



eMailbox and eLockbox: Opportunities for the Postal Service

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Executive Summary

Earlier this year, the U.S. Postal Service Office of Inspector General Risk Analysis Research Center (RARC) initiated a series of projects to better understand the rapidly changing world of communications and commerce, culminating in the development of a positioning strategy for the Postal Service as it moves into the digital world. The projects' findings are summarized in a series of white papers, the first of which, *The Postal Service Role in the Digital Age Part 1: Facts and Trends*¹, describes the radical changes currently affecting communications and commerce, identifies trends, and discusses the gaps and shortcomings of today's Internet-based economy. The second paper, titled *The Postal Service Role in the Digital Age Part 2: Expanding the Postal Platform*,² presents a strategic positioning for the Postal Service based on its core competencies and focuses particular attention on the creation of an e-mail service linked to a physical address. This type of service would provide the critical underpinning for the development of a number of potential digital applications and help the Postal Service redefine its mandated role of "binding the nation together" in the digital age. In September, RARC released *Digital Currency: Opportunities for the Postal Service*.³ This paper analyzes the electronic payment landscape by evaluating the opportunity for the Postal Service to expand its offering of money transfer services with prepaid cards.

This white paper, the fourth in the series, presents a case for offering an e-mail service called the "eMailbox" and an accompanying highly secure data storage area service called the "eLockbox," which provides added security for the archiving of important legal and personal documents. Together, these services reflect a natural extension of the Postal Service's role in the physical world, providing a digital service linking every American household and business in a secure, private communications network designed with anywhere, anytime accessibility.

Out of 23 major industrialized countries, the U.S. Postal Service is one of a shrinking number of postal operators that do not offer such a product to its citizens. And while there are private sector technology industry standouts in the United States that have developed widely popular e-mail services, their business models sacrifice consumer privacy in the interest of ad-based revenue generation.

This paper presents the following findings:

¹ http://www.uspsoidg.gov/foia_files/RARC-WP-11-002.pdf.

² http://www.uspsoidg.gov/foia_files/RARC-WP-11-003.pdf.

³ http://www.uspsoidg.gov/foia_files/RARC-WP-12-001.pdf.

1. The advantage of the Postal Service over private entities that provide eMailbox and eLockbox type services is that the Postal Service offers protection under federal law.
2. The Postal Service already has in place assets critical to the development and implementation of an eMailbox and eLockbox, including the Address Management System (AMS) and the National Change of Address System (NCOA) databases. Together, these could be leveraged to support a potential third “eMailbox database” linking an e-mail address to a physical address.
3. In order to attract consumers and businesses, the eMailbox and eLockbox need to be highly secure and adequately backed up to prevent data loss or corruption.
4. Currently, the Postal Service is the only organization that offers an Address Management Service for mailers to improve the quality of physical addresses and thus reduce undeliverable as addressed (UAA) mail. This service could be expanded to include eMailbox addresses allowing for automatic updates to a physical address, an e-mail address, or both, as consumers and businesses move, change names or require mobility.
5. Just as the Postal Service has developed regulations to limit liability in the use of the U.S. mail system to commit fraud or theft in the physical world, it must also evaluate and develop “under penalty of law” policies in the digital world to reduce potential criminal activity using an eMailbox system. Advertising mail would only be allowed from entities registered with the Postal eMailbox system and with the consent of the receiver.
6. As communication channels become ever more consumer-centric, the eMailbox and Lockbox would reflect this change, as consumers would be empowered to opt in and transition to full electronic delivery at their own pace.
7. Most postal operators and companies offer a sender-pays type pricing model with significant discounts to mailers based on volumes and free service to consumers. Other pricing models include charging the same or a reduced price as compared to First-Class Mail single-piece prices.
8. The linking of the eMailbox holder’s identity to the eMailbox address and their physical address would transform both addresses into a possible high assurance identifier suitable for transactions that require privacy, confidentiality, authentication, and non-repudiation, such as financial and legal correspondence. In communications and transactions when furnishing an address is required, some consumers may have a higher degree of comfort in sharing their postal mailbox address in lieu of their physical address. This linkage will allow them to make that “peace of mind” substitution.
9. The eLockbox is a subfolder of the eMailbox, with additional security for the purpose of archiving important legal and personal documents, and can be

accessed, via a smartphone for example, and transmitted quickly when needed, such as in a medical emergency.

