Standards in Business Modeling and Integration

The BPM – SOA Connection

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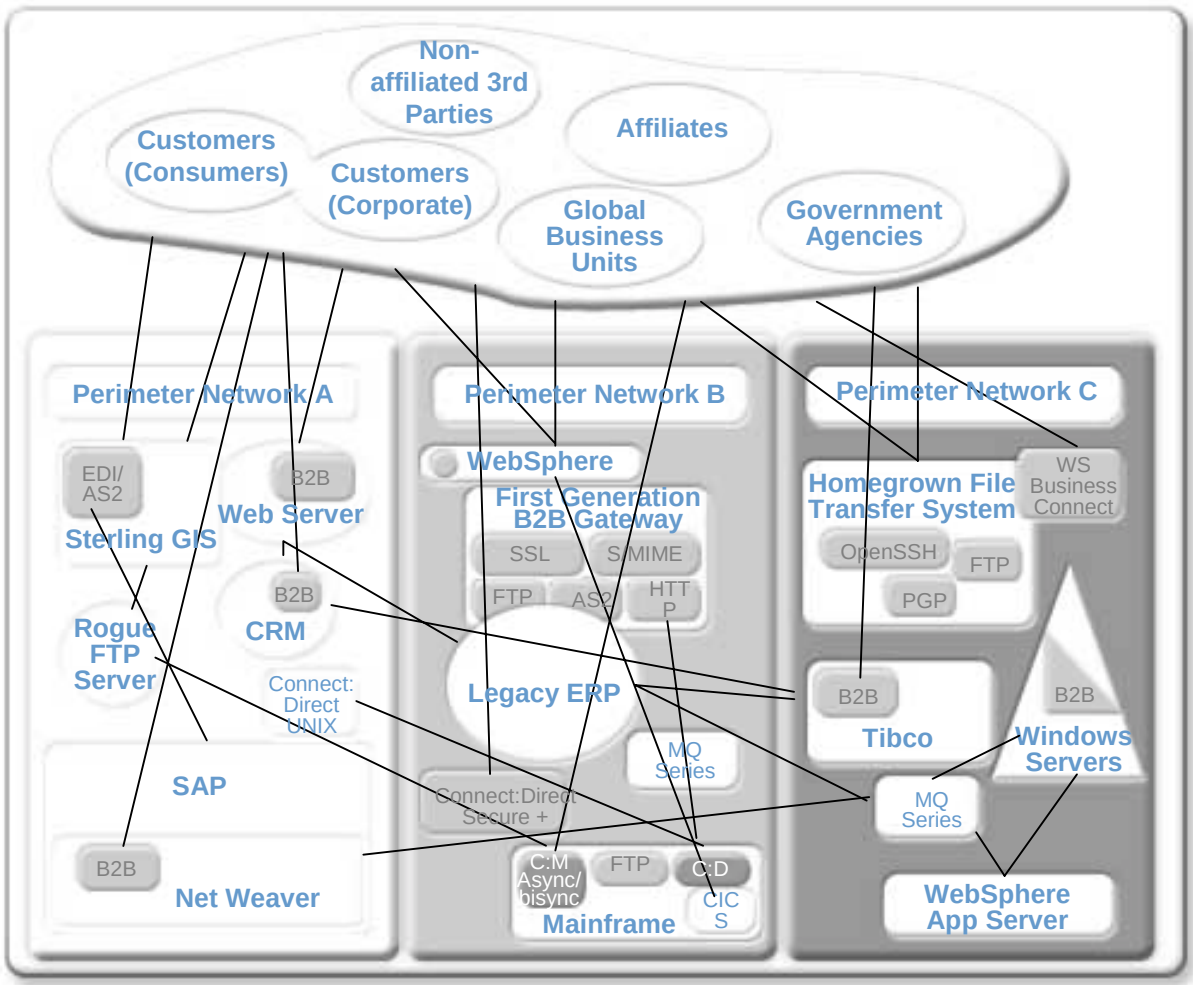
Chairman, BPMI; Co-Chair BMI
Thursday, March 30, 2006

Architecture: The Historical Problem



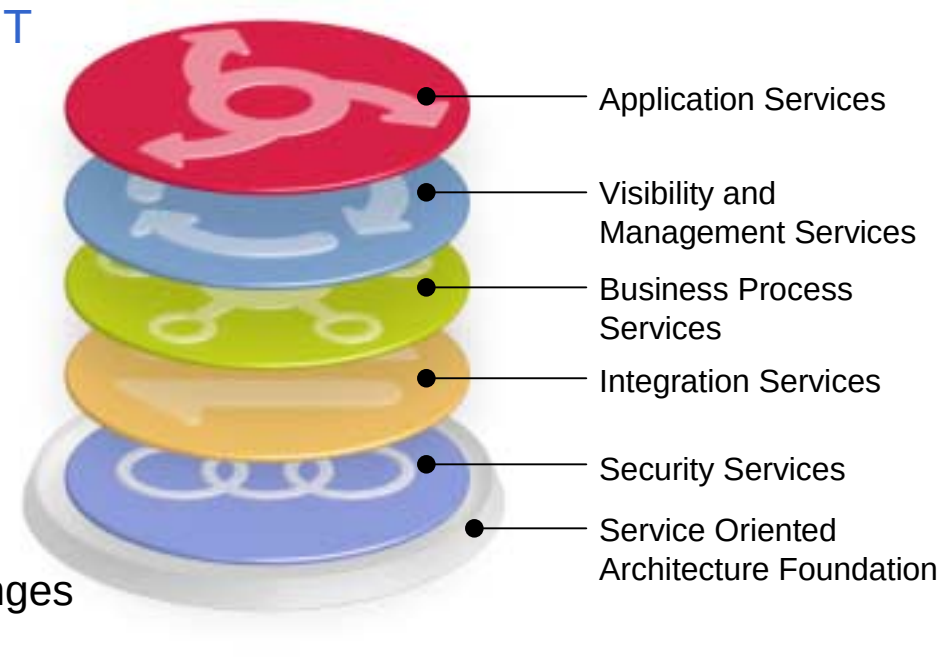
An un-orchestrated response to complexity produces application spaghetti

- **Redundant and incompatible connections**
- **High maintenance when applications change**
- **Hodgepodge "architecture" riddled with disconnects**
- **Information inaccessible in timely fashion or at all**
- **Decreased Productivity**

Architecture: The SOA Approach

A Service-Oriented Architecture orchestrates your current and future IT topology at a lower TCO

- Its modular design and reusable components
  - ✓Reduce redundancies and incompatibilities
  - ✓Eliminate spaghetti
  - ✓Interoperate with legacy systems
- Allowing
  - ✓Selective retirement at your pace
  - ✓Fast response to requirement changes
  - ✓Timely availability of information
  - ✓Increased Productivity



Architecture: The SOA Approach

The integration of heterogeneous services in an SOA is enhanced through the use of open standards

- XML Schema Definition (XSD)
- XML Path Language (XPath)
- Universal Description, Discovery, Integration (UDDI)
- Web Services Interoperability (WS-I)
- Web Services Description Language (WSDL)
- Web Services Security (WS-S)
- Web Services Reliable Messaging (WSRM)
- Web Services Distributed Management (WSDM)
- Security Assertion Markup Language (SAML)

Process: The Historical Problem

Early efforts

- ✓Enterprise Resource Planning
- ✓Enterprise Application Integration
- ✓Business Process Re-Engineering

➢ Were one-time events

Not adaptive to change

➢ Driven by IT

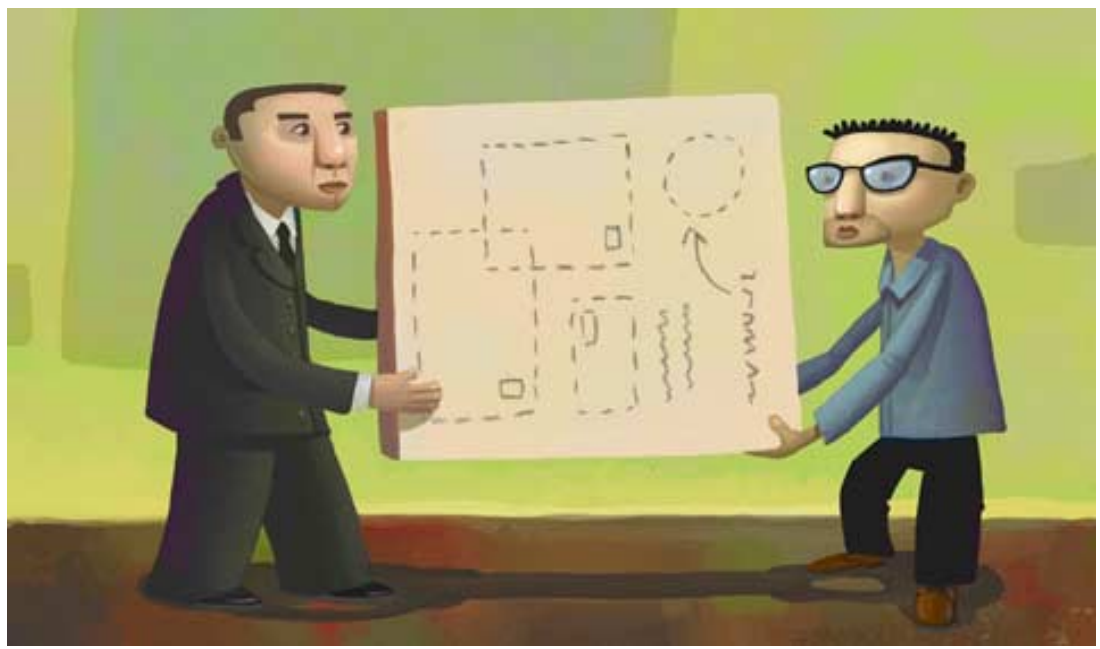
Without input from the business

➢ Isolated from the community

No extension beyond the 4 walls

Process: The BPM Approach

- Modeling notation understood by both business and IT
- Executable models that automate systems with a business focus
- Modular, reusable and interoperable between projects and tools
- IT becomes more aligned and responsive to business changes



