

# Evaluating the Performance of Electronic Marketplaces: an Exploration of the Ownership Impact

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**Abstract:** In evaluating the performance of electronic marketplaces, research has focussed on the impact of factors such as IT, marketplace process design and competition. However, such research has neglected the impact of ownership upon electronic marketplace performance. This paper explores the issue of electronic marketplace ownership and contributes to the literature by revealing four distinct aspects of ownership of electronic marketplaces; investor structure, investor objectives, investor commitment and governance efficiency. Using a multiple case approach, the paper evaluates the performance of seven electronic marketplaces in order to determine the relationship between marketplace performance and ownership. The study reveals a multitude of investor objectives for their marketplace investment, broadly categorised as; transactional, financial or fear. The analysis reveals that investor objectives impact upon investor commitment levels with those investors interested in the transactional benefits of electronic marketplaces being most committed. Analysis also reveals that investor objectives impact upon how efficiently a marketplace is governed. Both investor commitment levels and governance efficiency in turn impact upon electronic marketplace performance in terms of the volumes traded on the electronic marketplace, electronic marketplace adoption levels and electronic marketplace revenues and profitability.

**Keywords:** electronic marketplace, performance evaluation and improvement, ownership, investor structure

## 1. Introduction

Researchers (Kumar & Van Dissel, 1996; Gallivan and Depledge, 2003; Howard et al. 2003; Fahy et al., 2007) note that organisations are motivated to introduce inter-organisational systems by the desire to reduce supply chain uncertainties and transaction costs, increase resource utilisation, and diffuse products and services into new markets. Taking an economic perspective, researchers (Galbraith, 1973; Malone et al., 1987; Clemons & Row, 1992) have noted that IT reduces co-ordination cost and transaction risk, and allows organisations to benefit from economies of scale. It is commonly acknowledged in the IS literature that IT reduces the buyer's costs associated with conducting market transactions, including searching for suppliers, information seeking, and negotiating contracts (Grover & Ramanlal, 1999; Choudhury and Karahanna, 2008). In particular, IT lowers the cost of acquiring information about prices and product characteristics (Smith et al., 2000). In addition, IT, through providing buyers with knowledge of the market, encourages competition among suppliers and facilitates buyers in obtaining the best price possible (Bakos, 1991; Dewan et al., 2007). Information technology also reduces the perceived complexity of products (Malone et al., 1987; Bakos, 1991), allowing buyers to search and compare complex products by providing information in a manner which is easy to interpret, thereby enabling buyers to switch among alternative suppliers in the market (Malone et al, 1987; Bailey et al., 2007). In addition, IT reduces asset specificity, enabling a broader range of customers to receive customised products (Grover and Ramanlal, 1991). Nevertheless, product customisation, enabled by IT networks, could allow sellers to exploit buyers, while increased outsourcing could reinforce a seller's monopoly by sustaining higher prices (Grover and Ramanlal, 1999; Bailey et al., 2007). In addition, open market structures could be exploited by suppliers to create captive buyer networks that can sustain higher prices (Grover and Ramanlal, 1999).

Given the focus in the literature on the respective benefits to buyers and sellers, it is not surprising that ownership and control of electronic markets and hierarchies was considered the same thing, and classified as being either buyer or seller biased (Malone et al., 1987). However, during the 1990s, 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. Such intermediaries are independently owned and use complex IT to aggregate market system knowledge and facilitate transactions. A key feature of such intermediaries, classified as electronic marketplaces (Dai & Kauffman, 2002; O'Reilly and Finnegan, 2005; Soh et al., 2006), has been poor performance and a high failure rate (Klueber et al. 2001 Soh et al., 2006; Son and

Benbasat, 2007), making evaluating and improving electronic marketplace performance an issue worthy of research (Corsten and Hofstetter, 2001; Soh et al., 2006). For the purpose of this research we build on the work of Dai and Kauffman (2002) and Soh and Markus (2002) to define an electronic marketplace as:

*“a revenue generating intermediary organisation 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”.*

The ownership of such intermediaries has been widely discussed in the business press in conjunction with the success or failure of particular marketplaces. However, academic research on the ownership of electronic marketplaces is descriptive; focusing on an electronic marketplaces ownership structure (Lennstrand et al., 2001; Greiger, 2003) and bias (i.e. buyer, seller, neutral). Indeed, White and Daniel (2003) report a dearth of research that explores the ownership of electronic marketplaces in detail. In particular, in evaluating electronic marketplaces, the relationship between ownership and performance remains unexplored.

