Hopex Business Process Analysis

User Guide

Hopex Aquila

Bizzdesign

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INTRODUCTION

HOPEX Business Process Analysis is software edited by **MEGA International** to assist:

- ✓ Organizers in improving and redesigning enterprise business processes.
- ✓ Quality engineers describing the business processes of their organization.

This is used to

- ✓ Description of the detailed organization of operations during execution of processes, and the participation of each of the enterprise org-units in these processes.
- ✓ Description of enterprise value streams.
- ✓ Description of the business capabilities of the company and possibilities for their implementation.
- ✓ Description of the enterprise organizational chart.
- ✓ Identification of the risks linked to the enterprise processes.
- ✓ Detailing of information system requirements involved in these application business processes. It is then possible to draw a map of the enterprise organization and information system (in conjunction with **HOPEX IT Architecture**).

☛ *The description of processes with **HOPEX Business Process Analysis** is based on the Business Process and Notation (BPMN) maintained by the Object Management Group (OMG).*

PRESENTATION OF HOPEX BUSINESS PROCESS ANALYSIS

Combined with the products of **HOPEX** suite, **HOPEX Business Process Analysis** supports a methodology and the tools used to describe your business organization and manage change.

Because business modeling helps you:

- Explaining how your enterprise operates,
- Considering changes in the organization,
- Defining IT requirements,
- Identification of the risks linked to the enterprise processes,

Modeling with HOPEX Business Process Analysis

HOPEX Business Process Analysis offers tools enabling enterprise organization description.

Describing processes

You can write comments for each process element directly from the diagram. This offers many advantages:

- Description of each element is simpler and faster than writing the complete process.
- Reports can be built automatically.
- Easy retrieval of process descriptions for insertion into other processes.
- The volume of text is significantly reduced.

Producing documents

Documents are automatically generated from the elements entered when describing the diagram.

- The general structure is independent of the writer.
- Document generation is automatic.
- Documents have a standard layout and consistent style.
- Descriptions are automatically reused in the different documents.
- Document consistency is assured.

☺ *You can modify the layout and formatting of documents generated by **HOPEX Business Process Analysis** and create new ones. For more information, see **HOPEX Power Studio**.*

HOPEX Business Process Analysis allows you to automatically generate an Intranet site describing the processes used in the enterprise.

Upgrading and maintaining your processes

As your organization evolves, so do your processes.

HOPEX Business Process Analysis allows you to make your changes in one location, and have them propagated to all processes involving those elements. This allows:

- Rapid access to the elements that you want to modify.
- You can analyze impacts of modification of a process in other processes in which this element appears.
- You can ask for the automatic regeneration of all documents concerned.

This User Guide is designed to help you quickly discover the power of **HOPEX Business Process Analysis**.

Positioning of the HOPEX Business Process Analysis solution

HOPEX Business Process Analysis can be used with other products in the **HOPEX** suite.

HOPEX IT Architecture

The **HOPEX IT Architecture** solution provides **HOPEX Business Process Analysis** with the possibilities to model the information system architecture according to a number of analysis perspectives:

- Description of application architecture offers a detailed view of information exchanges between applications, services, databases and organizational units.
- Description of information system technical infrastructure enables monitoring of applications deployment on the different enterprise.
- Description of complex systems involving different types of resources.

HOPEX IT Business Management

The **HOPEX IT Business Management** solution, including **HOPEX IT Portfolio Management** Product, provides with the possibilities to support the description, analysis and transformation projects of the IT system.

The **HOPEX IT Portfolio Management** Product provides **HOPEX Business Process Analysis** with:

- Aligning the application assets with business requirements;
- Reducing IS operating costs by removing applications no longer used;
- Managing technologies relating to applications;
- Identifying the business services covered by applications or application versions;
- Deciding on investments for maximum profits.

THE HOPEX BUSINESS PROCESS ANALYSIS METHOD

The method embedded in the **HOPEX Business Process Analysis** solution is used to perform the following tasks:

- Defining the Work Environment
- To import a module in HOPEX, see "Importing a module in HOPEX" chapter in the HOPEX Administration guide.Describing the existing organization
- Managing Organizational Transformation

Defining the Work Environment

> 🕮 *Libraries are collections of objects used to split repository content into several independent parts. They allow creation of virtual partitions of the repository. In particular, two objects owned by different libraries can have the same name.*

In the context of the **HOPEX Business Process Analysis** solution, a library can hold all the elements of your project: processes and org-units, for example.

> ☛ *For more details on managing libraries, see the "Enterprises and Libraries" chapter in the **HOPEX Common Features** guide.*

To access the list of libraries from the **Environment** navigation menu:

1. Select **Standard Navigation** in the navigation menu.
   The repository library tree appears.

Prerequisites to Using APQC libraries

To use APQC process categories across different industry sectors, you need to import the corresponding modules into your environment.

To import a module in **HOPEX**, see "Importing a module in **HOPEX**" chapter in the **HOPEX Administration** guide.

Describing the existing organization

The purpose of this step is to describe the *org-units* in the enterprise, its different processes, the *risks* encountered as well as the associated *controls*.

Describing the organization

With **HOPEX Business Process Analysis** the organizational chart shows the hierarchy of the org-units in the enterprise, their responsibilities with respect to the processes and specifies the persons associated with each org-unit and on which site.

> 🕮 *An org-unit represents a person or a group of persons that intervenes in the enterprise business processes or information system.*

An org-unit can be internal or external to the enterprise. An internal org-unit is an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.

☛ *See Org-Units and Organizational Charts.*

Describing processes

📖 *A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the BPMN notation, the process represents a sub-process from the organizational point of view.*

☛ *See Processes.*

Process Hierarchy

This enables to classify the processes of your organization with two simple and minimalist diagrams:

- Process Map

  📖 *A process map defines the root level in a process landscape. It regroups the process categories the landscape consists of. It serves as an entry point to the process hierarchy.*

- Process Category

  📖 *A process category defines a group of processes. It is linked to a Process Map or a higher level Process Category. It regroups several Processes and/or other categorized elements (e.g. Value Streams, Applications). It serves as an intermediate categorization level in the process hierarchy, so as to provide a guided and progressive access to finer grained processes.*

  ☛ *See Process Hierarchy.*

Describing value streams (option)

📖 *A value stream is an end-to-end collection of Value Stages that creates an outcome for a customer, who may be the ultimate customer or an internal end-user of the value stream.*

☛ *See Value Streams.*

Describing business capabilities and associated skills

📖 *A business capability represents a specific ability that an organization possesses or needs to develop to deliver a particular business outcome.*

📖 *A business skill is a capability acquired by a person or an organization through a specific training.*

This step consists, on the one hand, in defining what the enterprise can deliver (business capabilities), and on the other hand, how to it delivers it. For each business capability, you must define the necessary skills and required functionalities.

☛ *See Business Capability Maps.*

Risk Management

The **HOPEX Risk Mapper** product provides **HOPEX Business Process Analysis** with the possibility to manage risks and controls with the processes described.

> 🕮 *A risk is a hazard of greater or lesser probability to which an organization is exposed.*
>
> 🕮 *A control is a set of rules and means enabling the assurance that a legal, regulatory, internal or strategic requirement is respected.*
>
> ☛ *See Risks and Controls.*

Building customer journeys

The **HOPEX Customer Journey** product is used to represent the acquisition process of a product or a service by a specific customer (persona). Mapping a customer journey provides an overview of customer expectations, painpoints encountered, and the resources used at each step of the journey. Last but not least, touchpoints, which are the points of interaction between the customer and the company, are used to measure and improve overall customer satisfaction.

> 🕮 *A customer journey is used to describe and organize all service interactions between the enterprise and a persona for a given result.*
>
> 🕮 *A persona corresponds to a customer segment targeted by the experience of the client journey.*

Representing a customer journey will allow to describe solutions for improvement and to assess them at different dates.

> ☛ *See Customer Journey.*

Simulating BPMN Processes

Complementing **HOPEX Business Process Analysis**, **HOPEX Process Simulation** product assists organizers and decision-makers in:

- Analyzing enterprise process performances.
- Improving existing processes or evolving processes.

HOPEX Process Simulation allows to:

- Describe the detailed organization of operations during execution of processes, and the use of company resources by these processes.
- Associate quantitative information (processing time, costs) with operations executed and resources used.
- Create several optimization scenarios to build a comparative performance analysis of the different configurations.

> ☛ *Simulation of processes described using BPMN formalism is only available with **HOPEX Process Simulation**.*
>
> ☛ *See Process Simulation.*

Using the Process Mining

Process Mining is an approach that consists of analyzing files that trace the execution of a process: start and end dates of completed tasks, identification of resources used, identification of the activity in progress, routing of steps.

Depending on the quality of the trace files, this analysis can provide information such as:

- The list of executed tasks and the average duration of each execution,
- Routing information: probability of activation of a task from another task.

From a trace file, a ***Process Mining*** tool is thus able to provide the BPMN representation of the executed process as well as information about routing probabilities and execution times. This information can be imported and analyzed by **HOPEX Process Simulation**.

☛ *See Using the Process Mining with HOPEX Process Simulation.*

Managing Organizational Transformation

The purpose of this step is to prepare for the transformation of your enterprise.

Given the products in the Suite **HOPEX** available to you, you can manage the transformation of your enterprise in a number of different ways:

- Using process portfolios.
- Managing Action Plans.
- Describing the project portfolios

Using process portfolios

🕮 *A portfolio enables representation of all investments of an enterprise (or department) necessary to carry out changes required to achieve strategic objectives. It comprises a set of initiatives to be compared based on comparison criteria associated with the portfolio.*

Through the management of process portfolios, the **HOPEX Portfolio & Planning** product makes it possible to plan the evolution of the company's organizations over time as described with **HOPEX Business Process Analysis**.

From the navigation bar **Projects > Process Portfolios**, you can access the features available with **HOPEX Business Process Analysis** to manage portfolios.

☛ *See Process Portfolio.*

Managing Action Plans

🕮 *An action plan comprises a series of actions, its objective being to reduce risks and events that have a negative impact on company activities.*

HOPEX Business Process Analysis allows you to specify, implement and follow up *action plans* defined for remediating, for example, a process or a customer journey.

From **Projects > Action Plans**, you can access the features to describe and manage action plans.

☛ *For more information on use of action plans, see Action Plans.*

Describing the project portfolios

Project portfolio management is an approach used by an organization to analyze the potential return of a set of projects. Its primary aims are to:

- Control the suitability of projects with respect to the strategic objectives of the organization;
- Ensure consistency between the projects and the organization's capability.

From the navigation bar **Projects > Projects**, you can access the list of projects.

☛ *For further information on handling projects, see the **HOPEX IT Business Management** guide.*

CONNECTING TO HOPEX BUSINESS PROCESS ANALYSIS

The menus and commands available in **HOPEX Business Process Analysis** depend on the profile with which you are connected.

Connecting to HOPEX Business Process Analysis

To connect to **HOPEX Business Process Analysis**, see HOPEX Web Front-End Desktop" chapter in **HOPEX Common Features** guide.

HOPEX Business Process Analysis Profiles

In **HOPEX Business Process Analysis**,there are profiles associated to specific activities.

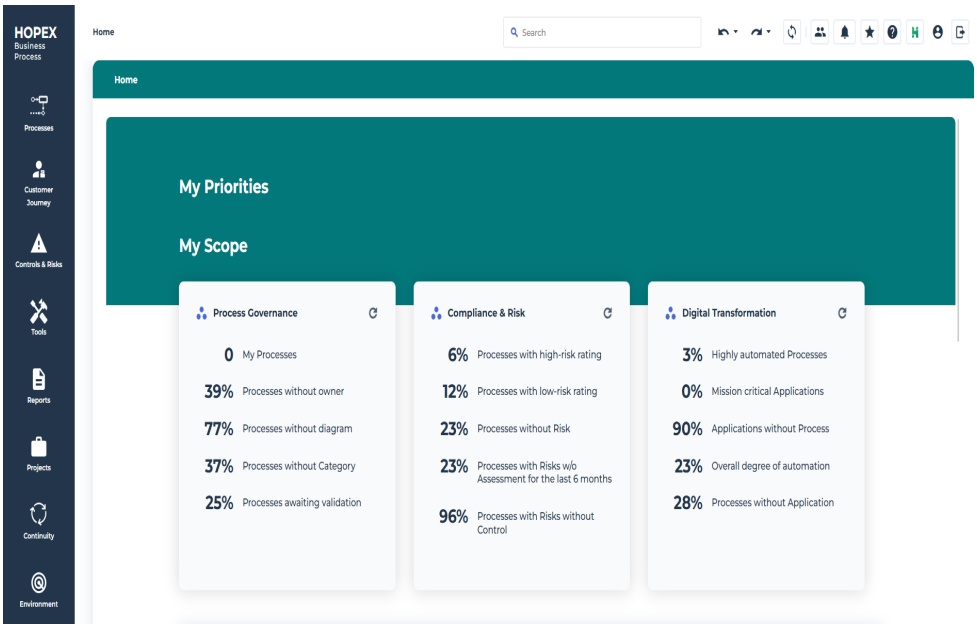
Presentation of the solution interface depends on the profile selected by the user on connection to the application; the tree of menus and functions varies from one business role to another.

Profiles	Tasks
Process Manager	The Process Manager has rights to all objects, methods, projects and assessments. He/she has access to the following functionalities: - Process modeling - Ideations - Customer Journey Mapping - Risks & Controls Mapping - Business Continuity Management - Portfolio Analysis
Process Functional Administrator	The Process Functional Administrator has rights on all objects, methods, projects and workflows. He/she / prepares the work environment and creates elements required for management of process. He/she manages: - All environment objects (processes, customer journeys, reports, etc.) - Workflows He/she has access to the same functionalities than the Process Manager.
Process Viewer	The Process Viewer has read-only rights on objects in the repository. He/she has access to the following functionalities: - BPA Desktop in read-only mode - Collaborative features
Process Contributor	The Process Contributor is responsible for validating the design of the processes entrusted to him/her or to draft new processes using the easy diagramming/tabular entry mode. He/she has access to the following functionalities: - BPA Desktop in contributor only mode - Collaborative features

☛ *The Enterprise Architect has an overall view and rights on all EA artifacts, including processes. He/she has access to the Enterprise Architect desktop. He/she has access to EA menus associated to the licenses available on their key.*

HOPEX Business Process Analysis Desktop presentation

The homepage and the navigation menus available in **HOPEX Business Process Analysis** depend on the profile with which you are connected.



Homepage

The **HOPEX Business Process Analysis** homepage is composed of the following sections:

- The header, showing goals assigned to your profile and useful links to the use of **HOPEX**.

  ☛ *These can be defined in the Administrator' **Administration**> **Methodological Domain** menu.*

- ***My scope***, presenting some statistics related to repository contents.
- ***Quick Access***, offering useful shortcuts to
  - recently viewed objects
  - favorite objects
  - process diagram creation
- ***My favorite report***, displaying the report of your choice.

  ☛ *For further information, see Homepage description.*

Navigation Menus

The **HOPEX Business Process Analysis** navigation menus are:

Processes

The **Processes** menu provides access to the following objects:

- Processes

  ☛ *See Processes.*

- Process Map and Process Category

  ☛ *See Process Hierarchy.*

- Org Unit

  ☛ *See Org-Units and Organizational Charts.*

- Application

Customer Journey

The **Customer Journey** menu gives access to Customer Journey Map. You need to use **HOPEX Customer Journey**.

☛ *See Customer Journey.*

Controls & Risks

This menu provides access to risk management functionalities. You need to use **HOPEX Risk Mapper**.

☛ *See Risks and Controls.*

Tools

This menu provides access to:

- Assessment tools
- Simulation scenarios

☛ *See Process Simulation.*

Reports

This menu provides access to all reports, enabling analyzing objects and their use.

☛ *See Reports and Analysis Tools.*

Projects

The **Projects** menu provides access to transformation project management. Depending on the products you have access to, you can see the following sub-menus:

- **Process Portfolios**, to access the portfolio management features offered with product **HOPEX Portfolio & Planning**.

  ☛ *See Using process portfolios.*

- **Action Plans**, to describe and manage the action plans linked to the transformation of processes.

  ☛ *See Action Plans.*

- **Ideation**

  ☛ *For more details on managing ideas and projects, see "Submitting and evaluating ideas" in **HOPEX Common Features** guide.*

  ☛

- **Projects**, to manage transformation projects (you need to have access to **HOPEX IT Portfolio Management**).

  ☛ *See the **HOPEX IT Business Management** guide.*

Continuity

This menu can only be accessed by the Process Manager and Process Functional Administrator profiles.

The **Continuity** menu, available with the **HOPEX BCM** product, provides access to the following Business Continuity Management functionalities.

☛ *For more information on Business Continuity Management, see the **HOPEX BCM** guide.*

Environment

This menu can only be accessed by the Process Manager and Process Functional Administrator profiles.

It gives access to the following functionalities:

- **Standard Navigation**, to access the main objects processed with the **HOPEX Business Process Analysis** solution.

  ☛ *See Defining the Work Environment.*

- **Indicators**, to access to the key indicators of your repository.

  ☛ *See the **HOPEX GRC** guide.*

- **Data Management** to access Business Dictionaries and Concept Domains.
- **Common**

  ☛ *See Using Sketches.*

  ☛

Administration

This menu can only be accessed with the Process Functional Administrator profile. It provides Assessment and Business Continuity management features.

About This Guide

This guide presents how to make best use of **HOPEX Business Process Analysis** to assure efficient management of your modeling projects.

Guide Structure

The **HOPEX Business Process Analysis** guide comprises the following chapters:

- The Processes chapter presents how to define participants and the sequence flow of process operations.
- The Process Hierarchy chapter explains how to classify processes with tho simple diagrams: Process Maps and Process Categories.
- The Value Streams chapter describes the representation of enterprise value streams in terms of activities. It enables freeing from the existing organization to imagine new organization solutions for your processes.
- The Business Capability Maps chapter, presents our method for analysis the business capabilities of your enterprise, checking their suitability with your business functions and skills.
- The System Processes chapter describes the IT process required for implementation of a process by sequencing tasks executed.
- The Org-Units and Organizational Charts chapter describes how to create an enterprise organizational chart and how to define responsibilities of persons and org-units.
- The Process Assessment chapter describes how to assess the execution and performance of business and processes with **HOPEX Business Process Analysis**.
- The Customer Journey chapter is used to represent the acquisition process of a product or a service by a specific customer.
- The Action Plans chapter describes how to use the action plans with **HOPEX Business Process Analysis**.
- The Conversations chapter explains how to model conversations between process architecture components.
- The Quality Management chapter, presents functions that simplify creation and maintenance of a quality system conforming to ISO 9000.
- The Process Portfolio chapter, presents functionalities that enable planning over time the evolution of enterprise organizations.
- The Process Simulation chapter presents functionalities that simulate the execution of a process in order to evaluate the processing time of the different tasks as well as the occupation rate of the resources that carry out these tasks.
- The Reports and Analysis Tools presents reports proposed by **HOPEX Business Process Analysis** to assist users at each step of architecture description and analysis projects.
- The Process Validation Workflow chapter presents the workflow diagrams of **HOPEX Business Process Analysis**.

Additional Resources

This guide is supplemented by:

- The **HOPEX Common Features** guide describes the basic functions common to **HOPEX** products and solutions.

  ☛ *It can be useful to consult this guide for a general presentation of the interface.*

- The **HOPEX IT Portfolio Management**, guide, which describes functions proposed to manage all your applications;
- The **HOPEX Power Supervisor** administration guide.
- More advanced technical functions are described in the **HOPEX Power Studio** guide.

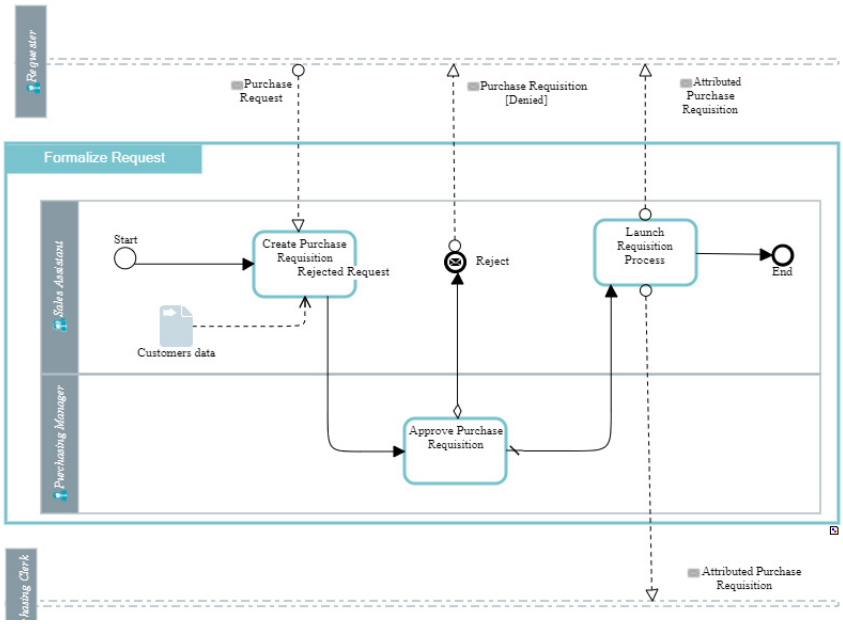
PROCESSES

With **HOPEX Business Process Analysis**, process modeling is based on the standard BPMN (Business Process Modeling Notation) notation which is easy to use for by all stakeholders.

A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the BPMN notation, the process represents a sub-process from the organizational point of view.

PROCESS EXAMPLE

In the example of the purchase request process, the organization is represented by the following diagram.



The purchase request is received by a purchasing assistant, who enters the request and submits this for the approval of the purchasing manager.

If the request is rejected, the purchasing manager informs the requester.

If the request is approved, the assistant sends a completed request to buyers responsible for issuing the order, and sends a confirmation message to the requester.

This chapter explains how to use the main objects presented in this diagram.

- The framework containing the different components represents the *process* described in the diagram. The name of the process "Process Purchase Request" appears at the top left side of the Process framework.

> *A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the*

BPMN notation, the process represents a sub-process from the organizational point of view.

- The *participants* in execution of this process are *org-units*. They are represented in pools for greater clarity. For further details, see Defining Participants.

  📖 *A participant (org-unit) enables representation of org-units assigned to execute a group of process operations.*

  📖 *An org-unit represents a person or a group of persons that intervenes in the enterprise business processes or information system. An org-unit can be internal or external to the enterprise. An internal org-unit is an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.*

- The different steps in this process are *operations*. Organization of these steps is described by sequence flows.

  📖 *An operation is an elementary step in process executed by an org-unit. It cannot be broken down. An operation can be industrial (manufacturing a component), logistical (receiving a delivery), or can involve information processing (entering an order).*

- *Message flows* enable representation of data or information exchanged between a process external entities.

  📖 *A message flow represents circulation of information within a service interface. A message flow transports its content.*

CREATING A PROCESS

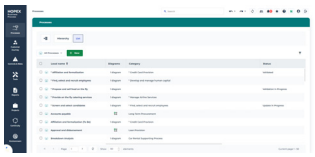
This section explains how to create a process.

> 🕮 *A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the BPMN notation, the process represents a sub-process from the organizational point of view.*

Creating a Process

To create a Process from the navigation bar:

1. Select the **Processes** navigation menu > **List** tab.
   The list of processes appears.



2. Click the **New** button.
   The new process appears in the list of processes.

   > ☺ *You can easily rename it by clicking the related cell.*

3. Click the newly created process to define its properties and create a diagram.

   > ☛ *See Defining Process Properties and Creating a Process diagram.*

Defining Process Properties

Accessing process properties

To access the properties of a process:

1. From the process list, select the process of your choice.
   The **Overview** property page appears.
2. Use the tabs to access the different property pages.

   > ☛ *You can display (or hide) tabs using the ⚙ button.*

Characteristics property page

In this page, you can define the main characteristics of a process through the following sections:

> ☛ *You can display (or hide) sections using the **Manage sections** button.*

- In the **Identification** section, you can fill the following fields:
  - Process **Name**
  - **Owner**

    ☛ *If there is a default library, it is displayed in this field. For more details on libraries, see Accessing Hopex.*
  - **Tags**

    ☛ *You can specify keywords using tags. For more details, see the **HOPEX Common Features** guide.*
  - **Category** to identify one or several higher rank Process Categories
  - **Code** to define an internal ID for the Process
  - **Grouping** to specify an additional classification (operational, steering, support)
  - **Status** updates

    ☛ *See Process Validation Workflow.*
  - **Description**
- In the **Details** section, you can specify the behavior of a process.

  ☛ *See Task type.*
- In the **Responsibilities** section, you can identify the persons in charge of designing the process.
  - Process Owner (he/she must approve process design)
  - Process Designer (he/she must design the process)
  - Process Contributor (he/she can give inputs to improve process design)

    ☛ *See Prerequisites.*
- In the **Components** section, you can access all processes and operations that contribute to process execution.
- The **System Used** section enables to access the list of elements used by the process and to create new elements.

  ☛ *See Modeling the Systems Used.*
- In the **Controls et Risks** section, Business and IT managers can guarantee traceability of compliance controls via applications, data and infrastructures.

  ☛ *For further details, see **Risks and Controls**.*
- In the **Strategy and Decisions**, you can create or link the following elements to a Process:
  - Constraints

    ☛ *See the **HOPEX IT Architecture** guide.*
  - Key Indicators
  - Requests for change

    ☛ *See the **HOPEX Common Features** guide.*
  - Action Plans

    ☛ *See Managing Action Plans with HOPEX Business Process Analysis.*
  - Issues

    ☛ *See the **HOPEX Common Features** guide.*
  - Touchpoints

☛ *See Identifying touchpoints.*

- The **Attachments** section enables to access all documents dedicated process.

Reporting property page

In this page you can access saved reports or create new ones.

- RACI matrix

  ☛ *See RACI.*

- Process Impact Graph

  ☛ *See Process Impact Graph.*

Assessment property page

This page is used to assess the process.

☛ *See Process Assessment.*

Diagrams property page

In this page, you can access existing diagrams of the Process or create new ones.

☛ *See Creating a Process diagram.*

Process Revisions property page

This page allows to monitor and compare the modifications of a process diagram throughout its life cycle.

☛ *See Process Revisions.*

Simulation property page

In the **Simulation** page, you can access **HOPEX Process Simulation** and Process Mining features.

☛ *See Process Simulation.*

Activity Feed property page

In this page, you can see the record of changes made related to the selected process.

☛ *See the **HOPEX Common Features** guide.*

Workflow property page

In this page, you can access the workflow related to the process.

☛ *See Process Validation Workflow.*

CREATING A PROCESS DIAGRAM

There a several ways to create a process diagram in **HOPEX**.

- Graphical mode: you can create a process diagram by manually adding objects.
- Tabular mode: you can generate a process diagram by entering information into a table.
- AI Assistant: you can generate a process diagram by entering a text description.
- Excel or BPMN Imports: you can generate process diagrams by importing files.

☛ *See Importing a Process from Excel and BPMN Import Specification.*

The ***Graphical mode*** can be used anytime, from the creation/modification of the process diagram. It allows more precision in adding or modifying objects (such as risks, flows, shared objects, etc.).

☛ *See Creating a Process Diagram in Graphical Mode.*

The ***Tabular mode*** or the ***AI Assistant*** are recommended to initialize a simple process diagram (adding operations, participants and sequences). You can then easily switch to graphical mode to continue the design of your diagram.

☛ *See Creating a Process Diagram in Tabular Mode and Creating a Process Diagram using the AI Assistant.*

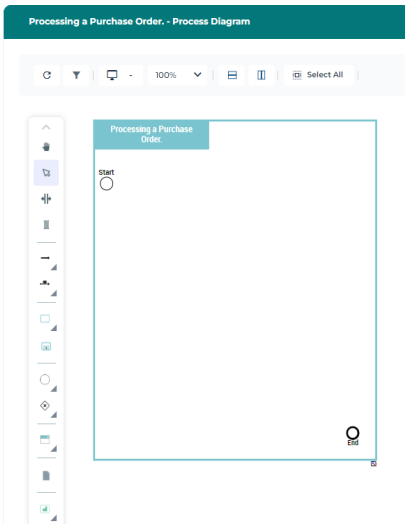
Creating a Process Diagram in Graphical Mode

To create a process diagram in graphical mode:

1. In the process list, click the **Create Diagram** icon related to the relevant process.

2. Select **Process Diagram in graphical mode**.
The diagram creation window opens.

☺ *You can also create a process diagram from the homepage > Quick Access > Actions tab > Create a Process diagram.*



3. To complete the process diagram, add existing or new objects into the frame, using the following icons:

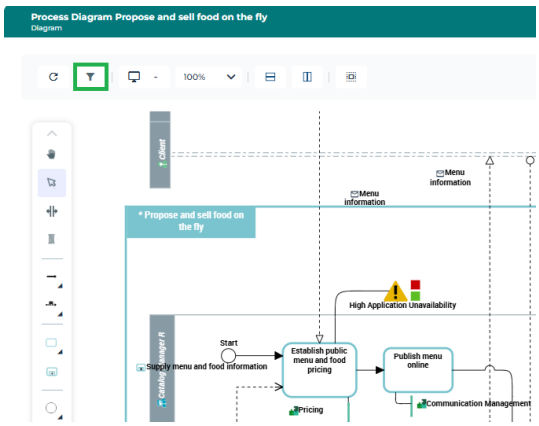
- **Sequence Flow**
  - ☛ *See Describing Sequence Flows.*
- **Message Flow with Content** 
  - ☛ *See Defining Message Flows.*
- **Operation** 
  - ☛ *See Creating an Operation.*
- **Processes** 
  - ☛ *See Processes.*
- **Event** 
  - ☛ *See Defining Events.*
- **Gateway** 
  - ☛ *See Using Gateways.*
- **Participant**
  - ☛ *See Defining Participants.*
- **Data Object** 
  - ☛ *See Using Shared Objects.*
- **Application Used** 
  - ☛ *See Modeling the Systems Used.*
- **Risks**  and **Control** 
  - ☛ *See Risks and Controls.*

Handling objects in graphical mode

Object display

Some objects are not displayed by default in the graphical editor. To make them appear:

1. Enable the display of the desired objects using the ***Views and details*** *icon.*



Actions on objects

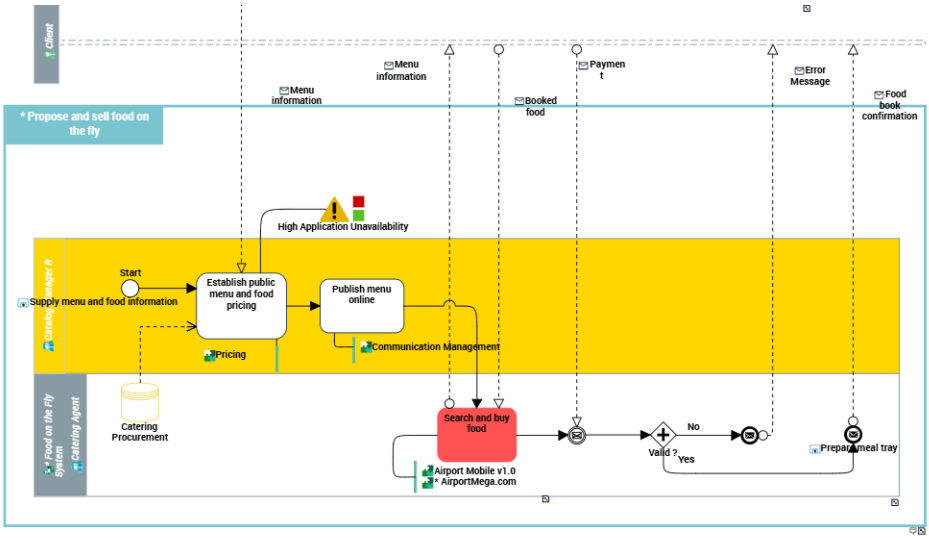
For more details on:

- Adding objects, see Add Objects in a Diagram.
- Links between objects, see Handling Links Between Objects.
- Deleting objects, see Removing and Deleting an Object from a Diagram.

