Tool Chains: Working a Design from BPM, through MDA, to Implementation

BPM Requirements and Standards in the Tool Chain

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Abstract

- Delivering the promise of BPM more than ever reinforces the need to successfully bridge between business users and technologists.

- Typically this means multi-disciplinary teams, where each role requires their own view onto a common model yet uncluttered by aspects they do not care about or understand.

- Workflow and resource patterns can help to establish a lingua franca but some careful attention to usability is required to ensure each person can elaborate the model on its way from conception to implementation.

- This session will discuss the requirements and interplay of standards necessary to delivering such an ideal tool.
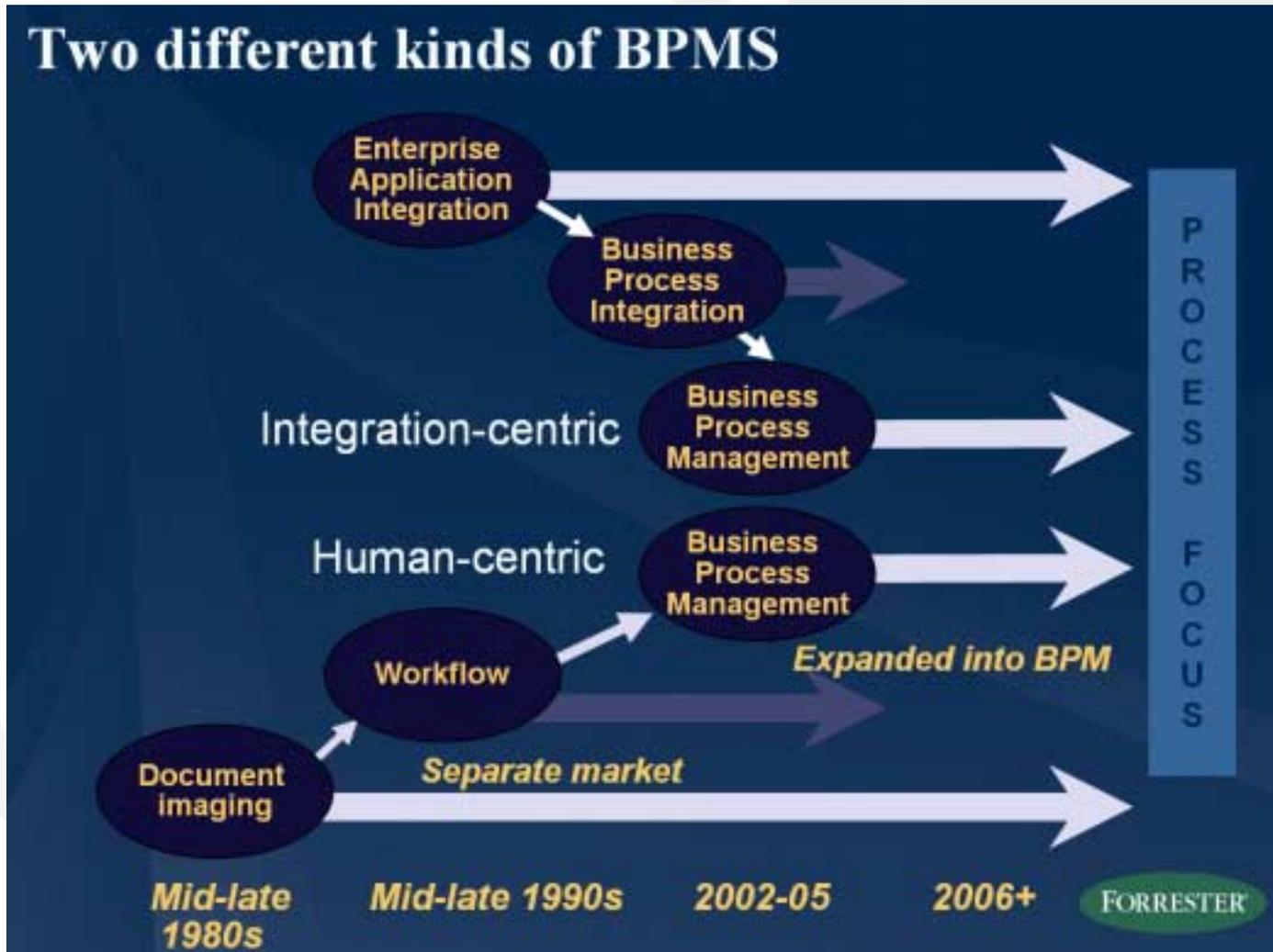
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Agenda

