



# OFFICE OF **INSPECTOR GENERAL**

UNITED STATES POSTAL SERVICE

## The Evolving Logistics Landscape and the U.S. Postal Service

### RARC Report

Report Number  
RARC-WP-16-015

August 15, 2016







# OFFICE OF INSPECTOR GENERAL

## UNITED STATES POSTAL SERVICE

## Executive Summary

In many ways, logistics is the glue that holds the global economy together. Logistics provides the links that ensure products get from Point A to Point B and the means by which manufacturers get the parts and materials they need to create and assemble the goods we use every day. Its function as a binding agent in global commerce makes logistics directly related to postal operators' core mission.

In 2013, the U.S. Postal Service Office of Inspector General issued a white paper titled *The Global Logistics Revolution: A Pivotal Moment for the Postal Service*, highlighting emerging logistics trends that could have a major impact on the Postal Service. The industry has changed tremendously in the subsequent 3 years, and the pace of change is still accelerating. This new paper examines several major changes in the logistics industry and the significant opportunities and risks they represent to the Postal Service.

The continuing surge of ecommerce has begun to clog up major parts of the supply chain, raising questions about whether the logistics and transportation industries have the capacity to handle the increased load. Many U.S. ports are struggling to accommodate the supersized ocean container ships designed to handle the flood of packages coming from overseas. Even as the major shortage of long-haul truck drivers continues, neglected infrastructure may be responsible for hundreds of millions of lost trucking hours each year. In addition, reverse

### Highlights

**A continuing surge of ecommerce packages is stretching the capacity of the logistics and transportation systems.**

**U.S. and Canadian consumers returned \$290 billion worth of goods in 2015, a 66 percent increase since 2010. This highlights a profound opportunity for improved reverse logistics services.**

**New entrants are flocking to last-mile delivery in urban areas, potentially pushing the Postal Service to more costly rural and suburban areas.**

**Amazon is making industry-transforming moves into the supply chain, logistics, and delivery sectors.**

**Logistics is emerging as a core means for posts and their partners to diversify — an essential strategy in the face of declining mail volumes.**

logistics has also strained the supply chain, as consumers are sending up to 30 percent of products bought online back to retailers or manufacturers as returns.

The delivery challenges found in dense urban areas only exacerbate these concerns about capacity. About 40 percent of the U.S. population lives in just 21 metropolitan areas, and this trend toward greater urbanization is intensifying. Millennials and other young people represent a significant part of this urban growth. Their preferences as consumers are unique and quickly changing. Moreover, their desire for instant gratification and customizable experiences may be more easily met by innovative new entrants to last-mile delivery. Although there are questions about their long-term viability, crowdsourced delivery companies are catering to urban consumers and collaborating with retailers to offer more convenient services. These include ship-from-store, in which retailers use the inventory of their brick-and-mortar locations to fulfill online orders. Traditional delivery operators with vast physical networks may not be as nimble as asset-light new entrants and may therefore be less adaptable to quick shifts in consumer demand.

Amazon is one of the most important new entrants in logistics and delivery, transforming supply chains and dramatically reshaping consumer expectations about delivery. Just as it created its own systems for sorting and processing packages, Amazon is fashioning its own supply chain, purchasing thousands of freight trailers and leasing cargo planes. These moves give Amazon closer control of its orders and link up its extensive network of distribution centers and other facilities across the United States. As Amazon has begun making its own deliveries in some areas, its actions have direct relevance for posts.

The Postal Service is the dominant last-mile delivery provider in the United States because it visits nearly every address 6 days per week. As a result, no competitor can deliver small, low-revenue packages at such a low cost. However, with competition for last-mile delivery intensifying in densely populated urban areas, the Postal Service may begin to lose significant market share to new entrants like crowdsourced delivery companies and regional carriers. As those competitors move into urban delivery, they could relegate the Postal Service to the role of making costly deliveries in rural or suburban areas with less density. Postal stakeholders and policymakers should note this potential urban-rural divide, as the Postal Service could end up being the only affordable way for Americans outside of urban areas to participate in ecommerce.

In an era of declining and changing mail volumes, logistics may be one of the best options for posts and their partners to diversify their offerings and a key element of their long-term survival. Although the Postal Service is not a logistics company, many aspects of the logistics industry are central to its core business. By taking steps to expand its logistics offerings to the extent allowed under current law, the Postal Service could better retain or even grow its current package delivery business. In addition, by finding ways to leverage its existing resources and assets to provide or expand logistics services, the Postal Service could ensure that it best serves citizens and businesses and plays a valuable role in the quickly changing logistics industry.

# Table of Contents

Cover	
Executive Summary.....	1
Observations .....	4
Introduction.....	4
Major Changes in the Logistics Industry .....	4
Macroeconomic Factors.....	5
The Changing Nature of Supply Chains.....	8
Transportation and Capacity .....	12
Increased Urbanization and Other Demographic Trends.....	14
Advancements in Technology and Data.....	17
New Entrants in Delivery.....	18
Concluding Observations .....	22
Appendix A: Management’s Comments.....	24
Contact Information .....	25

# Observations

***Expanding into logistics has emerged as a core diversification strategy for successful posts.***

## Introduction

Logistics is a major industry around the world, enabling global commerce and shaping the individual experiences of consumers. Definitions of logistics vary, but we are defining logistics as the transportation, storage, and distribution of goods, services, and information, including the processes and systems required to support those activities.<sup>1</sup> The field of logistics includes fundamental parts of postal operations, such as transportation and cross-border commerce, as well as mail and package delivery. It is critical to posts around the world and is closely linked to their assets and core business competencies.

Many posts and delivery companies have made substantial moves toward building out their own logistics functions, following the belief that logistics is the “clear winner in diversification strategies” for successful posts.<sup>2</sup> Although the U.S. Postal Service is not a logistics company and does not currently offer extended logistics services like other leading posts, many aspects of the logistics industry are central to its core business.

In 2013, the U.S. Postal Service Office of Inspector General (OIG) issued a white paper titled *The Global Logistics Revolution: A Pivotal Moment for the Postal Service* that examines emerging logistics trends that could have an effect on the Postal Service.<sup>3</sup> However, the field of logistics has changed dramatically since 2013. For example, few people were talking about Amazon as a logistics company, but as we discuss below, Amazon has entered and transformed the logistics market in important ways. In addition, the tremendous growth of ecommerce has clearly begun to stretch the capacity of many elements of the supply chain.<sup>4</sup> Moreover, innovative new entrants to the market are creating and fulfilling demand for ultra-fast, highly-customized last-mile delivery, chasing a young and increasingly urbanized base of new consumers living in dense delivery areas.

These and other developments threaten to disrupt parts of the supply chain that have a direct impact on the Postal Service. It is not yet clear what the long-term results of these trends will be. However, it is critical for the Postal Service and its stakeholders to monitor these developments because they present tremendous risks and unique opportunities. This paper examines six categories of trends that we believe could shape not only the future of the logistics industry, but also the future of the Postal Service and its customers.<sup>5</sup>

## Major Changes in the Logistics Industry

The logistics industry is changing due to the confluence of many powerful forces. Globalization continues to spread as the speed and volume of international interactions increase. Technological advancements in things like personal electronics, warehouse robotics, and delivery vehicles are taking place at an almost unimaginable pace and scale. Major demographic shifts are turning

---

1 The Council of Supply Chain Management Professionals defines logistics as “The process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements.” Furthermore, third-party logistics provider Transfreight defines logistics as “The planning, execution, and control of the movement/placement of goods and/or people, and the related supporting activities, all within a system designed to achieve specific objectives.”

2 Brody Buhler and Andre Pharand, *Achieving high performance in the post and parcel industry*, Accenture Consulting, 2015, [https://www.accenture.com/t20151015T043945\\_\\_w\\_/us-en/\\_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub\\_23/Accenture-Achieving-High-Performance-in-the-Postal-Industry-2015-V2.pdf](https://www.accenture.com/t20151015T043945__w_/us-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub_23/Accenture-Achieving-High-Performance-in-the-Postal-Industry-2015-V2.pdf).

3 U.S. Postal Service Office of Inspector General (OIG), *The Global Logistics Revolution: A Pivotal Moment for the Postal Service*, Report No. RARC-WP-13-010, June 3, 2013, [https://www.uspsoig.gov/sites/default/files/document-library-files/2015/rarc-wp-13-010\\_0.pdf](https://www.uspsoig.gov/sites/default/files/document-library-files/2015/rarc-wp-13-010_0.pdf).

4 The 2013 and 2014 holiday seasons were particularly challenging for some parts of the parcel delivery supply chain. For more information, please read <http://www.reuters.com/article/us-ups-fedex-peak-idUSKBN0UC1KP20151229>.

5 For part of this research, we hired consultants from IBM who had access to key sources of logistics knowledge and experts with direct experience in the logistics and postal industries.

**Despite global economic stagnation, ecommerce continues to surge.**

long-standing social orders upside down. The revolutionary growth of ecommerce continues to reshape consumer expectations and behavior, with long-term implications for the entire logistics industry. These forces all interact with each other, combining and clashing to produce further changes for consumers everywhere and any organization that works in logistics and delivery.

There are too many major changes taking place in the logistics industry for any one paper to examine. However, we have identified six general areas of change in logistics that could affect the Postal Service and the entire delivery market. Some of these areas overlap with others. For example, technological advancements are revolutionizing almost every part of the logistics industry. Our goal is to highlight a selection of these changes and the risks and opportunities they present to the Postal Service.

### Macroeconomic Factors

The logistics industry is a critical and ubiquitous component of the global economy. Some estimates place the overall size of the global logistics industry at around \$4 trillion, or around 5 percent of global gross domestic product (GDP).<sup>6</sup> The size and scope of this industry make it particularly sensitive to macro-level economic factors. The state of the global economy, international trade flows, and new ecommerce taxes will directly shape the future of the global logistics market.

### Global Economic Conditions

Although the global economy has seen a return to growth in recent years, conditions remain sluggish. In July 2016, the International Monetary Fund (IMF) lowered its growth projections for 2016 and 2017, warning about global economic stagnation.<sup>7</sup> Critically for the logistics industry, the Chinese slowdown in manufacturing and exports has affected the volume of products and raw materials flowing through the supply chain.<sup>8</sup>

As a major input of both international transportation and manufacturing, oil prices also continue to reflect global economic stagnation.<sup>9</sup> Oil is a major operating cost for both transportation and warehouses, so low fuel prices could relieve financial pressure on logistics companies in the short term. However, because demand for oil remains strong and production continues to decline in North America and West Africa, a long-term increase in fuel prices is increasingly likely.<sup>10</sup>

### Cross-Border Ecommerce

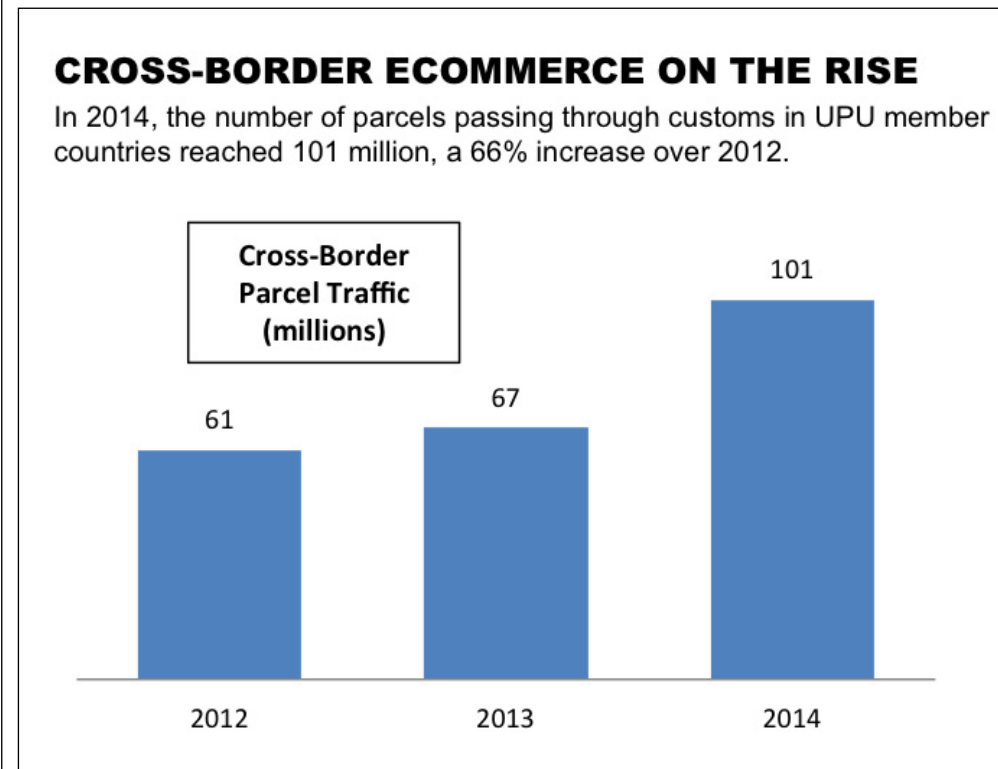
Despite global economic stagnation, it appears that the logistics industry will continue to grow due in part to increasing ecommerce volume. Much of this increase is expected to come from cross-border ecommerce.<sup>11</sup> According to the Universal Postal Union (UPU), the volume of small parcels passing through customs offices of its member nations increased by nearly 66 percent