Object coloring

To highlight an object, you can change the color of its graphical shape (fill and/or outline).

- See Modifying a Shape Fill.



Rearranging objects in the diagram

The following icons allow you to automatically rearrange the objects in the diagram:

- **BPMN Vertical Diagram** : Rearranges the diagram objects vertically.
- **BPMN horizontal Diagram** : Rearranges the diagram objects horizontally.

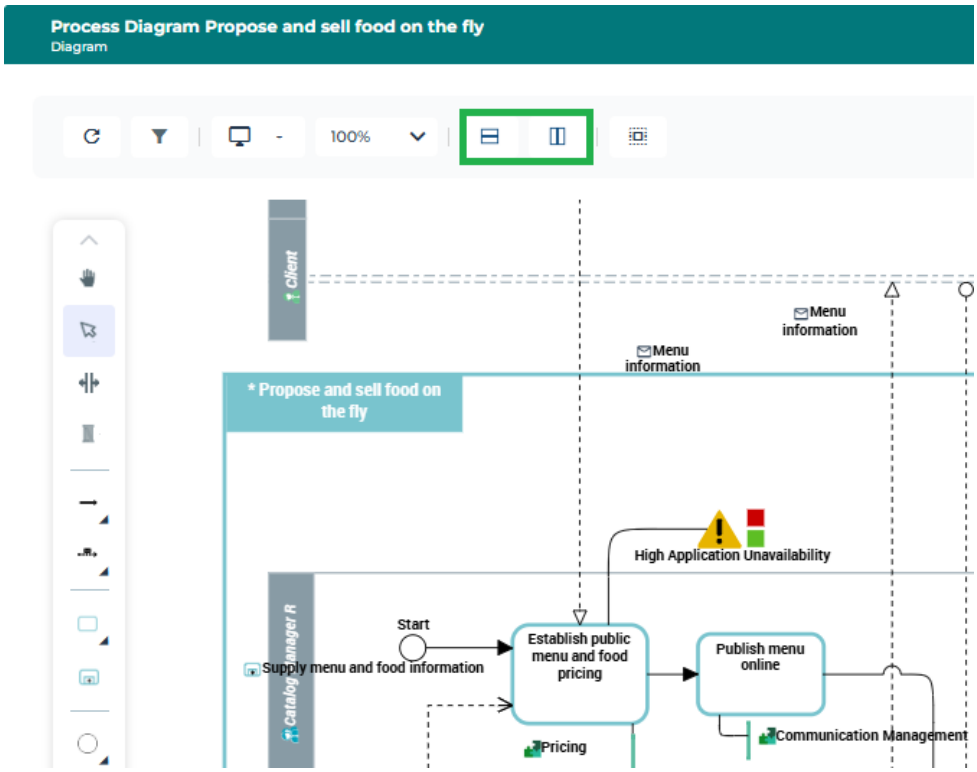


Diagram rearrangement thresholds

Rearranging a complex diagram may take several minutes.

By default, ***a warning appears*** if the diagram contains more than ***50 Sequence Flows***, requiring user confirmation before proceeding with the rearrangement.

To adjust this value:

- Use the user option **Number of links that requires confirmation for automatic reorganization** via the Main Menu > Settings > Options > Diagrams > Display.

By default, ***automatic rearrangement is disabled*** if the diagram contains more than ***100 Sequence Flows***.

To adjust this value:

- Use the user option **Maximum number of links for automatic reorganization** via the Main Menu > Settings > Options > Diagrams > Display.

Creating a Process Diagram in Tabular Mode

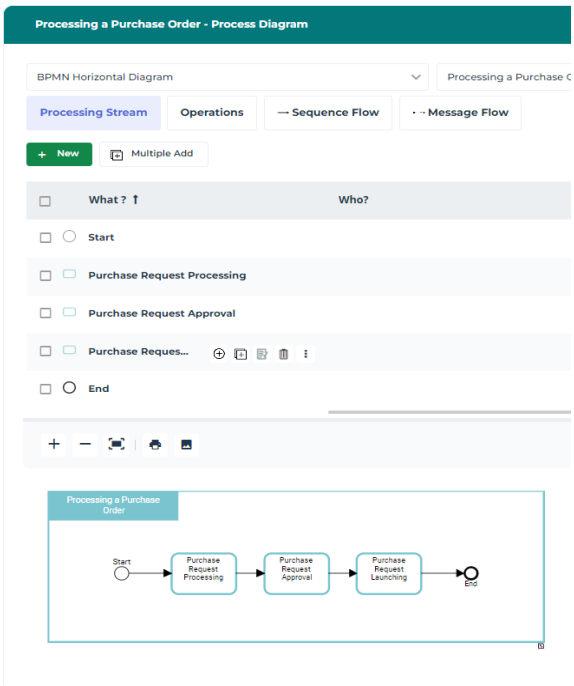
To create a process diagram in tabular mode:

1. In the process list, click the **Create Diagram**  icon related to the relevant Process.
2. Select **Process Diagram in tabular mode**.
   The diagram creation window opens.

   ☺ *You can also create a process diagram from the homepage > Quick Access > Actions tab > Create a Process diagram in tabular mode.*
3. Complete the Process diagram by:
   - adding one or several object types in the **What?** column
   - identifying the participants in the **Who?** column
   - defining the sequence flows with the **Previous Item** and **Next Item** columns
4. (Optional) Link objects to operations in the **Operations** tab.

   When more than three objects are linked to an operation, the additional objects are placed outside the diagram. These

must be manually repositioned using graphical mode. See [Tabular Mode Limitations].



Objects added in the table (upper part) appear in the diagram preview (bottom part).

☛

☛ *For more information on tabular entry mode, see the "Building a diagram in tabular entry mode" in the **HOPEX Common Features** guide.*

☺ *You can easily switch to graphical mode with the **Edit the diagram***

icon.

Creating a Process Diagram using the AI Assistant

Prerequisites

AI service

The AI Assitant is based on an AI service hosted by **MEGA**.

- Ensure that the HOPEX server can access the following service URL: https://bpa-ai.saas.mega.com/api/bpmn_ai_creator.

Module installation

The **AI-Driven Process Modeling** module must be imported.

☛ *See Importing a Module into HOPEX*

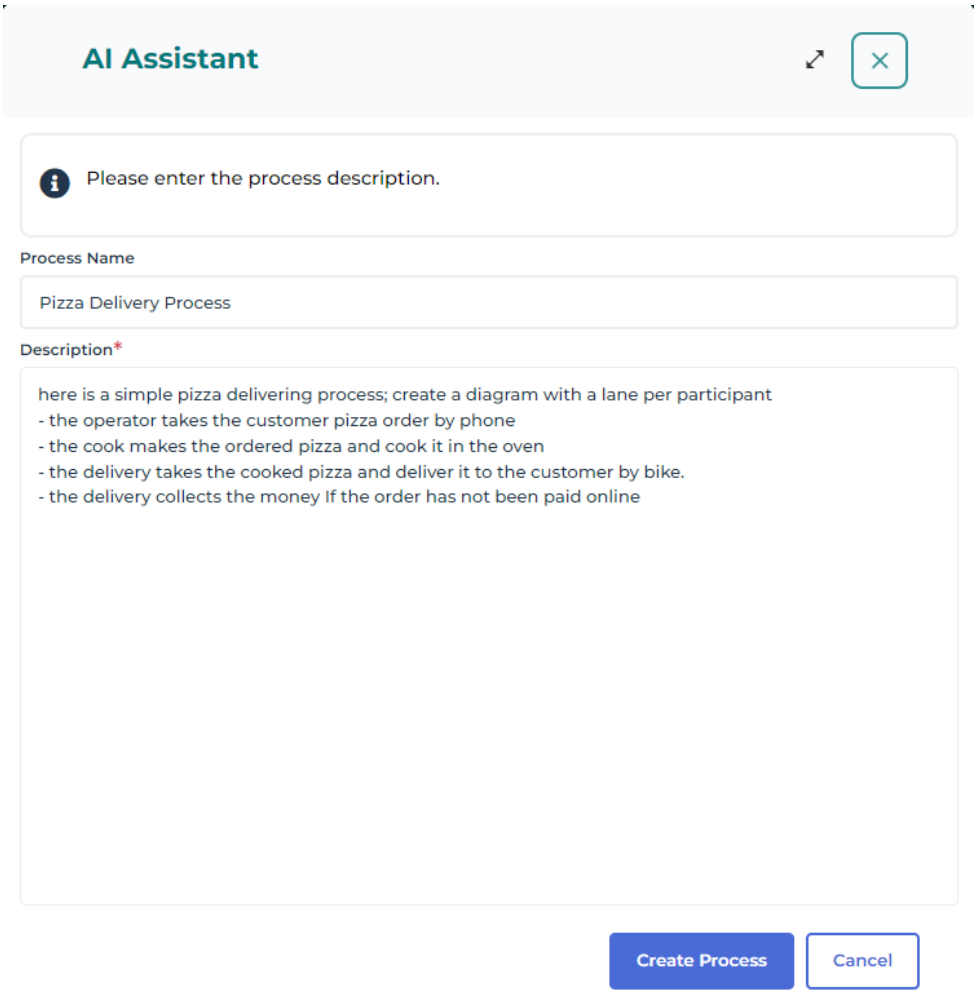
Creating a diagram using the AI Assistant

To create a process diagram using the AI Assistant:

1. Select the **Processes** navigation menu > **List** tab.
2. Click the **AI Assistant** button.
   The diagram creation window opens.

   ☺ *You can also create a Process diagram from the homepage > Quick Access > Actions tab > Create a process diagram using AI Assistant.*
3. Enter the name and the description of the process.

   ☛ *See Description Examples.*



4. Click **Create Process**.
   The diagram is automatically generated.
5. Click **Edit diagram** to correct or keep on designing the diagram in graphical mode.

Description Examples

The way the process is described depends on your specific needs.

- You need to create a ***generic process*** for either normalized/ standardized processes or where an established framework exists on the market:

  ```
  Generate a Process for the creation of a Bank Account.

  Create an "Internal Audit" Process.
  ```

- You need to design a more ***specific process***. The process described must be simple, you can add participants, operations, and gateways for example.

  ```
  Here is a simple pizza delivering process. Create a diagram
  with a lane per participant.

  - The operator takes the customer's pizza order by phone.

  - The cook prepares the pizza and bakes it in the oven.

  - The delivery person picks up the cooked pizza and delivers
  it to the customer by bike.

  - The delivery person collects the payment if the order has
  not been paid online.
  ```

  ☺ *Note that you can precise "a lane per participant" to clearly differentiate them.*

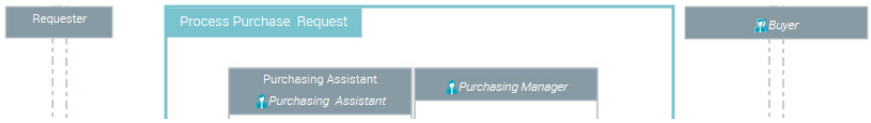
DEFINING PARTICIPANTS

A participant defines a partition of the actions of a process that will be assigned to a same agent. Most of the time Participants are org-units.

> 🕮 *An org-unit represents a person or a group of persons that intervenes in the enterprise business processes or information system. An org-unit can be internal or external to the enterprise. An internal org-unit is an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.*
>
> ☛ *See Creating Org-Units.*

Using Participants

Example of participants



In diagrams, participants are often represented in pools.

> ☛ *For more details one the use of pools, see chapter "Using the Pools: Improving Graphical Presentation" **HOPEX Common Features** guide.*

Creating a Participant (Org-Unit)

To create a *participant (Org-Unit)* in an process diagram:

1. In the object inserting bar, select **participant (org-unit)** .
2. Click within the process frame.
   The add participant dialog box appears.
3. Connect an existing participant or create one.
   The participant is positioned in the diagram.

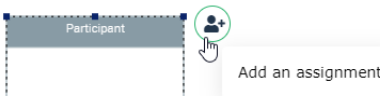
> ☺ *To hide the name of the participant, open its pop-up menu and select **Shapes and Details**. In the tree on the left, click the "Short Name" folder, then in the **Content** tab, clear the **Short Name** check box.*

Adding an assignment to a participant

You can assign an existing object to a participant.

To do so:

1. Click in the participant frame.
   An icon appears to **Add an assignment**.



2. Click the **Add an assignment** icon.
3. Select the name of the objects you wish to assign to the participant.

   ☛ *You can also use the **Assignment** section of the **Characteristic** property page of to connect new or existing objects to the participant*

Conditioning participant assignment

Org-units, either new or already created, can be assigned to participants of a process.

Example: The "Analyze Purchase Request" operation in the "Process Purchase Request" process, handled by the Purchasing Manager, is assigned to the Purchasing Assistant when the manager is absent. To represent this, we assign org-units "Purchasing Manager" and "Purchasing Assistant" org-units to the same participant.

To condition participation of an org-unit:

1. Open the **Characteristics** property page of the Participant.
2. In the **Assignment** section, select the row of the org-unit you which to condition assignment.
3. Click in the cell which is at the intersection of the **Conditioning** column and the selected participant.
   The text of the condition appears between brackets alongside the name of the org-unit in the participant title bar.

CREATING AN OPERATION

📖 *An operation is an elementary step in process executed by an org-unit. It cannot be broken down. An operation can be industrial (manufacturing a component), logistical (receiving a delivery), or can involve information processing (entering an order).*

☛ *For steps requiring greater detail, processes can be called in an operation. See Calling a Process in an Operation.*

Creating an Operation on a Participant

To create an operation and connect it to the participant responsible for its execution:

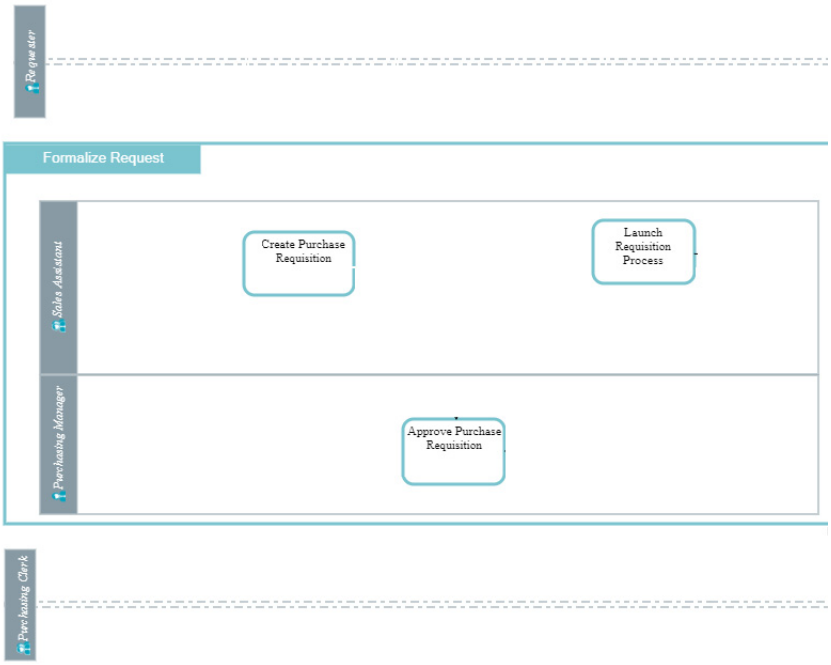
1. Click the **Operation** button in the object insert toolbar.
2. Click in the diagram within the shape of the participant concerned. The operation is automatically created.

To assign an operation to another participant:

- Select the operation and move it from one participant to the other.

  ☛ *Once the operation has been moved, it is no longer connected to the initial Participant. It is connected to the Participant who performs the operation.*

Example of an Operation



Specifying Operation behavior

Complying with BPMN standard, a process can have different behaviors. With **HOPEX Business Process Analysis**, these behaviors are available for organizational processes, operations, system processes and tasks.

Behaviors

Behaviors proposed are:

- **Transaction**: a transaction is a set of coordinated activities leading to a consistent, and verifiable outcome.
- **Loop**: a loop is a process step that is repeated as long as a condition is true.
  - "Do while": the condition is evaluated before the first execution.
  - "Do until": the condition is evaluated after the first execution. In this case, the process step is executed at least once.

  The predicate enables specification of the loop execution condition.
- **Ad hoc**: steps of an ad hoc process are not controlled or sequenced in a particular order. Their performance is determined by the performers of the process.
- **Multiple**: the process is repeated a predefined number of times, evaluated only once before it is carried out. Execution type can be specified:
  - "Parallel": all executions carried out simultaneously.
  - "Sequential": executions carried out one after the other.
- **Compensation**: a compensation defines the set of activities that are performed during the roll-back of a transaction to compensate for activities that were performed during the normal flow of the process.

To describe for example that a system process is executed by a loop:

1. Open the **Characteristics** property page of the process.
2. In the **Details** section, in the **Loop** field, select the loop type corresponding to the process behavior and add the condition text. Shape of the process is modified to display the symbol of the loop.

Task type

To specify the type of a task:

1. Open the **Characteristics** property page of the process.

2. In the **Details** section, click the arrow at the right of the **Task Type** box. A list of task types appears.
   - **Call Process**: task used to call a second process while executing the current process.
   - **Receive:** elementary task which waits for arrival of a message from a participant external to the process. When the message has been received, the task is completed.
   - **Send**: task that sends a message to a participant external to the process. When the message has been sent, the task is completed.
   - **Manual**: task executed without the help of a automatic execution engine of a process or IT application.
   - **Business Rule**: execution task of a business rule with a rules engine which processes input data and returns calculation results.
   - **Script**: task executed by a process execution engine. The designer defines a script in a language that the engine is able to interpret. When the task is ready to start, the engine executes the script. The task is completed when script execution is completed.

     ☛ *Shape of the process is modified to display the symbol associated with the task type.*

Calling a Process in an Operation

You can create an operation that calls a process. This functionality enables, for example, replacement of the process called by another process without disturbing description of the main process.

To create an operation that calls a process:

1. In the object inserting bar, click the drop down menu of **Operation** .
2. Select **Called Process**.
3. Move the object to the appropriate area within the diagram.
   The properties dialog box appears.
4. In the **Called Process** field (Identification section), select the name of the called process.

   ```
   In our example, "Process Purchase Request" could be
   replaced by "Process Urgent Purchase Request".
   ```

   ☛ *By default, the operation carries the same name as the called Process.*
5. Click **OK**.
   The operation appears in the diagram with the name of the process.

MODELING THE SYSTEMS USED

> 🕮 *A system used during the execution of a step of a process represents what is necessary to realize this step. It can be an application or an IT service, or any other non IT resource, or more generally a functionality.*

A System Used can be of several types:

- An *IT service*,

  > 🕮 *An IT service is a software component of an application, that can't be deployed alone and that realizes a sub-set of the functionalities of this application either for end users of this application or inside the application (or another application). This includes batch programs.*

- An *application*,

  > 🕮 *An application is a software component that can be deployed and provides users with a set of functionalities.*

- A *functionality*,

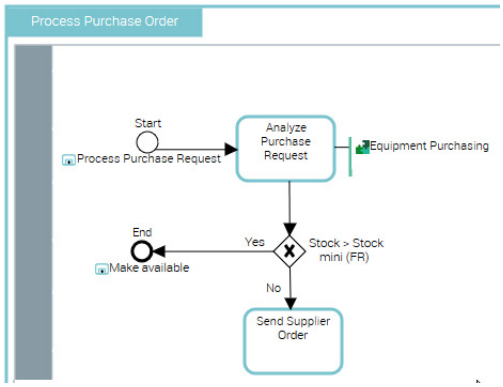
  > 🕮 *A technology capability is the ability to deliver a technology service which is required by a technology artifact or an application.*

- A *resource*.

  > 🕮 *A resource is a means used to perform certain actions.*

System used Example

We can define a new process for the processing of urgent purchase requests, in which responsibilities of the purchasing assistant are extended. However, the assistant is using an *application*.



"Purchase Request" Process

The purchasing department begins by analyzing the purchase request. Is product in stock? A request for availability is put forth.

To analyze the purchase request and send the order, the purchasing assistant requires data on stock levels. He will have access to the "Equipment Purchasing" application.

Creating a System Used in a Process diagram

☛ *You can see the systems used in the operations by selecting "System used" in* ***Views and Details*** *icon.*

To create a *system used* representing the use of the application by process:

1. In the object inserting bar, select **Application Used** .
2. Click in the diagram.
   A creation dialog box opens.
3. Select an application used or create a new one.
   The Application used is positioned in the diagram.
4. Use the link button to connect the system used you have created to a process or an operation.

DESCRIBING SEQUENCE FLOWS

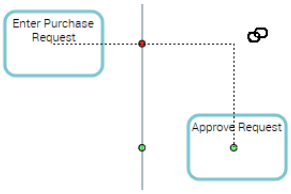
A *sequence flow* is a directional link that represents the chronological organization of the different processing steps.

> 🕮 *A sequence flow is used to show the order in which steps of an service contract will be performed. A sequence flow has only one source and only one target.*

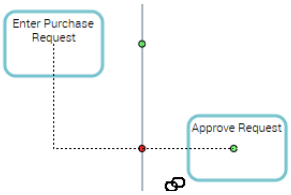
Creating Sequence Flows

To create a sequence flow between two operations::

1. Click the ⟶ button in the object inserting bar.
2. Click the sender operation and draw a link to the recipient operation.
   A dotted line link indicates the path taken by the graphic link.



> ☛ *Several paths are possible: you need only move the cursor in the recipient operation frame.*



Moving Sequence Flows

You may need to change the predecessor or successor of a sequence flow.

To move a sequence flow:

1. Click the sequence flow.
   The two link ends are marked by squares.
2. Click the square you want to move and, holding the mouse button down, drop it to its new predecessor or successor.
   A dotted line link is displayed.

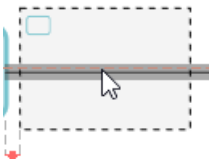
3. Release the mouse button.
   The link appears in its new position in the diagram.

Inserting an element in a sequence flow

You may need to insert an operation or a process between two elements linked by a sequence flow. Rather than moving the links, you can insert the operation, or process, directly on the sequence flow.

To insert an operation in a sequence Flow:

1. Click the **Operation** button of the insert toolbar.
2. Position the mouse on the sequence flow that interests you.
   The pointer shape changes to a double-headed arrow.



3. Click when the operation is correctly placed.
   The operation is automatically created.
   The sequence flow is broken down into two sequence flows linking the new operation at each end of the initial sequence flow.

Defining a Condition on a Sequence Flow

Specifying that a sequence flow is conditioned

To define that a sequence flow is conditioned:

1. Right-click the sequence flow and select **Sequence Type > Conditioned**.
2. Click the sequence flow and press key <F2> to add a comment if necessary.
   The text associated with the condition appears on the link which then takes form  .

> ☛ *You can also access to the conditions of the sequence flow from the **Characteristics** property pages of the sequence flow. The comment appears in the **Predicate** field.*

Defining a Sequence Flow

If several conditioned sequence flows are from the same operation, you can specify that one of these should be used as default. For example, having completed the "Enter Purchase Request" operation, the assistant always executes the "Finalize Request" operation, except if the request is not acceptable and is below a given amount.

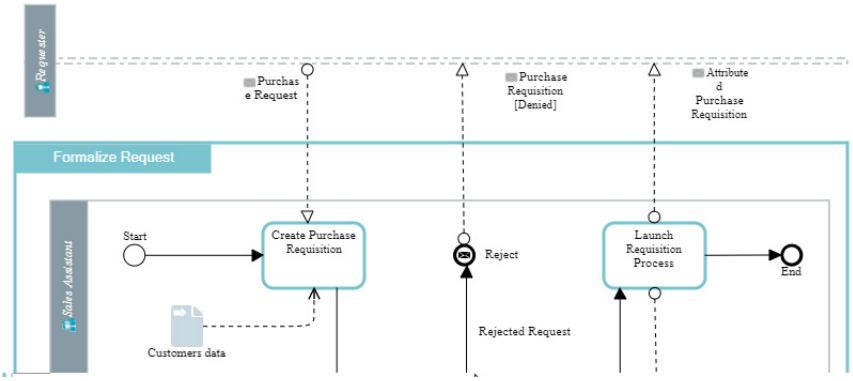
To define that a sequence flow is used by default:

- Right-click the sequence flow and select **Sequence Type > Default**.

  The link then takes form  .

DEFINING MESSAGE FLOWS

The content of message flows exchanged with the exterior can be specified.



Creating a Message Flow With Content

You can specify the content of a *message flow* exchanged between a process and its environment when the flow is created.

> *A message flow represents circulation of information within a service interface. A message flow transports its content.*

To create a message flow and its content:

1. In the object inserting bar, click **Message Flow** .
2. Connect the object issuing the flow to the object receiving the flow.
   The Creation of Message Flow - Content dialog box appears.
3. Connect an existing Message or create a new one.
   The message flow is displayed with its content in the diagram.

Defining Message Flow Content

To define content of a message flow:

1. Open the **Characteristics** property page of the Message Flow.
2. Click the arrow at the right of the **Content** field and select **Connect Content**.
   The selection dialog box appears, with a list of contents proposed for the message flow.

3. Select the content name and click **OK**.

   ☛ *A content can be used by several message flows since it is not associated with a sender or recipient.*

   The name of the content appears in the diagram.

Ensuring Consistent Flows in a Process

The flows, and associated content, exchanged by a process with the outside must be described in the process diagram.

To check the consistency of the flows of a process, you have two functionalities:

- Modeling regulations that allow a global validation of the consistency.
- A specific report that provides a detailed view of the inconsistencies on the exchanged flows. For further details, see Process Message Flows Inconsistencies.

To activate the modeling regulation regarding flow consistency:

1. Open the options window.
2. Select **Workspace > Modeling and Methods Regulations**.
3. Select **Select a regulation** in the field **Active modeling regulation**.
4. Select **Message Flows Top-Down Consistency** and click **OK**.

To view the result of the modeling regulation:

❱ Open the **General > Rules Application** property page of the process.

Message Flows Top-Down Consistency

Result	Rule Definition	Diagnosis
😉	*Recommendation* A Called Process or a Sub Process should have consistent incoming message flows in their description	*This rule is verified.*
⚠	*Recommendation* A Called Process or a Sub Process should have consistent outgoing message flows in their description	*There are inconsistencies regarding outbound message flows of the task or sub process. Check those message flows: - My Organizational Process o--> Start*

DEFINING EVENTS

The *events* enabling representation of facts occurring during process execution.

> 🕮 *An event represents a fact or an action occurring in the system, such as updating client information. It is managed by a broker. An application indicates that it can produce the event by declaring that it publishes it. If an application is interested in an event, it declares that it subscribes to the event.*

Events can be used:

- Within a process to define facts internal to the process.
- Outside a process to describe causes and effects of events of the process depending on its use context.

The different event types are presented in this section.

Defining an event

Event natures

The nature of the event enables specification of its position in the processing.

- **Start**: start of the processing sequence
- **Catching**: awaiting an event (arrival of a message, signal, etc.) before continuation of processing
- **Throw**: triggering an event (message, signal, etc.) and continuation of processing
- **End**: end of processing

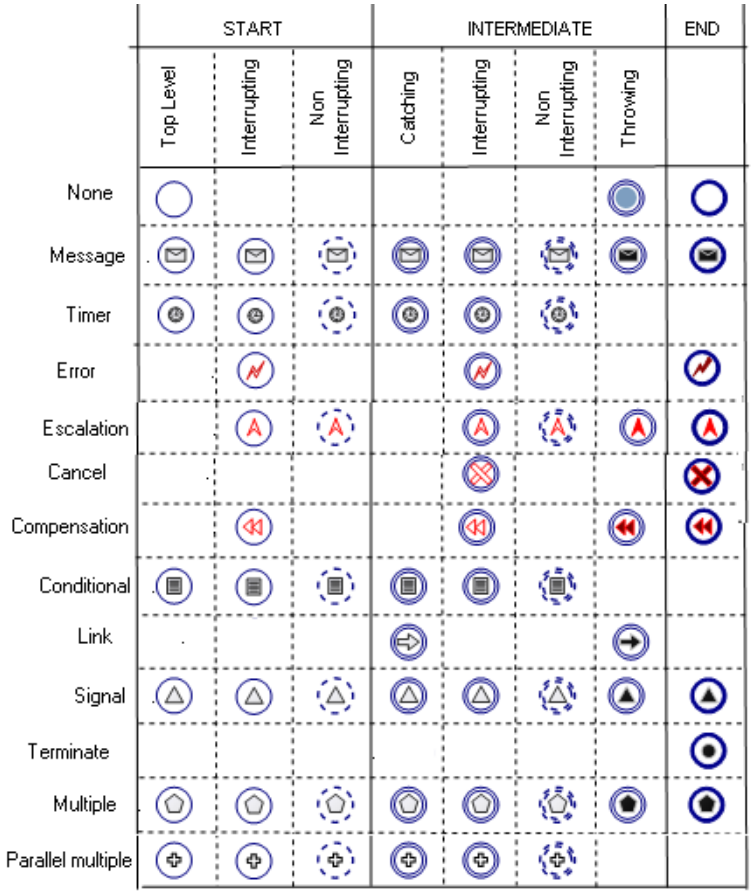
Event types

Event type enables specification of what will trigger the event and what will be triggered by the event.

