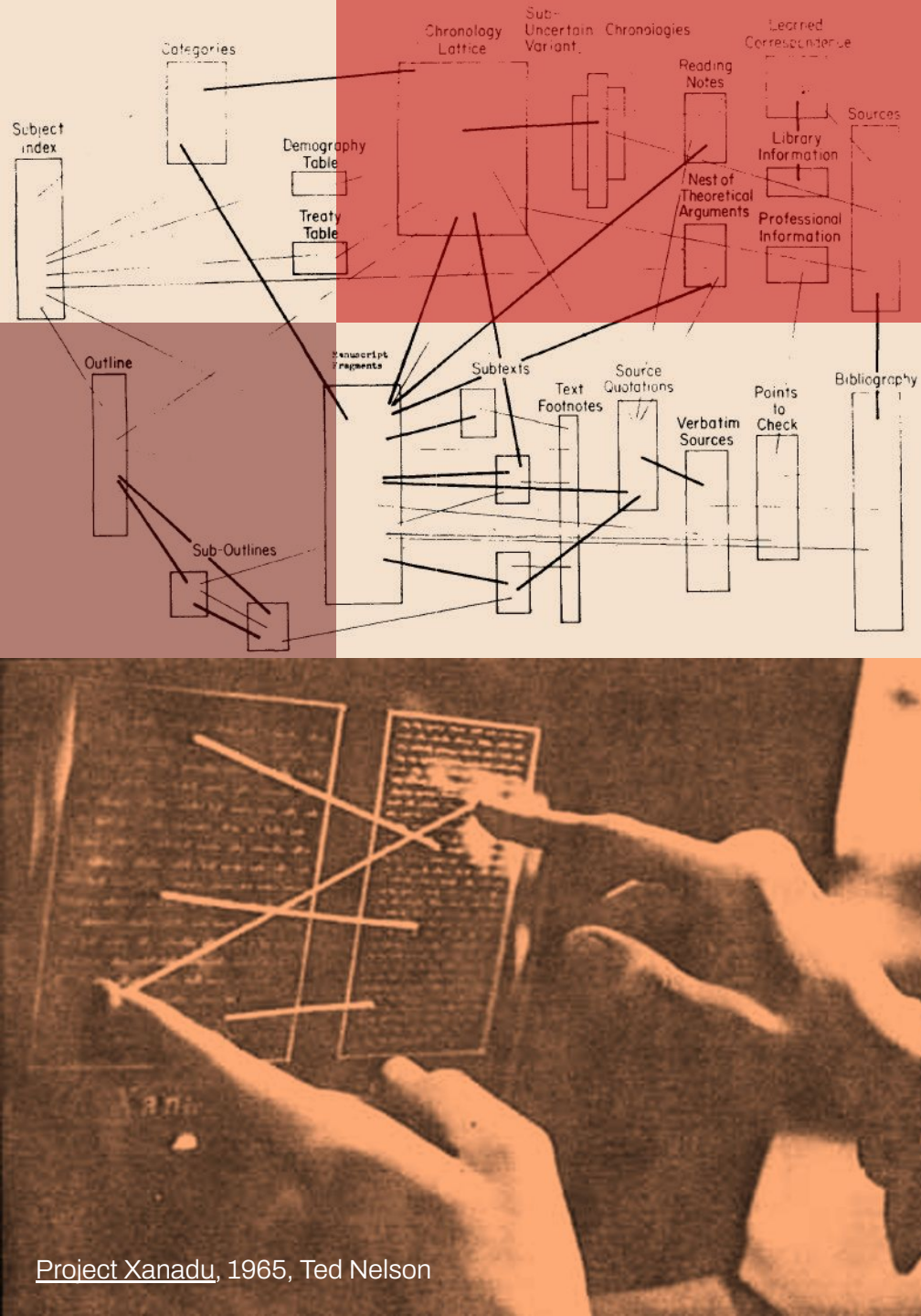


# Making Hyperbooks for Climate Change Literature

Combining the Semantic Web & Multi-format Publishing

By Simon Worthington

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# Why Hyperbooks are important for the UN IPCC Reports

