Development of MNP Health & Environmental Literature Platform (MNP-HELP):

A Curated Literature Repository for Risk Assessment Research

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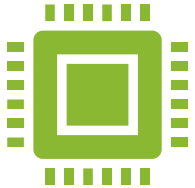
Overview of Project

Develop

Develop a searchable, user-friendly database of MNP literature and associated meta-data that is relevant to human health and ecological risk assessment

Reduce

Reduce need for researchers to independently track and review published literature



Streamline

Streamline literature reviews and data gathering for existing and new R&D efforts.

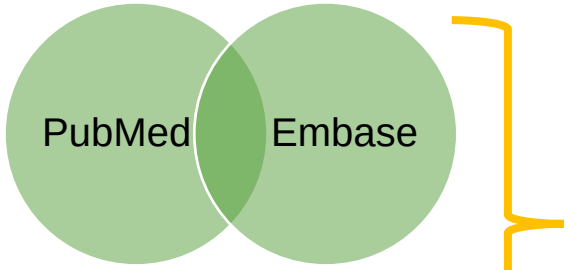
Project outline

- Task 1. Project planning & protocol development
- Task 2. Search implementation & screening
- Task 3. Development of guidance & best practices
- Task 4. Web database development
- Task 5. Database maintenance plan

Protocol elements

- Context and Background
- Methods
  - Reference identification
  - Inclusion/exclusion criteria
  - Categorization
  - Piloting and Reviewer Calibration

Search & screening process



~10,000 references

- Validate success of search syntax with known key references

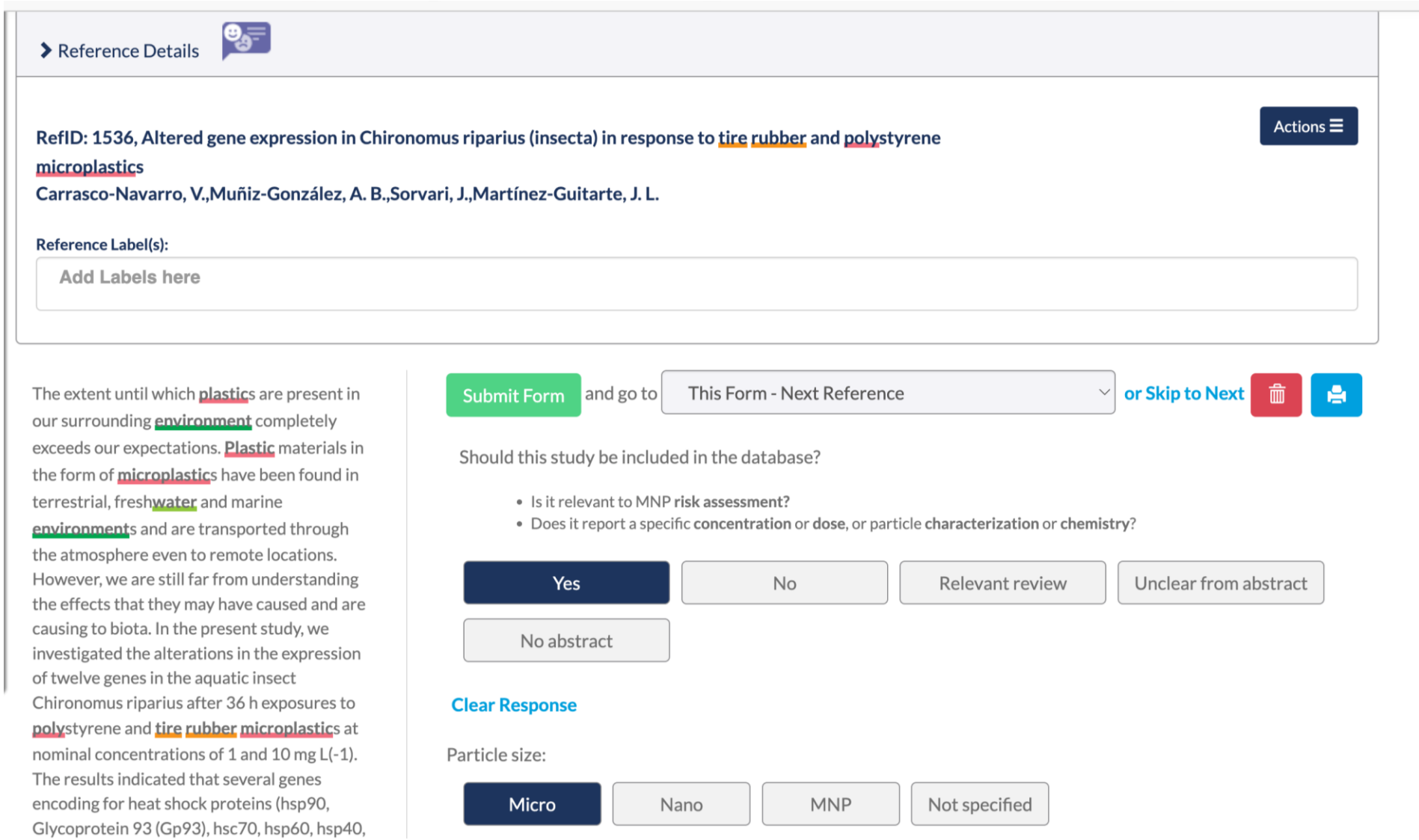
- Overall sense of landscape
- Topic modeling
- Identification of papers for DistillerSR AI training
- Validate with known key references

