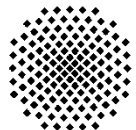


Compliance Management in Automated Business Processes

Fundamentals, Issues, and Potential Solutions

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- Our View on Compliance Management
- Compliance Fragments
- Compliance Templates
- Summary and Outlook



Speakers

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- Focus
 - Compliance
 - Compliant process design
 - Compliance languages

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- Ph.D. student
- COMPAS EU-Project
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- Focus
 - Compliance
 - Process fragments
 - Process views

Our View on Compliance Management

Compliance Requirements

- Sources of compliance requirements
 - Laws
 - Regulations
 - Social expectations (e.g., Green IT)
 - Internal policies
 - ...
- Requirements on different levels of abstraction
 - General requirements (e.g., use a secure protocol)
 - Specific requirements (e.g., use protocol XYZ)
 - Compliance expert translates compliance requirements to technical specifications

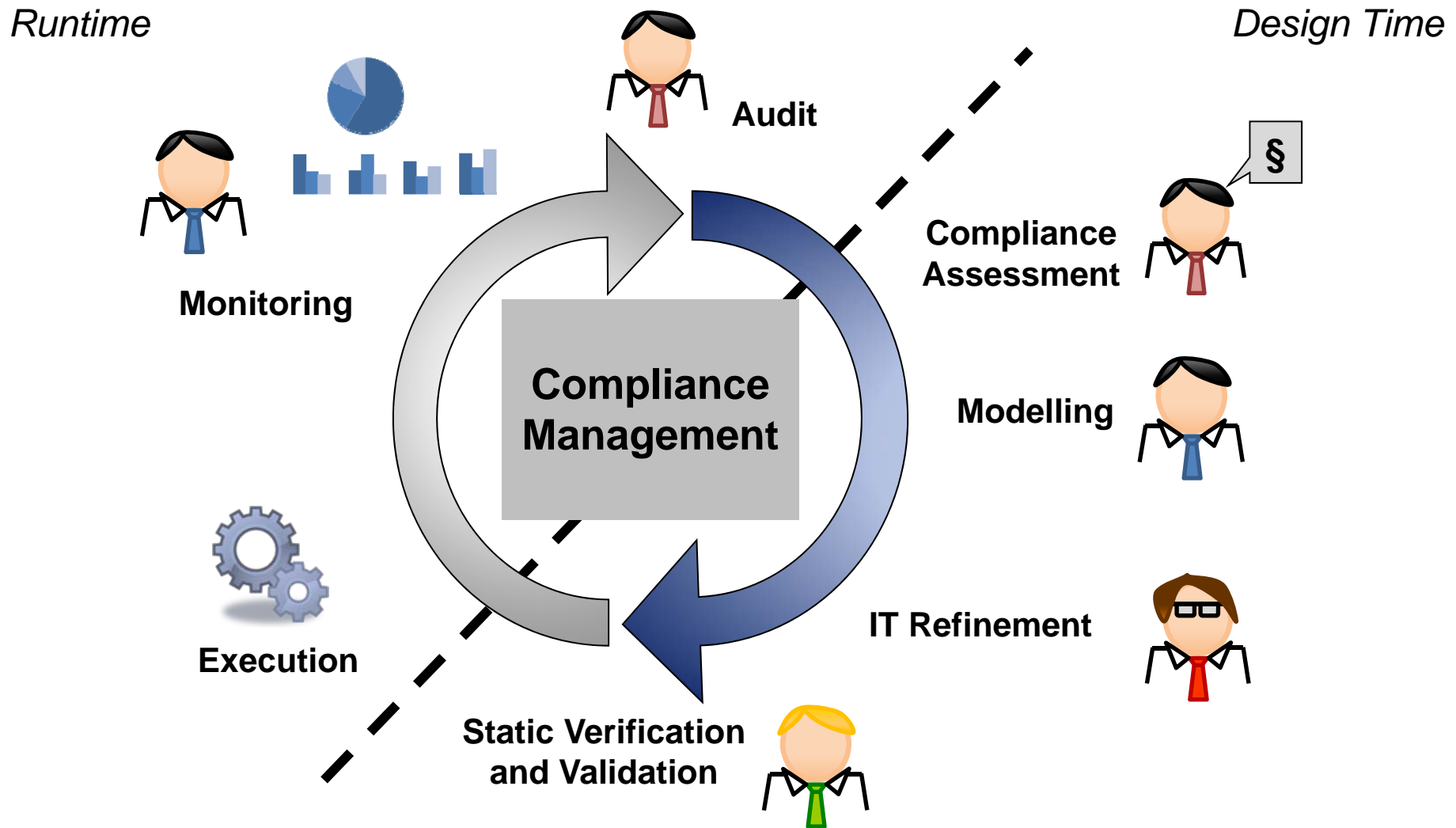
Impact of Compliance on the Business

- Organization
 - Installation of a compliance office
 - Role management
 - Questionnaires (Not all requirements can be checked via IT)
- Re-design of processes
 - New activities
 - Checks are installed
 - Verification is required