10. The eLockbox may require a monthly subscription fee, with a basic level of storage offered as part of the subscription. Add-ons such as expanded storage, lifetime archiving, and other premium services are offered for a supplemental fee.

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eMailbox and eLockbox: Opportunities for the Postal Service

Introduction

This year, the U.S. Postal Service Office of Inspector General Risk Analysis Research Center (RARC) initiated a series of projects to understand the rapidly changing world of communications and presented a strategic positioning for the Postal Service. From the rise of social media and smartphones to the growing e-book phenomenon, the series highlights these changes while also detailing the gaps and shortcomings that arise from today's Internet-based economy. The series presents a strategy for the Postal Service based on its core competencies and proposes the development of an e-mail service called an eMailbox as a critical component of a Postal Service digital platform, hosting applications ranging from expanded hybrid mail services to digital currency products.

This paper is the fourth in this series. It builds on RARC's previous work, developing a case for offering the proposed eMailbox and an accompanying highly secure data storage area service called the eLockbox, which provides added security for the archiving of important legal and personal documents. Together, these services reflect a natural extension of the Postal Service's role in the physical world as the trusted custodian of the nation's address management system, providing a digital service linking every American household and business in a trusted and verifiable way, while empowering consumers to determine the pace and extent of the service's use.

The Postal Service's Value Proposition — Its Assets

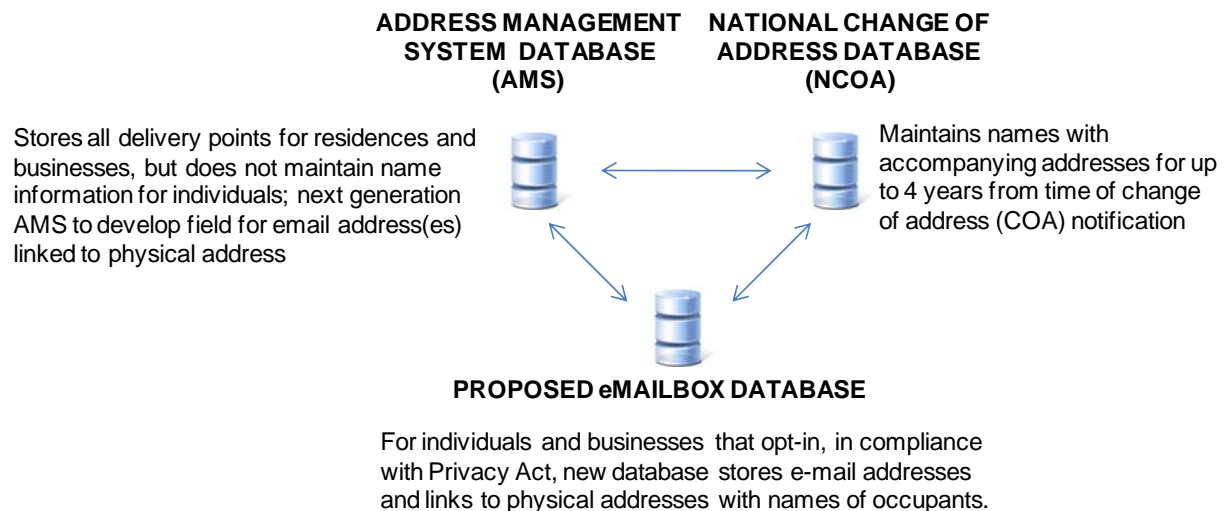
While private sector technology industry standouts have developed widely used e-mail services, their business models can sacrifice consumer privacy in the interest of ad-based revenue generation. For example, these companies scan e-mails and track Internet searches to develop preference-based advertising. The Postal Service, on the other hand, has proven itself over its long history as a trusted third party entity⁴ with the legal standing of the federal government and the power to uphold federal privacy law.

