PMLite: an Open Source Solution for Process Monitoring

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Introduction

- Process monitoring a big challenge for organizations adopting multiple development paradigms
- Across-process enterprise-level measurement actions
  - Difficult to enact: data semantically different
  - Difficult to integrate

Our Work

- We propose a metamodel based methodology for enterprise-level across-process monitoring
- We present the open source tool PMLite (Process Monitoring Lite) as proof of concept of our approach

The Problem

- The adoption of multiple development processes has become common
- Different commercial agreements lead to the adoption of different development paradigms
  - e.g. Agile process for simple enterprise application and standardized waterfall process for Public Agency products
- Difficult to calculate organization processes performances

The Vision

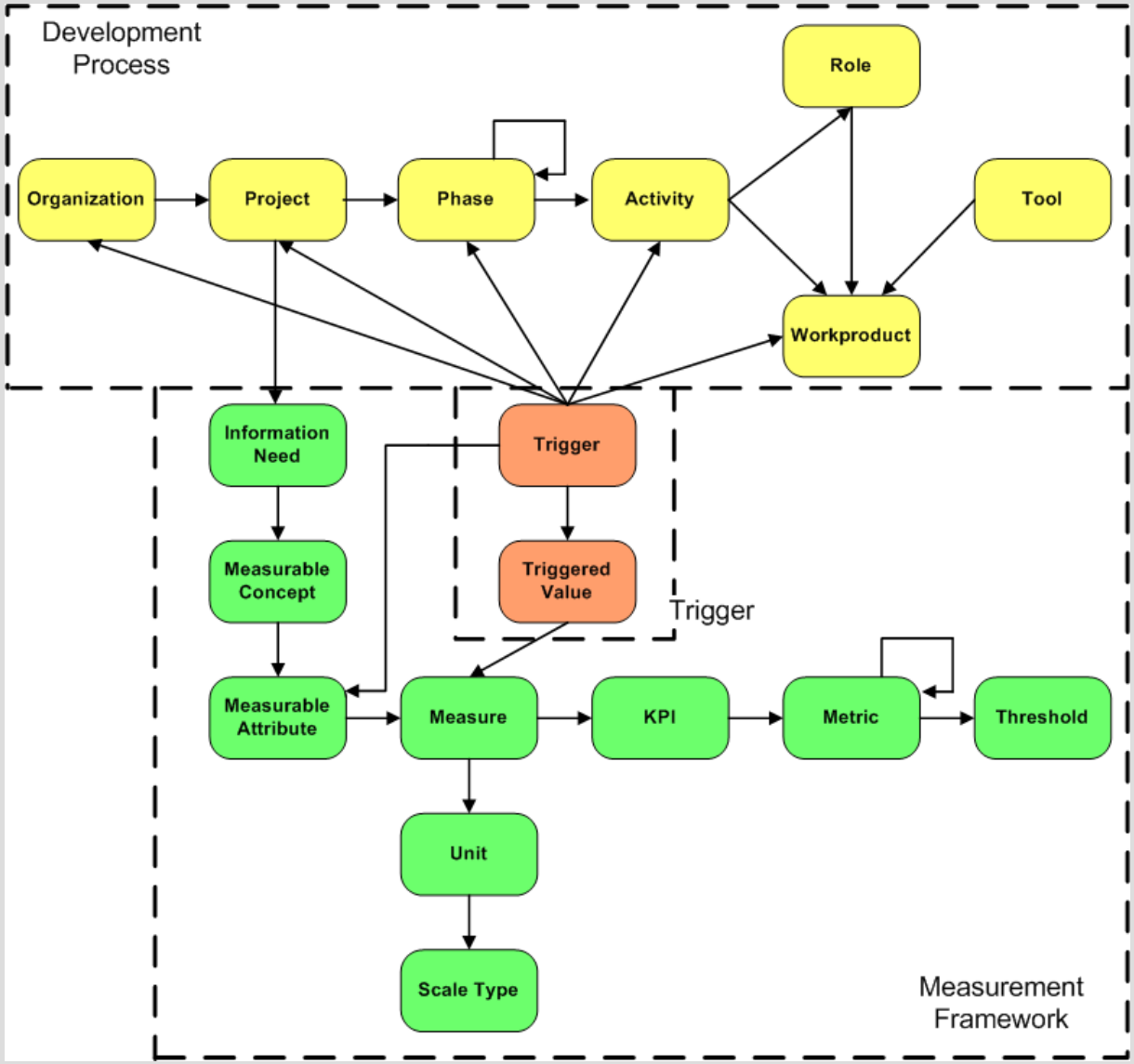
- Give to managers and analyzers a global view of organization performances
- Give to project leaders freedom on development process choice
- Supply reliable enterprise level measurement frameworks

