# Universal Service 2.0 on a Digital Postal Platform

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## 1 Introduction

The Internet and the digital revolution are fundamentally changing the worlds of communications and commerce. The digital economy continues to grow at a rapid rate. Electronic substitution of traditional mail is accelerating as both consumers and businesses adopt electronic processes across multiple domains. Mail users are shifting from traditional hard copy distribution models to a variety of new ways to digitally communicate, advertise, or transact. They are attracted to greater convenience, faster service, and lower cost. The digital revolution has become the "disruptive innovation" [2] to the traditional business of the U.S. Postal Service (hereafter the Postal Service). The Postal Service must adapt or risk becoming less relevant.

We are currently witnessing a number of prominent societal, behavioral, and technological tendencies affecting the postal ecosystem, coupled with their associated commerce, communication, and media trends. But there are still some fundamental gaps restricting the pervasive advancement of the digital economy, which has not settled into a state of equilibrium.[3] Some of those shortcomings divide rather than "bind the nation" together. Filling those gaps can provide some real opportunities for the Postal Service to modernize and define anew its public mandate of "binding the nation together" and render it more consistent with modern times – a new universal service obligation (USO 2.0) that takes in consideration the fundamental changes that are taking place in the communication space in this new digital age.

This paper will be organized in five sections. The first section will discuss the historic roots of the Postal Service USO that dates back to the U.S. Constitution. The second one will examine the current interpretation of the postal USO. The next section will analyze the need for a new interpretation of the USO.[4] The fourth section will discuss a USPS "postal platform" and its accompanying digital services, integrated with its existing physical infrastructure, serving as the basis for a new USO. Finally, the paper will offer a first look at USO 2.0, a new interpretation of the mandate designed to have the inherent ability to evolve with technological and societal changes.

## 2 U.S. Constitution and the Postal Service USO

The U.S. Constitution empowers Congress "to establish post offices and post roads.[5]" By 1792, the Post Office Act defined the Post Office's purpose to "bind the nation together," promote democracy and privacy, and foster information flow and commerce growth.[6] To these ends, the Postal Service

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[2] Clayton M.Christensen, *1997*.
[3] U.S. Postal Service Office of Inspector General, Risk Analysis Research Center, 2011.
[4] Perkins, 2001 and Jaag and Trinker, 2011.
[5] U.S. Constitution. Article I. Section 8.

- protects and expands the national identity through such means as forgoing interstate taxation;
- promotes free speech through democratic discussion via mail that is sealed against inspection;
- promotes the betterment of society, as inclusion of all citizens benefit the country overall socially, economically, and politically; and
- has a role, recognized by legal precedent, to adapt as technology evolves.

The Constitution did not require nor envisage the Postal Service to be restricted to the "instrumentalities of commerce" or technologies available at the time - the country's inception.[7] Historically, the Postal Service not only adopted modern means of delivery but it often pioneered these technologies[8] to uphold its mandate to "bind the nation together." Now the Postal Service has the duty to develop new technologies to provide a "secure, reliable and affordable delivery platform, and serve as an engine of commerce" [9] in a new era. In other words, the traditional mandate (the end) does not restrict the operator to traditional means. It is agnostic to the technology or instrument of fulfilling the mandate. Congress can do the will of the founding fathers and Americans by supporting the Postal Service's efforts to evolve and develop the modernized national infrastructure— a new Universal Service Obligation mandate USO 2.0 that takes into consideration the digital revolution and digital technologies. In other words, the current USO needs to adapt and catch up with the changes already taking place or risk being inadequate. How do you bind the nation together strictly with an old physical infrastructure when the nation is communicating more and more digitally? If the mandate is to remain the same, the USO needs to change.

# 3 The Current USO

Currently, the Universal Service Obligation (USO) in the U.S. represents the traditional role of the Postal Service, providing physical mail service to every address. While the Postal Service dates back to the founding of the country, legislative debate over the USO is a more recent development, with the first mention of "universal service" in a postal context found in a 1967 study of postal policy.[10]

Unlike other countries that have tackled the issue of defining a postal USO[11], the term remains largely undefined in the United States. It may be that this lack of definition was intentional, leaving room for adjustment as the Postal Service saw itself shift from a federal Cabinet-level department to an independent establishment of the executive branch that is supposed to behave in a business-like manner.

Although the concept of the USO has not been spelled out legislatively, the federal government has attempted to provide greater context to the term. A recent report by the regulator, the Postal Regulatory Commission (PRC), on the USO and the postal monopoly in the United States [12]ascribes seven general attributes to the USO:

1. Geographic scope – the obligation not only exists domestically but to and from foreign countries.

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[6]National Postal Museum. http://www.postalmuseum.si.edu/exhibits/2a1h_1792act.html.
[7] Pensacola Tel. Co. v. W. Union Tel. Co., 96 U.S. 1, 3-4, 24 L Ed. 708 (1877).
[8] For example, the U.S. Postal Service was the key catalyst behind the development of the airline industry in the US. See U.S. Centennial of Flight Commission, "The Post Office Flies the Mail, 1918-1924," http://www.centennialofflight.gov/essay/Government_Role/1918-1924/POL3.htm, and "Airmail: The Air Mail Act of 1925 Through 1929," http://www.centennialofflight.gov/essay/Government_Role/1925-29_airmail/POL5.htm.
[9]"Post Office must be allowed to compete". *Cumberland Times News.* December 26, 2011. http://times-news.com/opinion/x1750828941/Post-Office-must-be-allowed-to-compete.
[10] John, Richard, 2008.
[11] For example, in Europe a 1997 directive enacted by the European Union spelled out service standards for its member nations as well as limits on the postal monopoly. See Dieke, Alex et al., 2008.
[12] Postal Regulatory Commission, December 19, 2008.

