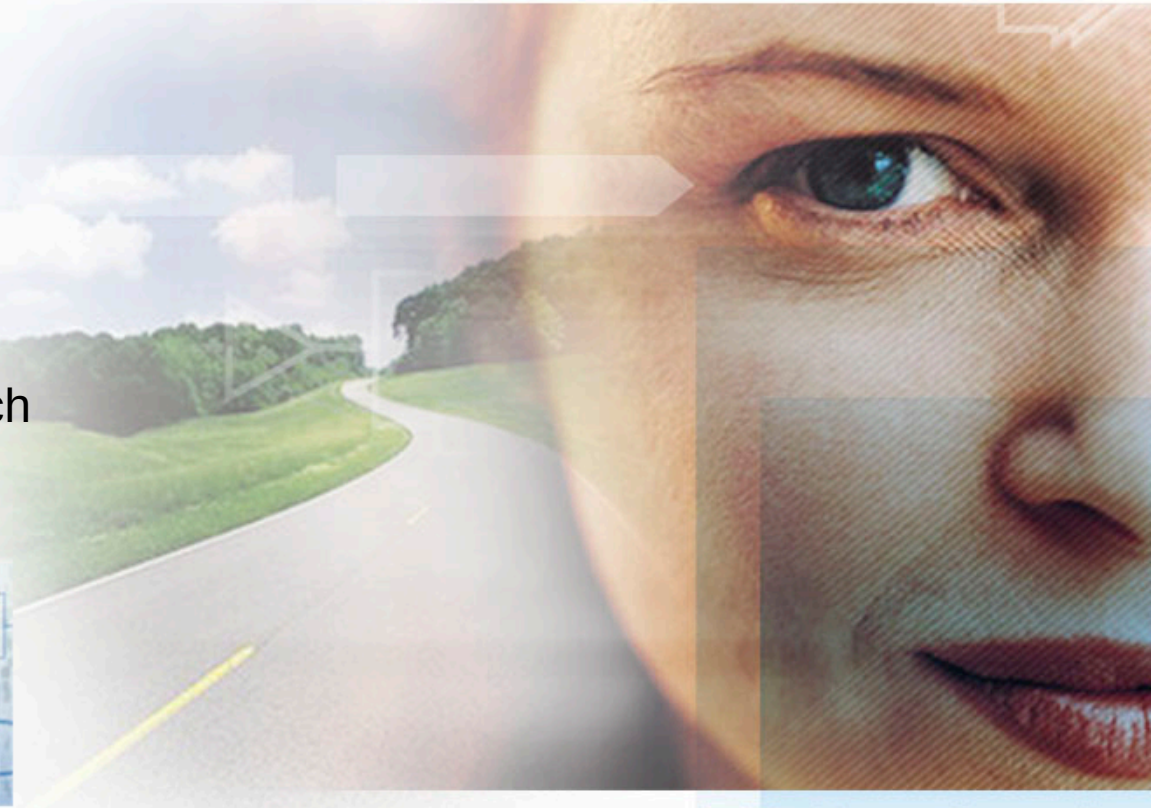
Business Process Simulation Working Group (BPSWG)

Kickoff Meeting

Denis Gagné, Trisotech
BPSW Chair



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Agenda

- Working Group Guidelines
- BPM Standard 101
- Initial BPSWG Proposal

Business Process Simulation Working Group (BPSWG)

Working Group Guidelines

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BPSWG by Definition

What it is:

- A Standardization Effort

What it is not:

- A Pure Thought Leadership Effort

Mandate:

Developing, reviewing, promoting BPM Simulation relevant standard(s)

Success is measured by adoption

BPSWG Roles

- Members
  - Interested stakeholders desiring to actively contribute to the pursuing of the BPSWG mandate
- Chair(s)
  - The group may have one or more Chairs to perform the administrative functions of the group. Responsibility for seeing progress made and conclusions generated by the Group
- Editor(s)
  - The group may have one or more Editors to produce official versions of deliverables. Responsibility to ensure that the text flows, that it is sensible and accurate

BPSWG Members Participation Categories

Members of the BPSWG must elect to, and shall be recognized as to, participating in the BSWG as a:

- Developer:
  - Regular active contributor to the development of the BPSWG standards: Intends to actually implement the BPSWG standards in their application(s).
- Participant:
  - Regular active contributor to the development of the BPSWG standards: Practitioners with knowledge relevant to BPSWG that bring context to the work being done (breadth and depth)
- Reviewer:
  - Reactive contributor: Interested parties that iteratively review versions and provide feedback on BPSWG deliverables.

BPSWG Legalese

- This work by WfMC is licensed under a Creative Commons Attribution 3.0 Unported License
  - Gist: You are free and we are free:
    - to Share — to copy, distribute and transmit the work
    - to Remix — to adapt the work
    - to make commercial use of the work
    - Attribution — You must attribute the work

- Anti-Trust Policies
  - Gist: We are not getting together to manipulate the market

- Intellectual Property (IP) Policy
  - Gist: Do not contribute any protected material

BPSWG Modus Operandi (MO)

- Start from an initial version 0 proposal and iterate by raising and resolving issues against it.
  - To break the white page syndrome
  - Obtain early focus
- Keep Bulk (if not all) of discussions during meetings
- No forum or email conversation threads
  - use issue tracking
    - for traceability and openness

BPSWG Iterative Process

- Issue identified/raised by any member
- Assignee volunteered/named
- Assignee develop conceptual proposal
- Conceptual proposal presented/discussed at meeting (bis)
- Assignee write Specification text proposal
- Editors integrates into current working version of the Specification

BPSWG Decisions

- Seek consensus everyone input is welcomed and desired (consensus and proof of running code)
- If vote becomes required
  - Developer and Participant organizations can vote
    - 1 vote per organization
  - Chair & Developer Member organizations have veto
    - As to not publish material that will not get implemented

Meetings

- Web Meetings: Weekly
  - Proposed schedule : Every Thursday 11:00-13:00 hrs (EDT)
- Face to Face (F2F) Meetings: As Required
  - Hosted by one of BPSWG member organization
  - Members cover their own Travel & Material Expenses
  - First F2F: early 2012
  - Potential Host (?): Fujitsu (Ca), OpenText (MA)
  - 3 days (tues,wed,thurs)

BPSWG Deliverable Scope

Reasonably achievable and achievable within a reasonable timeframe.

- Interchange Format (XSD)
- Meta-model (UML)
- Specification Document
  - Meta-Model
  - Interchange Format
- Introductory Document
  - Positioning
  - Examples

BPSWG Other Potential by-products

- Reference Implementation (Open Source?)
- Open Source Editor

BPSWG Lifecycle

- Specification created by a dedicated designated group (BPSWG)
- Specification opened for Industry/Public Review
  - Analysts, PR, etc.
- Specification Finalisation
- Specification Published

- As required
  - Specification Revision Efforts

BPSWG Milestones

- Nov 2011: Specification Development
- May 2012: Alpha Version (Final internal review)
- Jul 2012 : Beta Version (Opened for industry/public review)
- Oct 2012: Specification Finalisation
- Nov 2012: Specification Published

Tools

- Mailing List/Group
  - Moderated list: bpswg@googlegroups.com
  - List home: http://groups.google.com/group/bpswg
- BPSWG Home
  - http://code.google.com/p/bpswg/
    - Document/File Management
    - Issue Management
- Web Meetings
  - GoTo Webinars (Provided by Trisotech)
- Modeling Tools
  - BPMN 2.0 Modeler for Visio (Provided by Trisotech)
  - Enterprise Architect (EA) (Provided by Sparx Systems)
- General Docs
  - MS Word
  - MS PowerPoint

Business Process Simulation Working Group (BPSWG)

BPM Standards 101

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Global Benefits of BPM Standards

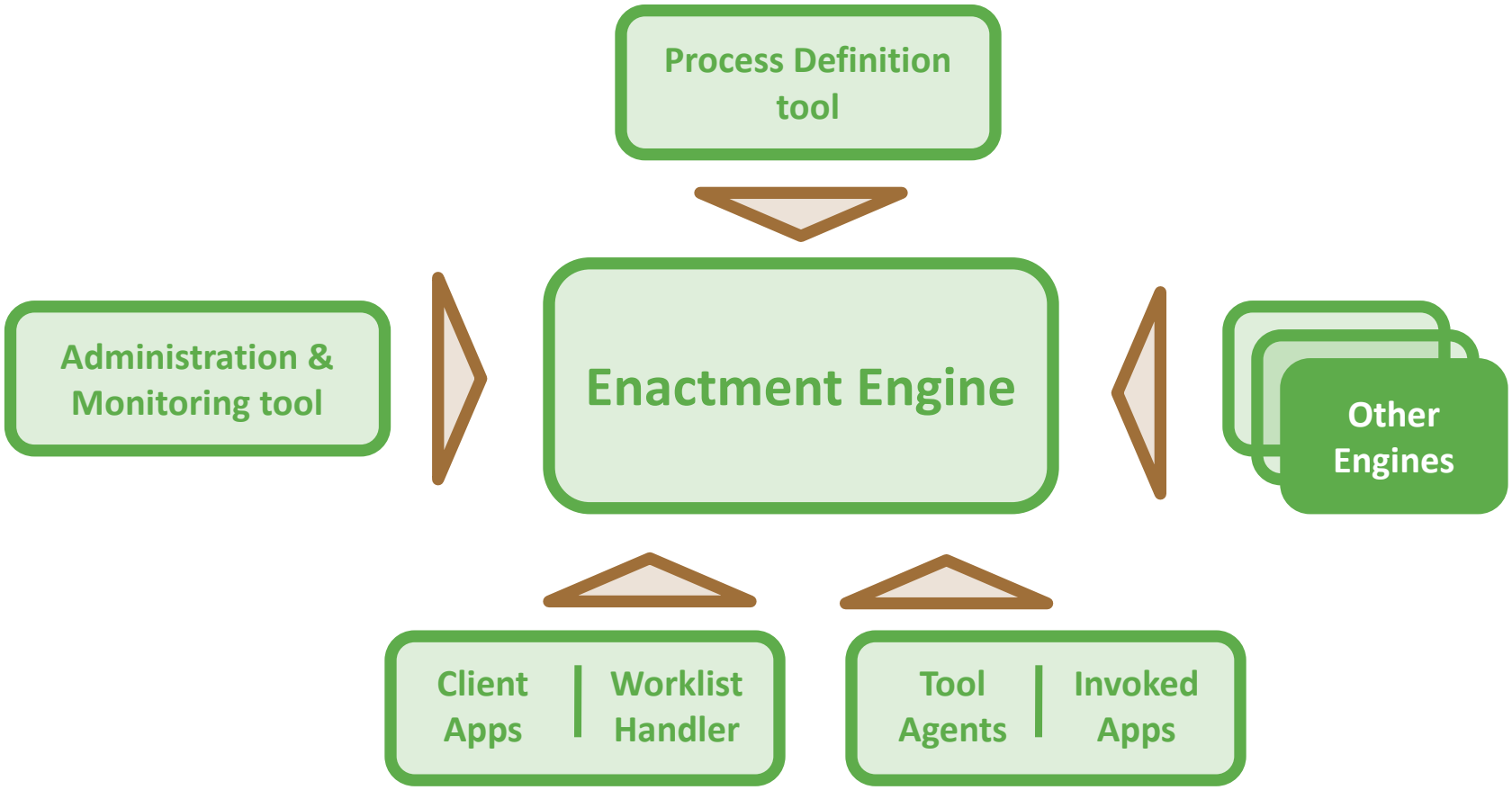
To increase, stimulate, facilitate:

- Understanding
- Adoption
- Interoperability
- Migration
- Cost Reduction
- Soundness

- R Khan, What Standards really Matter for BPM, BPTrends May 2005

Setting the Context

Workflow Reference Model



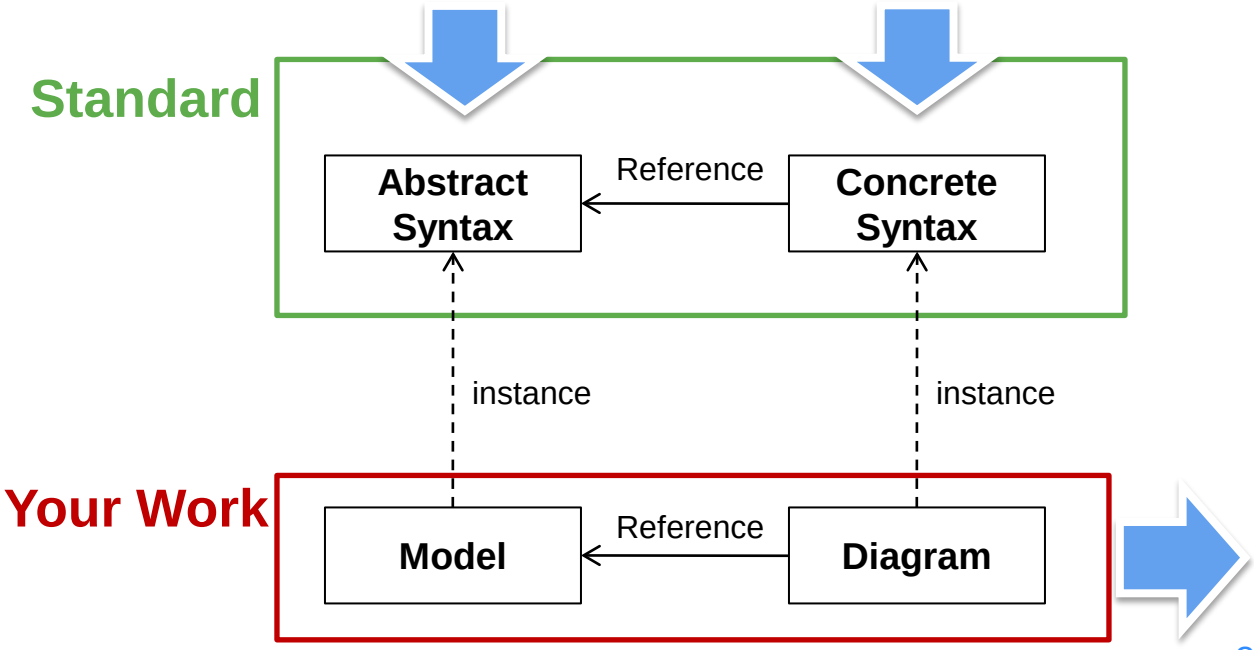
Some Concepts and Terms

Meta-model

underlying computer-interpretable representation

Notation

Notational symbols and graphical representation

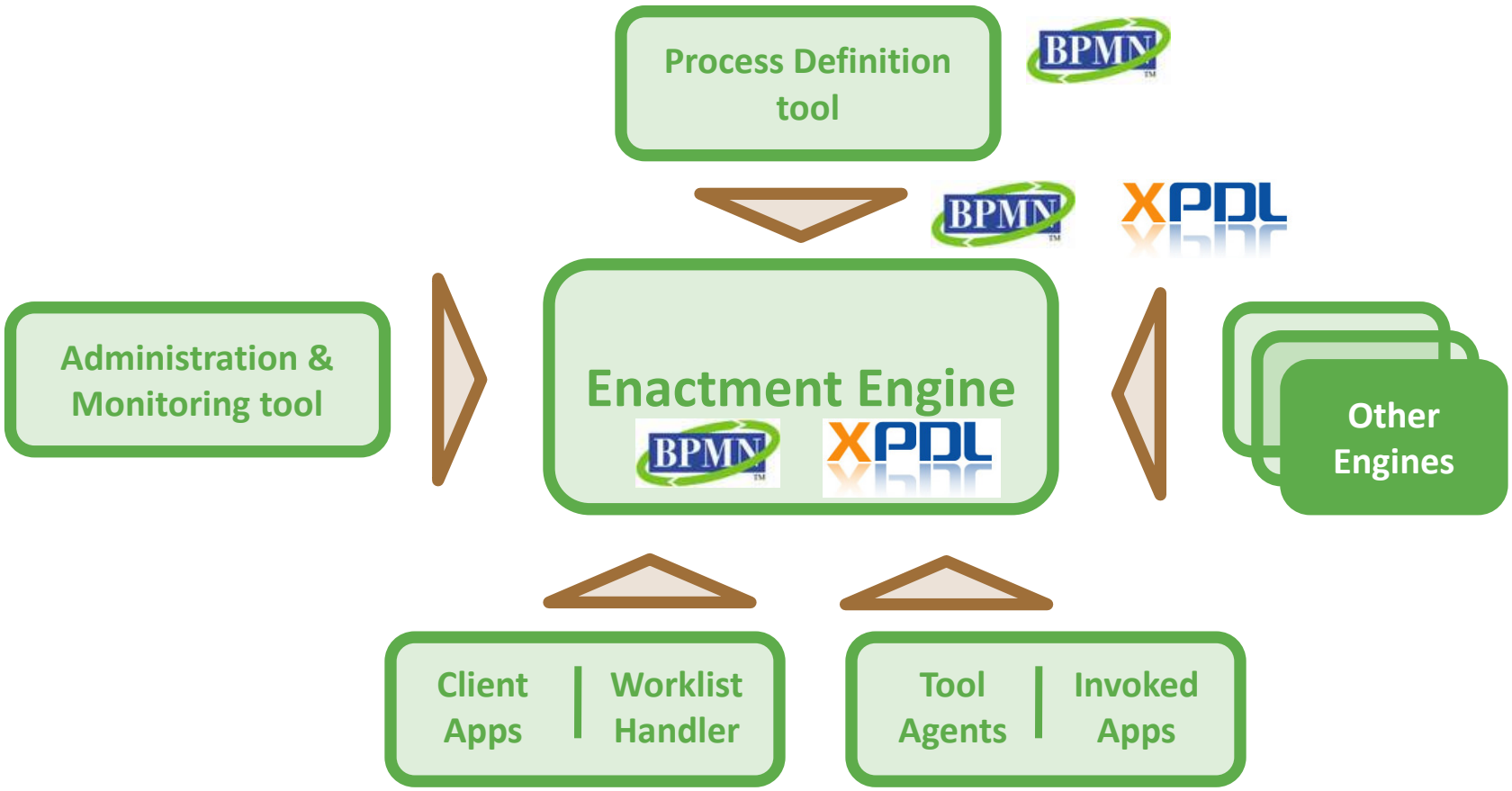


Interchange Format

electronic file format that eases the safeguard and transfer of this data between different tools

- Process diagrams can be considered like pictures of the process model.
- Many diagrams (or pictures) of the same process model are possible, each showing or hiding various aspects of the process model details.

What is what


Process Definition tool
BPMN
BPMN
XPDL
Administration & Monitoring tool
Enactment Engine
BPMN
XPDL
Other Engines
Client Apps
Worklist Handler
Tool Agents
Invoked Apps

Two Stacks

Process Definition tool

Notation

Interchange Format

Enactment Engine

Meta-model

Business Process Simulation Working Group (BPSWG)

Initial Proposal

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Inception

- 2009 at ModSim
  - Denis Gagné presented: « Modeling and Simulation in Business Process Management »
- 2010 at XPDL4BPMN Conference
  - John Januszczak presented: « Simulation for Business Process Management »
    - Proposed a first draft specification of Business Process Simulation Scenarios (SIM4BPM)
    - Focused on Simulation
  - Robert Shapiro presented: « Analytics for Performance Optimization of BPMN 2.0 Business Processes »
    - Combined use statistics and simulation for structural optimization
  - Conference Town Hall Discussions
    - Participants expressed the desire for a standardized transport of analysis and simulation parameters along with results of simulation runs.
- 2011 Trisotech and Lanner cooperation
  - Creation of the Process Analysis Framework (PAF) with intent to submit as an Open Standard
  - PAF mapping to Process Analytica and Sim4BPM
  - Code sandboxing

Goal

- Define a Specification for the Parameterization and Interchange of Process Analysis Data allowing Structural and Capacity Analysis of a process model providing for Pre-execution and Post-execution optimization.
  - We are interested in the Data («in/out») (commonly the «what») and its Interchange not its interpretation or its use (the «how») or tool smart.

