



CrossCult Knowledge Base

A co-inhabitant of cultural heritage ontology and vocabulary classification

Andreas, Vlachidis, Antonis Bikakis



Daphne Kyriaki-Manessi, Ioannis Triantafyllou



Angeliki Antoniou



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The Project

CrossCult: Empowering reuse of digital cultural heritage in context-aware crosscuts of European history

- ◆ Call: EU H2020
- ◆ Topic: REFLECTIVE-6-2015 - Innovation ecosystems of digital cultural assets
- ◆ Type of Action: Innovation Action
- ◆ Timeline: 36 months, March 2016 – February 2019

Our Team

- ◆ An Interdisciplinary Team
 - ◆ Computer scientists, social & humanities scientists, SMEs and venue representatives working collaboratively



Consortium & Partners

Main Partners



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΛΟΠΟΝΝΗΣΟΥ
UNIVERSITY OF PELOPONNESE

Associate partners

Venues

- Archaeological museum of Tripolis, GR
- Roman Spa of Lugo, ES
- National Archaeological museum of Spain, ES

Cities

- Chaves, PT
- Valetta, MT
- Luxembourg City, LU,
- Tripoli, GR
- Argos-Mycenae, GR

NGO

- DIAZOMA - GR

SMEs

- Postscriptum, GR
- Mediapro, ES
- ARCTRON 3D, DE
- Empty Museums Design, ES
- Pyro Studios, ES

