CIF:
the Community Inversion Framework

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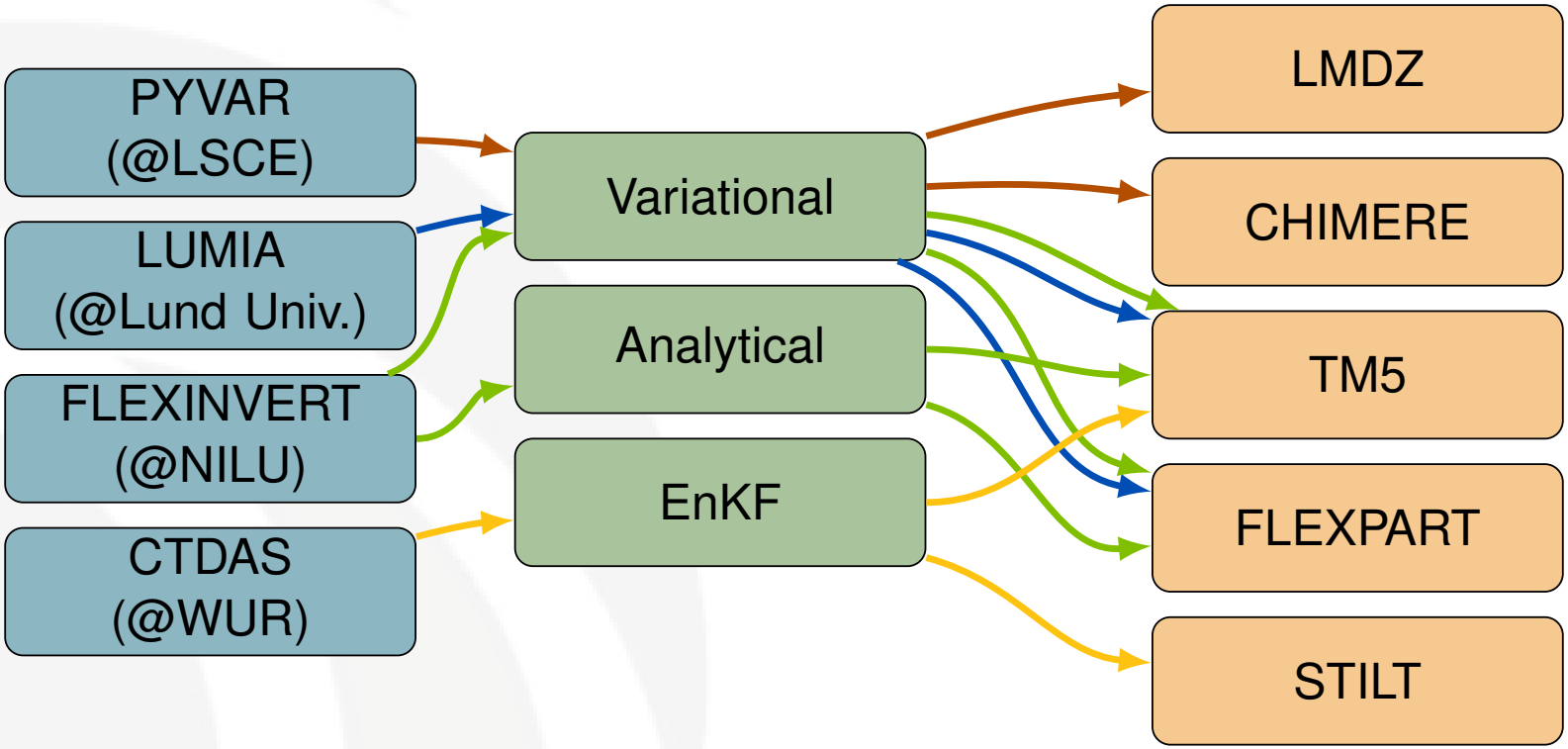
Current atmospheric inversion landscape: examples



Pros

- ✓ dynamic community
- ✓ necessary and fruitful diversity

Cons

- ✗ redundant developments
- ✗ loss of efficiency to propagate new developments
- ✗ lack of inter-comparability

