Meeting America's Emerging Communications Needs

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Executive Summary

Like Gutenberg's printing press, which extended learning to the masses and helped catalyze the Renaissance and the Age of Enlightenment, Globalism and the Digital Revolution are fundamentally transforming vital communications, commerce, and information management. The Internet, the primary system supporting the Digital Revolution, is an infrastructure that by design is highly decentralized and fragmented. These characteristics create many new opportunities, but also cause four primary concerns to emerge.

First, the Digital Revolution has left behind a lengthening tail of digital refugees that do not have adequate access, ability, or willingness to join the digital economy. Second, the United States lacks an overarching framework that integrates together the pieces of information that have been fragmented by the digital divide to support the essential tasks of record keeping, innovation, and risk assessment. Third, a substantial weakness of the digital space is a failure to provide an adequate level of security, privacy of identity, and confidentiality of content. Finally, the Internet lacks a universal, last resort service provider that would support all citizens and service providers with assurances of a common carrier and network neutrality provisions. This service provider of last resort would provide solutions for Internet vulnerabilities when security provisions are needed and otherwise unavailable. By providing this, the nation can fully reap the benefits of the digital economy and ensure the success of the best ideas rather than just the ideas of the privileged.

Individual and business communications and records are now fragmented in two spheres — digital and physical. To empower citizens and businesses and mitigate the four primary concerns, a national communications infrastructure should be modernized and the U.S. Postal Service's universal service obligation extended to include digital and physical messaging. We offer the following observations about how the new infrastructure and the Postal Service can meet America's emerging communications needs in the Digital Age.

- The Digital Revolution is transforming communications, commerce, and information management in the 21st century. Concurrently, creative destruction has had a huge ripple effect across a host of traditional communication industries. New technologies have not entirely filled the void they have created.

- Throughout history, people have sought to correspond and trade over great distances. However, over the past few decades, the Digital Revolution energized globalization at an extraordinary pace by facilitating instant information transmission regardless of distance at a decreasing cost.

- America struggles for its place in the Digital Age because the current infrastructure is insufficient to meet the country's changing needs while also providing a safety net during the chaos of transition. As a result, we risk falling behind other nation-states as they direct governmental (specifically, postal and regulatory) efforts to properly support and embrace the Digital Age.

- To better fulfill the U.S. Postal Service's mandate of binding the nation together, policy makers should consider extending its universal service obligation across the digital divide to the adjacent digital messaging space. It would be difficult for any other entity to bridge the physical and digital spheres given that the Postal Service already has the sole legal mandate in the existing physical space.

- The governance and architecture of a new, modernized national communications infrastructure should be lean and continuously evolve with the Digital Age. This infrastructure could include:

    o A universal platform that is easily accessible via the Internet and contains postal, e-government, and other related commercial applications.

    o A secure eMailbox that links a current physical address to a permanent electronic address for every individual or business.

    o An eLockbox that archives sensitive information such as legal and personal documents digitally (e.g., medical records and wills).

    o A global smart card or credit-card sized data storage device that provides access to postal services such as GoPost (a 24/7 package locker for receiving and sending parcels) and digital cash functionality that can receive government refunds and benefits, private sector payments and gifts, and transmit funds or redeem them at Post Offices™ or ATMs.

- This new infrastructure would support multi-channel messaging (both digital and physical components) which offers critical redundancy and resiliency in the face of natural disasters and man-made emergencies. The Postal Service expertise in address management could be leveraged to strengthen relief efforts by tracking the evacuation and relocation of populations, combating claimant fraud, and showing the impact on hosting communities.

The Digital Revolution is changing America's communication needs. The United States runs the risk of falling behind other nations on the move if it does not modernize its national communications infrastructure and develop enabling policies. The Postal Service's mission, to bind the nation together, is well suited to bridge the nation's physical and digital infrastructures. A permanent institution with law enforcement capabilities, the Postal Service is uniquely positioned to offer valuable physical mail-like characteristics in the digital realm such as privacy of identity, security for transactions, confidentiality of content, and legal standing when otherwise unavailable yet necessary to foster economic opportunities for all Americans in the 21st century.

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Introduction

The Internet and the Digital Revolution are fundamentally changing communications and commerce. The digital economy continues to grow at a rapid rate. Electronic substitution of traditional mail accelerates as both consumers and businesses adopt electronic processes across multiple domains. Mail users, attracted to greater convenience, faster service, and lower cost, are shifting from conventional hard copy distribution models to a variety of new ways to digitally communicate, advertise, or transact. The Internet serves as the "disruptive innovation"[1] that fundamentally affects the traditional business of the U.S. Postal Service. With different channels now available to consumers, the nation needs to modernize and streamline its infrastructure and redefine the role of the Postal Service for the Digital Age. The transition to a new, hybrid digital/physical landscape is already under way, but the path forward is undefined.

The New Digital Age

History has shown that new technologies,[2] like the printing press, electricity and railroads, usher in profound development that further accelerate and diffuse innovation. Creative destruction[3] or the disruptive process of transformation that accompanies this type of radical change[4] generates tremendous opportunities to spur innovation and socio-economic prosperity. Today, a number of technological advancements such as the Internet and smart mobile telephony erase distance and time barriers and shift communications, commerce, and information management from the physical to electronic realm at an unprecedented pace.

As circuit and battery technologies evolve, computing tools progressively decrease in size from huge mainframes to handheld smart devices. Simultaneously, these mobile tools, in conjunction with network connectivity and social media, foster new channels of increasingly instantaneous and collaborative messaging (i.e. texting, tweeting, and blogging) and shift control from mass broadcast media to the individual recipient. The result is a tsunami of information fueled by crowd sourcing and citizen-generated content that can quickly influence political and social trends. Evolving in tandem,

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[1] Clayton M. Christensen, *The Innovator's Dilemma,* (Boston: Harvard Business Press, 1997), http://www.claytonchristensen.com/disruptive_innovation.html.
[2] The platform defines a standard around which a system can be developed.
[3] Joseph Schumpeter, an Austrian economist, developed this term in *Capitalism, Socialism and Democracy* (1942) to denote a "process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one," http://www.investopedia.com/terms/c/creativedestruction.asp#axzz1qKMXK5Wn.
[4] Brad Stone and Ashlee Vance, "$200 Laptops Break Business Model," *The New York Times.* January 29, 2009, http://www.nytimes.com/2009/01/26/technology/26spend.html?partner=rss&emc=rss.

information management and record storage capabilities may improve with advancements in search engine functionalities and cloud computing.

