

E-sourcing electronic platforms in real business

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ABSTRACT

We carried out this research in a specific context within the electronic markets - business-to-business (B2B). The purpose is to assert the major blocks needed to be covered by an e-purchasing tool in order to be successful. Another goal is to identify how this e-purchasing tool allows buyers (firms) to practice Strategic Sourcing. After an enlarged literature review on E-Sourcing Electronic Platforms (ESEP) and e-purchasing markets we defined a methodological framework and construct a case study. Our strategy was to use one case study only. The use of a single case study is addressed and justified. Within our case study we took advantage of the data collected in a survey recently conducted by Vortal (Portuguese firm that owns several B2B platforms in different electronic markets). Finally some conclusions are tentatively constructed.

Key words: B2B, Electronic Market, ESEP, e-purchasing tool, Strategic Sourcing

INTRODUCTION

The first electronic markets (EM) originated with the emergence of the Internet and the World Wide Web boom in the beginning of the 90s. EMs can be divided in two main groups: Business-to-Consumer (B2C) and Business-to-Business (B2B). In this research we focus in B2B.

We begin contextualizing B2B EM (E-Economy, E-Business, E-Commerce, Physical and EM, E-Sourcing versus E-Procurement, Strategic Sourcing) and identify some of the main characteristics of ESEP (core building blocks, main buyers and suppliers benefits, E-Government and evolution). We reflected on the physical and virtual value chain model in order to take advantage the integration of both chains. Then we put forward a methodological framework. In a reflective process, we tried to understand two research questions: What characteristics should a successful e-purchasing tool have, and how can a successful e-purchasing tool allow firms to practice Strategic Sourcing policies?

After we build up one Case Study on the Civil Construction Sector platform (ECONSTROI – www.econstroi.com), a platform owned and managed by Vortal S.A. We used and reflected on the data of a survey conducted by Vortal S.A in October 2008 addressing more than fifty buyer firms. Finally we drew some conclusions and outlined some recommendations.

CONTEXTUALIZATION

Etymologies and markets

E-Economy

Beginning in 1993 the Internet evolved into a service integrated global network with a diversity of multimedia uses. Negroponte in his early texts on Wired, some of them later compiled in a book (Negroponte, 1995), explored the E-economy metaphor as being a shifting from processing atoms to processing bits. This text and others of the same time stressed the fact that the main attribute of the E-Economy is immateriality. However this New Economy is characterized by three distinctive but important facts beyond immateriality, (Kelly, 1998):

- It is global;
- It favors' intangible things - ideas, information, knowledge, relationships;
- It is deeply inter-linked.

E-Business

E-business refers to a broader view of E-Commerce, not just the buying and selling of goods and services, but also servicing of customers, cooperation with business partners, and conducting electronic transactions within the organization (Turban, et al., 2002). The key concept in E-Economy is system dynamics, while in E-Business is the activity and in E-Commerce is the transaction.

E-Commerce

E-Commerce is usually divided in several categories. The classification of these categories is based on the nature of the transactions (who is selling to whom). The two more widely used categories of E-commerce are:

- Business-to-Business (B2B) – involves transactions between businesses. Example: www.commerceone.com;
- Business-to-Consumer (B2C) – businesses sell directly to consumers. Example: www.amazon.com.

E-Markets

An EM is an inter-organizational information system that allows buyers, sellers, independent third parties, and multi-firm consortiums to exchange information on prices and product offerings (Mahadevan, 2000). With the beginning of the EMs, two types of markets can be assessed: Physical and Electronic. Both these markets have the same three main functions (Bakos, 1998):

- Matching buyers and sellers;
- Facilitating the exchange of information, goods, services, and payments associated with a market transaction;
- Providing an institutional infrastructure, such as a legal and regulatory framework which enables the efficient functioning of the market.

Electronic Markets Benefits

Following what we just said, Baker (2000) and Hartman, et.al (2001) identified the major benefits of EMs in three groups of drivers: Process improvements; Cost reductions and new business generation.