- **None** the trigger is not specified, generally at the start or end of a process
- **Message**: the event is receiving or sending messages
- **Timer**: the event is triggered by a timer
- **Error**: the event is triggered by errors or throws errors that cause interrupt of the process
- **Escalation**: the event is triggered by an error or throws a non-critical error
- **Cancel**: the event reacts to cancellation of a process step or triggers cancellation
- **Compensation**: the event handles or triggers compensation of a failed process
- **Conditional**: the event is triggered by a condition
- **Link**: the event is used to connect two sections of a process
- **Signal**: the event waits for a signal or throws a signal. One signal thrown can be caught multiple times
- **Finish**: the event indicates that all process steps should be immediately ended without compensation or event processing
- **Multiple**: the event has multiple triggers
- **Multiple**: the event has several simultaneous triggers

Event type and nature combinations

The following table presents valid combinations of event type and nature.



Current process interruption

The current process may be interrupted when an event occurs. This characteristic of the event is specified in **Interruption** which can be one of the following values:

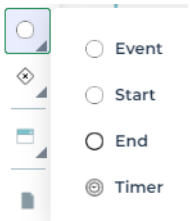
- **Interruption**
- **Non interruption**

☛ *By default the event interrupts the current process.*

Creating Events

You can directly create the most frequently used events:

1. Click the **Event** button in the toolbar and select from the predefined nature events the nature that interests you.



2. Click in the diagram.
   The new event appears in the diagram.

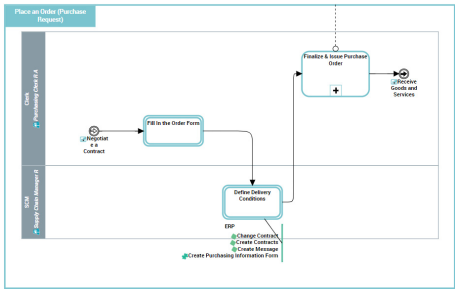
To create an event with a specific nature or type:

1. Click the **Event** button  in the insert toolbar.
2. Click in the diagram.
   The **Creation of Event** dialog box appears.
3. Specify the **Local Name**.
4. Select the nature of new event.
   - ☛ *By default, the nature is **Catching**.*
5. Click **Next** and select the type of event you wish to create.
   - ☛ *By default the type is **None**.*
6. Click **OK**.
   The new event appears in the diagram. The shape of the event respects conventions linked to its type and nature.
   - ☛ *By default the event is **interruption**.*

Connecting an External Process to an Event

In a process diagram, you can display:

- The upstream process connected to the start event
- The downstream process connected to the end event



In this process diagram example, the start event shows the upstream process "Negotiate a Contract" and the end event shows the downstream process "Receive Goods and Services".

Prerequisites

To display the external processes that are connected to events, you must activate an option:

1. Click the **Views and details** button .
2. Select **View External Processes**.
3. Click **Apply**.

Connecting a Process to an Event

To connect an upstream process to a start event:

1. Select the start event in the process diagram.
2. Click the **Open the aspect page** button « to display the event properties, then click the **Properties** tab
3. In the Upstream Processes section, click **Connect Previous Process**.
4. Select the relevant process in the tree-list.

> ☛ *When an uptream process is connected to a start event, a sequence flow is automatically created between these objects. If several sequence flows are already connected to the start event, the user must select the adequate sequence flow.*

To connect a downstream process to an end event:

1. Select the end event in the process diagram.
2. Click the **Open the aspect page** button « to display the event properties, then click the **Properties** tab.
3. In the Downstream Processes section, click **Connect Next Process**.

4. Select the relevant process in the tree-list.

> ☛ *When a downstream process is connected to an end event, a sequence flow is automatically created between these objects. If several sequence flows are already connected to the start event, the user must select the adequate sequence flow.*

Attaching an Event to a Process

To attach an event to a process:

1. Click the event and hold the mouse button down.
2. Position the event on the border of the process.

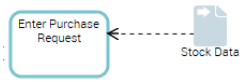
To detach the event from the process border:

- Right-click the event and select **Detach**.

USING SHARED OBJECTS

In an process diagram, a *data object* can be used to indicate that data or objects (such as correspondence, raw materials, finished products, etc.) are stored and waiting to be used.

> 🕮 *A data object is used to explain how documents, data, and other objects are used and updated during the process. A data object can represent an electronic document, or any other type of object, electronic or physical.*



In this example, the shared object "Stock Data" is represented with an open head arrow since it is used by the "Analyze Purchase Request" process without having been produced by one of the processes represented in the repository.

Creating a Data Object

To create a data object:

1. Click the **Data Object** button in the diagram inserting bar.
2. Click in the diagram to position the object.
3. Open the **Characteristics** properties page of the data object.
4. In the **Content** field, select an existing content or create a new one.

   ☛ *A content can be used by several data objects.*
5. Enter **Data Object State** if required.

   ☛ *By default the data object carries the same name as its content. The state appears between brackets.*
6. Click **OK**.
   The data object appears in the diagram.

Describing a Data Object

To specify that a shared object corresponds to an object collection:

1. Open the **Characteristics** properties page of the data object.

2. In the drop down menu of the **Collection** field, select **Yes**.
   The shared object then takes the following form:

Information necessary for execution of operations can be consulted or updated in the data objects.

To indicate that information was obtained from a data object, for example that stock data used by the "Analyze Purchase Request" operation was obtained from the "Stock Data" data object:

- Click the link button in the insert tool bar to link the "Stock Data" to the "Analyze Purchase Request" operation.

  ☛ *A data object is represented by an open head arrow if it is read by a process without having been updated by one of the processes in the repository.*

  ☛ *A data object is represented with a solid head arrow if it is updated by a process and not read by any of the processes in the repository.*

Associating a Data Object with a Sequence Flow

You can specify that the content of a *shared object* is sent at sequencing of two operations.

```
For example, a shared object "Purchase Request" can be sent
between the operations "Enter Purchase Request" and
"Finalize Request".
```

📖 *A data object is used to explain how documents, data, and other objects are used and updated during the process. A data object can represent an electronic document, or any other type of object, electronic or physical.*

To simultaneously create a sequence flow and a data object:

1. Click the **Sequence Flow** button arrow, option **Sequence Flow with Data Object**.
2. Connect the operations.
   The add sequence flow dialog box appears.
3. In the **Content** drop-down list, select the content you wish to associate with the flow.

The sequence flow and its content are displayed in the diagram.

Using Data Stores

Objects that are shared, supplied or used in processing can be stored in a *data store*.

📖 *A data store provides a mechanism to update or consult data that will persist beyond the scope of the current process. It enables storage*

of input message flows, and their retransmission via one or several output message flows.

Prerequisites to using data stores

HOPEX Business Process Analysis provides several types of *data store*:

- *Process data store*, associated to a business information area.

  📖 *A business information area is a sub-set of elements of a subject area that reduces the scope of a field. For more information, see the **HOPEX Data Architecture guide.***

- *Process logical data store*, associated to a logical data area.

  📖 *A logical data area is used to define a logical data structure made up of classes and data views. For more information, see **HOPEX Data Architecture**.*

To activate these options:

1. In the workspace, open the **Options** navigation window.
2. In the tree on the left, select **HOPEX Solutions > Business Process Analysis**.
3. Select the check boxes that interest you in the following fields:
   - **Activate former BPMN data stores (HOPEX V3 and lower)**

     ☛ *If you cannot see the **Data Store** button in your diagram, click the diagram **Views and Details** button and select the "Data Stores" view.*

   - **Activate BPMN data stores for conceptual, logical and physical layers (from HOPEX V3.1)**

     ☛ *If the **Process Data Store** and **Logical Process Data Store** buttons are not visible in process diagram, click the diagram **Views and Details** button and select the "Process Data Stores view".*

Creating a process data store

To create a process data store:

1. Click the **Process Data Store** button in the insert toolbar.

   ☛ *If the button is not visible by default, click the diagram **Views and Details** button and select the "Data Stores" view.*

2. Click in the diagram to position the object.
   The **Add Business Information Area** dialog box appears.
3. Select the name of the Business Information Area connected to the process data store.
4. Click **OK**.

In the same way you can create:

- *Process data stores*, associated to a business information area.

  📖 *A business information area is a sub-set of elements of a subject area that reduces the scope of a field. For more information, see the **HOPEX Data Architecture guide.***

- *Process logical data stores*, associated to logical data area.

  📖 *A logical data area is used to define a logical data structure made up of classes and data views. For more information, see **HOPEX Data Architecture**.*

Describing exchanges with a Process data store

You can specify that informations are exchange between a process data store and an operation.

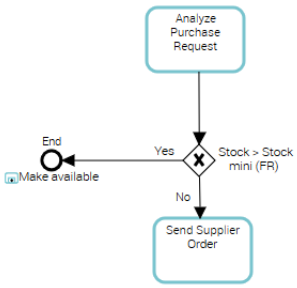
For example, to describe that information are read by an operation in a process data store:

1. Click the link button  .
2. Connect the data store to the operation.
   The link appears in the diagram.

   ☛ *The reading or writing access is determined by the direction of the link.*

USING GATEWAYS

The following example presents a case where continuation of processing is conditioned: following analysis of a purchase request, the process either ends, or an order is sent to a supplier.



To specify that several processing steps are accessible following a particular processing step, you can use a *gateway*.

> *Gateways are modeling elements that are used to control how sequence flows interact as they converge and diverge within a process.*
>
> *Conversely, you can also use a gateway to indicate that a particular processing step is available from several processing steps of a process.*

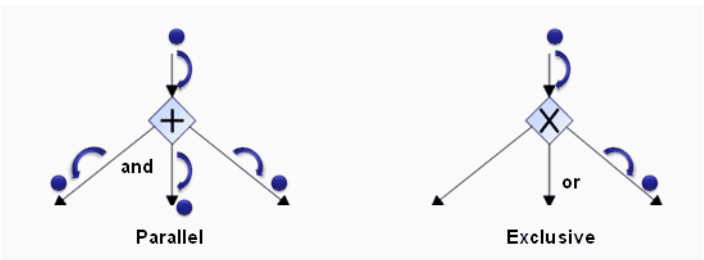
In compliance with the BPMN standard, in the insertion toolbar, several *gateway* types are available to you.

To better understand the main use cases, we distinguish output gateways of a processing step from input gateways.

Processing Step Output Gateways

In the case of an **Exclusive** gateway, only one output branch can be selected from those available. The branch can be selected as a function of the **Data** available for the process, or of the **Events** occurring during its execution.

In the case of a **Parallel** gateway, all output branches are processed simultaneously.



In the case of a **Complex** gateway, one or several output branches can be selected from those available.

A **Complex** gateway represents a combination of those above.

When the gateway has been created, its type can be modified in its properties page.

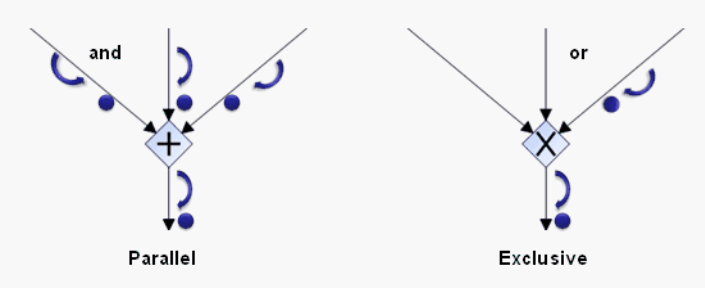
At output of a step, a gateway represents a point of divergence of sequence flows of a process.

Step Input Gateways

At input of a step, a gateway represents a point of convergence of sequence flows of a process.

In the case of an **Exclusive** gateway, the process step is triggered when one of these branches is active.

In the case of a **Parallel** gateway, all input branches are processed simultaneously.



Creating gateways

To create a gateway:

1. Click the arrow **Gateway** button in the diagram inserting bar and select the gateway type you wish to create.
2. Click in the diagram.
   The gateway appears in the diagram with the shape appropriate to its type.

   ☛ *You can specify the name of the gateway from its **Characteristics** property page.*

Modifying gateway type

To modify gateway type:

1. Right-click the gateway and select **Gateway type**.
   The **Gateway Types** proposed are:
   - **Complex**: the process can take a complex combination of paths.
   - **Exclusive** : the process can take a single path from several possible paths depending on the value of the data available. This is the default gateway type.
   - **Exclusive (Start)**: the process is triggered by the first event occurring; others are ignored.
   - **Exclusive (Event)**: the process can take a single path from several possible paths depending on the events occurring.
   - **Inclusive**: the process can take one or several paths simultaneously.
   - **Parallel**: the process takes several parallel paths simultaneously.
   - **Parallel (Start)**: the process is triggered by the first event occurring. The other events occurring during progress of the process are also taken into account.

     ☛ *You can also access to the gateway type from the **Characteristics** property pages of the gateway.*

IMPORTING A PROCESS FROM EXCEL

HOPEX Business Process Analysis allows to import processes with an Excel template.

This feature simplifies data integration by allowing you to:

- Download a preformatted Excel template
- Fill it in with your own data
- Upload it to **HOPEX** to complete the import

> ☛ *For more details on Excel data exchange wizards, see the "Exchanging Data with Excel" chapter in the **HOPEX Common Features** guide.*
>
> ☛

Donwloading the Excel Template

To download the Excel template dedicated to process import in **HOPEX**:

1. Go to the Excel Template download section.

   ☛ *See Downloading an Excel Template.*
2. Download the **Process Template**.

Structure of the Excel Template

The **Process Template** is organized into several tabs, each serving a specific function:

- The **Process Map** and **Process Category** tabs are used to define the process hierarchy.

  ☛ *See Process Hierarchy.*
- The **Process** tab is used to define processes.
- The **_SAMPLE** tabs provide examples that describe processes, process categories, and process maps.

Process Map Tab

Each row represents a process map, identified by the **Process Map Name** column.

Column	Description
Process Map Name	Name of the Process Map
Description	Process Map description
Process Category	Process categories included in the Process Map

Process Category Tab

Each row represents a process category, identified by the **Process Category Name** column.

Colonne	Description
Process Category Name	Name of the Process Category
Description	Process Category description
Process Category Owner	Owner of the Process Category
Process Category (Sub Process Category)	Name of the Sub-Process Categories associated with this Process Category

Process Tab

All processes to be imported must be defined in the **Process** tab.

Each row represents a component of a process, whose name is specified in the **Process Name** column.

Colonne	Description
Process	**HOPEX** Owner process identifier
Process Name	Owner process Name
What	Described component Name
Type	Described component type (Operation, Event or Gateway)
Event Nature	Nature of component whose Type is Event. For more details on an event nature, see Event natures.

Colonne	Description
Who	Name of the Org-Unit associated to the participant executing the described component. For more details on participants(Org-Unit), see Creating a Participant (Org-Unit).
Application Used	Application linked to an operation of the process
Comment	Comment on the described component
Previous Item	Name of the component preceding the described component
Previous Item Type	Type of the component preceding the described component (Operation, Event or Gateway).
Sequence Label	Predicate of the sequence flow between the component preceding the described component and the described component itself. For further details, see Defining a Condition on a Sequence Flow.
Sequence Type	Specifies a condition on a sequence flow. Possible values: *conditioned* and *default*. For further details, see Defining a Condition on a Sequence Flow.
Process Category	Nom de la catégorie de processus à laquelle le processus décrit appartient

ORG-UNITS AND ORGANIZATIONAL CHARTS

HOPEX enables representation of enterprise structure. To do so, the Organizational Chart enables to define org-units hierarchy, and connect people to geographical sites and org-units.

With **HOPEX** , you can identify the responsibility of each org-unit within a process, via a RACI (Responsible, *Accountable, Consulted, Informed*) matrix.

- ✓ Creating an org-unit
- ✓ Creating an Organizational Chart
- ✓ Identifying the responsibility of an actor

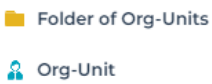
CREATING ORG-UNITS

An org-unit represents a person or a group of persons that intervenes in the enterprise business processes or information system. An org-unit can be internal or external to the enterprise. An internal org-unit is an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.

Creating an org-unit

To create an *org-unit* :

1. Select the **Processes** navigation menu.
2. Select the **Hierarchy** tab.
3. Expand the **Resources** folder.
4. Select **Org-Units** and click **New** .



5. Select **Org-Units**.
   The dialog box for creating an org-unit opens.
6. Specify the **Local Name**.
7. Click **OK**.
   The org-unit appears in the list of org-units.

> ☛ *If need be, you can create a folder to gather several Org-Units (see the 4th step of this procedure).*

Define Org-Unit properties

To access org-unit properties:

1. From the org-unit list, click the **Properties** icon related to the selected org-unit.
   The **Overview** property page appears.
2. Use the tabs to access the different property pages.

> ☛ *You can display (or hide) tabs using the button.*

Characteristics property page

In this page, you can define the main characteristics of an org-unit through the following sections:

> ☛ *You can display (or hide) sections using the **Manage sections** button.*

Identification section

In the section, you can fill the following fields:

- **Name**
- **Owner**

  > ☛ *If there is a default library, it is displayed in this field. For more details on libraries, see Defining the Work Environment.*

- **Tags**

  > ☛ *You can specify keywords using tags. For more details, see the **HOPEX Common Features** guide.*

- **Internal Entity / External Entity**

  > 🕮 *An internal org-unit is an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager.*
  >
  > 🕮 *An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.*

- **Org-Unit Type**
  There are several types of org-units:
  - Supplier
  - A "Institute" org-unit represents a permanent organizational body created for a usually non-profitable purpose such as education, art, or science.
  - A "Company" org-unit represent a legal entity such as the company itself, one of its subsidiaries, another partner company, etc.
  - Public Department
  - A "Structure" org-unit represents a company department. Example: Sales Department.
  - A "Function" org-unit represents a job title. Example: Sales Representative.
  - A "Manager" org-unit represents the manager of a department. Example: Sales Manager.
  - A "Generic" org-unit represents a role to be played during a procedure. Examples: Writer, Approver, etc.
- **E-mail**
- **Description**

Components section

In this section, you can see / add lower rank org-units to the selected org-unit.

Responsibilities section

In this section, you can connect a Person (System) to an Org-Unit.

> *A person (System) represents a person in the enterprise. This person can be assigned a login and a role (or a profile depending on the connection mode). The login provides access to the HOPEX Application. The role (or the profile) defines the access to product functions and repositories. A system person, if assigned a login, has a specific desktop in each database, and can connect to this desktop from any workstation in a given environment.*
>
> ☛ *If you cannot see the **Responsibility** section, activate the **System Person management** option through **Options > HOPEX Solutions > Common Features**.*

Scope section

This section enables to see the processes and operations the org-unit is involved in as a participant.

Participants section

In this section, you can see which participants the org-unit is connected to.

☛ *For further details, see Defining Participants.*

Risks section

In this section, you can add risks.

☛ *For further details, see **Risks and Controls**.*

Strategy and Decisions section

In this section, you can create or link the following elements to an org-unit:

- Constraints

  ☛ *For more information, see **guide. HOPEX.***
- Key Indicators
- Action Plans

  ☛ *For further details, see Managing Action Plans with HOPEX Business Process Analysis.*
- Issues

  ☛ *For more information, see the **HOPEX Common Features** guide.*
- Touchpoints

  ☛ *For further details, see Identifying touchpoints.*

In the **Attachments** section, you can access all documents related to the selected org-unit.

Reporting property page

In this page, you can access saved reports or create new ones.

- The **Structure** report details the organizational structure, the responsibilities and the sites associated to the list of org-units specified in parameter.

  ☛ *For further details, see Org-Unit Structure.*
- The **RACI** matrix shows the degree of responsibility of an org-unit that participates to a process or an operation.

  ☛ *For further details, see RACI.*

Diagrams property page

In this page, you can access an existing organizational chart or create a new one.

☛ *For further details, see Creating an Organizational Chart.*

Activity Feed property page

In this page, you can see the record of changes made related to the selected org-unit.

☛ *For more information on Activity Feed, see the **HOPEX Common Features** guide.*

Workflow property page

In this page, you can access the workflow related to the org-unit.

☛ *For further details, see Using Workflows.*

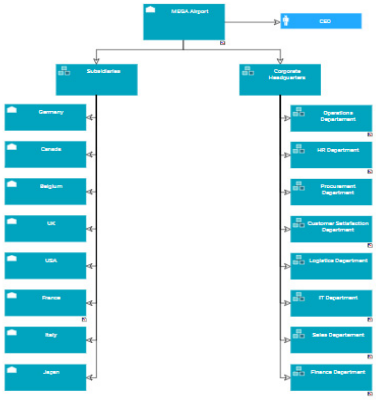
CREATING AN ORGANIZATIONAL CHART

An organizational chart provides an overview of the enterprise structure. **HOPEX Business Process Analysis** allows you to design your organizational charts using the same tools and methods as applied to processes.

HOPEX Business Process Analysis organizational charts contain the following descriptive objects:

- Org-Units, which are generally elements defining the enterprise structure, such as Sales Department.
- Sites that are geographical locations pivotal to the organization, such as headquarters, plants, etc.

Organizational chart example



Creating an Organizational Chart

You can create an organizational chart using two different modes.

- Tabular mode: with this mode, you can easily add new objects. It is rather recommended to create the general structure of your diagram.
- Graphical mode: this mode is rather recommended if you need more precision in adding or modifying objects in the Organizational Chart.

> ☛ *The user can choose the opening mode of a diagram if the option **Choice of diagram opening mode** is set to **Ask the user** though Main Menu > Settings > Options > Compatibility > Diagram.*

Creating an Organizational Chart in tabular mode

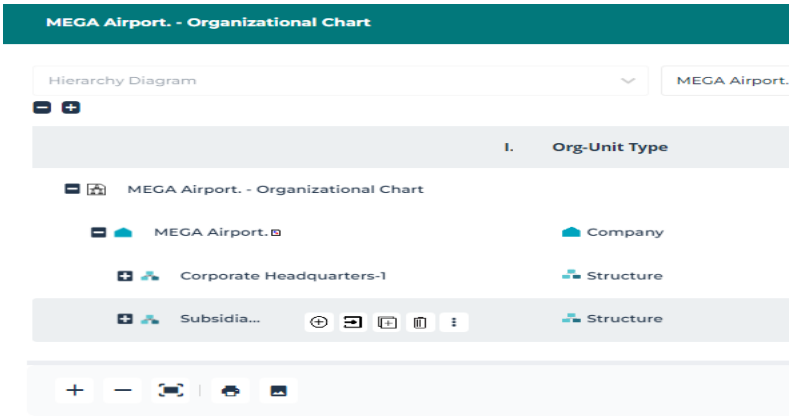
To create a organizational chart in tabular mode:

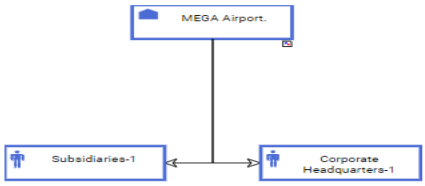
1. From the org-unit list, click the **Create a diagram** icon related to the selected org-unit.

   ☛ It is recommended to used the highest rank org-unit to start the creation of the organizational chart.

   The diagram creation window opens.
2. Select **organizational chart > Create a diagram in tabular mode**. The diagram creation window in tabular mode opens.
3. To complete the organizational chart, you can:

- Add several org-units with the **Multiple add** icon:
  - Org-units from he same rank (i.e. Org-units that directly report to the main org-unit).
  - Org-units from a descending hierarchy (i.e. several org-units that respectively report to one another).
- Add an org-unit that directly reports to the main org-unit with the **Add** icon.
- Insert an org-unit between the main org-unit and org-units already created that directly report to the main org-unit with the **Insert** icon.





The main org-unit is displayed in the table (upper part) while the created org-units appear in the diagram (lower part).

☛

☛ *For more information on tabular entry mode, see the "Building a diagram in tabular entry mode" in the **HOPEX Common Features** guide.*

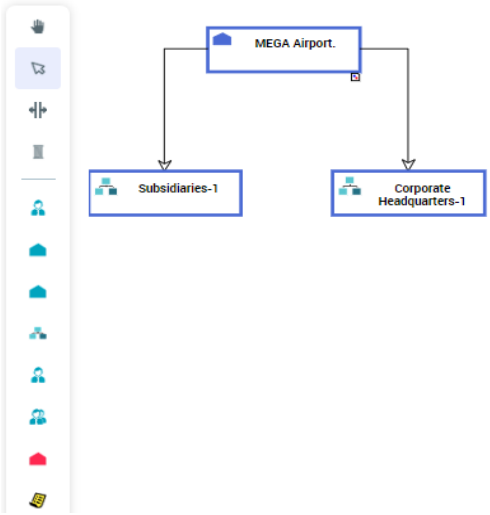
Creating an Organizational Chart in graphical mode

To create a organizational chart in graphical mode:

1. From the org-unit list, click the **Create a diagram** icon related to the selected org-unit.
   The diagram creation window opens.
2. Select **organizational chart > Create a diagram in graphical mode**.
   The organizational chart appears in graphical mode.

3. To add / connect objects, click the following icons from the object inserting bar:
   - Org-Unit
   - Company
   - Institute
   - Structure
   - Manager
   - Function
   - Site

☺ *You can specify the geographical site of an org-unit. Examples: Boston subsidiary, Seattle plant, and more generally the headquarters, subsidiaries, plants, warehouses, etc.*



☛ *For more details on Add of objects in drawing, see the chapter objects of a Container" in the* ***HOPEX Common Features*** *guide.*

PROCESS HIERARCHY

This chapter explains how to classify the processes of an organization with two simple and minimalist diagrams:

- *Process Map*
- *Process Category*

Context

To classify the processes of your organization, **HOPEX Business Process Analysis** offers different levels of granularity (by increasing order of detail):

- Process Map

  A process map defines the root level in a process landscape. It regroups the process categories the landscape consists of. It serves as an entry point to the process hierarchy.

- Process Category

  A process category defines a group of processes. It is linked to a Process Map or a higher level Process Category. It regroups several Processes and/or other categorized elements (e.g. Value Streams, Applications). It serves as an intermediate categorization level in the process hierarchy, so as to provide a guided and progressive access to finer grained processes.

- Process

  A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the BPMN notation, the process represents a sub-process from the organizational point of view.

  ☛ *For further information about processes, operations or any finest level of detail, see Processes.*

Method

Different approaches can be used to classify processes:

- Top-down approach
- Bottom-up approach

Both approaches can be used simultaneously.

Top-down approach

To classify processes from the lowest to the finest level of detail, you can:

1. Define a Process Map and identify the main Process Categories by
   - Identifying customers and the products or services delivered to them;
   - Implementing Process Market Standard Frameworks such as APQC's Process Classification Framework.
2. Define the organization breakdown at the adequate level of detail (e.g. Department or Position level).
3. Identify Processes, describe their Operations and the Organizational units responsible for their execution.

Bottom-up approach

To classify Processes from the finest to the lowest level of detail, you can:

1. Identify and detail the processes carried out by the organization, for instance based on existing documentation, knowledge from experts or Process Mining from IT System's logs analysis.
2. Identify how Processes can be gathered into Process Categories.
3. Identify higher rank Process Categories and link them to a Process Map.

APQC Process Classification Framework

You can use a standard Process Map based on the APQC Process Classification Framework.

To use a standard Process Map:

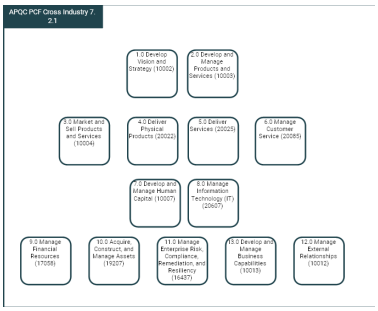
❱ Import the APQC module tailored to your industry.

☛ *See Importing a Module into HOPEX.*

CREATING A PROCESS MAP

A process map defines the root level in a process landscape. It regroups the process categories the landscape consists of. It serves as an entry point to the process hierarchy.

Example



This Process Map comes from the APQC's Cross-Industry Process Classification Framework. It shows all the higher rank Process categories.

Creating a Process Map

To create a Process Map from the navigation bar:

1. Select the **Processes** navigation menu.
2. Select the **Hierarchy** tab.
3. Click **New > process map**.
   The Creation of Process Map window opens.
4. Enter the **Local name** of the Process Map.
5. Click **OK**.
   The Process Map appears in the Process Map list.

Defining Process Map properties

To access Process Map properties:

1. From the Process Map list, click the **Properties** icon related to the selected Process Map.
   The **Overview** property page appears.
2. Use the tabs to access the different property pages.

   ☛ *You can display (or hide) tabs using the button.*

Characteristics property page

In this page, you can define the main characteristics of a Process Map, through the following sections:

> ☛ *You can display (or hide) sections using the **Manage sections** button.*

- In the **Identification** section, you can fill the following fields:
  - **Name** of the Process Map
  - **Owner**

    > ☛ *If there is a default library, it is displayed in this field. For more details on libraries, see Defining the Work Environment.*

  - **Tags**

    > ☛ *You can specify keywords using tags. For more details, see the **HOPEX Common Features** guide.*

  - **Description**
- In the **Process Category** section, you can link the Process Map to Process Categories.