- **Who are TIBCO and what do we know about BPM?**

- **BPM requirements**
  - Personas
  - Lifecycle: Analyse, Develop, Deploy, Test, Optimise
  - Patterns

- **Standards**

- **MDA in the BPM / SOA context**
  - Mapping MDA principles to BPM tooling
  - Examples

- **Conclusions**

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BPM Requirements – Personas

Nick (the Business Analyst)
- Documentation
- Compliance
- Change ("As Is" and "To Be")

James (the Process Developer)
- "Top Down" / "Bottom Up"
- Processes demonstrably the same as the Business Analyst described

Nathan (the Operations Guy)

BPM Requirements - Patterns

- ## Chambers Dictionary
  - "a model, guide or set of instructions for making something"
  - "any excellent example suitable for imitation"

- ## But *more* than that
  - A way to recognise a common problem
  - A language for describing what is at the end of the day very abstract

- ## Van der Aalst and others
  - Workflow Patterns
  - Data Patterns
  - Resource Patterns

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Patterns example

Pattern 7: Synchonizing Merge
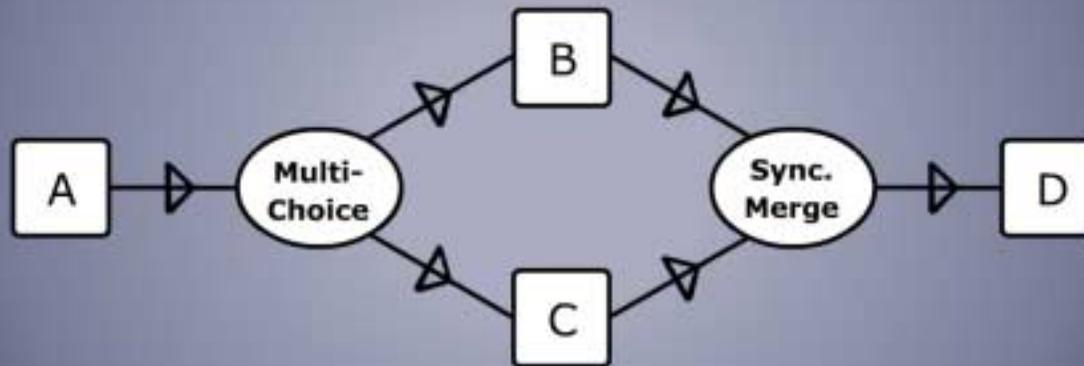
A point in the workflow process where multiple paths converge into one single thread. If more than one path is taken, synchronization of the active threads needs to take place. If only one path is taken, the alternative branches should reconverge without synchronization.

2003 © Wil van der Aalst and Vincent Almering

From http://www.workflowpatterns.com/

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A critique of standards – Process Standards

"The best thing about standards, is that there are so many to choose from"

- **BPMN**
  - It's a nice look, but no storage format or execution semantics
  - Perhaps BPDM will change that

- **XPDL**
  - User and System orientated in equal measure and widespread adoption but even at v2.0 interoperability has its challenges

- **WS-BPEL**
  - Er hello! What about people!?

- **UML2 Activity Diagrams**
  - Ranked last on the Workflow Patterns site

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A critique of standards continued

- **Data Standards**
  - UML 2 Class Diagrams
  - XML Schema

- **Architecture Standards**
  - UML 2 Component / Deployment Diagrams
  - SOA and WS*
  - SCA

- **User Presentation standards**
  - XForms?

