

B2B e-Marketplaces: What's in it for me?

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ABSTRACT

Commerce among firms through the Internet, the so-called B2B commerce, constitutes a newly developed area in which most of these are yet to be demonstrated. The value proposition for firms in B2B commerce suggests the creation of highly efficient markets, access to a larger number of suppliers and/or customers, or even internal productivity increases. However, firms' perceptions of such benefits have not been empirically researched yet. In this study, 152 large Spanish firms are surveyed to gain some insights about their perceptions and developments regarding B2B. Results show both positive and negative priorities depending on aspects such as firms' current state of B2B development, perceived role in a B2B scenario, or characteristics of the industry. These results can help to assess the future diffusion of B2B initiatives, and also to evaluate new functions and areas for development in e-marketplaces.

KEYWORDS: B2B, marketplace, Internet, electronic markets, electronic commerce

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1. Introduction

The Internet offers several distinct characteristics in relation to commerce, some of which are deeply underpinned in what has been called “the new economy”. Despite all the hype around this idea of the “new economy”, there is little or no disagreement in the fact that the Internet constitutes a new environment, in which some of the previous assumptions underlying the traditional economy can be relaxed and reinterpreted.

From an economic standpoint, the Internet represents a world in which economic friction gets drastically reduced. As a main consequence, searching costs get also reduced, a fact that, as we will see later, can greatly affect the way economic transactions are done. From this naïve perspective, the Internet appears as a frictionless world, in which anyone can offer products, these products can be found by all interested customers, and these customers can also compare them with every similar product and stick with the

one that fits their interests better. This vision portrays the Internet as a Bertrand-type competition world, where all sellers get increasingly descending returns due to the buyers' ability to seamlessly compare all offers. This situation has been depicted as an extreme possibility by several authors (McFarlan, 1984; Malone et al., 1987; Bakos, 1991 and 1998), although authors also realize that there are still imperfections and anomalies that can be turned into opportunities for competitive advantage.

From these initial, theoretical works on electronic markets, many of them developed even before the skyrocketing growth of the Internet phenomenon, we have seen authors getting progressively interested not only in the change enabled by technology, but also in the different ways electronic markets can be established and organized. Different typologies have been enunciated; competing views of the value proposition for each of the players have been documented and even some of the still uncertain empirical data have been collected. However, the view is not crystal clear: there are still uncertainties regarding whether or not a firm should or should not join a particular marketplace as either a buyer or a seller (or both), and whether such decision has to be taken on the grounds of a better solution from an economic perspective, or from a "there's nothing I can do" standpoint.

In the meantime, the *e*-marketplace phenomenon keeps growing steadily. In the last survey performed in Spain (Dans, 2001), empirical evidence demonstrated that roughly one third of the largest Spanish corporations were involved one way or another in *e*-marketplaces. Furthermore, the evolution of these figures allowed to forecast that about one half of the top 500 Spanish firms would engage in transactions in *e*-marketplaces during 2002. Considering such figures, one could think the future for this type of B2B initiatives looks great. However, there are some downsides: while becoming increasingly popular for large firms, *e*-marketplaces are still completely unknown for small and medium enterprises (SMEs), which constitute the vast majority of firms in Spain¹. While the *e*-marketplace option appears increasingly clear for big corporations, who can try to leverage their large purchasing power, it is not so clear for smaller firms, who can visualize themselves in the Bertrand-type scenario described above.

¹ SMEs add up to 99% of all businesses registered, generate 70% of the employment, and contribute to 65% of the GDP (Faces-Garcia, 2000)

At a higher level, the evolution of B2B electronic commerce can be crucial to any country's economy. While some industries are global in nature, and will probably choose to engage in transactions in international marketplaces, others are essentially local, perhaps due to logistic costs or to regional peculiarities. For firms in these industries, being able to reduce costs by engaging in *e*-marketplace transactions can end up being of paramount importance. Choosing an appropriate strategy means deciding among different options, some of them similar (perhaps differentiated just by who is backing up each of them), some of them widely different. While some *e*-marketplaces will have an industry-specific orientation, others will focus on generic, non-strategic goods or services. Through specialization, some *e*-marketplaces will achieve much better prices than others. Being in the correct place for each type of product might involve huge competitive advantages that firms could be able to leverage in the future. For what we know, the purchasing function will gain a lot in terms of both complexity and strategic consideration across all industries.

