

BaanDEM^{SE}

The Enterprise Modeler Editor

A publication of:

Baan Development B.V.
P.O.Box 143
3770 AC Barneveld
The Netherlands

Printed in the Netherlands

© Baan Development B.V. 1998.
All rights reserved.

The information in this document is subject to change without notice. No part of this document may be reproduced, stored or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of Baan Development B.V.

Baan Development B.V. assumes no liability for any damages incurred, directly or indirectly, from any errors, omissions or discrepancies between the software and the information contained in this document.

Document Information

Code: U7066A US
Group: User Documentation
Edition: A
Date: June 1998

Table of contents

1 Introduction	1-1
2 The enterprise modeler editor settings	2-1
User settings	2-1
Application settings	2-2
3 The modeling environments	3-1
The reference enterprise structure model	3-1
The enterprise structure model	3-1
The repository	3-2
The reference business model	3-2
The project business model	3-3
The data model	3-3
4 The models	4-1
The enterprise structure model	4-2
The business control model	4-3
The business function model	4-8
The business process model	4-10
The business organization model	4-12
The data model	4-14
5 The enterprise modeler editor commands	5-1
The shortcut menu	5-1
The standard toolbar	5-5
The alignment toolbar	5-6
The zoom toolbar	5-8
The menu commands	5-8
6 Appendix A: More on events	6-1
7 Appendix B: More on Petri-nets	7-1
The control structures	7-2
The Petri-net building blocks	7-3
Petri-net modeling recommendations	7-4
Dynamic conditions	7-4

The Enterprise Modeler Editor
ii

About this document

This document contains the following chapters.

Chapter 1, Introduction

Chapter 2, The enterprise modeler editor settings, describes the default settings you can make in the enterprise modeler editor. With these settings you can, for example, decide:

- Whether or not to show the header in the diagram window
- The appearance of the symbols, relationships, and so on

Chapter 3, The modeling environments, is an entrance to the various modeling environments and diagrams.

Chapter 4, The diagrams, describes:

- The diagrams, their symbols, and relationships
- The symbols and relationships, their attributes (for example, the color or the description)

Chapter 5, The enterprise modeler editor commands, describes:

- The shortcut menu
- The standard toolbar, alignment toolbar, and zoom toolbar
- The menu commands

Appendix A provides more information on the events used by the workflow management system.

Appendix B provides more information on petri-nets and dynamic conditions.

1 Introduction

The enterprise modeler editor (EME) is used to create several types of diagrams that are all part of the enterprise model. This chapter explains how these diagrams fit in to the complete picture (see Figure 1-1) of the enterprise model.

The enterprise model consists of the following 3 levels (see Figure 1-1):

- The highest level begins with the enterprise structure model, represented by the enterprise structure diagram. It is used to visualize and model parts of the multi-site structure of the Baan applications.
- The next level is the business model that can be linked to the enterprise structure model and represents the situation within a part of the organization using the Baan applications. The business model consists of:
 - A business control model (one or more business control diagrams)
 - A business function model (one or more business function diagrams)
 - A business process model (one or more business process diagrams)
 - A business organization model (one or more business organization diagrams)
- The data model is the third component of the enterprise model represented by the entity relationship diagram. It is used to give information about the physical and/or logical data model.

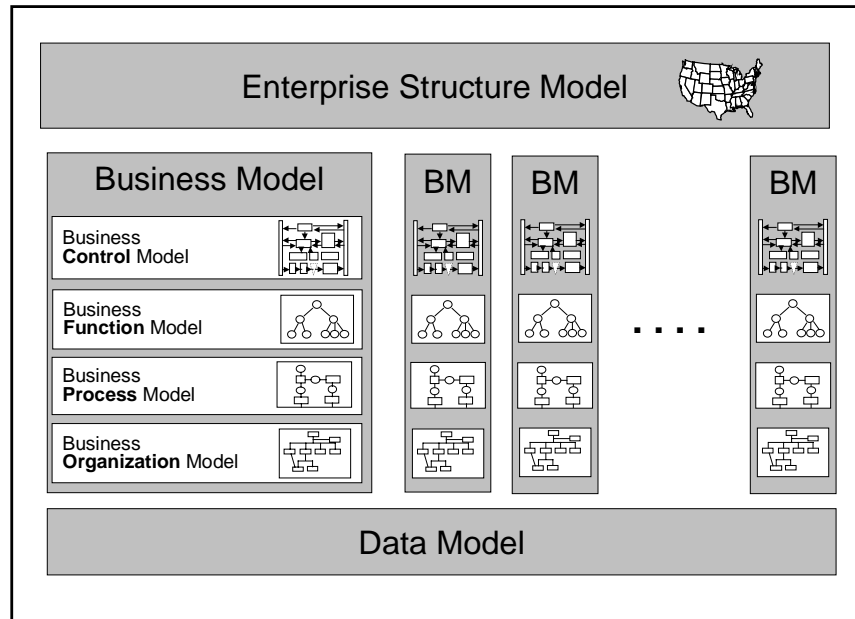


Figure 1-1, The enterprise model

The enterprise modeler editor (EME) is used to create and support these diagrams. If the editor is not yet installed on the client (local machine), Baan will automatically initiate an installation procedure.

2 The enterprise modeler editor settings

There are two types of settings:

- The user settings define the setup of your personal work environment. When you run the enterprise modeler editor (EME) these settings are retrieved and automatically applied. The user settings apply to a specific user. To modify the user settings: On the **File** menu, go to **Settings** and click on **User**.
- The application settings define the appearance for all the diagram's symbols, relations, and descriptions. When a setting in the application settings is modified it is applied to all diagrams on the local workstation. To modify the application settings: On the **File** menu, go to **Settings** and click on **Application**.

User settings

These settings are applied as default settings for all diagrams you create or modify. Some of the settings you can operate by means of the menu or toolbar.

For example, if you select the **Automatic Relationships** via the **Options** menu the related toolbar button is set also, but the **Automatic Relationships** check box in user settings not. This is because the setting via the menu or toolbar is temporary while the user setting is not.

The user settings dialog box is divided into three tabs:

General

- Select the **Status bar** check box, if you want the status bar to be visible at the bottom of the main window.
- Click the **Toolbars** button, if you want to make a selection of the toolbars that must be visible.

Diagram

- Select the **Automatic Relationships** check box to automatically create the relationship between two consecutively inserted symbols.

Header

- Select the **Show Header** check box, if you want the header visible in the diagram window.
- Select the information you want to display in the header on the diagram window, by clicking the appropriate check boxes.
- Select the **Display Logo** check box, if you want to display a logo in the header. To select a logo, click the **Browse** button. If you know the location and filename of the logo you can specify it in the related text box.
- Select **Description Text Pick** to change the color of a header item (for example **Diag. Name**).
- Select **Value Text Pick** to change the color of the value of a header item (for example the name behind **Diag. Name**).
- Select **Background Pick** to change the color of the header background.

Application settings

In application settings, you can modify the appearance of all graphical objects of all the diagrams.

NOTE

The graphical objects used in existing diagrams will not change.

