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2007

Electronic Marketplaces as Market System Intermediaries: An Exploratory Study and Characteristics Framework

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ELECTRONIC MARKETPLACES AS MARKET SYSTEM INTERMEDIARIES: AN EXPLORATORY STUDY AND CHARACTERISTICS FRAMEWORK

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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 an electronic marketplace is, and 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 that the key characteristic of marketplaces is their ability to aggregate and disseminate knowledge to their participants, a task facilitated by their market, management, and technology value activities.

Keywords: electronic marketplace, characteristics,

1 INTRODUCTION

Many IS researchers have based their research on the economic theories of Coase (1937) and Williamson (1975; 1981; 1991; 1999); they thus view market system governance 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). Building on the economic theories of Coase (1937) and Williamson (1975; 1981) and given the ability of IT to reduce co-ordination costs, Malone et al. (1987) predicted an increased utilisation of electronic markets at the expense of electronic hierarchies. Researchers such as Clemons and Row (1992), Bakos and Brynjolfsson (1993) and Hess and Kemerer (1994) have criticised the theory, 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 increased number of third-party market makers which electronically co-ordinated inter-organisational activities. Thus there is evidence of the emergence of third party intermediaries rather than purely electronic markets or hierarchies. This development may be partially explained by the work of Hayek (1945) on the emergence of intermediaries in the market system. Hayek argued that one of the main issues for parties conducting economic activity is access to market knowledge. Such knowledge does not exist in a concentrated or integrated form but as "*dispersed bits of incomplete and frequently contradictory knowledge which all separate individuals possess*" Hayek (1945, p.77). Hayek believed that one of the key considerations for firms was the process for obtaining and aggregating such knowledge; a process that could be undertaken by third party merchants (intermediaries). In recent years, the concept of an electronic marketplace as an intermediary emerged in the literature (e.g. Dai and Kauffman, 2000; O'Reilly and Finnegan, 2005;

Soh et al., 2006). 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[1] in 2004 revealed the existence of 742 independent intermediaries operating electronic markets in various sectors.

This paper examines the concept of electronic marketplaces as intermediaries in the market system. 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 THEORETICAL GROUNDING AND CONTEXT

Literature on electronic markets and electronic hierarchies reveals the increased utilisation of electronic marketplaces co-ordinating inter-organisational activities from the mid 1990s. 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, 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). Indeed, the interchangeable use of the terms 'electronic market' and 'electronic marketplace' is notable in the IS literature. 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) defines an electronic marketplace as "*an inter-organisational information system that allows the participating buyers and sellers to exchange information about products offerings*" (p.296). He differentiates this systems view from Malone et al.'s (1987) concept of an electronic market noting that the market concept includes the governance issue. Bakos later proposes a wider range of functions in explaining that electronic marketplaces support the "*all-in process of business transactions from initial contacts and negotiation to settlement*" (Bakos, 1997 p.1678). This wider role is made more explicit by the work of Bailey and Bakos (1997) who emphasise the role of intermediaries in electronic markets for aggregating, matching suppliers and customers, providing trust, and providing inter-organisational market information. This concept of electronic intermediaries is empirically supported by the work of Kambil and Van Heck (1998) and Kaplan and Sawhney (2000). Nevertheless, a comprehensive definition is illusive. Soh and Markus (2002) build on previous research to operationalise the attributes under five constructs; value proposition, product-market focus, value activities, ownership and market structure. Similarly Dai and Kauffman (2002) classify e-market roles as being basic market functions, management needs and technology adapters (figure 1).

[1] Emarketservices (www.emarketrservices.com) is an independent body involved in promoting electronic marketplaces. This body is approved and funded by the European Union.

