E-Shopping Key Elements for Designated Postal Operators

Essential e-commerce elements definition, arrangement into priority order of implementation, and overview of global interoperability

October 2008

Table of contents

E-Shopping Key Elements

1. Introduction

The Advanced Electronic Services User Group (AESUG) is a Telematics Cooperative working group that focuses on discussions, development, and implementation of global electronic postal services, standards, technologies, and applications. The Group's strategy is to provide a collaborative environment where member Designated Postal Operators (DPOs), subsidiaries, technology providers, postal users, and other global postal industry stakeholders can work together to develop new electronic postal services and related international standards.

The AES UG has divided its activities into 5 sub-programs, each concentrating on a specific aspect of electronic postal service that members have identified as significant:

    (a) Secure electronic postal communication services
    (b) .post sponsored Internet Top Level Domain
    (c) e-shopping
    (d) Global Hybrid Mail (GHM)
    (e) Radio Frequency Identification (RFID)

The e-shopping sub-program was formed to draw an overall picture of how DPOs could offer e-commerce related services, including setting protocols and standards specifications in order to enable global e-commerce interoperability among the DPOs. The scope also included investigations of the global postal e-commerce tools available to DPOs and the possible integration of postal e-commerce services with other products offerings by the AES UG and the Postal Technology Centre (PTC).

A first step to addressing these objectives was to identify the tools, concepts and technologies necessary to implement local and global e-commerce operations, highlighting concrete and potential postal related applications and services.

This document presents the key elements for DPOs to consider when implementing a postal e-shopping solution, and proposes an implementation priority order. The document also presents a short overview of the elements to consider for global e-shopping interoperability amongst DPOs.

1.1 E-shopping context diagram (Level 0)

The following is a high-level diagram depicting entities and their interaction in a global an e-shopping environment:

Figure 1 – E-shopping context diagram
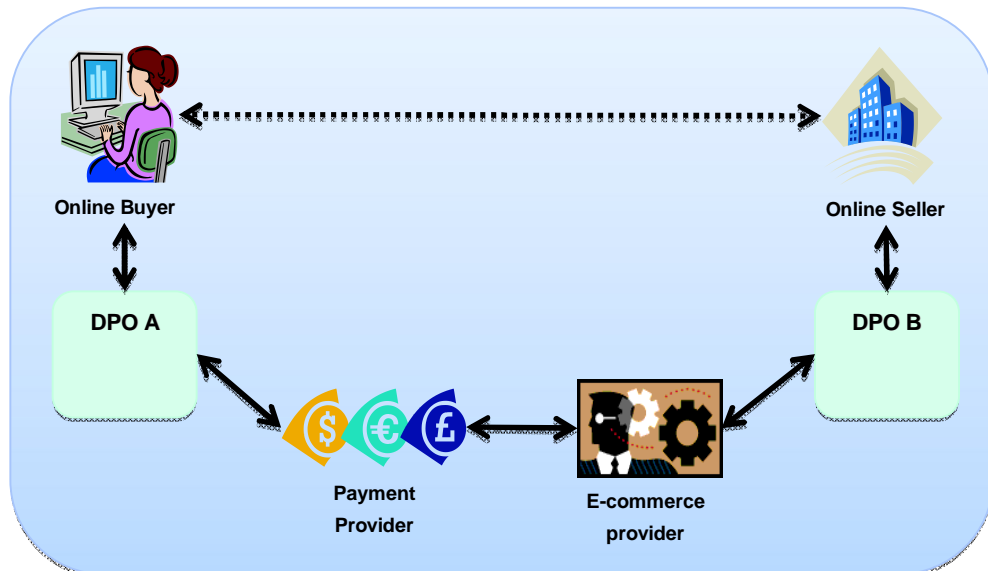
2. E-Shopping Key Elements

According to the World Trade Organization, electronic commerce "refers to the production, advertising, sale and distribution of products via telecommunications networks". E-shopping is applied in this document to mean the advertising, sales, payment and delivery of products and services via the Internet, covering the whole supply chain from the seller to the buyer. The term is used interchangeably and synonymously with the term 'e-commerce'.

DPOs could explore e-commerce opportunities by providing all or part of the services along the e-commerce value chain: pick-up and delivery services, payment services, web hosting services and direct marketing services. DPOs also have the option either to directly connect their services to merchants' websites or to develop their own e-shopping capabilities.

E-shopping platforms demand the proper integration of many separate and modular e-commerce elements. These elements range from website hosting, internet marketing to cyber security systems. For reliable and profitable e-commerce implementation, it is essential to address all the key elements and to integrate them seamlessly. A missing key element or component could lead to failure of the system, with wide reaching ramifications. In planning for your e-shopping implementation, the key elements are grouped into six categories as follows:

1) **Web hosting**:
- Elements related to the hosting of the e-shopping or e-commerce platform. Other considerations include technical support and tools, content management, and mechanisms for searching products and comparing prices;

2) **Payment**:
- Elements that implement physical or electronic payment services, essential to completing e-commerce transactions;

3) **Security:**
- Elements related to transactions and information security;

4) **Delivery**:
- Delivery services are the core business for DPOs. This category of e-shopping key elements comprises the essential services and tools to ensure shipping, delivery and information tracking;

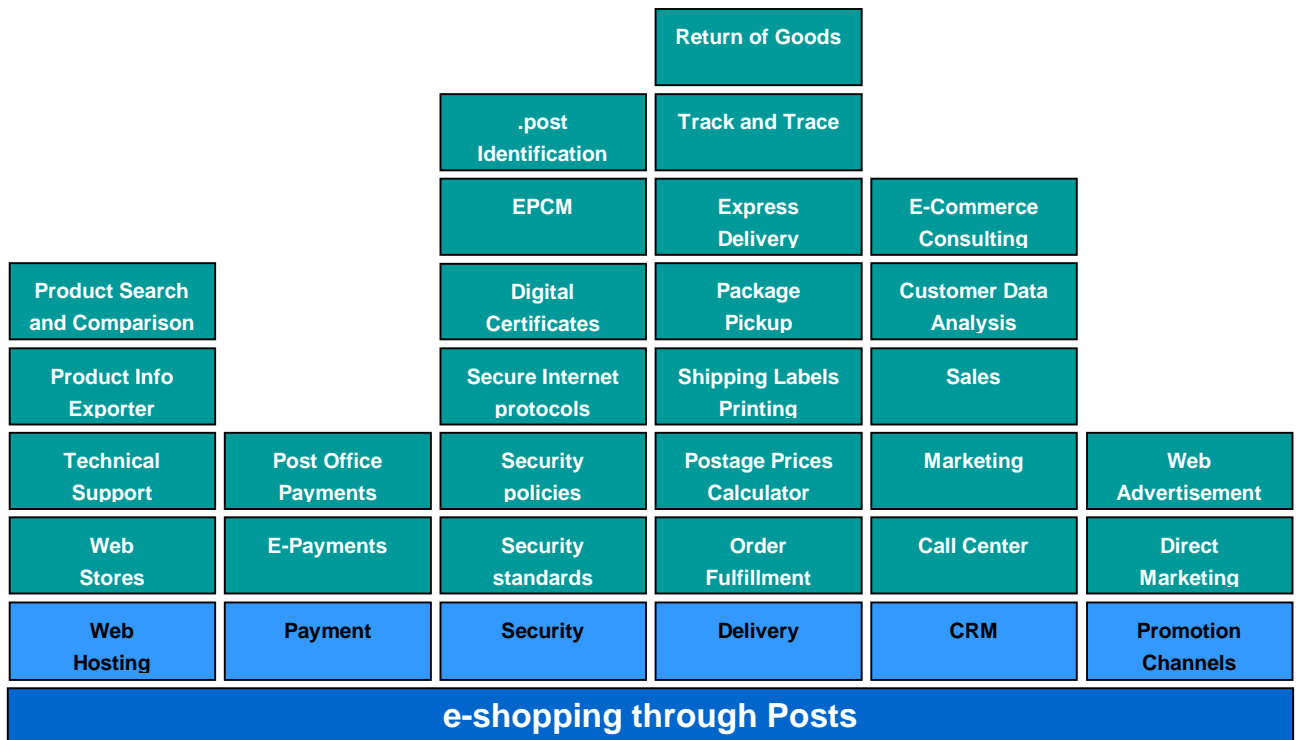5) **Client or Customer Relationship Management (CRM)**:
- Elements related to client relationship, considering both buyers and sellers. Sellers are also referred to as 'merchants' in this document;

6) **Promotion channels**:
- Elements related to the advertisement and promotion of the e-commerce services, which include but not limited to Direct Marketing, web advertisement tools, and sponsored links.