- In the left window a directory like structure shows (see Figure 2-1):
 - On the first indent: the diagrams
 - On the second indent: the annotation, symbols and relations of that diagram
 - On the third indent: the description of the symbol or relation
- In the window on the right, you can change the setting(s) of the item you selected in the left window. To change a setting, select the attribute then click the **Edit** button.

The new setting will apply when you open a new diagram, or close the application and start it again.

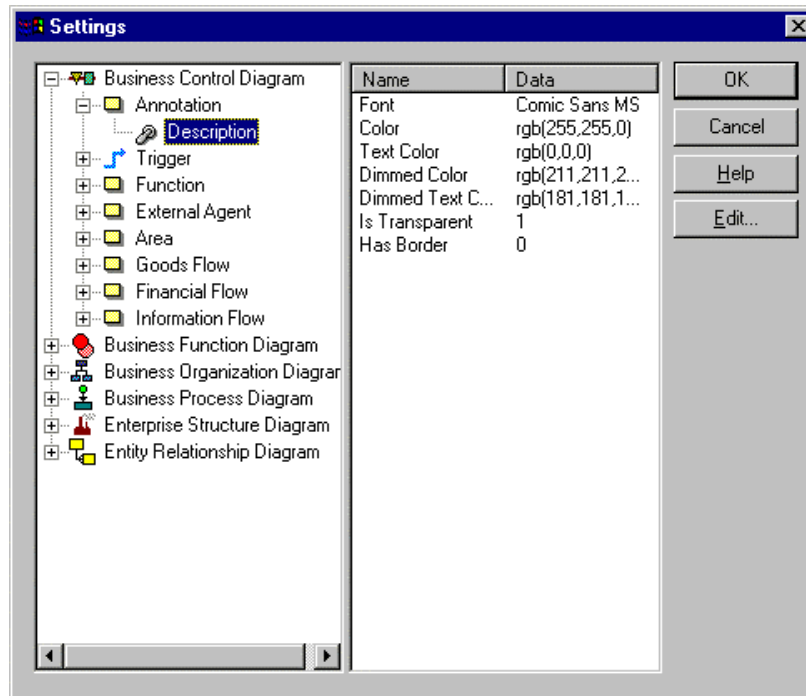


Figure 2-1, The application settings dialog box

3 The modeling environments


In the following sections, the modeling environments are explained and the supported diagrams are listed. You can edit a diagram in a modeling environment by starting the applicable Baan session listed in the paragraphs.

For more information on a specific model/diagram see Chapter 4.

The reference enterprise structure model

The reference enterprise structure model is a general model that is used as a basis for the enterprise structure model.


Diagram	Baan session
Enterprise structure diagram	Reference Enterprise Structure Models (tgbrg0510m000)

You can select an item from the list and click the  button to start the enterprise modeler editor.

The enterprise structure model

The enterprise structure model is an enterprise specific model. You can import a reference enterprise structure model into the enterprise structure model, and then make it enterprise specific.

Diagram	Baan session
Enterprise structure diagram	Enterprise Structure Models (tgbrg0512m000)


You can select an item from the list and click the  button to start the enterprise modeler editor.

The repository

Use the repository to add or modify modeling components. You can use these modeling components in the reference/project models. When you modify a modeling component, keep in mind that other reference/project models may use this modeling component. Any changes to a modeling component apply to all reference/project models that make use of this modeling component.





The repository holds all modeling components for the:


Diagram	Baan session
Business control diagram	Business Control Diagrams (tgbrg9550m000)
Business function diagram	Business Functions (tgbrg2500m000)
Business process diagram	Business Processes (tgbrg5500m000)
Entity relationship diagram	Entity Relationship Diagrams (tgerm1500m000)

You can select an item from the list and click the  button to start the enterprise modeler editor.

The reference business model





The reference business model is the business typology-specific business model (for example, Engineer-to-Order, Assemble-to-Order or Make-to-Stock) for the:


Diagram	Baan session
Business control diagram 	Reference Models (tgbrg3500m000)
Business function diagram 	
Business process diagram 	
Business organization diagram 	

Select a reference business model from the list and click the appropriate button. Then select a diagram from the list and click the  button to start the enterprise modeler editor.

The project business model

The project business model is the customer-specific business model for the:


Diagram	Baan session
Business control diagram 	Project Models (tgbg4500m000)
Business function diagram 	
Business process diagram 	
Business organization diagram 	

Select a project business model from the list and click the appropriate button. Then select a diagram from the list and click the  button to start the enterprise modeler editor.

The data model

The graphical presentation of the relational data model structure. The diagram shows the entity types, and the relations between these entity types.

Diagram	Baan session
Entity Relationship Diagram	Entity Relationship Diagrams (tgerm1500m000)

Select an entity relationship diagram from the list and click the  button to start the enterprise modeler editor.

The Enterprise Modeler Editor
3-4

4 The models

In the following sections, the diagrams and its symbols and relations are described. Each symbol and relation has attributes. An attribute can be a description, a repository text, a color, and so on. The attributes are listed in a table at the end of each paragraph.

For more information on the attribute types used in the tables, see Chapter 5.

Modeling constraints

The enterprise modeler editor indicates the operations you can perform at a certain moment in a certain situation. For example, it is only possible to insert new symbols, such as business functions, in the repository. As a result, this operation is dimmed in the business reference model and business project model, and cannot be performed.

Annotation

You can insert an annotation on all the diagrams. An annotation has as attributes the description (text attribute) and its color (color attribute). For information on these attributes see Chapter 5. To insert an annotation, right-click on the diagram window, point to **Insert**, and then click **Annotation**.

Info Block

You can insert an info block (information on the diagram) on all the diagrams. To insert an info block, right-click on the diagram window, point to **Insert**, and then click **Info Block**.

Symbol

To insert a symbol, click on the symbol button and then click the location on the diagram window.

Relationship

To insert a relationship between two symbols:

- 1 Click the relationship button
- 2 Click and hold on the source symbol
- 3 Draw the relationship to the destination symbol and release the mouse button

About the figures

The figures in this chapter give an impression of how the diagrams and their modeling components are actually represented by the enterprise modeler editor.

The enterprise structure model

The enterprise structure model is used to visualize and model the multi-site structure of the Baan Applications, represented by an enterprise structure diagram.

