



INSTITUTO SUPERIOR TÉCNICO  
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## **E-Sourcing Electronic Platforms in real business**

**Vortal – ECONSTROI Electronic Market**

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# I. Abstract / Resumo

## ABSTRACT

The Study is carried out in an electronic business-to business (B2B) context. The purpose is to investigate 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.

A literature review on B2B, E-Sourcing Electronic Platforms (ESEP), and several aspects of the e-purchasing market was executed. A single Case Study approach was followed regarding ECONSTROI (Civil Construction electronic market (EM)), managed by Vortal (Portuguese Firm that owns several B2B EMs). Both qualitative and quantitative research methodologies were followed. The qualitative research regarded several aspects of Vortal EMs. The quantitative data came from a Vortal survey on 50 buyers firms using ECONSTROI.

The author concluded that the ideal e-purchasing tool is an ESEP with the structure of a combined suite that allows the execution of several steps of the e-purchasing process. The combined suite was divided in six major blocks: ERP integration, E-purchasing 8 steps process coverage, Auctions Block, Buyer/Supplier (two blocks) Value Added Services (VAS) connected with the main transactions and VAS outside main transactions.

The author also concluded that the combined suite permits performing strategic sourcing practices, because it allows a clear view of all the e-purchasing process and because is oriented to maximize strategic sourcing Key Performance Indicators (KPI).

The author recommends 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).

**Key words:** B2B, Electronic Market, ESEP, e-purchasing tool, strategic sourcing

## RESUMO

O estudo foi realizado no contexto dos mercados electrónicos *business-to-business* (B2B). O 1º objectivo foi a investigação dos principais blocos que uma ferramenta de compras electrónica (FCE) de sucesso precisa de abranger. Outro propósito foi verificar como esta FCE permite que os compradores executem *strategic sourcing*.

Efectuou-se uma revisão da literatura sobre B2B, aspectos relacionados com *E-Sourcing Electronic Platforms* (ESEP) e o mercado de *e-purchasing*. Construiu-se um Caso de Estudo único relativo ao ECONSTROI (mercado electrónico (ME) para o sector da Construção Civil), gerido pela Vortal (Empresa portuguesa que tem diversos ME). Foram utilizadas metodologias de pesquisa quantitativas e qualitativas. A pesquisa qualitativa inclui a análise de diversos aspectos dos ME da Vortal. Os dados quantitativos foram obtidos através de um inquérito executado pela Vortal a 50 compradores que usam o ECONSTROI.

O autor concluiu que a FCE ideal é uma ESEP com a estrutura de uma ferramenta integrada que permita a execução de vários passos do processo de *e-purchasing*. Dividiu-se esta ferramenta em seis grandes blocos: Integração com *ERPs*, Cobertura dos 8 passos do processo de *e-purchasing*, Bloco de leilões, Serviços de Valor Acrescentado (SVA) para Compradores/Fornecedores (são dois blocos) relacionados com as transacções chave e SVA fora das transacções chave.

O autor também concluiu que esta ferramenta integrada permite a execução de políticas de *Strategic sourcing* porque dá uma visão clara de todo o processo de *e-purchasing* e permite maximizar os Indicadores Chave de Sucesso do *strategic sourcing*.

O autor recomenda uma análise mais profunda das barreiras à entrada, investimentos iniciais necessários e retorno do investimento exigido por uma ferramenta de *e-purchasing* (*standalone* e ferramentas integradas).

**Palavras-chave:** Mercado electrónico, *ESEP*, *B2B*, Ferramenta de Compras Electrónica (FCE), *strategic sourcing*.

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## **LIST OF ABBREVIATIONS**

B2A -- Business-to-Administration;  
B2B – Business-to-Business;  
B2C – Business-to-Consumer;  
CPV -- Common Procurement Vocabulary;  
C2B -- Consumer-to-Business;  
C2B -- Consumer-to-Business;  
EDI – Electronic Data Interchange  
EM – Electronic Market;  
ERP – Enterprise Resource Systems;  
E-RFXs -- Request for something (Information, Budget, Proposal);  
ESEP – E-Sourcing Electronic Platforms;  
EU -- European Union;  
IT – Informatics Technology  
KPI -- Key performance indicators;  
PDBU -- Purchasing Department Business Units;  
PVC – Physical Value Chain;  
TCO -- Total Cost Ownership;  
TVM -- Total Value Management;  
VVC –Virtual Value Chain;  
Vortal – Vortal S.A.

### III. Glossary

<b>Concept</b>	<b>Concept description</b>
<b>E-Economy</b>	The E-Economy allowed the creation of new business models, exploiting the possibilities of the "Virtual Value Chain". Firms/persons interact in a virtual market space.
<b>E- Business</b>	E-business refers to a broader definition of E-Commerce, not just the buying and selling of goods and services, but also servicing customers, collaborating with business partners, and conducting electronic transactions within the organization (Turban, et al., 2002).
<b>E-Commerce</b>	E-Commerce is intended as the way E-Business is processed.
<b>Electronic Market (EM)</b>	An EM is an inter-organizational information system that allows buyers, sellers, independent third parties, and multi-firm consortiums to exchange information about prices and product offerings (Mahadevan, 2000).
<b>Business-to-Business (B2B)</b>	Involves transactions between businesses.
<b>Business-to-Consumer (B2C)</b>	Businesses sell directly to consumers.
<b>E-Sourcing</b>	Strategic Phase and focused at the Cost of Goods Savings.
<b>E-Procurement</b>	Transactional/Operational Phase and focuses at Process efficiency savings.
<b>E-Sourcing electronic platforms (ESEP)</b>	Allow buyer firms to execute e-RFX (Request for Something) processes. More operations of the e-purchasing process maybe executed at an ESEP depending on its structure (combined suite or Standalone mechanisms).
<b>Total Cost of Ownership (TCO)</b>	Takes in consideration the price of the product as all the logistics costs associated to the purchase.
<b>Total Value Management</b>	Total Value Management (TVM) is an extension of the TCO, and behind the price and the logistics cost takes also in consideration the value of the products/services bought to the Strategic Supply Chain objectives. Lamoreaux, et al. (2008).
<b>Strategic sourcing</b>	Lamoreaux, et al. (2008) defined strategic sourcing as the sourcing for value. It is concerned with finding the right price, not the lowest price.
<b>Physical Value Chain (PVC)</b>	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),
<b>Virtual Value Chain (VVC)</b>	Sviokla et, al. (1995) created the concept of Virtual Value Chain (VVC), which bases the value generation in information, and not in physical activities. According to John Sviokla creating value through information is achieved by five steps: Gathering Information, Organizing Information, Selecting Information, Synthesizing Information and Distributing information.
<b>Standalone Suites</b>	E-purchasing tools focused in one or two steps of the online e-purchasing process.
<b>Combined Suites</b>	E-purchasing tools with a wide coverage of all the steps of the online e-purchasing process.
<b>Supplier Performance management (SPM)</b>	SPM practices seek to measure and manage the performance of an organization's performance in an effort to cut costs, alleviate risks, and drive continuous improvement.

Glossary Table



# 1. Introduction

The emergence of the Internet and the World Wide Web boom in the early 90`s originated the first electronic markets (EM). The EM can be divided in two main groups: Business-to-Consumer (B2C) and Business-to-Business (B2B). This research is focused in B2B.

It begins by contextualizing B2B EMs (E-Economy, E-Business, E-Commerce, Physical and EM, E-Sourcing versus E-Procurement, strategic sourcing, among other aspects) and some of the main characteristics of ESEP (core building blocks, main benefits for buyers and suppliers, E-Government, physical and virtual value chain).

Next it is proposed a methodological framework in order to answer the research questions:

Research Questions
How should an e-purchasing tool "look like"?
How should the successful e-purchasing tool allow firms to practice strategic sourcing policies?

Table 1 – Research Questions of the Study

The positioning of an e-purchasing tool is analyzed, as the business dimensions and main blocks needed to be covered. The way the e-purchasing tool engages with strategic sourcing policies is also detailed.

Finally a Case Study is constructed on the Civil Construction Sector platform (ECONSTROI – [www.econstroi.com](http://www.econstroi.com)) of Vortal S.A. (Portuguese firm that owns several B2B EMs). The data of a survey conducted by Vortal S.A (Vortal) in October 2008 addressing more than 50 buyer firms using ECONSTROI is used.

Finally, conclusions alerting for some trends and summarizing the answers to the research questions are presented.

## 2. Contextualization

This Section is divided in four sub-Sections and its goal is to provide a contextualization regarding the E-Economy phenomenon, EMs and E-Sourcing.

The 1<sup>st</sup> sub-section is constituted by the E-Economy, E-Business and E-Commerce subjects.

The 2<sup>nd</sup> sub-Section addresses several issues related with EMs: Physical and EMs, EM Benefits and EM business dimensions.

The 3<sup>rd</sup> sub-Section presents some of the E-Sourcing most important aspects (Sourcing, E-Sourcing versus E-Procurement and strategic sourcing).

Finally, a sketch that links the E-Economy phenomenon to the Vortal EMs is displayed.

## **2.1 E-Economy, E-Business, E-Commerce**

### **E-Economy**

*“There were around 309 million Internet Subscribers in OECD countries in 2006. This number has doubled in 6 years”* (OECD, 2008)

The year of 1993 can be regarded as the year in which the Internet economy was born with the breakthrough of the World Wide Web. Since that time the Internet has developed into an integrated global service network, with a diversity of multimedia uses (Picot et al. 2000).

Negroponte, in his early texts on Wired, some of them later compiled in a book (Negroponte, 1997), explored the E-economy metaphor as being a shifting from processing atoms to processing bits. He discussed the disadvantages of the former (e.g., mass, materials, transport) and advantages of the latter (e.g., weightlessness, virtual, instant global movement). In fact, the main characteristic of this new economy is immateriality.

To complement the previous metaphor, the New Economy is characterized by three distinctive attributes (Kelly, 1998):

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

The E-Economy is a global phenomenon. A person/firm in any place of the world with a web access point may communicate and buy/sell products or services through an EM. This persons/firm shifted up to a virtual space, where new forms of relationship and business models rise up and transactions are available 24hours per day, 365 days of the year, covering all the world.

The E-Economy allowed the creation of new business models, exploiting the possibilities of the “Virtual Value Chain”. Firms/persons interact in a virtual market space (see Section 3.3).

In Table 2 several examples of the E-Economy impacts are described.

<b>E-ECONOMY SEVERAL IMPACTS</b>		
<b>Impact Dimension</b>	<b>OECD (2008)</b>	<b>Other examples</b>
<b>Impact on Firms</b>	- In 2007 on average 95% of medium and large firms in OECD countries used the Internet.	- Most firms can/must see the world as its potential market.
<b>Impact on Society</b>	<ul style="list-style-type: none"> <li>- On average 57% of adults used the Internet to send e-mails or telephones in 2007;</li> <li>- Between 2004 and 2007 the number of registered Skype users increased by over 50 times up to 276 million worldwide;</li> <li>- Over 25% of people in OECD bought goods or services over the Internet in 2007;</li> <li>- On average over 30% of people in OECD countries used banking services on the Internet;</li> <li>- One adult out of four downloads music or plays games on the Internet;</li> <li>- In Japan the number of blog readers has more than doubled in 2 years, up to 35 million in March 2007.</li> </ul>	<ul style="list-style-type: none"> <li>- 2 persons can start dating through an Internet chat;</li> <li>- People can have virtual life at systems like "Second Life";</li> <li>- Terrorist Groups (Al-Qaida, others) place videos at <a href="http://www.youtube.com">www.youtube.com</a>;</li> <li>- Internet can have an important role at political campaigns (Barack Obama, 2008);</li> <li>- Social networks: Persons built their networks through the Internet (<a href="http://www.facebook">www.facebook</a>, etc.);</li> <li>-All the important newspapers, magazines and journals have Internet sites.</li> </ul>

Table 2 - E-Economy Impact

## **E-Business**

*"I think a lot of people initially thought that the "e" in e-business was more important than the business"*

Michael Dell

E-business refers to a broader definition of E-Commerce, not just the buying and selling of goods and services, but also servicing customers, collaborating with business partners, and conducting electronic transactions within the organization (Turban, et al., 2002).

So, being E-Economy the phenomenon in itself, E-Business is mainly the supporting of customers and E-Commerce is intended as the way E-Business is processed. They are not the same, but some confusion can be made. In Figure 1 the scope of each of the categories addressed is presented.

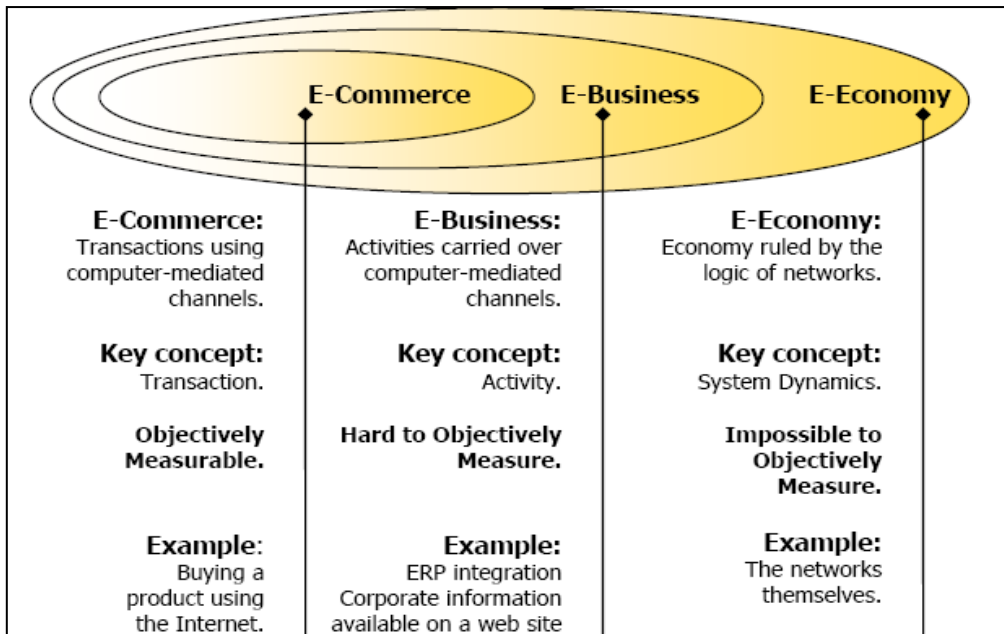


Figure 1- The Scope of E-Economy, E-Business and E-Commerce (Statistics Canada, 1999)

E-Economy gathers E-Business and E-Commerce. E-Business gathers E-Commerce. E-Economy allows a system that supports E-Business activities that allows E-Commerce transactions.

Gottschalk (2006) gives an interesting example of the differences between E-Commerce and E-Business. The example is about handling customer complaints. As long as customers do not complain, E-Commerce may be sufficient for electronic transactions with customers. The front end of the business is electronic, and this front end is the only contact that customers have with the business. However, if a customer complains, then other parts of the business may have to get involved.

As a metaphorical view, E-Commerce is the front end, while E-Business is the back office and E-Economy is the building.

### E-Commerce

*"In Australia, Canada, Japan and the U.S., E-Commerce has increased by five to seven times from the latest 1990's to the mid 2000's".* OECD, 2008

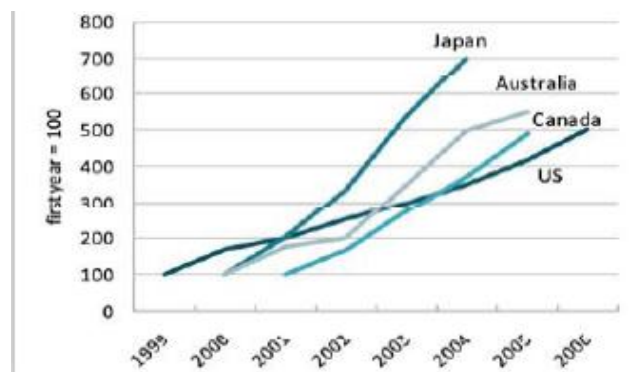


Figure 2 - Growth of E-Commerce at some OECD countries (OECD, 2008)

E-Commerce is an important concept that describes the process of buying, selling or exchanging products, services and information, via computer networks, including the Internet (Turban, et al.2002).

