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## Understanding Online Reverse Auction Determinants of Use: A Multi-Stakeholder Case Study

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# Understanding Online Reverse Auction Determinants of Use: A Multi-Stakeholder Case Study

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## ABSTRACT

*Various interorganizational systems (IOS) such as Electronic Data Interchange (EDI) and Supply Chain Management Systems (SCMS) have attracted significant attention among information system (IS) researchers. However, IS scholars have taken less interest in Online Reverse Auctions (ORAs), a widely used IOS in online business-to-business transactions. This study examines the factors that enable and/or inhibit ORA use from the perspective of buyers and suppliers, as well as the potential role of the institutional context based on a case study of a French retailer. Building on 122 semi-structured interviews collected in two stages with various stakeholders from the interorganizational community (buyers, suppliers and technology initiators), we demonstrate the extent to which the determinants of ORA use differ between buyers and suppliers (e.g. perceived outcomes, capabilities required to use ORAs). We then show how a change in the institutional context not only failed to redress distrust between buyers and suppliers, but also created new barriers to ORA use by introducing controls and sanctions that outweighed the economic benefits of ORA use among buyers. We contribute to the IS literature by demonstrating the role of strategic capabilities in shaping use. While the IS literature acknowledges the institutional context as a determinant of use, little is known about the extent to which a change in the institutional context may affect ORA use. Our research shows the extent to which legislation can trigger IT discontinuance because of the perceived risk introduced.*

**Keywords:** Online Reverse Auctions, use, enablers, barriers, legislation, risk of control and sanctions.

## RÉSUMÉ

*En dépit de l'intérêt croissant des chercheurs SI aux systèmes inter-organisationnels tels que l'échange de données électronique (EDI) et les systèmes de gestion de la chaîne logistique (SGCL), peu de recherches se sont intéressées aux enchères électroniques inversées (EEI), un système d'information inter-organisationnel largement utilisé dans les transactions électroniques inter-firmes.*

*Cette étude a pour objectif de mettre en évidence les déterminants d'usage des EEI suivant la perspective des acheteurs et celle des fournisseurs ainsi que le rôle potentiel du contexte institutionnel à travers une étude de cas réalisée auprès d'un distributeur français. Nous avons mené 122 entretiens semi-directifs en deux phases auprès des différents membres de la communauté inter-organisationnelle (acheteurs, fournisseurs et les initiateurs de la technologie) concernés par l'utilisation des EEI. Nos résultats mettent en évidence des différences entre les acheteurs et les fournisseurs quant à leurs déterminants d'usage. Nous montrons ensuite comment un changement du contexte institutionnel peut impacter l'usage des EEI. En effet, alors que la loi n'a pas permis de remédier au climat de méfiance qui prévaut entre acheteurs et fournisseurs, elle a créé de nouvelles barrières à l'usage pour les acheteurs. Plus particulièrement, les risques de contrôle et de sanction introduits par la loi sont à l'origine de nouvelles barrières à l'utilisation des EEI pour les acheteurs. Nous contribuons à la littérature SI en montrant le rôle des capacités organisationnelles à influencer l'usage. Alors que le rôle déterminant du contexte institutionnel pour expliquer l'usage a été largement reconnu dans la littérature SI, notre compréhension de l'impact du changement du contexte institutionnel sur les déterminants de l'usage est encore limitée. Nous mettons en évidence l'étendue à laquelle la loi peut être à l'origine de la discontinuité d'usage à cause du risque perçu qu'elle introduit.*

**Mots-clés :** Enchères électroniques inversées, utilisation, facteurs favorisant l'usage, barrières à l'usage, risque de contrôle et de sanction.

## INTRODUCTION

Successful interorganizational relationships are crucial to organizational performance (Gulati and Sytch, 2007; Palmatier et al., 2007; Chaparro-Pelaez et al., 2014). In order to build and maintain successful relationships with trading partners in areas such as procurement and supply chain management, firms increasingly rely on interorganizational systems (IOS). Gartner points to the heavy investment in IT (up to \$3.7 trillion), including US \$296 billion for IOS such as electronic data in-

terchange (EDI) and supply chain management systems (SCMS). This illustrates the degree to which IOS use by trading partners has become a critical requirement for business operations (Iacovou et al., 1995; Mukhopadhyay et al., 1995; Wang, 2014; Reimers, Johnston and Klein, 2014).

Today, firms are using IOS to improve their purchasing performance (Cousins and Spekman, 2003; Ellram, 1996). IOS help firms to compare supplier prices, assess alternative supply sources, negotiate better contracts (Johnston and Vitale,

1988) and benchmark suppliers (Riggins and Mukhopadhyay, 1994), which explains business organizations' willingness to invest heavily in this area (Meier, 1995). Among such IOS, Online Reverse Auctions (ORAs) have become a popular basis for conducting business transactions in numerous industries such as retail (Hawkins et al., 2014, Jap, 2007). Its role in improving the procurement process has been acknowledged in many organizations (Standing et al., 2013). The process is considered "as the interface between an organization and its suppliers" (Rai et al., 2008, p.336). ORAs support the negotiation process within inter-organizational relationships (Jap & Haruvy, 2008) and viewed as an IOS (da Silveira and Cagliano, 2006; Charki et al., 2011)

Online reverse auctions are an aspect of the trading platforms hosted by virtual market makers that provide the technological infrastructure and platforms needed to handle supply and demand (Pinker et al., 2003). Consequently, in contrast to offline auctions, transactions made through online auctions are not dyadic but are triadic in nature between a buying firm and preselected suppliers. For Smart and Harisson (2003) "*Online reverse auctions (ORAs) are exactly the way they sound: traditional auctions in Reverse. Instead of a seller offering a product for sale to the highest bidder, a buyer offers a tender or contract for the supply of specific goods or services. Suppliers compete for the right to the contract by bidding reducing prices, until a final price – the lowest – brings the auction to an end*" (p. 257).

ORAs are widely used by the procurement organizations of many Fortune Global 2000 corporations (Giampietro

and Emiliani, 2007) and government agencies (Ivory, 2014) to source a variety of goods and services. Firms such as Dell, GE, GlaxoSmithKline, the Formosa Group and HP encourage their suppliers to compete for purchase orders through ORAs (Chang, 2007) which account for around 10 to 15 percent of total corporate purchasing expenditure (Emiliani and Stec 2005). According to the Institute for Supply Management and Forrester Research (2013),<sup>1</sup> 85% of companies surveyed declared they had shifted towards e-sourcing tools such as ORAs to procure their suppliers' services.

At the same time, despite their growing use, ORAs have received little attention from IOS researchers and little is known about the determinants of their use (Mithas et al., 2008). Most IOS studies have focused on either the buyer or the supplier side (Venkatesh and Bala, 2008) and so little is known about the factors affecting the different firms engaged in IOS use. Moreover, few studies have investigated the interorganizational context of IOS use (Kurnia and Johnston, 2000; Rodon et al., 2011) or the extent to which a change in this context can impact on use (Kurnia and Johnston, 2000). Given all this, our paper poses the following research question: What are the determinants of ORA use from the vantage point of buyers and suppliers and how can a change in the institutional context affect such use?

In order to answer our research question, we conducted a large-scale qualitative case study in two stages, separated by one major institutional change. During the first stage, our goal was to gain insights into the enablers and barriers to the use of this type of IOS. Subsequently,

<sup>1</sup> [http://www.procureport.com/news\\_aug\\_28\\_2013.html](http://www.procureport.com/news_aug_28_2013.html)

as the institutional context of ORA use evolved, we were keen to understand the implications of such changes with regard to use. We therefore conducted 122 semi-structured interviews across the two phases of our study over a 3-year period with the main stakeholders of the inter-organizational community interested in the IOS of online reverse auction technology.

