**Project Context**

**NCRI Informatics Initiative Aim**
"The function of the Informatics Platform is to present resources related to cancer information as a coordinated and collated asset, allowing more efficient access to cancer data and services."

**Project Aim**
The Platform Reference Model (PRM) project is working collaboratively with the NCRI Informatics Initiative to:
- "establish and document requirements for the platform and to construct and validate the key information models around which the platform will be built".

**Project Objectives**
- Define the system scope and identify user and architectural requirements for the NCRI Platform
- Identify integration needs and understand the role different existing resources could play
- Define a Reference Model for the Platform to describe existing data and service resources
- Validate requirements and integration approach by way of use cases and a prototype system

**Analysis Process**

**Considerations**
- Use cases describe everyday research investigation "stories" with interoperability needs
- Use cases are defined by domain experts avoiding describing how and focusing on goals and what
- Domain model is enriched and reviewed iteratively

**Key Advantages**
- Effective involvement of domain experts in the analysis
- Effective to unveil user pain points, integration needs, needed resources, resource roles, etc.
- Use cases are systematically analyzed by a multidisciplinary team
- Use case analysis is twinned with domain modeling

**Example of use case analysis (use case originally presented to a previous caBIG meeting)**

**Reference Model Architecture**

**Considerations**
- The Investigation Model provides users with a way to structure their investigations
- The multidimensional Domain Model provides a top-down view on data and service resources

**Key Advantages**
- Enable separation of concerns
- Coherent top-down view on different resources
- Dimensions introduce a further granularity level to tackle scalability issues

**Top-Down View on Interoperability – An Example**
- Existing resources are described by way of the common Platform Reference Model concepts
- Common concepts provide coarse-grain semantics to describe data stored in the repositories
- Each dimension describes the resource from a different perspective

In this example, two application schemas are described from the Cancer Biology perspective:

**Cancer Biology (excerpt)**

**Examples of how the model has been used**
- The model is embedded in our Prototype User Interface (CRESS)
- Data contained in different repositories can be easily compared
- Semantic interoperability can be enhanced

**Conclusions and Next Steps**

**The Analysis Approach**
- Systematic user-centered way to represent research investigations so that interoperability requirements can be clearly elicited
- Effective in supporting communication in multidisciplinary teams

**Domain Model and Interoperability Approach**
- Multidimensional domain model to tackle scalability issues
- Top-down approach to look at different resources in a coherent way
- Fully interoperable and compatible with caBIG

**Next Steps**
- Understand how the Reference Model can be created and managed (Cooperation with the Large Scale Model Harmonization group in caBIG)
- Develop a prototype architecture to validate requirements and approach
- Enable the creation of a unique global community by cooperating with caBIG