



WebSphere Education



Defining business measures

Unit 22

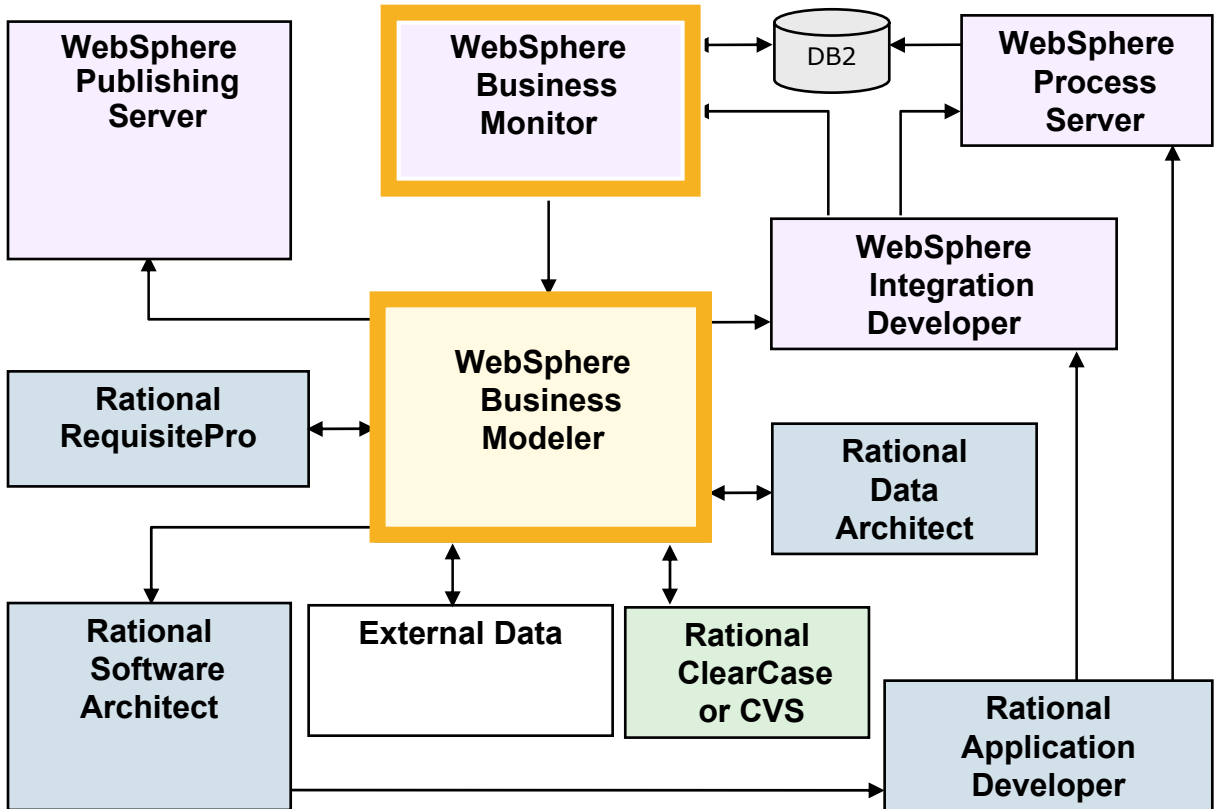


Unit objectives

After completing this unit, you should be able to:

- Define WebSphere Business Monitor
- Describe WebSphere Business Monitor dashboards
- Define business measures and model elements
- Describe the capabilities of the Business Measures view in WebSphere Business Modeler

