Business Process Management (BPM)
What is BPM?

- Business Process Management is primarily a business philosophy
  - About *people*
  - The way they work *together* (their business processes)
  - The *performance* objectives that these processes underpin

- At the same time, it is about the *technology* used to make this vision a reality
  - Systems implementation is highly iterative (not waterfall)

- It is a way of running the business (a mind set) that continually drives performance improvement
Why BPM?

“To improve is to change, to be perfect is to change often.” (Winston Churchill)
BPM Innovation

- BPM enables a company to cost-effectively and quickly model and change its business processes to meet the specific needs of the business
- BPM products make integration with other applications easy
- BPM is an ideal approach for automating processes that require information from multiple enterprise applications
- BPM facilitates the flow of information among these legacy systems can often provide significant productivity improvements
BPM Life Cycle is the set of activities which constitutes the foundation of business process management methodology.
Process Discovery

➢ The activity encompasses the “discovering”, identifying and documenting your processes, surprisingly the things that you do on a daily basis. Organizations reported that more than a third of the time spent in their BPM projects went towards “process discovery” (Harmon, Wolf: The State of BPM 2008)

➢ Steps

  ▪ Identify the right people
  ▪ Ask the right questions
  ▪ Depict the “As-If” Process
  ▪ Sunny-day vs Rainy-day scenario
    - Happy & Exceptions paths
Process Design

- The activity encompasses the design of the "to-be" process. Areas of focus include: representation of process flow and actors, alerts & notifications, escalations, standard operating procedures, Service Level Agreements, and task hand-over mechanisms.

Steps

- Modelling
  - BPMN & Web-based Collaboration

- Simulation
  - Resource Allocation
  - Flow branches and events probability
  - "What-If Analysis"
  - Historical Data Use

- Implementation
  - Workflow Modelling & Data
  - Participant Management
  - User Interface Design
  - Application Integration
BPM Life Cycle

Process Execution

- BPM system enables the full business process (as developed in the process design activity) to be defined in a computer language, mainly XML-based (i.e. BPEL, XPDL), which can be directly executed by the computer. The system will either use services to perform business operations and forms for requesting a human input.

- Basic Features
  - Process Instance Mgmt
  - Worklist Mgmt
  - Web Form Interaction
BPM Life Cycle

Process Monitoring

- Monitoring encompasses the on-line tracking of individual processes so that information on their state can be easily seen and statistics on the performance of processes provided.

- Measures
  - state of process
  - cycle time (active vs wait)
  - defect rate
  - productivity
Process Optimization

- The activity includes retrieving process performance information from modeling or monitoring phase and identifying bottlenecks and potential rooms for cost savings or improvements in order to apply enhancements to the design of the process thus continuing the value cycle of business process management.

- Basic Features
  - Detection of bottlenecks, underutilized resources, etc.
Some BPM User Perspectives

- **Worker Perspective**
  BPM represents units of work from the business process as tasks; each task contains work instructions, status, priority, due date and other attributes.

- **Manager Perspective**
  Managers and executives use BPM to monitor process performance by viewing graphical reports that summarize task status and alert them to process bottlenecks.
The architecture of the system that supports the BPM Life Cycle

**The Old Way**

- **Performance Management**
  - Dashboard
  - Analytics
  - BAM

- **Process Modelling**
  - Flow
  - Resources/costs
  - KPIs
  - Simulation analysis

- **Process Implementation**
  - Flow
  - Resources
  - Data
  - Business rules
  - Forms
  - Integration

- **Integration Framework**

- **Business Systems**
  - ERP
  - CRM
  - EJB
  - Legacy

- **User**

**The New Way**

- **BAM Engine**

- **Performance Data**

- **Business Requirements Document**

- **Integration adapters**

- **Human Workflow**
Standards Organizations

- **Object Management Group (www.omg.org)**
  - Business Process Modeling Notation (BPMN)
  - Business Process Definition Metamodel (BPDM)

- **Workflow Management Coalition (www wfmc.org)**
  - XML Process Definition Language (XPDL)

- **OASIS (www.oasis-open.org)**
  - Driving the adoption of global e-business standards
  - ebXML
  - Business Process Execution Language (BPEL)

- **W3C (www.w3c.org)**
  - Open, collaborative review process
  - SOAP, WSDL, core XML specifications
  - Web Services Choreography Description Language (WS-CDL)

- **WS-I (www.ws-i.org)**
  - Interoperability of WS technologies and standards
  - WS-I Basic Profile
BPM Standards

Business Process Modelling Notation (BPMN)

- A standardized graphical notation for drawing business processes whose primary goal was to provide a notation readily understandable by all business users, from the business analysts to the technical developers, and finally, to the business people who will manage and monitor those processes.
- Collaborative B2B vs Internal business processes / High vs Low Level
- Currently no definition for storage or exchange of business processes
- Started within the Business Process Management Initiative (bpmi.org)
- BPMI merged with OMG in mid 2005
- OMG Final Adopted version of BPMN published February 2006
- BPMN 1.1: OMG Specification, Feb 2008
- BPMN 2.0: Business Process Model and Notation will also define a meta-model, interchange format and choreography
BPM Standards

XML Process Definition Language (XPDL)

