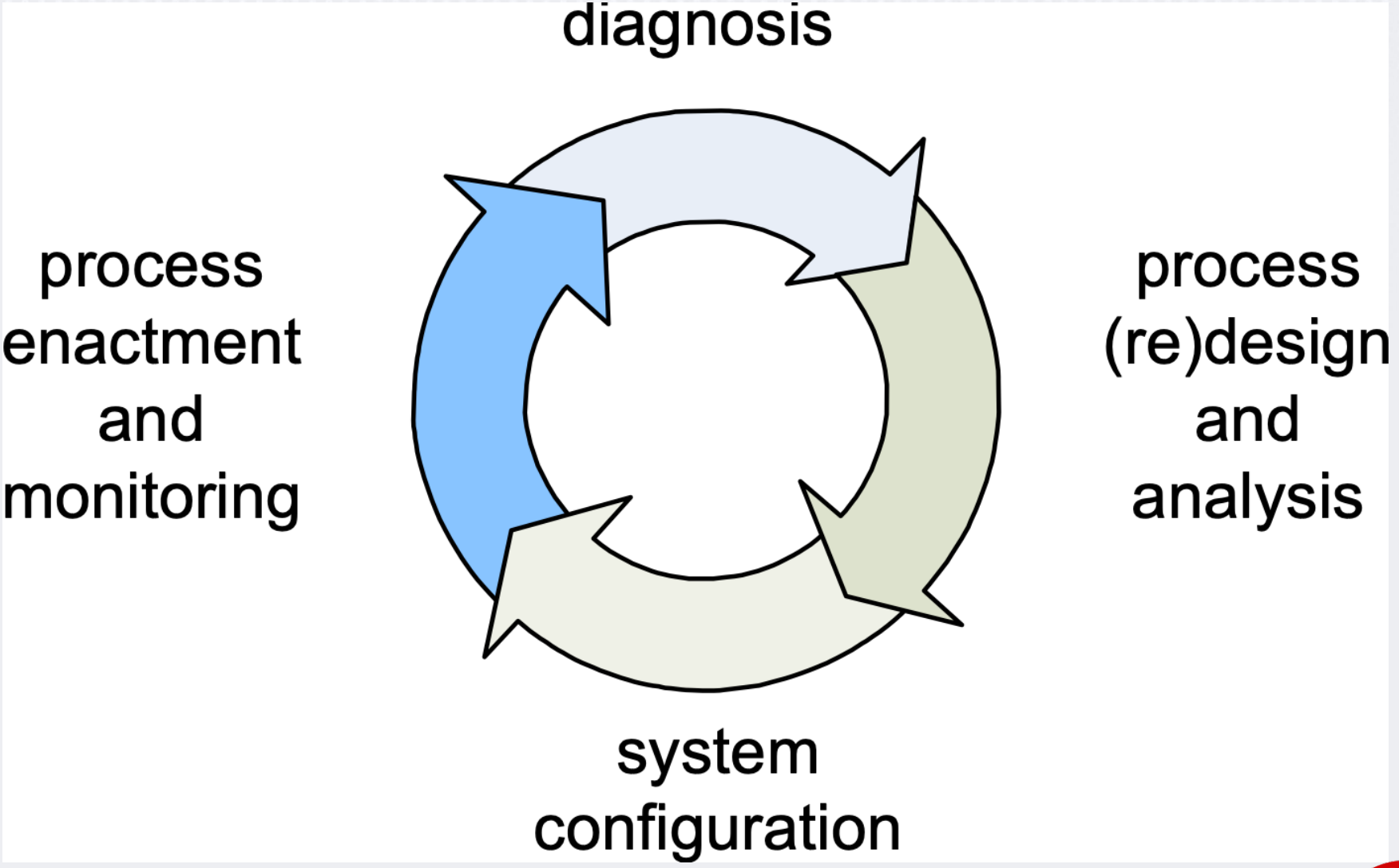
Business Process Model Life Cycle: Exercise