- Initial include/exclude using AI re-rank and AI screen
- Develop Classifiers for categorization as project progresses
- Train with known key references

Inclusion/Exclusion Criteria at the Title and Abstract Level

	Include	Exclude
Population	• Any	• No exclusions
Exposure	• Micro- or nano-plastics • Any exposure routes or media • Quantitative measurement or estimation informed by a measurement	• No micro or nano-plastics • No quantification of exposure • Inadequate exposure data for quantitative characterization of exposure-response relationship
Outcomes	• Any adverse health outcomes • Mechanistic outcomes • Biomonitoring data • Exposure data • Fate and transport data	• Mitigation only papers (treatment, cleanup, etc.)
Reference type	• Primary studies • Systematic Reviews • Narrative reviews tagged but not further categorized	• Opinion pieces • Commentaries • Letters to the editor
Study model/ design	• *In vitro* study designs • *In vivo* study designs • Epidemiological studies • Biomonitoring studies • Ecological studies • Fate and transport studies	• Case studies or case series
Additional criteria		• Abstract in foreign language

What studies should be included?



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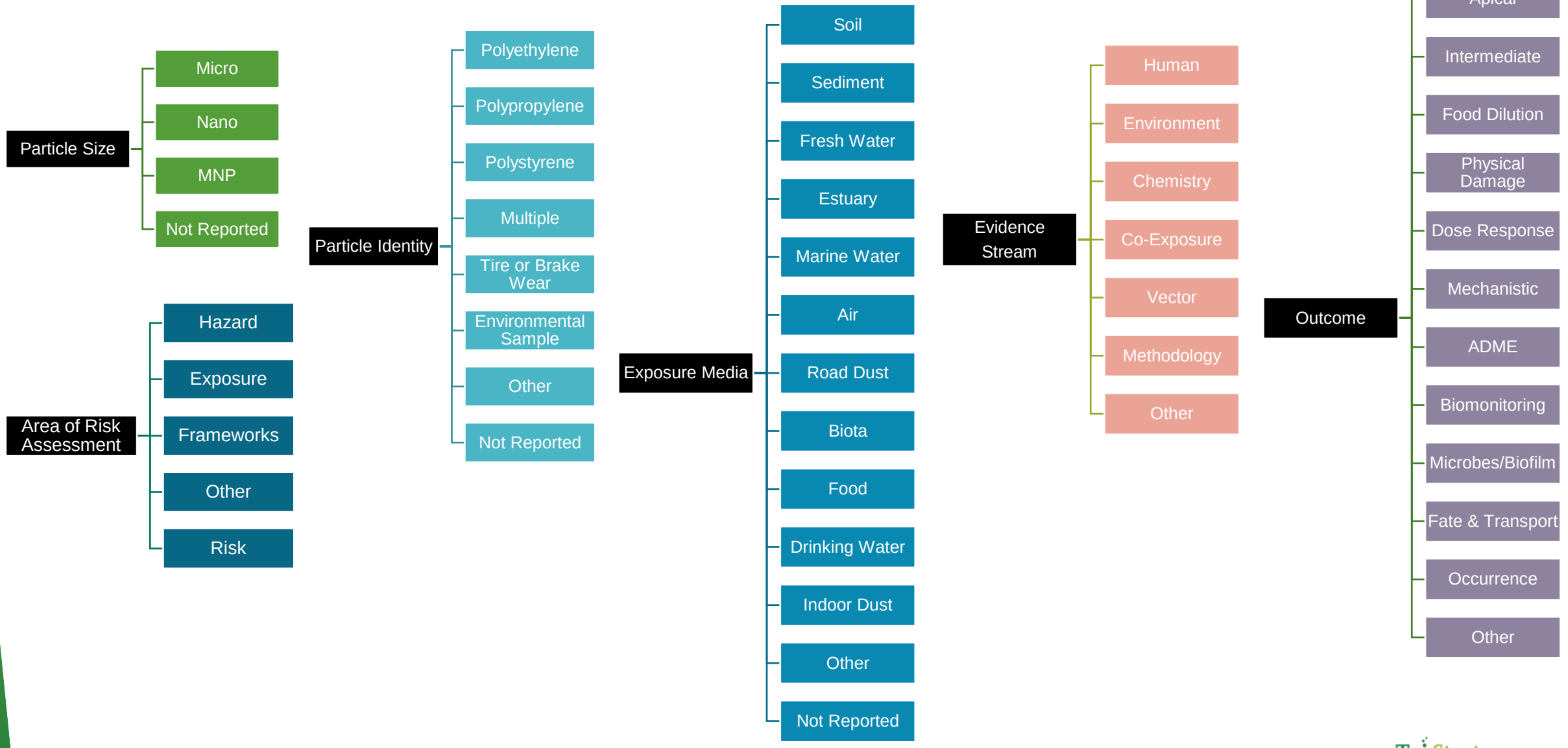
Example of Classification