E-Commerce is about transactions and they aren't necessary executed through Internet. Choi (*et al.*1997) describe E-Commerce has being around since the beginning of electronic communication with the telegraph.

On other hand, Timmers (1999) says that E-Commerce has already existed for over 20 years. In sectors such as retail and automotive and electronic data interchange (EDI) for application-to-application interaction has been used regularly.

E-Commerce already exists since the telegraph and more sustainable with EDI. But only with the Internet boom E-Commerce started increasing exponentially (see Figure 2).

According to Timmers (1999) E-Commerce reasons of growing are:

- Low entry cost compared to other solutions such as EDI. With low entry cost, a fast return on investment is possible;
- Promise of protecting investment. Whereas EDI-based systems have a tendency to be specific to the trading or supply-chain relationship, it is the hope that Web-based systems will be interoperable among suppliers;
- Connectivity and communication meeting information needs;
- A critical mass already built and increasingly which attracts even more users and providers of the technology and of business solutions;
- Technology-driven 'virtuous innovation cycle' of constant opportunity creation as a consequence of the very rapid progress of electronic commerce technologies.

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](http://www.commerceone.com);
- Business-to-Consumer (B2C) – businesses sell directly to consumers. Example: [www.amazon.com](http://www.amazon.com);

Beyond these two categories the most important are: Consumer-to-Consumer (C2C), Consumer-to-Business (C2B), Business-to-Administration (B2A), between others. From these categories of e-commerce B2A is the most important because of the growing significance of E-Government.

Most transactions in E-Commerce have been realized in B2B commerce. B2B transactions outnumber consumer sales from 10 to 1 (Westland, et. al, 2000). Other estimates put the B2B electronic commerce market to be close to 78% of the overall E-Commerce market (Shaw, 2000).

## **2.2 E-Markets**

### **2.2.1 Physical and Electronic markets**

*“The Internet marketplace may never replace the physical marketplace, but it may have far-reaching effects on it...and may introduce a variety of changes to the traditional physical marketplace transaction. Only at the limit, when the Internet channels of communication substitute fully for physical channels of communication, does Internet commerce threaten the existence of physical retailers”*  
Bailey (1998)

An EM is an inter-organizational information system that allows buyers, sellers, independent third parties, and multi-firm consortiums to exchange information about 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.

EMs executes much more efficiently these functions because they extend the matches possibility between buyers and sellers, simplify the process of buying and of presenting proposals and perform worldwide without boundaries. Regardless all these advantages, EMs cannot fully threaten physical markets because of the need of physical communication channels.

Beyond the differences at a market function level, from an economics perspective, EMs have fundamental differences regarding physical markets (Bichler,2001): Transparency, Size, Cost.

EMs have a bigger transparency than Physical Markets because the several market participants can observe all the trading process from end-to-end. From a size perspective, EMs are not circumscribed by the normal boundaries that physical markets face, allowing a wider potential of trading possible to full fill worldwide. Finally from a cost approach, EMs are able to reduce the transaction costs and to eliminate intermediates.

To emphasize the current use of EMs, in Figure 3 is displayed a chart where it is possible to observe that in 2007, on average, firms of OECD with more than 10 employees used the Internet for 33% of their purchasing and 17% of their selling.

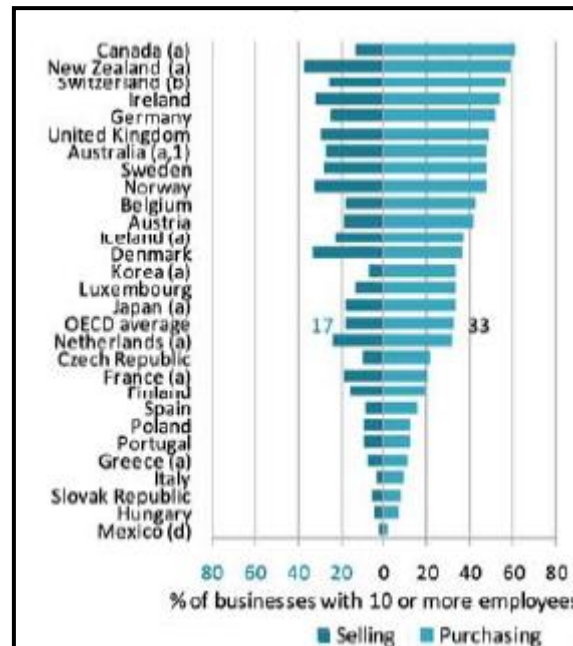


Figure 3 – Businesses selling/purchasing over the Internet - 2007 (OECD, 2008)

## 2.2.2 Electronic Markets Benefits

*“The electronic marketplace opens doors from Wall Street to Khartoum to downtown Tokyo, making them no more distant than if they were around the corner.”* Leebaert (1999)

Baker (2000) and Hartman, et.al (2001) separated the major benefits of EMs in three groups of drivers:

- Process improvements;
- Cost reductions;
- New business generation.

Siegelmann et al. (1996) and Feldman (2000) have a different approach (buyer/supplier) to the EMs benefits:

- **Buyer advantages:**
  - Access to more information: structured and stored in one place, so that they support consumers decision making processes;
  - Easier market research and comparison:
  - Consumers can conduct their researches anytime and anywhere: Some EMs include online product sampling (i.e. book excerpts, CD recording samples and so on);



– Lower costs (because of information system usage), lower prices and higher quality (higher competition among suppliers), and wider selection of goods (aggregating significant number of vendors).

- **Supplier advantages:**

- Improved economic efficiency: reducing margins between price and costs, speeding up complicated business deals;

- Better distribution: no middlemen and shrinking distribution channels;

- Possibility to gather more customer information;

- Marketing communications: allowing competing on other dimensions than only price;

- Operational benefits: which include reduced errors, time and overhead costs in information processing, easier entry into new markets (especially geographically remote) and faster time to market.

The adoption of EMs allows an important number of WIN-WIN situations both to buyers and suppliers.

Buyers and suppliers benefit from process improvement and new business models can be created at virtually no extra-cost. Buyers have cost reductions benefits. However, with EMs, suppliers can face a shrinking of their margins due to a more competitive and open market.

EMs also have some disadvantages as technological investment in infra-structures is required, issues related to security/privacy of data and finally legal questions related with EM that perform worldwide, Kowalkiewicz (2004).

### **2.2.3 Business dimensions of Electronic Markets**

*“EMs dimensions have plenty of sub-dimensions!”*

Anonymous,2009

According to Thorelli (1986), Elofson et.al (1998), Lief (1999), Kaplan, et. al (1999), Sculley, et. al (1999), and Hartman (2001) EMs can be segmented along six dimensions:

- Business model;
- Order processing mechanism;
- Revenue model;
- Market characteristics;
- Product specifics;
- EMs services.

## **Business Model**

The business model of the EM depends on its ownership model. At this dimension we can have three types of EMs: focusing on sellers, focusing on buyers and neutral marketplaces, which do not favor either sellers or buyers but attract both (Kaplan, et. al ( 2000)) and Rosson (2000).

## **Order processing mechanism**

The literature refers to 5 main order process mechanisms: Catalogs, Auction, Reverse Auction, Exchange and Community. Another order process mechanism can be added – ESEP:

- **The catalog or aggregation model:** Aggregates a multitude of products and services from multiple suppliers to provide a one-stop shopping site for buyers and a low-cost distribution channel for suppliers (Blodget, et al. 2000). These order processing mechanism are placed at the E-Procurement phase. The buyer searches (usually through an intranet system) the catalogue item desired and places the request order;
- **Auction:** In an EM, which can exist in both business-to-business and business-to-consumer contexts, the sellers offers goods or services to buyers through a website with structured price setting and fulfillment (Lysons,2006). There are different structures of auctions: English (auctions start with the price low and bid it up), Dutch (the price starts high and drops by fixed increments), Private (the identification of the bidder's and the bid amounts are shown during the auctions), Forward Auctions (bids increase in value rather than decrease), among others (Vickery Auction and Yankee Auctions);**Reverse Auction:** Where suppliers bid for a buyers contract via the Internet and prices go down during the bidding (Jap, 2003; Heck,1998) In a Reverse Auction, buying organizations post the item(s) they wish to buy and the price they are willing to pay while suppliers compete to offer the best price for the item over a prescribed time period;
- **Exchange:** Provide a spot market for commodities – often with high price volatility. They provide a venue for the purchase and sale of commodities like natural gas, electricity, and telecommunications bandwidth (Blodget, et al. 2000). Exchange mechaniss work similarly to a stock exchange market and there is no direct contact between the supplier and the buyer;
- **Community:** Aggregates a targeted group of buyers to sellers by providing industry-specific content and community characteristics of high relevance to industry professionals (Blodget,et al. 2000);
- **ESEP:** Allow buyer firms to execute e-RFX (Request for Something) processes. More operations of the e-purchasing process maybe executed at an ESEP depending on its structure (combined suite or Standalone mechanisms). (See Section 4.1).

## **Revenue Model**

It is possible to identify five major sources of revenue (Reilly, 2000; Trepp, 2000): Transaction fees, Membership/subscription fees, Advertising, Professional service fees, and Value added service fees.

Usually, EMs begin by deciding the payment method, transaction fees or membership/subscription fees (at same cases EMs employ both strategies).

After, EM normally charge for “extras”: advertising, professional service fees, value added services. Each of the EM revenue sources is described in Table 3.

<b>EM revenues sources</b>	
<b>Source</b>	<b>Description</b>
Transaction fees	For each transaction done at the EM a fee is charged according to the transaction volume.
Membership/subscription fees	An annual or mensal fee is charged based on assumptions to anticipate usage. It encourages the marketplace usage and avoids the occurrence of tax associated with straight transaction fees (Phillips, et. al (2000) & Kerrigan et al.2001).
Advertising	Charging for banners, links and logotypes.
Professional service fees	By providing consultant services to their customer`s at the implementation and training phases.
Value Added Services fees	Charging for services outside the “critical path” of the marketplace: Newsletters, Business Intelligence Mechanism, Sophisticated Workflows, Decision Optimization Algorithms, between others.

Table 3 – EMs revenues sources – Luís Sampaio, 2009

**Market characteristics**

B2B EMs can be divided in two different types: horizontal and vertical (Blodget, et al. 2000):

- Vertical: Aimed at a specific industry and completely oriented toward the distinct need of a particular group (Rosson, 2000). This type of market focus on the efficiencies of the supply chain of a given Industry;
- Horizontal: Are not customized to a specific industry. Aim to improve inefficiencies among multiple supply chains.

Other important characteristic of EMs is their Public or Private Dimension.

The Public EM is an open trading environment that allows relationship from many-to-many. The Private EM is controlled by the buyer, which manages the relationship with the business partners through the EM. There is also the Consortia EMs where a group of buyers manages the EM.

## **Product Characteristics**

Some products are more suitable to be placed at EM than others.

The characteristics of the products more suitable to marketplaces can be divided into 4 groups:

- Highly standardized merchandises/commodity type products that can be easily compared across suppliers are more suitable for EMs, than highly customized products with individual specifics and without a purchase pattern (Lee et al., 2000). Although Ebay ([www.ebay.com](http://www.ebay.com)) history proves that high differentiated products can be commercialized through EMs;
- Product with a short life-cycle can create large quantities of obsolete products. EM provides new points of sale to these products;
- Low-value goods with relatively high traditional transaction costs are perfectly suitable to be traded on various B2B Markets (Kafka,2000);
- Products with high volatile prices.

## **E-market services**

The services delivered by EMs need to be contextualized regarding the phase of the transaction when they occur.

According to Schmid (1993) the exchange between demanders and suppliers is carried out through business transactions, which can be divided into three phases: Information, Negotiation and Execution.

## **2.3 E-Sourcing**

### **2.3.1 Sourcing**

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

The purchasing/sourcing/negotiation processes started to have more visibility at Firms with the creation of the first Purchasing Department Business Units (PDBU).

Although the gathering of all buyers in one single business unit introduced economies of scale, in the first PDBU it was possible to observe that big savings (at different levels) were yet to be done.

There are two main bottle-necks in the process (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.

Behind these, PDBU started to have a wider range of tasks (Lamoreaux, et al. 2008):

- Determine what a company needs to buy, from whom and where.
- Location of current and potential supply sources.
- Who are the suppliers?
- Understanding the market dynamics affecting the related supply chain.

With the appearance of a wider range of tasks, two different areas could be distinguished at the PDBU: **Sourcing and Procurement**. Sourcing is considered the Strategic Phase of the Purchasing, while Procurement is considered as the Transactional/Operational Phase of the Purchasing. The differences are described in Table 4.

<b>Sourcing</b>	<b>Procurement</b>
<ul style="list-style-type: none"> <li>- Pre-contractual phase;</li> <li>- Strategic Management of the Purchase;</li> <li>- Seeks to optimize the sources of supply and the cost of acquisition;</li> <li>- Key performance indicators (KPI). Example: Total Cost Ownership (TCO).</li> </ul>	<ul style="list-style-type: none"> <li>- Contractual execution phase;</li> <li>- Transactional management of the Purchase;</li> <li>- Set of operational activities. Some examples: Requisition Order, the Order and Record of Delivery;</li> <li>- KPI. Some examples: Transaction cost, number of returns, completion of the deliveries times.</li> </ul>

Table 4 - Differences between Sourcing and Procurement Adapted from (Rocha, et al.2008)

The TCO referred in Table 4 is the most common KPI of 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 behind the price and the logistics cost takes also in consideration the value of the products/services bought to the Strategic Supply Chain objectives.

### 2.3.2 E-Sourcing and E-Procurement

*“EDYN has a proven international presence in E-Procurement and an in-depth knowledge of the EU relevant regulations. We are confident that their services can be of the utmost benefit for customers using the framework”.*

Tony Demaine, E-Sourcing Project Manager of Buying Solutions.

Aberdeen (2006) survey mentions 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 to on-line based transactions.

Aberdeen (2002) defined E-Sourcing as the use of Web-based applications, decision support tools, and associated services to streamline and enhance strategic sourcing processes and knowledge management.

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 4.

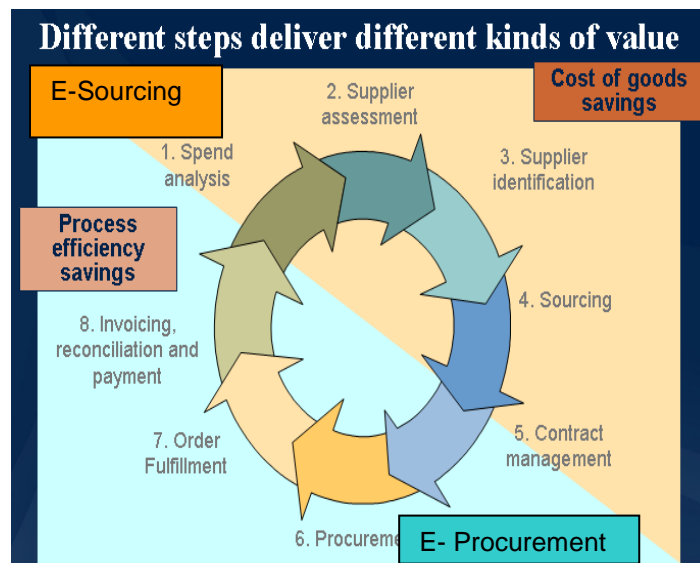


Figure 4 – E-Sourcing and E-Procurement different steps deliver different kinds of value- Adapted from Giga Research (2004)

The diagram in Figure 4 is very important and will be displayed again throughout this Study.

We resume the differences between E-Sourcing and E-Procurement below:

- **E- Sourcing**: Strategic Phase and focused at the Cost of Goods Savings;
- **E-Procurement**: Transactional/Operational Phase and focuses at Process efficiency savings.

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 are described in Figure 5.