- 
- 6 Adam Robinson, *Interesting Facts and Financial Breakdown of the Global Logistics Market*, Cerasis, April 22, 2015, <http://cerasis.com/2015/04/22/logistics-infographic/> and World Bank, "Gross domestic product 2015," World development indicators database, July 1, 2016, <http://databank.worldbank.org/data/download/GDP.pdf>.
- 7 IMF, *World Economic Outlook (WEO) Update*, July 2016, <http://www.imf.org/external/pubs/ft/weo/2016/update/02/>. The IMF also lowered its previous growth projections in April 2016. For more information, please see <http://www.imf.org/external/pubs/ft/weo/2016/01/>.
- 8 "China quarterly GDP growth slows but signs of stability emerge," *The Guardian*, April 15, 2016, <http://www.theguardian.com/business/2016/apr/15/china-quarterly-gdp-growth-slows-but-signs-of-stability-emerge> and Ben Leubsdorf, "ISM manufacturing index signals continued expansion in April," *The Wall Street Journal*, May 2, 2016, <http://www.wsj.com/articles/ism-manufacturing-index-signals-continued-expansion-in-april-1462199018?mod=djemlogistics>.
- 9 Despite oil prices recently hitting a 6-month high, which some observers said was a temporary blip, the International Energy Agency projected that prices will decline in the second half of 2016 as increased production in Iran contributes to the global oversupply. Timothy Puko and Georgi Kantchev, "Oil prices rise after IEA report," *The Wall Street Journal*, May 12, 2016, <http://www.wsj.com/articles/iea-says-global-oil-market-is-near-balance-1463043141>.
- 10 Andrew Tipping, Andrew Schmahl, and Fred Duiven, "The impact of reduced oil prices on the transportation sector," *strategy + business*, February 19, 2015, <http://www.strategy-business.com/article/00312?gko=ae404>. Fuel hedging is a financial contract where a transportation company, such as an airline, agrees to pay a certain price for fuel regardless of the actual market price. As the price of fuel increases above that contract rate, the value of the contract increases because the company is paying for fuel at a rate below market with the other party in the contract, such as an investment bank, paying the difference. If the fuel price declines unexpectedly, however, companies could be stuck paying above the market price.
- 11 Jones Lang LaSalle, *The new industrial (r)evolution: from supply chains to consumer-centric demand chains*, February 2016, [http://www.jll.be/belgium/en-gb/Documents/JLL-The%20new%20industrial%20revolution\\_final.pdf](http://www.jll.be/belgium/en-gb/Documents/JLL-The%20new%20industrial%20revolution_final.pdf), p. 7.



between 2012 and 2014, as shown in Figure 1.<sup>12</sup> Although business-to-consumer (B2C) is the fastest growing segment within global ecommerce, the business-to-business (B2B) ecommerce market is 15 times the size of the B2C market.<sup>13</sup> Some estimates say cross-border ecommerce will reach \$1 trillion by 2020 from only \$230 billion in 2014.<sup>14</sup>

**Figure 1: Trends in Cross-Border Ecommerce**



Source: OIG analysis of 2014 Universal Postal Union data.

Cross-border ecommerce must overcome a variety of challenges before it can reach its full potential. Currently, large markets in developed countries make up the vast majority of ecommerce spending. For example, some estimates claim that U.S. consumers alone accounted for as much as 21 percent of global ecommerce sales in 2015.<sup>15</sup> While much of cross-border ecommerce's growth is likely to occur in developing economies, the logistics industry must address problems like long wait times between ordering and receiving shipments, high shipping costs, and complicated international postal and customs fee structures.<sup>16</sup>

***New ecommerce taxes could change the competitive dynamics between online retailers and physical storefronts.***

#### **Ecommerce Taxes**

While traditional retail transactions have long been taxed in most areas, governments and policymakers have begun seeking ways to capture a share of increasing ecommerce revenues. In the United States, states can tax ecommerce sales if the seller has a "physical presence" within the state, which has typically meant large facilities like storefronts and warehouses.<sup>17</sup> Recently, several

<sup>12</sup> Universal Postal Union, *The global postal network in 2014*, <http://news.upu.int/insight/backgrounders/key-figures/>.

<sup>13</sup> World Trade Organization, *International Trade Statistics 2015*, [https://www.wto.org/english/res\\_e/statis\\_e/its2015\\_e/its15\\_highlights\\_e.pdf](https://www.wto.org/english/res_e/statis_e/its2015_e/its15_highlights_e.pdf), p. 31.

<sup>14</sup> "Global cross-border B2C ecommerce market 2020: Report highlights and methodology sharing," Presentation by AliResearch-Accenture, June 2015, [http://unctad.org/meetings/en/Presentation/dtl\\_eweek2016\\_AlibabaResearch\\_en.pdf](http://unctad.org/meetings/en/Presentation/dtl_eweek2016_AlibabaResearch_en.pdf), p. 2.

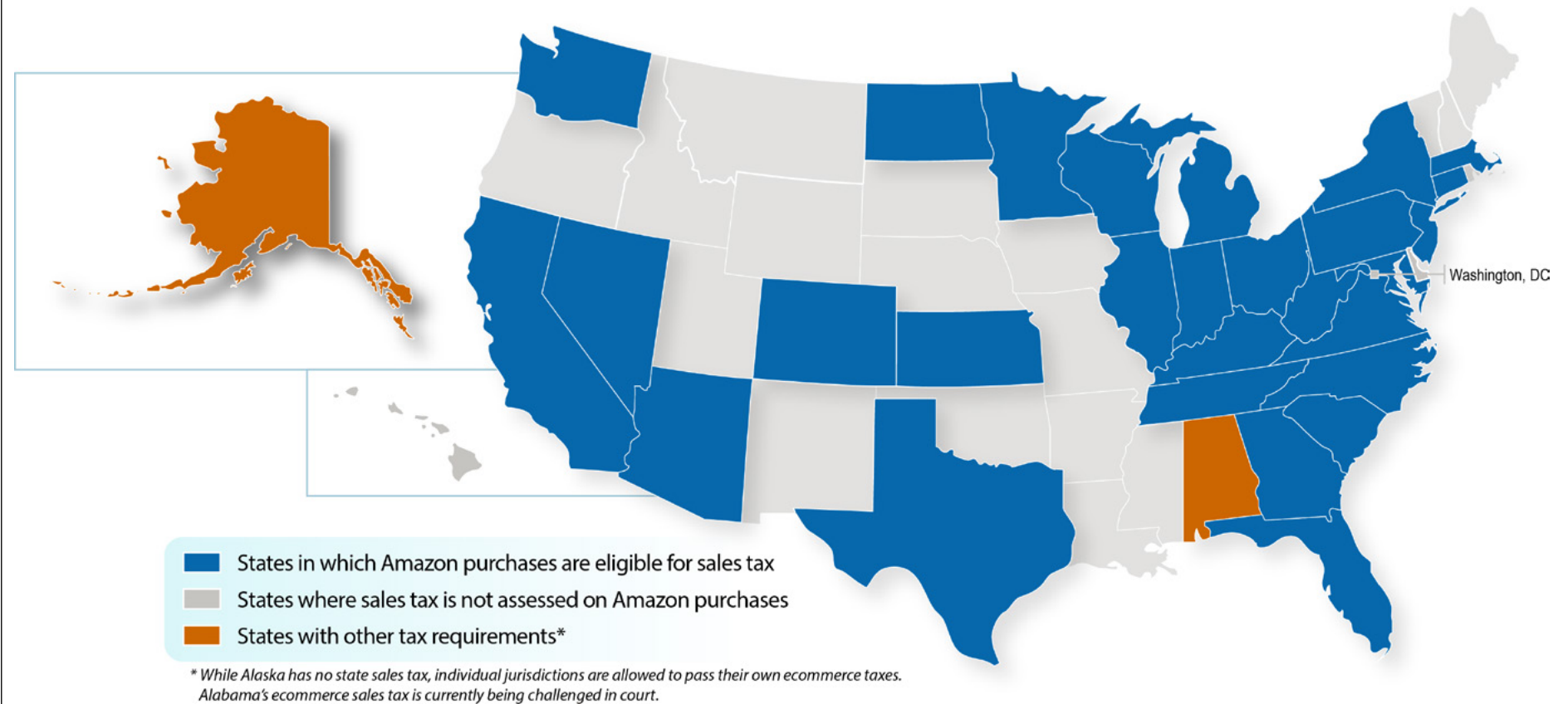
<sup>15</sup> Matt Linder, "Global ecommerce sales set to grow 25% in 2015," *Internet Retailer*, July 29, 2015, <https://www.internetretailer.com/2015/07/29/global-e-commerce-set-grow-25-2015>.

<sup>16</sup> Rachel Martin, "The growing importance of international ecommerce," Pitney Bowes, <http://www.pitneybowes.com/us/global-ecommerce/case-studies/the-growing-importance-of-international-ecommerce.html>.

<sup>17</sup> *Quill Corp. v. North Dakota*, 504 U.S. 298, 112 S.Ct. 1904 (1992).

states have passed or are considering passing laws that require online retailers to capture and remit sales tax even without a traditional physical presence. These states are setting thresholds for the dollar value or volume of sales made to consumers within their borders or redefining physical presence to include delivery drivers and vehicles rather than just warehouses or other large facilities.<sup>18</sup> As a result, major online retailers now collect sales tax in many states. For example, Amazon orders in 28 states are now eligible for sales tax, as shown in Figure 2.<sup>19</sup>

**Figure 2: Amazon Orders in 28 States Are Eligible for Sales Tax**



Source: Amazon.com and OIG analysis.

Such new taxes — often referred to as “Amazon taxes” given the company’s enormous presence in the online retail marketplace — could have some major effects on the logistics and delivery landscape.<sup>20</sup> They could change the competitive dynamics of ecommerce by making it harder for smaller online retailers to hold their own against marketplace giants like Amazon while taking on the additional costs required in collecting sales tax from all customers. However, exceptions for retailers with revenue or sales

18 Chris Morran, “States Hungry for Online Sales Tax Looking at Challenge to South Dakota Law,” *Consumerist*, May 31, 2016, <https://consumerist.com/2016/05/31/states-hungry-for-online-sales-tax-looking-at-challenge-to-south-dakota-law/> and Tara Donaldson, “States Could Start Collecting Sales Tax from Internet Retailers,” *Sourcing Journal*, February 24, 2016, <https://sourcingjournalonline.com/states-start-collecting-sales-tax-internet-retailers/>.  
 19 Amazon purchases in five states are eligible for a use tax. For more information, please see Amazon, “About Tax Requirements for States in which Tax isn’t Collected on Orders,” [https://www.amazon.com/gp/help/customer/display.html/ref=hp\\_left\\_v4\\_sib?ie=UTF8&nodeId=201133270](https://www.amazon.com/gp/help/customer/display.html/ref=hp_left_v4_sib?ie=UTF8&nodeId=201133270).  
 20 Sarah Halzach, “The true cost to Amazon of the ‘Amazon Tax,’” *The Washington Post*, January 13, 2016, <https://www.washingtonpost.com/news/business/wp/2016/01/13/the-true-cost-to-amazon-of-the-amazon-tax/>.



**Traditional delivery operators with vast physical networks may be less nimble than asset-light new entrants and therefore less adaptable to quick shifts in consumer demand.**

**Some say that Amazon is the biggest single actor transforming supply chains and consumer expectations today.**

volume below a certain threshold might allow small retailers to have cheaper overall prices for the same goods. Ecommerce taxes could also lead some consumers to make their purchases at physical stores instead of through major online retailers once the online price advantage disappears.<sup>21</sup>

### **The Changing Nature of Supply Chains**

New consumer demands, the growth of ecommerce, trends and innovations in retail, and other developments are changing the nature of supply chains. Warehousing and order fulfillment are moving closer to consumers as brick-and-mortar retailers seek new ways to compete with online marketplaces. Moreover, a flood of returned products is leading to new ways to get those products back into the marketplace as quickly as possible.

