LANDRS

Linked-data **A**PI for **N**etworked **DR**one**S**

BETA CONCEPTUAL DESIGN

TOC

- **[A]** Context
- **[B]** Design methodology
- **[C]** Conceptual design so far

[A] CONTEXT

FAIR DRONE DATA?

1. Is making Data FAIR worth while?
- **Yes:** Says the academic community in general on regarding scientific data within sensible caveats [1–3]

FAIR DRONE DATA?

1. Is making Data FAIR worth while?
- **Yes:** Says the academic community in general on regarding scientific data within sensible caveats [1–3]

2. Is making specifically **drone** Data FAIR worth while?
- **Yes**: sUAS data are:
  - Uniquely 4+ dimensional
  - Uniquely high spatiotemporal resolutions
  - Classically Big
  - Increasingly created by small science

CURRENT CHALLENGES IN DRONE DATA MANAGEMENT[4]

1. Sensor use procedure
2. Operational practices
3. Analytics and Error correction procedures
4. *Data and metadata data formats*
5. *Data and metadata provenance practices*
6. *Data product levels*
7. *Data management and analytics tools*
8. Data management education

LANDRS DESIGN (IN PROCESS…)

4. *Data and metadata data formats*
5. *Data and metadata provenance practices*
6. *Data product levels**
7. *Data management and analytics tools*

*A task for community discussion and development within a RDA Working Group

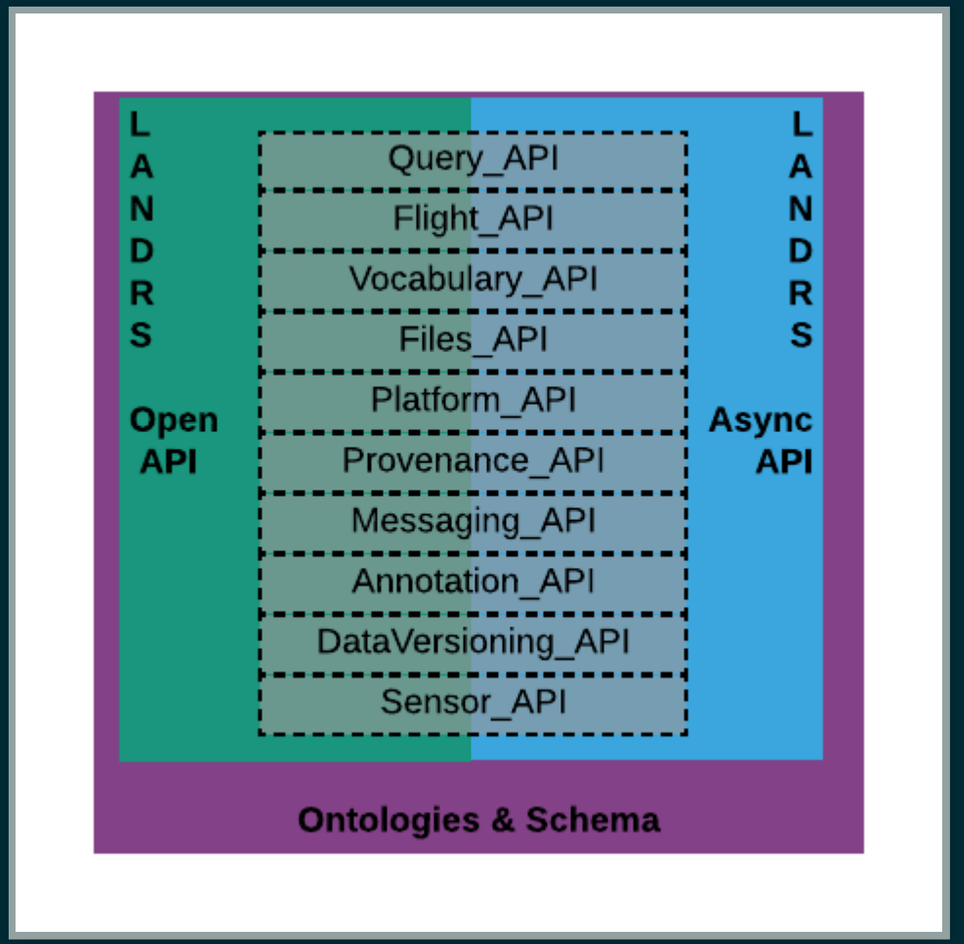
- *Data Semantics:* Ontologies & Models
- *Data Storage:* Files & Schema
- *Data Movement:* Transport & Provenance

