Industry Trends — Major Investments in Postal Processing Networks

RISC REPORT

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Executive Summary

Under its Delivering for America plan announced in March 2021, the Postal Service is modernizing its network to increase capacity and streamline processing and delivery. It will be making the largest investment in its processing network since the Postal Service was established, spending an estimated $20 billion over ten years. The Postal Service, however, faces an increasingly challenging environment for making long-term strategic investments in its processing infrastructure.

Slowing economic growth, record levels of inflation, and labor shortages are affecting the logistics industry, making it more difficult for postal operators to predict and adjust to declining mail and increasing package volumes. Additionally, supply chain transformations are increasing competition by shifting package processing and delivery closer to consumers, creating new business models that do not rely on the infrastructure of established or incumbent operators.

To highlight best practices, the Office of the Inspector General (OIG) examined how the Postal Service and other postal and logistics operators, both domestic and international, manage major investments in processing operations. The OIG conducted market research and completed interviews with international and domestic postal and logistics operators as well as internal and external Postal Service stakeholders to identify industry trends and lessons learned that could inform the Postal Service's investment practices.

The OIG identified best practices in three categories: people, process, and technology, which support growth and increased efficiency throughout the investment process. First, operators frequently reported how people are the most important success factor for their businesses. Their best people-focused practices include using internal cross-functional teams and engaging with both internal and external stakeholders — such as unions, customers, partners, and government entities — throughout the investment phases. Operators also offered several best practices that improved their internal processes for planning, implementing, and evaluating investments. These include analyzing market trends and competitor strategies, using data to adapt to changes in volume and capacity, and real-time monitoring of investment performance. Finally, the role of technology was identified as key to managing major investments successfully. Best practices include implementing innovative network designs, standardizing facility designs, adopting flexible technology, and promoting environmentally sustainable technology.

Gaining insight into operators' best practices may help the Postal Service further refine the planning, implementation, and evaluation of major long-term investments in its processing network. Learning from the challenges and successes of other postal operators and domestic competitors can help ensure the Postal Service remains efficient and competitive as it is making transformative investments across its processing network.

Observations

Introduction

The processing network is central to the role of the Postal Service. It is made up of the interconnected facilities and equipment necessary to sort and distribute mail and packages for delivery across the United States and its territories. In its 2021 *Delivering for America* plan, the Postal Service announced it planned to make the largest investment ever in its processing infrastructure. Over the next ten years, the agency intends to invest $20 billion in building network capacity and improving processing efficiency to ensure the Postal Service is both competitive and meeting its universal service obligation.[1] These long-term strategic investments, however, are happening in a period of market uncertainty and increased competition. As a result, managing major long-term investments in processing operations poses a substantial challenge.

To better understand the best practices for managing major investments, the U.S. Postal Service Office of Inspector General (OIG) examined how the Postal Service and other postal and logistics operators, both domestic and international, manage major investments in processing operations. Specifically, we examined how these operators plan, implement, and evaluate transformative investments in their processing network. We also identified industry trends and lessons learned. To determine best practices, the OIG conducted market research and interviewed stakeholders including Postal Service leadership; postal and logistics operators; postal labor, trade, and regulatory organizations; and subject matter experts. We also conducted a comparative analysis of interview responses and documentation of investment practices to gain perspective on the strengths and weaknesses of current approaches to investing in processing networks. See Appendix A for more details on the project's objective, scope, and methodology.

A Challenging Environment for Strategic Investment

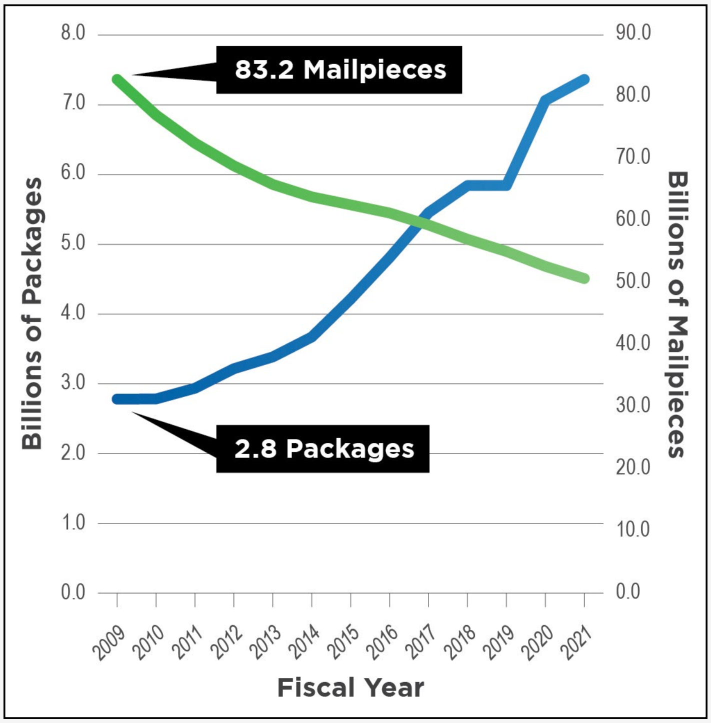
The postal and logistics industry is facing a challenging environment for major long-term investments in processing operations. Global package volumes surged during the ecommerce boom at the start of the COVID-19 pandemic in 2020 and 2021. Volumes then declined in 2022. As of early 2023, volumes have stabilized and are generally projected to increase.[2] At the same time, slowing economic growth, record levels of inflation, and labor shortages have affected the global economy. Within this background of market uncertainty, postal operators are adjusting to declining mail and increasing package volumes as well as supply chain transformations that are increasing competition and driving business away from the processing infrastructure of incumbent operators.