Project Aims

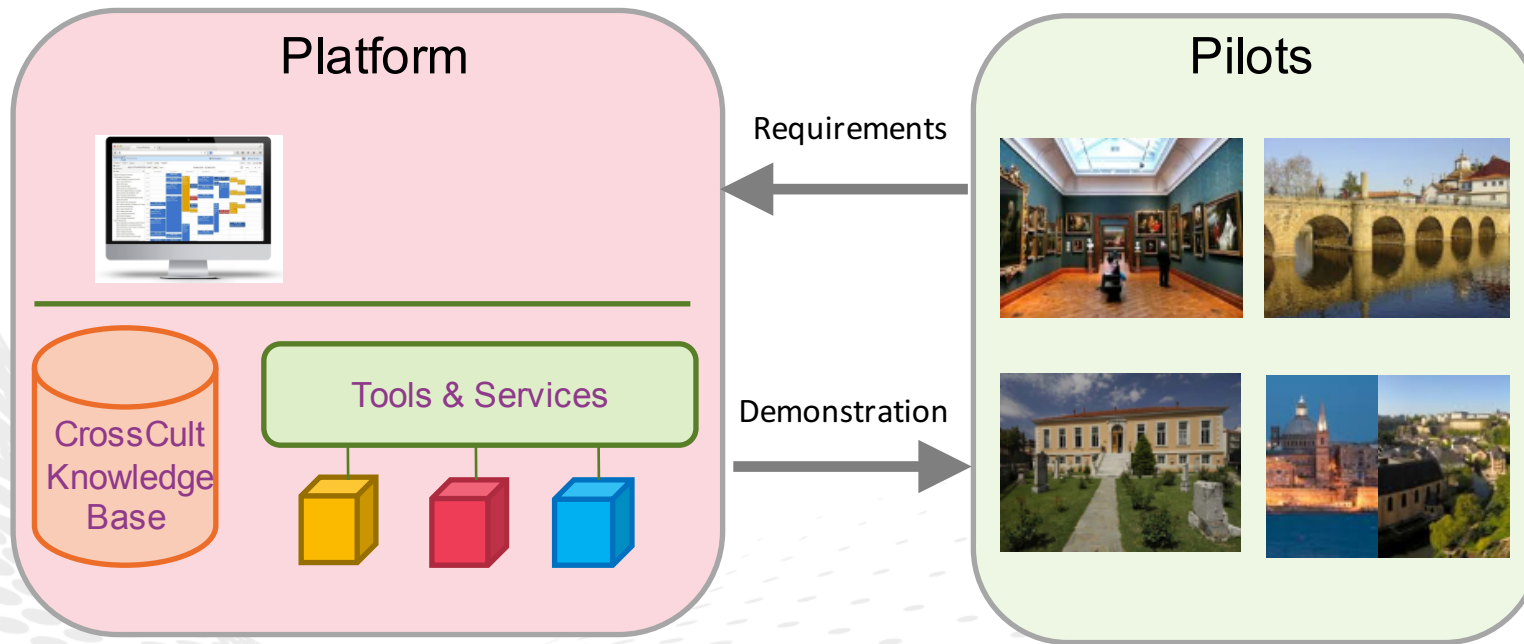


- ◆ History is a mesh of interrelated facts and concepts
- ◆ Historical data is commonly presented in silos
- ◆ Spur a change in the way European citizens appraise History
- ◆ Reflection on History focusing on cross cultural/border/gender aspects

4 Pilots - 8 Venues

- ◆ **Pilot 1:** Large multi-thematic venue (National Gallery, UK)
 - ◆ Connections among people, places and events through Art
 - ◆ Personalised reflection
- ◆ **Pilot 2:** Many small venues (Lugo ES, Chaves PT, Montegrotto Terme IT, Epidaurus GR)
 - ◆ Therapeutic use of water
 - ◆ Reflection through socialisation
- ◆ **Pilot 3:** One venue (Archaeological museum of Tripolis GR)
 - ◆ Role of woman in society
 - ◆ Reflection through enrichment
- ◆ **Pilot 4:** Multiple Cities (Luxembourg City, Valleta)
 - ◆ Migration
 - ◆ Comparative reflection

