Enterprise Architect

User Guide Series

Eriksson-Penker Business Extensions (EPBE)

Author: Sparx Systems
Date: 16/10/2024
Version: 17.0

Table of Contents

Eriksson-Penker Business Extensions (EPBE)

Define, Visualize and Communicate the Essence of Business Processes

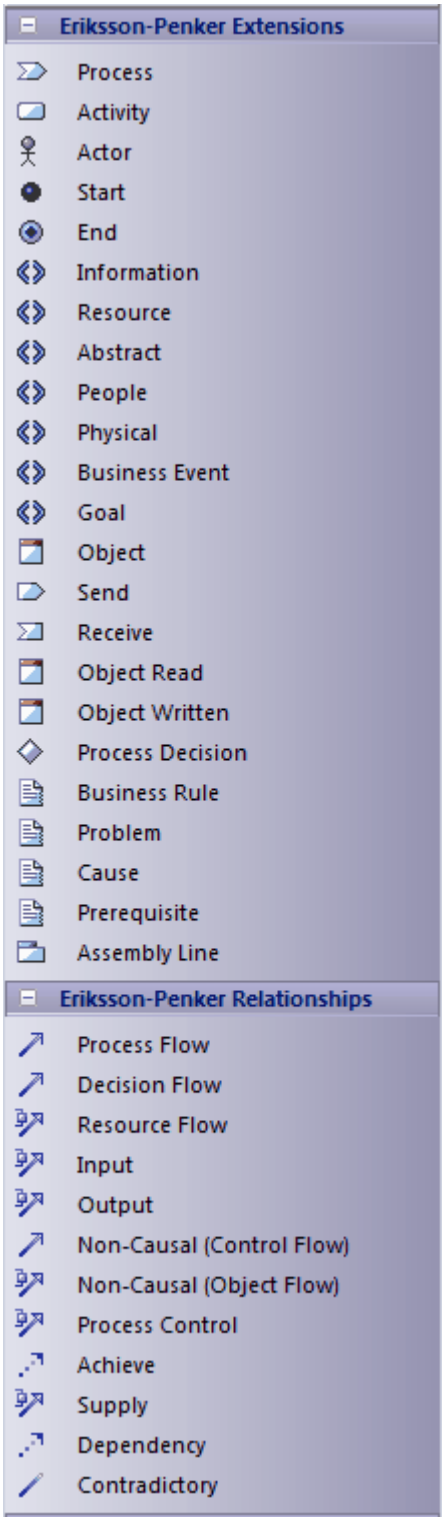
In this Eriksson-Penker extensions (developed by H. E. Eriksson and M. Penker) provide a framework for UML business processing model extensions, to which an enterprise architect can add stereotypes and properties appropriate to their business.

Access

On the Diagram Toolbox, click on  to display the 'Find Toolbox Item' dialog and specify 'Eriksson-Penker Extensions'.

Ribbon	Design > Diagram > Toolbox
Keyboard Shortcuts	Ctrl+Shift+3

Toolbox Page



Eriksson-Penker in Enterprise Architect

Enterprise Architect provides - through the integration of MDG Technologies with the installer - two well-respected

and proven UML extensions that further enhance the capture of business activities, processes, objects and information flows.

One of these is Business Process Model and Notation (BPMN).

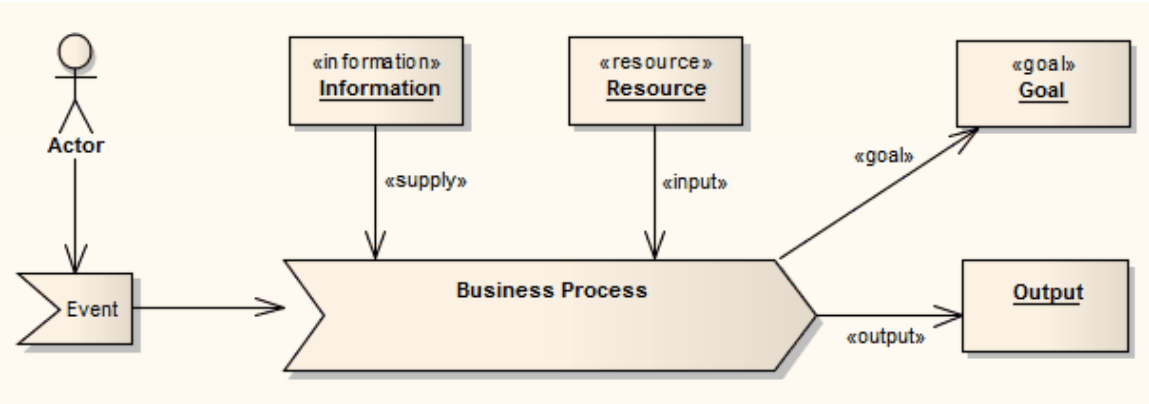
The other is the Eriksson-Penker profile which, through a set of stereotypes, provides a unique and effective means of visualizing and communicating business processes and the necessary flow of information within an organization.