This paper uses a grounded theory approach to explore the relationship between the ownership of an electronic marketplace and its performance. Based on case studies of seven electronic marketplaces, it reveals that ownership is a multi-faceted issue consisting of investor's objectives and structure, investor commitment levels and governance efficiency. It demonstrates that investors' objectives and structure impact upon investor commitment levels and governance efficiency. Furthermore, it reveals that these two factors; investor commitment levels and governance efficiency, impact upon electronic marketplace performance, reflected through electronic marketplace adoption levels, volumes traded through electronic marketplaces and the electronic marketplaces financial performance.

## **2. Theoretical grounding**

The objective of this research is to explore the ownership issue in the evaluation of electronic marketplaces; specifically the relationship between ownership and performance. Given the dearth of existing research on this topic, a grounded theory approach was adopted. Urquhart (2001) notes that a misconception of the approach is that researchers do not review literature when seeking to build theory from the data. However, Strauss and Corbin (1990: 55) state that *“choosing the right literature in tandem with doing analysis one can learn much about the broader and narrower conditions that influence a phenomenon. However, any categories, hypotheses and so forth, generated by the literature have to be checked out against real (primary) data”*. Indeed Straus and Corbin (1990) believe that the interplay of reading the literature, analysing it, and then moving out into the field to research the phenomena, can yield an integrated picture and enhance the conceptual richness of the theory. This approach was adopted for the study by first considering existing theories of ownership and performance in the organisational theory and IS fields.

### **2.1 Conceptualising performance**

Given the view of an electronic marketplace as an organisational intermediary, we examined the concept of evaluating performance in the organisational literature. In this literature, higher performance implies an organisation is meeting its objectives (Otley, 1999). It also implies revenue growth (McNair et al., 1990; Norreklit, 2000), improved customer relationships (McNair et al., 1990; Kaplan and Norton, 1996), improved productivity among employees (McNair et al., 1990), and return to its owners (Brealey & Myers, 2003). In applying these concepts to this study, we consider electronic marketplace performance as:

*“the extent to which the electronic marketplace provides and improves value for its owners, how efficient it is in performing its tasks and meeting its objectives, while continuing to innovate, grow and expand”.*

The next task was to consider how performance could be evaluated. In the management literature, the balanced scorecard (Kaplan and Norton, 1992; 1996) is a well regarded performance model which integrates financial and non-financial measures. The scorecard translates the vision and strategy of a business unit into objectives and measures in four different areas: financial, customer, internal business process, and learning and growth perspectives. The financial perspective identifies how the company wishes to be viewed by its shareholders. The customer perspective determines how the

company wishes to be viewed by its customers. The internal business process perspective describes the business processes at which the company has to be particularly adept in order to satisfy its shareholders and customers. The organisational learning and growth perspective involves the changes and improvements which the company needs to realise its vision (Kaplan and Norton, 1996). While criticisms have been levelled at the balanced scorecard in relation to its usefulness as a strategic management tool (Norreklit, 1999), its consideration of both financial and non-financial perspectives proved to be a useful lens for evaluating electronic marketplace performance.

## **2.2 Conceptualising ownership**

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 relation to ownership structure, Lennstrand et al. (2001) argue that an electronic marketplace may be owned either by venture capitalists, a consortium of traditional companies within an industry, or a single company within an industry. In the context of those marketplaces owned by venture capitalists, they state that they are typically neutral as such parties have no specific loyalty to either buyers or sellers. They point out that a consortium ownership structure is built around a number of 'bricks and mortar' type organisations who come together and collaborate in order to establish a marketplace. They argue that such marketplaces have the transactions (the ability to put large volumes through the marketplace), but do not possess the technology. Finally, they state that in relation to bias, both the consortium and single company ownership structures, by their very nature favour either buyers or sellers. Researchers argue that ownership determines entry and promoted content. Kambil and Van Heck (1998), in relation to the traditional Dutch flower auctions, note that Dutch growers were able to refuse entry to non Dutch growers by the fact that they owned the marketplace. In the Dutch flower industry, a key factor in the emergence of Teleflower (an electronic marketplace) was the fact that Teleflowers' participants were not allowed engage in the traditional Dutch marketplaces at certain times of the year. Kambil and Van Heck (1998: 17) agree that "*the emergence of Teleflower could probably have been avoided if the buyers had an ownership stake and greater influence in the traditional Dutch auctions*". In this case, the ownership structure of these marketplaces meant that the owners of the traditional Dutch auctions voted to deny access to foreign growers (Kambil and Van Heck, 1998).