The Defining Aspects

From within this rapid change, a number of trends emerge and define the new environment:

- The explosive growth of mobile devices increase "on the go" content consumption and fuel eCommerce.

- The Internet and new personal communication tools offer extraordinary power and promise to link, process, and disseminate massive amounts of data.

- New technologies foster globalization, increased mobility of labor, and outsourcing.

- The one-way broadcast model is being replaced by collaborative, two-way communications. Individuals can access equipment and infrastructure that enables them to both consume and generate content.

- Social technologies break down the barriers between firms and customers by expediting customer complaint resolution and monitoring satisfaction. Open source software and new network structures remove traditional intermediaries, spur peer-to-peer commerce, and directly link producers and purchasers.

The Disruptive Effects

Despite the promise offered in this new era, there are shortcomings and fundamental gaps that prevent all citizens and businesses from reaping the benefits. Some of these include

- The lack of access to broadband means the full functionality of the Internet is not available to all citizens;

- There is a potential threat to the principle of nondiscrimination in access to communications networks;

- There is still an inadequate level of privacy, confidentiality, and security in digital communications and transactions;

- The digital infrastructure has limitations in connectivity and bandwidth and is provided by companies that could go out of business at any time;

- As firms push consumers into digital-only communications, the choice to receive physical communications is becoming more limited;[5]

- There is a need to organize and securely store large amounts of data to manage risk, find solutions, and connect the dots to spur innovation; and

- There is a failure to provide a universal platform for communication applications that link and optimize the existing physical and new digital infrastructures.

Forces Shaping the New Environment

Shift to "On the Go" Digital Content — Limitations Emerge

The proliferation of mobile devices fuels the fast moving front of Internet adoption. A recent survey shows that over 89 percent of U.S. adults own a cell phone and almost half of them own a "smart" phone.[6] In addition, almost a third of adults connect to the Internet through three or more digital devices (e.g. smartphone, tablet, and laptop), and approximately half of all adults surveyed connect through at least two devices.[7] The widespread adoption of multiple devices provides individuals more comfort and ubiquity in conducting commerce online. For example, online retailing experienced double-digit growth during the 2011 holiday season.[8] Additionally, in its quarterly Mobile Financial Advisor report, ComScore found that in the fourth quarter of 2010, 29.8 million Americans accessed financial services accounts (bank, credit card, or brokerage) via their mobile device, an increase of 54 percent from the same period in 2009.[9]

Despite the fast pace of development and adoption, many citizens still cannot fully participate in the digital economy due to issues of access, cost, and relevancy. Currently in the United States, broadband affords the speeds necessary to conduct the full range of commerce activities necessary in the Digital Age (e.g. online shopping and job application management). According to a November 2011 study by the Organisation for Economic Co-operation and Development (OECD), the United States ranked

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[5] U.S. Postal Service Office of Inspector General, *Postal Service Role in the Digital Age Part 1: Facts and Trends*, Report No. RARC-WP-11-002, February 24, 2011, http://www.uspsoig.gov/foia_files/RARC-WP-11-002.pdf.
[6] ExactTarget, "Report #9 Mobile Dependence Day," p 4.
[7] Forrester Research, "Making Leaders Successful Every Day," Slide 11.
[8] Andrew Lipsman, "U.S. Online Holiday Shopping Season Reaches Record $37.2 Billion for November-December Period, Up 15 Percent vs. Year Ago," ComScore press release, January 4, 2012,
http://www.comscore.com/Press_Events/Press_Releases/2012/1/U.S._Online_Holiday_Shopping_Season_Reaches_Record_37.2_Billion_for_November-December_Period.
[9] Sarah Radwanick, "Number of U.S. Mobile Financial Account Users Surges 54 Percent to 30 Million in Past Year," ComScore press release, March 23, 2011,
http://www.comscore.com/Press_Events/Press_Releases/2011/3/Number_of_U.S._Mobile_Financial_Account_Users_Surges_54_Percent_to_30_Million_in_Past_Year.

fourteenth among OECD nations in terms of households with broadband access.[10] Currently, U.S. home broadband adoption is only 68 percent.[11]

Figure 1: Major Barriers to Home Broadband Adoption

Source: U.S. Postal Service Office of Inspector General

The cause is three-fold, as indicated in Figure 1 above. First, economic factors limit digital infrastructure development in remote or less profitable areas, which leaves many citizens without access. Second, once available, gaining access to the infrastructure through a private carrier is too costly for many Americans. Third, some perceive the learning curve as too steep to acquire necessary digital literacy skills or they believe the Internet and broadband are not relevant or secure.

At the same time, companies, in an effort to reduce costs, are taking away physical products, retail locations, and in-person services, which leave a lengthening tail of digital refugees. Conversely, this creates physical refugees as digital natives communicate electronically and often do not develop the skills to write formal letters and reports or learn face-to-face etiquette. Another issue is that many Americans grapple with a lack of adequate tools to manage the "information overload" created by a plethora of emerging digital communications and applications. Although American companies have developed instruments to address these challenges (e.g. Google), the government has not developed a far-reaching plan to support citizens. To harness the benefits of the Digital Age, these concerns must be addressed.

The New "Wild West" — Privacy, Security, and Confidentiality Issues

The Internet and new personal communication tools offer extraordinary power and promise to link, process, and disseminate massive amounts of data. However, the decentralized fashion in which the Internet developed also creates an environment that lacks rules and standards and can make this space vulnerable to deceptive practices.

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[10] OECD Directorate for Science, Technology and Industry, "OECD Key ICT Indicators 6c.Households with access to broadband in selected OECD countries," November 9, 2011,
http://www.oecd.org/document/23/0,3746,en_2649_34225_33987543_1_1_1_1,00.html.
[11]Federal Communications Commission, "Broadband Adoption Taskforce Presentation to the Federal Communications Commission," November 30, 2011,
http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db1130/DOC-311281A1.pdf, Slide 6.