### **Transformed Supply Chains**

The continued growth of ecommerce has altered the behavior and preferences of many consumers, causing them to want products faster than ever. This has led parcel volumes to overwhelm some delivery networks, especially during peak periods such as holiday seasons. As a result, carriers have had to increase the speed and flexibility of their supply chains to satisfy the demand for faster service and to allow them to respond to sudden fluctuations.<sup>22</sup> Many new entrants to the delivery market are asset-light and can scale their networks quickly, giving them a greater capability to make these changes. However, postal operators and traditional delivery companies with vast, fixed physical networks can lack this flexibility.<sup>23</sup>

Logistics companies, retailers, and manufacturers are also focusing more on consumer demand rather than solely on supply and production levels. They are combining data on consumer preferences with real-time information on inventory levels and the location of shipped goods and materials. This reduces inventory levels all along the supply chain, cutting down on surplus and waste, because technology facilitates better prediction of consumer demand. Moreover, as inventory moves through supply chains more quickly and efficiently, there could be an increased need for facilities intended to process and move goods rather than to hold vast stocks of products, especially in urban areas.<sup>24</sup>

### **Amazon Reshaping Supply Chains**

Some observers credit Amazon as being one of the main drivers — possibly *the* biggest driver — in transforming supply chains. As Amazon works to create its own supply chains to avoid limiting itself to existing options, some say it may even be in the process of transitioning itself into a logistics company. Amazon's Prime service, which has millions of members who rely on its 2-day or faster shipping options for a wide range of goods, has played a major role in establishing consumer preferences related to fast and free shipping.<sup>25</sup>

21 A 2014 study from researchers at the Ohio State University examined the effects of so-called Amazon taxes in several states where such laws had been recently enacted. It found that households in those states reduced their Amazon spending by nearly 10 percent, and increased their spending at local brick-and-mortar retailers by 2 percent and their spending from other online (i.e. non-Amazon) sources by nearly 20 percent. This was only one study, however, and the effects of the Amazon taxes appear to be minor so far. Further analysis is needed to determine if ecommerce taxes will have any long-term or more substantial effects. For more information, please read Brian Baugh, Itzhak Ben-David, and Hoonsuk Park, *The "Amazon Tax": Empirical Evidence from Amazon and Main Street Retailers*, NBER Working Paper No. 20052, April 2014, <http://www.nber.org/papers/w20052>.

22 IBM subject matter expert analysis.

23 Brody Buhler and Andre Pharand, *Achieving high performance in the post and parcel industry*, p. 18.

24 IBM subject matter expert analysis and Jones Lang LaSalle, *The new industrial (r)evolution: from supply chains to consumer-centric demand chains*, pp. 2, 9, and 10.

25 John Haber, "Amazon is Redefining the Supply Chain," PARCEL, February 5, 2016, <http://parcelindustry.com/article-4552-amazon-is-redefining-the-supply-chain.html> and Jeremy Bowman, "Is This the Real Reason Why Amazon.com Wants Its Own Delivery Service?," *The Motley Fool*, February 15, 2016, <http://www.fool.com/investing/general/2016/02/15/is-this-the-real-reason-why-amazoncom-wants-its-ow.aspx>.

To make such deliveries possible, Amazon has opened scores of fulfillment centers, sortation centers, and other facilities around the country, often in very close proximity to urban areas. It has also recently begun to build critical links between those facilities by purchasing thousands of freight trailers and leasing a small fleet of freighter planes.<sup>26</sup> Amazon can use those assets to move goods between its facilities, which could increase overall delivery speeds and likely save money by giving Amazon more control over the delivery and fulfillment process. These actions reduce Amazon's exposure to delays caused by third parties, and it could therefore end up paying less money to FedEx, UPS, and others to move its goods between facilities.<sup>27</sup> Still, expanding logistics functions is not without its challenges, as the Federal Aviation Administration (FAA) recently fined Amazon for improperly handling hazardous chemicals shipped by air.<sup>28</sup>

Amazon is making other moves into logistics: its high sales volumes allow Amazon to purchase space on cargo ships, aircraft, and trucks at wholesale rates. Its "Dragon Boat" project is an effort to use this purchasing ability to link merchants in China and India with its customers in the United States. In this model, Amazon will reportedly first collaborate with and then eventually bypass legacy third-party logistics (3PLs) freight companies that handle cross-border commerce, reducing costs and simplifying operations for its merchants.<sup>29</sup> Some observers suggest that Amazon might use its technological capabilities to build out its logistics functions — most specifically its abilities to track shipments and maintain visibility. The logistics industry has struggled to develop and improve such capabilities for years.<sup>30</sup>

Logistics may be a win-win opportunity for Amazon. By some estimates, Amazon could earn as much as \$450 billion by building out its internal logistics functions.<sup>31</sup> Even without that new revenue, Amazon could still benefit because it is putting pressure on its current delivery providers to continue giving it good prices and efficient service. Ultimately, Amazon's moves into logistics could be as important as its decision to handle its own storing, sorting, and processing of packages.<sup>32</sup>

### **Warehousing and Order Fulfillment**

Warehousing and order fulfillment have evolved in response to the growth of ecommerce. For example, there are indications that speed to market is becoming the most important factor in retail supply chains.<sup>33</sup> To help get their products in consumers' hands as quickly as possible, some retailers now offer "ship-from-store" services that use inventory from their brick-and-mortar stores to fulfill online orders. By doing so, these retailers have an innovative way to compete with Amazon's fulfillment centers and the speedy delivery they make possible.<sup>34</sup> Retailers can also reduce transportation cost and time, as well as improve inventory turnover.<sup>35</sup>

26 Amazon has purchased trailers, but not the trucks that are used to transport them. It has also leased dozens of Boeing freighter planes; for more information about that fleet, please read Phuong Le, "Amazon unveils cargo plane as it expands delivery network," *Associated Press*, August 5, 2016, <http://bigstory.ap.org/article/820c2f4efe6f46598342bc588783e488/amazon-unveils-cargo-plane-it-expands-delivery-network>.

27 John Haber, "Amazon is Redefining the Supply Chain" and Dominic Gates and Ángel González, "Amazon lines up fleet of Boeing jets to build its own air-cargo network," *The Seattle Times*, March 9, 2016, <http://www.seattletimes.com/business/boeing-aerospace/amazon-to-lease-20-boeing-767s-for-its-own-air-cargo-network/>.

28 Robbie Whelan, "FAA Levies Two More Fines on Amazon," *The Wall Street Journal*, June 23, 2016, <http://www.wsj.com/articles/faa-levies-two-more-fines-on-amazon-1466626750>.

29 Spencer Soper, "Amazon Building Global Delivery Business to Take On Alibaba," *Bloomberg*, February 9, 2016, <http://www.bloomberg.com/news/articles/2016-02-09/amazon-is-building-global-delivery-business-to-take-on-alibaba-ikfhpyes>. Generally speaking, 3PLs are companies that provide logistics services for other businesses that wish to outsource those functions.

30 Erica E. Phillips, "Amazon's Airfreight Move Raises Hopes in Cargo Business," *The Wall Street Journal*, April 7, 2016, <http://www.wsj.com/articles/amazons-airfreight-move-raises-hopes-in-cargo-business-1460061558>.

31 R.W. Baird analyst Colin Sebastian, cited in Shira Ovide, "Amazon Takes the Wheel," *Bloomberg*, February 9, 2016, <http://www.bloomberg.com/gadfly/articles/2016-02-09/amazon-wants-to-transform-the-delivery-path-to-everyone-s-door>.

32 Ibid.

33 Sean Kilcarr, "Logistics speed may become key retail supply chain need," *Fleet Owner*, May 6, 2016, <http://fleetowner.com/fleet-management/logistics-speed-may-become-key-retail-supply-chain-need?mod=djemlogistics>.

34 Brody Buhler and Andre Pharand, *Achieving high performance in the post and parcel industry*.

35 United Parcel Service (UPS), "Ship from store: A smart competitive strategy for retailers," February 2014, <http://compass.ups.com/ship-from-store-benefits/> and IBM subject matter expert analysis.

**Although department stores may be forced to close hundreds of locations to cut costs, many are reluctant to give up valuable physical locations they could use for ship-from-store order fulfillment.**

**Up to 30 percent of products purchased online during peak periods may be returned, straining the capacity of supply chains and pushing retailers to find more warehouse space.**

Omni-channel fulfillment capabilities like ship-from-store could offset the weakening of the traditional brick-and-mortar retail marketplace. Declining sales at malls have hurt major retailers, especially those with a substantial physical presence such as J.C. Penney and Sears. According to Green Street Advisors, revenue per square foot at such “anchor” department stores in U.S. malls has fallen 24 percent while square footage has only decreased 7 percent since 2006. To get back to the level of productivity they enjoyed back in 2006, Green Street Advisors said department stores would need to close about 800 retail locations — roughly one-fifth of total anchor store space in malls. However, major retailers may not be in a rush to close many stores at all if those locations might be critical to their ecommerce goals, such as competing with Amazon and using physical stores as distribution and fulfillment points.<sup>36</sup> In fact, many of these traditional retail stores occupy real estate that would be optimal for rapidly fulfilling ecommerce orders in densely populated urban areas. Such stores may transition from being retail outlets that occasionally fulfill ecommerce orders to ecommerce fulfillment centers that happen to have a retail storefront.

Ecommerce is also changing other fundamental aspects of warehousing. For example, available warehouse space is at its lowest level since 2001 due to increasing demands of ecommerce retailers.<sup>37</sup> These retailers are demanding the construction of more and more large warehouses to address their ecommerce fulfillment needs. These are often built near big cities and major transportation infrastructure like ports and rail lines so that retailers can get goods in consumers’ hands quickly and cost-effectively. At the same time, retailers are also seeking smaller warehouses located within urban centers to allow them to compete with Amazon and others in providing ultra-fast delivery.<sup>38</sup> Given its vast network and available space, the Postal Service might be well suited to help address this need.

### **Reverse Logistics**

The OIG’s 2013 paper discusses the importance of reverse logistics, or the flow of products or materials back to retailers or manufacturers for reuse, repair, or disposal.<sup>39</sup> There remains a significant need for an effective, customer-friendly returns process. In fact, consumers in the United States and Canada returned an astounding \$290 billion worth of goods in 2015, a 66 percent increase since 2010. Although only 8 percent of total retail sales are returned, ecommerce returns can be as high as 30 percent of sales, especially around peak holiday periods. Retailers end up spending more than 4 percent of their annual revenue dealing with all these returned products that need to be recycled, destroyed, or resold at a fraction of the original price.<sup>40</sup>

Retailers must have an effective way to deal with this surge in returns, regardless of whether customers shop in physical stores or online. The top reason why consumers who shop only at physical stores do not shop online is the perception that the returns process will be a hassle.<sup>41</sup> An efficient and affordable returns process is also critical to online shoppers as more than 80 percent of them said they are less likely to make future purchases from websites that do not provide free returns. Retailers who charged

36 Phil Wahba, “America’s Department Stores May Have to Close Hundreds of Locations,” *Fortune*, April 25, 2016, <http://fortune.com/2016/04/25/department-stores-closing/> and Suzanne Kapner, “Department Stores Need to Cull Hundreds of Sites, Study Says,” *The Wall Street Journal*, April 24, 2016, <http://www.wsj.com/articles/department-stores-need-to-cull-hundreds-of-sites-study-says-1461520952>.

37 Ben Ames, “Warehouse market tightens under pressure of e-commerce,” *DC Velocity*, April 8, 2016, <http://www.dcvelocity.com/articles/20160408-warehouse-market-tightens-under-pressure-of-e-commerce/>.

38 Loretta Chao, “Big-Box Warehouse Construction Surges – Colliers,” *The Wall Street Journal*, March 2, 2016, <http://www.wsj.com/articles/big-box-warehouse-construction-surges-colliers-1456916401>.

39 There are many definitions of “reverse logistics,” though they generally agree on these common elements.

40 David Egan, *Swimming upstream: navigating the world of reverse logistics*, CBRE, February 29, 2016; Hiroko Tabuchi, “In a Season of Returning, a Start-up Tries to Find a Home for the Rejects,” *The New York Times*, December 28, 2015, [http://www.nytimes.com/2015/12/29/business/in-season-of-returning-a-start-up-tries-to-find-homes-for-the-rejects.html?\\_r=0](http://www.nytimes.com/2015/12/29/business/in-season-of-returning-a-start-up-tries-to-find-homes-for-the-rejects.html?_r=0); and “E-commerce Returns Best Practices,” Shorr Packaging, October 2015.