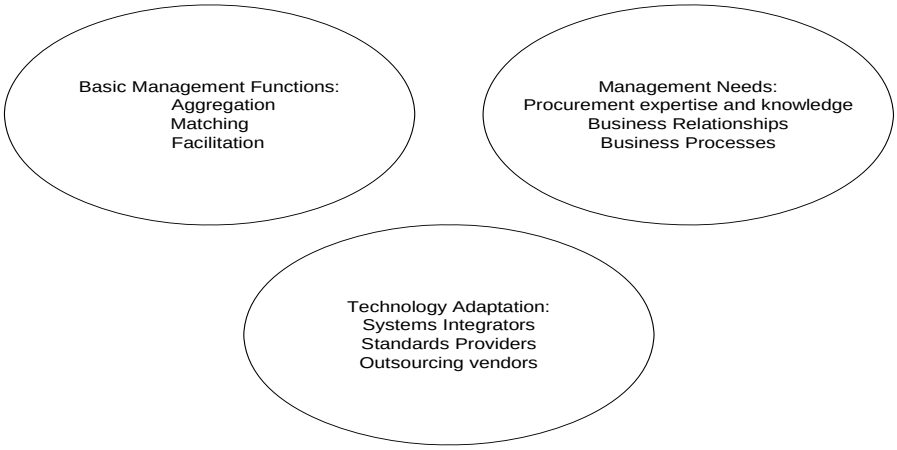

Figure One: Dai and Kauffman (2002) Analysis Framework

Table 1 extends the work of Soh and Markus (2002) to expand the concept of electronic marketplace value activities using the e-market roles identified by Dai and Kauffman (2002). The table 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 can derive an operational definition of electronic marketplaces for use in this study as being: "a*n 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*".

Characteristic	Application
Value Proposition	Communication, brokerage, and integration benefits (Dai and Kauffman, 2002; Soh and Markus, 2002).
Product-Market Focus	Products can be commodity/standardised, differentiated; manufacturing or operating input; high or low cost (Kaplan and Sawhney, 2000; Wise and Morrison, 2000). Customers include both electronic marketplace buyers and suppliers.
Market Value Activities	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). 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).
Management Value Activities	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 area in which marketplace operates
Technology / Infrastructure Value Activities	System integration, standards provider and outsourcing services (Dai and Kauffman, 2002).
Ownership	Owned by buyers, suppliers or third party operationalised in the following structures; single company and consortium (Bakos, 1997; Lennstrand *et al.* 2001).
Revenue Model	Lennstand *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.
Market Structure	Brokered and dealer (Lee and Clark, 1996).

Table 1: Electronic Marketplace Characteristics Framework

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. Case studies can be used to provide rich description of a phenomenon and serve to capture the reality and richness of organisational behaviour in detail, and are thus suitable for exploratory research (Galliers, 1992; Darke *et al*., 1998). Benbesat *et al*. (1987) note that multiple case studies can strengthen research findings and help to allay many of the problems documented in relation to individual case studies. Indeed, Eisenhardt (1989) comments that multiple cases are a powerful means to create theory as they permit replication and extension among individual cases. Indeed, the multiple case study technique facilitates greater theoretical insights arising from methodological rigour and multiple case comparative logic (Eisenhardt 1989).

Eight electronic marketplaces were selected for this study using the directory of electronic marketplaces provided by emarketservices (www.emarketservices.com). Case selection was purposeful on the basis of performance, market sector and product offering. Four of the marketplaces studied; BTTransact, IBX, Eutilia and Proceedo were rated by emarketservices as being among the top 20 marketplaces worldwide. Data gathering took place using semi-structured interviews and document analysis. Interviews were held with senior management and other personnel responsible for policy formulation. In total, 31 interviews took place (see table 2). The data was analysed using open, axial and selective coding techniques (Strauss and Corbin, 1990; Urquahart, 2001). This approach facilitates the development of substantive theory without prior hypotheses and can be utilised in the absence of, or in conjunction with, existing theory (Strauss and Corbin, 1990). The data was coded according to the constructs in table 1 and analytical memos were written as patterns and themes emerged.