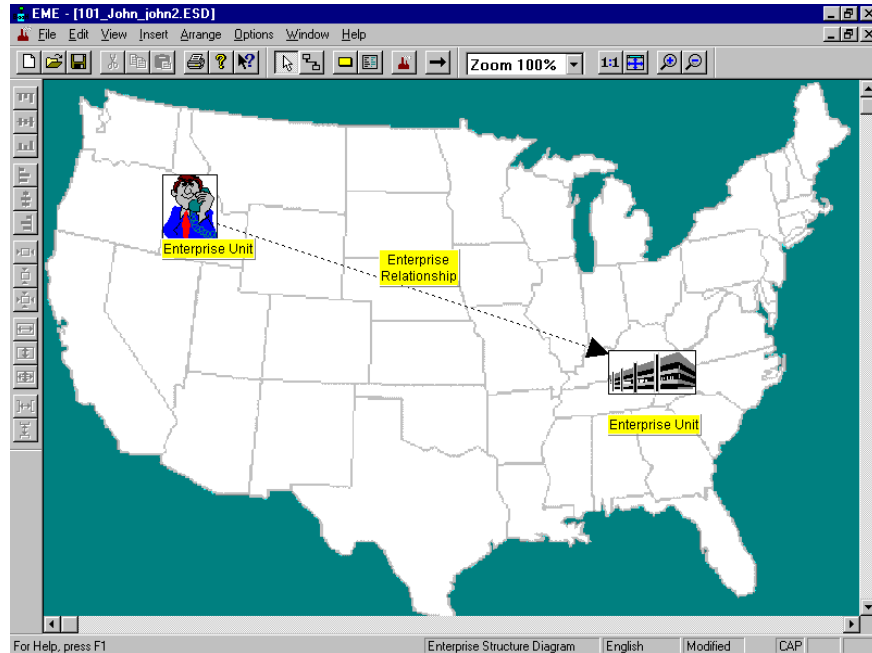


Figure 4-1, Example of an enterprise structure diagram

Enterprise Unit

Enterprise units can be modeled to represent parts of the organization using the Baan software. For example, sales outlets, production plants, distribution centers, and so on. Also external business partners that are not using the Baan software, such as suppliers and customers, can be modeled as enterprise units.


The function of the enterprise unit is defined by a category (for example, sales outlet or production plant).

→ Enterprise Relationship

Arrows can be drawn between enterprise units to represent the type of relationship between the enterprise units.

The function of an enterprise relationship is defined by a category (for example, goods or money).

Shortcut menu

Symbols/Relations	Shortcut command	Attribute type	Comments
Applicable to all	Properties	Session	See the session help.
	Description	Text	-
	Repository Text	Memo	The  icon indicates a repository text is present.
Enterprise Unit	Category	Boolean	-
Enterprise Relationship	Category	Boolean	-
	Direction	Boolean	-

The business control model

The highest level of the reference or project business model is the business control model. It is used to visualize the primary process that takes place, and which functions are being used to control that primary process.

A business control model can consist of one or more business control diagrams called children. You can define the children via the **Children...** command on the **Options** menu.

The business control model is located within the enterprise modeler environment. Functionally it is a sub-component of the business model, which is a sub-component of the enterprise model.

Business control diagrams must first be created in the repository, before they can be inserted into business control models that are part of a reference or project model.

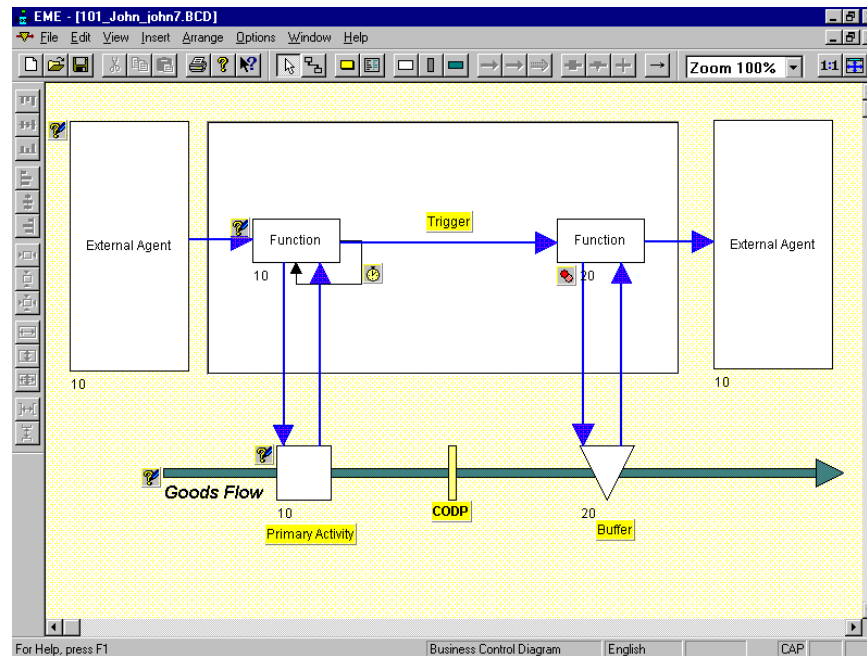


Figure 4-2, Example of a business control diagram

 **Area**

Areas are used to visualize which functions are related. If you move an area, all graphical objects within move with it.

 **Function**

Functions determine how the primary activity and the buffer are controlled. Functions only show what controls a primary activity or buffer, without yet relating to how this is done.

 **External Agent**

An external agent represents an organization that is not an actual part of the organization modeled in the business control diagram, such as customers, suppliers and so on.

 **Financial Flow**

Represents the money flow through an organization.

 **Goods Flow**

Represents the goods flow through an organization.

 **Information Flow**

Represents the information flow through an organization.

 **Primary Activity**

A primary activity on a flow is used to represent a certain manipulation of the information, goods or money that runs through the flow.

 **Buffer**

The buffer symbol can represent a queue or a stock point:

- The stock point is a point on the flow where goods, information or money is clustered, waiting for the further destination or transformation. In a business control model, a stock point is controlled by functions.
- The queue is a point on the flow where goods, information or money is clustered, waiting for resources. In the business control model, a queue is not controlled by functions.

 **CODP**



The Customer-Order De-coupling Point (CODP) is a location on the primary flow that is used to indicate how far the order of a customer influences the primary process of an organization. For example, if customers can only order a product from stock, the CODP is fairly close to the end of the primary flow. If a customer determines the design of a product, then the CODP is closer to the beginning of the primary flow.

 **Trigger**

To represent which functions control, which primary activity or buffer, arrows can be drawn between functions, external agents, primary activities, and buffers. These arrows are referred to as the triggers that are sent from one object to another. Between each type of component, an incoming and outgoing trigger should be present. Because an external agent should never directly control the primary process, it is not possible to draw a trigger from an external agent to a primary activity or buffer. A special type of trigger is the timed-trigger, which is a trigger from a function to itself. In other words the function either triggers itself completely at a certain moment, or after receiving a trigger from anywhere else, it waits to trigger itself before actually starting.

The category that you can attach to a function, primary activity or buffer determines the symbol's color. The category is used to visualize which functions, primary activities, and buffers are related. Functions, primary activities, and buffers of the same category can be dimmed to be able to reuse one diagram in similar, but different places and situations.

Shortcut menu

Symbols/ Relations	Shortcut command	Attribute type	Comments
Applicable to all	Properties	Session	See session help.
	Description	Text	-
	Repository/ Model Text	Memo	The  icon indicates repository help is present. The  icon indicates model help is present.
Area	Color	Color	-
	Function	Symbol	-

Symbols/ Relations	Shortcut command	Attribute type	Comments
Function	Category	Boolean	Used to visualize related (same category) functions, primary activities, and buffers.
	Link To Business Function	Link (1)	The attached business function holds the processes that make up the function. To view the processes via the Processes command you first need to save and exit the diagram. Then open the diagram again to view the processes linked to the function.
	Time Trigger	Boolean	-
	Processes	List	Displays the business processes that are linked to the function via the Link To Business Function command.
External Agent	-	-	-
Information Flow, Goods Flow, Financial Flow	Primary Activity	Symbol	-
	Buffer	Symbol	-
	CODP	Symbol	Only one allowed on a flow.
Primary Activity	Category	Boolean	Used to visualize related (same category) functions, primary activities, and buffers.
Buffer	Category	Boolean	Used to visualize related (same category) functions, primary activities, and buffers.
CODP	Color	Color	-
Trigger	Direction	Boolean	One way, Reverse or Both Ways.
	Category	Boolean	Via the Properties command you can create the trigger's categories.
	Style	Style	-
	Mid point	Mid point	To be able to insert a mid point the line style must be of type free.