Creating business measures in WebSphere Business Modeler

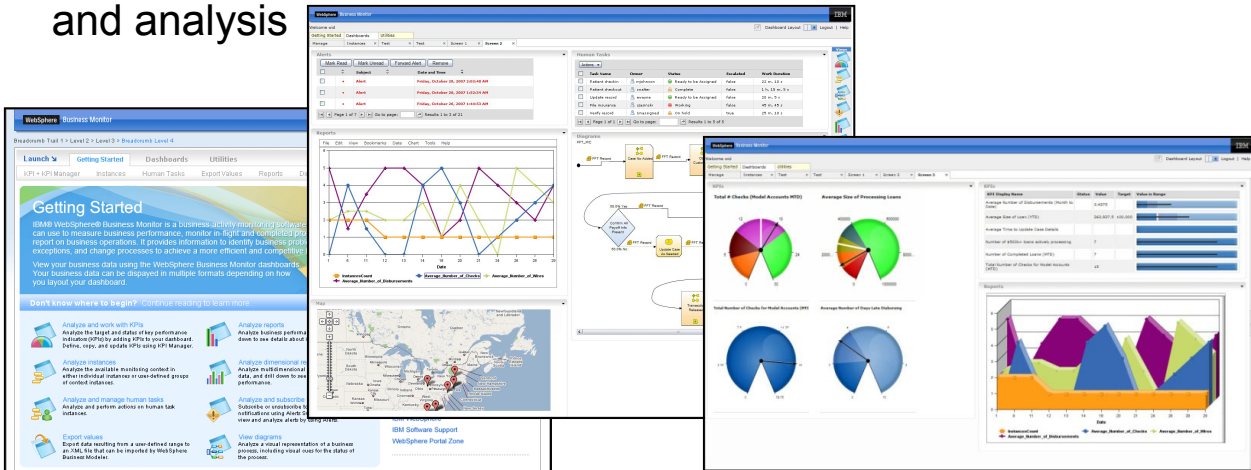


Why measure business performance?

- Monitor and control business operations
- Drive improvement of process efficiency
- Maximize the effectiveness of the improvement effort
- Achieve organizational goals and objectives

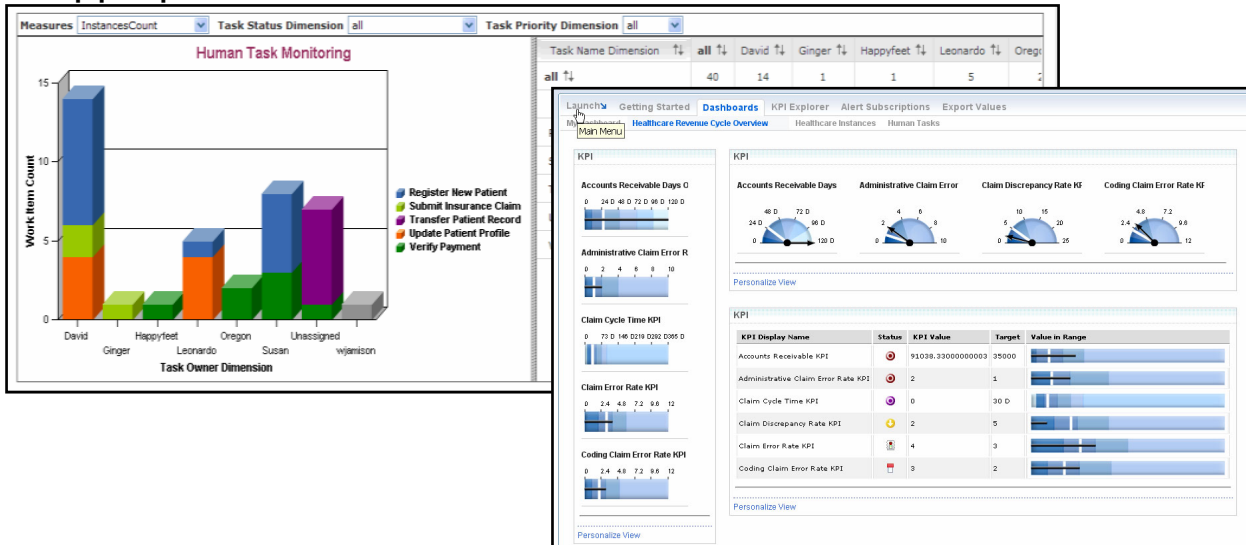
WebSphere Business Monitor overview

- Captures business-related data
- Displays the measurement values on your dashboard.
- Provides business intelligence insight through dimensional analysis and reporting
- Enables you to define actions to take when specified situations occur
- Identifies and notifies you of operation failures for inspection and analysis