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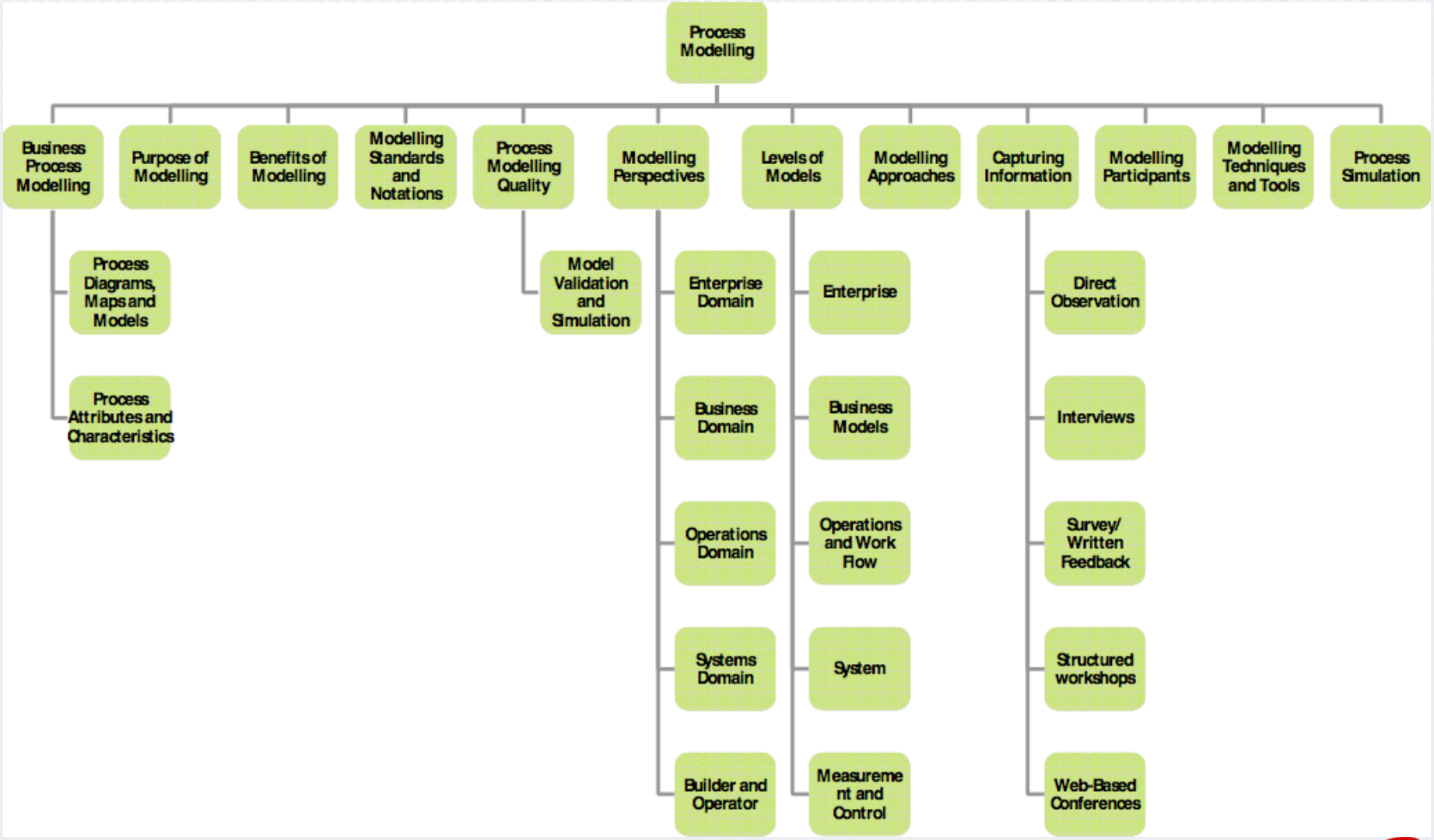
Process Modelling: Scope



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AS-IS vs TO-BE Business Models

- Both models provide an end-to-end perspective of an organisation's:
  - **primary processes:** core process to the business function/services
  - **supporting processes:** secondary processes to support business services
  - **management process:** that are concerned with the overall business management

AS-IS vs TO-BE Business Models

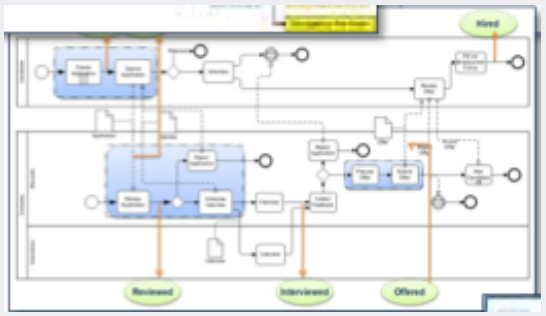
- **Two Types of Models**
  - **AS-IS model**: defines representations of an existing business process
  - **TO-BE model**: defines representations of a proposed (to-be) business process