Our “meta” Solution

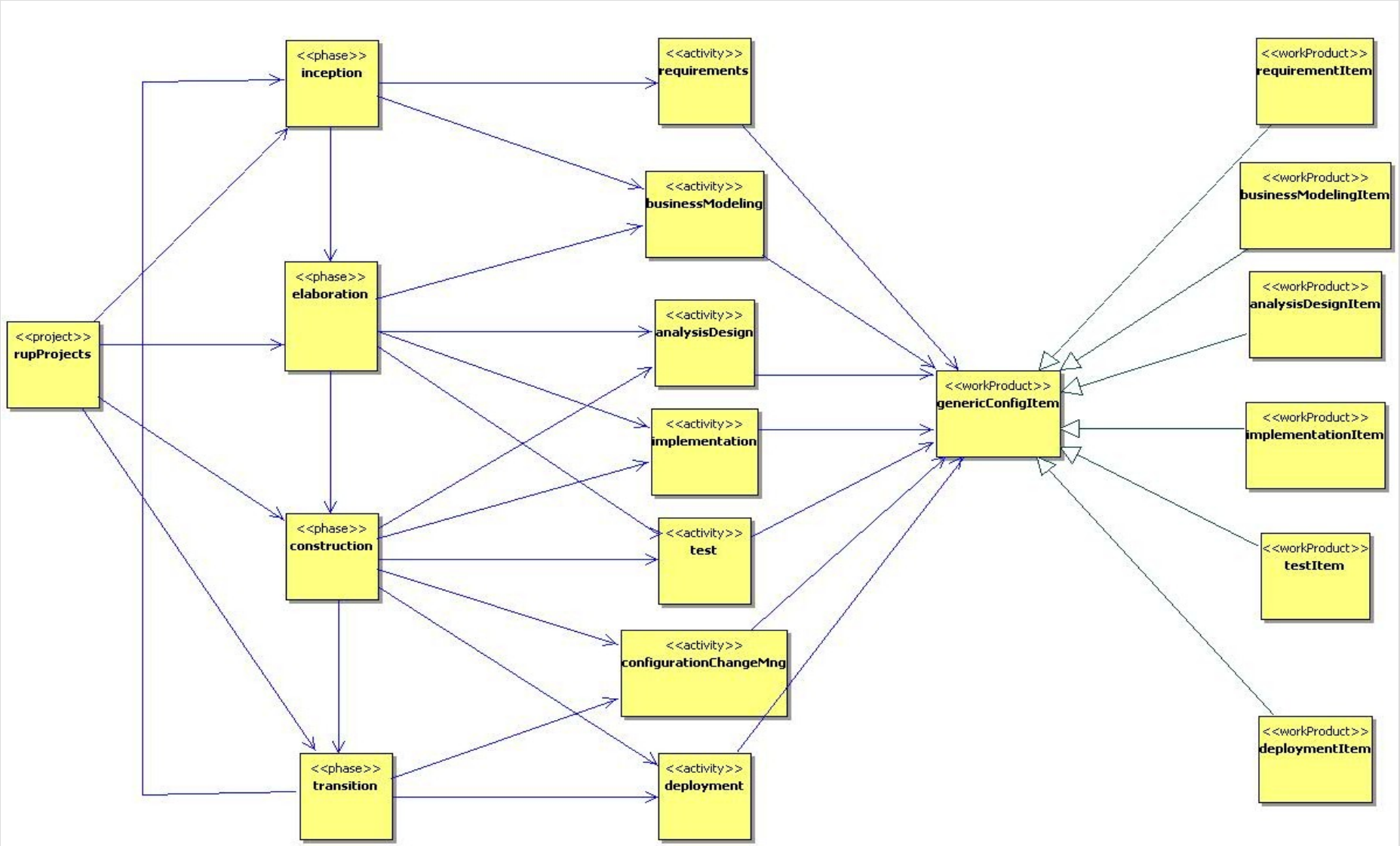
- We define a MOF-based metamodel generally describing
  - The development process
  - The measurement framework
  - The trigger layer
- Based on SPEM metamodel structure
  - We consider only the elements that are fundamental for our measurement actions

