

2009

Collaborative sourcing - The motivation and design of demand side combinations

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Recommended Citation

Dominguez, Carine, "Collaborative sourcing - The motivation and design of demand side combinations" (2009). *ECIS 2009 Proceedings*. 39.

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**COMPETITIVE ADVANTAGES OF ELECTRONIC
MARKETPLACES
IN THE RETAIL AUTOMOTIVE AND MAINTENANCE, REPAIR
AND ORDER (MRO) INDUSTRIES.**

Journal:	<i>17th European Conference on Information Systems</i>
Manuscript ID:	ECIS2009-0608
Submission Type:	Research-in-Progress Paper
Keyword:	Business value of IT, E-commerce (B2B / B2C / B2G / G2C), IT Strategy, Marketplaces



COMPETITIVE ADVANTAGES OF ELECTRONIC MARKETPLACES

IN THE RETAIL AUTOMOTIVE AND MAINTENANCE, REPAIR AND ORDER (MRO) INDUSTRIES.

Abstract

We question the strategic potential of EMPs to bring a competitive advantage to their users: their nature and the main differentiating factors that progressively appear over time.

Based on three case studies in the retail, automotive and MRO (Maintenance, Repair and Order) industries, conducted from 2002-2007, we more thoroughly describe where buyers and suppliers perceive strategic advantages in the eValues brought by EMPs. We classify these strategic opportunities according to Porter (1980) and Wiseman's (1985) typologies: differentiation, cost, innovation, alliance/power gains and growth. Finally, we explore how these different factors have evolved over time in users' perceptions.

The paper brings an in-depth and longitudinal empirical study of EMPs specific competitive advantages in each industry.

Keywords: Electronic marketplace (EMP), competitive advantage, strategic information system, inter-organizational information system (IOIS), information systems (IS), purchasing, supply, eValues, electronic catalogues, electronic auctions, sourcing, integration, standardization.

1 INTRODUCTION

During the last ten years, electronic marketplaces (EMPs) have been progressively adopted in industrial and service activities. Emarketservices study (Zällh, 2005) points out 52 significant EMPs in 17 industries based on two criteria: reputation and significant global traffic. If EMPs survival since 1999 proves that these intermediaries bring different types of eValues to their users, it is still not clear whether EMPs will only be transactional inter-organizational systems (IOIS) or whether they will hold a strategic potential both for their users: buyer and supplier organizations¹.

The literature demonstrates the different types of eValues brought by EMPs but does not say if these eValues can bring a competitive advantage to their users. More precisely, we will focus on the following questions: do EMPs drive differentiator factors to suppliers and buyers? What types of eValues could be considered as a competitive advantage? How do these strategic factors evolve over time from 2000 to 2007? Are there differences in these advantages according to the type of industry? What are the long-term competitive advantages that EMPs will provide to buyers and suppliers in their industry?

In the first section, we bring back EMP characteristics and their challenges in purchasing and supply chains. Then, we show the different types of eValues in EMPs. Thirdly, we summarise what the literature tells about the emergence of a competitive advantage in EMPs. In the second section, we present our research methodology. In the third section, we present our results and conclude with a discussion.

2 LITERATURE REVIEW:

2.1 The EMPs: definition, characteristics and challenges for purchasing and supply chains

In an organizational perspective, EMPs can be seen as intermediaries between buyers and suppliers devoted to answering purchasing and supply chain needs. They can also be defined as inter-organizational information systems (IOIS) that interact to create, store, transform, and communicate data between buyers and suppliers.

Behind the term EMP, there are actually a number of different business models, that is to say strategic positioning and models of revenue. Different criteria to classify EMP business models appear in the literature. Kaplan and Sawhney (2000) distinguish EMPs that focus on exchanging MRO (Maintenance, Repair and Operations) products and services like Hubwoo with those that focus on more strategic goods directly linked with manufacturing processes (like WWRE and Supply On). In the same connection, Barratt and Rosdahl (2002) highlight “vertical EMPs” that offer their services to a single industry like WWRE and Supply On, with “horizontal EMPs” that offer their services to all types of industries. Soh and Markus (2002b) go further by proposing three criteria to represent EMPs landscape according to the value proposition of the EMP, the product/market positioning and the value of activities. Finally, the e-business literature aimed at EMPs distinguishes two main types of eValue in EMPs: transactional EMPs aimed at executing exchanges and collaborative EMPs aimed at

¹ In this article, we will mention buyers and suppliers to talk about organisations being in a position of buyer or seller/supplier in the EMP. We are not directly talking about individuals working as purchaser or seller.

encouraging collaboration between participants (Mahadevan, 2003). In this paper, we will focus on the differences between EMPs positioned in different industries and types of activity.

Whatever its business model, the EMP's essential purpose is to provide an answer to the purchasing and supply challenges summarized by Carter et al. (2000). They highlight the challenge of electronic commerce to improve communication processes, performance metrics to assess suppliers, sourcing tools to help supplier identification and selection globally, the choice to internalize or externalize MRO purchasing, and the general evolution of exchanges around large-scale buyer and supplier companies. They conclude by describing the increased use of IT in purchasing and supply to reach these challenges.

2.2 The nature of electronic eValues in EMPs

Different types of eValues are brought by EMPs with different ways of classifying these eValues. The literature generally presents two main origins of eValues.

The main benefits gained by technology are mentioned by Malone, Benjamin, and Yates (1987). They assert that electronic interconnections will bring three main benefits to markets: electronic communication will accelerate data transportation generating cost reductions; electronic matching will improve sourcing; and electronic integration will facilitate process coupling. In the same vein, Bakos (1997) concludes that IT diffusion in electronic markets will bring price transparency to buyer organizations and increase their knowledge of supplier organizations cost structure. IT will also make it easy to compare standard offers between different suppliers. Finally, IT will bring cost reductions linked with negotiations and transportation.