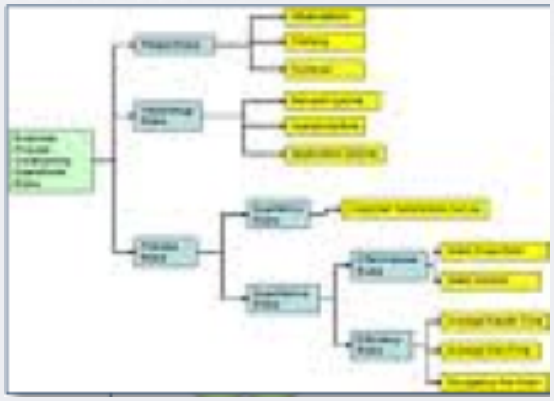
=> Modelling is only a means to an end and not an end in itself – i.e. we model to get results and reach conclusions not just to create a model

How to Model/Represent Processes?

- How to model and represent business processes?
  - Verbal, textual descriptions
  - Visual diagrams
  - Execution instructions

1. Starting with a customer placing an order **(the customer need)**
2. send IT-based information to the warehouse
3. stock picking
4. packing and recording
5. sending the appropriate IT-based information to the distribution hub
6. sending IT-based information to the accounts department
7. generation of an invoice
8. allocation and organisation of shipment for the vehicle drivers
9. delivery of the item and invoicing **(the customer need fulfilled).**





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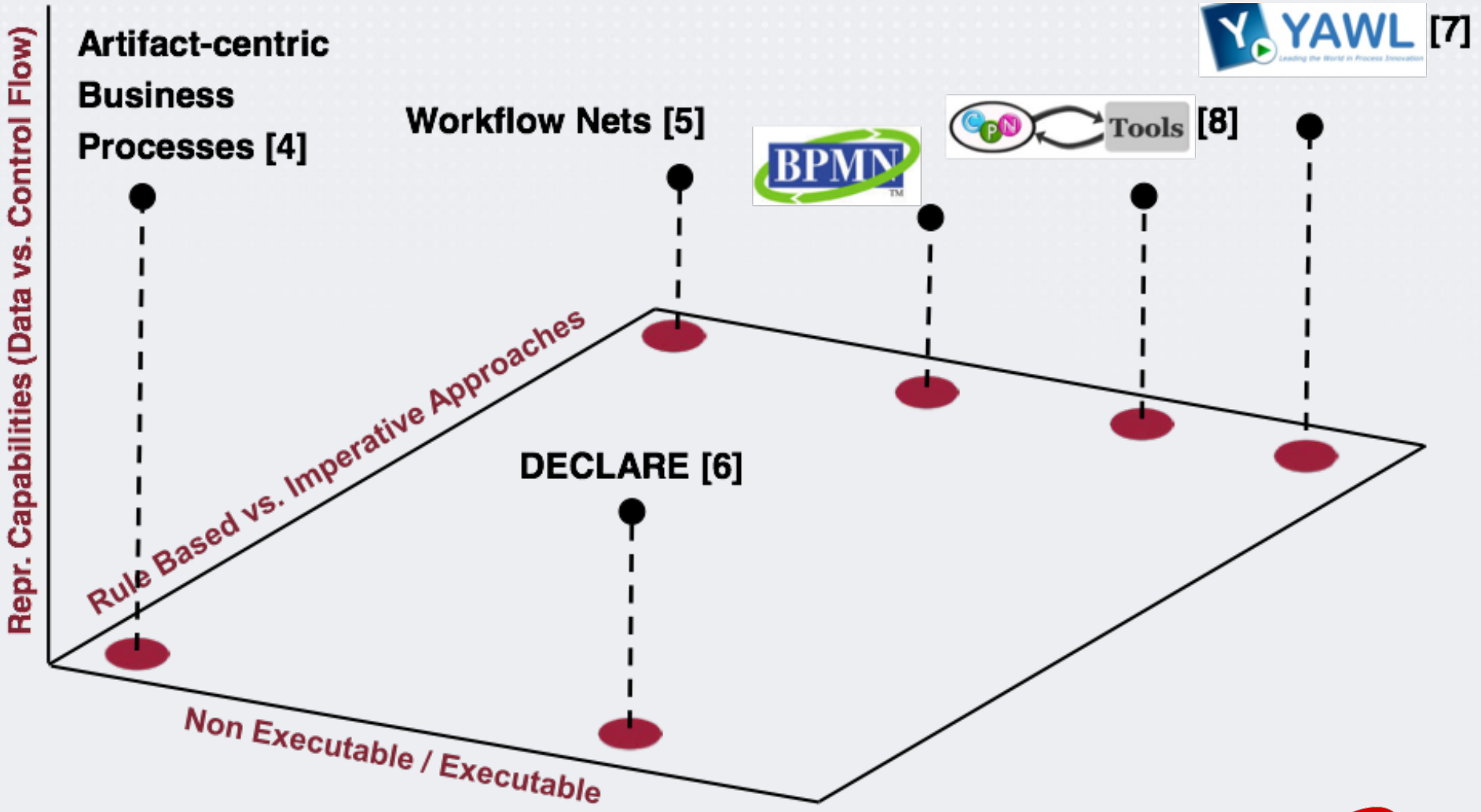
Modelling Languages for Business Processes: Modelling Approaches