Figure 2 – e-shopping Key Elements

Web Hosting	Payment	Security	Delivery	CRM	Promotion Channels
			Return of Goods		
		.post Identification	Track and Trace		
		EPCM	Express Delivery	E-Commerce Consulting	
Product Search and Comparison		Digital Certificates	Package Pickup	Customer Data Analysis	
Product Info Exporter		Secure Internet protocols	Shipping Labels Printing	Sales	
Technical Support	Post Office Payments	Security policies	Postage Prices Calculator	Marketing	Web Advertisement
Web Stores	E-Payments	Security standards	Order Fulfillment	Call Center	Direct Marketing
Web Hosting	Payment	Security	Delivery	CRM	Promotion Channels

e-shopping through Posts

The following section analyses in detail each of the six categories of the e-shopping key elements.

2.1. Web Hosting

Websites are the first contact point between the DPO and the customer. It is through the website that the DPO makes itself known to the customer, providing essential information about its products and services, including pricing, shipping, and other commercial information necessary for the visiting customer to initiate and complete a transaction.

The key elements for web hosting are:

2.1.1 Web Stores

Web stores, also known variously as online stores, Internet stores, online shops or e-shops, are the main interface points between online sellers and buyers. Examples include eBay.com, alibaba.com, barnesandnoble.com, amazon.com, etc. DPOs could implement their e-stores in one of the following ways:

i.   **Own Host:** the DPO builds and hosts the e-store in its own IT infrastructure, and does all tasks including hardware, software, security and network acquisition and maintenance;

ii.   **ISP Host:** an Internet Service Provider (ISP) hosts the webstore on behalf of the DPO who designed and built the webstore. In most cases, the DPO administers the webstore's IT infrastructure.

iii. **Fully outsourced E-store:** the DPO contracts a complete e-store system provided by an e-commerce vendor or IT supplier, with all the engines required for online shopping.

Table in the attached annex 'A' compares the advantages and disadvantages of each webstore-hosting model.

Opportunities for DPOs: to offer to ISPs and other web hosting companies with software applications, postal plug-ins, and tools for shipping and freight prices calculations, delivery calculations, track and trace, and package postage calculations.

2.1.2 Technical Support

Due to the complexity involved in operating an online shop, an appropriate level of technical support to the webstore is a fundamental requirement for a successful implementation. The goal is to let the online vendors to focus and concentrate on the commercial aspects of the operations, and not the technological aspects. That will facilitate the entrance of small and medium-size companies in the e-commerce environment.

Technical support role becomes more essential when considering the need for a non-stop web store service, especially for a global operation. International e-stores are accessed 24x7, so 100% availability is an important requisite. This calls for a reliable and prompt technical support structure.

However, guaranteeing 100% uptime is not cheap. DPOs must consider the costs and benefits of the technical support against the revenues generated from the webstore operations. The Service Level Agreement (SLA) by the technical support provider (if not the DPO) must guarantee quality service at best market price. DPOs may need to answer such questions as:
  a) What are the returns of guaranteeing 100% webstore availability and providing a 24x7 support team?"
  b) Would the projected revenues cover all my support costs considering this SLA?
  c) What would be the impact of reducing webstore availability on the projected revenues, on customer lock-in?

2.1.3 Product Info Exporter

Information on the Internet is spread across millions of servers and databases in different geographic locations in the globe. This can be a hinder to online shopping, as vital information may be hidden in the World Wide Web, not becoming easily visible to the clients. An important element to consider for webstore hosting is export product information tools, which are very important for sharing items descriptions and price information with other e-commerce related websites. These tools enhance the visibility of the e-store, thereby improving its potential to increase sales.

Generally, there are well-accepted technical standards for improving the webstore's visibility. The use of XML (eXtensible Markup Language) and SOAP (Simple Object Access Protocol) standards to build interoperable platforms that can easily share data (product, client, logistics, etc) are examples of good industry practice. These standards and protocols support the concept of web services technologies: solutions used on systems integration among different applications, even if they are built on different technology platforms. DPOs should consider such standards and protocols when implementing their own e-shopping platforms.

2.1.4 Product Search and Comparison

Search and comparison tools are essential for e-commerce. In some local markets, these tools are responsible for about 30% of buying motivation[1]. For greater success, online stores should make their products available on search and comparison tools. This need increases as the amount of webstores and products grow in the Internet. DPOs should therefore consider increasing their products visibility in such websites as Google, Yahoo! and eBay, and other regionally well-known search and comparison sites.

One way of doing that is by better construction of page codes, and the other is by contracting the services from those websites, which offer free or paid options to raise content visibility on a search engine result. As an example, Google's PageRank™ algorithm freely ranks web pages according to the quantity and quality of related web pages. The better the rank the better the listing of the web page in a search result at Google. Besides, the DPO could also buy Google's sponsored links, in order to improve its web page visibility on Google. Taking advantage of global search tools is great. However, the DPO's own e-store website should also offer at least some simple search tools to the customers. An effective products search mechanism within the website can improve online shopping experience and product location.

Another concern related to product search on a web store is how to facilitate the navigation among the items and their groups. To address this issue, functionality design must be considered more important than aesthetic design and style. Functionality design involves considerations of how the webstore content is organized into groups and subject areas, with a view of facilitating the customer's navigation experience and locating products quickly and easily.

2.2. Payment

Payment for online services is one of the most important components of any e-commerce implementation. However, it is also one of the most complex elements, mainly because of the security considerations that must be put in place. According to the Bloomsbury Business Database, when implementing the payment options for online services, it's necessary to keep the following in mind:

- "Consumers are wary of giving credit card details and other personal information online. Your first step must be gaining their trust."
- "Fraud and chargeback are critical issues that can seriously affect an online business."

A variety of electronic payment tools is available to e-commerce merchants. Credit cards associations and issuers, banks, e-payment providers, and even DPOs have been improving the security, reliability, and safety of the payment applications to spread the adoption of e-commerce.

The key elements to consider when implementing payment solutions for online services are:

2.2.1 Electronic Payments options

Electronic payments allow sellers to get on-line cash from buyers through websites. E-payment systems are very important to the development of E-commerce. The options available include:

- Credit card payment
- Credit transfer
- Electronic cheque
- Direct debit
- Smart cards
- Prepaid schemes

_____

[1] This rate was identified in Brazil.

- Mobile phone schemes

E-payments options may be convenient to online buyers, but are vulnerable to cyber criminals trying to steal goods and money from e-marketplace. Despite the improvements in cyber security technologies, online payment fraud continue to pose the greatest risk to buyers, sellers and financial services organizations. Although credit cards provide consumers with a great deal of protection for e-commerce transactions, merchants are exposed to some risk when accepting credit card transactions over the Internet. Under regulations established by the credit card associations (Visa and MasterCard) and issuers, e-commerce transactions where a card is not presented at the seller's terminal are referred to as "card not present" transactions. To complete the transaction, the seller remotely provides the card data to the buyer through the Internet.

Under credit card association regulations, sellers are responsible for encumbering all risks associated with fraudulent transactions against their accounts. If a seller accepts a fraudulent transaction, receives a credit card authorization from the association/issuer and fulfils the transaction by delivering goods, the issuer at the buyer's behest can reverse the transaction. When the issuer identifies the fraudulent transaction, they can "chargeback" the seller for the fraudulent transaction. This chargeback goes directly against the settlement of good transactions to reverse revenue. Unfortunately, the seller has not only lost the goods sold through the e-commerce platform, but also the revenue associated with the sale.