F. Ruìz, A. Vizcano, F. Garcìa, and M. Piattini. Using xmi and mof for representation and interchange of software processes. In *Proc. of 14th International Workshop on Database and Expert Systems Applications (DEXA'03)*

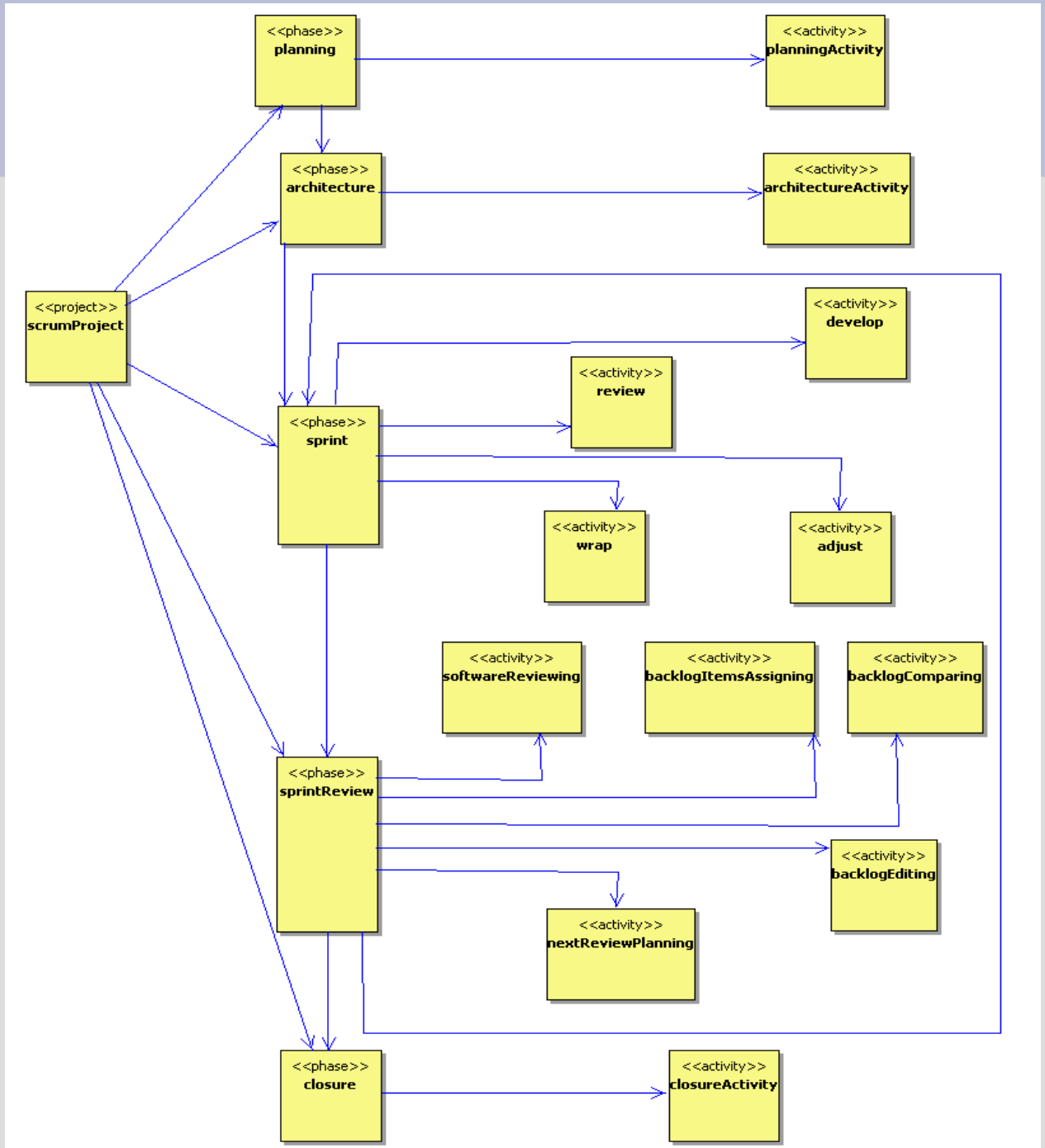
The Metamodel



A Metamodel Instance: RUP



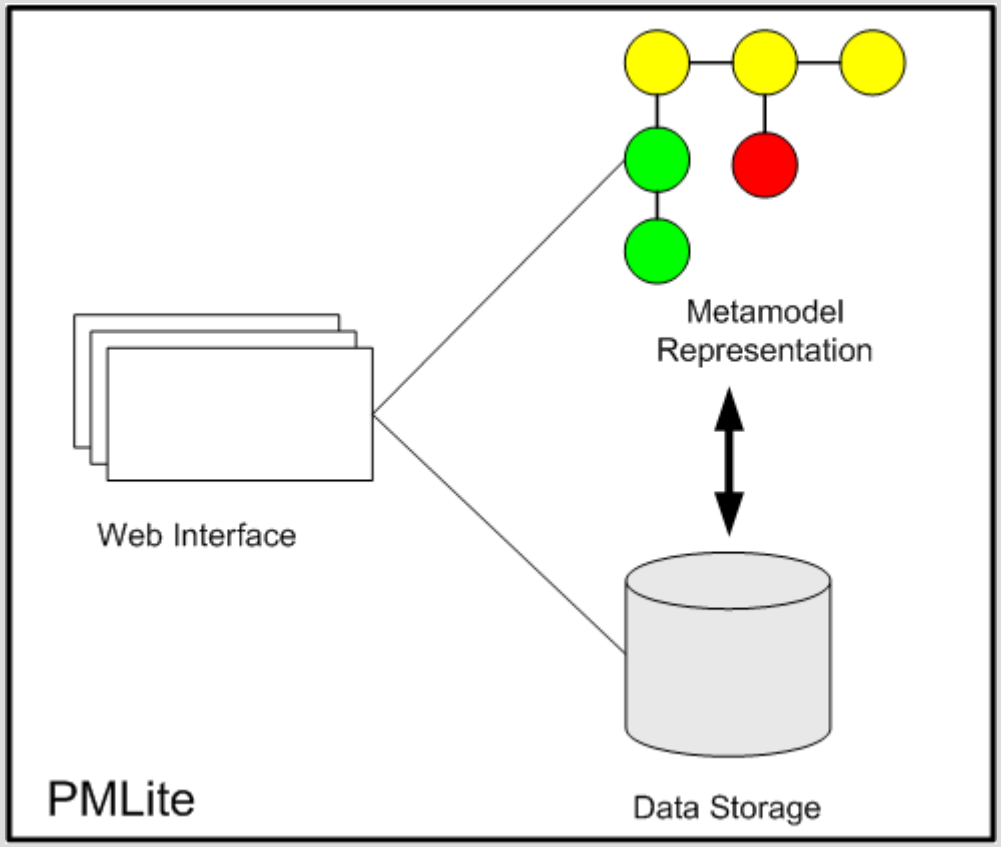
A Metamodel Instance: Scrum



From the Metamodel to PMLite: Requirements

- Develop a web-based application that fully adopts the metamodel
  - Follow the user in the measurement framework creation
- Produce an easy-to-use tool with a gentle learning curve
  - Low installation effort
  - Data collection method based on surveys
- Represent the first step for the formalization of more complex monitoring applications
  - Exploiting the metamodel approach for generic process monitoring