## **3. Data gathering and analysis**

The unit of analysis for this study was the individual marketplace, studied as part of a multiple case study strategy. 'A case study examines a phenomenon in its natural setting, employing multiple data collection methods to gather information from a few entities. The boundaries of the phenomenon are not clearly evident at the outset of the research and no experimental control or manipulation is used' (Benbasat et al., 1987). The case study approach is one of the most commonly used research methods in the information systems field (Benbasat et al., 1987; Eisenhardt, 1989; Darke et al., 1998). It aims to obtain an in-depth understanding of the phenomenon and its context (Cavaye, 1996). Case studies enable researchers to investigate pre-defined phenomena without explicit control or manipulation of any variables (Yin, 1994; Cavaye, 1996; Darke et al., 1998). They serve to capture the reality and richness of organisational behaviour in detail (Galliers, 1992; Gable, 1994). Researchers such as Benbasat et al. (1987) and Eisenhardt (1989) argue that multiple case designs are desirable when the intent of the research is to build theory; as with this study. In particular, Eisenhardt (1989) argued that constant comparison across cases, obtaining data from numerous sources and reconciling this with the literature, presents the opportunity of creating new, novel theory. Furthermore, a multiple case design can help to ensure generalisation of research findings (Benbasat et al., 1987), replicability (Darke et al., 1998) and prediction (Benbasat et al., 1987; Darke et al., 1998), thereby strengthening research.

Seven electronic marketplaces were selected for this study. Marketplaces were selected using the directory of electronic marketplaces provided by emarketservices ([www.emarketservices.com](http://www.emarketservices.com)), an independent body involved in promoting electronic marketplaces, approved and funded by the European Union. Four of the marketplaces studied; BTTransact, IBX, Eutilia and Proceedo were rated by emarketservices as being among the top 20 marketplaces worldwide. A three phase data gathering strategy was adopted. Phase one involved the researchers conducting a thorough archival search to determine the existence of public domain material on each of the study sites. Phase two incorporated an onsite visit to interview marketplace personnel. Phase three consisted of follow up

interviews in order to clarify specifics and verify the analysis. A brief overview of each marketplace together with the personnel interviewed is presented in table 1.

**Table 1:** Marketplaces and personnel interviewed

Marketplace	Overview	Interviewees
BTTransact	Indirect Goods to the British and Irish market	Senior Manager , Manager
Comdaq	Operates in numerous commodities markets including (coffee, cocoa, metals etc)	Chairman, Director
Dealcotton	Trading of raw cotton for international buyers and sellers.	President and CEO, Head of Business Development, Chief Financial Officer, Director CIS operations, Chief Communications Officer
Eutilia	Sourcing of goods for buyers which operate in the European utilities sector	Chief Executive Officer, System Delivery Programme manager, Chief commercial officer, Auction manager, Business analyst, Chief Financial Officer
Globalcoal	Operates both physical and financial markets for the trading of coal on international markets	Chief Executive Officer, Chief Operations Officer, Chief Technology Officer
IBX	Facilitates trading of indirect goods for customers who operate in the Nordic market	Chief Communications Director.
Proceedo	Facilitates trading of indirect goods for customers who operate in the Nordic market	Chief Executive Officer, Vice President, 2 Project Managers

Content analysis was undertaken using grounded theory coding techniques proposed by Strauss and Corbin (1990) and exemplified by the work of Orlikowski (1993) and Urquhart (2001). This approach necessitates the researchers to be immersed in the data (Glaser and Strauss, 1967) and to draw on existing theoretical knowledge without imposing a theory (Corbin and Strauss, 1990; Urquhart, 2001). It thus encourages the researcher to be flexible and creative (Sarker et al., 2000) while imposing systematic coding procedures (Strauss and Corbin, 1990). The first step (open coding) involved the data being examined 'line by line' to ascertain the main ideas. Each idea deemed to be important was highlighted in the transcript and given a unique identifier, with a suffix appended to the code to indicate the interviewee. These ideas were then grouped by meaningful headings to reveal categories and sub-categories/properties, with suffixes added to the code to indicate subsequent passes through the data. The next step (axial coding) is the process of determining hypotheses about the relationships between a category and its subcategories e.g. conditions, context, action/interaction strategies and consequences. At this stage, memos and integrative diagrams (cf. Urquhart, 2001) were used to help structure the process and to combine the threads of the emerging analysis. The focus then turned to the data to assess the validity of these hypothesised relationships. Relational and variational sampling (cf. Strauss and Corbin, 1990) was used to select data for this analysis. This process continued in an iterative manner and resulted in the modification of categories and relationships. Finally, selective coding was undertaken to identify the relationships between categories using hypothesised conditions, context, strategies and consequences. Discriminate sampling (cf. Strauss and Corbin, 1990) was used to select data to examine strong and weak connections between categories. The issues of trustworthiness (validity) and replicability (reliability) (cf. Denzin and Lincoln, 2000) were addressed as follows. First, the data analysis approach utilized a rigorous coding and memoing processes providing an audit trail of the process by which conclusions are reached. Second, the coding was undertaken by one of the researchers and verified by the other. Third, venting (cf. Goetz and LeCompte, 1984) was used as results and interpretations were discussed with key informants.