- The **OASIS** group's BPEL standard (Executable model)
  - BPEL: Business Process Execution Language
  - invokes web services and can be invoked as a web service
- **BPMI** (Business Process Modelling Initiative) developed
  - BPML: Business Process Modelling Language
  - BPMN: Business Process Modelling Notation
    - BPMN has BPEL mapping, not BPML!
- The **OMG's** Model-Driven Architecture (MDA) specifications Q

Modelling Languages for Business Processes: Workflow Approaches

- YAWL modelling language
  - YAWL: Yet Another Workflow Language
  - A Workflow definition language
- The various W3C choreography standards
- The WfMC's reference model
  - The Workflow Management Coalition (**WfMC**)
  - It is an architecture of workflow system with supporting tools
- The OASIS BPSS language
  - Business Process Simulation Software (BPSS)
  - It is a business-to-business (B2B) collaboration

Modelling Languages for Business Processes



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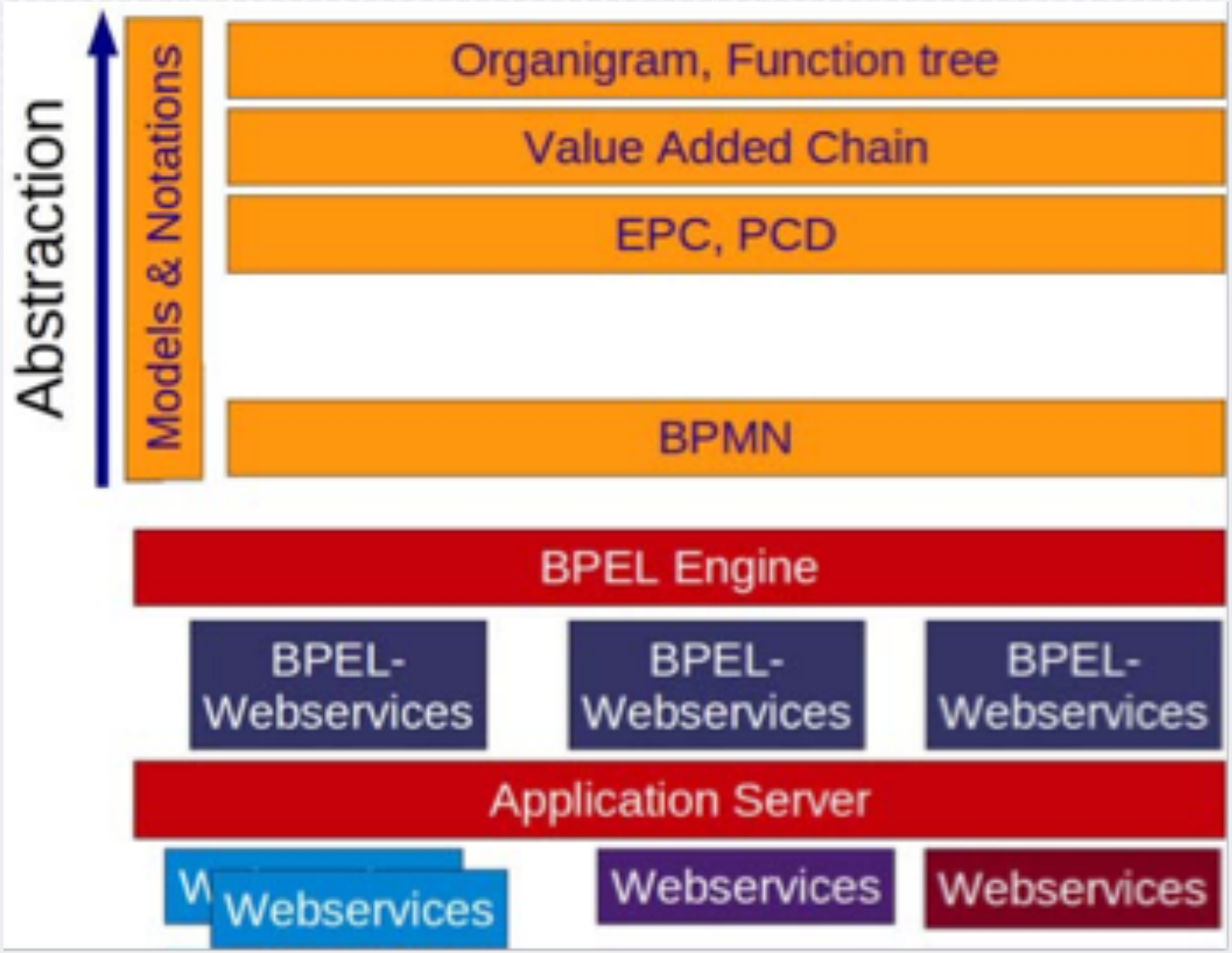
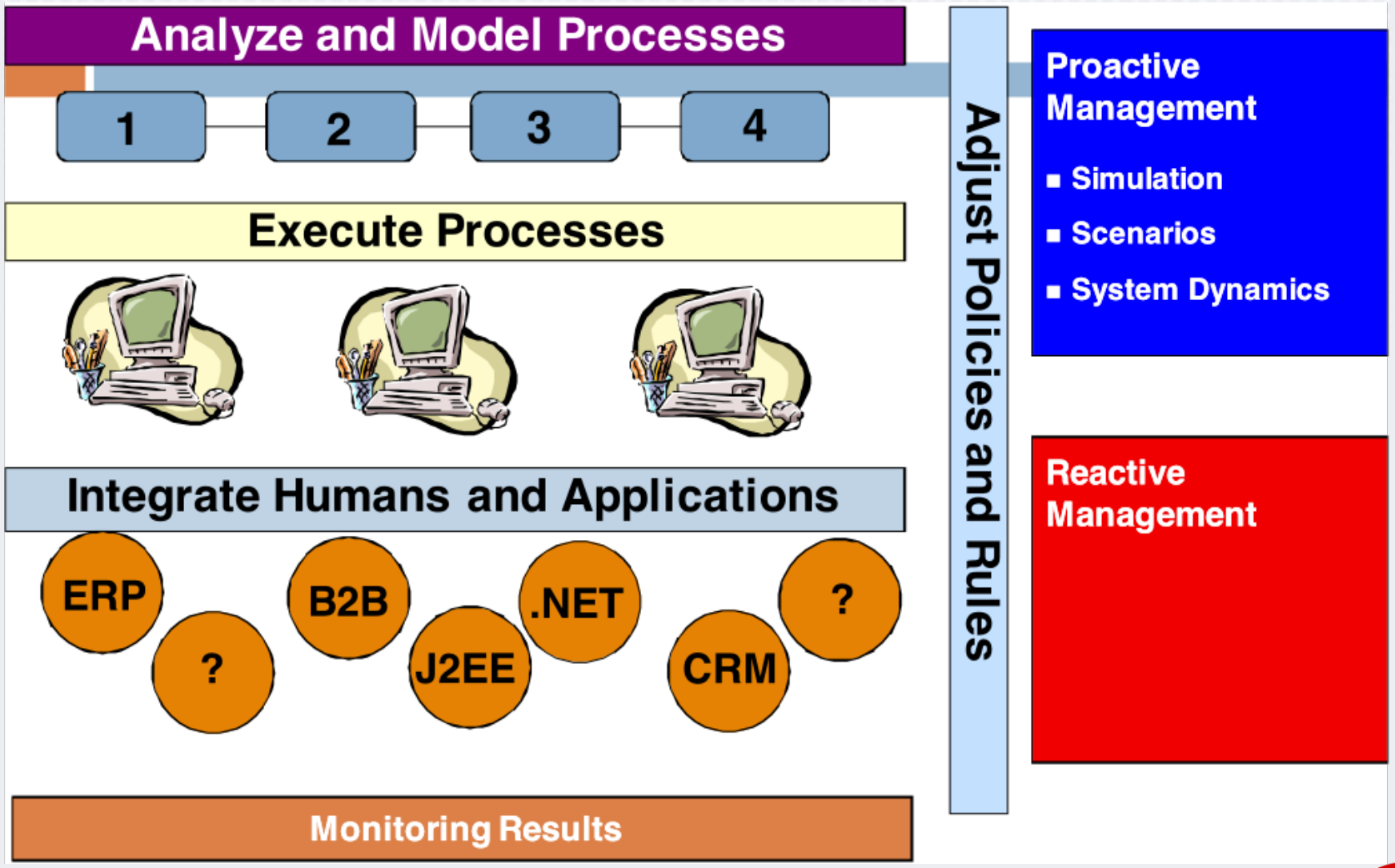
Abstraction and Execution Levels