Our findings suggest that determinants of use differ between buyers and suppliers, and that the new institutional context may influence these determinants. We demonstrate that the new law fails to promote the use of ORAs by suppliers since it does not redress the prevailing climate of distrust between buyers and suppliers caused by the opportunistic practices previously adopted by some buyers. However, unexpectedly, the new law appears to have created new barriers due to the additional complexity of ORA use. Our results have diverse implications for both researchers and practitioners. We highlight the extent to which focusing on a specific firm can give a partial understanding of IOS use. We also show that determinants of use are not static but may vary following a change in the context of use. From a managerial perspective, we illustrate the extent to which an intervention that aims to regulate use can impact on the determinants of use and even create new barriers.

Our article is organized as follows. First, we review the existing literature on IT use with a focus on the determinants of ORA use. The review showed that this form of IOS has largely been covered in terms of perceived outcomes (enablers and barriers), while the role of organizational capabilities tends to have been ignored in explaining usage. Moreover, most research does not take the institutional context in which IOS use is embedded into account, which limits our understanding of the

determinants of use following a change in the context. Second, we show the extent to which our interpretive approach, embedded in a single case study, enabled us to capture the patterns that would have been difficult to discern otherwise. Thirdly, we present our results and discuss both our theoretical contributions and the managerial implications.

## **THEORETICAL BACKGROUND**

We first review the literature on IT implementation and use and show the extent to which additional factors are needed to explain ORA use given its interorganizational nature. Research on ORAs to date has mainly focused on perceived outcomes to explain its use. However, the IOS literature also points to the role of organizational capabilities as well as that of the institutional environment (Robey et al., 2008; Kurnia and Johnston, 2000). We thus discuss the extent to which these two determinants matter in the context of IOS use.

### **2.1. IT implementation and use in organizations**

IT implementation in organizations is typically a multi-stage process, from initiation of the IT, to its adoption, adaptation, acceptance, routinization and infusion (Cooper and Zmud, 1990). The first three phases are defined at the organizational level. In the first phase the organization identifies an unmet need or opportunity and scans the environment looking for possible technologies to meet that need (initiation). It then selects a specific IT and decides to invest in the resources to implement it (adoption). Finally, it installs and/or customizes the IT to its needs while also modifying organizational pol-

icies and procedures to accommodate the new IT (adaptation). In our case, the search for an ORA begins at the initiation stage, followed by organizational adoption and/or adaptation of the system to organizational needs.

The last three phases represent the behaviors of the intended individual users of the IT in question within the adopting organization. During these phases, users commit to using the IT (acceptance), use the IT as a normal or routine activity in their work (routinization), and/or use IT in a comprehensive manner to improve organizational effectiveness or to support higher-order work (infusion). Although initiation, adoption, and/or adaptation are prerequisite conditions for the successful use of organizational IT such as ORAs, the success of the system depends on individual users acceptance (or rejection) of the IT, and its subsequent routinized and infused use. Just because an IT is adopted and installed in an organization does not mean that it will be accepted and used by organizational users. If IT use is voluntary, individual users may reject the IT for reasons such as lack of utility or usability. On the other hand, if IT use is mandated, users may use it reluctantly and be unhappy with the choice forced on them. Some users may even try to delay, obstruct or underutilize the new IT (Jasperson et al., 2005). In fact, the fail rate of IT implementation has remained high over the last 30 years, at around 70% (Cecez-Kecmanovic and Kautz, 2014).

In view of the importance of individual-level IT use for the success of organizational IT, a large body of IT acceptance research has examined the factors that drive IT use and/or the constraints that limit it. Factors include perceived usefulness, ease of use, social norms, facilitating conditions, personal innovativeness,

self-efficacy, habit and enjoyment (see Lee et al. 2003, Legris et al. 2003, and Venkatesh et al. 2003 for extensive reviews). These factors have been distilled into many models designed to predict IT use, such as the technology acceptance model (TAM) (Davis et al. 1989) and UTAUT2 (Venkatesh et al. 2012). In general, the factors presumed to influence IT use can be grouped into three sets: (1) individual assessment of IT features such as its usefulness and ease of use, (2) individual user characteristics such as IT self-efficacy and intrinsic motivation, and (3) characteristics of the immediate task environment such as social influence or facilitating conditions (Van Offenbeek et al. 2013).

Despite the above body of knowledge, the determinants of ORA use remain unclear. Although one may expect several of the factors described above to be pertinent to ORA use, given the unique interorganizational nature of ORAs, several additional interorganizational factors may also influence ORA acceptance and use that have not previously been considered in the literature. One of the objectives of our paper is to identify such factors.

## 2.2. Perceived outcomes as the main determinants of ORA use

ORAs were designed to help buyers improve their economic purchasing performance (Jap, 2003; Williams and Dobbie, 2011). They result in cost reductions (Smart and Harrison, 2003; Smeltzer and Carr, 2003) and ostensibly enable buyers to discover 'real' market prices (Grewal et al., 2003). ORA use also tends to result in more flexible negotiation processes, wider sourcing horizons (Daly and Nath, 2005; Jap, 2002) and reduced administrative and logistics costs (Hur et al., 2007). Furthermore, buyers can use ORAs to

shake up their suppliers, encouraging them to reconsider their cost structures and be more competitive (Jap, 2001).

For suppliers, ORAs may offer a range of benefits. The IOS implies a more open tender process, and provides potential access to new buyers, greater visibility of competitor pricing and an overview of competing bidders and market activities. ORAs constitute an excellent opportunity for suppliers to benchmark against their rivals, assess their competitiveness and obtain an overview of the market in which they are active (Daly and Nath, 2005). In addition, it gives them an opportunity to penetrate new markets since buyers tend to include new suppliers with whom they have not previously transacted in the auctions in order to increase competition (Emiliani, 2000; Smart and Harisson, 2003; Smeltzer and Carr, 2002, 2003; Wagner and Schwab, 2004).

Like any other auction (Bakos, 1997; McAfee and McMillan, 1987), ORAs can provide enhanced transparency in business relations (Carter et al., 2004; Wagner and Schwab, 2004). This results in more information being made available to suppliers, and reduces information-asymmetry for both groups of players (Smeltzer and Carr, 2002; Jap, 2002; Emiliani, 2005). ORAs can thus bring transparency to the negotiation process (Caby-Guillet et al., 2007) as well as greater price transparency (Soh and Markus, 2002; Soh et al., 2006). However, Giampietro and Emiliani (2007) suggest that ORA use creates one-way transparency since suppliers gain little or no insights into the buying firms. This may lead suppliers to feel that buyers exert their power unfairly, consequently damaging collaborative relations, which may in turn lead to lost opportunities for future joint initiatives, or suppliers using retaliatory behavior in response to perceived injustices (Emil-

iani and Stec, 2004; 2005; Jap, 2003; Tassabehji et al., 2006).

In addition, more upfront preparation of ORAs by buyers compared to other sourcing arrangements leads to a significant compression of cycle time, which is even shorter for repeated auctions (Carter et al., 2004). They also compress sales orders and RFQ (request for quotation) cycle times, (Smart and Harrison, 2003). This reduces transaction costs for both buyers and suppliers (Daly and Nath, 2005).

Despite the above-mentioned incentives, both buyers and suppliers have experienced a number of challenges in their use of ORAs. Buying firms report varying returns on investment (Handfield et al., 2002) and, in some cases, the price reductions obtained through ORAs have not been large enough to cover the e-auction service fees (Hannon, 2003). Indeed, some authors have noted that the compressed timeframe of open-bid auctions creates a stressful context for suppliers. It prevents them from carefully considering price bids, giving them the feeling that they are “out of control” (Jap 2003). Together with the higher visibility and salience of competition in ORAs, it may even cause them to make concessions – particularly at the end of the bidding process – that go further than they had in mind at the outset (Carter et al., 2004). Moreover, authors such as Jap (2003) have suggested that ORAs increase suppliers’ distrust of buying firms, since the open-bid process is frequently considered as “exploitative and unfair”. Consistent with this conjecture, Smeltzer and Carr (2003) note that most of their interviewees were concerned with the negative impact that ORAs can have on buyer–supplier relationships. Jap (2003) concludes that the perception of opportunism surrounding online reverse auctions can seriously harm relationships

between buyers and suppliers, and even creates distrust (Charki and Josserand, 2008). Carter and Kauffman (2007) empirically showed that perceptions of opportunism decrease relationship trust and purchaser commitment, which ultimately leads to reduced supplier performance in factors other than price (e.g. weak response to delivery problems and buyer requests, no preferred access in times of high demand, slow access to innovations, and a lack of quality improvement initiatives).