2. Product range – the assortment of mail products required to meet the present and future needs of citizens.

3. Access – this includes not only the ability to physically reach a location that provides the essential postal services, but a reasonable amount of time at a given location to obtain services.

4. Delivery – although the Postal Service can choose the final receptacle for the mail, it is still required to deliver to the entire population. This also covers the frequency of delivery, currently subject to a Congressional provision.

5. Pricing – while the USO requires the Postal Service to maintain affordable rates, other pricing restrictions are required by the Postal Accountability and Enhancement Act legislation.

6. Service quality – current legislation requires only that the Postal Service maintains "modern service standards," although it also has an obligation to seek an advisory opinion on any changes in service that will significantly affect service on a national level.

7. An enforcement mechanism – complaints can be taken before the PRC if a party believes that either prices or services are not being applied in a fair and equitable fashion.

Despite many recent efforts to give greater definition to the USO, these efforts were centered on a largely physical infrastructure. New digital technologies, leading to ongoing changes in consumer behavior, have meant massive transformations in communications. In this context, the old definition of the "USO" is anachronistic.

# 4 The Need for Redefining the USO

To meet the needs of American citizens in a world that continues to experience change with each new technology, the new USO has to undergo a paradoxical dynamic of redefinition. On one hand, it has to gain a more precise definition, while at the same time retain some flexibility to accommodate the still raging but unsettled digital revolution. The lack of definition has become a liability as the agency seeks to "bind the nation together" in a hybrid world that requires both physical and digital services**.** At the same time, the new USO has to retain a certain level of flexibility. As technologies come about fast (and disappear fast) resulting in new consumer behaviors, the USO must remain "agnostic" towards a particular technology. It must embrace the physical, digital, and any future form of communications that evolves. It is not a question of ensuring the survival of the Postal Service; it is about best serving the public as the old mandate stipulated - as new technologies threaten to leave people behind and create a digital divide.

This agnostic view of technology has been acknowledged before within the context of studying the USO in a changing world.[13] In a more recent paper, Christian Jaag and Urs Trinkner (2011) addressed the same issue.[14] Trinkner and Jaag analyzed the USO in the context of the two-sided market ascribed to the postal system, with the postal platform acting as the connection between the sender and the recipient. They suggest that the USO should cover both physical and electronic communications, and assert the principle of "technological neutrality" by establishing standards that should be tied to the modern needs of the consumer, regardless of the technology used. Jaag and Trinker incorporate five broad principles:

1. Output orientation – obligations should focus on the accessibility to outputs as well as the speed of service;

[13] Perkins, 2001.
[14] Jaag, Christian and Trinkner, Urs. June 2011.

2. Technological neutrality – standards should be tied to the needs of the consumer, regardless of the technology used;

3. Product neutrality – service standards should not be tied to a particular product, giving the post flexibility to adjust the portfolio;

4. Necessity – services included in the USO will cover only the most basic of consumer needs;

5. Viability – the burden placed in filling the obligation should be within practical applications.

These principles are useful as a general guidance system. The new USO should reflect the shift to a consumer centric society meaning that citizens should not be limited in how they receive or send communication. Services should be available to all, regardless of the technology or channel utilized. The USO should not place limits on consumers, who should be able to receive or send as they wish, physically or digitally. In the next section, we will present a strategic positioning for the Postal Service that would frame and shape a new role for it in the digital age. We believe this new vision could constitute a building block underlying the new definition of USO 2.0 for the U.S.

# 5 The Role of the Postal Service in the Digital Age

The transition to this new digital landscape is already under way, but like the current USO, the path forward is undefined. We believe however that the Postal Service should expand beyond its current physical platform and identify a series of digital and hybrid applications as a first step in redefining its mandate. While there is no indicator of how much of our communications and commerce will go digital, the migration is nonetheless creating a lengthening tail of digital refugees, which will only increase as the digital revolution progresses.