The Postal Service has valuable assets critical to the development and implementation of an eMailbox and eLockbox, such as the Address Management System (AMS) and the National Change of Address System (NCOA) databases. The AMS database contains all the addresses of the delivery point network in the country and is continuously updated as new addresses are added or changed. Although it contains the names of businesses, it does not contain the names of residents nor does it match

⁴ The Postal Service was named the Most Trusted Government Agency and the sixth Most Trusted Business in the United States by the Ponemon Institute. http://about.usps.com/news/national-releases/2011/pr11_111.pdf.

residents' names with physical addresses due to privacy requirements. The second system, NCOA, contains addresses and associated names with the capability to collect e-mail addresses through the change of address process. However, the NCOA, which is used to promote address hygiene and improve mail delivery, only contains address changes from the last 4 years. Together, the AMS and NCOA databases could be leveraged to support a new eMailbox database linking an e-mail address to a physical address when the consumer requests such an account (See Figure 1).

Figure 1: Postal Service Addressing Assets



Source: OIG Risk Analysis Research Center (RARC)

Security

In order to attract consumers and businesses, the eMailbox and eLockbox should be highly secure and adequately backed up to prevent data loss or corruption. The Postal Service is already required to meet federal government standards in network security set by the Department of Homeland Security (DHS). However, postal networks would likely require additional security resulting from the storage and archiving of large amounts of confidential and important legal documents.

As an independent establishment of the Executive Branch of the U.S. Government, the Postal Service offers protection under federal law. Two law enforcement organizations provide these enforcement services. The Office of Inspector General investigates primarily internal misconduct, while the Postal Inspection Service focuses on external crimes connected to the U.S. mail system. This law enforcement capability permits both organizations to investigate crimes committed in violation of some 200 federal laws ranging from using a false identity to child exploitation to contract fraud.⁵ Additionally, the agencies can supplement internal resources through partnerships with experts such

⁵ Most of the Postal Inspection Service's jurisdiction under federal law enforcement powers falls under Section 18 of the United States Code (USC), which lists federal crimes and criminal procedure. Several other areas of jurisdiction fall under 21 USC – Food and Drugs and 39 USC – the Postal Service.

as the Inspection Service's collaboration with the Carnegie Mellon University based Computer Emergency Response Team (CERT), which evaluates risks to the postal IT infrastructure and coordinates responses to cyber attacks.

Privacy

In providing the eMailbox and eLockbox services, the Postal Service could leverage its trusted name and reputation for protecting the privacy of its customers.⁶ The Privacy Act of 1974, which created the concept of "systems of records," serves as a legal foundation protecting postal customers and their personal information from unlawful use by the federal government (with some exceptions such as for law enforcement investigations).⁷ As with most federal agencies, the Postal Service maintains several of these records systems defined as "files, databases, or programs from which personal information is retrieved by name or other personal identifier."⁸ These would include the NCOA database and a database to maintain electronic addresses of customers that sign up for the eMailbox service.

The Postal Service shares updated address-only information in AMS with mailers who subscribe to this service. Mailers use this information to improve the quality of physical addresses and reduce undeliverable as addressed (UAA) mail. By continuously updating the AMS database through the change of address process, the Postal Service provides current address lists, which save mailers time and unnecessary cost. This service could be expanded to include eMailbox addresses, allowing for automatic updates to either a physical address, an eMailbox address or both as consumers and businesses move or change names.

As with any Internet service, privacy concerns may arise. Many of these obstacles may be overcome by simply asking permission from consumers and other stakeholders. For example, the Postal Service does collect limited information based on visits to its usps.com website, which it uses to meet specific business needs such as enhancing the website and facilitating ease of access. However, it does not use the information to identify users [known as Personally Identifiable Information (PII)] without express consent from its users. The Privacy Act prohibits the Postal Service from sharing an individual's name from the NCOA database with mailers. With the eMailbox service, the Postal Service would continue to share only AMS address updates with businesses, while data in NCOA and the proposed eMailbox database would remain protected and in compliance with Privacy Act provisions.

The Postal Service must study ways to shield itself from legal liability resulting from providing the eMailbox. Just as the Postal Service has developed regulations to limit liability in the use of the U.S. mail system to commit fraud or theft in the physical world, it must also evaluate and develop policies in the digital world to reduce the risk of the eMailbox becoming a conduit for illegal activity.

⁶ The Postal Service has the obligation to safeguard Privacy Act protected data.

⁷ 5 U.S.C. § 552, www.opm.gov/feddata/USC552a.txt.