Carter and his colleagues (2004) added that the vast majority of suppliers in their study reported adverse effects on their relationship with buyers following the introduction of ORAs. The complaints included damage to such practices as collaborative problem-solving, development of trusting long-term business relationships and joint capability-development. In the same vein, Tassabehji et al. (2006) found that suppliers may perceive ORA adoption as a sign that the buyers fail to take all their previous investment, collaborative effort and satisfaction provided in the past into consideration. For Jap (2003), the suppliers felt that ORA called into question all forms of partnership between the two parties, to the extent that they complain about an absence of fairness. Giampietro and Emiliani (2007) advanced a related concern regarding ORAs, observing that words such as exploitative (Jap, 2001) and coercion (Emiliani and Stec, 2005) are common across the industry and academic literature with regard to how suppliers view ORAs.

Giving these problems related to ORAs use and the extent to which buyers' opportunism can be harmful to buyer-supplier relationships (Charki et al., 2011), suppliers are now reluctant to use ORAs. Indeed, many suppliers refuse to use ORAs unless they are forced to do so by

buyers (Emiliani and Stec, 2005; Giampietro and Emiliani, 2007). This refusal can become systematic and can even call the use of ORAs into question, since in some cases buyers have been obliged to cancel the ORAs because of the lack of suppliers willing to take part to the bidding (Boukef et al., 2011).

As our discussion of the prevailing literature shows, advocates and opponents of ORAs have constructed a number of arguments to explain their use. It also shows that the existing literature largely focuses on the perceived outcomes (enablers and barriers) to explain buyers' and suppliers' use of ORAs. The IOS literature has shown that both organizational capabilities and the interorganizational environment matter in explaining IOS use (Robey et al., 2008; Kurnia and Johnston, 2000). However, these two dimensions have not been explored in the case of ORAs. In the following section, we discuss the extent to which organizational capabilities as well as context of use matter from a theoretical standpoint in the case of IOS use.

### **2.3. Going beyond perceived outcomes as the main determinants of ORA use: considering the role of organizational capabilities and context of use**

#### **2.3.1. Organizational capabilities as a determinant of IOS use**

IS researchers have acknowledged organizational capability as an enabler of IOS use. This refers to the set of skills needed to use an IT. For instance, in their extensive review of the IOS literature, Robey et al. (2008) highlighted the role of organizational readiness to foster adoption, which refers not only to the internal resources of the firms studied, but also to those of its

trading partners. This encompasses top management commitment (Iacovou et al., 1995; Premkumar et al., 1997; Robey et al., 2008), availability of IT infrastructures and trading partner experience. In another study, Kurnia and Johnston (2000) pointed to different forms of organizational capabilities that foster adoption, including top management commitment, clear vision, competitiveness, adequate education, communication openness, the right selection of performance measures, flexibility, and availability of an IT infrastructure.

However, in addition to the intrinsic importance of organizational capability in terms of IOS use, the focus cannot be restricted to the organizational capabilities of a specific firm, but also need to include those of the trading partners (Rai et al., 2006; Baraldi et al., 2012). Indeed, procuring the expected benefits depends on the trading partners' willingness to adopt the IOS as well as their own capabilities. In effect, lack of cooperation between the trading partners can compromise success (Bala and Venkatesh, 2007). Consequently, exploration of the role of the organizational capabilities of both the focal firm and the trading partner is important in the context of ORAs.

### ***2.3.2. The role of the institutional context in explaining IOS use***

In addition to the role of organizational capabilities, Robey et al. (2008) highlight that of the external environment to explain IOS use, which includes "competitive pressure, government pressure, business partner power and support from the initiator" (p.501). More specifically, research on IOS adoption has emphasized the extent to which institutional factors can promote adoption (Teo et al., 2003; Bala and Venkatesh, 2007). For instance,

Teo et al. (2003) pointed to the extent to which the institutional context influences IOS adoption. They differentiate between mimetic ("the extent of adoption by competitors and perceived success of adoption by competitors", p.27), coercive ("perceived dominance of supplier adopters, perceived dominance of customer adopters and conformity with parent corporation's practices", p.27) and normative pressures ("the extent of existing IOS adoption by an organization's suppliers and customers, and participation in professional trade and business bodies that promote and disseminate information on IOS adoption", p.28). They demonstrate that normative pressures have the most significant impact on predicting IOS adoption. This can be explained by the dominant role played by the government and trade associations in encouraging adoption. However, as Rodon et al. (2011) argue, despite the institutions' role in fostering IOS use, it is rare that an authority promotes its acceptance and use. This explains the relative freedom of users regarding the adoption or rejection of the system. The adoption rate of IOS is very slow and may be subject to rejection (Rajaguru and Matanda, 2013).

While research has acknowledged the institutional context in determining IOS use, it has not taken into account potential changes to this context and how these may impact on use. The institutional context is subject to variation and IOS use itself can lead to an institutional change (Reimers et al., 2014). For instance, Rodon et al. (2011) demonstrated that IOS use generates interventions that can modify either the users' institutional context or the institutional features of IOS, and these interventions can foster IOS assimilation.

Taking such theoretical gaps into consideration, our paper contends that both

organizational capabilities and the institutional context matter in explaining the determinants (enablers and/or barriers) of ORA use. More particularly, this paper explores the extent to which organizational capabilities can either enhance or hinder ORA use. We also investigate the role played by the interorganizational environment, notably in the light of the institutional change that has had a significant impact on ORA use. Given the proliferation of opportunism fostered by ORAs, the French government voted a law that aimed to regulate its use. This legal intervention has undoubtedly had an impact on ORA use.

## METHODOLOGY

Consistent with the focus of our research, namely to understand the determinants of ORA use through the perspective of buyers and suppliers, and how a change in the institutional context can affect it, we conducted a positivist case study (Benbasat et al., 1987; Dubé & Paré, 2003).

The case study methodology is well adapted to our research question since IOS is a phenomenon that is hard to separate from its environment (Reimers et al., 2014). Moreover, a case study is a good empirical research method for investigating complex phenomena since it gives us a holistic understanding of real-life events (Yin, 2013) and expounds relationships involving multiple causal chains (Pettigrew, 1992). While case study research is mainly used for exploration and hypothesis generation, it can also be used to provide explanations (Benbasat et al., 1987). Case studies are indeed particularly suitable for how and why questions. Positivist

case studies are used when “a priori fixed relationships” exist (Dubé and Paré, 2003, p.604). In our case, our literature review showed that ORA use can not only be explained by its perceived outcomes but also indicated that organizational capabilities as well as institutional context matter. Our qualitative approach aims to improve our understanding of these determinants of use given the specific context of use in question. Indeed qualitative data is particularly rich and provide “thick descriptions” (Miles & Huberman, 1994, p.10) for a specific phenomenon embedded in a context.

### 3.1. The case study context

Single case studies are well accepted in the IS literature (Dubé and Paré, 2003) and have often been used for their capacity to provide in-depth understanding of information systems as embedded in their social context (Orlikowski and Iacono, 2001). We opted for a case of an under-investigated IOS in the IS field, namely, online reverse auctions. We undertook an in-depth case study in the context of a leading French retail<sup>2</sup> organization. The retail industry provides an interesting context as it has a long history of IOS use. Our retailer was looking to understand its buyers’ and suppliers’ interpretations and meanings related to their experiences associated with ORA use. The retailer had a challenging position in the French retail industry and wanted to exploit the IOS in order to gain a stronger competitive edge. ORA use enables the retailer to reduce the cost associated to the buying process and thus to improve its margins. ORAs are used to buy store brand products such as toys, textile, do-it-yourself goods, outdoor and garden-related goods. These prod-

<sup>2</sup> For reasons of confidentiality and simplification, we will use the term ‘retailer’ to refer to the French retailer that was the subject of our investigation

ucts entail different degrees of innovation, however price is the main selection criterion. The supplier who offers the best price (i.e. the lowest price) at the end of the auction wins the bid. Thus, the supplier selection is transparent and based on price. This contrasts with other forms of auction which are “buyer determined” since the buyer has the right to select the winner. This means that criteria other than price can be taken into account (Jap and Haruvy, 2008). Caby-Guillet et al. (2007) mentioned some of the different types of criteria that can influence the outcome of the bidding event such as quality, quantity and shipping conditions.