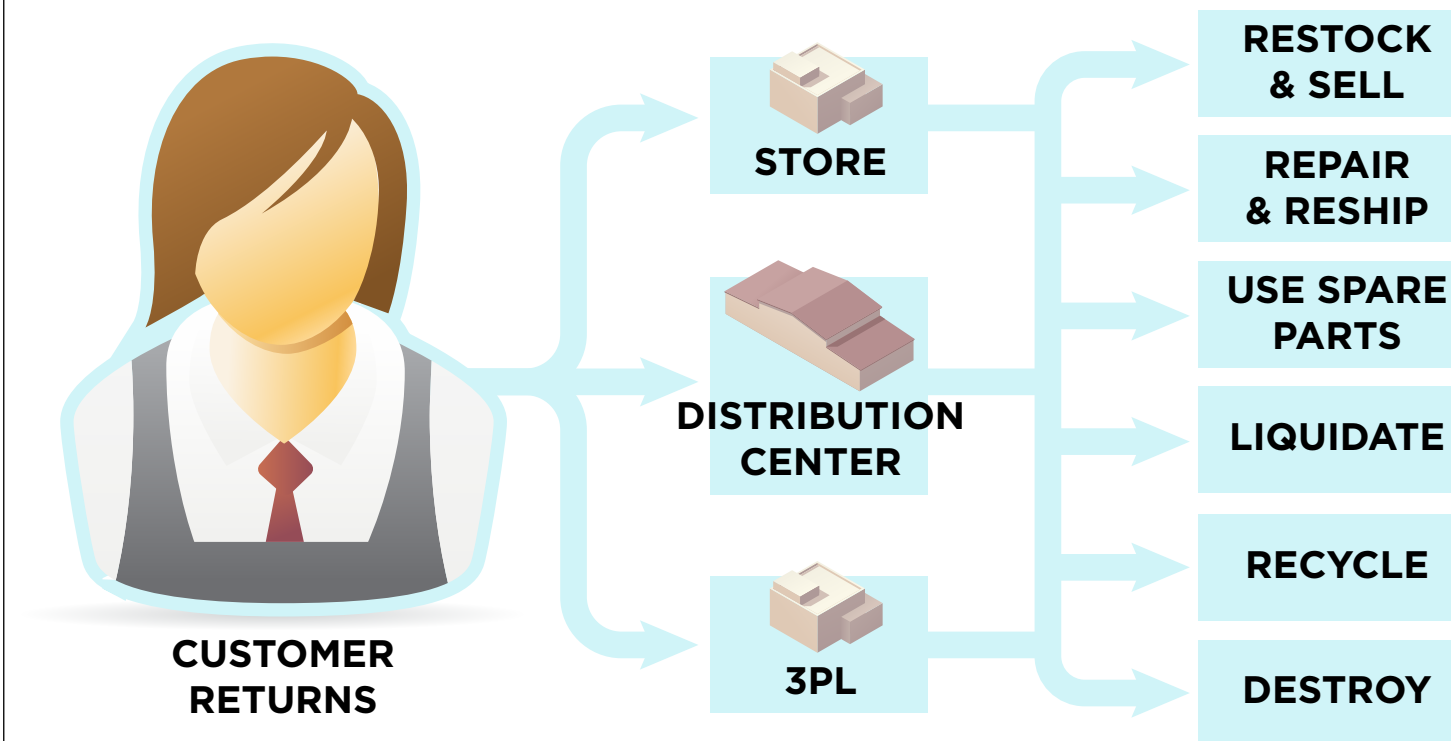
41 David Egan, *Swimming upstream: navigating the world of reverse logistics* and “Why Returns Matter and What You Can Do About It [Infographic],” Endicia, June 2014, <http://online-shipping-blog.endicia.com/why-returns-matter-and-what-ecommerce-businesses-can-do-about-it/>.



for returns have seen those consumers' purchases drop by 75 to 100 percent within a few years in some cases.<sup>42</sup> However, given that the most valuable online shoppers tend to buy multiple items with each purchase, retailers cannot afford to lose these consumers.<sup>43</sup>

Returns are expensive for retailers because they involve additional shipping and handling costs, as well as the lost value of products. Retailers can choose to handle and process returned products themselves or they can outsource their returns process to a 3PL.<sup>44</sup> Figure 3 shows a basic depiction of the reverse logistics process.

**Figure 3: The Reverse Logistics Process (Simplified)**



Source: OIG Analysis.

Postal organizations and delivery companies around the world are doing innovative things to make the returns process easier for both shippers and recipients. For example, during recent holiday seasons the UK's Royal Mail has been offering special drop-off points in high-traffic areas like convenience stores and gas stations so that consumers have more options for returning gifts they do not want.<sup>45</sup> Singapore Post recently built a massive three-story facility with warehousing space, reverse logistics solutions,

42 David Egan, *Swimming upstream: navigating the world of reverse logistics*; ShopRunner and Harris Interactive, "Survey Finds 81% of Online Shoppers Not Likely to Purchase Again From Retailers Who Charge for Return Shipping," news release, December 14, 2012, <http://www.prnewswire.com/news-releases/survey-finds-81-of-online-shoppers-not-likely-to-purchase-again-from-retailers-who-charge-for-return-shipping-183478851.html>; and Amanda B. Bower and James G. Maxham III, "Return Shipping Policies of Online Retailers: Normative Assumptions and the Long-Term Consequences of Fee and Free Returns," *Journal of Marketing*, Vol. 76, No. 5 (September 2012).

43 John Langley, Jr., *2015 third-party logistics study: The state of logistics outsourcing*, [https://www.fr.capgemini-consulting.com/resource-file-access/resource/pdf/2015\\_3pl\\_study.pdf](https://www.fr.capgemini-consulting.com/resource-file-access/resource/pdf/2015_3pl_study.pdf), p. 23.

44 David Egan, *Swimming upstream: navigating the world of reverse logistics*.

45 Saul Wordsworth, "On the Button: How is Click and Collect Shaping the Postal World?," *Postal Technology International*, January 2015, p. 40 and "Post Office trials new home shopping returns drop off points at over 150 new locations," *Post and Parcel*, September 30, 2014, <http://postandparcel.info/62872/news/post-office-trials-new-home-shopping-returns-drop-off-points-at-over-150-new-locations/>.

***There are serious concerns about the capacity of the logistics and transportation systems to deal with the ecommerce surge.***

automated parcel sorting, loading docks, and other logistics services for customers across Southeast Asia.<sup>46</sup> In April 2016, DHL announced a new tool designed to help organizations map out and improve their reverse logistics processes.<sup>47</sup> When it comes to offering reverse logistics services, some delivery companies are expanding their capabilities by acquiring other logistics firms that specialize in returns, a trend consistent with the consolidation occurring throughout the logistics industry.<sup>48</sup>

The Postal Service does not currently offer comprehensive reverse logistics services. However, it does provide a number of parcel return products for individuals and business customers, including Parcel Return Service (PRS), Merchandise Return Service (MRS), and Bulk Parcel Return Service (BPRS), to name a few. While PRS provides an affordable returns solution for large-volume mailers, including first-mile pickup, MRS allows merchants to provide customers with prepaid return shipping labels that are only charged when the parcel is scanned. And BPRS utilizes the Postal Service's advantage on small packages to rapidly return uniform, machinable parcels. The Postal Service has publicly stated that its long-term goal for returns is to provide customers with dynamic redirection of packages, much like a reverse logistics provider, though it must expand data collection and visibility of parcels in the return stream to achieve this objective.<sup>49</sup>

### **Transportation and Capacity**

Modern logistics firms need proficiency in a wide array of transportation options to meet the evolving needs of shippers. Consumers' desire for faster, more reliable service has led shippers to demand more and more of their carriers. Regardless of whether a shipper chooses freight trucking, intermodal rail, containerized shipping, or another method of transportation, the critical needs are generally the same: fast and reliable transport, visibility of goods during transit, flexible service options, and minimized costs.

### **Highway Trucking**

Ecommerce growth will continue to require an increasing supply of ground transportation, and highway trucking plays an integral role. Highway trucking, an industry worth around \$700 billion in the United States alone, is the country's single most used mode of freight transportation.<sup>50</sup> Domestic trucks carried 11.5 billion tons of all types of goods in 2015, which were worth over \$13 trillion and represented about two-thirds of domestic freight transportation. The U.S. Department of Transportation estimates that domestic freight will grow 40 percent in weight by 2045, with the value of that freight nearly doubling.<sup>51</sup>

However, the trucking industry could face severe problems related to capacity in coming years, and some challenges are already emerging.<sup>52</sup> Tough working conditions and new safety-based federal regulations on workhours have led to a national shortage of

46 Singapore Post, "Topping Out Ceremony marks milestone for SingPost Regional eCommerce Logistics Hub," news release, March 1, 2016, <http://www.singpost.com/download/AboutSingPost/Media/NewsReleases/2016/pr20160301.pdf>.

47 Postal Technology International, "DHL model helps map reverse logistics processes," April 27, 2016, <http://www.postaltechnologyinternational.com/news.php?NewsID=79114> and *Waste not, want not. Capturing the value of the circular economy through reverse logistics*, Cranfield University and Deutsche Post DHL Group, April 2016, [https://www.dpdhl.com/content/dam/dpdhl/logistik\\_populaer/zukunftsstudien/circular-economy-reverse-logistics-maturity-model-042016.pdf](https://www.dpdhl.com/content/dam/dpdhl/logistik_populaer/zukunftsstudien/circular-economy-reverse-logistics-maturity-model-042016.pdf).

48 In February 2015, FedEx acquired GENCO, a 3PL that specializes in reverse logistics and owns R-Log, the most widely used reverse logistics software in the industry. Prior to the merger, 40 percent of GENCO's revenues came from reverse logistics operations. For more information, please see Jeff Berman, "FedEx acquisition of GENCO is a done deal," *Logistics Management*, February 2, 2015, [http://www.logisticsmgmt.com/article/fedex\\_acquisition\\_of\\_genco\\_is\\_a\\_done\\_deal](http://www.logisticsmgmt.com/article/fedex_acquisition_of_genco_is_a_done_deal) and "North America's 50 Most Successful 3PLs," Supply Chain Brain, April 24, 2013, <http://www.supplychainbrain.com/content/logisticstransportation/reverse-logistics/single-article-page/article/north-americas-50-most-successful-3pls/>.

49 Postal Service officials discussed some of these returns services and their long-term goals at the 2016 National Postal Forum. For more information, please read <http://npf.org/pdfs/presentations/2016/Returns%20Made%20Simple.pdf>.

50 "The appy trucker," *The Economist*, March 5, 2016, <http://www.economist.com/news/business/21693946-digital-help-hand-fragmented-and-often-inefficient-industry-appy-trucker>.

51 Eric Kulisch, "U.S. DOT projects freight to grow 40% by 2045," *American Shipper*, March 4, 2016, [http://www.americanshipper.com/Main/News/US\\_DOT\\_projects\\_freight\\_to\\_grow\\_40\\_by\\_2045\\_63234.aspx](http://www.americanshipper.com/Main/News/US_DOT_projects_freight_to_grow_40_by_2045_63234.aspx).

52 John D. Schulz, *26th Annual State of Logistics: Freight moves the economy*, CSCMP's Annual State of Logistics Report, July 1, 2015, [http://www.logisticsmgmt.com/article/26th\\_annual\\_state\\_of\\_logistics\\_freight\\_moves\\_the\\_economy](http://www.logisticsmgmt.com/article/26th_annual_state_of_logistics_freight_moves_the_economy).

