WebSphere Education

# Review of process mapping and analysis

Unit 16

5.1.0.1

Unit objectives

After completing this unit, you should be able to:
- Explain the procedure for creating business process models
- Define the purpose of the WebSphere Business Modeler core elements:
  – Views
  – Modes
  – Elements
  – Validation
  – Reports
- Identify options for project versioning
- Explain the purpose and value of WebSphere Business Modeler Publishing Server

Tying business processes to IT through SOA
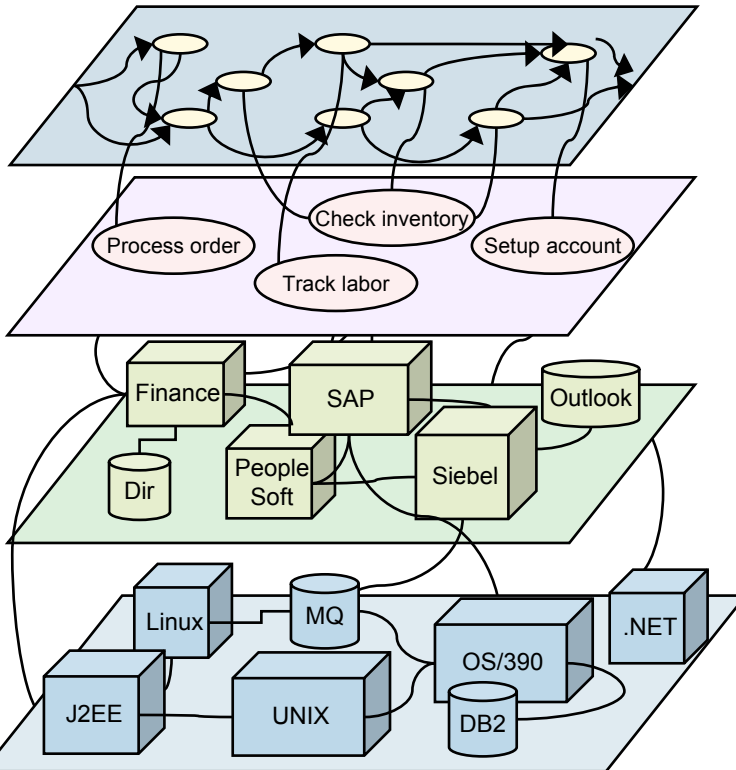
- **Business process layer**
  - Cross functional end-to-end sales order process

- **Service layer**
  - Used to connect sales to customer, for example

- **Application layer**
  - Applications, components, software

- **Technology layer**
  - Hardware, network
  - Connect J2EE to .NET

When do you use a model?

- Modeling is the standard approach in engineering to:
  – Manage complexity
  – Mitigate risk

- Software development is the same as every kind of engineering in this respect
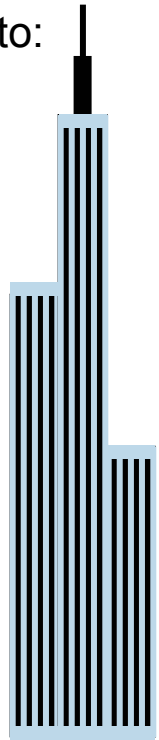
- When do you model and why?

Not required

For documentation (blueprint)

For documentation and analysis

Purposes of business process modeling

- Business process models serve many purposes, including:
  - Documenting existing procedures
  - Determining requirements for staff, systems, and facilities
  - Planning changes to existing processes and systems
  - Testing and analyzing existing and proposed processes
  - Identifying defects in your processes (bottlenecks, and so forth)
  - Process model data can support other business applications that rely on this information:
    - Workflow, policy and procedure documentation, application development

- Models visually represent an organization's current workflow (an as-is model) and allow what-if scenarios for future (to-be) designs.