The business function model

The second model of the reference or project business model is the business function model. It is used to:

- Visualize which business functions are used in the business control model
- Check the consistency between the business functions
- Specify which business functions will be implemented when
- Configure the Baan application

A business function model consists of one or more hierarchically structured business function diagrams, each containing one or more business functions.

The business function model is located within the enterprise modeler environment. Functionally it is a subcomponent of the business model, which is a subcomponent of the enterprise model.

Business function diagrams must first be created in the repository, before they can be inserted into business function models that are part of a reference or project model.

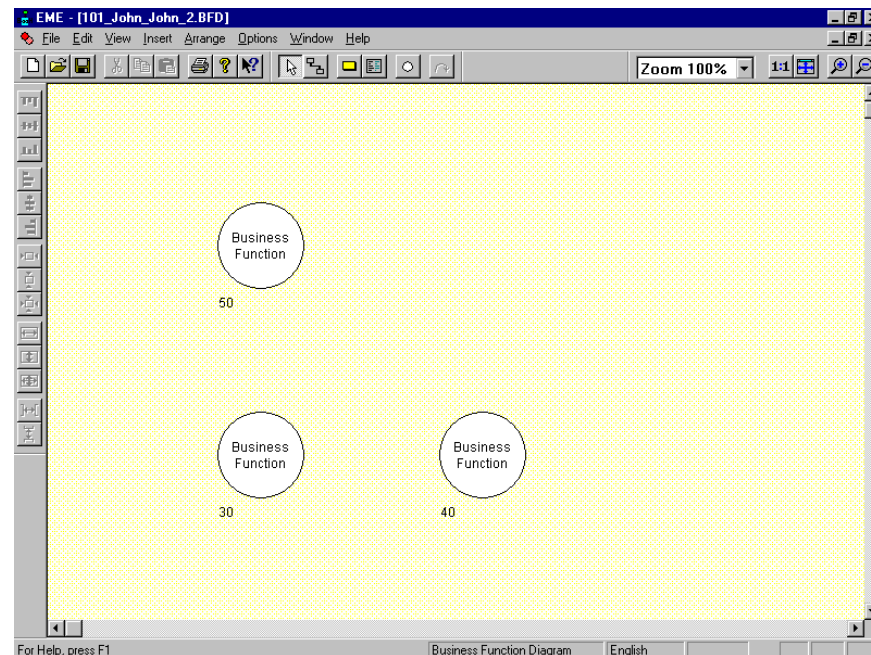


Figure 4-3, Example of a business function diagram

Business Function

It describes what must be accomplished without going into detail as to how you can accomplish it.



To visualize (without redundancy) which business functions are used in the business control model, a hierarchical overview of the used functions can be created. The words without redundancy are used to explain the fact that a business function that appears in several business control diagrams only appears once in the business function model. The hierarchical overview is used to visualize the breakdown of a business function into sub-functions and so on. In the business function model, bubbles represent the business functions. Business functions at the lowest level in the hierarchy are implementation variants of business functions, referred to as business function variants.

Optimization relationship

Business function optimization relationships indicate that a certain business function variant is an optimization of another business function variant.

Potential optimization growth paths can be included in the business function model by means of optimization relationships between business functions. Optimization relationships are graphically represented by arrows between business function variants, at the lowest level of the function hierarchy.

Shortcut menu

Symbols/ Relations	Shortcut command	Attribute type	Comments
Applicable to all	Properties	Session	-
	Description	Text	-
	Repository/ Model Text	Memo	The  icon indicates repository help is present. The  icon indicates model help is present.
Business Function	Child	Link (1)	-
	Performance Indicator	List	-
Optimization Relationship	-	-	To select the optimization relationship, click on the line close to the business function.

The business process model

The third model of the reference or project business model is the business process model. It is used to visualize which business processes must be used to accomplish the business functions of an organization. A business process model consists of one or more hierarchically structured business process diagrams.

While the business functions in the control model or function model only relate to what takes place in an organization, the business processes visualize how the functions must be carried out. Next to visualizing how work must be done, the processes are used to present only the relevant parts of the Baan software to the users in the order in which the different parts of the software should be carried out.

The business process model is located within the enterprise modeler environment. Functionally it is a subcomponent of the business model, which is a subcomponent of the enterprise model.

Business process diagrams must first be created in the repository, before they can be inserted into business process models that are part of a reference or project model.

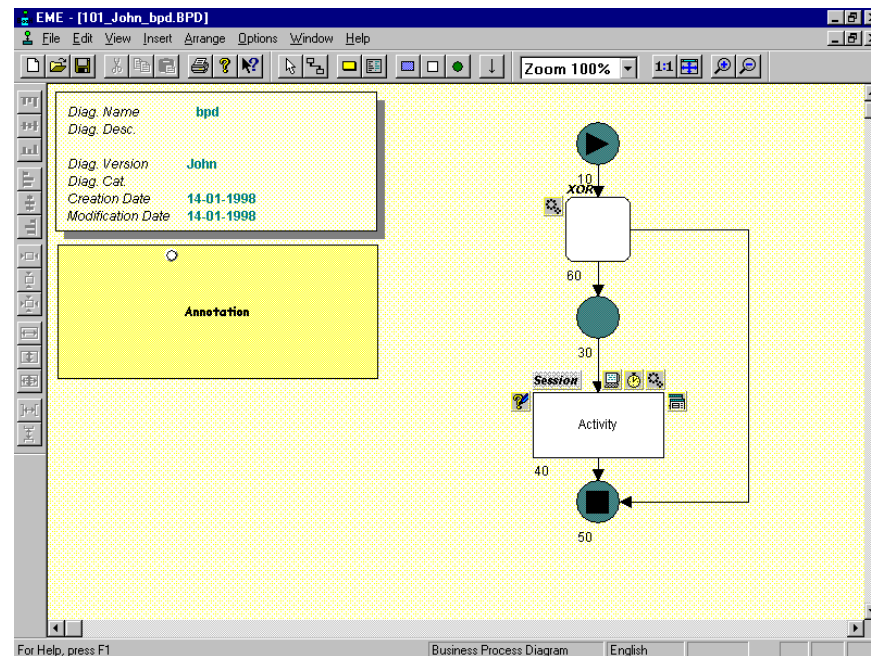


Figure 4-4, Example of a business process diagram

 **Activity**

An activity can represent:

Alternative	Description
Trigger	Used to start another process. For example, when creating a sales order the stock is checked. If not enough stock is available you can start a new process to create a purchase order.
Process	A subprocess to break down complex processes into smaller more manageable subprocesses.
Manual	A manual activity is an activity that is not carried out in the application.
Other	An external application (for example Microsoft Word).
Session	A Baan session.