**Neglected infrastructure may be responsible for 141 million trucking hours lost in 2013 alone.**

long-haul truck drivers. If freight demand grows as projected, one study indicates that the industry could lack as many as 240,000 drivers by 2022.<sup>53</sup> This shortage is likely to prove a problem for the logistics industry, as ecommerce companies' need for highway trucking services continues to grow. This is a prime concern for the Postal Service, as it is almost entirely reliant on contracted highway carriers for its ground transportation services. It spent over \$3.5 billion on highway transportation in FY 2015.<sup>54</sup>

There are other inefficiencies plaguing the trucking industry too. In its 2013 Report Card for America's Infrastructure, the American Society of Civil Engineers gave American roadways an infrastructure grade of "D," citing insufficient public investment in improving the conditions and performance of road infrastructure.<sup>55</sup> The Federal Highway Administration estimates that a full quarter of roads in major urban areas are substandard or poor quality, and tens of thousands of bridges are closed or under restricted use. Neglected infrastructure like this was said to have resulted in 141 million trucking hours lost in 2013 alone, or the equivalent of 51,000 truckers stuck idle in traffic for the entire year.<sup>56</sup> However, repairing and maintaining public roadways is an expensive undertaking.<sup>57</sup>

In addition, 50 billion vehicle miles per year in the United States — or 28 percent of the industry's total annual mileage — are spent on empty loads. Innovative on-demand platforms, sometimes based on crowdsourcing, may help reduce the time spent traveling with empty loads or other inefficiencies. Companies like Cargomatic, Trucker Path, and Transfix can match drivers with available jobs in real time and charge lower commissions than freight brokers.<sup>58</sup>

### **Intermodal Rail**

Intermodal rail, in which shipping containers that can be loaded on different types of transportation are moved by freight rail, remains an industry standard for cost-effective long-haul transportation despite the decline in fuel prices. In fact, shippers with distances of at least 500 miles can save significant costs by using intermodal rail service.<sup>59</sup> The high value of intermodal shipments can lead rail companies to give intermodal trains priority on their tracks. Rail companies have made large investments in their private infrastructure, increasing capacity and reducing bottlenecks around major rail hubs. It would seem that these advantages make intermodal a tough competitor to highway trucking on the surface. However, the intermodal industry has come to view trucking as more of a customer or partner rather than as a competitor.<sup>60</sup> Intermodal's long-haul routes ease some pressure from the truck driver shortage, and the combination of intermodal for long-distance and highway trucking to transport containers of deliveries to distribution centers offers options and flexibility to shippers.

<sup>53</sup> John Langley, Jr., *2015 third-party logistics study: The state of logistics outsourcing*.

<sup>54</sup> U.S. Postal Service, Cost Segments & Components Report FY 2015, <http://about.usps.com/who-we-are/financials/cost-segments-components-reports/fy2015.pdf>, p. C-15.

<sup>55</sup> American Society of Civil Engineers, *2013 Report card for america's infrastructure*, <http://www.infrastructurereportcard.org/road-infrastructure/>.

<sup>56</sup> David Z. Morris, "Why tweeting potholes and smart bridges won't solve our infrastructure problems," *Fortune*, July 6, 2015, <http://fortune.com/2015/07/06/high-tech-infrastructure-monitoring/>.

<sup>57</sup> For example, the Federal Highway Administration has estimated the level of capital investment required just to maintain the conditions and performance of U.S. road infrastructure at 2010 levels to be up to about \$86 billion per year. For more information, please read Federal Highway Administration, *2013 status of the nation's highways, bridges, and transit: Conditions & performance*, <http://www.fhwa.dot.gov/policy/2013cpr/pdfs/littlebook.pdf>, p. ES-1.

<sup>58</sup> *The Economist*, "The appy trucker." It was recently reported that Cargomatic laid off a large number of its employees. For more information, please read <http://www.businessinsider.com/cargomatic-layoffs-2016-4>.

<sup>59</sup> Robert Nathan, "Climb Aboard: Intermodal Pioneering Tomorrow's Supply Chain," *Supply & Demand Chain Executive*, March 3, 2014, <http://www.sdexec.com/article/11321438/intermodal-can-significantly-help-supply-chain-managers-in-predicting-expenses-and-capacity-during-peak-seasons>. For more information, please see OIG, *Strategic Advantages of Moving Mail by Rail*, Report No. RARC-WP-12-013, July 16, 2012, [https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-wp-12-013\\_0.pdf](https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-wp-12-013_0.pdf).

<sup>60</sup> For example, J.B. Hunt, one of the top highway trucking companies in the country, also has "arrangements with most of the major North American rail carriers to transport truckload freight in containers and trailers." For more information, please see J.B. Hunt Transport Services, Inc., "About Us," <http://www.jbhunt.com/company/about/>.



**The flood of cross-border  
ecommerce led to the  
construction of ocean container  
ships so huge that many  
U.S. ports are struggling to  
accommodate them.**

Intermodal rail also faces some capacity issues because space for large numbers of containers is limited in railyards.<sup>61</sup> As a result, they rely on trucks to get the containers out of their yards as soon as possible after they arrive.<sup>62</sup> Improved coordination between truck drivers and railyard workers will shorten the amount of time it takes to clear railyards of cargo as well as reduce the amount of time truck drivers spend idle. The benefits these two industries get by working together represent a clear example of why large-scale collaboration in the logistics industry will continue to be important in coming years.

### **Maritime Shipping**

For the maritime shipping industry, creating the appropriate level of capacity to meet current levels of demand has proven to be a challenge. Low interest rates as well as projections of ever-increasing demand for coal, iron ore, and consumer goods have led to the construction of massive container ships. However, the growth in both the capacity and number of such ships has been significantly greater than the actual demand for space on these ships. The delayed opening of the Panama Canal expansion seems to have exacerbated this problem.<sup>63</sup> Slower than predicted economic growth, particularly in China, has left maritime carriers with a greater number of larger ships than the market currently demands. In turn, maritime shipping rates decreased by 62 percent in the past year as shipping carriers destroyed excess ships for scrap.<sup>64</sup> These low rates encouraged some shippers to send non-urgent deliveries by ship instead of by air. At the same time, many airlines have added more long-haul flights to take advantage of low fuel prices, meaning that some shippers that normally transported their goods by sea chose to do so by air instead.<sup>65</sup>

The timely offloading and transfer of cargo has also been a critical area for maritime shipping. Many ports in the United States have not yet developed the infrastructure improvements necessary to handle modern, massive container ships. To do so, ports need to be dredged to greater depths, and the docks must be outfitted with elevated container cranes that can match the height of the massive stacks of the shipping containers the ships carry.<sup>66</sup> Additionally, work slowdowns at ports along the West Coast, particularly at the ports of Los Angeles and Long Beach, reportedly contributed to severe congestion in 2014 and 2015.<sup>67</sup> These factors led many shippers to send their goods to ports along the Gulf of Mexico or to the East Coast instead.<sup>68</sup> Investment in the capabilities of East Coast and Gulf posts has also been fueled by the expansion of the Panama Canal to accommodate supersized container ships.

### **Increased Urbanization and Other Demographic Trends**

It is well known that many people are moving back to urban areas, but the extent of this trend may be surprising. Forty percent of the U.S. population now lives in just 21 metropolitan locations.<sup>69</sup> Around the world, 50 percent of people live in urban centers, and that number is expected to rise to 60 percent by 2030.<sup>70</sup> The OIG's 2013 white paper discusses how increased urbanization

61 John Dyer, "Land at a premium, railroad exploits its air space," *The Boston Globe*, February 14, 2011, [http://archive.boston.com/business/technology/articles/2011/02/14/land\\_at\\_a\\_premium\\_railroad\\_exploits\\_its\\_air\\_space/?page=1](http://archive.boston.com/business/technology/articles/2011/02/14/land_at_a_premium_railroad_exploits_its_air_space/?page=1).

62 IBM subject matter expert analysis.

63 The expanded Panama Canal finally opened on June 26, 2016, which was 2 years behind schedule.

64 Eric Atkins, "'Bloodbath' for shipping industry as rates plunge to new depths," *The Globe and Mail*, March 10, 2016, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/container-rates-sink-to-new-depths-amidst-soft-global-economy/article29153897/>.

65 "Too little freight, too much space," *The Economist*, March 19, 2016, <http://www.economist.com/news/business/21695013-overcapacity-hits-another-part-transport-industry-too-little-freight-too-much-space>. Please note that although periods of low fuel prices lead to increased uses of faster forms of transportation and leads ships and aircraft to operate at higher speeds, the trend reverses during periods of high fuel prices, with greater use of slower forms of transportation and aircraft and container ships alike reducing their operating speeds.

66 Alissa Walker, "Most US Ports Are Still Woefully Unprepared to Welcome the New Generation of Megaships," *Gizmodo*, December 22, 2015, <http://gizmodo.com/most-us-ports-are-still-woefully-unprepared-to-welcome-1749310615>.

67 Laura Stevens and Erica E. Phillips, "West Coast Port Employers, Union Reach Tentative Five-Year Agreement," *The Wall Street Journal*, February 15, 2015, <http://www.wsj.com/articles/west-coast-port-employers-union-reach-tentative-five-year-agreement-1424485110>.

68 Robert Wright, "Shipping's size obsession could be ending, study finds," *Financial Times*, March 9, 2016, <http://www.ft.com/intl/cms/s/0/255d9394-e47a-11e5-a09b-1f8b0d268c39.html>.

69 Based on data from the U.S. Census Bureau's American Fact Finder at <http://factfinder.census.gov>.

70 Shannon Bouton, Stefan M. Knupfer, Ivan Mihov, and Steven Swartz, "Urban mobility at a tipping point," McKinsey&Company, <http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/urban-mobility-at-a-tipping-point>.

**Forty percent of the U.S. population lives in just 21 metropolitan areas, and urbanization will intensify in the future.**

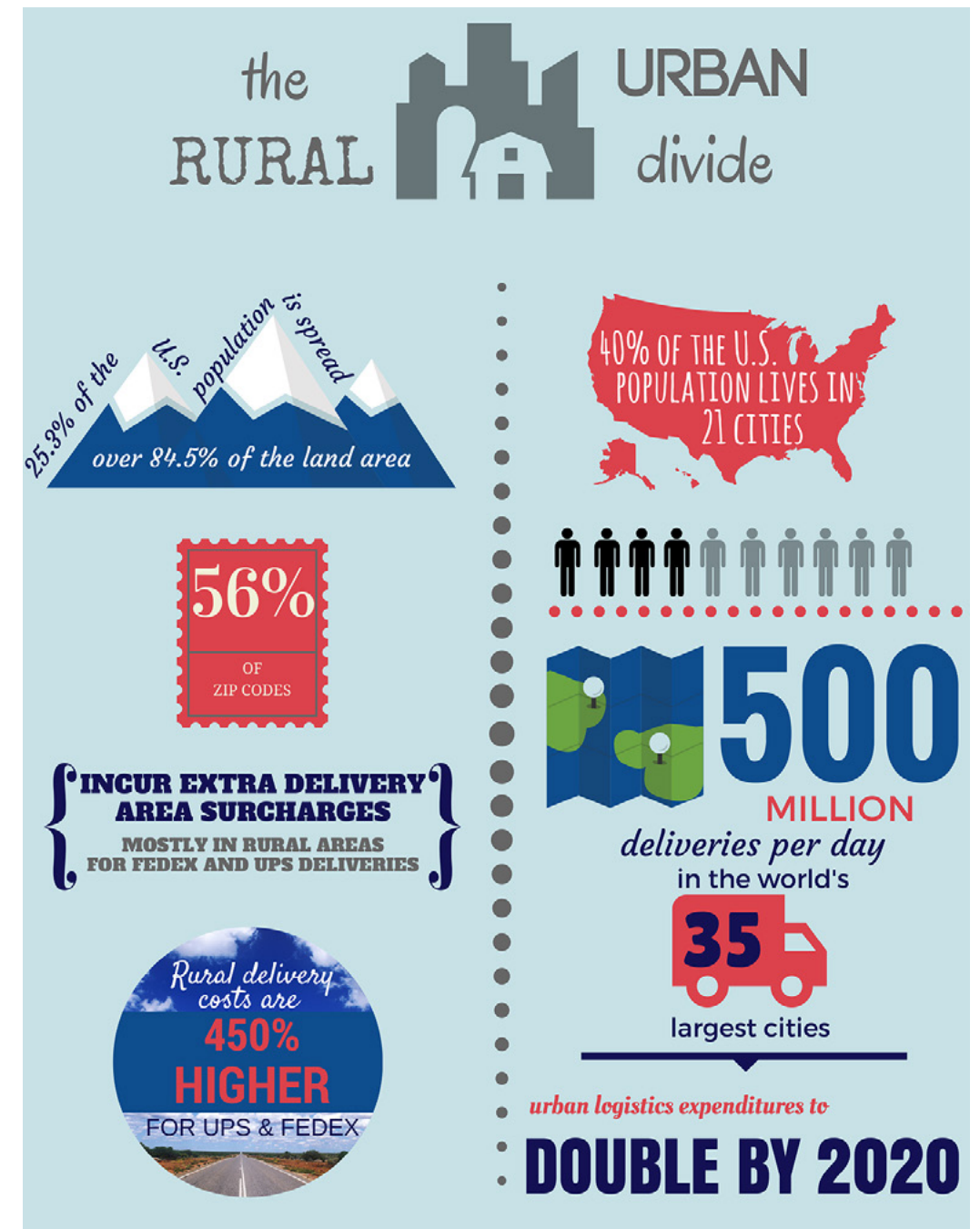
could lead to the rise of megacities along a global transportation supergrid that would drive the future economy by concentrating ideas, people, and commerce.<sup>71</sup> As more of the world's population lives in dense, urban clusters, the logistics and delivery industries will need to adapt in response to emerging challenges and opportunities. Figure 4 illustrates the stark differences rural and urban citizens face, particularly when it comes to receiving packages and participating in ecommerce.<sup>72</sup>

### Changing Customer Segments

The trend toward increased urbanization is being partially driven by Millennials and other younger people.<sup>73</sup> Their preferences are rapidly reshaping the logistics and delivery marketplace. These consumers desire speed, agility, transparency, flexibility, and — perhaps above all — convenience while engaging in commerce. Young consumers are far more brand savvy than previous generations, in that they discover, research, and follow brands on various digital platforms and social media at far higher rates than their predecessors have.<sup>74</sup> As purchasing power continues to shift to these younger consumers, competing on quality, customization, and price may become more important than ever. Moreover, it is possible that the trusted brands of traditional operators like posts could mean less in a marketplace dominated and defined by younger consumers.<sup>75</sup>

At the same time, the growth of older populations could also dramatically reshape consumer preferences when it comes to logistics and delivery services. The number of people aged 65 and older is projected to nearly double by the year 2050.<sup>76</sup> This could increase demand for home delivery of things like groceries and medicine.