In an empirical perspective, Kambil and Van Heck (1998) attribute different IT benefits to electronic auctions; they facilitate supplier identification and price negotiation and they improve the coordination of logistic flows. Moreover, IT increases the richness of data exchanged and brings processes that reinforce regulation control. Hence, IT reduces opportunism risks and provides the capacity to track flows as arguments to avoid conflicts.

On the other hand, eValue is described through the role of electronic intermediaries in an industry characterized by its structure and specific needs. Kaplan and Sawhney (2000) highlight aggregation (the capacity to bring many buyers and sellers under the same roof) and matching (an optimized encounter between offer and demand to minimise negotiated prices) as the two main EMPs' eValue. Aggregation is particularly interesting in the case of a fragmented industry whereas matching serves to reintroduce competition in oligopolistic industries to reduce negotiated prices. The effect of EMPs on industrial structures are not known yet: whereas Malone et al. (1987) predict a reduction of vertical integration with a "move to the market" others such as Clemons and Row (1992) state that electronic exchanges will bring a "move to the middle" with an increase of middle-sized companies connected through electronic networks. Amit and Zott (2001) focus on asset complementarities (Han et al. 2005), innovation synergies, the nature of the participants and the exchanged mechanisms (structure), and finally the governance defined as the interaction rules. Actually, EMPs can be considered as strategic networks (Gulati, Nohria, Zaheer, 2000), that is to say « stable interorganizational ties which are strategically important to participating firms. They may take the form of strategic alliances, joint ventures, long-term buyer-supplier partnerships, and other ties (Gulati et al. 2000: 203). In addition, these networks are characterized by the opportunity to share risks and generate economies of scale (Katz, Shapiro 1995; Shapiro, Varian, 1999), to share knowledge (Dyer, Singh, 1998), to facilitate access to the market (Kogut, 1998), to reduce information asymmetries and to improve coordination. Finally, these networks highlight the key role played by suppliers and customers to create value (Afuah, Tucci, 2001). Rayport et Sviokla (1996) also develop the concept of a virtual value chain where eValue is created by the way of combining informational with physical value chains. Kambil and Van Heck (1998) illustrate this capacity in the Dutch flower industry.

It appears that there are many different nature of eValue in the e-business context but no consensus on its source. eValue is partly made by technology, and partly made by the services provided by EMPs through their intermediation. If the process through which eValues is generated in EMPs is difficult to catch, it is yet possible to catch sight of the types of eValues that will be diffused in all organizations and the ones that will bring a competitive advantage to their users.

2.3 Dynamic evolution of eValues in EMPs: from a transactional value to the emergence of a competitive advantage

One of the key questions in evaluating EMPs impact on markets is to know whether these IOIS will bring a competitive advantage to their users. Will EMPs be a trend or will they shape long-term exchanges in the digital economy?

Information systems (IS) for competitive advantage are defined as IS that drive or formulate the organization's competitive strategy in order to provide it with (or maintain) a competitive advantage (Wiseman, 1985). In this perspective, IT may be used to help the organization produce at lower cost, to differentiate itself from its competitors, or to identify and concentrate on a particular market segment (Porter, 1980; Porter, Millar, 1985; Clemons, Row, 1991). Porter and Millar (1985) also incorporated the concept of value with the previous meanings of strategic impact. An IS would have strategic impact if it had the potential to add value to a product or a service in at least one stage of the value chain. Moreover, considering all the supply chain of IOIS, IS will provide a competitive advantage if it modifies the structure of the industry, improves the position of the firm, or creates new business opportunities. In the same path, Rackoff and al. (1985) develop the theory of strategic thrusts to identify strategic IS opportunities. Strategic thrusts are major competitive moves (offensive or defensive) made by firms to use IT to create a competitive advantage. The authors identify five strategic thrusts: differentiation, cost, innovation, growth and alliances. In this paper, we will identify the latest with the capacity for suppliers or buyers to gain power in the chain (Cox, 2003).

In this paper, we will cross this framework to the resource-based-view (RBV) theory. This theoretical framework seems to be particularly interesting in analyzing the strategic potential of EMPs (Ordanini, 2005; Wernerfelt, 1984) considers that the growth of a company depends on its capacity to identify and exploit resources that may give high profits. The identification of these resources partly relies on the capacity to exploit markets' inefficiencies. Barney (1991) shows that a firm's competitive position is based on resources that it is able to control. In order to sustain a competitive advantage, the resource should be valuable, rare and difficult to imitate or substitute.

Jelassi and Enders (2005) question the capacity of EMPs to generate a competitive advantage for buyers. Some EMPs competitive advantage factors have yet been highlighted in the literature. Soh and Markus (2002a) question the capacity for EMPs to drive collaboration between buyers and suppliers as a potential competitive advantage. Ordanini (2005) identifies nine effects of participation in a digital exchange: process cost reduction, time saving, quality of process, purchasing cost reduction, increased number of suppliers, increased number of customers, sales growth, information and knowledge, partnership and cooperation. Further on, Ordanini (2006) summarizes three main factors that bring an advantage to EMP buyers: standardization, business process integration and IT negotiation tools to aggregate suppliers. Soh et al. (2006) show that price transparency should be the main advantage provided to buyers by EMPs using eAuctions. However, some EMPs do not provide this transparency to buyers in order to attract sufficient suppliers to be able to obtain a critical mass in exchanges. Then, they offer buyers "compensatory benefits" such as information content and IT change management. Before that, in the next section, we will present our methodology.