Identification solutions provided by credit card associations reduce risks in "card not present" transactions. For instance, a seller who uses the 'Verified by Visa' will not receive a chargeback from the issuer for the "card not present" transaction. However, the costs associated with managing the chargeback system are prohibitive. In addition to the credit card, the secure electronic platform also offers solutions with debit cards and electronic wallets. Credit cards are still the most widely adopted by consumers.

An important consideration to minimize risks on electronic payment is to authenticate customer identity using information crossing, digital certification, and other such mechanisms. However, these mechanisms increase the complexities of online transactions. Most sellers simply resort to operate with a margin of expected fraud than to lose regular buyers due to technological complexities. E-commerce players and mainly the e-payment providers must find ways to improve online payment security without adding undue complexity to the online shopping process. The electronic postal certification mark (EPCM) service and the proposed .post could also enhance the identity authentication features for e-commerce transactions.

2.2.2 Post Office Payments

Some DPOs offer banking and postal payment services in their outlets or through mail services. Those payment solutions are reliable and very well geographically spread. Besides the electronic payment platforms, traditional payment methods provided by DPOs may offer very secure, branded and trusted alternatives for e-shopping payments, especially in those countries where the market is still averse to relay personal and credit card information through the Internet. The case of China Post's Green card payment system in the strategic collaboration with alibaba.com provides an excellent example of how DPOs could play a role in the e-commerce environment with their physical payment systems.

2.3. Security

As pointed out by the Electronic Postal Services Group's e-Shopping Strategy Report, "*for the online commerce to be a competitive alternative to traditional commercial transactions it needs to be viewed as a secure environment. The development of e-Commerce faces significant consumer security risks by the very nature of the Internet Infrastructure. In order to engage in E-Commerce, consumers must have reliable and secure access to the Internet*".

The security key elements deal with standards, policies, processes and technologies related to electronic or physical security issues.

2.3.1 Security standards

Technical security standards widely accepted offer important security principles and guidelines for a reasonable e-commerce implementation. As an example, the ISO/IEC 17799 standard as well as other standards and good practices can be applied to e-commerce solutions. The team will investigate and define a set of standards to be recommended in scope of postal industry.

2.3.2 Security policies

It is important to define a minimal set of security policies when implementing an e-commerce structure. The security policies should include scope, rules, processes and procedures of the security related items, considering website's functionalities, information storage and usage, legal and privacy issues, operation permissions and restrictions, fraud prevention and detection, and investigation procedures.

Security policies must be clear and public, in the sense of being easily accessible and understandable by vendors, buyers and suppliers.

2.3.3 Secure Internet protocols

The adoption of secure web protocols is prerequisite to e-shopping. The most known protocol on e-commerce websites is the HTTPS - Hypertext Transfer Protocol over Secure Socket Layer. HTTPS provides authentication and encrypted communication between the website and the user and is used for electronic payment transactions as well as for other security-sensitive communication.

Besides HTTPS, an e-commerce platform can gather other secure Internet protocols, as the examples listed below:

a) FTP over SSL: stands for File Transfer Protocol over Secure Socket Layer, can be used on secure file transfer among e-commerce websites;
b) VPN (Virtual Private Networks): two or more e-commerce websites establish a private network using secure protocols over the Internet or over a private telecommunication system, in order to share and/or flow information among them;
c) IPSec (IP security) is a set of protocols for securing Internet communications by authenticating and/or encrypting each IP packet on the TCP/IP network layer.

2.3.4 Digital Certificates

A digital certificate is a file that stores a set of information about an entity (person, company, computer or device) and the public key associated to that entity's private key. Some applications of digital certificates on e-commerce are:

a) Web servers' digital certificates allow buyers to verify the authenticity of a website;
b) Buyers can identify themselves on electronic stores using their digital certificates, with no need of storing passwords in the web store database;
c) Vendors and buyers can digitally sign their electronic messages with digital certificates;
d) Vendors can cryptograph sensitive information.

2.3.5 EPCM – Electronic Postal Certification Mark

An Electronic Postal Certification Mark (EPCM) is a technology that applies trusted time stamps issued by a Postal Authority to an electronic document, validates electronic signatures, and stores and archives all non-repudiation data needed to support a potential court challenge.

E-commerce related documents could apply EPCM on:
- Electronic Orders;
- Receipts;
- Payment transactions;
- Other electronic messages between vendor and buyer.

EPCM offers solid proof of legal status and non-repudiation on e-commerce transactions.
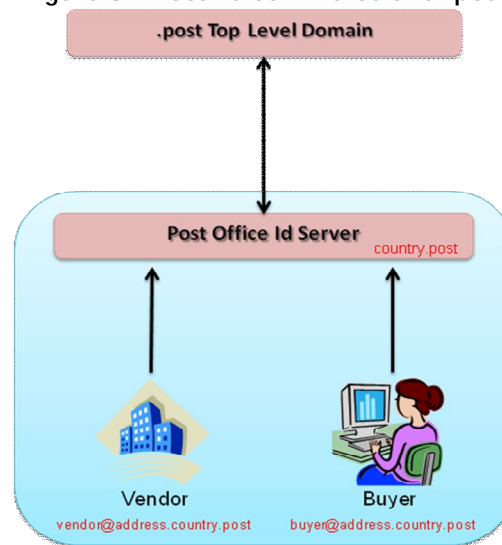
2.3.6 .post Identification

".post" will be an ICANN (Internet Corporation for Assigned Names and Number) top-level domain name on the Internet sponsored by the Universal Postal Union. With .post, the postal industry would establish a secure environment on the Internet for trusted and branded communication. An Internet user who access a .post enabled website would immediately recognize it as belonging to a valid postal service or provider of postal services.

The .post would identify uniquely a person or a company after an enhanced registration process that involves face-to-face identification, digital certificates, and other registry and authentication tools.

As mentioned by the Electronic Postal Services Group's e-Shopping Strategy Report, "*a secure environment based on the .post concept will reduce the [e-shopping] risk and help delivering a stable and secure platform for e-commerce*".

Local e-commerce transactions can use .post as figure 3 shows. Both vendor and buyer have .post identifications: "vendor@address.country.post" and "buyer@address.country.post". When the buyer wants to know about the vendor's identification, he/she can ask the Designated Postal Operator (DPO) of his/her country about the vendor .post id. The DPO can access the registry database and verify the vendor's details of the buyer. Sellers can adopt the same process when identifying buyers.

Figure 3 – Local e-commerce and .post

The DPO acts as a trusted third part on e-commerce authentication and takes advantage of the reliability devoted to Postal Administrations.

On international transactions, the importance of such an identification schema is valuable due to the lack of reliable information about vendors or buyers abroad. On local markets, it is not much difficult to web stores to validate addresses, national official documents and identifications, banking account information, as well as other id validation tools in order to improve confidence.

Considering a global e-commerce environment, local .post structures are included in a trusted hierarchy that enables cross-border identification, as figure 4 shows.

Figure 4 – .post global trusted hierarchy
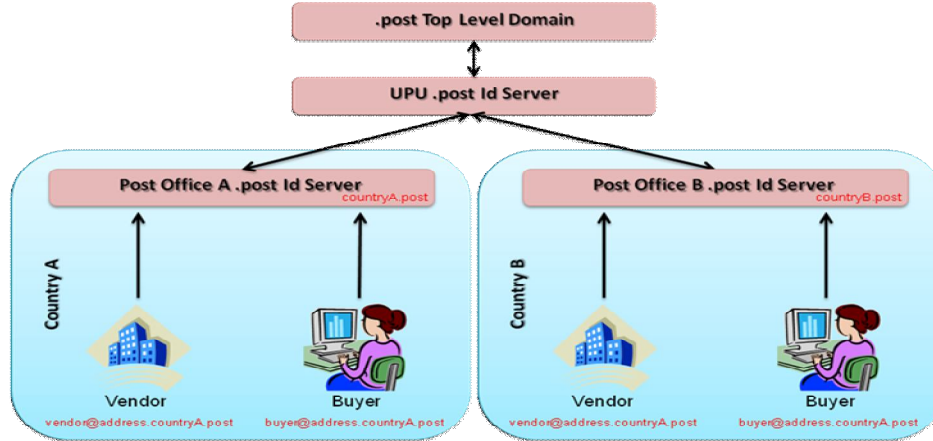
A buyer who wants to verify the identification of an international web store can follow the steps shown on the figure below:

Figure 5 – Vendor's identification with .post

1. The buyer from the country A (Buyer A) goes to the vendor of the country B (Vendor B) and click on an image such as "Verify Me", considered a ".post seal";
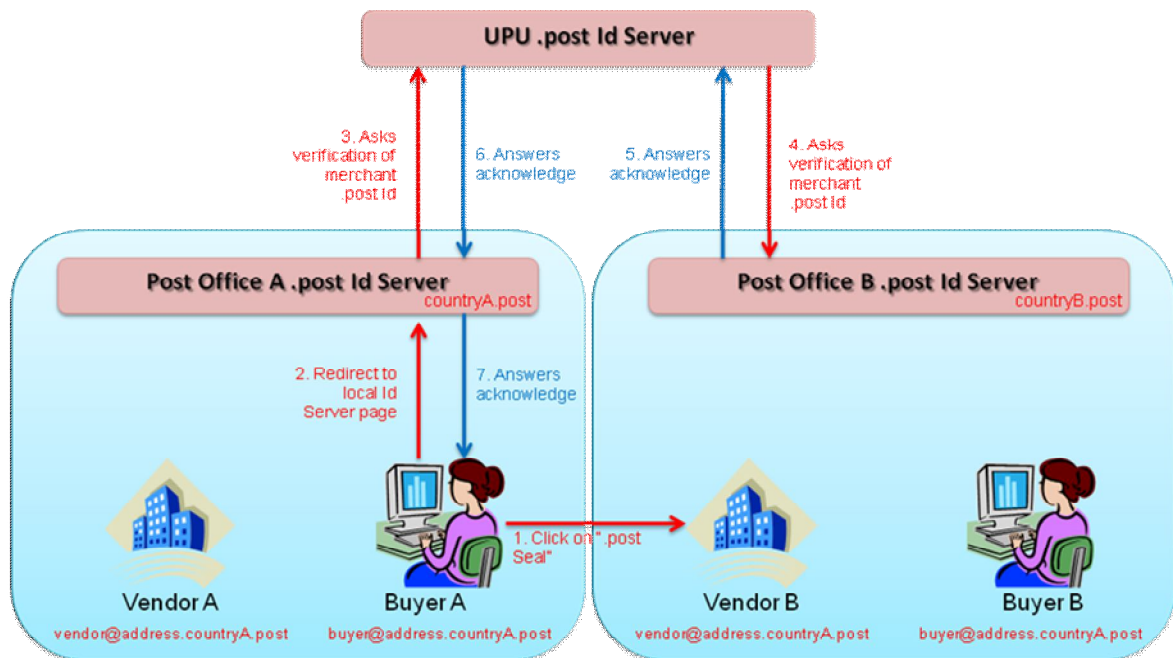
2. When the "seal" is clicked, the navigation is redirected to the country A's .post Id Server, that will verify the vendor .post identification;

3. A first step is to verify whether the requested vendor is or not under the "countryA.post" domain. In this case, as the vendor is under "countryB.post" domain, the Post Office A .post Id Server asks UPU .post Id Server about the Vendor B identification;

4. In this example, UPU would hold a global .post Id Server, but it could be another central registry provider. This will depend on the .post final implementation, which is not in the scope of e-shopping. Anyway, this central .post Id Server asks the respectively country's Id Server;

5. Country B's .post Id Server accesses the registry database and answers the vendor's acknowledgement to UPU .post Id Server;

6. UPU .post Id Server answers Country A's .post Id Server;

7. Country A's .post Id Server answers to the Buyer A, who can now trust on Vendor B.

On the other hand, a seller can also verify the identity of a buyer according to the shown on the following figure.

Figure 6 – Vendor's identification with .post
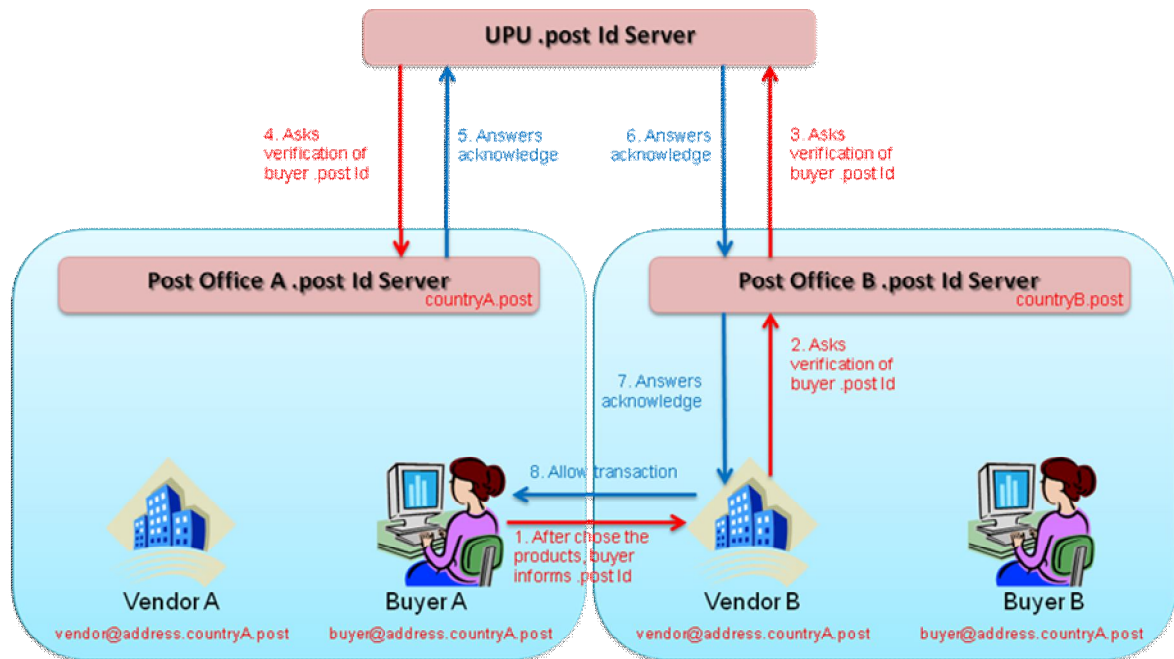
1. The buyer from the country A (Buyer A) accesses a country B web store (Vendor B), chooses the products. On checkout, the website asks for the buyer identification. As a .post compliant web store, the website asks the buyer's .post identification and a private key;

2. Vendor B's website asks the Post Office B .post Id Server;

A first step is to verify whether the requested buyer is or not under the "countryB.post" domain. In this case, as the buyer is under "countryA.post" domain, the Post Office B .post Id Server asks UPU .post Id Server about the Buyer A identification;

3. The central .post Id Server asks the respectively country's Id Server;

4. Country A's .post Id Server accesses the registry database and answers the buyer's acknowledgement to UPU .post Id Server;

5. UPU .post Id Server answers Country B's .post Id Server;

6. Country B's .post Id Server answers to the Vendor B, who can now trust on Buyer A.

As the AESUG e-shopping and .post teams' work moves on, the technical parameters, web services specifications, protocols and other implementation items should be detailed. What was presented in this text is just a briefing about how can e-shopping improve security with .post organization.

2.4. Delivery

Shipping and delivery services are essential to e-commerce. DPOs are amongst the largest providers of delivery services in the world and can command significant stake in the delivery of e-commerce goods. Delivery is one of the biggest challenges facing e-commerce players. Buyers have high expectations on the quality of delivery services and anticipate such value added and diverse logistics services as schedule package pickup, return of goods, track and trace, as well as international delivery.

