KISS – Knowledge-intensive Service Support for Agile Process Management

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Motivation

- BPM successful for structured processes
  - optimization
  - information system support

- But: Process definitions often
  - are not in line with real work
  - lack right level granularity
    - prohibiting flexibility in process execution

- Even worse for knowledge-intensive processes
  - high variability,
  - unforeseeable event,
  - exceptional situations
Solution approach

- process models for
  - explicit documentation and visualization
  - execution automation
- (business) rules for
  - variable process execution
  - intelligent resource allocation
  - intelligent branching and decision making
  - consistency checking
Adaptive Processes with Business Rules

- Variable process execution
  - Determine activities and processes to be executed
  - account for dependencies between activities

- Intelligent resource allocation at run time
  - Selection of employees based on special skills
  - Selection of a particular web service

- Intelligent branching and decision making
  - deriving workflow-relevant data using inferences
  - computing values (e.g. tax rate)

- Consistency checking
  - avoiding violation of integrity constraints and guidelines
Pilot Process: Building Permission

Variable process part consisting of several possible activities
- Formal investigation
- Collect data
- Check layout plan
- Check environmental compatibility
- Involve historical preservation agency
- Expression opinion

Resource allocation:
- Select participant with appropriate skills

Intelligent branching: Is permission necessary or is announcement sufficient?

Variable process part: Discussion with mayor, design committee and experts if appropriate
Four types of rule sets

■ Variable process parts

First Investigation

Action-enabling rules:
Selecting appropriate activities

■ Activities have references to three rule sets

Resource selection rules:
context-specific selection of human resources, IT and information sources

Constraints and guidelines
to be checked at runtime

Inference/computation rules for decision making/
intelligent branching
Role of ontologies

- Balance between
  - explicit model of process flow
  - declarative process model

- Expressive, agreed-upon vocabulary for business rules

- Flexible process execution

- Adapting processes to changes
KISS – the whole picture

Modelling

Execution

ontology
(terms and facts)

SWRL rules

semantically enhanced
process models

Modelling

Execution

application data

rule engine
(as Web Service)

BPEL

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