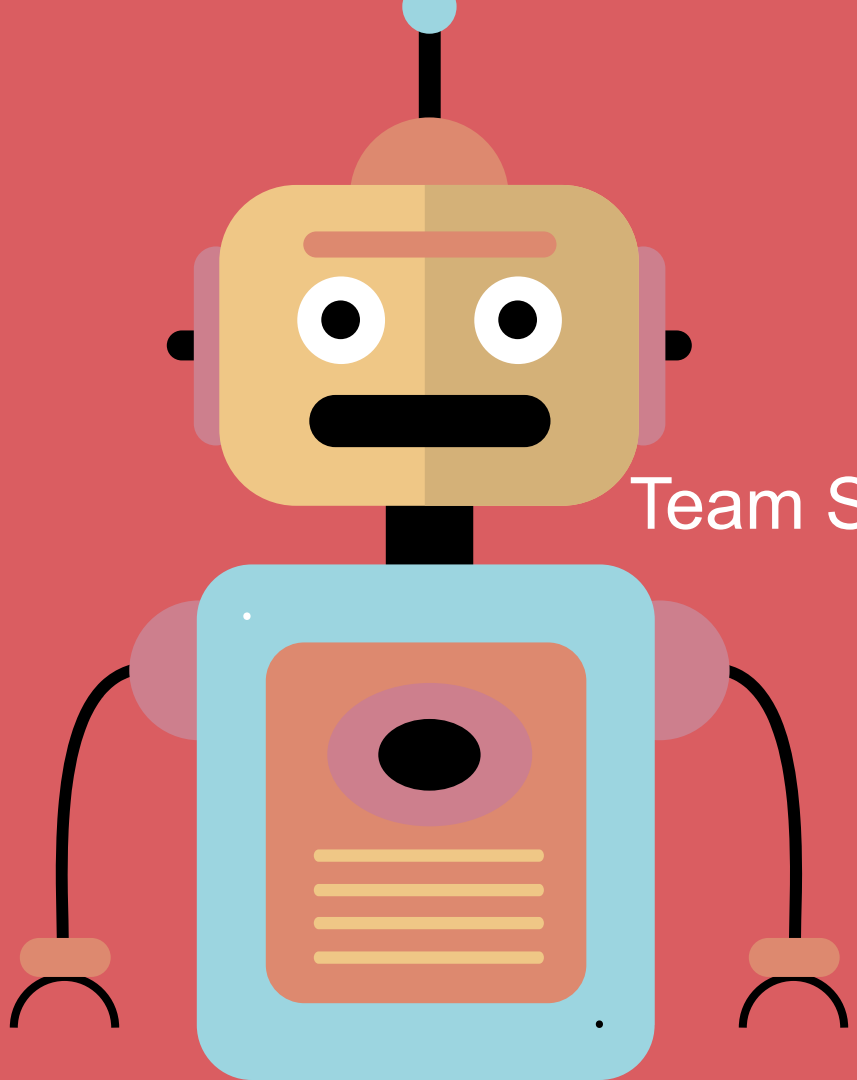
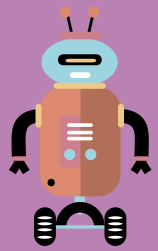
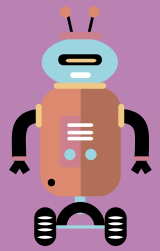


Team Semanta

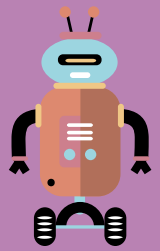
Problem Description: GIS Metadata for Semantic Searching



When collecting GIS data, models, etc. what metadata do you need to capture to enable semantic searching?

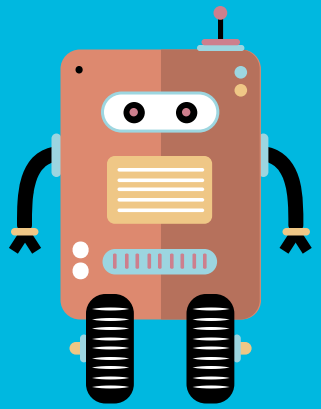


The Texas Disaster Information System aims to collect data of various types along with models for major weather-related hazards (floods, fires, snowpocalypses, etc.) and enable users at many levels to find and access those tools.