Terms

- Standardized Specification
  - Unique common meta-model
- Standardized Interchange
  - Unique common serialization (file format)
- Process Analysis Data
  - Design time parameters
  - Execution results (Historical data)
- Structural Analysis
  - The structural aspects (configuration) of a process model
  - Usually Statistical Analysis (using static methods)
- Capacity Analysis
  - The capacity aspects of a process model
  - Usually Dynamic Analysis (using discreet simulation methods)
- Pre-execution Optimization
  - “what if” as parameters
- Post-execution Optimization
  - Historical execution results as parameters

Process Analysis Framework (PAF) for Business Processes

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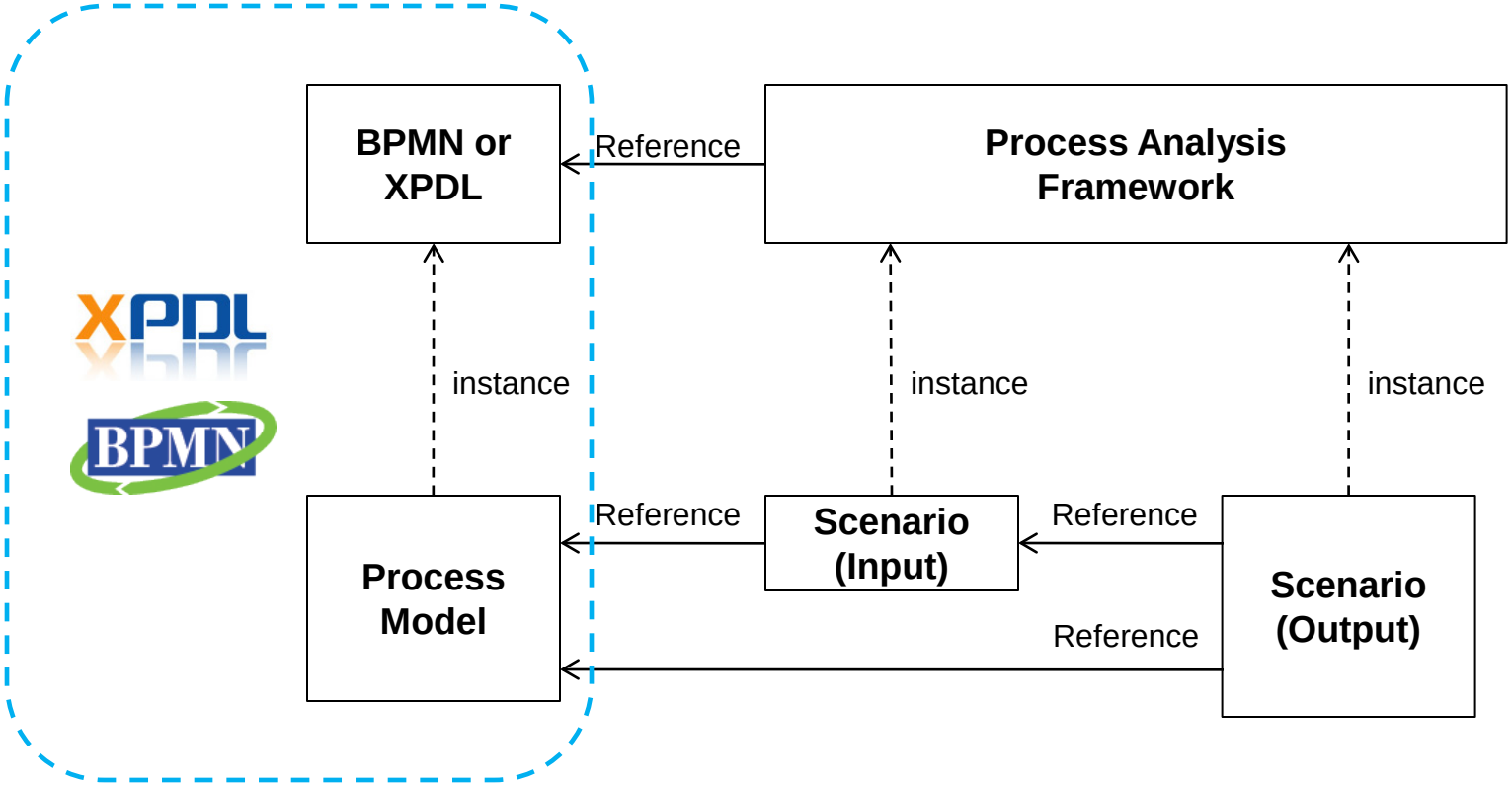
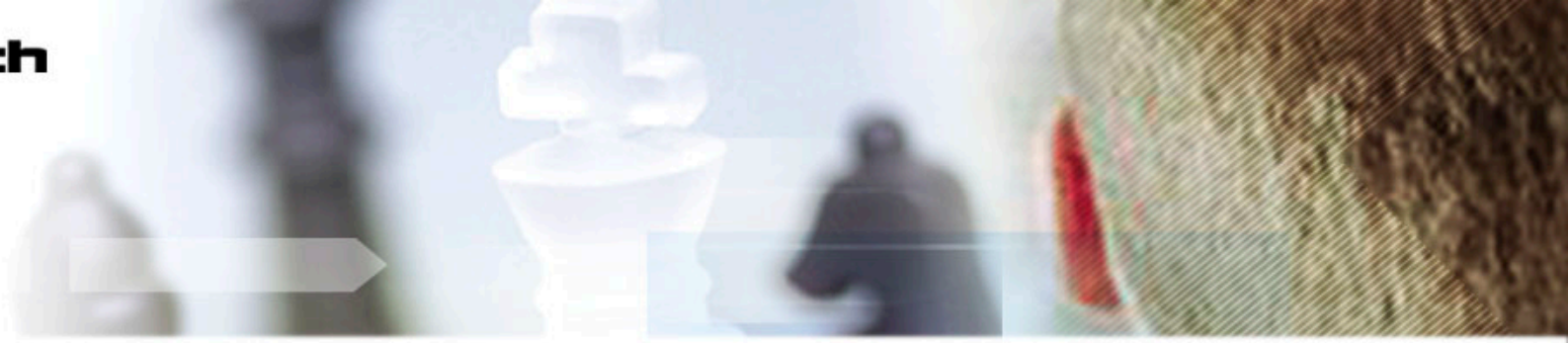
Goals

- Loosely coupled to existing process modeling standards
  - Scoped on XPDL and BPMN
  - No duplication of process model information whenever possible
- Extension rather than changes to existing process modeling standards
  - Use XPDL and BPMN extension points whenever possible
- Interchange format specification for both Specifications and Post Execution Results
  - Specify a unique XSD for both
  - XSD leading to human consumable XML
- Defined based on specific Use Cases (UC)
  - Scoped on initial common UC set

Conceptual Model





Scope

- Global Scope
- Perspective Scope
- Common Use Case Scope

Global Scope

G1: Dynamic analysis for load (resource scheduling) aspects/concerns

G2: Static analysis for structural aspects/concerns

Perspective Scope

P1: Scenario Parameters

P2: Time Related Parameters

P3: Control Related Parameters

P4: Performance Parameters

P5: Cost Related Parameters

P6: Resources Parameters

P7: Payload Parameters

Common Use Case Scope

UC 1: What is the average consumption of my process with concern:

UC2: What is the critical path of my process with concern (worst case):

UC3: What is the shortest path of my process with concern (best case):

- Execution time
- Cost
- Wait time
- Resources (Human and material Resources)
- ...

UC4: What is the probability of the process path with:

- Highest/average/lowest execution time
- Highest/average/lowest cost
- Highest/average/lowest wait time
- Highest/average/lowest resources consumption
- ...

