Automating maintenance of public sector survey frames

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U.S. Census Bureau

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Frame maintenance is costly

- Public-sector (criminal justice) collections in the Economic Reimbursable Surveys Division
  - Staff manually update frame information, hand match new tables to existing frames
- Much frame information is publicly available on the web
  - Use web scraping to harvest unstructured data
- How can we reduce the labor required to integrate new frame tables/data?
  - Document parsing, fuzzy matching tools

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Civic Digital Fellows developed modular system

- Worked on this system the last two summers
- Carlos Ortega, a 2019 Civic Digital Fellow, helped us break the problem into smaller pieces
- Everything uses open source tools
- A number of the modules can be used for further process automation in our division

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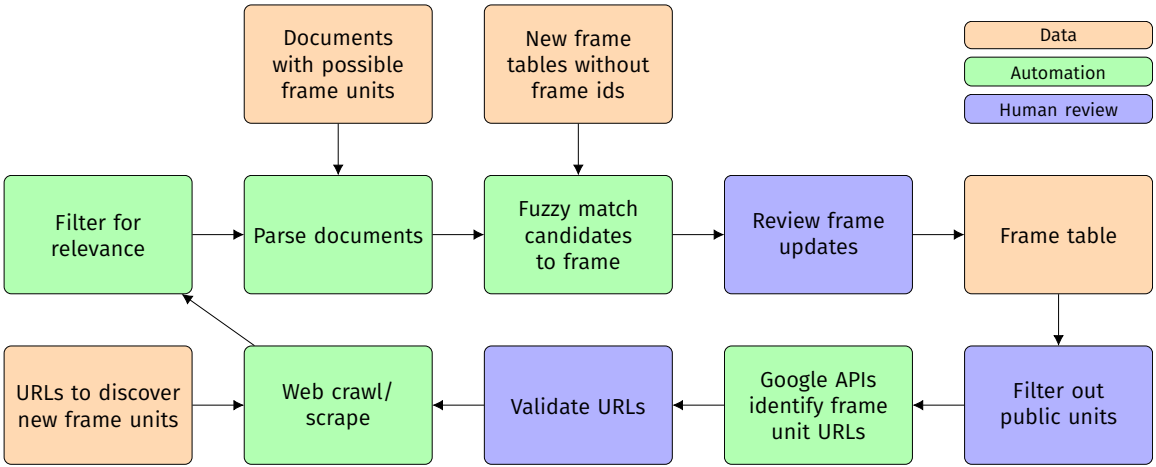
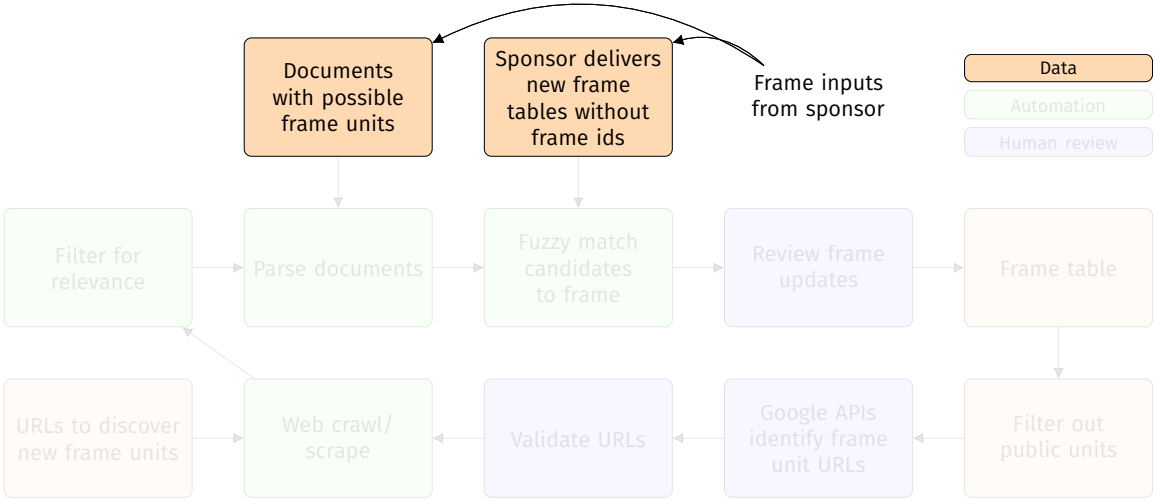

Documents with possible frame units
New frame tables without frame ids
Data
Automation
Human review
Filter for relevance
Parse documents
Fuzzy match candidates to frame
Review frame updates
Frame table
URLs to discover new frame units
Web crawl/ scrape
Validate URLs
Google APIs identify frame unit URLs
Filter out public units