The CrossCult Platform



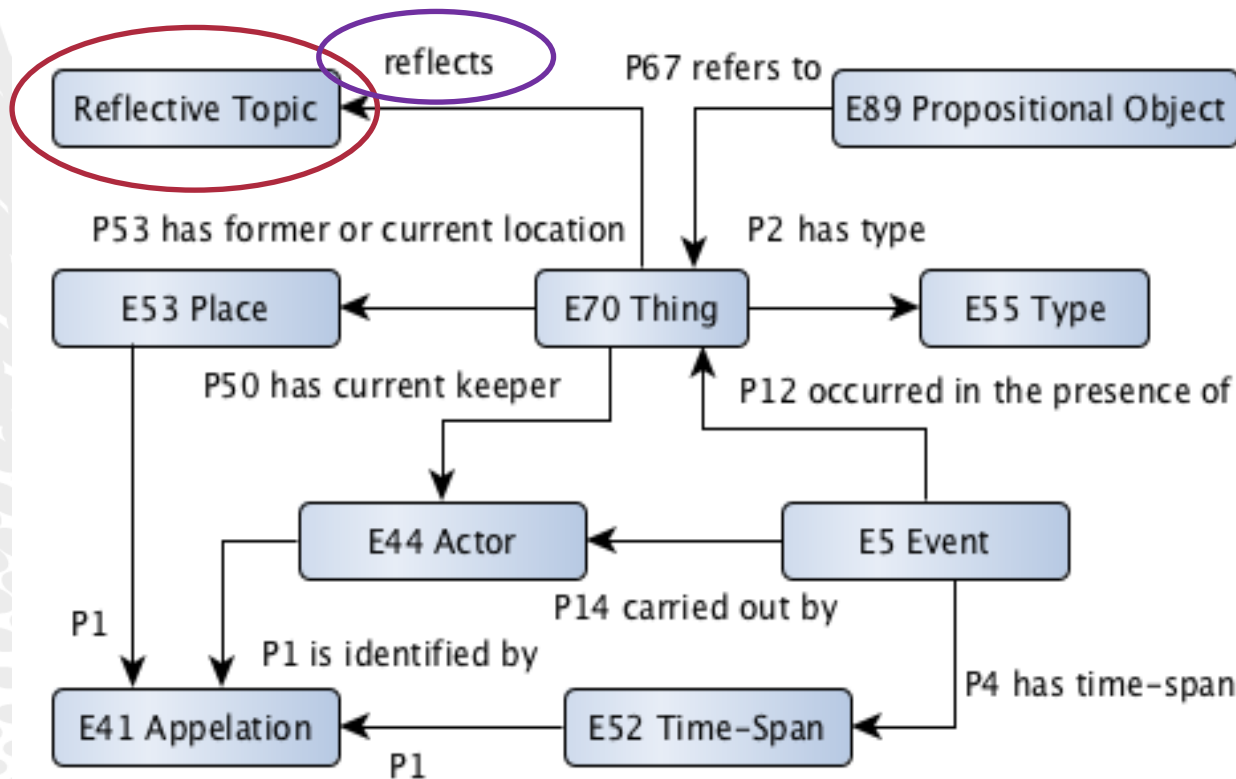
The CrossCult Knowledge Base

- ◆ A semantic knowledge base capable of interrelating a wide set of (existing and future) disparate digital cultural heritage resources consisting of:
 - ◆ Upper-level Ontology
 - ◆ Venue Ontology
 - ◆ User Ontology
 - ◆ Vocabulary Scheme (CrossCult Classification Scheme)

Upper-level Ontology

- ◆ A conceptual layer delivering formalisms that describe the “world” of CrossCult
 - ◆ Enables augmentation and enrichment
 - ◆ Semantic-based reasoning
 - ◆ Linking and retrieval across disparate data resources
- ◆ Core subset of CIDOC-CRM elements
 - ◆ Well-defined and interoperable semantics
 - ◆ Specialisations relevant to cultural heritage
 - ◆ Extensible to meet project-specific requirements
- ◆ Incorporates elements from FOAF and SKOS

A Layer of Common Semantics



Reflective Topic:

Topic or subject theme that drives the user's reflection –

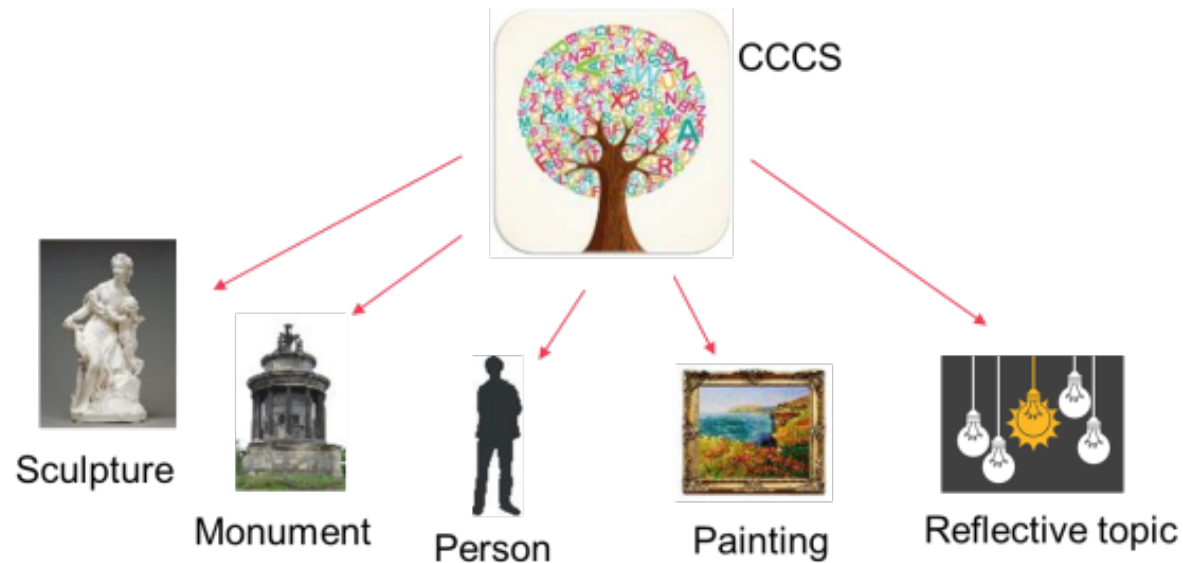
Specialisation of E89 Propositional Object

reflects:

Sets a reflective topic as the primary subject of reflection of a physical or conceptual thing