There are increasing concerns about the privacy risks associated with exchanging personal information for services, entertainment, or other purposes. Concerns range from sharing user statistics with third parties like marketing firms or insurance companies, to more malevolent acts like deploying spyware.[12] Despite these threats, switching costs are high and a viable public provider has not surfaced. Identity theft, another area of concern, is growing at an exceedingly fast pace. From 2005 to 2010, the percentage of all households with one or more type of identity theft that suffered direct financial loss increased from 18.5 percent to 23.7 percent.[13] An increasingly global marketplace presents new security and law enforcement challenges for consumers concerned with protecting sensitive information across borders. An internationally accepted standard for user authentication and identity management currently does not exist. The impact of computer crime on consumers alone is estimated at $114 billion annually worldwide.[14] Lastly, the increasing speed and complexity of communications networks redefined traditional industries and created the need to build new tools that will connect and protect altered systems and improve risk models to predict rare catastrophic events (e.g. black swans).

Globalization and Mobility

Throughout history, people have sought to correspond and trade over great distances. However, over the past few decades, the Digital Revolution energized globalization at an extraordinary pace by facilitating instant information transmission regardless of distance at a decreasing cost. Thus, these two forces fueled a positive feedback loop, in that it fostered activities such as trade, cultural hybridization, and technological development, which then further strengthened the causes of globalization.[15]

With the advent of the Digital Age and improvements in transportation and other technologies, businesses contend with rivals across borders, which make job markets increasingly mobile and international in scope. This affects workers in many ways. First, many jobs are replaced with automation. Second, workers now compete in a global job market so wages are less dependent on the success or failure of individual economies. Third, increased competition makes American labor more expensive relative to many nations and drives firms to outsource manufacturing and back office functions. Now America needs to develop infrastructure enhancements to help retrain workers and to continue to provide economic opportunities for its citizens.

Additionally, skilled labor migrates across borders in the new economy. Today more than 200 million people both live and work in a country different from where they were

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[12] Leila Abboud, "Europe to investigate new Google privacy policy," Reuters, February 29, 2012, http://www.reuters.com/article/2012/02/29/us-france-google-idUSTRE81S0LN20120229.
[13] U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, *Identity Theft Reported by Households, 2005-2010*, by Lynn Langton, NCJ 236245, November 30, 2011, http://www.bjs.gov/index.cfm?ty=pbdetail&iid=2207.
[14] Riva Richmond, "Web Gangs Operating in the Open," *The New York Times*, January 16, 2012, http://www.nytimes.com/2012/01/17/technology/koobface-gang-that-used-facebook-to-spread-worm-operates-in-the-open.html?pagewanted=1&hpw.
[15] OIG analysis.

born.[16] This creates a class of global citizens who further drive demand for universal, "anytime, anywhere" communication capabilities. Increased mobility requires a broader, global vision of talent management. As a result, new infrastructure needs emerge, in terms of communication, transactions and information management, not only to support existing transplants but also to remain competitive in the quest to attract top global talent.[17]

Information Democratization

Digital and mobile technologies make news and other forms of information increasingly ubiquitous and cheap to deliver. The one-way broadcast or push model is being replaced by collaborative, two-way communications, as people can access equipment and infrastructure that enables them to both consume and generate content.[18] The result is an increasingly interconnected world and a shift in control away from traditional media providers to the public. Collection, filtering, and distribution roles are changing as social media enables people to obtain personalized content, broadcast their ideas, make connections, and signal their preferences en masse to their peers very quickly.[19] This in turn creates an egalitarian "informational cascade" that generates momentum for further participation.[20] Yet, there is a downside to informational democratization because it gives power to unverified or even false information versus carefully crafted, vetted sources. Not all consumers are equipped to discern between the two.

The printing press and movable type became the tools of the Reformation movement of the 16th century, as printed pamphlets helped spread ideas among the public. Similarly, today's social media and citizen-generated journalism can quickly mobilize people to influence policy, political, and social trends, as seen in the Arab Spring and in the Stop Online Piracy Act (SOPA) backlash. People possess a new set of expectations about when, where, how, what kind, as well as the origin and originator of content. "They want control over their media, instead of being controlled by it."[21]

Customer Collaboration and Re-inventing Supply Chains

The same phenomenon is visible in the business world. Social technologies can break down the barriers between firms and customers by expediting customer complaint resolution and monitoring satisfaction. Businesses, as an extension of Total Quality

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[16] "In praise of a second (or third) passport," *The Economist*, January 7, 2012, http://www.economist.com/node/21542413.

[17] Richard Emerton, "The global talent hunt," *London Business School Business Strategy Review,* Spring 2010, http://bsr.london.edu/lbs-article/100/index.htm.

[18] Robert Van den Dam, "How social media is redefining broadcasting," *Broadcasting Engineering*, May 1, 2010, http://broadcastengineering.com/production/social-media-redefining-broadcasting-0510/, p. 1.

[19] "Too much buzz," *The Economist,* December 31, 2011, http://www.economist.com/node/21542154.

[20] "Social media in the 16th Century – How Luther went viral," *The Economist*, December 17, 2011, http://www.economist.com/node/21541719.

[21] Robert Van den Dam, "How social media is redefining broadcasting, "*Broadcasting Engineering*, May 1, 2010, http://broadcastengineering.com/production/social-media-redefining-broadcasting-0510/index2.html, p. 2.

Management (TQM) and process improvements, now actively involve customers in the product development process through Customer Involvement Management (CIM).[22]

The Digital Age has also removed traditional intermediaries from the sales process by spurring peer-to-peer commerce, which directly links producers and purchasers. Now one person can sell to anyone, anywhere at any time. As a result, the traditional middleman is being replaced by a curator role in many circumstances (e.g. eBay and Amazon). Equally novel, individuals can bypass traditional channels by developing applications or sharing information directly through open source software.

Another digital wave on the horizon is additive manufacturing. This process utilizes a three-dimensional (3D) printer to convert a design into physical product "from the specs, either by gluing plastic particles together or sintering metal powders via lasers or electron beams."[23] The additive process has the potential to reduce supply chain costs by using fewer raw materials and avoid costly retooling, assembly, and shipping. This would result in fewer transportation costs and environmental impact. Rather than seeking capital to finance a new factory or a third party, 3D printers will offer cheaper, lower-risk market entry.[24] The effect of 3D printing on manufacturing and delivery industries will be analogous to that of the inkjet printer on document printing — lowering entry barriers to making things. The result is huge disruptive potential that could possibly usher in a new wave of creative destruction.