The key elements to consider for the delivery of e-commerce goods are:

2.4.1 Order Fulfillment

Order fulfillment is the process of responding to customer orders, managing items, stocks, payment, until the delivery the ordered products to the end buyer. In general, it comprises of the following steps[1]:

Figure 7 – Fulfillment process
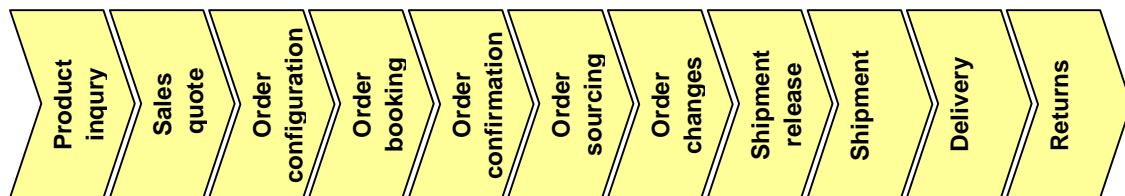
- ▪ Product inquiry:
- initial inquiry about the offerings, visit to the website, catalog request;
- ▪ Sales quote:
- budgetary quote and/or availability quote;
- ▪ Order configuration:
- ordered items need selection of options or order lines need to be compatible with each other;
- ▪ Order booking:
- the formal order placement, after confirmation of payment;
- ▪ Order confirmation:
- confirmation that the order is booked and/or received;
- ▪ Order sourcing:
- determining the source/location of items to be shipped;
- ▪ Order changes:
- changes to orders, if needed;
- ▪ Shipment release:
- where the warehouse/inventory stocking point starts the shipping process. May comprise of picking, packing and staging for shipment;
- ▪ Shipment:
- the shipment and transportation of the goods;
- ▪ Delivery:
- the delivery of the goods to the customer;
- ▪ Returns:
- returning goods to the seller in case the goods are unacceptable or not required any longer by the buyer

An emerging trend is fulfillment outsourcing to third party logistics providers. Such third party logistics services providers are highly specialized and efficient, and can optimize fulfillment costs

_____

[1] Source: Adapted from Wikipedia, accessed on January, 2008.

based on scale economies of handling high volumes of shipping, thus saving money for companies. Global logistics players, as UPS[1] and DHL[2], are good examples.

DPOs could explore the opportunities for managing the clients' fulfillment process by totally or partially providing logistics services. As an example, Brazil Post launched in 2002 its Integrated Logistics service[3], offering fulfillment services to large business players in Brazil. The service has registered significant growth over the years, at an average annual rate of 70%.

2.4.2 Postage price calculator

Shipment information is essential to making e-shopping decisions. Many search and price comparison tools also compare shipment parameters between different webstores, thus providing valuable decision support information to buyers. In the e-business environment, less information means less revenue. DPOs should provide tools and web services for shipment cost and shipment time calculation. It is advisable to integrate these technology tools with the online store applications and the DPOs' delivery services and computer systems. Again, the use of XML and SOAP standards are very important to guarantee integration among Internet applications.

2.4.3 Shipping label printing

Even a medium-size web store could handle hundreds of orders per day. In order to optimize the postage, DPOs can offer label-printing applications fully integrated with the e-commerce provider's systems. These applications print standard shipping labels at the seller's premises, generate shipping data to be processed by DPO's systems and provide delivery quality of service due to a labeling pattern easily recognized by DPO's parcels-handling equipment.

2.4.4 Package pickup

Package pickup refers to services of getting parcels or goods directly from the seller's warehouse or premises, thus saving the time for the seller from visiting a postal outlet to ship the orders. Some DPOs are already providing such services to traditional commerce, and extending the same service to the e-commerce environment may not require any additional investment.

2.4.5 Delivery services

There is no e-commerce for DPOs without robust and reliable delivery services. E-retailing requires quality logistics and quick delivery services, almost at the speed of Internet, without necessarily increasing the cost of doing business for online sellers and buyers. Regularity and affordability are vital to meeting this need, and DPOs' are in the best position to provide this combination to delivery services.

E-commerce is growing widely not only locally, but also globally. International delivery services are therefore crucial to this growth. However, high export, logistics and distribution costs hinder many companies from venturing into the e-commerce market. In addition, the bureaucratic custom processes and unfamiliarity with custom procedures and foreign markets regulations are among the main factors holding back companies from sending goods abroad[4]. DPOs' should extend their services and acting as export/import facilitators, helping online sellers to deal with international trade barriers such as computation of import/export taxes, advice on products restrictions, standards and legal requirements for exportation/importation.

_____

[1] http://www.ups-scs.com/logistics
[2] http://www.dhl-usa.com/solutions/solutions.asp?nav=dhlSol
[3] http://www.correios.com.br/encomendas/logisticaIntegrada (in Portuguese)
[4] Paul Donohoe and Matthieu Boillat – *The Postal Sector – a key facilitator of global commerce for SMEs.*

2.4.6 Track and trace

Another important customer expectation is the provision and availability of shipment information. A Track & Trace system stores the past and present record of the status of a shipment, from the seller to the buyer, also some time providing additional information about the status of the condition of the goods. Precise information on order status is essential and must comprise all the order lifecycle, from the order booking to the return-of-goods process – see figure 2.0 above. The information should be clear, accurate and, preferably, real-time. Track & Trace systems could also help with pinpointing misrouted orders, delayed orders, and other bottlenecks in the delivery chain that are affecting the quality of e-commerce delivery services.

2.4.7 Return of goods

In many countries, the legislation allows buyers to return ordered goods that are unacceptable or not any longer required by the customer. The "return of goods" service supports the sellers to get back products from buyers and to ship acceptable or substitute order. This service represents a good opportunity for DPOs.

2.5. Customer Relationship Management (CRM)

CRM defines all the set of tools and systems that help organizations to acquire and retain customers, with a view to understanding and fulfilling customer needs and expectations. CRM involves the management of client contacts, information systems, processes, and gathering information about client activities and interactions with the organization. Generally, CRM involves three areas: (i) marketing management; (ii) selling force, channels and commercial management; and (iii) client services management.

The CRM processes and IT systems allow the e-commerce vendor (for instance the DPO) to know and control in an integrated manner the information about its clients. The best ways to the customer data is through the customer registration process and the monitoring of online shopping behavior and interactions of the customers with the e-commerce environment. Physical interactions with the customers through call centers also add valuable customer preference information to the customer's profile. This data could then be mined, analyzed, and used to guide management and strategic decisions about the online market orientation.

The key elements for CRM are:

2.5.1 Call Center

In the e-commerce environment, trust is essential. Buyers do not interact face-to-face with sellers, but instead meet virtually through a risky medium called the Internet in a two-dimensional web page loaded with images, texts and hyperlinks. Even after completing the transaction, the online buyer does not 'walk out' of the webstore with the product on hand. It takes days before the buyer eventually receives the physical goods, because of the shipment and customs clearance process.

In this kind of environment, the DPO or webstore must demonstrate its credibility and quality of service, provide clear and useful information about itself and its products, and execute all its tasks promptly and competently. In addition, it is important to offer call center services for person-to-person interactions with online clients, which enhance trust and confidence for conducting Internet transactions. Online customers also get to obtain further clarifications of frequently asked questions that may not be clear on the website. Clients perceive their interactions with the company as important items for quality and trust evaluation.

Call centers could also act as selling centers, complimenting online sales made through the Internet and assisting customers to make purchase or buy decisions. The apprehension to submit personal and banking information through the Internet is another reason why some customers may prefer to get items through a call center to complete their online purchase. These customers feel safer speaking to an identified person than to a cold and silent machine connected to an untrustworthy medium.

2.5.2 Marketing

Marketing is essential part for every successful commercial operation, be it traditional or electronic commerce. Even after the burst of the Internet bubble, it is still common to find small and medium size enterprises thinking that they could make easy money simply by activating a web store. After some months with no results, such enterprises end up closing their online shops, with a high sense of frustration and disbelief. E-commerce success is very much dependent on a well thought out marketing plan and strategy. Nobody should underestimate the thorough planning required in starting an online business.

DPOs need to identify their online customers, market properties and market niches/segments, as well as perform SWOT analyses of themselves and their key competitors. Information crowding, high competition densities, and low client fidelity characterize the e-commerce market. Customers easily and quickly change allegiance to other online companies and products to meet their needs. Indeed, DPOs should first design the marketing strategy before all the technology and operational plans are considered. The marketing plan should guide all further planning efforts. It is also important to integrate the e-commerce marketing strategy with the overall organizational marketing strategy, to compliment off-line marketing activities.

2.5.3 Sales

The Sales element is concerned with the strategies and tactics to acquire and maintain clients, providing them with good experiences before, during and after their interactions with the website. In this regard, DPOs must address such issues as pricing, promotions, content management and customer support.