Process: The BPM Approach

The integration of heterogeneous activities in complex processes is enhanced through the use of open standards

- Business Motivation Model (BMM)
- Semantics for Business Vocabulary and Rules (SBVR)
- Business Process Modeling Notation (BPMN)
- Business Process Definition Metamodel (BPDM)
- Web Service Choreography Description Language (WS-CDL)
- e-Business XML for Business Processes (ebXML ebBP)
- Web Service Business Process Execution Language (WS-BPEL)
- XML Process Description Language (XPDL)
- Production Rules Representation (PRR)
- Business Process Runtime Interface (BPRI)

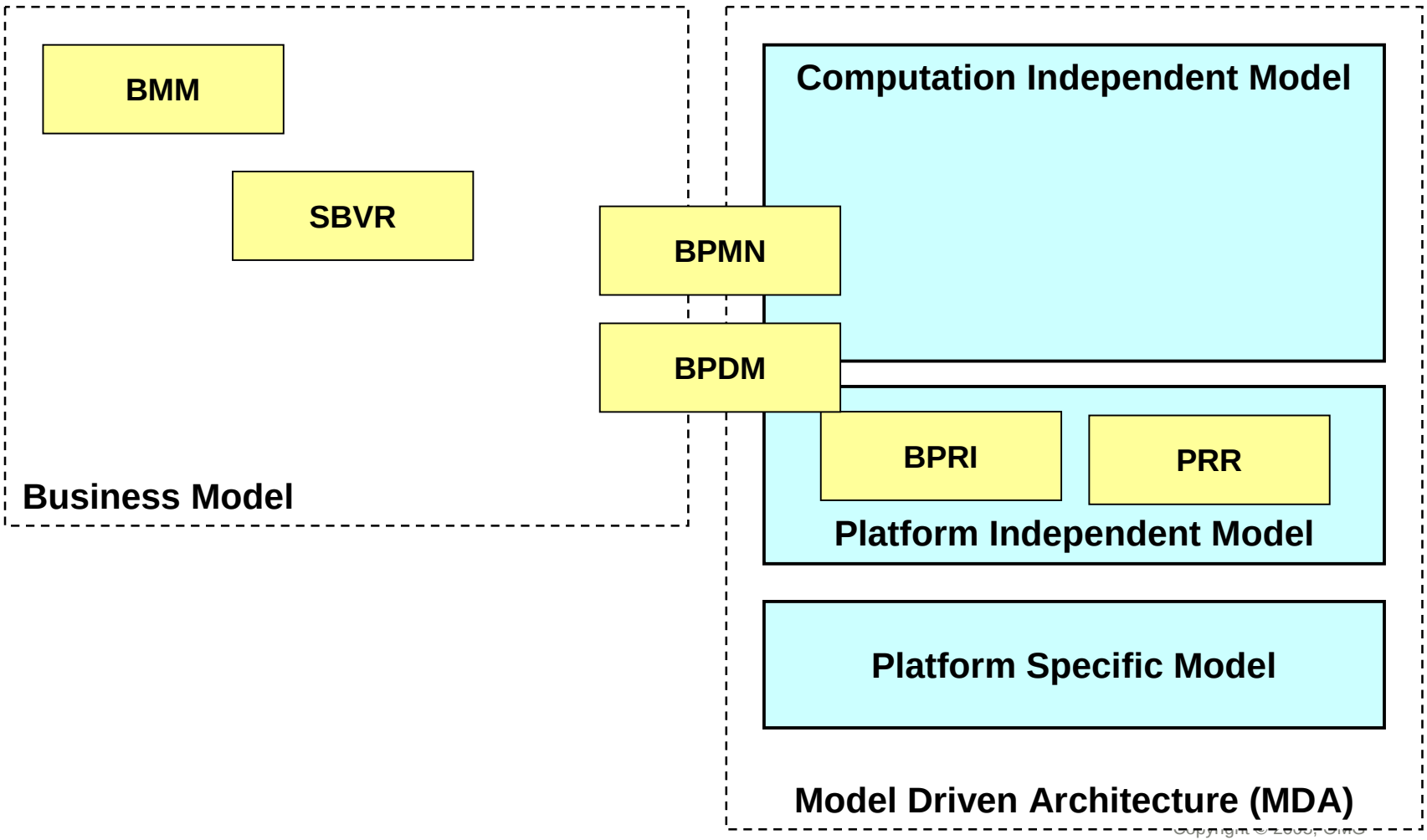
The Business Modeling and Integration Domain Task Force

BMI's mission is to develop specifications of integrated models that support these areas of business management:

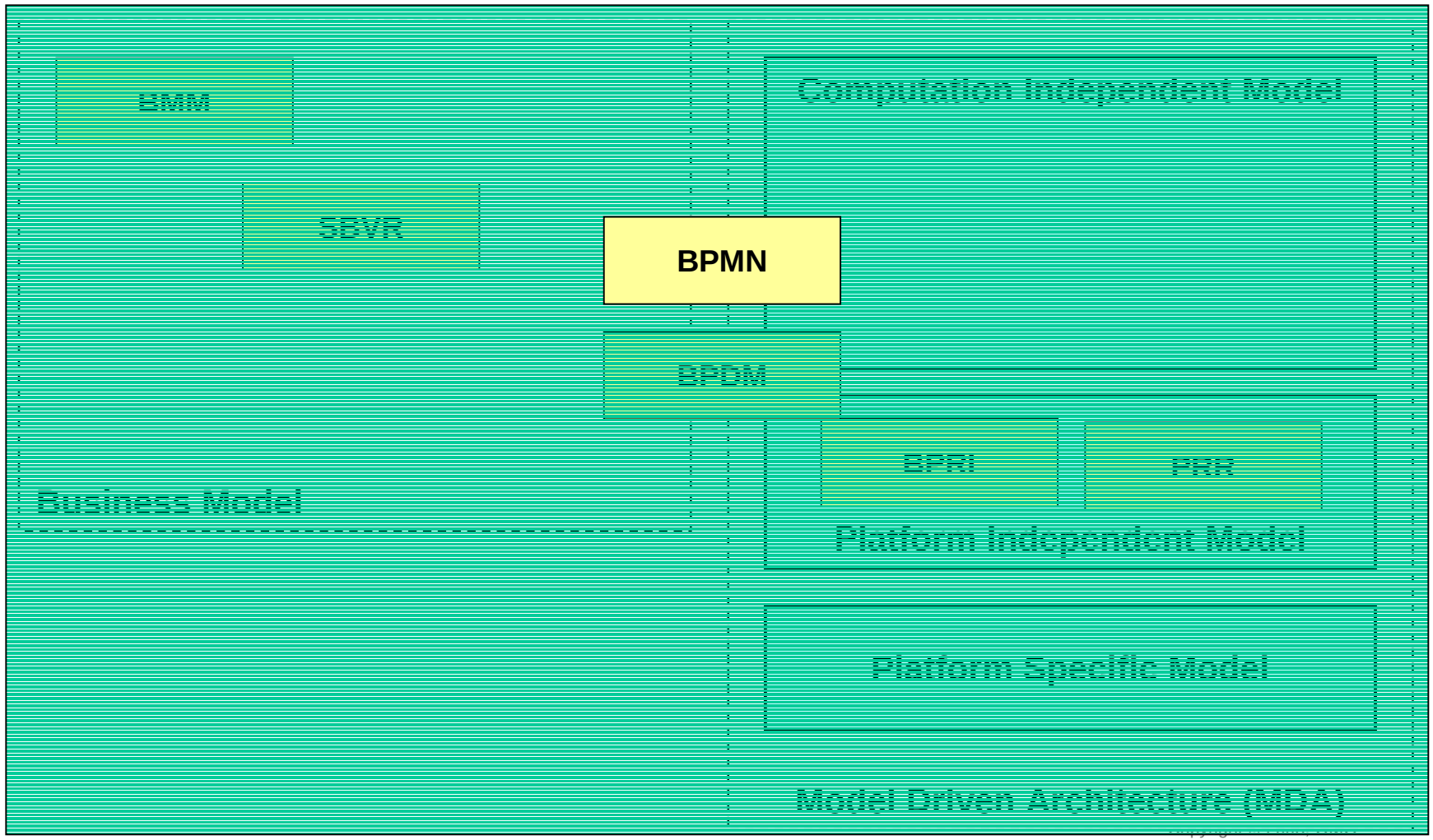
- Business planning and motivation modeling
- Business Process Management
- Business rules
- Business modeling
- Business language and vocabulary

The **BPMI Steering Committee** educates the broader business community on BMI's work and refines the focus of BMI efforts

BMI Standards



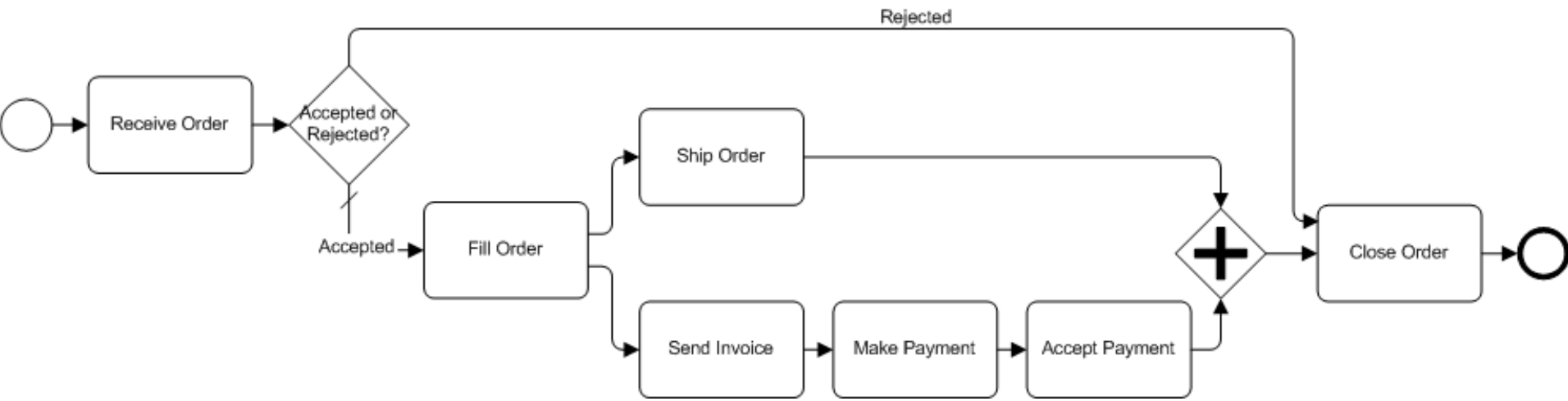
Business Process Modelling Notation (BPMN)