Organisation	Product / sector	Interviewees
BTTransact (5 Employees)	Indirect goods in telecoms	Senior Manager , Manager
Comdaq (4 Employees)	Commodities; coffee, sugar, cocoa etc	Chairman, Director
DealCotton (7 Employees)	Cotton	President / CEO, Head of Business Development, Chief Financial Officer, Director CIS (Eastern Europe) operations, Chief ommunications Officer, 4 Marketplace Participants
Eutilia (20 Employees)	Indirect goods for utility sector	System Delivery Programme manager, Chief commercial officer, Auction manager, Business analyst
Globalcoal (8 Employees)	Coal	Chief Executive Officer, Chief Operations Officer, Chief Technology Officer
IBX (80 Employees)	Indirect goods for multinationals in Nordic region	Chief Communications Director , CEO
Nordpool (50 Employees)	Electricity	President/CEO, President Of Nordpool Clearing, Head of Financial Markets, Senior Manager (Head of Research and Analysis), Communications Officer, Communications Director
Proceedo (20 Employees)	Indirect goods for mid-sized Nordic companies	Chief Executive Officer, Vice President, Project Manager

Table 2: Marketplaces and Personnel Interviewed

4 ANALYSIS

The value propositions of the marketplaces studied are shown in table 3. An electronic marketplace's value proposition has usually been described in terms of whether it offered communication, brokerage and integration, 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, the usefulness of these functions for distinguishing between electronic marketplaces is limited; at best, they provide a high level view of electronic marketplaces. Our analysis revealed that market, management, and technology value activities provided greater insight into an electronic marketplace's value offering.

Marketplace	Value Proposition
BTTransact	Centrally hosted service. Request for quote and once off on-line auctions. Catalogue creation and content management solution.
Comdaq	Key value proposition is supplying software. Operates a number of electronic markets in various commodity sectors.
DealCotton	Automation of the cotton trading process. Unbiased 'neutral' entity in cotton trading.
Eutilia	Facilitates the introduction of increased levels of competition and transparency to the European utilities market.
Globalcoal	Seek to add value to the coal industry by facilitating trade in standardised (commoditised) coal products.
IBX	To automate and simplify procurement for buying organisations.
Nordpool	Operates a physical and financial market for trading electricity in the Nordic region. It also offers clearing services.
Proceedo	Facilitate organisations in procuring indirect goods. Proceedo supports the following elements of the supply chain: product search, requisition, approval, ordering and electronic invoicing.

Table 3: Electronic Marketplaces' Value Proposition

Product descriptions (Bakos, 1997; Kaplan and Sawhney, 2000) have traditionally been used to describe an electronic marketplaces' *product-market* focus. Table 4 reveals that, in addition to physical characteristics, contractual characteristics may also be utilised to reflect an electronic marketplace's *product-market* focus. This is illustrated by the fact that some electronic marketplaces (Globalcoal and Nordpool) design physical[2] and financial contracts[3], 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 as buyers and sellers, this study reveals a sub-category; speculators who buy and sell financial contracts in the hope of financial gain. To summarise, both *product* and *contract* descriptions are useful in describing an electronic marketplace's *product-market* focus.

[2] A physical contract is a product whose value arises from the owner's right to sell as well as the right to use the product (in this case coal). Such contracts are traded on a marketplaces physical market.

[3]Generic term used to refer to a derivatives contract (i.e. futures, forwards, swaps). A financial contract's owner has the right to buy or sell an underlying instrument at a certain date in the future. Such contracts are traded on a marketplaces financial market.