 **Control**

The control is the graphical representation of a decision moment in the business process. By linking dynamic conditions to the arrows leaving the control the path through the business process can be determined. A control can represent an AND, OR, JOIN or XOR. See Appendix B for more information.

 **State**



A representation of the internal conditions defining the status of an activity at a particular point in time.

Alternative	Description
Begin	Every business process must begin with a begin state.
End	Every business process must end with an end state.
Normal	A state between two or more activities.

 **Relationship**

A relationship is used to sequence the states, controls and activities.

Shortcut menu

Symbols/ Relations	Shortcut command	Attribute type	Comments
Applicable to all	Properties	Session	See session help.
	Description	Text	-
	Repository/ Model Text	Memo	The  icon indicates repository help is present. The  icon indicates model help is present.
State	Alternative	Boolean	Begin, End or Normal.
Activity	Alternative	Boolean	Trigger, Process, Manual, Other or Session.
	Event	Boolean	Used by the workflow management system (WMS) to schedule an activity. See Appendix A for more information.
	Link To Sub Process	Link (1)	Link a Business Process Diagram to the Activity. Only available if the Activity alternative is Process.
Control	Alternative	Boolean	See Appendix B for more information.
	Event	Boolean	Used by the workflow management system (WMS) to schedule a control. See Appendix A for more information.
Relationship	Style	Style	-
	Midpoint	Midpoint	The line style must be of type free.

The business organization model

The fourth and final model of the reference or project business model is the business organization model. It is used to visualize the hierarchical structure of an organization.

A business organization model consists of one or more business organization diagrams, which may be hierarchically structured. Furthermore, the organization model can serve as an aid while defining the different roles that are present within an organization. The organization model does not yet influence the configuration of the Baan software.

The business organization model is located within the enterprise modeler environment. Functionally it is a subcomponent of the business model, which is a subcomponent of the enterprise model.

With regard to modeling, business organization diagrams must be created directly in business organization models in the reference or project models, without using a repository.

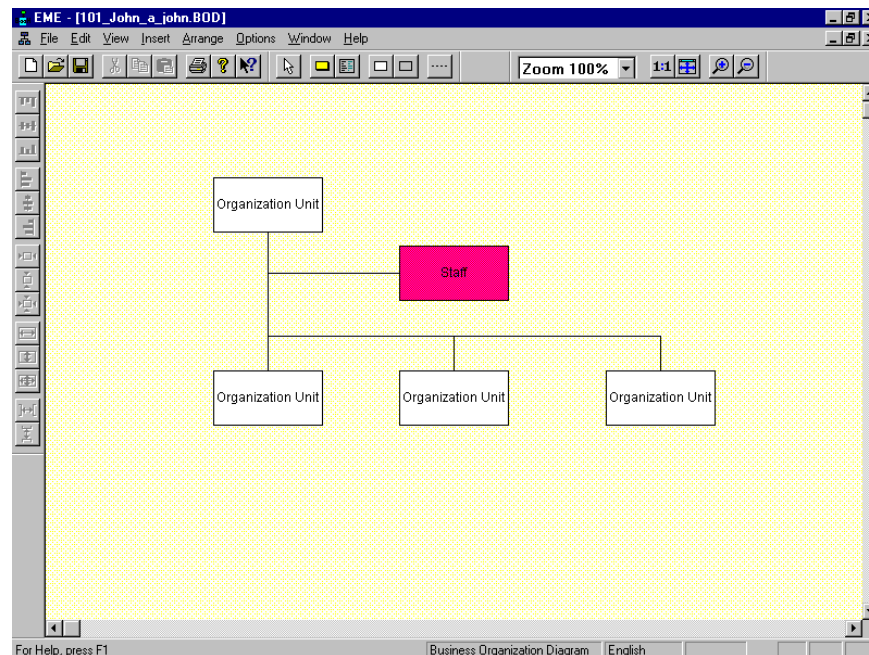


Figure 4-5, Example of a business organization diagram

Organization Unit

Departments are represented by rectangles and can be placed in a hierarchical structure on a diagram. These rectangles can also contain a link to another diagram that makes it possible to zoom in on the structure of departments.

Staff

Staff departments are also represented by rectangles, but they have a different color than normal departments. A staff department can be placed parallel to a normal department to depict the fact that it merely supports another department, and does not serve a goal in itself.

Shortcut menu

Symbols/ Relations	Shortcut command	Attribute type	Comments
Applicable to all	Properties	Session	See session help.
	Description	Text	-
Organization Unit	Child	Link (1)	-
	Roles	Link (2)	You can link roles in the reference model.
	Users	Link (2)	You can link users in the project model.
Staff	Same as for the organization unit.	-	-

The data model

Next to the enterprise structure model and the business models, the data model is the third component of an enterprise model. It is used to give information about the physical and/or logical data model of the Baan package combination to which the enterprise model applies. The data model does not yet influence the configuration of the Baan software.

The data model is located within the enterprise modeler environment. Functionally, it is a subcomponent of the enterprise model.

In terms of modeling the data model is directly created without placing it in a reference or project model, and without using a repository.

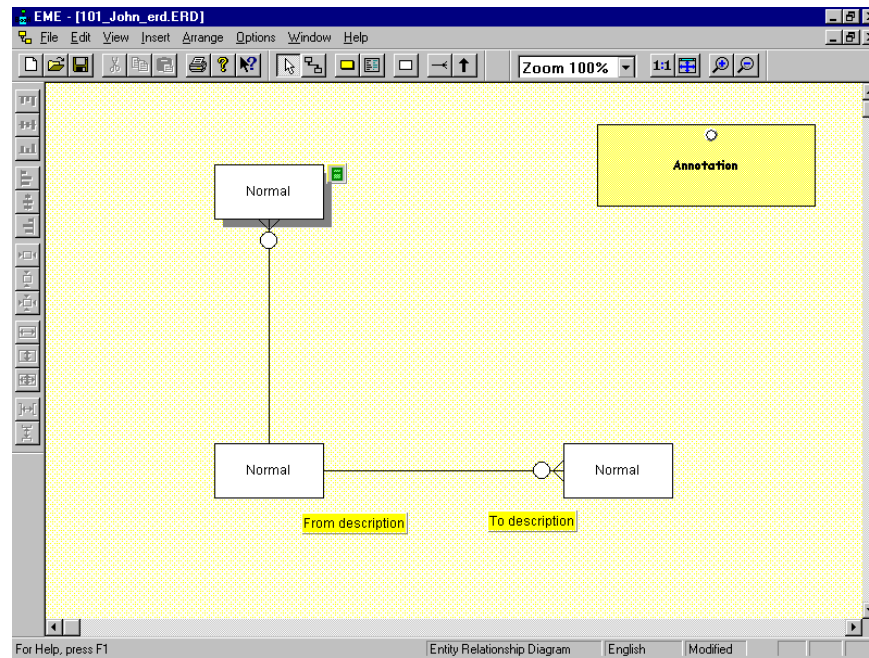


Figure 4-6, Example of an entity relationship diagram

Entity type

An entity type represents a cluster of associated data. There are two alternatives:


Alternative	Description
Normal	The logical data set (table).
Associative	This is an Entity Type that is used to represent a many-to-many relationship between two entities. Normally a table is used to create a many-to-many relationship.

