



# Digital Twin and Agentic AI

*The Future of Intelligent Operations*

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# POSTAL OPERATIONS REIMAGINED WITH AI

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Digital Twin and Agentic AI converge so your operations can adapt, learn, and improve continuously

# Digital Twin

Your entire network, ready for optimization

## Real-time Virtual Representation

Digital Twin create a dynamic, real-time virtual model of physical systems, processes, or objects, allowing for continuous monitoring, analysis, and optimization.

## Predictive Capabilities

By combining data from sensors and advanced simulations, Digital Twin can predict potential issues, enabling proactive maintenance and operational efficiency.

## Cross-Domain Applications

Used across industries like healthcare, manufacturing, and urban planning, Digital Twin enhance decision-making, from optimizing factory production to improving patient care.

# Agentic AI

Intelligent systems that enhance decision-making

## Autonomous Decision-Making

Agentic AI systems operate independently, making decisions and taking actions to achieve goals without requiring constant human input.

## Goal-Oriented Learning

These systems adapt and improve their performance over time, learning from their environment and experiences to refine strategies and outcomes.

## Collaborative Interaction

Agentic AI can work alongside humans or other AI systems, solving complex problems in dynamic, multi-agent environments such as logistics, gaming, or disaster response.

# Digital Twin + Agentic AI

Together, these two technologies supercharge your operations



Transform static networks into dynamic, responsive systems



Gain unprecedented visibility across your entire operation



Optimize performance and cost while maintaining complete control



Stay ahead of challenges instead of reacting to them



# REIMAGINING POSTAL OPERATIONS WITH DIGITAL TWIN AND AGENTIC AI

Images Via Getty Images and Modified with ChatGPT

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## Improved Processing

### Machine Sort Plan Generator

- From manual scheduling to AI-optimized efficiency
- Maximize throughput with intelligent planning

### Predictive Maintenance

- Say goodbye to unexpected downtime
- Keep operations flowing smoothly year-round

Images Via Getty Images and Modified with ChatGPT

# Revolutionizing Logistics

## Transportation Optimization

- Dynamic rescheduling based on real-time and predicted volumes
- Optimize your baseline network for maximum efficiency

## Network Flow Management

- Proactively address capacity constraints before they become problems
- Visualize and optimize your entire network at once

Images Via Getty Images and Modified with ChatGPT

A person wearing a light blue long-sleeved shirt and a high-visibility yellow safety vest is holding a tablet computer. The background is a blurred industrial or construction site. The text is overlaid on this image.

# REIMAGINING OPERATIONS PLANNING & EXECUTION WITH DIGITAL TWIN AND AGENTIC AI

Via Getty Images

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## "What If" Scenario Testing

- **Evaluate** network resilience against weather events or equipment failures
- **Test** impact of adding or modifying facilities
- **Model** effects of changing service standards or delivery windows

Via Getty Images

## Peak Season Readiness

- Early identification of **seasonal staffing** needs
- Facility **capacity planning** for holiday volume
- **Volume forecasting** with greater accuracy
- Testing how your network handles **surge scenarios**

Via Getty Images

## Agentic Decisioning Agent

- **Early warning system** for developing network issues
- AI-generated **decision intelligence** recommends solutions for consideration, including benefits and rationale to aid in decision-making
- **Continuous learning** from operational decisions and outcomes

Via Getty Images

# CHALLENGES TO ADDRESS

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## CHALLENGES

# Data Considerations

1

## Getting Complete Data

Ensuring you have accurate data to model your operations

2

## Connecting Disparate Systems

Bringing together data from different operational areas

3

## Filling Visibility Blindspots

Identifying where you need new data collection

## CHALLENGES

# Human Oversight

1

## Keeping Human in the Loop

Ensuring AI recommends but doesn't act without human approval

2

## Working Within Agreements

Addressing contractual considerations when implementing changes

# DIGITAL TWIN AND AGENTIC DECISIONING IN ACTION

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## The scenario:

A winter storm is headed to the Indianapolis RPDC Plant.