America Struggles for Its Place in the Information Age

The U.S. Infrastructure Must Evolve for Its Citizens and Businesses to Prosper

The transition to a new digital landscape is already underway globally, but the path ahead for American citizens and commerce remains unclear. In the absence of a cogent, strategic plan for moving forward, the various components of the physical and digital communications infrastructure remain fragmented. To support democratic self-government and commerce, the Constitution empowers Congress to provide citizens secure and universal communication systems that promote private political and personal discourse[25] as well as secure commercial transactions nationwide. These are timeless and critical necessities that bind individually free Americans into one nation. Yet, the tremendous volatility associated with the Digital Revolution excludes some citizens.

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[22] Rene Rohrbeck, Fee Steinhoff, and Felix Perder, "Sourcing Innovation from You Customer: How Multinational Enterprises Use Web Platforms for Virtual Customer Integration," *Technology Analysis & Strategic Management*, February 16, 2010, Vol. 22, No. 4, pp. 117–131, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1533575.
[23] Taras Tberezowsky, "The Phenomenon of Additive Manufacturing: Is 3D Printing Too Good to Be True? – Part One," *MetalMiner*, February 25, 2011, http://agmetalminer.com/2011/02/25/the-phenomenon-of-additive-manufacturing-%E2%80%93-is-3d-printing-too-good-to-be-true/.
[24] "3D Printing — The printed world," *The Economist,* February 10, 2011, http://www.economist.com/node/18114221.
[25] They are requirements of free speech and freedom of assembly needed to partition elected representatives and government officials.

Indeed, the democratic principle of equality remains unfulfilled in the Digital Age, as citizens encounter challenges in access, cost, and relevancy. In terms of access, the United States has a large geographic footprint with many remote areas that are expensive to reach. Unlike emerging countries, which lack legacy infrastructures and thus experience lower switching costs for new technologies (e.g., Visa/Mastercard to emerging direct pay options, landline to cell phone), the United States has a large existing network. On an individual level, cost may prevent consumers from acquiring new devices, home Internet connectivity, or digital literacy. A 2010 Pew research report highlighted that many non-users think online content is simply not relevant to their lives or lack confidence that they could use a computer or other devices to navigate the Web on their own.[26]

Digital Infrastructure Planning

These factors influence broadband access and adoption in the United States and explain, in part, why it lags behind 13 other peer nations in broadband adoption.[27] This status becomes even more alarming as many businesses, in an effort to reduce costs, stop offering the choice to receive physical communications. Recognizing the injustice of failing to reach many non-adopting groups, and the resulting lack of competitiveness, Congress directed the Federal Communications Commission (FCC) to ensure the availability of many basic communications services to all Americans. This includes the modernization of the Universal Service Fund (USF) to advance broadband adoption and development while simultaneously combating waste, fraud, and abuse.[28] In response to the broadband proliferation portion of the directive, the FCC developed the Broadband Plan in 2009 to provide the private sector with incentives or public funds to help fill the gap.

Further Steps to Close the Gap

Yet the FCC broadband plans did not fully identify what steps are needed in the long run.[29] Acknowledging that adoption disparity still exists, on January 9, 2012, FCC Chairman Julius Genachowski outlined concrete plans to transition funds from hard line telephony to broadband access as well as mitigate fraud and waste.[30] However,

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[26] Aaron Smith, "Broadband 2010: A Big Slowdown," *Pew Research Center Publications,* August 11, 2010, http://pewresearch.org/pubs/1694/broadband-adoption-slows-dramatically-except-african-americans-little-interest-among-non-users.
[27] OECD Directorate for Science, Technology and Industry, "OECD Key ICT Indicators 6c.Households with access to broadband in selected OECD countries," November 9, 2011, http://www.oecd.org/document/23/0,3746,en_2649_34225_33987543_1_1_1_1,00.html.
[28] Federal Communications Commission, "Fact Sheet: Genachowski Addresses Smart Govt. and Reforms to Lifeline," January 9, 2012, http://www.fcc.gov/document/fact-sheet-genachowski-addresses-smart-govt-and-reforms-lifeline.
[29] For example, the Plan gives providers and computer manufacturers lucrative exclusivity to develop profitable segments in exchange for providing low-income homes with $10 monthly broadband Internet service for two years and basic inexpensive computers. A two-year discount will not provide digital refugees a permanent source of broadband access.
[30] Federal Communications Commission, "Fact Sheet: Genachowski Addresses Smart Govt. and Reforms to Lifeline," January 9, 2012, http://www.fcc.gov/document/fact-sheet-genachowski-addresses-smart-govt-and-reforms-lifeline.

implementation will continue to prove difficult as political pressure, regulatory constraints, and a myriad of private and public sector special interests exert influence on the process. Equally concerning, the Broadband Plan did not lay out a vision of the communications infrastructure that would integrate the new digital and existing physical components. The FCC does not seem to be the likely candidate to serve as the sole architect to modernize digital and physical infrastructure. Nor does the agency appear to be in the position to fully manage implementation and integration. Congress must also consider potentially overlapping roles between agencies (e.g. FCC, Postal Regulatory Commission (PRC), Federal Trade Commission).

Perhaps access, cost, and relevancy barriers could be mitigated by allocating a portion of the FCC's USF to support a customer-facing presence or "anchor" institutions (e.g., convenience stores, libraries, Post Offices™, or other government assets like Departments of Motor Vehicles and Social Security offices) to help serve individuals that cannot make the digital transition themselves. A trusted, permanent physical presence could help connect the physical and digital infrastructures while also providing universal access, a safe space for conducting communications, and supporting national preparedness in the face of threats.

Fundamental Questions on Infrastructure Modernization

Policymakers must answer three fundamental questions as they consider steps to modernize the infrastructure in ways that support communications, commerce, and information management to spur the competitiveness of the United States in the world marketplace. First, what features are required to deliver messages, transactions, and information in the best manner? Second, what is the best governance model to support the evolving infrastructure and the proper role for the private and public sectors? Lastly, which organization(s) is best suited to bridge the physical-digital divide for America?

