

Telescope and Instrument index for space science and astronomy

Emmanuelle Perret, Gilles Landais, Thomas Mayer,
Mireille Louys
CDS, Strasbourg Observatory
IUT Robert Schuman Strasbourg
ICube Laboratory , Strasbourg University, France



**IVOA Interoperability
Meeting, Paris, May 2019**

Initial phase

- 2015 Study initiated with B. Cecconi, considering the nomenclature efforts in space science (VESPA prototype)
 - A first attempt presented in Sydney ADASS 2015
 - Facilities, Telescopes, Space Missions, Instruments
 - An XML schema based on an extension of VOResource
- 2017 Lisa VIII conference, Strasbourg « Librarians for Astronomy » conference
 - Interests and list gathering
 - Audit from documentalists from CDS and others astronomical services
 - Benefits foreseen for the librarian community for Astrophysics
 - Added to the science interest



□ Goals for an instrumental index

- Various needs express to track names and properties of the instruments and telescopes
- For curation point of view documentalist
- For data discovery data provider/user
- For evaluating the usage of instrument/telescope agencies



Recent initiatives

- Compilation of a telescope/instrument list (Marion Schmitz@NED)
- ADASS 18 +AAS 19/01 more discussion on a desired description
 - Listing for facilities and articulation metadata → mini model
 - Based on re-use of the (Planetary Data System) PDS4 Information Model Workshop: cross matching for several lists (B.Cecconi)
- Workshop to merge existing lists
 - MPC , IAU, NAIF , etc.
 - Fuzzy logic tests with x-match scripts (coll. Univ. Graz, Austria)
- This topic is aligned with the development of European Open Science Initiatives : RDA, ANR ‘science ouverte’, etc.



What are the needs

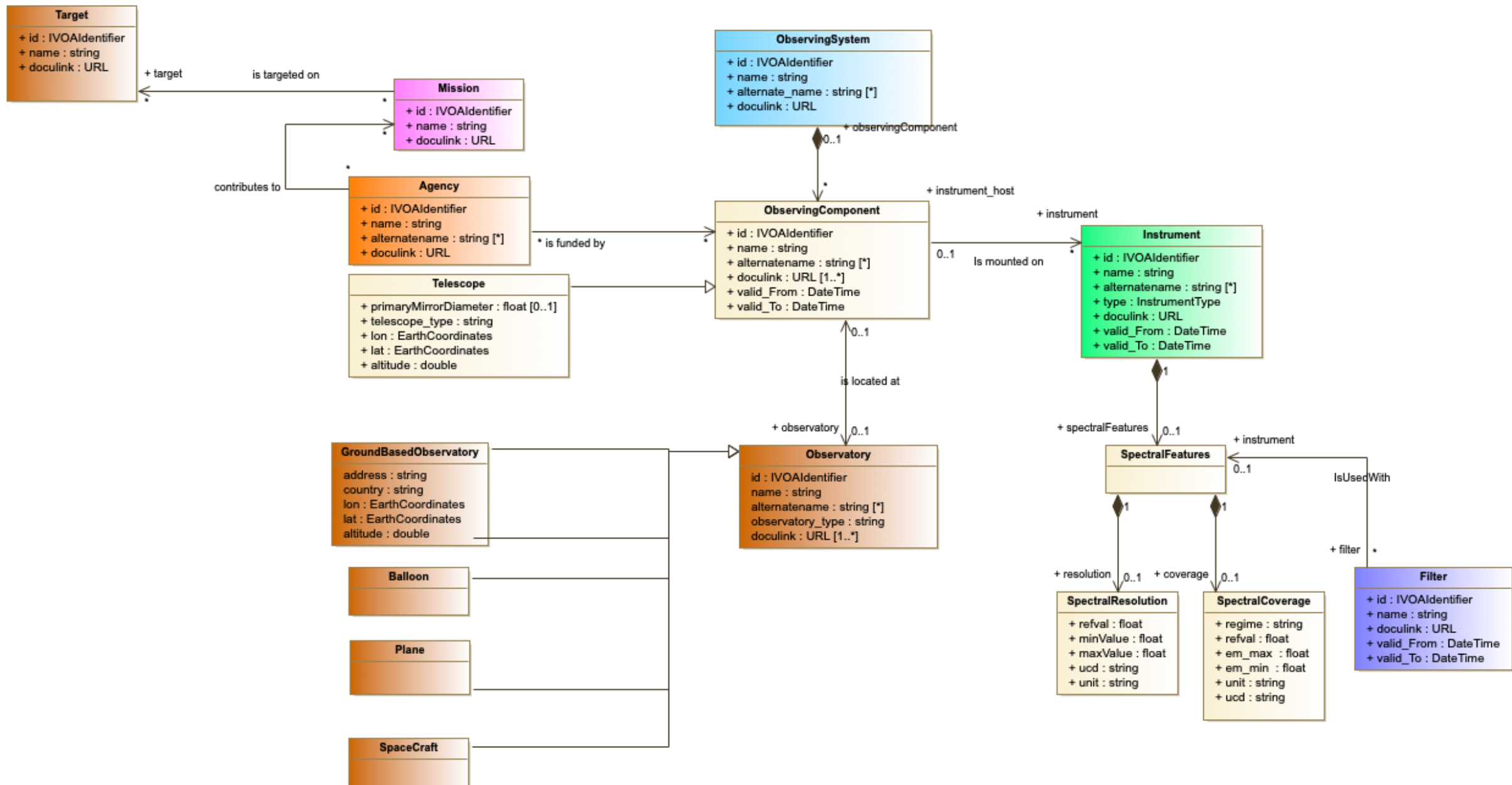
- Agreed it is necessary to have a global repository
- Define a Unique ID for each component
- Represent hierarchical relations
Instrument/Telescope/Observatory
- Bind the ID to some description record
- Gather content from the expertise from various partners :
agencies, publishers, data centers, librarians and
documentalists



