the bottom line which is crucial ... that's why we keep a close eye on our revenue model".

Our analysis (table 6) illustrated that, amongst those marketplaces studied, the dominant revenue model is a subscription-based model which combines membership and transaction fees. Furthermore, advertising is not a major source of revenue. Professional fees are utilised in the case of once-off auctions, systems development, and systems integration projects, with the tariff paid associated with the service being used. Many electronic marketplaces have also implemented various membership categories for buyers and suppliers, with the cost to marketplace participants differing based on the chosen tariff.

By their very nature, electronic marketplaces fulfil the role of a broker in the market in which they operate. A dealer structure demands that a marketplace permanently stands ready to buy and sell, for its own account, the product traded. While theoretically possible for an electronic marketplace to fulfil such a role, no empirical evidence exists in the literature of an electronic marketplace providing bid and ask commitments. Our analysis revealed that a brokered structure is the dominant market structure implemented by the electronic marketplaces studied. All operate a broker structure, with two (Comdaq and Dealcotton) also operating a dealer structure. This means that commodity trading is undertaken by marketplace personnel for profit; an activity that also improves market liquidity. This indicates that a dealer structure is possible for electronic marketplaces; a fact not illustrated by research to date.

<i>Marketplace</i>	<i>Transaction fees</i>	<i>Membership/licence fees</i>	<i>Advertising</i>	<i>Professional service fees</i>
<i>BTTransact</i>	Yes	Combination of transaction and membership fees. Buyer pays. Staggered based on size of contract	No	Yes (integration/consulting/software development fees)
<i>Comdaq</i>	Yes	Flat membership fee plus tariffs based on volumes (tons) traded	No	Yes (Software development)
<i>Dealcotton</i>	No	Fees negotiated on a case by case basis	No	Yes (software development)
<i>Eutilia</i>	Yes	Yes. A number of membership categories for buyers and suppliers	Yes - part of suppliers membership	Yes (consultancy or other requested services)
<i>Globalcoal</i>	Yes	Combination of membership and transaction fees	No	No
<i>IBX</i>	Yes	Combination of membership and transaction fees. Negotiated on a case by case basis. Charging buyers and sellers.	No	Yes (consultancy or other requested services)
<i>Nordpool</i>	Yes	Combination of set up and volume fees. Various tariffs. Clearing fees	No	No
<i>Procedo</i>	Yes	Combination of membership and transaction fees. Only buyers pay.	No	Yes (integration/consulting/software development fees)

Table 6: Analysis of electronic marketplaces' revenue model

5 Conclusion

According to our evidence, it is apparent that electronic marketplaces play a significant role in co-ordinating inter-organisational activities. However, the research literature on electronic marketplaces is constrained by disparate and often contradictory perceptions of electronic marketplaces. In particular, there are numerous inconsistencies and disagreements among researchers in defining electronic marketplaces and the inter-organisational processes which they support. For example, studies of electronic marketplaces have focused on inter-organisational information systems (e.g., Bakos 1991), mediums (Schmid and Lindemann 1998), listings (Bradley and Peters 1997), and intermediaries (e.g., Soh et al. 2006). Therefore, despite much research on electronic markets and marketplaces, the lack of agreement on the electronic marketplace phenomenon has made it impossible to build the cumulative research tradition that might help address the practical issues facing electronic marketplaces.

<i>Characteristic</i>	<i>Operational Guise</i>
<i>Value Proposition</i>	<i>Communication, brokerage, and integration</i> benefits are only useful for providing a high level overview of an electronic marketplaces value offering.
<i>Product-Market Focus</i>	<i>Product and/or contract characteristics are used to reflect a marketplaces' product offering.</i> <i>Product characteristics:</i> standardised, differentiated, manufacturing and indirect. <i>Contract characteristics:</i> Commodity (standardised) contracts, referred to as physical and financial contracts, may be designed by electronic marketplaces and traded by electronic marketplace participants on the electronic markets operated by electronic marketplaces. Electronic marketplace <i>participants</i> consist of buyers/sellers of the product being traded and a sub-category, speculators who trade financial products on the electronic marketplaces financial market. Electronic marketplaces <i>operate</i> in a specified geographical area.
<i>Market Value Activities</i>	Key market value activities are aggregation and matching. <i>Aggregation:</i> Operationalised through public and private electronic catalogues. <i>Matching:</i> Public bidding (Predetermined, limited timeframe) Single and Multivariable auctions Public bidding (Continuous, during marketplace opening hours) Financial and physical electronic markets Private Negotiation (Via workflow management solution) <i>Facilitation:</i> Limited empirical evidence. No evidence of delivery or logistics services.
<i>Management Value Activities</i>	Having personnel who are <i>experts</i> and have contacts in the sector in which the electronic marketplace operates is <i>critical</i> . Having personnel with a background in procurement and information technology is also important.
<i>Technology/infrastructure Value Activities</i>	Some marketplaces act as application service providers and provide system integration and software development services. Most marketplaces pursue a strategy of partnering with technology organisations to provide value to marketplace participants.
<i>Ownership</i>	Owned by <i>entrepreneur</i> or <i>consortium</i> of buyers or suppliers. Investors either have a background in technology or operate in the marketplace's product market. Evidence suggests that to be successful, having investors who operate in the electronic marketplace's business sector is <i>crucial</i> .
<i>Revenue Model</i>	<i>Subscription</i> model which combines membership/licence fees with transaction fees is the dominant revenue model. Various membership categories may be available to buyers and suppliers which they may choose, depending upon their anticipated utilisation of the electronic marketplace. In the case of auctions, systems development or other professional services, a once off fee is charged.
<i>Market Structure</i>	<i>Brokered and dealer structure</i> , with brokered structure being the dominant structure.