- **Business Rules standards**
  - PRR
  - OCL
  - Rule ML

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MDA in the BPM / SOA context

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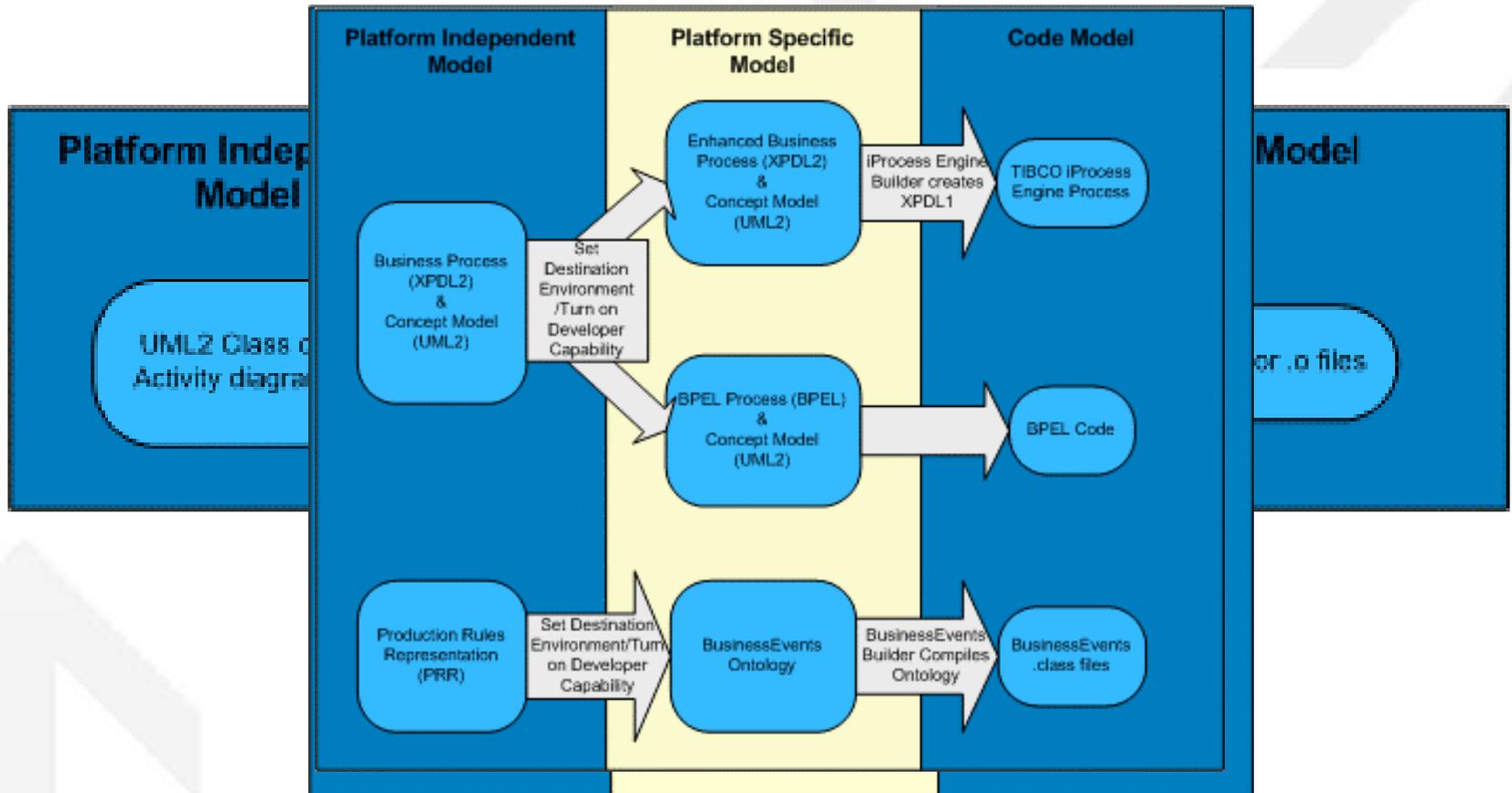
Business Process Layers of Abstraction