We posit that the Postal Service cannot fulfill its mandate if it ignores this phenomenon. We present a strategic positioning[15] for the Postal Service to provide digital and hybrid applications that would enable it to better facilitate communication and commerce in the future. The strategic positioning is based on three guiding principles. These principles prescribe possible initial applications that reside on the postal platform.[16]

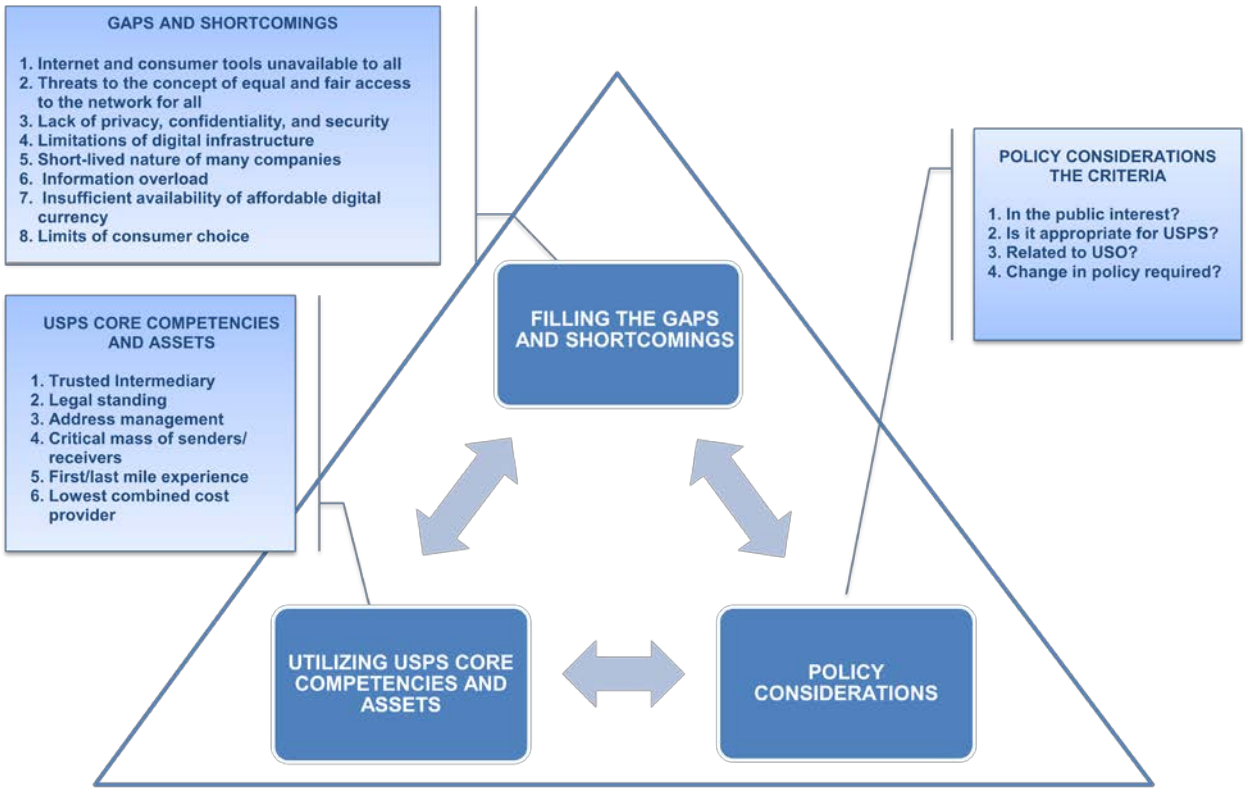
> **Do the applications provide solutions to communications problems**? - These problems include an Internet and all of its functionality that is not readily available to all citizens, inadequate levels of privacy, confidentiality, dependability, and security in digital communications and financial transactions. There are also threats to equal and fair access to the Internet and insufficient availability of affordable digital currency exchanges to bring e-commerce to the entire population.
>
> **Do the applications utilize the core competencies and assets of the Postal Service?** - The Postal Service has served as a trusted intermediary, more than any other private company or federal agency, providing a position of legal standing for postal communications in the courts and government and ensuring that their content remains private. The Postal Service also has experience in developing and running a national address management database and has a multichannel infrastructure of points of sales and services. The Postal Service's proven delivery network particularly through its first (collecting from the sender) and last (delivering to the

[15] Asher, Callan, and Marsh, 2011
[16] U.S. Postal Service Office of Inspector General, Risk Analysis Research Center, 2011.

recipient) mile, experience in domestic and international currency transactions and daily contact with the population provide unmatched experience.

**Do the applications relate to the USO mandate?** These should include determining: Is the opportunity in the public interest, linking a wide array of business sectors to the American public? Is the opportunity appropriate for the Postal Service? Is the opportunity needed to assure the Universal Service Obligation (USO)? And would a change in policy be required?

*Figure 1: The Guiding Principles*




Source: USPS OIG Risk Analysis Research Center (RARC)

# 6 The New Postal Service Digital Platform

The new vision is more about pursuing an effective platform strategy toward building a more encompassing postal ecosystem than pursuing a strategy for new product offerings in traditional markets. In simple terms, the Postal Service would have to sponsor an organizing and enabling communication platform that many participants would be able to *contribute to* and *benefit from.* In this section, we will start with a background discussion on platforms in general with a specific focus on the US context.[17]

[17] The themes presented in this section were discussed and developed during a workshop at USPS-OIG in Arlington, VA with Professor Marshall Van Alstyne and Geffrey Parker, October 19, 2011.