ORAs are hosted in the B2B marketplace which is a consortium. During data collection, the name of the platform was Agentrics. It has changed since then to become Neogrid.<sup>3</sup> The B2B marketplace offers numerous supply chain services such as integration and planning and replenishment.

Our key informant, the B2B projects manager, played a major role in the study since she was responsible for a relatively new department whose mission was to source new technologies that could support all the B2B processes linking the retailer with its suppliers. In this case, the B2B department had the mandate to convince buyers, and thus suppliers, to use the online reverse auction technology that had reached the level of general deployment (Fichman and Kemerer (1997). This corresponds to a state where a new IS is used substantially. Indeed, ORAs support the entire suppliers' selection process, and most buyers and suppliers use them.

Our key interlocutor helped us to identify appropriate interviewees who could

inform our research question. We conducted interviews with three groups of informants: IT initiators (*actors who took part in the sourcing, initiation and influencing the sense-making of the IOS*), buyers (*actors involved in the IOS use*) and suppliers (*actors involved in the IOS use*).

Our approach was also influenced by Lamb and Kling's (2003) work, which indicates the need to develop a new vision of the user as an active social actor who negotiates the technology's use and, at the same time, is shaped by complex changes in the environmental settings and organizational structures. Consequently, we took into consideration a significant institutional change that occurred through the enactment of a new law designed to influence the use of ORAs. The new legislation sought to regulate business relationships between suppliers and retailers taking part in ORAs, mainly because of the several reported instances of unethical use. In effect, despite the initial promises, the literature is full of examples of unethical ORA use. These include allowing unqualified suppliers to use the system or running falsified auctions where buyers or market-makers pretend to be suppliers in order to drive down the prices of genuine, reliable suppliers (see notably the work of Emiliani (2005) and Charki et al. (2011) for a complete review of the main ethical irregularities associated with ORA use). Thus, the French government voted the first legal intervention in June 2005, known as the Dutreuil law (Official Journal of the Republic of France n° 179, 3<sup>rd</sup> August, 2005 page 12639, NOR: PMEX0500079L).

In view of this major change and the role that the institutional perspective can play

<sup>3</sup> <https://www.neogrid.com/uk>

in the use of a technology (Swanson and Ramiller, 1997), we decided to conduct a complementary study in order to discern the extent to which such institutional changes may influence buyers' and suppliers' interpretations of their use of an IOS. The following section describes our data collection method and its rationale.

### 3.2. Data collection & analysis

We used the interview guide approach (Patton, 2002) to conduct our interviews with all of our informants during the two phases of the study. The first phase lasted 14 months (from April 2005 to June 2006), while the second phase lasted 8 months (from April to December 2008). The interview guide was tailored to match the profiles of the different stakeholders. Our focus throughout the interviews was to understand the enablers and barriers to ORA use.<sup>4</sup>

Most of the interviews were conducted in French. Three interviews in the first phase and one interview in the second phase were conducted in English. All of the interviews lasted between 30 minutes and 2 hours and 15 minutes. In total, we conducted 122 semi-structured interviews, sixty-seven interviews during the first phase and fifty-five during the second data collection phase.<sup>5</sup> Our focus was on buyer and supplier enablers and barriers to use (e.g. why they use ORAs, what are their main motivations for using ORAs, what stops them from using ORAs, etc.). Interviews with the IT initiators gave us further insights into the context of use as well as the determinants of use for both buyers and suppliers.

Data analyses proceeded in several stages. First, and in line with the recommendations by Eisenhardt and Bourgeois (1988), we transcribed each interview as verbatim to increase the reliability of our data. This amounted to 750 pages of script from the first data collection stage and 689 pages from the second stage, enabling us to perform a meticulous analysis of the use of ORAs by different stakeholders, paying particular attention to the context of use and the extent to which the latter may influence use. We then conducted a qualitative and thematic analysis of the interview data with the help of the N-vivo statistical software program (Richards 1999).

Data iterations enabled us to generate original findings. In line with recommendations by Miles and Huberman (1994), we examined each text comprehensively, line by line, in order to become familiar with the different ways in which informants interpreted ORAs and the factors that influenced ORA use. We grouped our codes into three themes (perceived outcomes, capabilities and new enablers, and barriers to ORA use resulting from the new law). Our codes were derived either from the existing IS literature or were emergent from our data. Since we used semi-structured interviews, the interviewees were able to express themselves freely, providing us with unexpected findings. Our coding<sup>6</sup> relied on an extensive additional literature review regarding IOS use and ORA use in particular (e.g., see Carter et al. 2004; Jap 2002, 2003, 2007; Tassabehji et al. 2006), and also gave rise to some unexpected findings and nuances related to the enablers and barriers to ORA use, which in turn improved our understanding. For

<sup>4</sup> See appendix A for the interview guides.

<sup>5</sup> See appendix B for detailed information on our sampling logic

<sup>6</sup> See appendix C for further details in our coding.

instance, we had not considered the role of the law in dissuading buyers from using ORAs. Consequently, our results emerged from successive iterations between the data and existing IOS literature.

We also used matrix displays to highlight differences between buyer and supplier enablers and barriers to use (Miles and Huberman, 1994). These matrixes were particularly useful in improving our understanding of the differences and similarities that characterize buyer and supplier enablers and barriers.

We were not only interested in the presence or absence of coding categories, but also in the relationships between these categories and the extent to which a change in the institutional context can impact on use.

## 4. RESULTS

We first showed the extent to which perceived outcomes that explain ORA use differ between buyers and suppliers. We then highlighted the role of capabilities as a determinant of ORA use. More particularly, we identified a dichotomy in terms of the implications of capabilities between buyers and suppliers. We found that while buyers use ORAs in order to leverage their capabilities, suppliers are obliged to renounce some of their competitive capabilities, which constitutes a barrier to ORA use. Finally, we highlighted the extent to which a change in the institutional context can negatively influence ORA use. At the same time as it failed to overcome the barrier created by buyers' opportunism, the main factor behind the climate of distrust, it created a new barrier to ORA use for buyers due to the controls and sanctions imposed.

### 4.1. Different perceived outcomes between buyers and suppliers

While transparency is a determinant for both buyers and suppliers in ORA use, our results illustrate different perceived outcomes between the two partners that can either motivate or deter them from opting to use ORAs.

#### 4.1.1. Transparency perceived by both buyers and suppliers

Both the buyers and the suppliers we interviewed considered that ORAs can help to enhance transparency. Indeed, the visibility of all the bids by suppliers provides better transparency in the negotiation process, promoting the perception of fairness, as indicated by one IT initiator: *"the main consequence of ORA use is better transparency and improved equity."* Buyers argued that transparency has the advantage of erasing any suspicion of favoritism from the relationship: *"ORAs have the advantage of showing suppliers that we're not favoring one supplier at the expense of another... everyone can see the extent to which the others are able to make a proposal."* This view was confirmed by suppliers, since ORA use gives them all the same opportunity to win the bid without any consideration for existing buyer-supplier relationships, as the following supplier pointed out: *"one of the advantages of ORAs is that we are all equal, we all have our chance to win the bid."* Following the same reasoning, another supplier added: *"Our policy is to take part in ORAs since they are very effective for suppliers in terms of discovering the winning bid and so making negotiations more transparent."* Thus, transparency was at times interpreted as synonymous with enhanced equity in the interorganizational relationships: *"Equity*

and neutrality are two of the main motivations behind engaging in electronic marketplaces” one electronic marketplace informant acknowledged.