**Figure 4: Facts about the Rural-Urban Divide**



71 In that paper, we considered a megacity to be a metropolitan area with a total population in excess of 10 million people.

72 SJ Consulting, *Report on Measuring the Benefits of Rural Postal Service*, report prepared for the Postal Regulatory Commission, August 2011, [http://www.prc.gov/sites/default/files/archived/Rural\\_Service\\_Report.pdf](http://www.prc.gov/sites/default/files/archived/Rural_Service_Report.pdf), pp. 1-7 and Frost & Sullivan's Visionary Innovation Group, *Global Mega Trends and Their Impact on Urban Logistics*, cited in "Urbanization will drive more logistics spending," *CSCMP's Supply Chain Quarterly*, 2013, <http://www.supplychainquarterly.com/news/20130521-urbanization-will-drive-more-logistics-spending/>.

73 Beau Dure, "Millennials Continue Urbanization Of America, Leaving Small Towns," *National Public Radio*, October 21, 2014, <http://www.npr.org/2014/10/21/357723069/millennials-continue-urbanization-of-america-leaving-small-towns>.

74 PricewaterhouseCoopers, *Total Retail 2015: Retailers and the Age of Disruption*, February 2015, <https://www.pwc.com/gx/en/retail-consumer/retail-consumer-publications/global-multi-channel-consumer-survey/assets/pdf/total-retail-2015.pdf>, p. 25.

75 IBM subject matter expert analysis.

76 Jennifer M. Ortman, Victoria A. Velkoff, and Howard Hogan, *An Aging Nation: The Older Population in the United States*, U.S. Census Current Population Reports, May 2014, <https://www.census.gov/prod/2014pubs/p25-1140.pdf>.



## Urban Delivery

The dense and congested urban centers of the future may require substantially different logistics services. For example, there may be increased demand for warehouses and fulfillment centers that are smaller and lack some traditional features, such as high ceilings, but are strategically located inside city centers. Those facilities could optimize the delivery window and radius for ecommerce orders.<sup>77</sup> Many of these facilities could focus on last-mile deliveries and processing returns, especially as ecommerce growth continues.<sup>78</sup> Their location could be critical, given that the last mile is often the slowest and most expensive part of delivery routes.<sup>79</sup>

**Figure 5: Casper Mattress Delivery**



Source: Casper.com.

Delivery drivers will also need to adapt to the growth of dense urban areas, possibly by seeking new modes of transportation and innovative ways to use real-time traffic data to plot out their routes.<sup>80</sup> Last-mile delivery in these areas might be best suited to a new generation of delivery companies that are nimble and able to tap into cutting-edge technologies to improve delivery efficiency in challenging and quickly changing conditions. Casper, a New York-based startup company that sells bedding and foam mattresses, uses UPS to complete delivery of its products. However, because the mattresses are packed in relatively compact boxes, it can also deliver via courier in parts of New York City, Los Angeles, and San Francisco. Figure 5 shows an example of a courier delivering a Casper mattress by bicycle.<sup>81</sup>

Such companies could become the provider of choice in urban areas where the majority of the population may soon live. In less-populated suburban and rural areas, smaller volumes and

greater distances may create profitability challenges. In some cases, the Postal Service might end up being the only delivery company still providing critical and affordable services to people living in the most remote areas.

In response to the challenges presented by dense urban areas, some delivery and logistics companies are forming new collaborative relationships, such as sharing facilities or consolidating delivery. This allows companies to better guarantee capacity and reduce costs, congestion, and negative environmental impact.<sup>82</sup> Some logistics and delivery companies are even experimenting with innovative models of collaborative “city logistics.” For example, Belgium’s bpost runs a city logistics program in Antwerp and Brussels that reduces the number of separate deliveries in the center of those cities by consolidating packages at facilities nearby prior to delivery. This streamlines

<sup>77</sup> IBM subject matter expert analysis.

<sup>78</sup> Jones Lang LaSalle, *The new industrial (r)evolution: from supply chains to consumer-centric demand chains*.

<sup>79</sup> Angus Loten, “MIT Team Uses Big Data, IoT to Speed Up ‘Last Mile’ Deliveries,” *The Wall Street Journal*, March 23, 2016, <http://blogs.wsj.com/cio/2016/03/23/mit-team-uses-big-data-iot-to-speed-up-last-mile-deliveries/>.

<sup>80</sup> Shannon Bouton, Stefan M. Knupfer, Ivan Mihov, and Steven Swartz, “Urban mobility at a tipping point.”

<sup>81</sup> “When Can I Expect to Receive my Casper Products,” Casper, 2016, <https://casper.com/faqs/orders-shipping/when-can-i-expect-to-receive-my-casper-products>.

<sup>82</sup> PLS Logistics, “2016 trends in logistics,” November 23, 2015, <http://info.plslogistics.com/blog/2016-trends-in-logistics> and Jones Lang LaSalle, *The new industrial (r)evolution: from supply chains to consumer-centric demand chains*, p. 22.



***The international flow of data is said to boost the economy more than the trade of physical goods.***

last-mile delivery to those city centers and reduces pollution because there are fewer delivery vehicles involved.<sup>83</sup> In addition, Dynamic Parcel Distribution (DPD) and General Logistics Systems (GLS) recently announced a city logistics pilot test using “micro-depots” in Nuremberg that involves couriers on emissions-free vehicles like bikes handling final delivery of parcels to residents and businesses in the city.<sup>84</sup>

### **Advancements in Technology and Data**

Rapid advancements in technology and data are changing the global economy in fundamental ways. For example, some observers have said that the international flow of data now boosts the economy more than the trade of physical goods, ushering in an entirely new phase of globalization.<sup>85</sup> Innovations in technology and data are also changing the logistics industry, including parcel delivery. Many of these advancements are allowing small firms with limited geographic range and few assets to become competitive with traditional delivery companies, potentially overthrowing the old system under which cost savings were driven by economies of scale derived from large delivery networks.

### **New Technologies Are Transforming Logistics and Delivery**

Advancements in technology are changing logistics and delivery, often in ways that are tailored to emerging consumer preferences and behavior. For example, smartphones and app-based platforms give consumers the option to use services like Uber, Instacart, and Doorman to personalize the time and place of delivery. This can help increase the convenience of package delivery and reduce the risk of theft or damage to packages left on doorsteps when customers are not home. Such consumer-oriented technological advancements will allow the customer, not the delivery company, to set delivery locations. In the future, packages may no longer be delivered to addresses. Rather, carriers might deliver them to customers directly, wherever they are at the time. In addition, the Postal Service, UPS, Amazon, and others have recently begun offering parcel lockers that provide customers with more flexible pickup times. These lockers are typically located in places frequented by customers, such as grocery stores or shopping malls, making pickup more convenient for package recipients.

Other technologies promise revolutionary changes to delivery and logistics, though their full effects may still be years away. Drones, delivery robots, and autonomous vehicles all could reshape last-mile delivery.<sup>86</sup> In addition, as 3D printing technology continues to spread throughout the manufacturing industry, goods could be produced and assembled in locations much closer to consumers — or even on the way to consumers — dramatically reconfiguring many parts of the supply chain.<sup>87</sup> Massive robots are now moving, stacking, and sorting cargo at some major ports in the United States and abroad. According to industry observers, these robots can help ports handle the surge of international commerce by reducing labor costs and the amount of time that container ships need to spend docked, possibly even increasing port productivity by up to 30 percent.<sup>88</sup>

83 “Bpost set to expand urban logistics project to Brussels,” *Post and Parcel*, December 1, 2014, <http://postandparcel.info/63493/news/innovation/bpost-set-to-expand-urban-logistics-project-to-brussels/>. In May 2015, bpost entered an agreement with the company CityDepot to combine their individual city logistics programs into a new offering called “CityDepot NV,” which is intended to bring these services to other cities across Belgium. For more information, please see <http://corporate.bpost.be/~media/Files/B/Bpost/annual-reports/bpost%20financial%20report%202015.pdf>, p. 6.

84 DPD is the international delivery network of GeoPost, a subsidiary of France’s La Poste. GLS is a subsidiary of the UK’s Royal Mail. For more information, please see <http://postandparcel.info/72397/news/dpd-and-gls-testing-use-of-city-micro-depots/>.

85 James Manyika, Susan Lund, Jacques Bughin, Jonathan Woetzel, Kalin Stamenov, and Dhruv Dhingra, “Digital globalization: The new era of global flows,” McKinsey Global Institute, February 2016, <http://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/digital-globalization-the-new-era-of-global-flows> and William Mauldin, “How data may boost the global economy more than physical trade,” *The Wall Street Journal*, February 25, 2016, <http://blogs.wsj.com/economics/2016/02/25/how-data-may-boost-the-global-economy-more-than-physical-trade/>.

86 For more information about the opportunities and challenges facing these new technologies, please read OIG, *Technological Disruption and Innovation in Last Mile Delivery*, Report No. RARC-WP-16-012, <https://www.uspsaig.gov/document/technological-disruption-and-innovation-last-mile-delivery>.

87 For more information about the potential impact of 3D printing on the logistics and delivery industries, please read OIG, *An Update on 3D Printing and the Postal Service*, Report No. RARC-WP-16-001, <https://www.uspsaig.gov/document/update-3d-printing-and-postal-service> and *If It Prints, It Ships: 3D Printing and the Postal Service*, Report No. RARC-WP-14-011, <https://www.uspsaig.gov/document/if-it-prints-it-ships-3d-printing-and-postal-service>.

88 Erica E. Phillips, “Massive Robots Keep Docks Shipshape,” *The Wall Street Journal*, March 27, 2016, <http://www.wsj.com/articles/massive-robots-keep-docks-shipshape-1459104327>.

**Amazon has tens of thousands of robots working in its warehouses, but it still needs human employees for critical functions.**

Robots and other automated solutions are also being used in warehouses. As ecommerce continues to grow and the demand for quality labor intensifies, logistics companies are increasingly seeking automated labor technologies.<sup>89</sup> Robotic automation can boost workforce productivity by shortening fulfillment times, improving accuracy, and reducing safety incidents. In addition, automated labor often can work constantly, allowing for efficiencies that human labor cannot produce.<sup>90</sup> For now, however, human employees are still necessary. Amazon has made significant and well-publicized leaps into warehouse automation, such as using about 30,000 robots in its facilities and acquiring the robotics company Kiva Systems in 2012. However, it still has 230,000 human employees and hires many more during the holiday rush. Humans still perform better than robots at many things, such as tasks that require fine motor skills.<sup>91</sup>

**More Data Means More Visibility**

Maintaining visibility of packages and cargo is emerging as a critical element of logistics, and innovative uses of data are bringing visibility to unprecedented heights. Although package tracking is the norm in the parcel delivery industry, package information is typically only updated at particular points in time. For example, packages are typically scanned when entering a facility. However, internet-connected sensors using GPS or other technologies could continuously send out data that provide package recipients with a real-time window into the shipping process. With this level of visibility, recipients could potentially reroute packages to more convenient delivery locations such as their workplace. Plus, these data could mean that shippers and retailers would be able to better ensure that their merchandise was where it is supposed to be at all times. Similarly, data from internet-connected sensors inside freight pallets or containers could bring unparalleled visibility to cargo operations.