⁸ United States Postal Service Privacy Policy, <http://www.usps.com/privacyoffice/privacypolicy.htm>.

eMailbox Product Description

The Postal Service would offer the eMailbox as a cornerstone of a secure, private, and confidential communications network designed with the needs of consumers in mind. The service would offer anywhere, anytime accessibility through a personal computer, tablet, or smartphone. It would operate as a “closed loop” system, meaning that eMailbox holders could only communicate with other eMailbox holders (i.e., receive messages from another registered eMailbox user), in order to maintain an authenticated user community and secure the platform.⁹

Unlike private or “open” e-mail systems that cannot guarantee the identity of its users, the Postal Service’s eMailbox system would ensure the identity of both senders and receivers as all users are authenticated through the Postal Service’s in-person identity verification process.¹⁰ This process, discussed in depth on the next page, is a multifactor authentication process. It uses in-person verification, official picture identification, and proof-of-mail delivery to physical residence. This makes it a stronger identification tool than the authentication process used by credit card companies, which approves online or call-in applications without in-person proofing.¹¹

As communication channels become ever more consumer-centric, the eMailbox and eLockbox would reflect this evolution, as consumers would be empowered to opt-in and transition to full electronic delivery at their own pace. The eMailbox would be free to the receiver and linked to the receiver’s physical address. Advertising mail would only be allowed from entities registered with the Postal eMailbox system and with the consent of the receiver. The eMailbox could support the expansion of traditional postal services as well as new digital commercial and governmental services. On the postal side, it could provide authentication and confirmation to communications, as well as consumer preference-based physical (hybrid) or electronic delivery of mail services. The eMailbox combined with traditional mail, would allow consumers to choose to send and receive mail by either physical or electronic delivery.

The linking of the eMailbox holder’s identity to the eMailbox address and their physical address would serve as a potential high assurance identifier suitable for online financial, governmental, and legal transactions such as bills, payments (such as taxes), and official filings and mailings (such as tax returns and voting). In communications and transactions when furnishing an address is required, some consumers may have a higher degree of comfort in sharing their postal mailbox address in lieu of their physical address. This linkage will allow them to make that “peace of mind” substitution.

⁹ Most of the mailbox systems offered by foreign posts are closed loop; an exception to this is Swiss Post, whose Incamail system can be integrated with the consumer’s own e-mail address system (e.g., Outlook/Exchange, Apple). This characteristic allows companies to run Incamail in-house and make it available to their employees.

¹⁰ All of the major postal operators with the exception of Switzerland have opted for the development of a closed system which allows for better security and ensures a stronger degree of identity validation.

¹¹ Credit card companies may require a variety of information, such as name, social security number, residential and/or mailing addresses, date of birth, email address, and annual income. Optional information asked by credit card companies may include employer name, or whether or not an applicant owns a home or holds a bank account.

eMailbox Address Format

Every consumer, business, and government agency would be eligible to apply for an eMailbox eAddress. The most practical eAddress format for individuals would be using one's full name, such as benjamin.r.franklin@usps.post. For common names, a number could be added to the end of the name so that the individual named John Smith would be john.m.smith5@usps.post.

Postal Service account managers or Bulk Mail Entry Unit (BMEU) clerks could work with businesses and government agencies to set up and establish accounts for corporate and government mailers. eAddresses would assign easily identifiable addresses such as comcast@usps.post for a business and alexandria.va@usps.post for a local government. The eAddresses would also be linked to a primary mailing address during the registration and verification process. Additional security provisions could be added, such as requiring a link to a physical address, which can be confirmed via geographic information system (GIS) or, in some cases, utilizing letter carriers to confirm the identities of individuals.

Registration

Each consumer that registers for the eMailbox service will gain a secure virtual space for transactions and storage. Table 1 shows how the eMailbox and eLockbox six-step registration process would work.