This transparency enables both buyers and suppliers to concentrate on objective criteria in the negotiation process, as highlighted by the following buying manager: “the main point of using ORAs is the transparency of the negotiation by eliminating all subjective criteria and concentrating only on objective ones.” However, some suppliers were suspicious of the claimed advantage of transparency because of the risk of inappropriate use when unreliable suppliers were invited, as suggested by the following supplier: “if you get suppliers to take part only to reduce prices, I wouldn’t call that better transparency” (Supplier).

#### **4.1.2. Buyers discover real prices and enlarge their sourcing horizons, but also come up against unexpected barriers**

Our data shows that ORAs supposedly enable buyers to discover suppliers’ ‘real’ prices, in other words, the real optimal price that the supplier can accept, while achieving an optimal return. As one buyer stated: “the auction lets us see how far a supplier is able to reduce his price.” Another buyer added: “it’s always interesting to see how much a supplier can lower bids during the bidding event.” Still, the same transparency can also lead to resentment if buyers discover that suppliers have not been offering their best prices in the past: “We’ve been working with the same manufacturer for 15 years and we thought we were buying at competitive prices.”

At the same time, as the following interviewee notes, ORAs allow buyers to enlarge their sourcing horizons: “ORAs help

us to widen our sourcing horizons. They offer us more flexibility in terms of choice of suppliers” (Buyer). Moreover, they enable buyers to streamline their buying process by avoiding multiple rounds of traditional face-to-face negotiations: “ORAs are a tool that allows buyers to free up time from the mechanical aspect of negotiations so they can focus more on added-value activities.” Some buyers told us that ORAs are used to ensure that their suppliers continue to work on their competitiveness by making them aware of their competitors’ capacity to reduce prices: “Setting up ORAs means we can give some suppliers wake-up calls and see the extent to which they are really willing to continue working with us... It makes suppliers aware of the industry realities and helps them to judge whether they are still competitive.”

However, alongside these incentives and benefits, our data analysis unexpectedly revealed some barriers that stopped buyers from engaging in and contributing to ORAs. As the ORA system determines the winning suppliers, some buyers feared losing control over the purchasing process: “Some buyers refuse to use ORAs because they don’t like the idea of losing control over deal allocation decisions. In fact, with ORAs it’s no longer the buyer who decides, but the market.” Another interviewee said that despite the improved performance that ORAs can offer buyers, the latter might not want to use the system as it could be perceived as a competitor calling into question the buyer’s previous negotiation performance: “Generally, buyers don’t like to be in competition with another system that generates better results, even if it’s a machine.” Some of the suppliers attributed the lack of motivation to the buyers’ wish to control the negotiation process by deciding on the supplier(s) they prefer to

work with: *“Buyers know that they may have to deal with suppliers they don't like. ORAs take away their ability to decide.”* Paradoxically, buyers may also fear a deterioration in their purchasing performance: *“Surprisingly, some buyers call their suppliers during the bidding and try to make them bid around the same amount they quoted in the past in traditional negotiations... They're afraid that their managers will think that they failed to achieve the same performance in the past...”* (Supplier).

#### **4.1.3. Opportunities to penetrate new markets and suppliers' concerns about buyers' opportunism**

From the suppliers' perspective, we found that those who come in as challengers are particularly keen to use ORAs since they view the IOS as an opportunity to penetrate new markets and benchmark themselves with incumbents. As one buyer representative argued: *“I think that the greatest advantage of ORAs for suppliers is the ability to penetrate new markets, especially as the traditional way is generally long for challengers.”* Suppliers confirmed this: *“Initially, ORAs [...] enabled us to penetrate the retailer's market.”* Moreover, other supplier representatives pointed to the benefits associated with benchmarking: *“ORAs can help us to benchmark with competitors... If our bid is too far from the winning bid, we review our processes and practices.”*

However, suppliers may also hesitate to use ORAs, among other things because of the proliferation of opportunism associated with ORA use by certain buyers. In this regard, a buyer representative advanced: *“Some of my suppliers told me that they wouldn't take part in future ORAs... Unethical behavior by others has made them suspicious of this technol-*

*ogy.”* These unethical practices include phantom or shill bidding, for example, as illustrated by the following supplier's comment: *“some suppliers took part in the bidding event just to force other suppliers to reduce their bids... This can lead to distrust, especially if it's used systematically.”* Other opportunistic buyer activities involve bluff during the ORAs by inviting unreliable suppliers: *“The buyer can bluff in a classic negotiation and he can totally bluff in ORAs... usually the other buyers invite all potential suppliers but the thing is that they don't play in the same category as me. I've used ORAs where some suppliers should never have been there”* (Supplier). We also found evidence that some buyers can use ORAs just to compare the prices of suppliers with no intention of awarding them any business, as suggested by the following remark from a supplier representative: *“Some ORAs were cancelled for reasons we never discovered...the buyer just wanted to find out about market trends.”*

Other suppliers revealed further forms of unethical behavior, such as when buyers disturb the online bidding event if the outcome is not going in their favor. This is illustrated by the following quote from one supplier's account manager: *“Often the buyer calls during the bidding event to put undue pressure on the suppliers... He/she calls saying: ‘I don't understand, you didn't bid and you risk losing the deal...’ This can destabilize the suppliers. We mustn't forget though that it's not a casino game and behind it there are factories with jobs, so we can't bid just anything to win. Lots of buyers do this and it puts pressure on suppliers during the auction.”*

The extent of such opportunism has strengthened suppliers' belief that ORAs are uniquely in the economic interest of buyers, destroying producers' margins

and even putting their survival at risk, as suggested by the following supplier: *“ORAs kill companies; we can’t build a firm’s strategy with ORAs. There’s no trust. Cost is the only driver. We’re really afraid that ORAs will destabilize the market.”* This has led to suspicion and distrust, seriously weakening a keystone of business relationships, as suggested by this supplier representative: *“I think that ORAs interfere with communication. They destroy confidence, and create mistrust and suspicion.”* Buyers acknowledged the legitimacy of suppliers’ concerns following abuses that sometimes had a dramatic economic impact on businesses. *“I mainly work with small and medium international companies; they’re very worried whenever we mention ORAs...I can understand why they’re afraid...”*

Given the extent of this opportunism and its dramatic impact on their margins, suppliers became reluctant to take part in ORAs, as one supplier indicated: *“I don’t like ORAs, we don’t want to take part anymore because of all the abuses we’ve spoken about...”* This refusal affected all retailers, whether they used ORAs opportunistically or not: *“I won’t take part in ORAs again whoever the host retailer is.”* Some buyers confirmed this refusal by suppliers to use ORAs, as in the following quote: *“we sometimes have suppliers refusing to take part in ORAs for economic or ethical reasons.”*

## 4.2. Capabilities are determinant of ORA use for both buyers and suppliers

Our analysis shows that buyers and suppliers who previously met for face-to-face negotiations had to develop new skills in order to use ORAs efficiently. In fact, this was one of the ORA coordinator’s main responsibilities: *“I’m responsible for training*

*and assistance, and I have to help buyers to use ORAs in a way that matches their procurement needs.”* This corresponded to the opinion of a manager from the IT department who acknowledged that: *“using ORAs requires a new relationship management methodology.”*

Our analysis thus indicates that ORA use requires specific capabilities for buyers, while suppliers have to renounce some of their capabilities, constituting a barrier to ORA use.