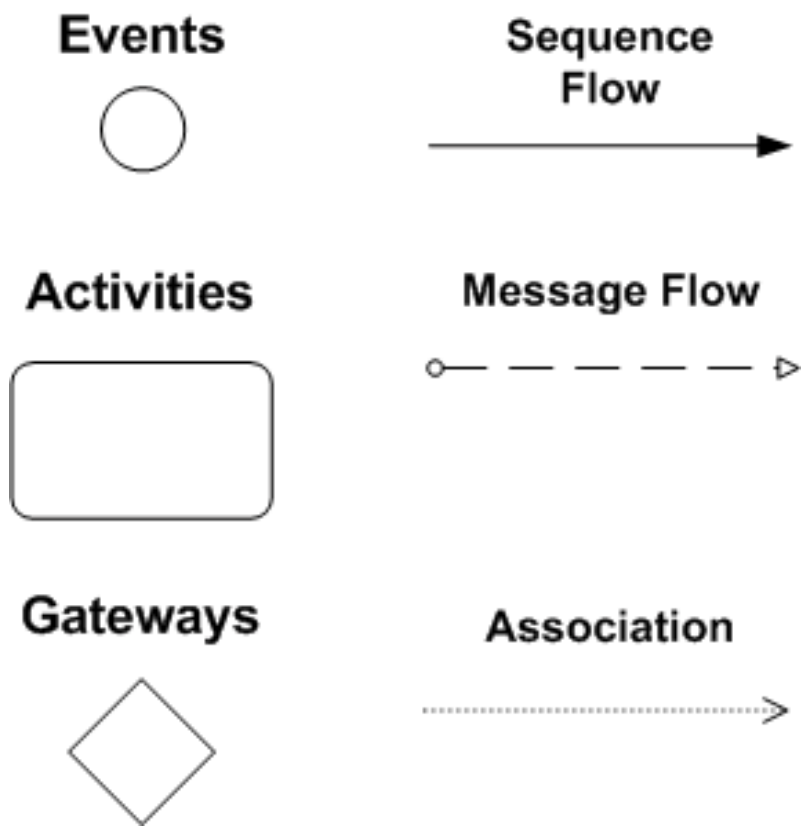
Flow Notation for the Rest of Us

- BPMN 1.0 originally released by BPMI in May, 2004
- Designed for the business analyst, rather than the programmer
- Fast-tracked by OMG. In the finalization process today

  www.omg.org/docs/dtc/06-02-01.pdf
- Currently supported by more than 30 vendor tools

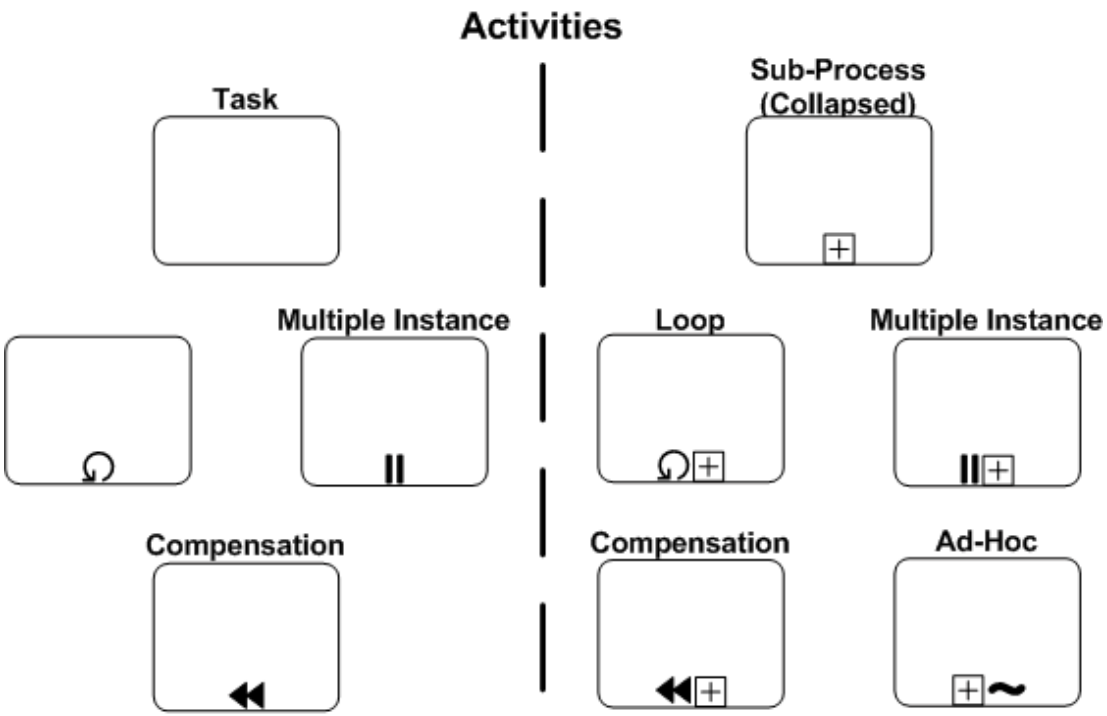


Business Process Diagram Elements



The core set of modeling elements enable the easy development simple Business Process Diagrams that will look familiar to most Business Analysts (who have seen flowchart diagrams)

BP Diagram Elements: Activities

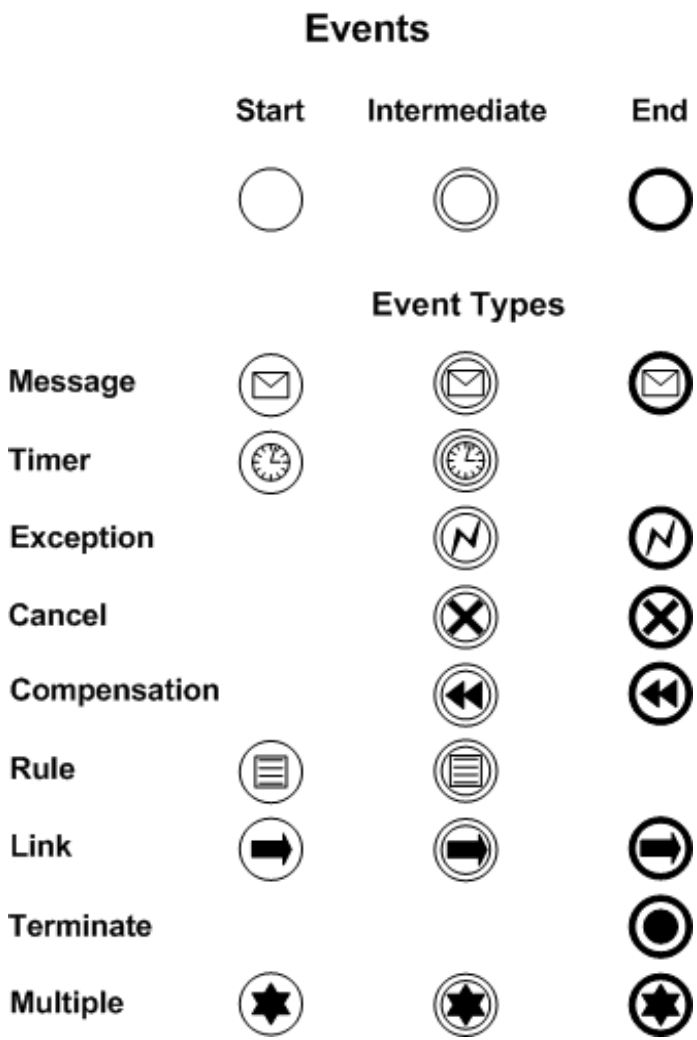


- An activity is work performed within a business process
- An activity can be atomic or non-atomic (compound)
- Types of activities
  - ✓ Process
  - ✓ Sub-Process
  - ✓ Task.