3 METHODOLOGY:

This investigation is based on three in-depth multiple case studies on EMPs made from 1999-2007: WWRE (World Wide Retail Exchange) in the retail industry, Supply On in the automotive industry and CC-Hubwoo in all types of industries to exchange indirect goods and services. These case studies included interviews conducted with the managers of each EMP, but also with their users, buyers and suppliers. Case studies (Yin, 1994) are applicable when control over events is not needed and when there is a focus on contemporary events and multiple-level analysis. Case studies permit the analysis of many variables.

Previous studies in EMPs provide us with an understanding of each EMP business model. We use these interviews to sum up the initial value proposition of each EMP in order to better analyze the strategic potential of EMPs perceived (Davis, 1989) by their users. We suppose that users were the best positioned stakeholders to have an objective view of the strategic potential of EMPs - hence avoiding the biases of the marketing discourse of EMP managers who have to justify their value to their buyer and supplier customers.

In this research, we focus on users and analyze 28 semi-structured interviews of buyer and supplier organizations: 9 in WWRE, 10 in Hubwoo and 9 in Supply On. In these organizations, we interviewed different profiles of managers: IS managers, Purchasing managers in buyer organizations, Sales managers in supply organizations, Supply Chain managers, and CEOs. We also use secondary data documents such as cases studies and interviews shown on EMPs web sites, roll out documents, users return on investments analysis.

We process data in two steps. Firstly, we use N'Vivo in order to codify the competitive advantage factors enhanced by buyers and suppliers according to Porter's (1980) typology: differentiation, cost, innovation, alliance/power gains and growth in bold in Table 1). To do so, we first transcribe interviews and codify them in tabulars. We link "differentiation" factors when they were presented by interviewees in comparison with their competitors with key words or meanings such as competitive advantage, success key factor, and unique resource. Besides, we complete the "Innovation" factors codified according to a previous typology (Authors, 2006).

Secondly, we explore the evolution of the frequency of these different items over time. To do so, we note the number of items that appear during the different key periods of the evolution of EMPs: their start and survival period from 1999-2002, the consolidation of EMP business models from 2003-2005 that correspond to the consolidation of the advantages perceived by users, and finally, the stabilization of their activity since 2005. We also enrich this frequency approach to all paragraphs that describe the dynamic evolution of the perceived value brought by EMPs. This longitudinal analysis helps us to identify the orientation of the strategic potential of each EMP, as well as differences between industries. Thirdly, we use these case studies to highlight the strategic potential of EMPs that progressively appear in user discourses.

4 CASE STUDIES:

4.1 WWRE in the retail industry:

WWRE was founded in 2000 with the main middle-sized retailers worldwide (Tesco, Ahold, Kmart, Casino, Auchan etc...) with the exception of Wal-Mart and Carrefour. The former decided to develop its own IT tools in a proprietary mode, whereas the latter decided to join GNX – Global Net Exchange), which became a competitor for WWRE. Since 2000, with the overloading of customer mass consumption in Europe and US and the increased competition between suppliers in new markets such as China, retailers encounter difficulties in maintaining their margins. The industry is then looking for other growth opportunities such as mergers and management and organizational innovations. WWRE is then created, with I2 and Ariba as IT partners, to boost B2B exchanges.

Historically, the retail industry is one of the most advanced in electronic linkage. As an example, EDI covers 90% of exchanges between retailers and their main suppliers and is recognized to have provided major improvements in delays, reduction of data mistakes (Holland, 2003). However, the lack of IT integration between suppliers and retailers leads to numerous mistakes in the supply process (notably orders). The industry tends towards synchronizing the informational and physical supply chains for the logistics delivery (Rayport, Sviokla, 1996). The purchasing process has been managed with traditional face-to-face negotiations in central purchasing departments. WWRE initially offered a large set of IT tools and services covering the whole exchange process. Finally, users only adopted e-RFX, e-Auctions and e-Catalogues.

As summarized in Table 1, buyers see three main *differentiation factors* in WWRE. First, EMPs accelerate the use of electronic auctions with **price gains**. Second, they recognize the promising potential of **global data synchronization** in future transaction gains. Third, they already include **knowledge management** gained by shared returns on experience on the implementation of IT tools between members. The latest is shared with suppliers' perspective. Suppliers also describe WWRE as a **customer-oriented IS** that incites them to orientate their sell-side information systems according to customer needs. The EMP initiates privileged links with retailers that may turn out to be **lock in benefits** in the future.

Cost gains are shared between buyers and suppliers and seen as directly linked with their participation in EMPs. The intermediary improves data standardization and quality as well as the standardization of the supplier communication process. Finally, the EMP favors resource mutualisation between members and hence reduces investments to manage electronic exchanges.

Another strategic potential is the *innovative dimension* of the EMP. For retailers, innovation lies in the capacity to easily compare supplier offers thanks to process standardization or even to access international supplier data bases owing to the EMP partnership. Besides, by facilitating retailers with tools such as eAuctions or more collaborative ones such as CPFR (Collaborative Planning, Forecasting and Replenishment), EMPs bring fuzzy relational modes with suppliers from collaboration to hard competition. Finally, the reporting tools of EMPs provide retailers with decision-making tools helping them to know the products that bring higher sales and margins in stores. In addition, suppliers highlight the improvement of data quality through synchronization. This leads suppliers to better control the information sent to retailers. Suppliers also mention the fuzzy relational modes as a risk factor in exchanges.

Alliance and power gains to retailers characterize the main strategic potential of WWRE. First, retailers build alliances with other retailers to have a lobbying activity, for instance on the choice of standards at an international scale. The EMP also provides middle-sized retailers with an international dimension, as it is the case for Casino or Auchan. Finally, the fuzzy supplier relationship management is seen as a weapon (Wiseman, 1985) to empower retailers' position in the chain. In this context, some suppliers also make alliances with other suppliers to serve their own interests.

