

OUSIM

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Simulation to all levels of the pipeline within the SGS framework in a coordinated and common environment for a massive production and distribution with SDCs and EMA.

OUSIM will manage input and output to satisfy the request from the different groups, allowing specific levels of complexity and size

- *Official data releases: delivery of final images and catalogs*

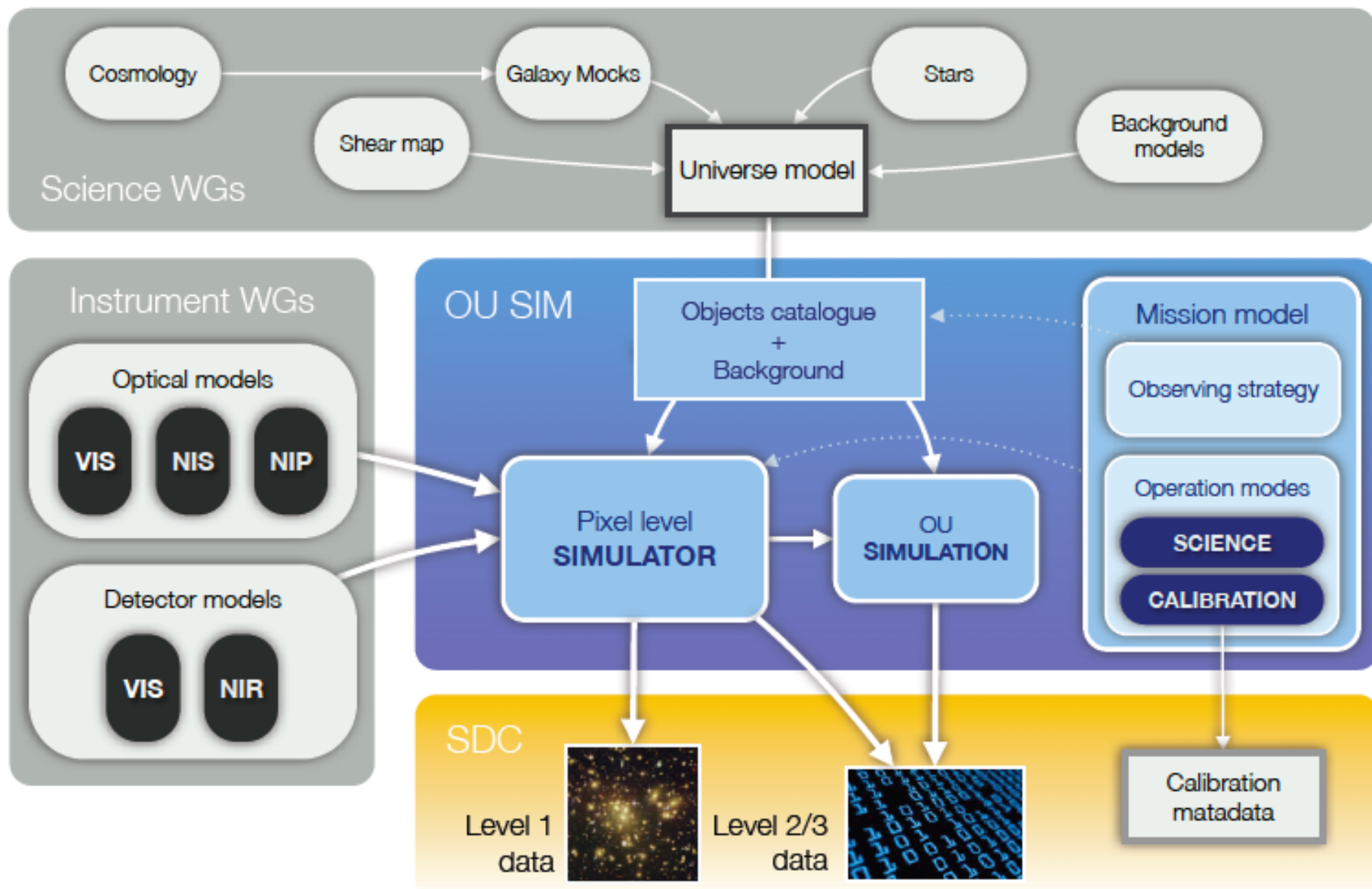
Programmed simulations increasing in complexity and area. Include all instrument products and final releases should reach large survey area coverage. Entry of E2E validation