 **Relationship (1:n)**

A relationship defines a relation between two entity types. The cardinality of a relationship defines the expected number of related occurrences for each of the two Entity Types.



A relationship can have the following cardinalities.

Direction	Description
One to One (1:1)	A one-to-one relationship. Only one instance of entity B can be associated with only one instance of entity A.
One to Many (1:N)	A one-to-many relationship. Multiple instances of entity B can be associated with only one instance of entity A.
Many to Many (M:N)	A many-to-many relationship. Multiple instances of entity B can be associated with multiple instances of entity A, and vice-versa.

 **Subtype relationship**

The subtype relationship is a relationship between two entities, a subtype and a supertype, used to indicate that the attributes of the supertype also apply to, are inherited by, the subtype.

Shortcut menu

Symbols/ Relations	Shortcut command	Attribute type	Comments
Applicable to all	Properties	Session	See session help.
Entity Type	Description	Text	-
	Alternative	Boolean	Normal or Associative.
	Model Text	Memo	A  is shown near the symbol or relation if a model text is present.
	Link to ERD	Link (1)	-
	Tables	List	Via this command you can assemble the physical tables, fields and indexes.
Relationship (1:n)	Direction	Boolean	Reverse, One To One, One To Many, Many To Many.
	Style	Style	-
	From	Text	A descriptive text that explains the relation.
	To	Text	A descriptive text that explains the relation.
	Model Text	Memo	A  is shown near the symbol or relation if a model text is present.
	Midpoint	Midpoint	The line style must be of type free.
Subtype Relationship	Direction	-	Reverse, One To One, One To Many, Many To Many.
	Style	Style	-
	Midpoint	Midpoint	The line style must be of type free.

5 The enterprise modeler editor commands

This chapter contains information on:

- The shortcut menu
- The standard toolbar
- The alignment toolbar
- The zoom toolbar
- The menu commands

The shortcut menu

One of the most powerful tools in the Enterprise Modeler Editor is the shortcut menu. It lists commands that pertain to a particular screen region or selection. Right-click the diagram window or a graphical object to activate the shortcut menu.

Graphical Object

A graphical object can be an info block, an annotation, a symbol, or a relationship.

For specific details on the attributes of a graphical object, see Chapter 4.

The shortcut menu can contain the following commands:

Table 5-1 The shortcut menu

Commands on all graphical objects in the active diagram window.	Cut	Copies the selected graphical object(s) to the clipboard and removes them from the diagram window.
	Copy	Copies the selected graphical object(s) to the clipboard.
	Paste	Puts the clipboard contents on the diagram window.
	Delete	Deletes the selected graphical object(s).
Commands on a graphical object.	Properties	Starts a Baan session to maintain the details of the graphical object. You can also double-click the object to start the Baan session.
	Direction	Lists the directions available for a relationship. The active selection is dimmed.
	Categories	Lists the categories available for a graphical object. The active selection is dimmed.
	Alternatives	Lists the alternatives available for a graphical object. The active selection is dimmed.
Commands on the attributes of a graphical object.	Edit	Lists the attributes of the selected graphical object that you can edit. For example, the repository help.
	Insert	Lists the attributes of the selected graphical object that you can insert. For example, the repository help.
	Delete	Lists the attributes of the selected graphical object that you can delete. If you inserted an attribute, for example the repository help, you can remove it by using this command.
	Activate	Lists the attributes of the selected graphical object that you can activate. For example, show the processes linked to a function in the business control diagram.









In the following table the attribute types are listed, together with a short description.

Attribute type	Description
Text	<p>The text attribute is a short descriptive text. For example, the description of a symbol or relation. If the text attribute shows in a separate box you can:</p> <ul style="list-style-type: none"> ▪ Move it relative to the graphical object. If you move the graphical object the text attribute moves with it ▪ Double-click it for an edit.
Memo	<p>The memo attribute is a descriptive text of one or more lines. An icon shows near the graphical object if a memo attribute is present. For example, the repository help of a symbol or relation. You can double-click the icon to edit the memo attribute.</p>
Boolean	<p>The boolean attribute marks the graphical object. For example the events you can link to an activity in the business process diagram.</p>
Link	<p>The link attribute is a detail diagram linked to the graphical object. There are two types:</p> <ol style="list-style-type: none"> 1 A link to a detail diagram that is of the same type. A shadow indicates a detail diagram is linked. For example, a child business function diagram linked to a parent business function diagram. 2 A link to a detail diagram that is of another type. An icon indicates a detail diagram is linked. For example, a business function diagram linked to a function in a business control diagram.
List	<p>The list attribute is a list of objects (one or more) to a graphical object. An icon shows near the graphical object if a list attribute is present. For example, the tables linked to an entity in the entity relationship diagram or the processes linked to a function in the business control diagram.</p>

Attribute type	Description
Style	<p>The style attribute is the line type of the relationship. Choose one of the following line styles:</p> <ul style="list-style-type: none">▪ Direct This is a straight line.▪ Orthogonal 1 A line with two bend points.▪ Orthogonal 2 A line with one bend point, first horizontal, then in vertical direction.▪ Orthogonal 3 A line with one bend point, first vertical, then in horizontal direction.▪ Free A line on which you can insert midpoints (bend point)
Midpoint	<p>The midpoint attribute is a bend point on a relationship. To insert a bend point, the relationship must have the free line style.</p>
Color	<p>The color attribute is the color of the graphical object. For example, you can change the color of an area.</p>
Symbol	<p>The symbol attribute is the symbol you can insert on/in the graphical object. For example, you can insert a function in an area in the business control diagram.</p>

The standard toolbar

Table 5-3 The standard toolbar

Button	Menu command	Description
 CTRL+N	File, New	Use this command to create a new diagram. Select the type of diagram you want to create in the File New dialog box. After you select the diagram, a Baan session is run. In this session, you can enter the information on the diagram.
	File, Open	Use this command to open an existing diagram in a new window. You can open multiple diagrams. Use the Window menu to switch among the multiple open diagrams.
 CTRL+S	File, Save	Use this command to save the active diagram.
 CTRL+X	File, Cut	Use this command to remove the currently selected data from the diagram window and put it on the clipboard. This command is unavailable if there is no data currently selected. Cutting data to the clipboard replaces the contents previously stored there.
 CTRL+C	File, Copy	Use this command to copy selected data onto the clipboard. This command is unavailable if there is no data currently selected. Copying data to the clipboard replaces the contents previously stored there.
	File, Paste	Use this command to insert a copy of the clipboard contents at the insertion point. This command is unavailable if the clipboard is empty.
	Options, Select Mode	If toggled, you can select one or more graphical objects on the diagram window. Otherwise the stamp function is active. This means that you can insert graphical objects without clicking the applicable button again.
	Help, Context Help	Use the Context Help command to obtain help on some portion of the enterprise modeler editor. When you choose the Toolbar's Context Help button, the mouse pointer will change to an arrow and question mark. Then click somewhere in the enterprise modeler editor window, such as another toolbar button. The help topic will show for the item you clicked.

The alignment toolbar

Most of the toolbar buttons in the next table work on a selection of multiple graphical objects.