The Eriksson-Penker extensions are provided in the form of:

- An Eriksson-Penker diagram type, accessed through the 'New Diagram' dialog
- An Eriksson-Penker page in the Toolbox
- Eriksson-Penker element and relationship entries in the 'Toolbox Shortcut' menu and Quick Linker

Example

This is an example of a simple Eriksson-Penker diagram:



Getting Started

With the integrated Eriksson-Penker extensions, developed by H. E. Eriksson and M. Penker, you can extend UML business processing models with ease inside Enterprise Architect. These extensions provide a framework for capturing business activities, processes, objects, and information flows, allowing you to customize stereotypes and properties to fit your business needs perfectly. Enhance your modeling capabilities and streamline your business processes with Enterprise Architect's versatile tools and proven UML extensions.

Selecting the Perspective

Enterprise Architect partitions the tool's extensive features into Perspectives, which ensures that you can focus on a specific task and work with the tools you need without the distraction of other features. To work with the Eriksson-Penker Business Extensions features you first need to select this Perspective:

<perspective name> > Analysis > Eriksson-Penker Model

Setting the Perspective ensures that the Eriksson-Penker Business Extensions diagrams, their Tool Box pages and other features of the Perspective will be available by default.

Example Diagram

An example diagram provides a visual introduction to the

topic and allows you to see some of the important elements and connectors that are created in specifying or describing an organization using the Eriksson-Penker Business Extensions.

Language Overview

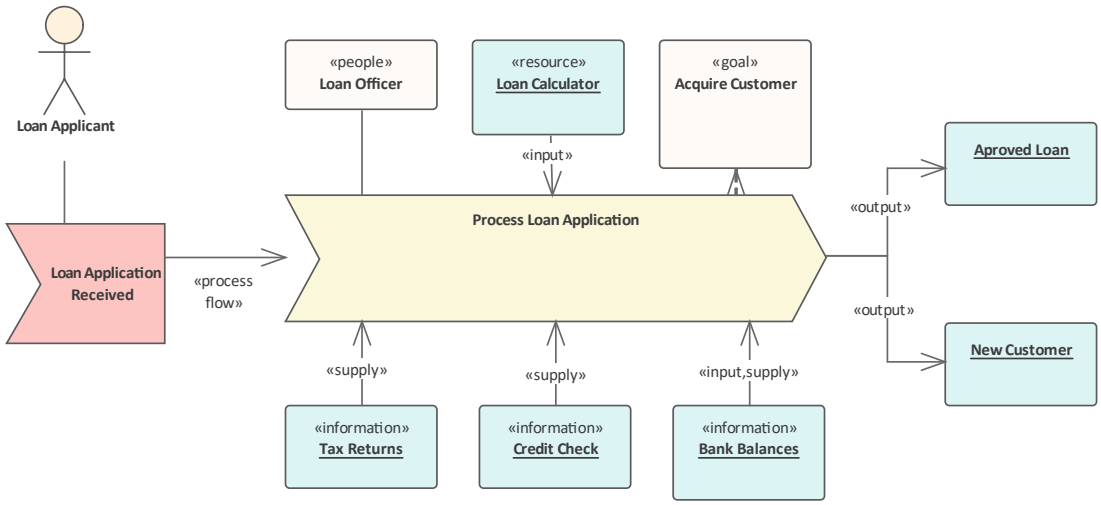
This topic introduces you to the main concepts of the language including its structure, architecture and the elements and connectors that are used to create Eriksson-Penker Business Extensions (EPBE) models.