EMP participation is recognized to bring *growth* both for retailers and suppliers. Retailers' main gains lie in electronic auctions in a short-term perspective and data synchronization in a long-term

perspective. For suppliers, the EMP is not mentioned as a factor of growth in itself, but since 2005 all interviewees are convinced of its strategic potential.

How do these strategic factors evolve over time?

The initial interviews in 2002 showed that the buyers and suppliers who were willing to participate in the EMP initially did not have a clear vision of the strategic impact of EMPs. The initial approach was to consider the different tools proposed by the intermediary without being able to foresee the strategic potential such as the implications for supplier relationships or alliances with other retailers. Retailers see EMPs as a way to adopt IT tools for purchasing and supply chains: *“Initially, the objective of WWRE was to adopt common tools between retailers, without any more vision”* (Retailer). Hence, the main gains expected were transactional: cost reduction, process reengineering (Davenport, 1993), and technological communication with suppliers.

Progressively, between 2003 and 2004 the main items are linked with the innovative potential of EMPs and the first alliance agreements emerge in discourses in 2004.

Finally, at the beginning of 2005 and after the stabilization period of their revenue model, the EMP is seen as way to obtain a competitive advantage. Growth arguments are linked with the EMP IT tools. Some of them, such as eAuctions, are seen to have brought short-term competitive advantages between 1999 and 2003 when all retailers adopted eAuctions tools in their daily activity, initially in indirect goods (household appliances, bins) and then in food products (vitamins, vegetable bins, corns). In addition, long-term growth perspectives appear with the progressive implementation of an international global data synchronization network, connecting retailers and their suppliers, with the same standardized product and supplier data, necessary for the implementation of electronic catalogues. *“We consider global data synchronization as the technological foundation of the business relationship with retailers with potential applications to electronic tenders, promotion management, and product assortment in stores”* (Retailer). Other collaborative tools such as CPFR and software for shared visibility of supplier promotions in stores may be the third IT tool generation. Here again, whereas WWRE initially in 2000 highlighted collaboration as a key strategic advantage of the EMP, this advantage is still to be realized.

4.2 Supply On in the automotive industry:

Supply On was founded in 2000 in Germany by Bosch, ZF, Ina and Continental to manage B2B exchanges of direct goods and services in the automotive industry. In the 1980s, manufacturers were really manufacturing vehicles and assembling parts, only dealing with a few Tier 1 suppliers. This situation evolved in the 1990s with an increasing number of parts and technical issues in car manufacturing that led manufacturers to externalize to Tier 1, and then Tier 2 part of the engineering and assembly lines. In 2000, Tier 1 suppliers were in charge of dealing with a higher engineering and supply chain complexity as well as an increased number of communications with their own suppliers. Today, the industry is characterized by close business links between vehicle manufacturers and Tiers 1 suppliers, but also, to a lesser extent, by links between Tier 1 and Tier 2 suppliers. This is also a call to drastically improve B2B coordination and communication processes in the whole chain owing to adapted IOIS.

In 2008, Supply On links more than 65000 Tier 1 suppliers with Tier 2 (and possibly other smaller suppliers), that represent 75% of the top automotive suppliers in different areas of activity such as electronic, pneumatic, metals, turned and mill parts (Supply On internal report, *“We make our global supplier management easy”*, 2008).

With the help of support services such as training and a hot line, the main value proposition of Supply On is presented by the company in three areas: engineering and sourcing (Business Directory, eAuctions tools), supply Chain (EDI, Web EDI and inventory collaborative tools (VMI)) and Supplier Relationship Management Quality: (supplier performance assessment. These tools are electronically integrated since 2006.

Let us compare the evolution of the strategic potential of Supply On as perceived by buyers and suppliers over time.

From the buyer perspective, the main *differentiation factor* is **sourcing**. Supply On helps buyers to find new suppliers, specifically when they are looking for competences they do not have in their portfolio, in order to manufacture new commodities. Since 2006, Supply On has reinforced its supplier portfolio by opening an international desk in China (Shanghai) and near the historical American manufacturers in Detroit. In addition, they highlight the fact that the EMP brings a **knowledge management** competitive advantage to buyers by giving them the opportunity to share experience with industrial experts on the implementation and use of IT tools. Finally, Supply On recently offers an **integrated platform** for some tools: between RFQs and eAuctions or between Tier 2 performance monitor and the Problem Solver tool. The supplier perspective is more focused on a sales approach: the EMP brings them a competitive advantage when it effectively offers the opportunity to **get new sales contacts**, and even more increase their market shares “*a concentrated fair reduced in a monitor*” (Tier 2 Supplier). In addition, the EMP is also seen as high value when it brings suppliers **access to the right purchasing contact** in the Tier 1 buyer company. However, only a few suppliers that have privileged relationships with the EMP, recognize these differentiator factors.

Arguments on *costs* are similar between buyers and suppliers. They agree on the fact that Supply On helps them to standardize data (notably the product norms and specifications) and the communication process. It also decreases IT investments by mutualising resources. Finally, suppliers highlight the IT integration as a main advantage in order to directly register customer tenders in their systems, and then, compress the time process execution.

According to buyers, the main *innovation factor* lies in the capacity to easily compare Tier 2 supplier offers thanks to data and process standardization. The EMP also facilitates their decision-making process by providing higher transparency on supplier performance: firstly by being able to share a common Tier 2 supplier database that involves different departments concerned in the Tier 1 company (purchasing, quality and operations) that previously did not open their frontiers from one to another; secondly by linking Tier 2 service commitments to their real performance on time, quality and delivery. Buyers also play on fuzzy supplier relationships by using at the same time eAuction tools and collaborative ones such as VMI. On the other hand, Tier 2 suppliers highlight, as the main advantage, the capacity to technically integrate customer data in their IS. However, they deplore the fuzzy relationships that buyers impose on them, especially when they do not have any unique engineering competence in the market.

