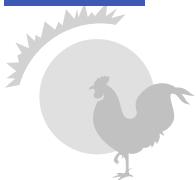


# KISS – Knowledge-intensive Service Support for Agile Process Management



Daniela Feldkamp, Knut Hinkelmann, Barbara Thönssen

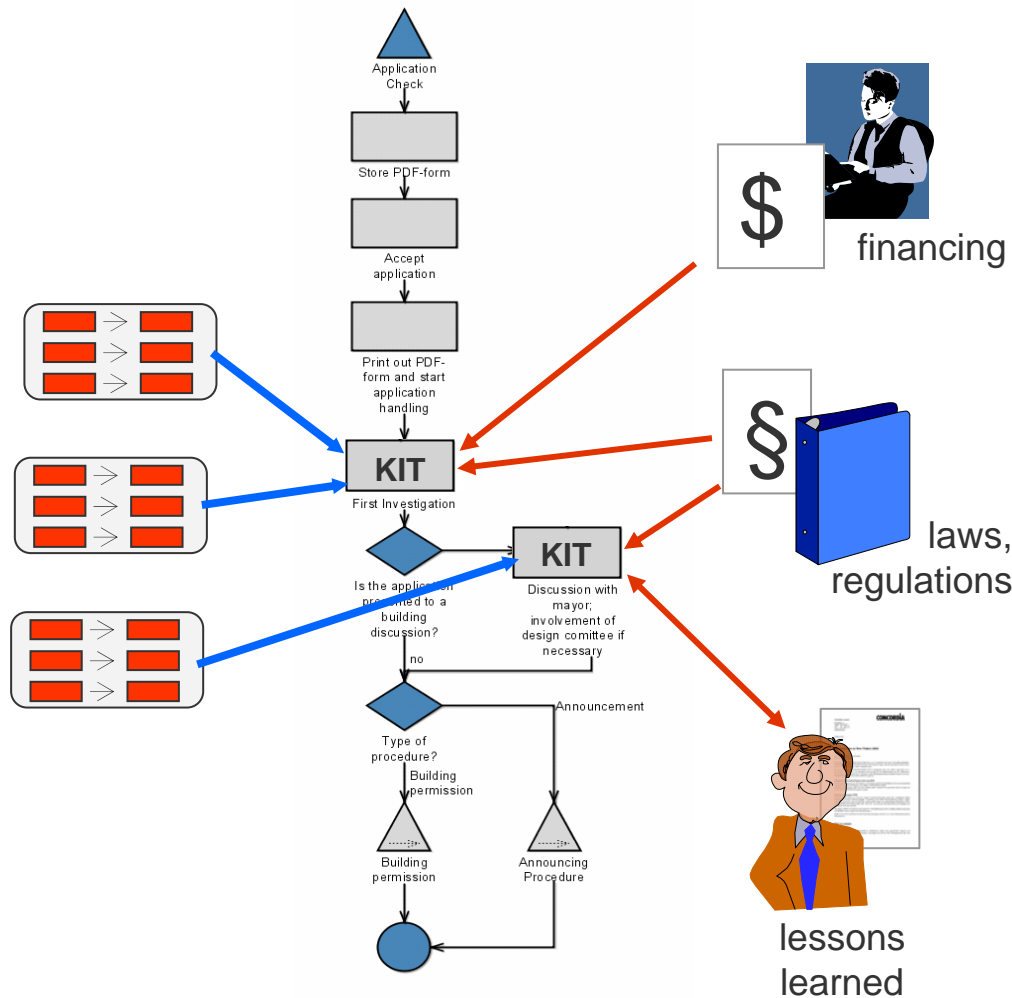


## Motivation

- 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

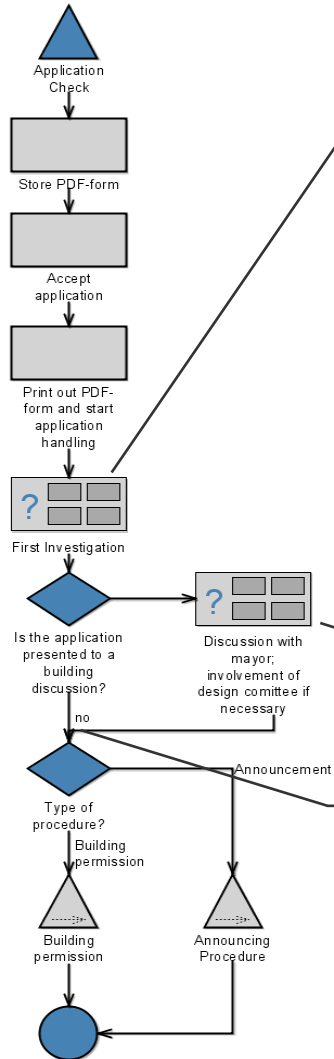


## Adaptive Processes with Business Rules

- 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

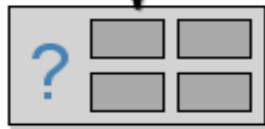
**Intelligent brancing:** Is permission necessary or is announcement sufficient?

**Variable process part:** discussion with mayor, design committee and experts if appropriate

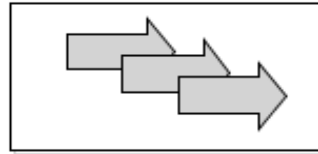


## Four types of rule sets

### Variable process parts

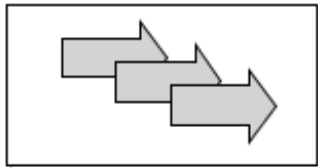
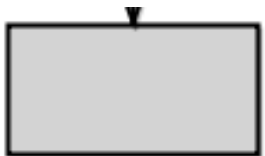


First Investigation

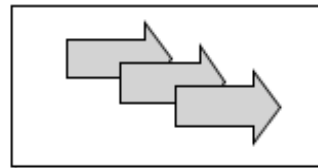


Action-enabling rules:  
Selecting appropriate activities

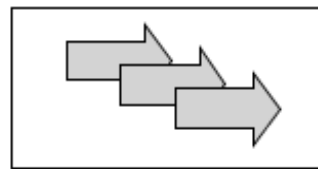
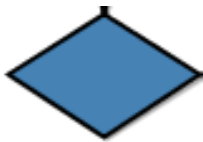
### Activities have references to three rule sets



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