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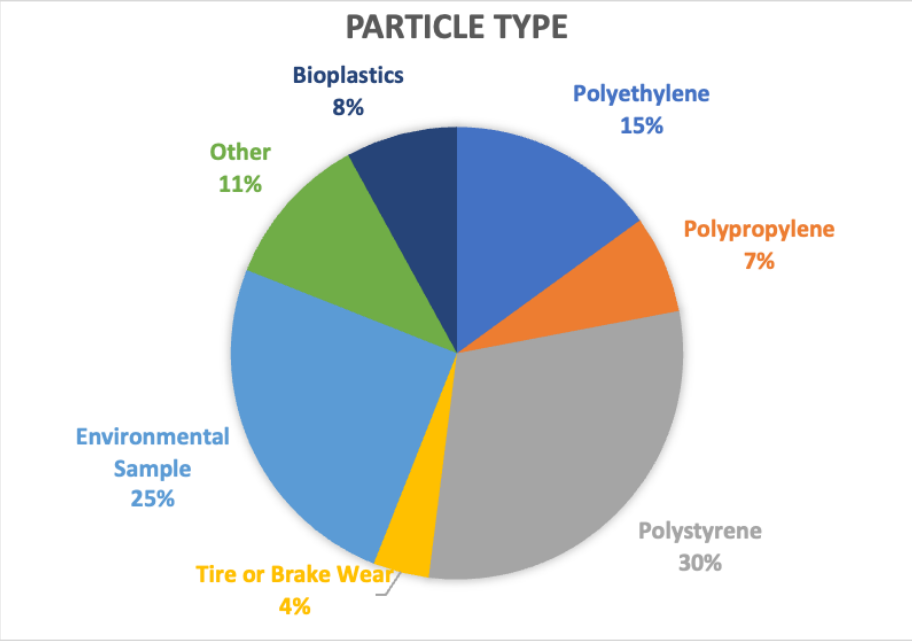
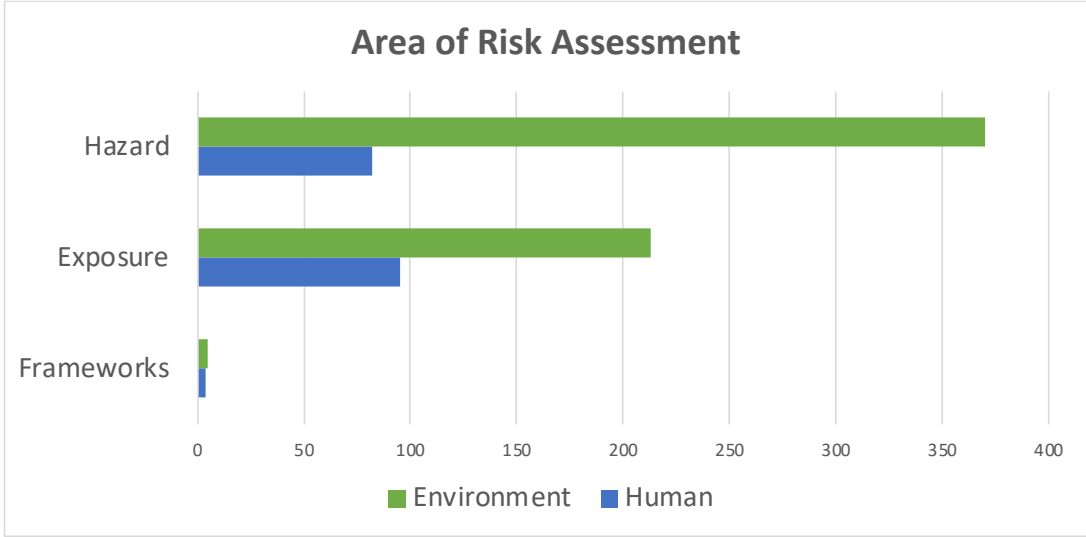
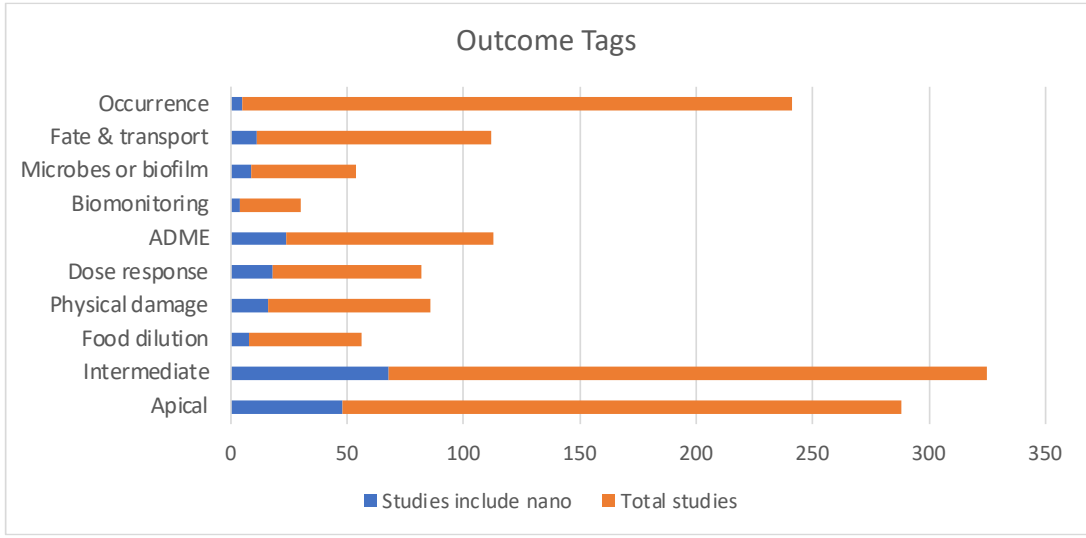
Data Dashboard Example: Charts