Reporting property page

In this page, you can access the Process Map's saved reports or create new ones.

> ☛ *For further details, see Analyzing Process hierarchy.*

Diagrams property page

In this page, you can access the Process Map's diagrams or create new ones.

> ☛ *For further details, see Creating a Process Map diagram.*

Activity Feed property page

In this page, you can see the record of changes made related to the Process Map.

> ☛ *For more information on Activity Feed, see the **HOPEX Common Features** guide.*

Creating a Process Map diagram

You can create a Process Map diagram using two different modes.

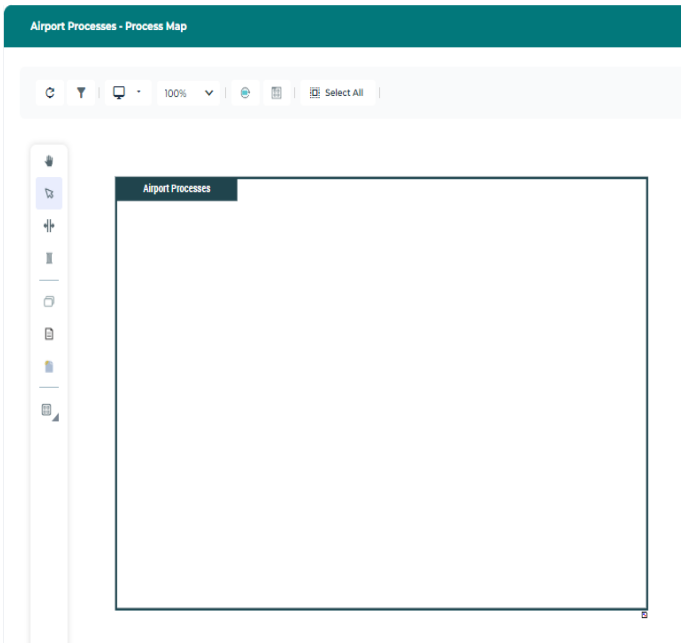
- Graphical mode: with this mode, you can easily import in your diagram the Process Categories already created.
- Tabular mode: with this mode, you can easily add multiple new Process Categories in your diagram.

> ☛ *The user can choose the opening mode of a diagram if the option **Choice of diagram opening mode** is set to **Ask the user** through Main Menu > Settings > Options> Compatibility > Diagram.*

Creating a Process Map diagram in graphical mode

To create a Process Map diagram in graphical mode:

1. In the Process Map list, click the button **Create Diagram** related to the selected Process Map.
   The diagram creation window opens.
2. Select **Process Map > Create diagram in graphical mode**.
   An empty Process Map diagram appears in graphical mode.



3. To complete the Process Map diagram, you can:
   - Import existing Process Categories
   - Add new Process Categories

To import existing Process Categories:

- Click **Add sub-categories** then **Reorganize**.

To add / connect Process Categories manually:

- Click **Process Category**

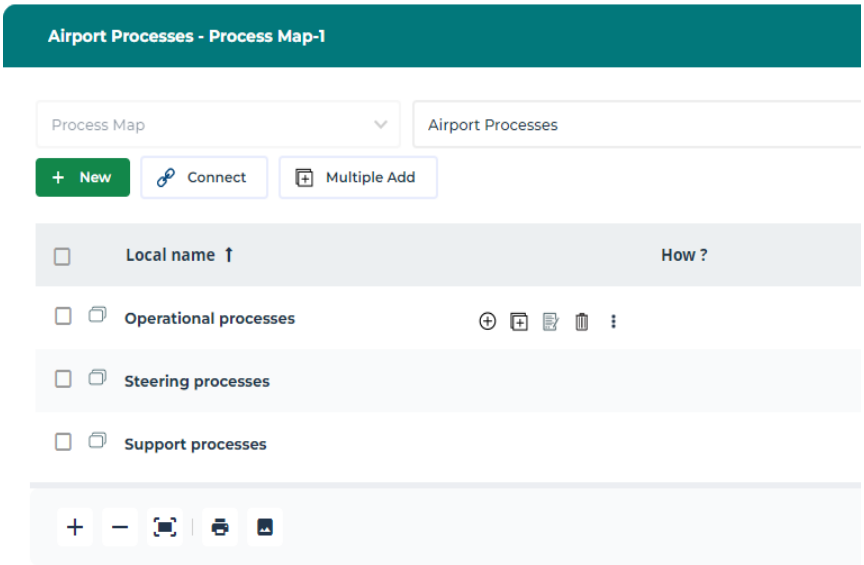
> ☛ *For more details on Add of objects in drawing, see the chapter "Objects of in a diagram" in the **HOPEX Common Features** guide.*

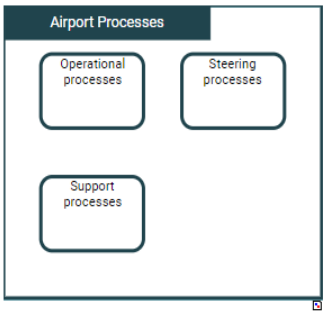
Creating a Process Map diagram in tabular mode

To create a Process Map diagram in tabular mode:

1. In the Process Map list, click the button **Create Diagram**  related to the selected Process Map.
   The diagram creation window opens.
2. Select **Process Map > Create diagram in tabular mode**.
   The diagram creation window in tabular mode opens.

3. To complete the Process Map diagram, you can:
   - Add one or several Process Categories with the **New** and **Multiple Add** buttons.
   - Add an existing Process Category with the **Connect** button.





When you create a Process Category, it appears in the table (upper part of the screen) and in the diagram preview (bottom part of the screen).

> ☛ *For more information on using tabular entry, see the "Building a diagram in tabular entry mode" in the **HOPEX Common Features** guide.*

Analyzing Process hierarchy

You can use two reports to analyze Process hierarchy:

- The Process Map-Tree-View aims at detailing the breakdown of a root Process Map object into its components Process Categories and/or Processes while visually representing the weight of each item according to a defined parameter (e.g. Number of component processes, number of applications).

  ☛ *For further details, see Process Map Treemap.*

- The Process Map Breakdown aims at detailing the breakdown of a root Process Map object into its components Process Categories and/or Processes. KPIs can be used to color code Process items or as visual indicators.

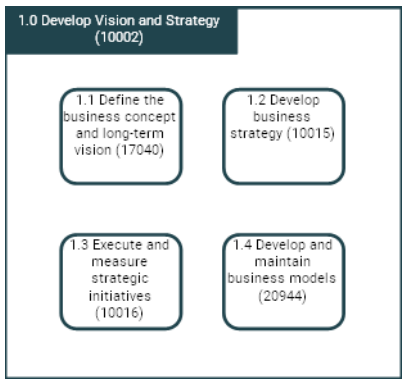
  ☛ *For further details, see Process Map Breakdown.*

CREATING A PROCESS CATEGORY

A process category defines a group of processes. It is linked to a Process Map or a higher level Process Category. It regroups several Processes and/or other categorized elements (e.g. Value Streams, Applications). It serves as an intermediate categorization level in the process hierarchy, so as to provide a guided and progressive access to finer grained processes.

*From the **HOPEX Aquila** version, Process Categories replace Business Processes. The Process Category diagram is a minimalist diagram created to simplify the BPMN Business Process diagram. If need be, you can reactivate the BPMN Business Process diagram with the user option **BPMN modeling of process categories** available from the Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis.*

Example



This Process Category comes from the APQC's Cross-Industry Process Classification Framework. It shows all the Process Categories linked to a higher rank Process Category.

Creating a Process Category

To create a Process Category from the navigation bar:

1. Select the **Processes** navigation menu.
2. Select the **Hierarchy** tab.

   *If Process Categories are not displayed, check that the option **Modeling of Process Categories** is activated through Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis.*

3. On the **Process Category** line, click **New** +.
4. Select **Process Category**.

   If need be, you can create a folder to gather several Process Categories

   The Process Category creation window opens.

5. Enter the **Local name** of the Process Category.
6. Click **OK**.
   The Process Category appears in the Process Category list.

Defining Process Category properties

To access Process Category properties:

1. From the Process Category list, click the **Properties** icon related to the selected Process Category.
   The **Overview** property page appears.
2. Use the tabs to access the different property pages.

> ☛ *You can display (or hide) tabs using the button.*

Characteristics property page

In this page, you can define the main characteristics of a Process Category, through the following sections:

> ☛ *You can display (or hide) sections using the **Manage sections** button.*

- In the **Identification** section, you can fill the following fields:
  - **Name** of the Process Category
  - **Owner**

    ☛ *If there is a default library, it is displayed in this field. For more details on libraries, see Defining the Work Environment.*
  - **Tags**

    ☛ *You can specify keywords using tags. For more details, see the **HOPEX Common Features** guide.*
  - **Category** to identify one or several higher rank Process Categories
  - **Code** to define an internal ID for the Process Category
  - **Grouping** to specify an additional classification (operational, steering, support)
  - **Status** updates

    ☛ *See Process Validation Workflow.*
  - **Description**
- In the **Responsibilities** section, you can identify org-units involved in the Process Category and specify their responsibility.
- In the **Categorized Items** section, you can identify lower rank objects:
  - Lower rank Process Categories
  - Processes
  - Value Chains

    ☛ *To display Value Chains, **Value streams modeling** must be activated through Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis.*
- In the **Controls et Risks** section, Business and IT managers can guarantee traceability of compliance controls via applications, data and infrastructures.

  ☛ *For further details, see **Risks and Controls**.*
- In the **Strategy and Decisions** section, you can create or link the following elements to a Process Category:
  - Constraints
  - Requests for change

    ☛ *For more information, see the **HOPEX Common Features** guide.*
  - Action Plans

    ☛ *See Managing Action Plans with HOPEX Business Process Analysis.*
  - Issues

    ☛ *For more information, see the **HOPEX Common Features** guide.*
- In the **Attachments** section, you can access all documents related to the Process Category.

Diagrams property page

In this page, you can access existing diagrams of the Process Category, or create new ones.

☛ *See Creating a Process Category diagram.*

Workflow property page

In this page, you can access the Process Category's workflow.

☛ *See Using Workflows.*

Assessment property page

In this page, you can access the execution and performance assessment of the Process Category.

☛ *For more details, see Assessing a process with HOPEX Business Process Analysis.*

Activity Feed property page

This page displays the Process Category modification record.

☛ *For more information on Activity Feed, see the **HOPEX Common Features** guide.*

Creating a Process Category diagram

You can create a Process Category diagram using two different modes.

- Graphical mode: with this mode, you can easily display the objects already created and linked to your Process Category.
- Tabular mode: with this mode, you can easily add multiple new objects in your diagram.

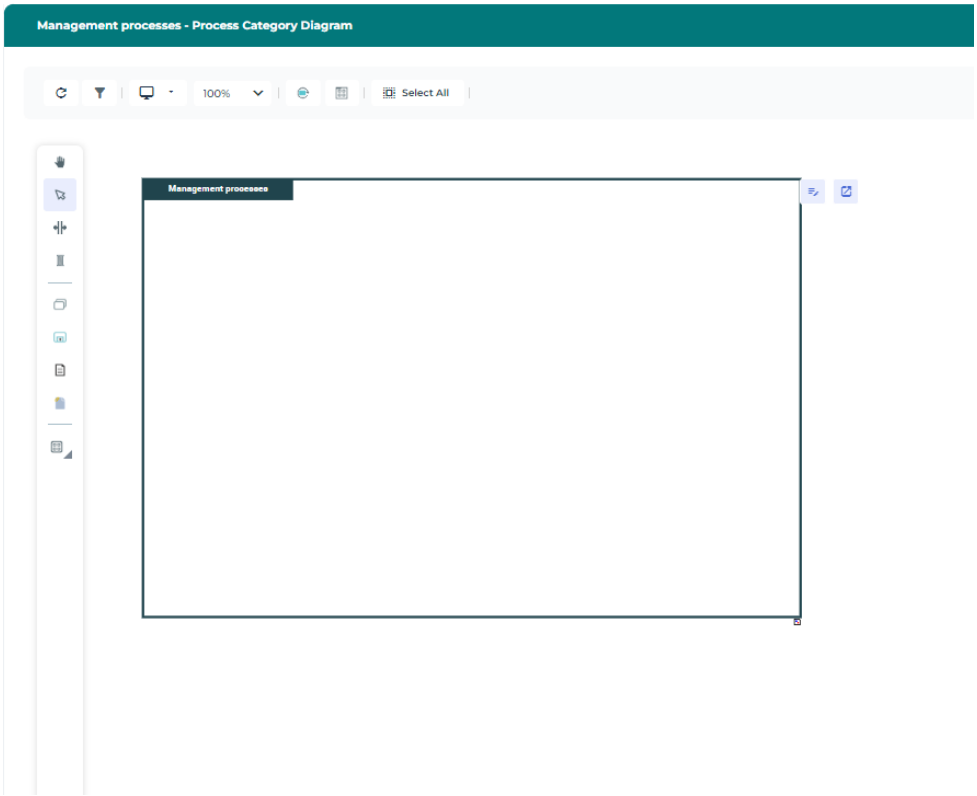
☛ *The user can choose the opening mode of a diagram if the option **Choice of diagram opening mode** is set to **Ask the user** through Main Menu > Settings > Options> Compatibility > Diagram.*

Creating a Process category diagram in graphical mode

To create a Process Category diagram in graphical mode:

1. In the Process Category list, click the **Create Diagram** button related to the selected Process Category.
   The diagram creation window opens.

2. Select **Process Category Diagram > Create diagram in graphical mode**.
   An empty Process Category diagram appears in graphical mode.



3. To complete the Process Category diagram, you can:
   - Import existing objects
   - Add new objects

To import existing objects:

- Click **Add sub-categories** then **Reorganize**.

To add / connect manually, click the following icons from the object inserting bar:

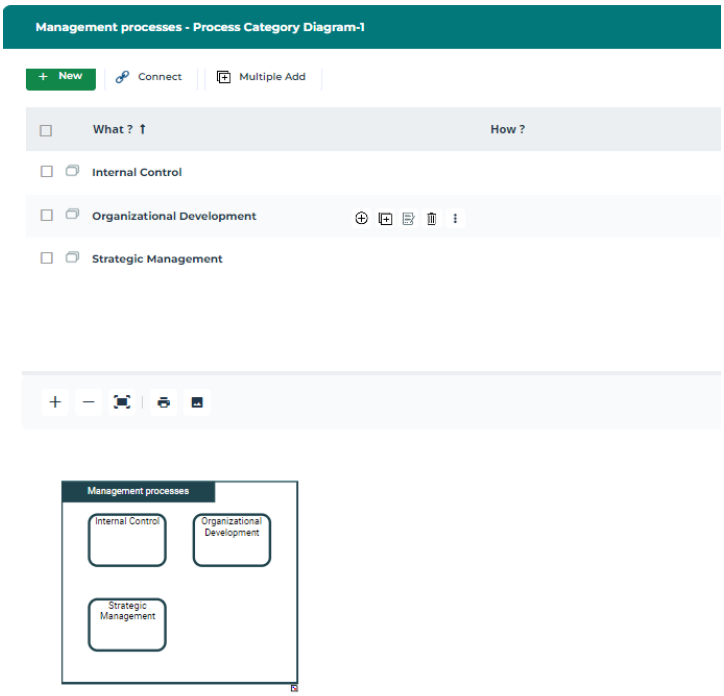
- Direct lower rank **Process Category**
- **Processes**
  - ☛ *For further details, see Processes.*
- **Value chain**
  - ☛ *For further details, see Value Streams.*
- **Application Used**
  - ☛ *For further details, see Modeling the Systems Used.*
  - ☛ *If you do not see certain objects, activate their display by using the* ***Views and details*** *icon.*
  - ☛ *For more details related to adding objects in graphical mode, see the* ***HOPEX Common Features*** *guide.*

Creating a Process Category diagram in tabular mode

To create a Process Category diagram in tabular mode:

1. In the Process Category list, click the **Create Diagram** button related to the selected Process Category.
   The diagram creation window opens.
2. Select **Process Category Diagram > Create diagram in tabular mode**.
   The diagram creation window in tabular mode opens.

3. To complete the Process Category diagram, you can:
   - Add one or several objects with the **New** and **Multiple Add** buttons.
   - Add an existing object via the **Connect** button.



When you create an object, it appears in the table (upper part of the screen) and in the diagram preview (bottom part of the screen).

> ☛ *For more information on using tabular entry, see the "Building a diagram in tabular entry mode" in the **HOPEX Common Features** guide.*

PROCESS GOVERNANCE

The following process governance features are available in **HOPEX**:

- ***Process Validation Workflows*** to ensure diagram quality.
- ***Process Revisions*** to provide more visibility/audit/control over process modifications via the creation of revision timestamps.
- ***Responsibility Assignment (RACI)***, to enhance business collaboration and process performance.

PROCESS VALIDATION WORKFLOW

Before publishing a new or updated diagram, it can be wise to assign it to a subject matter specialist for approval. This ensures diagram quality.

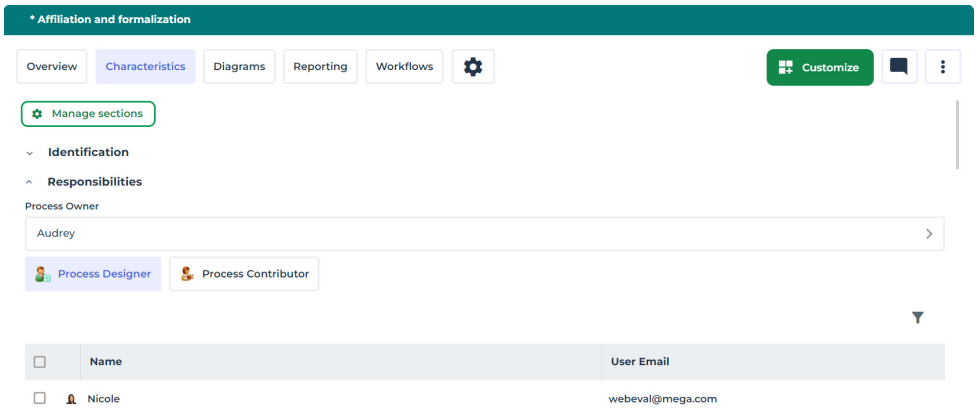
This can easily be done using ***Process Validation Workflows***.

Prerequisites

Before using a Validation Workflow for a given process, you need to identify the specific role of each person involved in its design and approval.

To do so:

1. Open the **Characteristics** property page of the process and expand the **Responsibilities** section.
2. Fill the following fields:
   - **Process Owner** with the person in charge of approving the design of the process
   - **Process Designer** with the person(s) in charge of creating the diagram of the process
   - **Process Contributor** with the person(s) in charge of providing recommendations



In this example, Audrey is the Process Owner and Nicole is the Process Designer.

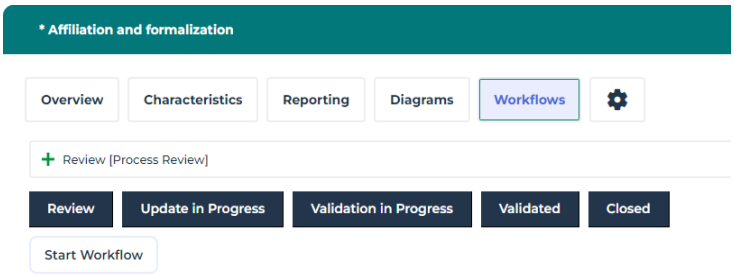
Sending a Process for approval

To send a process design for approval:

1. Open the **Workflows** property page of the process.

   ☛ *You can display (or hide) tabs using the ⚙ button.*

2. Click **Start Workflow**.



3. Complete the updates of your choice.
4. Click **Mark Stage as Complete**.
   The process is sent for approval to the Process Owner - and the Process Contributor(s) if applicable - via an email notification.

   💣 **Once the validation request is sent, the process is locked: its related diagram, description and owned objects are not editable. To edit the Process, you need to put it back to the "Update in Progress" state.**

Approving a Process

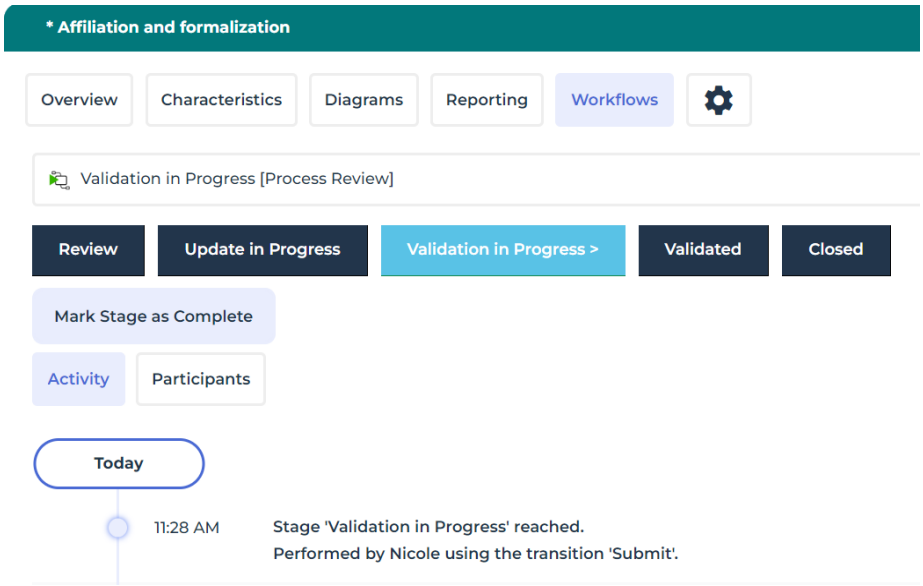
To approve a process design:

1. Analyze process updates.

   ☺ *Click the link within the validation request notification to easily access the relevant process.*

2. Open the **Workflows** property page of the process.

3. Click **Mark Stage as Complete**.



4. A window appears in which you can either:
   - Ask for modifications

     ☛ *The Process Designer receives a request for change via an email notification. The process (and its related diagram, description and components) is unlocked: it is possible to edit the process.*
   - Approve process design

     ☛ *The Process Designer receives a validation notification. The process (and its related diagram, description, and components) remains locked. A Process Revision is automatically created, see Process Revisions.*

Requesting Process updates

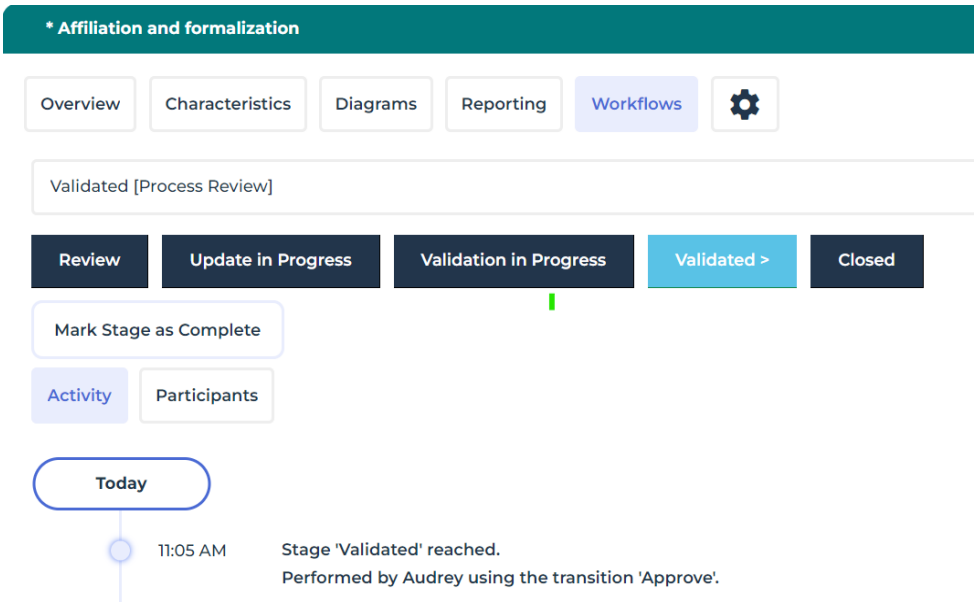
It is possible to request changes:

- during the approval stage of a process (see Approving a Process);
- at a later stage, when the process has already been validated.

To request changes for a process that has already been validated:

1. Open the **Workflows** property page of the process.

2. Click **Mark Stage as Complete**.



3. (Optional) Enter a description.
4. Click **OK**.

☛ *The Process Designer receives a request for change via an email notification. The process (and its related diagram, description, etc.) is unlocked: it is possible to edit the process.*

PROCESS REVISIONS

Process Revisions allow the user to create a timestamp/snapshot of a process diagram.

This feature is particularly useful for:

- monitoring/comparing the modifications of a process diagram throughout its life cycle
- restoring the publication of an older diagram if needed

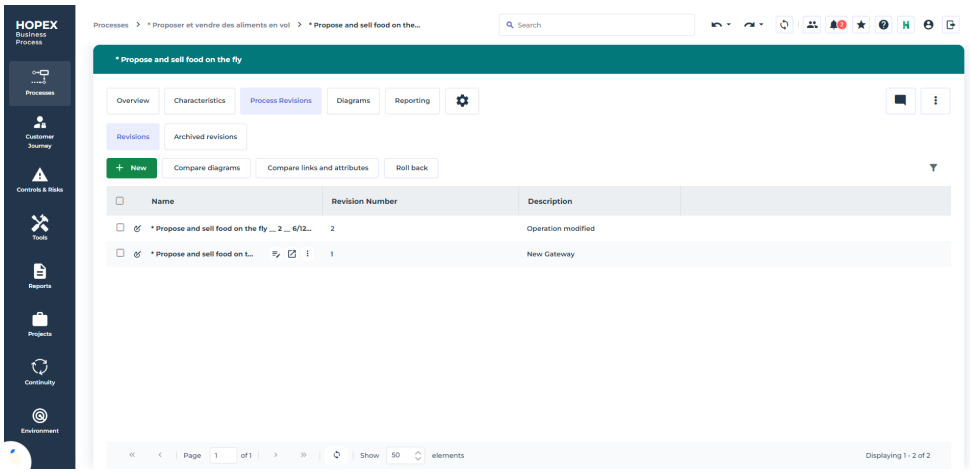
Accessing Revisions

To access process revisions:

1. Open the **Process Revisions** property page of the process.

   ☛ *You can display (or hide) tabs using the* ⚙ *button.*

   The list of revisions opens.



Creating a Revision

It is possible to create a revision:

- ***automatically***, if you use the Process Validation Workflow.

  ☛ *Once the process design is approved (see Approving a Process), a new revision is automatically added to the list of revisions.*

- ***manually***, if you do not use the Process Validation Workflow.

To create a revision manually:

1. Open the **Process Revisions** property page of the process.
2. Click **New**.
   The newly created revision appears in the list of revisions.

> **You cannot create a revision manually if a Process Validation Workflow has been started for this process.**

Comparing Revisions

You can compare process revisions with:

- The ***Process revisions diagram comparison*** report, which provides an overview of the changes between two process revisions;
- The ***Links and attributes comparison***, which offers a detailed view by examining the differences in links and attributes between two process revisions.

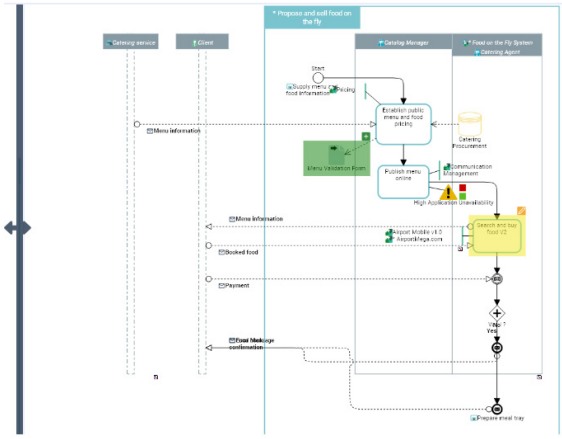
> *See the* Process Diagram comparison over time report to compare a process revision with a repository snapshot created before the **HOPEX Aquila 6.1** version.

Comparing process revisions diagrams

To compare diagrams between two process revisions:

1. Open the **Process Revisions** property page of the process.
2. Click the **Compare diagrams** tab.
3. Select the **Source Revision** and the **Target Revision**.
4. In the **Diagram** field, select Process Diagram.
5. Click **Refresh the report** if needed.
   By default the diagrams are overlaid.

6. To the right of the diagram, select the scrolling bar, hold your click down and drag the cursor to the left to display the target diagram (the more recent diagram) and see the differences:
   - created objects and links are marked in green
   - modified objects and links are marked in yellow
   - deleted objects and links are marked in red



Legend

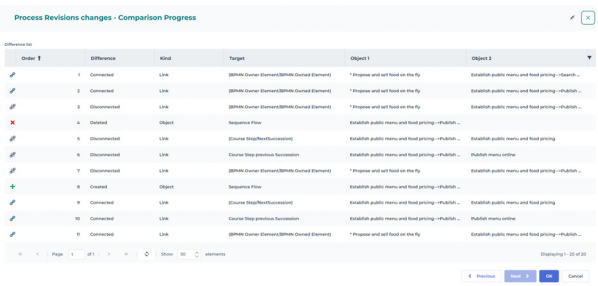
Owner	Element	Type	Created	Modified	Deleted	Description
* Propose and sell food on the fly	Search and buy food V2	Operation		X		The task name has changed
* Propose and sell food on the fly	Menu Validation Form	Data Object	X			This object does not exist in source

Comparing links and attributes

To compare links and attributes between two process revisions:

1. Open the **Process Revisions** property page of the process.
2. Click the **Compare links and attributes** tab.
3. Select a Source Revision.
   A list appears showing the links and attributes comparison.

☺ *You can filter the results using* .



Archiving a Revision

For improved readability, you can hide process revision(s) from the list of revisions.

To archive a revision:

1. From the list of process revisions, tick the revision(s) of your choice.

   ☛ *See Accessing Revisions.*

   The **Archive** button appears.
2. Click **Archive**.
   The revision now appears in the list of archived revisions.

Rolling back a Revision

If needed, you can roll back to a given revision state for the process.

Rolling back involves creating a new revision that reflects the contents of the desired revision. Note that the new revision may differ from the original if objects have been removed from the repository; any deleted objects will not appear in the new revision.