BP Diagram Elements: Connections

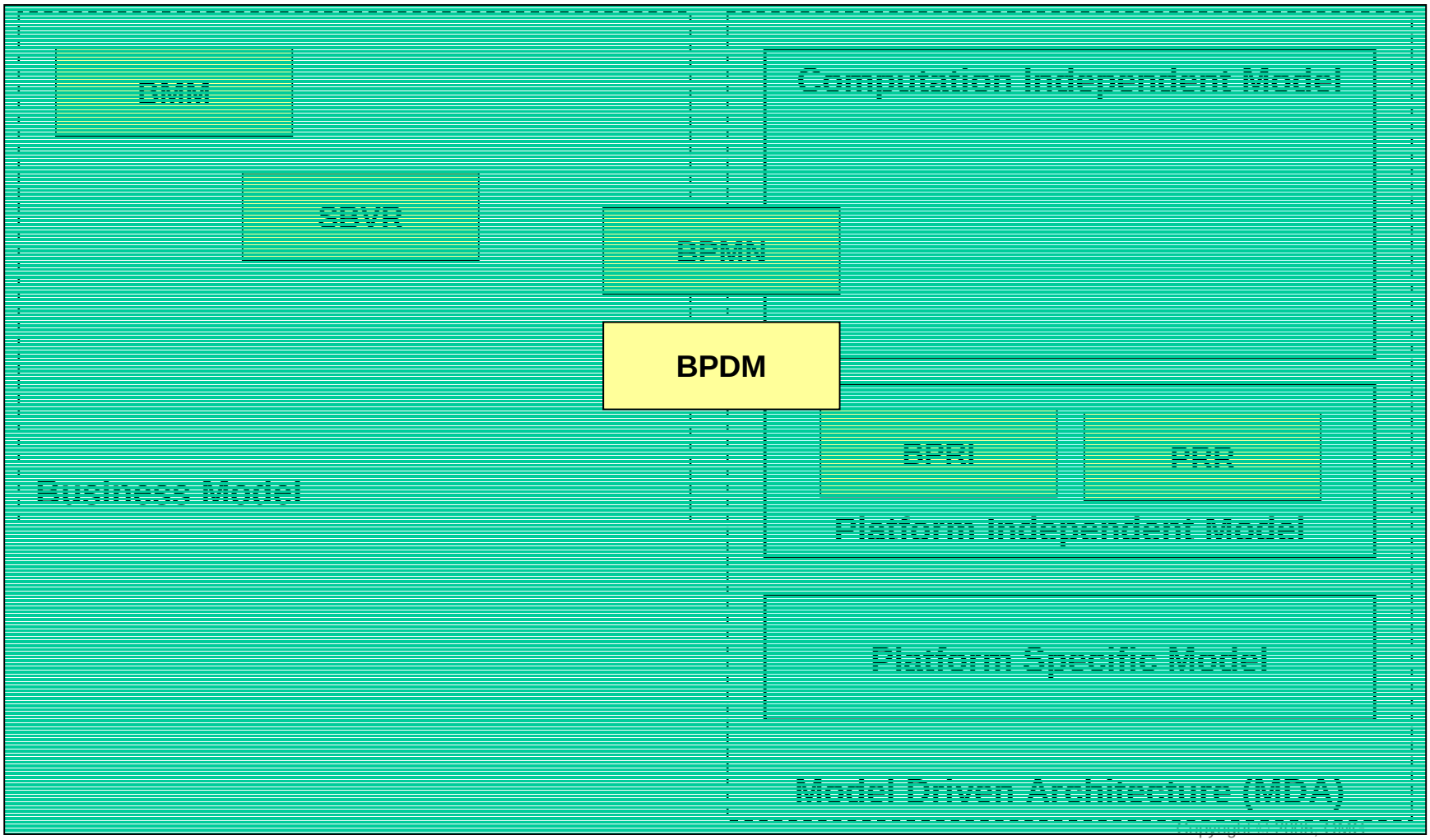
- A Sequence Flow is used to show the order that activities will be performed in a Process
- A Message Flow is used to show the flow of messages between two entities (sender and receiver)
- An Association is used to link information and artifacts with flow objects

BP Diagram Elements: Events



- An Event is something that "happens" during the course of a business process
- Events affect the flow of the Process and usually have a trigger or a result
  - ✓ Starting, interrupting, or ending the flow

Business Process Definition Metamodel (BPDM)

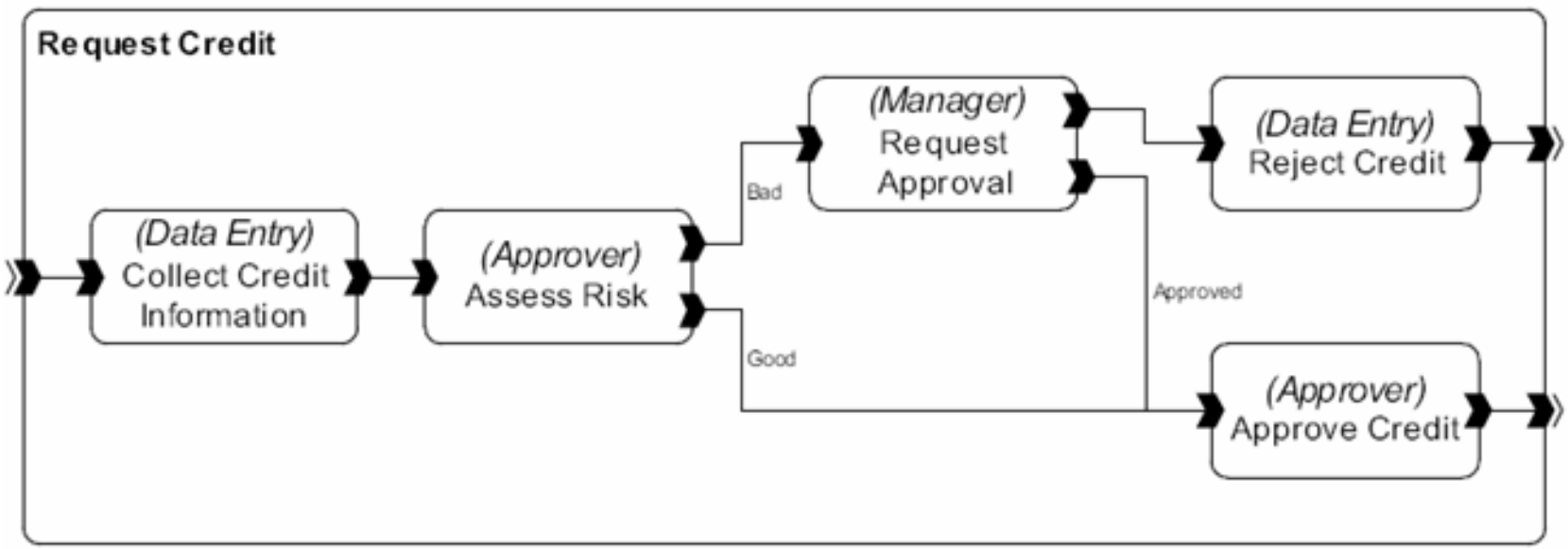


Business Process Definition Metamodel (BPDM)

- BPDM is an OMG work in progress

  www.omg.org/docs/bmi/05-12-01.pdf
- Submission in August 2004 by six vendors

  Adaptive, Borland, Data Access Technologies, EDS, IBM, 88 Solutions
- BPDM is designed to provide a common semantic representation for BPMN and a number of other process description languages



BPDM Promotes Interoperability

- Provides a common BPMN serialization mechanism
- Provides a common semantic for process modeling
- Mappings for many standards
  - ✓BPMN
  - ✓OASIS
    - **WS-BPEL** *(Business Process Execution Language)*
    - ebXML **ebBP** *(XML for e-Business Processes)*
  - ✓W3C
    - **WS-CDL** *(Web Service Choreography Description Language)*
  - ✓WfMC
    - **XPDL** *(XML-based Process Description Language)*

BPDM Supported Models

- ***Orchestration Process*** models
  - ✓Are action-oriented. They perform transformations
  - ✓Are under the exclusive control of a business entity

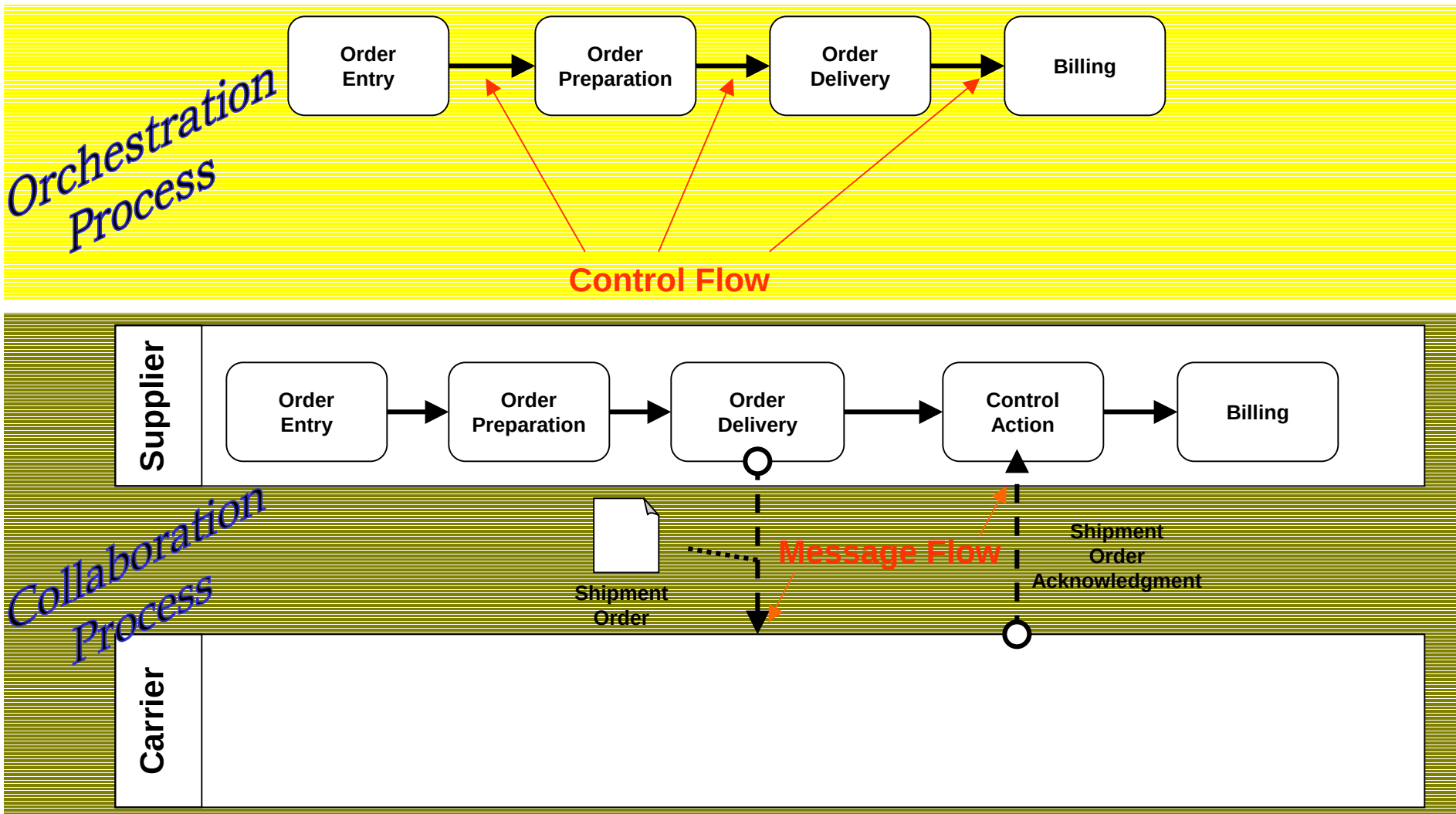
    The workflow

    Defines dependencies between process parts owned by the controlling business entity
- ***Collaboration Process*** models
  - ✓Are not action-oriented. They perform communication
  - ✓Are not under the exclusive control of a business entity