PMLite Conceptual Structure



- Web pages and data storage are based on the metamodel structure

PMLite Homepage

New Process

New Project

New Attribute

New Question

View Questions

Question Set

Survey

View Survey

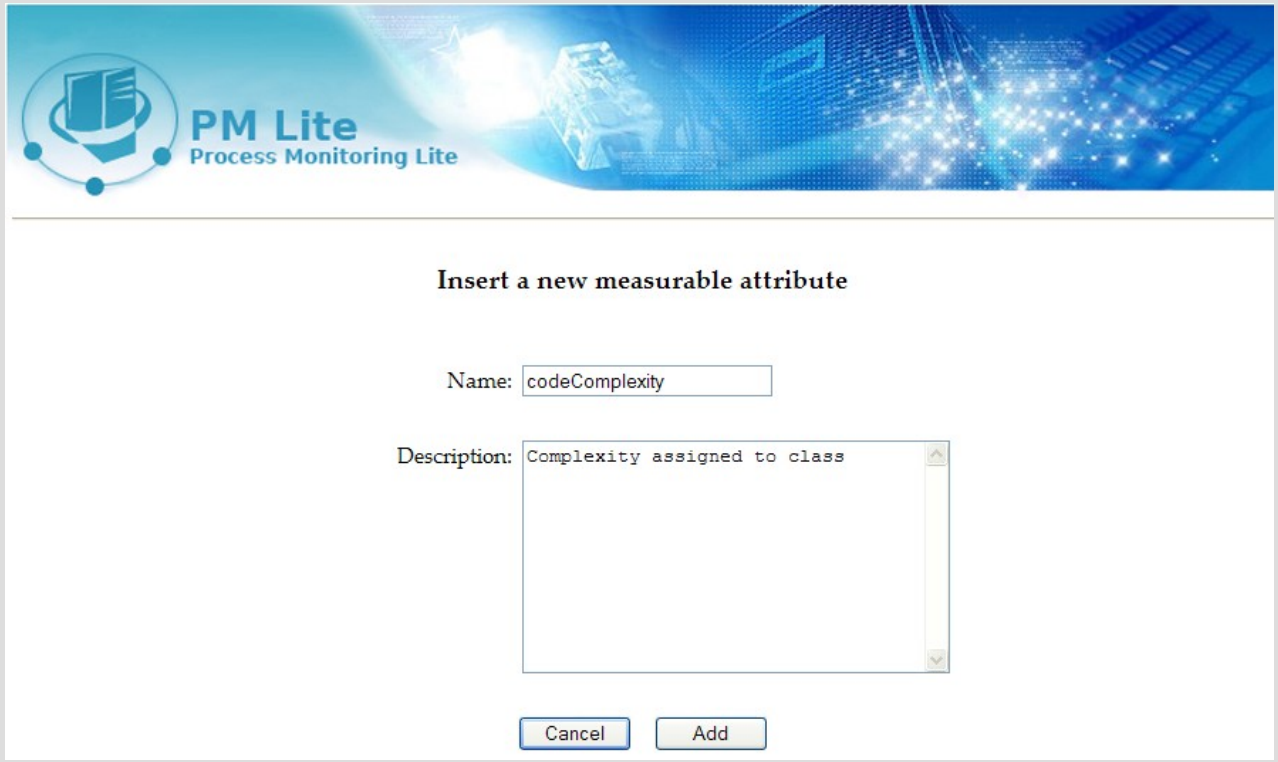
Dimension Set

PMLite Web based application for enterprise Process Development Monitoring that allows project managers controlling software development activity through the definition of a metrics-based assessment framework, such as CMMi or ISO 9000-2001.