To roll back a revision:

1. In the list of revisions, tick the revision of your choice.

   ☛ *See Accessing Revisions.*
2. Click **Roll Back**.
   A new revision appears in the list of revisions.

RESPONSIBILITY ASSIGNMENT (RACI)

The assignment of RACI responsibilities clarifies the roles of stakeholders within a process, enabling better collaboration and smoother process execution.

RACI stands for Responsible, Accountable, Consulted, and Informed:

- Responsible: performs the work.
- Accountable: approves the work
- Consulted: provides input or advice for the work
- Informed: is informed about the work

RACI Synchronization

RACI synchronization is activated by default via an option.

☛ *This option is available in Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis > Automatic synchronization of RACI by means of participants.*

Org-Unit/Operation link

RACI synchronization automatically creates a link between the org-unit and the operation/process executed by the participant.

The link is reset when participant information is updated (e.g. operation reassigned to a new participant).

RACI values

Through RACI synchronization, the following RACI values are automatically assigned to the org-units:

- **Reponsible (Default)** is automatically assigned to the org-unit that executes the operation.
- **Accountable (Default)** is automatically assigned to the org-unit that executes the sub-process.

RACI values are also reset when participant information is updated.

Ease of querying

RACI synchronization simplifies the responsibility-related queries. For example, it eliminates the need to query participants directly.

Data not synchronized

RACI synchronization does not apply to manually added data.

Make sure to review any manually assigned RACI when updating processes, such as when reassigning tasks to different participants.

Assigning Org-Unit Responsibilities

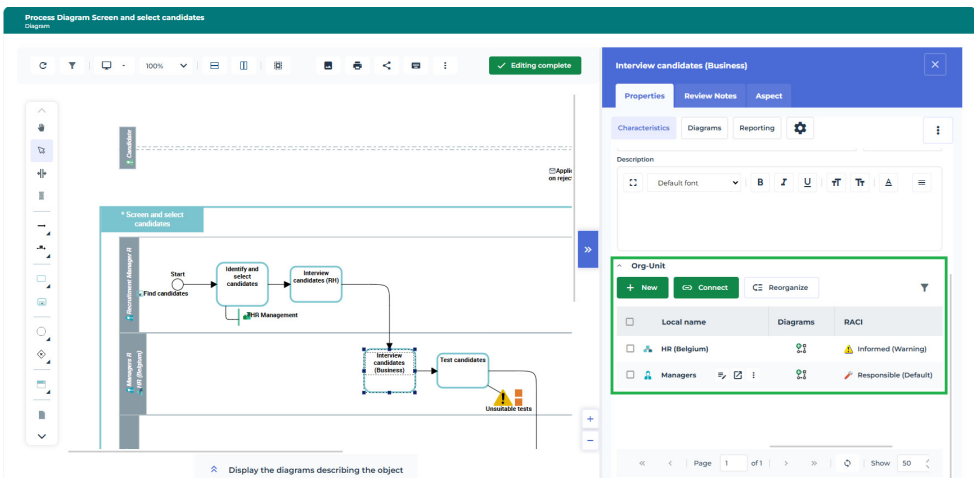
Assigning Org-Unit responsibilities for a given operation

To assign Org-Unit responsibilities for a given operation:

1. From a process diagram, select the appropriate operation and click the « button.
2. Access the **Properties** tab **> Org-Unit Responsibilities** section.

   ☛ *You can display (or hide) sections using the ⚙ button.*
3. Connect an existing org-unit or create a new one.
   The org-unit appears in a table.
4. In the **RACI** column, select the adequate responsibility level:
   - **Accountable**
   - **Consulted**
   - **Informed**
   - **Responsible**
   - **Responsible/Accountable**

   ☛ *RACI is displayed along with a warning since RACI Synchronization does not apply to manually added data.*



Assigning Org-Unit responsibilities for a given process

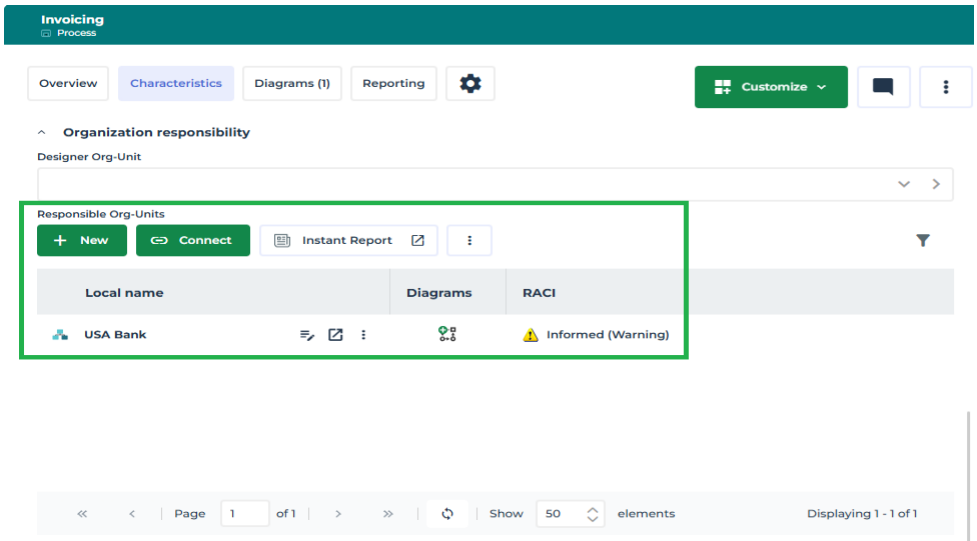
To assign Org-Unit responsibilities for a given process:

1. Open the **Characteristics** property page of the process and expand the **Org-Unit Responsibilities** section.

   ☺ *You can also access it from the diagram, by clicking the frame of the process > « button.*
2. Connect an existing responsible org-unit or create a new one.
   The org-unit appears in a table.

3. In the **RACI** column, select the adequate responsibility level:
   - **Accountable**
   - **Consulted**
   - **Informed**
   - **Responsible**
   - **Responsible/Accountable**

     ☛ *RACI is displayed along with a warning since RACI Synchronization does not apply to manually added data.*



Generating a RACI Matrix

Several reports present a RACI matrix with org-units as columns and operations or processes as rows. The cells display the RACI roles (Responsible, Accountable, Consulted, Informed) that the user can modify or confirm.

See the following reports for further information:

- Processes
  - RACI Management (BPMN)
  - Process and sub-processes RACI Matrix (BPMN)
- Org-Units
  - RACI
  - Org-Unit and sub org-units RACI Matrix (BPMN)

PROCESS ASSESSMENT

To assess the execution and performance of processes and process categories, you can use Questionnaires.

To do so, standard Questionnaires are available in **HOPEX Business Process Analysis**. You can tailor these Questionnaires by adding specific questions according to your needs.

The following points are covered here:

- ✓ Assessment principles
- ✓ Assessing a process with HOPEX Business Process Analysis

ASSESSMENT PRINCIPLES

Concepts Overview

Assessment is carried out using assessment questionnaires. In **HOPEX Business Process Analysis**, these questionnaires are accessible directly. Results are then aggregated according to predefined rules.

Assessments relate to process execution and performance.

> 🕮 *An assessment is a mechanism used to receive feedback (qualitative or quantitative) from an identified population on identified objects. The assessment is then supplemented by results analysis tools.*
>
> 🕮 *An assessment questionnaire is a list of questions relating to a particular object and addressed to persons questioned.*

The results of these assessments are then presented in reports.

> ☛ *For further details, see Execution and Performance Heatmap report.*

Criteria assessed with HOPEX Business Process Analysis

These characteristics relate to attribute values linked to process performance and execution.

List of characteristics linked to process execution:

- **Specification**: assessment of quality of description of the object in the repository.
- **Knowledge**: assessment of knowledge of the object by stakeholders.
- **IT Support**: assessment of application support of the object.
- **Execution**: this characteristic is a global assessment of object execution. It is calculated from assessment of object specification, knowledge and support.

List of characteristics linked to process performance:

- **Effectiveness**: characterizes effectiveness of object operation
- **Business Value**: characterizes business value of the object.
- **Risk**: characterizes risks concerning the object.
- **Performance**: this characteristic is a global assessment of process performance. It is calculated from assessment of process business value, effectiveness and risk.

ASSESSING A PROCESS WITH HOPEX BUSINESS PROCESS ANALYSIS

Accessing the Process Assessment with HOPEX Business Process Analysis

To assess a given process:

1. Access the property pages of the process and select the **Evaluation** tab.

   ☛ *You can display (or hide) tabs using the* ⚙ *button.*

The following options are available:

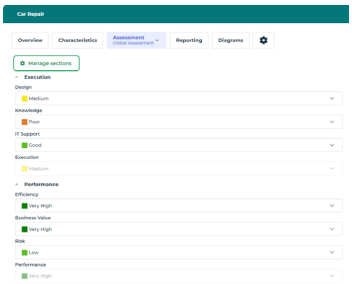
- **Global Assessment**: to attribute values to the assessment criteria of the process.
  See Global assessment.
- **Direct Assessment (Execution)** and **Direct Assessment (Performance)**: enables expert users to assess the execution and performance criteria for a process in its different use contexts.
  See Direct Assessment.
- **Specific Questions (Execution)** and **Specific Questions (Performance)**: to add questions to existing assessment questionnaires.
  See Specific questions.

Completed assessments are used to obtain summary reports.

☛ *For more details on this summary report, see Process Assessment.*

Global assessment

The **Assessment > Global assessment** property page of a process allows an expert user to specify values of attributes linked to assessed characteristics.



Direct Assessment

You can create new assessments to broadly assess a process or a process category (all the contexts connected i.e. entities and processes).

This is an assessment by an expert.

Creating direct assessments (Execution)

To create a direct execution campaign:

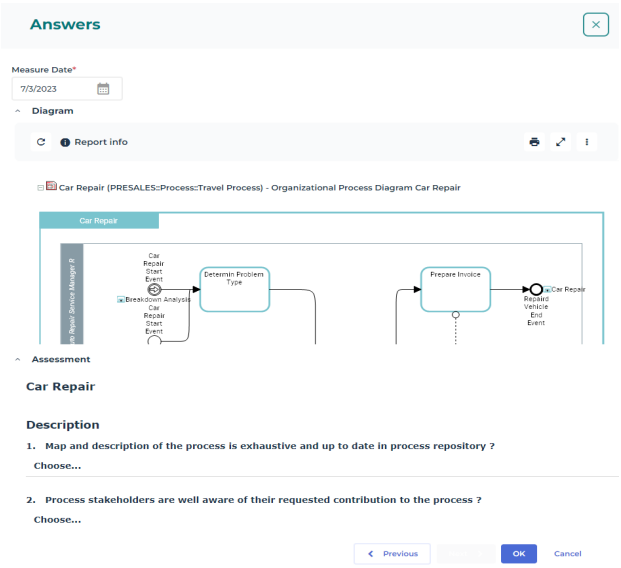
1. Open the **Assessment > Specific Questions (Execution)** property page of the process that interests you.
2. Click the **Evaluate** button.

3. Select the context in which the process is to be assessed, then click **Next**.

   ☛ *A context is defined by a use of the assessed process by an org-unit or another process.*

   ☛ *The contexts are available only if there is more than one.*

   The assessment questionnaire page appears.



4. Specify the values for the questionnaire characteristics:
5. (Optional) Add **Attachments**.
6. Check the **Assessment Date**.
7. Click **OK**.
   An assessment is created.

Creating direct assessments (Performance)

You can create a Process performance assessment in the same way as a Process execution assessment (see Creating direct assessments (Execution)).

Specific questions

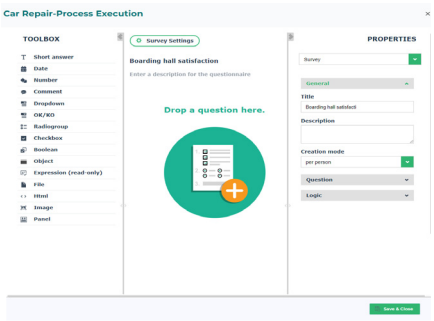
You can add new questions to your questionnaires for your processes.

Your question then appears in the associated questionnaire in the corresponding section: "Process execution" or "Process performance".

Creating a specific question (Execution)

To create a specific execution question:

1. Open the property pages **Assessment > Specific Questions (execution)** of the appropriate process.
2. Click the **Open an assessment template** button.
   The assessment template creation dialog box opens.



☛ *For more details on the management of specific questions, see "Presentation of the Questionnaire Builder" chapter in the **HOPEX Common Features** guide.*

Creating a specific question (Performance)

You create a question specific to the performance of your process in the same way as you do for an execution assessment (see Creating a specific question (Execution)).

The question then appears in the direct assessment questionnaire (Performance).

PROCESS PORTFOLIO

By means of portfolio management, **HOPEX Business Process Analysis** enables planning over time of development of organizations and more generally all enterprise architecture.

Describing and Analyzing Portfolios

In **HOPEX Business Process Analysis**, portfolio analysis allows to compare processes on standard criteria such as costs, benefits or risks. You can also define criteria specific to your context.

Developing portfolios

Your enterprise processes, will without doubt be developed. So that representation of your organization remains updated, your models will be modified.

The process portfolios allows you to plan and follow up these developments.

- You can quickly access processes of which development is planned.
- You can transfer the impacts of development of a process to other programs in which this element appears.
- You can regenerate all reports in which this process is involved.

CREATING A PROCESS PORTFOLIO

Creating a process portfolio consists of defining the processes and the comparison criteria relating to the portfolio.

Creating a process portfolio

To create a Process portfolio, you need to perform the following steps:

1. Select **Projects** from the navigation bar.
2. Select **Process Portfolios.**
3. Click **New**.
   A creation dialog box opens.
4. Enter the Process Portfolio name and click **OK**.
   The new portfolio appears in the list.

Creating a Process Sub- Portfolio

To study in detail different hypotheses, you can divide a portfolio into sub-portfolios, each of them with different *scenarios*.

To create a sub-portfolio:

1. Open the **Characteristics** property page of the appropriate portfolio.
2. Display the **Sub-Portfolio** section with the **Manage sections** button.
3. In the **Sub-Portfolio** section, click **New**.
   A sub-portfolio appears.
4. Modify the name of the sub-portfolio.

   ☛ *If a scenario is connected to a main portfolio, it is not inherited by the sub-portfolio..*

Defining Process Portfolio properties

To access process portfolio properties:

1. From the list of process portfolios, click the **Properties** icon of the appropriate process portfolio.
   The **Overview** property page appears.
2. Use the tabs to access the different property pages.

   ☛ *You can display (or hide) tabs using the button.*

Characteristics property page

This page enables to define the main characteristics of a process portfolio, through different sections.

> ☛ *You can display (or hide) sections using the **Manage sections** button.*

- In the **Identification** section, you can fill the following fields:
  - Process Portfolio Manager
  - Portfolio Type
  - Study Start and End dates
  - Description
- The **Owned Scenario** section, see Creating a Scenario
- The **Sub-Portfolio** section, see Creating a Process Sub- Portfolio
- The **Criteria** section of the process portfolio, see Defining Criteria

Processes property page

This page presents a list of portfolio processes and enables to assess them.

> ☛ *For further details, see Defining Portfolio processes.*

Reporting property page

In this page, you can access saved reports related to process portfolios, and create new ones.

DEFINING CRITERIA

You can compare processes of a portfolio based on common *criteria* associated with the portfolio.

> 🕮 *A criterion is a reference element used to compare initiatives in a portfolio. Criterion values can be predefined.*

To view criteria associated with a portfolio:

1. Open the **Characteristics** property page of the portfolio.
2. Display the **criteria** section with the **Manage sections** button.

Example

To define portfolio criteria, you can:

- Use the existing criteria in the repository;
- Create new criteria and associated values.

> ☛ *Criteria are defined from the MetaClass (object type) **TaggedValue**. Some windows use this term rather than **Criteria**.*
>
> ☛ *For more details on the assessment of a portfolio criteria, see "Defining Portfolio Assessment criteria" in the **HOPEX IT Portfolio Management** guide.*

DEFINING PORTFOLIO PROCESSES

Several processes can be gathered in a *group* to simplify portfolio management.

Associating a process to a portfolio

To connect a process to a portfolio:

1. Open the **Processes > Inventories** property page of the appropriate portfolio.
2. Select the **Processes List** tab.
3. Click the **Add Process** button.
   The query dialog box appears.
4. Select the adequate processes.
5. Click **Connect**.

Creating a Processes Group

To create a processes group from a portfolio:

1. Open the **Processes > Group** property page of the appropriate portfolio.
2. Click **New**.
   A creation window appears.
3. In the **Local name** field, enter the group name.
4. Click **OK**.
   The group appears in the list of portfolio processes groups.

To connect a process to a group:

1. Open the **Processes > Inventories** property page of the group.
2. Select the **Process List** tab.
3. Click the **Add Process** button.
   The query dialog box appears.
4. Select the adequate processes.
5. Click **Connect**.

Modeling costs from a process portfolio

To see or fill the costs associated to a process from a process portfolio:

1. Access the **Processes > Assessment** property page of the appropriate process portfolio.
   The processes of the portfolio appear.

2. Select the adequate process and open the **Costs** property page of this process.

   ☛ *You can display the Cost property page with the* ⚙ *button.*

   You can display / fill the cost lines or the fixed expenses associated to the process.

Evaluating Process portfolios

Process portfolio are assessed related to different portfolio criteria.

To assess the processes of a portfolio:

1. Open the **Processes > Assessment** property page of the adequate process portfolio.
   A table appears and shows:
   - the processes associated to the portfolio (lines)
   - the portfolio criteria (columns)
2. Double-click in the cell related to the process and criteria you want to fill.
   The value of the criteria appears in the table.

☛ *You can generate instantaneous reports of the assessed processes. For further information, see the "Generate documentation" chapter from the* ***HOPEX Common Features*** *guide.*

USING SCENARIOS

You can represent different evolution hypotheses of a portfolio within a process portfolio.

To do so, different *scenarios* can be created and compared via specific reports.

> 🕮 *A scenario is a projection in time of development of real objects through initiatives.*

Creating a Scenario

A scenario is a coherent set of processes enabling the cost of a hypothesis in process portfolio.

To create a scenario on a portfolio:

1. Open the **Characteristics** property page of the appropriate portfolio.
2. Display the **Owned Scenario** section with the **Manage sections** button.
3. In the **Owned Scenario** section, click **New**.
   The scenario is created with a default name. It is also automatically connected to processes of the portfolio.

You can open the scenario properties to modify its name if necessary or to define its properties.

Accepting or Rejecting Scenario Processes

A process must be accepted in order to be taken into account in a given scenario. Conversely, a process must be rejected if you want the scenario to ignore it.

To define processes be taken into account in a scenario:

1. Open the **Characteristics** property page of the portfolio you want to study.
2. In the **Owned Scenario** section, access the **Characteristics** property page of the appropriate scenario.
   The list of processes connected to the scenario appears in the **Initiative of transformation** section.
3. In the **Decision** column, select one of the following values:
   - **In progress**: the process is under study, it is integrated in the scenario
   - **Reject**: the process in not integrated in the scenario
   - **Accept**: the process is integrated in the scenario

PROCESS SIMULATION

Simulation is a tool that aids decision-making, enabling the analysis of a company's processes and performance. By identifying relevant indicators, it enables indication of organization improvements.

Complementing **HOPEX Business Process Analysis**, the **HOPEX Process Simulation** software is edited by **MEGA International** to assist organizers and decision-makers in:

- Analyzing enterprise process performances.
- Improving existing processes or evolving processes.

HOPEX Process Simulation is used to:

- Describe the detailed organization of operations during execution of processes, and the use of company resources by these processes.

  ☛ *The simulation with the **HOPEX Process Simulation** product is only possible on processes respecting the BPMN formalism.*

  ☛ *The description of a process respecting the BPMN formalism can be derived from a **Process Mining** analysis. For further details, see Using the Process Mining.*
- Associate quantitative information (processing time, costs) with operations executed and resources used.
- Create several optimization scenarios to build a comparative performance analysis of the different configurations.

The following points are covered here:

INTRODUCTION TO HOPEX PROCESS SIMULATION

Why simulate a process?

Simulation offers:

- An alternative viewpoint on the system, seen as a set of resources that must be shared by the different elements.
- Additional credibility supplementing traditional measures.
- Obtaining performance indicators on configurations impossible in reality, or on quantities that cannot be measured.

There are therefore multiple reasons for simulating a process described with **HOPEX Business Process Analysis**:

- Improving enterprise operation.
- Considering organizational changes based on quantitative data.
- Sizing resources.

Improving enterprise operation

Describing organization operation in order to simulate it can reveal:

- Possible reasons for performance deterioration.
- Simple improvement solutions that have not been envisaged.

Considering organizational changes from quantitative data

Solutions envisaged to improve enterprise process performance can, by increasing system productivity, highlight weaknesses that extend production deadlines. Simulation enables anticipation of this type of problem: proposed scenarios are tested and quantitative results can be compared.

Sizing resources

The description of the processes can be completed by the description of the means (technology or other) required for them:

- Equipment resources
- Applications
- Application services

An estimate of quantities required can be obtained using simulation.

Using the Process Mining

Process Mining is an approach that consists of analyzing files that trace the execution of a process: start and end dates of completed tasks, identification of resources used, identification of the activity in progress, routing of steps.

Depending on the quality of the trace files, this analysis can provide information such as:

- The list of executed tasks and the average duration of each execution,
- Routing information: probability of activation of a task from another task.

From a trace file, a ***Process Mining*** tool is thus able to provide the BPMN representation of the executed process as well as information about routing probabilities and execution times. This information can be imported and analyzed by **HOPEX Process Simulation**.

☛ *For further details, see Using the Process Mining with HOPEX Process Simulation.*

Using HOPEX Process Simulation

HOPEX Business Process Analysis is used to describe the organization of the enterprise. This description can then be simulated and performance criteria can be compared to identify the configuration that best meets enterprise objectives.

To this end you will use the following concepts:

- processes,
- operations,
- events,
- gateways,
- resources,
- simulation scenarios.

This User Guide is designed to help you quickly discover the power of **HOPEX Process Simulation**.

CONNECTING TO HOPEX PROCESS SIMULATION

Prerequisites for the use of HOPEX Process Simulation

To use **HOPEX Process Simulation**, you must import the **Simulation Engine** module in your environment.

☛ *See "Importing a module into **HOPEX**" chapter in the **HOPEX Administration** guide.*

In addition, to obtain process simulation results you must have purchased a simulation product license.

Accessing HOPEX Process Simulation

To access **HOPEX Process Simulation**, you must log in with the **Process Manager** profile.

SIMULATION STEPS

The BPMN model of a process represents an organized series of steps. The steps correspond to operations, events and gateways encountered by an instance.

The simulation consists in activating the different steps of the process while respecting their sequence as well as the time constraints specified for each of them.

Before being able to simulate a process, it must be represented graphically. Simulation is based on the diagram that describes the different steps of the process.

Simulating a process consists of moving requests for work through the various steps in the process. Each instance is introduced into the process model from a start event and stops at an end event.

For example: in a purchase processing process, a purchasing request is triggered by the sending of the instance and ends with the delivery of the order. In the meantime, it goes through different steps (order recording, order processing, etc.).

The circulating instances thus make it possible to represent the sequencing of the steps of a process.

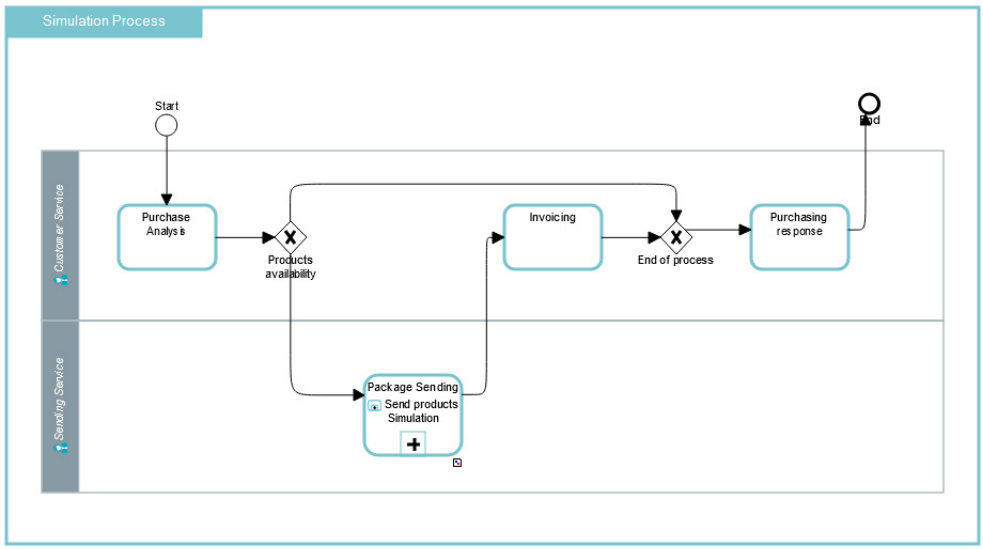
From their respective BPMN diagrams, you can simulate the following concepts:

- Processes
- Value streams,
- System process.

> ☛ *These types of processes are proposed to you only if your options allow it.*

Example of Running a Simulation

Let us take the process of order processing as an example.



Simulation start event

When a process has several entry points, the simulation editor asks you to choose between the different possible start events.

The routing of the instances in the graph depends on the selected entry point.

> ☛ *If you change the entry point of an already created scenario, the scenario must be updated, see Updating a simulation scenario.*

Tasks

In a BPMN process, tasks are associated with processing steps requiring the intervention of an enterprise participant (for example an org-unit).

```
A task can be industrial (machining a component),
logistical (receiving a delivery), or it can involve
information processing (entering an order).
```

During the simulation, the execution of a task is triggered by the arrival of an instance that has taken the **sequence flow** that links the task to the other objects describing the process flow.

When an instance arrives at a task, the simulator checks that resources expected for task execution are available. If this is not the case, the instance is placed in a queue until the resource is free.

Participants represent resources needed to perform a task.

> ☛ *If a task is described by a process, the simulation can take into account the detail of the process or remain at the task level, depending on the option selected in the simulation scenario. See Hierarchical description of the simulated process.*
>
> ☛ *The simulator does not take into account behaviors of tasks as defined specifically by the BPMN standard. For more details on these*

*behaviors, see Specifying Process Behavior. Behaviors **Loop** and **Multiple** must be described explicitly in the model.*

Resources

Performing the tasks requires the use of resources that can be human, software or hardware, depending on the type of process described.

You can customize their quantity, cost and availability schedule for each simulation scenario.

☛ *A task is allowed to use only one resource which must be connected to the participant in charge of the task.*

Using Gateways

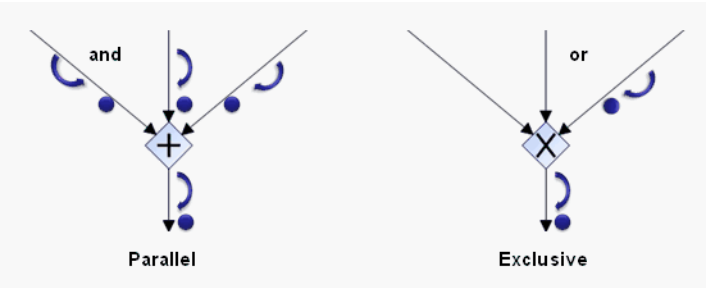
A task may contain several input or output flows. To represent these situations, you must use BPMN gateways and set probabilities. See Probabilities on the sequences flows.

Managing task inputs

Several sequence flows can lead to the same task. In this case, you must define the processing policy of the incoming instances in the task using a **gateway** Thus, an instance can be the result of the merging of several instances coming from different sequences, a **Parallel** gateway is then used.

```
For example, in an order delivery process, the various items
that make up the order are processed separately. These items
are then assembled to form a single order.
```

By default, each instance arriving in a sequence is taken into account as soon as the resources required for its processing are available. Input policy is then an **Exclusive** policy.



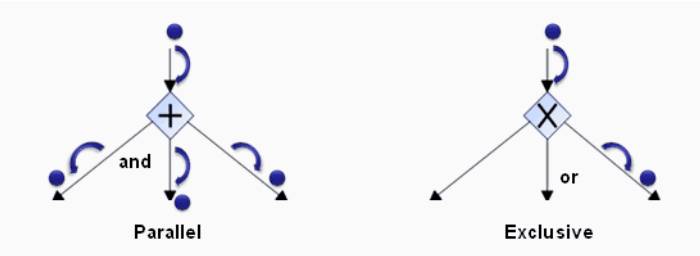
☛ *If the gateway is of the **Parallel** type, one instance must arrive via each of the different sequence flows to be grouped into a single instance which will execute the task.*

Managing task outputs

A task can produce a simultaneous execution of different processings. There are basically two output policies:

- A policy of **Exclusive** type: The instance is directed to one and only one sequence flow among the different possible outputs.
  - ☛ *By default, the output policy of a gateway is **Exclusive**.*
- A policy of **Parallel** type: the instance is duplicated and directed to each of the output sequence flows.

In the case of a **Parallel** gateway, all output branches are processed simultaneously.



Although the BPMN standard covers other input and output management policies, only the Exclusive policies are taken into account by the simulator.

Events

BPMN events enable representation of:

- The simulated process start point: this is the point from which processing instances are generated. Nature of these events must be **Start** or **Catching**,
- The point marking the end of the simulated process. Nature of these events must be **End** or **Throwing**,
- Occurrence of a particular fact that modifies behavior of the current process or another process. Events used in this case are of intermediate nature **Catching** or **Throwing**.

CREATING A SIMULATION SCENARIO

A scenario enables definition of what you wish to simulate. It memorizes definition of the process to be taken into account, as well as parameters specific to the simulation.

Creating multiple scenarios for a process allows you to make comparisons between the performance of several configurations.

For example, by changing the number of org-units from one scenario to another, you can analyze the impact of additional personnel on production.

Accessing the List of Simulation Scenarios

To access the list of scenarios from the **Tools** navigation menu:

- Select **Simulation scenarios**.
  The list of simulation scenarios is displayed.
  The **Simulated Object** column indicates the name of the process considered for the scenario.