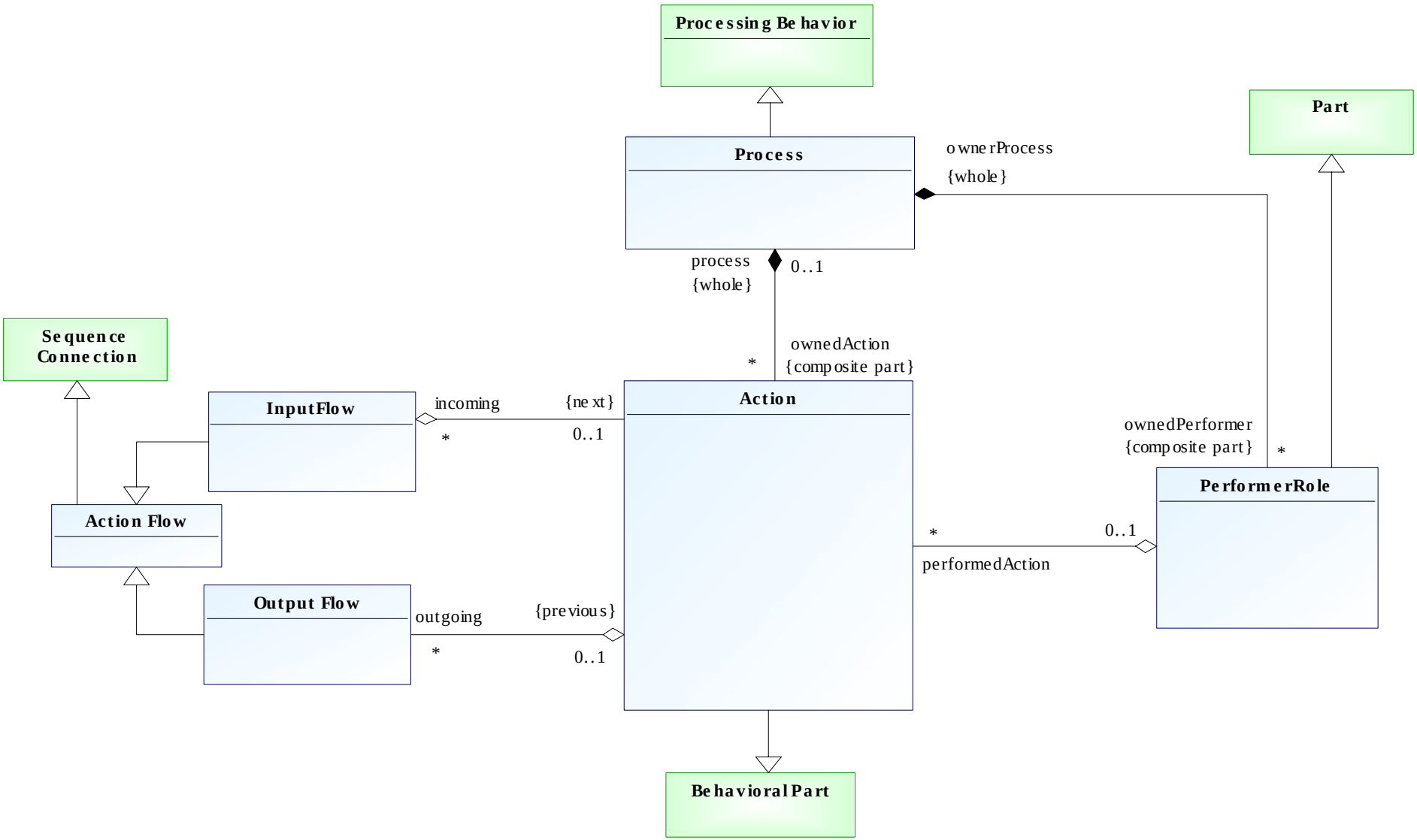
    The workflow

    Defines dependencies between interfacing parts not owned exclusively by any one of the participants

