Business Architecture, SOA & BPM

- Learn about SOA and Business Process Management (BPM)
- Learn how to build process diagrams using business process modeling notations (BPMN), and more.
- Touch existing BPM tools:
  - IBM Lombardi, TIBCO BPM Studio, Oracle BPM
- Learn about enhancing BPM via Conversational Semantic Decision Support, while working with Business Architecture Sandbox for Enterprise (BASE)

What is SOA and Business Architecture?

Architecture:

-The art and science of designing complex systems

-Provides high level views of a complex system

SOA:

-Service Oriented Architecture focuses on enterprise software services reused for multiple applications

Business Architecture:

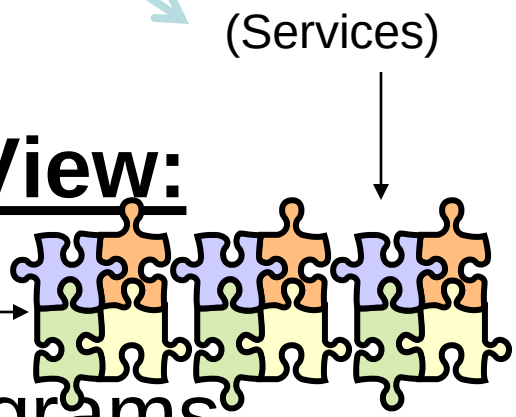
- Looks at a system from business perspectives

- Provides business product and process views

- A collaborative ground for enterprise architects and business analysts

Business Architecture Views
Answer the questions: What and How

- **Business Architecture/Product View:**
- Products Lines – Products – Features **(What)**



- **Business Architecture/Process View:**
- Business Process **(How)**
- Business Process or Workflow Diagrams connect business functions/services into applications

A common approach to Transportation Services

FAA Services

UNITED

Airline Services

Sea Port Facility Services

Airport Facility Services

Onboard Services

In the Net-Centric Architecture every airport, airline, seaport, plane, train, or ship is a ***Service Agent,*** which can produce and consume services

- **List Services**
- **Order Services**
- **Register Services**
- **Subscribe to Services**

Service Centric Mentality

Business Process

(use)

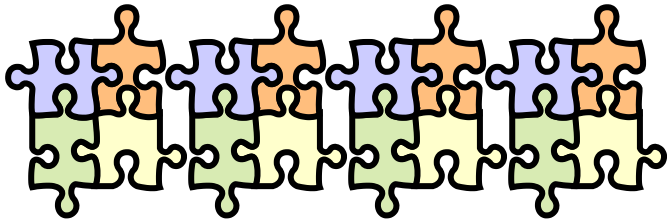
Business Services

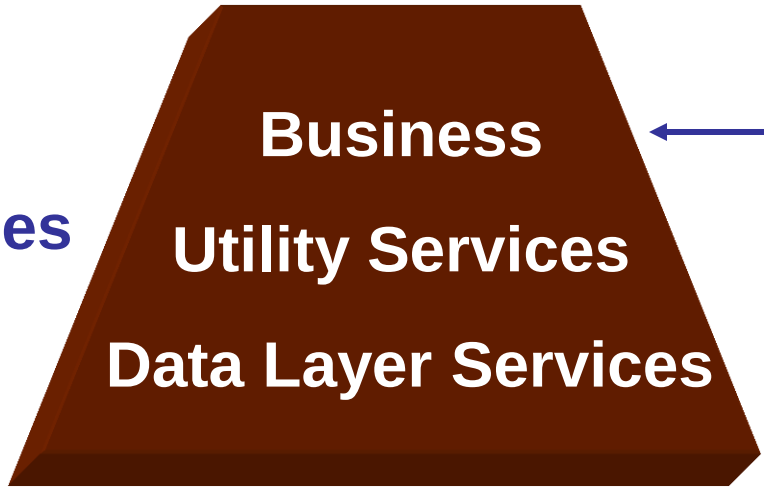
(use)

Integration and Internal Services

(use)

Data Layer Services





Business Architecture/Product View:

Product Lines – Products – Features

Technology Architecture: Business Services

With SOA from Applications to Service Scenarios

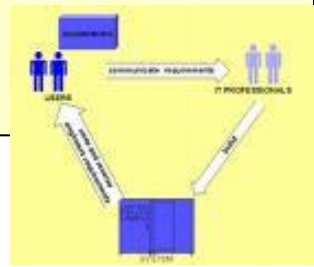
```
<scenario name="Order" type="CompositeService">

<action scenario="Login" result="UserID" />

<action scenario="GetOrderData(UserID)"
        result="OrderID" />

<action scenario="PlaceOrder(UserID,OrderID)" />

</scenario>
```

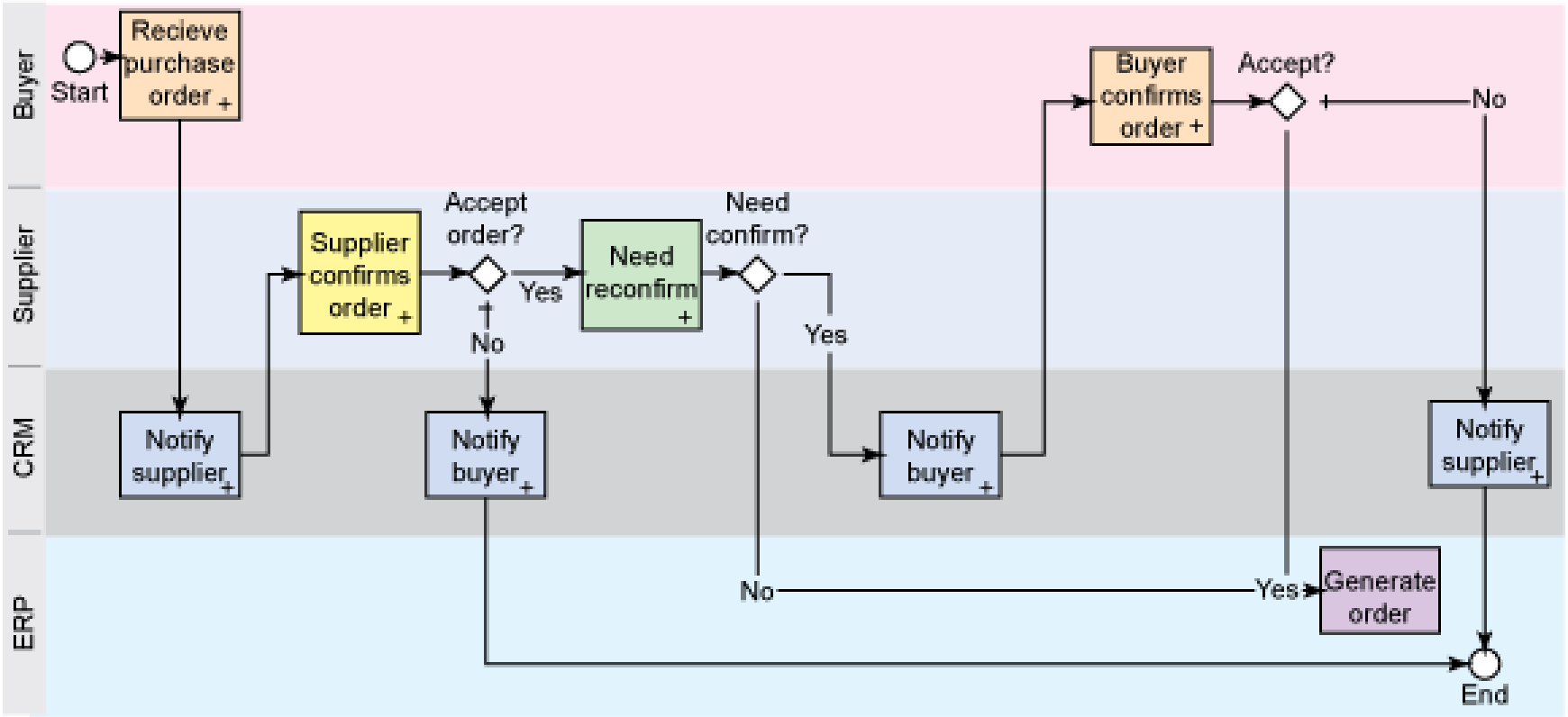


NEXT:

1) Allow Subject Matter Experts to Define the Rules

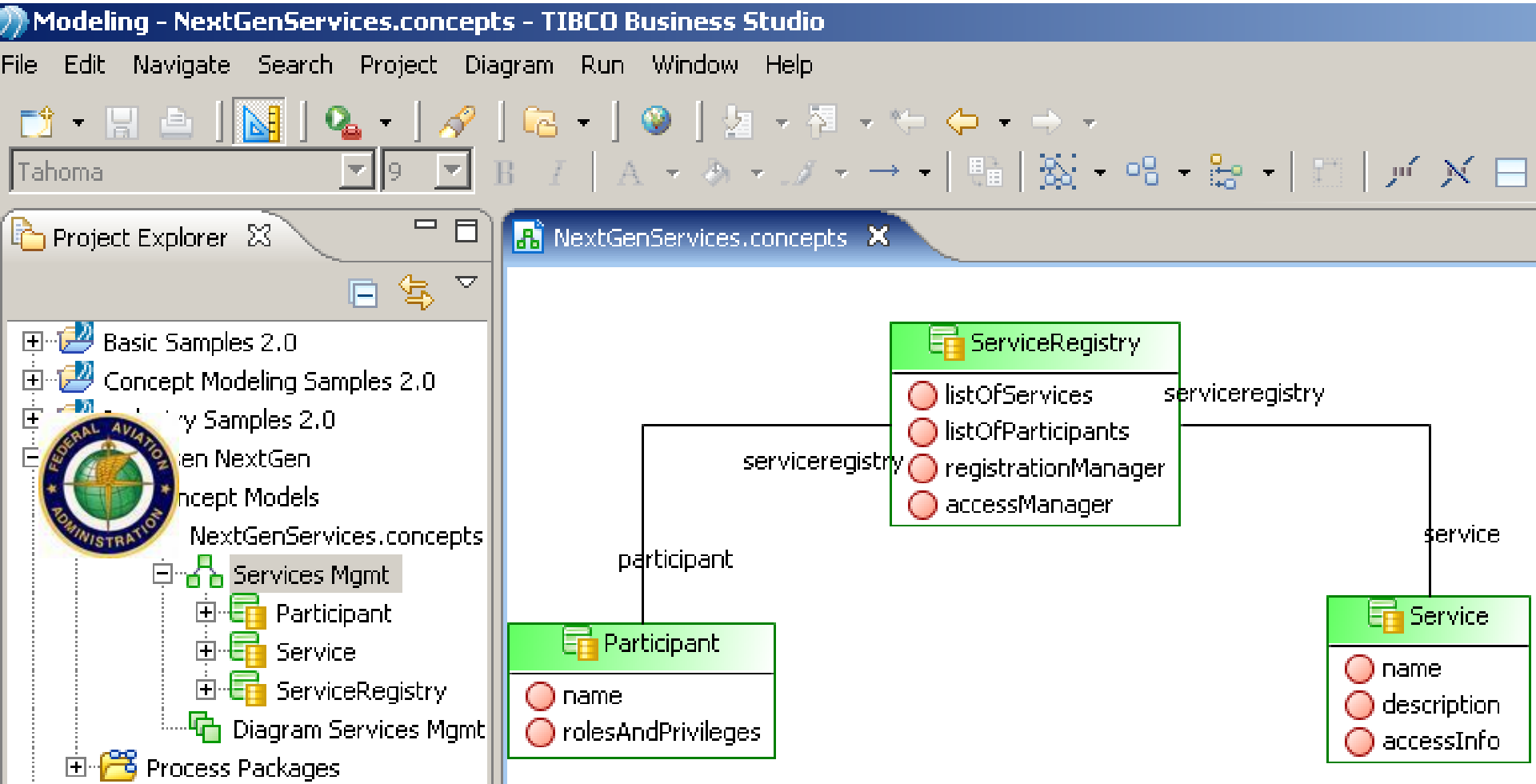
2) Map business descriptions to existing services (semantics)