- IT systems and applications
 - Supporting infrastructure
 - Need to react on frequent changes in laws and regulations

Compliance Problems in Business Processes

- Segregation of duties
- Binding of duties
- Checks
- Logging and auditing
- Security
- Treatment of private data
- Trust
- Risks of outsourcing
- Increased demand for monitoring

Process Life Cycle Combined with Compliance



Source: [COMPAS]

Benefits of Achieving Compliance

- Process awareness – what are the processes?
- Process insight – how do the processes run?
- Prevention – how to design compliant processes?
- Improved reputation
 - Our company acts lawful
 - The privacy of our customers is protected
 - Our processes are compliant with SOX
 - ...

Lessons Learned

- Compliance is important
- Compliance has an impact on business processes
- ...what we present in the following:
 - How to integrate compliance requirements
 - How to design compliant business processes

Compliance Fragments

Problem Statement

- Goals
 - Support of frequently changing requirements
 - Support for traceability and compliance monitoring
 - Reusable solutions
- State of the art of reusability in processes
 - Not flexible enough (e.g., sub processes)
 - Not concerned with compliance
- Potential solution: *compliance fragments*
 - Concepts
 - Integration

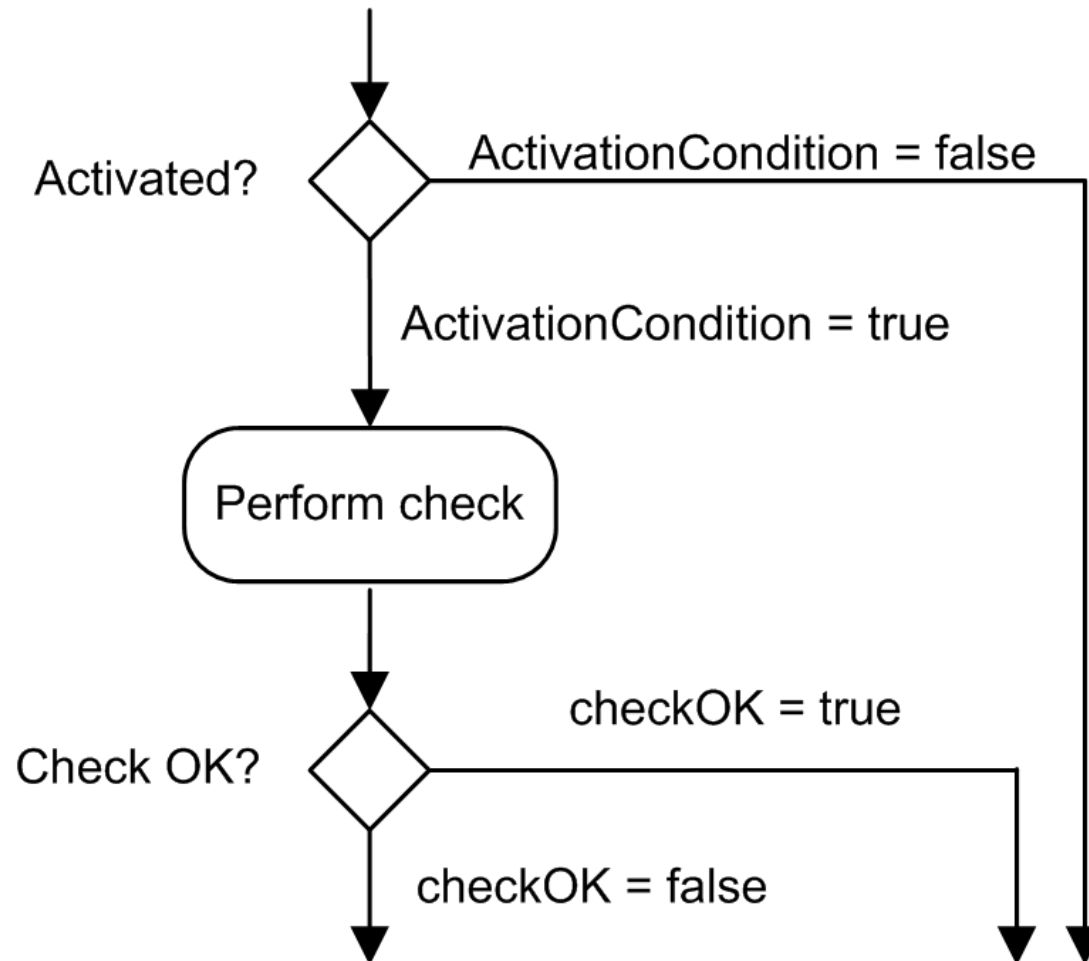
Source: [2]