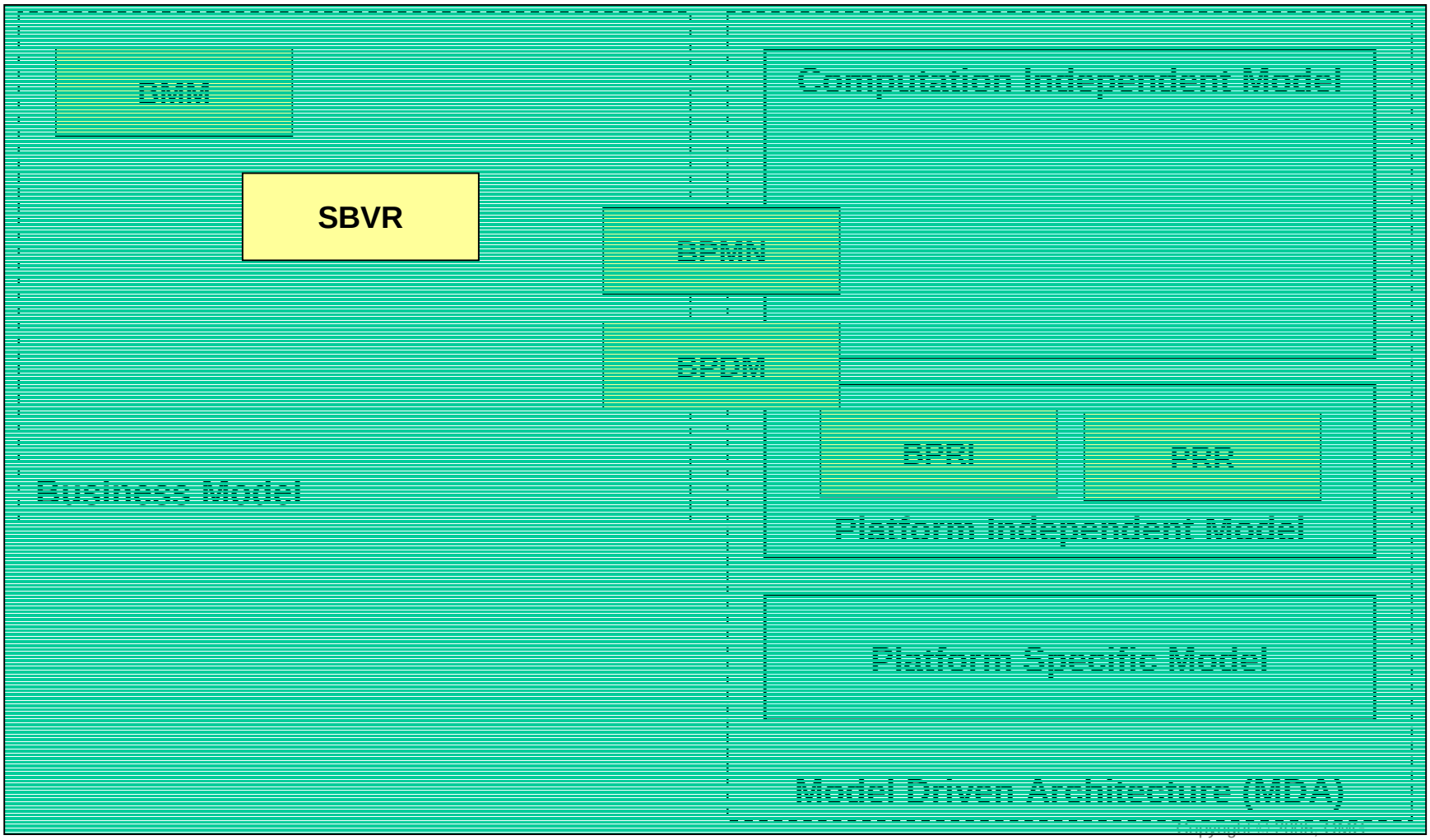
BPDM Supported Models



BPDM Workflow Semantics



Semantics for Business Vocabulary and Rules

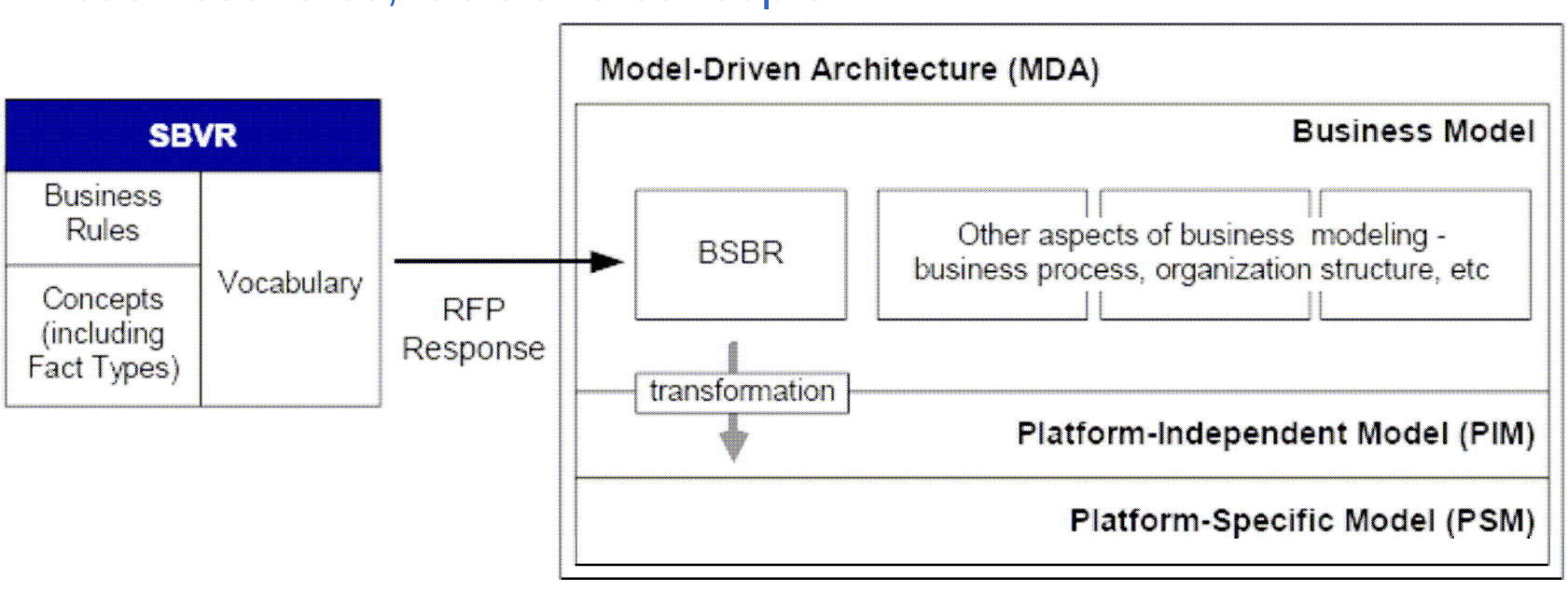


A Vocabulary for Business

- SBVR is in OMG's finalization process

  www.omg.org/docs/dtc/05-11-01.pdf
- Submitted as a response to the 2003 OMG RFP

  Business Semantics of Business Rules
- SBVR is a metamodel that provides an XMI representation for business rules, facts and concepts



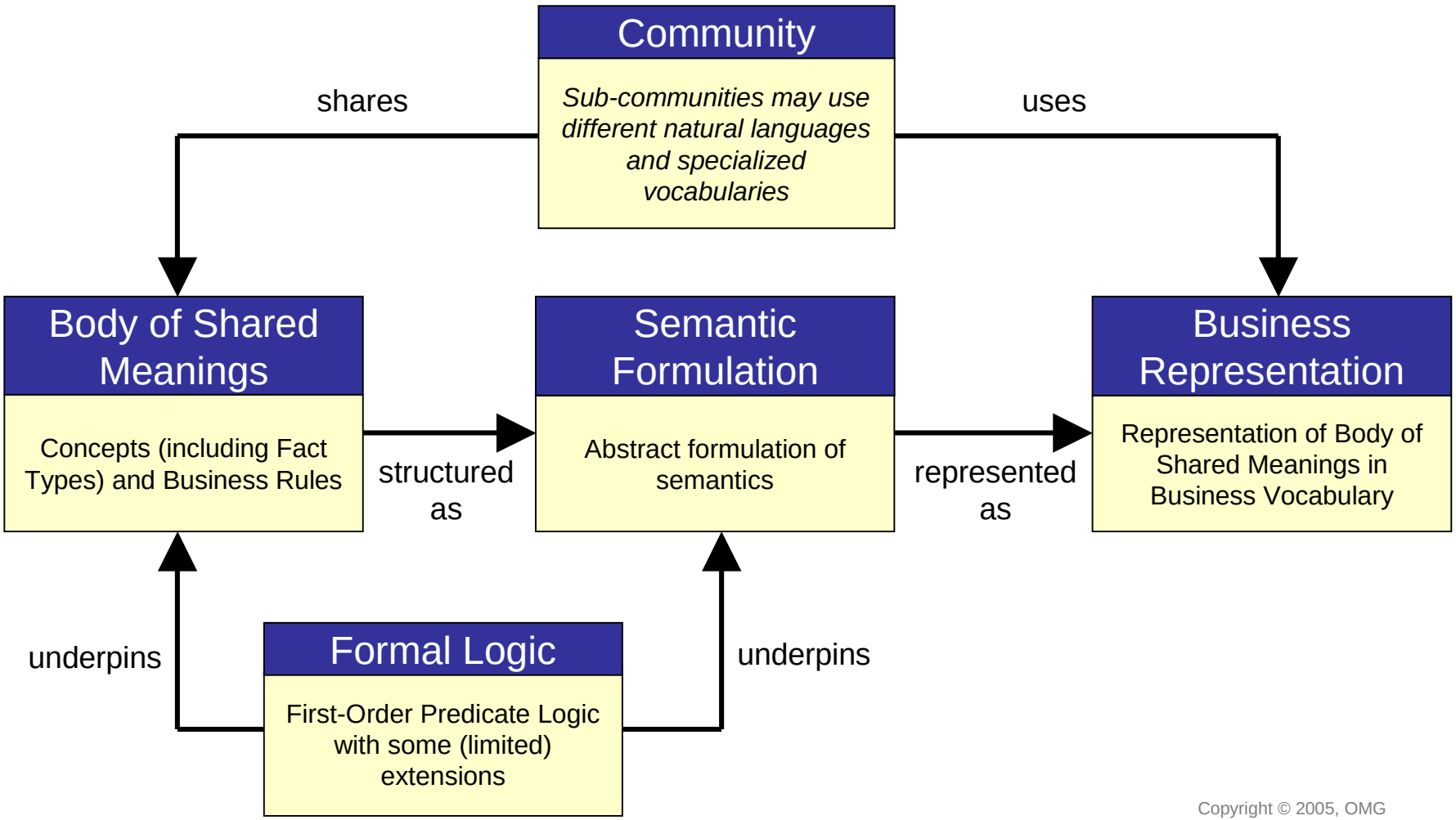
SBVR is Fact-Based

- A fact is a proposition taken to be true by the business
  - ✓ The business acts as if it believes the proposition is true
- An existential fact simply asserts the existence of an individual
  - ✓ e.g. there is a Country that has the CountryCode ‘US’
- An elementary fact is a declaration
  - ✓ Either, that an object has a property
    (e.g. The Country named ‘Australia’ is large)
  - ✓ Or, that one or more objects participate in a relationship
    (e.g. The Prime Minister named ‘John Howard’ was born in the Country named ‘Australia’)
  - ✓ Where the fact cannot, without information loss, be split into simpler facts with the same objects
- Population facts are restricted to existential or elementary facts

SBVR Promotes Reuse

- Captures business facts and business rules that may be expressed either informally or formally
  - ✓ Rules built on facts built on concepts, expressed by terms
- Defines instances of the SBVR metamodel as business vocabularies suitable for a particular organization
  - ✓ These vocabularies map rules, facts and concepts from their natural language expression to MOF-compliant artifacts
- Shared among
  - ✓ Other parts of an organization
  - ✓ An organization's business partners
- Provides structured, rigorous and consistent input for application and process requirements
- Supports levels of rule enforcement

