Process Modelling of Outpatient Flow

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Driver:

• Enhancing the quality of healthcare,
in particular the outpatient department

Objectives:

•Efficient, consistent, interoperable engagement of systems supporting information flow in clinical processes

•Centralized approach to the selection and implementation of core technology systems

Methodology:

• Outpatient Process Reviews (Evaluation & Documentation Review, Observation of Events in Actual Outpatient Settings, Comprehensive Interviews, Investigation linked to clinic-specific processes)

• Process Validation (Internal & External)

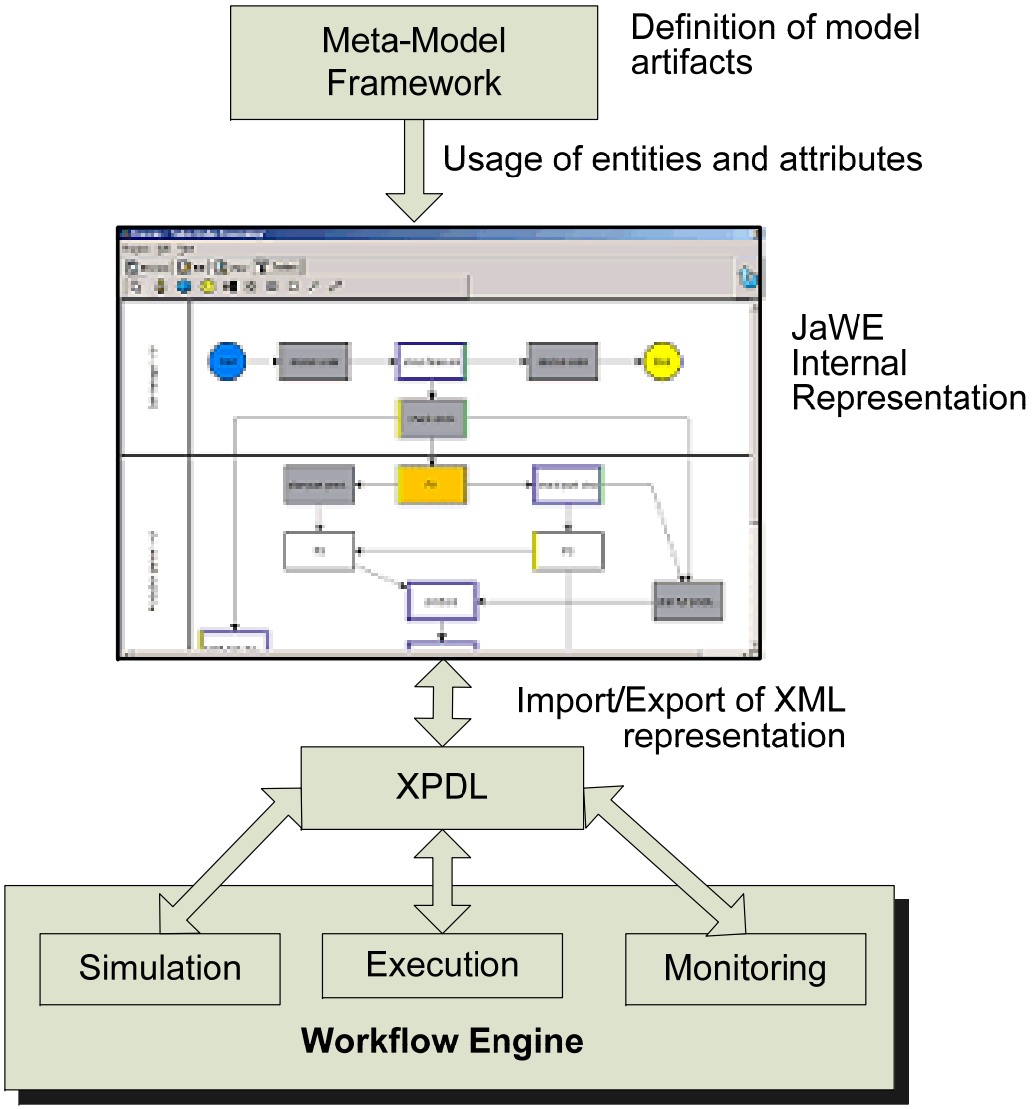
Approach:

Formal Modelling Techniques:

•Business Process Modelling Notation

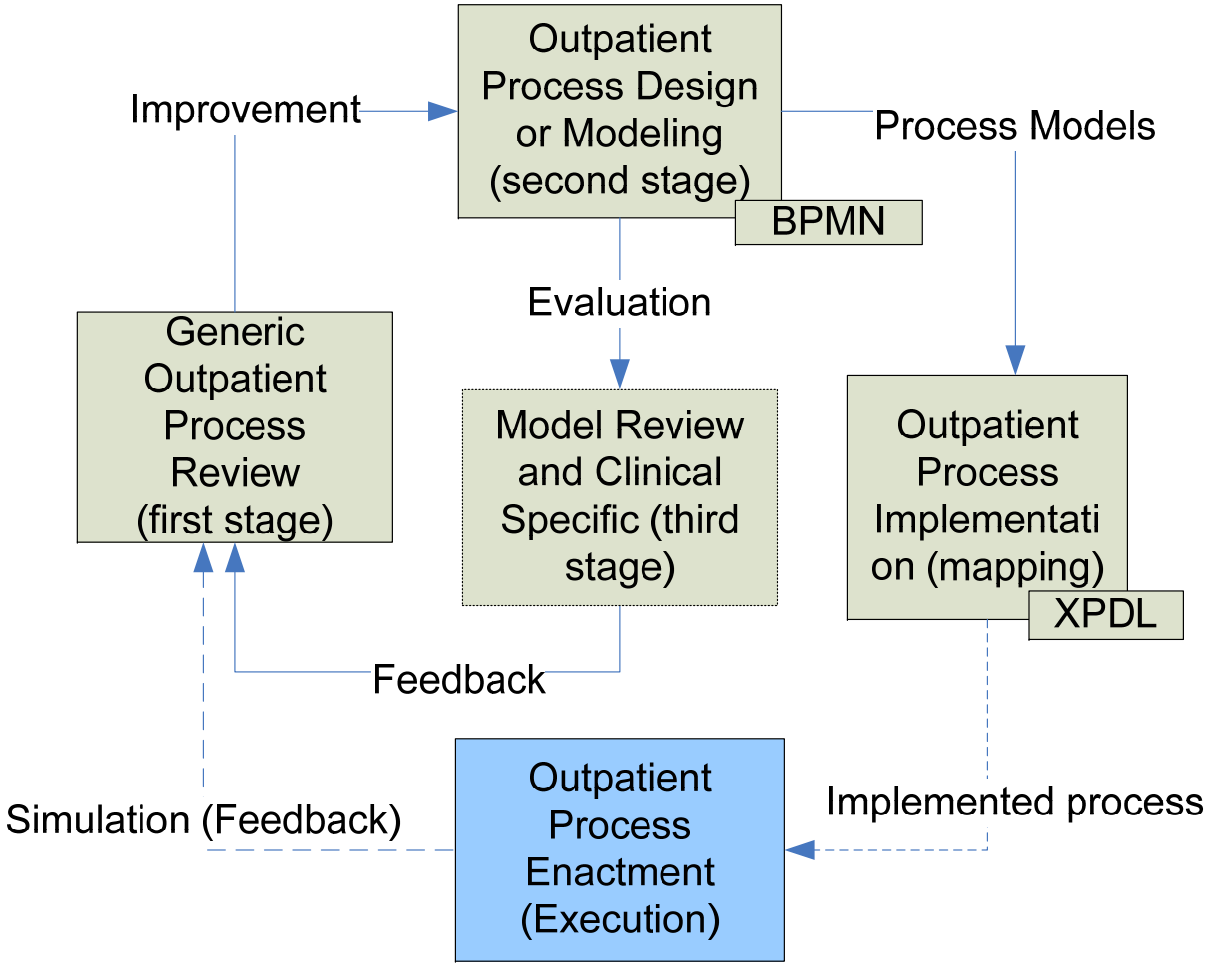
•Unified Modelling Language (UML) Sequence