Finally, buyers are quite discrete on the capacity of Supply On to create potential *alliances* with other buyers with a view to gaining more knowledge on supplier performance, with shared sourcing policies. Whereas some of them assert this will not happen, others mention the potential emergence of these alliances in the future.

Growth is only perceived through the IT tools like eAuctions to buyers, when they get direct returns. Accurate numbers are not communicated by interviewees. Buyers and suppliers both mention the immaterial gains in being able to share knowledge through the marketplace.

How do these strategic factors evolve over time?

The initial strategic advantage of Supply On since the beginning in 2000 rapidly appeared to be **sourcing**, including eAuctions, but most of all the content of a Business Directory that provides Tier 1 suppliers with unknown low-cost and efficient suppliers. However, if the initial value proposition of Supply On was oriented through engineering (map exchanges and product design), there have been a few advances in this area as Tier 1 suppliers, following the choice of vehicle manufacturers, have decided to exchange through portals with their own manufacturers or Tier 2 suppliers.

Between 2003 and 2004, the **business directory** and **document manager** increased the number and **quality of its data** to become recognized as a unique advantage in the market. Hence, Supply On's business model strengthened its value proposition by offering long-term benefits to participants. Finally, IT tools aimed at **improving the supply chain** have been progressively adopted by users since 2004, at the request of buyers, when they sufficiently perceived the process standardization proposed by Supply On. Finally, tools aimed at improving **Supplier Relationship Management Quality** have revealed their full potential in the field since 2005. By offering the possibility to link supplier assessment to real time **supplier performance** (based on quality, time and service delivery), and by opening frontiers inside buyer departments (purchasing, quality, operations), they are considered to bring high growth potential in the future.

4.3 Hubwoo: an EMP that deals with MRO goods and services in multiple industries

Hubwoo is a French EMP founded in 1999 with SAP as one of the main shareholders. This EMP offered new opportunities to improve the demand to order delivery cycle, and then managed in paper and fax mode. Hubwoo used to put together suppliers providing electro components, electrical devices, stationery, all goods and services that generally support buyers' activity known as MRO. The industries that manufacture MRO are characterized by small to middle-sized companies around the world. These companies deliver a wide variety of goods and services where the main value lies in linked services such as low prices, reduced time delivery, reactivity to customer demand and stock capacity.

This industry contains several intermediaries as these suppliers generally sell their products to distributors who concentrate their offer on paper or in eCatalogues, offering joint promotions to large customers in all types of industries. Hence, distributors have been direct partners to EMPs who have helped them to go through the digital economy. As an example, an international distributor and supplier in the EMP generated 30% of its total revenue in Europe through e-Commerce in 2007 and over 60% in Asia. The growing presence of e-Commerce in these exchanges implies a heavy dependency of the industry on data processing and communication systems.

Hubwoo proposed to coordinate the implementation of eCatalogues with the list of major suppliers of indirect goods and services of each buyer, by choosing the same data standards and process agreements. After a technological learning period to create and implement eCatalogues, buyers developed new relational modes with their suppliers and generally reduced their supply base: they first incite them to increase their price transparency; standardize their offer and sometimes enlarge it to answer the needs of their customers. In exchange, buyers offered them mid-to-long-term contracts (2-3 years). In 2005, Hubwoo introduced electronic billing in exchanges.

Let us compare the evolution of the strategic potential of EMPs perceived by buyers and suppliers over time.

In the buyer perspective, the main **differentiation factor** deals with sourcing. EMPs provide a set of IT tools and services that first allow **access to international supplier** data bases such as Global Sources,

and then facilitate **supplier comparisons**. A consequence of the use of EMPs and e-procurement is a “*consolidation of negotiated contracts on a few suppliers able to serve global market*” (Buyer). In the supplier perspective, the main differentiation factor deals with the technological edge provided by IT with the capacity to offer high quality content to customers, such as a unique and up-to-date view of the product offer.

Arguments on **costs** are similar for buyers and suppliers. They agree on the fact that EMPs contribute to reduced costs due to data standardization and quality, mutualisation of technological investments and maintenance, and finally standardization of the communication process around the purchasing and supply chain.

According to buyers, the **innovation factor** deals with the capacity of IT to gain visibility on internal expenses before the accountability stage and finally to improve supplier IS in customer expectations. Innovation also accelerates the process order execution and initiates the opportunity to pilot purchasing and supply flows. Relational modes with suppliers are also impacted with the introduction of fuzzy relationships from collaboration to hard competition. This leads to source large-sized suppliers able to serve international markets. IT then makes it possible to apply these negotiated contracts internally - owing to the structuring power of technology that restricts the choice of suppliers to order. IS act as a Big Brother tool able to control buyer behavior so that only contracts that have been previously negotiated via eCatalogues are ordered, this is the “*structuring power of eCatalogues easily exclude suppliers from markets, in the day-to-day habits of operational buyers, when they are not selected in long-term contract partners*” (Buyer). By doing so, the EMP contributes to aligning the whole organization on the best price negotiated: “*when the group has decided to buy Dell, all the entire company effectively makes its orders to Dell*” (Buyer).