Modeling Business Process as a Set of Connected Services
Example: Order Process*

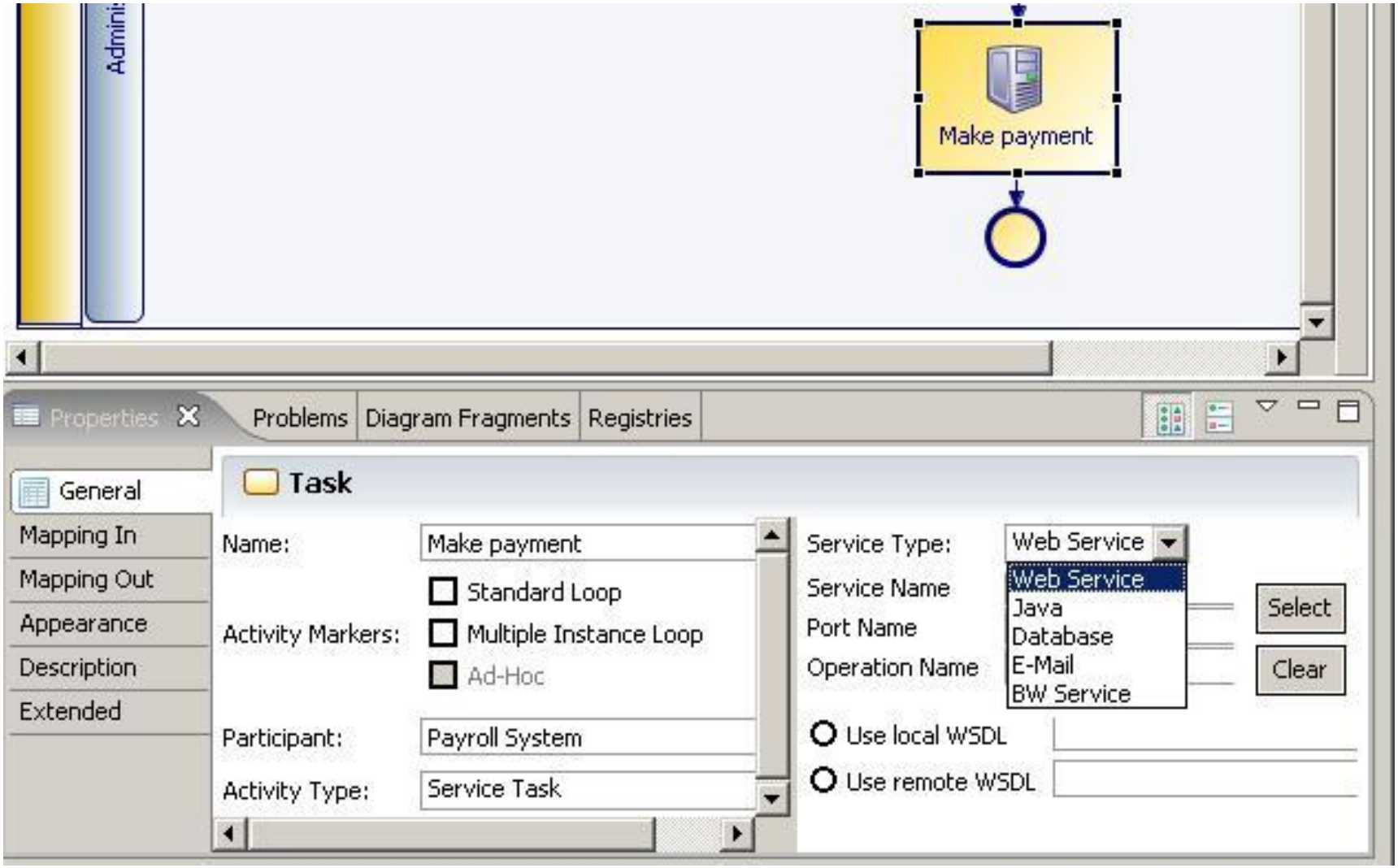


***From IBM Lombardi Tutorial:**
http://www.ibm.com/developerworks/websphere/library/techarticles/1101_wang/1101_wang.html

Business Process Management
FAA Next Gen Service Registration Example (with TIBCO BPM)