Table 1: eMailbox Registration Process

<p>1. Consumer Opt In for an eAddress Through an Online Registration: Secured eAddresses are offered on an “opt-in” basis to consumers 18 years of age and older (residents, businesses, or government entities).</p>
<p>2. Consumer Completes In-Person Verification at Post Office: Online or in-person registration generates a form (or number) that the consumer then takes to a post office enabled with point-of-service (POS) terminals. The consumer provides this proof of registration, a bill or other statement addressed to him or herself, and a government-issued form of identification to a postal clerk. The clerk uses this information and POS terminal access to the AMS/NCOA/eMailbox systems to execute an in-person verification of the consumer. As part of the registration process, the consumer will choose to either list his eAddress in an online directory (accessible to eAddress holders only) or keep his eAddress unlisted. The clerk would also verify the linkage of the assigned eAddress with the consumer’s primary physical address.</p> <p>The initial registration is valid for a predetermined period such as 3 years. This builds in an automated update schedule that could capture normally occurring name and address-changing events such as marriage. After that time, the validity period may be extended every 1 to 3 years through an online verification process (including name and/or address changes).</p>
<p>3. Secure Identification Hardware Provided to Consumer: Once registered, secure identification hardware such as a Public Key Infrastructure (PKI)¹² key will be provided to the consumer at the post office or sent to the consumer’s physical address. An example of a PKI is an RSA SecurID key fob or token.¹³ The use of roaming keys or the use of the user’s cellular phone as a secure token may be allowed to reduce costs and improve consumer convenience without undermining system security.</p>
<p>4. Consumer Sets Up eMailbox and Optional eLockbox: The consumer sets up his eMailbox with his PKI key and customizes it with selected add-on services such as the eLockbox.</p>
<p>5. Consumer Accesses and Manages eMailbox and eLockbox from Computer or Mobile Device: Once the consumer has set up the system, he or she will be able to quickly and efficiently access and manage their eMailbox anywhere and anytime through computers and mobile devices. Message notifications would be set up via the usps.com smart phone application, social media, text message or personal e-mail.</p>
<p>6. Consumer May Grant Third Party Access to Customized Subfolders in eLockbox: Add-on services, such as the eLockbox with added layers of security, would be offered for a fee. The eLockbox allows for secure archiving of sensitive information such as legal and personal value documents that can be organized and accessed quickly when needed.</p>

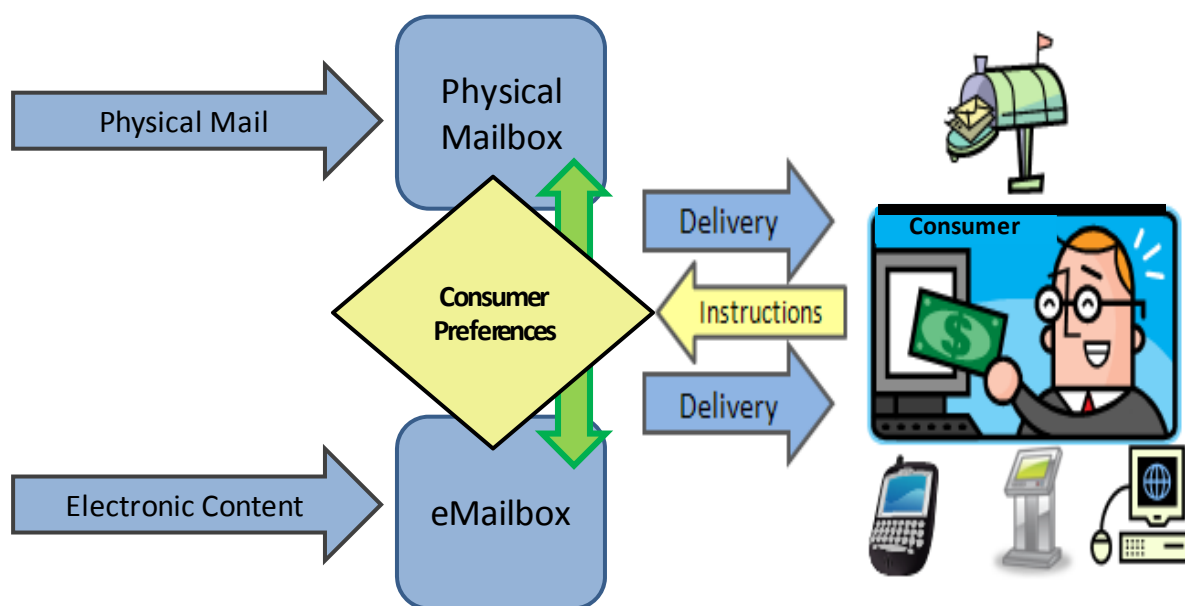
Other postal services that provide postal e-mail box services employ alternative methods for identity validation to encourage higher adoption rates. Instead of in-person physical validation at the post office, the Danish and Finnish postal operators allow users to register online using online banking identification. In choosing whether or not to use in-person registration, one has to weigh consumer ease against legal liability, security, and consumer trust.