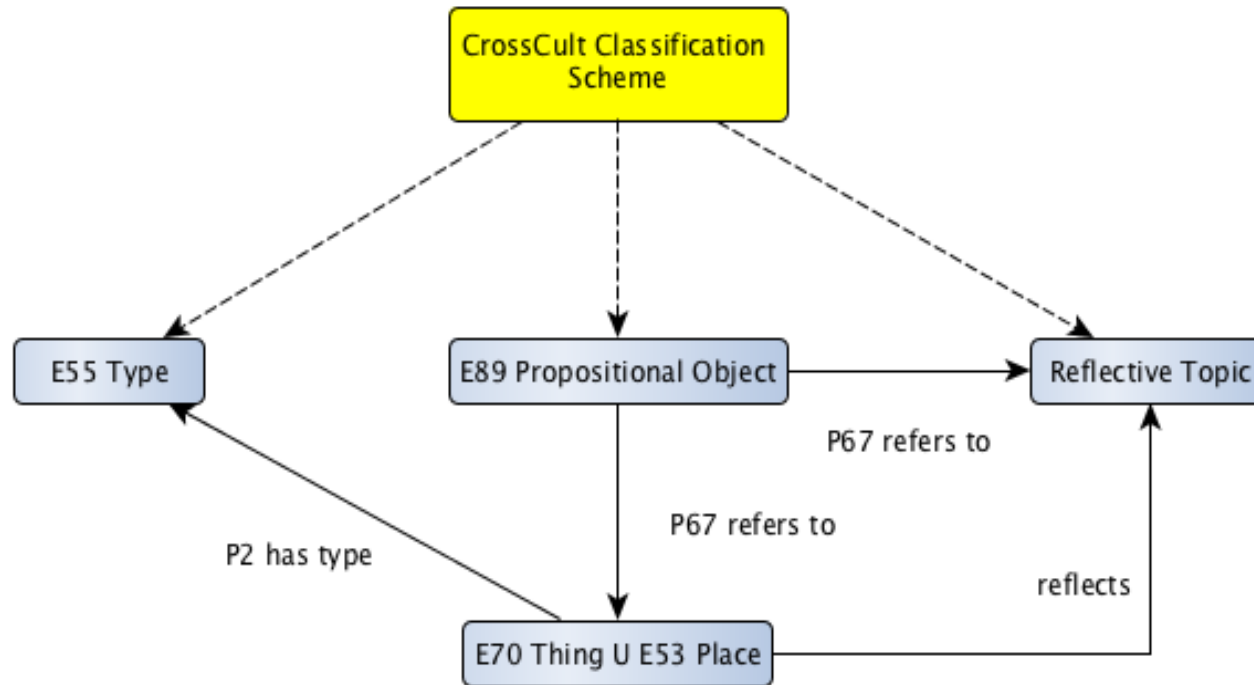
Reversed and extended definition of P129 is about

CrossCult Classification Scheme (CCCS)



- ◆ Provides an additional level of vocabulary semantics
- ◆ The scheme aggregates terminology from
 - ◆ The Getty Arts and Architecture Thesaurus of Getty (AAT)
 - ◆ The EUROVOC
 - ◆ The UNESCO Thesaurus
 - ◆ The Library of Congress Subject Authorities (LC)

Vocabulary Integration



- ◆ Vocabulary terms as instances of *skos:Concept*
- ◆ Terms describing types classified under *E55 Type*
- ◆ Terms used in the descriptions of objects/places/reflective topics classified under *E89 Propositional Object*