In addition, warehouse visibility is an increasingly important aspect of logistics. Visibility has evolved to mean not only location but also condition. Sensors on warehouse equipment could monitor pallets and other warehouse assets in real-time, sending out data to notify the supervisor of anomalies to be addressed. For example, such sensors could detect if the temperature in a cold store pallet fluctuates or if a forklift becomes damaged.<sup>92</sup> Smart warehouses may also be able to self-monitor energy usage, driving optimal energy utilization.<sup>93</sup> Moreover, “Big Data” analytics can facilitate the creation of a dynamic inventory system, which improves forecasts, customer satisfaction, inventory models, and financial outcomes.<sup>94</sup> Improved inventory forecasts will reduce costs because excess inventory loses value over time and eventually needs to be marked down.<sup>95</sup>

**New Entrants in Delivery**

New entrants in the delivery market are remaking the logistics industry. Whereas package shippers previously had limited delivery options, the growth of the industry has led to the proliferation of new delivery companies, new business models for delivery, and existing companies’ expansion into the market in new ways.

---

89 Tom Bonkenburg, *Robotics in logistics*, DHL Trend Research, March 2016, [http://www.dhl.com/content/dam/downloads/g0/about\\_us/logistics\\_insights/dhl\\_trendreport\\_robotics.pdf](http://www.dhl.com/content/dam/downloads/g0/about_us/logistics_insights/dhl_trendreport_robotics.pdf), p. 4.

90 Bridget McCrea, “Mobility & robotics in the warehouse: How far have we come?,” *Modern Materials Handling*, March 1, 2016, [http://www.mmh.com/article/mobility\\_robotics\\_in\\_the\\_warehouse\\_how\\_far\\_have\\_we\\_come](http://www.mmh.com/article/mobility_robotics_in_the_warehouse_how_far_have_we_come).

91 Angel Gonzales, “Hands, heads and robots work in sync at Amazon warehouses,” *The Seattle Times*, April 9, 2016, <http://www.seattletimes.com/business/amazon/at-amazon-warehouses-humans-and-robots-are-in-sync/>.

92 James Macaulay, Lauren Buckalew, and Gina Chung, *The Internet of Things in Logistics*, DHL Trend Research and Cisco Consulting Services, 2015, [http://www.dhl.com/content/dam/Local\\_Images/g0/New\\_aboutus/innovation/DHLTrendReport\\_Internet\\_of\\_things.pdf](http://www.dhl.com/content/dam/Local_Images/g0/New_aboutus/innovation/DHLTrendReport_Internet_of_things.pdf).

93 Ibid.

94 Upp Software, “Top 10 Supply Chain and Warehousing Trends for 2016,” IRMS 360 Enterprise, December 1, 2015, [http://www.irms360.com/blog\\_post/top\\_10\\_supply\\_chain\\_and\\_warehousing\\_trends\\_2016](http://www.irms360.com/blog_post/top_10_supply_chain_and_warehousing_trends_2016).

95 The Postal Service could enhance the efficiency of its own internal operations by incorporating technologies like these. For more information, please read OIG, *The Internet of Postal Things*, Report No. RARC-WP-15-013, August 3, 2015, [https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-wp-15-013\\_0.pdf](https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-wp-15-013_0.pdf) and *Seeing the Future: Augmented Reality and the Postal Service*, Report No. RARC-IB-15-002, April 6, 2015, [https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-ib-15-002\\_0.pdf](https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-ib-15-002_0.pdf).

**Amazon reportedly uses its own trucks for half of its U.K. deliveries due to limitations in Royal Mail's capacity.**

### **Amazon Moves into Delivery**

It is hard to overstate the impact Amazon has had on the logistics industry. It is a major package shipper, spending 11.6 percent of its net sales, or over \$5 billion, to ship nearly 500 million packages in 2015.<sup>96</sup> Amazon's purchasing power gives it great influence, but it is not settling for that power alone. As mentioned above, it has taken major steps into the logistics industry and may be establishing its own supply chains. In addition, it is hiring contract employees through crowdsourcing to deliver Prime Now orders in more than 20 cities in as little as an hour after purchase.<sup>97</sup> These moves give Amazon considerably more control over a greater portion of its orders. They also put pressure on UPS, FedEx, and the Postal Service to give Amazon what it wants: lower shipping prices, a quality delivery experience for its customers, and services on Amazon's terms.<sup>98</sup>

Although Amazon is shoring up its delivery functions, observers say it is neither focused on merely generating profits from its deliveries nor is it trying to outcompete the duopoly of UPS and FedEx. For one thing, Amazon would need to spend tens of billions of dollars just to build a network that could compete with the likes of UPS and FedEx. In addition, UPS and FedEx appear to have very different goals when it comes to package delivery. UPS and FedEx seek to maximize the profits from delivery, including recent actions like instituting dimensional weight pricing, which involves calculating delivery prices based on the volume of an individual package rather than just its weight.<sup>99</sup>

To the contrary, Amazon appears to be focused on generating greater overall package volume and maintaining customer satisfaction and loyalty, two goals that are fundamentally intertwined. After all, happy customers place more orders over their lifetime. By bringing more parts of the supply chain under its own umbrella, Amazon can exert more control over every order. This allows Amazon to more easily guarantee customers' satisfaction and provide them with little reason to seek other retailers.<sup>100</sup> Amazon's last-mile delivery capabilities have direct implications for postal operators. For example, its CEO Jeff Bezos recently declared that Amazon uses its own trucks for a full half of its deliveries in the United Kingdom because Royal Mail does not have the capacity to keep up with surging demand.<sup>101</sup>

If Amazon is successful in these efforts, it could better meet its goal of providing its customers with access to anything they want to purchase, anytime, anywhere, at their fingertips.<sup>102</sup> In a landscape that will be so shaped by the high service levels Amazon wants to make more commonplace, the Postal Service may find that its own customers demand more than ever before. Furthermore, it may need to recognize that its volumes from Amazon may not grow forever.

### **Crowdsourced Delivery**

Crowdsourced delivery solutions have the potential to change how consumers get their packages. Uber has already transformed the taxi industry by providing fast, low-cost transportation service on demand. It does this not only through its user-friendly apps, but also by deploying a large workforce of independent contractors who are attracted to flexible hours and are willing to work without benefits. However, Uber has not stopped at transporting only people. It also offers same-day delivery through its platform, and it has established a freight service in some markets called Uber Cargo.<sup>103</sup>

96 Jeremy Bowman, "Is This the Real Reason Why Amazon.com Wants Its Own Delivery Service?" and Shira Ovide, "Amazon Takes the Wheel," *Bloomberg*, February 9, 2016, <http://www.bloomberg.com/gadfly/articles/2016-02-09/amazon-wants-to-transform-the-delivery-path-to-everyone-s-door>.

97 Leslie Hook, "Amazon's instant gratification service aims to disrupt delivery," *Financial Times*, December 11, 2015, <http://www.ft.com/intl/cms/s/2/4e481d36-994a-11e5-95c7-d47aa298f769.html#axzz48vRnQxOz>.

98 Shira Ovide, "Amazon Takes the Wheel."

99 Lee Samaha, "Why Amazon Isn't a Threat to FedEx Corporation or United Parcel Service, Inc.," *The Motley Fool*, March 29, 2016, <http://www.fool.com/investing/general/2016/03/29/why-amazon-really-isnt-a-threat-to-fedex-corporati.aspx>.

100 Mark Solomon, "So you think Amazon rules the world? New report says you ain't seen nothing yet," *DC Velocity*, May 2, 2016, <http://www.dcvelocity.com/articles/20160502-so-you-think-amazon-rules-the-world-new-report-says-you-aint-seen-nothing-yet/>.

101 Patrick Sawyer, "Royal Mail can't cope with our demand, claims Amazon boss," *The Telegraph*, June 3, 2016, <http://www.telegraph.co.uk/news/2016/06/03/royal-mail-cant-cope-with-demand-claims-amazon-boss/>.

102 Jeremy Bowman, "Is this the real reason why amazon.com wants its own delivery service?"

103 Jon Russell, "Uber's Latest Experiment Is Uber Cargo, a Logistics Service in Hong Kong," *TechCrunch*, January 8, 2015, <http://techcrunch.com/2015/01/08/uber-cargo/>.



**Asset-light crowdsourced delivery companies may be well suited for meeting urban delivery needs, but there are serious questions about their scalability.**

Asset-light crowdsourced delivery services have spread as other companies have introduced similar offerings, with billions of dollars in investments chasing hopes of high scalability.<sup>104</sup> Companies such as Lyft, Deliv, Shyp, DoorDash, Instacart, Roadie, and Cargomatic also provide platforms for customers, shippers, and drivers to more easily match delivery services to customer needs in real time.<sup>105</sup> According to some observers, these companies believe that if they can be cost-competitive with UPS and FedEx, younger and more affluent customers may come to expect on-demand, same-day delivery service as a given, and will choose them for delivery rather than traditional providers.<sup>106</sup> In addition, crowdsourced delivery services are helping to fuel the ship-from-store offerings discussed above. For example, major retailers including Walmart, Best Buy, Target, and Nordstrom have announced plans to offer ship-from-store services delivered specifically by new crowdsourced providers.<sup>107</sup>

However, crowdsourced delivery companies face some difficulties that highlight potential challenges to their scalability. The crowdsourcing model was designed to reduce costs relative to the value of the services in demand by using low-cost contract labor and vehicles supplied by their contractors.<sup>108</sup> The model is effective for urban transportation because it allows drivers to provide service directly to passengers. Demand for urban transportation is consistent as well as dense, giving transportation companies a steady flow of passengers to serve. The delivery of packages, freight, or even meals can have very different costs and less consistent demand, which could prove to be a problem for these companies' business models. Additionally, the companies often need to pay for call centers to deal with more complex customer service issues, as well as for expensive incentive programs to attract new customers to the premium services. The relatively high fees and occasional tips that make these services viable may also tend to limit their customer base to only the affluent or people with significant disposable income.<sup>109</sup>

**Regional Carriers Expand into B2C Delivery**

The increased importance of the B2C delivery market has led existing regional carriers that had long focused on B2B services to shift their attention. Regional delivery carriers are companies that provide ground transportation only, and within limited geographic areas. Most are small, with fleets of fewer than 250 trucks, and half of them operate in three or fewer states. Although they are still relatively small participants in the parcel shipping market, the rapid growth of ecommerce, the high fixed costs of parcel shipping, and the increasing demands of parcel shippers have created a great market opportunity for regional carriers to move into B2C delivery.<sup>110</sup>

104 Mike Isaac, "Delivery Start-Ups Face Road Bumps in Quest to Capture Untapped Market," *The New York Times*, February 11, 2016, [http://www.nytimes.com/2016/02/12/technology/delivery-start-ups-face-road-bumps-in-quest-to-capture-untapped-market.html?\\_r=1](http://www.nytimes.com/2016/02/12/technology/delivery-start-ups-face-road-bumps-in-quest-to-capture-untapped-market.html?_r=1).