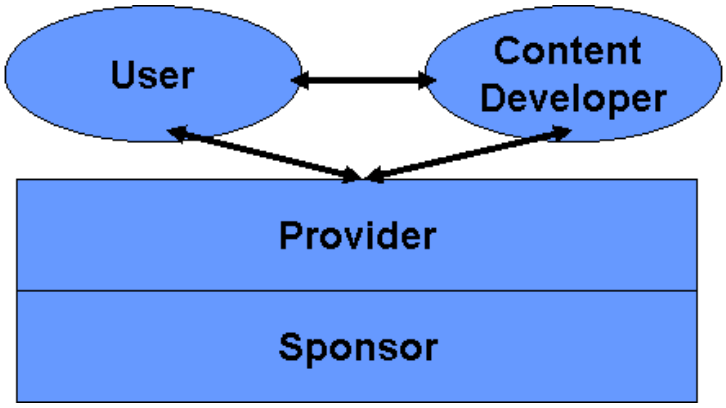
**Platform Definition**

A platform is defined as a set of components or services used in common across a product family whose functionality can be extended by 3rd parties[18] characterized by network effects.[19] In other words, it is a set of components that are utilized beyond just a single owner and the more participation there is, the more value is added. [20] The two key characteristics are then about common usage and network effects. Such a platform allows for multiple parties (also known as market sides) to transact across the platform allowing for interaction between developers of applications and consumers to interact in an ecosystem built atop "foundational layers" provided by the sponsor of the platform. What makes this structure different from traditional business models is that the platform structure is non-linear in nature.[21] The Postal Service would be responsible for overseeing the control points with users and controlling those connections. This is a fundamental change from the Postal Service's traditional business model which is organized according to a generally predictable and static linear supply chain with established suppliers to utilize first and last mile postal assets to a highly dynamic and complex platform structure that seeks to manage external processes and partners simultaneously on multiple access or control points across the platform.[22]

**Respective Roles**

There are four key roles to consider when considering a two-sided network in developing a platform and the supporting ecosystem around that platform. First, there are users (demand side). These are the target consumers of the platform solutions and services. They can be individuals, businesses, organizations. Second, there are the content developers (supply side).

*Figure 2- Roles in a Two-Sided Platform*




They provide the specific items that attract the users to the platform – music, games, information, services, and answers. Third, there are the providers. This is the point of contact for common components, rules and architecture. The provider is typically the contact point for the users of the platform – both the consumer of the content and the developer of the content. This role can be done by one firm or many firms. Finally, there is the sponsor. This is the overall designer and IP rights holder providing the overall organizing structure for the platform, the rules, governance and the ecosystem function. The sponsor controls the underlying platform technology. The sponsor is the one who helps the ecosystem work by helping participants see how they are better off by being part of the system rather than outside of it. This role can be done by one firm or many firms

Eisenmann, Parker and Van Alstyne provide some models for how to organize platforms in the provider and sponsor roles as these roles form the basis of the platform and ecosystem. The sponsor role was identified as one of the critical roles for the overall success of a platform in the workshop discussion. The

[18] Boudreau, K, 2007.
[19] Eisenmann, Parker & Van Alstyne, 2009.
[20] Examples are: Game Consoles (Wii, Xbox, Playstation), Mobile Devices (iPhone, Android, Blackberry), and Ebooks (Amazon, iPad, Nook, Sony) and of course the Postal Service.
[21] Rochet and Tirol, 2001.
[22] Eisenmann, Parker and VanAlstyne, 2006.

sponsor serves as a social planner providing the organizing structure for the ecosystem ensuring that the right balance of openness and access is achieved to encourage participation, innovation and discourage "take-overs." The sponsor helps to "consummate the match" between the demand side and the supply side so that both parties are better off. As the ecosystem evolves, the sponsor may want to absorb common components to ensure standardization, control over development direction and interoperability. This also ensures that the sponsor remains relevant to the ecosystem.

The sponsor also needs to be aware of how the underlying technology is evolving and recognize where markets are still determining the best underlying technology and be prepared the change directions as the users and content providers move. A reminder that platforms are only successful when they are able to facilitate a match between content providers and the consumers of that content – volume matters and if the underlying technology does not facilitate the match, then the sponsor needs to change strategy and adapt. Other critical decisions include determining which functionality is part of the platform and which is supply-side content, which components are parts of the provider layer and which are part of the sponsor layer.

The provider role is the contact with the user on both side of the network. This is a valuable position as the provider quickly learns what is of value to both the user and the content providers. They are in a position to see what is valued, what creates the traffic and where the trends are. The ecosystem sponsor needs to be working with the providers to be able to identify commonly used/needed functionality from the supply side and how/when to absorb into the platform.

**Various Models**

The platform model varies greatly from traditional product development models. While it is critical that the Postal Service develop a number of foundational or high value applications that can be utilized by third party applications, the key is not so much developing the best and most desired products as it is having the best platform strategy.[23] Unlike the traditional product strategy, a platform strategy requires an external ecosystem to generate complementary innovations and build "positive feedback" between the complements and the platform. The effect is much greater potential for growth and innovation than developing a single product line. While specific products may generate significant revenue in the short-run, a successful platform structure and strategy will create more value in the long-term.