The website is the main "sales-point". Internet consumers tend to demand clear and useful information, low prices, better conditions of payment, and client support. To address these expectations, DPOs should invest on sales tools as:

- Easy-to-use pages: the content must be organized in a manner that attractive, easy to use and customer centric can be easily read and well attractive to visitors, whose point of view should be considered more important than those from graphic designers or technical staff. The texts must be punchy, short and updated. All information must relevant, useful and as complete as possible;

- Web content personalization: this tool is related to the process by which a website offers customers selected information on their particular needs, after collecting personal behaviors and preferences. Personalization can be a powerful tool that allows customers to save valuable time by accessing relevant content quickly;

- Collaborative information: any Internet business today must consider seriously the impact and benefits of Web 2.0 tools. Collaboration is one of the pillars of Web 2.0 concepts and it allows websites to enrich their content due the meaningful participation of users, who are free to express their opinions, suggestions, doubts and claims. Some web stores or DPOs take advantage of collaborative tools to provide products' additional information, evaluations and testimonies from buyers and users who shared their own content using the Web 2.0 tools available on the store;

- Diversity of payment options: as more payment solutions and possibilities are available on a web store, it will be easier for clients to complete online transactions;

- Multi-channel customer support: E-mail, live chat/instant message and phone customer support: web stores or DPOs should add at least some level of customer support facilities in order to increase the number of people completing transactions.

2.5.4 Customer data analysis

This key element is about using organizational processes and technologies in order to gather online client behaviors, preferences and personal data. This customer data is useful to the business manager to exploit opportunities, understand the customers better, improve interactions, and deliver just the right products or services. Customer data mining and analysis is an essential process to CRM. It feeds personalization, sales and support mechanisms with valuable information that allow the suitable execution of these tools.

However, customer data mining, analysis and other CRM technologies are complex and expensive, so it is recommendable to break down a CRM implementation into smaller and manageable sections, according to the capability of the DPO.

2.5.5 E-commerce consulting

Besides the issues of marketing, content management, shopping, logistics and CRM issues, e-commerce businesses should consider aspects such as legal restrictions, tax, export/import regulations and security subjects. Many of these and other mundane issues become easily unsupportable by many small and medium size organizations. It is difficult to imagine how a small merchant hardly struggling with the basic e-commerce operations could also deal with all that legal and security aspects related to e-commerce.

The challenges increase exponentially on global electronic commerce operations. The peculiarities of international e-commerce are many, complex, and specifics to each country and the set of laws and agreements both domestic and international that regulate the e-commerce environment.

In such situations, consulting becomes a viable option. Do not struggle alone. Successful initiatives, especially in developing countries, have resulted from consulting structures that support stakeholders with expertise, best practices, training and capacity building.

2.6. Promotion Channels Key Elements

In traditional commerce, stores are located at places with high flow of people. Similarly, electronic commerce demands the vendors to take their products and offer then where customers are. It is not about geographic location, but about the Internet sites in which the web store and products are located and made visible for access by customers. Marketing the web store, as already mentioned, is important to ensure visitors; otherwise, potential customers will not be able to locate it.

Web advertisement tools are concerned with how to improve website visibility and they are essential for a successful e-shopping strategy. However, DPOs have also the opportunity to explore traditional marketing tools, and maximize results by combining both physical and electronic marketing campaigns efforts.

The promotion channels key elements are:

2.6.1 Web advertisement

The main idea is to link the web store to other websites, as a powerful way of promoting the web store. Among millions of websites, linking to hundreds or thousands of other websites is the best way to build visibility and credibility of a web store. There are a number of ways by which to achieve this:

- Search engines: specialists say that around 70% of the electronic purchases involve any search process. On the Web, search can be the most cost effective alternative for users to wade through the huge amount of information available on the Internet;

- Sponsored links: search engines also allow for the adoption of sponsored links, which show to the user only those offers and promotions that are related to the search arguments issued by the user. This is a good and cheap way of marketing a product, once is directly associated to the customer preference. This model of advertisement is based on the concept of Cost-Per-Click (CPC) – the retailer will pay just the clicks on the ad. These clicks will redirect the user navigation to the web store. The retailers select a set of key words, when someone search one of the key words, the sponsored link engine shows the ads related to that word;

- Price comparison websites: besides searching products and stores that user wants, the price comparison web sites also offer tools to compare items prices and quality-of-service;

- Banners: banner ads are also recommended for web stores and they should be a call to action, with the key objective being to get the person to click on the ad. Generally, banner ads appear across the top or bottom of a web page, but other models such as interstitial, pop-up and pop-under ads can be used;

- E-mail marketing: e-mail can be an effective form of advertising when reaching targeted lists of customers who had already opted in to receive information on particular products or services. On the other hand, advertisers must take care of the spam – a mass-distributed e-mail that was unsolicited by the receivers – besides illegal and unethical, spam activities destroy web store credibility;

- Electronic marketplaces: e-marketplaces are Internet-based environments that bring together buyers and sellers so that they can trade together more efficiently. Their advantage is the capability to meet both sides of commercial transactions and to show plenty of offers which can be compared in a competitive environment.

2.6.2 Direct marketing

Direct market is a set of services that provides the prospection, advertisement, selling, fidelity and relationship among vendors and customer using integrated solutions, adding value in the entire productive chain.

Direct marketing provided by DPOs is a good solution to increase the visibility of web stores, especially if integrated with web content and online advertisement tools.

3. Local e-shopping Implementation

The question to be answered is, which key elements are required when a DPO decides to setup and implement e-commerce related services, considering both local and global e-shopping? This is an important question to guide e-commerce implementation strategies.

Indeed, there is no need implement all the e-shopping key elements. The decision on which e-shopping elements to implement will depend on the role the DPO wants to play in the e-commerce value chain. There are plenty of possible implementation options, however, three are

considered more relevant in this regard, and are mentioned below, in order of priority of implementation – DPOs could play a role in the local e-shopping market as:

1) **A Delivery Services Provider:** the DPO offers reliable shipping and express delivery services, as well as technology tools for cost and price calculation, track and trace, package pickup, all of them easily integrated with e-stores and payment providers;

2) **A Payment Services Provider:** the DPO offers payment solutions either provided itself or by a partner;

3) **An e-Marketplace Services Provider:** the DPO offers web hosting and channels management services. In this scenario, delivery and e-payment services will also be offered.

The table below shows which key elements are required by each role by the DPO in local e-shopping. It is important to mention that other elements can be implemented, according to the strategy defined by the DPO.

Table 1 – Required elements

Key elements group	Key element	DPO acting as		
		Delivery services provider	Payment services provider	e-Marketplace services provider
Web hosting	Web stores			Required
	Technical support			Required
	Product info exporter			
	Product search and comparison			Required
Payment	E-Payments		Required	Required
	Post office payments			
Delivery	Order fulfillment			
	Postage prices calculator	Required		Required
	Shipping labels printing	Required		Required
	Package pickup	Required		Required
	Express delivery	Required		Required
	Track and trace	Required		Required
	Return of goods	Required		Required
CRM	Call center	Required	Required	Required
	Marketing	Required	Required	Required
	Sales	Required	Required	Required
	Customer data analysis	Required	Required	Required
	E-commerce consulting			
Promotion channels	Direct marketing			Required
	Web advertisement			Required

In general, DPOs could follow the steps below to implement local e-shopping solutions:

1) **Introduce a reliable postal addressing system**, if it does not already exist;

2) **Modernize delivery process and services**, including track and trace platform, shipping cost and time calculation tools, and information systems;

3) **Map the country and Post e-commerce readiness**, which assessment includes:

   a. Current ICT infrastructure capabilities – verify how much the country is ready for Internet connection. This assessment should consider the spread of Internet backbone in the country, modalities of connections available (dial-up, DSL or broadband access), costs, Internet access and services providers, web hosting options, among other related aspects;

b. <u>Range of services</u> – e-commerce requires hosting, web security and online payment providers. Hence, it's essential to map what options related to these services are available, how to integrate with them and the costs as well;

c. <u>Affordability</u> – identify how the Post can financially address all the costs required in the implementation of an e-shopping solution, considering all the capabilities and services involved;

d. <u>Quality of service</u> – balancing both costs and benefits, the quality of service should be defined, including its goals and performance indicators;

e. <u>Competition</u> – map which players are already offering e-shopping related services or which ones are potential competitors. This analysis should also identify opportunities and threats as important elements to be considered at the Post e-commerce strategy;

f. <u>Citizens online and digital divide</u> – efforts on e-shopping implementation should consider the digital divide, mapping how many and who are the customers. This information is highly valuable to drive marketing actions. In case of a high digital divide scenario, the Post should also consider how to foster Internet connection among citizens adopting or supporting solutions such as Internet kiosks, non-governmental Organizations efforts, as well as government agencies concerned about reducing the social, economic and digital divide. As more people get connected, the better it gets for e-commerce.