Simulation Scenario Parameters

Parameters that must be managed in a scenario are:

- simulation and measurement conditions (start date, number of instances sent in the process, warm up and tail phases),
- conditions of arrival of instances sent to the simulated process,
- characteristics of the resources of the simulated process,
- characteristics of the steps of the simulated process,
- routing probabilities of the instances.

Creating a Simulation Scenario

To create a simulation scenario from the **Tools** navigation menu:

1. Select **Simulation scenarios**.
   The list of simulation scenarios is displayed.
2. Click the **New** button.
   The creation window appears.
3. Specify the **Name** of the simulation scenario.
4. Select the **Process type** you want to create.
5. Select the process you want to simulate from the **Simulated Process** field.

6. (Optional) Check the box **Import the exact arrival time of process instances from a CSV file**.
The following fields are grayed.

   ☛ *For more details on use of a CSV file of input flows, see Input flow CSV file.*

7. Specify the number of **Process instances** that will activate the process as well as the **Simulation start date**.

   ☛ *Those fields are grayed if you use a CSV file to describe the input flow.*

8. Click the cells that interest you among the following:
   - **Infinite Resources**,

     ☛ *For more details on process resources, see List of Resources.*

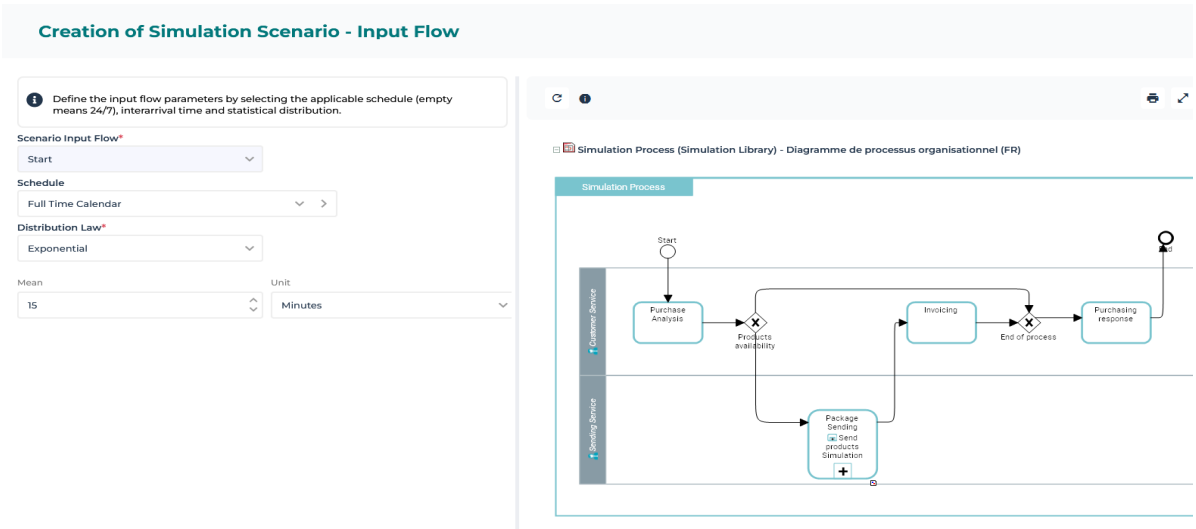
   - **Simulate all processes levels**,

     ☛ *For more details on process simulation, see Hierarchical description of the simulated process.*

   - **Simulation logfile**.

     ☛ *For more information on the MXML file, see Scenario overall results.*

9. Click the **Next** button.
The simulated process diagram appears in the creation window.



10. Select the event that will mark the **Scenario Input Flow**.
11. If you don't use a CSV file to describe the input flow, select the **Schedule** of instances that should activate the process as well as the inter-arrival Distribution Law and associated parameters.

    ☛ *For more details on the input flow configuration in the simulated process, see Characteristics of a simulation scenario:*

12. Click the **Next** button.
The task list of the simulated process is displayed.

    ☛ *For more details on setting up the tasks of the simulated process, see Tasks of the simulated process.*

    ☛ *If you have chosen to simulate a process more precisely, see Hierarchical description of the simulated process.*

13. Click the **Next** button.
    The resource list of the simulated process is displayed.

    ☛ *For more details on setting up the resources of the simulated process, see Input flow.*

14. Click the **Next** button.
    The sequence flow list of the simulated process is displayed.

    ☛ *For more details on setting up the sequence flows of the simulated process, see Probabilities on the sequences flows.*

15. Click **OK**.
    The new simulation scenario appears in the list of simulation scenarios.

You can refine these settings from the scenario properties pages.

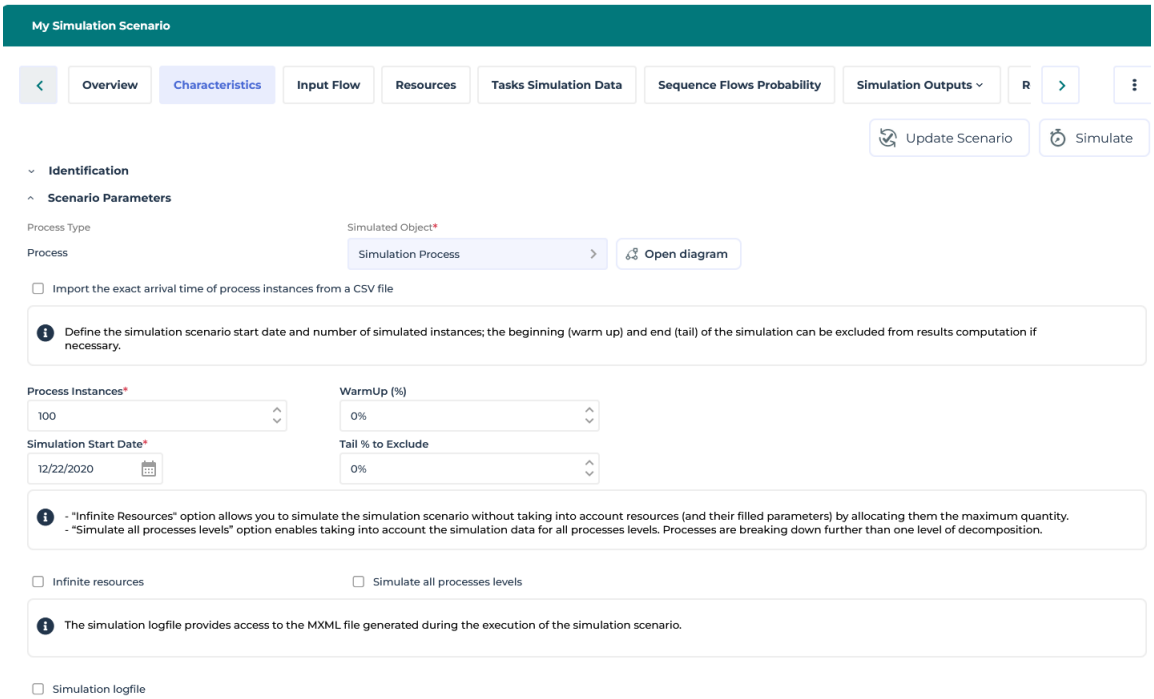
When all parameters are filled in, you can start the simulation: see Running Simulation.

Characteristics of a simulation scenario

To access the characteristics of a simulation scenario from the **Tools** navigation menu:

1. Select **Simulation scenarios**.
   The list of simulation scenarios is displayed.

2. Select the simulation scenario that interests you and open its **Characteristics** properties page.



The following characteristics appear:

> ☺ *Clicking the **Update Scenario** button allows to take into account the modifications made on the objects of the scenario or on their parameters. For further details, see Updating a simulation scenario.*

- The **Process Type** and the name of the process you want to simulate in the scenario.

  > ☛ *The list of process types available to you depends on the options you have selected.*

  > ☺ *The **Open diagram** button allows you to open the diagram of the simulated process in edit mode.*

- The **File location** if you have checked the **Import the exact arrival time of process instances from a CSV file** box.
  As a consequence, the following fields are grayed.

  > ☛ *For more details on use of a CSV file of input flows, see Input flow CSV file.*

- The **Process Instances** as well as the **Simulation start date** which define the duration of the simulation. See Simulation duration.
- The **Load increase** and **Tail to exclude** periods which define the collection period for the statistical measures. See Measurement period.
- The **Infinite Resources** box is checked to simulate a situation where resources can't be bottleneck.

  > ☛ *For more details on process resources, see List of Resources.*

- The **Simulate all processes levels** box enables taking into account the

simulation data for all processes levels.

☛ *For more details on process simulation, see Hierarchical description of the simulated process.*

- The **Simulation logfile** box provides access to the MXML file generated during the execution of the simulation scenario.

  ☛ *For more information on the MXML file, see Scenario overall results.*

Input flow CSV file

It is possible to define an input flow corresponding to the real system behavior. You have to create a CSV file with a "start" column providing the list of dates in an ISO 8601 format type: YYYY-MM-DD'T'HH:MM:SS:SSSZ.

For example :2021-07-28T15:50:03.000

Each date corresponds to a treatment requirement.

Such a file can be automatically generated by a ***Process Mining*** tool. For further details, see Using the Process Mining.

Simulation duration

The quality of the statistical results you expect depends on the size of your sample and the stability of the process you are simulating. The more unstable the behavior of your process, the more measurements you will need to compose a representative sample.

If you don't use a CSV file for input flow, the duration of the simulation is therefore defined by two parameters:

- The **Number of instances** that will be sent in the simulated process to make up the sample,

  ☛ *The number of instances must be less than 1000.*

- the **Simulation Start Date** which defines, according to the parameters of the input flow, the effective duration of the simulation. See Input flow.

Measurement period

A simulation can be divided into three periods:

- The warm up period during which the instances corresponding to the work requests progressively load the process resources.
- The steady-state period: the average number of instances being processed is stationary.
- The period of load reduction: depending on the processing conditions of the instances and schedules, it is possible that the number of instances being processed in the process will gradually decrease.

Depending on the statistical results you are interested in, you can restrict the collection of results to one of these three periods.

The parameterization of the measurement period makes it possible, for example, to exclude transitional periods that could distort the statistical results. You can therefore exclude:

- The percentage of instances that correspond to the **WarmUp** phase of the process,
- The percentage of instances that correspond to the phase of progressive decrease of load of the process: **Tail to exclude**.

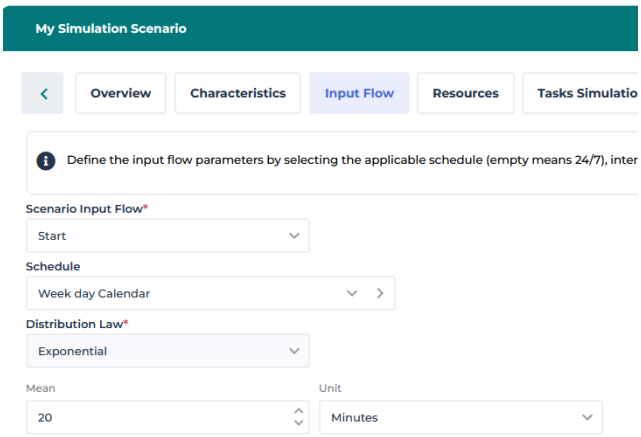
Input flow

Since the process response times will be different depending on whether all work requests are sent at once or if they are sent at regular time intervals, it is important to specify the process load conditions.

To access the parameters that define the conditions of arrival of the instances in the simulated process from the **Tools** navigation menu:

1. Select **Simulation scenarios**.
   The list of simulation scenarios is displayed.

2. Select the simulation scenario that interests you and open its **Input Flow** properties page.



The following characteristics appear:

- The **Scenario Input Flow** allows you to select the event that will mark the beginning of the treatment associated with the simulated process.

  ☛ *If the simulated process has several **Start** or **Waiting** events or is described by several diagrams, you must specify which event is taken into account in the simulated scenario.*

- The **Schedule** allows you to define the time slots during which the instances will be generated. See Using Simulation Schedules.

  ☛ *This calendar is the default calendar also used for resources if no other calendar has been associated with them.*

  ☛ *Those fields are grayed if you use a CSV file to the input flow.*

- The **Distribution Law** of the inter-arrivals of the instances in the process as well as the parameters of this distribution. See Distribution Laws and their Parameters.

  ☛ *Those fields are grayed if you use a CSV file to the input flow.*

By default, instances are introduced continuously and at regular intervals. You can enter the distribution law and the corresponding parameters to specify the mean inter-arrival time. For further details, see Distribution Laws and their Parameters.

☺ *To represent the fact that all instances are generated at the beginning of the simulation, set the value of the **Mean** to 0.*

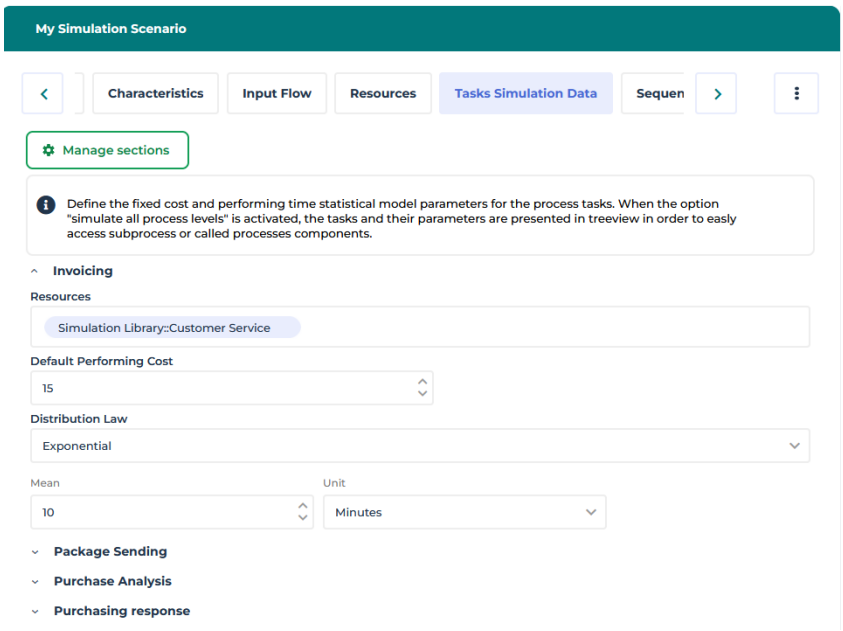
Tasks of the simulated process

All the tasks of the simulated process are detected during the construction of the simulation scenario.

To access the tasks that will be simulated in the context of the simulation scenario:

1. Open the **Tasks Simulation Data** properties page of the simulation scenario that interests you.
   The list of tasks specified in the BPMN diagram of the simulated process is displayed.

2. Expand the section of a task.
The list of parameters for the selected task is displayed.



Presentation of task parameters

For each task you can indicate:

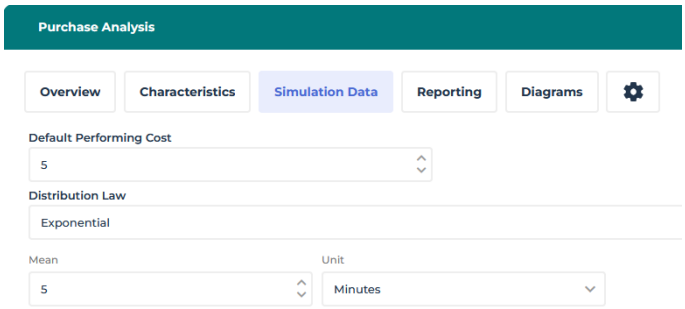
- The **Resource** in charge of executing the task as defined in the simulated process diagram. See List of Resources.

  ☛ *This resource is not modifiable at the scenario level, the diagram must be modified.*

- The **Distribution law** and the parameters that characterize the working time of the task. See Distribution Laws and their Parameters.
- The **Default Performing Cost**.

  ☛ *For more details on how to calculate the cost of a task, see Simulation Results for a Scenario.*

You can access to these informations in the **Simulation Data** property page of the task.



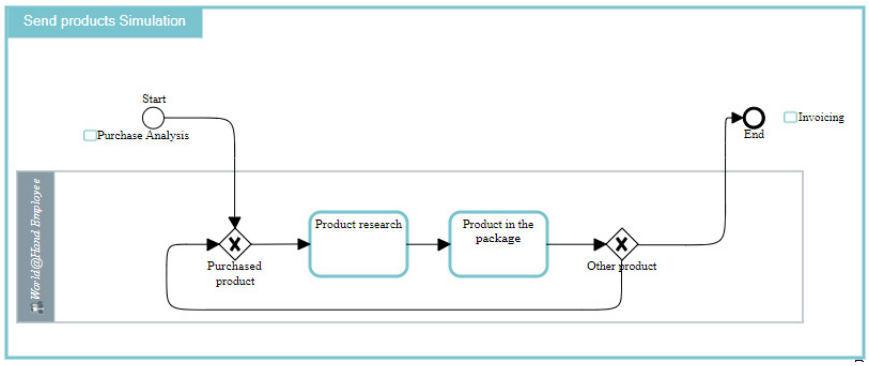
The characteristics of a task are carried by the task and not by the scenario. Thus, if you change the characteristics of a task for one scenario, these characteristics will be changed for all scenarios that take this task into account.

Hierarchical description of the simulated process

If you have ticked the option **Simulate all processes levels**, in the Scenario Parameters, the simulation takes into account the tasks that describe sub-processes from the simulated process.

- *For further detail, see Characteristics of a simulation scenario.*
- *All the tasks of the simulated process are detected during the construction of the simulation scenario.*

For example, the "Package Sending" operation is linked to the "Send Products Simulation" process modeled by a BPMN diagram.



To specify that the simulation must take into account the tasks of processes linked to operations in the context of the simulation scenario:

1. Open the **Characteristics** page of the simulation scenario.
2. Tick the **Simulate all processes levels** box
3. In the property page **Tasks Simulation Data** and expand the tree of tasks.

4. Fill in the task settings for the process described.
   The results of the simulation will present in detail the results of the tasks of the described process and the resources it uses. The results are aggregated at the level of the process described.

   ☛ *For more details on simulation results, see Results for tasks.*

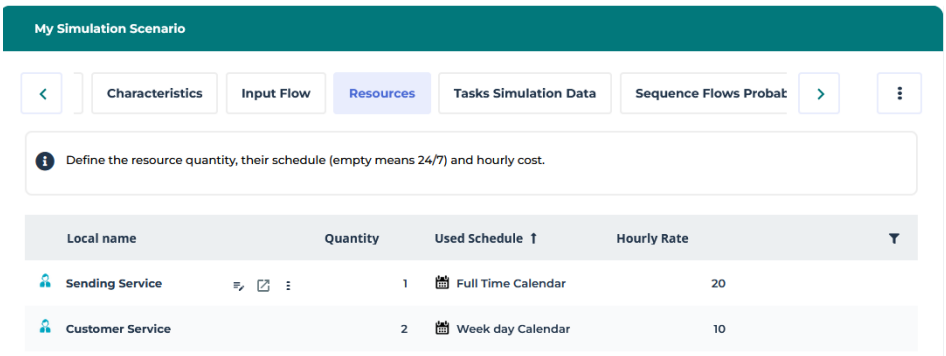
List of Resources

For a process to be simulated, all of its tasks must be assigned to resources.

All the resources assigned to the participants of the simulated process are detected during the construction of the simulation scenario.

To access the resources available in a simulation scenario:

1. Open the **Resources** properties page of the simulation scenario that interests you.
   The list of resources specified in the BPMN diagram of the process is displayed.



For each resource you can indicate:

- Its available **Quantity**.

  ☛ *The maximum quantity of resources is 1000, the resource is considered as infinite.*

- The **Used Schedule** that specifies the periods of availability of the resource. See Using Simulation Schedules.

  ☛ *If no schedule is specified for the resource, the schedule defined for the input flow is taken into account for the resources.*

- The **Hourly rate** of use. By default, this cost is assumed to be zero.

  ☛ *For more details on how to calculate the resource costs, see Results for resources.*

If you have ticked the **Infinite Resources** option in the scenario parameters, resources no longer have impact on the performances of the simulated process.

☛ *For more details on a scenario parameters, see Characteristics of a simulation scenario.*

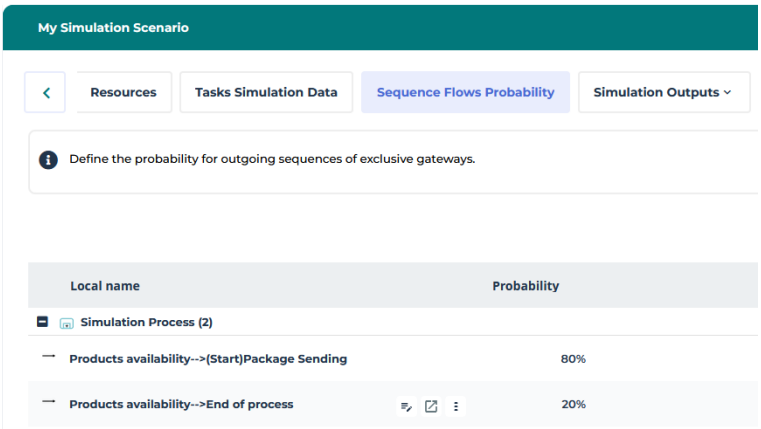
Probabilities on the sequences flows

Probabilities on the sequence flows determine the routing of the instances in the simulated process.

☛ *For more details on the different gateways, see Using Gateways.*

To define the routing probabilities on the sequence flows of the simulated process: :

1. Open the **Sequence Flows Probability** properties page of the simulation scenario that interests you.
   The **Sequence Flows** section lists the process sequences at the output of a gateway.
2. Select the sequence flow you are interested in and, in the **Probability** column, enter the value between 0 and 100 associated with the routing probability of the sequence flow.



☛ *If no probability is defined, the simulator generates an error.*

☛ *The sum of the probabilities of the flows at the output of a gateway must be equal to 100. An error is signaled if this rule is not respected.*

Distribution Laws and their Parameters

Distribution laws are used to represent the random behavior of the processing time of a task or the delay between the generation of two new instances injected in the simulated process.

The distribution laws available in **HOPEX Process Simulation** are presented in the table below

Distribution law	Mean	1st parameter	2nd parameter
Fixed	Fixed value		
Exponential	mean		
Gamma	mean	variance	
Log Normal	mean	variance	
Normal	mean	standard deviation	
Triangular	mode	minimum	maximum
Uniform		minimum	maximum

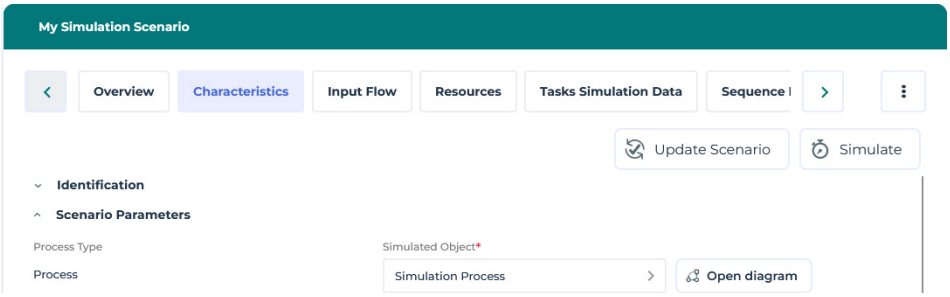
List of proposed distribution laws with their parameters

Running the Simulation

Updating a simulation scenario

Clicking the **Update Scenario** button allows to take into account the modifications made on the objects of the scenario or on their parameters.

If, for example, you have modified the diagram of the simulated process, you must update the scenario so that this modification is taken into account during the next simulation.



Running Simulation

Once you have entered the parameters of the process simulation scenario, you can start the simulation.

To run the simulation:

- Click the **Simulate** button  in the simulation editor.

Simulation results are recorded in the scenario.

Errors of a simulation scenario

Errors in the parameters of the simulation scenario or in the simulated process itself may prevent the simulation from calculating the results.

In this case, you can display the Raw Simulation Data report to localize the source of the error.

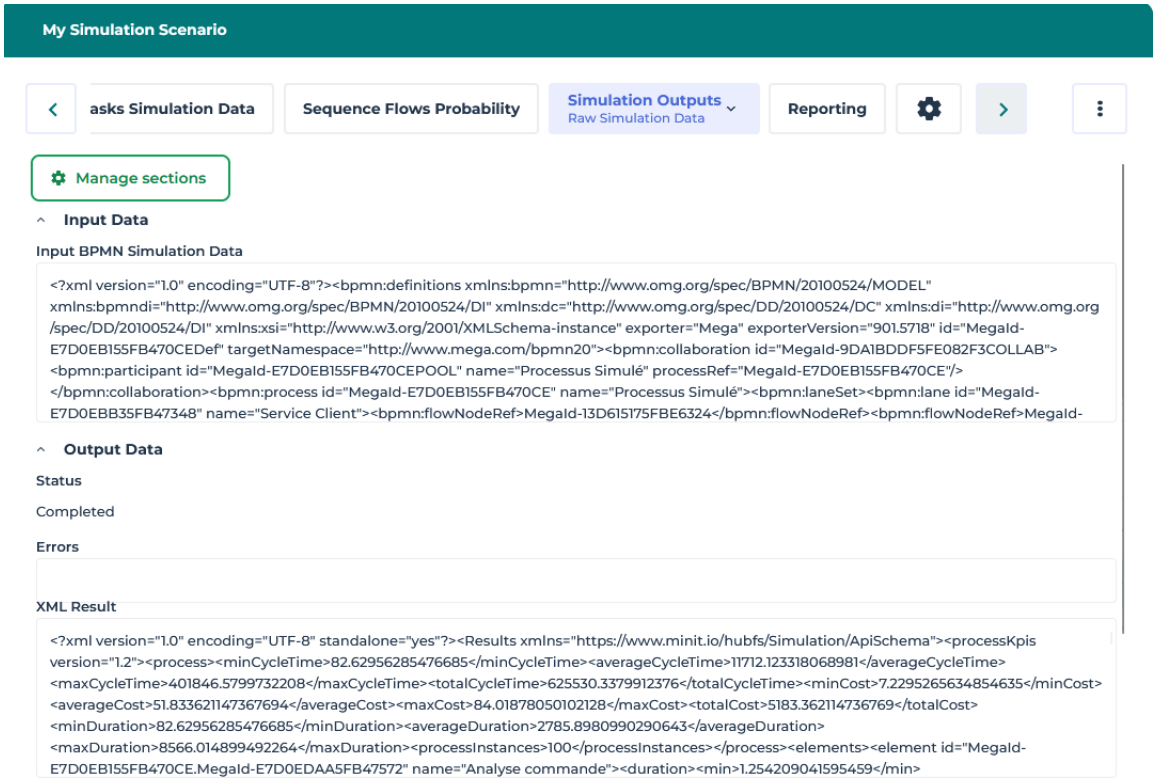
To access this option you must have access to the advanced user interfaces.

To activate this option:

1. On the desktop, click **Main Menu > Settings > Options**.
2. In the left pane of the window, click **Workspace > Desktop** folder.
3. In the right part of the window, verify that **Display advanced UI** box is set to **"**Yes**"**.
4. Click **OK**.

To access the scenario error report:

1. Open the property page **Simulation Outputs > Raw Simulation Data**.



2. The **Input Data** section includes the XML file generated from the BPMN diagram of the simulated process and imported to run the simulation.

3. The **Output Data** section includes three sub-sections:

- The simulation scenario **Status**,
- An **Error** message if the simulation failed,
- If you have ticked the option **Simulation logfile** in the scenario parameters, the **Log MXML** file is generated by the simulator.

> ☛ *For more details on a scenario parameters, see Characteristics of a simulation scenario.*

All simulated events are traced in this MXML file.

> ☛ *Because of its size, this file is compressed. To access it, select the file and click **Open**.*

USING SIMULATION SCHEDULES

The instance generator, which corresponds to the entry point of the process, introduces the instances over periods defined by a **Simulation Schedule**.

For example, you will indicate that customer calls are generated during opening hours, i.e. from Monday to Friday, from 9am to 6pm.

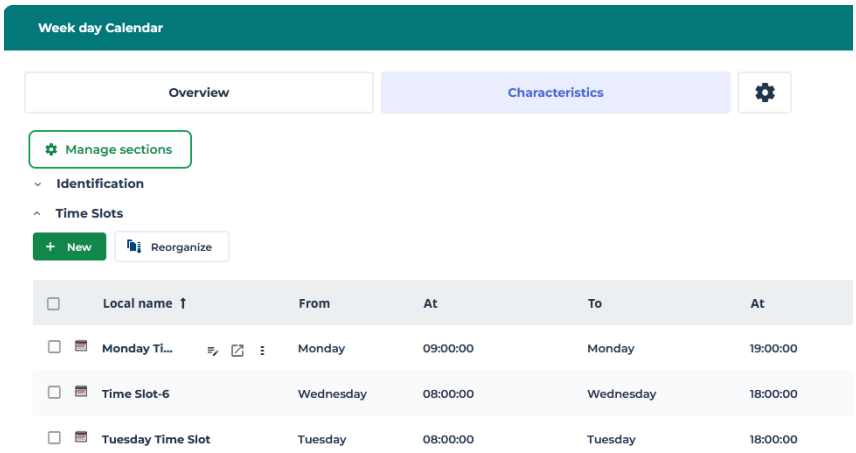
Schedules also allow you to define the period of activity of a resource.

For example, you will indicate that the resources responsible for handling customer calls are from 8:45 am to 6:45 pm.