The remaining of the paper is structured as follows: Section 2 briefly outlines the methodology. Section 3 defines relevant terms and dimensions of *e*-marketplaces. Section 4 identifies the main typologies, while Section 5 builds on business models and value propositions. Section 5 deals with issues such as privacy, security, power and trust. Finally, Section 6 suggests hypotheses and avenues for future research, and Section 7 concludes the article.

2. Theory and hypotheses

Early research about the implications of the Information Systems and Technologies into markets' structure, dynamic and characteristics can be found much before the advent and popularization of the Internet phenomenon. Referential works by Malone, Yates and Benjamin (1987) or Gurbaxani and Whang (1991) use the agency or transaction costs frameworks to elaborate on the potential effects a reduction in coordination costs could have on the markets, much before the term "*e*-marketplace" was coined. This term is rooted in the so-called "inter-organizational systems" (Barret and Konsynsky, 1982), and thus can be defined as "an inter-organizational system that allows its participants to exchange information about their offers, demands, products and prices".

The inter-organizational systems concept is also linked to the development of tools to support electronic commerce among firms, much before the inception of the early *e-marketplaces*. The earliest of those tools is EDI (Electronic Data Interchange), a set of protocols and infrastructures designed to allow firms to engage in economic transactions across proprietary networks. With the progressive development of the Internet, EDI derived into open-platform, web-centric solutions. However, both EDI and its subsequent evolution are inherently transactional and designed only for the commercial exchange between two firms, and thus lack the vast majority of the *e-marketplaces'* implications². These implications go well beyond the boundaries of the firm and clearly point towards the inter-organizational context: shared value chains integrated by the firm, its suppliers and its customers (Kumar y Christiaanse, 1999), deeply rooted into the very foundations of the *e-business* definition.

Several classifications can be established according to *e-marketplaces'* characteristics, as described by Kaplan and Sawhney (2000b). For instance, criteria such as horizontality (activities developed across several industries) or verticality (specific for a given industry), type of good or services being transacted (operating supplies versus raw materials), main focus of the transactions being conducted (spot buying versus systematic purchasing), market mechanism being used (auctions versus catalogs) or property structure (neutral versus biased, either towards supply or towards demand). Each of these classifications determine different types of *e-marketplaces*, named differently (MRO Hubs, Yield Managers, Exchanges, etc.)

From an economic viewpoint, *e-marketplaces'* characteristics are essentially five (Bakos, 1991):

- 1- Reduction of both customers' information gathering costs and suppliers' communication costs.
- 2- Network externalities (Katz and Shapiro): benefits increase as more participants join the *e-marketplace*.
- 3- Significant switching costs can be imposed, since firms are usually required to invest heavily to integrate their systems with the *e-marketplace* ones.

² See Yau, 2001 for an extensive literature review.

- 4- Significant capital expenditures are required to join. In exchange, firms can reap substantial scale and scope economies.
- 5- Potential participants face huge uncertainties before joining the *e*-marketplace. These uncertainties can persist even after the decision is made.

These factors greatly determine *e*-marketplaces' value proposition, both for buyers and for sellers. According to different authors (Kaplan and Sawhney, 2001a; Dans, 2001) the elements of this value proposition are:

- 1- Increase transparency
- 2- Reduce various searching costs (for supplier, product or customers)
- 3- Reduce administrative cycles, approval time, internal buying or selling processes, etc. (internal transaction costs)
- 4- Secondary markets for overstocks, used goods, etc.
- 5- Favor price competition (Lee, 1998)
- 6- Aggregate purchase power in certain products
- 7- Dynamic prices (auctions)
- 8- Improved communication among firms

These elements are studied in this paper in relation to different firm's attributes: firms' predominant position (mainly acting as buyer or seller), size, awareness about the *e*-marketplaces phenomenon, and current level of participation. Accordingly, we generate a table of null hypotheses represented by the lack of significant differences in the firm's perception of each of the eight elements of the value proposition. Consequently, alternative hypotheses would enunciate significant differences in the perception of such elements of the value proposition. Given the exploratory nature of this study and the lack of a proper body of literature to draw from, alternative hypotheses are posited as non-directional. Hypotheses are represented in Table 1.