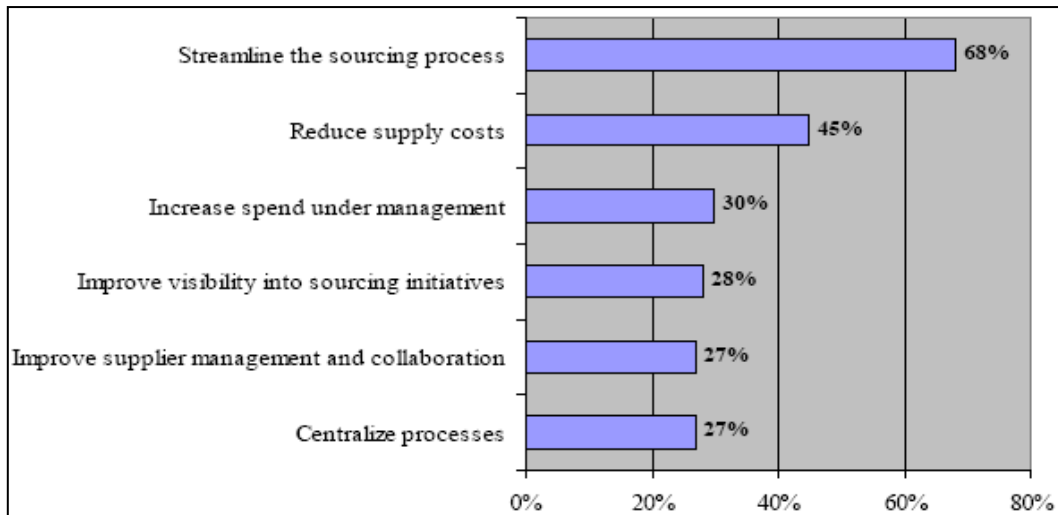


Figure 5 – Reasons to adopt E-Sourcing solutions - Aberdeen (2007)

Observing Figure 5 it is possible to see that the main reasons that lead to the adoption of E-Sourcing solutions are: Improvement of the sourcing process; Reduction of Supply Cost; Increase of the Spends under Management.

These main reasons are connected with pressure of the competitors and of the customers to reduce prices and the need to give more visibility to the sourcing process.

Firms are pressured, and many of them face a global competition. Firms need to be more efficient in their purchasing processes in order to maintain their competitiveness.

In Figure 5 are explained the reasons why firms adopt E-Sourcing tools. But are the E-Sourcing solutions fulfilling the firms expectations? According to Aberdeen (2005) the improvements allowed by E-Sourcing solutions are several and are displayed in Table 5.

Sourcing Challenge	Average improvement of Savings through E-Sourcing
High material costs	14.3% cost savings.
Sourcing cycles average 3.3 to 4.2 months	Cuts sourcing cycles in half.
High sourcing transaction and administration costs	Reduce sourcing administration cost in 60%.
Long time-to-market cycles for new products	Shrink time-to-market cycles 10% to 15%.
Inability to effectively exploit market changes	Helps to identify and standardize sourcing best practices; Enhance knowledge capture and transfer.
Unable to effectively exploit low-cost country supply sources	Dramatically improve ability to identify and negotiate with new sources on a global basis.
Transactional and combative supply relationships	Detailed e-RFX and enhances collaboration, and clarifies expectations and improves supply relations; Productivity improvements free up buyers to develop supply base.
Inadequate spend under management	Process efficiencies empower application of strategic sourcing to spend more.

Table 5 - Improvements allowed by E-Sourcing - Aberdeen (2005)

E-Sourcing offers benefits at a wide range of areas, however two factors stand up:

- **High Material Costs:** if a firm has 1 million Euros of expenses in material costs per year without an E-Sourcing tool, with an E-Sourcing tool it would save an average of 143.000 Euros per year!
- **Sourcing Administration Cost:** if a firm has 1 million Euros of expenses in material supply without an E-Sourcing tool, with an E-Sourcing tool it would save more than 600.000 Euros per year!

### 2.3.3 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)

Believing these studies, \$134 billion dollars in missed saving opportunities annually are 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?

Lamoreaux, et al. (2008) defined strategic sourcing as the sourcing for value. It is concerned with finding the right price, not the lowest price. Sometimes, value is gained by selecting a lower cost provider, and sometimes value is gained by selecting a higher cost provider with greater quality, reliability or status.

It is possible to say that strategic sourcing doesn't has a cost centric approach. More important than buying the cheapest product/service, is buying the product/service that gives more value to the company and better serves its strategy.

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 systems infra-structures;
- Problems for not having a powerful negotiation position with the suppliers.

The first three problems are reachable and the best in class need to create formal procedures to cut expenses, adopt specialized brokers that know from /what to buy/ who to buy/ when to buy and a invest on a minimal information structure that helps the firms collaborators to execute more efficiently their purchasing processes.



A better negotiation position is also reachable by improving the three previous issues. Why do firms somehow disregard these issues? Is it because purchasing doesn't bring fresh money as Sales do? Is it because they ignore the saving potential?

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.

Some KPIs are price focused and others not. Within strategic sourcing firms should not go for the cheapest sourcing, but for the most valuable in a strategic sense.

### 2.3.4 What did E-Sourcing change and How to implement an E-Sourcing tool

#### WHAT DID E-SOURCING CHANGE

*".. The exchange of business documents takes place seamlessly and automatically. With a couple of mouse clicks and a few keystrokes, a buyer can select a product from an electronic catalog, enter the quantity, and click to send the purchase order. The purchase order is received by the suppliers system, which automatically verifies that the product is in stock and immediately sends an order confirmation to the buyer..."*

Raisch, W. (2001)

The main sub-Processes at the **SOURCING AND E-SOURCING ARE THE SAME**: Create RFX, Approve RFX, Select Suppliers, Send RFX to the Market, Source and Analysis, Contract Management.

But in E-Sourcing solutions these sub-processes are executed much more efficiently.

The sourcing execution of these sub-processes can be very disaggregate, with high level of fragmentation, weak information flows, unnecessary steps, too many intervenient and paper intensive.

Figure 6 highlights the E-Sourcing advantages.

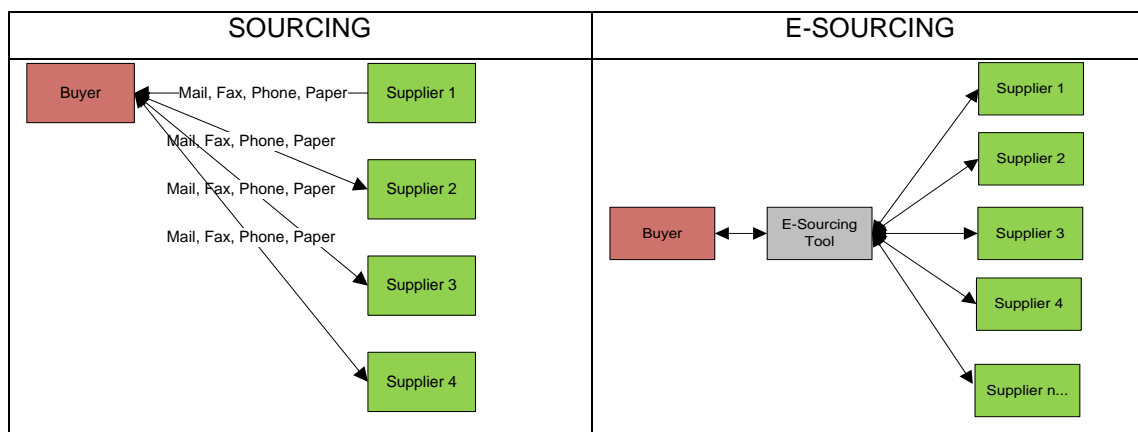


Figure 6 – Processes: Sourcing vs E-Sourcing

In E-Sourcing all documents and communications are exchanged within the same software; the potential number of suppliers reached is higher, which generates more simplicity, better productivity and better business.

These advantages are bottom line in the Aberdeen (2005) report: an E-Sourcing tool allows reducing sourcing administration cost in 60% and Cut sourcing cycles in half.

**HOW TO IMPLEMENT AN E-SOURCING TOOL**

*“The success of an auction is dependent on the structuring of the event”*, says Philipp Hoffmann

The implementation of new software is always a delicate process that has entrance barriers and key factors of success. People usually have some resistance to change, so the requirements need to comply with people’s expectations.

Rocha, et al. (2008) defined four guidelines to an effective implementation of an E-Sourcing tool (mainly focused on ESEP):

- **Strategy:** Definition of the goals and the direction to achieve those same goals;
- **Processes:** Improving the processes that will produce better tangible results;
- **People:** Managing the old issue “Resistant to change by the end users”;
- **Technology:** Access to Internet. Performance and Security of the E-Sourcing tool.

The issues related to each of the above four guidelines are described in Table 6.

<b>STRATEGY</b>	<b>PROCESSES</b>
Involve all Stakeholders. Provide mechanisms to illustrate the advantages of the new E-Sourcing tool. Make Business Case of the new E-Sourcing. Training.	When necessary create formal Sourcing Processes. Identify and involve the key users.
<b>PEOPLE</b>	<b>TECNOLOGY</b>
Resistant to change – persons think the machine is going to replace them. Lack of IT skills. Training the end users. Utilizations Guides. Monitoring and personal consultant’s presence after the GO-LIVE.	Avoid insufficient system infrastructures. Provide access to Internet. Choose a stable E-Sourcing tool with low lose connectivity problems

Table 6 – How to implement an E-Sourcing tool

## 2.4 Final Remarks

*“Mapping the WWW. Is like mapping a maze. If you could ride above the maze in a balloon, the task would be easy: You would simply draw what you saw lay out below you. But there is no balloon that will give us a bird’s eye view of the WWW, because it exists only in cyberspace”*

Phillip Ball, Critical Mass, how one thing lead to the other

As a final remark, it is sketched a big Picture of the several phases, mechanisms and connections inside the E-Economy phenomenon. Figure 7 gives more emphasis to the B2B and ESEP subjects and Vortal is inserted because the Case Study explored on Section 5 is based on the Vortal ESEP.

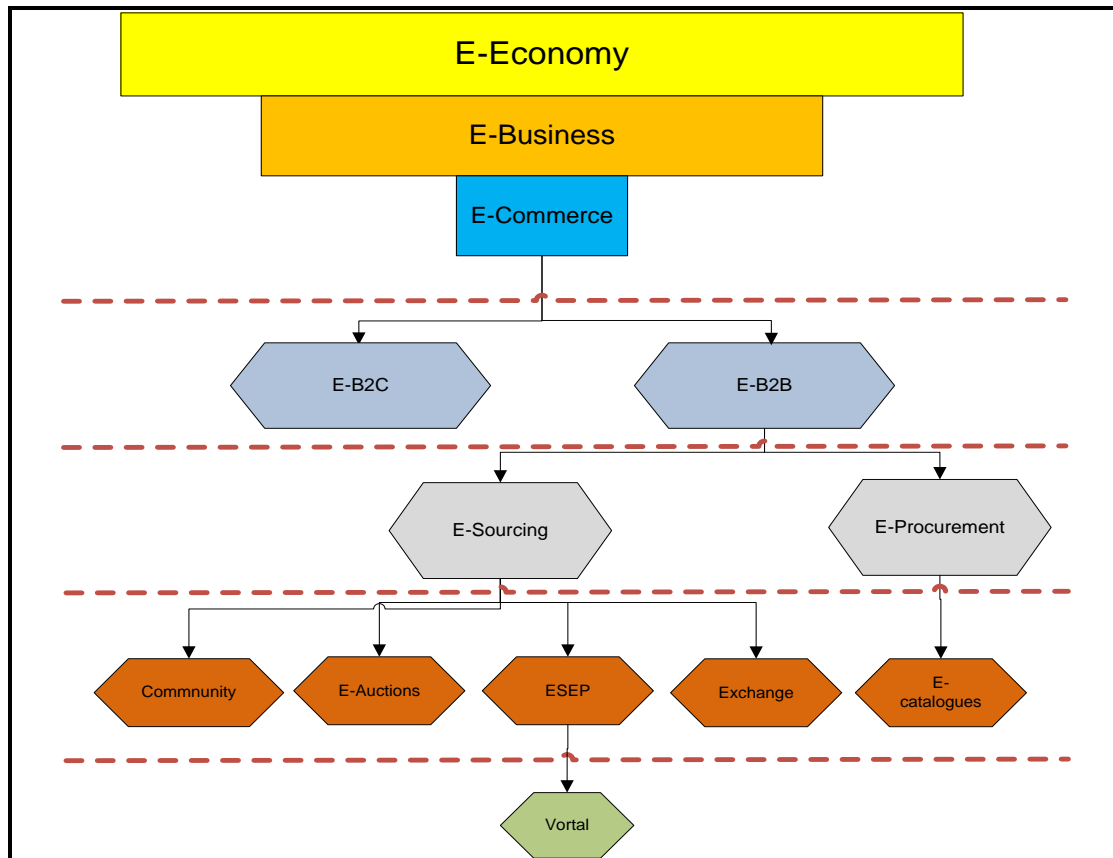


Figure 7- Sketch of several E-Economy connections

The numbers of connections allowed by the World Wide Web are unreachable. Man created a mechanism and doesn't know its structure. Regardless this fact, Figure 7 gives a comprehensive structure of the E-Economy. Firms understood that Internet allowed new business, and different kind of EMs were created (B2B, B2B, B2A, among others.) B2B EMs are divided in E-Sourcing (Strategic phase of the purchase) and E-Procurement (Operational phase of the purchase).

B2B EMs have different configurations. We believe Community, E-Auctions (Reverse and Seller Driven), Exchange and ESEP mechanisms should be placed in the E-Sourcing segment, because they seek to source for the best supplier in a wide and many times undefined scope of suppliers. While E-Catalogues is at the E-Procurement phase because the buyers just gave to choose and order a product from a catalogues of products previously defined.

### 3. E-Sourcing Electronic Platforms - ESEP

This Section focus on several aspects regarding ESEP:

- Core building blocks of an ESEP;
- Main Benefits of ESEP;
- Physical and Virtual Value Chain - ESEP;
- E-Government;
- Evolution of ESEP.

#### 3.1 Core building blocks of an ESEP

*"True to the metaphor, Interchange connects disparate groups and generates efficiency across the sourcing and contracting process"*

Keith Clay, vice president of contracting services for Broadlane

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).

#### ONLINE PURCHASING PROCESS:

Returning to the Figure 4 already mentioned in Section 2.3.2 and presented again in Figure 8, 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.

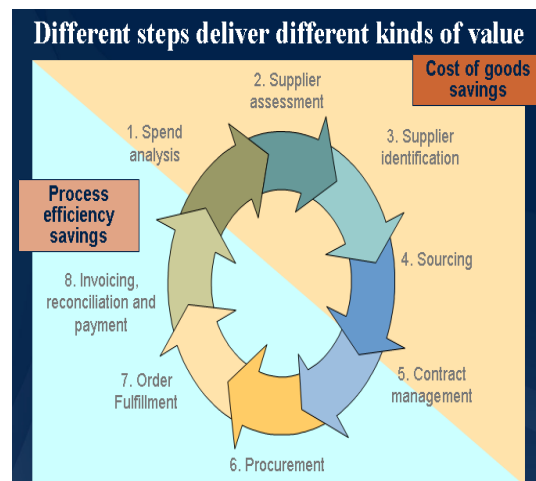


Figure 8 - E-Sourcing and E-Procurement different steps deliver different kinds of value- Adapted from Giga Research (2004)

1. Spend analysis: Allows answering the question “Who buys what, from whom?” ([www.emporion.com](http://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 in terms of evaluating the suppliers behavior in the latest Request For Proposals;
3. Supplier identification: At this step the best suppliers to respond at 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 to 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: At 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 process 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.

Each step has its own particularities and complexities, and there are firms specialized in developing software only to one of the steps of the online purchasing process. Some examples are shown in Table 7.