Adjusting to a Changing Volume Mix

In the United States over the last decade, package volumes have generally increased while First-Class Mail volume has declined. Between fiscal years (FYs) 2009 and 2021, Postal Service package volume increased by more than 160 percent, from 2.8 billion to 7.4 billion packages (see Figure 1). Over the same period, First-Class Mail shrank nearly 39 percent, from 83.2 billion to 50.9 billion mailpieces annually.[3] Due to the scale of the Postal Service's operational network, adapting to a changing mail mix poses a challenge. As of FY 2021, the USPS maintained about 11,000 pieces of mail processing equipment across postal facilities nationally.[4]

1 U.S. Postal Service, *Delivering for America: Our Vision and Ten-Year Plan to Achieve Financial Sustainability and Service Excellence*, https://about.usps.com/what/strategic-plans/delivering-for-america/assets/USPS_Delivering-For-America.pdf, pp.48-49.
2 According to EMarketer in 2022, global ecommerce sales are projected to increase to $8.1 trillion, up from a projected $6.3 trillion in 2023.
3 U.S. Postal Service Office of Inspector General, *Changes in Mail Mix: Implications for Carriers' Physical Health*, Report No. RISC-WP-22-009, September 26, 2022, https://www.uspsoig.gov/sites/default/files/reports/2023-01/RISC-WP-22-009.pdf, pp.4-5.
4 U.S. Postal Service Office of Inspector General, *Improving Operational Efficiency Using Informed Visibility,* Report No. RISC-WP-21-009, September 17, 2021, https://www.uspsoig.gov/sites/default/files/reports/2023-01/RISC-WP-21-009.pdf, p.4.

Figure 1: Rising Package Volumes and Decreasing Mail Volumes, FYs 2009–2021



Source: OIG analysis of USPS Revenue, Pieces, and Weight (RPW) data.

All postal operators interviewed have faced the challenge of declining mail volume and increasing package volumes. They must maintain mail processing efficiency as part of their government-mandated service obligations, in which they are legally required to provide a minimum level of service for all users of their postal network, while adjusting operations to a growing share of parcels in their volume mix. Postal operators with a separate commercial parcel division, such as La Poste, Deutsche Post, and PostNL, face challenges in working across operational networks to limit inefficiencies when adjusting to declining mail and increasing package volumes. Meanwhile, commercial carriers and other logistics players with no such requirements are at an advantage.

The postal operators interviewed are at various stages of responding to declining mail revenue by investing in processing capacity to grow their package business and better cover the cost of their delivery network. For many operators, this shift became especially apparent during the COVID-19 peak season of 2021. A surge in package volume overloaded operations, highlighting a crucial need for building package processing capacity and phasing out some mail processing equipment.

Investing in package processing capacity poses several additional challenges to postal operators. Package volume unpredictability and higher unit costs involved in package processing have made it much harder to make decisions about large investments that could still be useful decades into the future. As the president of the Association for Postal Commerce told the OIG, package volumes have a higher degree of seasonality, a larger processing footprint that might not be used to full capacity during parts of the year, and are operationally more complex, requiring adaptability for variations in package size and weight. A subject matter expert at IBM also highlighted how the shift to packages has made volume-based pricing more complicated. Volumes are less predictable and service expectations, such as visibility through tracking, are higher for packages, creating a greater marginal cost per unit.

Supply Chain Transformations

Supply chain transformations are affecting the postal and logistics industry. Business and operational models are changing to distribute package volumes closer to consumers. Globally, this is taking place through practices like offshoring, in which items ordered internationally may be fulfilled domestically or from regionally located warehouses.[5] Domestically, large online and brick-and-mortar merchants are increasingly investing in the infrastructure needed to handle their own fulfillment, enabling faster delivery models outside of the networks of the Postal Service and other traditional operators.

The pandemic accelerated the local processing and fulfillment of packages. As efforts to limit the spread of COVID-19 severely reduced foot traffic, retailers invested in innovative storefront fulfillment capabilities, driving volume away from the traditional network distribution of postal and logistics operators. The increased profitability of same day and next day

5 U.S. Postal Service Office of Inspector General, *The International Package Market - Trends and Opportunities for the Postal Service*, Report No. RISC-WP-23-006, May 15, 2023, https://www.uspsoig.gov/sites/default/files/reports/2023-05/risc-wp-23-006.pdf.

delivery models has also favored the proliferation of start-ups and other nimble, small operators responding to an emerging need for local fulfillment and delivery. As a result, operators with network distribution models that cannot move packages to consumers as quickly as emerging alternative networks risk losing market share in their most profitable markets.

These supply chain transformations are not limited to the package market. The OIG interviewed a commercial printing company that is using its internal network of distribution facilities and alternative delivery networks to process and deliver flats, such as periodicals and marketing mail. The flats are bound together in a paper or polywrap package and delivered to customers' doorsteps.[6] This transformation indicates that even the mail market could face more competition, requiring postal operators to plan and implement investments more nimbly.

Investment Trends in Network Processing

The logistics industry experienced a surge in package volumes in 2021. This rapid increase resulted in record levels of investment in processing networks (see Figure 2). However, since 2022, operators have had to adjust to a slowing of the global market, high inflation, higher energy costs and fluctuations in package volumes. As a result, international posts, domestic operators, and the Postal Service are taking strategic approaches to planning and implementing transformative investments in processing networks.

Shift in Investment Strategy

Most of the international posts and domestic operators interviewed were, at least to some degree, slowing down existing and planned investments in processing operations in FY 2022. All operators stressed the need to reevaluate, shorten, and adjust investments to better respond to volume fluctuations.

Australia Post, La Poste, PostNL, UPS, and FedEx all cited a push towards automation and data processing that is not confined to processing operations. Australia Post is focused on the last mile, and UPS is investing in secondary market acquisitions — such as transportation management companies and alternative local delivery services.

Canada Post and Deutsche Post are focused on building capacity. However, inflation and material pricing increases have limited the impact of planned investments. The capital needed to build smaller facilities considerably exceeds the cost of much larger facilities completed a few years ago, resulting in adjustments to planned investments and an overall slowing of capacity building.

Figure 2: Examples of Major Investments by International Posts in Processing Facilities Opening in 2022-2024

Source: USPS OIG and operators' websites.