Example of schedule

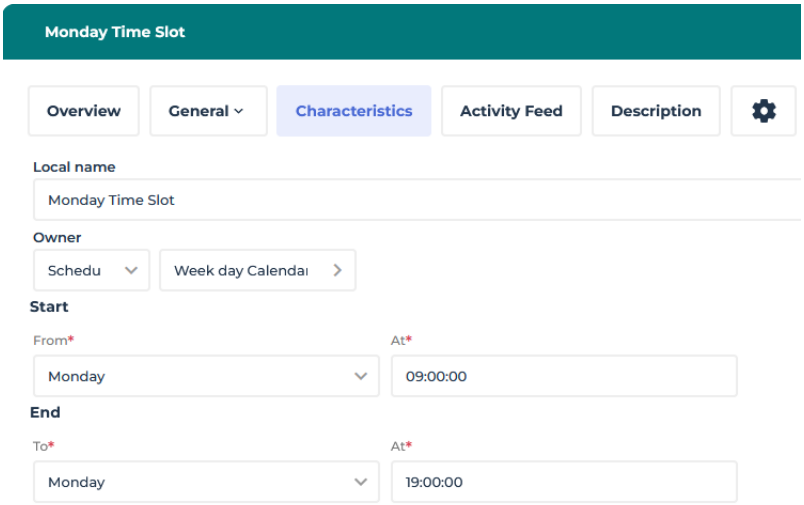
You can create a schedule to indicate that a type of employee works Mondays from 9am to 7pm and Tuesdays and Wednesdays from 8am to 6pm.

Your schedule is defined from three **Time slots**: one on Mondays from 9am to 7pm and two others for Tuesdays and Wednesdays from 8am to 6pm.



Example of time slot

A time slot is defined by the day of the week and the time that mark the beginning of the time slot as well as the day of the week and the time that mark its end.



Managing Schedules and Time Slots

Accessing the list of schedules

To access the list of schedules from the **Tools** navigation menu:

1. Select **Simulation > Schedules**.
   The list of available schedules appears.

Creating schedules

To create a simulation schedule from the **Tools** navigation menu:

1. Select **Simulation > Schedules**.
   The list of available schedules appears.
2. Click the **New** button.
   The window for creating a schedule appears.
3. Enter the **Name** of the schedule and click **OK**.
   The new schedule appears in the list of simulation schedules.
4. You must then define the time slots in your schedule. See Creating time slots.

You can create a schedule from a scenario by associating it either to the input flow or to a resource.

To create a schedule for an input flow from a scenario:

1. Open the **Input Flow** property page of the scenario.
2. At the right of the **Schedule** field, click **Create Schedule**.
   The window for creating a schedule appears.
3. Enter the **Name** of the schedule.
4. Click **OK** to complete the schedule creation.

   ☛ *You must then define the time slots in your schedule. See Creating time slots.*

Creating time slots

You can create a schedule from a scenario by associating it either to the input flow or to a resource.

To create a time slot from the **Tools** navigation menu:

1. Select **Simulation > Schedules**.
   The list of available schedules appears.
2. Select the schedule that interests you and open its **Characteristics** properties page.
3. In the **Time Slots** section, click the **New** button.
   The window for creating a time slot appears.
4. Enter the **Name** of the schedule.
5. In the **Start** section, from the **From Weekday** field, select the day on which the activity starts, and from the **From Time** field, specify the start time of the activity.
6. In the **End** section, from the **To Weekday** field, select the day on which the activity ends, and from the **To Time** field, specify the end time of the activity.

   ☛ *The time format is <hh:mm:ss.ddd> and must be between 00h00 and 23h59mn59sec.*
7. Click **OK**.
   The new time slot appears in the list of time slots of the simulation schedule.

   ☺ *To create a 24/7 calendar, you can create a time slot from Monday 0h0mn0sec to Sunday 23h59mn59sec.*

Associating a schedule with the input flow of a scenario

To associate an existing calendar with a scenario:

1. Open the **Input Flow** property page of the scenario.
2. Click the arrow at the right of the **Schedule** field and select **Connect Schedule**.
3. In the selection window, select the schedule you are interested in.
4. Click **Connect**.

Associating a schedule with a resource

To associate an existing schedule with a resource:

1. Open the **Resources** properties window of the scenario.
   The list of resources specified in the BPMN diagram of the process is displayed.

2. Select the row of the resource you are interested in and, in the **Used Schedule** column, choose the schedule that corresponds to the activity period of the resource.

SIMULATION RESULTS

Simulation Results for a Scenario

When the parameters of the various process objects have been entered, you can run the simulation.

The **Simulation Outputs** property page displays:

- The ***Average Cost*** of processing an instance. It includes the cost of tasks and the cost of resources.

  ☛ *This cost is obtained by dividing the **Total execution cost of the process** by the number of instances processed. The **Total execution cost of the process** is the sum of the resource costs plus the sum of the costs of each task. See Results for tasks.*

- The ***Average performing time*** is the average task execution time for each instance. This time therefore includes the waiting time and the effective working time for each of the tasks performed by an instance.

Global Results

In addition to ***Average cost*** and ***Average actual work time***, the overall results show:

- The ***Average processing time*** corresponds to the average time spent by an instance to go through the whole process. This time therefore includes waiting time, effective working time and downtime due to scheduling.
- The number of ***Instances processed***.

> ☛ *This result must be identical to the number of instances specified at the start of the simulation.*

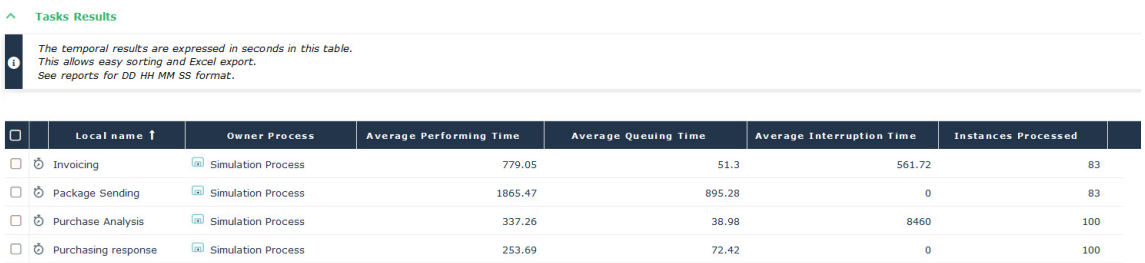
Results for tasks

The results for the tasks are given in seconds. They are also available in the form of a report. See Scenario Reports.

The results of a simulation for each task are:

- The ***Average performing time*** is the average execution time for a task. This value includes the average time declared at the input to perform the treatment plus the average waiting time.
- The ***Average queuing time*** is the average time spent waiting for instances arriving earlier to be processed by available resources. This time does not include any possible interruption time.
- The ***Average interruption time*** is the time spent waiting for the resource performing the task to become available again after a schedule-related interruption.
- The number of ***Instances processed*** by the task.

> ☛ *Note that the **Total cost of a task** is the unit cost of the task multiplied by the number of instances it has processed.*



Tasks Results

The temporal results are expressed in seconds in this table.
This allows easy sorting and Excel export.
See reports for DD HH MM SS format.

Local name	Owner Process	Average Performing Time	Average Queuing Time	Average Interruption Time	Instances Processed
Invoicing	Simulation Process	779.05	51.3	561.72	83
Package Sending	Simulation Process	1865.47	895.28	0	83
Purchase Analysis	Simulation Process	337.26	38.98	8460	100
Purchasing response	Simulation Process	253.69	72.42	0	100

Results for resources

The **Resources Results** displays for each resource its **Utilization**.

☛ *Utilization is the percentage of time a resource has been occupied out of the total time allocated to it.*

☛ *Note that the **Total cost of a task** is the hourly cost of using the resource multiplied by the time the resource has been occupied.*

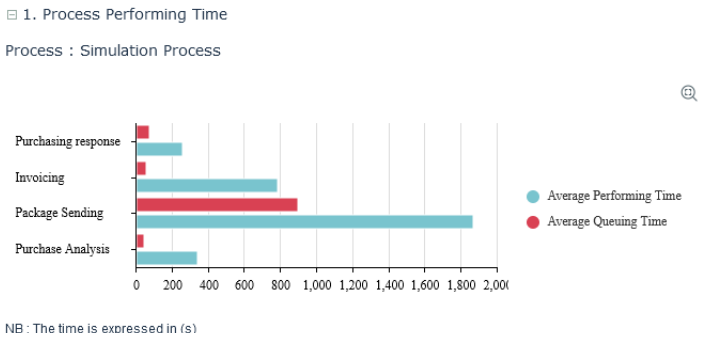
Scenario Reports

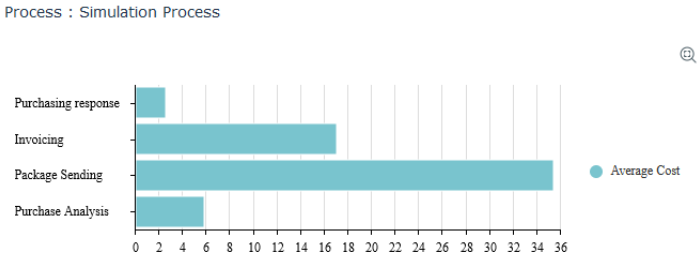
You can view the scenario reports in the **Reporting** tab.

Scenario overall results

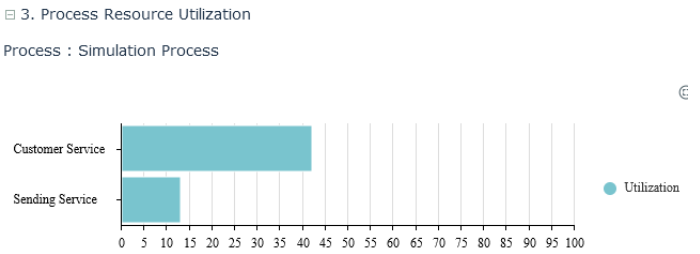
You can view the scenario report in the **Reporting > Mining & Simulation > 1-Overall Results** tab.

The graphs below allow a comparison of the performance of the different components of the simulated process.





NB : The cost is expressed in (€)



NB : The utilization is expressed in (%)

Detailed results and heatmap

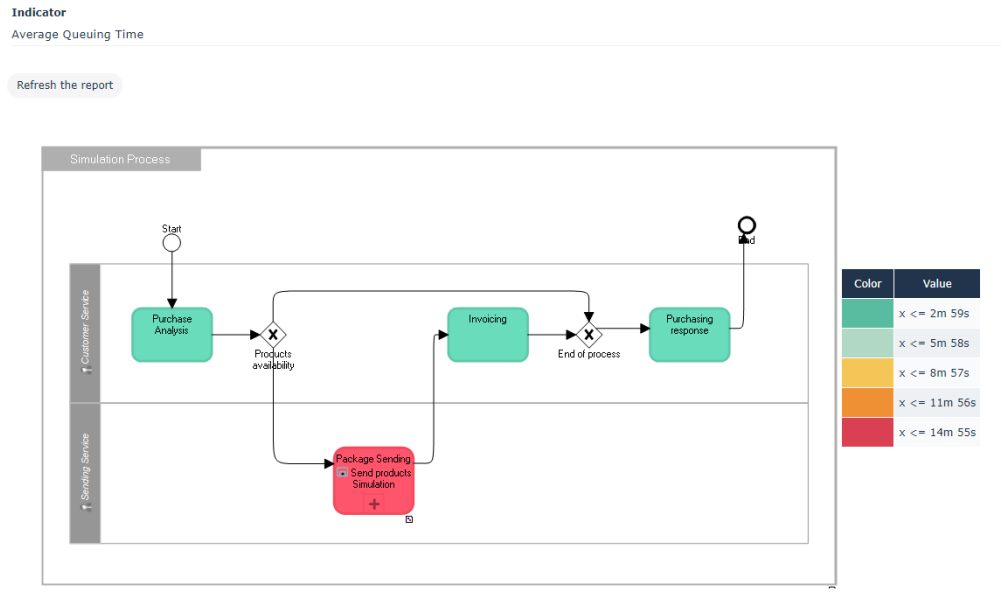
This report displays a heatmap of the simulated process components performances.

You can view the scenario report in the **Reporting > Mining & Simulation > 2-Detailed Results and Heatmap** tab.

The **Indicator** parameter is used to compare components on the following criteria:

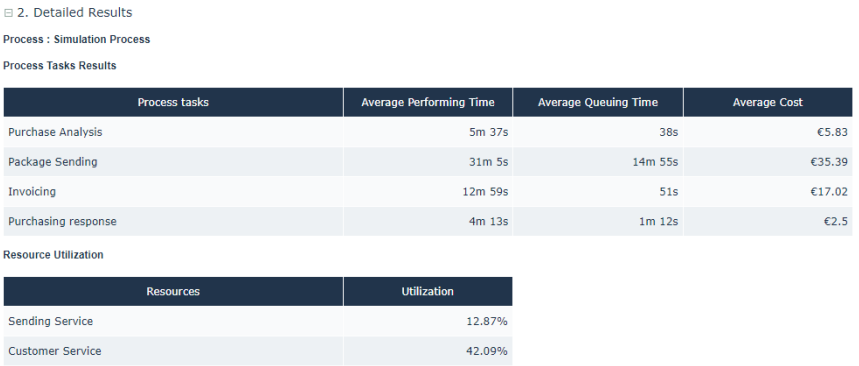
- the average cost,
- the utilization,
- the average queuing time,
- the average performing time.

The first part of the report is a heatmap. The values represented by colors are based on the maximum value achieved by the criteria.



☛ *The **Average queuing time** indicator is displayed below.*

The second part of the report presents in the table an overall of performances.



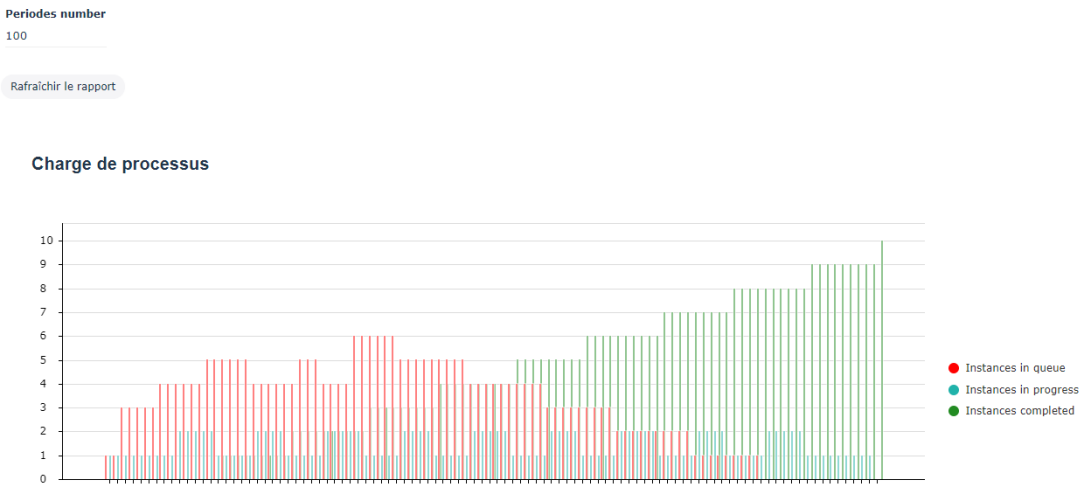
Process and Resource load

You can view the scenario report in the **Reporting > Mining & Simulation > 3-Process and Resource Load** tab.

The first part of this report presents the evolution of the mean number of instances in the process per period of time.

You can see:

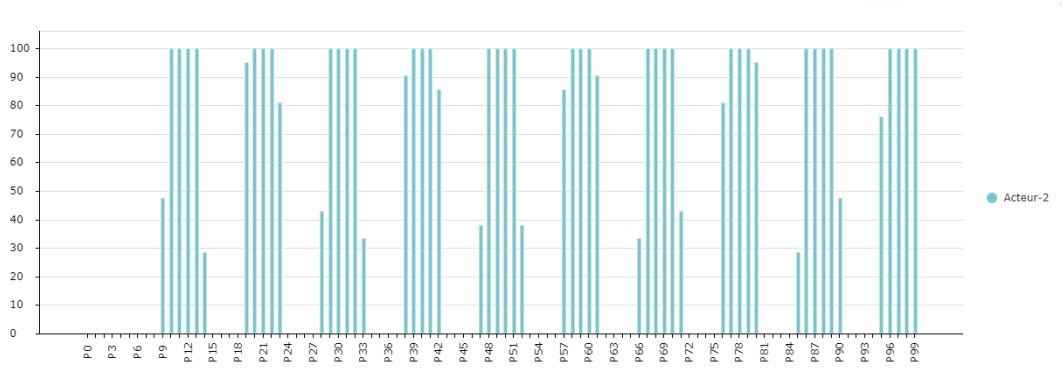
- the evolution of the mean number of instances waiting in the process components per period of time.
- the evolution of the mean number of instances using resources in the process components per period of time.
- Total number of instances processed during the period.



Simulated process performances

☛ *The **Average queuing time** indicator is displayed below.*

The second part of the report presents the evolution of the periodic utilization of process resources. This graph helps to detect peak-loads that generate degraded performances.



Load of an Org-Unit

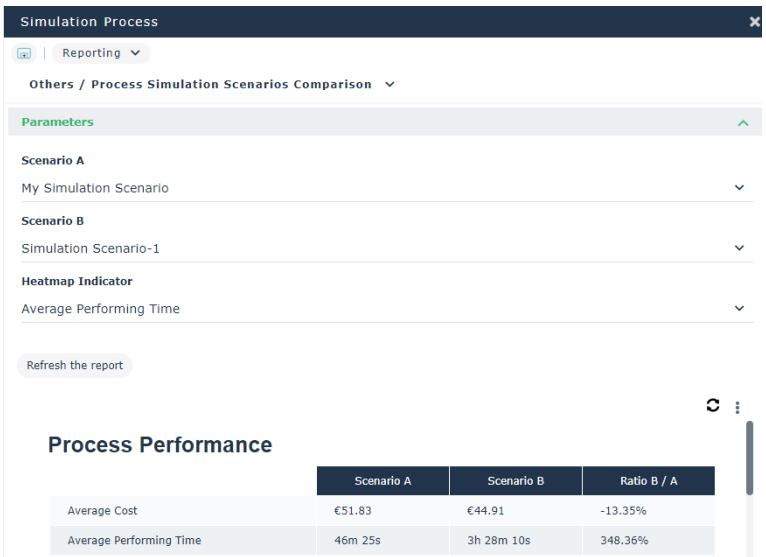
Scenario Comparison Report of a Process

From the Process **Report** property page, you can view the comparison report of two process simulation scenarios.

> ☛ *The list of simulation scenarios available on the process is accessible from the **Simulation - Simulation Scenarios** property page.*

To access the process simulation scenario comparison report:

1. Open the **Reporting** property page of the process that interests you.
2. Select **Others > Process Simulation Scenarios Comparison**.
3. In the **Parameters** select the **Scenario A** and the **Scenario B**.
4. In the **Heatmap Indicator** field, select the indicator that will be used for the presentation of the **Indicator Map**.
   Indicators proposed are:
   - the average cost,
   - the average performing time,
   - the utilization.
5. Click the **Refresh the report** button.
   The graphs below allow a comparison of the performance of the different elements of the simulated process.



Process Performance

	Scenario A	Scenario B	Ratio
Average Cost	€51.83	€44.91	-13.35%
Average Performing Time	46m 25s	3h 28m 10s	348.36%
Instances Processed	100.0	100.0	0.00%

Process Tasks Performances

Average Performing Time

Process tasks	Scenario A	Scenario B	Ratio
Invoicing	12m 59s	1h 13m 11s	463.64%
Package Sending	31m 5s	17h 37m 21s	3300.85%
Purchase Analysis	5m 37s	43m 41s	677.29%
Purchasing response	4m 13s	1h 43m 44s	2353.72%

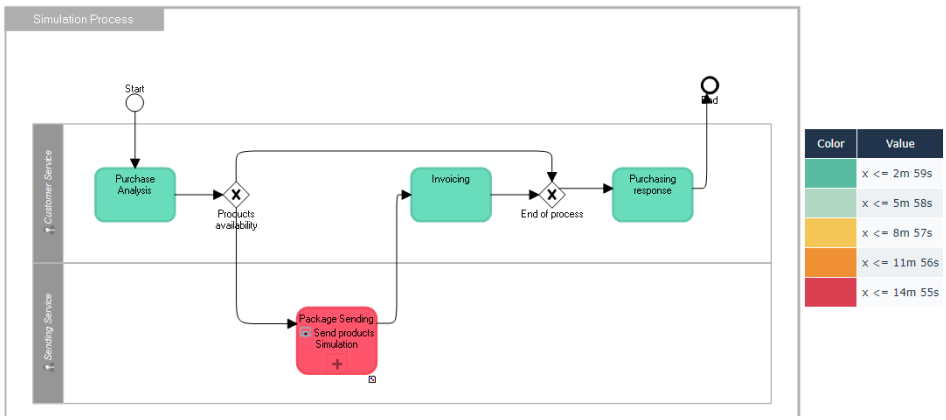
Average Cost

Process tasks	Scenario A	Scenario B	Ratio
Invoicing	€17.02	€16.48	-3.17%
Package Sending	€35.39	€0.0	-100.00%
Purchase Analysis	€5.83	€5.74	-1.54%
Purchasing response	€2.5	€2.54	1.60%

Indicator

Average Queuing Time

Refresh the report



☛ *The indicator presented above is resource **Utilization**.*

USING THE PROCESS MINING WITH HOPEX PROCESS SIMULATION

HOPEX Process Simulation allows you to analyze information from a Process Mining tool.

Three types of information are taken into account by **HOPEX Process Simulation**. This consists of:

1. The BPMN representation of the executed process;

   ☛ *For more details on how to import a BPMN file, see the chapter "Importing BPMN files" in the **HOPEX Common Features** guide.*

   ☛ *You can compare the imported process diagram with a similar process diagram. For further details, see Process Diagrams Conformance.*

2. CSV files containing treatment requests dates.

   ☛ *For more details on use of a file to specify the input flows, see Input flow CSV file.*

3. Data in XML format from the analysis of process execution data.

   ☛ *For more details on how to import an Excel file, see Importing a Process Mining XML file.*

   When the data has been imported, **HOPEX Process Simulation** provides facilities for analysis of this information.

   ☛ *For more details on how to use this data, see Analyzing data from Process Mining.*

Importing a Process Mining XML file

To import a Process Mining XML file, you must have already imported the BPMN representation of the concerned process.

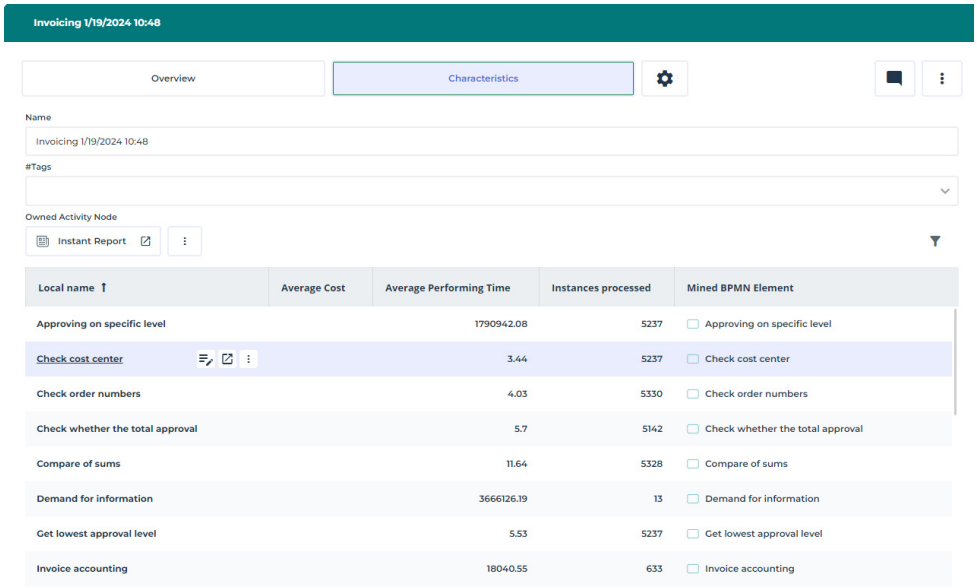
To import a Process Mining XML file:

1. Open the **Simulation > Process Mining** property page of the process that interests you.
2. Click **Import**.
   An import window opens.
3. Browse and select the relevant simulation data XML file.
4. Activate the option **Initialize process steps parameters** if you want to use the execution times measured during the Process Mining (and contained in the XML file) as simulation parameters.
   Hence, the average performing time, the standard deviation and the distribution law are automatically filled in the "Simulation Data" property page of each Operation.

   ☛ *Existing data in the "Simulation Data" property page is erased.*

5. Click **OK**.
   The imported file is added to the list.

6. Click the map associated to the XML file to access to the list of tasks with their indicators.



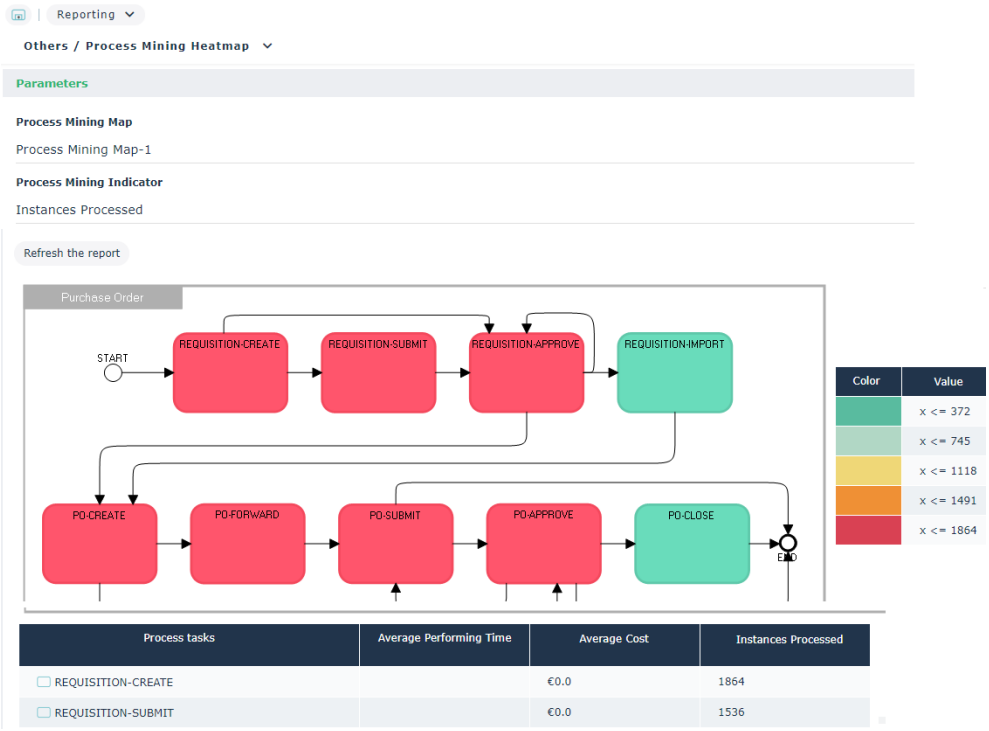
Analyzing data from Process Mining

You can use the imported data in a Process Mining map.

To access the process simulation scenario comparison report:

1. Open the **Reporting** property page of the process that interests you.
2. Select **Others > Process Mining Heatmap**.
3. In the **Parameters** section, select the **Process Mining Map** concerned.
4. Then select the **Process Mining Indicator** and click **Refresh the report**.
   Indicators proposed are:
   - the average cost,
   - the average performing time,
   - Instances processed.

   The **Process Mining Heatmap** report is generated.


Reporting
Others / Process Mining Heatmap
Parameters
Process Mining Map
Process Mining Map-1
Process Mining Indicator
Instances Processed
Refresh the report
Purchase Order
START
REQUISITION-CREATE
REQUISITION-SUBMIT
REQUISITION-APPROVE
REQUISITION-IMPORT
PO-CREATE
PO-FORWARD
PO-SUBMIT
PO-APPROVE
PO-CLOSE
END
Color
Value
x <= 372
x <= 745
x <= 1118
x <= 1491
x <= 1864
Process tasks
Average Performing Time
Average Cost
Instances Processed
REQUISITION-CREATE
€0.0
1864
REQUISITION-SUBMIT
€0.0
1536

QUALITY MANAGEMENT

HOPEX Business Process Analysis offers functions that simplify creation and maintenance of a quality system conforming to ISO 9000 standards. You can:

- Represent your processes using process diagrams.
- Enter the characteristics specific to the quality problem.
- Synchronize your processes and the various chapters or themes of the quality repository on which you are based (ISO 9001 standard, 2015 edition, etc.).
- Generate a quality manual automatically

Prerequisites to Use of Quality

An option is used to display the properties dedicated to the management of processes quality.

To activate this option:

1. In the workspace, open the **Options** navigation window.
2. In the tree on the left, select **HOPEX Solutions > Business Process Analysis**.
3. Select the check box **Quality Modeling**.

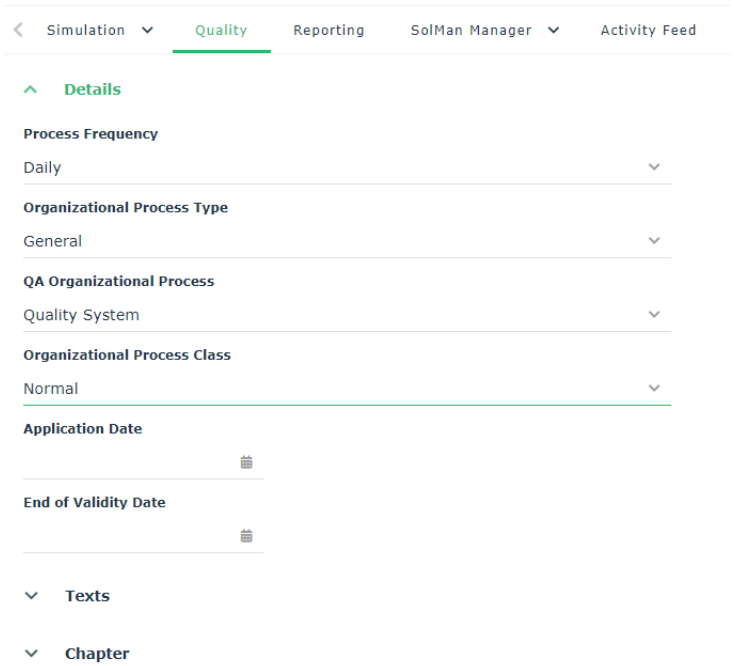
PROCESS PROPERTIES

In the property pages of a process, the **Quality** tab allows you to:

- enter quality characteristics specific to processes.
- indicate to which section of which repository the process you are describing refers. In this way, the processes are associated with chapters or themes so as to indicate their field of application.