3. Methodology

The validation of the hypotheses was framed into a research initiative, the “Barometer of Investments and Trends in B2B Electronic Commerce in Spain: Future of *e*-marketplaces”³.

Table 1: Hypotheses development

	Increase of transparency	Reduction in searching costs	Reduction in administrative internal costs	Secondary markets	Aggregation	Favor price competition	Dynamic prices	Improved communication among firms
Buyer vs. Seller	H ₁	H ₂	H ₃	H ₄	H ₅	H ₆	H ₇	H ₈
Size	H ₉	H ₁₀	H ₁₁	H ₁₂	H ₁₃	H ₁₄	H ₁₅	H ₁₆
Awareness	H ₁₇	H ₁₈	H ₁₉	H ₂₀	H ₂₁	H ₂₂	H ₂₃	H ₂₄
Participation	H ₂₅	H ₂₆	H ₂₇	H ₂₈	H ₂₉	H ₃₀	H ₃₁	H ₃₂

The set of hypotheses was validated in the context of the 500 largest Spanish firms (according to revenues). A questionnaire was developed⁴ and administered via telephone interview between May 28 and July 9, 2001. A sample of 156 firms was randomly determined, thus circumscribing the error to (+/-) 6.52%⁵, reasonable for an exploratory analysis. These 156 firms answered to some one hundred questions, in approximately twenty-five minute interviews. Questions included aspects such as their knowledge, awareness and implication into existing B2B platforms or projects, their attitudes towards those platforms, the determinants for adoption and a number of industry and firm’s characteristics. Additional data, such as SIC codes, revenues or number of employees were drawn from publicly available databases. Respondents for the interviews were either the executive in charge of the B2B initiatives, when such role was defined, or the highest-

³ The aforementioned study was developed by the IT College at the Instituto de Empresa, and funded by Commerce One and SAP. The authors and the Instituto de Empresa acknowledge the generous funding and the commitment to rigorous and relevant research demonstrated by these two firms all along the project.

⁴ Available from the authors

level executive available.

In each case, executives' perceptions about each of the elements of the *e*-marketplaces' value proposition and the degree of awareness about *e*-marketplaces were coded into five point Likert-type scales. Some of the firms' attributes (buyer/seller role and participation in *e*-marketplace initiatives) were binary variables, whilst size was expressed in number of employees and revenues (in millions of Euros).

In order to validate the hypotheses generated by the binary attributes, buyer/seller role and participation in *e*-marketplace initiatives, the corresponding contrasts for equality of means were used. For each of the remaining variables, a General Linear Model (GLM) with Bonferroni correction was established. The statistical calculations were performed with SPSS for Windows, Version 11.

4. Results

The results obtained for the statistical contrasts and analyses are shown in Table 2. The shadowed cells correspond to hypotheses in which the result of the test obtained significant results at the .1 level.

Table 2: Results

	Increase of transparency	Reduction in searching costs	Reduction in administrative internal costs	Secondary markets	Aggregation	Favor price competition	Dynamic prices	Improved communication among firms
Buyer vs. Seller	H ₁	H ₂	H ₃	H ₄	H ₅	H ₆	H ₇	H ₈
Size	H ₉	H ₁₀	H ₁₁	H ₁₂	H ₁₃	H ₁₄	H ₁₅	H ₁₆
Awareness	H ₁₇	H ₁₈	H ₁₉	H ₂₀	H ₂₁	H ₂₂	H ₂₃	H ₂₄
Participation	H ₂₅	H ₂₆	H ₂₇	H ₂₈	H ₂₉	H ₃₀	H ₃₁	H ₃₂

⁵ Calculation of the sample error for finite populations, $p = q = 50\%$

Ten hypotheses from the initial panel of thirty-two can be considered as successfully validated, a fair number considering the exploratory nature of the study. These results indicate significant differences in the perception of certain elements of the *e-marketplaces'* value proposition. These differences will be discussed in the next section.