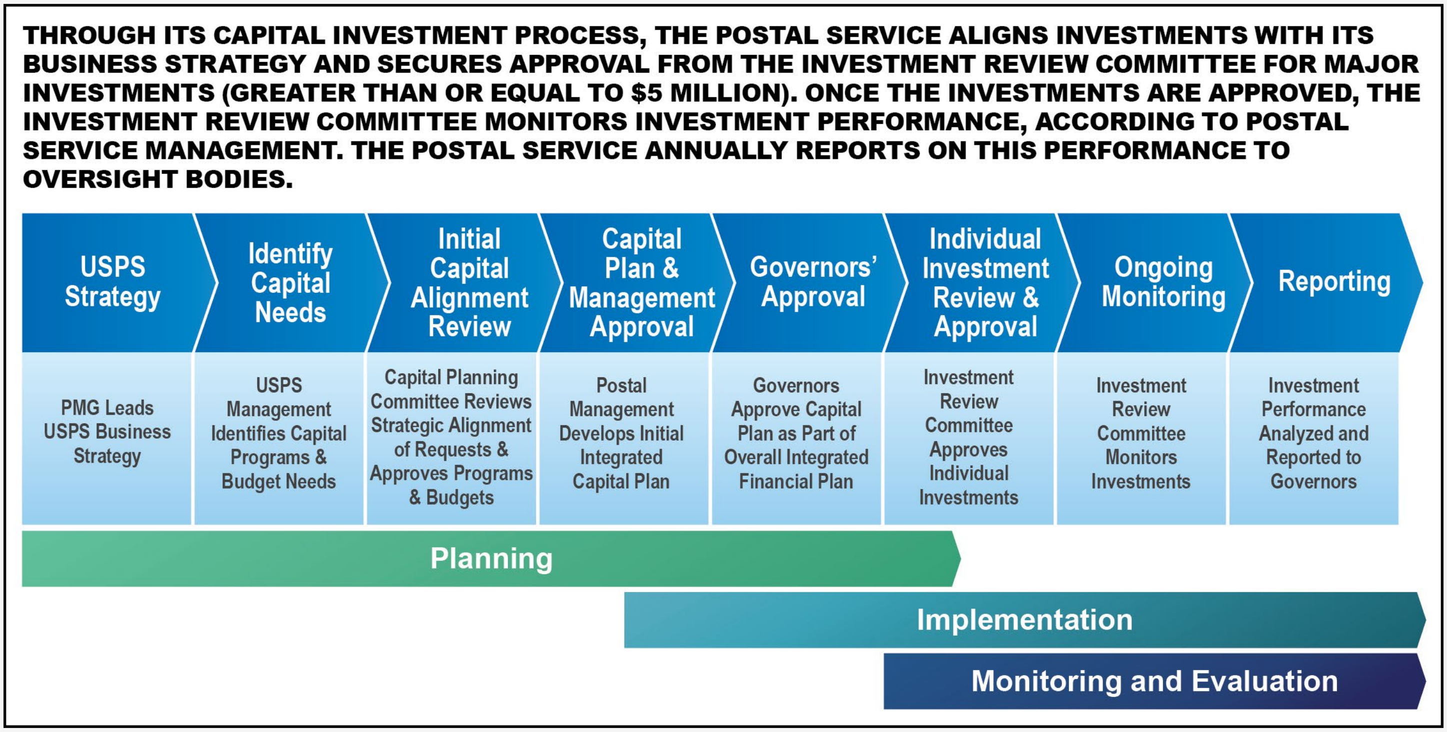
6 Polywrap is a low-density polythene film, a common plastic wrapper for flats like magazines.

A Growth-focused Postal Service

As industry stakeholders highlighted, the Postal Service has, since 2021, moved from a scarcity mindset centered on reducing costs to a growth mindset focused on making transformative investments. The Postal Service's Delivering for America plan focuses on a ten-year outlook. Internal investments, however, are made throughout each fiscal year on a project-by-project basis, approved as a component of each fiscal year's integrated financial plan, per the capital investment process (see Figure 3).[7] Traditionally, USPS Finance & Strategy collected project proposals from all units, and those proposals were funded based on available funds and immediate need. Following the introduction of its ten-year strategic plan, the Postal Service has revised its internal investment process to be more centralized and aligned with strategy.

In FY 2022, the Postal Service implemented an executive level Capital Planning Committee (CPC), adding an additional level of review to ensure all projects are aligned with the strategic objectives of the capital plan.[8] According to Postal Service management, this has enhanced execution and resulted in a "much more active management of the investment portfolio itself."[9] The Postal Service told the OIG that even small investments are reviewed for alignment with strategic objectives. Major investments — capital expenditures of $5 million in value or greater — go through a specific process of planning, implementation, and monitoring and evaluation (see Appendix B).

Figure 3: Overview of Capital Investment Process



Source: OIG and Postal Service

7 The integrated financial plan is a Postal Service report that includes the operating plan, capital plan, and debt liquidity and financing plan for the fiscal year.

8 The capital plan specifies commitments for capital expenditures the Postal Service expects to make over several years. Capital commitments in the 2022 capital plan include $1.1 billion for facilities, $1.4 billion for processing equipment, $4.7 billion for vehicles, and $0.9 billion for information technology, postal support equipment, and other commitments.

9 According to the Postal Service, all investments go through the same CPC process. To begin the process, USPS Finance requests submissions for the next fiscal year budget, and then program sponsors present proposed projects and estimated financials to the CPC. The CPC then evaluates the strategic alignment of the proposed project and may give feedback on scope costs and timeline as they relate to strategy and other strategic initiatives. If the CPC concurs it is added to the capital plan that is included in the integrated financial plan that the Board of Governors evaluates and approves. For projects deemed important, the CPC will continue to monitor their development as it relates to strategy and provide feedback. Large projects will additionally and separately move through the Investment Review Committee process to ensure cross-functional alignment and discovery of any additional costs or risks, and complete validation of business case.

As of Quarter 1 FY 2023, the Postal Service said it was pursuing "three towers of network changes" to increase efficiency and expand package processing capacity. These three areas are as follows:

- Sorting & Delivery Centers (S&DCs), consolidating thousands of delivery units into hundreds of large S&DCs, which will allow for more automated sortation equipment and the adoption of electric vehicles.
- Regional Processing Distribution Centers (RPDCs), modernizing the processing network by consolidating existing originating and parcel processing operations into around 64 facilities that serve as hubs for all long-haul ground transportation.[10]
- Local Processing Centers (LPCs), establishing about 194 facilities for processing destinating letters and flats and moving mail between RPDCs and S&DCs.[11]

To realize these changes, the Postal Service is making major investments in two main areas:

- Modernizing the existing facilities that will continue to play a pivotal role in the redesigned network.
- Expanding operations through acquiring new facilities and equipment.

The Postal Service has already modernized some processing facilities, but its plans for other sites remain in flux. The agency is gradually adapting its plans in response to discussions with stakeholders, economic and volume indicators, and lessons from piloting equipment and processes at individual facilities before "scaling up" nationally.