What is a Process Fragment?

- A process structure with relaxed completeness and consistency criteria
- A process fragment is basically made up of
 - Activities
 - Activity placeholders (so-called regions)
 - Control links that define control dependencies
 - Multiple entering and leaving control links
- A process fragment contains additional information
 - A context (e.g., variables)
 - Handlers (e.g., fault handling logic)

Source: [2]

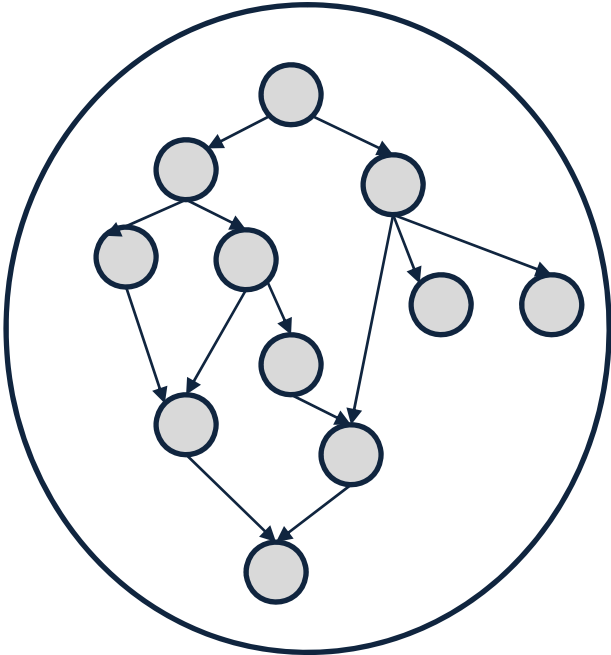
Process Fragment Example: "Approval"



Source: [2]