Each role has a single view on the *same* model

Business Process Owner   **(Metrics / KPIs / SLAs)**
Business Analyst   **(Processes / Concepts / Rules / Simulation)**
Integration Developer   **(Process to Service Linkage)**
Developer   **(New Service Creation)**
Developer   **(Legacy App Service Wrapping)**

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This document (including, without limitation, any product roadmap or statement of direction data) illustrates the planned testing, release and availability dates for TIBCO products and services.

Case Study – Insurance Claims Mgmt

Payment

Recovery

First Notification Of Loss

First Notification Of Loss

Litigation

Fraud Detection

Settlement

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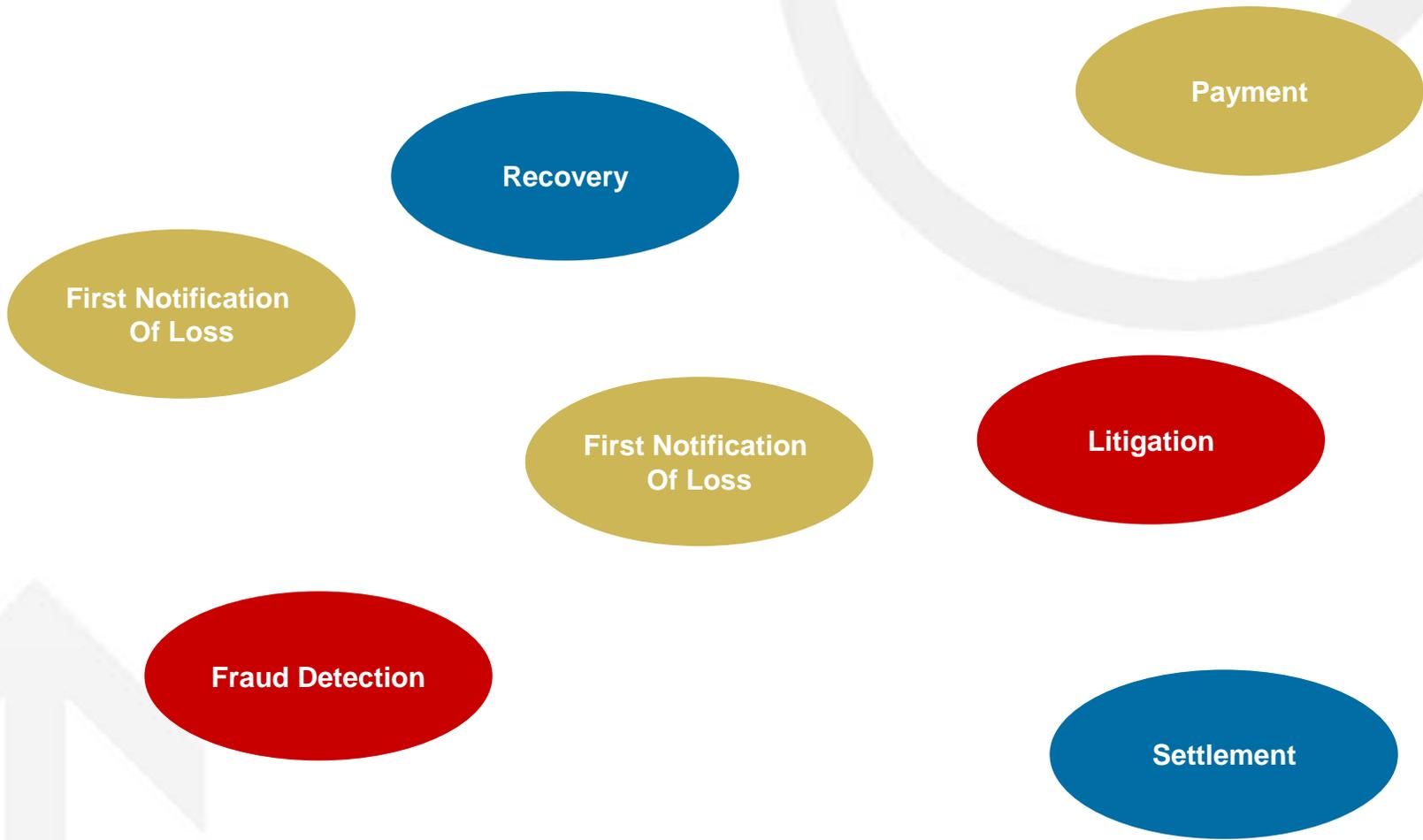
Use Case for Nick (Business Analyst)