More Information

This section provides useful links to other topics and resources that you might find useful when working with the Eriksson-Penker Business Extensions tool features.

Example Diagram

Using Eriksson-Penker Business Extensions (EPBE) diagrams you can model the processes of an enterprise and embellish them with useful objects such as an Actor or the Event that starts the process. You can add new elements to the diagram from the EPBE Toolbox pages, or existing ones dragged from the Browser window. In this example we see a Loan Applicant (Actor) submitting a Loan Application (Event) which initiates the Process Loan Application (Process). The goal (from the bank's point of view) is to acquire a customer and the output is an approved loan and a new customer.



Eriksson-Penker Process diagram showing a Loan Application including the Goal and Inputs and Outputs

Any number of business process diagram can be created including hierarchies of processes. Enterprise Architect allows you to drill-down and drill-up making it easy to explore the hierarchy. The processes can also be traced to

other elements such as: Requirements, Use Cases, User Stories and Software Components.

Business Models

Modeling the Business Process

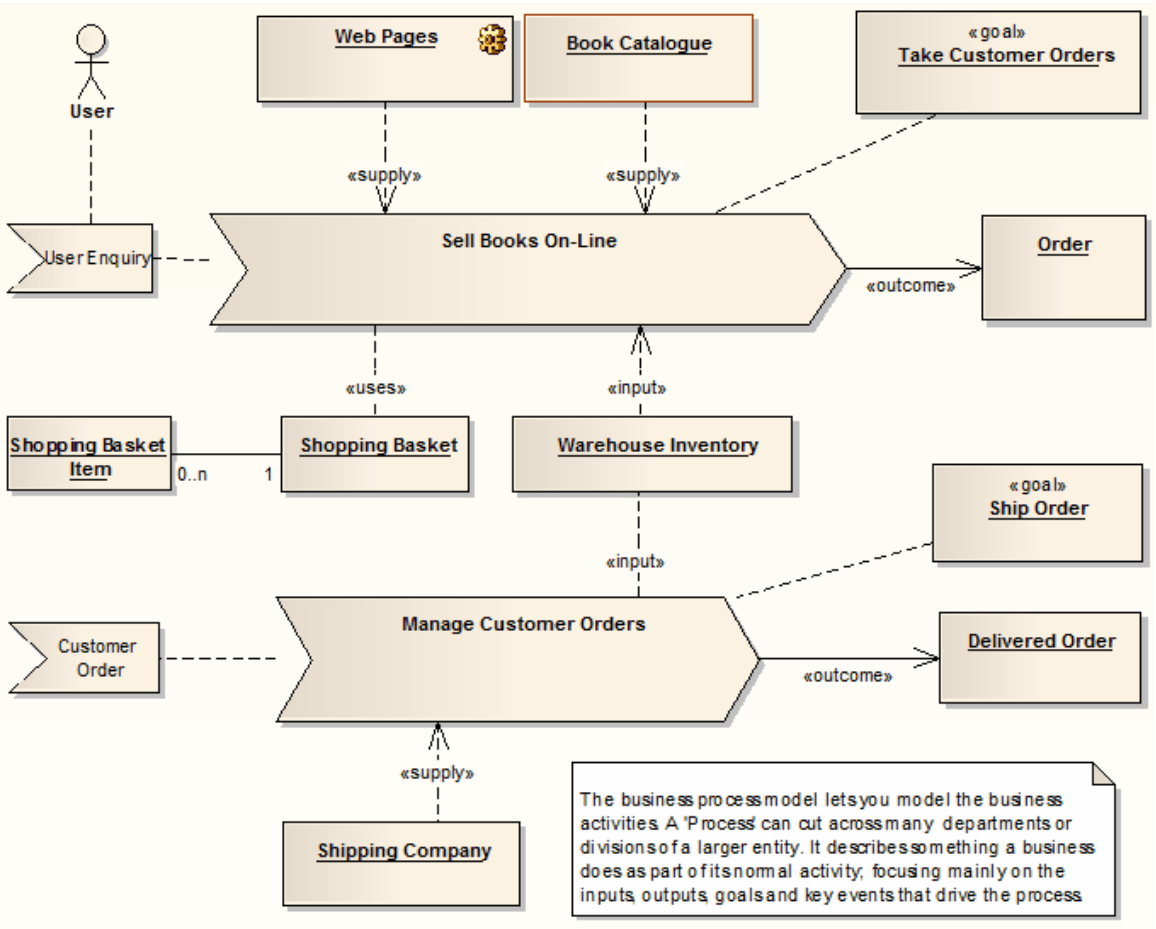
Modeling the business process is an essential part of any software development process. It enables the analyst to capture the broad outline and procedures that govern what the business does. This analysis model provides an overview of where the proposed software system being considered fits into the organizational structure and daily activities. It can also provide the justification for building the system by capturing the current manual and automated procedures that are to be rolled up into a new system, and the associated cost benefit.