Compliance Fragment Gluing

Process



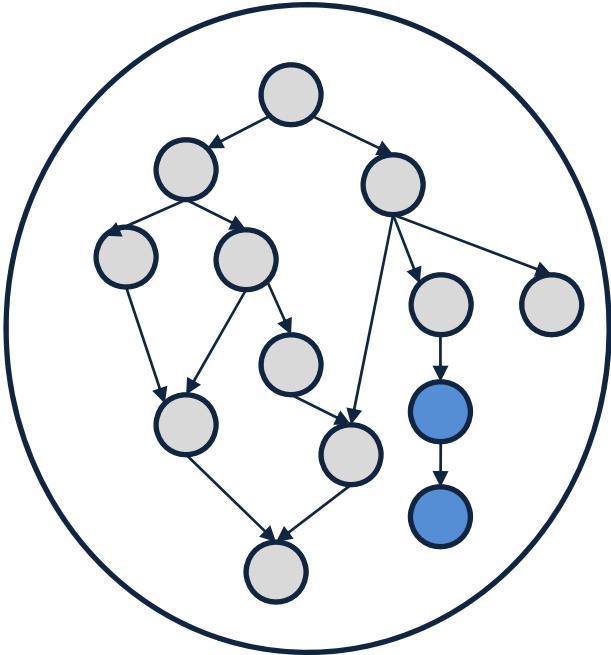
**Process
fragment**



Detailed explanation: [2]

Compliance Fragment Gluing

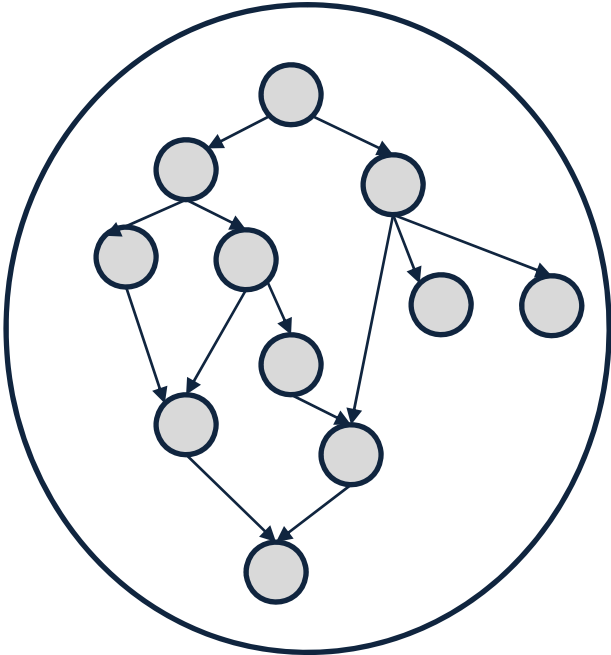
Augmented Process



Detailed explanation: [2]

Compliance Fragment Weaving

Process



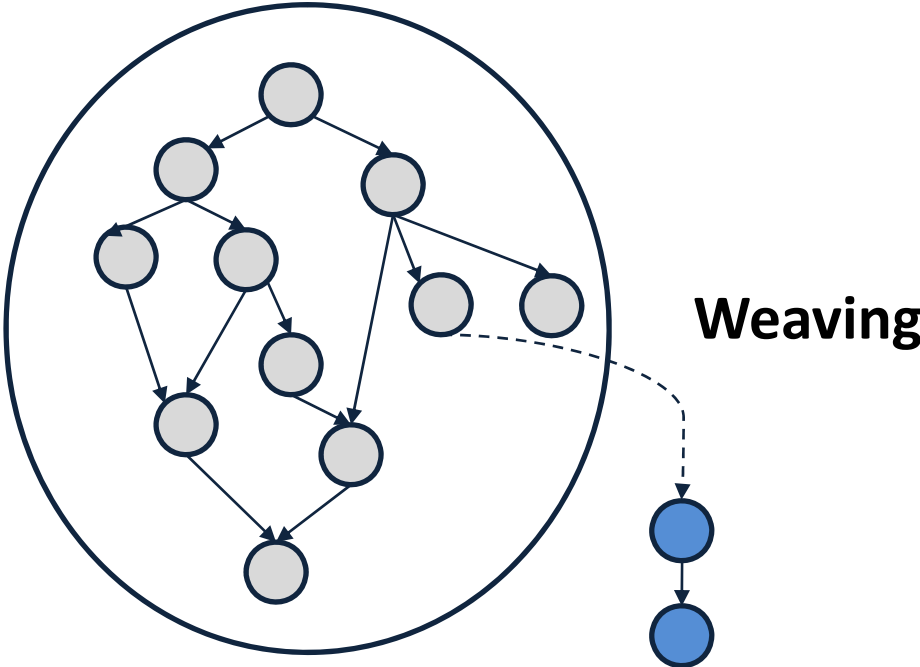
**Process
fragment**



Detailed explanation: [2]