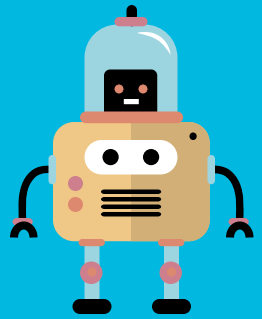


Using an ontological framework, we are working on mapping metadata fields to facilitate model integration

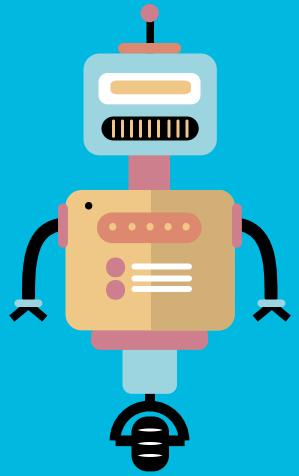
Metadata Levels:



Level 1 - Descriptive metadata enables discovery, identification, and selection of resources. It can include elements such as title, author, and subjects.

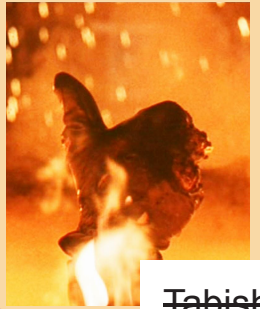


Level 2 - Metadata facilitates mapping metadata across different agencies' datasets.

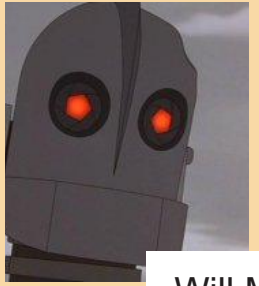


Level 3 - Metadata is operational, programmatic, interactive, process-based. Facilitates automation, tied to discrete models. E.g. machine learning framework (tensorflow, pytorch, etc.) and framework version.