Proposed Policy Features of the Infrastructure

The Constitution empowers Congress to provide citizens secure and universal communications systems to promote commerce and personal discourse because these structures are timeless and critical necessities that "bind the nation together."[31] Today a convergence of these various communications infrastructures needs to be addressed. Americans are transitioning to an increasingly digital and interconnected world. Policymakers could consider the following features to ensure that the new infrastructure will provide a universal platform to serve all citizens as well as keep the United States competitive:

- ▪ <u>Universal access</u> –Minimal standards of open, universal access need to be defined. A nondiscriminatory approach, which supports open access to the Internet and the integration of physical and digital communications platforms, will ensure inclusion of all citizens and maximize economic and societal benefits.

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[31] 39 U.S.C. § 101.

- <u>Simplicity</u> – Promote ease of use. Provide low access barriers, self-service capabilities, and streamlined standards that are global, compatible, and harmonized with international standards. Integrate physical and electronic e-mail addresses for national security and preparedness. Create an open source environment to drive innovation and facilitate third-party participation. Provide a physical and digital link for a one-stop shop for government services.

- <u>Reasonably priced</u> – Pricing should be set with value and fairness in mind.

- <u>Provide secure storage, organization, and transmission of information</u> – Develop a system for the permanent archival, transmittal, and retrieval of information. The system should exhibit privacy, security, and confidentiality and should be seamless between physical and digital channels.

- <u>Capital/financial-funding policy</u> – Create goals and metrics that would be used to measure the performance and minimize the infrastructure modernization burden on consumers and businesses. What investment strategies should be adopted? Should revenues from old models be used to fuel the new? Should private partnerships be expanded? Should user fees or universal access fees apply? Defining the objectives up front can guide the appropriate policy and governance model.

- <u>Innovations and continuous improvement</u> – Changes should reflect societal shifts and develop risk management capabilities. Modernization efforts should optimize infrastructure integration to maximize efficiency and remain flexible and lean enough to adapt to the new ways of using the Internet as the Digital Age evolves.

Alternative Governance Models

In order to develop the infrastructure features needed to support the United States in the 21st century, the following governance models should be evaluated. We will briefly discuss the alternative models and assess the strengths and weaknesses of each.

- <u>Government operated</u> – The government would operate a federal department and directly support the development of needed infrastructure features and services. This would provide an organization with a single purpose and a focus on achieving the social and economic goals, but would also require developing an organization with no experience in the area and that might later grow into its own bureaucracy.

- <u>Government regulated</u> – As in the utility model, the government would regulate private companies, which would manage the development of needed infrastructure features. This would have the advantage of using existing organizations with technical experience in the area, but would also address national goals outside of their core experience. While complying with the regulations, the companies might not have the necessary skills or willingness to

devote sufficient organizational resources to what for them will always be
secondary goals of nationwide social and economic progress.

- **Postal Service government entity** – The Postal Service would support the
  necessary infrastructure and provide the services needed to position America for
  success in the Digital Age. The Postal Service has existed since the founding of
  the republic and has evolved to continue to fulfill the nation's communication
  infrastructure needs to great success. On the other hand, it currently lacks both
  the legal authority and necessary technical skills to offer the same value to the
  nation as it moves into the Digital Age.

- **Private Sector** – The development of the necessary infrastructure and
  social/economic service support for the nation would be fully ceded to the private
  sector. Private sector companies have a strong history of technical expertise and
  providing market value in this area. However, private sector companies may not
  be well suited to support a different mission. They come and go and would not be
  a permanent presence. They have goals that may be inconsistent with fair, open,
  and equal access to all. Private companies have a poor history of addressing the
  needs of the economically disadvantaged and those slow to adopt new
  technologies. Also, private companies may not protect privacy and are not
  appropriately suited to provide security and legal enforcement.
  Government/private partnerships could help provide solutions to these issues.

- **Subsidiary of or separate unit within the Postal Service** – A subsidiary of, or
  separate organization within, the Postal Service would be developed to create
  the needed services and support the infrastructure. It would be allowed to focus
  on a new evolving mission without being subsumed by the large postal culture
  and core competency of nationwide delivery of mail. This option would benefit
  from the Postal Service's legacy experience while creating a separate subsidiary
  focused on the nation's needs as it moves forward. The value of such a
  "skunkworks" organization to focus on new and innovative ideas would need to
  be balanced with evolving service in the physical world.[32]

The Postal Service Is Likely Needed to Bridge the Digital Divide

The Postal Service's current mission to "bind the nation together" is most consistent
with the democratic principle of equality and the inclusion of citizens. It could extend its
mission, as authorized by the Constitution, into the adjacent digital space. It has many
of the advantages inherent in the private sector including its focus on efficiency and
business-like nature while also retaining many of the positives from the government
sector like the fair treatment of all parties. While it operates imperfectly at both, its
hybrid status seems best suited to the nation's current communication needs. Perhaps

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[32] The designation "skunk works" or "skunkworks" is widely used in business, engineering, and technical fields to
describe a group within an organization given a high degree of autonomy and unhampered by bureaucracy, focused
on new tasks.

most importantly, the Postal Service is a permanent organization supporting the nation's communication infrastructure since its founding.

To adopt this role in the Digital Age, the Postal Service could simply extend the existing mission to meet America's emerging needs in a new era. While running like a business, it does not act to maximize profits. While some aspects of this role seem inherently governmental and focused on service to citizens, giving this task to the Postal Service would prevent the creation of a new government organization and lessen the possibility of bloat and bureaucracy. Finally, this new role would entail the need for the force of law to enhance security and privacy. The Postal Service already has its own law enforcement group in the Inspection Service that could develop a safe and secure network in the digital space. It is likely that this model could best be implemented by some separation between the new entity and the parent Postal Service to prevent being lost in the legacy mission of nationwide mail processing and delivery. In addition, it would need to develop skills and a culture of its own consistent with this new task in the Digital Age.

The Postal Service seems ideally suited to move our country into the Digital Age while maintaining the principles established by our founding fathers in the Constitution. First, according to the Constitution, the mission of the Postal Service — to provide the necessary infrastructure to "bind the nation together"[33] through communications and commerce — is still relevant today. Second, as a top Microsoft executive acknowledged, the Postal Service could "meet the public need for trusted electronic communications in a way that no private sector organization could rival."[34] The Postal Service, with its comprehensive delivery network, can also seamlessly integrate the physical and digital spheres by linking real world attributes (physical address) with digital attributes (e-mail address) to a unique individual. European postal operators such as Swiss Post and Post Denmark are already fulfilling this role in their countries.