On the other side, suppliers highlight the fact that participation in EMPs forces them to orientate their IS towards customers’ needs. As an example, they have to synchronize their electronic catalogues according to the EMP standard format or process communication. These modifications help them to accelerate their capacity to integrate customer data in their back ends. Finally, by being the ones able to exchange electronically, for instance by mastering electronic payments, suppliers become pioneers in IT; that leads them to lock in the marketplace. Process standardization helps them to reduce data errors, accelerate product time delivery and hence to improve their cash flows. Finally, eCatalogues are considered as positive innovations due to their capacity to be an up-to-date show window for their products, and accelerate the pace of time delivery. Despite these benefits, suppliers deplore the fuzzy relationships enhanced by suppliers with eCatalogues.

Growth is recognized both by buyers and suppliers. For buyers, the main benefit lies in prices, due to the capacity of the EMP to leverage negotiated volumes by bringing together the purchasing needs of different subsidiaries of the same company. Suppliers just begin to see return on investments by recovering, as incumbents, the market shares of their competitors that were excluded from eCatalogues. Most of them see a growing part of their business through EMPs and electronic channels in the future. The main benefit of these exchanges is to come with the IS integration between the EMP and their supplier IS.

How do these strategic factors evolve over time?

Here again, it is interesting to notice that the strategic advantage factors highlighted by suppliers and buyers do not correspond to the initial announced EMP’s value proposition: “*we did not get return on investments where we initially expected to*” (Buyer).

When the EMP started in 1999, Hubwoo basically communicated on the following three main advantages: the improvement of the communication process with emphasis on administrative tasks (organizational cost reduction in processing orders), content (data standardization and improvement of

the quality of data) and economic gains. We qualify these factors of improvements as “transactional” as they refer to reduction costs on technology or processes. Actually, buyers do not have an accurate view on cost cuts due to the EMP. However, they all recognize eValues such as differentiation factors as sources of competitive advantages, innovation, alliances/power gains or global growth.

Since 2004, the strategic eValue of Hubwoo appears to be the great visibility that eCatalogues bring in internal purchasing expenses, the control on purchaser behavior as well as power gains for buyers. For suppliers, there is still uncertainty over whether EMPs will help them to differentiate from their competitors with the lock in effect and the technology control. It is too early to see what is coming next: some suppliers think EMPs will bring them a strategic advantage whereas others do not. EMPs will have a contrary effect, by avoiding their differentiation.

Table 1. EMPs strategic advantage factors (buyers and suppliers) and main competitive advantages for buyers in the automotive, retail and MRO industries.

WWRE		SUPPLY ON		HUBWOO	
The buyer perspective	The supplier perspective	The buyer perspective	The supplier perspective	The buyer perspective	The supplier perspective
DIFFERENTIATION		DIFFERENTIATION		DIFFERENTIATION	
<ul style="list-style-type: none"> - Gobal data synchronisation - Sourcing - Knowledge Management 	<ul style="list-style-type: none"> - A customer-oriented IS - Active supplier participation in EMPs leads to supplier lock-in - Global data synchronisation - Knowledge Management 	<ul style="list-style-type: none"> - Sourcing - Knowledge Management - IT integration 	<ul style="list-style-type: none"> - Market opportunities for new customers - Access the right purchasing contact in each buyer company 	<ul style="list-style-type: none"> - Sourcing - Change management - Supplier size selection - Reporting tools to follow up supplier performance - Supplier selection 	<ul style="list-style-type: none"> - A customer-oriented IS - Data shared with buyer - Pioneer in IT such as punch out - Customer relationship management
COST		COST		COST	
<ul style="list-style-type: none"> - Data standardization and quality - Mutualise IT tools - Standardization of supplier communication process 	<ul style="list-style-type: none"> - Data standardization and quality - Mutualise IT tools - Standardization of supplier communication process 	<ul style="list-style-type: none"> - Data standardization - Standardization of supplier communication process - Mutualise IT tools 	<ul style="list-style-type: none"> - Data standardization and quality - Standardization of supplier communication process (workflow) - Mutualise IT tools - IT integration 	<ul style="list-style-type: none"> - Mutualise IT tools - Data standardization and quality - Lower prices on goods and services - Standardize purchasing and supplying processes 	<ul style="list-style-type: none"> - Mutualise IT tools - Data standardization and quality - Standardization of the communication process (eCatalogues)
INNOVATION		INNOVATION		INNOVATION	
<ul style="list-style-type: none"> - Comparisons of suppliers' offers - Supplier relational modes - Sourcing 	<ul style="list-style-type: none"> - Data quality through synchronization - Relational modes with buyers 	<ul style="list-style-type: none"> - Sourcing - Decision-making tools - Supplier relational modes 	<ul style="list-style-type: none"> - Data quality through synchronisation - Relational modes with buyers - Supplier performance monitoring 	<ul style="list-style-type: none"> - Technology - Communication process - Supplier relational modes - Reorganization of the industry 	<ul style="list-style-type: none"> - Technology - Communication process - Supplier relational modes - Product: visibility and pace of product introduction into markets
ALLIANCE AND POWER GAINS		ALLIANCE AND POWER GAINS		ALLIANCE AND POWER GAINS	
<ul style="list-style-type: none"> - Alliances with retailers - International dimension for middle-sized retailers - Fuzzy supplier relationship management, empowerment 	<ul style="list-style-type: none"> - Alliances with other suppliers or retailers to serve suppliers' interests (lobbying) 	<ul style="list-style-type: none"> - Potential alliances in the future with other buyers to build a common sourcing policy, empowerment 	<ul style="list-style-type: none"> - Not mentioned 	<ul style="list-style-type: none"> - Not mentioned 	<ul style="list-style-type: none"> - Not mentioned
GROWTH		GROWTH		GROWTH	
<ul style="list-style-type: none"> - Price cuts owing to eAuctions - Data synchronization in a long-term perspective 	<ul style="list-style-type: none"> - Since 2005 all interviewed suppliers are convinced of its strategic potential 	<ul style="list-style-type: none"> - Not mentioned for all IT tools - Direct returns with eAuctions 	<ul style="list-style-type: none"> - Not mentioned 	<ul style="list-style-type: none"> - Price gains due to the negotiations on higher volumes 	<ul style="list-style-type: none"> - 50% of supplier business in B2B in 2010 - Market share recovery - IT integration in supplier internal IS