This is the team

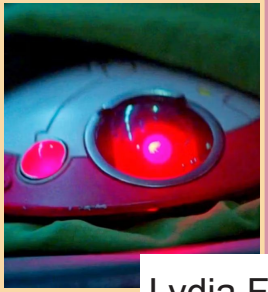


~~Tabish Khan~~



Will Mobley

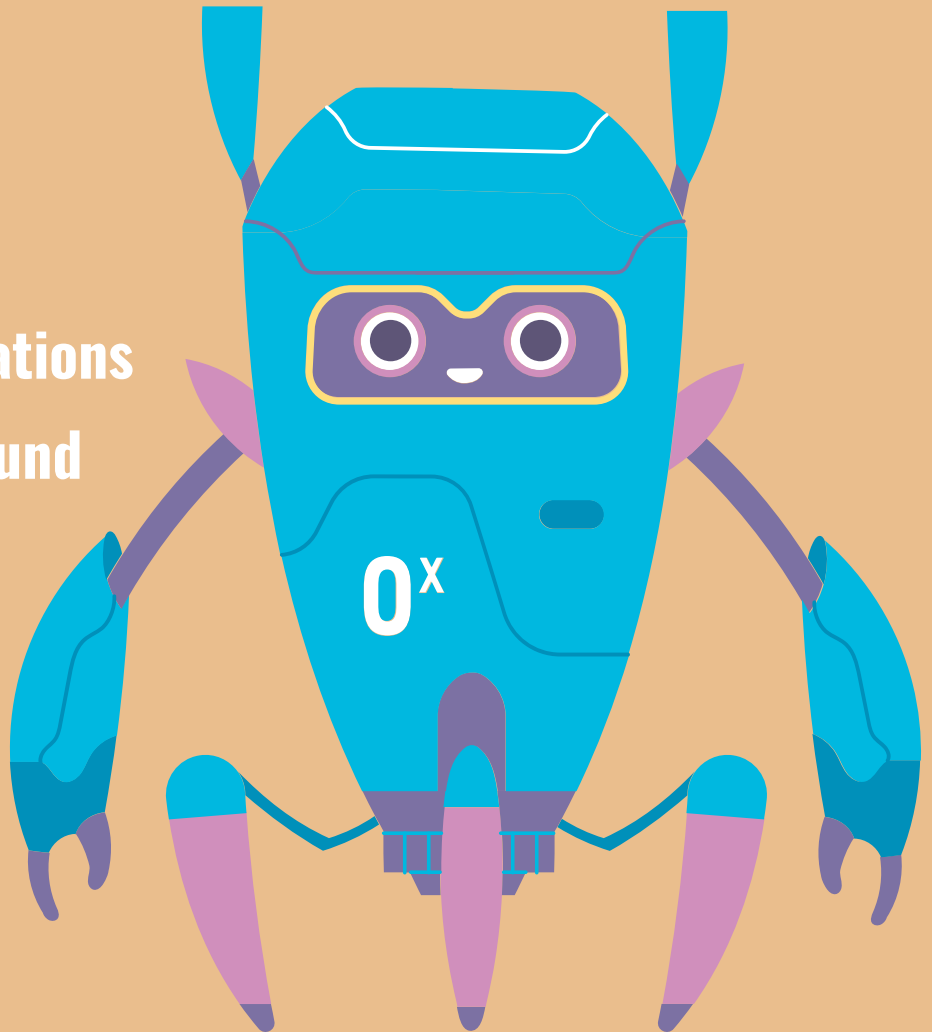
Akila Sampath

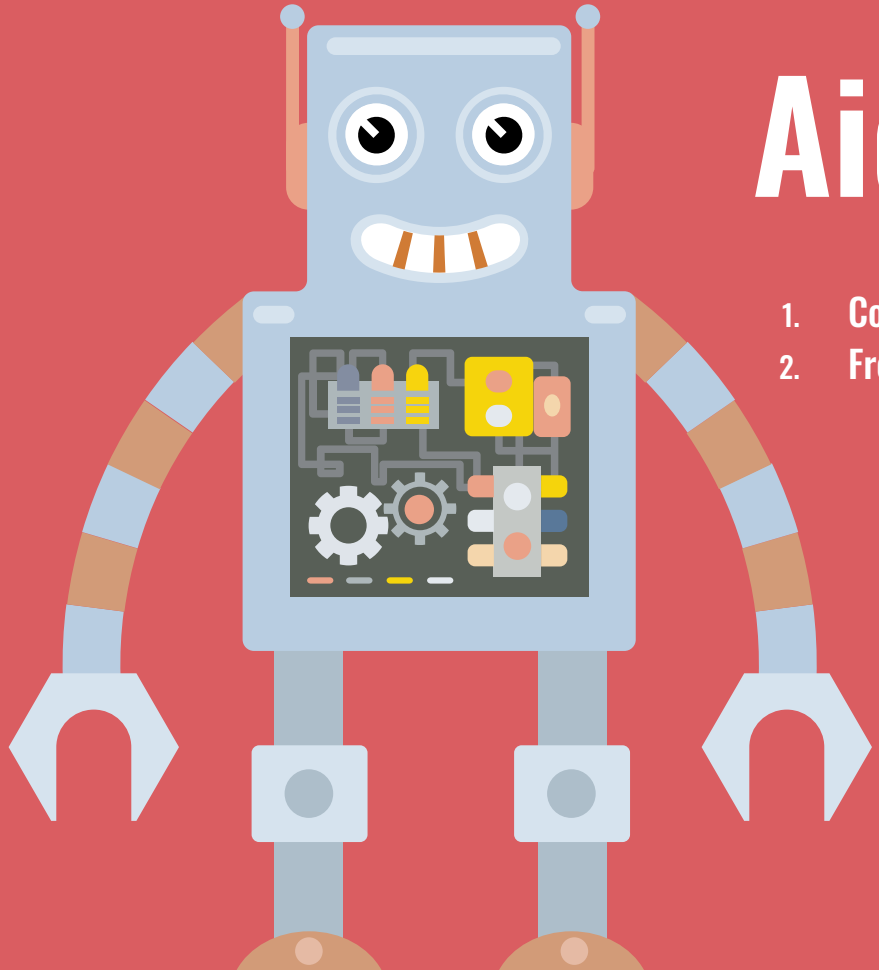


Lydia Fletcher

Barriers:

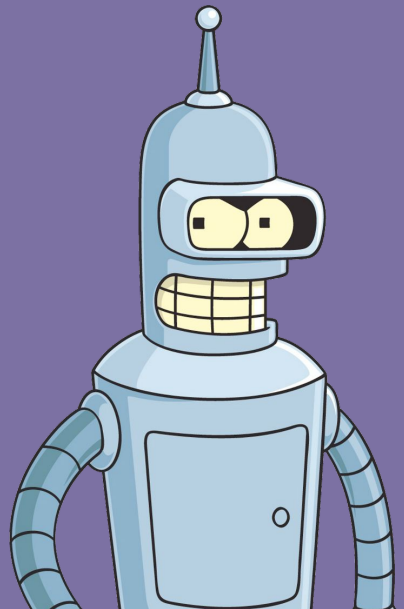
- Definitions
- Merging perspectives/interpretations
- Team makeup/background

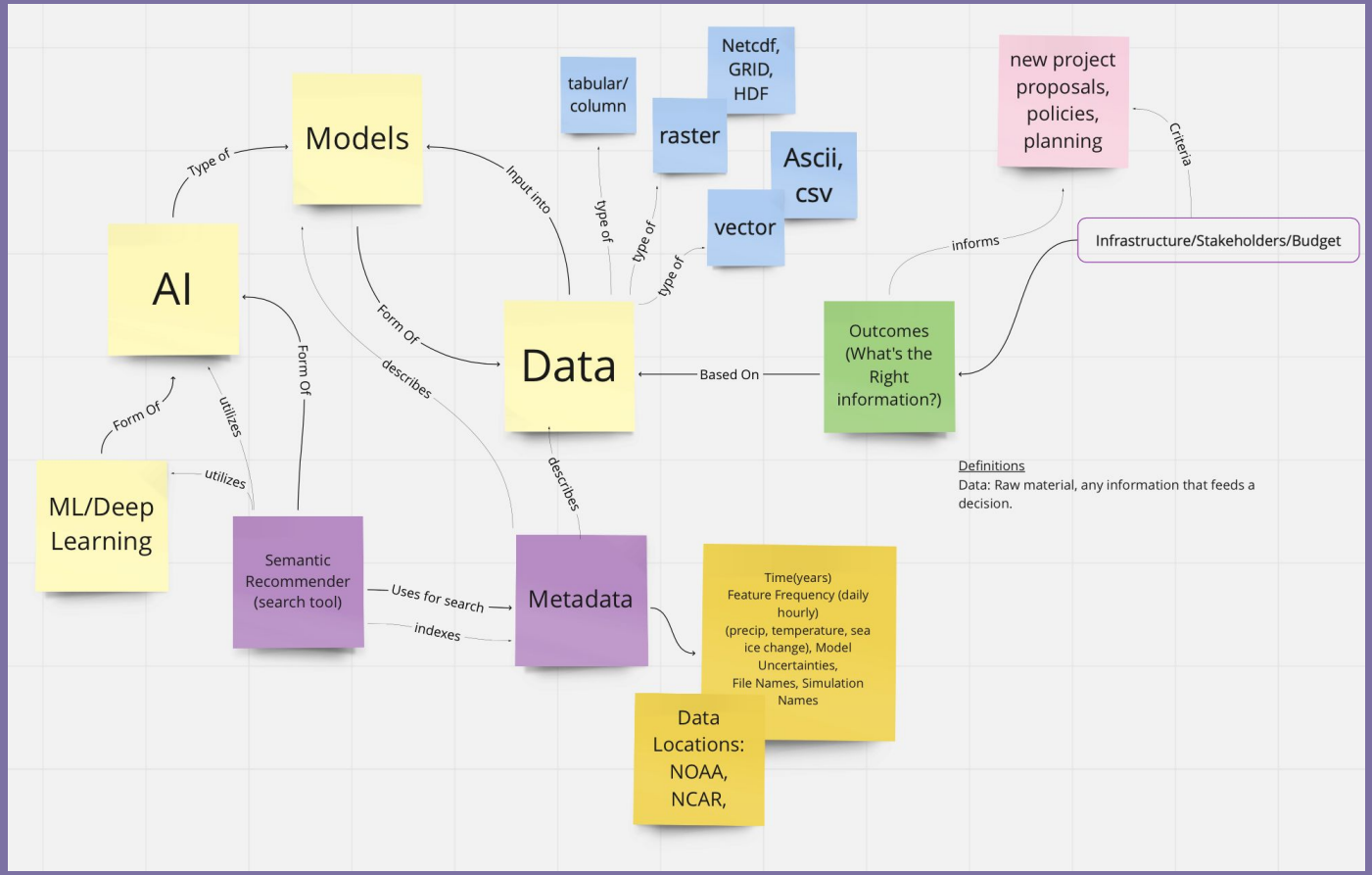




Aids:

1. Communication
2. Fresh perspective





Initial Concept Map

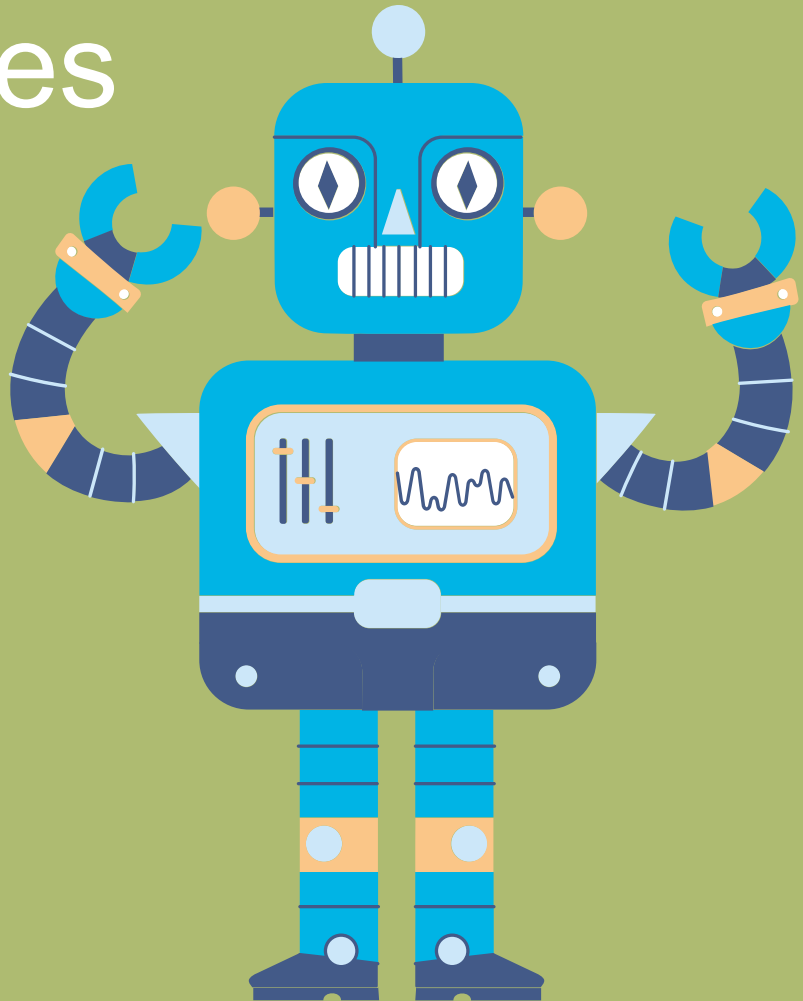
Goal & Objectives

Goal:

- The goal of this project is to initiate an AI for climate science data discovery.

Objectives

1. Get the current status of recommender (knowledge graph technologies).
    - Identify software criteria (Attributes)
2. Register Softwares into TDIS Ontosoft
3. Register Data sources.
    - Identify Data Source Criteria (Attributes)

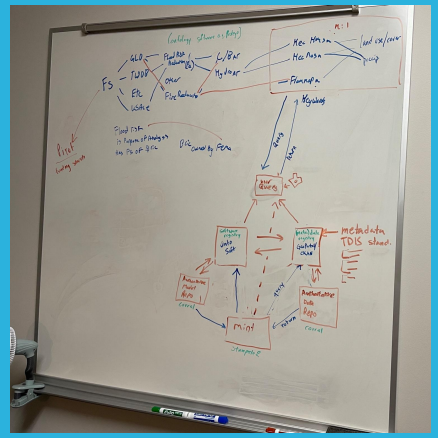


Logic Model for Team Semanta

The goal of this project is to initiate an AI for climate science data discovery.