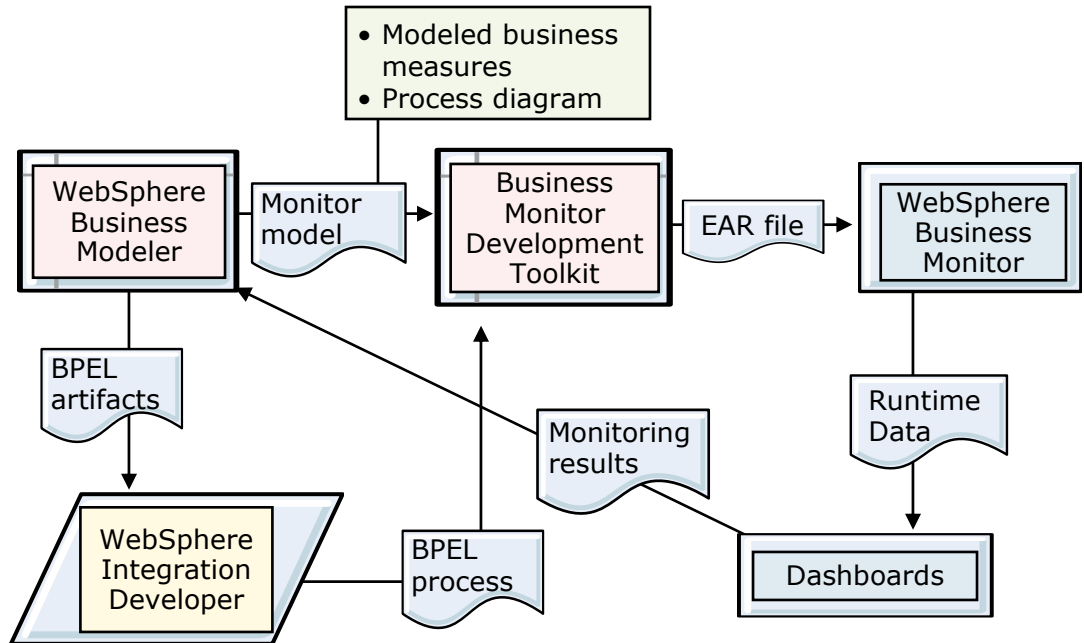


WebSphere Business Monitor dashboards

- Business performance-management dashboards are used to view the financial and operational data of a business.
- The dashboards operate in a near-real-time environment to monitor business situations, allowing users to manage the appropriate actions.



Life cycle of performance measurement



What is a business measure?

- Business measures describe the performance management aspects of a business that are required for real-time business monitoring.
 - They include metrics and key performance indicators (KPIs).
- Process execution results are collected, calculated, and analyzed against business measures using WebSphere Business Monitor.
- Business measures can be used for:
 - Compliance or documentation
 - Redesign
 - Execution
- In a process model, specify the information that you want to monitor by associating business measures with the process.

Business measures in WebSphere Business Modeler

- Business measures in WebSphere Business Modeler provide a way for business analysts to specify what should be monitored when the business process is executing.
 - The business analyst has insight into key elements of the business process that could indicate the success or failure of strategic business goals.
- Business measures can be associated with process elements.
- Predefined and custom business measures can be built.
- The business analyst's specification of what should be monitored is exported to the WebSphere Business Monitor Development Toolkit.
 - The implementation is then completed by the integration developer.

The screenshot shows the WebSphere Business Modeler interface. The top bar includes tabs for 'Attributes - Customer Order Handling', 'Business Measures' (highlighted with an orange box), 'Static Analysis', and 'Errors (Filter matched 0 of 0 items)'. Below the tabs, there are two sub-tabs: 'Business Performance Indicators' and 'Monitored Values'. The main content area is titled 'Business measures summary' and contains the text: 'This section provides information about business measures such as metrics and KPIs.' Below this text is a table with the following columns: Name, Type, Target, Time Period, and Description. The first row of the table contains the following data: Name: 'Review Order With Customer Working Duration', Type: 'Instance metric', Target: (empty), Time Period: (empty), Description: 'This business measure measures the workin'. To the right of the table are three buttons: 'Add...', 'Remove', and 'Edit Details...'. The bottom of the interface shows a copyright notice: '© Copyright IBM Corporation 2008'.