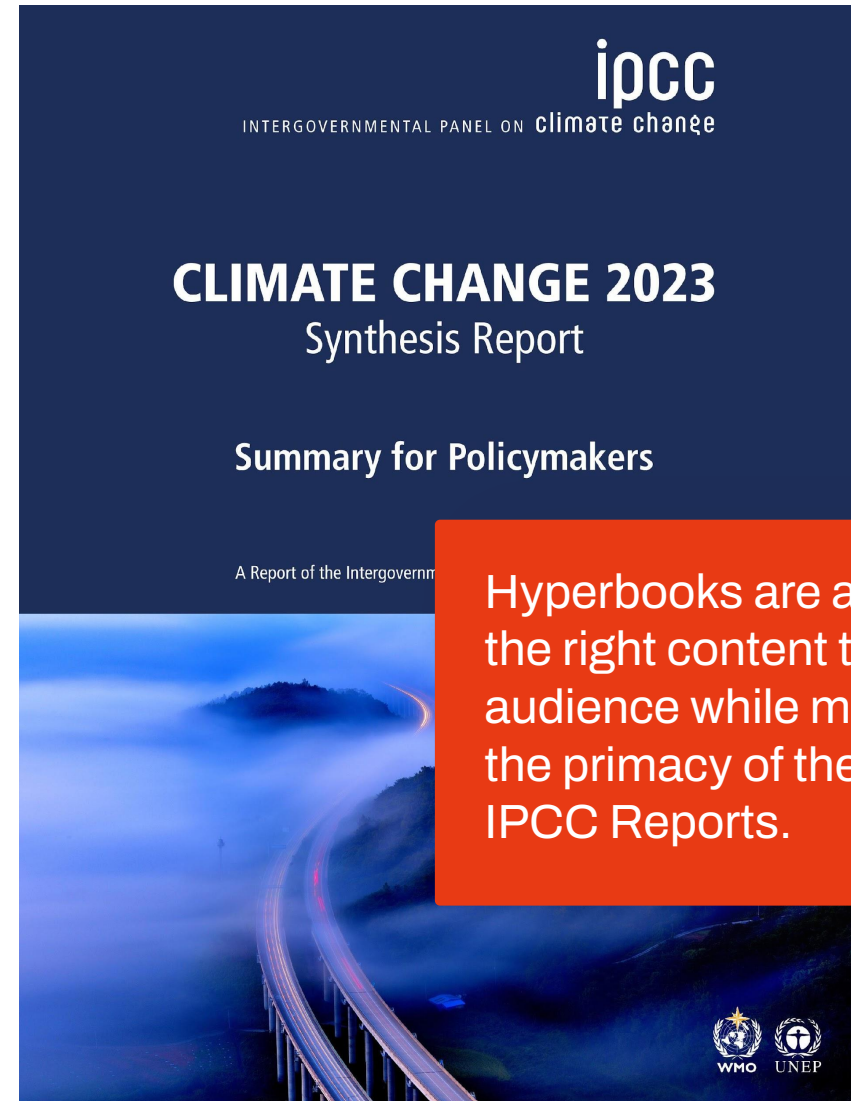
semanticClimate "How can everyone read these reports?"

If we can answer this question for different audiences then we have succeeded. If readers can take the message and tools and spread them further we have triumphed.



UN Secretary-General António Guterres...

"how-to guide to defuse the climate time-bomb."



Hyperbooks are a way to get the right content to the right audience while maintaining the primacy of the source IPCC Reports.

IPCC, *Climate Change 2023: Synthesis Report (SYR)*.  
<https://doi.org/10.59327/IPCC/AR6-9789291691647>