Process Analysis Framework (PAF) for Business Processes

Reference Model

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Meta-Model

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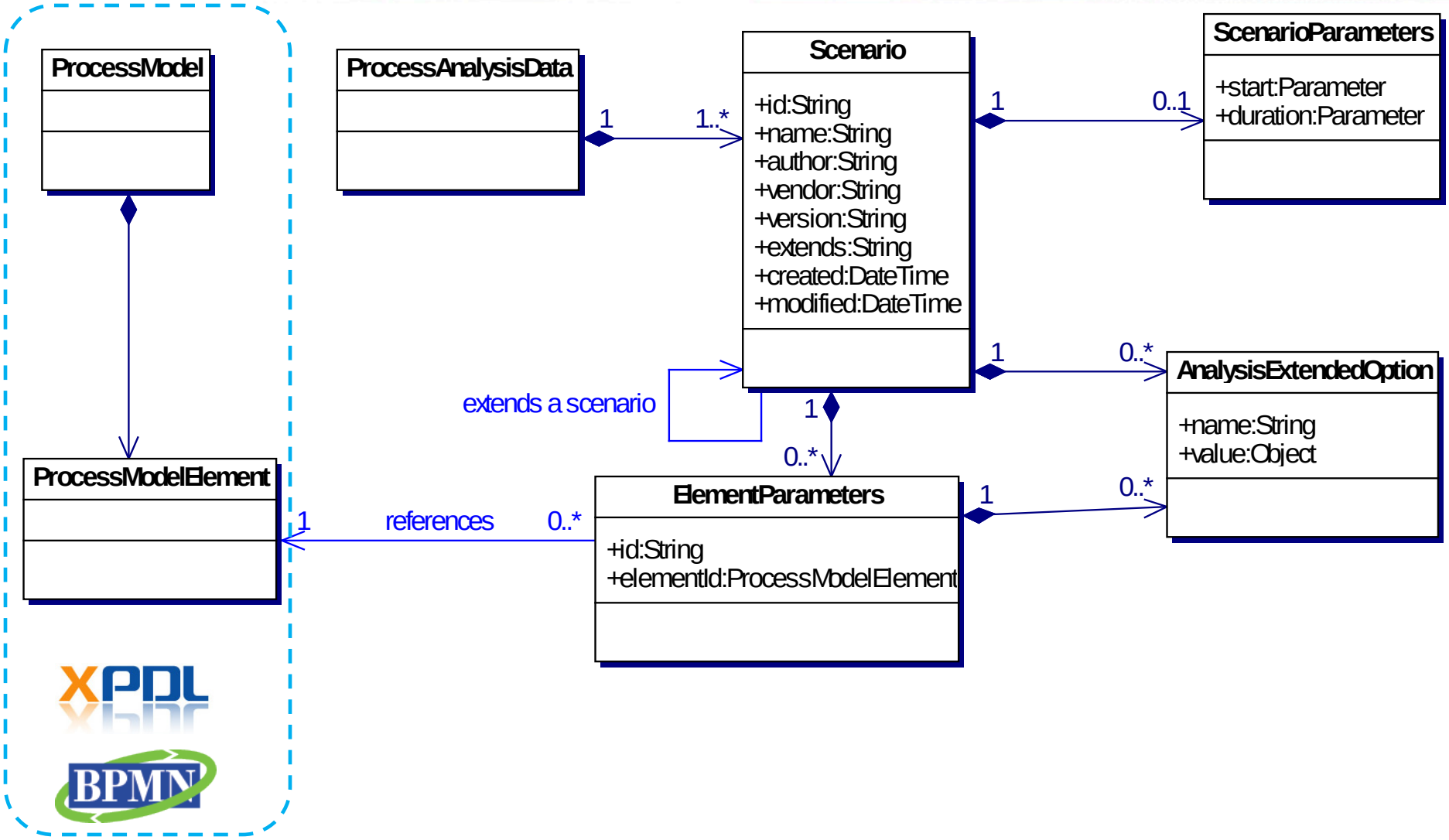
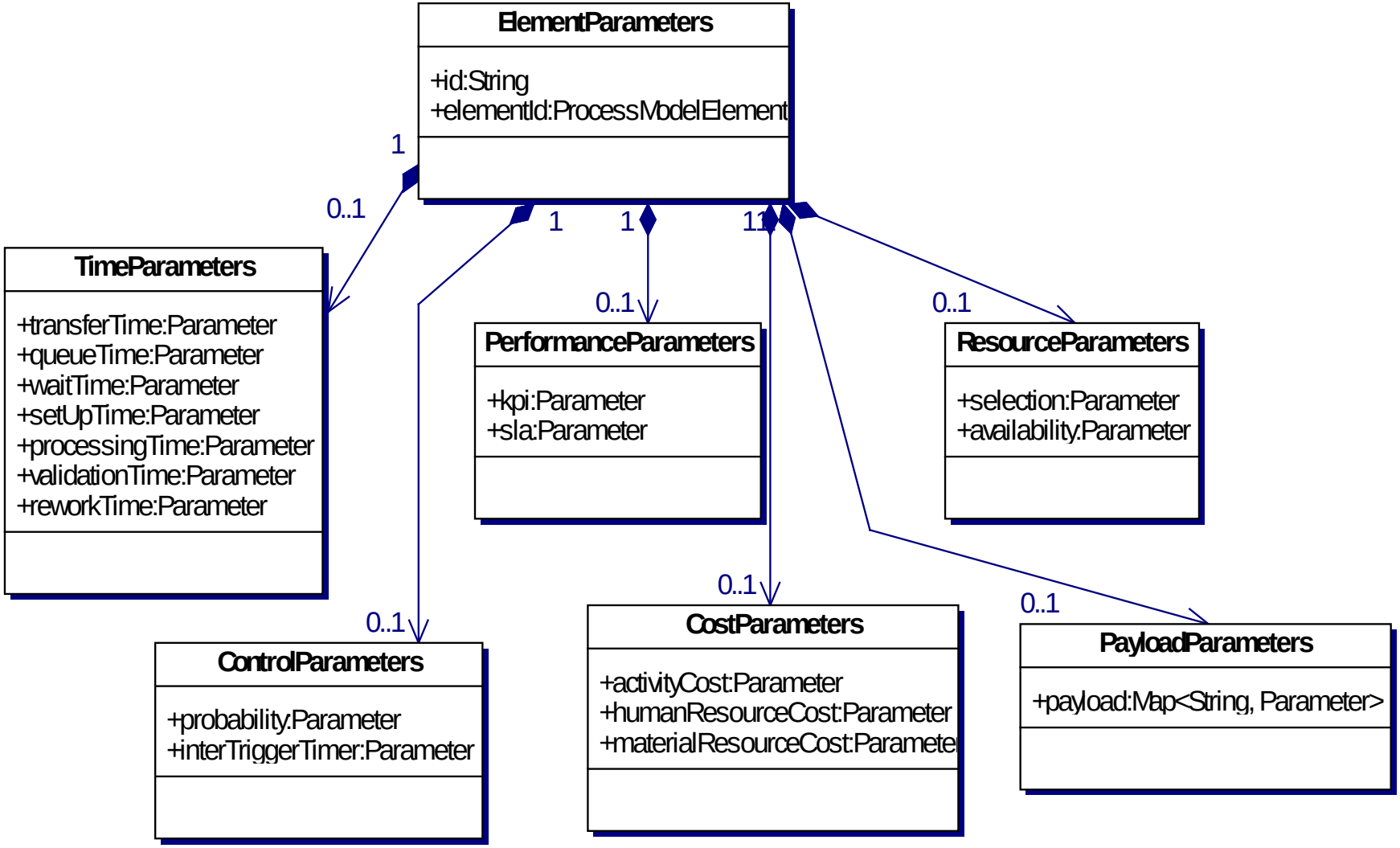
Overview



Element Parameters



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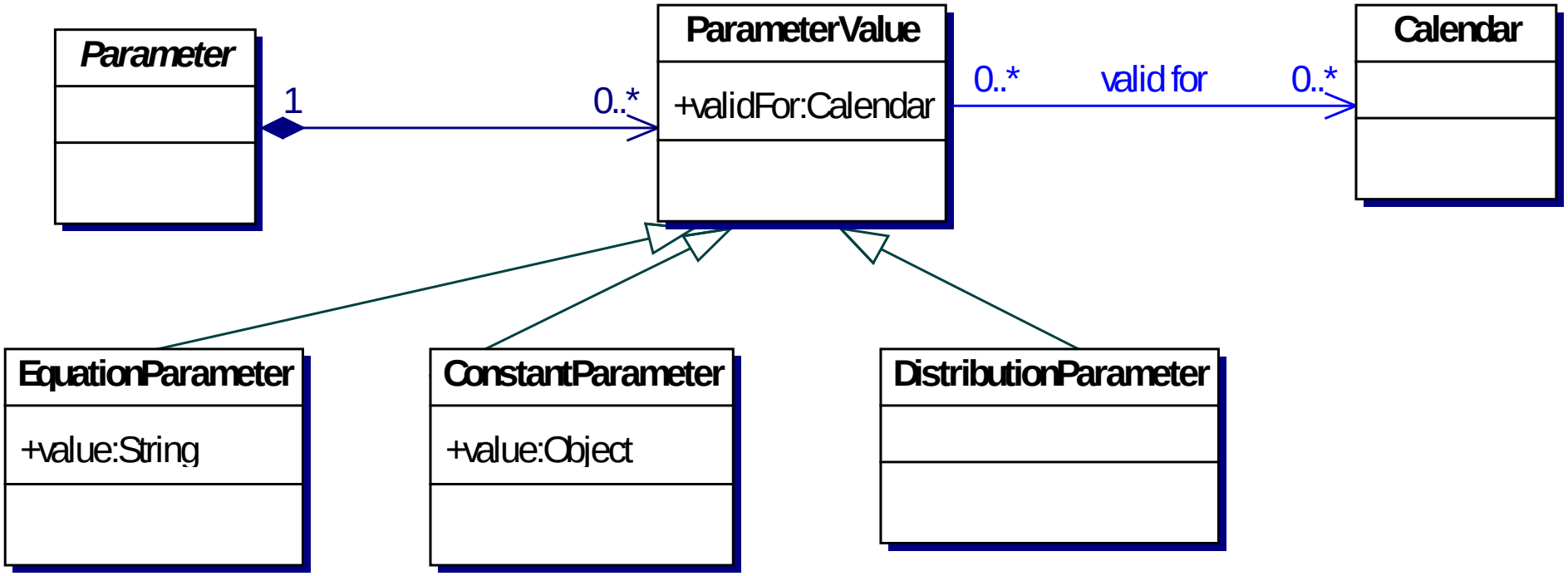
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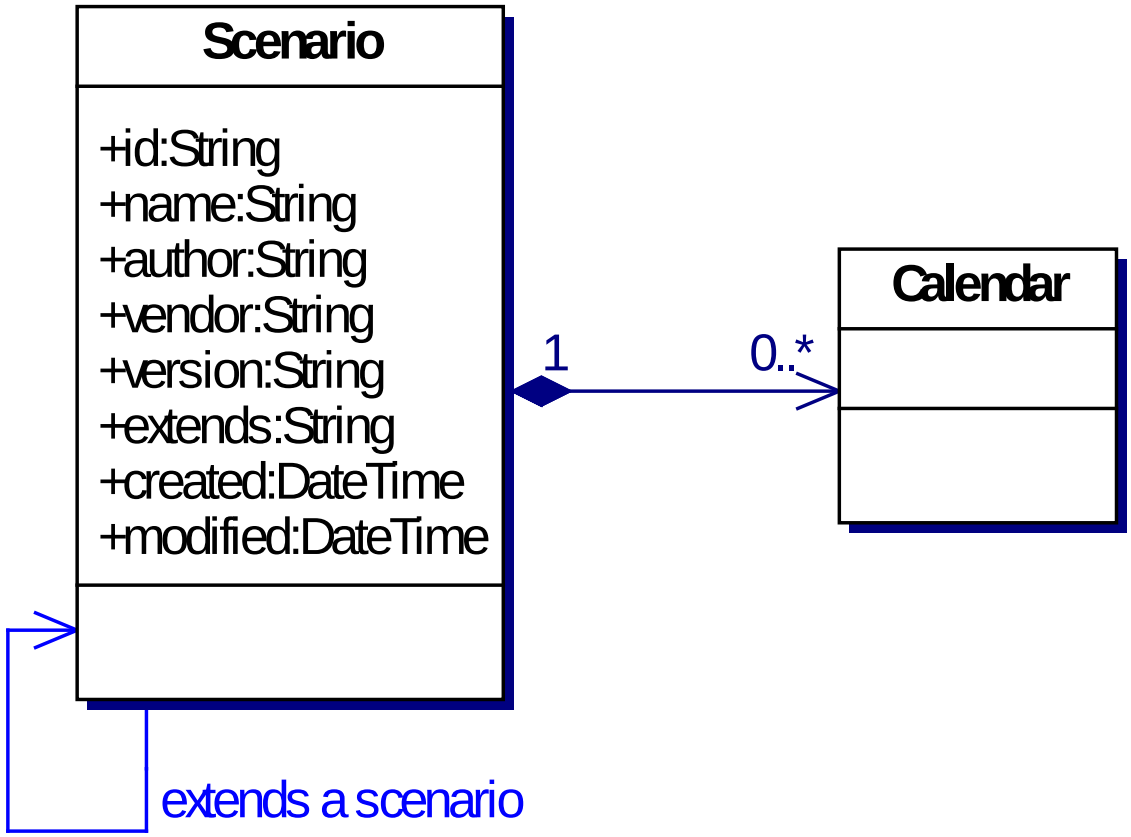
0..*
ParameterValue
+validFor:Calendar
0..*
valid for
0..*
Calendar
EquationParameter
+value:String
ConstantParameter
+value:Object
DistributionParameter