The most successful platforms are those that are open, but still allow adequate control by the sponsor. The sponsor would provide the platform's governance and architecture, creating the conditions and setting the standards for the development of applications.[24] Such a platform would also need to be built modularly allowing for applications or components to be added in a way that is scalable and based on market tests or pilots. Finally, the platform should allow for the growth of so called "compelling complements" or applications that utilize the assets of the sponsor why offering unique or value added services.

**Basic Pricing Strategy**

The most complex aspect of developing a platform ecosystem is how to price the products and services offered upon it. A number of areas must be considered in developing a business model. First, the Postal Service must capture what are called cross-side network effects, where users on one side of the network make it either more or less valuable to the users on the other side. Second, consumers are sensitive to both price and quality. For example, a network's more price sensitive side should be subsidized in response to growth in the number of users on the other side. Quality is also tricky. Although it seems logical to charge

[23] Cusumano, 2002.

[24] This could include providing standards in the form of Application Programming Interfaces (APIs) and System Development Toolkits (SDKs).

a higher price to the side demanding a superior quality, it is actually the supply side that that must incur the higher pricing to produce a quality product or service. Equally important to a pricing strategy is picking foundational applications that will add value to new products and services as the platform grows.[25] Another important aspect concerns marginal costing on the platform. For some applications such as a free software application, a pricing decision may be straight forward, as the addition of one new subsidized customer costs the sponsor or developer nothing. However, products that are given away with appreciable unit costs should be reviewed more closely as the initial investment may not pay off if consumer demand is weak.

Consideration of interfering same side network effects should also be scrutinized. If the Postal Service were to launch digital services, there must be serious consideration as to how consumers would react given the number of alternatives available in the marketplace today. Finally, the Postal Service must develop a "marquee" or killer application that could help draw a critical mass on both sides of the platform. Providing eGovernment services would be an obvious choice as most government agencies in the U.S. want to reduce mailing costs, but want to ensure that the correct recipients receive their correspondence while citizens want a secure and simple way to receive official communication from all levels of government. eGovernment services could create a network effect or demand economy of scale, meaning that as more citizens and businesses sign up for the service, the value of the platform increases.

**The U.S. Postal Service Context**

Although there are various types of platform models, the most effective given the Postal Service's current assets would be a model that allows the Postal Service to sponsor a platform ecosystem and provide only its foundational layers of authentication and electronic addressing. Figure 2 illustrates the layer approach with the Postal Service controlling and owning the sponsor layers with a layer on top composed of content providers of which USPS would be one of several. The Postal Service would then set the rules for participation and determine the access points to the platform for which consumers and content developers would interact. [26]

The Postal Service could develop two foundational layers or services based on current competencies. These two layers would utilize its national Address Management System (AMS) and retail-carrier network to provide authentication services that could be used as an on-line ID and the linking of an individual or businesses physical address with an electronic address for life - an eMailbox service. By absorbing and controlling these two high value application layers as part of its portfolio, the Postal Service ensures retention of services currently lacking or deficient in the marketplace, adding value to the postal system and mitigating any threat of disintermediation. These core layers help to retain the Postal Service's traditional role as a trusted intermediary, enabling the flow of communication and commerce and consummating a match between senders and receivers in a two-sided market. The layers include:

**Authentication***:* Authentication and certification services represent the first foundational layer to the postal platform. The Postal Service would be in the position to fill a critical void in the current digital world by identifying, authenticating, and certifying[27] users through the verification of real-world attributes with a particular focus on the physical address. Such a service would require an on-line

[25] Eisenmann, Parker and VanAlstyne, 2006.

[26] Ideas shared on the Postal Platform originated in a joint workshop entitled Digital Divide: The Expanded Postal Platform" with Professor Marshall Van Alstyne, Geoff Parker and the USPS Office of Inspector General, Risk Analysis Research Center, Digital Divide on October 19, 2011.

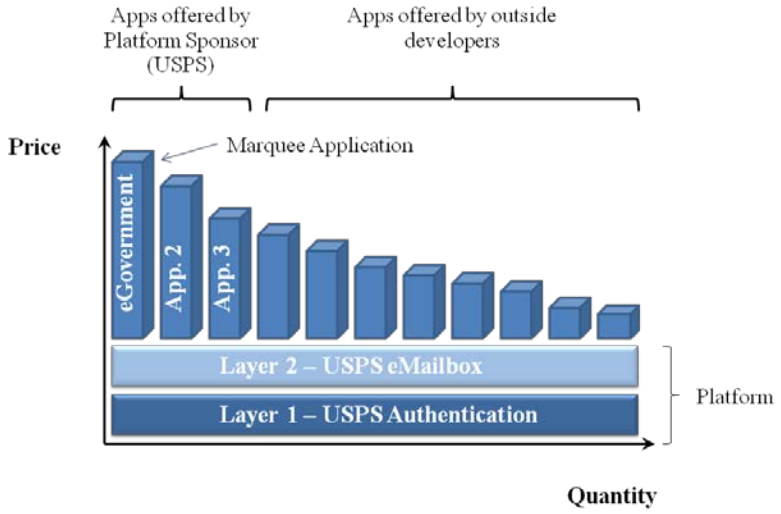
[27] Identity is defined as a collection of attributes such as a driver's license, date of birth, physical address, while authentication is validating claims about an identity or its attributes. Certification is the process of issuing documentation of the identity validation.

registration process in combination with a physical verification of identification documents either at a postal facility or remotely at an office or home.