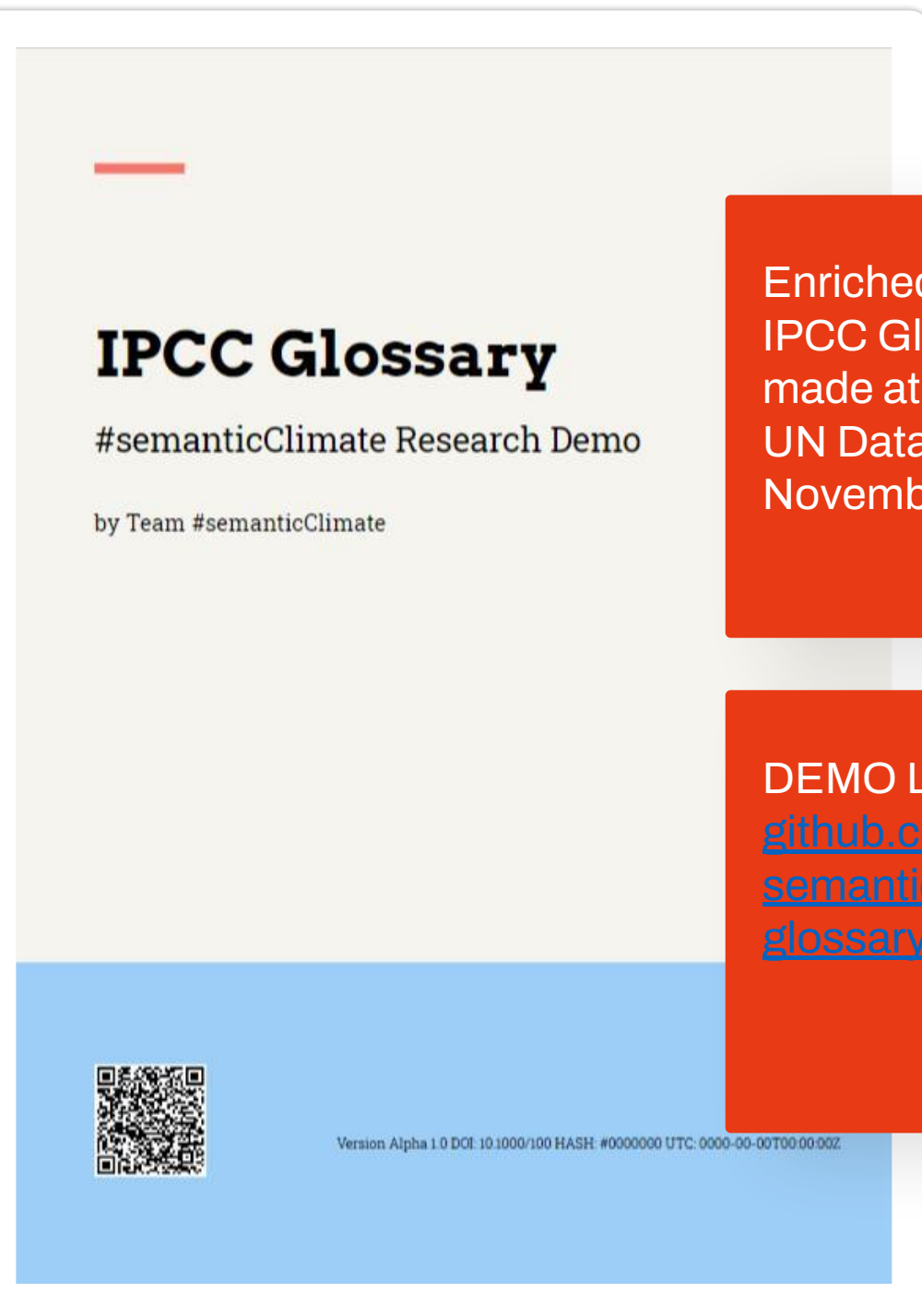
# What are Hyperbooks?

A way to enable the free flow of knowledge.

The Hyperbook is a way of publishing that can be adopted by different platforms.

Hyperbooks are about the application of the semantic web, open web, computational publishing, open standards, and open science methods and values to automated publishing workflows.

- Corpus retrieval & semantic annotation
- Enrichment and interoperability
- Reader production: Search, collation, & review
- Publication: Packaging & multi-format output

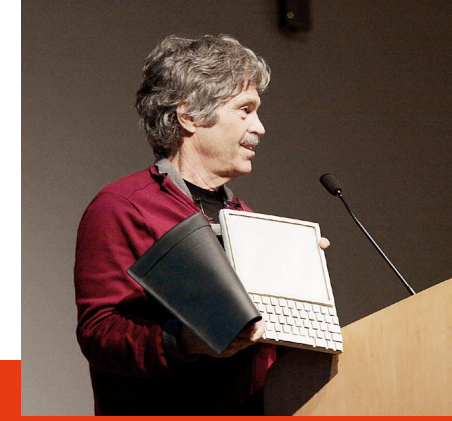
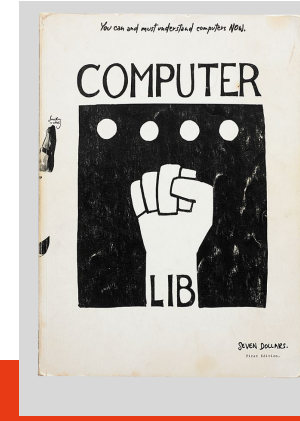
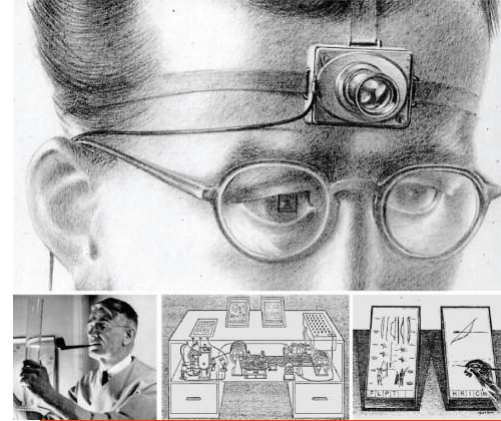