Calendar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+id:String
+name:String
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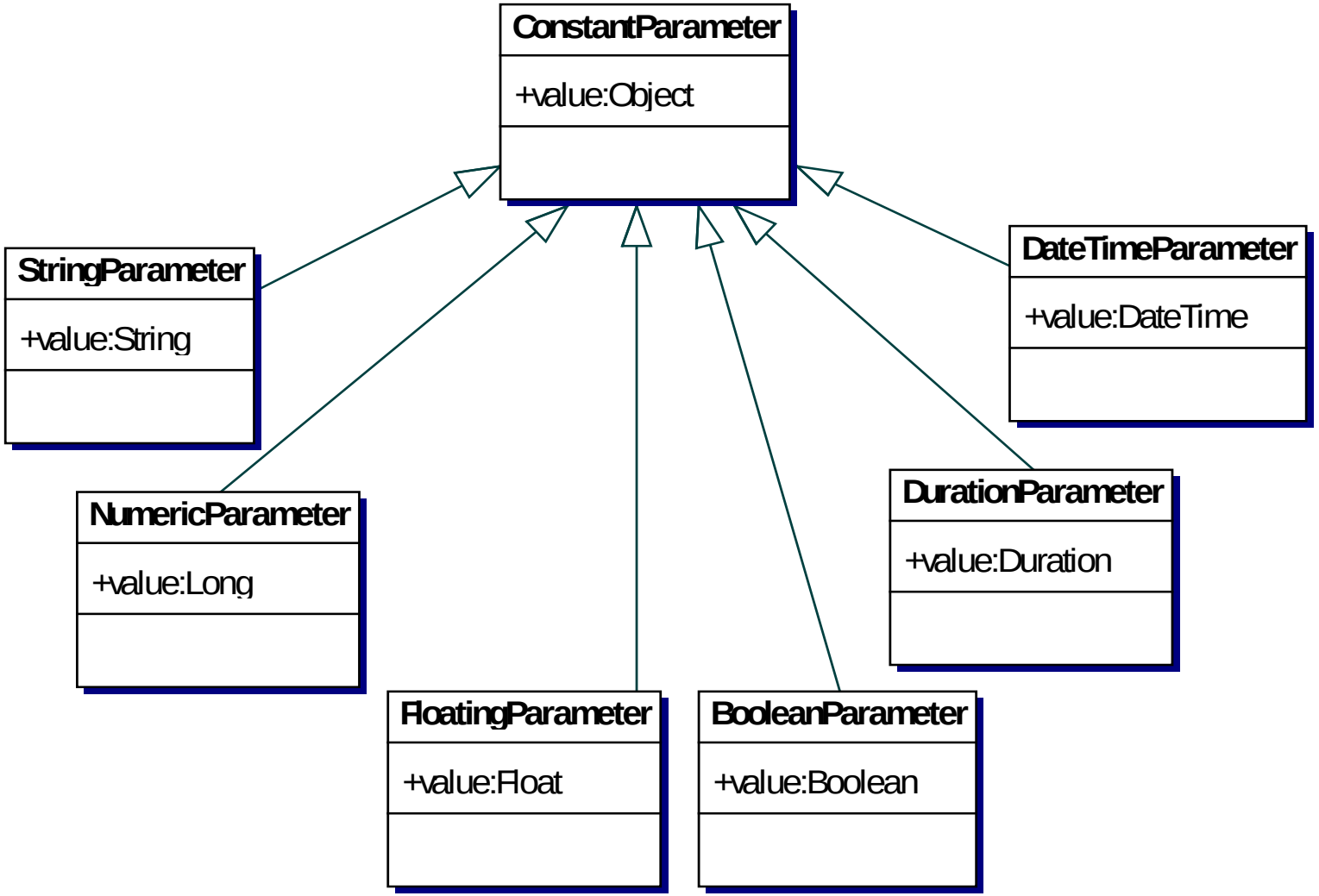
+version:String
+extends:String
+created:DateTime
+modified:DateTime
1
0..*
Calendar
extends a scenario

Constant Parameters



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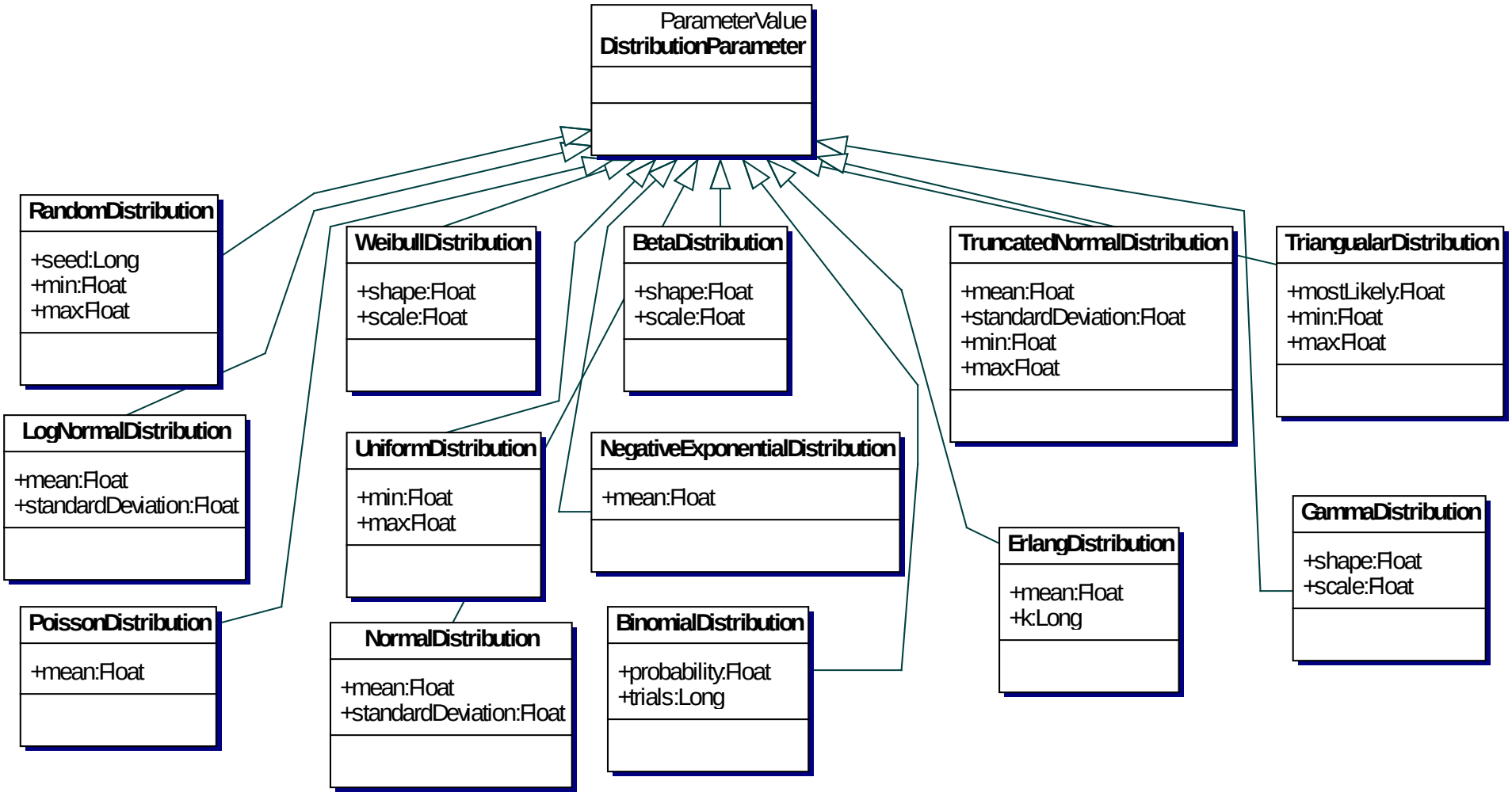