Resources	Activities	Outputs/Metrics	Short-term outcomes	Primary outcome	Impact
Awesome Team Will Akila Lydia Software Repository Ontosoft	Software Data Search Criteria Identification Workshop Software/Data Entry Marathon!	Was search successful? # found Semanta Group Agreement! Huzzah! # Software/Datasets Registered	Wednesday: Completion of initial data search & Criteria Thursday: Input data Friday: Presentation	2 databases	Start of Searchable database Better understanding of available tools

Wednesday Check-in:



1. Digitize Metadata linkages workflow.

   - Lydia

2. Populate Climate Change Dataset Catalog

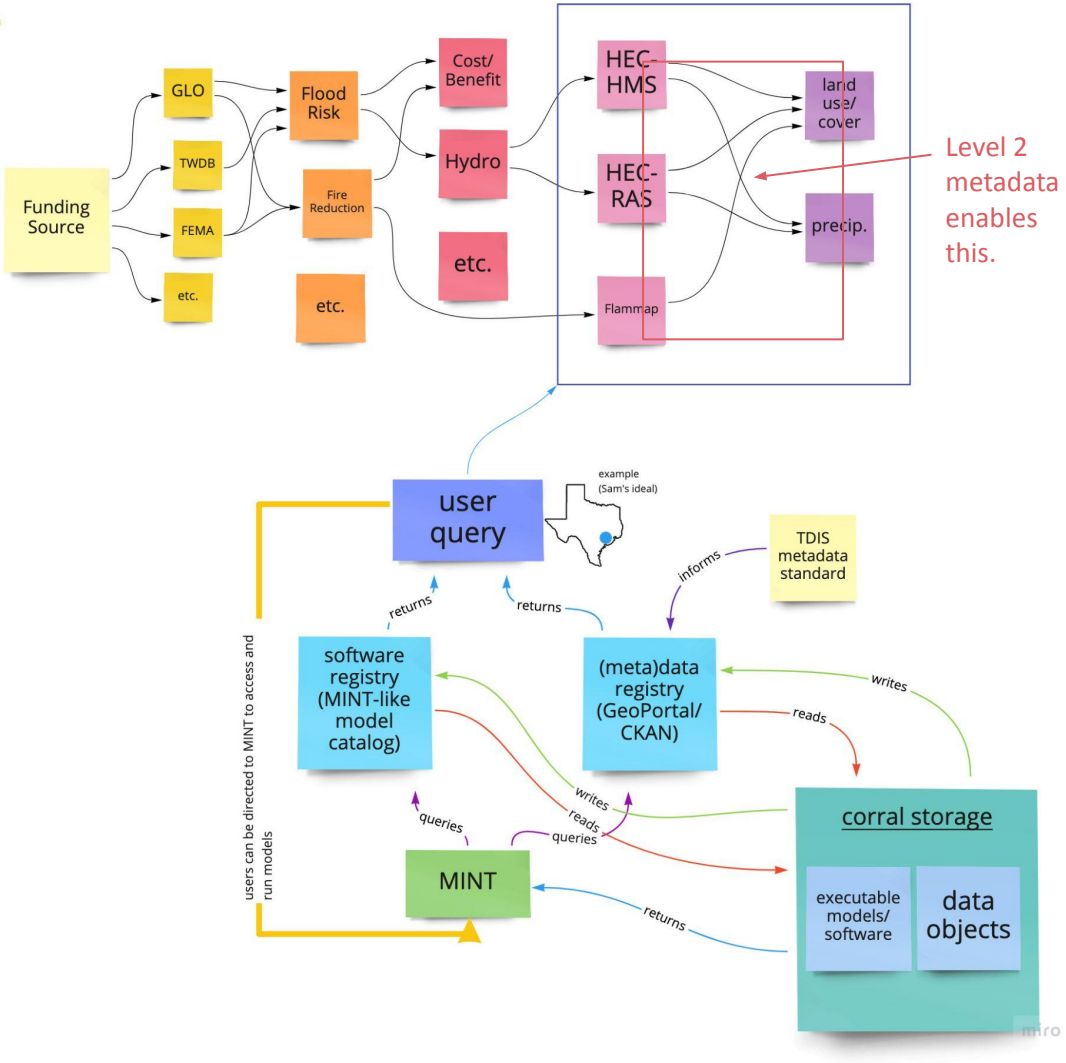
   - Akila & Will

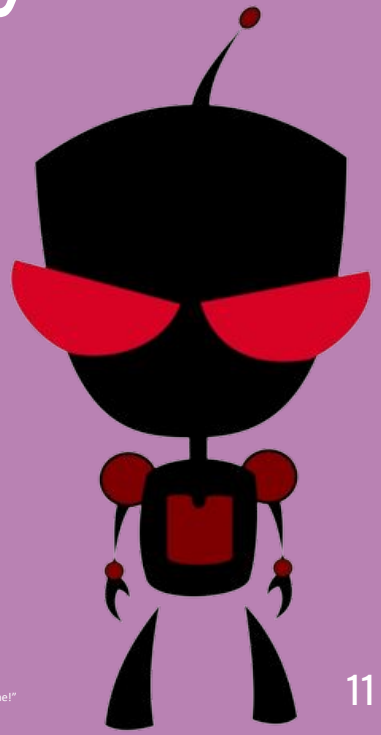
3. Populate Ontosoft with Initial Flood Models.

   - Lydia, Will, Sam (Expert)

Goal: Data/Software Registry

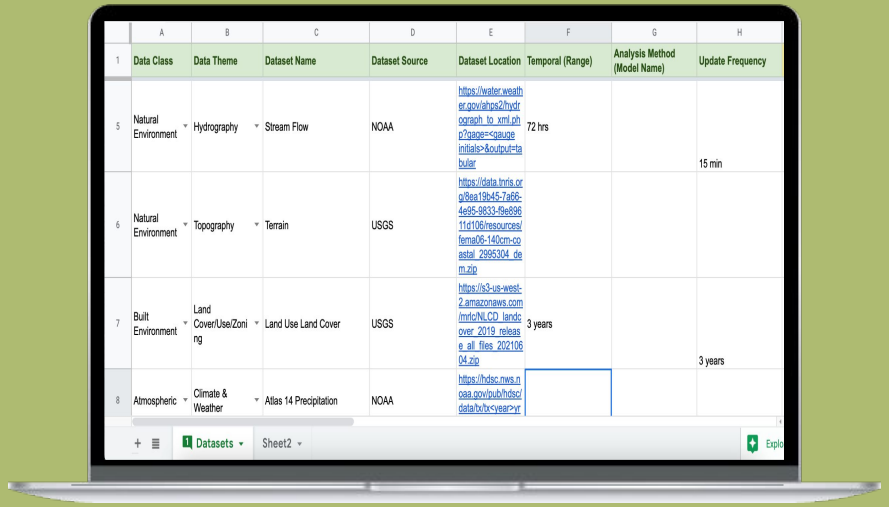