#### **4. Findings**

A chronological presentation of the ownership structures of each electronic marketplace is presented in table 2, with an overview of marketplace performance in table 3<sup>1</sup>. Analysis revealed that ownership issues only impact upon electronic marketplace performance in two of four performance evaluation categories derived from the balanced scorecard concept; financial and customer. Therefore, the performance figures presented in table 3 refer only to these performance categories. Analysis revealed four distinct aspects to electronic marketplace ownership; investor structure, investor

<sup>1</sup> Since the study was conducted, the following marketplaces ceased to trade: DealCotton (2006), Eutilia (2006) and BT Transact (2007)

objectives; investor commitment levels and governance efficiency. These aspects are now considered.

**Table 2:** Chronological overview of electronic marketplaces ownership

Marketplace	Ownership
BtTransact	Founded in 2000. 100% of share capital is owned by British Telecom (BT).
Comdaq	Since its foundation in 1999, Comdaq has been privately owned by an entrepreneur.
Dealcotton	Founded in 2001, initially 100% owned by Dealcottononline 2002: Changed owners, and now 100% owned by Cotton US <sup>2</sup>
Eutilia	Founded in 2001, by 11 of the leading utilities (buyers) in the European utilities market. Change in 2004 with a reduction in the number of investors to 6.
Globalcoal	Founded in 2001 and owned by 8 of the largest players involved in the coal market (4 producers and 4 consumers)
IBX	Founded in 2001 by Ericsson and SEB. Novo Nordisk became an investor in 2002
Proceedo	Founded in 1998: Original investors included the management team 1999- 2000: 100% owned by Investor AB 2001- Kinnevik Group through its subsidiary Tele2

**Table 3:** Overview of performance

Marketplace	Financial Aspects	Customer Aspects
BtTransact	Turnover increased from £400k in 2000 to £5m in 2004. Net loss reduced from £1.2m in 2000 to 900k in 2004.	No of buyers and suppliers remained fairly static throughout this period
Comdaq	Operating loss increased from £20,000 in 2000 to £70,000 in 2004 <sup>3</sup> .	No of trades remained relatively static at around 20 per annum between 2000 and 2003
Dealcotton	Turnover increased by over 75% between end 2001 and 2004.	Commissions increased from \$125,000 at end of 2001 to \$1.375m in 2004. Volumes increased from 50,000 bales in 2000 to 850,000 in 2004. No of participants increased from 4 at end of 2001 to 25 in 2004.
Eutilia	Net loss decreased from approx €15m in 2002 to €2m in 2004.	Number of active buyers increased from 24 in 2003 to 300 in 2004
Globalcoal	Turnover increased by £1m between 2001 and 2003.	Operating loss decreased by approx. £300,000 during this period. Tonnage traded on the physical and financial markets remained relatively static
IBX	Revenue increased by over 50M (Swedish Kroner) between 2001 and 2004. From an operating loss of 100M Swedish Kroner in 2001, IBX expect to breakeven by mid 2005.	The number of transactions increased by approx 150% between 2002 and 2004. The number of buyers utilising IBX increased from 4 at end of 2001 to 30 by 2004, the number of suppliers from 33 in 2001 to over 500 in 2004.
Proceedo <sup>4</sup>	Revenues have increased from 1.8 m Swedish Kroner in 1999 to almost 20m by 2004. Operating losses decreased dramatically between 2000 and 2004.	No of buyers increased from 2 in 1999 to 74 in 2004. No of suppliers has increased from 3 in 1999 to 1200 in 2004. No of transactions has increased by approx. 200% year on year since 2001.