Within the last five years, existing facilities have been upgraded, while the Postal Service built new facilities in Nashville, Portland, and Milwaukee. Upgraded facilities in Atlanta, Charlotte, and Indianapolis, as well as a new Annex in Memphis were planned as of late 2022. To further expand operations, the Postal Service has also deployed 125 package sorting machines and added temporary processing space to 58 locations. The agency is strategically focused on modernizing its network to improve operational efficiency, service quality, and its overall offerings for commercial package fulfilment.

Industry Best Practices

Best practices go beyond everyday actions to play a key role in the successful planning, implementation, and evaluation of investments in processing operations. The OIG compiled insights from international postal and domestic logistics operators, subject matter experts, Postal Service leadership, and postal labor, trade, and regulatory organizations. These best practices are organized across three interconnected categories: people, process, and technology (see Figure 4).

Figure 4: Industry Best Practices for Investing in Processing Operations

Source: USPS OIG

People

The operators interviewed by the OIG all highlighted the critical role people play in investing in processing operations. The concept of "people" extends further than those directly working at a facility, operating sorting equipment, or planning investments in the

10 The RPDCs will consolidate processing and distribution operations in existing postal facilities such as Network Distribution Centers, Processing & Distribution Centers, and Surface Transfer Centers. Some RPDCs will have an S&DC located within them.

11 One or more LPCs will support each RPDC. In addition, LPCs will run mail to S&DCs, and about half of all LPCs will have S&DCs located in them.

head office. It includes the customers affected by changes to the network. In some cases, the smallest network change can drastically alter their cost of doing business. In addition, this concept encompasses union representatives as well as local and national government officials that may be involved in facilitating the permits and infrastructure needed for a new build or a renovated facility.

People, whether internal or external to a particular organization, are the most critical and flexible resource in the industry. Workforce talent, agility, and external engagement are central to daily operations and crucial to the success of any long-term, transformative investment in processing operations. Using cross-functional teams to align operations and engaging internal and external stakeholders were identified as best practices that optimize the role of people in the investment process.

Using Cross-functional Teams to Align Operations

As a best practice, individuals should be engaged in some aspect of the decision-making process if they have a vested interest in the outcome of an investment made by an operator. Using cross-functional teams — groups that include the different organizational components involved in the investment — helps bridge divisions early in the investment process. Cross-functional teams help inform the planning, implementation, and evaluation of an investment, potentially reducing implementation risks, costs, and slowdowns.

> “Anyone with an oar in the water should be involved. If they’ve got a vested interest in the decision, they should be part of the process.”
>
> Subject Matter Expert, Center for Supply Chain Excellence at Niagara University

All operators that the OIG interviewed use a cross-functional steering committee in which key internal stakeholders work together to anticipate the needs and challenges of proposed investments at the start of the planning process. Some operators cited the use of experts outside of the postal and logistics industry as a key to the success of their cross-functional teams. For example, La Poste incorporates insights from a real estate subsidiary in its planning process to ensure a combination of different expertise, from real estate to technical. This helps the operator anticipate risks and identify cost reduction and efficiency opportunities.

Engaging Internal Stakeholders

Successful cross-functional coordination requires engaging and empowering internal stakeholders. Internal stakeholder engagement provides critical insights useful through all the phases of the investment process.

Engaging internal technical experts located in the field or at the middle management level can provide insights into the feasibility of planned investments. Emphasizing a “bottom-up” approach to internal engagement also allows workers and managers to self-initiate the evaluation of investments. Communicating with labor unions throughout the investment process can also alleviate staffing, health, and safety concerns that, for some operators, previously stalled the implementation of investments in new facilities. According to a leader in the robotics industry, including union representatives in discussions throughout the investment process prioritizes creating more meaningful positions, addressing concerns about potential job replacement due to investments in automation and digitization.

Engaging External Stakeholders

A focus on people goes beyond cross-functional teams and internal engagement to include customers, the public, partners, and government entities. For many operators, involving and consulting customers is an essential step when planning investments. Alongside volume expectations, engaging external stakeholders was cited by a postal operator as the most important ingredient for its infrastructure level design.

For the operators interviewed, external stakeholder engagement takes the form of communicating strategic decisions to the public and establishing partnerships with shippers and mailers. This communication is central to creating excitement and instilling confidence in a planned investment, aligning network capacity to market expectations, and even obtaining the relevant permits and community support for new developments. According to a subject matter expert from the Center for Supply Chain Excellence at Niagara University, an operator is missing an opportunity when it does not create excitement when making a major investment. Additionally, studying the impact of strategic investments on external stakeholders promotes business, fosters partnership, and allows postal operators to better fulfill service obligations.

Process

Successfully leveraging insights, coordinating people, and engaging internal and external stakeholders involves effective processes. Investing in an optimal processing network requires a data foundation and data maturity that allows an operator to understand how to plan and where to invest. Data-driven processes can give a company a competitive advantage, driving all other aspects of investments.

The OIG compiled three best practices related to improving process: analyzing industry trends and competitor strategies, using data to adapt to changes in volume and capacity, and monitoring investment performance in real time.

Analyzing Industry Trends and Competitor Strategies

Analyzing industry trends involves much more than adapting operations to volume and revenue expectations. It entails an understanding of the wider marketplace and how customer demand will evolve. Additionally, it involves staying current on competitor strategies and emerging technologies that might give an operator a competitive edge. Rather than "reinventing the wheel," staying current on the strategies of major competitors provides insight into when and where an operator may invest in the processing network. Responding to industry trends and competitor strategies also involves building agility into the investment process. It may entail making major investments in phases, allowing an operator to adjust investments to the most current analysis of market changes, especially in the ecommerce market.

Postal and logistics operators also noted a critical part of the success of major investments in processing networks includes contracting with supply management consultants throughout the investment process. Mobilizing an expert that understands both processing operations and current and future market trends helps operators get up to speed on cutting-edge practices. In turn, the operator can spend less time gathering data and more on deliberating or acting quickly.

Using Data to Adapt to Changes in Volume and Capacity

Using data to understand fluctuations in volume that may stem from market changes is a critical component of making better operational decisions. When operators analyze trends and apply the insights they gain, they can more readily model and adapt to changes in volume and capacity. This involves incrementally building capacity over time, adjusting to changes in package volume entering the network.