Enriched  
IPCC Glossary  
made at the  
UN Datathon,  
November 2023

DEMO LINK:  
[github.com/  
semanticClimate/  
glossary-demo](https://github.com/semanticClimate/glossary-demo)



L'univers, l'intelligence, la science, le livre	
<p><u>Les choses</u></p> <p><i>L'Univers, la Réalité, le Cosmos</i></p>	
<p><u>Les intelligences</u></p> <p><i>qui pensent les choses fragmentairement</i></p>	
<p><u>La science</u></p> <p><i>Remet et coordonne en ses cadres les pensées de toutes les intelligences particulières</i></p>	
<p><u>Les Livres</u></p> <p><i>Transcrivent et photographient la science selon l'ordre divisé des connaissances</i></p> <p><i>La Collection de livres forment la Bibliothèque</i></p>	
<p><u>La Bibliographie</u></p> <p><i>Inventorie et catalogue les livres</i></p> <p><i>La réunion de notices Bibliographiques forme le répertoire Bibliographique universel</i></p>	
<p><u>L'Encyclopédie</u></p> <p><i>Dossier (Texte et Image)</i></p> <p><i>Atlas Microfilm</i></p> <p><i>Concentre, classe et coordonne le contenu des livres</i></p>	
<p><u>La Classification</u></p> <p><i>Conforme à l'ordre que l'intelligence découvre dans les choses, sert à l'élus à l'ordonnance de la science des livres, de leur Bibliographie et de l'Encyclopédie</i></p>	



# Hyperbook history

The hyperbook is not a new or original idea. There are many examples and here are a few from the modern digital age and from before in the electronic and telegraphic age.

What connects them together is the idea, the dream of the World Brain and universal access to knowledge.

And what they all have in common is the failure to realise the projects and the slow adoption of the ideas.

- The Universal Bibliography, Paul Otlet - 1895
- Memex, Vannevar Bush - 1945
- Xanadu, Ted Nelson - 1960
- Dynabook, Alan Kay - 1972

# #semanticClimate prototypes

Three prototypes made with semanticClimate.

Each is a proof-of-concept of a component of Hyperbooks.

IPCC Reports and City Climate Change Plans: Proof of concept prototype - Open Climate Reader

Q1. Mitigation & Cutting Emissions?  
Q2. Renewable energy?  
Q3. Sustainable Transport Options?  
Q4. Adapting to Impacts?  
Q5. Successful example plans?  
About the prototype  
Prototype Next Steps & Workflows

IPCC Reports and City Climate Change Plans: Proof of concept prototype - Open Climate Reader

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Q

The prototype is a tool for creating 'Readers' made from collated content from IPCC reports. Users can search IPCC Reports, select the content relevant to their questions and create a reader to share with others.

The prototype shows answers from IPCC Reports to five FAQ questions asked about City Climate Plans - outputted as a multi-format Reader - DOCX, PDF, E-Book, and as sources - all referenced to the original content.

Use case: Climate plan authors need to find IPCC Report recommendations, sections, visualisations, and external references and use these in their own city climate plans as well as to distribute the content to their community for the purpose of making them democratically - understandable, accountable, and transparent.

[Read about](#) the next steps, workflows, and technologies.

- Next prototype #2: Automate Reader creation
- Next prototype #3: AI assisted authoring

semanticClimate is looking for support for the prototype rounds - contact semanticClimate on the [GitHub discussion thread](#).

The prototype was made during the semanticClimate hackathon held at the FORCE11 Scholarly Communications Institute (FSCI) - 2023 Summer School - July 31 - August 4 2023.