Compliance Fragment Weaving

Augmented Process



Detailed explanation: [2]

Compliance Templates

Problem Statement

■ Goals

- Check of compliance requirements at design time
- Manage large number of compliance requirements

■ State of the art of compliant process design

- Model checkers
- Verification techniques
- No pragmatic approach
- No controlled changes

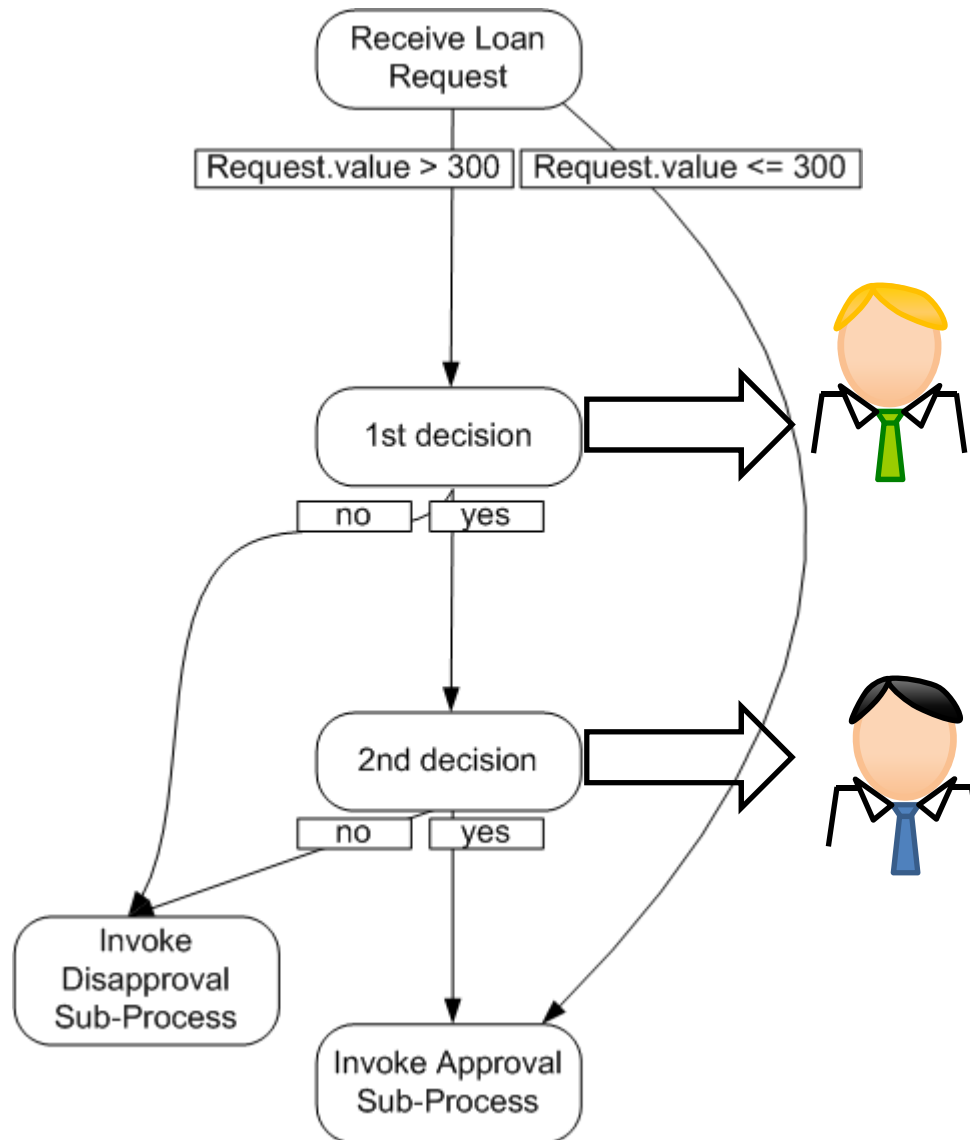
■ Potential solution: *compliance templates*