> "[A digital twin] does not replace a test in real life, but it can provide tests before moving to a physical system."
> — SOLYSTIC

Postal operators and subject matter experts stressed the importance of using pilots to evaluate and select new technologies and operating models before scaling them up. Piloting can take place once equipment arrives at the operator's facility or even earlier, at the manufacturer's facility. Deploying prototypes of equipment with new functions in a testing factory before installation is also beneficial. This allows operators to examine the equipment performance tests and make required adjustments before scheduled implementation. SOLYSTIC, an equipment manufacturer, also cited the importance of gaining insight using a digital twin, a computer-generated simulation of how the equipment will function.[12]

Real-time Monitoring of Investment Performance

Investing large sums over a long period of time involves inherent risk. To mitigate risk, monitoring

12 Integrators find software and hardware solutions and manage their integration into the network of a logistics operator. They may be an equipment manufacturer or software developer or use sub-contractors to implement a final solution.

investment performance in real time is a best practice.

Real-time monitoring uses key performance indicators and standardized benchmarks to evaluate milestone progression throughout the planning, implementation, and evaluation of investments. It includes continuous performance testing of equipment and software systems. This testing helps operators avoid surprises in the return on an investment and holds equipment suppliers accountable to demonstrating the projected performance during implementation.

Technology

Building upon a focus on people and process, technology plays a critical role in modernizing and streamlining any processing network. Breakthroughs in automated and robotic equipment have enabled new efficiencies, and new market entrants have innovated approaches to network design and highlighted a need for investing in modern processing technology. Best practices for adopting modern technology include implementing innovative network designs, standardizing facility designs, adopting flexible technology, and promoting environmental sustainability.

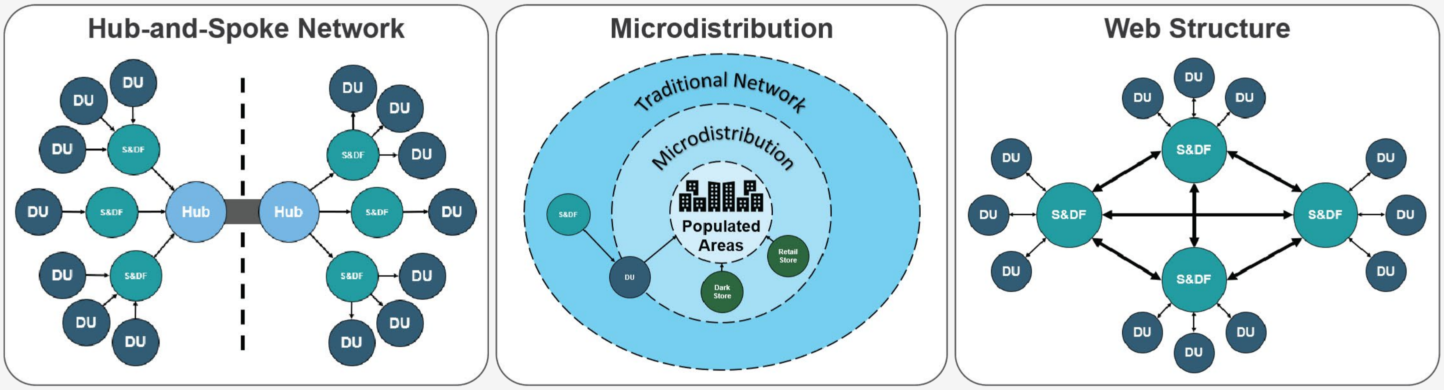
Implementing Innovative Network Designs

Technology can support innovative approaches to network level design. Postal and logistics operators have typically set up their processing networks to follow a hub and spoke model. Under this model, small processing facilities take in packages and feed them into larger regional processing facilities that serve as hubs, which redirect packages back to small processing facilities close to the end delivery points. Several operators are pursuing less traditional models, either as an alternative or in addition to hub-and-spoke, such as micro-distribution and a web structure (see Figure 5).

> "We've seen our local market erode as smaller companies come in and really just cherry pick the dense urban areas."
> — Postal Operator

Many newer operators prefer microdistribution, which involves smaller facilities and automated microfulfillment equipment located near or within dense population centers. Rather than sending a package out to a hub facility, processing and delivery is done locally, potentially maximizing speed and profitability in some of the most lucrative segments of the market. Incumbent operators have seen their local market erode as smaller companies have catered themselves toward micro distribution and fulfillment within dense urban areas. As a result, some operators are developing micro-distribution points that sort to the last mile, or deliver, directly.

Figure 5: Examples of Processing Network Models



Note: Sorting & Distribution Facility (S&DF) and Delivery Unit (DU) are common facility types in processing networks. A dark store is a facility in a retail space that solely prepares and distributes products for online customers.
Source: USPS OIG

In contrast, other operators are consolidating depots into a smaller number of larger depots. This consolidation will save on fuel prices and transport costs. PostNL went yet a third way: from a hub-and-spoke model to a web structure. Over a decade ago, this operator overhauled its network to pursue a model of effectively identical sorting and distribution facilities. This approach allowed it to deploy technology and scale capacity faster and meet the needs of a dense population more effectively. At the same time, a web structure controlling operations is more complex compared to a hub-and-spoke network.

> "Any changes we make to a node or a piece of equipment has a ripple effect on the entire network."
>
> Postal Service Management

Standardizing Facility Design

As operators innovate the overall design of the network, many are also improving upon individual facilities in tandem. Specifically, all operators interviewed emphasized the importance of standard facility design. This may include "McDonaldizing" by predominantly using one equipment supplier and designing facilities with a consistent layout using a "cookie cutter approach." Standardizing facility layouts across the network offers greater efficiency in training and maintenance. It allows operators to set comparable performance baselines for technology used across facilities.

The benefits of using a high degree of facility standardization include:

- Increasing the speed at which facilities are built or expanded.
- Simplifying engagement with contractors on the procurement side.
- Streamlining employee training.
- Leveraging economies of scale through procuring parts for all facilities in advance.

However, ensuring flexibility has posed a problem for standardization. In recent years, volume fluctuations have shifted focus to investing in new technology that will add agility and flexibility to existing standardized networks. Complications with securing real estate and suppliers have also contributed to new facilities being less standardized in terms of layout and design than those completed in the past. For example, Deutsche Post stressed recent efforts to make different standards across small, medium, and large parcels to optimize the required amount of flexibility

Adopting Flexible Technology

Investing in flexible technology is key to enabling operators to adjust physical operations to changing volume requirements. Examples of flexible technology include adopting an open technological infrastructure as well as investing in automated sortation equipment and industrial robots that can be scalable and adapted to facilities across the network.[13] This flexibility enables operators to shift capacity as needed, responding to needs related to geography, market shifts, and changes in network strategy.