<b>Product Segment</b>	<b>Name of the Software Provider</b>
<b>E-Procurement Software</b>	SAP, Ariba, Oracle, Peoplesoft.
<b>E-Sourcing Software</b>	Ariba, Emptoris, Oracle, PeopleSoft.
<b>Spend Analysis</b>	Ariba, ICG Commerce, ATKPS, Free Markets, Ketera.
<b>Contract Management</b>	Ariba, Oracle, SAP, PeopleSoft, i2.

Table 7 – Product Segments at the e-purchasing process and software providers by step – Giga Research (2004)

## CORE BUILDING BLOCKS OF AN ESEP

After describing of the online purchasing, the core blocks that build an ESEP are identified. 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;
- Analytics.

Aggregating the 8 steps of the online purchasing process and the core building blocks of an ESEP, it is possible to build the diagram bellow, where, following the steps of the E-Sourcing, the core blocks that an ESEP must have are displayed. See Figure 9.

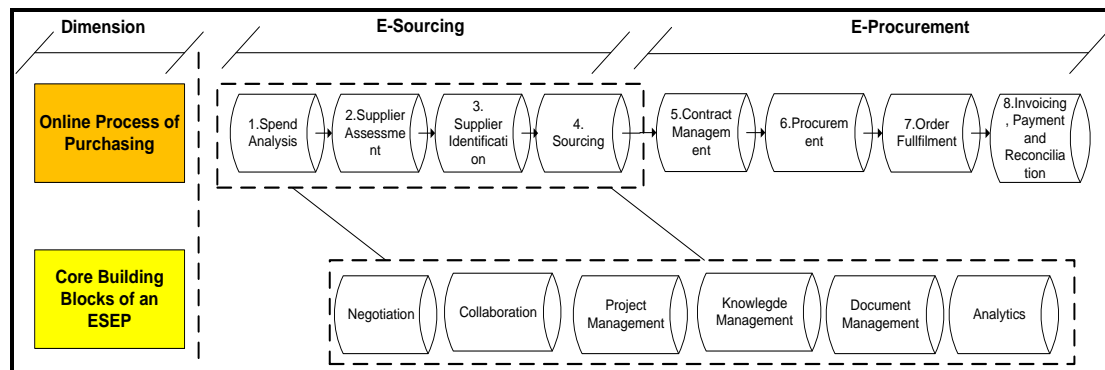


Figure 9- Online Purchasing Process and Core building blocks of an ESEP

Regardless the core blocks already mentioned that should integrate a new E-Sourcing software tool, it is very expensive to build all the core blocks. So, it is normal that some features of the tool are not implemented.

Therefore, and to allow some reflection on the subject, two different kinds of core blocks of the ESEP are separated as follows:

- **Critical path content:** Negotiation, Collaboration (Requirements specification and collaboration with the supplier is a requisite), Document Management (The attachment of documents is necessary). They are absolutely necessary to the performance of the ESEP;
- **Value Add Services content:** Project Management, Knowledge Management and Spend Analysis. They are very important but an ESEP can perform without them.

For example, the developments required for a start-up software provider, that wants to deliver a product focused at the sourcing step, must allow the E-RFX and Award sub-process. These two sub-processes can be defined as the critical path of the sourcing step.

### **E-RFX:**

- The required fields in order to allow a correct requirement specification;
- Workflow capability (from who starts the process until who launches the process to one supplier or more);
- Communication tool that allows buyer and supplier to exchange electronic communications;
- Allow Document Attachments.

### **Award:**

- After all the proposals are analysed (at the ESEP- if a comparative system exists- or outside the ESEP (Excel, Open Office, others) the Buyer should be able to make the award process within the ESEP;
- The Supplier(s) must be able to receive the award notification at the ESEP.

Thinking in the Value Chain terms, critical path features are support activities, and value added services are primary activities. In fact, critical path content is critical to a successful operation, but tends to be not strategic while Value Added Services are always strategic and anticipating trends.

### **3.2 Main benefits of ESEP**

*“E-Sourcing also encourages the development and use of best practice, because most of the processes involved in E-Sourcing will become templates, successful practices will be easily carried out each time those templates are used.”*

*Adam Lynch*

ESEP solutions are transversal. However, buyers and suppliers have different perspectives on benefits. In order to take advantage of the e-purchasing tool these different perspectives are analyzed.

Section 2.2.2 mentioned that, in EM systems, both buyers and suppliers take advantage of process improvement and new business generation, but only the buyers achieve cost reductions benefits.

Bellow we identify some concrete transversal benefits to the different purchasing order mechanisms are identified, using Tascomi Services (2000-2004):

- Printing cost per page;
- Postage cost per gram;
- Phone cost per minute;
- Faxing costs per minute;
- Archived documents secure storage per box;
- Staff time;
- Advertising space (linage) costs.

### 3.2.1 The buyer benefits

“...Vortalgov electronic platform allow us to save Resources and Money, gives us a wider view of the market allowing us to reach a high number of suppliers increasing our competitiveness”

Ana Aeroportos – Buyer side client of the ESEP VortalGOV - [www.vortalgov.pt](http://www.vortalgov.pt)

Section 2.2.3 of this Study described the different EMs purchase order mechanism: Catalogs, Auctions, Reverse Auctions, Exchange, Community and ESEP.

It is important to identify, compare and describe the buyer benefits at each of these purchase order mechanisms. Blodget, et al. (2000) proposes the buyer benefits displayed in Table 8. ESEP benefits are described apart.

<b>Purchasing Order Mechanism</b>	<b>Main Buyer Benefits</b>
<b>Catalogs</b>	-Improvement of the procurement process with a better allocation of human resources allowing reducing of inventory costs; -Expands potential supplier base; -Easy product comparison based on multiple dimensions (price, quality, availability).
<b>Auctions</b>	-Easier means by which to find unique products, services and discounted prices; -Broader selection (allow hundred of bids from all over the world).
<b>Reverse Auctions</b>	-Lower prices through competitive seller bidding.
<b>Exchange</b>	-Venue to fill immediate purchase needs.
<b>Community</b>	-Industry-specific destination with high relevant content characteristics and community tools; -Products and Services of advertisers highly relevant.

Table 8 – Buyer benefits according to the purchase order mechanism, adapted from Blodget, et al. (2000)

By interpreting Table 8, we argue that each purchasing order mechanism (although related with the others) maximizes a certain type of benefit and has its own core application area.

ESEP is the purchasing order mechanism closer to strategic sourcing (without the cost centric approach of the purchase order mechanism described in Table 8).

Therefore their benefits are similar to the E-Sourcing benefits already described.

However, ESEP buyer benefits depend of the core building blocks included in the software. Each block fulfils a certain type of benefits.

ESEP systems that include all the core building blocks identified at Section 3.1 allow a broader approach to all the online purchasing process and maximize the strategic sourcing benefits (this reflection continues in Section 4).



### 3.2.2 The supplier benefits

*“Look at the entire world as our potential market”*

Anonymous, 2009

On a general perspective, suppliers selling products in EMs achieve a more transparent purchasing process. They can increase their business opportunities, reduce customer acquisition costs and practice competitive pricing information. Naturally a fierce competition obliges suppliers to push their efficiency forward.

However, suppliers have different kinds of benefits regarding the purchase order mechanism of the EM. According to the Blodget, et al. (2000) there is a lot of supplier benefits, as possible to be seen in Table 9.

<b>Purchasing Order Mechanism</b>	<b>Main Supplier Benefits</b>
<b>Catalogs</b>	<ul style="list-style-type: none"> <li>- Lower Cost of Sales</li> <li>- New sales channels and revenue streams</li> <li>- Lower process costs</li> <li>- Improved customer Satisfaction</li> </ul>
<b>Auctions</b>	<ul style="list-style-type: none"> <li>- Sellers attract more bidders for more competitive bidding and higher selling prices</li> <li>- Cut out liquidation brokers</li> <li>- Increased Inventory turnover</li> </ul>
<b>Reverse Auctions</b>	<ul style="list-style-type: none"> <li>- New sales channels and revenue streams</li> </ul>
<b>Exchange</b>	<ul style="list-style-type: none"> <li>- Venue to offload excess capacity at market prices</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>- Industry specific nature of site provides a highly targeted group of potential customers</li> </ul>

Table 9- Supplier benefits according to the purchase order mechanism, adapt from Blodget, et al. (2000)

By interpreting Table 9, we argue that other benefits also rise up like cutting-of the “middle man” and the capacity to offload excess capacity (Exchange).

Regarding ESEP, suppliers cannot look at ESEP like a tool that will constantly make their commercial margins lower, but as a tool that gives more transparency to the purchasing process, allowing reaching new clients, creating new online points of sale, geographically spread out, and also as a tool that will help them to shift up his process and competitiveness performance.

Finally, an important difference from ESEP to the other purchasing order mechanism is that, because ESEP favours strategic sourcing and doesn`t have a cost centric approach, allowing suppliers to value their added products/services more effectively.

### 3.3 The Physical and the Virtual value chain - ESEP

“The bigger the virtual community is, higher are the success probabilities” Sviokla, et al.(1995)

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), this value chain will be referred as the “Physical Value Chain” (PVC). This model evolved adapting to more modern environments and some changes were produced. Anyway the main structure was preserved so it can be referred to the initial form without distorting our reasoning

Sviokla et. al. (1995) created the concept of Virtual Value Chain (VVC), which bases the value generation in information, and not in physical activities. According to John Sviokla creating value through information is achieved by 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, instead of physical activities (PVC). But, what were the impacts of VVC in the PVC and the integration of the two? Weiber, et al. (1998) proposed a three level division: Performance improvements at the marketplaces, freestanding output in the marketplace and additional consumer value in “marketspace”.

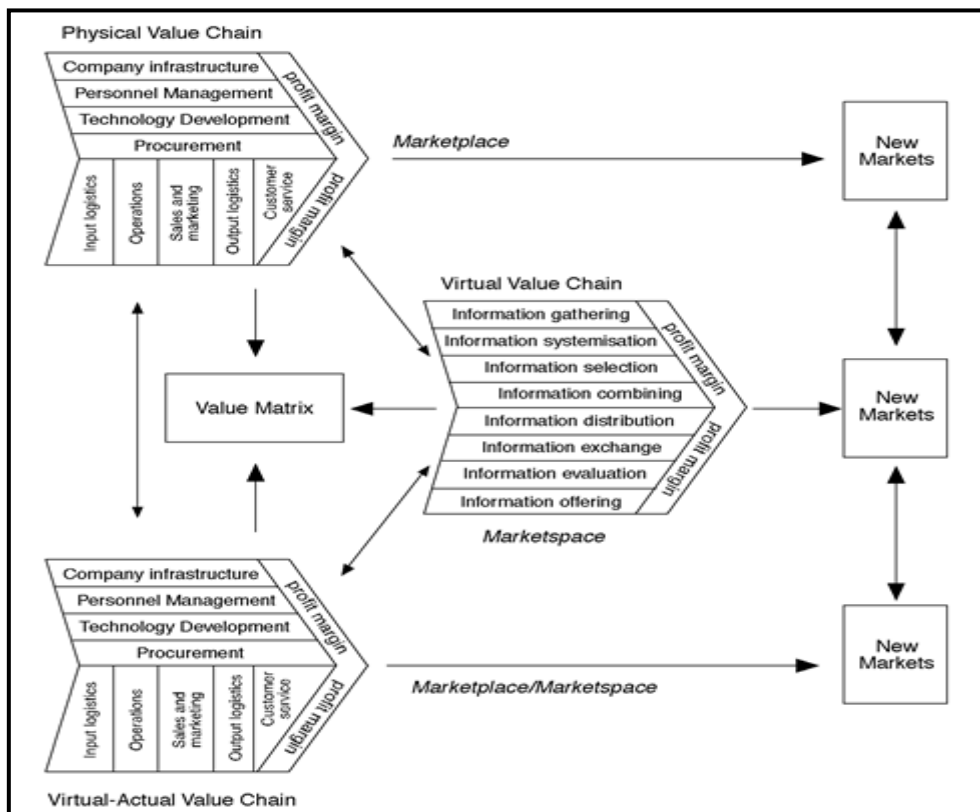


Figure 10 – Virtual Value Chain, Physical Value Chain and Virtual-Actual Value Chain- Weiber, et al. (1998)

The division suggested by Weiber, et al. (1998) is highlighted in Figure 10. In a first level, VVC changed the way business is made at marketplaces. At a second level, it is possible to see the VVC allowing the creation of new markets (online auctions and EMs). Finally, through the combination of a Value Matrix between 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 the main steps of an e-RFx are analyzed in Figure 11, 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.

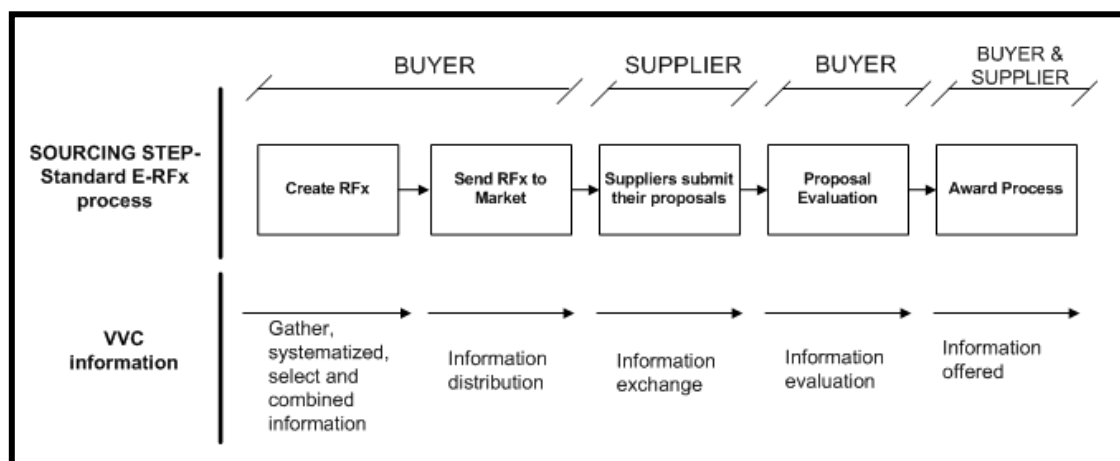


Figure 11 – Standard E-RFx process at an ESEP and VVC information flow

Another example is the Supplier Identification step of the e-purchasing process. At this step, the buyer firms search for the best supplier(s) based on the available information. Vortal has a specific functionality (“Directories of Firms”, will be analyzed in Section 5) in its EM that regards this aspect.

The last example is the E-Procurement step, where e-catalogues are available at the ESEP platforms. Through the e-catalogues, buyer firms can directly place a request to a purchase order at their internal systems without having to analyze high volumes of paper.

### 3.4. E-Government

“...If Electronic Public Contracting is generalized the European Members will be able to save 5% at the bought of things, goods and materials while the Economic Operators may save between 50% and 80% at their transaction costs...”

European Union Commission (2004)

This Section describes the developments occurred in E-Government in the European Union (EU). A brief history on E-Government is presented, the different implementation models are compared and the Portuguese situation is analyzed.

#### **BRIEF HISTORY**

After the Internet boom, E-Commerce started to have important developments and some pioneer countries began to reformulate their legislation regarding Public Contracting.

On March 2004, the European Union published two decisive directives 2004/18/CE [http://www.ancp.gov.pt/Legislacao/Pages/Directiva\\_2004\\_18\\_CE.aspx](http://www.ancp.gov.pt/Legislacao/Pages/Directiva_2004_18_CE.aspx) and 2004/17/CE <http://www.dgpj.mj.pt/sections/leis-da-justica/pdf-internacional/directivas/directiva-2004-17-ce/> regarding the coordination of the contract award process in the EU. These directives obliged the EU members to adapt their Public Contracting Processes to an online process until 31/01/2006.

On December 2004 the Commission to the European Communities submitted an Electronic Public Contracting Action Plan to the European Parliament. The action plan was divided in three different aspects described in Table 10.