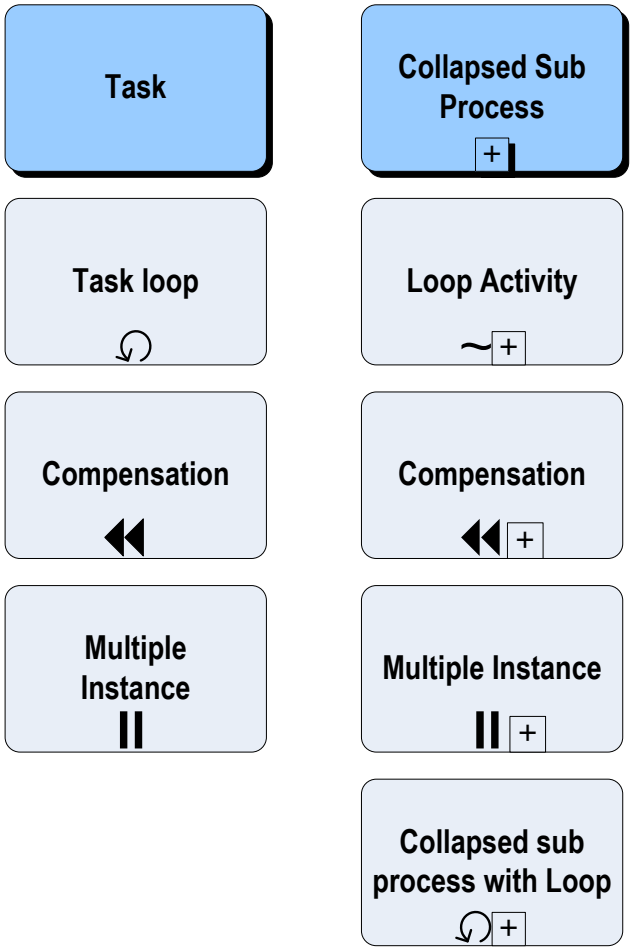


Connect Model To Reality (existing services) and Make it Work

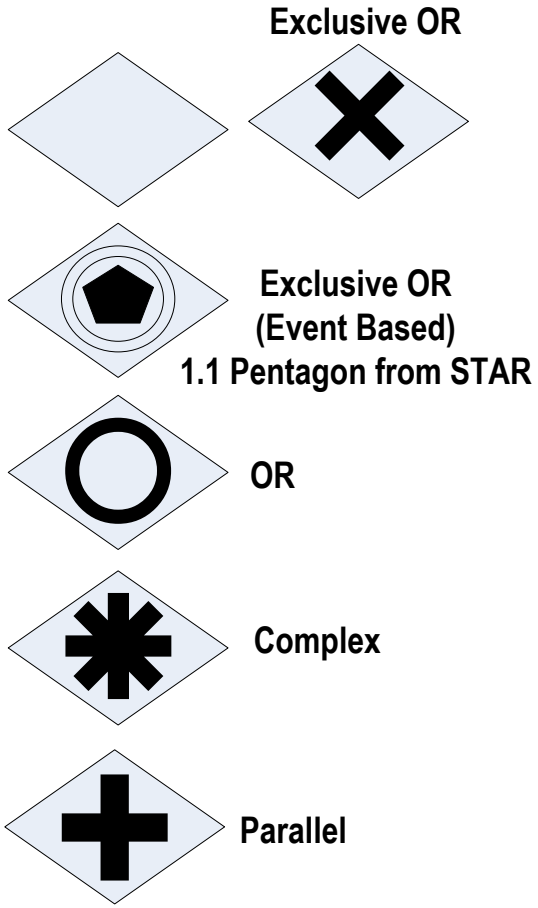


BPMN

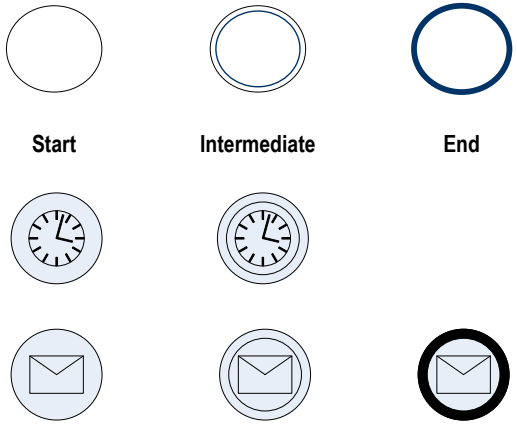
Activity



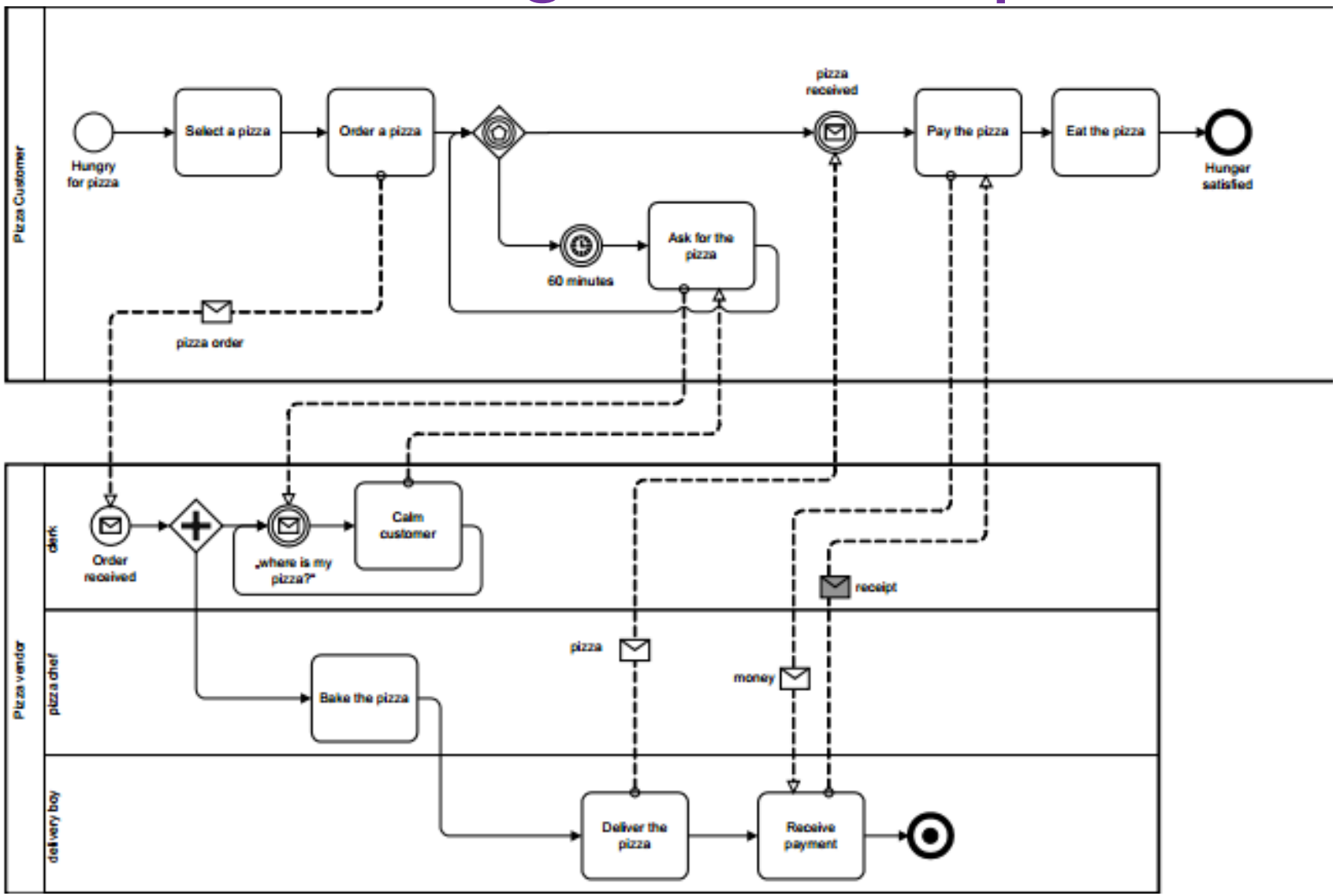
Gateways



Events



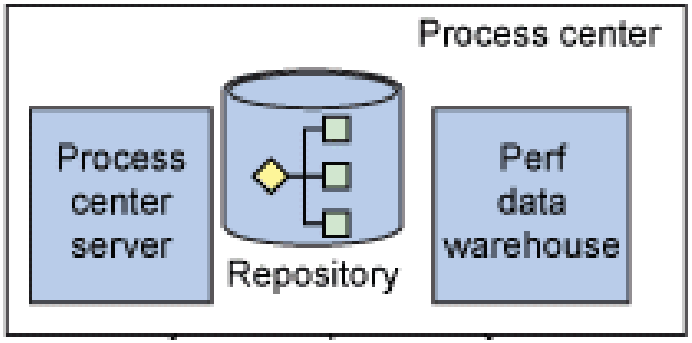
BPM Diagram Example*



*From BPMN 2.0 by Example: http://www.omg.org/spec/BPMN/20100601/10-06-02.pdf

IBM (Lombardi) BPM Components

- **Process Center**
  - A central development environment and repository for multiple process authors working in the Process Center Console and other interfaces.
  - **Includes**:
  - **Process Center Server** that executes the processes and services built in the Authoring Environment
  - **Performance Data Warehouse** that collects process data according to tracking requirements established in Lombardi Authoring Environment.

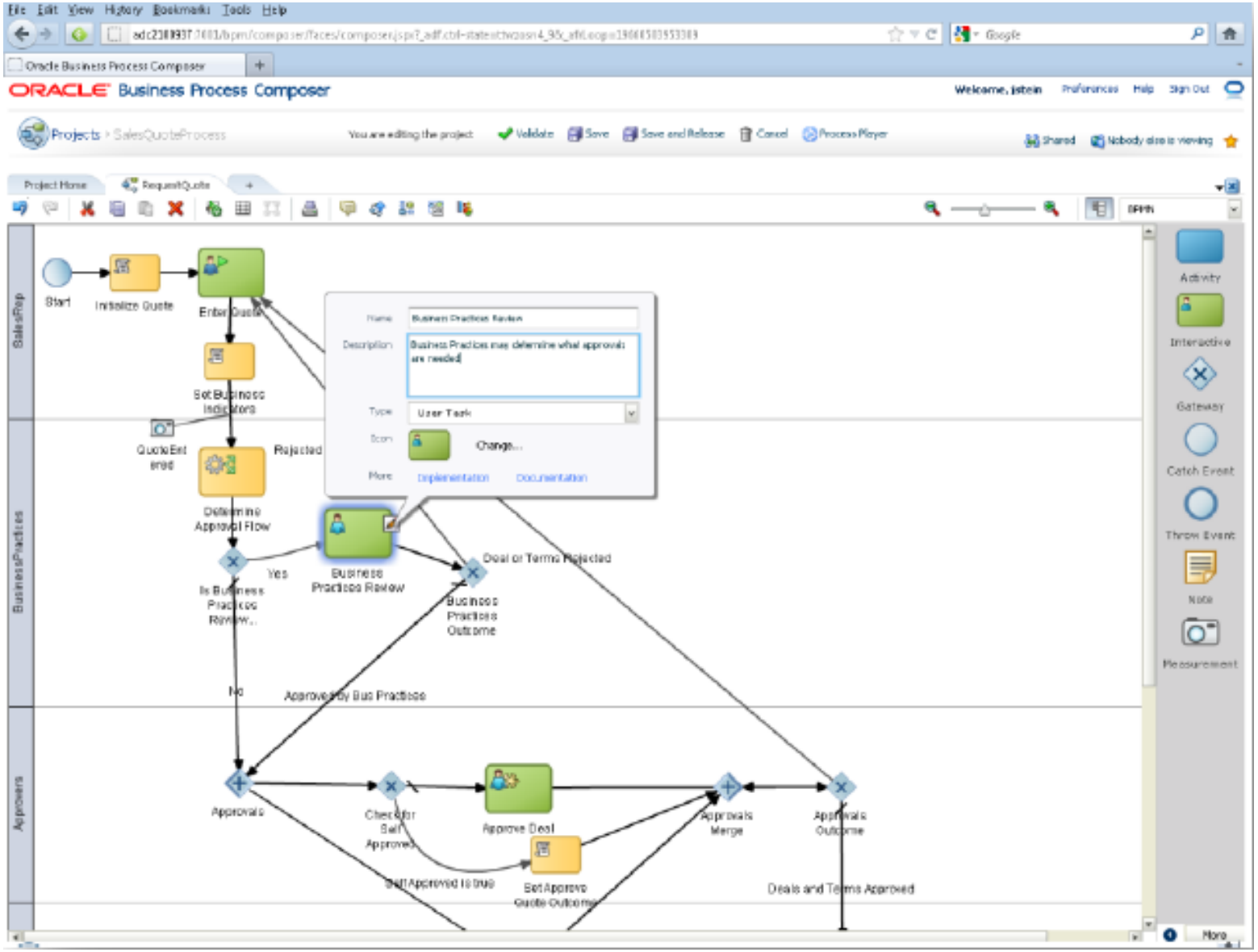


Reference: http://pic.dhe.ibm.com/infocenter/wle/v7r1/index.jsp

Process modeling and management interfaces

- **Actors: Individuals, Groups and System Participants**
- **Authoring Environment**
- **I**nterfaces to model, implement, simulate, and inspect business processes. Authors can create process models, services, and other assets within process applications.
- **Process Center Console**
- Allows users to for create Business Process Definitions (BPD), process applications, General, Integration and Human Services, Rule Services and Toolkits.
- Managing workspaces and snapshots, configuring Inspector (Debugging) and Simulations.
- Enables the installation of applications on Process Servers in runtime environments.
- **Process Admin Console**
- Enables administrators to configure and maintain the Process Servers in any configured runtime environment, such as staging, test or production environments.
- **Performance Admin Console**
- Enables administrators to configure and maintain Performance Data Warehouses
- **Process Portal**
- Enables process participants to perform assigned tasks, view the history of tasks, and view the performance of their processes and teams.