As an early model of business activity, it enables the analyst to capture the significant events, inputs, resources and outputs associated with business process. By connecting later design elements (such as Use Cases) back to the business process model through Implementation connectors, it is possible to build up a fully traceable model from the broad process outlines to the functional requirements and eventually to the software artifacts actually being constructed.

As the Business Process Model typically has a broader and more inclusive range than just the software system being considered, it also enables the analyst to clearly map what is in the scope of the proposed system and what is to be implemented in other ways (such as a manual process).

Example

The example diagram demonstrates the kind of model that can be built up to represent a business process. In this model, the goal of the business process is to take customer orders and to ship those orders out. A user starts the process with an inquiry, which leads to the involvement of the Book Catalogue, Shopping Cart, on-line pages and warehouse inventory. The output of significance to the business is a customer order.



The second half of the process model is to respond to a customer order and ship the required items. The second process involves the warehouse inventory and shipping company, and completes when an order is delivered to the

customer.

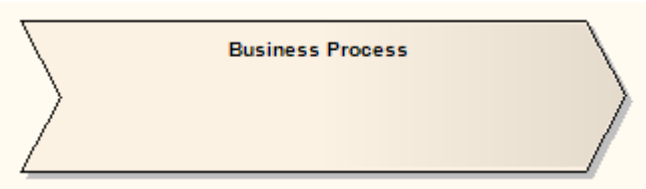
Modeling with EPBE

The Eriksson-Penker Business Extensions were designed to logically extend the Unified Modeling Language to allow you to model the important business aspects of an enterprise. The Unified Modeling Language which had become a standard in late 1997 quickly became the lingua franca for software development models. After its adoption It was realized that because of its sound structure it could be used as the basis for modeling other systems. Hans-Erik Eriksson and Magnus Penker, who had backgrounds in object-oriented technology and business process modeling, identified a gap and an opportunity to create a language that could be used to model enterprise business system with a focus on enterprise processes. The language gained wide appeal due to its small size and pragmatic and expressive elements. It was never created as a UML profile but its structure was based on this ubiquitous language. Business and technical people alike found it easy to describe a process and include such elements as the Actor and Event that initiates the process, the goal of the process and the inputs and outputs required including information and resources.

Enterprise Architect was the first UML based tool to identify the significance of the language and continues to be the front runner and tool of choice for this proven small but effective business modeling language.

Process Modeling Notation

A business process is a collection of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how the work is done within an organization, in contrast to a product's focus on what is produced. A process is thus a specific ordering of work activities across time and place, with a beginning, an end, and clearly defined inputs and outputs: a structure for action. The notation used to depict a business process is illustrated here.



The business process:

- Can affect more than one organizational unit
- Can have a horizontal organizational impact
- Creates value of some kind for the customer; customers can be internal or external

A business process model typically defines these elements:

- The goal or reason for the process
- Specific inputs
- Specific outputs
- Resources consumed
- Activities that are performed in some order, and
- Events that drive the process

The process notation implies a flow of activities from left to right. Typically an Event element is placed to the left of the process and the output to the right. To specifically notate the internal activities, Activity elements can be placed inside the Process element.