Prototype of implementation + development plan for May 2013

- *On demand simulations: delivery and management of codes:*

Smaller simulations for validation or pipeline development can be run directly by groups or by OUSIM.

OUSIM Overview & Data Flow



- Define interfaces with all groups ie SWGs, OUs, instrument and system team.
- Define from specification of input/output of simulation products, a 'data model prototype' and prototypes of image simulators to test implementation and deployment in SGS framework
- Identify OU needs and propose a development plan

Plan and interfaces discussed at the kick off meeting Barcelona July 12

OUSIM Redmine wiki : <http://euclid.roe.ac.uk/projects/sgv>

□ Interface with SWG

- Simulations between SWG and SGS are made through the CSWG and OUSIM in a consistent and coherent reference of cosmological parameters

- CSWG will provide 2 types of data:

- ▶ **Galaxy Catalogues** with spectral & shape properties (Already 100 deg² Mock Catalogues available)
- ▶ **Convergence & shear maps** (One octant ready to be included in Euclid Photometric Mocks)



MICE

Marenostrum Institut
de Ciències de l'Espai
Simulations

- OUSIM is in charge of formatting the inputs from the SWG into the SGS Data Model
- The complexity of the data provided by CSWG increase together with OUSIM products

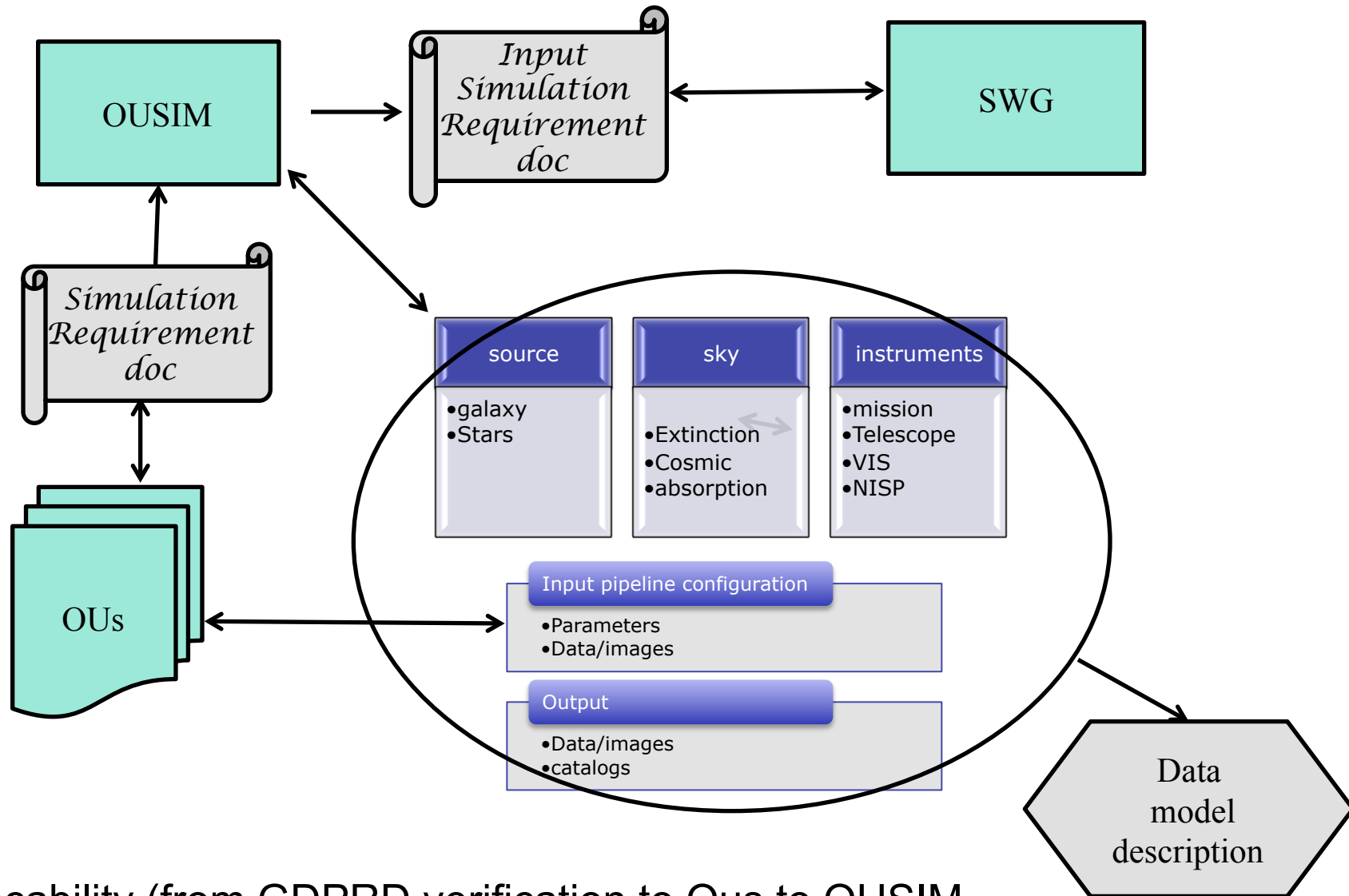
CSWG

Luminosity function versus z
Galaxy catalogue with redshift
Galaxy catalogue with spectra
Galaxy catalogue with shapes and spectra

OU-SIM

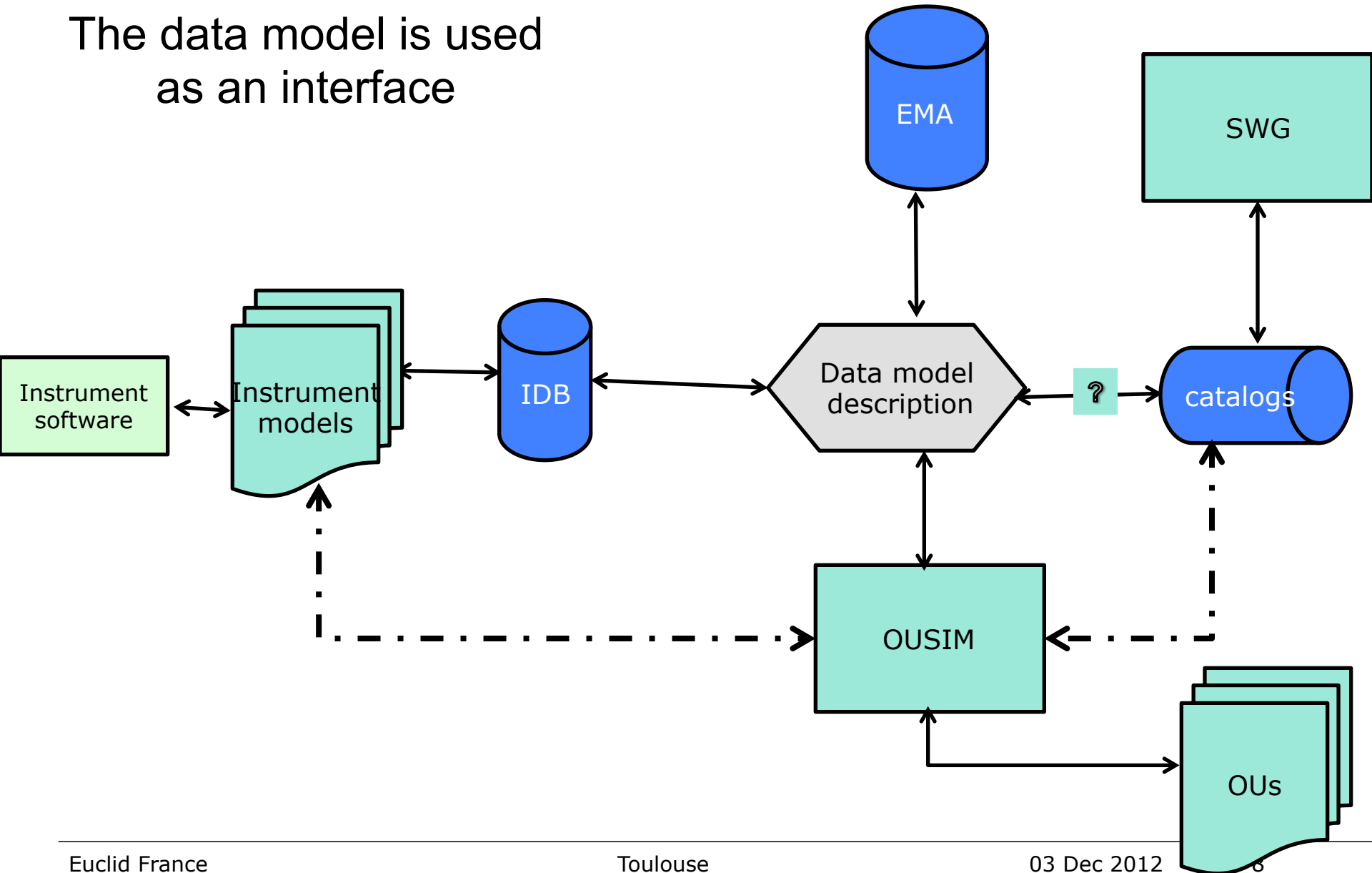
————→ Draw random catalogue
————→ Add spectra
————→ Add shapes
————→ PSF and spectral response