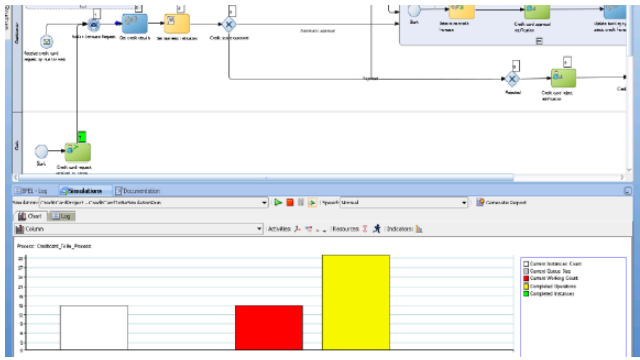
BPM with Oracle Business Process Composer

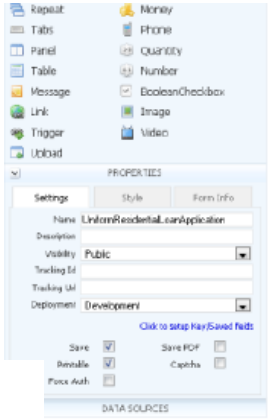


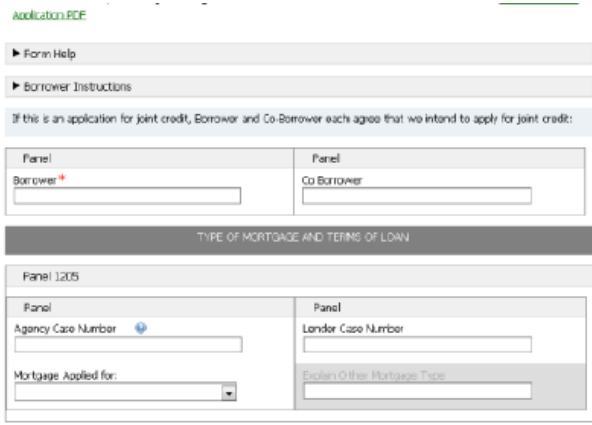
Reference: http://docs.oracle.com/cd/E28280_01/user.1111/e15177/toc.htm

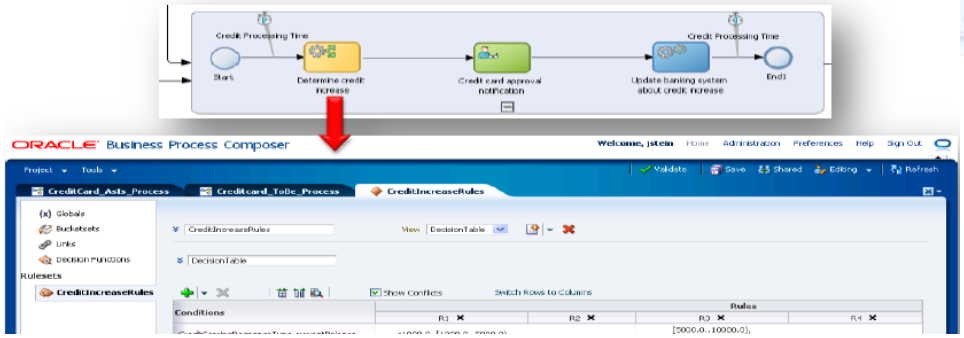
BPM with Oracle Business Process Composer

- **Oracle BPM Supports:**
  - Process Modeling with BPMN 2.0
  - Process Simulation and Analysis
  - User Interface Design
  - Rules Management