Prototype questions

Hackathon participants created five questions that are common to City Climate Plans.

Ahead of technically automating the search the **mock-up prototype Reader** shows the types of examples search results that could be collated.

Questions

City - Open Climate Reader

IPCC Glossary

#semanticClimate Research Demo

by Team #semanticClimate

IPCC Glossary

United Nations  
Framework Convention on Climate Change

FCCC/PA/CSA/2021/10/Add.1

Distr.: General  
8 March 2022  
Original: English

Conference of the Parties serving as the meeting of the Parties to the Paris Agreement

Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021

Addendum

Part two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its third session

Contents

Decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement

Decisions	Page
<a href="#">1.CMA.3</a> Glasgow Climate Pact.....	2
<a href="#">2.CMA.3</a> Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement.....	12
<a href="#">3.CMA.3</a> Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement.....	24

UNFCCC Session Document



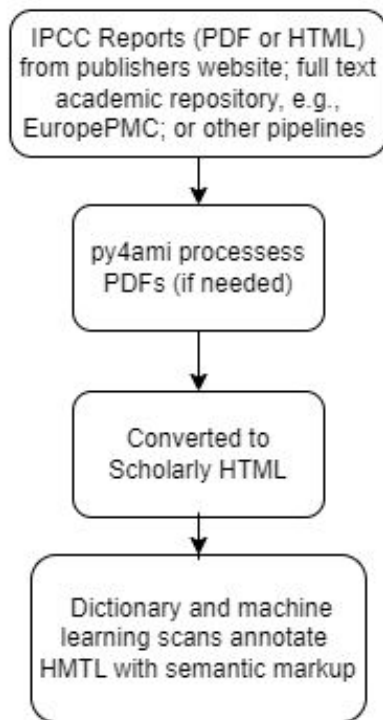
Open  
Science Lab  
@TIB

Leibniz Joint  
Lab Future  
Libraries &  
Research Data

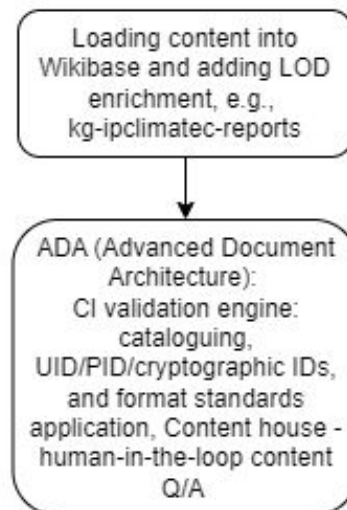
# Research context, competences, & projects

- TIB, Leibniz Information Centre for Science and Technology, R&D – **ORKG, Knowledge Graphs**
- Open Science Lab – **NextGen Books service**
- Leibniz Joint Lab Future Libraries & Research Data – **research, development, and teaching**
- NFDI4Culture, Consortium for Research Data on Material and Immaterial Cultural Heritage – **national library services development for research in culture**
- COPIM (2019–2023) Community-led Open Publication Infrastructures for Monographs, Experimental Publishing – **Computational publishing (Jupyter Notebooks and Wikidata)**

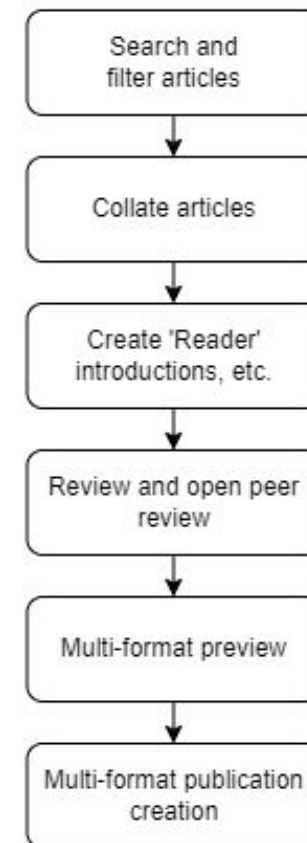
## Corpus: Retrieval, semantification, and interoperable formats