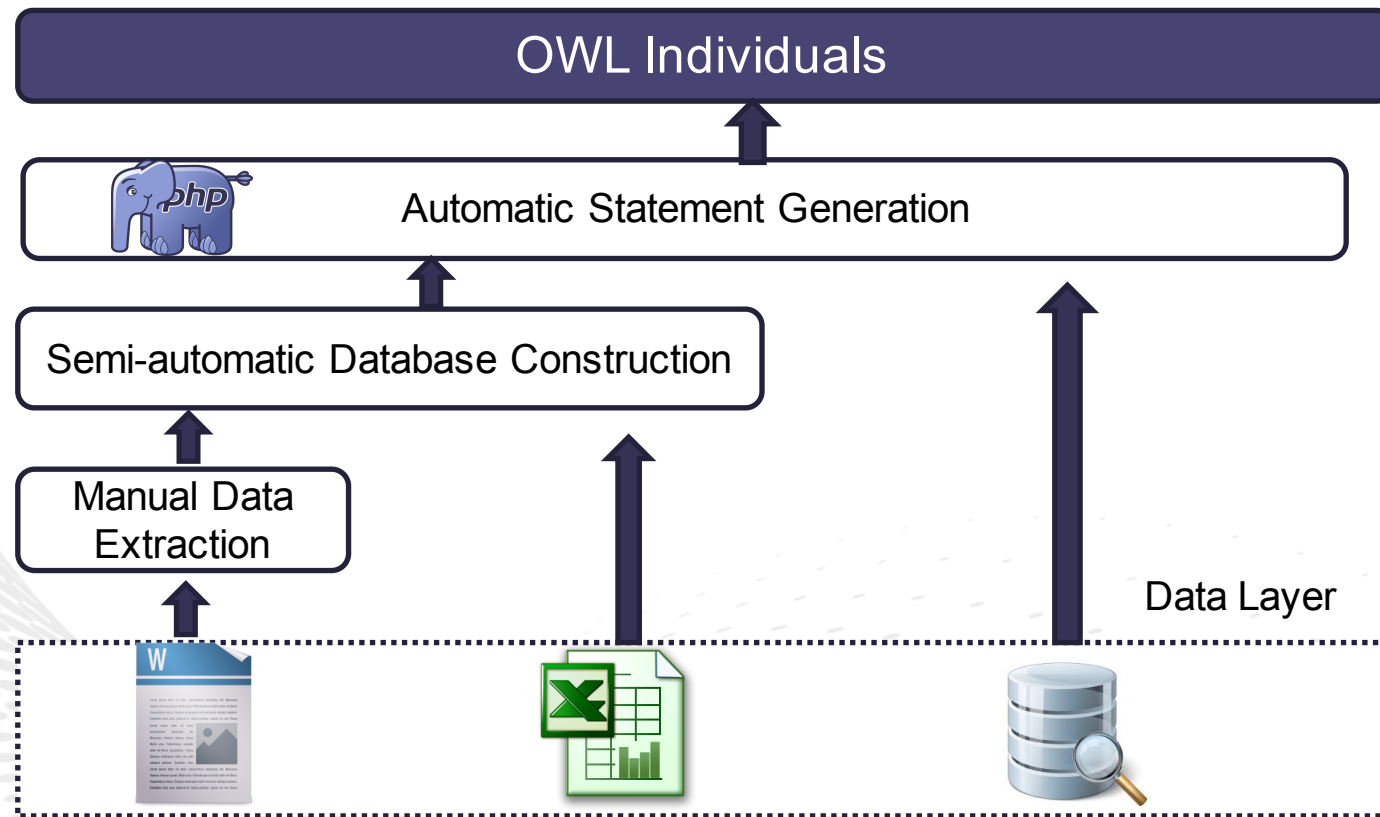
Modelling the pilots resources

- ◆ Apply the Semantics of CrossCult Upper-level ontology to a range of disparate cultural heritage data resources
 - ◆ Heterogeneous sources
 - ◆ Coverage and granularity vary significantly
 - ◆ Large vs Small Venues
 - ◆ Data about Antiquity vs Contemporary (Modern) Times

Data Modelling Challenges

- ◆ Selecting and curating the source data for each pilot
- ◆ Data cleansing and normalisation
- ◆ Data mapping to the Upper-level ontology
- ◆ Automate data assignment to ontology
- ◆ Ensuring compliance with the model

Data Modelling Processes



Semantic Enrichment

- ◆ Enriched a selected set of ontology individuals with links to standard and well-known Semantic Web resources such as
 - ◆ DBpedia
 - ◆ Getty AAT
 - ◆ OWL property *owl:sameAs*
 - ◆ Thesaurus property *skos:closeMatch*