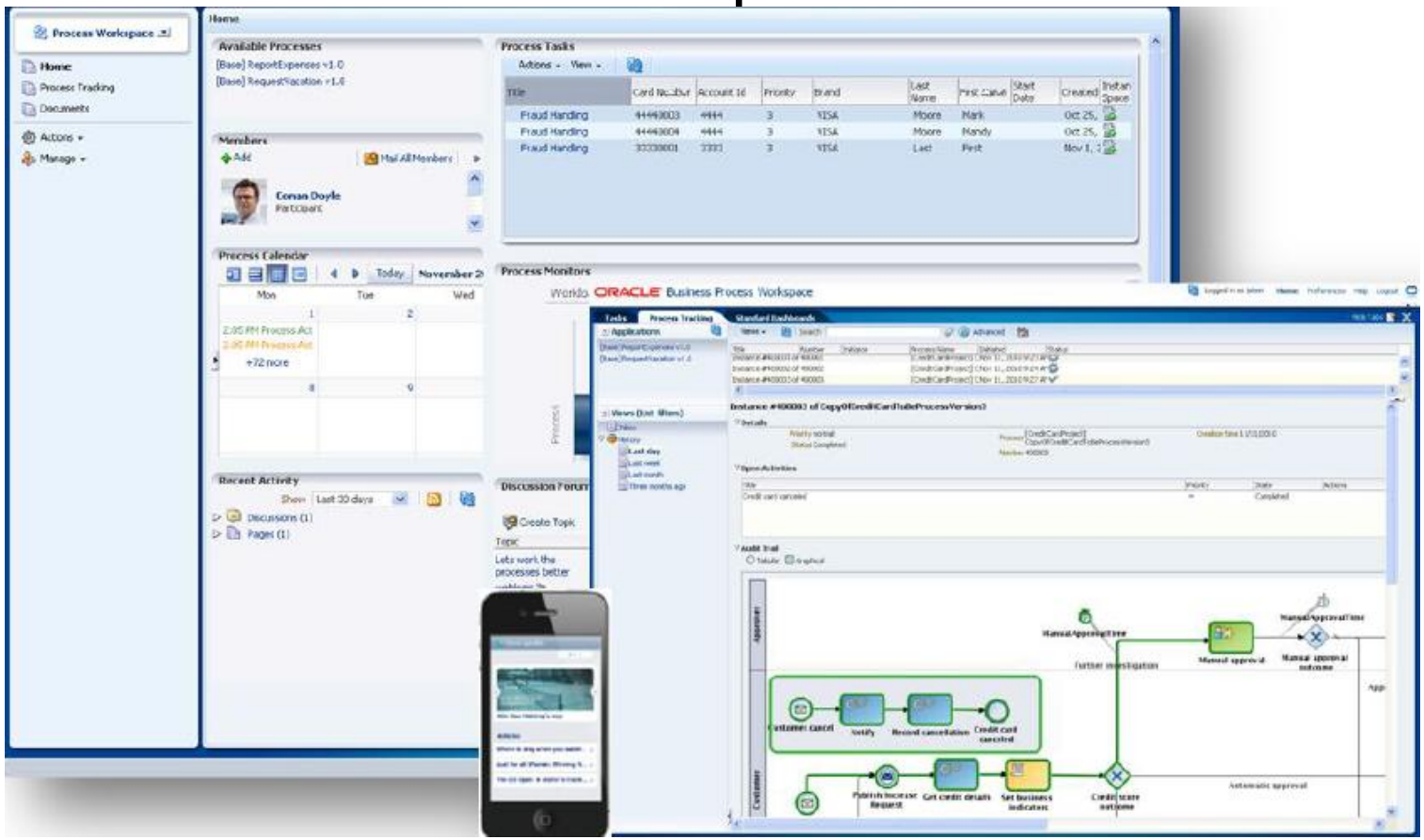




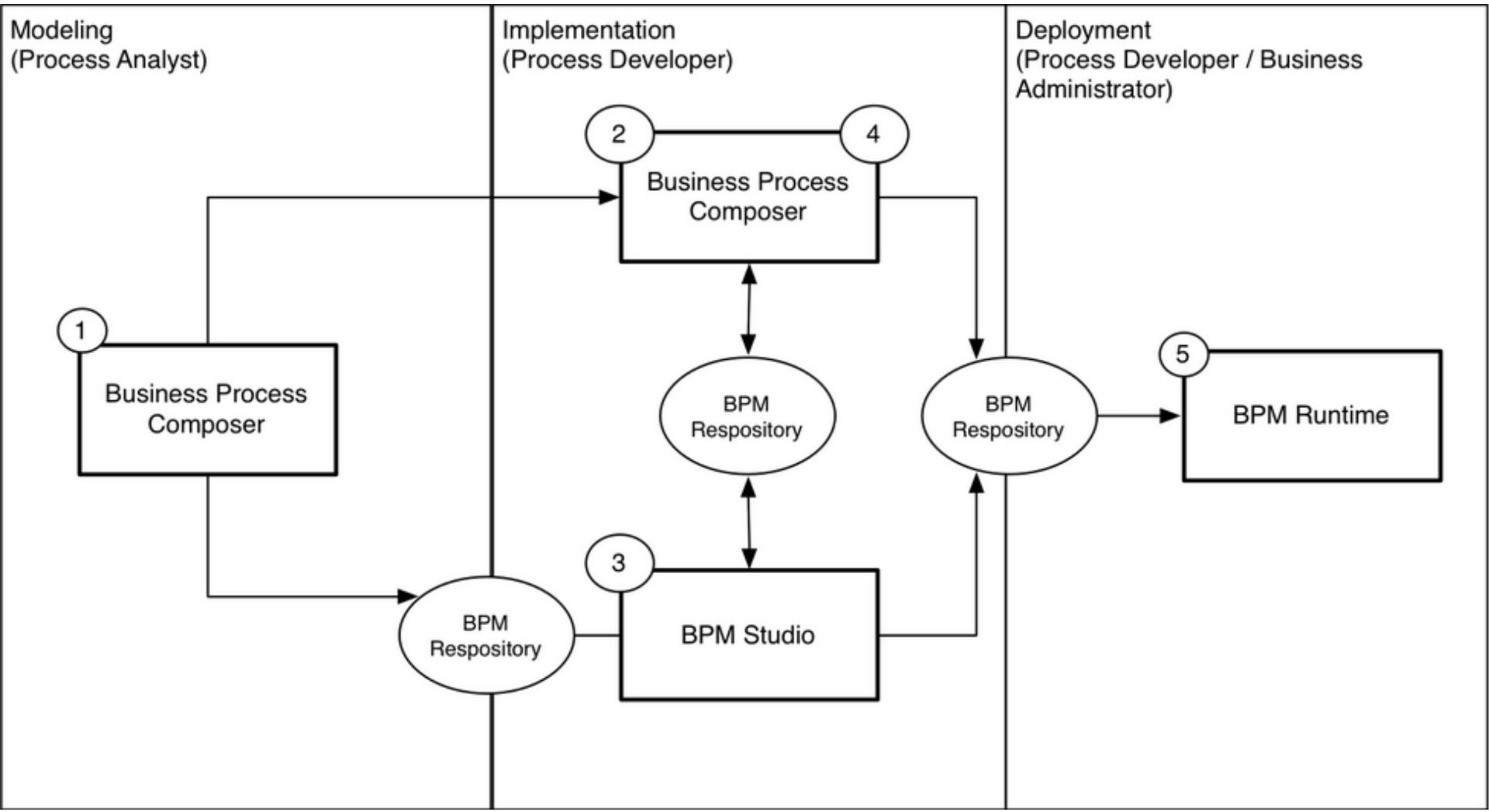


BPM with Oracle Business Process Composer

- **Oracle BPM Supports:**
  - Business and IT Collaboration
  - Web and Mobile Workspaces

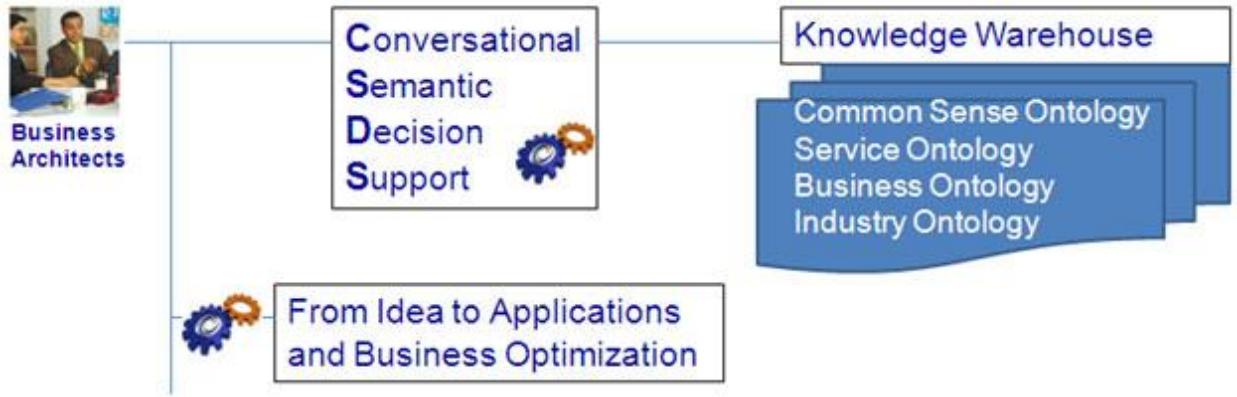


Major Steps in Creating an Application with Oracle BPM



Applying the conversational, semantic approach to Business Process Management (BPM)

- While technology speaks XML and Web Services, business people prefer natural language (NL)
- A conversational semantic decision support can bridge these two worlds and provide mapping between NL and services
- For example, a Business Analyst (BA) writes a line of requirements: “application starts with login.”
- The program would reply “Do you mean the Authentication Service?”