The service would allow the Postal Service to act as a trusted third party issuing digital authentication for its own platform and products such as the USPS Global Card[28] (a smart card application for identity and other functionalities) as well as for other entities and programs such as the Open ID[29] initiative, an authentication protocol that utilizes open standards allowing individuals to use the same digital identity credentials across different websites. These types of authentication services in combination with the issuance of an authenticated eMailbox address would serve as the underpinning for a range of other postal, governmental, and commercial services and would bring a much needed layer of security to on-line transactions. For example, individuals buying or selling items on virtual marketplaces such as eBay or Craigslist (a free platform for peer-to-peer commerce) would automatically know that they were communicating with someone who had been authenticated by a federal agency.

**The eMailbox***:* The eMailbox is an electronic address that links every resident and business physical address to an eMailbox address for life. [30] This eMailbox would serve as the other cornerstone (the first being authentication) of a secure, private, and confidential communications network designed with the needs of consumers in mind. One can access their email and/or scanned version of their physical mail from a laptop, tablet computer or smartphone or any new digital product. A user could choose to redirect email and/or convert to physical mail as they see fit. While the government would have to ensure that consumers have access to postal and or broadband service, consumers would have the ability to choose their preferred method of service – physical or digital or a hybrid of the two.[31]

*Figure 3: The Postal Digital Platform and Applications*




Source: Eisenmann, Parker and Van Alstyne, MIT Center for Digital Business – modified by OIG-RARC

In addition to these two foundational base layers, a number of the other postal, governmental and commercial applications should be considered including the marquee application of eGovernment. We believe that the offering of an array of digital services to federal, state and local governments would provide the necessary reach to achieve sufficient sender and receiver participation for launch – the

[28] U.S. Postal Service Office of Inspector General, Risk Analysis Research Center, 2012.
[29] OpenID is a standard that allows one to use an existing online account and verification to login to other websites.
[30] U.S. Postal Service Office of Inspector General, Risk Analysis Research Center, 2011.
[31] Hybrid mail allows senders and receivers to convert digital documents to physical while reverse hybrid mail converts physical documents to digital.

necessary critical mass for success. Agencies could now send and receive secure and official communication which could also be paired with physical kiosks (connected to government department call centers) at Post Offices where needed. eGovernment applications would be timely as U.S. government cutbacks force agencies to explore new and less costly channels for their services.

The Postal Service would develop and also promote other applications from leading technology developers. These include an expansion of existing hybrid mail services and the launch of increasingly economical reverse hybrid mail, enhanced services for the shipping and delivery of secure online purchases through flexible pick-up and delivery options and expanded payment choices. An eLockbox service is another option that would securely store important personal documents (such as medical records and wills) and provide archiving to easily retrieve electronic documents while creating a resilient system that easily reproduces important personal documents when needed. Finally, the Postal Service could develop digital currency services to provide unbaked citizens the ability to redeem cash for digital currency in the form of prepaid cards.

As a platform sponsor, the Postal Service will give some value away to providers and content developers in order to maintain an open platform. This open model would create additional value as developers build applications for the installed base for which USPS would receive increased sales and downstream royalties from the increased transactions. Developers would also benefit from cost savings and leveraging the service provided through foundational layers. Examples of such applications could be licensing or joint ventures with providers or application developers.[32] Partnerships and licensing agreements with third parties would also help to mitigate financial risk, particularly in a period where the Postal Service has limited resources for capital investment projects.

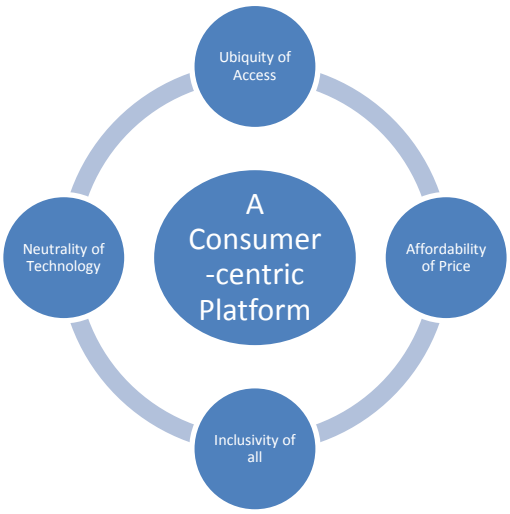
The Postal Service must also consider how to incorporate potential competitors. Social media providers, financial institutions, and cable/telecom companies should be welcomed to develop applications to reduce chances or parallel platforms and services. This strategy of open platform would be in our opinion the most effective way to harness the network effects of the whole ecosystem. The more applications are developed on the platform, the more value is added, and the more benefits are shared by all. In many instances, a platform provider may subsidize users in order to attract the other "side" of users. We believe that there will be adequate value for the platform providers to have the incentive to subsidize the recipients and eMailbox holders This will remain a "senders pay" paradigm for core platform services such as the eMailbox with a willing and able "subsidizing group." This constitutes an effective incentive system for platform growth, financial viability and ecosystem stability.