Process Analysis Framework (PAF) for Business Processes

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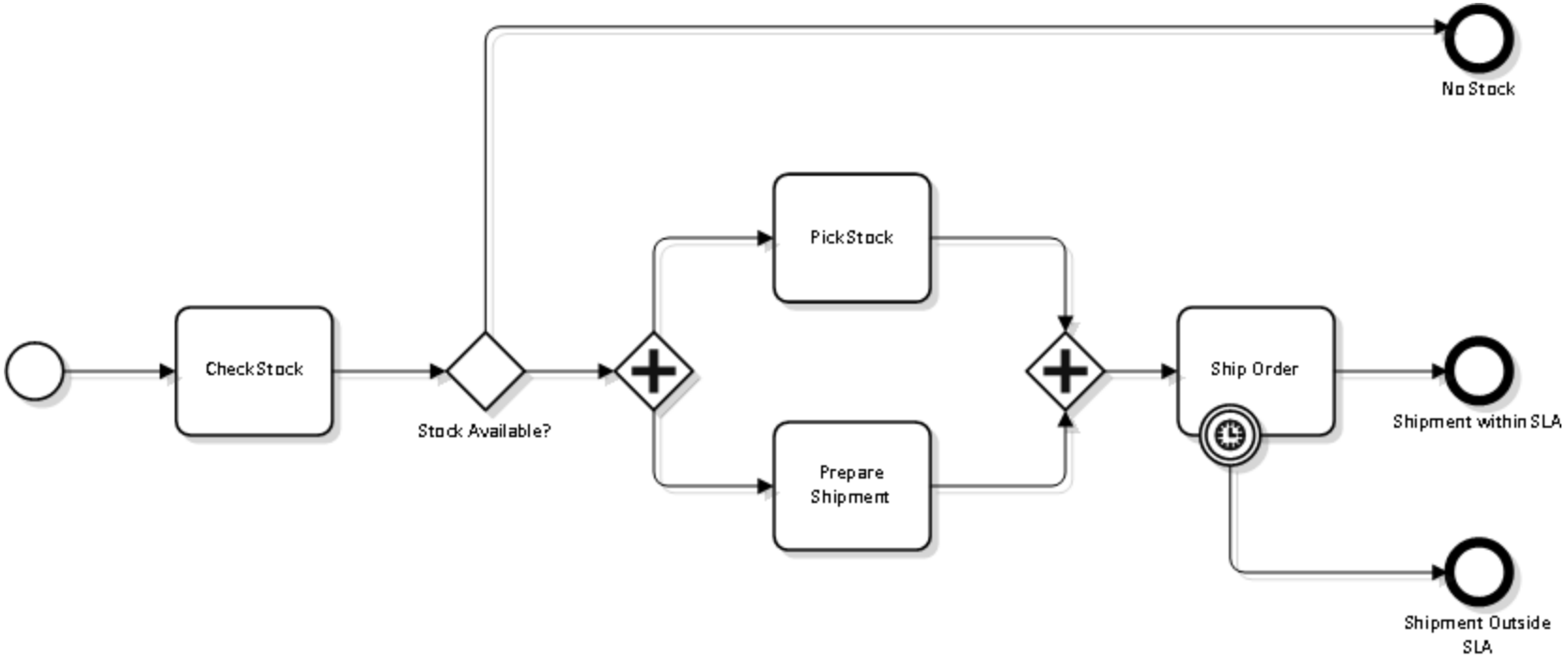
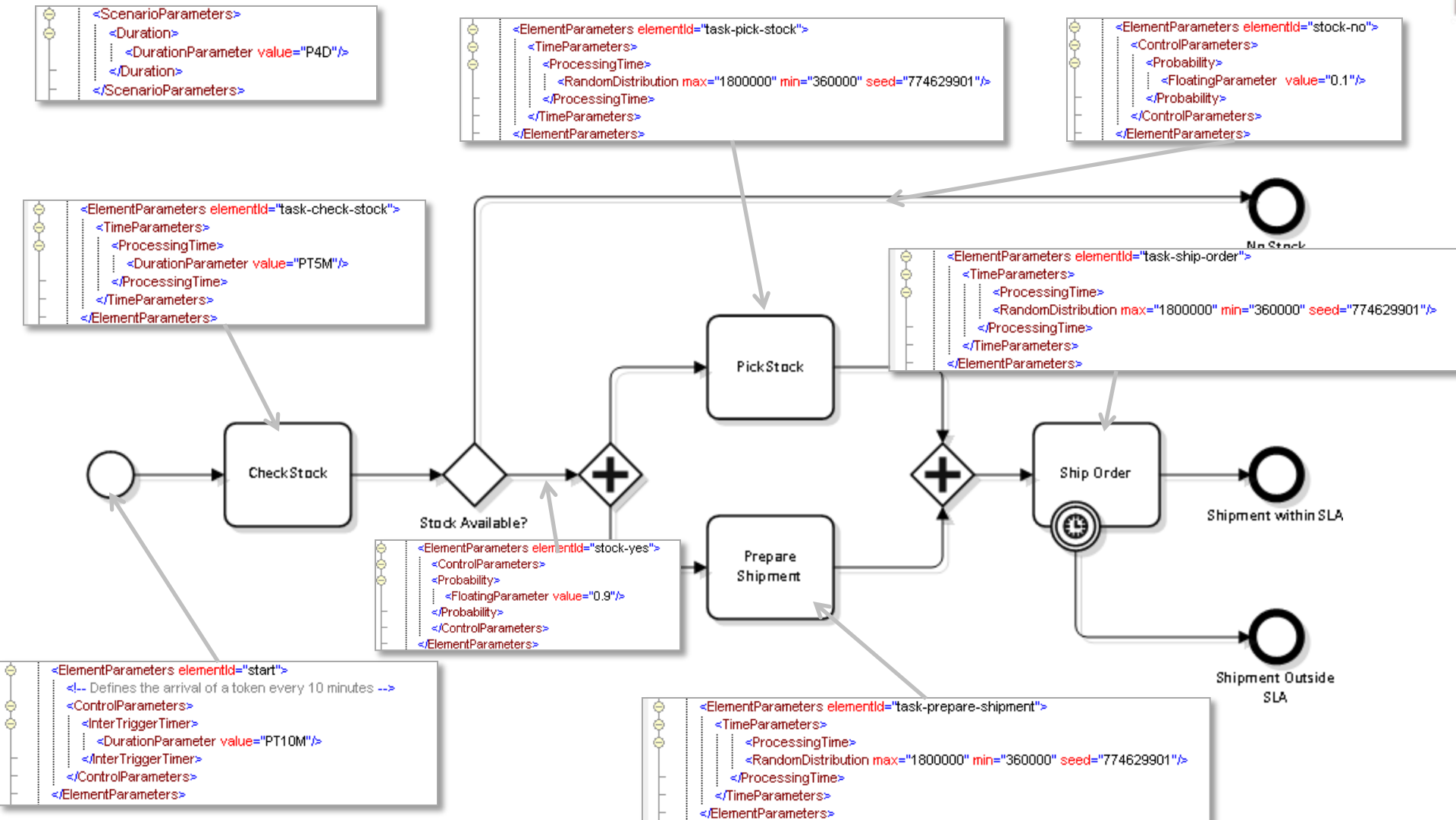
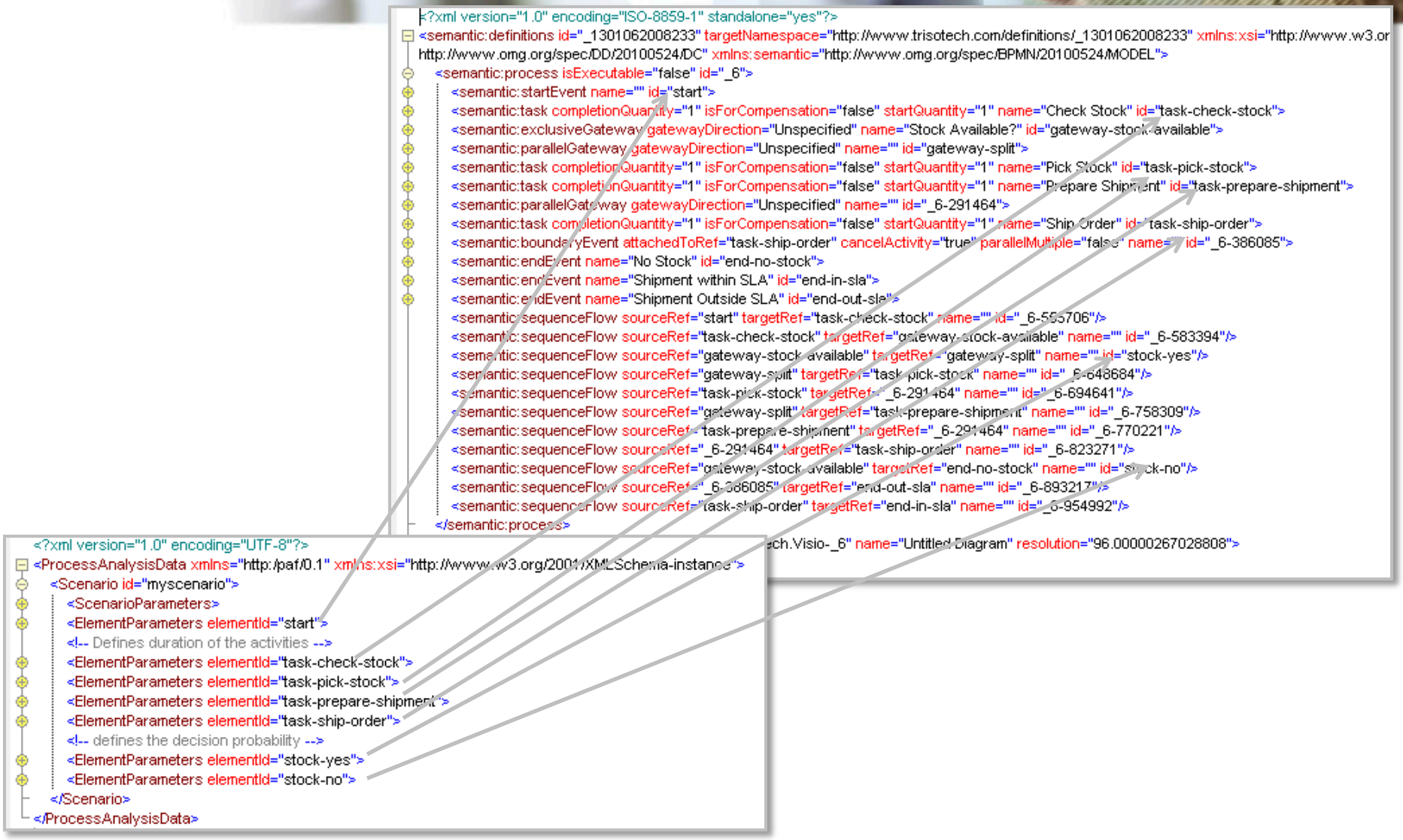
BPMN Example



