



# Workplan for stay at ISI (Jun 10<sup>th</sup> – Sept 8<sup>th</sup>)

**José Mora**

[jmora@fi.upm.es](mailto:jmora@fi.upm.es)

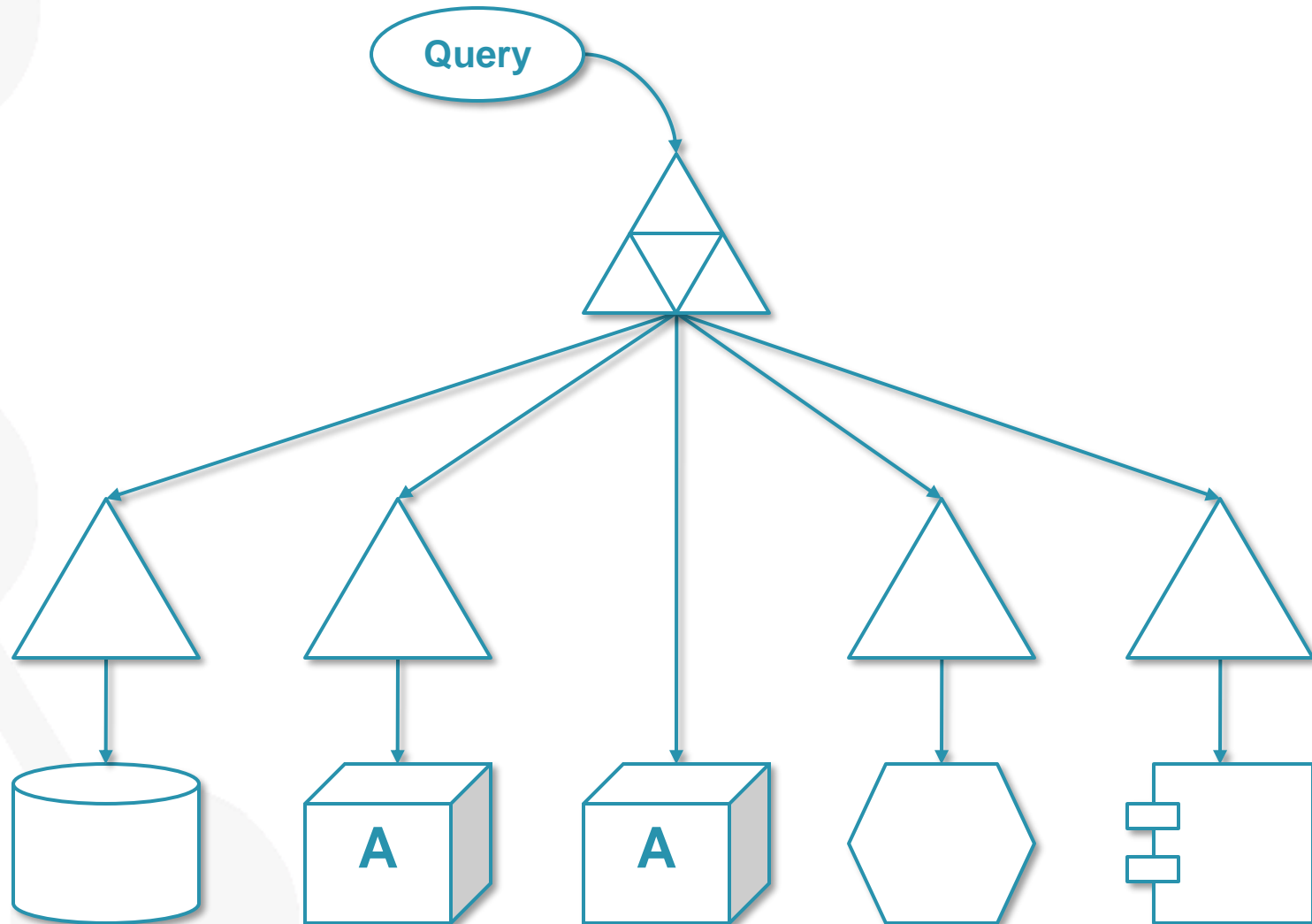