Adopting an open technological infrastructure for sorting capacity enables future software updates and equipment upgrades necessary to adapt to evolving operational needs. For some operators, a greater increase of capital is invested in software infrastructure than on the floor. Operators should also focus on operational flexibility at the beginning of the network investment process. Insights from data can then enable operators to identify when and how to shift the capacity in their network. For example, one postal operator determined it lacked sufficient capacity for processing package volumes. It initially considered a major 15-year investment in a new facility. Due to concerns about flexibility, however, the operator opted to invest in flexible technology instead. Using a combination of flexible technology and leased buildings, the operator felt

13 In contrast with closed infrastructure that relies on a single vendor or proprietary technology, open technological infrastructure involves procuring technologies or solutions from multiple vendors that the operator can integrate with each other. Open infrastructure enables operators to continue adding solutions from other vendors without relying on the existing ones to provide the necessary solution.

they were better able to shift capacity elsewhere in the network as needed. Both UPS and FedEx are investing in automation that can be deployed at smaller sites in areas where they may be moving processing and distribution closer to consumers.

> "In the boardroom, we will decide more and more on open systems, because we don't know what the technology will be in three to five years."
>
> Equipment Manufacturer

Promoting Environmentally Sustainable Technology

The logistics industry is one of the largest producers of carbon emissions. Changing public expectations will continue leading policymakers to adopt laws and regulations calling for more sustainable operations. All operators identified promoting environmentally sustainable technology as a best practice.

Within processing operations, environmentally sustainable technology predominantly involves investing in more energy-efficient processing equipment and seeking out alternative energy sources. As the need to reduce equipment power consumption becomes a priority for operators, equipment manufacturers, like SOLYSTIC, are innovating their products with new features, such as lower energy consumption motors and sleep mode options to save on energy while machines are on standby. Additionally, operators are investing in alternative energy sources, such as solar and wind power. For example, Deutsche Post is pledging to make facilities carbon neutral by relying on heating and solar energy generated at the operator's facilities. Focused on reducing and producing energy within processing operations, many operators have pledged a carbon neutral or net-zero carbon emissions. The board of directors for DHL, for example, requested that the operator be on the leading edge in terms of sustainability. Canada Post has also made carbon neutral or net-zero carbon emissions a requirement for planning new facilities.

Postal Service Practices

The Postal Service is strategically focused on modernizing its network to improve operational efficiency, service quality, and enhance its overall package offerings for commercial shippers. In managing these critical investments, the agency shares many similarities with the best practices identified by international postal and domestic logistics operators across the categories of people, process, and technology.

For the role of people in the investment process, the Postal Service uses cross-functional teams during the planning and implementation phases. For example, the Capital Planning Committee, composed of USPS leadership, is tasked with ensuring investment needs proposed by individual internal units align with strategic and operational objectives. Through the Investment Review Committee, USPS leadership also considers investments' downstream effects on other business units and service performance. According to Postal Service management, "a new level of engagement" is taking place throughout the agency, strengthening and standardizing previously siloed and fragmented communications between headquarters and the field. For example, the Postal Service is engaging internal stakeholders by regularly holding stand-up talks to provide updates on network changes for employees.

Postal Service management also said the agency has enhanced its engagement with external stakeholders through greater proactivity and consistency. In addition to leveraging existing outlets for external engagement such as the Mailers' Technical Advisory Committee, Postal Customer Councils, the National Postal Forum, trade shows, and direct engagement with industry associations like the Package Shippers Association, the Postal Service meets with labor union leadership to get their input on the agency's strategic vision and how network changes should be rolled out.[14]

However, subject matter experts and stakeholders representing customers in both the mail and package markets told the OIG that there are opportunities to engage internal and external

14 The agency also responds to congressional inquiries and engages with other federal agencies, such as the USPS OIG, Postal Regulatory Commission, and other oversight bodies.

stakeholders more frequently and comprehensively throughout the investment process. More readily communicating a comprehensive vision of planned investments and their impact on affected employees, customers, and communities may further enhance stakeholder confidence in planned investments.

In terms of practices related to improving its investment management processes, the Postal Service analyzes industry trends and commissions external studies to gather expert knowledge and gain deeper understanding of competitors strategies, customer needs, and network design strategies to inform its operational decisions. Consultants have been commissioned across the processing network, from implementing investments in specific facilities to the broader efforts in network modernization. For example, expertise from a supply chain transformation consultancy was mobilized in the creation of the Postal Service's network modernization plan under *Delivering for America.*

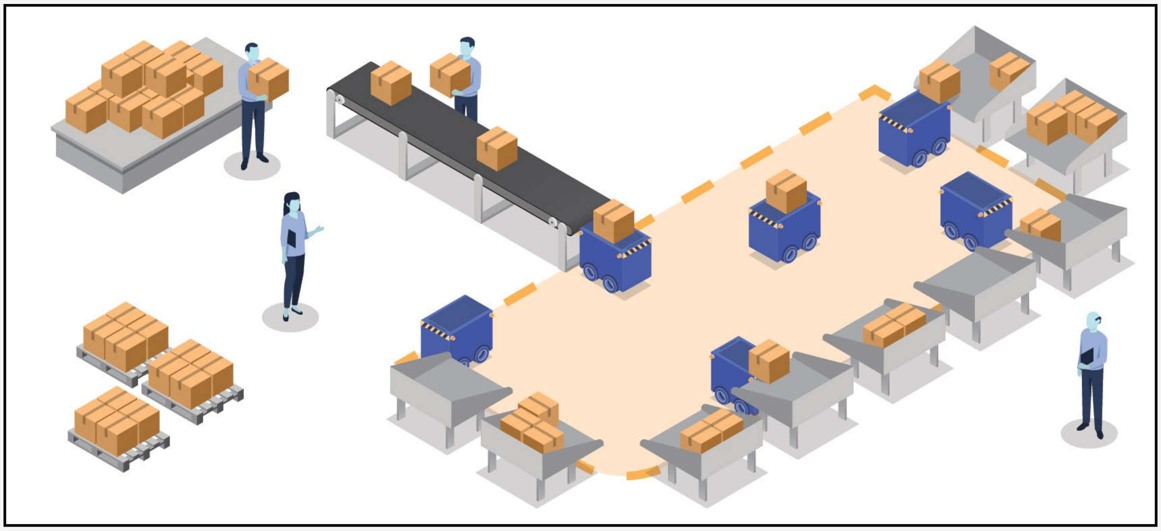
The Postal Service also uses data models and pilot programs before making or scaling major investments in its processing network. USPS Finance & Strategy cited taking a gradual approach in the deployment of Automated Guided Vehicles (AGVs) to move mail and packages in its processing facilities.[15]

Furthermore, the agency has advanced its efforts to monitor high-level project implementation, including some measures of investment performance, in near-real time and on modern technological platforms.[16] This monitoring provides an evaluative overview of strategic objectives and investment progression, which could allow corrective actions to be more quickly implemented in alignment with market changes.