Definition of the Process

- Processes are defined in terms of phases and activities
- Relations between phases and activities, and transitions between phases define the flow of the process

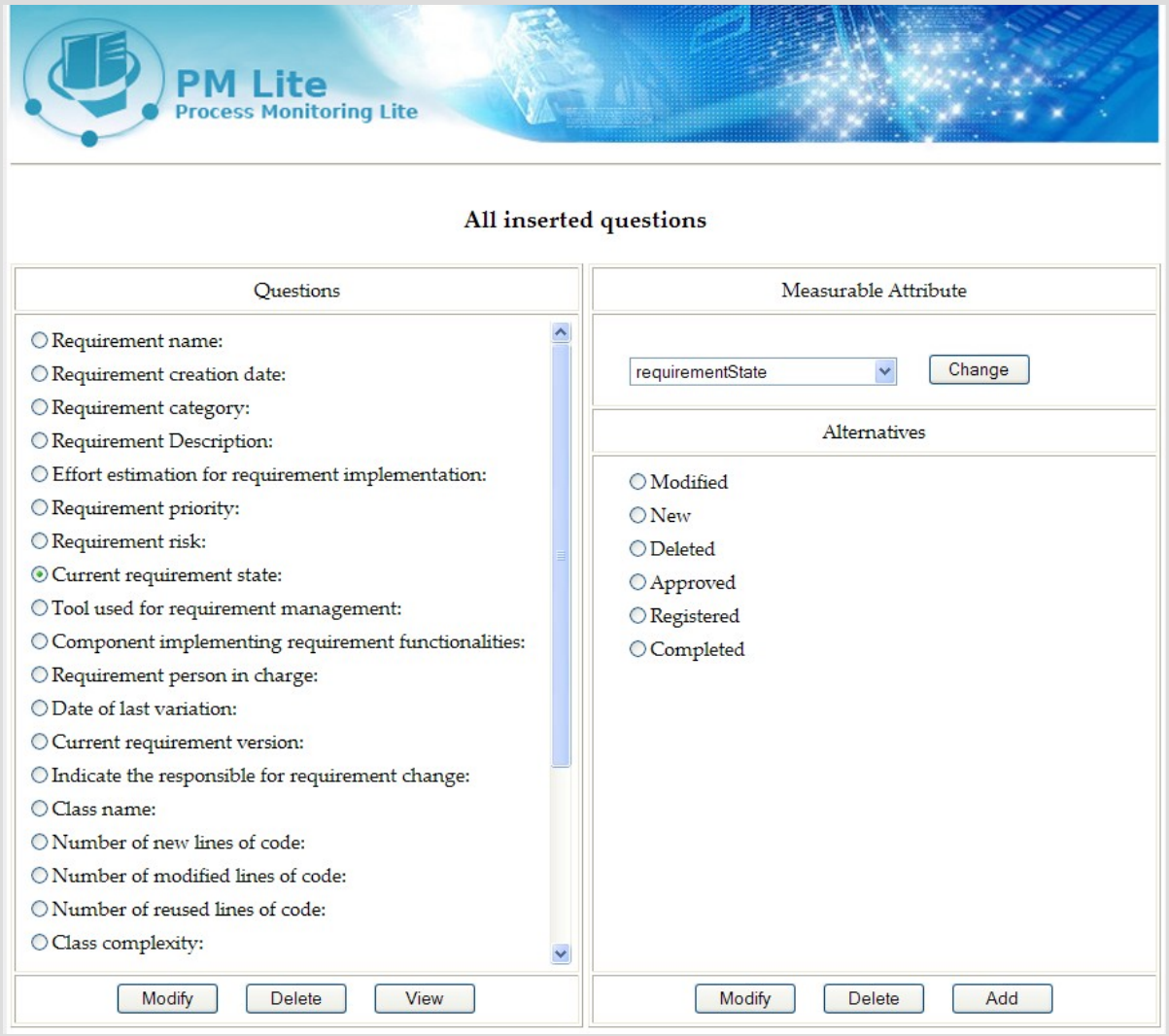
Definition of Measurable Attributes



- The definition of measurable attributes are critical for the definition of surveys and the overall measurement actions