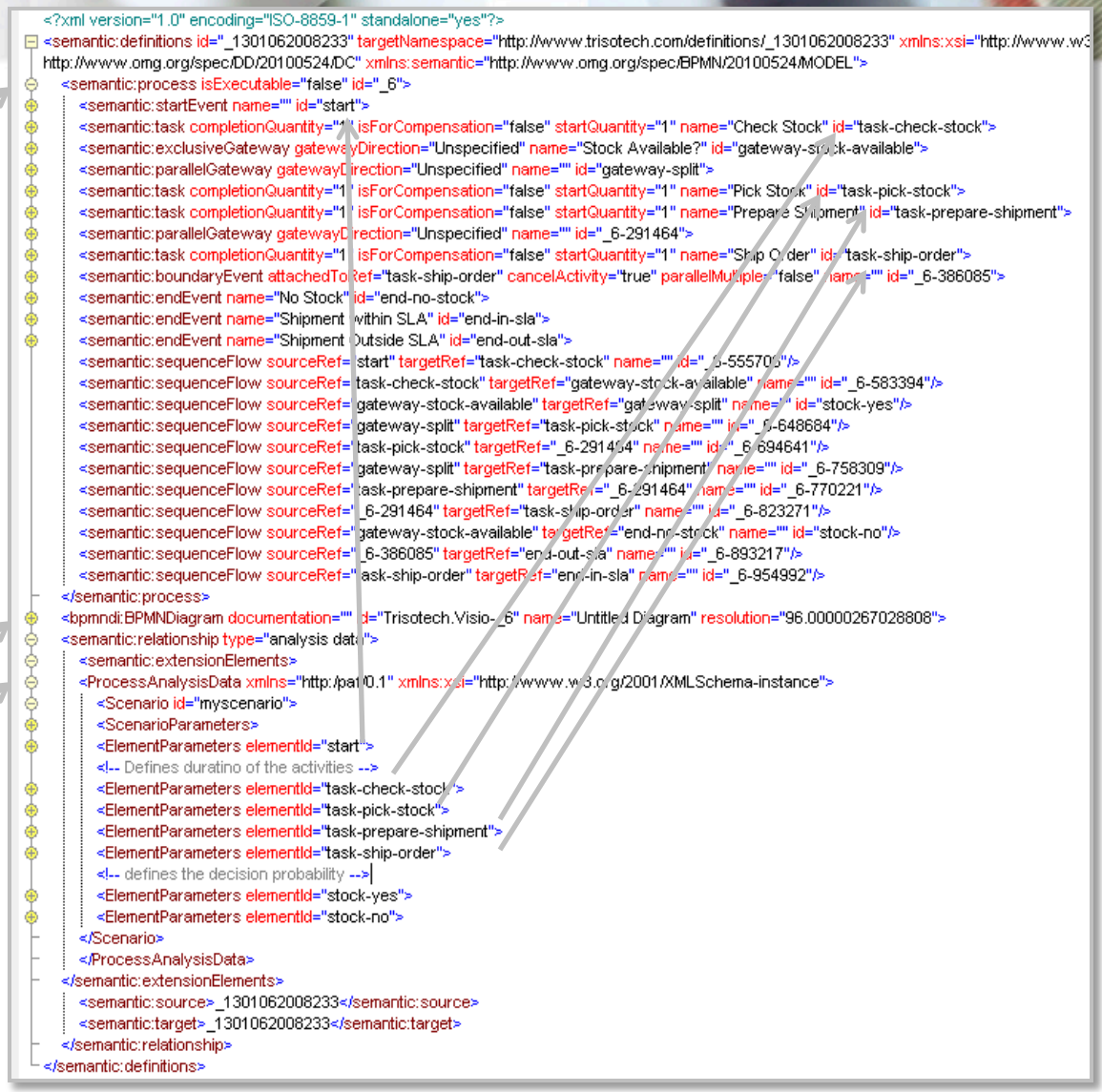
Scenario Example



Separate BPMN 2.0 and PAF Files



Combined BPMN 2.0 and PAF File



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    <semantic:task completionQuantity="1" isForCompensation="false" startQuantity="1" name="Check Stock" id="task-check-stock">
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    <semantic:parallelGateway gatewayDirection="Unspecified" name="" id="gateway-split">
    <semantic:task completionQuantity="1" isForCompensation="false" startQuantity="1" name="Pick Stock" id="task-pick-stock">
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      <ElementParameters elementId="task-check-stock">
      <ElementParameters elementId="task-pick-stock">
      <ElementParameters elementId="task-prepare-shipment">
      <ElementParameters elementId="task-ship-order">
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      <ElementParameters elementId="stock-yes">
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Current Status

- Input Scenario
  - Meta-model first draft
  - Interchange Format first draft

META SOFTWARE

Sim4BPM
DEFINING BUSINESS PROCESS SCENARIOS

SIM4BPM Mapping

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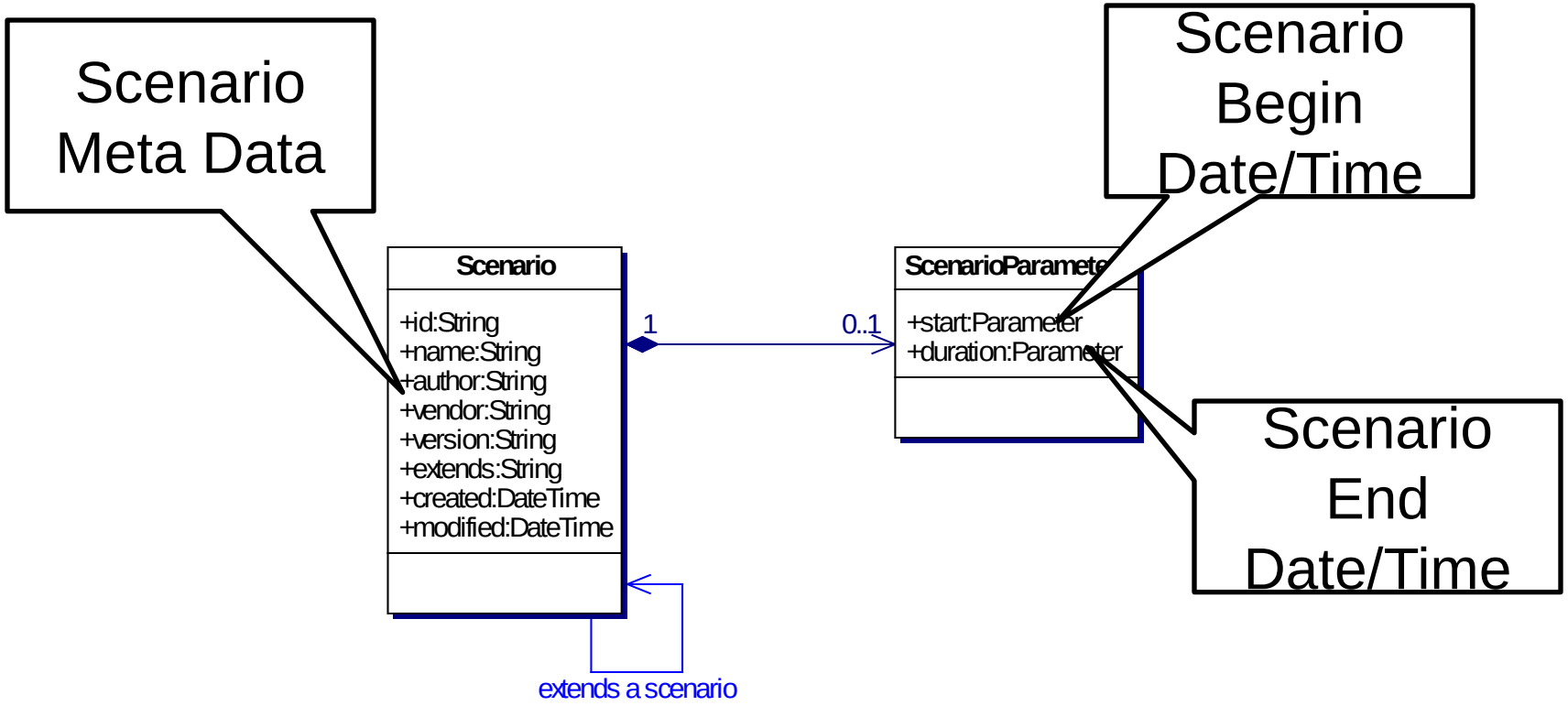
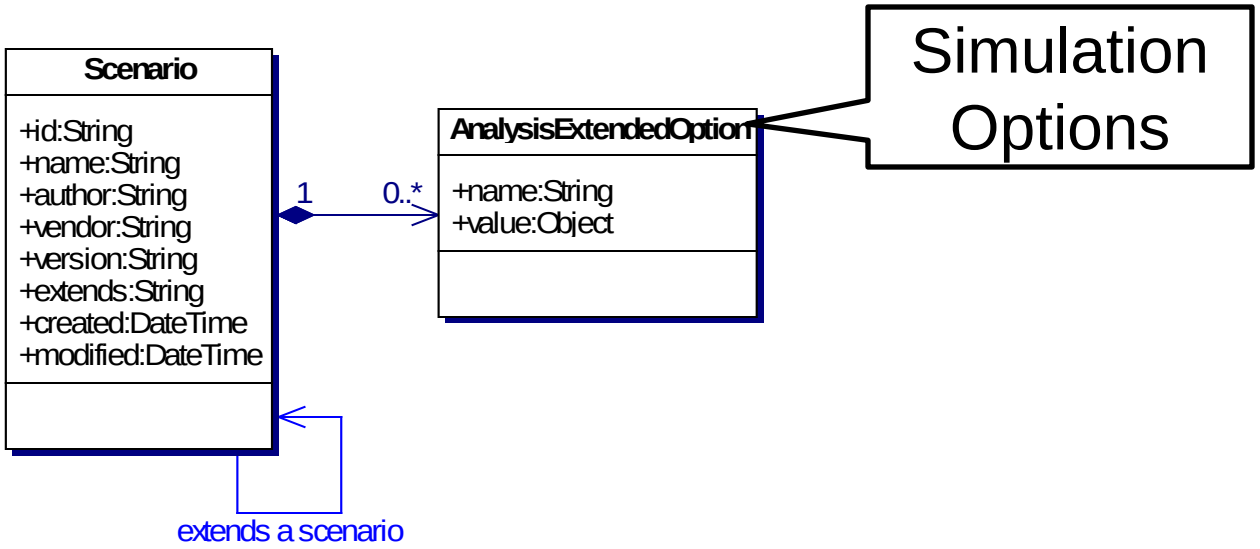
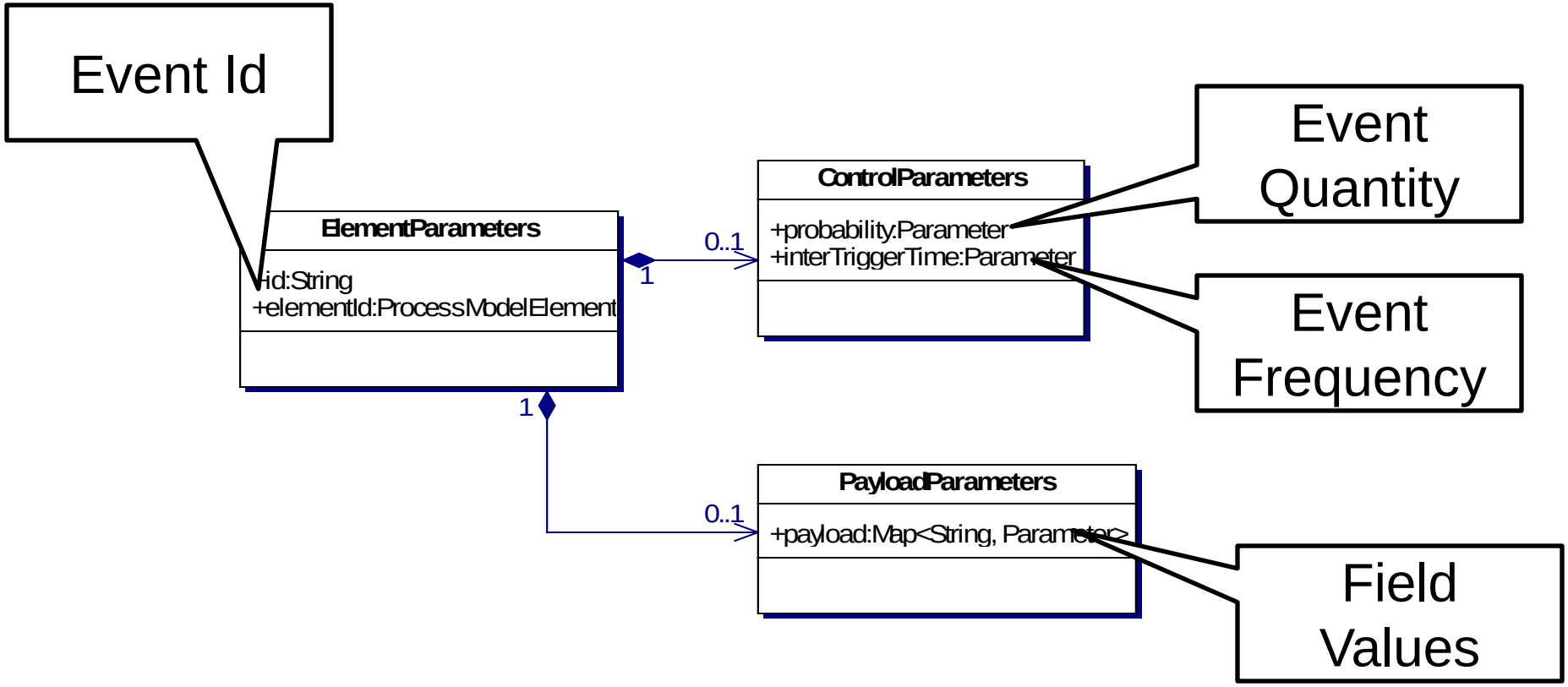
Scenario Meta Data / Context



