CASE MOCK-UP

Preliminary business case for surveillance project

Agenda

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Executive Summary

Problem

Due to the large quantity of available documents, investigators cannot read through them all to locate text that is important for their purposes. A significant amount of relevant data is left untapped due to this limitation.

Solutions

Option	Solution	Benefits
1	Search Engine Alone	- Allows investigators access to all information - Proof of concept complete - Less man hours
2	Search Engine with Add-Ons: document recommendation and risk analysis	- Allows investigators access to all information - Recommend important documents to specific investigators - Flags important documents that could otherwise be missed
3	No Action	- No new training required - No cost in man hours

Recommendation

Option 2—the search engine has already been proved to be effective and can be effectively scaled up. By using the text analysis required for the search engine for further purposes, a significantly more useful product can be developed with minimal additional cost.

Business Need— Statement

The Federal Reserve's Surveillance programs rely on financial regulatory reports and examination data to ensure that institutions exhibiting financial deterioration or increased risk profiles are given enhanced supervisory attention–following one of the Board strategic goals ("promote a safe, sound, competitive, and accessible banking system and stable financial markets"). Moving forward with this project would improve our ability to succeed in this goal and would be in line with the Board's value of Efficiency and Effectiveness.

The Project would:

- Improve investigators' ability to find relevant information

- Decrease man hours required for investigation

- Flag documents/institutions investigators need to see

Investigators have access to XX number of documents. In an average investigation, they have time to look through YY number of documents. Without this project, it is a near certainty that investigators will not be able to locate all information relevant to their cases.

Business Need— Analysis

[Need data for analysis.]

Would recommend displaying (using visuals):

- Time spent on investigations

- Percentage of investigation time spent searching through material

- Estimated decrease in time given search engine

- Estimated improvement of investigative success

Project Overview— options

Option 1: Search Engine Alone

A search engine across documents which will allow investigators to quickly and easily locate all available text for key terms, for specific entities or institutions, and for sections of text meeting certain criteria.

Option 2: Search Engine with Add-ons
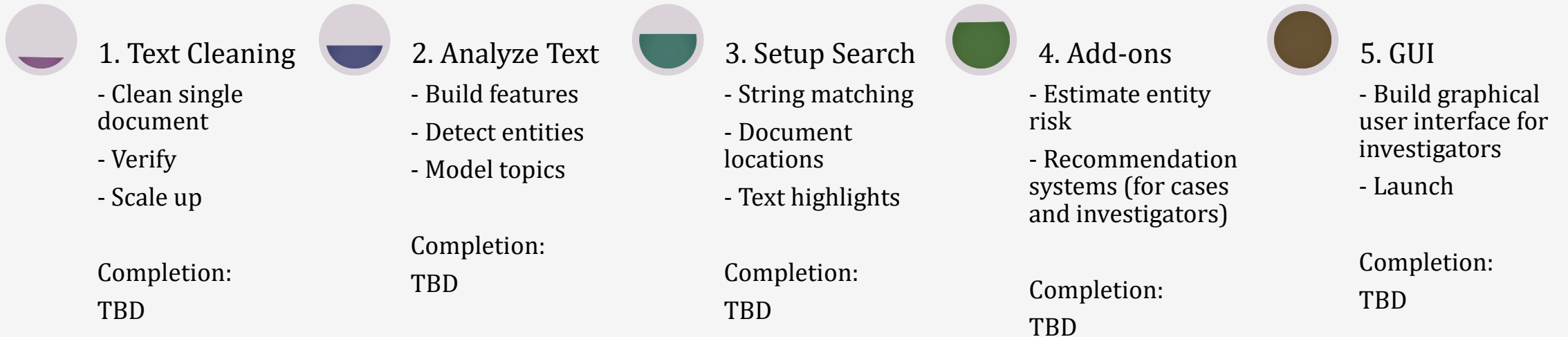
Achieves all goals listed in Option 1—additionally:

- Uses text features to determine risk profiles of mentioned institutions
- Recommends useful documents for an investigation
- Flags documents as important for specific personnel

(Note: each add-on is independent, any combination can be chosen)

Option 3: No Action

Investigations will continue at the same rate with the same efficiency

Project Overview—stages

1. Text Cleaning

- Clean single document
- Verify
- Scale up

Completion:

TBD

2. Analyze Text

- Build features
- Detect entities
- Model topics

Completion:

TBD

3. Setup Search

- String matching
- Document locations
- Text highlights

Completion:

TBD

4. Add-ons

- Estimate entity risk
- Recommendation systems (for cases and investigators)

Completion:

TBD

5. GUI

- Build graphical user interface for investigators
- Launch

Completion:

TBD

Schedule

Option	Duration	Milestones	
1: Search Engine Alone	5 months*	complete 08/01* 09/01* 11/01*	- Proof of concept - Scaled up version built - Verification complete - GUI ready
2: Search Engine w/ Add-ons	+3 [8 total] months* (*random choices)	12/01* 12/15* 01/01* 02/01* 03/01*	- Entity risk predicted - Document recommender for case built - Document flagger for investigator ready - Verification complete - GUI updated
3: No Action	n/a	n/a	

Impact

GOAL: Increase productivity and effectiveness of investigators

Option	Product Quality	Productivity Improvements
1 Search Engine Alone	- Efficient search engine for all documents - Simple GUI	- Research time decreased by X amount - Relevant data collection increases by Y - Case analysis accuracy improved by Z
2 Search Engine w/ Add-ons	- Risk profiles from text data - Document recommendation for cases - Document flagging for investigators	- Risk estimations can supplement human analysis - Investigators will have a document list to start case - Documents go to the right people automatically
3 No Action	n/a	n/a

Risk

Option	Risks
1 Search Engine alone	**Cost Overrun (low)** • Primary cost: man hours, most production done part time by volunteer employees **Delay in Schedule (moderate)** • Proof of Concept complete on some documents • Possible difficulties in scaling to multiple document types
2 Search Engine w/ Add-ons	**Cost Overrun (low)** • Primary cost: man hours **Delay in Schedule (high)** • Production of Search Engine will remain unchanged • Possible difficulties in engineering model features from multiple document types **Ineffective Recommendations (moderate)** • Insufficient labeled data • Necessary feedback could be too time consuming to be effective
3 No Action	• Wasted investigation man hours • Missing data leading to incorrect analyses • Unseen documents with important information

Summary of options & Recommendations

Problem: Investigators cannot effectively search through the available text data for information

Option	Pros	Cons
1 Alone	Faster release Improves efficiency	n/a
2 w/ Add-ons	Improves efficiency Documents go to correct people Quick start on new cases	Slower release Models could be ineffective
3 No Action	No short term costs	Data searches remain inefficient Important information could be missed

Recommendation Justification: Option 2

Option 3, the current method, is inefficient. At a minimum, the search engine should be built.
Though Option 2 will have a slower release and there is a possibility of the document recommendations being inefficient, most of the required analysis will already be complete for the search engine. The effort required to expand the project is minimal compared to the potential benefits.