[B]DESIGN METHODOLOGY

- Component1: Tool stacks
- Component2: Semantics

COMPONENT 1: TOOL STACKS

- Open API
- Async API

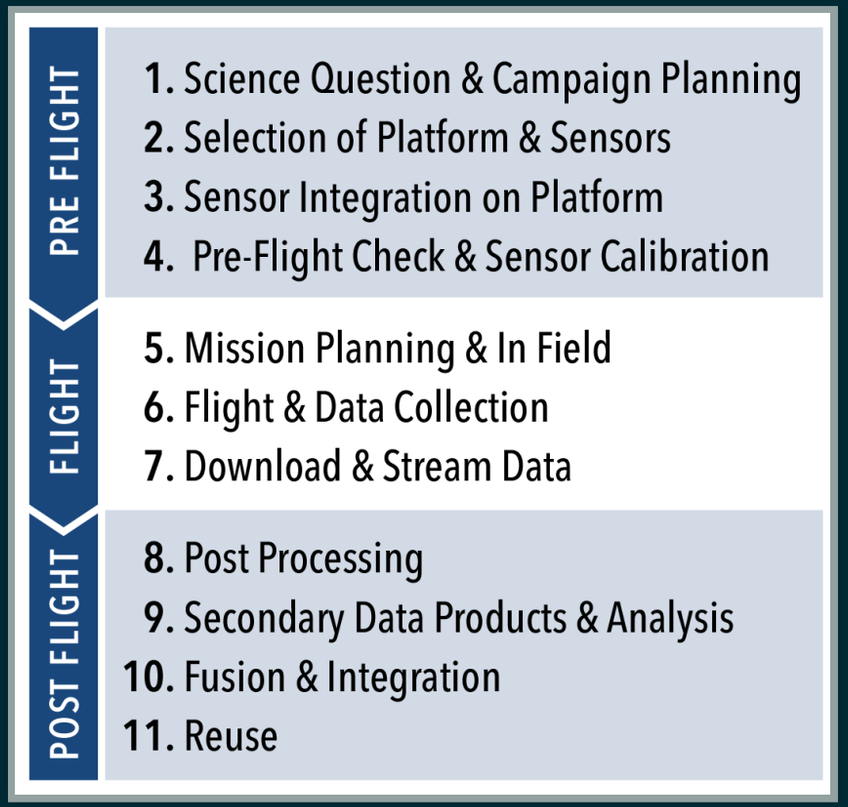


COMPONENT 2: SEMANTICS

APPLICATION DOMAIN SEMANTICS MODELING AND DESIGN METHOD: [5]