- **Document Group-wide BPM best practice in a way that permits variation by local geography and department**
  - 'As is' Process
    - Interview business end-users about their current practise
    - Capture (either on paper first or directly in modeling tool) the process flow
    - Capture (either on paper first or directly in modeling tool) the process relevant data
    - Attach process relevant data at key points (esp. Gateways but inc. Activities too)
    - Simulate and analyse to ensure a realistic description of status quo
  - (Optional) 'To Be' Process (iterative)
    - Propose optimisations (both process changes and new automation)
    - Simulate to quantify estimated savings
  - (Optional) Business Rule Definition
    - Truth table style, not Java / Pseudo-code
  - (Optional) Implement as Executable BPM
    - Select the target runtime (destination) environment for each process
    - Hand over to Corp. Developer

- **Our proposition is to get to executable BPM, though some may wish to stop either some or all Business Processes at As Is or To Be phases**

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Use Case for Nick (Business Analyst) – what could it look like?
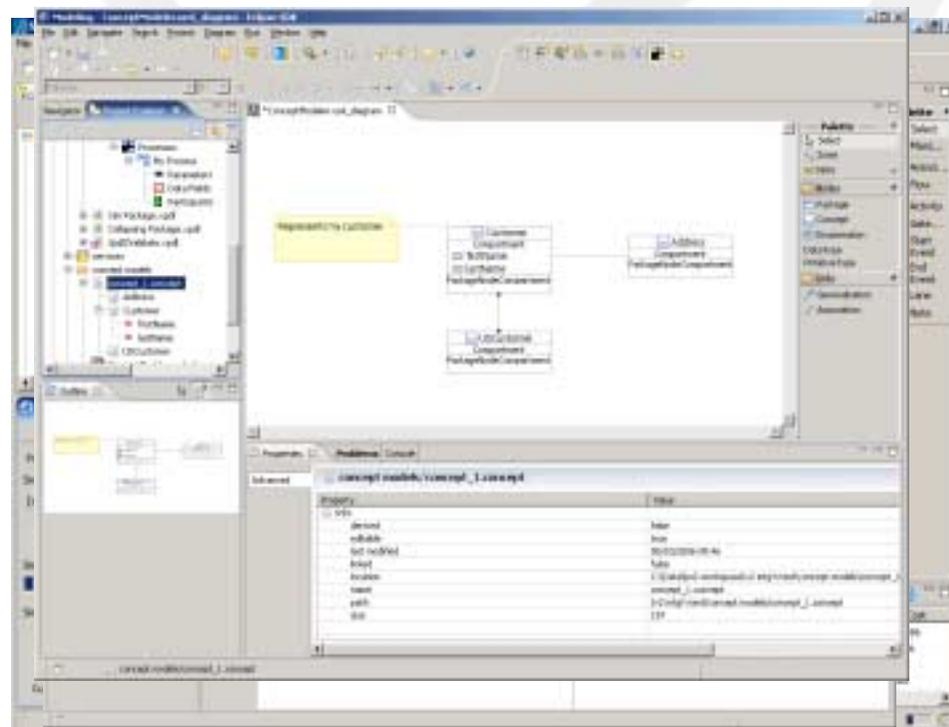
▪**Process Modeling**

- BPMN Core and Complete Set
- Increasing levels of precision and fidelity as project rolls on

▪**Data Modeling**

- (Subset of?) UML 2 Class Diagram
- An Enterprise view of data shared by Process Modeler and Business Rules etc etc.