5 DISCUSSION:

In this discussion, we will first compare the main competitive advantages that emerge in the different industries (See Table 1) and complement it with an overall vision of the evolution across industries of the following criteria: the dynamic evolution of IT tools, the eValue with higher frequency of items, a summary of the specific needs of each industry and finally an evaluation of the strategic potential of these eValues using Barney (1991)'s framework. Second, we will highlight the specific competitive advantages that EMPs bring in each industry. We will then conclude on the impact of EMPs and electronic exchanges on the structure of each industry.

Some factors are common to all EMPs. Others are specific to the needs of each industry.

There are **three main differentiating factors in all EMPs**: sourcing and knowledge management are common to all of them whereas data synchronization is specific to the retail industry. In terms of frequency of items, sourcing has the most impact in the automotive industry as this industry was one of the first to use supplier content to evaluate supplier performance through metrics. MRO industrial suppliers and buyers hold before all the capacity of the EMP to help them to provide returns on experience (implementation and adoption of best practices). The retail industry is the only one that has already started to build a global standard for product and supplier databases thereby creating a worldwide network. This was also possible because WWRE managed to link the main retailers with the major suppliers, contrary to Supply On which only connects smaller players. It is a long-term project that will connect the key players of the industry through a standard and future interoperable IOIS.

All industries benefit from *cost reductions* owing to data and process standardization, resource mutualisation, EMP change management and the objective to tend towards fully-integrated applications. However, this advantage appears to be short-term and is not going to differentiate one competitor from another, but to improve the whole collective marketplace.

The main *innovation factor* lies in new ways of managing the supplier relationship in the exchange, combining aggressive IT tools such as eAuctions with more collaborative ones such as CPF, with the same supplier. This combination of IT tools introduces fuzzy relationships that renew the way purchasers deal with the supplier portfolio. Bakos (1997) prediction that IT will bring higher price transparency is actually limited to buyers through eAuctions. Transparency in buyer-supplier relationships has to be considered as a complex variable used to choose the suppliers allowed to enter

into the EMP (Soh et al. 2006). Hence, IT will not automatically facilitate access to the market (Kogut, 1998), especially for little-sized companies. In addition, the visibility provided by EMPs on supplier performance worldwide will enlarge the way purchasers assess their supplier from a local territory to the globe.

In all case studies and knowing that the EMPs studied are buyer-controlled, power gains clearly appear on buyer sides, in both the purchasing and supply processes. Buyers gain visibility on supplier practices, data and performance.

Finally, several factors of *growth* are mentioned: some of them can be qualified as short-term gains (price gains with eAuctions) whereas others are described as long-term gains. We further discuss the way we should consider long-term competitive advantage in EMPs with the help of RBV.

What are the specific competitive advantages brought by EMPs in each industry, according to their structure and needs?

The initial benefits for the *automotive industry* lie in price gains with the diffusion of eAuctions as well as cost reductions due to the improvement of the exchange process (Howard et al., 2006). These gains were short-term as all automotive players, irrespective of whether or not they belong to an EMP, now include eAuctions and process reengineering in their negotiation, whether they belong to an EMP or not. From 2000-2004, the focus was on improving the supplier and product business directory. According to interviewees, this sourcing tool is relatively rare, difficult to imitate or substitute. In addition, the supplier performance metrics appears to be relatively advanced considering that the retail industry, for example, has not yet obtained value in this area. Thus sourcing appears to be a long-term competitive advantage provided by EMPs in the automotive industry by implementing global sourcing systems (Mol, Koppius, 2002), including low cost countries, some of them offering rating functionalities based on performance metrics (Carter et al., 2000; Kleijnen J., Smits M., 2003). This leads us to conclude that EMPs bring an aggregation value (Kaplan, Sawhney, 2000) by reducing the fragmentation in the base of suppliers. That will probably bridge the gap between the oligopolistic structure of the retail industry to the one of the automotive industry and hence orientating the market to a “move to the middle” (Clemons, Row, 1992). In addition, since 2004, buyers have asserted that Supply On also provides value with IT tools in delivery and stock management processes. This drives cost reduction in the short to middle-term perspective. The next step will be to improve coordination and cost cuts derived from the IS integration of the EMP with its users. IS integration between Tier 1 and Tier 2 suppliers has always been a source of value in automotive supply chains (Clemons, Row, 1993).

In the *retail industry*, initial benefits were similar to those in the automotive industry: cost reductions due to process reengineering, improvement of communication, gains in prices owing to eAuctions. The sourcing value extents matching (Kaplan, Sawhney, 2000) not only on price gains but also on the capacity to deal globally, being able to exploit the specificity of local markets and cultural needs. However, these eValues have been progressively imitated by all retailers and suppliers, even if they do not belong to an EMP. The main competitive advantage brought by the EMP is **global data synchronization** with an improvement on product and supplier data quality and accuracy. The capacity to have high data quality in their own IS will soon allow buyers and suppliers to develop different collaborative tools such as promotions management, shared planning, stock inventory based on stores' sales. Besides, buyers and suppliers will be able to better control the data that is sent outside their IS. This improvement in data quality and **purchasing and supply IS control** appears as a rare and difficult to imitate resource. Hence, suppliers and buyers who benefit from this competence will also benefit from a long-term competitive advantage. Considering the yet oligopolistic structure of this industry, we assert that electronic catalogues are not used to gain aggregation as in the automotive or MRO industries but to improve the communication and coordination all along the supply chain.