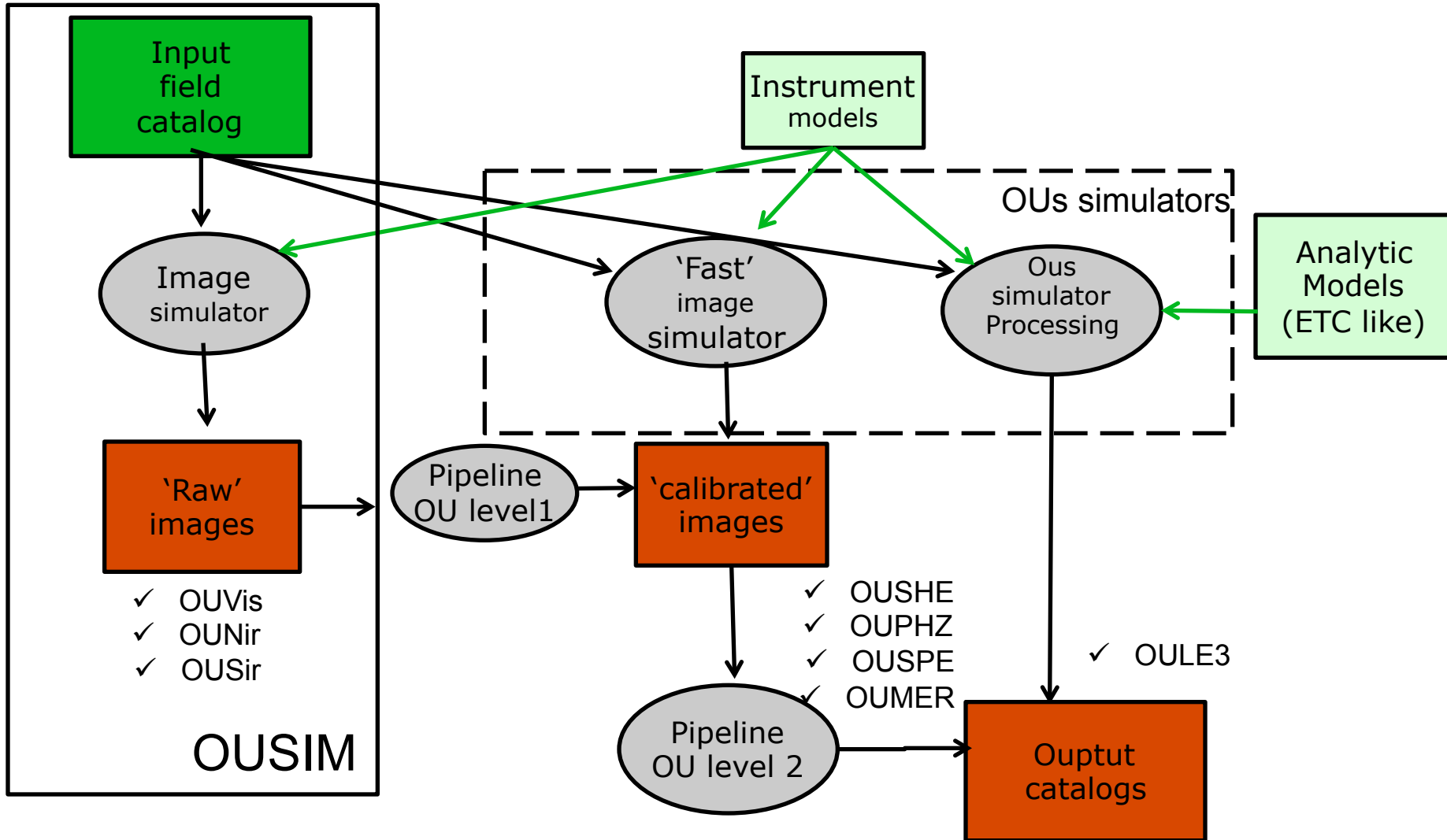
————→ **Simulated images with spectra
and instrumental effects**