¹² A PKI enables internet users of a basically unsecure public network, “to securely and privately exchange data and money through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority.” <http://searchsecurity.techtarget.com/definition/PKI>.

¹³ <http://www.rsa.com/node.aspx?id=1156>.

As mail recipients continue to become more aware of the amount and type of communications they are receiving through all channels, they are beginning to demand more relevant content tailored to their individual needs. Figure 2 below illustrates how the consumer would control the flow of information through his or her eMailbox and physical mailbox by processing and responding to both physical and digital mail according to his or her individual preferences. The diagram also reflects the critical “bridging” role that the Postal Service provides between the physical and the digital worlds. The eMailbox provides both parallel and cross-over delivery channels, allowing for full flexibility in going from physical to digital and digital to physical.

Figure 2: Consumer Manages Physical Mailbox and eMailbox



Source: OIG Risk Analysis Research Center (RARC)

Other eMailbox Services

Foreign postal operators and private companies have developed a host of features for eMailbox and eLockbox type services. From the Israeli Post’s iPost e-mail service to the archiving of Postini, a Google subsidiary, the number of products and features is diverse. Table 2 captures some of the main elements:

Table 2: Features Offered by Other Providers

Features Offered	Deutsche Post	Doxo	Google Postini	Israel's iPost	Manilla	Volly	Zumbox
Free to Consumer ¹⁴	✓	✓		✓	✓	✓	✓
Closed E-mail System ¹⁵		✓		✓	✓	✓	✓
Bill Organizing ¹⁶		✓		✓	✓	✓	✓
Bill Payment ¹⁷		✓		✓	✓	✓	✓
Links to Physical Address ¹⁸	✓			✓			✓
Reverse to Paper (Hybrid) Capability ¹⁹	✓			✓	✓	✓	✓
eLockbox Service ²⁰			✓	✓			

Source: OIG Risk Analysis Research Center (RARC)

Additional features for consideration could include:

- Postal:** Embedded messaging functions such as electronic postmarks (EPM), e-signatures,²¹ and notarizations as well as electronic registered mail; electronic return receipt service; parcel tracking and pick-up and delivery scheduling; Postal Service customer inquiry and claims filing; and a digital concierge system that alerts recipients that mail has arrived.
- Direct Mail:** Reverse hybrid mail; direct mail piece creation and delivery based on consumer preference; consumer opt-in advertising; geo-targeting capability (e.g., mailings targeting a specified 5-mile radius); and automated change of address correction.
- Government:** Transmission of official and legal documents; and geo-targeting in specific ZIP Codes to notify citizens of important events such as public health concerns or road construction.

¹⁴ Service is free to consumer (sender pays) and so does not involve either a monthly or transaction-based fee.

¹⁵ Closed systems limit communication to other users within the system.

¹⁶ Provides ability to file electronic bills, invoices, receipts, and other financial statements.

¹⁷ Allows linkage with credit cards or financial accounts such as PayPal to send or receive payments.

¹⁸ Many online accounts require no proof of physical location; a tie-in allows higher authentication and more services.

¹⁹ While many services promote a switch to electronic statements, some do not allow customers to reverse the process. Hybrid capability empowers consumers to choose how they want to receive mail and allows businesses to easily send out direct mail pieces.

²⁰ A more secure "filing cabinet" allowing for archiving of financial records, wills, and other personal documents.

²¹ In the United States, electronic signatures are defined in the state law Uniform Electronic Transactions Act (UETA) and in Electronic Signatures in Global and National Commerce Act (ESIGN), a federal law that deals with interstate commerce and endows e-signatures with legal enforceability for e-commerce agreements. Forty-seven states have enacted UETA, and those that have not have similar legislation in place. E-signatures could provide the legal value for documents stored in the eMailbox and eLockbox.

- **Financial:** Transactions, fraud prevention, filtering, redirection, data integrity, and payment handling. Some companies may choose to only do business with a consumer that has a postal eMailbox; Personal Shopping Center for purchasing, payments and shipping; certified eRetail partners; one-click payment, eCatalog Reader; and eMoney transfer by sending an eCheck from consumer's to recipient's eMailbox.
- **Other:** eReader application; chat room; and videoconferencing integration.