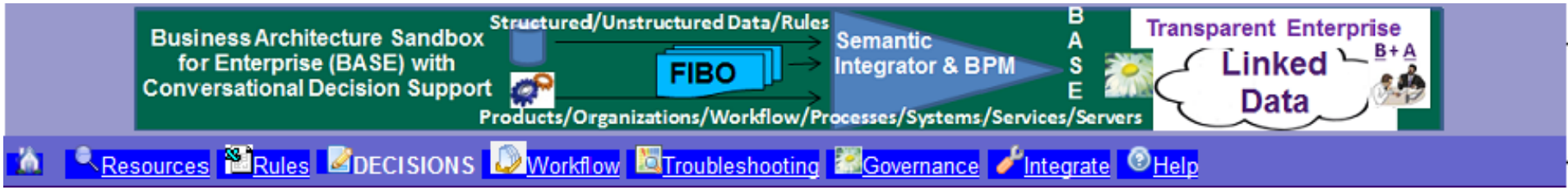


Reference: http://ITofTheFuture.com

Business Architecture Sandbox for Enterprise (BASE)

- BASE* offers to business an easy entrance and a playground to collaborate with IT.

- BASE helps placing the seeds of semantic technology in the current business ground and helps transitioning to Semantic Cloud Architecture.

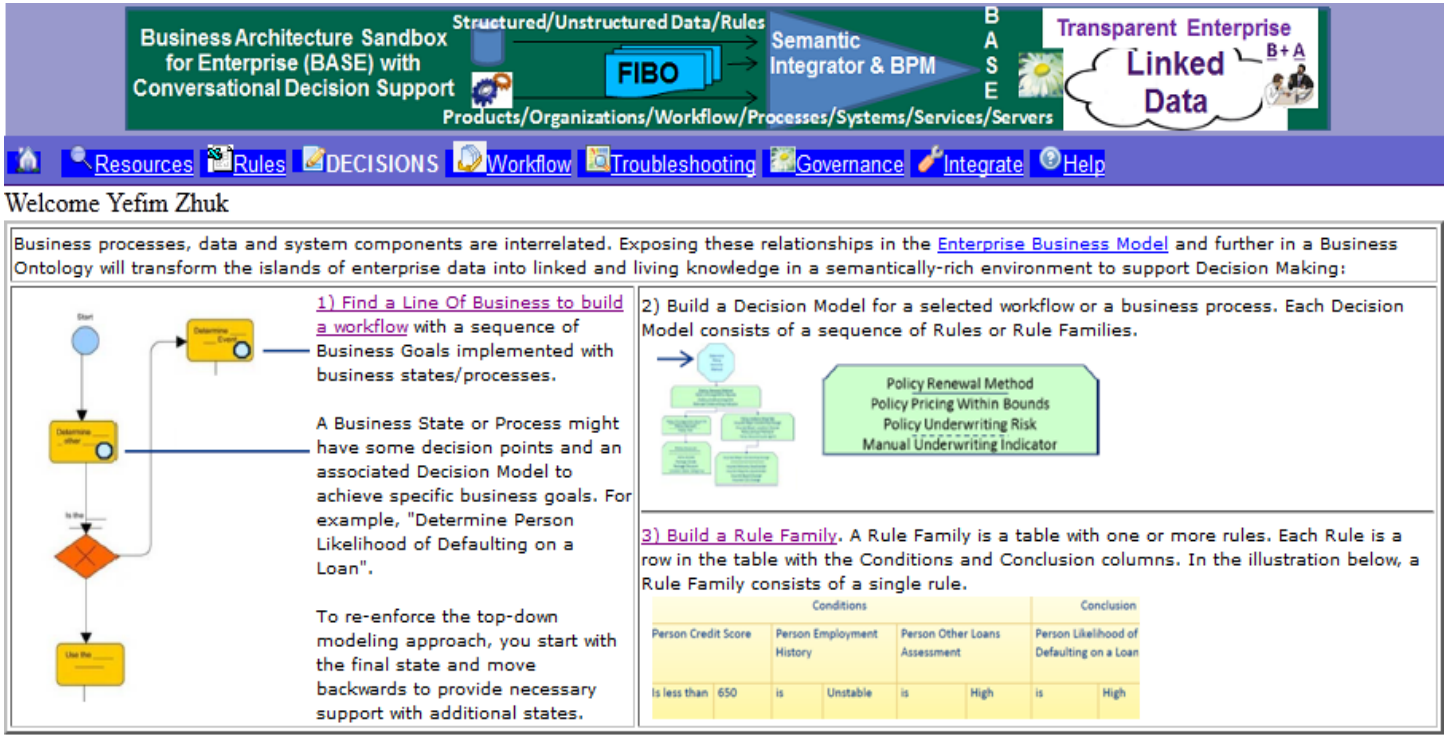


Reference: http://ITofTheFuture.com

Development of Workflow Components within the semantic model

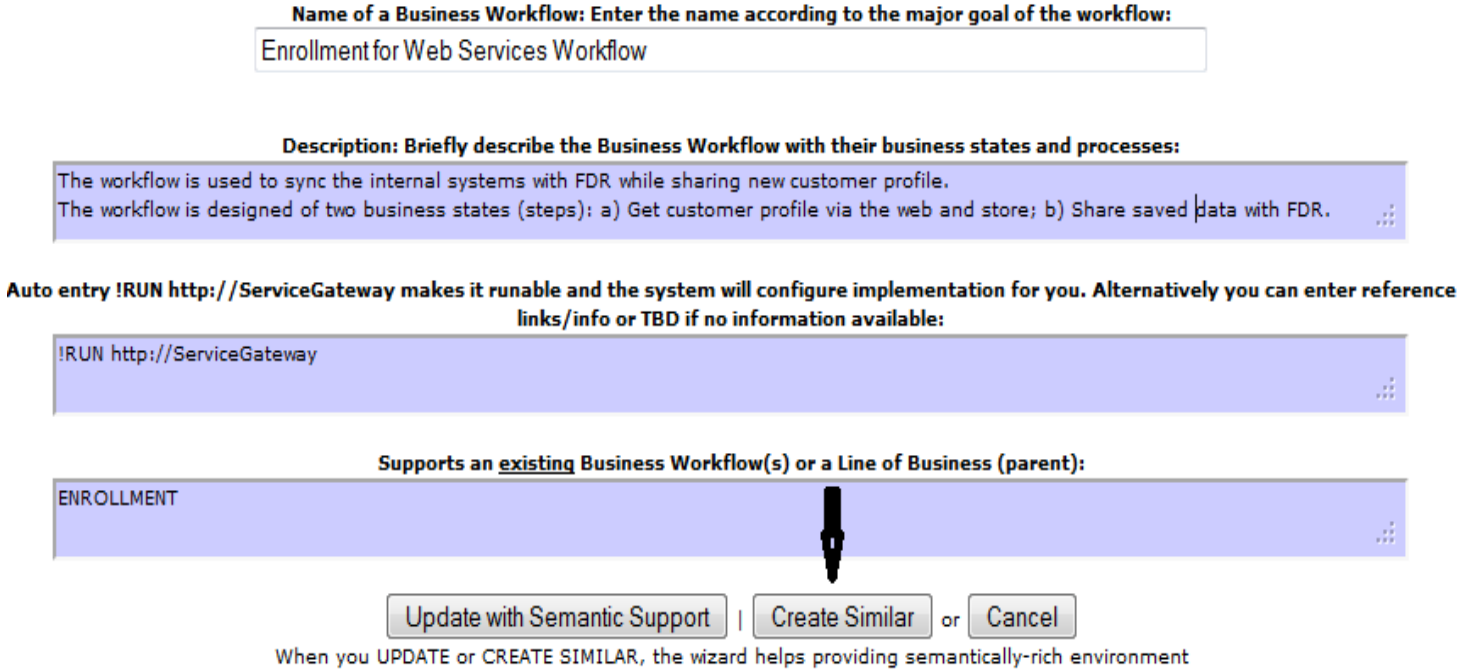
A business analyst can type: “build a new **enrollment** workflow” and the program will display existing workflows and services that can be used for the **Enrollment** workflow.