- Effective models need a well designed modeling structure.
  - To understand what it takes to complete the activities
  - Ensures consistent and complete representation of information
    - Including normal operations, alternatives, and exceptions to standards

Modeler's multidimensional business model (1)

- WebSphere Business Modeler uses several different models to represent the different aspects of a business process. Working together the different models provide a complete representation of the business process.

- Process model — what work is done.
  – Provides the pictorial representation of the process model

- Data model — the subject of the work performed.
  – Provides a view of data and objects used in a business process

- Resource model — who does the work.
  – Defines the resource types and instances associated to the model

- Organization model — how process participants are organized.
  – Definition and structure of the organization and associated resources

Modeler's multidimensional business model (2)

- WebSphere Business Modeler uses additional models for other process modeling related work.

- Analysis model — what is analyzed.
  - Definition of key process metrics and attributes analyzed in both a static and dynamic manner

- Collaboration model — how analysts share work.
  - Allows for model and deployment collaboration on process models

- Business measures model — what is to be monitored.
  - Definition of key performance indicators (KPIs) and metrics to measure system and process performance triggers

Modeler supports a heuristic approach

- Heuristic approach
  – Used for problems that lack an optimal solution such as a process design

- Heuristic problem solving
  – Involves creating a set of rules or a procedure to solve problems
  – Uses experimental and trial-and-error methods
  – Based on requirements and constraints

- Potential process requirements and constraints
  – Time to complete
  – Cost to complete
  – Number of resources available
  – Schedule of resources
  – Number of paths or cases to follow
 – Frequency of process instances and starts

Four-pane layout

Project Tree view
Displays all elements available to be used in model

Editor view
Displays editor for process diagram and other elements from Project Tree

Outline view
Displays thumbnail view and index of elements in process model

Attributes view
Details associated with selected element

Seven modeling modes

- Business modeling modes for process mapping:
  - Basic business modeling
  - Intermediate business modeling
  - Advanced business modeling
- Business modeling modes that apply validation rules:
  - WebSphere Business Integration Server Foundation
  - WebSphere MQ Workflow
  - WebSphere Process Server
  - FileNet Business Process Manager

- When switching modes, the following changes occur:
  - Some options are not available
  - A previously valid model may no longer be valid because the new mode has additional validation rules
- No information is lost when switching modes
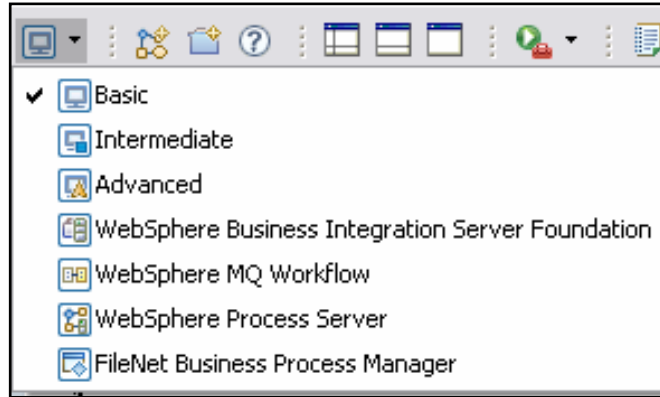
Primary elements used in modeling

- Activity — represents work being performed
  - Task — lowest level of work that can be displayed on diagram
  - Process — units of work that are performed in a sequence
  - Service — process that is external to the organization

- Storage — represents a storage area
  - Repository — places where business items are stored

- Flow control — determines the process flow
  - Simple decision — routes inputs to one of two paths
  - Multiple-choice decision — routes inputs to one several paths
  - Fork — splits path into two or more parallel paths
  - Merge — combines two or more paths after an exclusive decision
  - Join — combines two or more parallel paths
  - Connection — links two elements to represent the flow

- Control nodes
  - Start — marks the beginning of a process not started by another one
  - Stop — marks the end of a process (required)
  - End — marks the end of a path that is not the end of the process

Adding relevant information to the diagram

- A model includes a diagram with relevant information added.
  - Information on what is received, worked on, and produced
    - Business items
  - Information about who performs the work and when:
    - Resources
    - Roles
    - Timetables
  - Information on how the company is organized:
    - Organization unit
    - Location
    - Structure
  - Information on grouping related information for analysis:
    - Classifiers

- Information elements are defined and edited using editors opened in the project tree.