Action Plan	Goals and Actions of each dimension
<b>Accomplish a good functionality on each internal market</b>	<ul style="list-style-type: none"> <li>- Proper and on schedule application of the new legislation;</li> <li>- Implement the new legislation with the correct mechanisms; (Standard Forms to be published at TED (Tenders Electronic Daily) and the use of CPV (Common Procurement Vocabulary) at the classification of products/services;</li> <li>- Eliminate/Prevent obstacles to fulfil the public contracting electronically;</li> <li>- Gradually detect and resolve interoperability issues.</li> </ul>
<b>Achieve bigger efficiency and governance at public contracting</b>	<ul style="list-style-type: none"> <li>- Increase the efficiency and governance of public contracting;</li> <li>- Increase the competitiveness of the EU markets.</li> </ul>
<b>Work towards an international perspective of Electronic Public Contracting</b>	<ul style="list-style-type: none"> <li>- Follow up of worldwide legislation regarding the electronically public contracting.</li> </ul>

Table 10 - Goals of the Action Plan proposed by UE, adapted from EU Commission (2004)

The action plan also defined:

- Several intermediate stages in order to help and support the EU Members to implement ESEP;
- Encourage each EU member to build its own Action Plan;
- Settle the 31<sup>st</sup> of January 2006 as the limit the EU members should have their new legislation properly implemented.

## **IMPLEMENTATION**

Each EU members had two main issues in hands in order to adopt the 2004/18/CE and 2004/17/CE directives:

- Choose and implement the model of electronically public contracting. According to the Science and Technology Minister (2001) three models exist: Public Model, Private Model and the Mix Model;
- Adapt the new legislation and procedures defined in 2004/18/CE and 2004/17/CE directives.

The first issue is related to the choice of the implementation model. Each model particularities is described in Table 10.

<b>Model</b>	<b>Description</b>	<b>Advantages</b>	<b>Disadvantages</b>
<b>PUBLIC</b>	- Management of the ESEP secured by the State or Public organizations and indirectly managed by the state.	- Reengineering of public acquisition processes; - Potential for elimination of resistances to change with the presence of private companies.	- High initial investment by the State; - Financial Risk of owning the platform due to technology changes; - Not taking advantage of the presence of private companies.
<b>PRIVATE</b>	- Management is secured by private firms.	- Low initial investment by the State; - The state does not own the financial aspects of managing the ESEP.	- Political risk of choosing the ESEP private manager; - Potential higher cost by transaction; - Potential risks of the Public Administration having more reluctance to change because of the presence of a private company.
<b>MIX</b>	- Management by the state and one or more private entities.	- Less initial investment by the state.	- Delicate choice of the partners; - Difficult to divide the costs between the state and the private(s) entity (ies).

Table 11-Public, Private and Mix Models, adapted from Science and Technology Minister (2001)

None of the three models presented takes clear advantages from the others. The choice of the implementation model is highly related with the specificities of each country and, at this moment, (where electronic public tendering still is a recent issue) no conclusion can be made on which is the best model.

This aspect is highlighted by the different choices of models made by the EU members – some examples:

- France: Mix Model: [www.marches-publics.gouv.fr](http://www.marches-publics.gouv.fr);
- United Kingdom: Public Model [www.ogcbuyingsolutions.gov.uk](http://www.ogcbuyingsolutions.gov.uk);
- Denmark: Mix Model: [www.doip.dk](http://www.doip.dk);
- Portugal: Private Model: vortalGOV, Construlink [www.compraspublicas.pt](http://www.compraspublicas.pt), Bizdirect-[www.biz.gov.pt](http://www.biz.gov.pt) (in the Private Model management can be made by more than one private enterprise).

The second issue regards the adoption of the new legislation and procedures defined on the directives 2004/18/CE and 2004/17/CE. These two directives together have approximately 235 pages with new type of procedures (Competitive Dialogue, Framework Agreement, for instance) and new requisites (Common Procurement Vocabulary, Advanced Digital signatures, among others).

## **PORTUGUESE CASE**

A quick overview of the Portuguese situation with the most important milestones is presented in Table 12.

<b>Milestone Description</b>	<b>Date / Portuguese or European Legislation</b>	<b>Impact</b>
2000/31/CE Directive	8 June 2000 / European Legislation.	First step towards Electronic Public Contracting.
Portuguese Minister Council Resolution nº32/2001	16 January 2001 /Portuguese Legislation.	Creation of a Portuguese think tank for Electronic Public Contracting.
2004/18/CE e 2004/17/CE Directives	31 <sup>st</sup> March 2004 / European Legislation.	Coordination of the contract award process at the European Union
Electronic Public Contracting Action Plan	29 <sup>th</sup> December 2004/ European Commission.	Definition of intermediate Milestones.
Law Decree 18/2008	29 <sup>th</sup> January 2008 / Portuguese Legislation.	Adaption and definition of new legislation and Procedures
Law Decree 143 A-2008	25 <sup>th</sup> July 2008 / Portuguese Legislation.	Complementary Legislation of Law Decree 18/2008.
Regulatory Ordinances – 701-A, 701-G, 701-H, 701-E, 701-D, between others	29 <sup>th</sup> July 2008 / Portuguese Legislation.	Complementary Legislation of Law Decree 18/2008.

Table 12 – Important milestones of electronic public contracting in Portugal

From Table 12 is possible to highlight the publication of the Law Decree 18/2008 by the Portuguese Government (with the adaptations required by 2004/18/CE and 2004/17/CE directives) and that replaced the Law Decrees 57/99 and 197/99, that didn't suite the requisites of 2004/18/CE and 2004/17/CE directives.

In Portugal the Private model was adopted with more than one private firm supplying private platforms. There isn't a formal reason for the choice of this model, but probably it is related with investment and risk engaged by private entities. The Portuguese electronic public contracting ESEP platforms are: VortalGOV, Construlink, Bizdirect. The ESEP leader in Portugal is the VortalGOV. This platform started operating on 2004 and has approximately 700 public buyer's entities.

### **3.5 Evolution**

*"Supplier participation has been a struggle, as firms learn that E-Procurement was the tail, and not the head, of business value"*  
Giga Research (2004)

The e-purchasing solutions had their "boom" at 1999, 2000 and earlier 2001, when they had a 400% growth during these two and half years (Giga Research, 2004).

However, the first e-purchasing solutions were focused at the E-Procurement step of the online purchasing process. According to Giga Research (2004), as companies learned that E-Procurement (cost centric approach) was the tail, and not the head of the business value, the vendor's revenues started declining until 2003.

According to Forrester (2009) the vendors revenues recovered quite modestly during 2004 (9%) and 2005 (5%). From 2006 to 2009 (2008 and 2009 values are forecasts) the e-purchasing tools revenues grew approximately 20% each year (Figure 12).

This was not obtained through a came back of the E-Procurement solutions (11% growth), but from the growth and appearance of other segments (Supplier performance management – 115%, Services Procurement – 35%, Supplier Network – 24%, Spend Analysis – 25%, between others) that allowed a broader and more valuable coverage of the e-purchasing process.

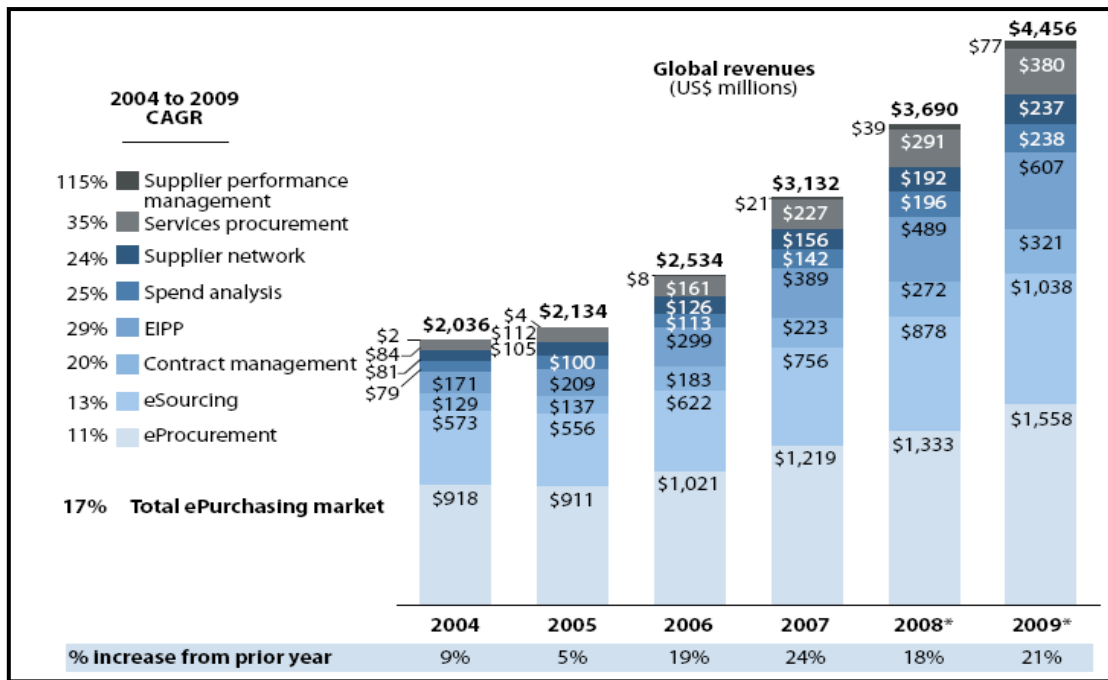


Figure 12 – Evolution of e-purchasing tools from 2004-2009, Forrester (2009)

Observing Figure 12, and using a money language, it is important to mention that the e-purchasing solutions in 2009 will bring approximately revenues of 4,456 millions of dollars.



## **4. Methodological Framework**

In the first part of this Section it is proposed a framework in order to answer to the research questions.

The proposed framework is based on the Study of the three dimensions of ESEP (Positioning, Business Dimensions and Major Blocks) in order to build a successful e-purchasing tool. The last dimension of the framework is concerned with how a successful e-purchasing suite maximizes strategic sourcing policies.

In the second part of this Section it is detailed the research methodology. The research approaches, and research strategy (Case selection, Data collection and Strengths and Weaknesses) are detailed.

#### 4.1 Proposed Framework

*“A framework is a starting point and not an ending point. Firms and people often present important conclusions without considering a structured framework or a strong presuppose.”*

Anonymous

The first dimension of the framework is “positioning”. It was observed in Figure 8, that the e-purchasing process is constituted by 8 main steps, and there are several software providers specialized at each step. It is mandatory for a successful e-purchasing tool to be correctly placed at the market.

The second dimension of the proposed framework is the definition of the business dimensions of the e-purchasing tool. It is important to identify the best way of working for the e-purchasing tool. Namely, the imbedded Business Model, Order Purchasing Mechanism, Revenue Model and Market Characteristics, among others.

After defining the positioning and the business dimensions of the e-purchasing tool, it is important to look at a more operational level and analyze which are the major blocks covered (third dimension).

These three dimensions regard the building of the software that serves both suppliers and buyers. The last dimension of the Study is to analyze how the best in class purchasing tool will maximize strategic sourcing. The framework structure is resumed in Figure 13.

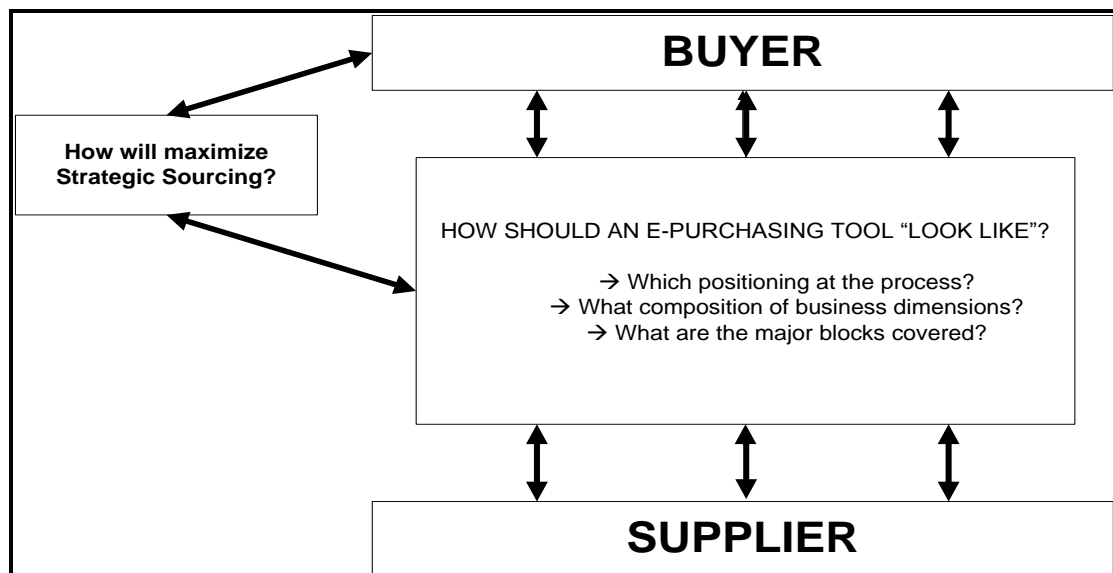


Figure 13- Proposed Framework: E-purchasing tool and strategic sourcing

#### 4.1.1 Positioning

*“Under positioning, over positioning, confused positioning, doubtful positioning”*

Philip Kotler

There are several segments in the online purchasing process. In Table 13 are described the several segments in the online purchasing market.

<b>SEGMENT</b>	<b>Segment Description</b>
<b>Comprehensive Enterprise Application</b>	Offer a suite of applications for purchasing, procurement, sourcing and analysis under the label of supplier relationship management (SRM). These suites are pre-integrated with ERP systems.
<b>Combined E-Procurement, E-Sourcing, Spend Analysis and Contract Management</b>	Also offers suites that combine E-Procurement and E-Sourcing with spend analysis and/or contract life-cycle management. Usually marketed as Spend Management.
<b>Stand alone E-Procurement</b>	Used to support the E-Procurement Process.
<b>E-Procurement business process outsourcing (BPO)</b>	BPO is a strategy of contracting with a third-party service provider. BPO is particularly popular for noncritical categories (such as office supplies, some services, printers and copiers, etc.).
<b>E-Sourcing</b>	Supports the Supplier Assessment, Identification and e-RFx phases of the e-purchasing process.
<b>Services Procurement</b>	Softwares that manage the steps for sourcing and procurement services. Specially focused on close tracking, assuring the contract service is delivered as promised.
<b>Full-spectrum Spend Analysis</b>	Powerful tools that allow the buyer to analyze how they are spending their money.
<b>Contract Life-cycle management</b>	Software that allows feed sourcing data into contract template, load contract terms in E-Procurement systems and tracks the compliance against the contract.
<b>Some Vertical industry specialist</b>	Procurement and Sourcing solutions to specific markets.

Table 13-E-purchasing segments, adapted from Giga Research (2004)

Table 13 shows that the online purchasing market has plenty of possibilities. From stand alone suites (Stand alone E-Procurement, E-Sourcing, Spend Analysis) to combined suites (Comprehensive Application and Combined E-Sourcing/E-Procurement tools) passing by Vertical Industry specialized tools.