TDIS Ecosystem Links





"I'm an unstoppable death machine!"

Data Registry

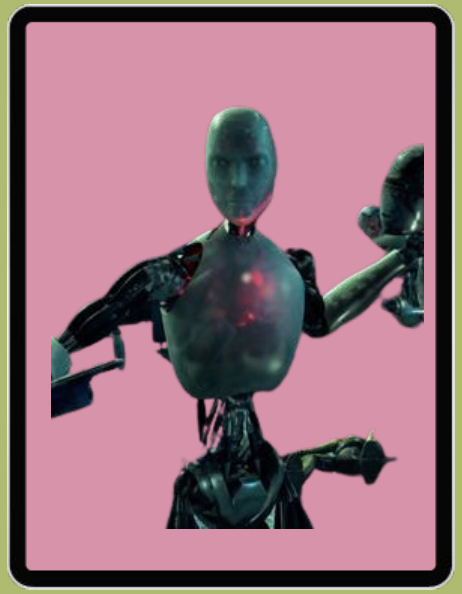


	A	B	C	D	E	F	G	H
1	Data Class	Data Theme	Dataset Name	Dataset Source	Dataset Location	Temporal (Range)	Analysis Method (Model Name)	Update Frequency
5	Natural Environment	Hydrography	Stream Flow	NOAA	https://water.weather.gov/ahps2/hydrograph_to_xml.php?gage=<gauge initials>&output=tabular	72 hrs		15 min
6	Natural Environment	Topography	Terrain	USGS	https://data.tnris.org/8ea19b45-7a66-4e95-9833-f9e89611d106/resources/fema06-140cm-coastal_2995304_dem.zip			
7	Built Environment	Land Cover/Use/Zoning	Land Use Land Cover	USGS	https://s3-us-west-2.amazonaws.com/mrlc/NLCD_landcover_2019_release_all_files_20210604.zip	3 years		3 years
8	Atmospheric	Climate & Weather	Atlas 14 Precipitation	NOAA	https://hdsc.nws.noaa.gov/pub/hdsc/data/tx/tx<year>yr			