5. Discussion

The first significant hypothesis is **H₁**. This hypothesis enunciates the existence of significant differences in the perception of the value proposition based on the increase of transparency between firms that adopt either a buyer or a seller's role in an *e-marketplace*. It might indicate the perception of a threat to those firms who survive using more or less patent inefficiencies in the supply side. When these niches occur, an *e-marketplace* could mean trouble, since the transparency brought might sign the end of the imperfections that originated the niche. On the other hand, the change is perceived as an advantage by the demand side.

It is interesting to note the existence of significant differences in the perception of this very same element of the value proposition when firms are split according to their degree of awareness (**H₁₇**). The more knowledgeable firms appear, as expected, more interested in realizing the promised efficiency gains, complementing the conclusions in the previous paragraph.

The next significant is **H₃**. This hypothesis indicates the existence of significant differences between the demand and the supply side in the perception of *e-marketplaces* as drivers for the improvement of internal administrative processes. In fact, it could be commonsense to think that buying processes could experience more gains than the selling ones, which are usually, by its own nature, more agile. Usually, the number of departments and people involved is also higher in buying processes than in selling ones. This hypothesis is reinforced by checking **H₁₁**, the impact of size on this same perception: as expected, larger firms appear more concerned about their internal bureaucracy, and therefore more interested in the reduction they could get by using instruments such as *e-marketplaces*.

Two intimately related hypotheses are **H₆** y **H₇**. The first one indicates significant differences between supply and demand in the perception of *e*-marketplaces as drivers for increased competition and price reduction, whereas the second one postulates the same effects towards the appearance of dynamic pricing mechanisms (auctions), which obviously cause higher competition in prices. Both hypotheses appear as significant, thus corroborating our initial perceptions: while the demand side feels a higher price competition could benefit their interests, the supply side witnesses how such a dynamic might cause a growing erosion in their margins and get them close to a Bertrand-type scenario. An environment where firms offering similar products not only can be immediately compared with *ad hoc* tools, but are also given auction tools to stimulate competition among them does not sound like the best scenario for those forced to compete in it.

Hypothesis **H₁₃** predicts different perceptions about aggregation schemes (catalogs) according to firm size. Larger firms appear to display better perceptions about this type of mechanisms. In an emerging market such as Spain, catalogues appear to be perceived as a much less aggressive alternative than auctions, and therefore could be better perceived by larger firms. However, further research would be needed in order to offer a concluding answer.

A similar behavior is exhibited by hypothesis **H₂₃**. This hypothesis posits significant differences in the perception of dynamic pricing mechanisms in firms according to their level of awareness. Our results show how better informed firms, who might be currently participating in electronic auctions, display a better reaction than their less informed counterparts. This finding could be reinforced by checking **H₃₁**, where we realize that firms that are already participating in *e*-marketplaces- and therefore one might expect them to be better informed than those who are not yet participating – display, in fact, a more positive reaction to the aforementioned dynamic pricing schemes. Even though the number of auctions celebrated in Spanish *e*-marketplaces is still small, it might be the case that the thorough study required to make a decision about whether or not to enter the *e*-marketplace could yield a more positive attitude.

Last, **H₃₂** tries to measure perceptions about the impact of *e*-marketplaces in communication among firms. Specifically, firms who are already participating in *e*-marketplaces appear to realize that these gains in fluency are real, and thus value that positive impact. This result is not surprising in an emerging market such as Spain, where

most of the actions undertaken by *e*-marketplaces have an informational (exchange of information among participants) rather than a transactional nature.