▪**Simulation**

- A way to objectively compare 'to be' with 'as is'

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Use Case for James (Corp. Developer)

- **Top-down and Bottom-up views of SOA**
  - Recommendation is for top-down

- **Top-down example**
  - Receive Business Process Analysis from Nick
  - BPM / SOA Implementation
    - For Service Tasks: one of
      - Select suitable service implementation (or at least abstract WSDL) from Registry
      - Employ integration technology (adapters) to create new service
      - Write new custom service implementation (.NET, POJO, EJB etc)
    - (Optional) For User Tasks: Customise generic forms for a better usability
  - Test Phase
    - Run / Debug (embedded in IDE) at least Process Engine, but possibly stubbed services too
    - Run / Debug (through JPDA attachment to application server)
  - Return enhanced model AND web-publishable documentation to Nick (and ultimately Patricia; the Process Owner persona) for approval
  - (Alternate 1)
    - Package for Deployment to User Acceptance / Production environments by Nathan (Operational Administrator persona)
  - (Alternate 2)
    - Deploy artefact to Repository
    - Initialise the artefact in the runtime
  - (Optional) enter new process as service entry in Registry

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Implementation

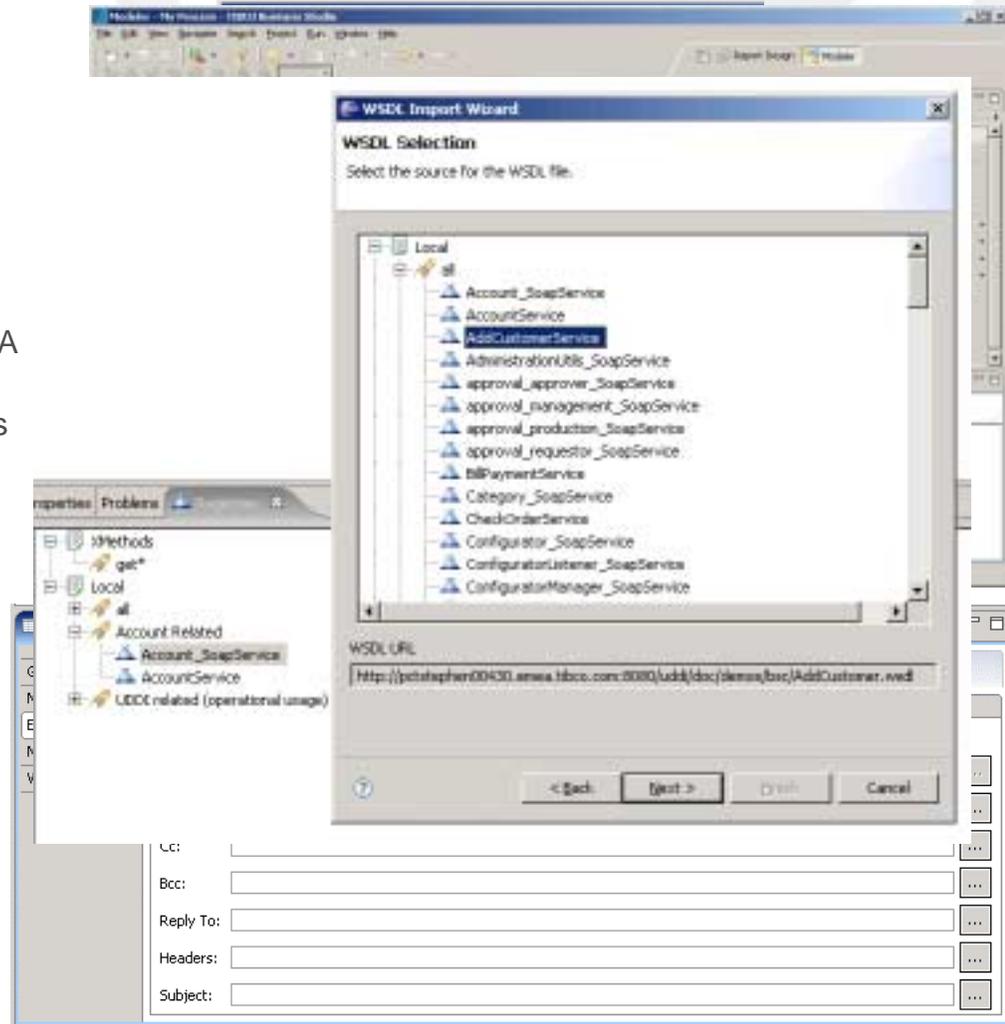- Discover and Bind Services
- Write new services