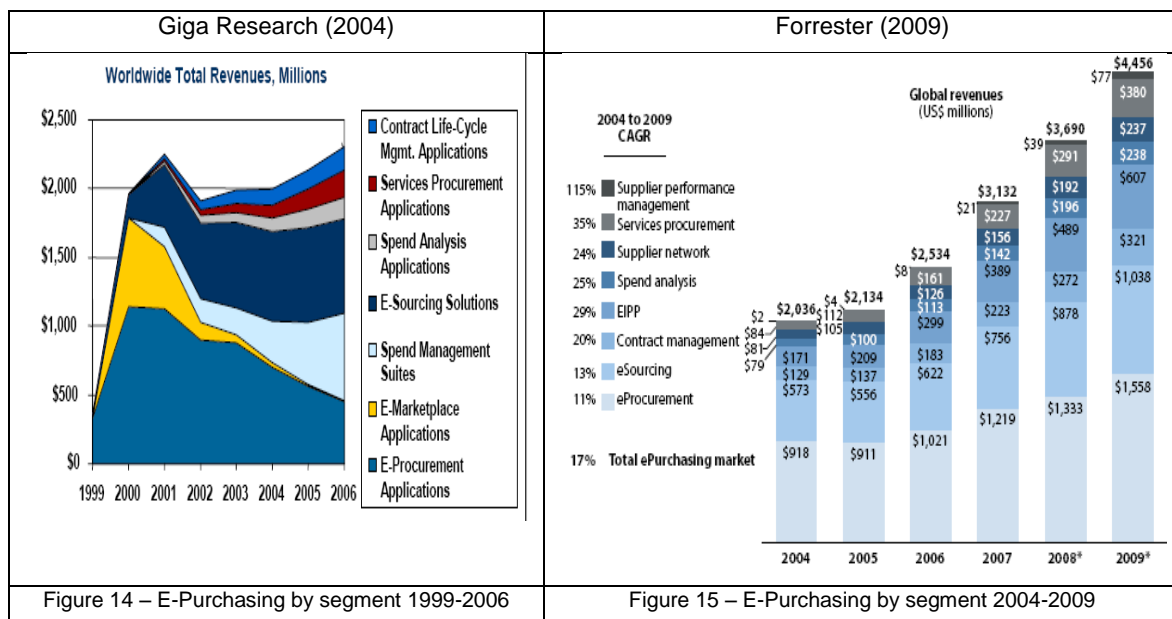
Another division of segments is proposed by another report agency (AMR, 2008): Contract Management, Direct Procurement Management, Financial Settlement (EIPP), Indirect Procurement (Services), Sourcing and Supplier Performance Management.

The segments nomenclature has some differences from report-to-report and there is no consensus in the literature about this.

Independently of the segments division, this research showed that the online purchasing market can be divided in two major groups:

- **Standalone Suites;**
- **Combined Suites.**

It is important to understand the dynamic of growth for each segment. Two studies are proposed in Figures 14 and 15.



The two reports have a relevant gap of years between each other, the Giga Research report is from 2004, while the Forrester report (the division proposed is different from the Giga Research and AMR divisions) is from 2008. The Forrester Study does not include the suites market share.

Even with these differences, important conclusions on the growth dynamic of each segment can be formalized:

- E-Sourcing and E-Procurements standalone solutions are for more mature segments and are the ones that grow slower (Figure 15, E-Sourcing growth from 2004-2009 was of 13%, while E-Procurement increase in the same period was of 11%);
- Some of the standalone segments are the ones who had a more relevant growth in the last years (Figure 15, Services Procurement (35%), EIPP (29%), Spend Analysis (24%), and Contract Life-Cycle Management (20%);
- The Supplier Performance Management (SPM) had a significant evolution between 2004 and 2009 (Figure 15, 115%). SPM is a subset of SRM. SPM practices seek to measure and manage the performance of an organization's performance in an effort to cut costs, alleviate

risks, and drive continuous improvement. SPM practices are also embedded in the Spend Management Suites;

- Spend Management Suites or Combined Suites are going to have an important role at the near future (Figure 14, Soft blue background area).

At this moment a question regarding the positioning of the purchasing tool rises up: Will the successful e-purchasing tool be a **standalone** mechanism or a **combined suite**?

It is a question with a relative answer. It is not mandatory for a successful e-purchasing tool to be placed at segment that is growing more. There are also more variables (out of the scope of this Study) that should be evaluated:

- Entrance Barriers for standalone mechanism and combined suite;
- Initial investment required;
- Return of Investment expected by segment, among others.

As was observed in Figures 14 and 15, the standalone mechanisms were the ones that had a more significant growth in the last years.

However, SPM growth in Figure 15 was of 115% in the last five years. SPM practices are executed at combined suites.

According to the research made, the combined suites will be the most important e-purchasing tools in the near future. Some relevant testimonials that corroborated this thinking are presented in Table 14.

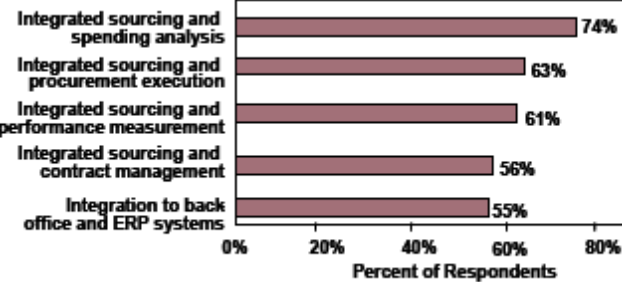
Source	Testimonial	Comment
Aberdeen, 2005	 <p>Figure 16- Criteria for Sourcing Solution Selection</p>	Integration of several phases of the E-Sourcing process in a single software provider is very important for the choice of the e-purchasing tool.
Forrester, 2009	Ariba still is an E-Sourcing leader: One of its major strengths is the link to other Ariba modules so that the same tool set can be used for both simple tactical procurement and completes strategic sourcing.	The Ariba single e-purchasing tool allows a large number of activities.
Giga Research, 2004	In the long run there is no doubt that more application suites for E-Procurement, E-Sourcing, spend analysis and contract life-cycle management will see more client demand. The purchasing process involves a series of related steps, and there are advantages in terms of the data model, application integration and pricing in buying pre-integrated applications to support each step from a single vendor.	Combined Suites applications are easier to manage than a mix of single suites.
Agassi, S., 2006	The days of buying point products are long behind us. Five years from now customers will use only suites. You won't purchase individual point products such as ERP, CRM, SCM or HR applications.	In the future clients will prefer suites instead of standalone solutions.

Table 14- Standalone Suites versus Combined Suites

An intermediate conclusion can be proposed. **Combined Suites** will face a bigger sustainable demand in the near future, because they are easier to manage, they have the ability to cover all the e-purchasing process, they present data models advantages and they have price competitiveness advantages comparing to the buying of several stand alone softwares.

## 4.1.2 Business Dimensions

*“What business dimensions suites better our electronic market?”*

Alan Thompson, 2005

In Section 2.2.3, the six segmentation dimensions of EM's (Business model, Order processing mechanism, Revenue model, Market characteristics, Product specifics, EM services) were differentiated and analyzed. Now it will be analyzed which characteristics of the EMs Business Dimensions return more value and are more sustainable.

### **Business Model:**

There are three types of EMs: focusing on sellers, focusing on buyers and neutral marketplaces, which do not favor either sellers or buyers but attract both.

The focusing on the seller type of market seeks to give power to the sellers, while the focusing on the buyer type of market is usually adopted by large buyer firms and is set up with the aim of shifting power to the buyers (Berryman et al. 1998; Alaniz, et.al 1999)

The bigger the virtual community is, the higher the success probabilities (Sviokla, et al.1995). We argue that the business models that return more value to a broader number of firms are neither focused on the buyers nor on sellers.

Neutral EMs have significant network effects, attract both buyers and suppliers, allowing the increase of participants at the EM and facilitating giving a wider critical mass to the EM. This increases the potential number of transactions and its success probabilities.

### **Order purchasing mechanism:**

There are several types of EMs purchase order mechanisms: E-Catalogues, Auctions, Reverse Auctions, Exchange, Community and ESEP.

E-catalogues are positioned at the E-Procurement phase (segment that is growing less at the e-purchasing landscape – Figures 14 and 15). Auctions and Reverse Auctions focus on price (without a strategic view of the purchase), while Exchange and Community mechanism have a quite limited scope by being specialized at a given Specific Industry.

Neither of these five purchase order mechanisms have the ability to constitute an e-purchasing suite and engage success with strategic sourcing measures.

We previously concluded that Combined Suites are the segments which will have a more sustainable growth. Therefore, it can be said that ESEP is the most corrected purchase order mechanism to build an e-purchasing suite, and to allow buyers side firms to practice successfully strategic sourcing.

### **Revenue Model:**

In Table 3 of Section 2.2.3 the main revenue sources of EMs were presented: Transaction fees, subscription fees, advertising, professional service fees and value added fees.

Usually EMs services providers begin by choosing a model based on transaction fees, subscription fees or mixed (transaction fees and subscription fees). We think that a model based on mixed fees can adapt easier to the client's needs or, in other words, some firms prefer to pay by transaction while others desire to pay a subscription.

The successful e-purchasing tool should have an adaptable pricing strategy regarding the client's needs, but having more emphasis on the subscription fees in order to assure revenues instead of depending on the number of transactions.

To complement a mix model with more emphasis at the subscription fees the successful e-purchasing tool should also provide:

- Value Added Services packages (premium products) priced apart from the normal products in order to take advantage of the investment done in developing them and creating an extra revenue source;
- Advertising Services: An EM with a large virtual community can become an important advertising channel in order to allow firms to promote their products. Home page publicity and banners must have a place in the e-purchasing tool;
- Professional service fees: Consultant presence training and call center are usually well noted services by the clients.

### **Market Characteristics:**

EMs may be Vertical (aimed at a very specific industry) or Horizontal (not customized to a specific industry); and also Public (open trade environment) or Private.

The e-purchasing tool will have a neutral business model position and therefore will have a Public dimension (Private dimension is only applied at an EM controlled by the buyer).

In the beginning the successful e-purchasing tool wouldn't probably have an important critical mass (the increase of suppliers and buyers would necessarily need some time), and would have to start in a horizontal market.



However with the rolling of the years, if some business sectors started to have more presence at the EM, the successful e-purchasing tool could evolve to groups of vertical markets.

### **Product Characteristics:**

The products/services usually commercialized in EMs have been previously presented: Highly standardized merchandises, products with short life-cycle, Low-value goods and products with high volatile prices.

Independently of the more common products/services transitioned, the items commercialized are deeply connected with the buyers needs and the suppliers needs. It is not mandatory to be a standardized product, buyers can purchase any type of product through an EM, and sellers try to sell whatever they think that may be bought.

An example of this fact is the new Lisbon airport contest. The Lisbon airport contest will probably be placed in one of the Portuguese certified ESEP, independently of the high level of complexity requirements.

### **Services:**

The successful e-purchasing tool will have to be effective at the three phases where business transactions occur (Information, Negotiation and Execution).

Before going to the next dimension of the framework it is important to resume the ideal business dimensions achieved:

- Business Model: Neutral;
- Order Purchasing Mechanism: ESEP;
- Revenue Sources: Mixed (transaction and subscription fees) plus value added services, advertising and professional services fees;
- Market Characteristics: Public, at the beginning Horizontal and depending of its evolution could become Vertical;
- Product Characteristics: Whatever the buyers want to buy and suppliers want to sell;
- Service: Including the Information, Negotiation and Execution phases.

### **4.1.3 Major blocks of the successful e-purchasing tool**

*“The next phase of EMs evolution will be centered on providing value-added services that support the transaction.”*

Raisch, W. (2001)

In Section 3.1 we concluded that the successful e-purchasing tool would 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 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.

In fact, resuming Figure 16 (Criteria for Sourcing Solution Selection), it can be observed that 55% of the responses assume integration to back office and ERP systems as a 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).

We think there will be more effective processes if a many items purchasing order integrates the monitoring of the ongoing request for proposals. There will also produce benefits allowing migration of materials description and codes of the ERP directly to e-purchasing tools.

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. 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 system) allow a better performance of the transaction both for buyers and suppliers, increasing their competitiveness. We believe this is in fact a future trend.

The e-purchasing tool is now completed and is represented in Figure 17.

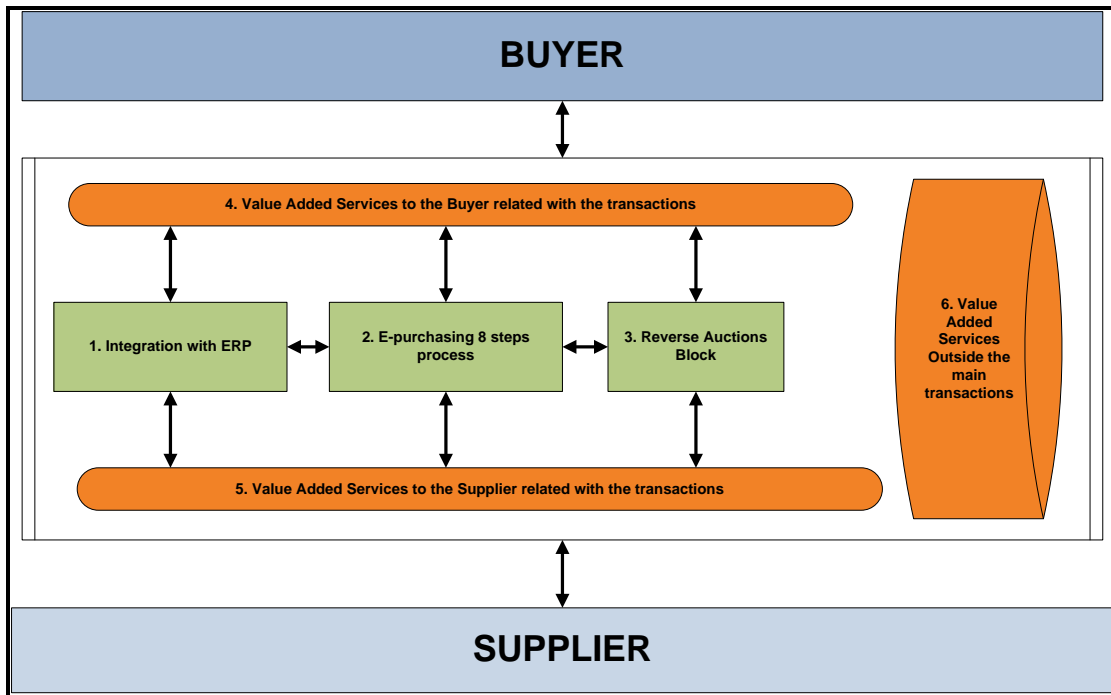


Figure 17 – Main blocks of the successful e-purchasing tool

It is important to make a “drill down” and dismantle the main blocks of Figure 17:

- 1. Integration with ERP:** Purchase orders integration with most common ERP systems, references and products integration;
- 2. E-purchasing 8 steps process:** The e-purchasing process is divided in E-Sourcing and E-Procurement. In order to perform the drill down of the e-purchasing 8 steps, return to Figure 9- Online Purchasing Process and Core building blocks of an ESEP and use Figure 18.

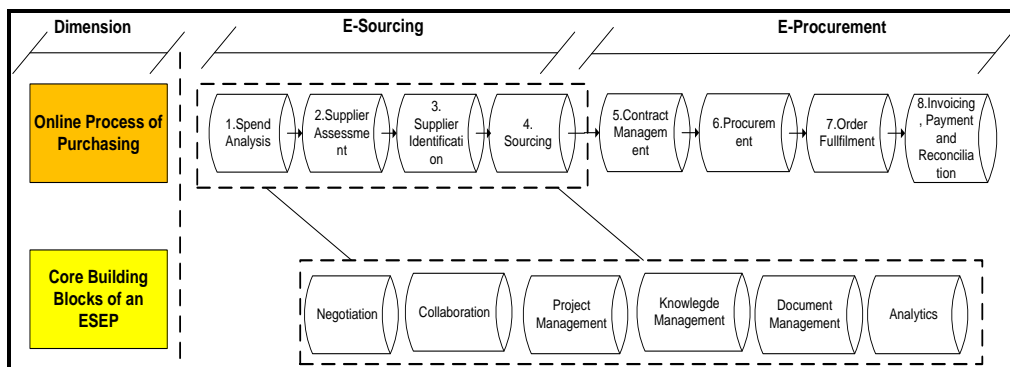


Figure 18- Online Purchasing Process and Core building blocks of an ESEP

The four steps of E-Sourcing (Spend Analysis, Supplier Assessment, Supplier Identification and Sourcing) are sub-divided at 6 blocks. Aberdeen (2002) defines these blocks as:

- a) Negotiation: Including reverse auction and e-RFx capabilities;
- b) Collaboration: Including support both for cross-functional collaboration around requirement developments, sourcing decision review and interpretative collaboration with suppliers;
- c) Document Management: Attachment, management and exchange of any type of document;
- d) Project Management: Including sourcing team administration, progress milestone, monitoring and alerts and role based reporting;
- e) Knowledge Management: Including a central repository for all spending, commodity, part, supplier, market intelligence and tools to create and reuse sourcing strategies and processes;
- f) Analytics: Including spending analysis, multi-parameter bid-rank analysis, optimization-based bid analysis, sourcing strategy modelling and product costing analysis.