In terms of technology, the Postal Service's focus on standardizing facility design has facilitated the implementation of new automated sortation equipment. Under *Delivering for America*, the Postal Service has begun to standardize the layout within its facilities, improving consistency across operations. Greater uniformity — including standard templates for small, medium, and large facilities — allows new managers and employees to onboard technology at facilities more seamlessly, according to Postal Service representatives. Standardization provided an operational baseline for the implementation of flexible technology, such as its Flex Rover Sorter and Autonomous Mobile Robot sorting system, to help automate package sortation (see Figure 6).

Figure 6: Flexible Robot Sortation Technology

Source: USPS OIG



15 AGVs handle materials and carry loads across facilities without an onboard operator or driver, according to the Postal Service. AGVs include specialized industrial trucks powered by electric motors, such as tow motors, fork trucks, and tractors.
16 At the beginning of FY 2023, the Postal Service transitioned to the Management Analysis and Planning Tool (MAPT) dashboard system, enabling Postal Service business units to add or update progress on strategic initiatives with that data visible on the system's dashboards within about 15 minutes.

Lastly, in line with statutes, regulations, and *Delivering for America*, the agency has also promoted environmentally sustainable technology across its network, including its processing operations. The Postal Service has demonstrated its commitment to sustainability through its vehicle electrification strategy and the recent establishment of an environmental council, which will set the sustainability strategy for the Postal Service and oversee the implementation of its environmental goals and objectives over the next ten years.[17] However, in response to increased customer demand, an opportunity exists for the Postal Service to follow other postal operators in further promoting the use of more efficient and sustainable technology by pledging net-zero carbon emissions for its processing facilities as part of its future environmental goals.

Conclusion

Domestic and international operators must adapt their processing networks to changing market, technology, and competitive conditions. As highlighted in its Delivery for America plan, the Postal Service is investing $20 billion to modernize and reorganize this network. To inform this effort, the OIG examined industry best practices for planning, implementing, and evaluating investments in processing operations.

In interviews with international postal operators, domestic operators, and industry experts, the OIG identified best practices across the categories of people, process, and technology. First, using cross-functional teams to align operations and engaging internal and external stakeholders were identified as best practices that optimize the role of people in the investment process. Then, analyzing industry trends and competitor strategies, using data to adapt to changes in volume and capacity, and monitoring investment performance in real time were highlighted as central to improving operational processes. Finally, implementing innovative network designs, standardizing facility designs, adopting flexible technology, and promoting environmental sustainability were detailed as best practices for technology.

Reviewing the best practices of other postal operators and domestic competitors can provide additional opportunities for the Postal Service to improve its internal processes for managing large network investments. Learning from the challenges and successes of others may help improve operational efficiency and create more revenue. It can improve service standards, helping the Postal Service remain competitive as it plans, implements, and evaluates transformative investments made in its processing network.

17 In December 2022, the Postal Service announced it intended to deploy over 66,000 electric vehicles by 2028. The agency also announced it was establishing a new environmental council in March 2023.

Appendices

Appendix A: Additional Information

Objective, Scope, and Methodology

Objective

The objective of the research paper was to examine how the Postal Service as well as other postal and logistics operators, both domestic and international, manage major investments in processing operations and identify industry trends and lessons learned that could inform the Postal Service's investment practices.

Scope

The research paper looked at how operators planned, implemented, and evaluated major investments — those equal to or more than $5 million USD — in operators' domestic package processing networks from FY 2019 to Quarter 1 FY2023, October 2018 to December 2022.

Methodology

The OIG used the following methods to research the objective:

- **Reviewed documentation on the investment practices of postal and logistics operators.** We reviewed documentation on the Postal Service's capital investment process and major investments in processing operations. We also reviewed published reports related to other postal and logistics operators' investments in processing operations.
- **Interviewed Postal Service leadership.** We interviewed leadership from the following Postal Service components: Corporate Affairs, Corporate Sustainability, Customer Experience, Engineering Systems, Facilities, Finance & Strategy, Government Relations & Public Policy, Labor Relations, Processing Operations, Strategic Management Office, and Supply Management.
- **Interviewed postal and logistics operators, international and domestic.** We interviewed representatives from five international operators and four U.S. domestic operators.
- **Interviewed postal labor, trade, and regulatory organizations.** We interviewed representatives from four of these organizations.
- **Interviewed subject matter experts from organizations in the postal and logistics sector.** We interviewed representatives from thirteen of these organizations, including consultancies, equipment manufacturers, integrators, universities, and international bodies.
- **Analyzed interview responses and related documentation.** We conducted a comparative analysis to compile industry best practices for making major investments in processing operations.

The inspection was conducted in accordance with the Council of the Inspectors General on Integrity and Efficiency's Quality Standards for Inspection and Evaluation. We discussed our observations and conclusions with management on May 17, 2023 and included their comments where appropriate.

Prior Coverage

The OIG did not identify any prior reports related to the objective of this white paper.

Appendix B: The Internal Investment Process of the Postal Service

Planning: Pre-deployment Activities

Each year, the Strategic Planning unit of the Postal Service is responsible for organizing all the agency's strategic initiatives through the "Get-it-Right" process. Strategic Planning receives a briefing on all initiatives that components of the Postal Service want to pursue. It then determines if the strategic initiative requires an investment and, if so, the amount, timeline, and prioritization based on alignment with strategic goals outlined in Delivering for America. These planned investments are overseen by the Capital Planning Committee.