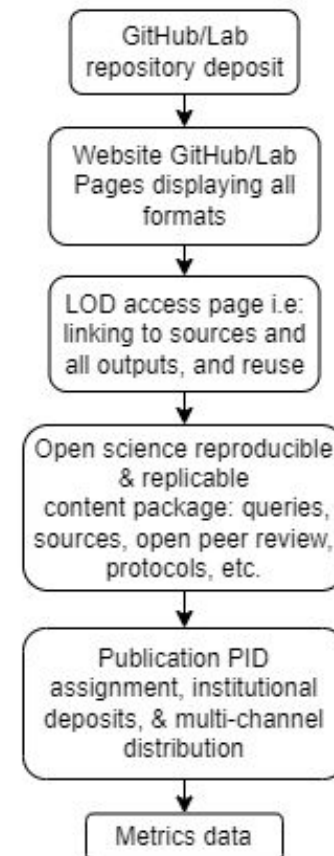
## Enrichment and interoperability



## Reader production: Search and article collation, and review / open peer review



## Reader publication: Packaging & Multi-format output



# Hyperbook workflow

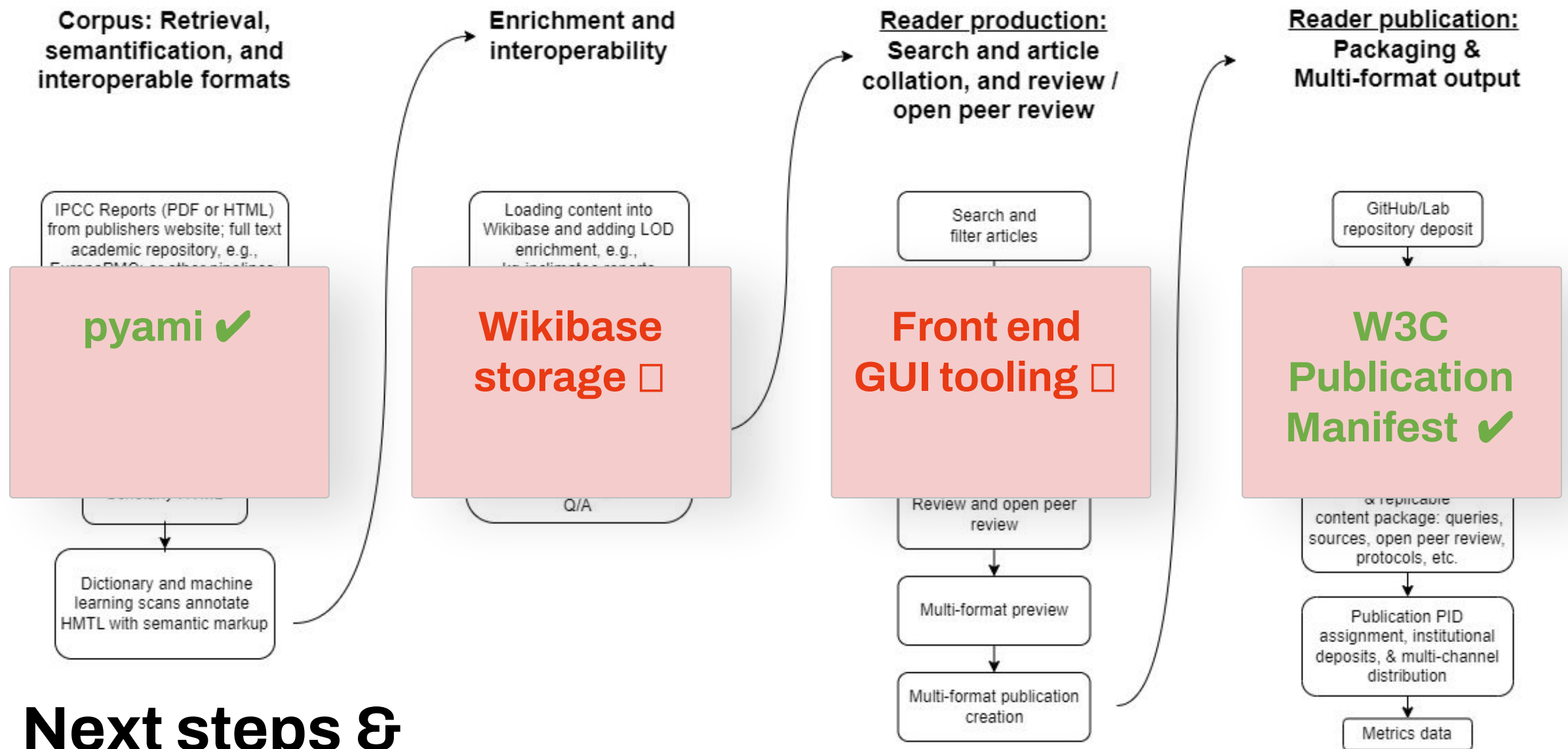
IN - Low quality digital formats

OUT - Enriched LOD content as reproducible and replicable, open science, semantified publications