The BPMN File

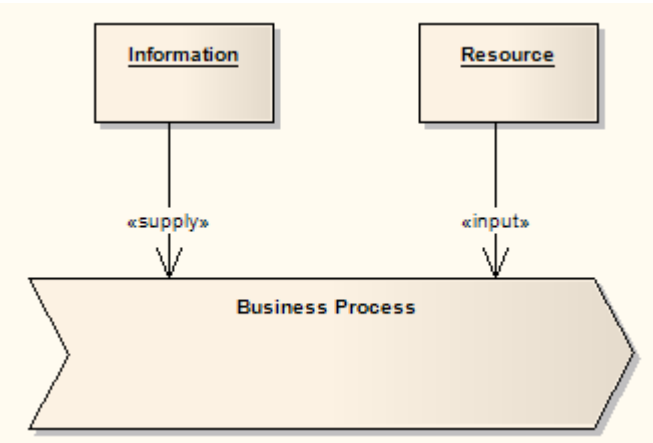
One popular notation and approach to business modeling is the Business Process Model and Notation (BPMN). This notation is specifically targeted at the business modeling community and has a relatively direct mapping to UML through a BPMN Profile. Sparx Systems provides a built-in profile for BPMN in Enterprise Architect.

Inputs, Resources and Information

Business processes use information to tailor or complete their activities. Information, unlike resources, is not consumed in the process; rather it is used as part of the transformation process. Information can come from external sources, from customers, from internal organizational units and could even be the product of other processes.

A resource is an input to a business process and, unlike information, is typically consumed during the processing. For example, as each daily train service is run and actuals recorded, the service resource is 'used up' as far as the process of recording actual train times is concerned.

The notation to illustrate information and resources is shown here.



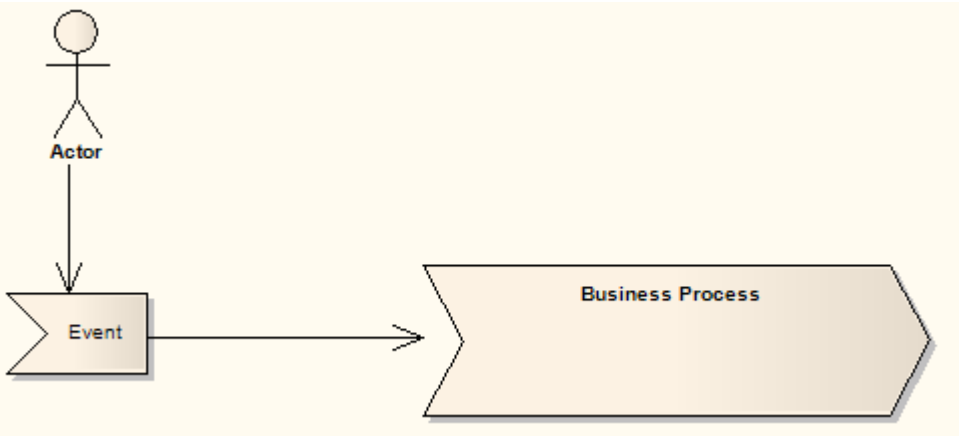
A Supply connector indicates that the information or object linked to the process is not used up in the processing phase. For example, order templates can be used over and over to provide new orders of a certain style; the templates are not altered or exhausted as part of this activity.

An Input connector indicates that the attached object or

resource is consumed in the processing procedure. As an example, as customer orders are processed they are completed and signed off, and typically are used only once per unique resource (order).

Events

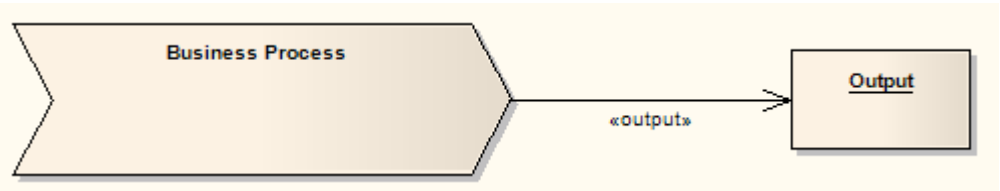
An event is the receipt of some object, a time or date reached, a notification or some other trigger that initiates the business process. The event might be consumed and transformed (for example a customer order) or simply act as a catalyst (for example, nightly batch job).



