

# Prototyping a document management system for future emergencies

By Joanne Esteban and Nicole Fenton - August 18, 2023

**Income verification was a central challenge during the pandemic and continues to be burdensome for claimants and state workforce agencies during disasters. This post explores one potential solution to ease the verification process.**

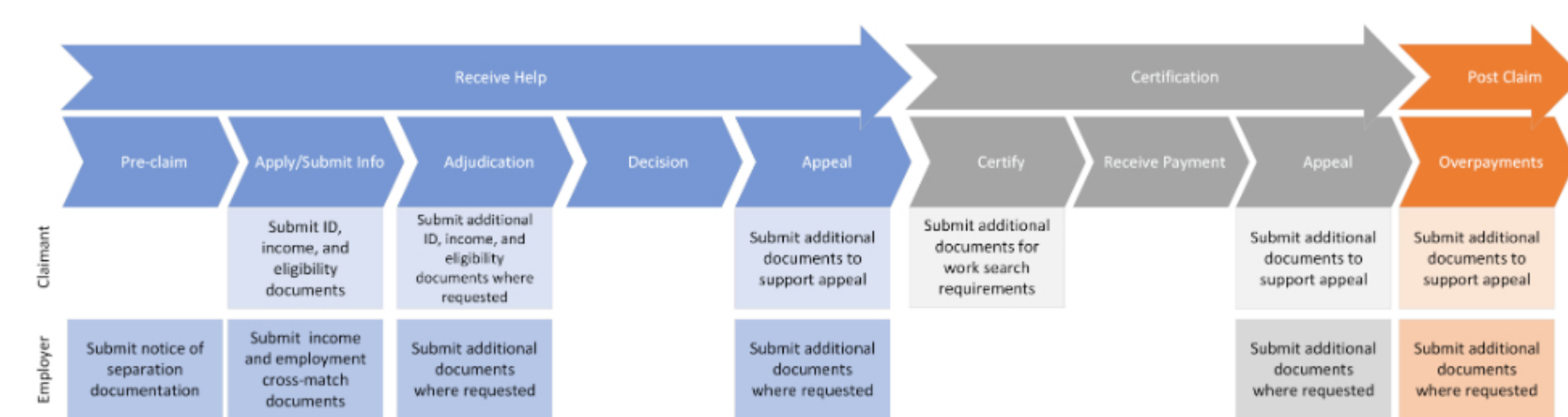
Before the pandemic, many states lacked self-service options for claimants to provide verification documents (e.g., proof of income, identity, employment). States that invested in secure document uploaders cited them as a "gamechanger" and "win-win" when dealing with an influx of claims. Our research shows that document management systems reduce barriers for claimants and help states be more efficient. With additional improvements and investment, these systems can be even more effective in serving the public and reducing backlogs in times of crisis.

Document management systems are not a new concept, but we found that states currently have inadequate options that were pieced together quickly or tightly coupled with legacy systems. States need more modular, scalable solutions to be able to adapt to spikes in claim volume and detect fraud. DOL could address this gap by working with states to develop an open-source document management system.

We developed a prototype to explore this idea and test its desirability with states. We worked closely with subject matter experts at state and federal levels to map out the verification process and related product needs. Below are the ideal components of a document management system:

Component	Purpose
Document uploader	Collect documents from claimants with a mobile-first user interface. Provide instructions on acceptable documents and file types.
File processor	Resize images and convert files to preferred formats.
File sanitization	Protect against vulnerabilities and offensive content.
File storage	Store files and data securely in a cloud server.
Data extraction	Detect and convert text into structured data.
Indexing	Add tags and metadata to support routing and automations.
Workflow automations	Prioritize and route issues to the appropriate staff for review.
Notifications	Inform claimants when documents are needed or uploaded successfully. Ease anxiety and confusion with next steps in plain language.

While our research was focused on emergencies, document management systems can support a broad range of needs for both claimants and employers:



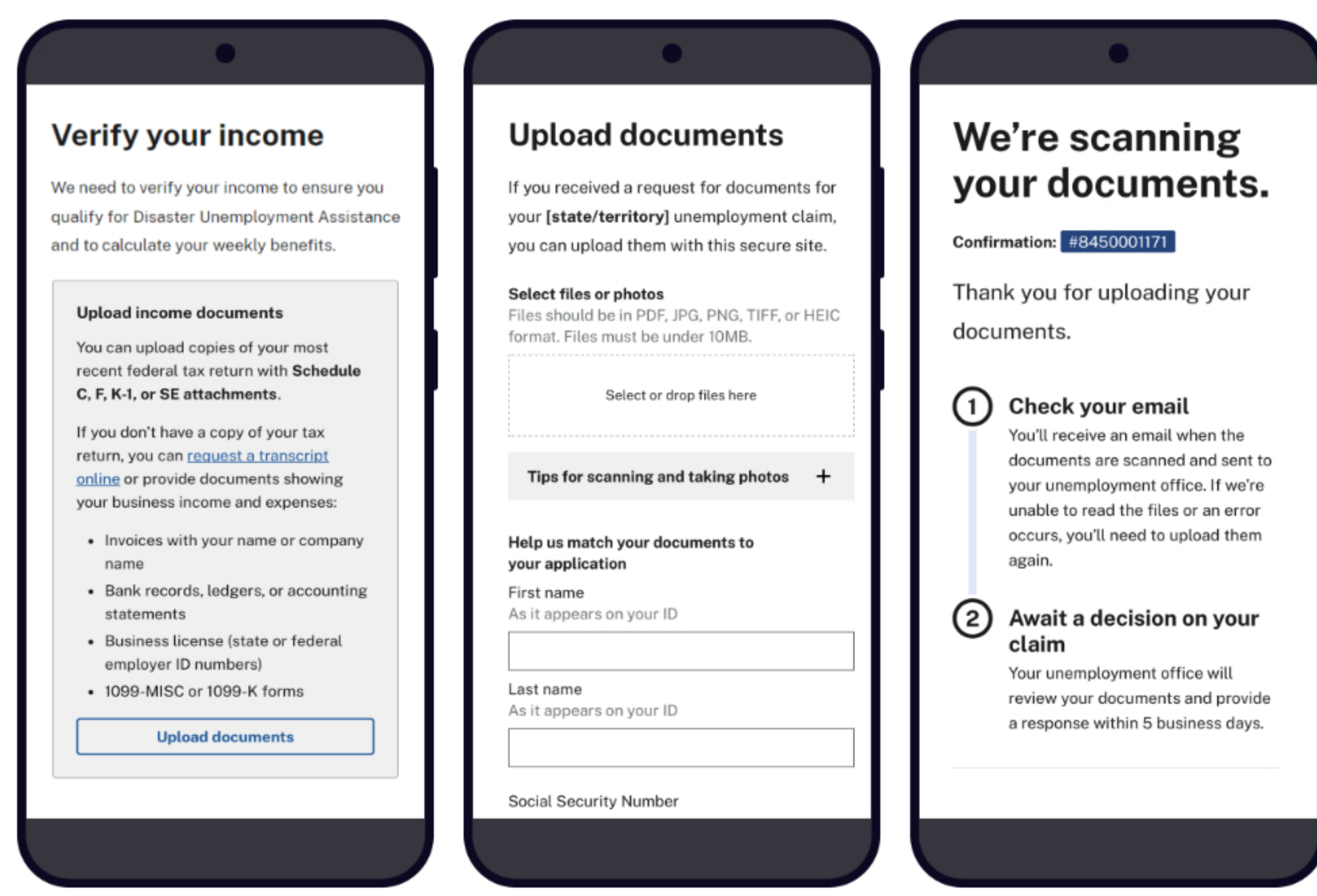
An effective document management system will:

- Reduce barriers for claimants by simplifying the application process
- Reduce fraud with responsible automation
- Reduce staff burden and administrative waste;
- Reduce call volume and claimant confusion with notifications and plain language
- Support a variety of verification use cases, including income and identity verification, employer inquiries, work search, and appeals

## A better claimant experience with mobile-first uploads

As more and more states invest in document uploaders to ease the claimant experience, there's an opportunity to raise the bar and go beyond basic upload features. In our desk research, many of the uploaders on the market lacked responsive design and plain language instructions to support uploading from a mobile device. But the people we're serving are more likely to apply from a phone than a desktop computer. Mobile usage continues to rise, with 85% of Americans and 76% of low-income households owning a smartphone as of 2021. Additionally, unemployed workers may be displaced, living out of their cars, or may have lost everything in a disaster. These real-world situations informed our design approach and product requirements.

Thankfully, we don't have to start from scratch. Groups like Code for America and Nava have done extensive research on mobile-friendly document uploaders. Our prototype illustrates how these models and the U.S. Web Design System could be adapted to support unemployment programs.



This early draft covers the first few steps in the verification process: receiving a request for documents, reading about what's required, uploading from a phone, and receiving a confirmation message. Starting with this "slice" of the claim journey allowed us to learn quickly and iteratively.

Our design goals were to simplify the experience, clarify requirements, and help claimants report income accurately. The prototype integrates with built-in features in iOS, Android, and desktop browsers so claimants can easily upload files and images. These design choices can help reduce denials and repeat contacts with claimants and improve reciprocity rates for emergency programs. For a detailed look at improving the claimant experience, check out our post on promising practices for document uploaders.

## A better staff experience with workflow automations

Tiger Teams found that many states still process documents manually, and we heard echoes of this in our interviews. States that have invested in workflow automations—such as Optical Character Recognition (OCR), Robotic Process Automation (RPA), bots, or machine learning—report that the technology saved them millions of dollars and helped them be more responsive to pandemic-level claim volumes.

Workflow automations improve program integrity and staff efficiency. More specifically, automations can help states:

- Convert and resize files to save space and fit within often strict legacy system requirements
- Extract and index structured data so staff can easily retrieve information
- Sort documents by claim or document type (e.g., income, identity, work search, appeals), and add the data to the appropriate case file
- Reduce improper payments and data entry errors from claimants and staff (e.g., reporting income, calculating quarterly wages)
- Expedite claims processing by filtering duplicate submissions and processing verification data around the clock
- Identify and route issues to specialized staff (e.g., potential fraud, offensive material)
- Make continuous improvements as the system learns through data validation

We could explore these automations and share best practices with other states as part of a pilot.

## Looking ahead

Our prototype is meant to show what's possible when adopting a modular solution and accessible design framework. We see a lot of potential in this approach and could refine the design and requirements as part of a pilot. Below are some ways that DOL could continue this work in partnership with individual states:

- Create a service blueprint to map the claimant experience with state processes
- Test the solution directly with claimants in usability sessions
- Define technical requirements for indexing, routing, and other workflow automations in close collaboration with a state integration team
- Develop a back-end system to support integrating the uploader and workflow automations into state systems
- Test the OCR functionality with common documents (e.g., tax forms, driver's license, passport, pay stubs)
- Release an open-source module for other states to reference

We'd love to hear more about your experiences with document management systems and workflow automations. If you have any questions or feedback about the prototype, please email the OUI team at ui.modernization@dol.gov.

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