#### 4.1 Investor structure and objectives

Investor structure refers to the ownership structure implemented by marketplaces (whether it is owned by a single organisation or a consortium), and investors background, i.e. are they buyers, sellers, or entrepreneurs. Investor's objectives refer to the reasons why participants invest in the marketplace. A consortium-based ownership structure was adopted by all marketplaces studied, except BTTransact, Comdaq and Proceedo. Electronic marketplace designers believed that an investor structure, comprising large organisations who are key players in the target market, would help guarantee success. This theme is emphasised by Eutilia's Systems Delivery Programme Manager who maintained that the consultants and management team that designed Eutilia believed that being

<sup>2</sup> Cotton US is a company whose owners are the Texuna Group and entrepreneurs (Thomas and Douglas Bell).

<sup>3</sup> Approximate figures. Not verified by Comdaq staff.

<sup>4</sup> Approximate figures. Not verified by Proceedo staff

backed by eleven of the largest utilities in Europe (with a potential €20 billion market) would “*guarantee its success*”. However, the consultants who designed Eutilia did not question the rationale for these utilities’ investment decisions or their expectations. Investors were not asked if they accepted and understood Eutilia’s role in the market. Similarly, four of the largest producers and four of the largest consumers of coal in the world invested in Globalcoal, thereby opening up to Globalcoal a potential “*multi-billion pound market*” (Globalcoal’s President). As with Eutilia, investors had a limited amount of input into the marketplaces value proposition. This resulted in investors having a wide range of investment objectives and expectations. Such objectives can be categorised as: financial, procurement, and the risk of being ‘left out’.

Financial objectives refer to instances where an investor’s key reason for investing in the electronic marketplace is the hope of making a substantial return on investment. Venture capitalists, Dealcottononline (Dealcotton) and Investor AB (Procedo), were motivated by the prospect of financial returns on their investment. Thus, the respective marketplaces were expected to perform well from a financial perspective in order for profits to be distributed to investors. However, due to poor participant uptake, the performance of these marketplaces initially suffered (see table 3). Between 1999 and 2001, Procedo was owned by the Investor AB Group, one of the largest venture capitalist organisations in the Nordic region with a substantial portfolio of organisations throughout Europe. Their objective for Procedo was for it to grow as quickly as possible, expand throughout Europe and maximise the Return on Investment (ROI) for Investor AB. Procedo reported significant financial losses in 1999 (3,548,000 Swedish Kroner) and 2000 (26,439,000 Swedish Kroner). As a result Procedo was unable to distribute dividends to Investor AB. When launched in 2001 Dealcotton was 100% owned and governed by Dealcottononline, a venture capitalist organisation whose goal was to maximise their return on investment. Dealcotton suffered a loss of £1m in 2001. Only four participants were actively using Dealcotton and only 50,000 bales of cotton were traded, well below expectations. Such financial losses meant that money was not available to distribute to investors as dividends. Certain investors in BTTransact, Comdaq, Eutilia, Globalcoal and IBX wished to utilise their respective electronic marketplaces for procurement purposes. BTTransact was owned by British Telecom (BT) who wished to utilise BTTransact to meet their procurement needs for indirect goods. Much of the liquidity on Comdaq Metals market was due to certain investors utilising the marketplace for procurement purposes. IBX’s investors: Ericsson, SEB, Deutsche Post, Lufthansa, and Novo Nordisk were interested in utilising the electronic marketplace as the vehicle by which all their internal procurement was conducted. However, only some investors in Eutilia and Globalcoal used the respective marketplaces for procurement purposes.

Another key reason for electronic marketplace investment relates to the risk of being left out. This is illustrated in both Eutilia and Globalcoal. For example, once Globalcoal became operational, it soon emerged that the primary reason for many of their eight investors investing was the “*fear of being left out*” (Globalcoal’s CEO). Analysis also revealed that certain investors did not fully realise what the electronic marketplace would do for their business. Indeed, according to management in Globalcoal and Eutilia, particular investors believed that the design of the electronic marketplaces was not aligned with their interests. It was the perception of management that the transparency which Globalcoal brought to the coal market was perceived by producers (four of which were investors in Globalcoal) not to be in their best interests as it hindered them from getting the best deal possible. In addition, the aggregation and pre-qualification of suppliers by Eutilia was perceived as a threat to the jobs of personnel in the procurement departments of certain utilities that had invested in the marketplace.

#### **4.2 Investors commitment levels**

Investor commitment level is defined as the level of commitment which an investor has in relation to actively utilising the electronic marketplace. The analysis revealed that investor objectives are reflected in investor commitment levels. Furthermore, the level of investor commitment impacts upon electronic marketplace performance; in terms of volumes traded, number of transactions, adoption levels, revenues and profitability. Overall, the greater the commitment levels among investors, the better the electronic marketplace performs.