Lastly, the Postal Service is well positioned to support multi-channel messaging (both digital and physical components) which offers critical redundancy and resiliency in the face of natural disasters and man-made emergencies. Postal Service expertise in address management and its delivery network could be leveraged to strengthen relief efforts by tracking the evacuation and relocation of populations, combating claimant fraud, and showing the impact on hosting communities. A prime example is the assistance provided to citizens relocating to Baton Rouge during the aftermath of Katrina. No other firm or governmental agency has the network capabilities or reach to accomplish this necessary service for the nation.

U.S. Constitution and Postal Service USO 2.0

The U.S. Constitution was born as the founding fathers recognized in the 1780s that the Articles of Confederation failed to promote national interests and the nation needed a

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[33] 39 U.S.C. § 101.
[34] U.S. Postal Service Office of Inspector General, *The Post Service Role in the Digital Age Part 2: Expanding the* Platform, Report No. RARC-WP-11-003," http://www.uspsoig.gov/foia_files/RARC-WP-11-003.pdf, p. 2.

stronger central government. Access to secure and private communications was critical to forming political groups and holding free elections without the fear of retribution. The U.S. Constitution empowers Congress "to establish post offices and post roads."[35] By 1792, the Post Office Act defined the Postal Service's purpose to "bind the nation together," promote democracy and privacy, foster information flow and promote commercial growth.[36]

To these ends, the Postal Service

- 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 country's inception.[37] Historically, the Postal Service not only adopted modern means of delivery but it often pioneered these technologies to uphold its mandate. 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"[38] in a new era. Congress and the White House can support the Postal Services' efforts to evolve and develop the modernized national infrastructure — Universal Service Obligation (USO) 2.0.

Postal Service Mission Still Relevant in the Information Era

If permitted, the Postal Service could evolve and help provide what America needs for success in the new physical/digital era. The United States can leverage the existing Postal Service infrastructure to provide a hybrid solution with complementary physical and digital components that is comprehensive, convenient, cost effective, and redundant in the face of emergencies and that fosters economic opportunities for all Americans in the 21st century.

In doing so, the Postal Service draws on the following assets:[39]

- its status as a permanent government entity and most trusted federal agency;[40]

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[35] U.S. Constitution, Article I, Section 8, http://www.senate.gov/civics/constitution_item/constitution.htm#a1_sec8.
[36]National Postal Museum, "1792 Postal Act," http://www.postalmuseum.si.edu/exhibits/2a1h_1792act.html.
[37] Pensacola Tel. Co. v. W. Union Tel. Co., 96 U.S. 1, 3-4, 24 L Ed. 708 (1877).
[38]William L. Ridenour, "Post Office must be allowed to compete," *Cumberland Times New,* December 26, 2011, http://times-news.com/opinion/x1750828941/Post-Office-must-be-allowed-to-compete.
[39] U.S. Postal Service Office of Inspector General, *Bridging the Digital Divide: Overcoming Regulatory and Organizational Challenges*, Report No. RARC-WP-11-004," November 22, 2011, http://www.uspsoig.gov/foia_files/RARC-WP-12-004.pdf, p. 9.
[40] Ponemon Institute, "U.S. Postal Service Tops Ponemon Institute List of Most Trusted Federal Agencies," June 30, 2010, http://www.ponemon.org/news-2/32.

- a position of legal standing for postal communications;

- experience in developing and maintaining a national address management system that can update every address in the country;

- a position as one of the top 75 most visited websites in the nation;

- experience in facilitating communications and delivery in the first and last mile;

- a position as the last-resort provider at an affordable rate since the founding of the nation;

- experience with currency transactions, including domestic and international money orders; and

- experience in performing government enforcement functions, including Office of Inspector General investigations of internal misconduct and Postal Inspection Service investigations of external mail fraud and Internet scams.

Integrated Platform Structure and Support Features

The integrated postal infrastructure would be adaptive and able to support the next generation of physical, digital, and hybrid communications, transactions, package delivery, and information management businesses. It is composed of two components — digital and physical.

The Postal Platform: Digital Component

The Postal Service can extend its physical platform and supply chain structure to the digital sphere,[41] bringing more citizens into the Digital Age in the process. The Postal Service could start by providing an eMailbox service that links a physical address to an electronic address for an individual in an open platform. The postal platform would provide the environment to develop and implement a range of new applications including postal, governmental as well as commercial services that could be offered by partners and third party providers. And the more services are offered the more valuable the platform is for all. Such public/private partnerships would serve as the building block of a new postal ecosystem linking physical and digital spheres.

eMailbox

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. Anywhere, anytime one can access e-mail and/or a scanned version of physical mail from a laptop, tablet computer or smartphone. Users could choose to redirect e-mail

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[41] Components used in common across a product family whose functionality can be extended by third parties and is characterized by network effects.

and/or convert to physical mail as they see fit. The assigned eMailbox address would be associated to a physical address and serve as the identification, authentication and certification link between the digital and physical space for a specific person. This would make such an address suitable for online financial, governmental, and legal transactions such as bills, payments (such as taxes), and official filings and mailings (such as voting). In communications and transactions when furnishing an address is required, some consumers may have a higher degree of comfort in sharing their postal eMailbox address in lieu of their physical address. This linkage would allow them to make that "peace of mind" substitution.

Most importantly, the eMailbox would serve as a functionally equivalent digital national address system complementing the Postal Service's existing Address Management System. This would provide permanence and needed redundancy to make the system more resilient in the face of a national emergency by enabling the government to communicate with the public across multiple channels.

Another important design feature would be international compatibility. Communication with foreign postal operators' respective eMailbox systems would greatly reduce the risk of fraud in international transactions and eCommerce as senders and receivers would be reassured that the individual or business on the other end of the transaction was authenticated and verified by a trusted government agency. One such solution could be the use of a top-level domain (TLD) name such as .post, which was approved for use by postal operators and is managed by the Universal Postal Union (UPU), a technical, specialized agency of the United Nations.

eLockbox

An example of a supporting application is eLockbox, which would facilitate secure, virtual archiving of sensitive, valued information such as legal and personal documents (e.g., medical records, wills, and marriage certificates). The eLockbox would also have a file sharing service to allow consumers to share some or all of this information efficiently with designated third parties. For example, one could choose to share medical records with a family physician in the case of an emergency.