Tracability (from GDPRD verification to Ous to OUSIM)

The data model is used
as an interface





Simulation **Prototypes**

- Simulation codes working in SDCs under SGS configuration
- Allow one or more prototypes for each Instrument Channel or OU
- Imply the beginning of:
 - ▶ data model definition & implementation
 - ▶ communications between SDCdev and simulation team
 - ▶ interface to SWG as input data is needed
 - ▶ first simulated data to OUs. Production of deliverables.

- ❖ Several OUs provided inputs for Data Model definition
Requested by E.Jullo
- ❖ Input Mocks Catalogues and Maps already available from CSWG
from Durham and MICE teams
- ❖ 3 main channel simulators started activity to become OUSIM prototypes
SIR - Julien Zoubian - Implemented and working
VIS - Patrick Hudelot - Under implementation
NIP - Gregor Seidel - Planned. To be started
- ❖ Generated an OUSIM wiki for communications and code share
at Edimburgh's Redmine

Implementation for massive production & distribution

- Set up a common OUSIM Real Universe
 - Compile all information that builds the input field for the simulators
 - Loop with OUs to validate the Data Model
- Implement, understand and play with Simulation Prototypes
 - Merge common models to a self consistent simulation set
- Integration of Simulation Prototypes and Universe Model in SGS framework and EMA for coordinated simulation production

SHORT Term

- ❖ Small data sets and area ($<10\text{deg}^2$)
- ❖ Call for OU simulators for prototypes implementation
 - ▶ Use existing codes (compile and publish available OU simulations if any)
 - ▶ Need missing inputs for Data Model
 - ▶ Main work relies on interface homogenization

LONG Term

- ❖ Larger simulation sets ($>10^3\text{deg}^2$) in all 3 channels
- ❖ Implementation plan to be functional in mid 2013 - beginning 2014
 - ▶ Allow large and regular Data Challenges
 - ▶ Allow E2E simulations