SBVR Semantics



SBVR Expressed in UML

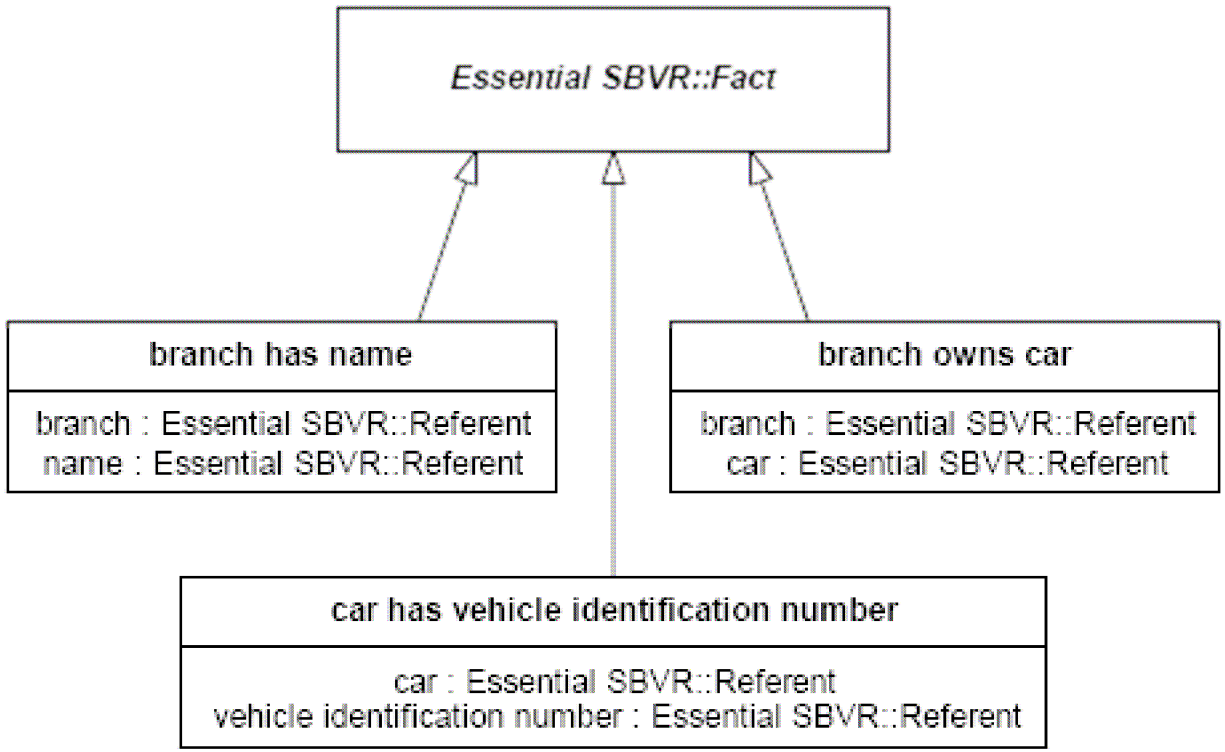
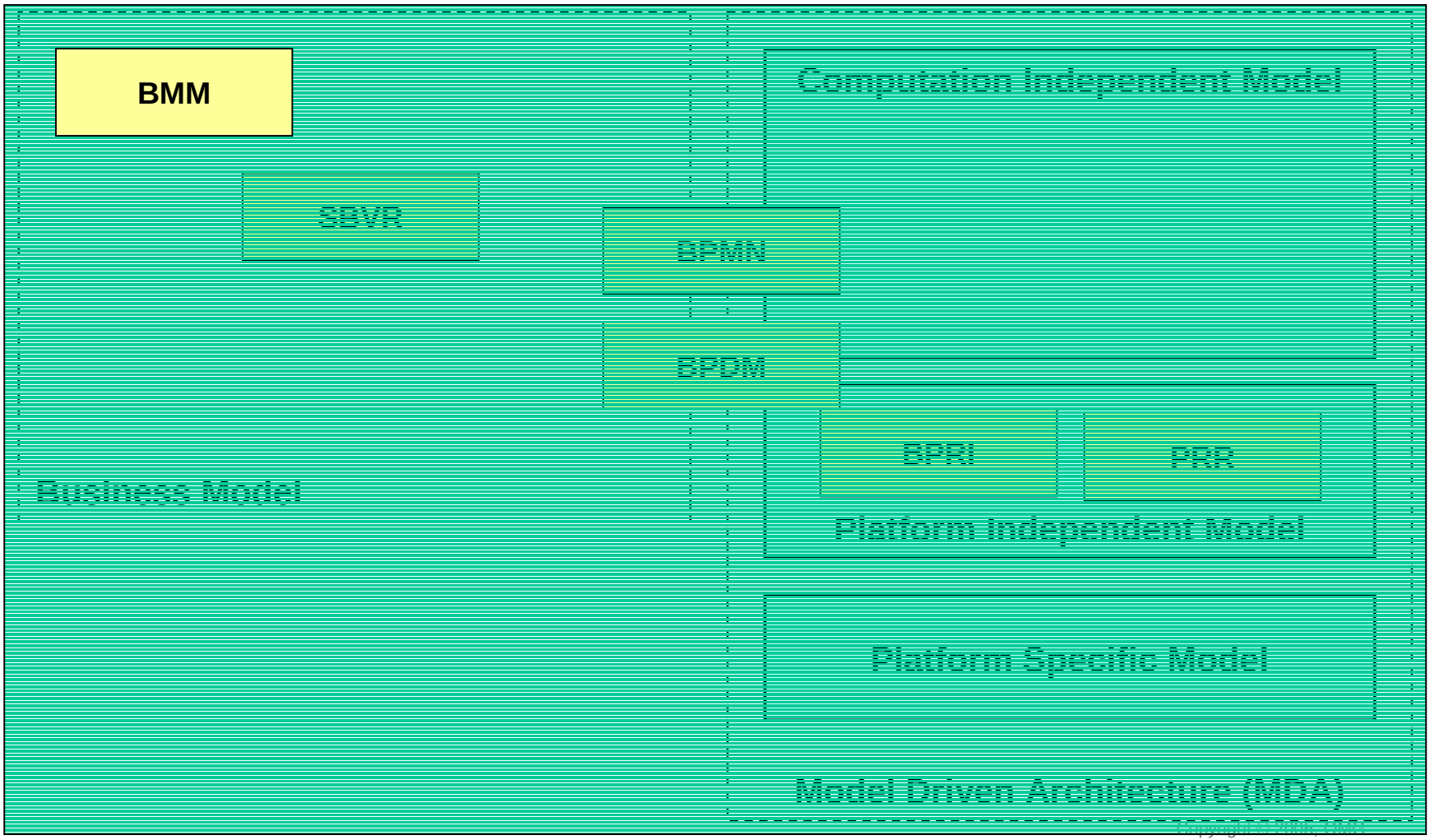


Figure C.1 - UML/MOF model created for part of EU-Rent English Vocabulary

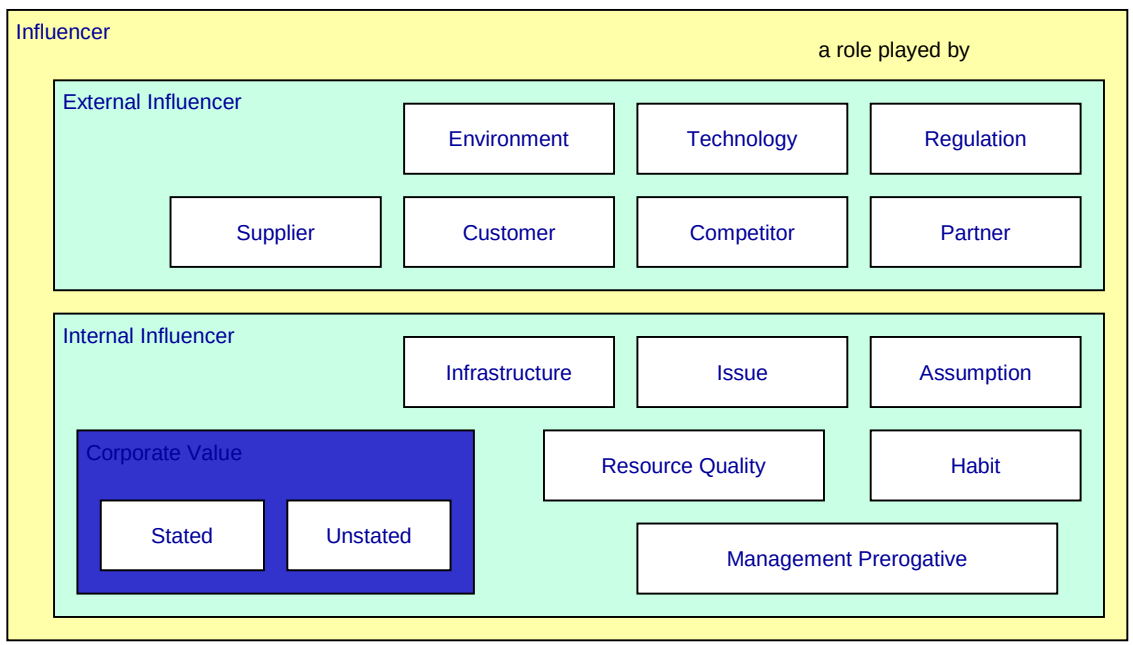
Business Motivation Model (BMM)



Business Motivation Model (BMM)

- Adopted by OMG at their Tampa meeting in Feb 2006

  www.omg.org/docs/bmi/05-12-03.pdf
- Used in business modeling projects the US, UK and Switzerland
- Originally published by the Business Rules Group in Nov 2000
- First BMM version presented to OMG in March 2004



BMM Provides Structure

- Captures business strategy elements
  - ✓ Vision, mission, goals, objectives, tactics, influences and policies
- Maps to relevant elements in other business models
  - Rules, processes and organization units
- Helps to justify why a business has its business rules and concepts
- Helps to organize business plans and to monitor their effective execution

BMM Supports Regulatory Compliance

- Captures, centralizes and organizes
  - ✓ Corporate and legal guidelines
  - ✓ Business policies
  - ✓ Corporate behavior influencers
  - ✓ Operational risks
- Audits information
  - ✓ Lineage
  - ✓ Stewardship
  - ✓ Quality

BMM Supports Business Rules

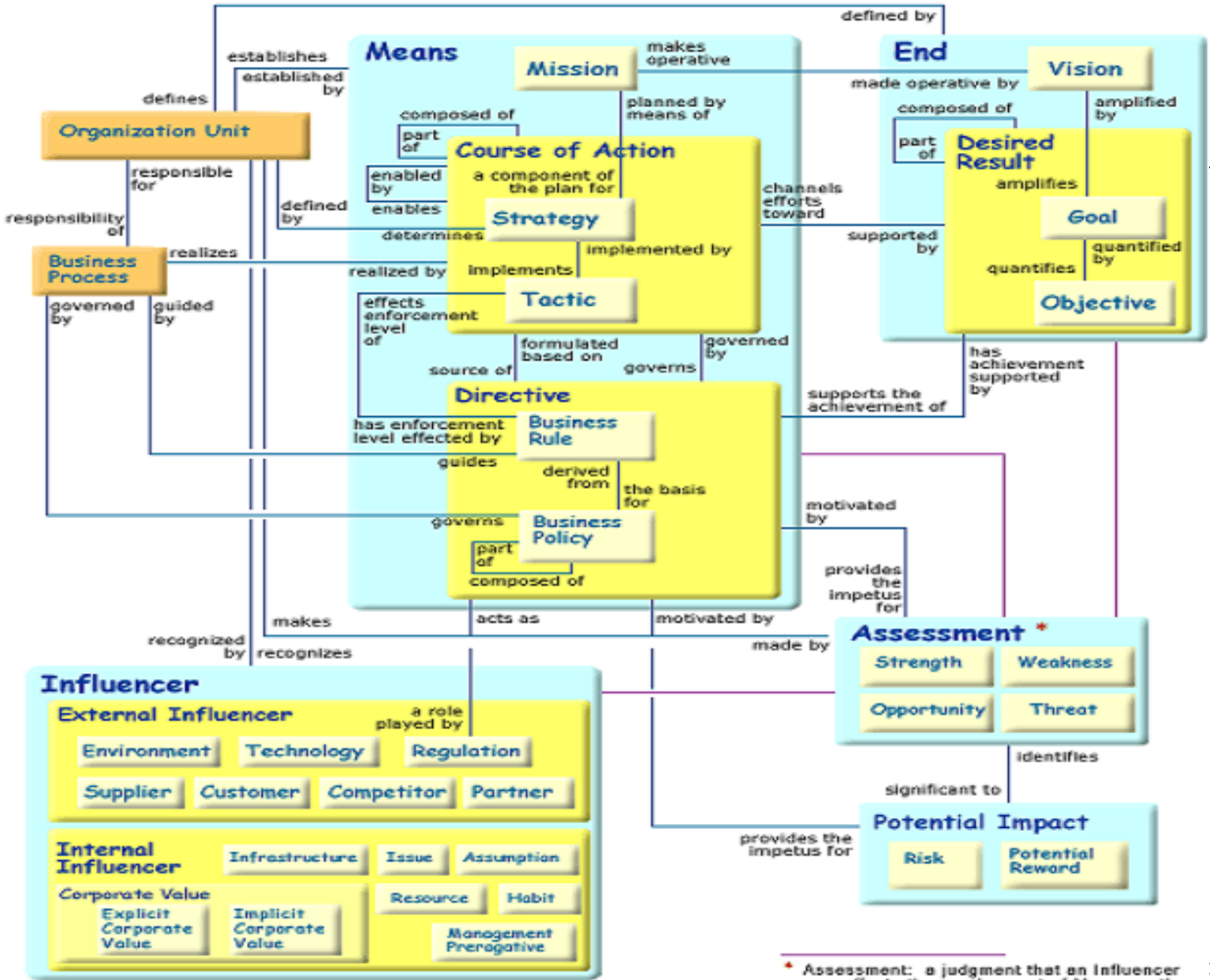
- Rules in BMM
  - ✓ Are actionable and followed by people
  - ✓ Can be broken and require enforcement mechanisms
  - ✓ Are not necessarily automated