Global Card

Individuals could also obtain a smart card or Global Card to authenticate individual identity credentials to allow them to conduct commerce across different websites. This credit-card sized storage device contains an identity chip as well as an optional cellular SIM card that permits access to postal services such as GoPost™ a 24/7 package locker at convenient public places, receiving and sending parcels. [42] The Global Card or SIM card can also serve as a debit card that is capable of receiving government refunds, entitlements and benefits as well as salary payments and gifts, and transmitting funds for students who can redeem as needed at a Post Office or ATM. It would feature secure storage for sensitive data that you want to control.

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[42] U.S. Postal Service, "Go Post," https://www.usps.com/gopost/.

Supporting Applications, Services and Features

The digital platform could also support a number of applications or complementary services that further integrate the physical and digital infrastructure, as indicated in Figure 2 below.

Figure 2: The Platform and Application Category Concept
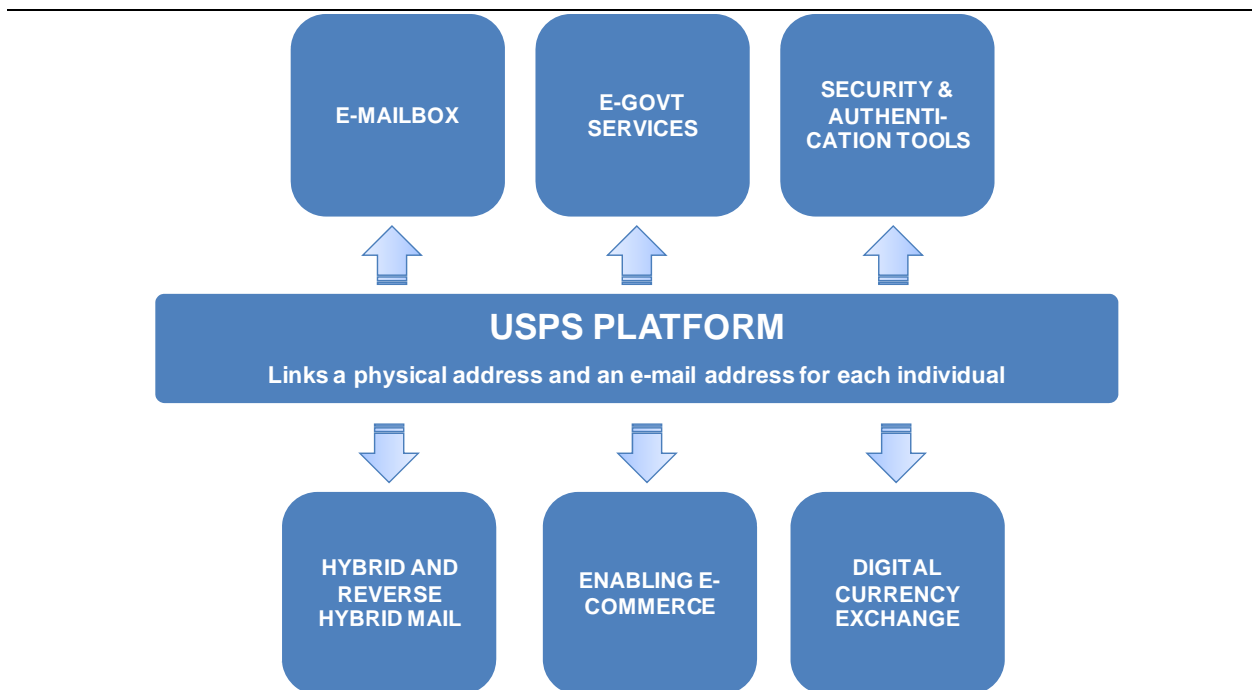
Source: U.S. Postal Service Office of Inspector General

Ultimately, the Postal Service can leverage its physical presence, trusted third party reputation, and its address management database in the digital realm by enabling traditional service providers and entrepreneurial applications ("apps") developers to generate new services that meet customers' changing needs. The Postal Service is uniquely positioned as the trusted third party with law enforcement capabilities in physical mail business. It can transfer this competency to the digital space by providing secure transactions and identity verification between customers, businesses, and government entities. A marquee application category could be eGovernment services. Working with other government agencies to offer a host of services provides the critical mass necessary to make the portal successful as well as eliminate redundant costs across multiple agencies. The digital channel could also feed the physical network and provide any time/anywhere as well as multichannel/multimode access.

The Postal Platform: Physical Component

Although communications continue to move to the electronic channel, the physical component of the postal platform can provide a safety net for all during the chaos of transition. First, by continuing to provide physical mail and package delivery at a

reasonable cost, many citizens, who cannot fully participate in the digital sphere, can still conduct social and commercial transactions. Second, by augmenting existing money order/transfer capabilities to offer cash redemption and digital currency both at Post Office locations and online, the Postal Service can provide the unbanked or under banked citizens the ability to redeem cash for digital currency in the form of prepaid cards. Such a network could also facilitate payments between government agencies and citizens, such as delivering Social Security benefits and tax refunds via an authenticated smart card or Global Card.

Simultaneously, during this period of transition, the Postal Service can envision itself as a "unique system of sending one person every day to every house in the country."[43] The Postal Service can mirror the concept of building "apps" for the digital platform in the physical sphere by creating additional products and services that rely on the traditional postal network, but meet America's changing needs in the Digital Age. Such actions have the potential to drive greater operational efficiencies by providing a myriad of services through the same platform. Postal Service retail locations and delivery capabilities, paired with the digital platform, could serve as a one-stop shop for a variety of services that is accessible to all.

For example, the Postal Service could expand its product and service offerings into new areas such as logistics services, integrated mail management, etc. as other foreign posts have done.[44] In terms of last mile delivery, it could offer a variety of new door-to-door[45] services.[46] Moreover, it could optimize retail and processing infrastructure by renting or selling to commercial or governmental agents. Offering third party leases to convenience stores to establish village post offices in areas where it is economically viable will help optimize the physical infrastructure. Also, the Postal Service could improve utilization of retail units by selling third-party products/services or new postal products just as many other posts have done.