After the detailed description of the E-Sourcing steps it is also important to detail the four steps of the E-Procurement process (as the E-Procurement phase generates less value to the client, the drill down will be directly at a step level).

- g) Contract Management: Contract creation, acceptance, changes and a central repository;
  - h) Procurement: The use of catalogs approved by the vendors, the order requisition approval process and supplier notification;
  - i) Order Fulfillment: Tracking mechanism to evaluate the contract performance;
  - j) Invoice, Payment and Reconciliation: Creation of electronic invoices, electronic invoices approval and notification of the suppliers.
3. **Reverse Auctions Block**: Allows the buyers to create a reverse auction inside or outside of a RFX process;
  4. **Value Added Services to the buyer related with the transactions**: Example: Number of ongoing e-Rfx;
  5. **Value Added Service to the supplier related with the transactions**: Examples: Sales and Market Share Monitors;
  6. **Value Added Services outside the main transactions**: Examples: chats, forums, customized homepages.

#### 4.1.4 How will the successful e-purchasing tool maximize strategic sourcing

*“Sourcing is more of an art than a process, and it requires development of internal skills and expertise”*

Giga Research (2004)

The successful e-purchasing tool presented in previous Section enhances buyer firm’s capabilities allowing for maximization of strategic sourcing in main dimensions:

1. **Allows the managers of the buyers firms to have a clear view of all the steps of the e-purchasing process.** All processes are executed within a single software, so they can reflect on process improvements focusing in the activities that bring more value, engaging in TVM practices;
2. **Mechanism oriented to maximize the strategic sourcing KPI** defined in Section 2.3.3:
  - a) **Year-over-Year Cost Reduction / Cost of Goods sold** → Aberdeen (2005) argues that because cost savings through online negotiations alone decrease over time. In order to sustain savings and drive continuous improvements in sourcing, companies will have to adopt strategic functionalities. The e-purchasing tool has instruments that go through simple negotiation and e-RFx, allowing year-over-year cost reductions;
  - b) **Purchase Price Variant** → The spend analysis block allows monitoring the purchase price component and important business intelligence mapping;
  - c) **Percent of Spend Strategically Sourced** → ESEP mechanisms allow a broader purchasing scope of products/services increasing the percent of spends made strategically; E-catalogues Auctions, Reverse Auctions focus on price and are more useful with undifferentiated products, while Exchange and Community are specialized at specific Industry sectors;
  - d) **Total Spend as a percent of Revenue** → Through the integration with other systems it is possible to connect all the achieving made at the e-purchasing tool and connect them with the ERP of the buyer firm, in order to calculate the total spend as a percent of the revenue.

The successful e-purchasing tool engages buyers firms with important mechanism to maximize strategic sourcing, but if the e-purchasing tool isn’t sustained through a solid information infrastructure, a correct and clear purchasing strategy, accurate processes and bad use can be a problem.

## 4.2 Research Methodology

*“There’s nothing more practical than a good theory”*

Kurt Lewin, 1952

This Section is divided in three sub-Sections: Research Approach, Strategy and Strengths/Weakness.

The Research Approach sub-Section describes the general guidelines and principles followed in order to answer the Research Questions.

The Research Strategy sub-Section describes the procedures followed to answer the Research Questions (sources of data collection and the method of analysis).

Finally it is presented the strengths and weakness of the Research Methodology chosen.

### 4.2.1 Research Approach

*“Research is what I’m doing when I don’t know what I’m doing.”*

Wernher von Braun

The research approach was carried out through qualitative and quantitative research methods.

It is important to distinguish qualitative and quantitative methods:

- Qualitative research: Processes are very reach, and explore many different facets. Some researchers consider experience, especially of the senses, the primary source of scientific knowledge (Bogdan and Bikler, 1998; Hernandez, 1996; Lancy, 1993; Le Compte et al., 1993); others consider that reality is socially constructed Vygotsky (1978) and Berger, et al. (1967), in both cases qualitative research and constructivist methods use to go together;
- Quantitative research: is also not a simple process but it can be said that based on the observations that are converted into discrete units that can be compared to other units using any form of statistical analysis (Maykut, et al. 1994).

Both methods were used in order to take advantages of their complementary and achieve synergies.

The research approach of this Study also uses a Case Study strategy which has an important quantitative research component due to the use of the Vortal survey from November/December 2008.

Only one Case Study is used, because we think that in this situation it would provide better reasoning. As Robert Yin once said “the purpose of the single case site Study was not to provide

generalizations of empirical results to other firms, rather the purpose was to expand and generalize theory” (Yin, 1984).

In (March et al., 1999) the authors say that “*the analysis of these near-histories and hypothetical histories often introduces fewer biases than those of real histories*”.

## **4.2.2 Research Strategy**

### **4.2.2.1 Case selection**

*“As a research strategy, the Case Study is used in many situations to contribute to our knowledge of individual, group, organizational, social, political and related phenomena”*

Robert K.Yin (1998)

In this Study the Case Study is based on a Vortal survey on EMs, with more emphasis at the ECONSTROI platform.

Some of the goals of this Case Study were to understand: which is the Vortal positioning, business dimensions and main blocks of the ECONSTROI ESEP.

These factors are straightly connected with the framework proposed in Section 4.1.3 and have an important complementary role.

In this Case Study the results of the Vortal survey “Buyers feedback to the ECONSTROI platform” were interpreted. The goal of this survey, guided by Vortal, 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.

Even not completely aligned this Case Study is suitable to our research because it is in line with our initial questions:

- **An ESEP “inside-out” perspective** that allows understanding in an empirical approach several aspects of the e-b2b leader service provider in Portugal;
- **The buyers survey allows an important sample** on the end-users feedback relative the blocks/features and general performance of the ECONSTROI platform.

#### 4.2.2.2 Data collection

*"Data! data! data!", he cried impatiently. "I can't make bricks without clay."*

Sherlock Holmes, "The Adventure of the Copper Beeches"

The data collection of this Study was made through collecting all the relevant data of the Vortal survey to ECONSTROI buyers between November and December 2008.

The goal of the Vortal survey was to understand the opinion of the users about ECONSTROI and to identify future needs of the ECONSTROI users.

The Vortal survey to ECONSTROI buyers had the following characteristics:

- 50 buyers firms that use ECONSTROI for more than a year;
- 198 end users were selected (the end users were randomly selected, independently of their role in the Buyer firms);
- From the 198 end users selected, 36 didn't answer to the survey. Survey response percentage above 80%;
- The answers scale of the survey was between 1 and 5. Where 1- Very Unsatisfied, 2- Unsatisfied, 3- Satisfied 4- Good Satisfaction and 5 – Totally Satisfied.

The data collected from the survey allowed us to reflect on:

- Satisfaction and importance degree of twelve different functionalities offered by ECONSTROI;
- Satisfaction degree to the market value allowed by ECONSTROI;
- Understand if buyers interviewed are satisfied with ECONSTROI and would recommend it to other firms;
- Three most positive aspects of ECONSTROI;
- Three most negative aspects of ECONSTROI;
- End user suggestions to improve ECONSTROI.

The collection and analysis of this data was important in our building of the Case Study, on Section 5.



### 4.2.3 Strengths and Weakness

*"We don't want to make a castle, some bricks at the structure are fine for us"*

Chris Arnot, 2007

The major strengths of this research methodology approach are:

- Use of qualitative and quantitative data allowing complementarities;
- The use of a wide number of different sources of information;
- The Vortal Case Study allowing an "inside-out" perspective.

The main weaknesses of the research methodology are:

- The Vortal case survey being directed to the buyers doesn't allow conclusions on the suppliers side;
- The Vortal survey is too short a sample (50 firms).

## **5. Case Study – Vortal**

This Section is divided in two sub-Sections: Vortal brief overview and ECONSTROI Case Study.

The brief overview on Vortal consists in describing its history, business dimensions, characteristics, main processes and major functionalities.

The ECONSTROI Case Study is constituted by the analysis of the ECONSTROI survey most relevant data, a SWOT analysis and a comparative Study of ECONSTROI versus a proposed suite.

## 5.1 Vortal Brief Overview

### 5.1.1 Vortal History

“Growth of 803% between 2002 and 2007”

Vortal

Vortal was founded in December 2000 by a group of twenty four firms who composed the initial stakeholders. Vortal mission is to electronically integrate company and government processes, making transactions more secure, confidential, quick, easy and efficient through innovative services.

The Civil Construction Market was the EM created by Vortal with the ECONSTROI B2B platform. The idea of this market came from *MotaEngil* [www.motaengil.pt](http://www.motaengil.pt) who wanted to create an Internet portal in order to improve the fragmented supply chain process, reach a bigger number of suppliers and collect relevant information on the sector.

After 2003 Vortal began its expansion:

- Expanded ECONSTROI to the Portugal islands situated at the Atlantic Ocean (in 2003 started operating at *Madeira* and in 2004 extended the platform to the *Açores*) allowing the firms situated in the islands a broader scope of partners and the opportunity to perform better business;
- In 2004, Vortal created the VortalGOV platform (focused electronic public tendering). This was an outstanding vision by Vortal, anticipating the implementation of the directives 2004/18/CE and 2004/17/CE already mentioned;
- In 2004 started the operations in *Galiza* (Spain) creating an office in *Vigo*. A relevant number of firms from Galiza began to make electronic transactions with Portuguese firms.

In 2006 Vortal, decided to amplify the scope of their B2B markets launching three new B2B platforms directed to specific markets:

- Vortal INDUSTRY: [www.vortal-info.biz/vortalPT/Mercados/vortalINDUSTRY](http://www.vortal-info.biz/vortalPT/Mercados/vortalINDUSTRY), market assigned to the segments of Industry, MRO`s, Maintenance and Services;
- Vortal ENERGY&UTILITIES: [www.vortal-info.biz/vortalPT/Mercados/vortalENERGY](http://www.vortal-info.biz/vortalPT/Mercados/vortalENERGY), addressing the Energy, Water, Gas and Fuel markets;
- Vortal OFFICE&SUPPLIES: [www.vortal-info.biz/vortalPT/Mercados/vortalOFFICE](http://www.vortal-info.biz/vortalPT/Mercados/vortalOFFICE), addressing the Informatics and Office Material markets.

In 2008 Vortal created one more market: Vortal HEALTH, [www.Vortalbiz/vortalhealth/](http://www.Vortalbiz/vortalhealth/) addressing the healthcare area.

Vortal aggregated numbers from 2003-2009 (11 August) are displayed in Table 15.

More than four billion Euros were already awarded at their EMs and more than 13.000 firms are registered.

<b>Vortal Marketplaces</b>	<b>Accumulated Value from 2003 to 2009</b>
Number of firms operating	13.757
Number of Request for Proposals	303.213
Number of Proposals	992.676
Average Number of Proposal by Request	3,273
Awarded Values	4.003.361.831 Euros

Table 15 – Vortal in numbers -Source: [www.vortal-info.biz](http://www.vortal-info.biz) at 11 August 2009

From Table 15, it is highlighted the significant average of number of proposals by request (3,273).

Other relevant aspects on Vortal:

- Headquarters in Lisbon (Portugal), with two more offices: Porto (Portugal) and Vigo (Spain);
- Employs around 90 collaborators directly;
- Winner of the Innovation Prize for Small Middle Enterprises (SME) awarded by COTEC (Innovation Entrepreneurial Portuguese Association) in 2007;
- Microsoft Gold Partner;
- Growth of 803% between 2002 and 2007.
- Revenues in 2008 approaching 11 million Euros;
- Certified by the ISO 27001 (Management and Security of Information Practices).

### 5.1.2 Vortal business dimensions

*“To electronically integrate B2B processes, making transactions more secure, confidential, quick, easy and efficient through innovative services which add value and reinforce customer competitiveness”*

Vortal Mission

Section 2.2.3 defined the business dimensions of the EMs. In Table 16 are synthesized Vortal business dimensions.

Business Dimensions	Vortal Electronic Platforms
<b>Business Model</b>	<u>Neutral marketplace</u> - Neutral management position (although the civil construction firm buyers constitute the major stakeholders), and its EMs attracts both buyers and suppliers.
<b>Order Purchasing Mechanism</b>	<u>ESEP</u> and <u>Auctions</u> .
<b>Market Characteristics: Public or Private EMs</b>	<u>Public</u> - An open trading environment that allows relationship from many-to-many.
<b>Market Characteristics: Horizontal or Vertical EMs</b>	<u>Vertical</u> - 6 different EMs oriented towards the distinct needs of each particular group.
<b>Products</b>	<p><u>Depend of each market characteristics</u> – some examples:</p> <ul style="list-style-type: none"> <li>• ECONSTROI: Civil Construction materials (Highly standardized products);</li> <li>• Vortal HEALTH: Medical Equipment;</li> <li>• Vortal ENERGYSUPPLIES: Water, Gas, Fuel and ENERGY;</li> <li>• Vortal INDUSTRY: MRO`s.</li> </ul>
<b>Revenue Model</b>	<p><u>License/Subscription Fees</u> - An annual or mensal fee is charged both to the buyers and the suppliers.</p> <p><u>Professional Service Fees</u> – Specialized Consultants presence at the work place of the customers. Focus on implementation and training;</p> <p><u>Value Added Services Fees</u> – Premium Products/features are charged apart.</p> <p><u>Advertising</u> – Banners and hyperlinks to other WebPages.</p>

Table 16- Vortal business dimensions

### 5.1.3 Characteristics, main process and major functionalities

“ECONSTROI is the biggest civil construction electronic market in Portugal and Spain”

ECONSTROI

#### CHARACTERISTICS

Vortal has six different EMs that have approximately the same *modus operandi* in the online purchasing process.

However, the VortalGOV and vortalHEALTH platforms have relevant differences from the others, due to the fact that they must be a “mirror” of the European and Portuguese Public Contracting Legislation.

#### MAIN PROCESS

The EM main process supported in the Vortal platforms is displayed in Figure 19.

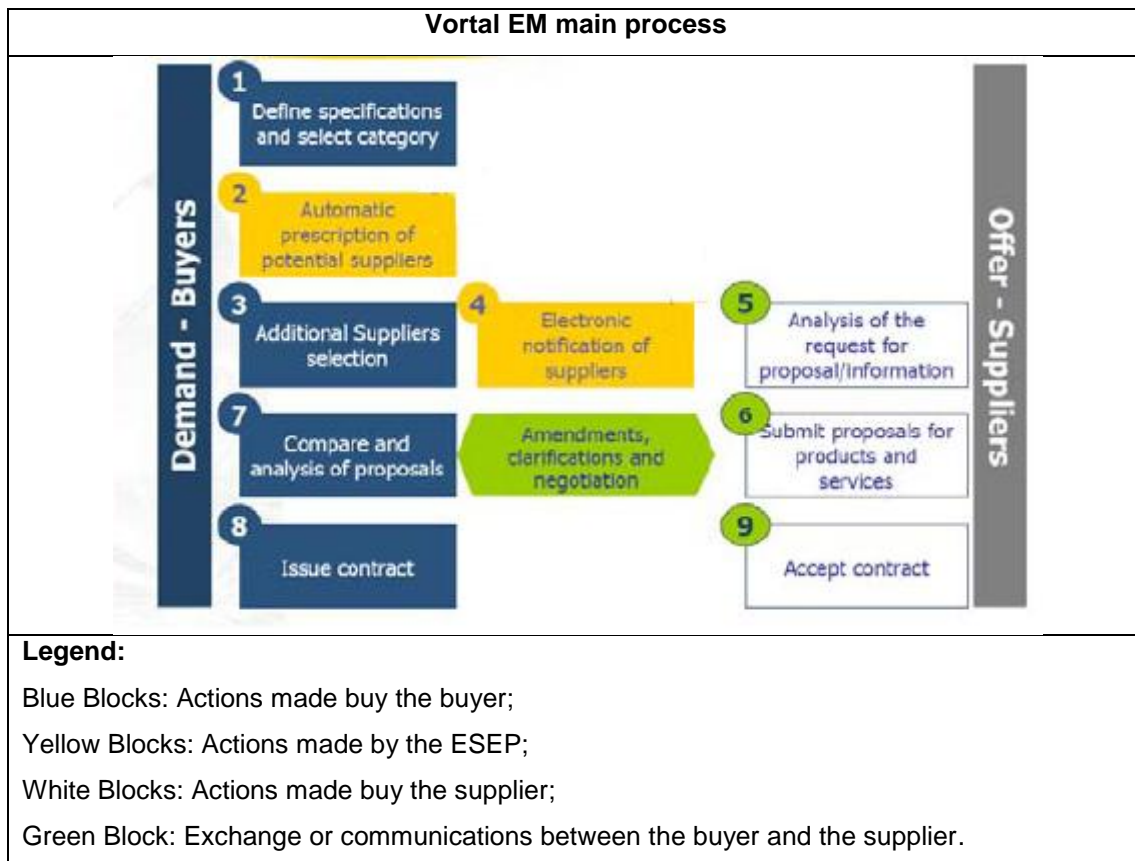


Figure 19: Vortal main processes (Vortal, 2008)

From Figure 19 is highlighted the first step of the process. The connection between buyers and suppliers is made through a categorization process. The buyer chooses a category to the Request for Proposal and the suppliers inscribed at that category receive that Request at their work area.