- Concepts
- Tool support

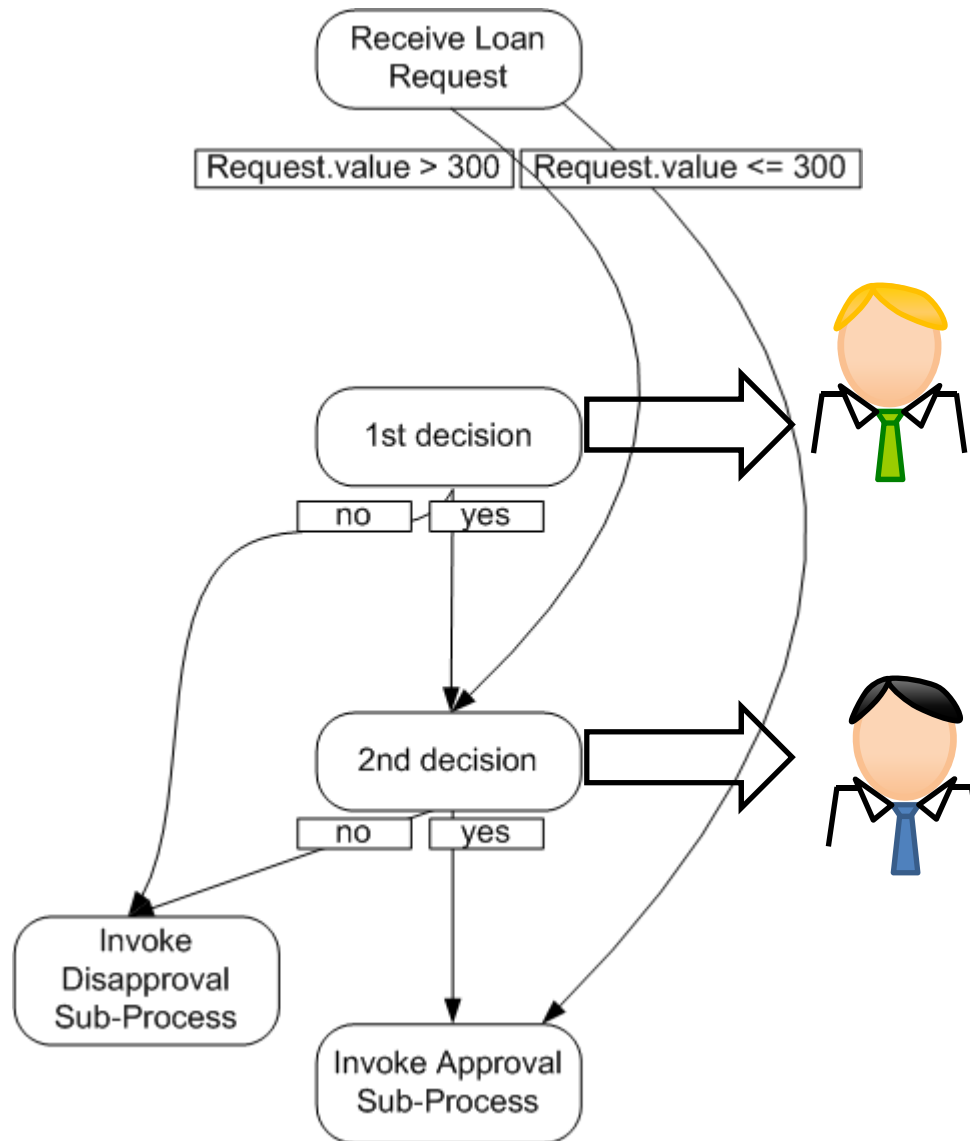
Example Use Case

- Customer: Inter Bank
 - Need for new business process
 - Automated loan approval processing
- Provider: Compliance as a Service Inc.
 - Design compliance template
 - Compliance assessment
 - Design process template
 - Sell compliance template
- Customer: Inter Bank
 - Buy compliance template
 - Complete compliance template
 - Deploy completed process