Name	Type	Target	Time Period	Description
Review Order With Customer Working Duration	Instance metric			This business measure measures the workin

Monitor model (1 of 2)

- Describes business measures such as metrics and key performance indicators (KPIs).
- Specifically describes how to:
 - Gather information from real-time (inbound) events
 - Aggregate information to calculate higher-level business metrics or key performance indicators (KPIs)
 - Represent the calculated values on a number of dashboard views and analysis reports, based on the business needs
 - Recognize business situations
 - Emit situation events that may be used to trigger actions

Monitor model (2 of 2)

- Specifications are defined in WebSphere Business Modeler's business measures view.
 - Has integrated capability within the process editor
 - Allows users to quickly and easily define KPIs and metrics
 - Targeted at business users
- Technical implementation is performed with the Development Toolkit in WebSphere Integration Developer.

Basic monitor model elements

- Metric
 - Represents the value of a monitored item and helps in assessing performance in a particular business area
 - Example: Order processing time
 - Can have numeric values such as the number of items shipped, or non-numeric values such as the delivery dates of shipments
- Key performance indicator (KPI)
 - A quantifiable measure designed to track critical success factors of a business process
 - Example: Orders must be processed within three days (Order processing time < 3 days)

Metric

- A holder for information, usually a business performance measurement, in a monitoring context
- Associated with one or more maps that, when evaluated, give the metric a value
- Can be used alone or in combination with other metrics to define the calculation for a key performance indicator (KPI), which measures performance against a business objective
- Examples of metrics:
 - Working duration of a process
 - Name of the user assigned to a task
 - Supplier's response time
 - Cost of the risk assessment step in an insurance process
- Two types
 - **Instance metrics** return the result from one run of the process.
 - **Aggregate metrics** are calculated across multiple runs of the process, for finding the average, maximum, minimum, or total number of occurrences.

Key performance indicator (KPI)

- KPIs are detailed specifications required to track business objectives.
 - Used in measuring business performance
- Each KPI is associated with a specific process, and is quantifiable, measurable, and results-oriented.
- Two ways of specifying expected values or ranges:
 - Target value with percentage deviation margins
 - Upper and Lower Limits

Dimensions

- Data categories used to organize information for reporting and analysis.
- Process data can be described in terms of:
 - Quantitative Data (what is measured or counted)
 - Example: Order Price, Number of Sales, Shipping Time
 - Dimensions (how to divide up, or group the data)
 - Example: Customer, Address, Product
- Dimensions provide a structure that summarizes business measures.
- WebSphere Business Monitor dashboards allow the user to graphically display and interactively analyze this data.

Dimension levels

- Dimensions can (optionally) have multiple levels.
- Location
 - Continent
 - Country
 - State/Province
 - > City
- Time
 - Century
 - Year
 - Month
 - > Day
- Product
 - Category
 - Name

Dimensional analysis

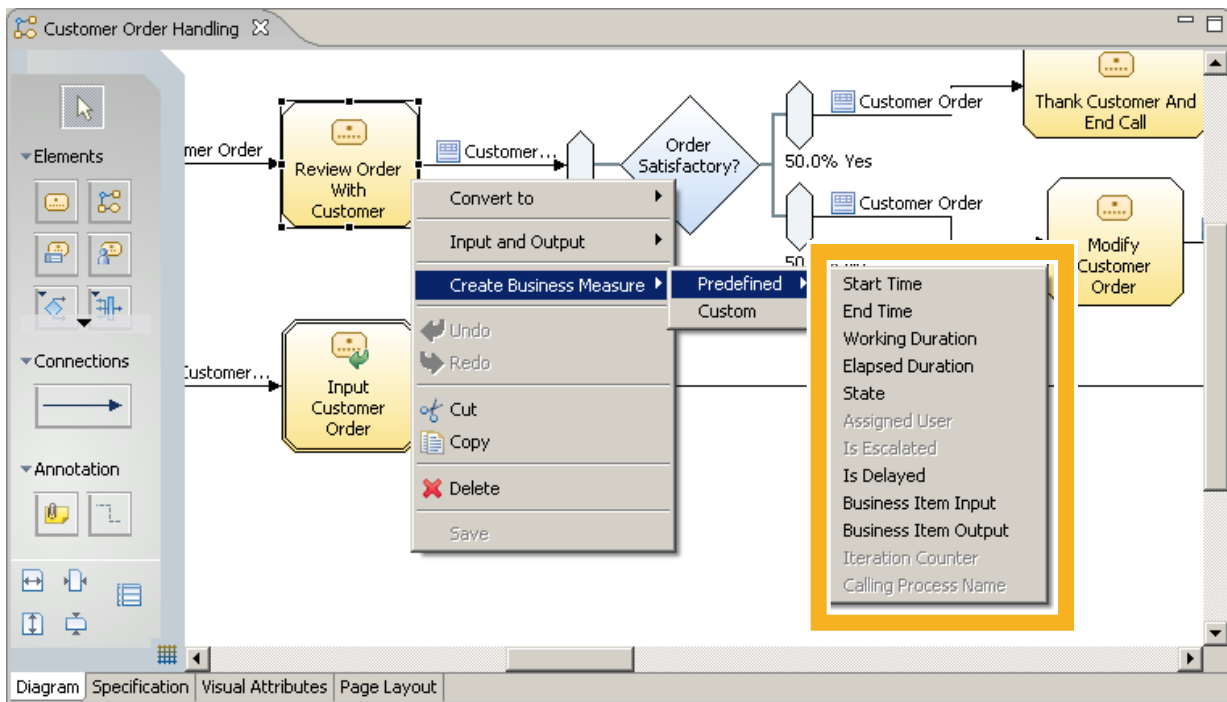
- Provides business insight by summarizing business metrics.
- Organizes data into levels of detail that can drilled down to extract significant information.
- Dimensional analysis enables a breakdown of quantitative measures by some grouping (dimension).
 - Typically follows this format: “function” of a “measure” by a “dimension”
 - Examples:
 - > Average of Profit by City
 - > Total of Order Value by Customer
 - > Maximum of Employee Salary by Time