Analysis revealed that the least committed grouping were those investors that were purely interested in financial gain. Investor AB took the decision in 2001 that they were no longer willing to support Procedo and withdrew their financial support. This resulted in Procedo being placed into administration, and brought about a change in ownership structure. Within a few weeks of being

placed into administration, Proceedo was bought out by one of Investor AB's key competitors: the Kinnevik group through its subsidiary Tele 2 AB, a leading pan European telecom company. Similarly, in the Dealcotton case, lack of financial return led to Dealcottononline abandoning their commitment to Dealcotton, which brought about a change in ownership. In late 2001, Dealcottononline sold Dealcotton to Cotton US for a nominal fee. For large organisations, the size of the investment necessary to become part of a consortium that owns an electronic marketplace, relative to the risk of being left out, is very small. Yet, such investors can be uncertain about both their investment and the fear of being left out. For example, Globalcoal's eight investors included four of the largest producers and four of the largest consumer's of coal worldwide. While each owned between 10% and 15% of Globalcoal's share capital, the size of the investment relative to the size of these organisations was small. Relatively speaking these organisations had not invested a lot of money in Globalcoal. For example, Globalcoal was set up for £3.5 million initially which its President stated is "*buttons really for organisations of this size and that's part of the issue. You got a company too small to register in their case*". This suggests that commitment levels were quite low. Similarly, Eutilia was initially set up and backed by eleven of the largest utility companies in Europe. While initial impressions would have one believe that this would lead to Eutilia being quite successful with a ready made market worth €20 billion, this did not happen. Five of the initial investors did not utilise Eutilia's services at all. Eutilia's Commercial Manager speculated that the reason why these organisations took a share in Eutilia without actively utilising their services was that for such large organisations the required investment (€8m) was very small in comparison to the risk of being left out. This lack of commitment meant that by late 2003, six of the founding members along with the Eutilia management team, decided that there needed to be a change in the investor structure. Eutilia's Commercial Manager stated that "*some investors were fed up with the incompetent nature of Eutilia*". A small number of the founding members agreed to buy out the other members; the resultant change in ownership structure led to a reduction in the number of investors from eleven to six.

In contrast, investors whose objective for their marketplace was procurement demonstrated high levels of commitment. Ericsson and SEB were the primary investors in IBX, investing €15 million in equity capital in 2000. The key to the success of the investor structure was reflected in the decisiveness and harmony amongst both Ericsson and SEB in relation to their objective for IBX. Both regarded IBX as important for procuring their indirect goods. They regarded their investment in IBX as long term and perceived IBX as aligned with their business strategies. Prior to the establishment of IBX, Ericsson had operated their own proprietary eprocurement solution for a number of years. Indeed, many senior personnel within IBX had been involved in designing and operating the Ericsson solution as they were employed by the company at the time. Ericsson believed that there were further efficiencies to be gained by getting other buyers involved. Hence, the association with SEB and the foundation of IBX. Both Ericsson and SEB were highly committed to utilising IBX. The key to the success of this investor structure was, according to IBX's Communications Director, that these parties are "*not only investors but customers as well*". Their understanding that further efficiencies could be realised through obtaining the commitment of other large organisations meant a further change in IBX's ownership structure. In late 2001, Novo Nordisk became the third significant shareholder in IBX, obtaining 10% of the share capital. Ericsson and SEB did not have a problem with the dilution of the ownership structure as their primary objective was to "*get revenues up and running and getting customers in*" (IBX's Communications Director).

#### 4.2.1 Investor commitment levels and impact upon electronic marketplace performance

The decision by an investor whether or not to utilise an electronic marketplace greatly impacts upon electronic marketplace performance. Electronic marketplace management have found that a successful mechanism for obtaining commitment from investors is to get these parties to sign commitment agreements. Commitment agreements mean that investors have a contractual obligation to commit specified volumes to the electronic marketplace for a specified period of time. Since its foundation, IBX's investors have been highly committed to actively using the marketplace and have all signed commitment agreements. IBX management believed these high levels of commitment to be crucial to its performance. Each investor signed a three year service level agreement with a firm rollout plan for a specified amount of that organisations' procurement spend. IBX's Communications Director stated that "*over 80% of revenues in the initial year were contracted volume from our shareholders, which was a very safe way of developing the company*". In 2001, with just four active buyers, Ericsson and SEB being two, IBX's revenue was 51 Million Swedish Kroner (table 3). Novo Nordisk (who became an investor in late 2001) signed a commitment agreement and actively used IBX for procurement. The commitment of these three investors was deemed to be instrumental by

IBX's Communications Director in further increasing adoption rates (among both buyers and suppliers), and improving the electronic marketplaces financial performance. According to IBX's Communications Director, the commitment of these investors was critical in increasing revenues from 51.7 MSEK in 2001 to 100 MSEK in 2003 and increasing the numbers of buyers (4 in 2001) and suppliers (33 in 2001) to 30 buyers and 500 suppliers in 2004.