Marketplace	Commodity	Standardised	Differentiated	Direct	Indirect	High Cost	Low Cost	Buyer as Customer	Seller as Customer
BT-Transact	No	Yes	No	No	Yes	NR	NR	Yes	Yes
Comdaq	Yes[4].	Yes	No	Yes	No	NR	NR	Participants[5]	Participants
Deal-cotton	Yes: Cotton	Yes	No	Yes	No	NR	NR	Participants	Participants
Eutilia	No	Yes	Yes	Yes	Yes	NR	NR	Yes	Yes
Global-coal	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	NR	NR	Yes. Buyer of coal for use and buyers / sellers of contracts (speculation)	Yes
IBX	No	Yes	Yes	No	Yes	NR	NR	Yes	Yes
Nordpool	Yes. Designs electricity contracts that are traded on its financial and physical markets	Yes	No	Yes	Yes	NR	NR	Yes. Buyer of electricity for use and buyers/sellers of contracts (speculation)	Yes
Proceedo	No	Yes	No	No	Yes	NR	NR	Yes	Yes

Table 4: Analysis of Electronic Marketplace's Product-Market Focus

Market value activities have traditionally been represented as aggregation, matching, and facilitation. Our analysis in this study (see table 5) revealed that all those studied offered aggregation and matching, with only one marketplace, Nordpool, providing facilitation services. In this case, Nordpool clears both contracts that are traded on the marketplace and bilaterally traded OTC contracts[6]. 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.

[4] Operates electronic markets in various commodities.
[5] 'Participants' used where no distinction is made between marketplace buyers and sellers.
[6] Over-the-counter (OTC) trading is to trade commodities or derivatives directly between two parties. It is the opposite of trading on a marketplace. Such agreements are usually governed by the International Swaps and Derivatives Association.

Marketplace	Aggregation (public/private e-cataloguing)	Matching (public bidding, private negotiation)	Facilitation (financial services, delivery & logistics)	Facilitation (execution: post-sale transaction automation)	Facilitation (elec. collab. between buyers / sellers)
BTTransact	Both	Private negotiation. Once off auctions[7]	No	No	No
Comdaq	No	Private negotiation. Once off auctions	No	No	No
Dealcotton	No	Private negotiation	No	No	No
Eutilia	Both	Private negotiation. Public negotiation via single and MVB auction	No	No	No
Globalcoal	No	Public bidding on their electronic financial and physical markets	No	No	No
IBX	Both	Public bidding: auctions. Private negotiation	No	No	No
Nordpool	No	Public bidding physical and financial markets	Yes.	No	No
Proceedo	Both	Private negotiation. Once off auctions	No	No	No

Table 5: Analysis of Electronic Marketplaces' Market Value Activities

Research on *management value activities* predominately focused on the information provided to managers through the reporting capabilities of the technology solutions. Our study (see table 6) 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. Therefore, 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. 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. Analysis revealed that this experience was key to IBX's growth.

Marketplace	Procurement expertise and knowledge	Expertise of personnel in sector
BTTransact	Yes	Procurement and technology
Comdaq	Yes	Technology and commodities
DealCotton	Yes	Technology and commodity
Eutilia	Yes	Technology and procurement experts in utilities
Globalcoal	No	Technology and commodity (coal) experts
IBX	Yes	Procurement
Nordpool	No	Electricity trading
Proceedo	Yes	Procurement and technology experts

Table 6: Analysis of Electronic Marketplaces' Management Value Activities

[7] Matching facilitated by IT solution provided by electronic marketplaces

In terms of *technology value activities*, many marketplaces studied act as application service providers and provide systems integration and software development services (see table 7). 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.

Marketplace	**System integration**	**Standards provider**	**Application service provision**
BTTransact	Yes. If requested	No	Yes
Comdaq	Yes. If requested	No	No. Offers bespoke systems development
Dealcotton	Yes. If requested	No	No
Eutilia	No	No	Yes
Globalcoal	No	No	No
IBX	No. Partnered with other s	No	Yes
Nordpool	No	No	No
Proceedo	Yes. If requested	No	Yes

Table 7: Analysis of Electronic Marketplaces' Technology Value Activities

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. In terms of *ownership*, our analysis (see table 8) 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. Such findings would appear to suggest that if an electronic marketplace is to successful, having investors who operate in the electronic marketplace's business sector is important.