Making the diagram more meaningful

- Displaying labels
  - Labels can be displayed on the diagram to show information associated with process elements.
  - Labels are a convenient way to view important attributes.
    - Labels contain the attribute information.
    - Two labels can be specified (top and bottom) for any element.

- Adding colors
  - Colors can be added to resource definitions, roles, organization units, locations, and classifier values.
    - When you then associate these items with elements in the process diagram (such as tasks), you can color-code the diagram to see at a glance which elements are associated with specific values.

- Color-coding by classifiers
  - After creating classifiers and assigning classifier values to process elements, you can color-code the diagram based on the classifiers.

Additional elements

- These elements serve a specific purpose and make the model more realistic.

- Special purpose tasks:
  - Timer
    - Initiates a flow at a specified point in time
  - Map
    - Transforms data from one structure to another
  - Broadcaster
    - Publishes a notification
  - Receiver
    - Listens for notifications
  - Observer
    - Watches the repository contents
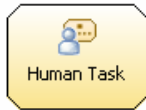
Human Task

- Specialized task a system assigns to a person for completion
  - Used to visually identify and document activities that must be performed by a human resource
- Can be global or local
  - Local task to local human task conversion
  - Local human task to global human task conversion
- All other normal task attributes
- Treated as a normal task during simulation
  - For process modeling and simulation purposes, you can specify the related cost, revenue, duration, additional resources, organizations, and classifiers.

Attributes - Human Task ✕	Business Measures	Static Analysis	Errors (Filter m

| General | Cost and Revenue | Duration | Inputs | Outputs | Forms | Primary Owner | Additional Resources | Escalations | Organizations | Classifiers |

General information

This section provides general information about this human task.

Name

Human Task

Description

Human task (2 of 2)

- IBM Lotus Forms
  - Associate electronic forms that are required for its completion
- Primary owner
  - Assign a particular role or resource to work on the task
  - Ability to define a criterion (known as Verb in WebSphere Integration Developer) that determines the resource to be allocated as a primary owner
- Escalation
  - Define actions that should take place if some aspect of the human task does not complete on time
- Can have only one input criterion (set of inputs) and one output criterion (set of outputs)

Business rules

- Business rules capture and implement business policies and practices.
  - Dynamic response to changing business environment.
- Allows you to capture business rules as separate elements and incorporate them into your process flow.
  - Can be updated without changing process flows if used with business rules task.
- A part of the business logic that may change frequently.
  - Usually does not require a programming change.
  - Can be defined and managed by a business analyst.
  - Does not change the nature of the application.
  - The logic remains the same, but the values being applied may differ.
- Example:
  - During customer loyalty appreciation month, if a customer has spent more than $1000 in past 12 months and this purchase is greater than $100, then apply 10% discount.
- Can be reused in other processes and projects.

Business rules task

Business
Rules Task

- Specialized task.
- Represents activities to which business rules apply.
- Can be global (reusable) or local (process-specific).
- Used to model complex decisions and to visually identify places in your process model where business policies and practices apply.
- Simplifies modeling when a business decision takes the form of a series of if-then statements or a large number of unstructured sentences.
- To define rule conditions and actions, use Intermediate, Advanced, or WebSphere Process Server modeling mode.