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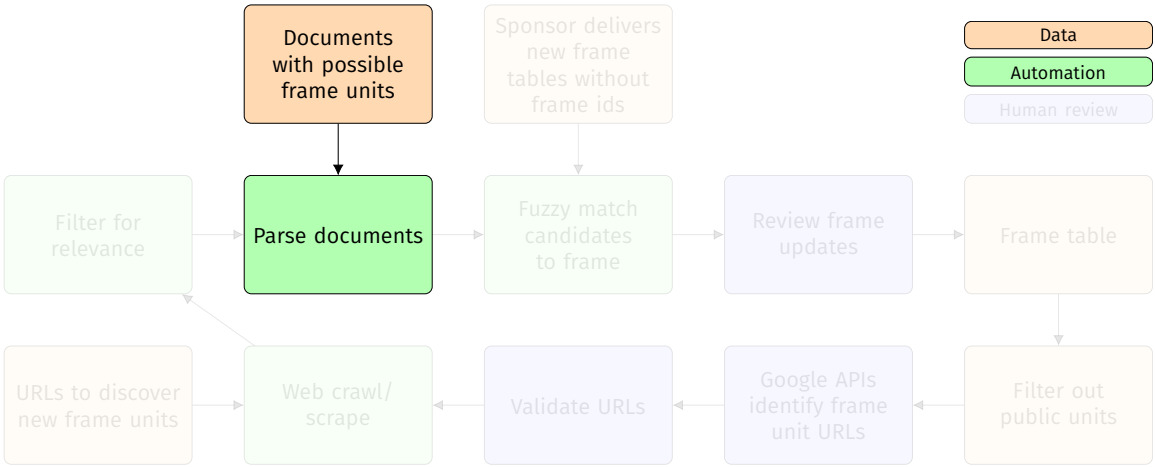

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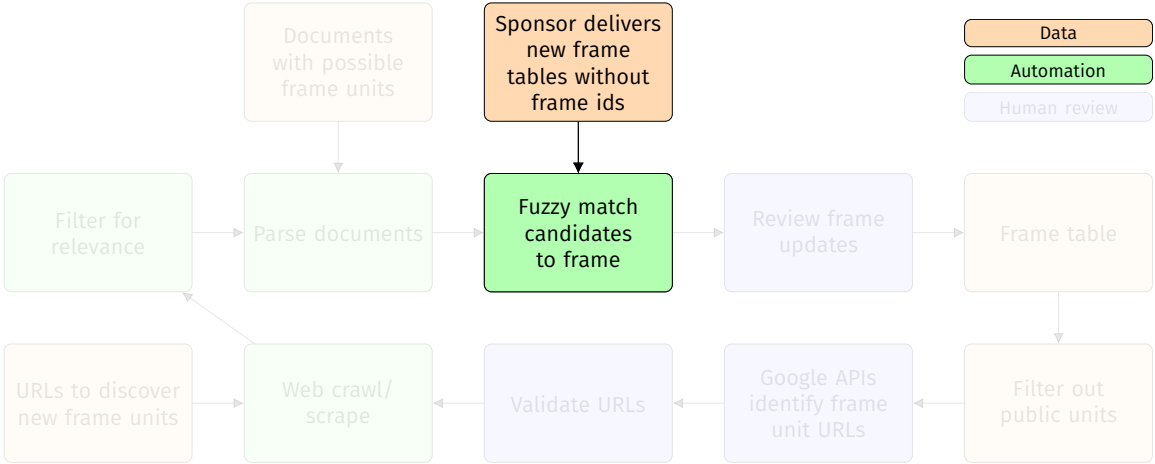