Predefined business measure templates (1 of 3)

- Templates provide definitions of frequently-used business measures.
- Used with instance metrics.
 - Tracks information over a single run of the process
- Templates can be applied to business measures created on top-level processes, tasks, loops, and subprocesses.

Predefined business measure templates (2 of 3)

- Available from context menu when right-clicking model element or process.



Predefined business measure templates (3 of 3)

Business Measure Details - Review Order With Customer Working Duration

Business Measure Details

Specify additional details to describe how the business measure is calculated.

Optionally, you can create a business measure by applying a predefined template to a process element.

Template

Working Duration

Process element

Review Order With Customer

Name

Review Order With Customer Working Duration

Type

☐ KPI

☒ Instance metric

☐ Aggregate metric

☐ Unspecified

Description

This business measure measures the working duration of Review Order With Customer.

Dashboards

☒ Specify a default value and type

Type:

Duration

Default value:

Days

0

Hours

0

Minutes

0

Seconds

0

Milliseconds

0

Metrics based on some templates require a default value

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Custom business measure: Key performance indicator (1 of 3)

Business Measure Details - RequestTime

Business Measure Details
Specify additional details to describe how the business measure is calculated.

Optionally, you can create a business measure by applying a predefined template to a process element.

Template Unspecified

Name RequestTime

Type ☒ KPI ☐ Instance metric ☐ Aggregate metric ☐ Unspecified

Description Time for a credit request to be processed.

Dashboards
Dashboards present continuously updated business measures data in a graphical format to make it easy to track process performance.
A KPI is calculated across multiple runs of the process and is used to track business objectives. Examples of KPIs and their targets are "Average time for response to a customer inquiry" with a target of "less than two days", "Achieve target profit" with a target of "\$65000," or "Reduce employee turnover" with a target of "5%". This type of data can be displayed in the following dashboards:

KPI Table: Displays details of modeled Key Performance Indicators (KPIs) such as KPI value relative to the defined ranges and the target, if applicable, and the status.
KPI Gauge: Displays an individual KPI value, relative to the KPI range and target in a full or half gauge format, if applicable.
KPI Bar: Displays an individual KPI value, relative to the KPI range and target in bar format, if applicable.
Alerts: Displays alerts that notify users of defined situations occurring at run time.
Dimensional: Provides a multidimensional view of business performance data. Charts and grids present data for analysis against different dimensions.
Report: Displays performance reports relative to a time axis. Such reports typically contain tables and graphs with textual descriptions of the analysis.