To select one or more graphical objects:








- Click the graphical object you want to select. To select more than one graphical object, hold the **SHIFT** key and click it.
- Fit the graphical objects in the rectangle, which you can draw by moving the mouse, while you hold down the left mouse button.









The first selection is the reference that is used in case of an alignment. The first selection is highlighted in comparison to the second and consecutive selections.

NOTE

You can change the attributes that multiple selected graphical objects have in common, at the same time.





Table 5-4 The alignment toolbar

Button	Menu command	Description
	Arrange, Align, Align Top	All selected graphical objects will align horizontally, relative to the top of the first selected graphical object.
	Arrange, Align, Align Middle	All selected graphical objects will align horizontally, relative to the middle of the first selected graphical object.
	Arrange, Align, Align bottom	All selected graphical objects will align horizontally, relative to the bottom of the first selected graphical object.
	Arrange, Align, Align Left	All selected graphical objects will align vertically, relative to the left of the first selected graphical object.
	Arrange, Align, Align Middle	All selected graphical objects will align vertically, relative to the middle of the first selected graphical object.
	Arrange, Align, Align Right	All selected graphical objects will align vertically, relative to the right of the first selected graphical object.
	Arrange, Center, Center Horizontal	The first selection is put in the horizontal center of the diagram window. If there are more graphical objects selected, these are placed relative to the first selection.


Button	Menu command	Description
	Arrange, Center, Center Vertical	The first selection is put in the vertical center of the diagram window. If there are more graphical objects selected, these are placed relative to the first selection.
	Arrange, Center, Center Both	The first selection is put in the center of the diagram window. If there are more graphical objects selected, these are placed relative to the first selection.
	Arrange, Make same size, Make Same Size Width	All selected graphical objects are converted to the width of the first selection.
	Arrange, Make same size, Make Same Size Height	All selected graphical objects are converted to the height of the first selection.
	Arrange, Make same size, Make Same Size Both	All selected graphical objects are converted to the width and height of the first selection.
	Arrange, Space evenly, Space Evenly Across	All selected graphical objects will align, with the same horizontal distance from each other.
	Arrange, Space evenly, Space Evenly Down	All selected graphical objects will align, with the same vertical distance from each other.
	Options, Automatic Relationships	A relationship is automatically created between two consecutive inserted graphical objects.

The zoom toolbar

The zoom commands work on the complete diagram window.

Button	Menu command	Description
	View, Actual Size	Display diagram in original size.
	View, Fit In Window	Resizes the diagram so that it is completely visible in the diagram window.
	View, Zoom In	Makes the diagram larger, so you see less of the diagram in the diagram window.
	View, Zoom Out	Makes the diagram smaller, so you see more of the diagram in the diagram window.

The menu commands

Menu	Command	Description
File	New	See Table 5-3 The standard toolbar.
	Open	
	Close	Closes the active diagram window. The Enterprise Modeler Editor suggests that you save changes to your diagram before you close this window. If you close a diagram without saving, you lose all changes made since it was last saved. You can also close a diagram by using the Close icon  on the diagram's window.
	Save	See Table 5-3 The standard toolbar.
	Save As	Save and name the diagram in the active diagram window through a Baan session.
	Save as Metafile	Exports a diagram in Enhanced Metafile (EMF) data format. This export file can be imported for example, into Microsoft Word.

Menu	Command	Description
File,Settings	User	See Chapter 2, The Enterprise Modeler Editor settings.
File,Settings	Application	
	Print Preview	Displays the active diagram as it would appear when printed. When you choose this command, the main window is replaced with a print preview window, in which one or two pages are displayed in their printed format. The print preview toolbar offers you options to view either one or two pages at a time: move back and forth through the diagram; zoom in and out of pages; initiate a print job.
	Print	Use this command to print a diagram. This command presents a print dialog box. You can specify the range of pages to be printed, the number of copies, the destination printer, and other printer setup options.
	Exit	Ends your Enterprise Modeler Editor session. You can also use the Close command on the application Control menu. The Enterprise Modeler Editor prompts you to save diagrams with unsaved changes.
Edit	Undo	Not implemented.
	Redo	Not implemented.
	Cut	See Table 5-4 The alignment toolbar.
	Copy	
	Paste	
	Delete	Deletes the selected graphical objects in the active diagram window.
	Select All	Selects all graphical objects in the active diagram window.

Menu	Command	Description
View	Toolbars	Use this command to display and hide the Toolbars, which include buttons for some of the most common commands in the enterprise modeler editor such as File Open . A check mark appears next to the menu item when the toolbar is displayed.
	Status bar	Use this command to display and hide the status bar. The status bar describes the action to be executed by the selected menu item, toolbar button, and keyboard latch state, such as CapsLock. A check mark appears next to the menu item when the Status Bar is displayed.
	Background	Toggle this command to show the background. This is only applicable in the enterprise structure diagram. You can change the background by means of the properties of the diagram.
	Header	Toggle this command to show the header.
	Last Zoom	Select this command to go back to the previous zoom level.
	Actual Size	Select this command to set the zoom to its default value of 100.
	Zoom	Use this command to set the zoom level to 25, 50, 75, 100, 125, 150, 200 or Custom. If you select Custom, a Zoom control panel is shown, which you can use to set the specific zoom level.
	Fit In Window	Use this command to resize the diagram so that it is completely visible in the diagram window.
Insert	-	See Chapter 4, The models. This menu shows the graphical objects that you may insert at a given moment.
Arrange	-	See Table 5-4 The alignment toolbar.

Menu	Command	Description
Options	Automatic Relationships	See Table 5-4 The alignment toolbar.
	Automatic Positioning	Use this command to automatically position a relation in the middle of a side of a graphical object. If you position the relation with an offset from the middle this offset is maintained at all sides of the graphical object.
	Select Mode	See Table 5-3 The standard toolbar.
	External Mode	Toggle this command to show the external codes of the graphical objects.
	Check Consistency	Check the consistency of the business process diagram on its rules.
	Visibility	Select the categories you need visible in the business control diagram (functions and flows) or business function diagram (phases).
	Children	Show the children of the business control diagram.
	Legend	Not implemented.
	Wizard Browser	Not implemented.
Window	New Window	Use this command to open a new diagram window with the same contents as the active diagram window. You can open multiple diagram windows to display different parts or views of a diagram at the same time. If you change the contents in one diagram window, all other diagram windows that contain the same diagram reflect those changes. When you open a new diagram window, it becomes the active diagram window, and is displayed on top of all other open diagram windows.
	Cascade	Use this command to arrange multiple opened diagram windows in an overlapped fashion.
	Tile	Use this command to arrange multiple opened diagram windows in a non-overlapped fashion.
	Arrange Icons	Use this command to arrange the icons for minimized diagram windows at the bottom of the main window. If there is an open diagram window at the bottom of the main window, then some or all of the icons will not be visible. This is because they are underneath this diagram window.
Help	Help Topics	Shows the help topics on the enterprise modeler editor.
	Release Notes	Shows the release notes.
	About EME	Shows information on the enterprise modeler editor, such as the version, copyright, and license.

6 Appendix A: More on events

This chapter describes the three events and all the possible combinations. The events are used by the Workflow Management System (WMS).