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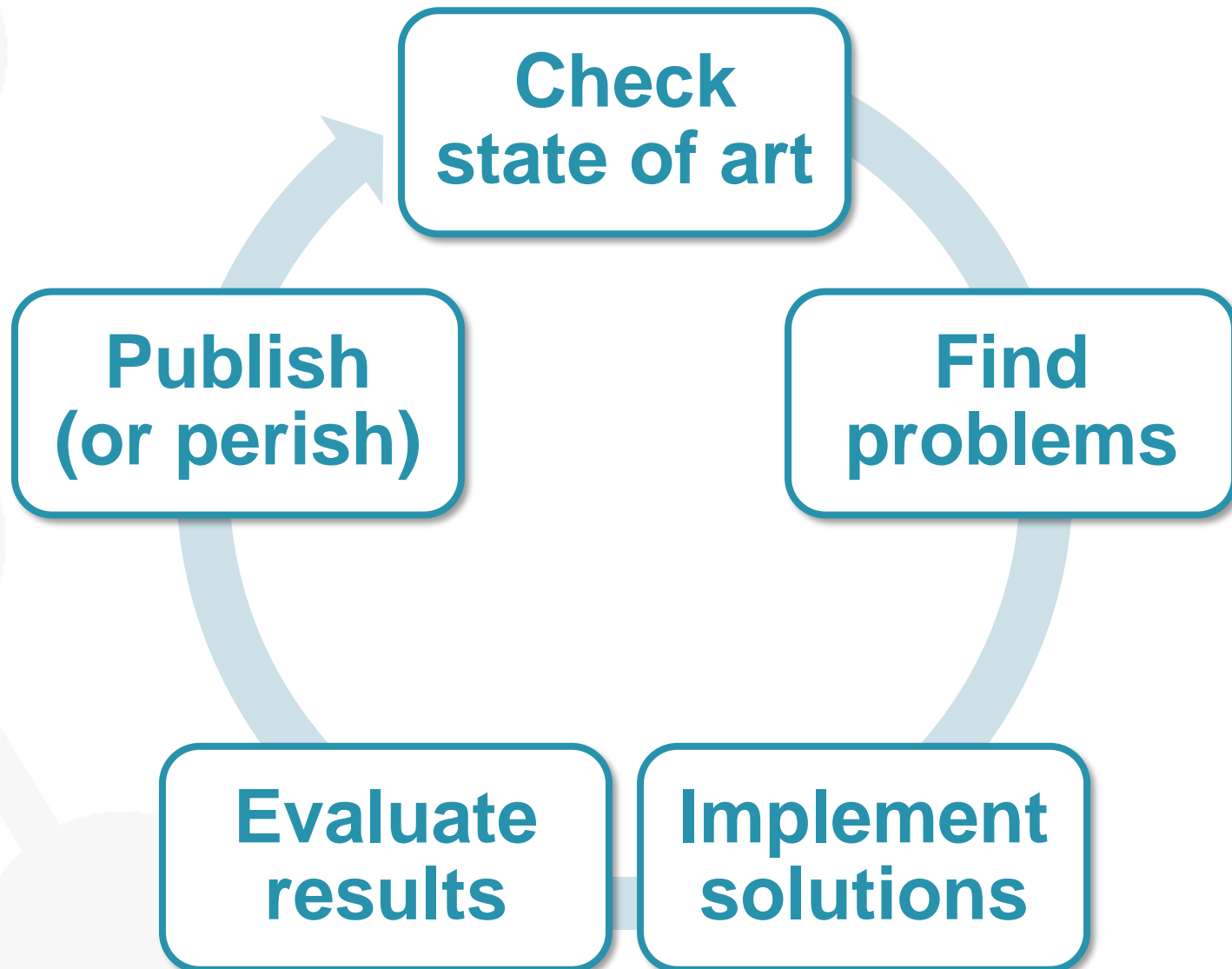
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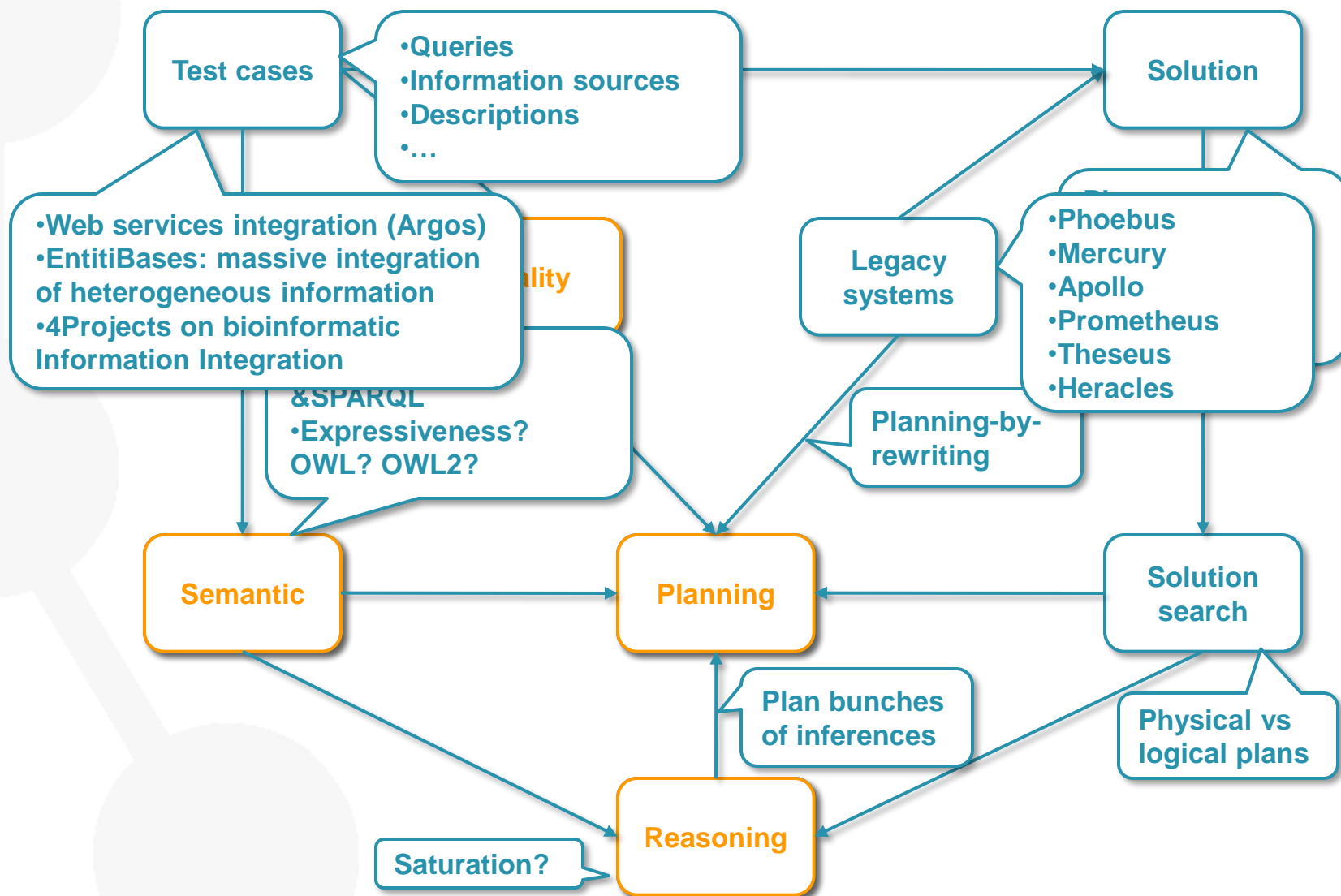
28660 Boadilla del Monte, Madrid, Spain