KPI Table

KPI Name	Status	Value	Target	Range
Orders	↑	90	50.0	
Minimum	↓	4.0	20.0	
Percentage	↓	3	55.0	
Total Order	↑	390.0	100.0	

Customize View

Sample

Use "Unspecified" template

List of WebSphere Business Monitor dashboards that use KPIs

Custom business measure: Key performance indicator (2 of 3)

Type ☒ KPI ☐ Instance metric ☐ Aggregate metric ☐ Unspecified

Description Time for a credit request to be processed.

▶ Dashboards

Dashboards list minimized

☒ Specify a target value and type

The target is an exact value that the KPI should achieve.

Type:

Duration

Target value:

Days
0

Hours
0

Minutes
0

Seconds
0

Milliseconds
0

Specify an exact value that the KPI should achieve (number or duration type)

☒ Specify range details:

Ranges can be defined as percentages of the target value or as fixed, actual values.

☐ Percentage of target value (target value = 100%)

☒ Actual value

Specify a set of ranges against which to track the KPI

Specify ranges

A range is a set of values, such as allowable margins or lower and upper limits, against which to track your KPI.

Range name	Start value	End value	
Low	1 Second	< 2 Days 0 Seconds	
Expected	2 Days 0 Seconds	< 3 Days 0 Seconds	
High	3 Days 0 Seconds	< 24 Days 0 Seconds	

Add

Remove

Sort

Custom business measure: Key performance indicator (3 of 3)

☒ Specify a time period over which the business measure will be monitored

☒ Repeating

☐ Rolling

☐ Fixed

Period type:

Yearly

Last 30 days

Start date:

Time zone:

GMT-8

Specify a time period
for the KPI

End date:

Base period on:

☒ Last full period

☐ Period in progress

Time zone:

GMT-8

☒ Specify when to send an alert and the action to take as a result

For example, when this measure exceeds a certain value, an email may need to be sent.

Alert Description

Notify when process duration is over 7 days.

Add

Remove

Add an alert based on
the value of the KPI

☒ Select the dimensions to be used as filters and add the values of interest

For example, you have a City dimension but only want to include values from New York and Los Angeles.

Dimension

Values to Include

☒ Customer type

New, existing

Add

Remove

Restrict the set of information that will be used to
calculate the value of the KPI at run time

Custom business measure: Instance metric (1 of 2)

Optionally, you can create a business measure by applying a predefined template to a process element.

Template

Name

Type ☐ KP ☒ Instance metric ☐ Aggregate metric ☐ Unspecified

Description

▶ Dashboards

☐ Specify a default value and type

Type:

Specify a default value

Default value:

☐ Specify when to send an alert and the action to take as a result

For example, when this measure exceeds a certain value, an email may need to be sent.

Add an alert based on
the value of the metric

Alert Description

Add

Remove

Custom business measure: Instance metric

(2 of 2)

☒ **Specify how to aggregate this measure across multiple runs of the process**

This can be used for historical analysis in the Dimensional view.

Name	Function	
Number of Requests Aggregation	Count	

Specify how aggregate metric will use this instance metric

☒ **Specify the categories that will be available in the dashboards for analysis of the metric**

For example, location, city, or sales representative.

Dimension	
Customer type	

Specify data categories for organizing information

Custom business measure: Aggregate metric

Optionally, you can create a business measure by applying a predefined template to a process element.

Template Unspecified

Name Number of requests

Type ☐ KPI ☐ Instance metric ☒ Aggregate metric Unspecified

Description This measure captures the number requests

► Dashboards

☒ Specify how this measure is aggregated across multiple runs of the process:

This can be used for historical analysis in the Dimensional view.

Function: Count

Specify the aggregation function to apply to the underlying instance metric

☒ Specify the categories that will be available in the dashboards for analysis of the metric

For example, location, city, or sales representative.

Dimension
Customer type
Location

Specify data categories for organizing information

Add
Remove

Custom business measure: Unspecified

- Used for communicating additional requirements

Optionally, you can create a business measure by applying a predefined template to a process element.