### 4.2.1. Buyers need to develop their ORA capabilities

Buyer representatives, for example, had to develop the capacity to select a larger number of reliable suppliers that were able to honor their bids ex-post, rather than narrowing down the number of suppliers after organizing ‘beauty-contests’ and engaging in intensive partner selection processes. When buyers do not develop such skills, suppliers are less inclined to submit a bid: *“If the buyer invites suppliers without being selective, that bothers me.”* Another supplier confirmed this: *“If I can trust the selection process, I won’t have any problem negotiating with buyers in ORAs, but the problem is that buyers don’t go through this process adequately each time.”* Buyers themselves also recognized the need to select suppliers carefully prior to the bidding stage. Some of them, however, admitted that they did not have the resources to systematically audit suppliers before bidding: *“I don’t have time to visit all my suppliers and audit their capabilities... It takes a lot of time and money.”*

In addition, engaging in ORAs means buyers need to improve their ability to write and develop precise and meticulous Requests for Quotations (RFQs) to ensure that their interpretations concerning the

goods to be purchased are aligned with those of the prospective suppliers. As one supplier said: *"The ORA process must be fully grasped [...], notably through the development of meticulous RFQs."* Similarly, the ORA coordinator noted the importance of beefing-up buyers' capabilities in this domain, a crucial skill for the system to be used appropriately: *"If the buyer can't develop a professional RFQ, then products can't be compared and consequently we can't initiate ORAs... Buyers must become a lot more professional... In effect, if they can't write meticulous RFQs, suppliers won't be able to take part in ORAs, since the products will be incomparable."*

Moreover, the buying firm and the market-maker (electronic marketplace (EMP)) in this study had to develop several other resources, such as e-sourcing technologies and supplier databases that could be shared among their subsidiaries and client organizations respectively. The latter allowed them to unleash the potential of new and competitive suppliers. One buyer representative remarked on this aspect: *"With ORAs and sourcing technologies, we can consider more and more suppliers so as to anticipate markets and trends."* In the same line of reasoning, the person responsible for B2B from the IT initiator group spoke of the importance of improving buyers' sourcing capabilities: *"Some buyers have told me they can't use ORAs because they only have two suppliers... Then I explain that we have resources such as databases and e-sourcing that can help them to select new suppliers... Buyers can also call our offices in Asia."*

#### **4.2.2. Suppliers have to renounce to some of their capabilities**

On the supplier side, our data analysis revealed that they were unhappy with the way that the use of the ORA system af-

ected and even called into question their key capabilities. Various capability-related issues emerged with respect to the group of suppliers. First, they consider that ORAs prevent them from leveraging their ability to negotiate win-win deals or to innovate or respond quickly to buyers' requests: *"compared to foreign suppliers – the Chinese for instance – I can react more quickly... The boat needs six weeks from China, while I can react within 24 hours or one week. How do you assess my flexibility in ORAs? How do you evaluate all the effort, services and investment that I've made over the last couple of years? How do you assess all the time that we've spent working on the packaging and resolving problems in order to satisfy our buyers? At the end of the day, ORAs penalize us..."* In similar vein, suppliers feel that the use of ORAs reduces their ability to add value since they destroy all value drivers and limit their scope for negotiation with buyers to the sole criterion of price. This is illustrated by the following quote: *"I try to help the buyer save money through product improvements, better category management, merchandising, market analysis, promotion and consulting, not just by reducing my prices."*

Suppliers also felt that other capabilities and resources, such as R&D, product and process development, innovation, and advice and services, had become less important or even redundant. They sometimes felt as if the use of ORAs limited their role to simply clicking the mouse. One supplier summed it up as follows: *"There's no advantage in ORA use ... I don't see any advantage in destroying jobs and economic opportunities... With the leap in raw material prices, please tell me how we can manage this situation with reduced margins... One solution might be to make us downsize, stop R&D activities, or even send jobs overseas to cut payroll*

costs.” Existing suppliers also felt that they had to compete against newcomers with less expertise, notably in terms of quality standards: *“They can include us in the same ORA as other, small foreign suppliers... However, as a multinational company, we respect stringent quality standards, certifications and controls.”*

Suppliers further consider the use of ORAs as harmful since they reduce personal contact with buyer representatives. This de-socialization prevents suppliers from practicing their advisory role and makes them feel that their capabilities have become useless. The following quote from a supplier explains how suppliers typically feel about their capabilities: *“There’s no relationship anymore, it’s completely impersonal... You’re in front of your screen watching the price drop... The business relationship is reduced to its simplest expression.”* Another supplier regretted the extent to which the use of ORAs has destroyed suppliers’ ability to mobilize their capabilities to create added value for the buyer: *“ORAs eliminate all discussion with buyers. We no longer speak about products, only about the minimal specifications written in the RFQ that we have to stick to... It’s like when we sell a car: the buyer says that he/she only needs a car, an engine and four wheels. That’s all. ORAs kill suppliers’ creativity and suggestions, although I think that it’s the main part of my job as a supplier... In fact, I can suggest innovations to buyers thanks to my expertise. The problem is that the door is now closed to all suggestions.”*

In addition to the differences in terms of capabilities between buyers and suppliers, the change in the institutional context played a significant role in shaping determinants of use.

### 4.3. New institutional context with different impact on buyer and supplier determinants of use

Many buyer and supplier representatives in our study initially had significant doubts about ORAs, stemming from different objectives, ambiguity and uncertainty surrounding the system. In response to these concerns and the discovery of fraudulent behavior, the French legislator enacted the first law in the world to govern the use of ORA technology. This law and the institutions designated to enforce it influenced the stakeholders’ incentive to use ORAs, as the two factors led to a reduction in abusive behaviors. Application of the law is undertaken by public agencies that have the power to monitor practices, either systematically or at the specific request of suppliers. Moreover, to facilitate controls, the law obliges buyers to record all bidding processes for one year: *“The buyer or the person organizing the auction registers the auction process and stores the data for a period of one year. This must be presented in the event of an investigation conducted under the conditions set out in section 5 of the commercial code”* (article L.442.10.2).

Consequently, any party found guilty of making false claims, introducing phantom suppliers, or using unauthorized means to disrupt the transparency of ORAs now risks paying a high price.<sup>7</sup> The existence of such sanctions has forced users to be more careful when it comes to ORAs, as one supplier told us: *“There’s a high risk of controls and the penalties are considerable, which makes users very wary of this law.”* This was confirmed by the following buyer: *“Controls are now written into the law and they are extremely constraining for buyers. We’re really con-*

<sup>7</sup> Up to two years in prison and fines of up to €30,000 (\$44,124).

cerned about them. *If we have problems with suppliers, they can ask for an investigation to be carried out...* (Buyer). Another interviewee commented: *"The introduction of the new law also increased stakeholders' ability to use ORAs, since it rendered the nature of the game and its rules much clearer."* In essence, the law increased buyers and suppliers' mutual awareness and understanding of what is and is not allowed when using ORAs.

Still, the new law has different implications for buyers and suppliers, and this influences their use of ORAs differently. Indeed, while, the law did not do enough to remove the barriers of opportunism for suppliers and thus failed to deal with their reluctance to use ORAs, it created new barriers for buyers through the tough controls and sanctions that dissuaded them from using ORAs, despite the economic gains they could expect from its use.

#### 4.3.1. Failure to address distrust

The legal system was slow to react when buyers' opportunistic use of ORAs was first detected. Instead, intervention occurred once the opportunism had already become relatively widespread and had led to general distrust and suspicion. By this time, it was hard to eradicate the negative outcomes of ORA use, as this buyer suggested: *"I'm sorry that the law was passed so long after the start of ORA use. They caused a lot of damage and suppliers have such a negative image of the tool that it's hard now to undo the harm."* This is particularly true as suppliers lack confidence in the law's ability to prevent opportunism related to ORA use despite the tough controls and penalties imposed on buyers. Suppliers argue that because of the asymmetry of power with buyers, it is very hard to apply the law. They are reluctant to take buyers to court in the case of sus-

pected opportunism, as they are worried about its impact on their business. The following supplier explained his unwillingness to confront buyers: *"no one will take retailers to court; we can't do it because of the imbalance of power between buyers and suppliers, they're too powerful..."* Another supplier added: *"...it's too risky for us to (take buyers to court), no one would want to work with us anymore..."*

This distrust of the law is intensified by the suppliers' conviction that buyers can get round the legal hurdles. The following supplier pointed out: *"the results from ORAs were globally negative...the big retailers' legal departments know the law very well and the extent to which they can get away with it...I don't want to use ORAs and have a bad experience anymore..."* This resentment is confirmed by buyers. As one buyer put it: *"we can easily get round the law. However, we need to be very cautious."*

#### 4.3.2. Risk of controls and sanctions: new barriers to buyers' use of ORAs

Unexpectedly, the introduction of the new law led to a reduction in ORA use. By introducing tougher controls and severe penalties (fines and imprisonment), the law made ORA use more complex, consequently reducing take-up of the technology since buyers were increasingly reluctant to use the tool, as the following interviewee indicated: *"all these regulations increase the risk. We do all we can to avoid it, since using ORAs increases the chances of being controlled. So we use fewer ORAs to avoid the risk...ORAs are now highly controlled with a real risk of penalties that people try to get round..."* (Buyer).