1. Technical scenario
2. Generic action cycle
3. Conceptual Scenario
4. Action cycle applied to conceptual scenario





## Conceptual scenario



# Action cycle applied to conceptual scenario

Incremental

	Check SoA	Find problem	Implement solution	Evaluate result
Ambite's commands	1-12w			
Semantic Triple Match	1w	1w	3w	1w
Reasoning (Sat-ELHIO?)	1w	2w	4w	2w
Reasoning-by-planning	3w	2w	5w	2w
IntraDB planning	2w	3w	6w	1w
New Planning	2w	4w	3w	3w
Quality model	3w	4w	1w	1w



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- Sources described with several triples instead of single n-ary predicates.
- Requires graph matching in query preconditions
  - Allows partial match
  - Allows composition of conditions
- Postconditions require more complex unifications
- Merging of information is more straightforward
- Constraints on the information after merging (decomposed query) should not be less (correctness) or more (completeness) than in the original query
- This problem may already be solved in ISI at the current time



- Pérez-Urbina shared the code to rewrite queries reasoning with DL- *ELHIO*
- AFAIK, that has not been done in the ISI, the reasoning capabilities are quite restricted
- I've worked with the code from Pérez-Urbina, now it considers the availability of predicates to rewrite to those retrievable
- It could be possible to join both systems and add reasoning capabilities to the systems in ISI
- It could be possible to use different reasoning techniques that materialize the inferences from an ontology and perform query planning from there
- It could be possible
- It may also be the case that they don't use really complex ontologies and reasoning is irrelevant, a lattice may be enough

- If the ontology is too big or too expressive saturation is not possible
- Planning can be used to choose the inference steps to perform, this possibility should be explored
- The selection performed by planning introduces a big overhead over the operations to perform
  - The operations should be grouped in bunches to reduce overhead
- Planning-by-rewriting should be the planning method used, new operators should be added for the inference
  - These operators depend on the expressiveness of the available ontologies

- Planning so far decides the sources to query, the information to retrieve and the information to use
- A higher granularity is possible and SQL queries could be composed using planning
- Planning-by-rewriting should be the planning method used, new operators should be added for the composition

- Planning-by-Rewriting (PbR) is a state of the art planning algorithm
- Probably it is not perfect yet
- In this case the limitations and problems of PbR should be studied and the focus would be set on solving them

- There are two main approaches to define such a model, formal and empiric. The properties of the information sources in ISI could help to define the quality model empirically



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