

## CASE STUDY

# AI-Enabled Photo Validation: Increasing Efficiency for National Security Workflows

## Introduction

National Security is a complex domain that encompasses a broad range of mission areas. Each mission area is supported through activities that are specific to objectives of the mission. While each mission area has unique aspects and operational challenges, many activities and decisions that comprise National Security workflows involve a common element - digital photographs ("photos"). From transportation security and border protection to immigration and law enforcement, photos are critical data artifacts needed to conduct operations and make decisions.

## Challenge

A large federal organization that provides critical National Security capabilities, which directly impact millions of people, has workflows that involve printing and validating photos. Each photo must adhere to specific quality thresholds for attributes such as brightness, contrast, and resolution in addition to unique requirements for photo subjects. For example, a valid photo of a person typically requires the person to have open eyes and headwear removed.

The photo validation process, while straight forward and well defined, was time consuming and inefficient. To understand why, we need to examine the humans in the loop and the sequence of events involved.



## About

BridgePhase is a cutting-edge digital services provider that delivers intelligent solutions for critical missions. As a trusted partner for some of the nation's most impactful federal organizations, BridgePhase designs, builds, operates, and manages secure enterprise systems at scale. By combining relentless mission focus with user centered design, technical excellence, and forward-leaning innovation, BridgePhase creates successful mission outcomes and exceptional user experiences.



Homeland  
Security

The process involves two different people: agency personnel responsible for submitting the photo for printing (Requestor) and agency personnel responsible for printing the physical document that contains the photo (Evaluator). The Requestor exercises judgement when submitting a photo for printing but the Evaluator makes the final pass/fail determination for photo quality when visually examining the printed document.

These are the key steps:

- **Print Request** - A document with an embedded photo is submitted for printing.
- **Document Production** - The physical document containing the photo is printed.
- **Photo Validation** - The photo is visually evaluated using a combination of pass/fail rules and qualitative human judgement.
- **Print Response** - A response message containing information about the print and validation steps is submitted.