Low levels of commitment among investors, reflected in low volumes traded by these investors through an electronic marketplace, impacts upon the marketplace's revenue and adoption levels. For the 2002 and 2003 financial years, Globalcoal had an operating loss of approximately £1m per annum. Globalcoal's President stated that *"if we could get these guys to put half of their uncommitted tons through us, we would have a totally different scenario in terms of our traded volumes and profitability"*. The importance of investor commitment agreements is further reiterated by Globalcoal's Chief Operating Officer who stated: *"the biggest single fault with the way that Globalcoal was initially set up was that there was no contractual market making obligation on the shareholders"*. This, he suggested, was a key reason why Globalcoal operated at a financial loss during this period and why volumes traded on its markets<sup>5</sup> were not higher. Eutilia recorded significant operating losses in the 2002 and 2003 financial years (€10m and €15m respectively). During this period, Eutilia's investors had not signed commitment agreements. The fact that five of Eutilia's investors were not committed to utilising the electronic marketplace for procurement purposes had a negative impact upon revenues and profitability and contributed to these losses.

The importance of investor commitment to electronic marketplace performance is further illustrated by the Proceedo case. Proceedo's performance suffered because they were not utilised initially by the Investor Group. When the Kinnevik Group took over ownership in 2001, the companies within the Kinnevik group, including Tele2AB, did not procure goods through Proceedo. This meant that Proceedo continued to operate at a financial loss and the predicted trading volumes and participant numbers did not materialise. Proceedo's President stated that *"the first question that every potential customer asks is why do Tele 2 AB not utilise your services?"* This impacted upon Proceedo's adoption levels and stifled growth. Proceedo's President insisted that it was crucial that Proceedo got Tele2 AB to commit in order to improve Proceedo's performance. In 2004, Tele2AB signed a commitment agreement to utilise Proceedo. Performance dramatically improved, as reflected in an increase in the number of suppliers utilising Proceedo.

The success of commitment agreements as a mechanism for ensuring high levels of investor commitment is supported by the evidence from Dealcotton's change in ownership in 2002. The new owners (US cotton) signed a commitment agreement which provided liquidity (in number of bales) to the Dealcotton marketplace. Dealcotton's previous owners, Dealcottononline, had no such agreement. This change helped contribute to a 600% increase in the number of bales traded through Dealcotton between 2001 and 2003, and a massive increase in revenues for Dealcotton. Comdaq's performance suffered because their owner was unable to put significant volumes through the electronic marketplace. This significantly hampered their financial performance. While BT did not sign a commitment agreement with BTTransact, it was BT's policy to utilise BTTransact for the entire organisation's indirect goods needs. BTTransact management stated that this commitment contributed to BTTransact's financial performance. To summarise, our analysis reveals that investor commitment levels impact upon electronic marketplace performance as illustrated in volumes traded, adoption levels and revenues.

### **4.3 Governance efficiency**

In the context of this study, governance efficiency refers to how efficiently decisions are made and consensus achieved by the electronic marketplace's Board in relation to business strategy. This section illustrates that investor's objectives for their electronic marketplace investment impact upon electronic marketplace governance efficiency, with electronic marketplace governance efficiency in turn impacting upon electronic marketplace performance. This was illustrated in the Eutilia, Globalcoal and IBX cases.

Both Eutilia and Globalcoal were owned by a consortium of investors. The governance structure was one where each investor voted a single representative onto the Board. There was evidence in both of

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<sup>5</sup> Electronic marketplaces may operate one or more electronic markets for various products where there is a distinct demand to do so.