Batch

An attribute you can link to an activity. As a result, it groups activity instances of the same activity to send them to the work list of a single Baan user.




Timer

An attribute you can link to a control activity or an activity. As a result both their instances are placed in a timer queue, and from there (at a specified time) are distributed to the Baan users.

Automatic Execution

An attribute you can link to a control activity or an activity. As a result both their instances are automatically started when they arrive in the Baan users work list. This is not the case if the Baan user, who is meant to receive the activity instance or control activity instance, does not have the right roles. In such a case it will be dealt with as in 1.

The table below gives an explanation for all combinations of events.

Nr				Explanation
1	No	No	No	The activity instance or control activity instance will be placed in the to-be-scheduled-queue. When the schedule interval is reached, it is distributed to the applicable Baan users.
2	No	No	Yes	The activity instance or control activity instance is started when it arrives in the Baan user's work list. This is not the case if the Baan user, who is meant to receive the activity instance or control activity instance, does not have the right roles. In such a case it will be further dealt with as in 1.
3	No	Yes	No	The activity instance or control activity instance is scheduled to the Baan user's work list by the timer handler, when the timer-interval is reached.
4	No	Yes	Yes	Same as 3, except the activity instance or control activity instance is automatically started when it arrives in the Baan users work list.
5	Yes	No	No	Same as 1, because the workflow management system ignores the batch event, if the timer event is not also set.
6	Yes	No	Yes	Same as 2, because the workflow management system ignores the batch event, if the timer event is not also set.
7	Yes	Yes	No	Same as 4, but the batch event will only work correctly if the program script of the started session has been modified to deal with the batch event (containers).
8	Yes	Yes	Yes	Not recommended, since the session will automatically be started on the screen of the Baan user who started the timer-daemon.

7 Appendix B: More on Petri-nets

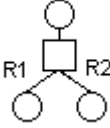
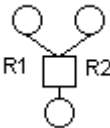
Process modeling with Petri-nets is based on a few principles, which are explained in this section.

- An activity is enabled when there is at least one token in every connected input state.
- An activity consumes one token from every input state, and produces (fires) one token to every connected output state.
- Controls are dedicated for the routing of job tokens and have special capabilities:
 - In principal controls behave like normal activities, with respect to token consumption and production.
 - The actual behavior of controls is fully determined by the assignment of conditions to the input and output relations with states.
 - Dynamic conditions refer to a run time decision moment.
 - The R1 and R2 references in the figures refer to a dynamic condition.
 - There can be more than two incoming or outgoing arrows.

Token

A token is a kind of flag that runs through the business process. It is consumed by activities, states and controls so they can become active. When the activity, state or control is finished the token(s) are fired to the next object in the path of the business process. A state only holds the token for a longer period if it is followed by a control. The control (for example an AND join) waits for all the states to contain a token before the control consumes the tokens and a token is fired to the next object(s) in the business process.

The control structures

<p>AND-split</p> 	<p>The control will consume one token and produce two tokens (one per output state) unconditionally.</p> <p>No dynamic conditions (R1 and R2) need to be defined for an AND-split.</p>
<p>OR/XOR split</p>	<p>The control will consume one token and produce one or two tokens (one per output state at the most) depending on the actual dynamic condition values of R1 and R2.</p> <p>If R1 and R2 do exclude each other, the construction is an exclusive OR (R1 or R2 but not both). Otherwise the construction is an OR (R1, or R2, or both).</p>
<p>AND-join</p> 	<p>The control is enabled if all input states contain at least one token. The control will consume the two tokens and produce one token unconditionally.</p> <p>No dynamic conditions (R1 and R2) need to be defined for an AND-join.</p>
<p>OR/XOR-join</p>	<p>The control will consume one or two tokens, depending on the actual condition values of R1 and R2, and produce one.</p> <p>If R1 and R2 exclude each other, the construction is an exclusive OR (R1, or R2, but not both). Otherwise the construction is an OR (R1, or R2, or both).</p>

Applying these control structure principles consequently give the following basic building blocks. Every process can be modeled with these. Making use of the building blocks guaranties the correct syntax.

The Petri-net building blocks

	<p>Sequencing of activities: Activity A is broken down into two subsequent activities, B and C. They carried out in the indicated order.</p>
	<p>OR: Activities run in parallel (optional): Activity A is broken down into one or two activities, B and C. The first control activity has a variable number of output states, determined by the conditions R1 and R2. The second control activity has a variable number of input states, determined by the same conditions R1 and R2. In a workflow environment these conditions can be set by:</p> <ul style="list-style-type: none"> ▪ Implementation decisions (static condition) ▪ Application data (invoice value >\$ 10,000) ▪ End user decision in previous activity
	<p>XOR: Specialized activities: Activity A is broken down into two alternative activities, B or C. Based on the conditions R1 and R2 activity B or C is selected (not both, hence an exclusive OR). An OR-join is represented by a single output state at the end of the process.</p>
	<p>Iteration of activities: Activity A being carried out implies that activity B is carried out one or more times. The number of iterations is set by the conditions R1 and R2.</p>

Petri-net modeling recommendations

Experience with Process Modeling in Petri-net lead to the following recommendations:

- Every process starts with a begin state and ends with an end state.
- Give a clear and unambiguous definition of the input and output state (such as sales order to be accepted, or FAS order scheduled).
- Only use the basic building blocks as indicated. This guarantees correct Petri-nets, which can be executed by a workflow management system.
- Limit the number of steps in a process to 5-10 steps. Build a sub-process if more steps are required.
- Also limit the number of detail processes under a main process to 2 or 3.

Dynamic conditions

This is an expression that determines the direction in which a business process is continued. A condition is linked to an outgoing relationship following a control activity in a business process. The condition result activates or deactivates parts of a business process.

Whether a dynamic condition applies is decided during the execution of a business process through the Workflow Management System.

To define a dynamic condition you have to conform to the rules listed below.

GENERAL

- The expressions are case insensitive.
- Dynamic conditions can only be linked to a relationship outgoing a control that is of type XOR or OR.
- If the dynamic condition that is linked to an outgoing relationship is not defined the result is always true.

NOTE

You can add a comment between a `?` and the end of the line.

Constants:

- Boolean constant (True or False)
- Enumerate constant (Domain.Field)
- Numeric constant (Number)
- Double constant (Numeric constant.Numeric constant)
- String constant ("characters")

Logical Operands:

- \leq (smaller or equal)
- $<$ (smaller)
- $=$ (equal)
- $>$ (larger)
- \geq (larger or equal)

Boolean Operands:

- AND (all must be true for the outcome to be true)
- OR (at least one must be true for the outcome to be true)
- XOR (at most one must be true for the outcome to be true)

Terms:

- **Constant**
- Term **Logical Operand** Term
- **\$ workflow attribute**

Expression:

- **Term**
- **NOT** Expression
- (Expression)
- Expression **Boolean Operand** Expression

Examples of dynamic conditions.

```
$OrderTotal > 1000  
$Status = "Ready"  
$Paid = True  
($OrderTotal > 1000) AND ($OrderAmount >100)
```

To evaluate the value of a field (session), you need to define and attach a workflow attribute.