Business Process Modelling

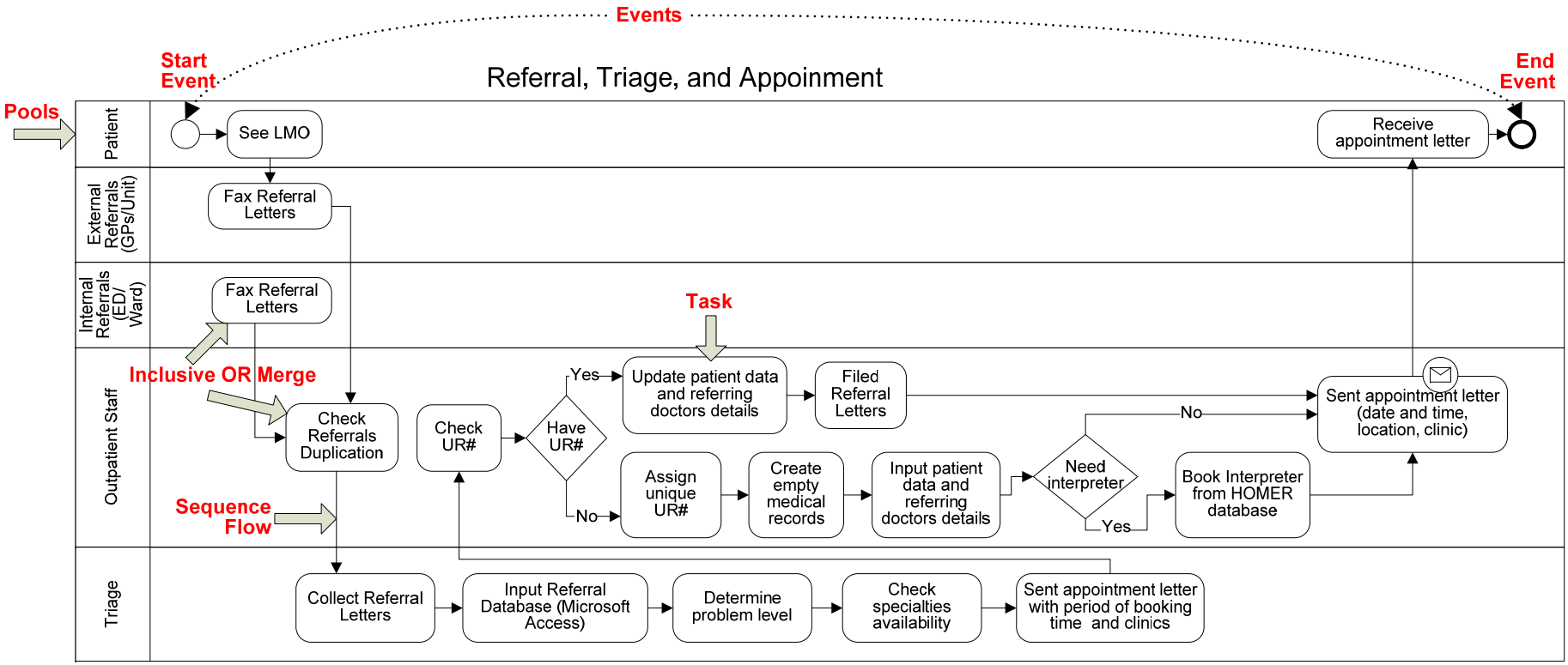


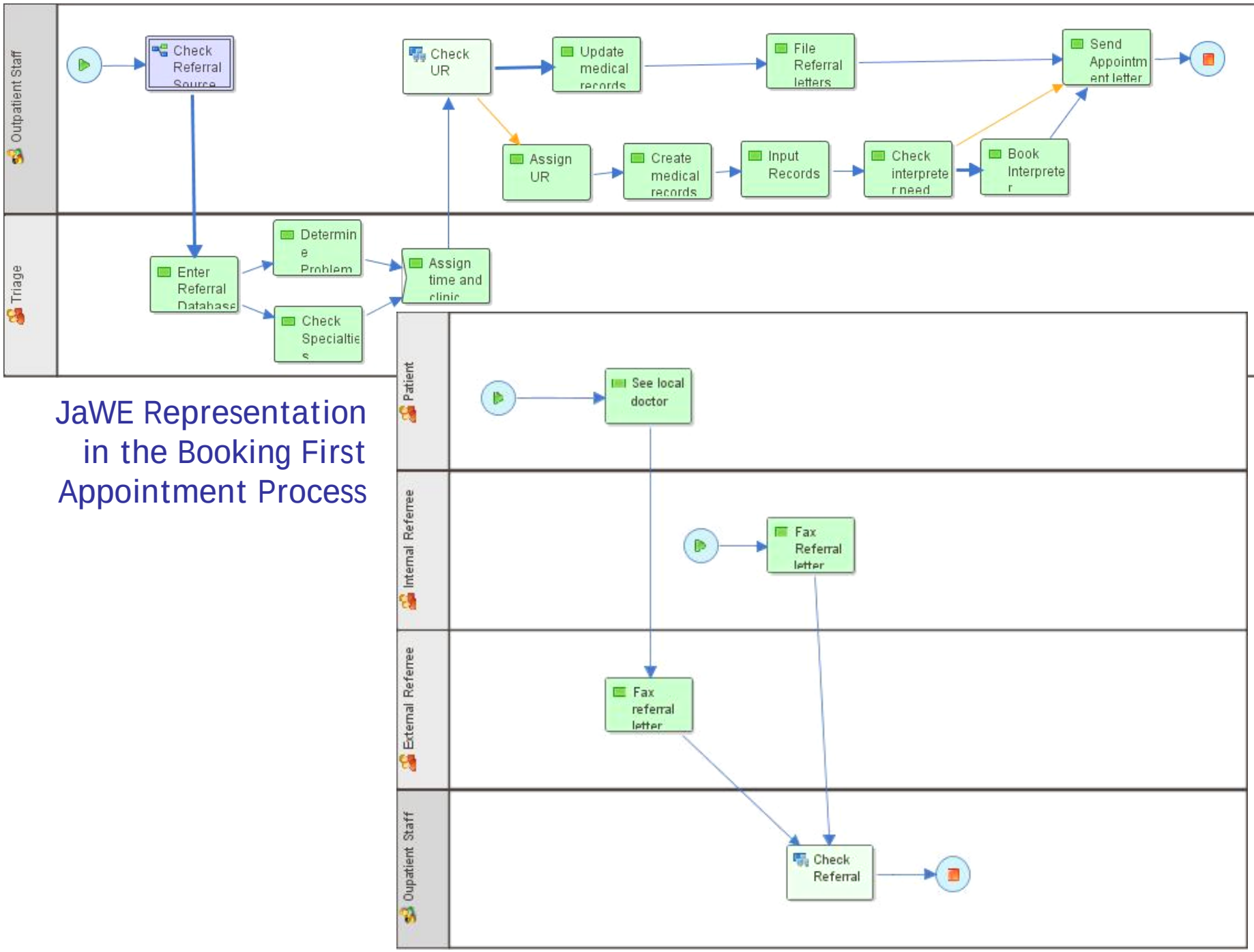
JaWE Concept Model

Outpatient Process Modelling and Review