Founded

**2008**

Capabilities



AI, Automation & Data



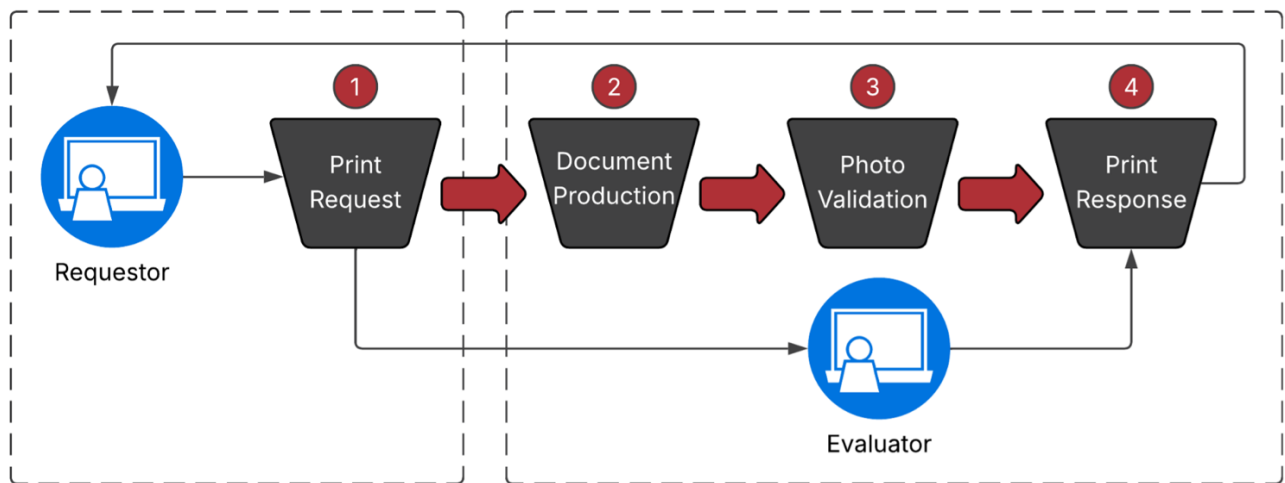
Cloud Infrastructure



Cyber Operations



Digital Transformation



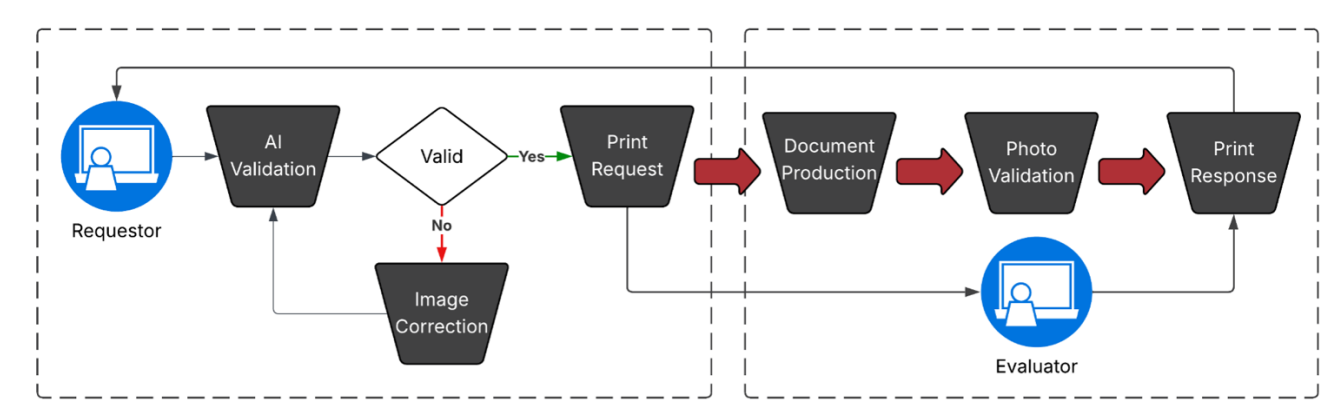
In the best-case scenario, a printed photo would pass validation, and the process would conclude successfully with minimal time and effort expended. Conversely, if photo validation failed, the process became inefficient and time consuming. Upon receiving the print response, the Requestor would need to determine why the request failed and what to do about it. This often required contacting the Evaluator to gather additional information about the validation failure.

The evaluator, having received the failure inquiry from the Requestor, would manually sort through stacks of printed documents to locate the photo in question. Once located, the Evaluator would verbally communicate the rationale for the failure determination to the Requestor.

This back-and-forth, manual exchange of information between the Requestor and Evaluator was extremely time consuming and often resulted in delays spanning days or even weeks - inhibiting the ability to deliver on key National Security objectives.

## Solution

To solve the challenge of operational delays and inefficiencies, BridgePhase built an AI-enabled photo validation solution which applied cutting edge machine learning (ML) techniques including deep learning to train a custom AI/ML model on millions of historical photo validation data records. We established the data collection foundation as part of our digital transformation tiered-automation approach. This approach included defining schemas and enabling automated data labeling for events that occurred within the system, allowing the solution to seamlessly integrate with the National Security enterprise ecosystem.




The custom AI/ML model was then integrated with existing workflows through secure web APIs. Intuitive user interface components, which integrate with the web APIs, were created to guide users and enable quick iterations for photo validation. By combining the AI/ML model with a user-friendly interface and robust web APIs that integrated with existing workflow components, our solution maximized efficiency while providing an exceptional user experience.

## Result

Our AI-enabled photo validation solution delivered immediate, measurable impact. By providing validation capabilities modeled on human judgement, our solution created an automated

feedback mechanism that empowered users to quickly correct photo quality issues early in the process, without handoffs or delays. These efficiency gains directly benefitted National Security workflows through faster document production times, fewer print failures, increased throughput, and greater operational capacity.

 **90%**  
Reduction in  
Print Failures

 **Shorter  
Feedback  
Loops**

 **Faster  
Document  
Production**

 **Increased  
Operational  
Capacity**

## Conclusion

Intelligent automation powered by AI can create immediate and lasting impact. BridgePhase helped streamline National Security workflows by developing an AI-enabled photo validation solution to automatically detect quality issues and minimize the time required to correct them. Through BridgePhase's [Mosaic Digital](#) solution and service offerings, Government agencies can access these proven, scalable approaches through a wide range of commercial solution pathways. If you are ready to maximize efficiency for your document or photo-based workflows, connect with BridgePhase to learn more about the possibilities.

Your mission is our  
commitment.

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