Business dimensions of Electronic Markets

According to Thorelli (1986), Eloffson et.al (1998), Lief (1999), Kaplan, et al. (1999), Sculley, et al. (1999), and Hartman et al. (2001) EMs can be segmented along six dimensions: Business model; Order processing mechanism; Revenue model; Market characteristics; Product specifics and EMs services.

E-Sourcing Sourcing

The purchasing/sourcing/negotiation processes started to have more visibility in the firms with the creation of the first Purchasing Department Business Units (PDBU). Although the gathering of all buyers in a single unit introduced economies of scale at the first PDBU it was possible to observe that big savings (at different levels) were yet to be done. There were two main bottle-necks in the processes (Simchi-Levi, et al., 2003) within the first PDBU:

- Skills of the Buyers were low;
- Information available to them in order they could take decisions was very limited.

The Sourcing phase has more potential savings than the Procurement phase. The Total Cost of Ownership (TCO) is the most common KPI to address Sourcing. However a new indicator is achieving more relevance: Total Value Management (Lamoreaux, et al. 2008).

According to Lamoreaux, et al. (2008) Total Value Management (TVM) is an extension of the TCO and beyond the price and the logistics cost takes also in consideration the value of the products/services bought to the specific Strategic Supply Chain objectives.

E-Sourcing and E-Procurement

In a survey conducted by Aberdeen (2006) it is mentioned that the E-Sourcing / E-Procurement revolution began in the mid- to late-90's and accelerated through the early years of the new millennium. So with the Internet boom many firms shifted from paper based transactions into on-line based transactions.

E-Procurement is concerned with the operational aspects of the purchasing: requisition order, authorization of the requisition order, place the requisition order, receipting and invoice reconciliation. E-Sourcing and E-Procurement are not the same, so they will deliver different kinds of value to the firm. According to Giga Research (2004) there is an eight-step cycle firms must follow to achieve optimal results from online buying initiatives, see Figure 1.

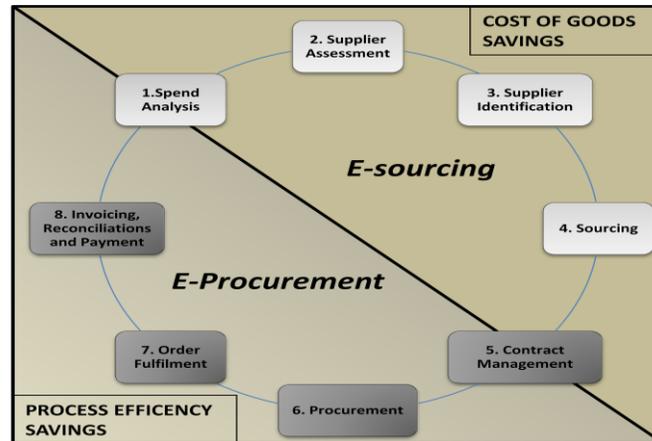


Figure 1 – E-Sourcing and E-Procurement different steps deliver different kinds of value- Adapted from Giga Research (2004)

After a clear distinction between E-Sourcing and E-Procurement it is important to understand the reasons why firms started to adopt E-Sourcing solutions. According to Aberdeen (2007), the main pressures that lead to the adoption of E-Sourcing solutions were: Streamline the sourcing process (68%); Reduce supply costs (45%); Increase of spend under management (30%); Improve visibility into sourcing initiatives (28%); Improve supplier management and collaboration (27%) and Centralize processes (27%).

Strategic Sourcing

Inadequate sourcing competencies are costing mid-size firms in the U.S. more than \$134 billion in missed supply savings opportunities annually (Aberdeen, 2005). Such huge amount in missed saving opportunities annually is not negligible. In many mid-size companies this miss of savings represents the difference between success and bankruptcy. Strategic Sourcing is considered the best approach to address this problem. But what is Strategic Sourcing?

Aberdeen (2005) identified four major problems to middle-size companies that interfere with Strategic Sourcing practices: Lack of formal sourcing procedures; Lack of sourcing and commodity skills; insufficient system infra-structures and Problems for not having a powerful negotiation position with the suppliers.