Finally, the acceleration of the restructuring of the configuration around a few large-scale retailers with electronic exchanges questions the evolution of power gains in the chain. The power gains from which buyers presently benefit as a middle-term advantage will depend on the capacity of suppliers to take advantage of IOIS to strengthen their positions. In the same connection, network **alliances** (Gulati et al. 2000) initiated between buyers in 2005 may bring long-term advantages if they manage to use these coalitions to their advantage without being accused of collusion.

For purchasing and supply, the final step will be to reach fully-integrated and agile IS able to coordinate and communicate in the whole supply chain, from the upper food supplier in the chain, to the different warehouses and finally, stores that directly connect to end customers. An increased visibility in the supply chain is also urgently needed to guarantee healthy products and customer protection in the case of food crisis. However, before 2000, IT linkage was limited to demand to order processes and began to reach the purchasing process with eAuctions.

The case of *MRO industry* is similar to the automotive and retail industries as initial gains (2000-2002) were linked to cost reduction. The EMP brought high value in accelerating change management and supplier roll out by trying to concentrate widespread suppliers in the same database format. From the start, Hubwoo has also greatly contributed to improving supplier and product data content as content was a condition to exchanges through eCatalogues. Here again, and according to interviewees, this content is relatively rare, difficult to imitate or substitute. If the supplier performance metrics is not so advanced in MRO industries as in the automotive industry, the latter will probably greatly improve the optimization of stock inventory which are notably sent to automotive customers. Hence, **supplier and product content** can be considered as a long-term competitive advantage. Finally, the

main long-term competitive advantage that is recognized to the EMP is the capacity to offer a **fully-integrated platform** able to make links between tenders to order delivery. **Integration** is also expected to reach supplier and buyer IS back ends. Such integration is considered to be relatively difficult to imitate or substitute and hence, considered as a long-term competitive advantage for users that will help to better manage supplier stocks. Finally and in the near future, these tools will probably be used to assess suppliers and compare their offers apple-to-apple. The EMP will then become a rating intermediary and this questions the evolution of power gain in the chain (Webster, 1993) as well as the evolution of the structure of this fragmented industry. As the MRO industry is part of the suppliers of the automotive industry, and as it is still more fragmented than the automotive industry, we anticipate that the MRO industry will follow the same path of the automotive one and will totally benefit from an aggregation value (Kaplan, Sawhney, 2000).

In conclusion, some eValues are common to all of them: cost reduction, standardization, communication process reengineering, price gains, mutualisation and power gains.

In addition, EMPs drive different types of competitive advantage according to the needs and structure of each industry: sourcing, supplier performance metrics and IT integration in the automotive industry; global data synchronisation, internal increased control of purchasing and supply IS and alliances in the retail industry; supplier and product content and a fully-integrated platform in MRO industries.

Looking at the dynamic evolution of EMP eValues, we can highlight **three main conclusions**.

First, EMPs should not only be considered as transactional IOIS aimed at driving cost reductions. They also reveal other types of long-term competitive advantages (Ordanini, 2005) that are larger than an improved collaboration in the chain. Whereas collaboration is generally presented as the main advantage of EMPs (Mahadevan, 2003), our cases show that collaboration is actually a long-term perspective that will be possible with the integration of IOIS from buyers to suppliers. However, the differentiator factors highlighted bring further questions such as the evolution of alliances and power gains in a fully-integrated supply chain between suppliers and buyers, but also in supplier-buyer relationships.

Second, following the example of EDI (Webster, 1995), EMPs have initially brought value to supply processes with the development of eCatalogues and, since the beginning of the 1990's, EMPs brought value in the purchasing process with eAuctions and eTenders. We do consider this as an historical evolution of the value brought by IOIS from supply to purchasing processes.

Third, the eValue of EMPs are directly connected with the needs and structure of each industry. EMPs help us to imagine the evolution of global electronic markets connected through global IOIS. The example of the retail industry may foreshadow the evolution of global electronic markets around an

oligopolistic configuration that excludes little-sized companies from global and finished products of inter-organizational exchanges. Are the automotive and MRO industries going to follow the same path or are they going to create different industrial configurations and benefits from eCommerce?

6 CONCLUSION:

In this paper, we describe the dynamic evolution of eValues provided by EMPs to buyers and suppliers. We analyze these eValues according to the needs of the automotive, retail and MRO industries. Using both Wiseman (1985) and RBV theoretical frameworks, we discuss what types of eValues could be considered as short to long-term competitive advantages.

Our results first highlight that EMPs were initially introduced to gain transactional value such as cost reduction, mutualisation, standardization, process reengineering. Then, they progressively revealed their strategic potential in several directions: buyer-seller relational modes, alliances, sourcing, product and supplier content and global data synchronization. Hence, we highlight similarities and contrasts on how suppliers and buyers play with the strategic opportunities of EMPs in their exchanges. Finally, we show that this strategic potential of EMPs differs according to the strategic positioning of EMPs (on direct or indirect goods and services) and according to the specific needs of each industry. The dynamic description of three case studies helps us to foresee the evolution of the structure of these industries through the development of eCommerce.

As a continuation of this research, we could consider analyzing the risks perceived by users (Kumar, Van Dissel, 1996; White et al. 2007) and see whether they endanger the strategic factors highlighted in this study. In addition, we could more thoroughly explore how the position of buyers and suppliers in the chain and their stakeholder salience (Howard et al., 2003) may explain their capacity to take advantage of the strategic advantages highlighted.

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