Process Template Skeleton

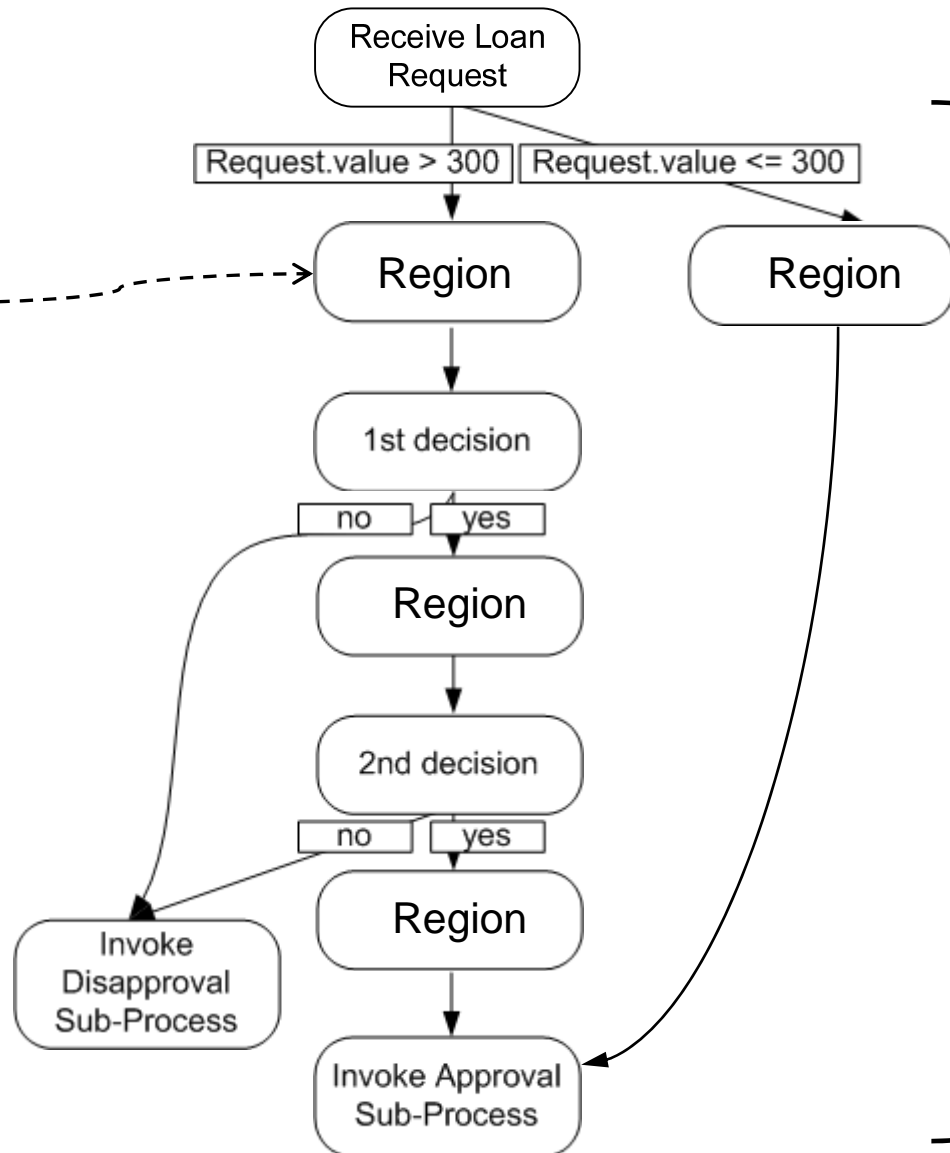
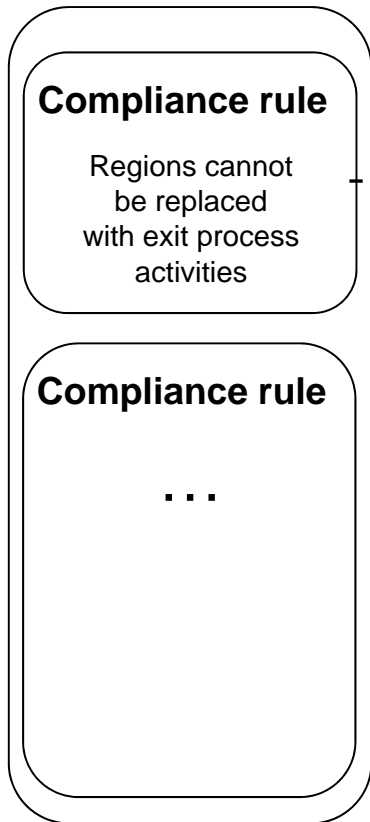