The Strategic Sourcing KPIs that best-in-class purchasing business units must have, according to Aberdeen (2005) are: Year-over-Year Cost Reduction, Cost of Goods sold, Purchase Price Variant, Percent of Spend Strategically Sourced and Total Spend as a percent of Revenue.

Core building blocks of an ESEP

Before presenting the core blocks of an ESEP it is important to give an overview through the online process of purchasing (E-Sourcing and E-Procurement).

Returning to Figure 1, there are 8 steps to fulfill the online purchasing process: Spend analysis, Supplier performance assessment, Supplier identification, Sourcing, Contract management, Procurement, Order fulfillment and Invoicing, payment and reconciliation, where:

1. Spend analysis: Allows answering the question “Who buys what, from whom?” (www.emporion.com). The Spend Analysis mechanism works through Data Mining algorithms and allows the improvement of many aspects: Better understanding of spend patterns, identification of key suppliers, spend visibility until the points of order, accurate categorization and which outcomes are important savings for the firms;
2. Supplier assessment: The performance of the suppliers is evaluated at this step;
3. Supplier identification: At this step the best suppliers to respond to a given e-RFXs or bid are identified;
4. Sourcing: This step includes development of RFXs, bid and negotiation processes;
5. Contract management: Once a supplier (or suppliers) is chosen, the contract that documents terms and conditions of the sourcing agreement must be generated, reviewed, accepted and maintained in a repository where those terms are accessible in the E-Procurement system;
6. Procurement: Step where operational activities are executed. Examples: the approval process for the requisition, the submission of the order to the supplier and the response from the supplier;
7. Order fulfillment: This step is the follow up of the purchased goods, knowing if they were received as expected so that the payment is due;
8. Invoicing, payment and reconciliation: The billing and invoices processes are followed up at this phase. Lamoreaux et al. (2008) believes that on average up to 70% of identified savings from E-Sourcing enabled awards are never realized because the associated supply chain activities are not successfully tracked and performance is not carefully monitored.

According to Aberdeen (2002) the following components are the core building blocks of an effective E-Sourcing platform: Negotiation; Collaboration; Project Management; Knowledge Management; Document Management and Analytics.

The Physical and the Virtual value chain on ESEPs

Porter (1985) proposed a value chain analysis based on five primary activities (Inbound Logistics, Operations, Outbound Logistics, Marketing/Sales and Services) and four main support activities (Procurement, Technology Development, Human Resource Management and Firm Infrastructure). We will refer this value chain as “Physical Value Chain” (PVC).

Sviokla et, al. (1995) created the concept of Virtual Value Chain (VVC) basing the value generation in information, and not in physical assets. According to Sviokla creating value through information is achieved in five steps: Gathering Information, Organizing Information, Selecting Information, Synthesizing Information and Distributing information.

The Internet allowed the creation of VVC where value is generated through information. But, what were the impacts of VVC in the PVC and what can we do to integrate both? Weiber, et, al. (1998) purposed a three level division. In a first level VVC changed the way business is made in marketplaces. At a second level the VVC allows the creation of new markets (online auctions and EMs). Finally through the combination of VVC and PVC a Virtual-Actual Value Chain rises up where “marketspace” and marketplace are integrated.

After this quick overview, ESEP platforms aggregate the main operations of the VVC and in order to create value they must integrate the primary activities as well as assemble the practices of collaboration and aggregation of information. To illustrate the connections in ESEP platforms and VVC we analyze the main steps of an e-RFx in Figure 2 where several levels of value through information are segmented.

The e-RFx process is sustained in a B2B EM, a market where VVC applies and where all the players (buyers and sellers) are emulated. The visibility and availability of transactions allows more degrees of

action and the exploitation of value. So, we can guarantee that ESEP aggregates value through specific features designed to explore the primary activities of the Virtual Value Chain.