Metadata framework

- Inspired by practical examples in documentalist work
- [PDS4 Information Model Specification v 1.11](#)
 - Instrument and their types
 - Instrument Host Telescope \leftrightarrow Instrument
 - Observatory \leftrightarrow Telescope
 - System of telescopes
 - Agency
 - Target
- Provide the classes, properties and links





TAP Prototype for a Telescope-Instrument repository

- Proposed as 3-months internship for a computer scientist trainee Apr-June 19
- Datamodel implementation in PostGres
- TAP service
- Test of the DB via TAP interface : TOPCAT, TapHandle
- Ingestion of existing list
- Development of an update Interface for multiple contributors

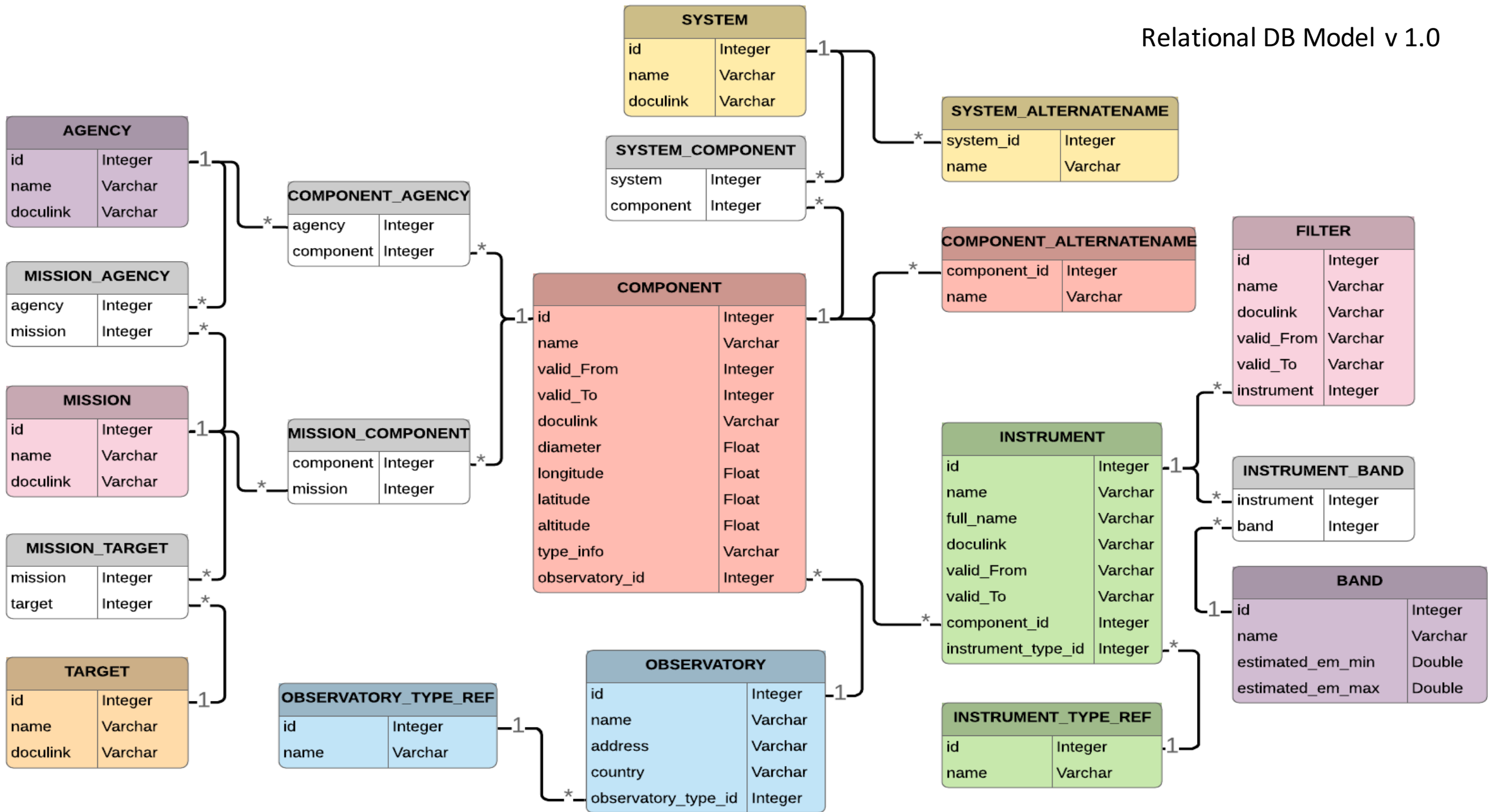


Selection of existing data

- Telescopes
 - Marion Schmitz @NED provided a list of telescopes and observatories
 - Compilation and curation from existing lists
 - About 7000 records
- Instruments
 - Instrument list from Marion @ Ned ~ 700 records from lists compilation
 - Instrument Emmanuelle @ CDS ~ 300 records
 - Daily practice in the Vizier data ingestion system from AAS Journal articles
 - Curated instrument records with spectral coverage, instrument host and on-line documentation



Relational DB Model v 1.0



Testing the prototype

- TAP service in preparation
- Examples for testing
 - <http://vizdata.u-strasbg.fr/proto/>
 - Public for tests during interop but is not yet ready as beta version



OBSTAP for VizieR

[/tap/availability](#) test if service is online