Semantic Representation & Enrichment Example

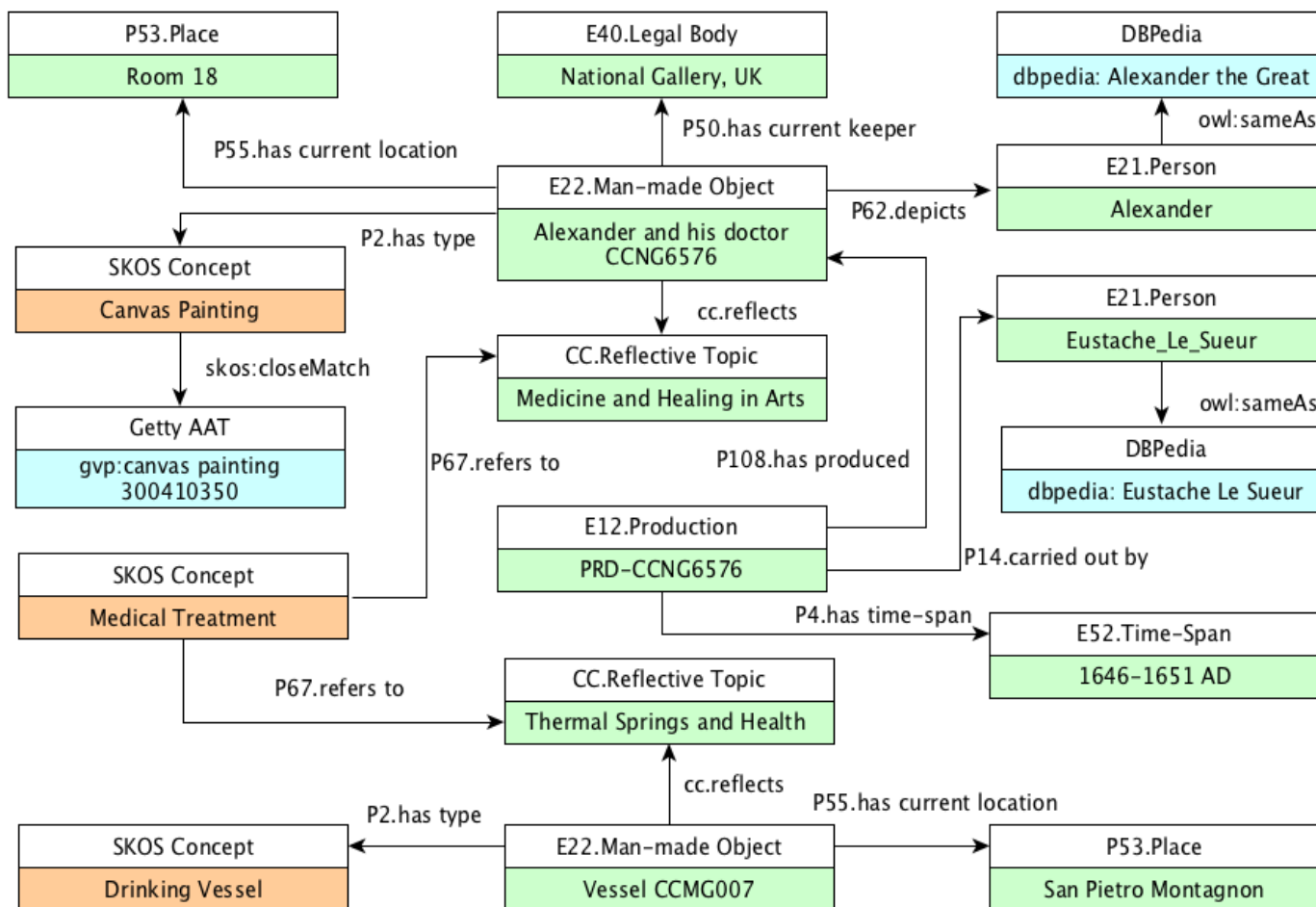


Eustache Le Sueur, Alexander and his Doctor, about 1648-9, © The National Gallery, London



Drinking Water Vessels, Montegrotto, Monte Castello and S. Pietro Montagnon

Semantic Representation & Enrichment Example



Ongoing Work

- ◆ Augment the data with media content and narratives
- ◆ Further enrich the resource descriptions with links to external standardised semantic web resources
- ◆ Further refining the scope and structure of Reflective Topics
- ◆ Develop the venue and user models

Benefits of SW approach

- ◆ Personalised services
- ◆ Highlight associations between / form groupings of different cultural heritage resources under certain historical topics
- ◆ Augment the user experience by linking to external resources
- ◆ Support different kinds of presentation
- ◆ Extendible to more types of information and new functionalities



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Thank You!

Comments/Questions?

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