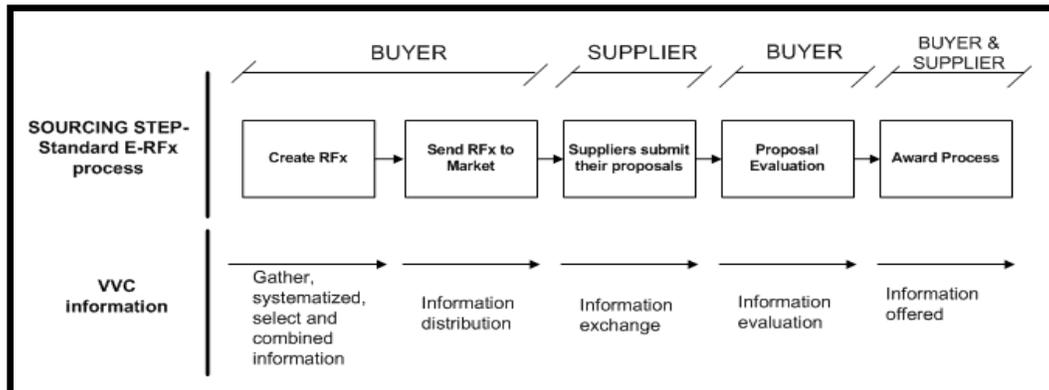


Figure 2 – Standard E-RFx process at an ESEP and VVC information flow

RESEARCH METHODOLOGY

Research Approach

The research approach was carried out using qualitative and quantitative research methods. We used both methods in order to take advantages of their complementary. We used a Case Study strategy which has an important quantitative research component – data from a survey conducted by Vortal on November/December 2008. We used only one case because we think that in this situation it would provide a better reasoning. As Robert Yin once said “The single case showed how investigations of such topics could be done, thus stimulating much further research and eventually the development of policy actions” (Yin,1984, pp 43).

The major blocks of a successful e-purchasing tool

We concluded that the successful e-purchasing tool should have to cover the 8 steps of the online purchasing process (Spend Analysis, Supplier Assessment, Supplier Identification, Sourcing, Contract Management, Procurement, Order Fulfillment and Invoicing, Reconciliation/Payment).

But will the successful e-purchasing tool be circumscribed to these 8 steps? We think not. Lamoreaux, et al. (2008) argues that E-Sourcing delivers significant savings by streamlining the bid process for either long term conditions or spot buy opportunities of indirect/direct material and/or services. We absolutely agree. Although the Reverse Auction mechanism has a very cost centric approach it is important to the e-purchasing tool to have a Reverse Auction module that allows the buyers to achieve significant savings when buying undifferentiated products/services. So far the e-purchasing referential tool covers the 8 steps of the e-purchasing process and has a Reverse Auction module. Would it be interesting to cover more parts? We think yes.

Analyzing the Criteria for Sourcing Solution Selection, we observe that 55% of the responses assume integration to back office and ERP systems as critical criteria for selecting an ESEP. We understand and agree with the result registered in this survey. We think it is essential for the e-purchasing tool to be connected to other systems of the firm (ERP or not).

So, so far the successful e-purchasing tool covers the 8 steps of the e-purchasing process, has a Reverse Auction module and has integration services with the main ERP firms. Would it be interesting to cover more parts? Again we think yes. Raisch, W. (2001) argues that EMs will evolve from simple matchmaking services focused on transactions to E-Commerce.

The next phase of evolution will be centered on providing value-added services that support the transaction. This will span the transformation of the EMs from a central matchmaker into a value-added service provider. Value Added Services (inside the transactions) allow many times a better performance of the transaction both for buyers and suppliers, and increases their competitiveness. We believe this is in fact a future trend.

The purposed baseline suite is now completed and is constituted by: Integration with ERP; E-purchasing 8 steps process; Reverse Auctions block; Value Added Services to the buyer related with the main transactions; Value Added Services to the supplier related with the main transactions and Value Added Services outside the main transactions.