Benefits of using Rational RequisitePro

- Single, centralized requirement collection point for all requirements
  - Provides a unified interface with which to analyze and compare requirements
- Trace requirements to line items
- Share more information with your development teams about the requirements
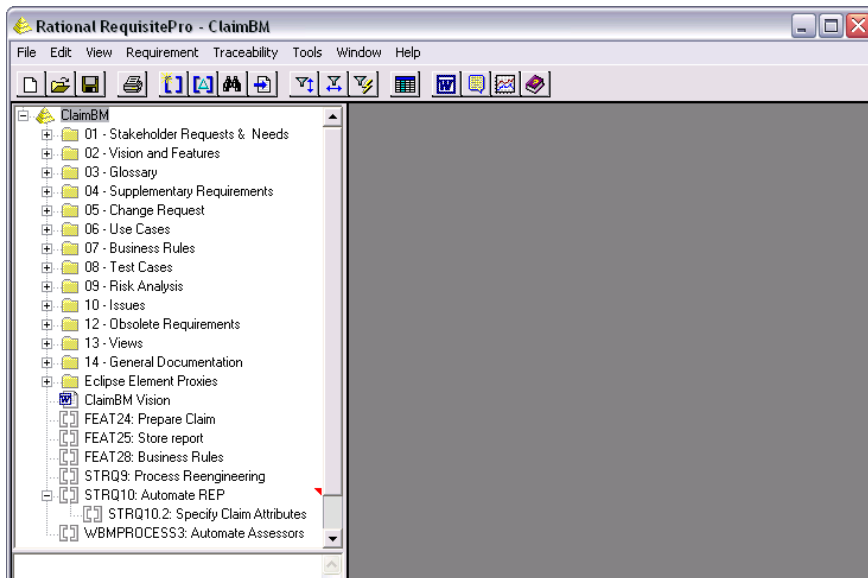
Association types (1 of 2)

- You can link requirements and Modeler elements with direct or indirect associations.
  - Use the integration to synchronize the direct associations
- Direct association.
  - Associates a Modeler element and a requirement and synchronizes both artifacts so that you can manage them as a single, conceptual item
- Indirect association.
  - Links Modeler elements and requirements through proxy requirements and traceability
  - Useful for creating many-to-many relationships with traceability between multiple requirements and a single proxy or between multiple proxies and a single requirement
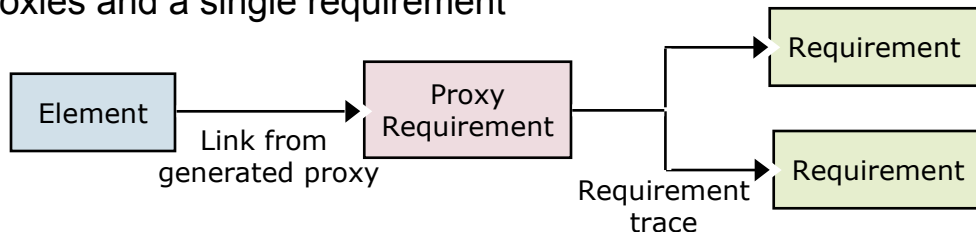
Validation fundamentals

- Syntax: Model constructs are correct and valid.
  – Is the model properly constructed to provide valid results in the Modeler?

- Semantics: The meaning of the model is correct — task attributes, organizations, roles, sequence of tasks.
  – Does the model created reflect what is occurring in the business, or what could occur in the business?
  – Is it thorough; was any data left out?

- Sense: The model is business relevant; cost (time and money) assumptions and their causes are valid.
  – Does it make sense that the model and resulting analysis show on average that it takes three weeks to process a claim when company metrics would suggest one week?

- Standards: The model adheres to the defined modeling standards — constructs, naming conventions.
  – Will the model be able to be understood by someone who was not involved with its creation?