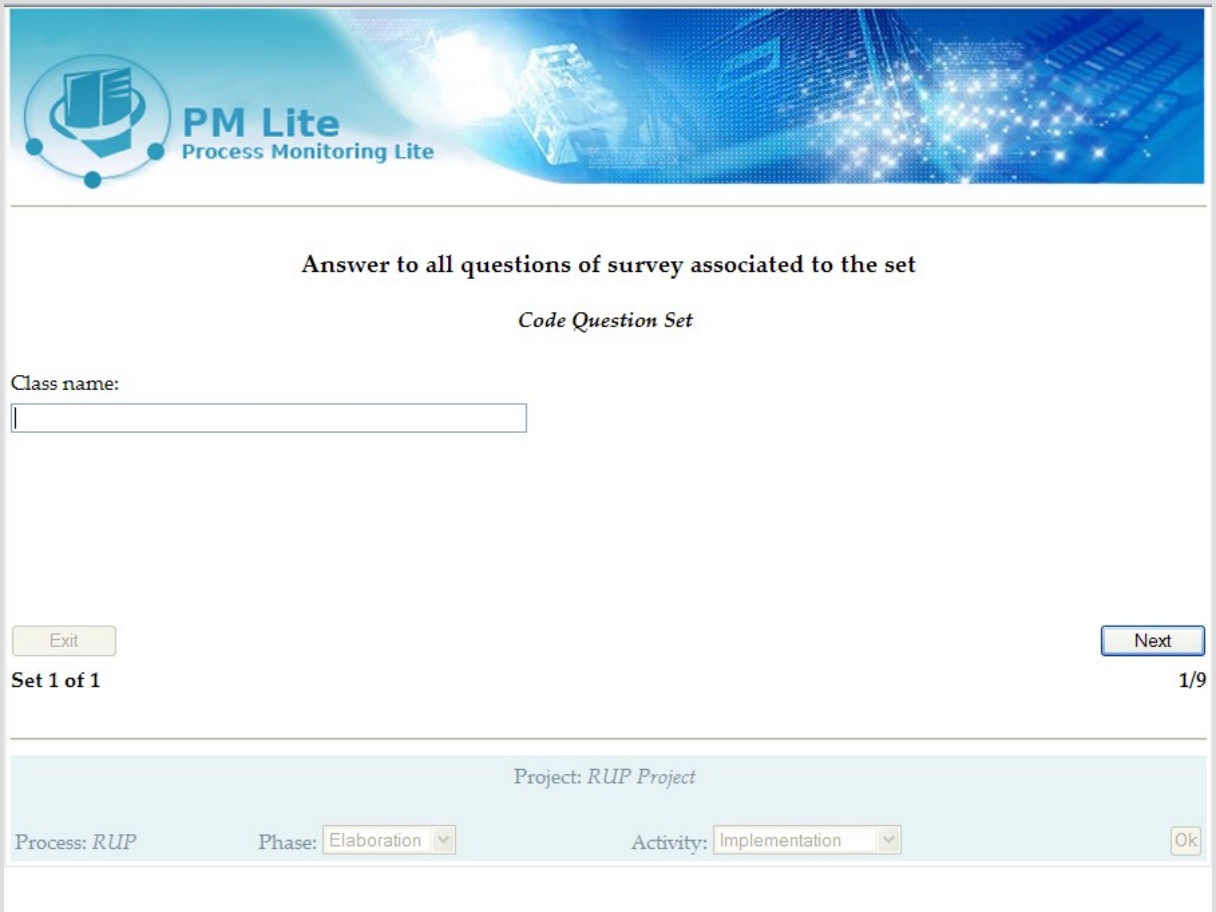
Definition of Surveys

- Questions are directly connected to measurable attributes
- Questions are gathered in sets and linked to process elements



Execution of the Surveys

- PMLite simulates automatic probes via the execution of surveys
- Questions sets are associated to specific process phase or activities



Future Works

- Extend PMLite to develop a complete and automatic process monitoring environment
  - Fully transparent to developers
- The metamodel approach has been fully exploited in the designing of the structure of Spago4Q
- Exploit PMLite for the definition and proof-of-concept of specialized GQM
  - Theses activated on maturity frameworks and business process evaluation

Conclusions

- We presented our new Open Source tool, PMLite for enterprise-level process monitoring
- The proposed methodology could seem intrusive for developers but could be adapted for generic process monitoring

Thank You for the Attention

- Further information on
  - PMLite: *sourceforge.net/projects/pm-lite*
  - Spago4Q: *www.spago4q.org*