Case selection

Our Case Study is based on a Vortal survey on EMs, with more emphasis to the ECONSTROI platform. In this Case Study the results of the Vortal survey "Buyers feedback to the ECONSTROI platform" were interpreted. The goal of this survey was to understand and formalize in a structured way the buyer's opinion about ECONSTROI current blocks/features and also to understand future needs expected by the buyers.

Data collection

The data collection of this research comes from the Vortal survey to ECONSTROI buyers between November and December 2008. The survey reached more than fifty buyers firms and 190 end users.

Vortal

Vortal was founded in December 2000 by a group of 24 firms who composed the initial stakeholders. The Civil Construction Market was the first EM created by Vortal with the ECONSTROI B2B platform. After 2003 Vortal began its expansion, geographically and to different sectors.

In 2006 Vortal, decided to amplify the scope of their B2B markets launching three new B2B platforms directed to specific markets: Vortal INDUSTRY Vortal ENERGY&UTILITIES Vortal OFFICE&SUPPLIES. In 2008 Vortal created one more market: Vortal HEALTH, addressing the healthcare area.

Characteristics, main process and major functionalities of the Vortal EMs

Vortal has six different EMs that have approximately the same *modus operandi* in the online purchasing process, which major functionalities are presented in Table 1.

ECONSTROI operates since 2001 and is the Vortal EM with a larger variety of functionalities. It is also possible to understand in Table 1 that the Vortal platforms cover seven of the eight steps of the referential purchasing online process. The E-Procurement step is not available (there isn't a strong e-catalogues block).

Buyer side major functionalities			
Functionality	Brief Description	Step of the e-purchasing process	Target market
Request for Proposals	Buyer creates the requirements of the request and launches to the suppliers.	Sourcing	All six markets
Request for Information	Buyer creates a request for information in the platform.	Sourcing	ECONSTROI
Vortal Orders	Allows the buyers to publish their orders online.	Order Fulfillment and Contract Management	ECONSTROI
Reverse Auctions	Buyers can make perform several types of auctions.	Value Added Service	All six markets
ECONSTROI-connect	Target to clients with specific needs of integration with other systems.	Value Added Service	ECONSTROI
Directories of Firms	The Vortal "virtual community".	Supplier Identification, Supplier Assessment and Categorization	All six markets
<i>Guaranting</i>	An exclusive payment method for purchases negotiated on ECONSTROI.	Value Added Service	ECONSTROI
Electronic Invoice	Send electronically invoice to the suppliers awarded.	Invoice, Reconciliation and Payment	All six markets
Purchasing Monitor	Business intelligence in the purchasing of Vortal platforms.	Spend Analysis	All six markets
Security mechanisms	Encryption, Decryption, Digital Signature, Time-stamping and Electronic Receipt.	Not applied	vortalGOV and vortalHEALTH
Comparative map of proposals	Allow buyers to compare the suppliers proposals in the ESEP.	Sourcing	All six markets

Table 1- Vortal buyer side major functionalities

ECONSTROI CASE STUDY

We begin by interpreting the value of service allowed by 13 different functionalities of ECONSTROI. ECONSTROI has many more functionalities, but the survey was centered on the items in Table 2.

VALUE OFSERVICE	Importance of the Service (1 to 5)	Degree of satisfaction with the service (1 to 5)
Usability of ECONSTROI platform	3.72	3.45
Spend Cost Centres process	3.48	3.2
Creation of Request for Proposals process	4.08	3.32
Selecting /adding suppliers process	4.18	3.21
Online follow up of the Request for Proposals and communications sent to the suppliers.	4.02	3.17
Suppliers	4.17	2.7
Comparative map of proposals	3.96	3.11
Approbation workflow and award process	3.85	3.11
Go live process after the Request for proposal is awarded	3.79	3.08
Budgets and Rides service,	4.15	3.27
<i>Guaranting</i>	3.98	3.13
Call Center	4.27	3.63
Consultant Presence	4.27	3.84

Table 2 – Service value of ECONSTROI

Market value

Another important aspect of the survey is the market value given from using ECONSTROI platform, resumed in Table 3.