Process Template Skeleton

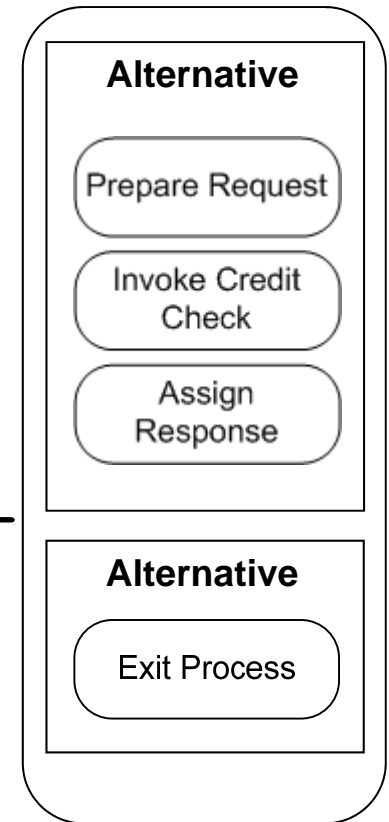


Compliance Template

Compliance descriptor



Variability descriptor



Source: [1]

Prototype

■ Oryx web-based BPMN editor

The screenshot displays the Oryx web-based BPMN editor interface. The browser address bar shows the URL `http://localhost:8080/poem`. The Oryx logo is visible in the top left corner, and the text "Not logged on" is in the top right. The interface is divided into several sections:

- Shape Repository (1):** A sidebar on the left containing a list of BPMN elements categorized by type (Activities, Gateways, Swimlanes, Artifacts, Data Objects, Start Events, Catching Intermediate Events, Throwing Intermediate Events, End Events, Connecting Objects). A red box highlights this sidebar, with a red number "1" next to it.
- Diagram (3):** The central workspace showing a BPMN diagram. It consists of three yellow rounded rectangular shapes: "Initiate" at the top, "Process Request" in the middle, and "Return result" at the bottom. They are connected by downward-pointing arrows. A red box highlights the diagram area, with a red number "3" next to it.
- Properties (BPMN-Diagram) (2):** A sidebar on the right showing the properties of the selected element. It includes a "Fragment Repository" section with a "Task" checkbox, and a "Properties" table with columns "Name" and "Value". Below this, there are sections for "Often used" and "More Properties". A red box highlights this sidebar, with a red number "2" next to it.

Summary and Outlook

Summary

- Discussion of compliance management in business processes
- Compliance is important
 - Active research community
 - Increasing interest in industry
- Presentation of two potential solutions
 - Compliance fragments
 - Compliance templates

Outlook

- We are working on an integration of our approaches
- Final results of our research projects
 - Available at the beginning of 2011
 - Downloads
 - www.compas-ict.eu
 - www.master-fp7.eu
- Let's keep in touch...
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 - schleicher@iaas.uni-stuttgart.de

References

- [1] D. Schleicher, T. Anstett, F. Leymann, and R. Mietzner:
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In: *Proc. of the 17th Intl. Conference on Cooperative Information Systems (CoopIS)*. Springer, 2009.
- [2] D. Schumm, F. Leymann, Z. Ma, T. Scheibler, S. Strauch:
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