Then, BASE will start a conversational wizard helping to connect a new component to the existing model and will continue with the development recommendations.



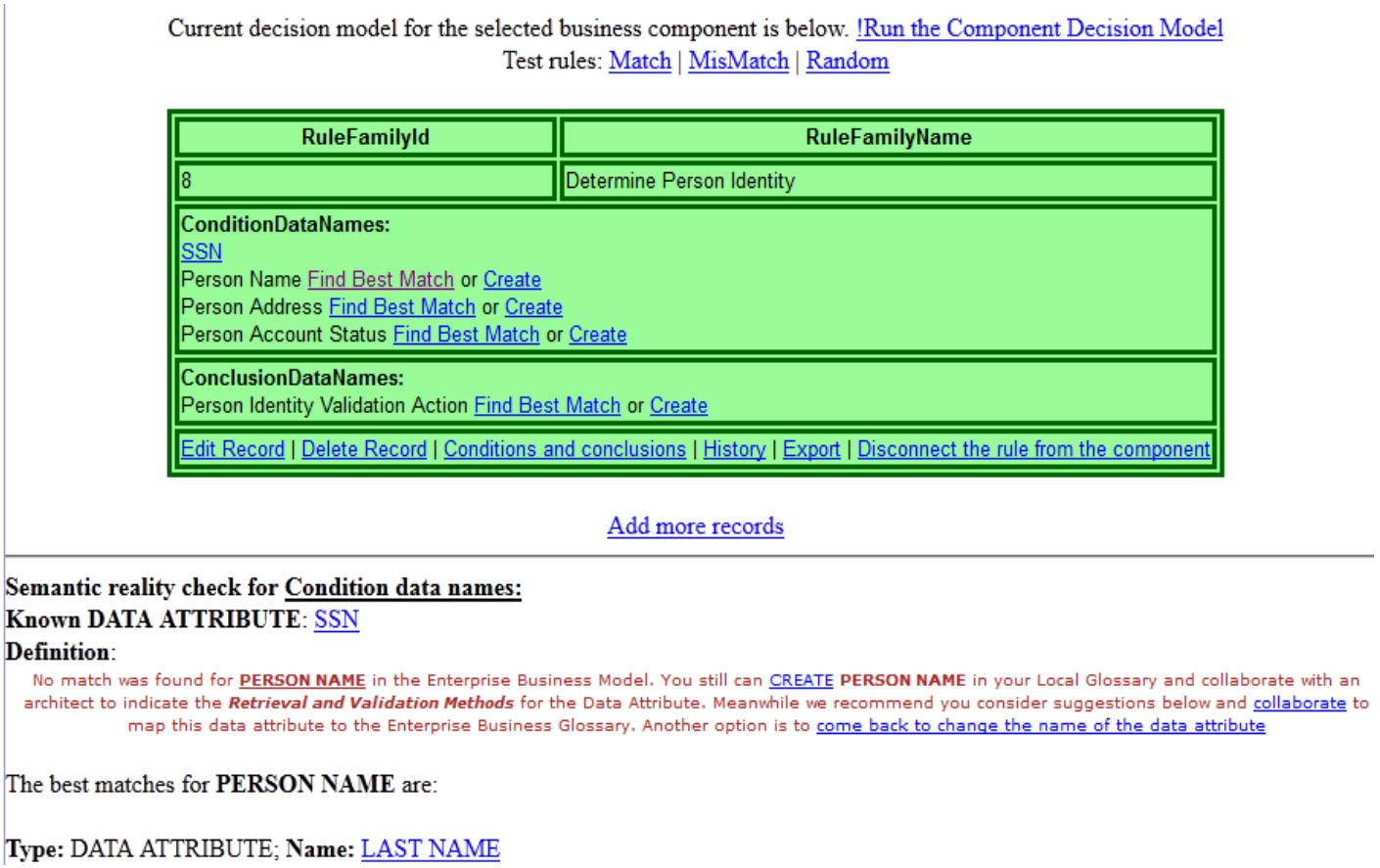
Example: “On Boarding” Workflow

We’ll pick up an existing component, in this case “On Boarding Workflow” and use the EDIT control to customize this component.



We will use the **Create Similar** control to end up with the new component, **Enrollment for Web Services Workflow**, similar to the existing component. We customize the new component and provide a URL to the Service Gateway for Service Registration. Before updating the business state, the program will check for unique and meaningful names, provide automatic linkage to existing enterprise components, and make all changes visible to collaborative communities.

Creating a rule with semantic check



Current decision model for the selected business component is below. !Run the Component Decision Model
Test rules: Match | MisMatch | Random

RuleFamilyId	RuleFamilyName
8	Determine Person Identity

ConditionDataNames:
SSN
Person Name Find Best Match or Create
Person Address Find Best Match or Create
Person Account Status Find Best Match or Create

ConclusionDataNames:
Person Identity Validation Action Find Best Match or Create

Edit Record | Delete Record | Conditions and conclusions | History | Export | Disconnect the rule from the component

Add more records

Semantic reality check for Condition data names:
Known DATA ATTRIBUTE: SSN
Definition:
No match was found for **PERSON NAME** in the Enterprise Business Model. You still can CREATE **PERSON NAME** in your Local Glossary and collaborate with an architect to indicate the ***Retrieval and Validation Methods*** for the Data Attribute. Meanwhile we recommend you consider suggestions below and collaborate to map this data attribute to the Enterprise Business Glossary. Another option is to come back to change the name of the data attribute

The best matches for **PERSON NAME** are:

Type: DATA ATTRIBUTE; **Name:** LAST NAME

The resulting screen displays this rule family and automatically produces the links for running and testing the model. The program provides the semantic reality check for Condition Data Names. Some data attributes, like SSN, are already in the system, and some are not. The program provides recommendations on mapping the data names to similar data attributes, existing in the system, or creating new attributes on-the-fly.

Decision Table based Rules Engine (RE)

List all rules | List all rule-based components | Selected Rule Family is Determine Person Identity (id#8)

The rule family is used by the following components: ENROLLMENT FOR WEB SERVICES WORKFLOW | STORE CUSTOMER PROFILE FROM THE WEB

Conditions				Conclusions	
SSN Edit/Delete Data Name	Person Name Edit/Delete Data Name	Person Address Edit/Delete Data Name	Person Account Status Edit/Delete Data Name	Person Identity Validation Action Edit/Delete Data Name	
Existing Value true Edit Condition	**Existing Value** true Edit Condition	**Existing Value** false Edit Condition	**Valid Value** In Good Standing Edit Condition	Message: Existing account is valid for practical purposes Edit Conclusion	Delete Rule
Existing Value true Edit Condition	**Existing Value** true Edit Condition	**Existing Value** false Edit Condition	**Valid Value** Not Valid Edit Condition	Message: accept new customer profile instead of exisisting one. Edit Conclusion	Delete Rule
Add Condition	Add Condition	Add Condition	Add Condition	Add Conclusion	

The rules are present as the rows and columns in the **decision table**. Each row is a separate rule, which includes several **conditions** and a **conclusion.**

BASE uses semantic approach to connect the rules and data (a common RE problem). From “applications know how to handle data” to “data know how to handle data’.

Reference: http://ITofTheFuture.com