Preliminary results based on initial 1,000 studies reviewed; may not be representative of the full dataset

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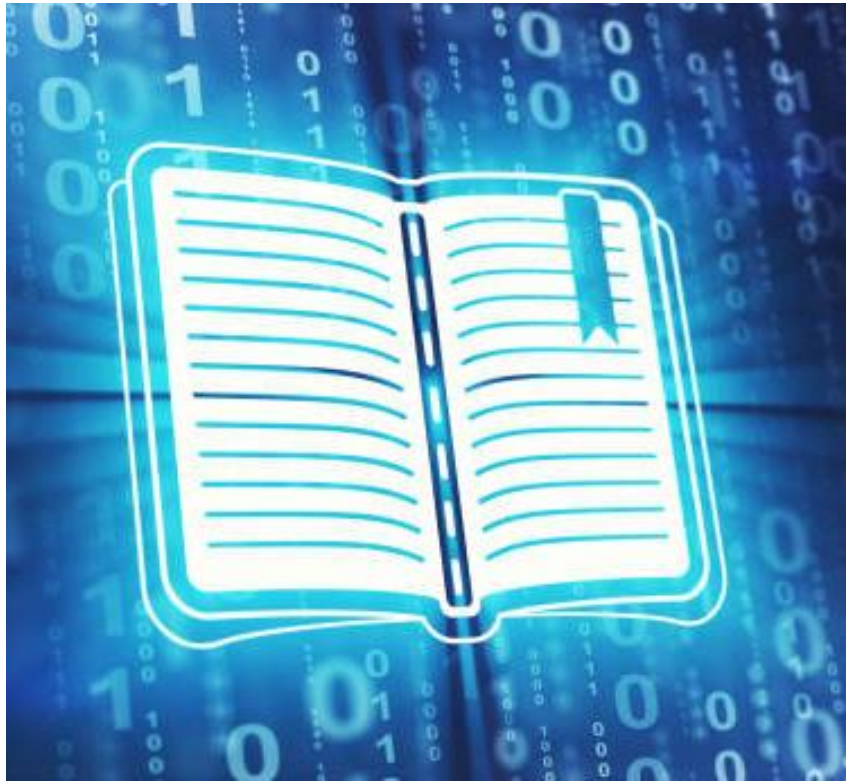
Next Steps…

- AI training
  - Use the first 1000 papers manually reviewed by scientists to train AI program to recognize and tag the remaining 9000 papers
    - Establish ‘yes’ or ‘no’ questions for each category and tag
  - Run AI program
  - QA/QC AI results
- Design database
- Populate database
- Database update plan



Acknowledgments

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Questions?