MARKET VALUE	Degree of satisfaction (1 to 5)
Process – Simplified Process and higher control of the Purchasing process.	3,42
Suppliers – Identification of better suppliers.	3,16
Proposals – Quality of received proposals.	2,97
Costs – Cost Reduction	3,28
Change – Better Management of the change.	3,34
Relationship – Better relationship with the suppliers.	3,18

Table 3 – Market value of using ECONSTROI platform

To complement the market value given by the buyers to ECONSTROI we analyze the answers of the buyers to the questions below and display the results in Figure 3.

- Are you satisfied with ECONSTROI?
- Would you recommend the use of ECONSTROI to other firms?

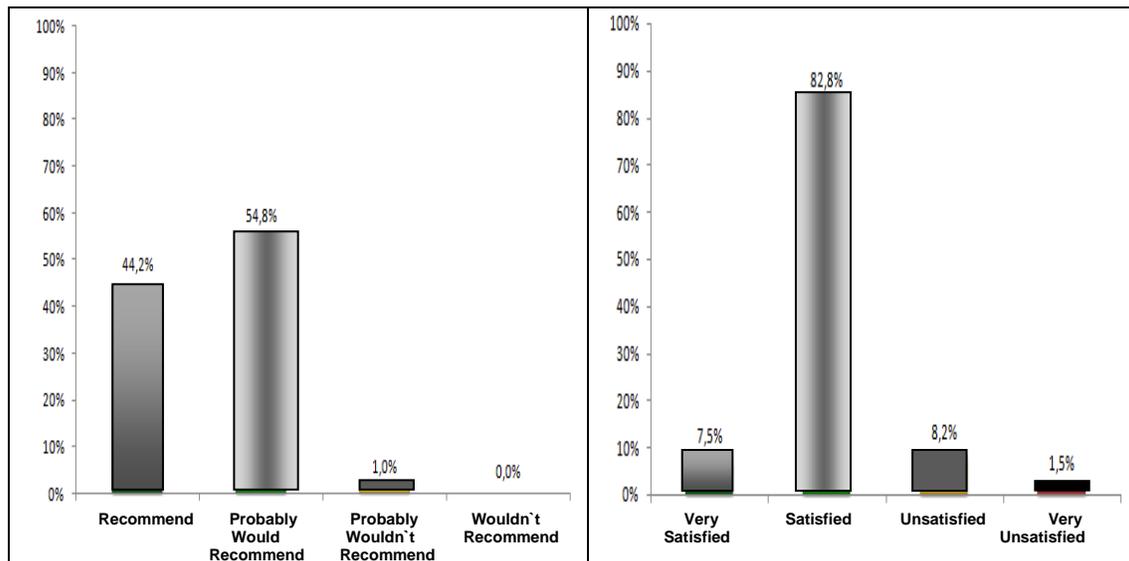


Figure 3 – User satisfaction opinions

ECONSTROI versus referential suite

It is important to compare the blocks covered by ECONSTROI with the purposed baseline suite. There are relevant similarities between ECONSTROI and the e-purchasing tool (wide coverage of the e-purchasing process, value added services related with the transactions and outside the main transactions), Reverse auctions block and Integration ERP.

However there are two main differences between ECONSTROI and the previously purposed baseline suite. In fact ECONSTROI:

- Only covers seven of the eight steps of the e-purchasing process;
- Vortal has a Forward Auction block.

We think the covering of the e-purchasing step isn't critical. The e-procurement step doesn't return a relevant value to the buyers and probably is a strategically option by Vortal. The Forward Auction will be added to the successful (baseline) e-purchasing tool. A forward auction block may stimulate the supplier's

participation and improve their performance. The final version of the successful e-purchasing suite is displayed in Figure 5.