[/tap/tables](#) list the tables
tap/sync execute a synchronous query

Example

[Toutes les colonnes](#)

Telescopes

[Télescopes avec leurs noms alternatifs](#)

[Télescope ayant un diametre plus grand que 10](#)

Instruments

[Télescopes avec leurs instruments](#)

[Nombre d'instruments par télescope](#)

[Nombre de télescope où apparaît un instrument](#)

Observatoires

[Télescopes avec leur observatoire](#)

[Noms, adresses, pays et types d'observatoires](#)

[Liste des télescopes pour des observatoires dont le nom commence par "H"](#)

Systemes

[Systemes avec leurs télescopes](#)

Tous

[Vu télescopes, systemes et observatoires](#)

```
select count(s.name) as n, c.name
from component c join instrument s on c.id=s.instrument_host
group by c.name
order by n desc
```

Submit



Share the effort


- Data ingestion is not straightforward
 - Curation of the list needed, missing items, ambiguous names
 - Smearing of names from Telescope to Observatory
- Information is used and spread among various participants
 - Agencies ESA, NASA, etc.
 - Datacenters and archives :NED, CDS, ESO, HEASARC, VESPA, ...
 - Bibliographic services ADS
 - Journals and Publishers : Elsevier, Astronomy and Astrophysics, AAS, ...
- Collaboration with other partners welcome and needed



Next steps

- Decide how to provide a unique id
- Get experience with CDS prototype
- Define a contribution and review process with interested partners





Thanks you for listening
Merci de votre attention