Static analysis overview

- Gives business users important information computed from the raw data in the models:
  - Cost
  - Time
  - Performance
  - Improvement capabilities
  - Process flow validity
  - Resources leveling

  - Qualified resources to play important roles
- Inputs are raw model data and parameters entered by the user.
- Results are viewed using either a tabular or graphical viewer.
  - Results can be printed using predefined report templates.
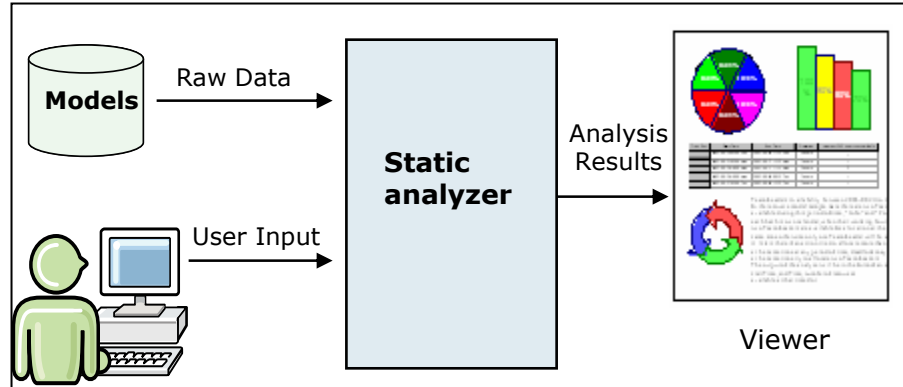
Queries

- Queries extract and show information on elements in models.
  - Queries return information about model elements of one specified type.
- Use queries to:
  - Confirm that the content of your models accurately represents your business
  - Gather required information for making business decisions
  - Document and disseminate specific types of information
  - Define the content that is used for creating reports
- A variety of documentation queries are available:
  - Statistics queries
    - Return the number of elements associated with the selected model element
  - Details queries
    - Return element names, such as resources, roles, organization units, locations, and business items, that are associated with the selected element
  - Specification queries
    - Return the values contained in the specification of the selected element

Generating reports

Defining standards and agreeing to best practices

- Your stakeholders will also help you define the standards and gain the agreement required to maintain best practices:
  - WebSphere Business Modeler is methodology independent, but successful modeling efforts require a level of standardization and a defined approach.
  - Process modeling standards:
    - It is necessary to define the use, creation, and implementation of the symbols, definitions, and data descriptions.

Standards

Kick-off

Symbols

Interviews

As-is

Reports

Measures

To-be
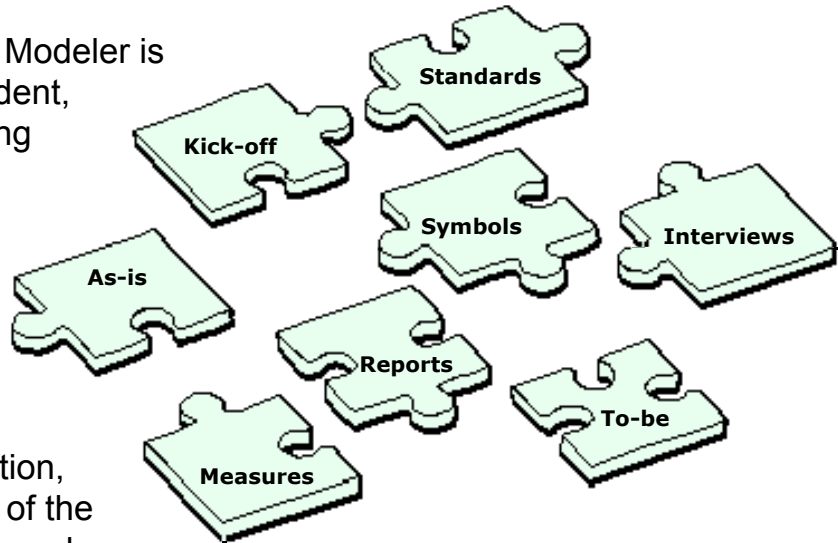
Comparison of common process modeling project types

