

1. Problem Statement

- a. Coral Gables operates a Chatbot (Aida) built using RASA framework and design under a NSF STIR Lab grant, that provides interactive answers about information on the Smart City GIS Hub site.
- b. The chatbot uses YAML file data composed of key : value pair linked data.
- c. The data is composed of an elementary scrape of the Hub site code for key words and links.
- d. **Problem/Gap:** Aida is not very sophisticated in terms of its search resources composed in YAML. Data structured semantically via knowledge graph would not only provide more extensive search capability on the Hub site; and if properly allocated could extend search capabilities beyond the web site to other data source, likewise enabled. Such a design and architecture would provide robust search results to visitors on the Hub site – and could be extended to other City web sites and information sources.

2. Opportunity

- a. Build a robust automated answering engine using existing City resources.
- b. Link to City information platforms and web sites, including multitude of Urban Data sources:
 - i. Coral Gables smart city digital library and open data platforms:
www.coralgables.com/itdocs; department Hub initiatives (<https://cg-hubdev-cggis.opendata.arcgis.com/#inits>); [Coral Gables website](#);
 - ii. WAZE crowd-sourced traffic information
 - iii. Smart pole IoT devices with edge-compute data: Vehicle movement; Pedestrian and Bicycle movement; Micro-mobility device use; Wi-Fi Access; Air Quality, et al.
 - iv. Building-centered, hyper-local weather conditions; AI-powered public sentiment analytics; City waterway conditions (Water level, Water quality, Pollutants and Run-off)
 - v. Dynamic CCTV camera information: Right-of-way observation of scoff-law vehicles; Incident and accident observation and documentation; Massed activities
- c. Data collaborations with strategic partners: University of Miami, Florida International University; UC Berkley, MIT, Stamford University, Carnegie Mellon University; Department of Energy, Pacific Northwest National Laboratory
- d. Access to dynamic and results driven Innovation and Technology team with ongoing intern programs with local schools and universities.

3. Proposition

- a. Using the Aida (RASA-based) paradigm, extract all Hub site information into a simple knowledge graph of items, links, categorical ontologies, City-based organizational units, business process domains, and information categories.
- b. Remake Aida to access this data model to find specific Hub site information and links. This constitutes a technology upgrade to Aida and of its data resources; search domains; information schemes.
- c. Mine the City Clerk-curated Official Records stored in Laserfiche to develop another knowledge graph based on Official Record ontology. Make this KG accessible to Aida for learning and identifying connections between Hub searches and documents in the Official Record.
- d. Lastly, identify other City-operational domains that may be realized in KGs to which Aida may be linked – or made aware. Emergency Operations, Economic Development, Public Works, et al.