105 It should be noted that UPS has invested in Deliv.

106 IBM subject matter expert analysis.

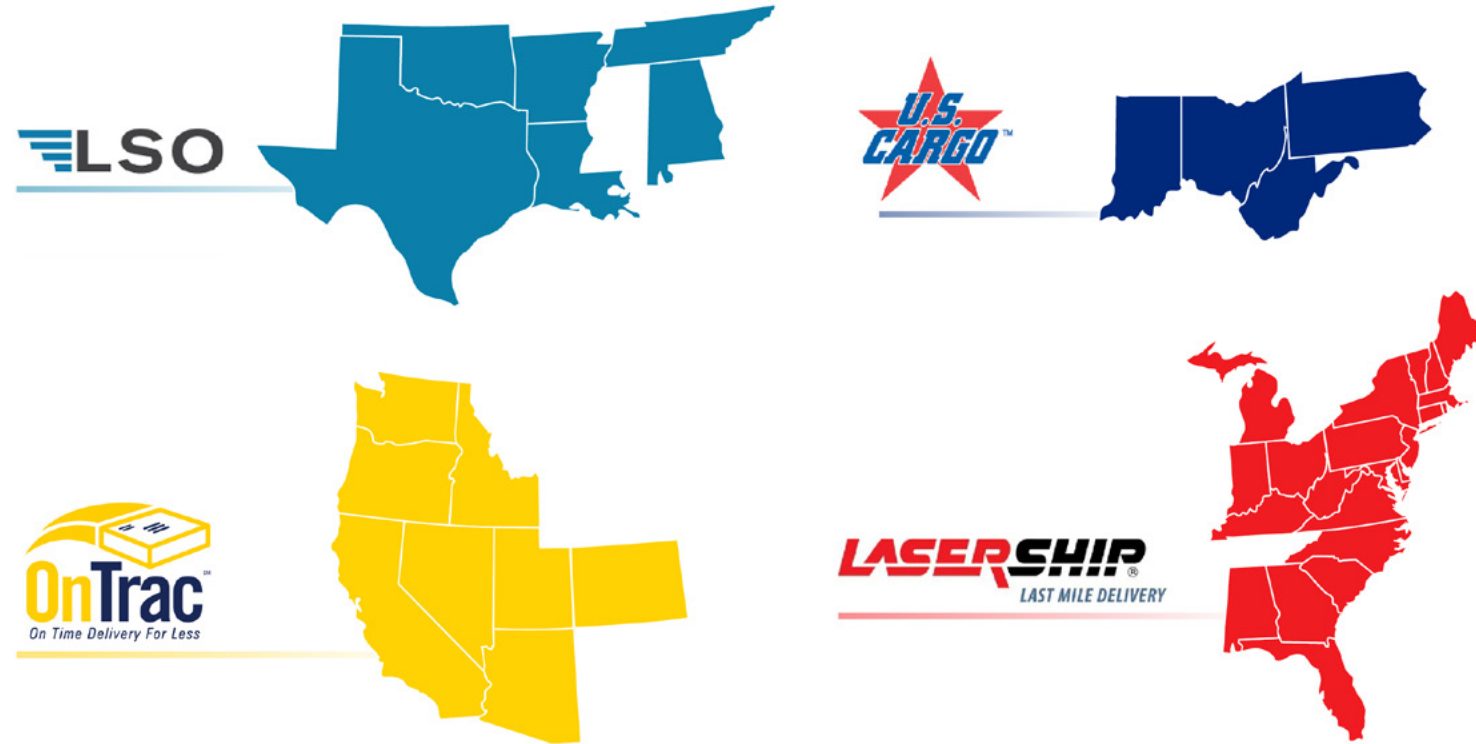
107 *Post and Parcel*, "Walmart piloting last mile delivery with Uber, Lyft and Deliv," June 6, 2016, <http://postandparcel.info/73446/news/walmart-piloting-last-mile-delivery-with-uber-lyft-and-deliv/>; Best Buy, "Same Day Delivery FAQ," <http://www.bestbuy.com/site/same-day-delivery/same-day-delivery-faqs/pcmcat748300642673.c?id=pcmcat748300642673>; Rebecca Borison, "Uber Is Helping More Retailers Take on Amazon Prime Now," *The Street*, January 28, 2016, <https://www.thestreet.com/story/13439844/1/uber-is-helping-more-retailers-take-on-amazon-prime-now.html>; and Target, "Target pilots on-demand grocery delivery with Instacart," news release, September 15, 2015, <https://corporate.target.com/article/2015/09/instacart-delivery>.

108 IBM subject matter expert analysis.

109 Mike Isaac, "Delivery Start-Ups Face Road Bumps in Quest to Capture Untapped Market."

110 Rick Jones, Lone Star Overnight, "Regional Providers: Today's Solution to Your Distribution Challenges," (discussion session at Parcel Forum 2015, Chicago, IL, October 20, 2015).

**Figure 6: States Served by Selected Regional Carriers**



Source: OIG analysis of information in PARCEL magazine, May-June 2016.

**Regional carriers are shifting to B2C delivery and could become a major competitor if they consolidate or are acquired by a larger player.**

Regional carriers generally do not have the resources to compete at the same scale as UPS or FedEx because they cannot offer the same types of volume discounts or comprehensive global service. However, they have claimed a small but growing share of the market. Their limited geographic scope can keep their fixed costs low and allow for a higher degree of engagement with customers. Regional carriers can offer premium services similar to the duopoly. They have options for full pickup, last-mile delivery, same-day and next-day delivery, and Saturday delivery. They also offer value-added services such as on-call pickup, signature required delivery, proof of delivery, and 3-day delivery attempts and can charge up to 40 percent less.<sup>111</sup> They can also offer advantages like later pickups, earlier deliveries, and more customized solutions.<sup>112</sup>

Many national consumer products companies have chosen to use regional carriers, including Avon and Walgreens.<sup>113</sup> Notably, regional carriers also complete last-mile delivery for many Amazon orders.<sup>114</sup> With the potential for continued rapid growth in the package delivery market, regional carriers have the opportunity to grow into formidable forces by exploiting the vulnerabilities of their larger competitors, including the Postal Service. Consolidation of regional carriers or their acquisition by a major company with nationwide scope could propel them into being a major challenger in the package delivery industry.<sup>115</sup>

111 Ibid and Karen D'Andrea, "Why Amazon May Be Onto Something with Its New Regional Delivery Plan," *Pitney Bowes Blogs*, July 14, 2015, <http://blogs.pb.com/mail-solutions/2015/07/14/amazon-regional-delivery-plan/>.

112 Jeff Berman, "Underestimate regional small package providers at your own risk," *Logistics Management*, March 31, 2016, [http://www.logisticsmgmt.com/article/underestimate\\_regional\\_small\\_package\\_providers\\_at\\_your\\_own\\_risk](http://www.logisticsmgmt.com/article/underestimate_regional_small_package_providers_at_your_own_risk).

113 Scott Langley, Intelligent Audit, "Strategies for Success - Creating and Managing an Efficient Final Mile Network," (discussion session at Parcel Forum 2015, Chicago IL, October 20, 2015).

114 Karen D'Andrea, "Why Amazon May Be Onto Something with Its New Regional Delivery Plan."

115 Brooke Sutherland, "Amazon-FedEx: crazy or worth considering?," *Bloomberg*, February 16, 2016, <http://www.bloomberg.com/gadfly/articles/2016-02-16/amazon-fedex-merger-scenario-running-the-numbers>.

## Concluding Observations

The many recent developments in the logistics industry will have profound implications for the future of the Postal Service. Massive growth in ecommerce has led to new entrants in the delivery and logistics market from crowdsourced deliverers and regional carriers, as well as the development of new business models and strategies from existing players. This growth comes with tremendous uncertainty, which presents both risks and opportunities to the Postal Service.

In the current package delivery environment, the Postal Service is a leader in last-mile delivery.<sup>116</sup> Part of the reason for the Postal Service's success in this area is because it visits nearly every address 6 days per week. Therefore, the Postal Service enjoys significant economies of scale and scope. No competitor can currently deliver small, low-revenue packages as cost-effectively as the Postal Service can. Millions of individuals and businesses rely on the Postal Service for such deliveries.

However, the major trends in the logistics industry we discuss above point to a future with intense competition in last-mile delivery. For example, many new entrants focus on local delivery in densely populated urban areas and could provide large shippers with alternatives to traditional delivery operators. Moreover, current large customers like Amazon are expanding their own delivery fleets, including cargo, long-haul, and last-mile delivery.

Perhaps a rising tide will lift all boats, and the Postal Service will continue to play its critical role in the industry as the only truly nationwide provider of low-cost last-mile delivery. But if these trends continue and the Postal Service does face increased last-mile competition, it calls into question what might be the best approach for the Postal Service to follow. One approach could be for the Postal Service to continue on its current path, primarily strengthening its last mile and making incremental improvements. However, doing so may be a necessary but insufficient strategy to deal with the massive anticipated increase in ecommerce package volumes and increased competition.

Another approach could involve accepting the possibility that the Postal Service may not be able to depend on economies of scale and scope in dense urban areas in the future. Those areas may end up being served most often by today's emerging competitors while the Postal Service could find itself as a package delivery provider primarily in less dense, more expensive locations. In such a scenario where delivery becomes a commodity, the market will demand providers who offer much more than just reliable last-mile delivery. However, the Postal Service could still take critical steps to add value in the face of increased competition.

To the extent possible under its existing legal authority, the Postal Service could explore options for diversifying its offerings in logistics services.<sup>117</sup> For example, the excess space available in many postal facilities across the country could be rented out to logistic companies as warehouse space.<sup>118</sup> Further, the Postal Service could look into partnering with innovative but asset-light new entrants that might need services like first-mile pickup and intercity delivery to make up for gaps in their own resources, networks, and competencies. While full end-to-end logistics services might currently be beyond the Postal Service's legal authority, other posts and delivery companies around the world have demonstrated they have the inherent skills and that offering targeted, value-added logistics services can be a significant opportunity for growth in this era of declining mail volumes.

---

116 By some estimates, the Postal Service provides final delivery for as many as two-thirds of the small packages delivered in the United States, including those from competitors like UPS, FedEx, and Amazon. For more details, please read OIG, *Package Services: Get Ready, Set, Grow!*, Report No. RARC-WP-14-012, July 21, 2014, [https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-wp-14-012\\_0.pdf](https://www.uspsaig.gov/sites/default/files/document-library-files/2015/rarc-wp-14-012_0.pdf).

117 The Postal Accountability and Enhancement Act of 2006 (PAEA) prohibits the Postal Service from offering new non-postal services, which could limit its ability to offer new logistics services. The Postal Service can only provide non-postal services (including products) that it offered as of January 1, 2006. See 39 U.S.C. § 404(e)(1-3). The law defines "postal services" as "the delivery of letters, printed matter, or mailable packages, including acceptance, collection, sorting, transportation, or other functions ancillary thereto." A postal "product" is defined as "a postal service with a distinct cost or market characteristic for which a rate or rates are, or may reasonably be, applied." See 39 U.S.C. § 102(5), (6).

118 For more information about excess space in postal facilities, please read OIG, *Nationwide Facility Optimization Audit Report*, Report No. DA-AR-11-009, August 26, 2011, <https://www.uspsaig.gov/sites/default/files/document-library-files/2015/DA-AR-11-009.pdf>.



There is no doubt that things are changing very quickly and the future logistics landscape will be very different from today. However, it is still unknown what role the Postal Service will play. It is up to the Postal Service and its stakeholders to stay ahead of the trends in this growing and quickly evolving industry and to ensure that it can continue to serve the needs of citizens and businesses by providing appropriate logistics services including low-cost last-mile delivery across the nation.

## Appendix A: Management's Comments

KEVIN L. McADAMS  
VICE PRESIDENT, DELIVERY OPERATIONS



August 10, 2016

RENEE SHEEHY  
DIRECTOR, RARC CENTRAL

SUBJECT: Final Review Draft – The Future Logistics Landscape and the  
U.S. Postal Service

The United States Postal Service has reviewed the Evolving Logistics Landscape draft and agrees that the logistics industry is becoming very competitive. We appreciate the research that was done and the clear observations expressed. As the report outlines, the Postal Service presently is a leader in last mile delivery because it visits nearly every delivery address six days a week. It goes on to state that the Postal Service could take critical steps to add value in the face of increased competition.

The Postal Service will continue to explore avenues to enhance our brand and serve our customers in the most efficient manner. The Postal Service will continue to invest in technology to continue to transform our customer's package delivery experience. There have been several enhancements added to the Mobile Delivery Device so customers are aware where and what time their packages are delivered. Increased visibility is critical to a successful customer experience.

The Postal Service has also introduced the Expected Delivery Window (ExDW). ExDW is part of the USPS long term strategy to be a leader in the package delivery market. ExDW provides a digital notification to a customer as to when a package will be delivered. These notifications enhance the use and capabilities on my.usps.com.

Voice enabled turn by turn directions has been added to dynamic routing at many delivery units that allow carriers to deliver packages more safely and efficiently than before.

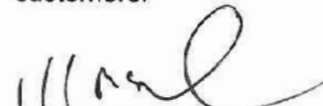
The next generation mail box is available and allows more security for customer's packages as more packages can be left in the mailbox.

475 L'ENFANT PLAZA SW  
WASHINGTON, DC 20250-1600  
202-268-6500  
FAX 202-268-3331  
WWW.USPS.COM

The Postal Service has partnered with several grocery companies to deliver groceries and is currently working with several more to pilot projects to deliver groceries.

The report also states that the Postal Service could look into partnering with innovative but asset-light entrants like first mile pick-up. The Postal Service is currently working with over 30 ship from store sites in over 15,000 locations to optimize the customer experience.

Delivery Operations looks forward to continuing an effective partnership with our delivery partners as we work collectively to provide excellent service to our customers.



Kevin L. McAdams

cc: CARM





Contact us via our [Hotline](#) and [FOIA](#) forms.  
Follow us on social networks.  
Stay informed.

For media inquiries, contact Agapi Doulaveris  
Telephone: 703-248-2286  
[adoulaveris@uspsoig.gov](mailto:adoulaveris@uspsoig.gov)