BPM Taxonomy



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Workflow approaches

- **Workflow is the flow of work, encompassing the exchange and enrichment of information:**

  The classical workflow paradigm can be seen as a river that carries the flow of work from port to port and along the way value gets added. Workflow defines the operations that must be visited along the way and what needs to be done when exceptions occur.

- **Document-centric heritage**
  documents captured state and then was used as a token

Workflow Basics

- A workflow system deals with cases:

  For example, in a process that handles insurance claims, a case is a particular claim; or issuing an air ticket is a case (i.e. an instance) of the process of issuing air tickets.

  - Cases are classified in characteristics:
    - Cases are always handled similarly (e.g. cases handled in a similar way).
    - A case has an identity, i.e., a case that can be univocally identified.

- The central component of a workflow is the task or activity.
  - A task is a logical, indivisible unit of work. If anything goes wrong when performing a task, it must be rolled-back. (similar to atomicity in DBMS)

Workflow Basics: Three main Components

- **Process**
  - A procedure followed to handle a particular case type. Processes can be part of other ones - denoted sub-processes.

- **Routing**:
  - Refers to the way in which a process is carried out, in the sense that it defines the order of the tasks that compose a given process. Routing can be sequential, parallel, selective, or iterative.

- **Enactment**:
  - Triggering a task. Can be triggered by a resource initiative, by an external event or action (like a message), or by time signals.

YAWL (Yet Another Workflow Language)

- Defined by Wil van der Aalst and Arthur ter Hofstede in 2002
- Purpose: to provide comprehensive support for the workflow patterns.
- Inspired by Workflow nets, but with direct support for
  - Cancelation.
  - Multiple executions of the same task in the same process instance.
  - Synchronisation of active paths only (OR-join).

- YAWL has a support environment (Development started in 2003)
  - Editor.
  - Analysis.
  - Verification.

YAWL (Yet Another Workflow Language)

- Comprehensive approach for the Workflow Patterns
  - Original control-flow patterns, resource patterns, and exception handling patterns.
- Formal semantics
  - Original definition of YAWL: state-transition system.
  - Later: CPN (Coloured Petri Nets) interpreter.
  - This removes ambiguity and allows verification.
- Flexibility support, e.g., through handling exceptions.

=>See www.yawlfoundation.org

Executable Process Models

- Executable Process Models carry the instructions on how work should happen, who should do it, links to the other systems, etc.
- They provide a ***direct method of translating strategical and tactical intent into operational processes***.
- To be executed, process models have to meet very strict demands, because they are not converted into a computer program by a human being, but **directly processed by a machine**.
- Sone standards for executable process descriptions have been established, for example:
  - **XPDL** (XML Process Definition Language)
  - **BPEL** (Business Process Execution Language)

but such descriptions have no graphical notations, and the main range of application is the definition of automatic processes.

BPMN

- BPMN (Business Process Modelling Notation) one of the most widely used to model BPs.
  - Supported by most vendors.
  - Established by BPMI, standardised by OMG.
  - BPMN aimed at:

    (a) being acceptable and usable by the business community

    (b) being constrained to support only the concepts of modelling applicable to BPs

    (c) describing clearly a complex executable process.

BPM vs. workflow approaches

- Message correlation vs. process ID
  - message correlation – content of message identifies receiving process instance
  - process ID – identifies receiving process explicitly
- Service end-points vs. central enactment engine
  - choreography of loosely coupled services
  - monolithic and closed workflow system

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Thanks!

Any questions?

You can find me at:
@ritaj