Approach phase	Business process modeling	Enterprise modeling	E-business process modeling	Business measure modeling	Business process system requirements modeling	Business process workflow integration modeling
Kick-off	X	X	X	X	X	X
Design goals	X					
Data gathering	X	X	X	X	X	X
Current modeling	X	Enterprise process modeling	X	Process measures modeling	Process modeling	Workflow process modeling
Associate appropriate documentation and definitions	X	Enterprise information	Partner interactions	Process performance measure doc	Process documentation	Workflow process definitions
Current analysis	X					
Current validation	X		X			X
Current sign-off	X		X			
Alternative modeling	X					
Comparison analysis	X		X			
Future modeling	X		Partner interactions		Creation or association of user interface	
Future validation	X		X			
Future sign-off	X					
Create technical model	X				Creation or association of UML models	Workflow process model FDL creation
Prepare final report	X	X	X	X	X	X

Environments for modeling

Single-user environment

Workstation

User

WebSphere Business Modeler

Workspace
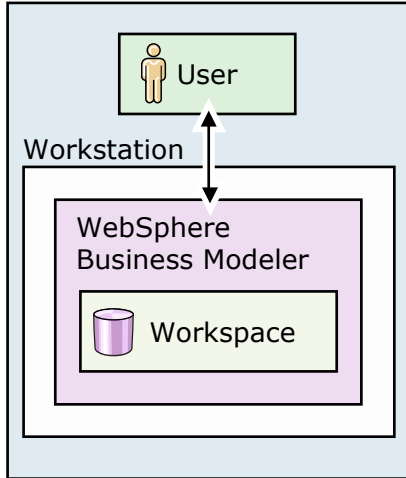
Multiple-user environment

Version control system

User

Workstation

WebSphere Business Modeler

Workspace

Central repository
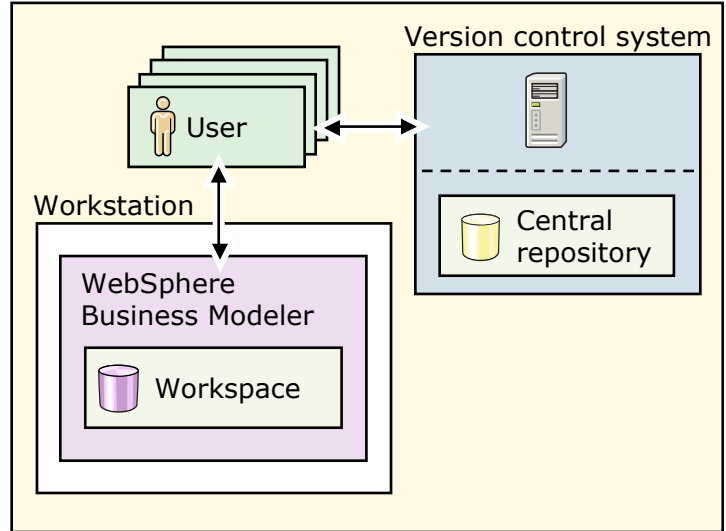
Need for project versioning

- To distribute the effort of modeling or modifying an entire project among multiple team members.
  - Members can view and post project artifacts to a version control system.
  - Check out processes and create their local versions.
    - Submit their changes back when done.
- Modeler can use IBM ClearCase or Concurrent Versions System (CVS) to access a version control repository on a server.
  - Maintain secured version control of project data in the repository.
  - Each modification of a project element (such as process, resource, or catalog) stored as a distinct version of the original item.
  - Post business modeling projects to share, view, make copies of the shared projects, and save the copies to their local machine.
  - View the history of project element modifications.
  - Compare two or more versions of the same item.

Technical overview

- Users may include business analysts, consultants, or process engineers.

- Reviewers may include executives, consultants, employees, partners, and even customers.

- Reviewers validate the data used to create the process model or provide feedback.

- Users make adjustments to the process based on reviewer feedback.

- Publish a single model element, a complete catalog, or the entire process model project.

- The reviewers can then comment on the updated process model or respond to comments.

- This creates an environment for continuous improvement of the process model.