A consultation sketch for a Hyperbook for making Open Climate Readers

[Prototype Next Steps & Workflows \(GitHub\)](#)





**Next steps & what's needed**



# IPCC Reports and City Climate Change Plans: Proof of concept prototype - Open Climate Reader

AUTHOR  
FSCI Hackathon Team

PUBLISHED  
August 4, 2023

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### Questions

- Q1. What measures can be taken by urban centers to mitigate and cut down on their emissions?
- Q2. What role do renewable energy sources play in city climate plans?
- Q3. How can cities promote sustainable transportation options in their climate plans?
- Q4. What strategies do cities employ to adapt to the impacts of climate change?
- Q5. What are some successful examples of cities implementing effective climate plans?

## Background

The IPCC Reports are the source for the most important scientific knowledge on climate change.

City climate plans are important tools to help mitigate the impacts of climate change.

Currently IPCC reports are not supported by search services that allow for granular indexing. The semanticClimate research project uses Linked Open Data (LOD) and Wikidata / Wikibase technologies to enable better visibility for the IPCC Report contents.

## Links

- semanticClimate project
- About the hackathon
- More about the City Climate Plan Prototype

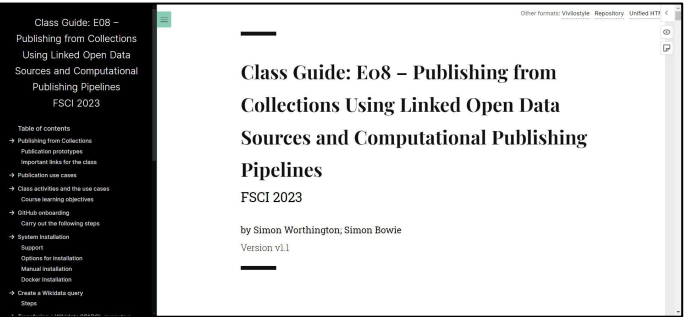
# Prototype #1: City – Open Climate Reader

# Prototype #2: Culture – Open Climate Reader



## #wikibase

The two current prototypes underway. Both are using the model where users search IPCC reports stored in a Wikibase and the query results are rendered multi-format.



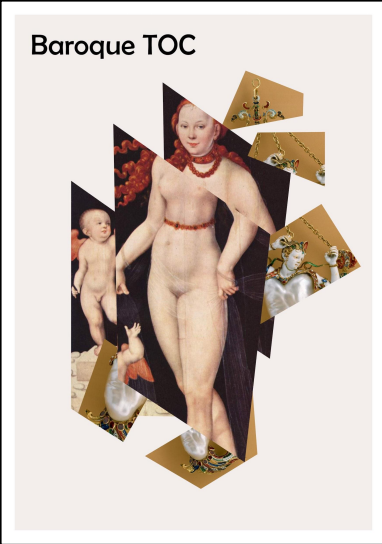
# Class design – FSCI 2024



For FSCI 2024 this year at UCLA in person the plan is to run a class based on the India Tour Hackathon events.

Alongside rapid prototyping, and hackathons, another process for driving development is to run classes.

Classes have been run with [FORCE11 Scholarly Communications Institute](#) (FSCI) in 2023 — as with the University of Applied Arts and Sciences Hannover [Open Knowledge](#) course — incidentally run on Wikiversity. And [Baroque ToC](#) with NFDI4Culture and COPIM.





# Get involved

semanticClimate is a volunteer run open research project.

Currently we're looking for:

- **Course:** Creating Open Climate Readers: OER designers, testers, course documentation writing, etc.,
- **prototyping and product development:** Open Climate Reader,
- **Skill areas:** Wikibase, Data Modeling for LOD cataloguing, Django, Python, CSS Paged Media.

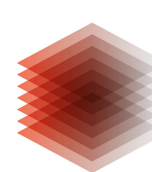
# Thank you!

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## Any questions?

By Simon Worthington

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Forschungsdaten  
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*for CULTURE*