Process Description using BPMN for Booking First Appointment Process



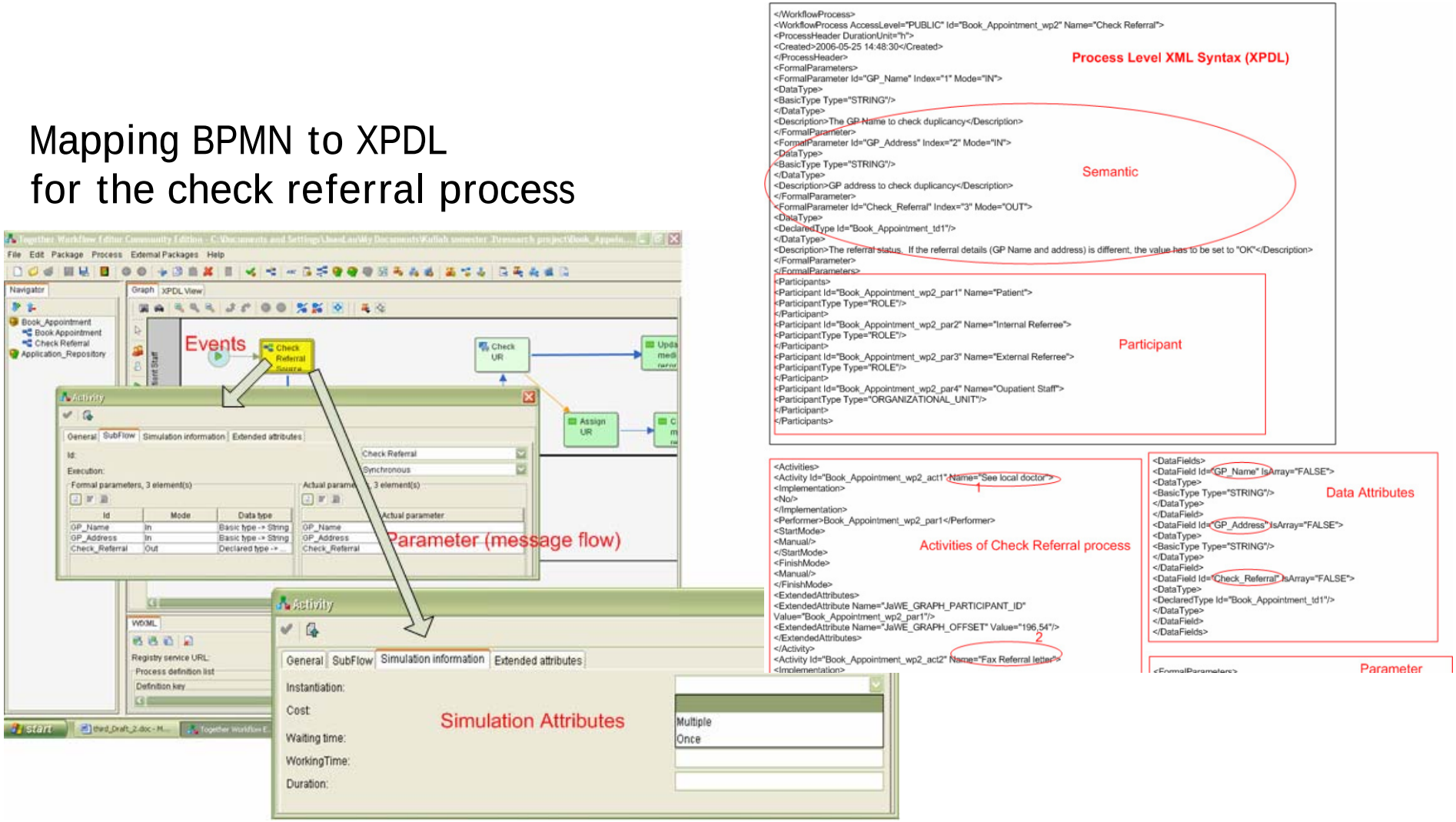


JaWE Representation in the Booking First Appointment Process

Process Modelling

- generate of computer artefacts in proof-of-concept for simulation
- to enact simulation: JaWE as tool to map BPMN to XPDL process description