Second, the Postal Service should modify the physical infrastructure to align with digital growth opportunities such as eCommerce.[47] It could offer robust returns, repacking, and time critical inventory management services both domestically and internationally. Another promising opportunity is the utilization of the Go Post™ postal parcel lockers.[48] The pick-up points operate in connection with kiosks, where customers can pick up parcels and buy stamps, even in the evenings and on weekends.

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[43] David Whelan, "To avoid collapse the Post Office should deliver health care and other services," *Forbes,* January 16, 2012, http://www.forbes.com/sites/davidwhelan/2012/01/16/to-avoid-collapse-the-post-office-should-deliver-health-care-and-other-services/.

[44] Accenture, "Diversification of International Posts," February 2010, http://about.usps.com/future-postal-service/accenture-presentation.pdf, Slide 27.

[45] For example, this could include checking signal strength and other meter readings for utilities, monitoring the elderly and homebound, and a payment/return or other mobile pack-station type offerings. Retail locations could house cell towers or providing Wi-Fi hotspots.

[46] U.S. Postal Service Office of Inspector General, *21st Century Post Office: Aligning with the National Broadband Infrastructure Initiative*, Report No. DA-MA-12-002, http://www.uspsoig.gov/foia_files/DA-MA-12-002.pdf.

[47] U.S. Postal Service Office of Inspector General internal workshop on platforms.

[48] U.S. Postal Service, "Go Post," https://www.usps.com/gopost/.

Lastly, as federal, state, and local governments look for new ways to cut costs, the Postal Service could provide the physical and electronic presence necessary to share excess resources and support cost-cutting efforts.[49] It could provide an e-government application on the digital portion of the postal platform as well as physical kiosks (connected to government department call centers), or government representatives utilizing Post Office space. This consolidation will constitute a win/win/win situation by reducing overall government front office costs, providing positive externalities like foot traffic, and most importantly connecting digital refugees.

Integration and Storage

Reinterpreting the Postal Service's physical presence is essential to reflect economic efficiency and deliver customer service that meets changing needs. The Postal Service can offer innovative ways to leverage its traditional physical platform through the addition of products, services, storage solutions, and "apps" that also utilize the Postal Service's digital infrastructure. The Postal Service can foster the symbiotic relationship between existing physical and the new digital infrastructure to provide integrated products, services, and secure storage solutions that Americans truly need. Only by first recognizing this interdependency can the government help its citizens traverse between the physical and digital spheres and fulfill its evolving role in a new era. To make this a reality, however, various barriers must be overcome.

Migration Considerations — Barriers to Successful Implementation

Creating a physical/digital-compatible communications infrastructure will support the needs of Americans in the 21st century. For the Postal Service to provide this service in the physical and digital economy, it must successfully navigate five categories of challenges: political, statutory, institutional, regulatory, and financial.

- Political — The political environment challenges efforts to define the future role for the Postal Service as

  o Motivated and well-organized opponents including competitors raise objections to the Postal Service's new product introductions and entrance into new sectors.
  o There are competing policy considerations about proper revenue opportunities and the role for the Postal Service.
  o Concern about government bloat and inefficiency color political debates in Washington.
  o The federal government continues to engage in pension prefunding debates.

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[49] U.S. Postal Service Office of the Inspector General, *21st Century Post Office: Opportunities to Share Excess Resources Report No. DA-MA-12-003*, February 9, 2012, http://www.uspsoig.gov/foia_files/DA-MA-12-003.pdf.

- Statutory — Some future possibilities require flexibility not permissible in current law which

    o Limits the Postal Service from offering new nonpostal products and services.
    o Establishes market test requirements in terms of recouping start-up costs and caps projects at a $10 million revenue limit in any one year.[50]

- Institutional — The Postal Service faces unique internal challenges, including

    o Existing skills and competencies in mail (e.g. processing, delivery) do not provide the capabilities necessary to operate successfully in new areas including the digital space.
    o Long time horizons and acquisitions may be necessary to develop requisite competencies.
    o A crucial component to successful new ventures is a corporate culture that embraces experimentation, even at the risk of early failure. Developing and sustaining a management commitment and strategic vision beyond traditional mail business is essential.

- Regulatory — Regulatory considerations come in a number of forms including

    o Some stakeholders voice concerns about the appropriateness of the Postal Service operating in new arenas.
    o Possibly integrating newly overlapping oversight entities like the FCC and PRC (e.g. Ofcom in Great Britain).

- Financial —The new role requires new funds, yet the Postal Service's financial constraints currently limit its options because it

    o Lacks the operating capital to invest in new initiatives;
    o Does not have the flexibility to pursue public/private partnerships or remove stovepipes to facilitate cross-government coordination.

The resolution to these considerations is best developed by policymakers and the Postal Service, and is outside the scope of this paper. However, providing an integrated solution, as well as ubiquitous access and adoption, will require a commitment from all stakeholders to allow the Postal Service to fulfill its mission in the Information Age as well as ensure our future economic and national security.

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[50] James Cartledge, "USPS needs 'incubation space' to address digital challenge," *Post & Parcel,* June 17, 2011, http://postandparcel.info/40050/news/usps-needs-incubation-space-to-address-digital-challenge/. Exception authority details are noted in the Postal Accountability and Enhancement Act, Section 203 (codified at 39 U.S.C. § 3641), if revenues do not exceed $50 million in any one year if "(A) the product likely to benefit the public and meet an expected demand; (B) the product likely to contribute to the financial stability of the Postal Service; and (C) the product is not likely to result in unfair or otherwise inappropriate competition."

Conclusion

The needs of Americans are changing because of the Digital Revolution. The mission of the Postal Service as defined in the Constitution remains relevant in the new digital era, even as the Digital Revolution catalyzes changes in the needs of Americans. Despite private and public efforts, the current physical and digital infrastructures are imperfect. The Postal Service's mission to "bind the nation together"[51] is well suited to bridge the nation's digital and physical spheres to meet the new communications, commerce, and information management needs of Americans. Rather than a purely profit-seeking firm identifying a market opportunity, the Postal Service is a permanent institution with the existing infrastructure to provide a hybrid solution with complementary digital components that offer access, convenience, redundancy in the face of emergencies and that fosters economic opportunities for all Americans in the 21st century.

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[51] 39 U.S.C. § 101.