Thus, while ORA use can help buyers to make large savings, the risks related to

controls and penalties outweigh the expected economic gains. Buyers thus prefer not to use ORAs so as to avoid the related risk, as highlighted by the following IT initiator: *“The introduction of the law was a serious slap in the face and gave us a lot more worries...in other words, using IT in this case meant greater risk of being investigated...so the less you use ORAs, the less risk there is of controls”* (IT initiator). Thus, buyers renounced potential gains as they preferred to avoid the risk of being controlled.

Despite the perceived gains emanating from ORAs, the increased complexity introduced by the law curbed buyers’ enthusiasm due to the risk of controls and

penalties, dissuading them from using the IT: *“the law has increased the inhibitors of ORA use...”* (Buyer). This led to a drop in ORA use, as confirmed by the suppliers: *“we are certainly invited to fewer auctions compared to previous years.”*

Our results are summarized in Table 1.

## DISCUSSION

Given our research question: “What are the determinants of ORA use in terms of enablers and barriers from the vantage point of buyers and suppliers, and how can a change in the institutional context affect its use,” our initial findings tend to

		Buyer	Supplier
Perceived outcomes	Enablers	Transparency	
		Improved buyer performance Extended sourcing horizons	Opportunity to penetrate new markets Benchmarking against competitors
	Barriers	Fear of losing control over the purchasing process Competition with the system	Buyer’s opportunism
Capabilities		Buyers need to develop new capabilities in order to use ORAs. This includes supplier selection and writing RFQs as well as e-sourcing technologies and supplier databases.	Unlike buyers, suppliers cannot use some of their competitive capabilities such as innovation, R&D, or reactivity to the buyers’ needs.
Impact of the law on use		The law is at the origin of new barriers that dissuade buyers from using ORAs. The risk of controls and penalties imposed by the law outweighs perceived advantages, resulting in a reduction in ORA use.	The law failed to remove existing barriers to use related to opportunistic behaviors that were at the origin of the climate of distrust.

**Table 1: Summary of the results: determinants of ORA use**

support the literature on the main determinants of ORAs. In effect, we found that better economic performance (Williams and Dobie, 2011) and wider sourcing horizons (Daly and Nath, 2005) were the main drivers for buyers, while new market penetration (Smeltzer and Carr, 2003) was the most important enabler for suppliers. In the same vein, our results support initial findings in the literature about the degree to which opportunistic behavior, committed mainly on the buying side, influenced suppliers' motivation to stop using the system (Tassabehji et al., 2006). In effect, abusive use of ORAs called into question the expected advantages promised to suppliers, such as transparency and access to industrial benchmarks. We contribute to the IS literature by illustrating the crucial role of organizational capabilities in determining ORA use. We also highlight the extent to which a change in the institutional context can impact on use by unexpectedly creating new barriers. Finally, we point to the role of perceived risk emanating from the law that triggered discontinuance of ORA use by buyers.

The IOS literature indicates the degree to which the organizational readiness of the focal firm (buyer) should evolve to meet the new capabilities needed in terms of IT sophistication (Chwelos et al., 2001). Thus, new capabilities for wider sourcing of suppliers and greater ability to develop meticulous Requests for Quotation were considered important in enhancing organizational capabilities in the buyers' use of ORAs. However, while the IOS literature finds that the organizational readiness of the trading partner (suppliers in our context) also needs to be improved to meet new IOS expectations (see the comprehensive literature review by Robey, Im and Wareham (2008)), we found that suppliers considered that ORA use had neg-

ative implications on their capabilities. Thus, the adoption of an IOS that reverberates negatively on suppliers' economic performance is perceived by the latter as a hindrance to their innovative skills, and R&D and customer satisfaction become redundant since their buyers fail to take their capabilities into consideration, viewing price as the sole selection criterion. We contribute to the IOS literature by identifying the extent to which partners may have different needs in terms of capabilities. More particularly, we show that IOS use does not necessarily imply an organizational improvement, but may also be associated with the renouncement of some strategic capabilities, constituting a barrier to ORA use.

Research on IOS adoption has emphasized the extent to which institutional factors can promote adoption (Teo et al., 2003; Bala and Venkatesh, 2007). However, little is known about the extent to which a change in the institutional context may impact on use. Indeed, IOS are institutional context change enablers (Reimers et al., 2014). More particularly, IOS can be at the origin of interventions that transform the institutional context (Rodon et al., 2011). Rodon et al. (2011) demonstrated that by changing the institutional context, an intervention can foster IOS use, thereby achieving its initial aim. Unlike Rodon et al. (2011) who examine the case of an intervention adopted to promote IOS routinization, our study examines an intervention designed to regulate use by preventing opportunism through controls and sanctions. Our findings show that in this specific case, the law failed to remove the barriers that constrained suppliers' use of ORAs, and unexpectedly created new barriers that limited buyers' use of the technology. We thus contribute to the IS literature by showing the extent to which a change in the institutional con-

text can impact on determinants of use by creating new barriers. This confirms the crucial role played by the institutional context in fostering IOS adoption (Teo et al., 2003; Bala and Venkatesh, 2007), not only at the outset, but also in later stages since it can affect the determinants of use. However, we may question the relevance of institutional intervention in regulating IT use and the extent to which controls and sanctions can be dissuasive when it comes to dealing with opportunism. Indeed, the controls and sanctions introduced by the law unexpectedly triggered IT discontinuance. Thus, since the government is facing increasing challenges with regard to widespread digitalization, the question of the effectiveness of its intervention is highly relevant, as is the efficacy of its related mechanisms.

To date, IS research has tended to focus on expected IT performance or perceived benefits to explain the use of IOS (Venkatesh et al., 2012). Such use can evolve over time however (Jasperson et al., 2005). Users continually revise their initial expectations as they gain experience with an IT, which they then confirm or discard. Intention to continue using an IT is thus based on continual comparison between IT usage and expected outcomes, which leads to either disconfirmation or satisfaction (Bhattacharjee and Premkumar, 2004). Our findings indicate that both buyers and suppliers showed reluctance to continue using the technology, leading to some degree of ORA discontinuance. With the two exceptions of Bhattacharjee (2001), who investigated discontinuance at individual level, and Furneaux and Wade (2011), who examined it at organizational level, IT discontinuance has largely been overlooked in the IS literature. For Furneaux and Wade (2011), the decision to discontinue at organizational level is made rationally, based on the dis-

crepancy between expectations regarding the IT in use and its capabilities. Little is known about the factors that explain the discontinuance of interorganizational systems (IOS) since most of the related research has focused on adoption (Teo et al., 2003; Hart and Saunders, 1997) and its subsequent outcomes (Robey et al., 2008). Despite their contribution, Furneaux and Wade's (2011) research offers a one-sided perspective that only provides a partial understanding of IOS discontinuance, since at least two and sometimes more companies are involved in IOS use (Bala and Venkatesh, 2007). Our study thus contributes to the existing literature by giving further insights into IOS discontinuance. We demonstrate that the gap between IT characteristics and user expectations (Furneaux and Wade, 2011) partially explains ORA discontinuance. We also identify other triggers that affect both buyers and suppliers. More particularly, we show the extent to which buyers' opportunism can trigger suppliers' discontinuance, since users can deflect its application through their ongoing interaction with the technology (Griffith, 1999). Moreover, we demonstrate that even though the ORA design is largely in favor of buyers, some of them have surprisingly decided to stop using the technology. This discontinuance can be explained by the perceived risks related to ORA use due to control mechanisms and penalties that outweigh the expected benefits in our case. By regulating the use of ORAs, the legislator introduced controls and tough sanctions, creating new risks that outweigh the supposed gains to be had from embracing ORAs. Thus, even though the IT features correspond to user expectations (Furneaux and Wade, 2011), and buyers are generally satisfied with the outcomes of their use of ORAs (Bhattacharjee and Premkumar, 2004), some have decided to stop holding them

in view of the risks brought about by changes to the institutional context.