Outputs

A business process typically produces one or more outputs of value to the business, either for internal use or to satisfy external requirements. An output might be a physical object (such as a report or invoice), a transformation of raw resources into a new arrangement (a daily schedule or roster) or an overall business result such as completing a customer order.

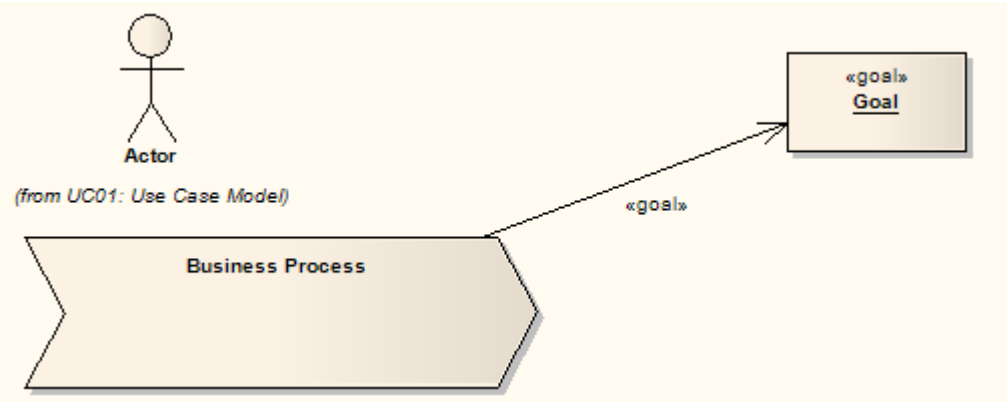
An output of one business process might feed into another process, either as a requested item or a trigger to initiate new activities.



An Output connector indicates that the business process produces some object (either physical or logical) that is of value to the organization, either as an externally visible item or as an internal product (possibly feeding another process).

Goals

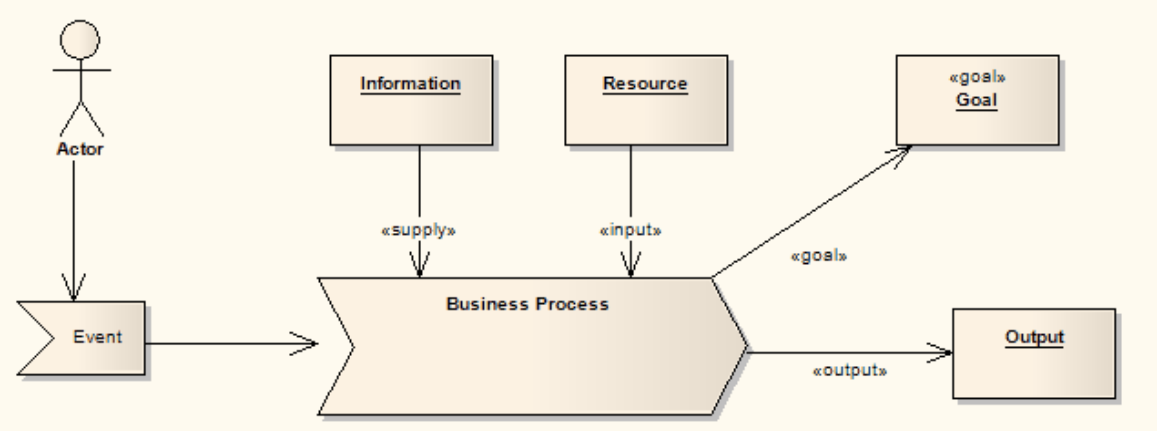
A business process has some well-defined goal. This is the reason the organization does this work, and it should be defined in terms of the benefits this process has for the organization as a whole and in satisfying the business requirements.



A Goal connector indicates that the object attached to the business process describes the goal of the process. A goal is the business justification for performing the activity.

A Complete Business Process

This diagram illustrates how the various model elements can be grouped together to produce a coherent picture of a named business process. Included are the inputs, outputs, events, goals and other resources that are of significance.



More Information