Digital Twin and Agentic AI can provide tools that:

- Proactively prepares the team for this weather event
- Mitigates – or even eliminates – service disruption
- Learns from this experience to improve for the next surprise



Images Via Getty Images and Modified with ChatGPT

DEMO

# USPS Intelligent Operations Decisioning Agent Network Insights

Top section gives users a snapshot of key KPIs for their facility

Charts and graphs are available to give users an in-depth look at how their facilities are running



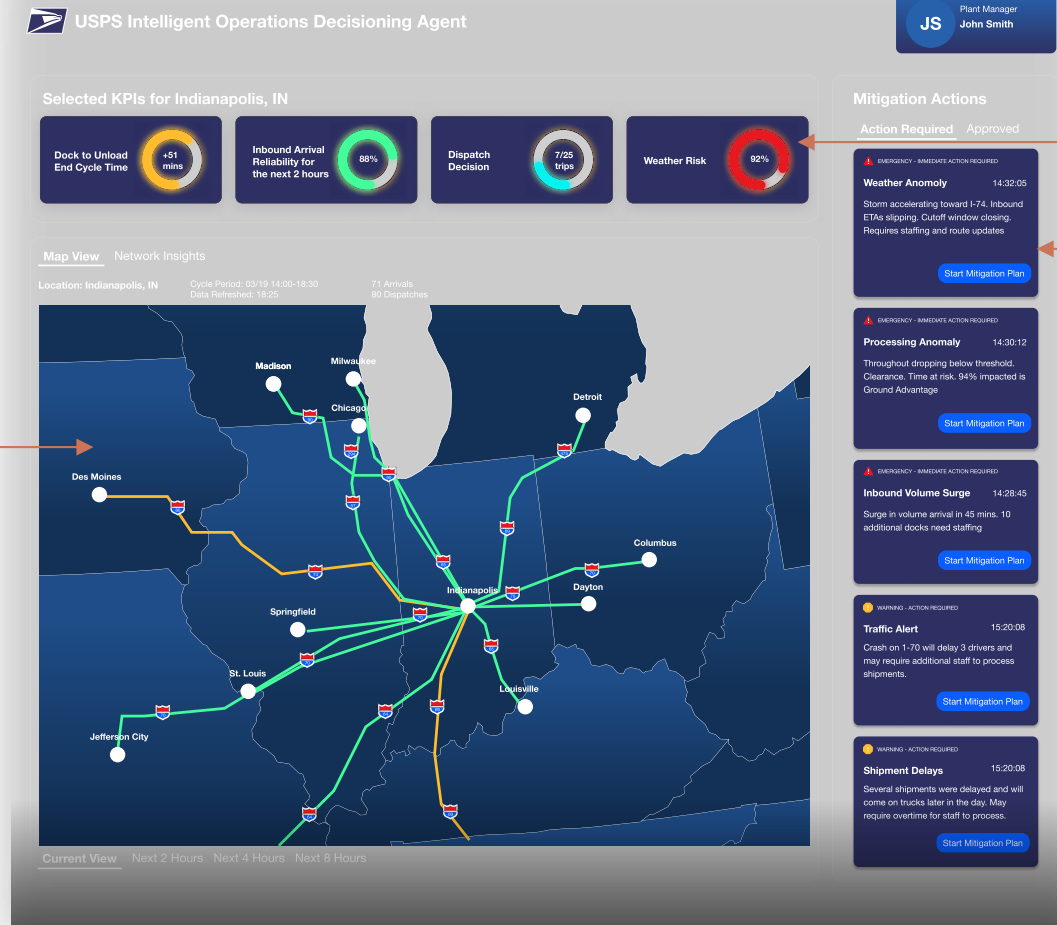
Mitigation actions prioritize and highlight the highest impact problems for a user

DEMO

# USPS Intelligent Operations Decisioning Agent Map View

Map views allow users to track traffic and routes that drivers are using to come in or out of the facility

Currently, traffic patterns are not a concern



In this scenario, a weather risk in the form of a winter storm is going to impact our location.