Table 7: Refined electronic marketplace characteristics framework

This paper contributes to addressing ontological issues in relation to electronic marketplaces by exploring the characteristics of third party market system intermediaries. Specifically, we

have developed an integrated conceptual framework for characterising electronic marketplaces by using extant research to develop a preliminary framework (Table 1) and refining it using a cross case comparison of eight electronic marketplaces. The resultant characteristics framework (Table 7) represents a significant advancement to understanding the phenomenon of third party intermediaries, and allows the following conclusions to be drawn.

First, in contrast to the work of Dai and Kauffman (2002) and Soh and Markus (2002), we reveal that documenting an electronic marketplace's value proposition is only useful in providing a high level overview of the functions which a particular electronic marketplace supports, and not a useful mechanism for distinguishing between electronic marketplaces. Thus, for third party intermediaries, the value proposition should be considered at the level of the business model of the entity (e.g., company) running the marketplace. This finding is significant as the term value proposition is frequently used by researchers to document the detailed value which a marketplace offers to the market. We purport that these are best explained in terms of value activities.

Second, building on existing research (e.g., Kaplan and Sawhney 2000; Wise and Morrison 2000; Howard et al. 2006; White et al. 2007) that focuses on physical product attributes to characterise the product-market focus of electronic marketplaces, our analysis highlights the importance of contractual products and thus identifies the need to acknowledge the role of speculators in electronic marketplaces.

Third, our results confirm those of Dai and Kauffman (2002) as to the market value and technology value activities provided by electronic marketplaces; although we do find that aggregation and matching are the dominant market value activities. In addition, we add to the work of Dai and Kauffman (2002), in relation to management value activity, by revealing that the expertise, knowledge, and contacts of electronic marketplace personnel are the key aspects of an electronic marketplace's management value activity.

Fourth, we reveal that ownership characteristics (particularly the background of investors) may be a more important aspect of electronic marketplaces than previously believed that has been done by extant research (cf., Bakos 1997; Lennstrand et al. 2001; Howard et al. 2006; White et al 2007), and that revenue models and market structures have become more standardised than suggested by previous work (e.g., Lee and Clark 1996; Lennstrand et al. 2001).

This research study informs practice by providing practitioners with a comprehensive overview of the characteristics of electronic marketplaces and their operational guises thereby informing marketplace designers and managers alike. By being aware of the potential of these entities, marketplace designers should be better informed when designing their entities' functionality.

Overall, our study responds to issues raised by Wang et al. (2008) for more systematic approaches to research on electronic marketplaces and for a larger pool of case studies. Our study reveals a maturing of the electronic marketplace phenomenon as evidenced by increasing standardisation of characteristics around the aggregation of market information and knowledge. This is in keeping with the work of Hayek (1945). While the value propositions of the marketplaces studied focus on facilitating transactions, it is evident that the marketplaces provide significant value added by processing information and market knowledge. From a transaction perspective, this is evident in bringing suitable buyers and sellers together. However, it is much more prevalent in the market, management and technology value added activities. Here, it is notable that the knowledge processed by marketplace personnel is as desirable by market participants as the

technical infrastructure operated by the marketplace. It therefore is not surprising that owners tend to be technology and/or business experts. Our study has provided the detailed analysis across multiple marketplaces missing from extant work and our research design allows us to generalise to theory (cf., Lee and Baskerville 2003). Furthermore, by enhancing understanding of electronic marketplaces, this paper also contributes to theory as per Gregor (2006). In extending this research, we call for research that establishes the association between these characteristics and the success of an electronic marketplace, re-iterating Wang et al.'s (2008) call for further research on the electronic marketplace phenomenon.

6 References

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