- Workflow Management Coalition (WfMC) standard
- A format for business process definition interchange
- Addresses both the graphics and the semantics
- XML-based business process models that can be executed, stored, and exchanged
- Currently the best file format for exchange of BPMN diagrams
- XPDL 1.0 was ratified by the WfMC in 2002
- XPDL 2.0 was ratified by the WfMC in Oct 2005
- XPDL 2.1 was ratified by the WfMC in Apr 2008
BPM Standards

Business Process Execution Language (BPEL)

- An orchestration language for specifying business process behaviour based on Web Services
- Executable vs. abstract business processes
- XML-based business process models that can be executed, stored, and exchanged
- No graphical notation
- Originally called Business Process Execution Language for Web Services (BPEL4WS)
- Convergence of XLANG and WSFL
- BPEL 1.0 jointly developed by IBM, BEA, SAP, Siebel, and Microsoft – published in August 2002
- BPEL 1.1 submitted to OASIS in April 2003
- BPEL 2.0, OASIS standard April 2007
Business Rules sharpen the Business Tactics (or Policies) because they make Courses of Action concrete at the operational level. Business Rules can also provide specific remedies when a Course of Action fails, and specific resolutions to conflicts that inevitably arise among the Ends. In short, Business Rules provide the leverage needed for building effective, adaptable business solutions and systems.

**BMM Concepts in SBVR**

**business policy is basis for business rule**

Synonymous Form: **business rule is derived from business policy**

**business rule**

Definition: **directive** that is actionable

Definition: SBVR: rule that is under business jurisdiction

Dictionary Basis: one of a set of explicit or understood regulations or principles governing conduct or procedure within a particular area of activity: a law or principle that operates within a particular sphere of knowledge, describing or prescribing what is possible or allowable standard on which a judgment or decision may be based

Note: 'Actionable' means that a person who understands a **directive** could observe a relevant situation (including his or her own behaviour) and decide directly whether or not the business was complying with that **directive**. In contrast to **business rules**, **business policies** are not actionable in that sense

Note: A rule is a claim of obligation or necessity

Note: A **business rule** is: highly structured; discrete; atomic; carefully expressed in terms of standard vocabulary

**business rule guides business process**

**tactic effects enforcement level of business rule**

Synonymous Form: **business rule has enforcement level effected by tactic**
Types of (Business) Rules

- Operative rules (deontic modality)
  - it is (not) obligatory that $p$
  - it is (not) permitted that $p$
  - it is prohibited that $p$
  - it is permitted but not obligatory that $p$ (optionality)

- Structural rules (alethic modality)
  - it is (not) necessary that $p$
  - it is possible that $p$
  - it is impossible that $p$
  - it is possible but not necessary that $p$ (contingency)

- Production rules
  - if $p$ then $q$

- ECA rules
  - on Event if Condition do Action (reactive rules)
  - when Condition do not Action (inhibition rules)

Basic Propositions
Es: each car of a rental has at least 2 rental_driver
Rule Driven BPM is based on expressing in natural language decisional criteria in order to automate the criteria evaluation.

The evaluation of rules is performed by a Rule Engine which offers its services to the Workflow Engine.
Business vs Routing Rules

**Business Rules**
- Implement Decision Logic
  - Result returns data to process
- Executed in separate BRE
- Rules apply across processes
  - Traceable via repository
  - Managed centrally for the organization
- Changing the rule takes effect immediately, without redeploying process version
- Business users can change (via rule management application)

**Routing Rules**
- Implement Flow Logic
  - Result determines branch
- Executed in process engine
- Rules apply in a single process activity
  - Not managed as corporate policy
- Changing the rules means versioning, redeploying the process model
- Business users can’t change (requires access to executable design application)
Tools: BPA vs BPM

Business Process Analysis
- As-Is vs To-Be
- Organizational, Process, Data, KPI model
- COTS solutions
- Simulation, executable design starting from process model
- Proprietary methodology

Business Process Management
- Just the activity flow
  - No organizational model
  - No data model
  - No KPI model
- Standardised
- Open-source tools
- Simulation, executable design starting from process model
- No “methodology”
Tools: Gartner’s Magic Quadrant (2009)

Business Process Management systems

Business Process Analysis tools

As of 10/1/08

As of January 2009
## Tools: An independent BPM review

### Process Types

<table>
<thead>
<tr>
<th>Human Centric</th>
<th>Features</th>
<th>Examples</th>
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| Production Workflow | Maximize labor productivity | - Business-empowered implementation  
- Dynamic task assignment from shared queues  
- Performance measured by worker productivity  
- Forms and screenflows in rich UI | Customer service  
Paper health claims  
Accounts payable  
Order Management |
| Case Management | Resolve cases collaboratively | - Ad hoc task creation and assignment  
- Case folder for shared access to data, documents, tasks  
- Collaborative document editing, threaded discussions  
- Focus on quality and effectiveness, not speed, cost | Disability claims  
Underwriting  
New product launch  
Loan, mortgage |
| Integration Centric | Business integration | - Message-based (async) integration  
- High automation and event-triggered process behavior  
- Human tasks for approvals and exception resolution  
- Real-time performance management | Online sales  
EDI health claims  
Trade settlement  
Telco provisioning |
Tools: An independent BPM review

Rankings

Human-centric

Case Management is yet an immature segment of human-centric BPM