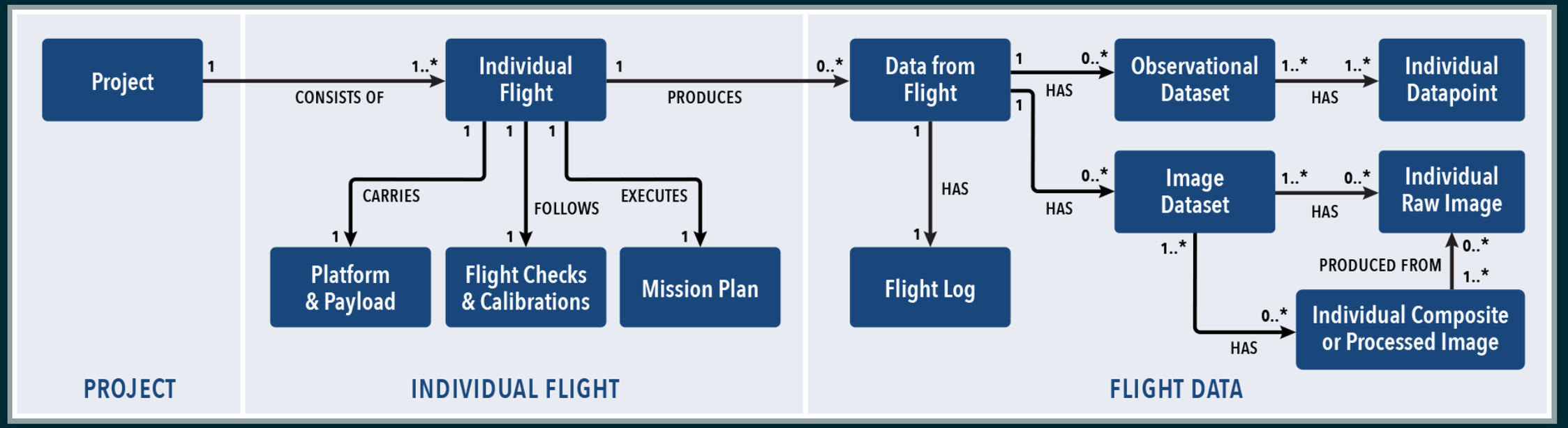
1. Analyse the domain
2. Develop scenarios
3. *Extract competency questions*
4. *Identify existing ontologies for reuse*
5. *Develop the ontology*
6. Validate the new ontology by showing it answers the competency questions

1. ANALYSE THE DOMAIN & 2. DEVELOP SCENARIOS



TYPICAL SCIENTIFIC DRONE DATA WORKFLOW

1. ANALYSE THE DOMAIN & 2. DEVELOP SCENARIOS



MINIMAL INFORMATION FRAMEWORK [MIF] FOR CREATING FAIR SUAS DATA

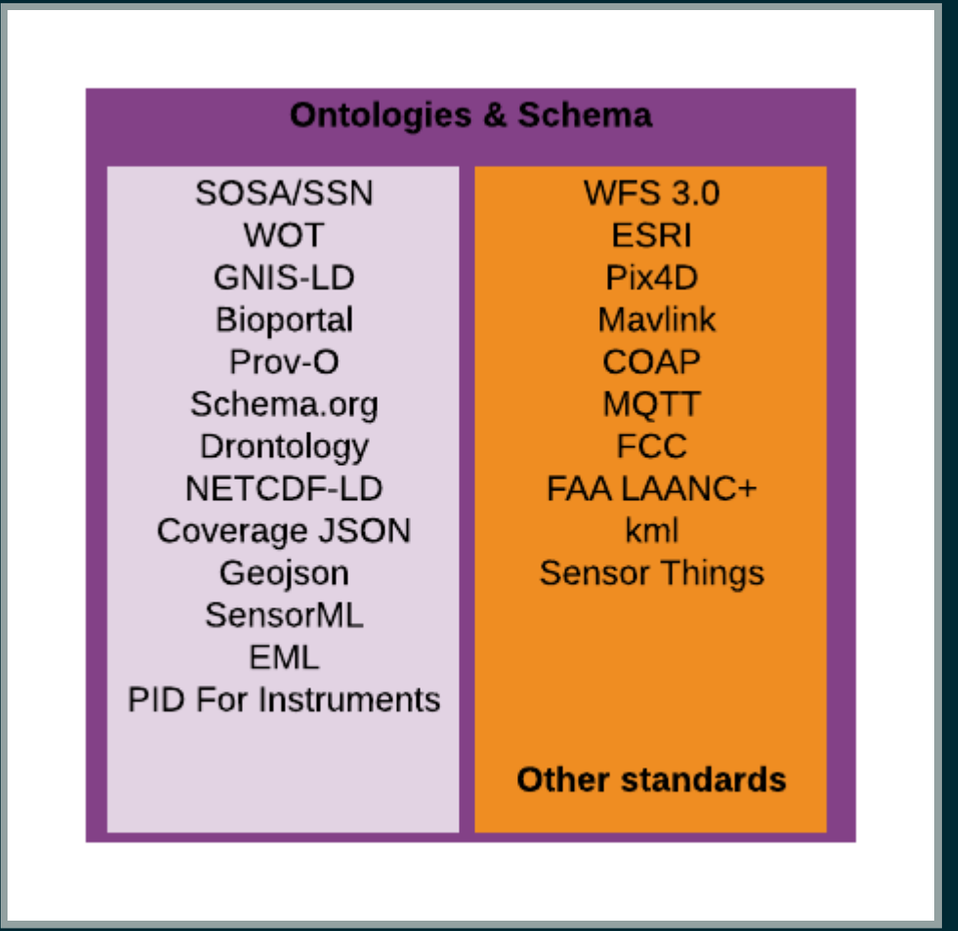
3. COMPETENCY QUESTIONS?