The need for action is indicated on the sidebar, and a mitigation plan is suggested

DEMO

# USPS Intelligent Operations Decisioning Agent Map View

By toggling the view to show predictions for the next 2 hours, users can get a sense of how their facilities will be impacted



Traffic is becoming more of a concern as indicated by the growing number of yellow and red roads

DEMO

# USPS Intelligent Operations Decisioning Agent Map View

If we look 4 hours into the future, we can see that almost all routes to Indianapolis will be blocked or experience major slowdowns



Understanding the risk in more detail, the user now starts on a mitigation plan

DEMO

# USPS Intelligent Operations Decisioning Agent Mitigation Plans

The user is shown a shortlist of plans to choose from. Each plan prioritizes different goals to give the user a variety of options to consider.

The screenshot displays the USPS Intelligent Operations Decisioning Agent interface. A central dialog box titled "Select Mitigation Plan for Weather Anomaly" is open, showing two options:

- Plan A: Divert Volume** (Selected Plan):
  - Redirect impacted volume using available surface capacity and increasing staff.
  - 3% estimated service impact ~10k estimated additional costs
  - Actions Triggered on Approval:**
    - Reroute 60% outbound volume to Chicago RPDC
    - Delay non-critical inbound volume & adjust schedules
    - Flag staff for OT before the storm to divert volume
    - Update Machine Run Plans for new transportation plan
    - Notify impacted suppliers (requires human review)
  - Impacted Systems:**
    - Scheduling & Sort Systems
    - Transportation Management Systems
    - Workforce Management Systems
    - Facility Operations Systems
- Plan B: Adjust Cutoff** (Selected Plan):
  - Extend CET by 4 hours. Risk of downstream processing delays increases as a result.
  - 15% estimated service impact ~9k estimated additional costs
  - Actions Triggered on Approval:**
    - Extend CET by 4 hours across impacted sort operations
    - Notify downstream processing facilities of revised arrival windows
    - Adjust inbound dock schedules to absorb delayed volume
    - Flag at-risk pieces for priority sort sequencing
    - Notify impacted suppliers (requires human review)
  - Impacted Systems:**
    - Scheduling & Sort Systems
    - Transportation Management Systems
    - Workforce Management Systems
    - Facility Operations Systems

The background interface includes a map of the Indianapolis area with locations like Des Moines, Jefferson City, and Louisville marked. On the right, a "Mitigation Actions" panel lists several actions with "Start Mitigation Plan" buttons.

DEMO

# USPS Intelligent Operations Decisioning Agent Mitigation Plans

Once selected, the actions listed in the plan will be deployed

The screenshot displays the USPS Intelligent Operations Decisioning Agent interface. A central dialog box titled "Select Mitigation Plan for Weather Anomaly" is open, comparing two plans:

- Plan A: Divert Volume** (Selected):
  - Redirect impacted volume using available surface capacity and increasing staff.
  - 3% estimated service impact ~10k estimated additional costs
  - Actions Triggered on Approval:**
    - Reroute 60% outbound volume to Chicago RPDC
    - Delay non-critical inbound volume & adjust schedules
    - Flag staff for OT before the storm to divert volume
    - Update Machine Run Plans for new transportation plan
    - Notify impacted suppliers (requires human review)
  - Impacted Systems:**
    - Scheduling & Sort Systems
    - Transportation Management Systems
    - Workforce Management Systems
    - Facility Operations Systems
- Plan B: Adjust Cutoff** (Not Selected):
  - Extend CET by 4 hours. Risk of downstream processing delays increases as a result.
  - 15% estimated service impact ~9k estimated additional costs
  - Actions Triggered on Approval:**
    - Extend CET by 4 hours across impacted sort operations
    - Notify downstream processing facilities of revised arrival windows
    - Adjust inbound dock schedules to absorb delayed volume
    - Flag at-risk pieces for priority sort sequencing
    - Notify impacted suppliers (requires human review)
  - Impacted Systems:**
    - Scheduling & Sort Systems
    - Transportation Management Systems
    - Workforce Management Systems
    - Facility Operations Systems

The background interface shows a map of the Indianapolis area with a red weather anomaly icon. On the right, a "Mitigation Actions" list includes items like "Weather Anomaly", "Processing Anomaly", "Inbound Volume Surge", "Traffic Alert", and "Shipment Delays", each with a "Start Mitigation Plan" button.