    Perhaps cannot be automated
- A ***static constraint*** imposes a restriction on what fact populations are possible or permitted
  - ✓ e.g. Each Employee was born on at most one Date.
- A ***dynamic constraint*** imposes a restriction on transitions between fact populations
  - ✓ e.g. a person's marital status may change from single to married, but not from divorced to single

BMM Promotes Readiness

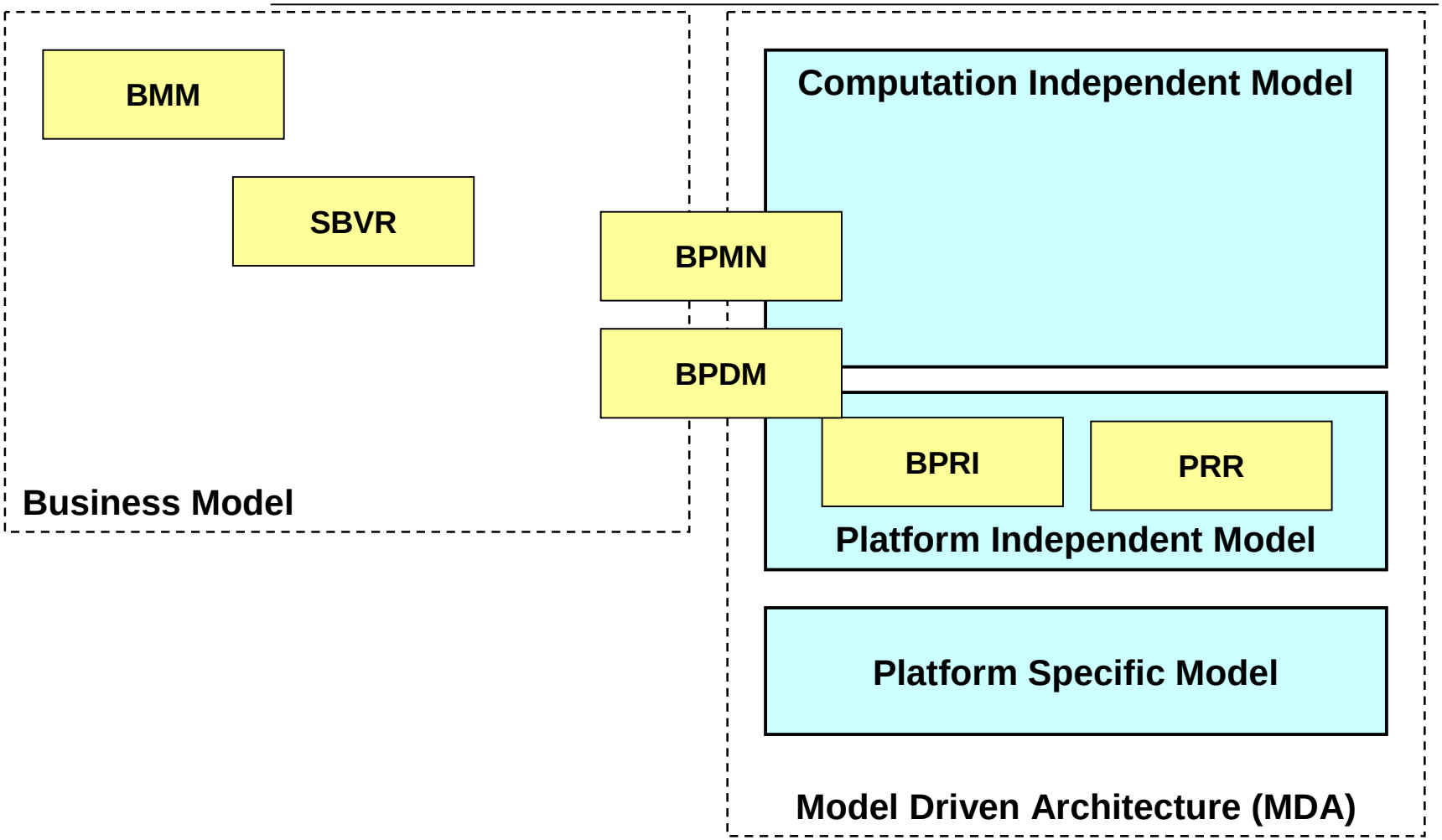
- Enables the business to react to changes in the environment
  - ✓ e. g. Regulatory requirements
- Provides the business to insight to determine strategic moves
  - ✓ Maintain current position, withstanding threats and risks
  - ✓ Expand to new products/territories while retaining current business model
  - ✓ Create new business models

Business Motivation Model Diagram

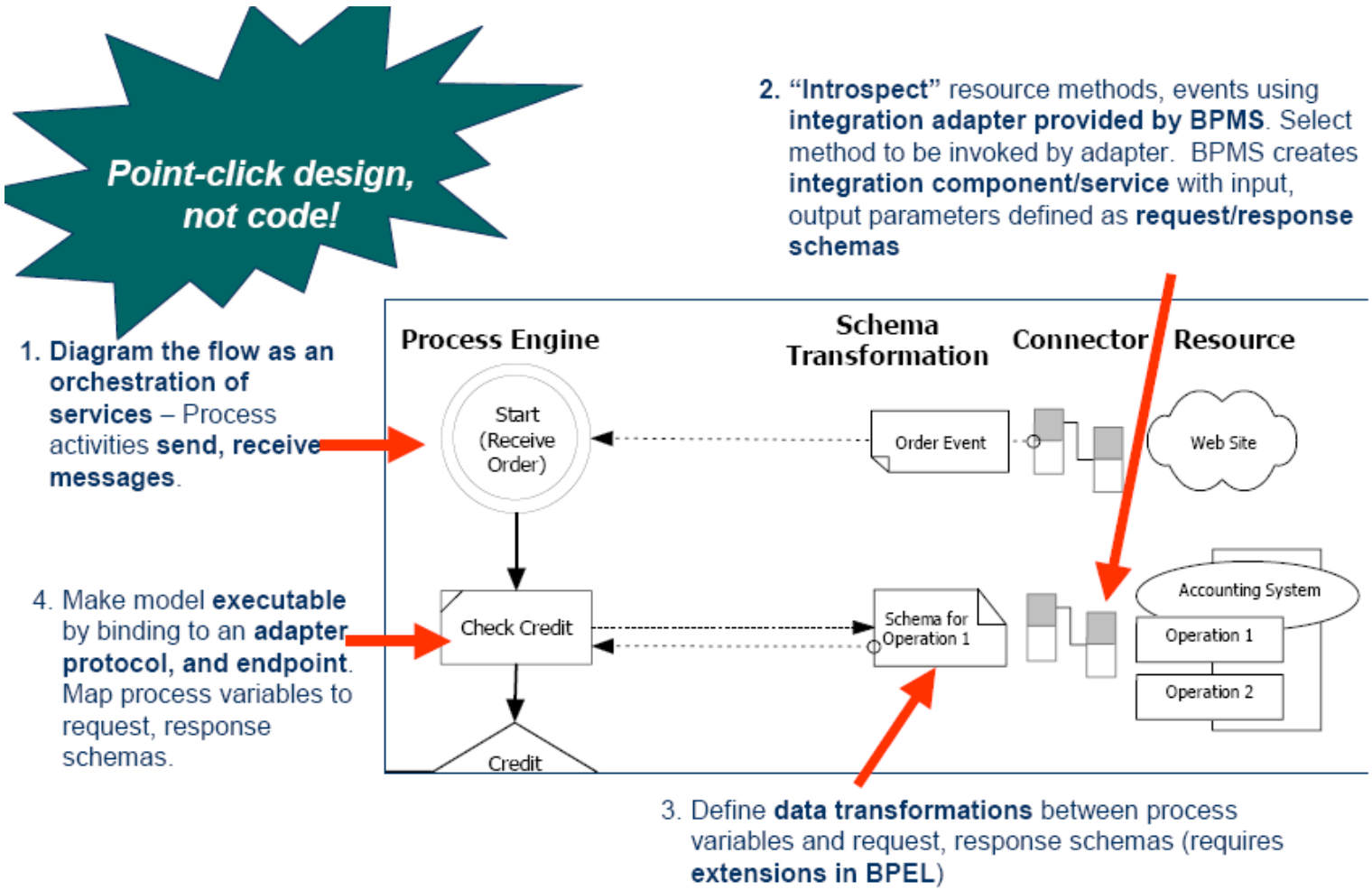


* Assessment: a judgment that an Influencer affects the employment of Means or the achievement of Ends

BMI Standards Promote Interoperability



BPMS = BPM + SOA = The Agile, Business-Driven Arch



BPMS = BPM + SOA = The Agile, Business-Driven Arch

- Process-Driven SOA connects back-office and partners
- Standards-centered approach promotes interoperability
- IT TOC is minimized and market responsiveness is maximized

To Learn More

- Attend BMI and BPMI TC meetings
  - ✓April 24-28 in St. Louis, MO
- Attend BPM Think Tank
  - ✓May 23-25 in Arlington, VA
- Visit **www.bpmi.org**

Thank You