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

Table 8: Analysis of Electronic Marketplaces' Ownership Characteristics

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. i. Our analysis (table 9) illustrated that, amongst those marketplaces studied, the dominant revenue model utilised by electronic marketplaces 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.

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

Table 9: Analysis of Electronic Marketplaces' Revenue Model

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 stand 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.

5 CONCLUSION

This study examined eight electronic marketplaces operating in a number of business sectors. The data gathered on each electronic marketplace studied was structured using the characteristics framework

developed from the work of Soh and Markus (2002) and Dai and Kauffman (2002) (table 1). This meant that each marketplace was documented in terms of its value proposition; market, management and technology value activities, product-market focus, revenue model, ownership, and market structure. This analysis revealed several new insights and facilitated further refinement of the electronic marketplace characteristics framework (table 10). This allows us to make several conclusions. First, documenting an electronic marketplace's value proposition is only useful in providing a high level overview of the functions which the electronic marketplaces support. It is not useful for distinguishing between electronic marketplaces. Second, aggregation and matching are the dominant market value activities provided by the electronic marketplaces. Third, both product and contract descriptions are useful in describing an electronic marketplace's product-market focus. Fourth, the expertise, knowledge, and contacts of electronic marketplace personnel are the key aspects of an electronic marketplace's management value activity. Fifth, application service provision and systems integration are key aspects of an electronic marketplace's technology value activity. Indeed, some marketplaces pursue a strategy of partnering with technology providers. Sixth, in relation to ownership, all electronic marketplaces studied have investors who have a background in technology and/or buyers or sellers in the electronic marketplaces target market. Seventh, the dominant revenue model implemented by the marketplaces is a subscription based model. Finally, a brokered structure is the dominant market structure adopted by the marketplaces.

Characteristic	Application
Value Proposition	Communication, brokerage, and integration benefits are only useful for providing a high level overview of an electronic marketplaces value offering.
Product-Market Focus	Product characteristics: standardised, differentiated, manufacturing and indirect Contract characteristics: 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 participants 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 operate in a specified geographical area.
Market Value Activities	Key market value activities are aggregation and matching. Aggregation: Operationalised through public and private electronic catalogues. Matching: 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) Facilitation: Limited empirical evidence. No evidence of delivery or logistics services.
Management Value Activities	Having personnel who are experts and have contacts in the sector in which the electronic marketplace operates is critical. Background of marketplace personnel in procurement and information technology is also important.
Technology / infrastructure Value Activities	Systems integrators and developers of technological solutions. Application service provision. Many electronic marketplaces partner with other organisations to provide value to marketplace participants.
Ownership	Owned by entrepreneur or consortium of buyers or suppliers. Investors either have a background in technology or operate in the marketplaces product market.
Revenue Model	Subscription 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.
Market Structure	Brokered and dealer structure, with brokered structure being the dominant structure.

Table 10: Refined Electronic Marketplace Characteristics Framework

Malone et al.'s (1987) electronic markets hypothesis (EMH), predicted a shift from electronic hierarchies to markets as the predominant mechanism for governing inter-organisational relationships. Yet, a widespread shift has not taken place. Our review of the research literature revealed little empirical data supporting this hypothesis. There is evidence of a shift from electronic hierarchies, not to electronic markets as predicted, but to electronic marketplaces. One possible explanation is that the EMH is based on a selective interpretation of the economics literature, particularly the work of Hayek (1945), which highlights the role of market system intermediaries in aggregating information and knowledge. It is evident from table 10, that the marketplaces studied aggregate information and knowledge as suggested by 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 is not surprising therefore that marketplace owners tend to be technology and/or business experts. In a practical context, the refined characteristics framework may be useful in helping marketplace designers design their marketplace offerings as it provides insights previously unreported in the literature. It may inform marketplace personnel when they are designing their business model in terms of deciding upon marketplace investors, designing their market, management and technology value activities, revenue model and market structure.

Acknowledgement: The authors acknowledge the support of the Irish Research Council for the Humanities and Social Sciences (via the *O3C Business Models* project).

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