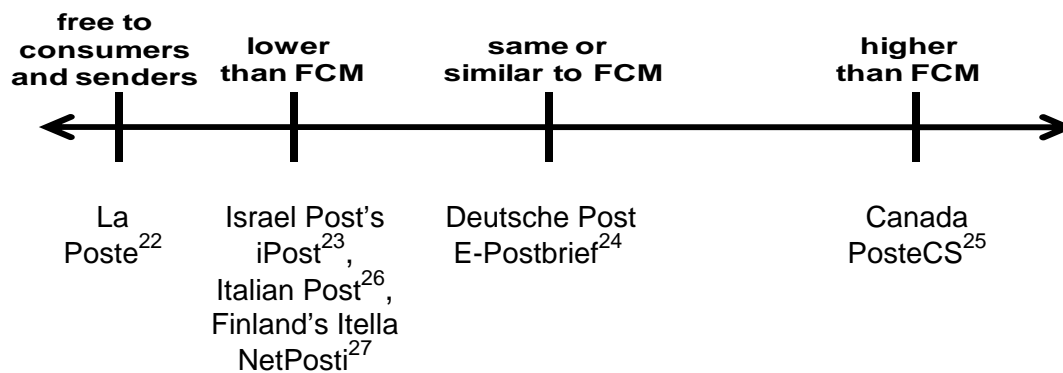
Pricing

There are many pricing options for the Postal Service to consider when developing the eMailbox system, ranging from the sender-pays pricing model used by most foreign postal operators to a no-fee model for either sender or receiver used by the French postal operator, La Poste.

The sender-pays model varies greatly, though most postal operators offer volume discounts just as they do in the physical world. One option prices e-mail messages at the same level as single-piece First-Class Mail (FCM) to avoid concerns over the cannibalization of physical volumes. For example, Deutsche Post's E-Postbrief, a secure electronic letter introduced in July 2010, costs €.55 (\$0.77), which is the same price as a regular physical 20-gram (1-ounce equivalent) letter. In another example, Israel Post's iPost prices its electronic mail product as a function of service and message size (megabyte). The price starts at half the price of a standard letter or 1.70 shekel (\$0.49). Finally, another model currently under consideration in Australia proposes that the government pay Australia Post on a monthly basis to provide eMailboxes to all citizens as part of a collaborative eGovernment partnership by all government ministries to reach citizens electronically.

The pricing continuum in Figure 3 illustrates the range of pricing options currently used by foreign postal operators and how their pricing compares to the equivalent of their single-piece FCM:

Figure 3: Pricing Continuum for Digital Letter versus First-Class Mail (FCM)



Source: OIG Risk Analysis Research Center (RARC)

eLockbox Product Description

The eLockbox is a subfolder of the eMailbox that has additional security for the purpose of archiving important legal and personal documents. The eLockbox allows for secure archiving of sensitive, valued information such as legal and personal documents that can be accessed quickly when needed. Examples of such documents include: medical records, wills, security clearance paperwork, marriage certificates, letters of recommendation, warranties, school records, titles, account access information, power of attorney papers, and even sentimental photographs and multimedia files.

The eLockbox would also have a file sharing service allowing the consumer to share some or all of his or her information (see below) efficiently and quickly, utilizing customized subfolders. Within each subfolder, the consumer would designate access to selected third parties (e.g., spouses or medical professionals). For example, a consumer would set up a “Medical” subfolder to exchange documents with their doctors, an “Estate” subfolder to send and receive documents to and from their attorney and spouse, and a “Personal” subfolder for private documents.

The parties granted access must also be registered with a postal eMailbox. The consumer will give them access through an e-mail invitation by entering the granted party’s PKI key serial identification number to the specific subfolder access set-up page. When the granted party logs into their eMailbox, they will also be logging into the appropriate subfolders of the consumer’s eLockbox to which the former has access.

²² Allows customers to obtain a free e-mail account where they can send standard e-mails for free.

²³ 50 percent of standard mail price.

²⁴ Both the digital and hybrid mail products offered by Deutsche Post are called E-Postbrief.

²⁵ PosteCS and ePost allow business customers to send correspondence to customers’ Canada Post eMailbox account. Tracking and receipt features of PosteCS are like that of Registered Mail. Prices lower considerably when volume discounts are applied.

²⁶ An e-mail message with an electronic postmark costs 10 euro-cents less than a physical letter and includes a time stamp and return receipt feature.