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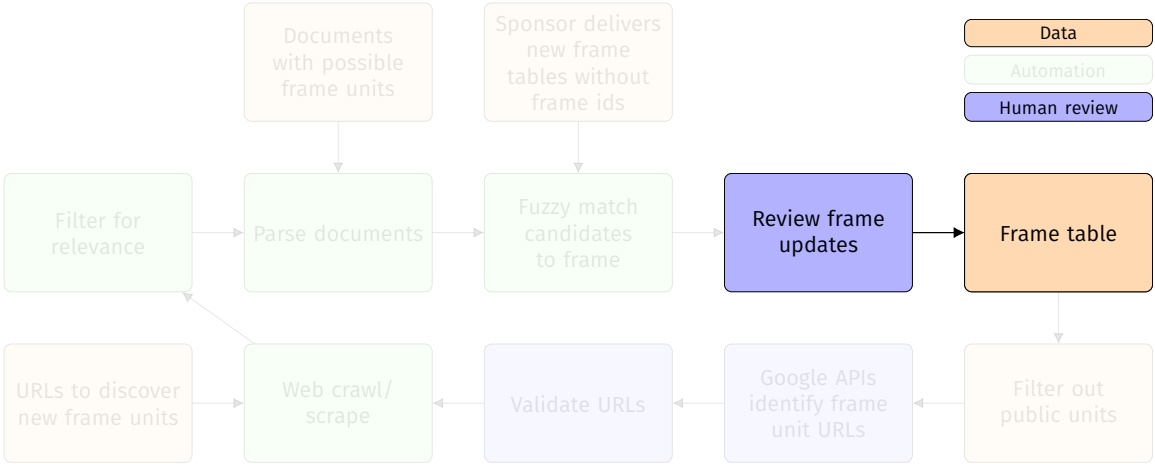

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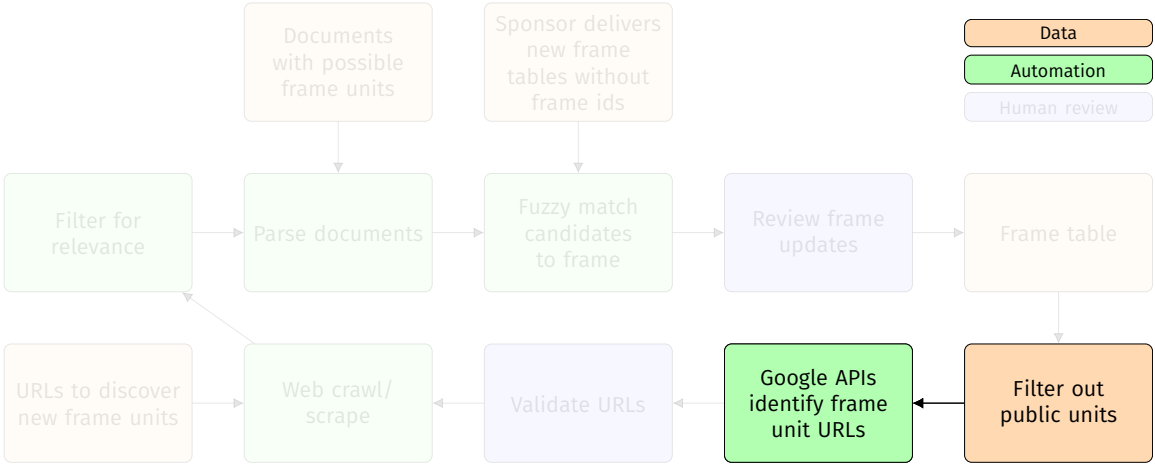

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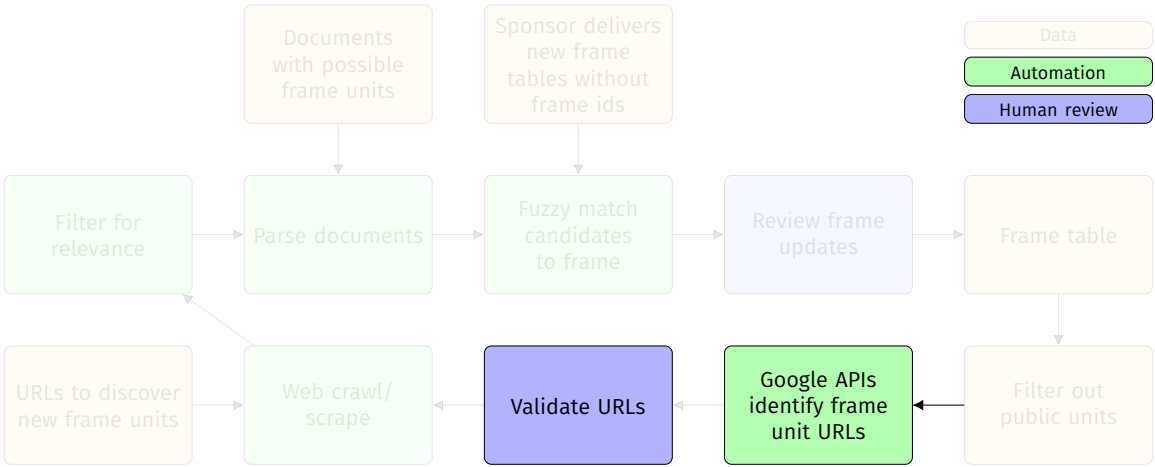