# 7 Universal Service 2.0 on a Digital Postal Platform

The digital postal platform described above reflects the evolving role of the Postal Service in a world increasingly reliant on digital communication, but mindful of the continuing value of hard copy communication, especially correspondence to some segments of society, the lengthening tail of digital refugees. In this modernized mission, USO 2.0 needs to take in account both bits and atoms. The Postal Service is not only serving as an enabler of traditional physical communications and commerce, but also serving as a bridge between those that have embraced or have access to digital services (digital natives) and those lacking the ability, willingness or the access (digital refugees). This evolution allows all Americans to continue receiving the range of trusted products and services they have relied on from the Postal Service, but empowers businesses and consumers to make the choice at their own pace. It ensures that no one is left behind and everyone has the opportunity to participate in this emerging digital economy. We illustrate this vision in Figure 3.

[32] Parker and VanAlstyne, 2011.

*Figure 4: Principles of USO 2.0 for the US*




Source: USPS OIG Risk Analysis Research Center (RARC)

Simply put, postal-sponsored services and products would be available anywhere to all on a postal-sponsored open platform, at affordable prices by any appropriate means regardless of technology (digital or physical) and driven by consumer choice. This is the essence of the new universal access and the modern interpretation of the "binding the nation together" mandate – No one shall be left behind from being able to access the basic elements of the new digital economy in terms of communication and commerce.

This modern perspective on the principles and elements that compose the USO 2.0 could guide interpreting the seven components identified by the PRC in their USO Study mentioned earlier, though their definition must be redefined to account for the convergence between the digital and physical. These updated attributes include:

1. **Geographic scope**: USO 2.0 will be essentially national, but with global connections that transcend borders. A digital eMailbox and reverse hybrid service would greatly enhance such a global reach for most products (though some obvious products such as parcels would be excluded). Just as the Universal Postal Union Treaty of 193 countries establishes a "single postal territory" in the physical world, a "single virtual postal territory" would be established in the digital world.

2. **Product range**: USO 2.0 will be both technology and product neutral.33 It will encompass physical or digital or hybrid products, building a bridge between physical and digital and allow traversing back and forth based on consumer choice. The postal platform will also serve as a point of service for other vendors' products and services. Just as the U.S. Department of State utilizes the postal footprint for the collection and verification of passport applications or Dinero Seguro for money transfer services in the physical world, a digital postal platform could play a similar role in increasing network effects and enhancing the value of the platform.

[33] Jaag, 2011.

3. **Access**: this includes not only the ability to physically reach a location that provides the essential postal services, but a reasonable amount of time at a given location to obtain services. Anywhere, anytime access in at least one channel (digital or physical) which could include physical through post offices, franchised villages posts, contract postal units (CPUs), as well as through GoPost parcel locker and Automated Postal Centers (APCs) or via digital access. All consumers with a valid U.S. address, including, digital refugees are guaranteed access to an eMailbox for life to ensure access to the digital economy.

4. **Delivery**: although the Postal Service can choose the final receptacle for the mail, it is still required to deliver to the entire population. This also covers the frequency of delivery, currently subject to a Congressional provision. Consumers would also be given flexibility in when they want to receive delivery and to which address – whether a primary or secondary physical address or an eMailbox address.

5. **Pricing**: the USO 2.0 would require the Postal Service continue to maintain affordable rates. The tradition of offering a range of basic services at the lowest combined cost would continue as would the sender pays principle for both physical and digital though consumers may be charged for "premium" services or other services offered via the postal platform. On the digital platform the "freemium" model would be applied. Rate uniformity and parity will not necessarily apply.

6. **Service quality**: the Postal Service maintains "modern service standards," for physical mail with greater focus on date certainty rather than speed. The digital services will be private, confidential and secure, but also balanced against consumer ease of use.

7. **An enforcement mechanism**: complaints can be taken before the PRC or other regulatory authority (depending on jurisdiction over digital products and services) if a party believes that either prices or services are not being applied in a fair and equitable fashion.

8. **Security**: messages in either physical or digital form should be sealed against inspection requiring robust security whether that means thieves in the physical delivery network or from hackers and fraudsters in the virtual world.

9. **Legal parity**: letters, regardless of form, should have the same legal standing through the adoption of legislation that recognizes universal acceptance of electronic signatures, electronic postmark and non-repudiation in the digital realm. The UPU has recognized that an electronic message has the same status as a physical letter.

10. **Right to dual addresses**: every U.S. resident should have the right to a physical address and corresponding digital address and the ability to access either based on preference.