Simulation Options



Event Parameters



Process Analytica
Modeling and Performance Optimization

Performance Analyzer Mapping

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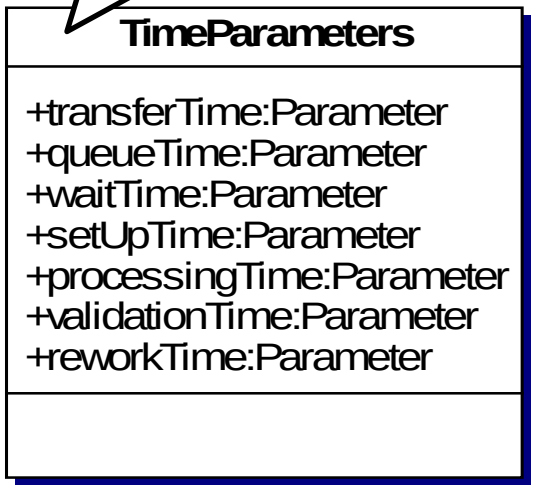
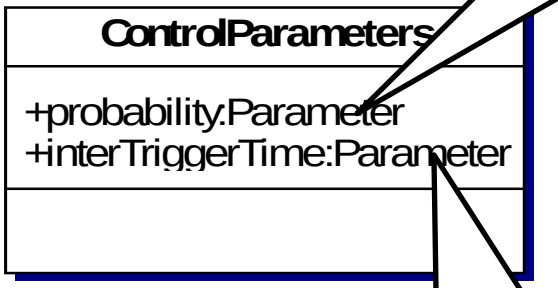
Flow Nodes Sheet

Task Wait Time, Processing Time and Lead Time

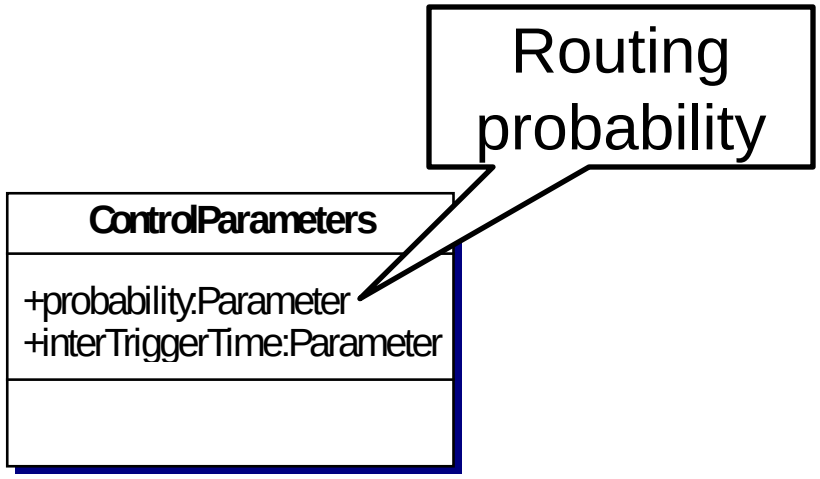


Event Probability

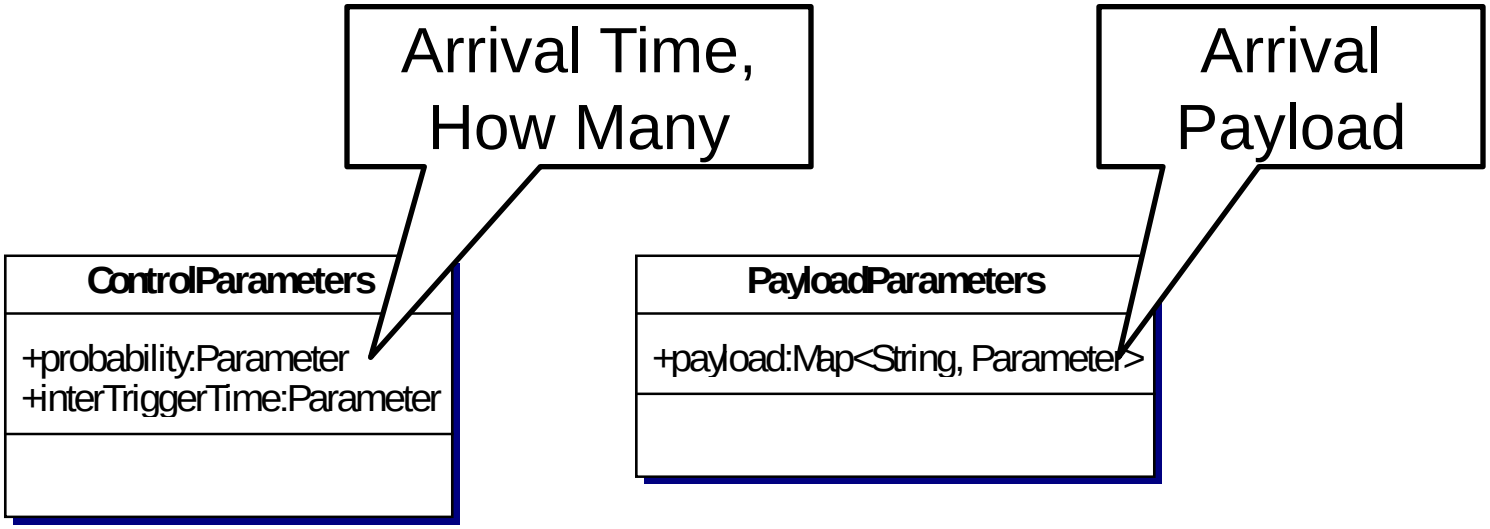


Event Time-Of-Occurence

Routes Sheet



Arrival Patterns



Extra

- Resource capacity planning
- Activity based costing
- Critical path analysis
- Cycle time analysis
- Bottle neck identification