these cases that a Director's agenda was predominately influenced by the investors which they represented. There were 11 members on Eutilia's board until 2003. Each investor nominated a single participant to the board. However, two groupings emerged centred around procurement objectives. Eutilia management believe that six of the eleven investor's main objective was to utilise Eutilia to meet their procurement needs. However, the other five were very indecisive. This impacted upon the commitment levels of all investors, with the first grouping (six investors) unwilling to fully commit to Eutilia while such indecisiveness existed among other investors. This resulted in a "*total lack of efficiency in relation to policy formulation...certain directors just sat there and did nothing...in many cases this very much reflected their investors' indecision in relation to their marketplace investment*" (Eutilia's Business Analyst). Investors' diverse range of agendas, communicated through their nominees on Eutilia's board, meant that there was much indecision in relation to policy formulation and decision making. Until the change in ownership in 2004, obtaining agreement among board members proved to be very difficult. The change in ownership structure came into effect in March 2004 and its impact at board level was quickly evident. With the reduction in the number of investors from 11 to 6, and the size of Eutilia's board being reduced by 5 members, governance efficiency and decisiveness improved. The Commercial Manager stated that "*decisiveness among investors... [was then] much better*". In particular, policy formulation became much more decisive. This was reflected in the decision to abandon transaction services<sup>6</sup> in 2004 and Eutilia's strategy to solely focus on its supplier optimisations service (SOS)<sup>7</sup>. Analysis revealed that this change had a positive effect on electronic marketplace performance. Revenues increased by over 30% between 2003 and 2004; the number of active buyers increased by over 200; the number of suppliers by over 2000; and Eutilia was operating at breakeven by late 2005.

This situation can be contrasted with IBX. In IBX, each investor also has a representative on the Board. However, there was agreement among investors in relation to their objectives for IBX. According to IBX's Communications Director there was "*consensus among investors, reflected at board level in relation to policy formulation for IBX*". This "*single mindedness is reflected in decisions (to get new investors involved for example)*" (IBX's President). This has greatly contributed to IBX's success in terms of getting organisations to adopt and utilise IBX.

These cases demonstrated that investor's objectives for their electronic marketplace investment impacts upon how efficiently the electronic marketplace is governed. The greater the consensus among investors in relation to their objectives, the more efficient the governance of the electronic marketplace. The analysis reveals that governance efficiency of electronic marketplaces impacts upon electronic marketplace performance in terms of trading volumes, adoption levels and revenues.

## **5. Conclusion**

As demonstrated by the poor performance and high failure rates associated with electronic marketplaces (cf. Klueber et al. 2001 Soh et al., 2006; Son and Benbasat, 2007), there is a need to improve understanding of evaluating and improving electronic marketplace performance. However, in evaluating the performance of electronic marketplaces, research has focussed on the impact of factors such as IT, marketplace process design and competition, while the relationship between ownership and performance remains unexplored.

This study has revealed four distinct aspects of the ownership of electronic marketplaces; investor structure, investor objectives, investor commitment and governance efficiency that are pertinent to evaluating the performance of electronic marketplaces. We conclude that investor objectives affect both investor commitment and governance efficiency, which in turn impact the performance of electronic marketplaces as reflected in trading volumes, adoption levels, revenues and profitability (Figure 1).

Investor objectives can be broadly categorised as; transactional, financial or fear. Investors interested in the transactional benefits of electronic marketplaces tended to be more committed to the success of the marketplace than those investors whose involvement was due to financial speculation or the

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<sup>6</sup> Transaction services enabled the fulfillment of electronic transactions using pre-negotiated prices and service levels set by trading partners in private catalogues.

<sup>7</sup> The SOS consists of four key components; supplier scan, pre-qualification, e-tendering and e-auctions.

fear of being left out. We conclude that a consortium ownership structure with a diverse range of investment objectives results in lower commitment levels across all investors. In general, it appears that investor commitment levels are at their highest when all investors in the marketplace wish to use the marketplace for transactional (procurement) purposes. The impact of investor commitment levels on performance is reflected in the volume of products traded through the marketplace, the number of transactions, adoption levels and marketplace revenues.



**Figure 1:** Impact of electronic marketplace ownership on performance

We conclude that investor objectives impact upon how efficiently a marketplace is governed. In particular, structures where investors have a broad range of objectives result in indecision in relation to policy formulation and decision making. However, in scenarios where there is accord among investors, in relation to utilising the marketplace for transactional purposes, strategy formulation and decision making is much more decisive. Governance efficiency affects performance as reflected in volumes traded, adoption levels and revenues. Indeed our analysis revealed that having a Board that's decisive, results in the marketplaces value proposition being continuously reviewed and in cases where resolute decisions were taken, increased volumes, increased adoption levels and improved revenues occurred.

Finally, this research study represents a suitable response to the call for research by White and Daniel (2003) on electronic marketplaces, and also contributes to parallel research on evaluating the success of electronic business and commerce (e.g. Singh and Byrne, 2005; Pather *et al.*2006). In particular, this study has provided a foundation for further study of ownership in the context of evaluating the performance of electronic marketplaces. However, it is exploratory in nature and the findings of this research study should be further tested in order to develop theory in this area.

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