Proposed solution: the Community Inversion Framework

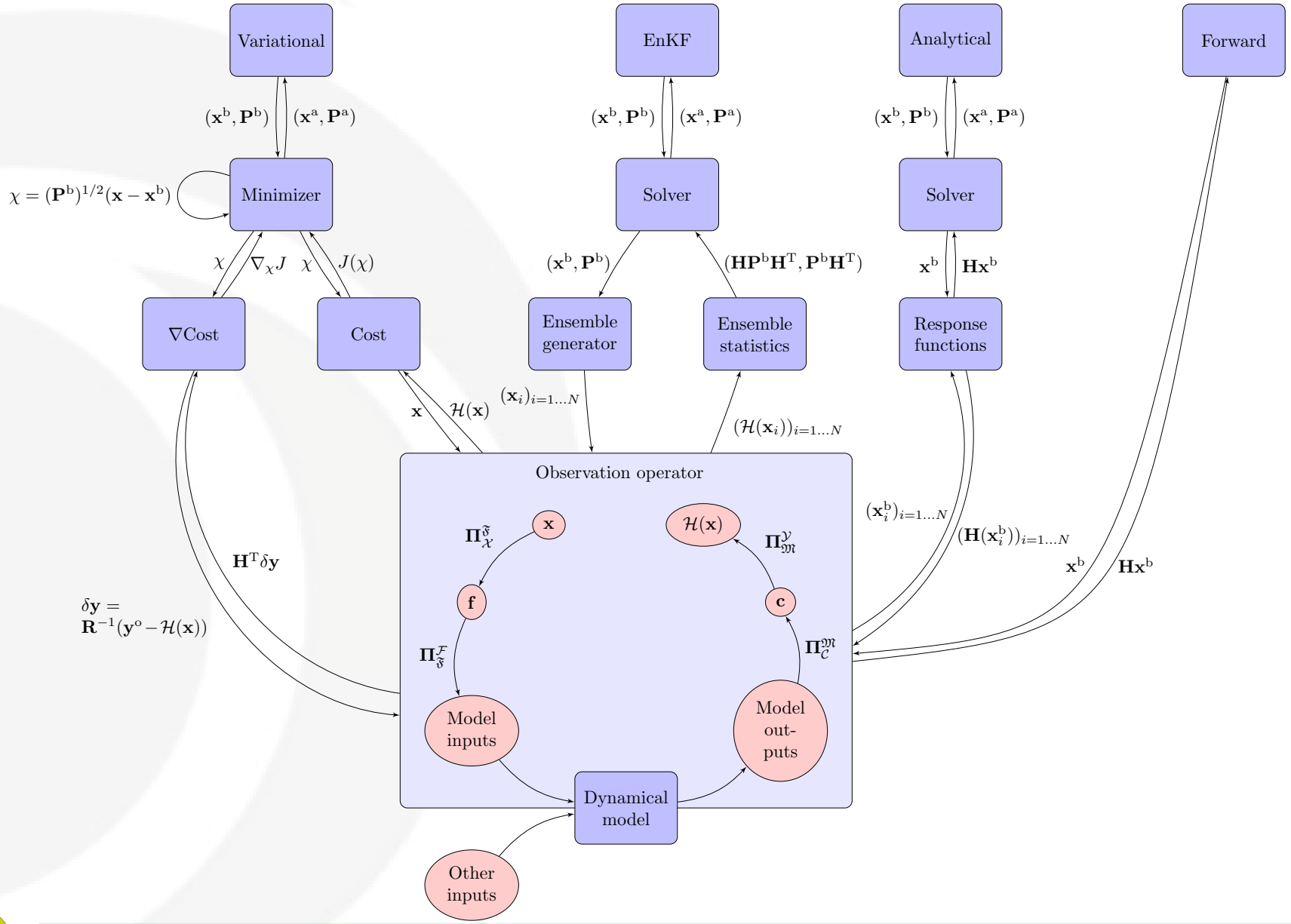
Objectives

1. rationalize development efforts
2. foster cross-compatibility and inter-comparability of inversion systems
3. ensure quality control with better traceability and transparency
4. open the way towards operational systems

Means

1. define common standards and protocols in the inversion community
2. provide a unified framework for harmonized good practices, code structure and input/output formats

Diagram of the target framework



Take-home message

Identified needs

- improve overall efficiency as a community to keep up with technical and theoretical developments
- enhance transparency, traceability, inter-comparability and inter-operability toward operational use and policy-making support

Community-scale convergence and collaboration

- harmonized practices and formats
- common coding environment for inversion bricks

Progress

Current status

- 'community-inversion.eu' booked for later documentation, repository, etc.
- gitlab server online at NILU
- basic classes implemented
- toy model for variational inversion (almost) ready
  $\rightarrow$ soon distributed for feedback

Development timeline

- 2019: implementation of CHIMERE, LMDZ and FLEXPART
- 2020: implementation of other models and methods
- continuous documentation