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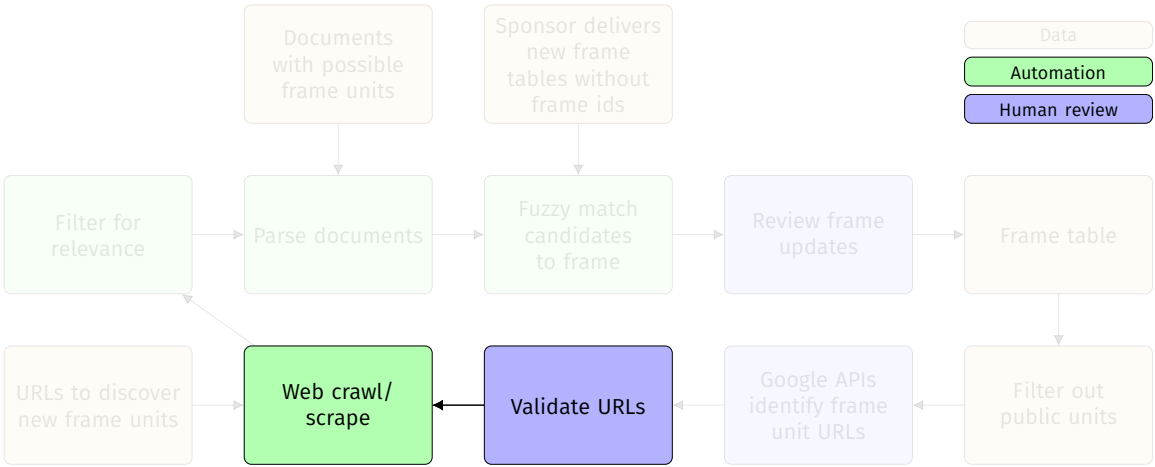
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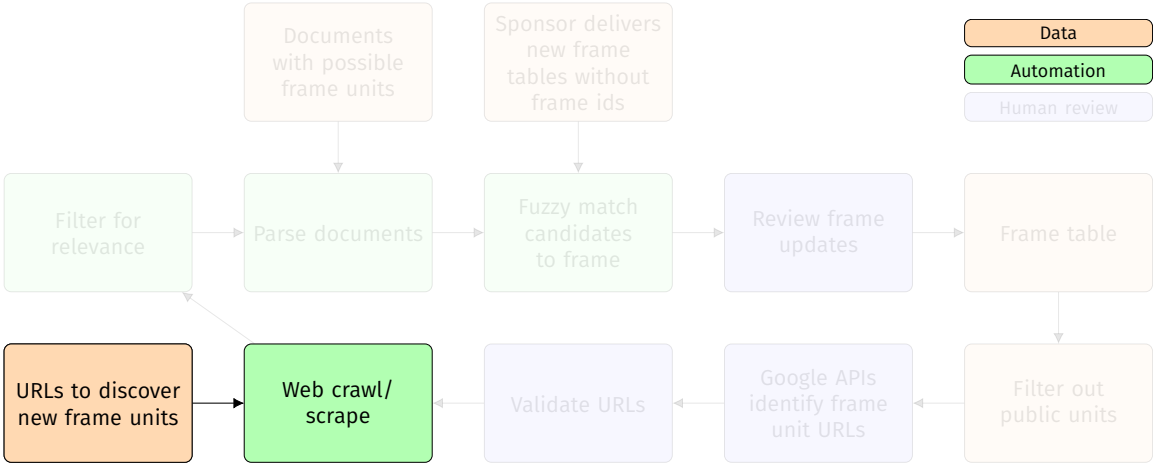

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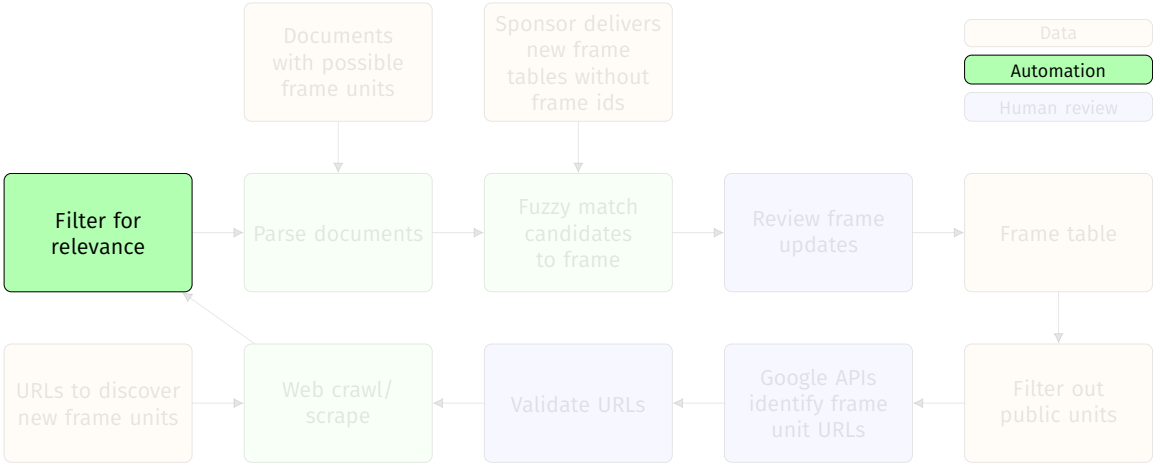