Test

- Including Debugging

Collaboration

- Documentation artefacts are just another MDA output
- Pushing this to the Intranet permits use cases like review and editorial control

Deployment

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CM model – revisit pattern example
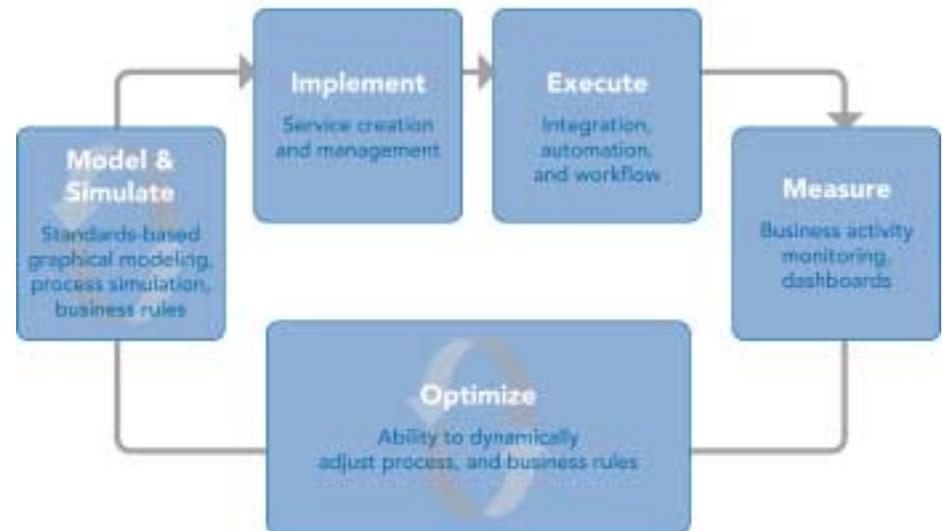
- **Execute**
  - Instrumentation to permit status and problem diagnosis

- **Measure**
  - System metrics (response time, load etc.)
  - Business metrics (SLAs & KPIs)

- **Optimise**
  - Progressive levels of sophistication:
    - Comparison of the Simulated and Measured on a like for like basis for human interpretation
    - Decision Support
    - Self-optimising

Model & Simulate
Standards-based graphical modeling, process simulation, business rules

Implement
Service creation and management

Execute
Integration, automation, and workflow

Measure
Business activity monitoring dashboards

Optimize
Ability to dynamically adjust process and business rules

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Conclusion: Tooling Needs

- **One single business-level model shared by all people in multi-disciplinary team**

- **The above model must cater for**
  - Process
  - Data
  - Rules
  - Architecture

- **Standards and Patterns provide a common language to deal with complexity**

- **Platform Independence / MDA extensibility**
  - Since we have an abstraction it must be transformable to other platforms
  - Ability to define these additional transformation is insurance against platform obsolescence

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Questions?