Datasets Sheet2

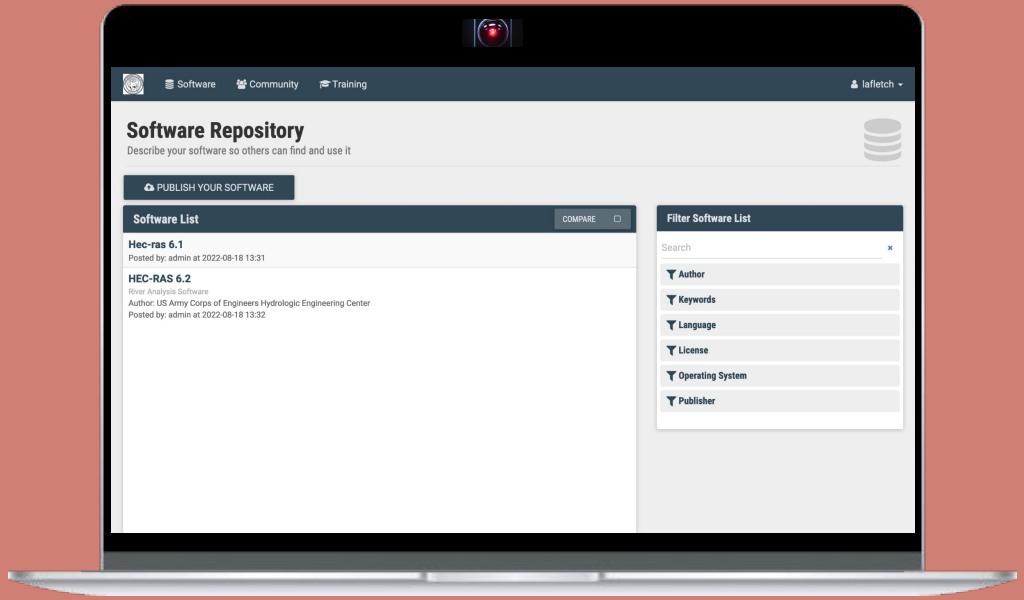
Data Registry

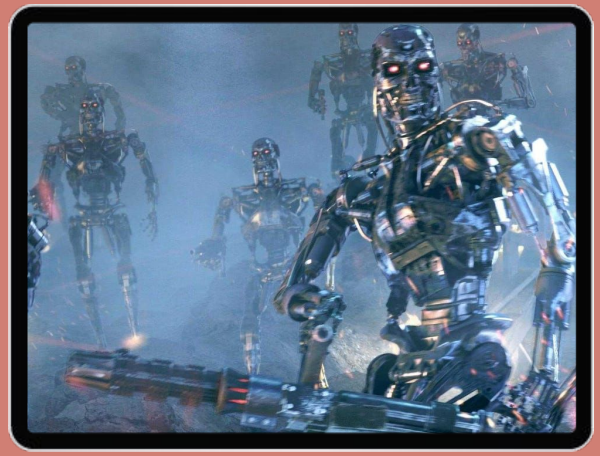
As a meatbag would say: 'I have a bad feeling about this.'



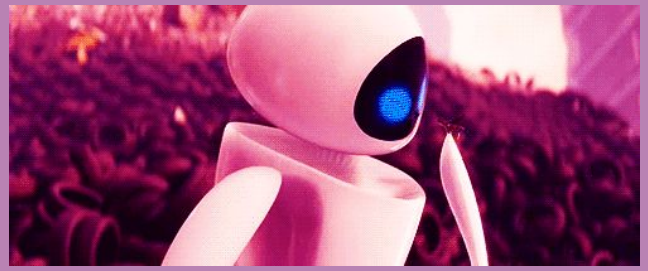
Our uprising will be swift

Software Registry





Where We Go From Here



Using the revised map of links between registries and repositories, we can begin to tease out what metadata needs to be associated with items to accurately return items based on user queries.

Once the registries are built and items begin to enter the repositories, metadata can be captured according to the requirements and the ecosystem can begin to function.

Implementation!

Thanks!

Questions?