Template

Name

Type ☐ KPI ☐ Instance metric ☐ Aggregate metri ☒ Unspecified

Description

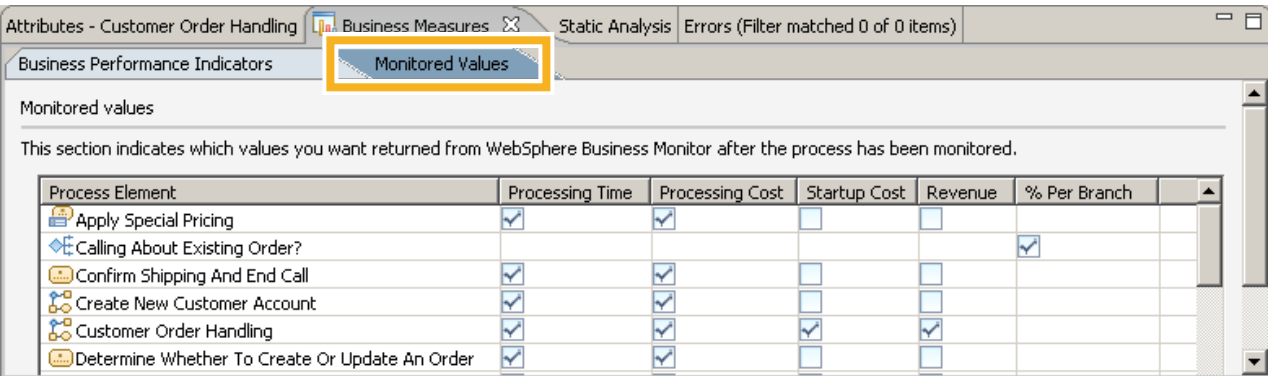
Only has description field

▼ Dashboards

Select a metric type to display the associated dashboards.

Business Measures view: Monitored values

- Specify metric categories for monitored elements.
 - Indicates which values to return from WebSphere Business Monitor
- Multiple runs improve accuracy of simulations.
- Values in WebSphere Modeler are updated for goal analysis.



The screenshot shows the 'Business Measures' view in WebSphere Business Monitor. The 'Monitored Values' tab is selected and highlighted with an orange box. Below the tab, the 'Monitored values' section is visible, containing a table of process elements and their monitored metrics.

Monitored values

This section indicates which values you want returned from WebSphere Business Monitor after the process has been monitored.

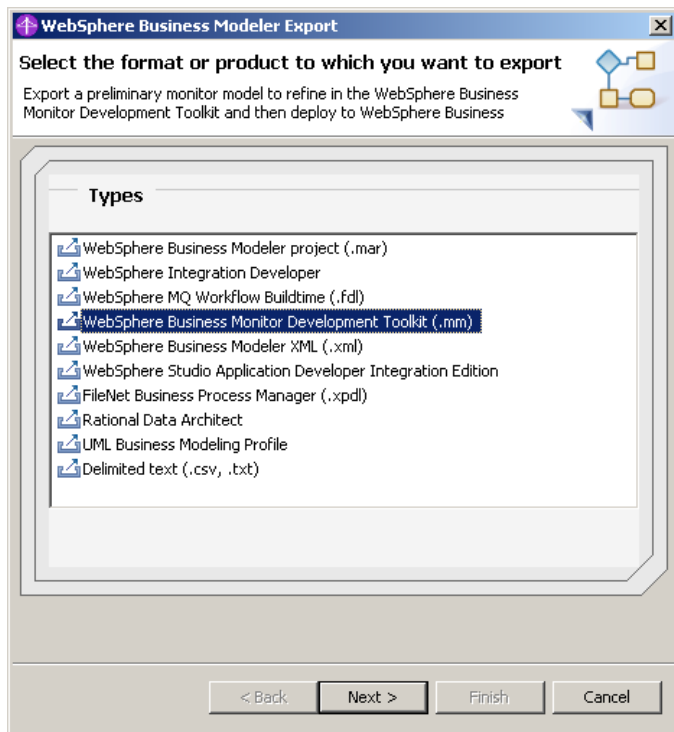
Process Element	Processing Time	Processing Cost	Startup Cost	Revenue	% Per Branch
Apply Special Pricing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Calling About Existing Order?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Confirm Shipping And End Call	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Create New Customer Account	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Customer Order Handling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Determine Whether To Create Or Update An Order	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Exporting business measures

- Business analyst exports a preliminary monitor model from WebSphere Business Modeler.
- Integration developer refines monitor model in the WebSphere Business Monitor development toolkit and then deploys it on WebSphere Business Monitor.
 - Monitor model from WebSphere Business Modeler provides guidance to the developer who will complete the model.
- Once monitored process has been executing for some time, business analyst exports the values captured by WebSphere Business Monitor to an XML file and imports them into WebSphere Business Modeler for further analysis on the process.