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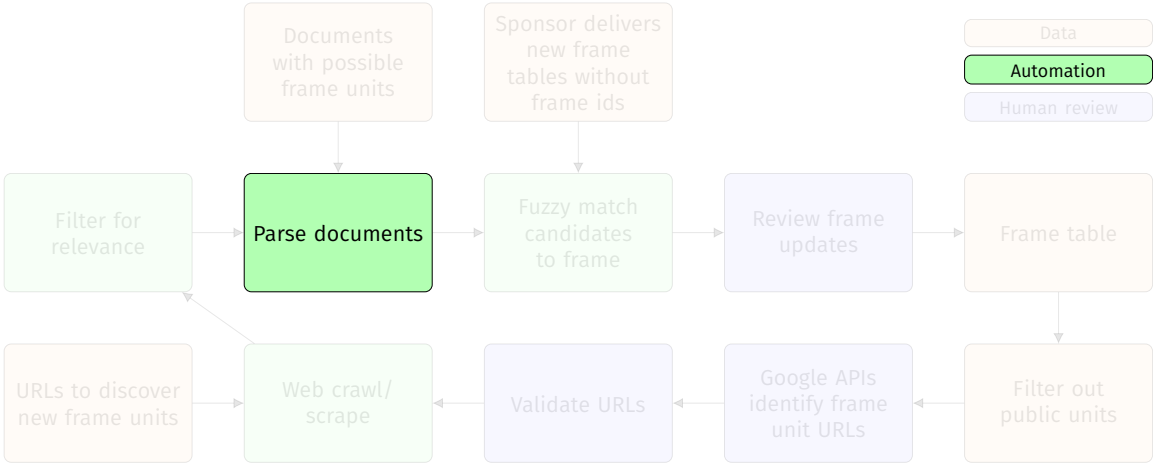

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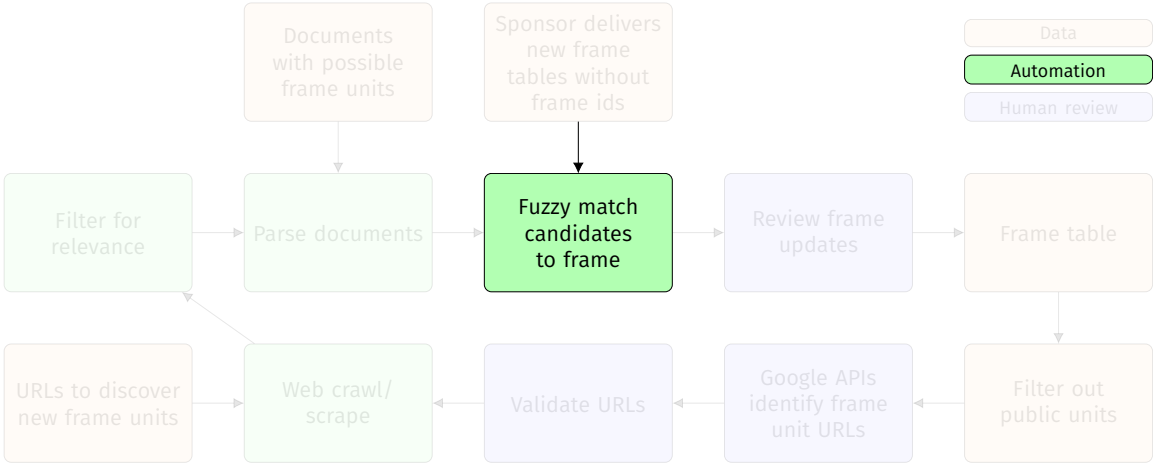

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Next steps

- Improve accuracy of web scraper, expand scope
- Improve speed and effectiveness of frame matcher, move to server
- Move system into production
  - Has potential to reduce 4 weeks of 3 FTE down to days
  - Staff can be reallocated to response, quality improvements

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Thank you

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