Vortal categorization system is named VORCAT. A mix of the CPV (Common Procurement Vocabulary - [www.cpvclassification.com](http://www.cpvclassification.com) ) with an own made Vortal system. At the Vortal GOV and Vortal HEALTH platforms the categorization method is a pure CPV.

## MAJOR FUNCTIONALITIES

The buyer side major functionalities are described in Table 17.

<b>Buyer side major functionalities</b>			
<b>Functionality</b>	<b>Brief Description</b>	<b>Step of the e-purchasing process</b>	<b>Target market</b>
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	All six markets
Electronic Invoice	Send electronically invoice to the suppliers awarded.	Invoice, Reconciliation and Payment	All six markets
Purchasing Monitor	Business intelligence in the purchasing in the Vortal platforms.	Spend Analysis	All six markets
Security mechanisms	Encryption, Decryption, Digital Signature, Time-stamping and Electronic Receipt.	Not applied	All six markets
Comparative map of proposals	Allow buyers to compare the suppliers proposals in the ESEP.	Sourcing	All six markets

Table 17- Vortal buyer side major functionalities

ECONSTROI operates since 2001 and is the Vortal EM with a larger variety of functionalities. It is possible to understand in Table 17 that the Vortal platform covers seven of the eight steps of the purchasing online process. The E-Procurement step is not available (there isn't a strong e-catalogues block).

From the supplier side Vortal, has the functionalities described in Table 18. The “submit proposals” functionality allows completing the E-rfx process (together with the “Request for Proposal”). The other functionalities represent value added services.

<b>Supplier side major functionalities</b>		
<b>Functionality</b>	<b>Brief Description</b>	<b>Target market</b>
Submit Proposals	Allows the suppliers to submit their proposals to a certain Request for Proposal.	All six markets
<i>iobra</i>	It is a powerful tool to discover the civil construction ongoing works in Portugal and Spain.	ECONSTROI
Offers and Promotions	Allows the supplier to endorse offers and promotions to their potential buyers. If the buyer is interested he can create automatically an electronic order to a specific offer/promotion.	ECONSTROI
Directories of Firms	The Vortal "virtual community". Important repository of information of the sector and with detailed information on each company.	All six markets
Business Cockpit	Performs some business intelligence. Examples: supplier market share at a certain segment, number of awards won, competitive ranking and buyers feedback.	All six markets
<i>"Boleias"-rides</i>	Allows a supplier to invite other suppliers to a certain request.	ECONSTROI
Forward Auctions	Allows sellers to perform seller driven auctions.	All six markets

Table 18- Vortal supplier side major functionalities



## 5.2 Econstroi Case Study

### 5.2.1 Survey most relevant data

*"Information is retrieved from data, knowledge is built from information"*

Ross J. Todd (2006)

In this sub-Section are analyzed the most relevant data of the Vortal survey (November/December 2008) on Buyers in the ECONSTROI platform.

#### Service value

The value of service allowed by twelve different functionalities of ECONSTROI is displayed in Table 19. ECONSTROI has many more functionalities, but the survey was centered on the items in Table 19.

VALUE OFSERVICE	Importance of the Service (1 to 5)	Degree of satisfaction with the service ( 1 to 5)
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 19 – Service value of ECONSTROI

Analyzing Table 19 it is possible to make the following conclusions:

- The “Call Center” and the “Consultant Presence” are the services to which clients attribute more importance. Probably this is connected with the end user information technology (IT) knowledge and literacy. People between 20-40 years old usually have a higher IT know-how than the others situated in the range of the 40-60 years old;
- The importance of the service accomplished by “Suppliers” had a significant grade of 4,17 , together with a not quite satisfactory grade of 2,7. This service item shows the importance buyers give to have competitive suppliers;
- “Budgets and Rides” (4,15) and “Guaranting” (3,98) functionalities were given significant importance by the buyers. These functionalities are Value Added Services outside the main

transaction. This aspect gives strengths that a successful e-purchasing suite must have a block with value added services outside the main transactions.

### Market value

Another important aspect of the survey is the market value given from using ECONSTROI platform resumed in Table 20.

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

Table 20 – Market value of using ECONSTROI platform

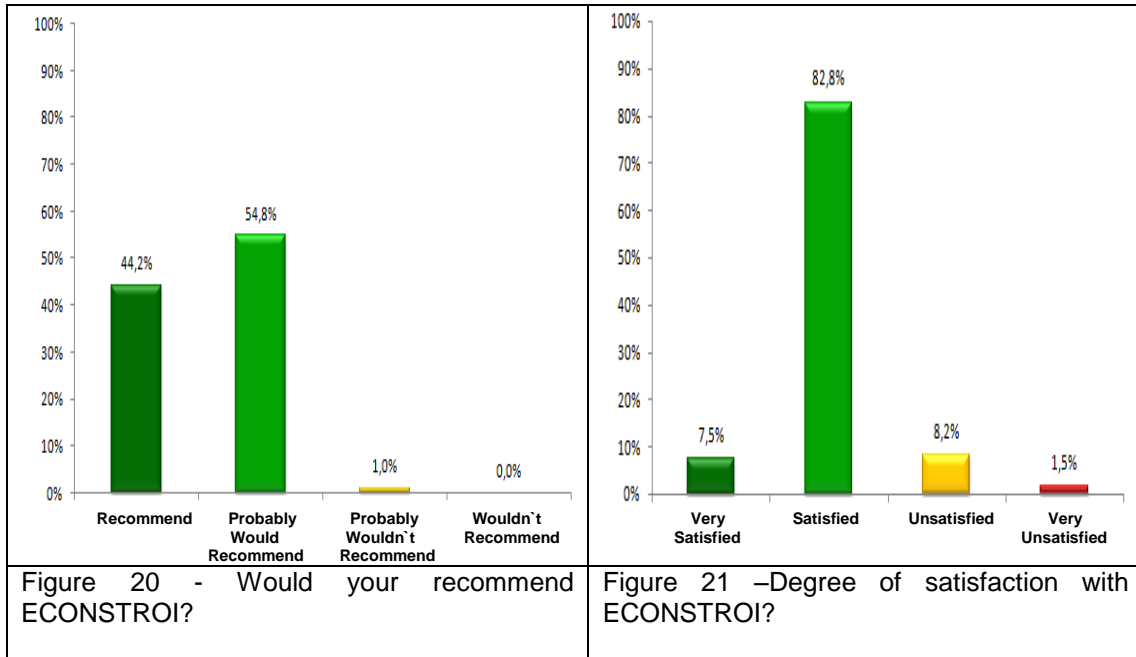
Analyzing Table 20 it is possible to make the following conclusions:

- “Process simplification and higher control of the purchasing process” is the aspect with best grade (3,42). This corroborates that the purchasing process though an EM is much simpler and allows a better control of the items purchased;
- The “Quality of received proposals” (2,97) and the “Suppliers” (3,16) are the aspects with which the buyers are not so highly satisfied;
- Buyers are quite satisfied with the cost reduction allowed by ECONSTROI (3,28).

To complement the market value given by the buyers to ECONSTROI, the answers of the buyers to the questions bellow were analyzed:

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

The answers to these questions are displayed in Figures 20 and 21.



These are relevant values that justify the 800% growth of ECONSTROI between 2002 and 2007. Buyers tend to give a very important market value to ECONSTROI and to the business opportunities allowed by the EM.

### 5.2.2 SWOT analysis

“Know your weakness better than your enemies”

*Sun Tsu, 550 bc*

Before performing the SWOT analysis it is important to analyze Table 21 where the most positive and negative aspects of ECONSTROI are described, following the end user suggestions given at the survey.

3 most positive aspects	3 most negative aspects
<ul style="list-style-type: none"> <li>- Access to a broad number of Suppliers through the EM;</li> <li>- Easy to create Request for Proposals and send them to market;</li> <li>- Dynamic system of analyzing proposals.</li> <li>- Savings allowed by the EM</li> </ul>	<ul style="list-style-type: none"> <li>- Desire a better dynamic of the suppliers at the EM;</li> </ul>
<b>Improvement Suggestions</b>	
<ul style="list-style-type: none"> <li>- Perform another type of actions at the award/contract phase;</li> <li>- Mechanism to allow improving the communication with the suppliers (example: private chat);</li> <li>- Possibility to parameterized Contract Models Templates;</li> </ul>	

Table 21 -- Most Positive and Negative aspects of ECONSTROI and suggestions

Once again, buyers give a very important value to access a broader number of suppliers. Buyers also highlighted that the purchasing process in the EM is much simpler than at a physical market. Buyers give an important market value to ECONSTROI (all answers above 2,9) and the capability of the EM to allow different source of benefits.

Finally, some of the end user improvement suggestions are aligned with what we stated an e-purchasing tool should really have, namely addressing:

- **Value Added Services at the main transactions:** Performing other types of actions at the award phase;
- **Connecting of e-purchasing suites with ERP:** ECONSTROI already has a connecting system with any type of ERPs, but many buyers firms have the ECONSTROI-connect functionality, although they need it;
- **Value Added Services outside at the main transactions:** Access to a larger number of technical contents and chat communication systems.

Table 19 and its interpretation gave us important inputs to build the SWOT analysis of Table 20.

<b>STRENGTHS</b>	<b>OPPORTUNITIES</b>
<ul style="list-style-type: none"> <li>- Very good market image: 90,3% of the firms interviewed are very satisfied or satisfied with ECONSTROI;</li> <li>- 99% of the firms would recommend ECONSTROI;</li> <li>- Several Added Value Services available (Budgets and <i>Rides</i>, <i>Guaranting</i>, among others);</li> <li>- ECONSTROI is available in 3 languages (Portuguese, Spanish and English);</li> <li>- Relevant external certifications: Certified by the ISO 27001 and Microsoft Gold Partner;</li> <li>- Vortal was the 2007 winner of the Innovation Prize for SME`s awarded by COTEC.</li> </ul>	<ul style="list-style-type: none"> <li>- Presence outside Portugal, first steps were already taken in Spain;</li> <li>- The E-Procurement block;</li> <li>- Platform availability in more languages;</li> <li>- Growing pattern of electronic public tendering.</li> </ul>
<b>WEAKNESSES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>- Buyers expect an increased in the number of proposal by e-Rfx;</li> <li>- Doesn`t cover all the blocks of the procurement step of the e-purchasing referential process;</li> </ul>	<ul style="list-style-type: none"> <li>- New competitors are certainly around the corner;</li> <li>- Technologies change. ECONSTROI needs to be alert to new techniques, software, and technologies.</li> </ul>

Table 22 – ECONSTROI SWOT analysis

### 5.2.3 ECONSTROI versus proposed suite

*“Do you play chess well? Depends of the opponent...Everything needs to be situated”*

Watershed, 2004

It is important to compare the blocks covered by ECONSTROI with the proposed 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 proposed baseline suite. In fact ECONSTROI:

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

Perhaps, the coverage of the e-procurement 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 22.

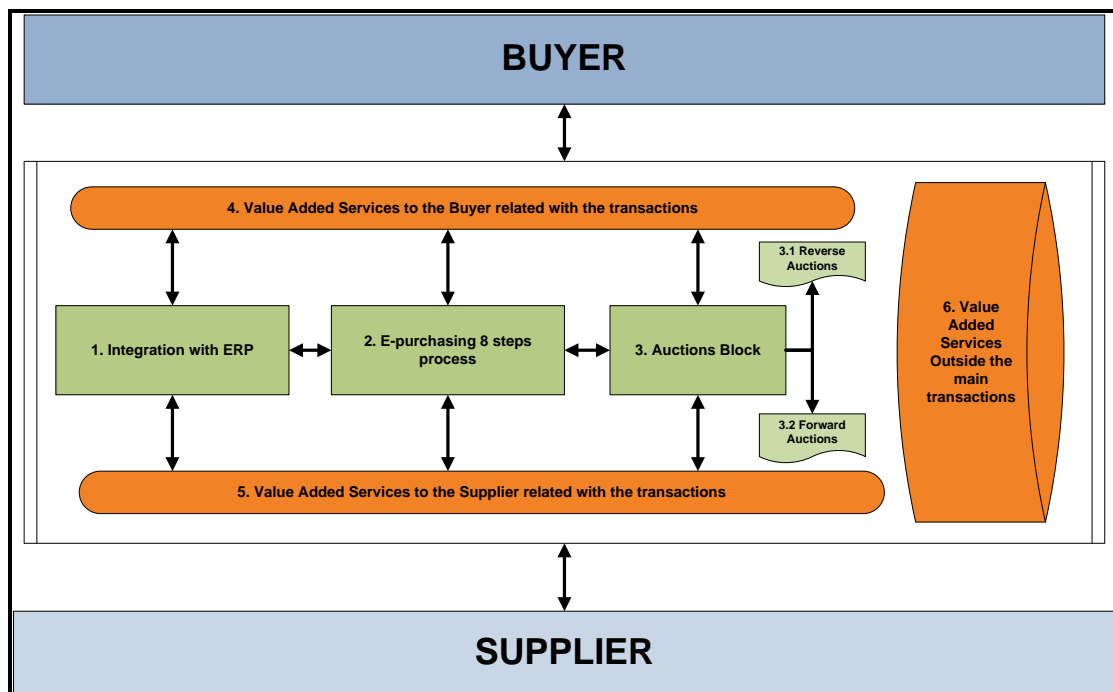


Figure 22 - Main blocks of the successful e-purchasing tool (revised version of Figure 17, upon Case Study reflection)

Independently of these differences it is possible to argue that ECONSTROI is generally aligned with the proposed e-purchasing suite of Figure 22.

## 6. Conclusions

We conclude that the successful e-purchasing tool must have the positioning of a **combined suite**. In fact, this approach will have sustainable demand in the near future, is simple to manage, covers all the e-purchasing process, and allows data model benefits and price competitiveness advantages comparing to the buying on 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 should adopt the **structure of an ESEP** (only purchasing order mechanism that engages with strategic sourcing goals). The combined suite would begin with a horizontal perspective (not oriented to any specific market) and, depending of its evolution, would evolve into a Vertical view. The Revenue Sources must have the ability to adapt to their client needs (transaction and subscription fees) plus value added services, advertising and professional services fees.

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.

The combined suite must have an important concern with value added services because clients tend to give value to 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.

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 mechanisms oriented to maximize the strategic sourcing KPI.

Regarding Vortal, we conclude that ECONSTROI structure is generally aligned with the proposed e-purchasing suite .The improvements suggested by users elucidated the value they give to Value Added Services in the main transactions, connecting of e-purchasing suites with ERP, Value Added Services outside in the main transactions.

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 (in a win-win approach). 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).

## 7. References

### Books, papers, reports

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