4) **Calculate the Return Over Investment (ROI)**, with special care about the real Internet numbers, surveys and forecasts. As e-commerce is yet incipient in many countries, lack of information about e-business can difficult previsions and let planners to overestimate predictions. Thinking big, and starting small, could be a good way to implement e-commerce solutions;

5) **Define an organizational structure designed for e-commerce**. Internet commerce is a highly competitive and dynamic business environment. Plenty of players offer similar products and services, and some of them are highly specialized. E-commerce entities also have less bureaucracy and a high capacity to innovate and improve their e-services swiftly. Besides, online customers tend to be more exigent and with less fidelity, due to the plenty of players offering similar products and services. Hence, it is important for DPOs to organize themselves adequately in order to be ready to answer customers and merchants needs. It involves a serious and strategic discussion about issues such as processes revision, staff training, organizational culture, and in case of large e-business projects, creation of subsidiaries.

6) **Run a market research and build a marketing strategy.** E-shopping and e-commerce is a business full of risks. Before launching any e-commerce service, DPOs must research information and facts about the potential market in order to support business decisions. This information is essential to guide DPOs in formulating an e-shopping marketing strategy.

7) **Seek guidance from the responsible authority in the country of e-commerce programs for policy development and funding strategy.** Alignment with government and non-government e-commerce programs managers facilitates further deployment, acceptance and integration of e-shopping services. This recommendation becomes more useful in countries with lack of regulations on electronic and Internet transactions. Actually, it is recommended for DPOs to participate actively in regulatory and policy discussions on e-commerce;

8) **Select appropriate vendors and e-commerce model.** This is a justifiable concern due to the need to protect the reputation of services offered by DPOs – and e-commerce success is directly related to trust. The e-commerce model adopted (B2C, C2C, B2B etc) will guide the selection of the appropriate e-commerce vendor;

9) **Provide full integration of e-commerce throughout all the operations and activities of the DPO.** E-commerce depends on postal services and it presents good opportunities

for DPOs. As much as this internal integration grows, more the Post will contribute to the online market, reaching the clients' needs and fostering its position in this marketing;

10) **Bring-in e-commerce consultant.** The market assessment, research and ROI calculation could be requested from consulting agencies;

11) **Identify key technology and supplier risks.** Technical developments, hosting, maintenance and support of e-shopping solutions could be outsourced to reliable third parties;

12) **Identify key trends affecting future e-shopping development both locally and globally.** The online market is constantly changing, and the competitors have good adaptation capabilities. So, it is essential to monitor e-trends and to be ready to address new challenges and needs of e-commerce;

13) **Build CRM database.** Client' information is one of the most valuable assets owned by an e-commerce service provider. DPOs should implement processes and tools in order to take advantage on CRM and to offer personalized, one-to-one relationships with the customers;

14) **Measure pays offs.** These steps are not exhaustive; with experience, DPOs could further improve on them. They comprise just a general guide for implementing local e-shopping services provided by DPOs. The reality of each country or DPO may demand specific procedures, processes, or steps.

4. Global e-shopping services implementation

4.1. Difficulties

International commerce is the most complicated area of e-business. On one hand, the Internet is "borderless" and there are several well established global players like Amazon.com or eBay, as well as big express delivery companies like UPS, TNT, and DHL operating successfully. On the other hand, the logistic process of transporting goods from a retailer in one country to a buyer in another country is complicated and troublesome, especially with customs policies and restrictions involved.

If DPOs could simplify this process, it could create a big advantage for DPOs in international business. Once again, the focus is to improve the core business of the DPOs in the first order. Good examples are the "Borderfree"[1] and "Exporta Fácil"[2] services offered by Canada Post and Brazil Post, respectively.

Taking a closer look on this issue, some important questions come to the mind of an online buyer sitting across the border about to transact on the Internet:

- Who is behind the scenes across the other side? Should I trust that web store? Could it be a fake store?

- Is the electronic payment system safe and secure? Would someone between or across steal my credit card number?

- Should I be paying customs taxes? How much will I pay? Where will I pay? How shall I pay? What are the restrictions?

----

[1] www.borderfree.ca.

[2] Exporta Fácil was designed to facilitate the exporting operations of micro, small, medium and large companies with over 200 countries. The service caters to exports of up to 10 thousand dollars per parcel weighing up to 30 kilos, and unlimited number of parcels. The service is provided at more than 4,400 Post offices, spread throughout Brazil (www.correios.com.br).

- Will I really receive my products/items?

- How will I track and trace my products/items?

- Will I be able to return the goods if need be? What should I do when I receive the wrong product/item?

These and other questions are already common in local e-commerce operations. In international transactions, the doubts and complexities are even more.

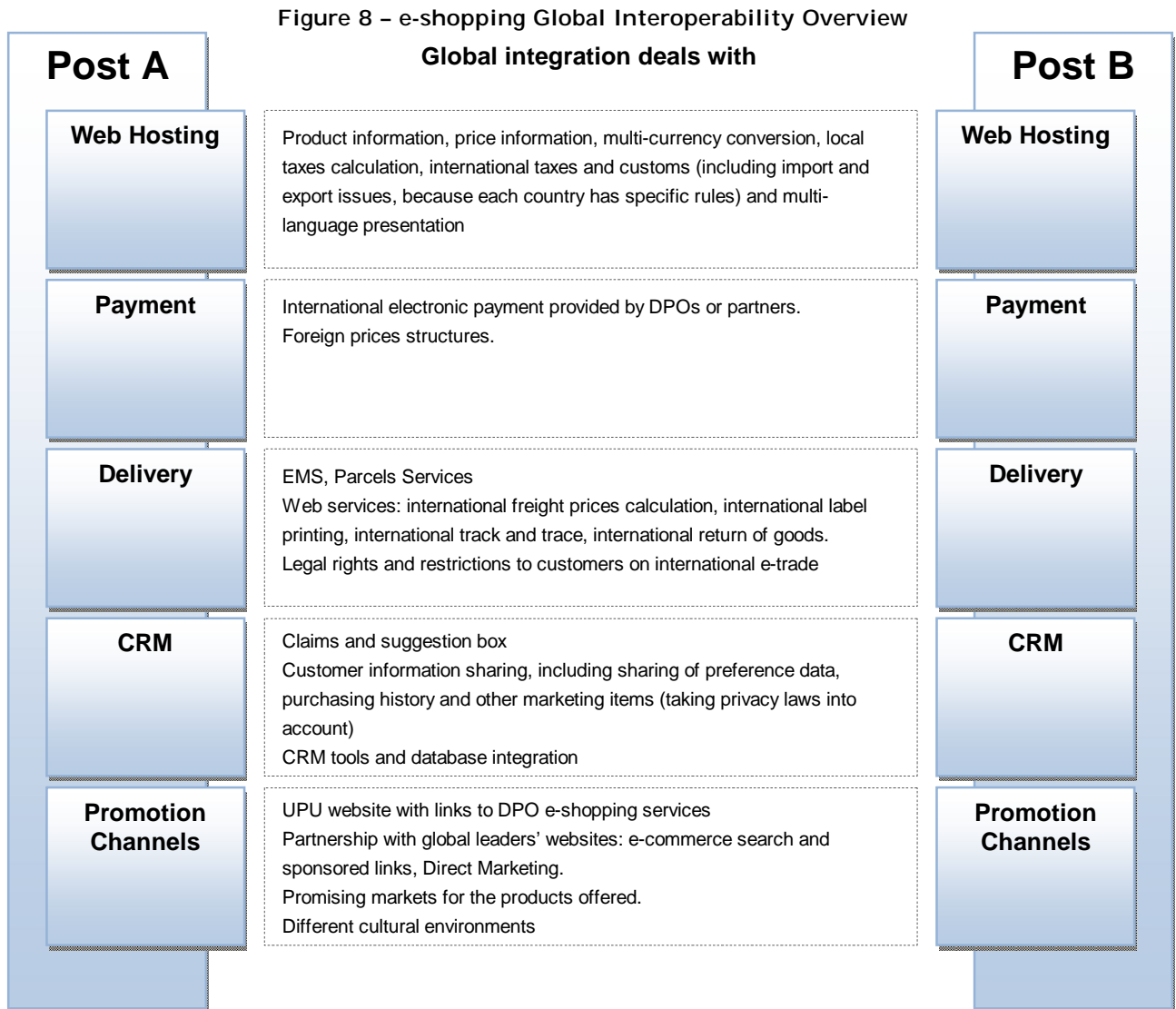On the other hand, DPOs can help to fill that trust gap because:

- they can offer reliable local and international shipping & delivery services and tools embedded on electronic stores, including features that decrease customs complexities;

- they can offer return-of-good services;

- they can offer international payment solutions with quality and security;

- they can offer validation or trust seals to be shown on the web stores, in order to improve web store credibility;

- they can offer web store hosting for small and medium companies, sharing its trusted brand with them;

- they may introduce RFID standards allowing for global T&T services;

- they can offer secure electronic postal services ensuring authenticated services between stores and also buyers;

- the .post and EPCM initiatives can foster credibility when create a strong "trustmark", in a uniquely postal environment.

Therefore, DPOs can act as trusted partners in the global e-commerce transactions, offering reliable, traceable, and efficient international services. The buyer knows who post office is and vice versa. DPOs can act as a bridge in the e-commerce environment. In order to have this DPO e-commerce bridge working properly, the DPO e-shopping solutions should integrate well with each other.

Besides, the e-shopping interoperability concern is not only technological. The bigger problem relates to customs issues and cross-border laws. Each country has its own law, tax system, policies and restrictions about international trading.

4.2. Global Interoperability Scheme

When connecting the e-shopping services of country 'A' to that of country 'B', each category of key elements shares cross-border data following a set of predetermined protocols, processes and translation rules. The scheme below represents the categories of key elements that DPOs should consider when addressing interoperability concerns for international e-shopping transactions.

Figure 8 – e-shopping Global Interoperability Overview

Post A	Global integration deals with	Post B
Web Hosting	Product information, price information, multi-currency conversion, local taxes calculation, international taxes and customs (including import and export issues, because each country has specific rules) and multi-language presentation	**Web Hosting**
Payment	International electronic payment provided by DPOs or partners. Foreign prices structures.	**Payment**
Delivery	EMS, Parcels Services Web services: international freight prices calculation, international label printing, international track and trace, international return of goods. Legal rights and restrictions to customers on international e-trade	**Delivery**
CRM	Claims and suggestion box Customer information sharing, including sharing of preference data, purchasing history and other marketing items (taking privacy laws into account) CRM tools and database integration	**CRM**
Promotion Channels	UPU website with links to DPO e-shopping services Partnership with global leaders' websites: e-commerce search and sponsored links, Direct Marketing. Promising markets for the products offered. Different cultural environments	**Promotion Channels**

The AESUG e-shopping team, considering legal, logistics, customs and technology issues will further detail the e-shopping interoperability subject. This document only presented an overview about this task.

4.3. Implementation priority

As stated in the "EPSG e-shopping through Posts Strategy" report, the most important element in the postal e-shopping value chain is the DPO core business development itself. Still the quality of delivery, especially on the international level, needs to be improved. As such, for example the development of a global track & trace system is essential to successful e-shopping operations. Another very important feature would be an international tax and transportation fee calculator, together with customs rules information and assistance. These are the essential features for an e-shopping implementation in the first order. There are also several other services like pickup/delivery points, and additional delivery schedules.

Other important services to introduce or unify are the payment solutions such as electronic payments, cash on delivery or payments at the post office using traditional postal payment services. The last one is especially important in the countries where online payment over the Internet is challenging or not a preference for the market. These are features where the DPOs, thanks to their wide physical networks, have the competitive advantage. The express delivery companies are pushing on though.

In the second order, DPOs could deploy the global postal marketplace search engine and the e-shopping platform itself (if the feasibility study and market analysis definitely gives the project a green light).

The Figure below represents the proposition of a global e-service implementation priority:

Figure 9 – Global implementation priority

International Shipping Services and Tools → Payment Solutions → e-Marketplace
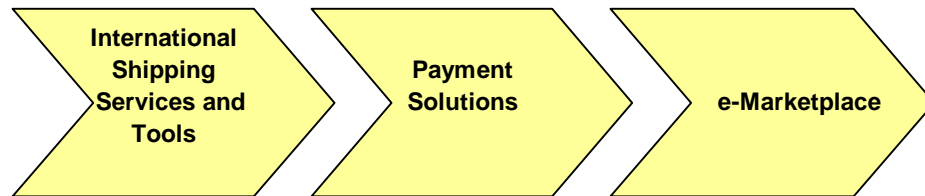
5. Opportunities for Posts

E-shopping opportunities for Posts rely on the EPSG e-shopping strategy document:

Table 2 – Postal opportunities in e-commerce

Delivery	Payment	Hosting	Direct Marketing
Order fulfillment	E-payments	E-shops	Customer acquisition
Global track & trace	Money orders	E-marketplaces	Adress management
Logistics	Micro-payments	E-advertisements	Direct mail
Supply chain management	Prepaid cards		Receiver preference services
Reverse logistics	Cash payment at the post office		Call centres
Home and/or post office delivery			

The market is constantly changing, but the main opportunities remain; only the time is getting shorter.

The posts should focus on their core business of delivery and any service that can lead to more delivery work, though it should include postal addressing system in the list, as a clear and reliable addressing system is necessary for any delivery system.

Furthermore, the posts can utilize the payment elements as one of the promising businesses, relying on people trust in Posts, they can offer many innovative services for their customers.

E-commerce consulting could be another good opportunity for posts to deliver. Benefiting from their own success stories, they can be of great value for other new players in the local market. They can guide and support in the whole E-Commerce process from development to the promotion, they can take the delivery part and offer a complete delivery process integrated with the new e-commerce solution.

Another opportunity for Posts is to offer Direct Marketing integrated to web solutions, in order to improve the merchants' visibility and, consequently their sales and parcels. Besides Direct Marketing, but fully integrated with it, other web channels must be considered, as web advertisement tools, sponsored links websites, and B2C e-marketplaces.

6. Next steps

- Build a business case for a global e-marketplace offered by the DPOs;
- Develop a market justification for connecting the e-shopping platforms of various DPOs;
- Build a set of technical standards and recommendations for DPO e-commerce services;
- Organize funding;
- Propose a global e-marketplace offered by DPOs;
- Run a global DPO e-marketplace trial;
- Develop cost models.

Berne, October 2008   AES UG e-shopping Team

ANNEX 'A' – Advantages and disadvantages of web hosting options

Attributes	Own Host	ISP Hosting	E-Store ISP
Cost	High	Medium	Low
Flexibility	High	Medium	Low
Complexity	High	Medium	Low
Setup time	Long	Medium	Short
Investments needed on	Hardware acquisition and maintenance; Software acquisition and maintenance; Internet Network connections contract; IT security services; IT environment operation; Store administration staff – items management, fulfillment, and CRM.	Software acquisition and maintenance; Partial IT environment operation; Store administration staff – items management, fulfillment, and CRM.	Store administration staff – items management, fulfillment, and CRM.
Applicable to	Bigger stores, experienced on e-commerce and with well prepared staff.	Medium size stores with limited staff and resources, but able to deal with e-commerce operations and technology.	Small and medium companies without know-how in technology and/or with few human or funding resources. Usually, they are incipient on e-commerce.