DEMO

# USPS Intelligent Operations Decisioning Agent Mitigation Actions



The mitigation plan now moves into the "Approved" section where users can track progress

DEMO

# USPS Intelligent Operations Decisioning Agent Mitigation Actions



Users can track exactly which actions have been executed and which are still waiting on responses

DEMO

# USPS Intelligent Operations Decisioning Agent Feedback

USPS Intelligent Operations Decisioning Agent

Plant Manager  
JS John Smith

Selected KPIs for Indianapolis, IN

- Dock to Unload End Cycle Time: +51 mins
- Inbound Arrival Reliability for the next 2 hours: 88%
- Dispatch Decision: 7/25 trips
- Weather Risk: 92%

Map View | Network Insights

Location: Indianapolis, IN | Cycle Period: 03/19 14:00-18:30 | 71 Arrivals | 80 Dispatches | Data Refreshed: 18:25

Mitigation Actions

- Weather Anomaly Mitigation Plan A - Divert Volume: Complete | Leave Feedback
- Processing Anomaly Mitigation Plan B - Increase Staff: Complete | Leave Feedback
- Traffic Alert Mitigation Plan A - Adjust Cutoff: Complete | Leave Feedback
- Inbound Volume Surge Mitigation Plan A - Divert Volume: Complete | Leave Feedback

Once completed, users are able to submit feedback in order to capture input for continuous improvement.

DEMO

# USPS Intelligent Operations Decisioning Agent Feedback

By submitting feedback, users are able to help agents learn and grow allowing it to become an even more accurate and powerful partner in the future.

The screenshot displays the USPS Intelligent Operations Decisioning Agent interface. At the top, it shows the USPS logo and the title "USPS Intelligent Operations Decisioning Agent". A user profile for "John Smith" is visible in the top right. The main area is titled "Selected KPIs for Indianapolis, IN" and features several circular gauges for metrics like "Dock to Unload End Cycle Time" (+51 mins) and "Inbound Reliability" (92%). A map view shows a route through the Midwest, with a red weather alert icon over St. Louis. A modal window titled "Leave Feedback for Weather Anomaly Mitigation Plan A - Divert Volume" is open, displaying the following information:

Projected Impacts	Actual Impacts
-3% estimated service impact ~10k estimated additional costs	-5% estimated service impact ~7k estimated additional costs

**Actions Triggered on Approval**

- Reroute 60% outbound volume to Chicago RPDC
- Delay non-critical inbound volume & adjust schedules
- Flag staff for OT before the storm to divert volume
- Update Machine Run Plans for new transportation plan
- Notify impacted suppliers (requires human review)

**Impacted Systems**

- Scheduling & Sort Systems
- Transportation Management Systems
- Workforce Management Systems
- Facility Operations Systems

**Operator Feedback**

Write a message

Save Response

On the right side, a "Mitigation Actions" panel lists several actions, all marked as "Complete":

- Weather Anomaly Mitigation Plan A - Divert Volume
- Processing Anomaly Mitigation Plan B - Increase Staff
- Traffic Alert Mitigation Plan A - Adjust Cutoff
- Inbound Volume Surge Mitigation Plan A - Divert Volume

# CONCLUSION

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# Digital Twin + Agentic AI Reimagine Postal Operations



## Streamlined operations

Simplify workflows and boost efficiency with advanced technology



## Proactive operations management

Anticipate challenges and ensure seamless operations



## Measurable results

Increase efficiency, reduce costs, and enhance service quality



## Continuous improvement

Enable ongoing innovation and long-term success

**Build a more  
intelligent solution  
today.**

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# QUESTIONS?

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