User

WebSphere Business Modeler

Publisher Client

WebSphere Business Modeler Publishing Server

Intranet

Consultants

Managers and Executives

Employees
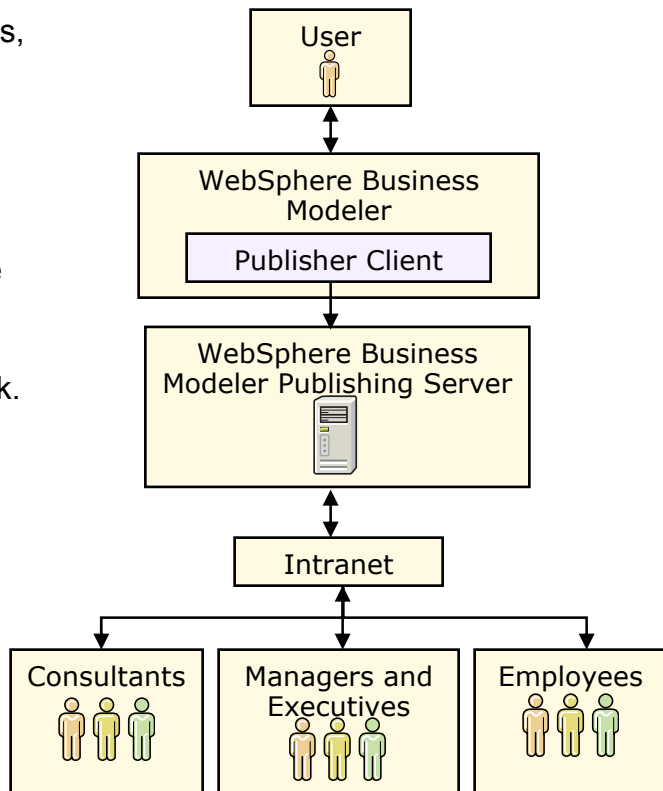
Modeler's relationship with other products covered in this course

6 — WebSphere Publishing Server
Business analyst
- Post process documentation
- Receive comments
SME, business user
- Validate documentation

11 — WebSphere Business Monitor
Business management
- Monitor business
- Take corrective actions
- Gather process statistics

DB2

10 — WebSphere Process Server
IT operations
- Execute workflow

1 — WebSphere Business Modeler
Business analyst
- Model business processes
- Simulate and optimize business processes
- Define business measures
System architect
- Prepare for Export

9 — WebSphere Integration Developer
Integration developer
- Assemble BPEL
- Build Business Measures

5 — Rational RequisitePro
Business analyst, SME, developer
- Document and track business requirements

4 — Rational Data Architect
Software developer
- Exchange Objects

7 — Rational Software Architect
System architect
- Define design model (from business model)
- Define application models
- Model services

2 — External Data
Business analyst, developer
- Import Visio, Text, XML
- Export Text, XML

3 — Rational ClearCase or CVS
Business analyst
- Version control

8 — Rational Application Developer
Software developer
- Implement service as EJB

Terminology review: Fill in the blanks

Category	Modeler element	Description
Activity Represents the work being performed		Basic unit of work
		Sequence of activities
		Process external to the organization
Storage Represents storage area		Location where business items are stored
Flow control Determines the process flow		Routes inputs to one of two paths
		Routes inputs to one of several paths
		Splits a path into two or more parallel paths
		Combines two or more paths after an exclusive decision
		Combines two or more parallel paths
		Links two elements to represent the flow
Control nodes		Marks the beginning of a process not initiated by another process
		Marks the termination of a process
		Marks the end of a path in a process

Unit summary

Having completed this unit, you should be able to:
- Explain the procedure for creating business process models
- Define the purpose of the WebSphere Business Modeler core elements:
  - Views
  - Modes
  - Elements
  - Validation
  - Reports
- Identify options for project versioning
- Explain the purpose and value of WebSphere Business Modeler Publishing Server

What comes next

- Setting up and running simulations
- Performing dynamic analysis
- Developing process improvement methodologies
- Building custom queries and reports
- Defining business measures