6. Conclusions

The inception of *e*-marketplaces as a trend is a rather new phenomenon in Spain. The results of recent diffusion studies indicate that most of the firms are, in mid-2001, still studying the decision of whether or not they should enter an *e*-marketplace, and, if doing so, which characteristics of such *e*-marketplace appear to be interesting to them. The conclusions of this study can be relevant, first of all, for managers in charge of *e*-marketplaces: knowing the ideas their customers have about their value proposition could greatly enhance their positioning, and might allow them to make themselves attractive to a higher number of firms. In a scenario where scale economies are crucial, the way *e*-marketplaces attract new firms could basically determine who goes the distance in this industry.

The conclusions of the study indicate that different elements of the value proposition are accepted and valued in different ways among Spanish large firms. The differences in perception of the smaller firms in the sample could be used to make the proposition more attractive to small and medium enterprises (SMEs). Attracting SMEs in a country like Spain constitutes, probably, a requirement for survival in the case of *e*-marketplaces.

Dynamic pricing systems are among the things that clearly generate more reactions. Considering this, it could be positive for *e*-marketplaces to modify their messages and try to “calm down” those firms who could have negative attitudes about them. Auctions are incredibly flexible mechanisms, and they offer possibilities such as negotiating not only on price, modifying auction rules, etc.⁶ A careful analysis of these possibilities could offer firms a wide array of possibilities other than just trying to squeeze lower prices by allowing suppliers to compete frontally among them. Overcoming the perception of the *e*-marketplaces as enablers of commoditized markets could be crucial to enhance their image among suppliers.

⁶ For more information see Dans (2000), an study funded by Program 1ST of the European Union, (eBroker), where these Internet auction formats are described departing from the classic ones.

These problems become clear when we see the asymmetry of the value proposition between supply and demand. There is a clear need for *e*-marketplaces to attract not only customers, but also suppliers. Attracting suppliers can be done basically in two ways: the first one is by pure demand pressure, the second one would be actively convincing them. In the first case we would be dealing with a number of threatened firms who, witnessing how their largest customers go away and start buying through different channels, are “forced” to enter the system. In the second case we will see how certain firms are able to overcome their fears and become adapted to these new channels. These firms will probably be able to extract some pioneering advantage from such a position. In both cases, everything points to a future where, after a large number of press releases about the creation of *e*-marketplaces across all industries, we will witness a period of “natural selection” in which many *e*-marketplaces will not be able to reach the size and scale required to survive. This period will also display a strong emphasis in customer acquisition, both in the demand and in the supply side. In some cases we will see interesting actors, such as local governments, industry associations or banks facilitating the incorporation of firms to *e*-marketplaces, in order to foster local trade, favor the interests of the industry as a whole or provide financial services, respectively.

The present study has some obvious limitations: first, it is important to note its exploratory nature. It would have been interesting, for instance, to build a set of stratified samples covering different territories or industries, although this would have required a much higher sample size. It could have been also extremely recommendable to survey not only a sample of large companies, but SMEs too, especially considering they represent a huge percentage of the economy. Some of the relationships could be for sure much more patent if we had introduced a wider array of companies in the sample, including less homogeneous segments. The importance of this limitation becomes crystal-clear when we take into account the relevant role of SMEs in the future of *e*-marketplaces (Sawhney, 2000).

Another interesting factor emerges from the idea of an “*e*-marketplaces life cycle”: *e*-marketplaces get first announced in press releases, then grow, some of them fail, and, finally, some of them survive while others merge or consolidate into larger initiatives. In the short history of *e*-marketplaces worldwide we have witnessed very interesting

evolutions that might deserve a survival analysis. In Spain, for instance, we had some 80 press releases, but only some thirty *e*-marketplaces lived beyond the announcement. To go even further, out of those thirty that can be found on the Net, very few conduct actual transactions, while most of them have a pure informational nature. Further research on this “cycle” could allow for an understanding of the factors that lie behind survival and/or success of certain *e*-marketplaces, could help firms optimize the economic returns (Subramani and Walden, 2000) and clarify their perceptions about joining a given *e*-marketplace.

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