

# PODD Ontology Driven Database

Dr Peter Ansell

University of Queensland

13 March 2012

# Background

PODD Ontology  
Driven Database

Dr Peter Ansell

- PODD implemented between 2009 and 2011
- Design by Yuan Fang Li and Gavin Kennedy

# Motivation

PODD Ontology  
Driven Database

Dr Peter Ansell

- Flexible scientific experiment management
- Use RDF and OWL technology to support science

# Example

PODD Ontology  
Driven Database

Dr Peter Ansell

## Interface Layer

(Restlet, Freemarker)

Object  
Services

Metadata  
Services

Publishing  
Services

Search &  
Query

## Security Layer

(Spring Security, custom authorization)

## Business Logic Layer

Object  
Management

Concept  
Management

Reasoning  
Service

## Data Access Layer

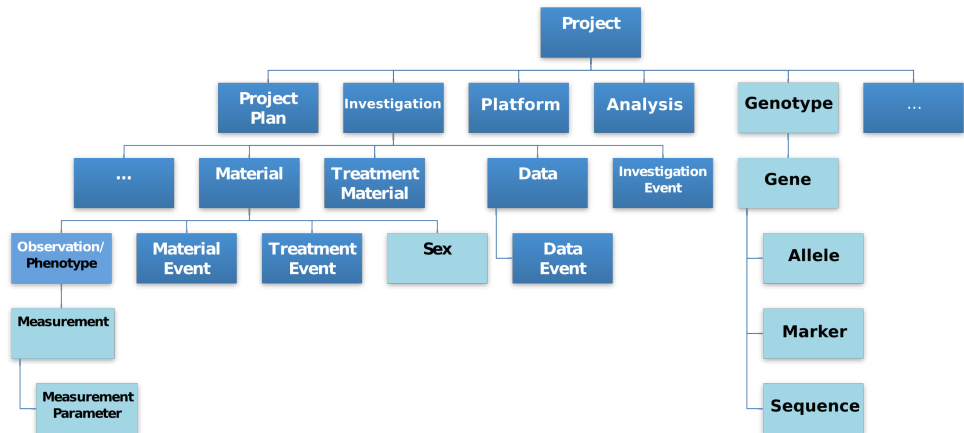
Fedora  
Commons

Sesame  
Triple  
Store

MySQL  
Database

users, roles

Lucene  
Index



# Demo

PODD Ontology  
Driven Database

Dr Peter Ansell

# Evaluation

## Good:

- 1 Flexible : Simultaneously support different experiments
- 2 Adaptable : Additions and changes to schema ontologies

## Bad:

- 1 Current implementation does not scale
- 2 Object oriented, pulling document into memory
- 3 Dependencies not supported anymore, including OWL-1.1, Fedora-3.2 and Spring-2



# Next steps

PODD Ontology  
Driven Database

Dr Peter Ansell

Redesign of the internal implementation:

- Single database, currently 4 databases
- Only query data as needed
- Use upcoming SPARQL 1.1 Query and Update standards
- Use OWL-2
- Support links from experiments to other RDF documents

# Questions

PODD Ontology  
Driven Database

Dr Peter Ansell

Open source code can be found online at:  
`https://github.com/podd`

My email is: `peter.ansell@uq.edu.au`