- **We need to do this.** Eg:
- Questions related to google data search
- Questions related to analytics (local and via search)
- Questions likely asked inflight
- ...

4. IDENTIFY EXISTING ONTOLOGIES AND STANDARDS FOR REUSE

- Likely more to be identified* but we have many already identified:

*In part a task for community discussion and development within a RDA Working Group



4. IDENTIFY EXISTING ONTOLOGIES AND STANDARDS FOR REUSE

- Ontologies and Vocabularies
- Schema
- Standards

[C] CONCEPTUAL DESIGN SO FAR

LANDRS DESIGN (IN PROCESS…)

- *Data Semantics:* Ontologies & Models
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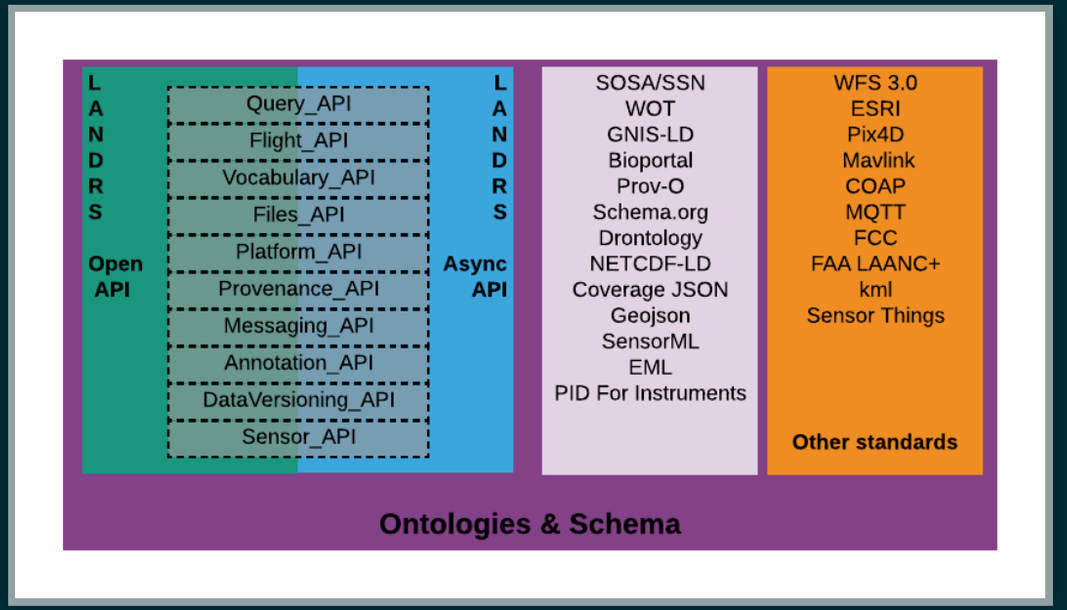

5. DEVELOP THE ONTOLOGY

- What modeling can be done **at the workshop?**

6. VALIDATE THE NEW ONTOLOGY BY SHOWING IT ANSWERS THE COMPETENCY QUESTIONS

- First theoretically
- Second: Iterate over Implementing the design in applications > discovering holes > repeat

GET INVOLVED & STAY IN TOUCH

Github here https://github.com/crcresearch/LANDRS Slack channel

REFERENCES

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