While the preceding list of attributes is not exhaustive, they suggest a communications nexus of growing complexity. However, there are some advantages to such a new platform based construction. The extra costs of developing and operating a digital infrastructure would be more than offset by the cost savings incurred through optimization of the physical infrastructure. This new definition could lead to "substantial convergence economies that lower the USO price tag."[34] In an era of austerity, particularly for the U.S. Postal Service, such savings could be embraced by postal decision makers.

[34] Perkins, 2001.

# 8 Financing USO 2.0

The issue of financing USO 2.0 is important but is outside the scope of this paper. Further research and effort are needed to adequately address this critical issue – the issue of "viability." But we offer in the interim few thoughts. First, we envisage the seed money needed to jump-start this vision will be of much lesser scale materially than what was needed to build the physical platform as costs for data storage, web utilization and data center locations would require far less than what is needed for a functionally-equivalent physical footprint – bits cost less than atoms. And the Postal Service role is limited to a sponsorship role and a provider of only limited foundational layers (authentication and addressing) that do not require the large capital outlays of physical infrastructure. Second, the source of that initial financing could come from different sources – federal infrastructure money or through private-public partnerships. Third, the Postal Service could borrow to finance this - either from the Treasury and/or private markets. Despite the current dire financial situation, the Postal Service's balance sheet is enviably healthy. It is sitting on a portfolio of real estate holdings in the billions.[35] Fourth, The Postal Service has overfunded its retirees' pension plans by billions of dollars[36]. Some of this money could be used to undertake the initial financing. Fifth, we envisage the Postal Service to continue to be a self-supporting entity and to finance its USO 2.0 from revenues from both its digital and physical product and service offerings. Ultimately, the vision calls for an ecosystem of many players and of significant value so that there will be a sufficiently material and a willing "subsidizing group" to cover the costs of the Postal Service's cost of sponsorship.

# *9* Conclusion

The Postal Service needs to consider addressing the inevitable digital disruption and radical transformation of the postal ecosystem in America. It has the legacy of serving the nation as a communications platform in the physical world. We argue that it should be allowed to continue to serve all of its consumers with access to digital postal products as well, and more importantly build the bridge that allows consumers to traverse back and forth from physical to digital. Recent trends indicate that while the digital world has simplified many aspects of everyday life, there remain gaps and shortcomings in such areas as identity theft, privacy and security. In evaluating these problems, the Postal Service, could provide (or encourage provision on its platform) a range of services that would help to fill the vacuum currently undermining the world of digital correspondence and transactions. Such services would need to be reviewed in the context of current law to determine their feasibility.

By embarking on this effort, the Postal Service would be adopting a modern day interpretation of its role in binding the nation together – a modern universal service obligation or "USO 2.0." Just as every American has had a physical address which has played such a critical part of one's personal identity, a citizen should also have an equivalent electronic address with digital identity for life.

The Postal Service has the opportunity to extend its national platform into the digital world and enable traditional service providers, as well as new entrepreneurial "application developers," to generate a wide array of additional physical and digital postal services to meet the present and future needs of digital

[35] RARC is working on a reasonable estimate of the market value of the real estate portfolio. Preliminary and very rough estimates put the value at above $80 billion.

[36] The Postal Service has overfunded its pensions (FERS and CSRS) plans by $13.1 billion. This is indisputable and current legislation is trying to address this issue and find a mechanism for the Postal Service to get back that money and use it for its operations. The Postal Service has made $75 billion of overpayments to its CSRS pension plan according to the OIG – see http://www.uspsoig.gov/foia_files/RARC-WP-10-001.pdf . This issue is still in dispute but the regulator, the PRC, has confirmed an overpayment of only $55 billion using the analysis of an independent actuary. Some of that money could also be used once the dispute is settled.

natives and digital migrants. The framework outlined in this paper is not a cure-all for solving the Postal Service's ongoing financial difficulties. However, by embracing a digital strategy, the Postal Service would be providing needed solutions through a suite of digital products and services.

Adoption of a digital strategy would modernize a vital part of the U.S. national infrastructure. The postal network has been designated by the Department of Homeland Security as "critical infrastructure" so vital to the United States that [its] incapacitation or destruction would have a debilitating effect on security, national economic security, public health or safe, and any combination thereof."[37] Given this role, adding a resilient digital network to the physical infrastructure would further strengthen the Postal Service's position in the event of a national emergency. Additionally, the postal infrastructure plays a major role in the supply chain for e-commerce and undergirds the Postal Service's universal service obligation, serving digital refugees and those who are in many cases being unwillingly forced to interface with the digital economy.

Although outside the scope of the paper, the convergence of physical and digital elements into one all encompassing USO creates many new questions on who and how such a model should be regulated in the United States. This subject along with studying opportunities associated with the range of potential government applications would be interesting areas for further study.

The Postal Service must acknowledge that the digital transformation has changed its industry significantly and is leaving the organization further behind as foreign posts adopt and further expand digital services. There is no turning back. To remain relevant in the 21st Century, the Postal Service and its key stakeholders must act now to redefine the USO and retain its central role in linking citizens, government and businesses both domestically and internationally whether physically, digitally or a combination of the two.

[37] http://www.dhs.gov/files/ programs/gc_1189168948944.shtm

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