Sharing business measures with Monitor Development Toolkit

- Export using the Business Monitor Development Toolkit (.mm) export type.
- This produces an MM file, along with SVG files for each of the elements selected for export.
 - The exported .svg is specially annotated for use with WebSphere Business Monitor.



The implementation is performed in Monitor Development Toolkit

The screenshot displays the 'Monitor Details Model' window in the Monitor Development Toolkit. The window title bar shows the file path 'C:\workspaces\Interview\Interviewing\Interviewing_KM_Interviewing_KC.svg'. The left sidebar contains a tree view with the following structure:

- Interviewing
 - Interviewing MC
 - Check Resume Business Item Input
 - Interviewing Working Duration
 - Recieve Invitation Response Start Time (selected)

The main area is divided into two sections:

▼ Metric Details

Edit the details of the metric, which is a holding spot for information used in other calculations.

ID: * Recieve_Invitation_Response_Start_Time [Edit...](#)

Name: Recieve Invitation Response Start Time

Description: This business measure measures the start time of Recieve Invitation Response.
Template : START TIME
Process element : Recieve Invitation Response

Type: * DateTime [Edit...](#)

☐ A value is required for this metric

Default Value: dateTime("2007-08-20T20:47:32") [Edit...](#)

☐ This metric can be used for sorting

▼ Metric Value Expressions

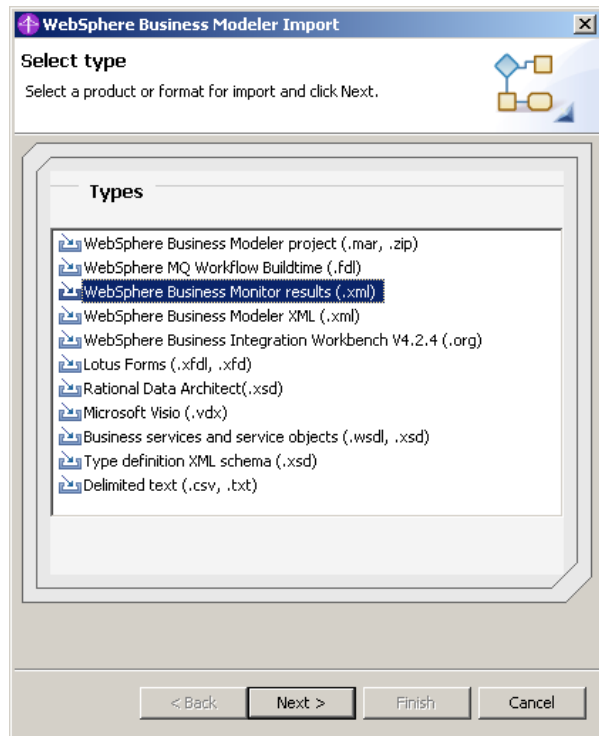
Specify the expressions that set the value of the metric. If a trigger is specified, the map is evaluated when the trigger fires.

Trigger	Expression

[Add](#) [Remove](#)

Importing results from WebSphere Business Monitor

- Aggregated values from monitored process can be exported as an XML file and imported into WebSphere Business Modeler.
- Useful for simulation.



Checkpoint: Defining business measures

Your instructor will review these questions with you as a group. If time permits, the instructor may provide you time to answer the questions on your own before the group discussion.

1. Why it is important to measure business performance?
2. What are the main elements in a business measures model?
3. What is a key performance indicator (KPI)?

Checkpoint solutions: Defining business measures

1. Business measures can be used to monitor and control business operations, drive improvement of process efficiency, and achieve organizational goals and objectives.
2. Key performance indicators and metrics.
3. KPIs are used in measuring business performance that are detailed specifications required to track business objectives.

Unit summary

Having completed this unit, you should be able to:

- Define WebSphere Business Monitor
- Describe WebSphere Business Monitor dashboards
- Define business measures and model elements
- Describe the capabilities of the Business Measures view in WebSphere Business Modeler

Exercise overview

In this exercise you will:

- Define business measures for Credit Request process
- Specify the following measures
 - Key Performance Indicators (KPI)
 - Instance metrics
 - Aggregate metrics
 - Monitored values