Few studies have looked at the role of perceived risk that may curb initial adoption (Featherman and Pavlou, 2003; Pavlou, 2003). Featherman and Pavlou (2003) showed the extent to which “performance-based risk perceptions” can deter initial adoption in the context of e-commerce. This performance-based risk reflects the product’s failure to deliver the expected performance. In the present paper, we examine the perceived risk of a transgressor (buyer) paying a high price through controls and sanctions imposed by the law in the case of IT misuse. We thus contribute to the IS literature by demonstrating the extent to which perceived risk constitutes a barrier to IT use, offsetting user satisfaction and even leading to discontinuance.

## CONCLUSION

Our study makes several contributions to the IS literature. Along with previous studies (e.g., Venkatesh and Bala, 2008), we show the limitations of studying a focal firm to understand IOS use. Since the latter is embedded in a network of relationships with different partners, it is important to have a multi-stakeholder perspective when examining adoption and use. We demonstrate the need to take the perspectives of both buyers and suppliers on board in order to understand the determinants of IOS use from the vantage point of the focal firm as well as the trading partner. In effect, focusing on the focal firm alone offers only partial understanding of the enablers and barriers to ORA use.

While IS research tends to focus on required capabilities that facilitate IOS use (Chwelos et al., 2001, Robey et al., 2008; Rai and Tang, 2010), we show that having

to renounce capabilities also constitutes a barrier to ORA use. Thus, we urge researchers to examine not only the organizational capabilities needed for IS use, but also those that may be abandoned.

Our study gives further insights into the role of the institutional context in that it can influence determinants of use by creating new barriers which actually inhibit IT use. We show the extent to which the risks related to sanctions and controls imposed by this institutional context constitute a barrier to use and can potentially trigger ORA discontinuance.

To conclude, our results provide valuable insights into ORA use that go beyond the perceived outcomes of ORAs by considering both organizational capabilities and changes in the institutional context. Unlike previous studies (e.g., Rodon et al., 2011), we show that intervention can have unexpected outcomes and can even lead to IT discontinuance. Moreover, our findings indicate the need to consider IT discontinuance in other ways than simply through the lens of the disconfirmation of expected outcomes (Bhattacharjee and Premkumar, 2004), since we identified two other forms of IT discontinuance. The first was triggered by the opportunistic behavior of buyers, while the second is related to perceived risk subsequent to a new law being introduced.

Our study also has some limitations however. Controls and sanctions imposed by the law are more compelling than other forms of intervention. This explains the extent to which such related risks can outweigh the perceived benefits of an IT use. This risk may not be as dissuasive in the case of other forms of intervention. Future research could examine the extent to which other types of intervention may impact on determinants of use. Generally, IS research has focused on the impact of a

single intervention. Following the recommendations of Jaspersen et al. (2005), we urge future researchers to examine the impact of a range of forms of intervention on the determinants of use.

From a managerial perspective, managers should pay careful attention to the potential threat arising from any perceived IT-related risk since it might hinder IT use should the cost of using the system outweigh the initially anticipated benefits. Moreover, managers need to be dissuasive when introducing regulations designed to deal with abusive use. In this sense, research has shown the limitations of codes of conduct used to tackle opportunism, as they are restricted to the enunciation of general and non-binding statements which fail to discourage users from abusing the IT (Harrington, 1996; Bush et al., 2010). Thus, careful consideration should be given to the introduction of controls and penalty mechanisms since, while they can be dissuasive as we showed in this paper, they may simultaneously have unexpected outcomes and lead to IT discontinuance when their perceived inconveniences eclipse the perceived benefits.

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**APPENDIX A: INTERVIEW GUIDE**

	<b>IT initiators</b>	<b>Buyers</b>	<b>Suppliers</b>
<b><i>ORA use enablers</i></b>	Could you explain the reasons you put forward to convince buyers and suppliers to use ORAs?	Why do you use ORAs? What are you looking for when you use ORAs?	Why do you use ORAs? What are you looking for when you use ORAs?
<b><i>ORA use barriers</i></b>	How do you interpret the problems related to ORA use?	Have you faced or have you heard about any problems related to ORA use? How do you interpret the problems? How can these problems impact on your use of ORAs? Why?	Have you faced or have you heard about any problems related to ORA use? How do you interpret these problems? How can these problems impact on your use of ORAs? Why?
<b><i>The impact of the new law on use</i></b>	How do you interpret the new law? Do you think that it has improved ORA use? Do you think that it has redressed the climate of distrust that prevails between buyers and suppliers? How?	How do you interpret the new law? Do you think that it has improved your ORA use? How? Has it remedied the climate of distrust that prevailed between you and suppliers? How?	How do you interpret the new law? Do you think that it has improved your ORA use? How? Has it remedied the climate of distrust that prevailed between you and buyers? How?

**APPENDIX B: SAMPLING LOGIC**

<b>Informant categories</b>	<b>Sampling details</b>	<b>Material interest in the ORA technology</b>	<b>The use perspective (research question)</b>
<b>The technology initiators</b>	<u>Eighteen initiators (phase 1) and four initiators (phase 2)</u> This group includes stakeholders such as the organization and B2B project manager (our key informant), Electronic Marketplace managers, an ORA coordinator, Information Systems director, general manager of B2B relationships	The initiators of the technology, including our key informant, have a significant material interest in the IOS since they are responsible for sourcing, identifying and promoting its use (buyers and suppliers in this context). The more that buyers and suppliers use the technology, the more this group is effective.	The role of the technology initiators is to promote, persuade, assist and support the use of all IOS (including ORAs) by buyers and consequently by suppliers.
<b>Buyers</b>	<u>Seventeen buyers (phase 1) and twenty-nine buyers (phase 2)</u>	Buyers constitute the group who theoretically benefit the most from the use of this IOS. The initiators of the technology presented it as a significant means to boost buyers' purchasing performance.	Theoretically, buyers are the first group to decide on the use of the IOS. While the retailer's management team adopted the IOS, it decided that the buyers should be free to decide the extent to which they use the IOS or not.
<b>Suppliers</b>	<u>Thirty-two suppliers (phase 1) and twenty-two suppliers (phase 2)</u>	Suppliers constitute the users to whom the initiators of the technology needed to promote the theoretical advantages of the use of the IOS, such as new market penetration and benchmarking with global competitors.	Theoretically, suppliers are free to decide with the buyers who already use the IOS the extent to which they use it or not.

**APPENDIX C: CODING LIST**

Codes		Sub-codes	sources
<b>Perceived outcomes</b>	<b>Enablers to ORA use</b>	Transparency	Carter et al. (2004)
		Improved buyer performance	Jap (2003)
		Extended sourcing horizons	Daly & Nath (2005)
		Opportunity to penetrate new markets	Emiliani (2000)
		Benchmarking against competitors	Daly & Nath (2005)
	<b>Barriers to ORA use</b>	Fear of losing control over the purchasing process	Jap (2003)
		Competition with the system	Emergent
		Buyer's opportunism	Jap (2003)
<b>Capabilities</b>	Climate of distrust	Carter et al. (2004)	
	Capacity to select suppliers up front and write request for quotation.	Emergent	
	E-sourcing technology and supplier databases	Emergent	
	Existing skills such as negotiation, quick response and innovation become redundant for competition	Emergent	
<b>Enablers and/or barriers arising from the new law</b>	Suppliers' reluctance to call for controls	Emergent	
	The law failed to put an end to distrust	Emergent	
	The law can be bypassed	Emergent	
	Risk of controls and sanctions dissuade buyers from using ORAs	Emergent	
	ORA use complicated because of the law	Emergent	