²⁷ NetPosti is a business to consumer digital letter that is cheaper than a standard letter at 35 euro-cents compared to 47 euro-cents for a physical priority letter.

This access could be limited to a time period, such as 6 months, or for a single event such as a medical or other emergency.

Add-on services for the eLockbox could include a lifetime archival option (versus the 7-year limits that are offered by Canada Post and Israel Post, for example), additional memory (data storage capacity), and hybrid and reverse-hybrid capabilities.²⁸

Pricing

As a premium service, the eLockbox would require a monthly subscription fee. It could be offered on a tiered basis, with a basic level of storage offered as part of the subscription. Add-ons such as expanded storage, lifetime archiving, and other premium services would be offered at higher prices.

Conclusion

The Postal Service, in these challenging and uncertain times, must engage proactively to adapt to the new market conditions in the digital world. Through the development of an eMailbox and eLockbox product, this white paper investigates this potential at a conceptual level. These concepts should be further developed as the organization implements new digital services. More than 8 years ago, the President's Commission on the United States Postal Service, stated as part of its final report that *"By applying the sophistication of the electronic world to the physical mail, the Postal Service can develop a new postal proposition for the 21st century...and make its advantages available to all customers."*²⁹ This electronic "sophistication" has developed even further and the time to advance this new proposition through the offering of digital products such as the eMailbox and eLockbox is even more critical today.

²⁸ An example of the hybrid or reverse hybrid capability is the option of a consumer mailing a copy of a document to the Postal Service for his or her eLockbox. The Postal Service would then scan, digitize, and store it in the consumer's eLockbox from which the consumer is able to access this document digitally anywhere and anytime. The reverse is equally an option. If a physical document gets lost or stolen, the consumer can request that the Postal Service mail a hard copy of the digital version of the document stored in his or her eLockbox to wherever the consumer may be globally.

²⁹ President's Commission on the United States Postal Service, *Embracing the Future, Making the Tough Choices to Preserve Universal Mail Service*, July 2003, <http://govinfo.library.unt.edu/usps/offices/domestic-finance/usps/pdf/freport.pdf>, p. xvii.

Appendix

Post Denmark e-Boks Profile



Description: e-Boks is a secure electronic mailbox where one can receive and store the documents typically received by mail. The service also allows for the storage of valuable documents including legal papers such as birth and marriage certificates. Messages are bidirectional, sent in PDF format, and can be easily archived in folders set up by the account holder. e-Boks is a limited liability company founded in 2001 and jointly owned by Nets, a Danish developer and operator of payment systems, and Post Denmark.

Features:

- **Archiving:** allows the storage of personal documents such as birth certificates and transcripts, etc which are stored indefinitely regardless of whether the consumer moves or changes jobs or e-mail addresses.
- **Third Party Access:** provides access to others through settings options.
- **Consumer-centric:** consumers decide which companies and public authorities they want to receive mail from. There are approximately 4 subscriptions per user.
- **Pricing model:** volume based with up to 70 percent discounts off physical mail postage prices.
- **Log-in Options:** three including:
 - online bank websites (code used to access online bank can also be used to log onto e-Boks)
 - a digital signature (plus a CD card or USB key)
 - a NemID (known as a common log-in solution) utilized by Danish Internet banks and government websites; this provides a unique ID number that can be used as a username in addition to one's social security number or user-defined username, creating two-factor authentication.
- **Security:** encrypted using SSL (Secure Socket Layer) security protocol.

Market penetration: With 3 million customers out of a Danish population of 5.5 million, Denmark's 54 percent market penetration is the highest in Europe. 2.3 million additional users in other countries, including e-Bok's Norwegian subsidiary. Added 600,000 new customers in 2010 or 25 percent growth over 2009.

Revenue and Net Profit: Increased by 23 percent from 2009 to 2010 to \$73 million (approximately 4 percent of Post Denmark's total 2010 revenue of \$1.9 billion). Net profit is up 10 percent from \$15 million to \$16.5 million in 2010 (approximately 30 percent of Post Denmark's total 2010 net profit of \$55 million).

Major customers: 600 mailers including almost all banks and municipalities, and a large number of pension, insurance, energy, and telecom companies. These companies are not permitted to send other unsolicited material or advertising through e-Boks.

Source: <http://www.e-boks.dk/>