Mapping BPMN to XPDL for the check referral process



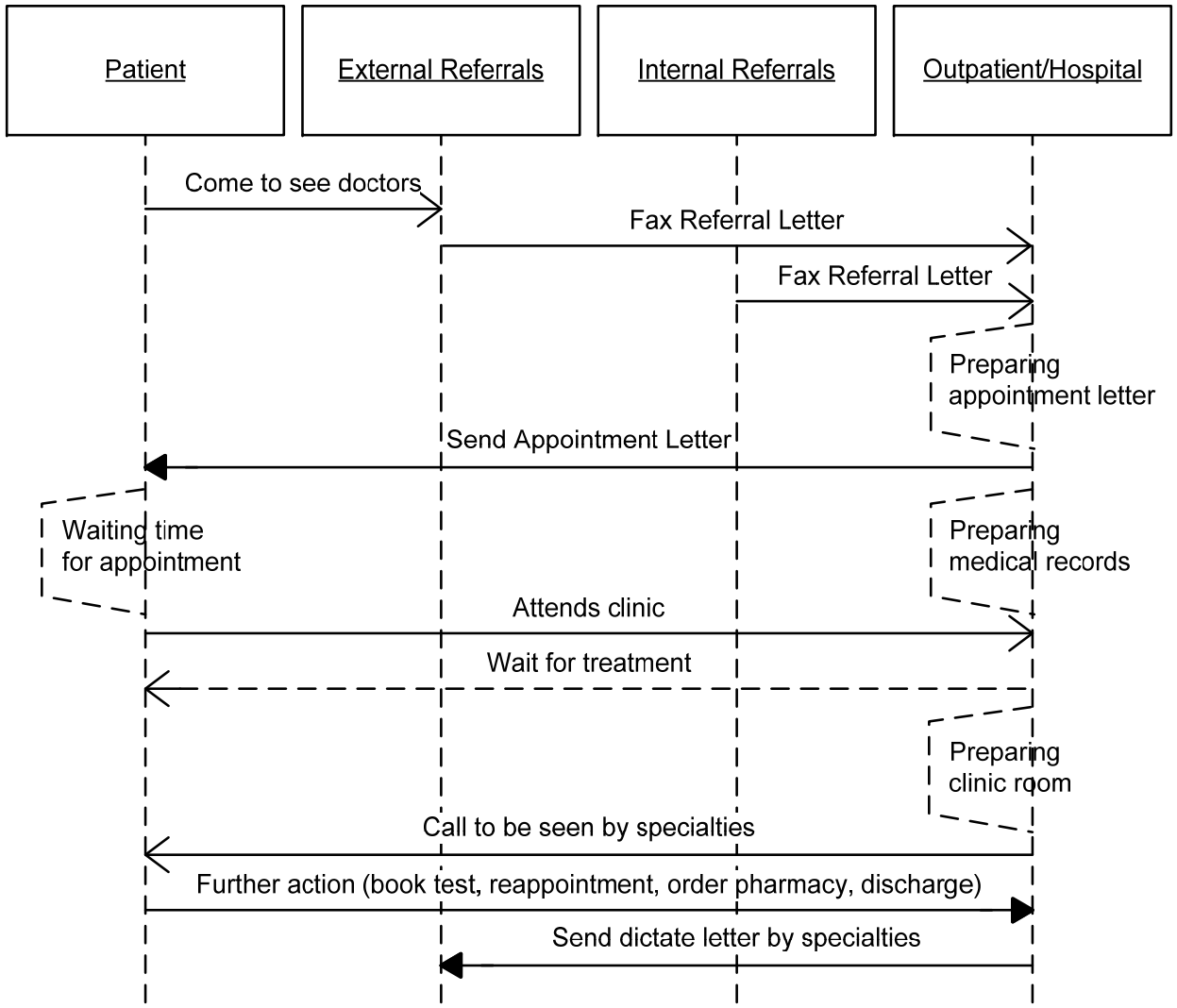
Mapping BPMN to BPEL

Example: Check Referral Process

BPMN Object/Attribute	BPEL Element/Attribute
Task (TaskType:Service)	invoke
Name ="Check Referral"	Name="Check_Referral"
InMessage	inputVariable="FaxReferral"
OutMessage	outputVariable="ReferalValid"
Implementation = Web Service	See next row.
Participant	partnerLink-"ReferralCheckingService"

Interface	portType= "ns1:DefaultRequestResponsePort"
Operation	Operation="doReferralChecking"
Assignment	assign. The name attribute is automatically generated by the tool creating the BPEL document
From = input.Referral	from part="Referral" variable ="input"
To = checkReferral.checkDuplication	to part ="checkDuplication" variable ="checkReferral"

UML Sequence Diagram



Analysis of the outpatient process

Current process: manual, paper-based, standardized

Database: independent for each clinic, standardized, stored centrally but collated and transferred manually

Process: Delay time is substantial, repetition and overlapping process inherent in which patient is required to move back and forth between various areas in hospital

Solution

To achieve automated interoperability in functional areas, it is crucial to reach agreement on the syntax, semantic, and vocabulary for the structured dialogue in computer mediated interaction. This can be supported by the use of formal approaches such as BPMN and translation to XPDL/BPEL

Summary

Key Outcome:

- Clarity of articulation of process elements: actors/participants, activities, events, sequences, information flows, decision points
- Facilitation of conceptualisation and understanding through use of the high-level, domain-specific approaches and supporting toolsets
- support for drill-down and detail checking
- support for data and process validation
- support for simulation