The Capital Planning Committee is led by the Postmaster General and includes members of the executive leadership team. This committee is responsible for ensuring strategic alignment before investments move forward. Once alignment is determined, a financial business case called a Decision Analysis Report (DAR) is built by the business unit proposing the investment and routed through the Capital Investment and Business Analysis unit. Each DAR covers a specific investment and details the amount of investment required, rationale, proposed timeline, and return on investment, if applicable.

"Any changes we make to a node or a piece of equipment has a ripple effect on the entire network."
Postal Service Management

The Capital Planning Committee includes projects in the capital budget in the integrated financial plan the Postal Service sends to the Board of Governors. As required by its bylaws, the Board of Governors is responsible for final approval of the integrated financial plan. Once the integrated financial plan is approved, DARs for investments greater than or equal to $5 million are presented to the Investment Review Committee, which also consists of executive leadership team members.[18] The Investment Review Committee evaluates project financials based on costs and benefits and recommends full funding approval to the PMG.[19]

Implementation: Deployment Activities

Implementation is specific to each particular investment and defined at the project level. Changes to the processing network at a project level, however, can affect the entire network. As Postal Service management noted, implementation is crucial, as "any changes we make to a node or a piece of equipment has a ripple effect on the entire network." The project-level business units primarily responsible for implementing such investments include Facilities, Engineering Systems, and Processing Operations.

Facilities is responsible for laying the physical groundwork for implementing investments in processing operations. Based on processing needs in a particular geographic area, it secures existing buildings or purchases new sites for construction, coordinating with Engineering Systems and Processing Operations to meet their requirements.

Engineering Systems assesses the facility space requirements needed for network operations. It highlights the need and relevant location for additional space and is responsible for the optimization of existing square footage and communicates these requirements to Facilities. They also work with Supply Management to procure the appropriate equipment. A Technology Acquisition

18 The Investment Review Committee includes the Chief Financial Officer (committee chair), Chief Retail and Delivery Officer, Chief Processing and Distribution Officer, Chief Logistics Officer, Chief Information Officer, Chief Commerce & Business Solutions Officer, Chief Customer and Marketing Officer, General Counsel, Chief Technology Officer, and Chief Human Resources Officer. The Director, Capital Investments & Business Analysis, Finance and Strategy, serves as the Committee's Secretary.

19 For investments with a value between $1 million and $5 million, a DAR must be prepared and submitted for approval by the Technical Review Committee. Investments smaller than $1 million need a Justification of Expenditure (JOE) rather than a DAR. JOEs are reviewed and approved by the Capital Program Performance unit and the Senior Vice President Finance & Strategy.

and Program Management team within Engineering Systems monitors program implementation progress with regular technology review meetings to keep senior management informed.

Processing Operations owns the responsibility of the operating plan and ensures processing aligns with the overall logistics network, meeting expected service requirements. It provides data on volume, capacity, and performance shortfalls. As a result, it both highlights issues that require solutions and offers insight into the performance of current initiatives.

Overall, implementation involves managing many different variables. Cross-functional teams, such as the Investment Review Committee, meet to coordinate and consider downstream effects on other business units and service performance. In addition, relevant business units are responsible for continually communicating project performance from planning to closeout. Facilities, Processing Operations, and Engineering Systems, for example, are responsible for communicating project performance for any of their DARs related to major investments in the processing network.

Monitoring & Evaluation: From Post-deployment to Project Closeout

The Postal Service told the OIG that for each initiative, the Strategic Management Office tracks data to determine if project milestones and outcomes are being met in near-real time. Through the Technology Management Office System (TMOS) and Management Analysis and Planning Tool (MAPT) dashboard systems, a performance baseline is monitored across three dimensions: residual risk, milestone variance, and business results.[20] The Postal Service also regularly reports investment performance through its Detailed Capital Investment Reports (DCIR).[21]

A structured process also exists for managing changes to the implementation of investments. The DAR modification process requires investment deviations to go back to the Investment Review Committee for approval and budgetary guidance. The committee determines if the revised budget is acceptable, proposes an alternative, or halts further investment.

The Postal Service is required to publish generative investments — investments that generate income — from the previous fiscal year as part of an annual compliance report with the Postal Regulatory Commission. Investments that affect service performance on a national or substantially national basis also require an advisory opinion from the Postal Regulatory Commission. The OIG also reviews all major investments presented to the Investment Review Committee.

20 The MAPT dashboard replaced TMOS at the start of FY 2023.

21 In the DCIR, the Postal Service's Capital Investment and Business Analysis unit publishes hundreds of pages detailing all investments that are currently tracked. In an annual report to its Board of Governors, the Postal Service uses a DCIR extract to report on all investments of more than $25 million in value, pulled up a level and grouped by lifecycle. Additionally, the Postal Service annually reports all the generative investments of more than $5 million to the Postal Regulatory Commission. USPS also reports to the OIG quarterly with DCIR highlights and a crosswalk between the project numbers in the DCIR and eFMS, an internal postal system that Supply Management and Facilities use to track facility contracts. Lastly, USPS plans to report on all its investments generally as part of compliance with the Postal Service Reform Act of 2022.

Appendix C: Management's Comments

LUKE T. GROSSMANN
SENIOR VICE PRESIDENT, FINANCE AND STRATEGY

UNITED STATES POSTAL SERVICE

June 7, 2023

CINDY COBHAM
RESEARCH DIRECTOR, RESEARCH AND INSIGHTS SOLUTION CENTER

SUBJECT: Industry Trends — Major Investments in Postal Processing Networks

We have reviewed the industry best practices for investing in processing operations described in this report and consider these practices reasonable.

We are streamlining and modernizing our processing and logistics infrastructure to create a more integrated, transparent and reliable network. This transformation will allow us to better fulfill our commitment to prompt and efficient mail and package delivery throughout the nation. We look forward to continued dialogue and collaboration with our stakeholders during this process.

Luke T. Grossmann

475 L'Enfant Plaza SW [redacted]
Washington, DC 20260-0004
WWW.USPS.COM

Kevin Mersol-Barg, Aaron Anfinson, Abigail Paterson, and Paola Piscioneri contributed to this report.

Contact us via our Hotline and FOIA forms. Follow us on social networks. Stay informed.

1735 North Lynn Street, Arlington, VA 22209-2020
(703) 248-2100

For media inquiries, please email press@uspsoig.gov
or call (703) 248-2100