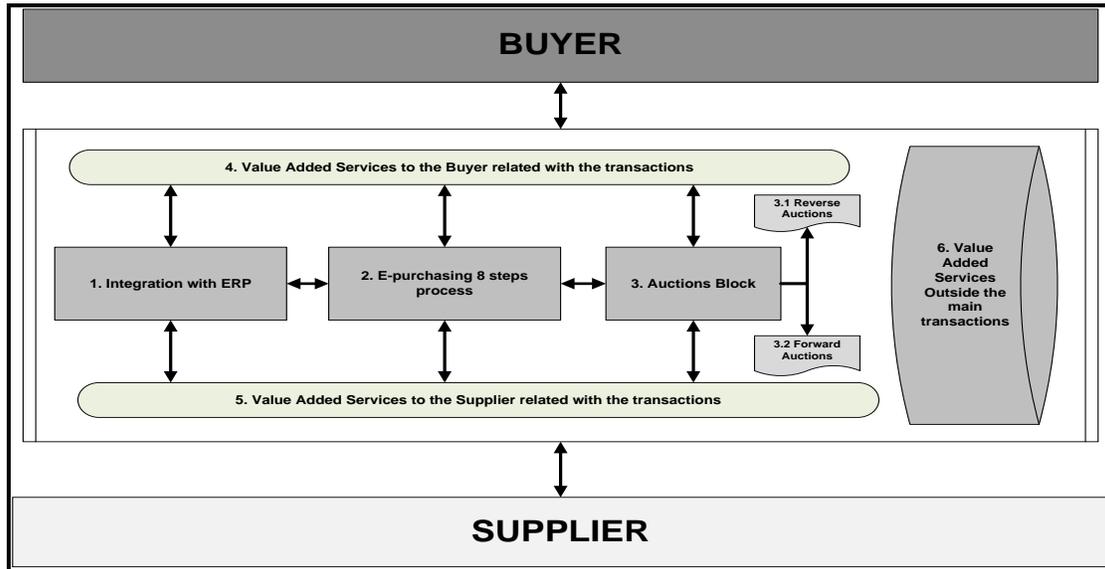


Figure 5 - Main blocks of the successful e-purchasing tool, upon Case Study reflexion

Independently of these differences it is possible to argue that ECONSTROI is generally aligned with the purposed e-purchasing suite in Figure 5.

CONCLUSIONS

We conclude that the successful e-purchasing tool must have the positioning of a combined suite, because these mechanisms will have sustainable demand in the near future, are simpler to manage, cover all the e-purchasing process, allow data model benefits and allow for price competitive advantages comparing to the buying of several standalone mechanism.

Regarding the business dimensions of the successful e-purchasing tool we believe it should be neutrally managed (attracting both buyers and suppliers), and adopt the structure of an ESEP (only purchasing order mechanism that engages with Strategic Sourcing goals).

We conclude that the successful e-purchasing tool should have a wide spectrum, although the high investment required (gradual investment is suggested). The combined suite would be divided in six main blocks: Integration with ERP, cover of the E-purchasing 8 steps process, Auctions Block (Reverse and Forward), Value Added Services to the buyer /supplier connected with the transactions and Value Added Services outside the main transactions.

We recognize that the combined suite must have an important concern with value added services because clients tend to valorize these differentiations. We also conclude that the e-purchasing suite should have a forward auction block because suppliers (and their proposals) are a key element to the EM.

We believe the combined suite is an important mechanism to the managers of the PDBU (as to the entire firm) to perform best in class Strategic Sourcing practices because:

- Allows the managers of the buyers firms to have a clear view of all the steps of the e-purchasing process
- Enable mechanism oriented to maximize the Strategic Sourcing KPI

Regarding Vortal, ECONSTROI buyers are quite satisfied and give an important value to the operations allowed in ECONSTROI. One of the key factors of success of this EM was the ability to build an important "Virtual Community". A very significant number of buyers and suppliers make transactions in ECONSTROI and both are able to retrieve value from the EM (WIN-WIN). Buyers achieve better business, important savings (administrative, processes and in the cost of the materials) and discover new suppliers, while suppliers achieve new business opportunities.

Finally, we recommend a more profound Study over the entrance barriers; initial investments required and return of investment that e-purchasing tools face (both standalone as combined suite mechanisms).

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