Indicating Process Quality Characteristics

From the **Quality** tab and the **Details** section, you can define characteristics that are specific to the quality issue.



Process type and Process class

Two **Process Types** are available:

- "General" processes which involve the entire organization.
- "Specific" processes which involve a particular structure or a product.

Available **Process classes** are:

- "Normal" processes which describe the usual operations of the enterprise.
- "Urgent" processes which describe accelerated operating mode to provide faster service to customers.
- "Special" processes relate to unusual operating mode, for exceptional events such as accidents.

Other process characteristics

The **QA- Process** field allows you to specify if the procedure is part of the Quality Assurance (external) or Quality System (internal) documentation of the organization.

☛ *This option concerns the 1994 version of ISO 9001 standard.*

The **Frequency of the process** can be:

- "On Request": the process is applied when the event that triggers it occurs.
- Daily, Weekly, Monthly, Twice a Month, Quarterly, or Annually.

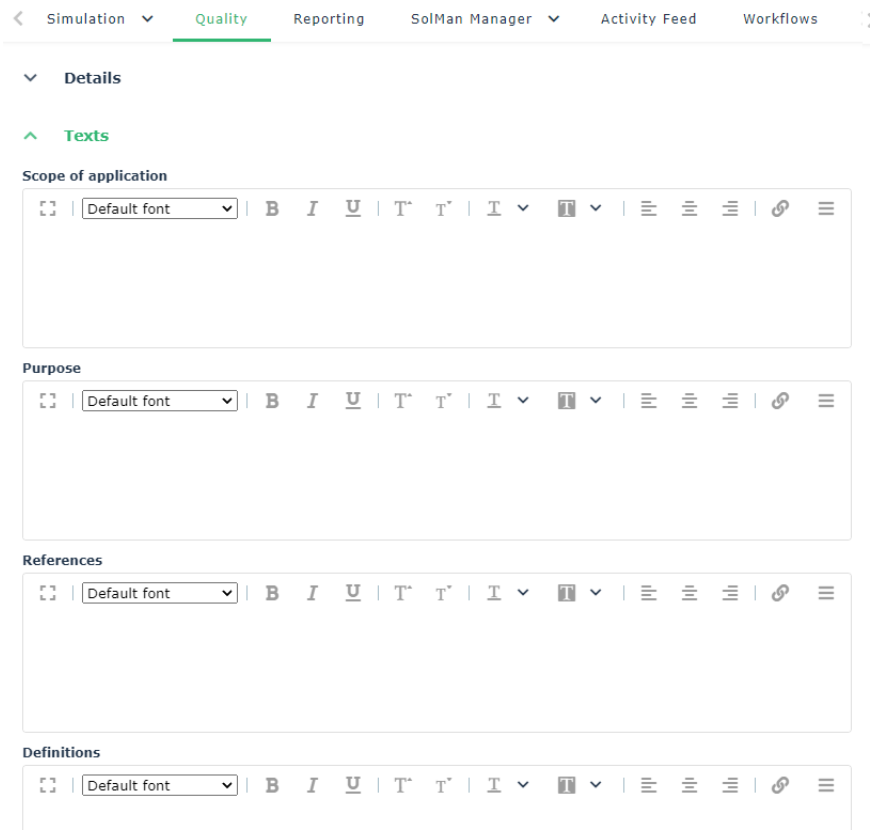
The **Application date** and **End of validity date** of the process can also be indicated.

☛ *The application and validity end dates are displayed using the Windows default format. You can change this format in the Regional Settings properties dialog box (short date).*

To enter a date beyond the year 2000, you should select short date format of type dd/MM/yyyy with four characters for the year.

Entering the texts of a process

The **Quality** property page of a process includes a **Texts** section that allows you to enter different types of text (standard): "Application domain", "process object", "references", "definitions", etc.



Specifying Context of the Quality Approach

The **Quality** property page of process includes a **Chapters** section that allows you to specify the standards you are using for your quality approach or certification.

☛ *To have access to data relating to the standard ISO 9001 2015, you must import the "ISO" Module.*

☛ *For more details, see the "Importing a package in HOPEX" chapter in the HOPEX Administration guide.*

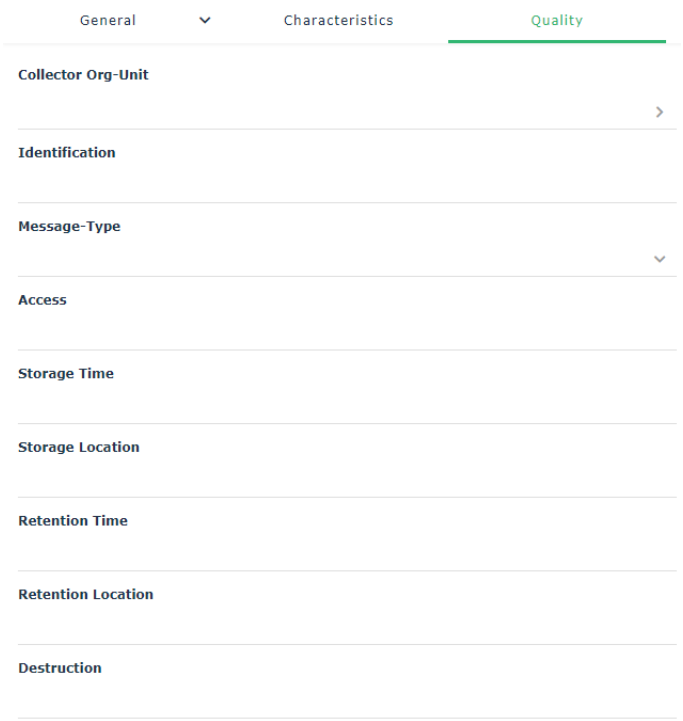
The sub tabs **ISO 9001** and **Other chapters** correspond to different repositories serving as the basis for your quality approach:

- **ISO 9001**
  This sub-tab presents the 20 chapters (or requirements) of the ISO 9001 standard.
- **Other chapters**
  This sub-tab concerns you if you are using another standard for your quality approach or certification. The chapters that you may have created will appear here.

  ☛ *To create new chapters you must use the explorer.*

MESSAGE FLOW PROPERTIES

The **Quality** properties page allows you to specify characteristics of a message flow related to quality.



The **Message-Type** list box enables characterization of the message flow: "External Data", "Quality Record" or "Instruction".

The other fields allow you to enter additional indications for messages of "Quality record" type that are particularly important in documentation of your quality system. Here you can define the controls needed for identification, storage, retention time, etc.

> 🕮 *According to the ISO 9000 standard, a "Record" is a "document stating results achieved or providing evidence of activities performed". It can document traceability and provide evidence of the verification, preventive action, and corrective action. It can consist of a form, report, list of actions, etc. It can be written or saved on any data carrier. Generally records need not be under revision control.*

CONVERSATIONS

This chapter presents how to describe *conversations* between process architecture components.

> 🕮 *A conversation describes an exchange of several message flows between two roles.*
>
> 🕮 *A composite conversation is described by an service contract. This service interface contains service operations or sub-service interfaces.*

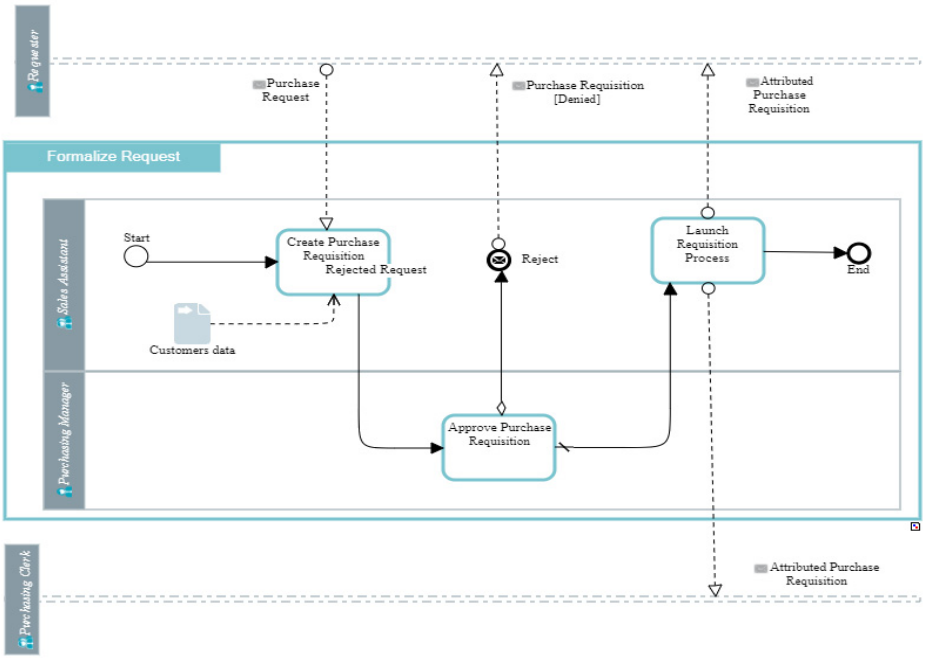
CONVERSATIONS EXAMPLE

The **Conversation** concept is introduced in standard BPMN 2.0.

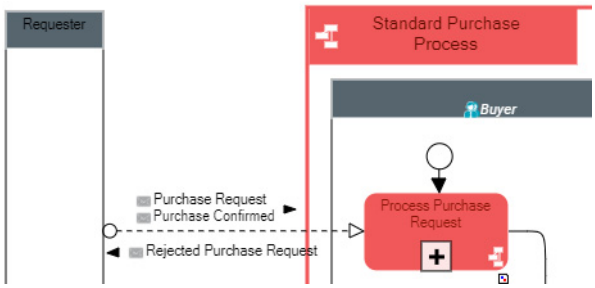
In **HOPEX Business Process Analysis**, a conversation is implemented by a **Service operation**.

A service operation specifies exchanges between participants.

The example of purchase request processing involves several exchanges between the requester and the "Purchasing Assistant".



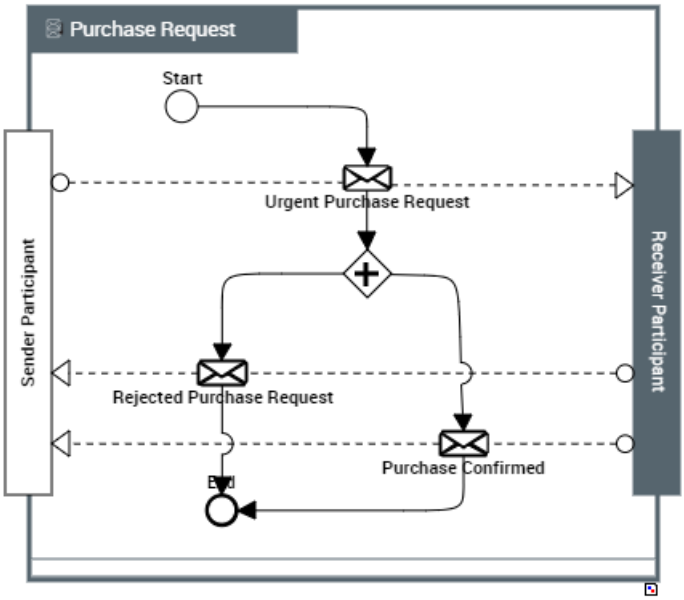
At the highest level, these exchanges can be represented by the same message flow.



A conversation is described by a set of message flows with content.

It is possible to build a service operation diagram to present the exchanges of sequence flows.

The service operation diagram “Purchasing Request” is presented below.



MANAGING CONVERSATIONS

A conversation represents the exchange of information between architecture components.

📖 *A conversation describes an exchange of several message flows between two roles.*

Creating Conversations

Creating Conversations with an existing Service Operation

A conversation is described by a service operation which represents an information exchange channel between architecture components.

📖 *A service operation specifies exchanges between participants.*

To create a conversation from an existing service operation:

1. In the process diagram insert toolbar, click the **Conversation** button.

   ☛ *To add **Conversation** to the insert bar: in the diagram toolbar, select **Views and Details** and select **Conversation**.*
2. Draw a link between the two entities in communication.
3. In the conversation creation window, specify the **Service operation**you wish to use.

   ☛ *You can also create a new service operation, see Creating Conversations with a new Service Operation.*
4. Click **OK**.

Creating Conversations with a new Service Operation

You can create a **service operation** from a library or a process diagram.

To create a service operation from a process diagram:

1. Click the **Conversation** button and create a link between the two communicating entities.
   The conversation creation dialog box appears.
2. Click the arrow at the right of the **Service operation** and select **Create a service operation**.
   The Creation of Operation Joint Action dialog box opens.
3. Enter the **Name** of your service operation.
4. Click **OK** to close this dialog box.
   The service operation is automatically created.
5. Click **OK**.
   The conversation appears in the diagram.

Describing Conversation Message Flows

The *message flows* exchanged in a conversation are described in the service operation associated to the conversation.

> 🕮 *A message flow represents circulation of information within a service interface. A message flow transports its content.*

A service operation is described by message flows and their content which are exchanged between the two roles representing the stakeholders in the conversation.

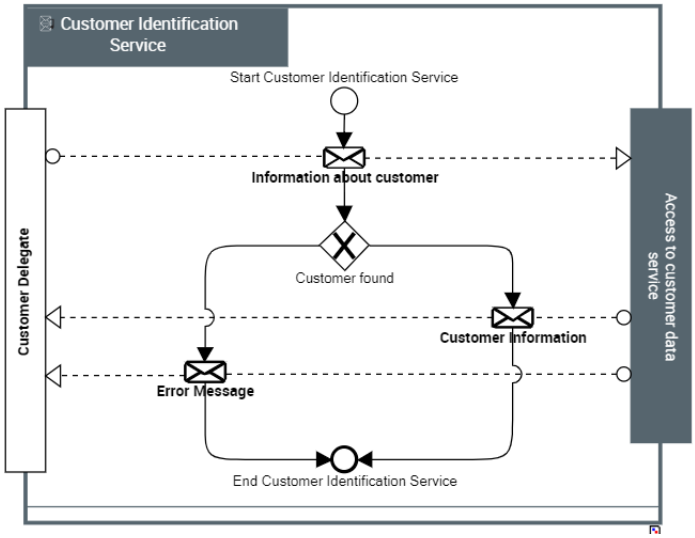
> 🕮 *The content designates the content of a message or an event, independent of its structure. This structure is represented by an XML schema linked to the content. A content may be used by several messages, since it is not associated with a sender and a destination. There can be only one content per message or event, but the same content can be used by several messages or events.*

To describe message flows exchanged in a conversation:

1. Open the **Characteristics** property page of the Conversation that interests you.
2. From the **service operation** field, you can access the service operation and its contextual menu.
3. Open the **Message Flow** property page of the service operation.
4. Click the **New** button.
   The **Creation of Message Flow - Content** dialog box opens.
5. From the **Content** drop-down list, select the content you wish to associate with the message flow.
   The message flow with its content is displayed in the list of conversation contents.
   > ☛ *You can associate several contents with the message flow.*
6. Specify the direction of each message flow.
7. Click **OK**.

Creating a Service Operation Diagram (BPMN)

The sequence of flows exchanged during a service operation can be described by a service operation diagram.



"Customer Identification Service" Service Operation Diagram

The customer identification service protocol begins by sending information enabling identification of the customer. An error message appears if the customer is not found, otherwise customer information is sent (customer identification, status of orders, etc.).

To create an service operation diagram:

1. Open the **Characteristics** property page of the Conversation that interests you.
2. From the **Service operation** field, you can access the service operation and its properties.
3. From the **Diagram** page of the service operation, click **Create a diagram**.
4. Select **Structured diagram**.
   The diagram opens. The frame of the service operation is positioned and the two roles (sender and recipient) are created. The message flows associated with the service operation are also positioned in the diagram.

MANAGING COMPOSITE CONVERSATIONS

A composite conversation is described by an service contract. This service interface contains service operations or sub-service interfaces.

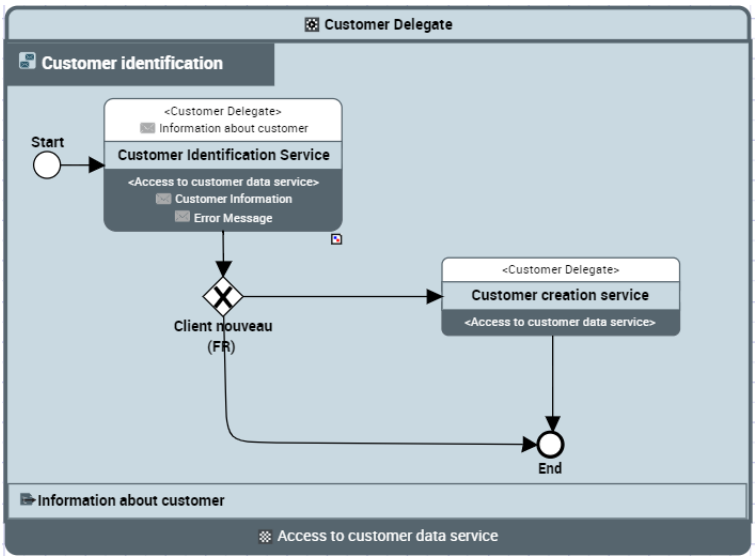
With **HOPEX Business Process Analysis**, a **service interface** represents the exchange of information between architecture components of the process.

A Service Interface is a template of a contract between entities (organizational, IT …). The contract is described by available operations which can be triggered trough messages exchanged by roles (vendor, buyer..).

Example of a Service Interface

Example of a Service Interface using Service Operations

The service operation "Customer identification" starts with customer research step. If the customer is found, the protocol returns customer information, if not, a "Customer Creation" protocol is activated. The result of the "Customer identification" service interface is the "Information about customer" message.



Service interface Diagram (BPMN)

The steps are represented by **used service operations** and **used service interfaces**.

A service operation use represents the usage of a service operation in an service interface.

A service interface use is associated to a service interface. It enables representation of complex exchanges.

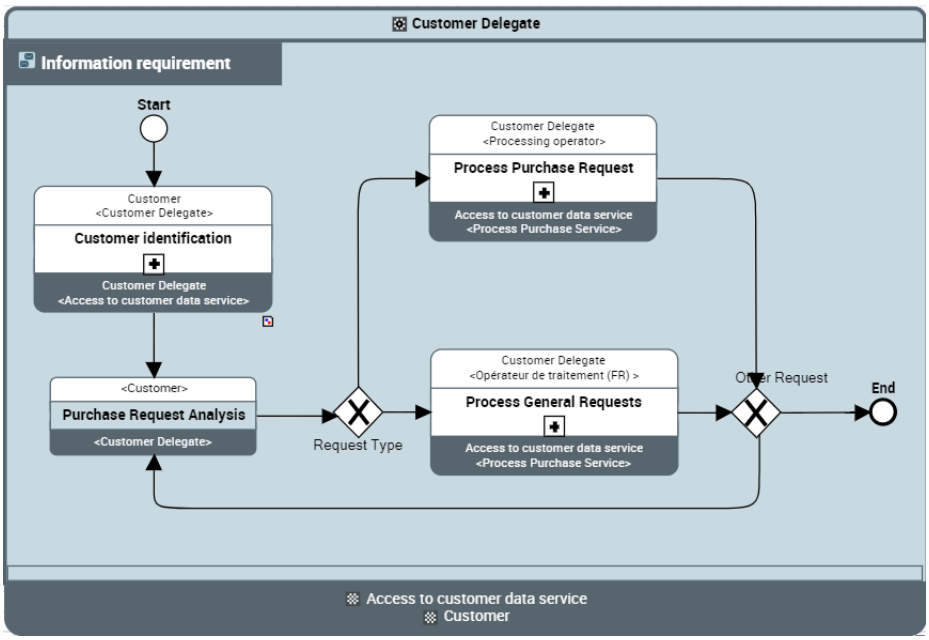
Example of a service interface using service interfaces

With **HOPEX Business Process Analysis**, a protocol is described by a sequence flow of steps which are represented:

- By **used service operations**
- By **used service interfaces**

The protocol roles, presented at the border of the frame, represent participants *invoker* or *invoked*.

A service interface can be described by involving more than two participants. In this case, a role is consumer of the service interface and the others are providers.



"Information Requirement" Service Interface (BPMN) diagram

The "Information Request" service interface is used by the supplier call center to take account of a customer request online. There are therefore three participants in this contract: the customer, the IT applications and the customer representative who is the effective requester of the service (in this case the call center).

This contract consists of identifying the customer, then analyzing the request. The request is then processed as a

```
purchase request or as another request if it is an
information request for example.
```

Creating a composite conversation

A composite conversation is described by an service contract. This service interface contains service operations or sub-service interfaces.

> *A Service Interface is a template of a contract between entities (organizational, IT …). The contract is described by available operations which can be triggered trough messages exchanged by roles (vendor, buyer..).*
>
> ☛ *For further detail on service interfaces, see Managing Composite Conversations.*

To create a *composite conversation* from an existing *service interface*.

1. In the diagram insert toolbar, click the **Composite Conversation** button.
2. Draw a link between the two entities in communication.
3. In the creation window, choose the **service interface** you want to use.
   ☛ *You can also use a new service interface.*
4. Click **OK**.

Accessing a Service Interface from a Composite Conversation

A **service interface** is described by a **composite conversation** that represents an information exchange channel between architecture components.

> *A Service Interface is a template of a contract between entities (organizational, IT …). The contract is described by available operations which can be triggered trough messages exchanged by roles (vendor, buyer..).*
>
> *A composite conversation is described by an service contract. This service interface contains service operations or sub-service interfaces.*

To create a composite conversation:

1. In the diagram insert toolbar, click the **Composite Conversation** button.
2. Draw a link between the two entities in communication.
3. In the creation window, precise the name of the conversation and select the service interface you want to use.
   ☛ *You can also create a new service interface, see Creating Conversations with a new Service Operation.*
4. Click **OK**.

Creating a Service Interface from a Composite Conversation

You can create a new service interface from a composite conversation.

To create a service interface from a composite conversation:

1. In the diagram insert toolbar, click the **Composite Conversation** button.
2. Draw a link between the two communication entities.
3. In the creation window, click the arrow at the right of the field **Service interface** and select **Create a service interface**.
   The creation window appears.
4. Select the **Creation Mode**. **Standard Creation**.

   ☛ *You can create a service interface from a service interface model. For more details, see chapter "Creating a service interface from a service interface" in the* ***HOPEX IT Architecture*** *guide.*
5. Enter the service interface name in the **Name** field.
6. Click **OK**.
   The composite conversation and the service interface are created.

Describing a service interface

A **service interface** can be described by **service operations** or **service interfaces** that represent information exchanges between architecture components.

A Service Interface is a template of a contract between entities (organizational, IT …). The contract is described by available operations which can be triggered trough messages exchanged by roles (vendor, buyer..).

A service operation use represents the usage of a service operation in an service interface.

A service interface use is associated to a service interface. It enables representation of complex exchanges.

To describe that a service operation is used by a service interface:

1. Open the **service operation** page of the service interface.
2. Click the **New** button.
   A selection dialog box opens.
3. Select **used operation service** and click **OK**.
   The creation dialog box opens.
4. Click the arrow at the right of the **Specification** box.
5. Select **List** in the drop-down list and select the service operation to be associated with the service operation you are using.
   The name of the service operation appears in the **Specification** field.
6. In the **From** field, select the described service operation role connected to the *Invoker* role of the service operation used.
7. In the **To** field, select the service operation role connected to the *Invoked* role of the service operation used.
8. Click **OK**.

   ☛ *You can associate several service operations to the service interface.*
9. Click **OK**.

Creating a Service Interface diagram

With **HOPEX Business Process Analysis**, a service interface is represented by a service interface diagram.

To create a service interface diagram:

1. Open the **Characteristics** property page of the composite conversation of your choice.
2. From the **Service operation** field, you can access the connected service operation and its properties.
3. From the **Diagram** page of the service interface, click **Create a diagram**.
4. Select **Structured diagram**.
   The diagram opens. The frame of the service interface is positioned and the two roles (sender and recipient) are created. Used operations and service interfaces are also positioned in the diagram.

Defining used operations and service interfaces

In a service interface diagram (BPMN), operations are described by:

- **used service operations**
- **used service interfaces**

> *A service operation use represents the usage of a service operation in an service interface.*
>
> *A service interface use is associated to a service interface. It enables representation of complex exchanges.*

To create a used service interface:

1. Select the **Service Operation Use** button and click in the diagram within the exchange contract frame.
   The creation dialog box opens.
2. Click the arrow at the right of the **Specification** box.
3. Select **List** in the drop-down list and select the service interface connected to the service interface used.
4. In the **From** field, select the described service operation role connected to the *Invoker* role of the service interface used.
5. In the **To** field, select the service operation role connected to the *Invoked* role of the service operation used.
6. Click **Finish**.

Replacing a conversation

As standard, a conversation is connected to a service operation. However, from its pop-up menu, you can replace a conversation with a composite conversation or by the message flows of the service operation to which it is associated.

Replacing a Conversation with a Service Operation

To replace a conversation:

1. Right-click on the conversation to open its pop-up menu.
2. Select **Replace Service operation by Service interface**.
   A new service interface is created and the conversation becomes a *composite conversation*.

   > 🕮 *A composite conversation is described by an service contract. This service interface contains service operations or sub-service interfaces.*

Replacing a conversation with flows

To replace a conversation:

1. Right-click on the conversation to open its pop-up menu.
2. Select **Replace by Message Flows**.
   The conversation disappears and it is replaced by the messages flows owned by the connected service operation.

SUMMARY OF CONCEPTS

	Service operation	Service Interface
Definition	A service operation specifies exchanges between participants.	A Service Interface is a template of a contract between entities (organizational, IT …). The contract is described by available operations which can be triggered trough messages exchanged by roles (vendor, buyer..).
Use in a Process Diagram	 A conversation describes an exchange of several message flows between two roles.	 A composite conversation is described by an service contract. This service interface contains service operations or sub-service interfaces.
Use in a Service Interface Diagram	 A service operation use represents the usage of a service operation in an service interface.	 A service interface use is associated to a service interface. It enables representation of complex exchanges.

CUSTOMER JOURNEY

The **HOPEX Customer Journey** Product is used to represent the acquisition process of a product or a service by a specific customer. Mapping a customer journey provides an overview of customer expectations, painpoints encountered, and the resources used at each step of the journey. Last but not least, touchpoints, which are the points of interaction between the customer and the company, are used to measure and improve overall customer satisfaction.

Representing a customer journey will allow you to easily identify these critical points. **HOPEX Customer Journey** is used to describe solutions for improvement and to assess them at different dates.

The points covered here are:

- ✓ HOPEX Customer Journey product presentation
- ✓ Managing the Components of a Customer Journey
- ✓ Assessing a customer journey
- ✓ Customer Journey reports

HOPEX CUSTOMER JOURNEY PRODUCT PRESENTATION

Associated with **HOPEX Business Process Analysis** and **HOPEX IT Business Management** , **HOPEX Customer Journey** product supports the methodology and the tools that are used to describe and improve the acquisition process of your products and services.

The methodology embedded in the **HOPEX Customer Journey** product is based on the features of the **HOPEX** Suite to describe and manage the different project phases and steps in the customer journey.

Last but not least, the **HOPEX** suite assessment tool is used to record, over time, an assessment of the steps in the customer journey. The consolidated results of these assessments are visible in the customer journey diagrams. Standard reports are also available to facilitate analysis of the journey and help with identifying a solution for improvement.

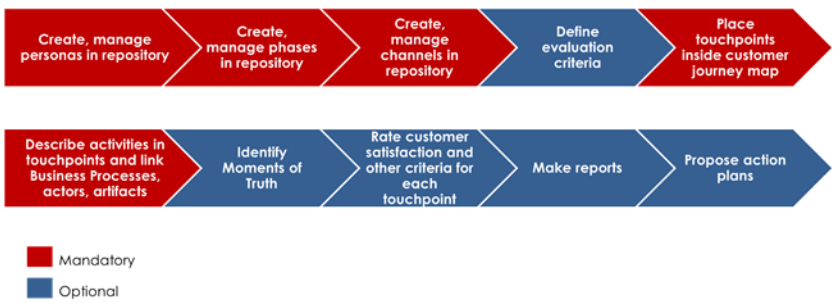
> This presentation is based on the example of a travel agency that offers different types of holidays to different types of customers.

The **HOPEX Customer Journey** Product is introduced here by :

- Describing a Customer Journey
- Assessing a Customer Journey
- Creating an Action Plan for a Customer Journey

Describing a Customer Journey

To be able to benefit, at the end of your customer journey representative work, from the analysis facilities offered by **HOPEX Customer Journey**, we recommend you follow the methodological steps shown in the diagram below.



Defining persona and business lines

This consists of preparatory work identifying the different types of customers according to their needs and what they bring to the company.

The purpose of this phase is to identify the *persona* as well as the *business lines*.

> 🕮 *A persona corresponds to a customer segment targeted by the experience of the client journey.*
>
> 🕮 *A business line is a high level classification of main enterprise activities. It corresponds for example to major product segments or to distribution channels. It enables classification of enterprise processes, organizational units or applications that serve a specific product and/or specific market.*

Using our example of the travel agency, we are interested in the young adult segment. The business line preferred for this population is "Sports holidays".

You must begin by assessing the *customer expectations* for each *persona*.

> 🕮 *A customer expectation is an enterprise result expected by the persona at the end of the journey.*

For example, a population of young adults can expect, with a sports holiday, a wide range of activities in an exceptional setting for a reasonable price.

From a methodological point of view, we suggest you proceed as follows:

1. Identify the customer segments,
2. Define, via the hierarchy, the *persona groups* and the *persona* associated with each segment,

   > ☛ *For further details, see Defining persona hierarchy and Creating a persona.*
3. Identify the org-units that correspond to the segments,

   > ☛ *For further details, see Creating a persona.*
4. Create *customer expectations* for a given *persona*,

   > ☛ *For further details, see Specifying the expectations of a persona.*
5. Create the *business lines*.

   > ☛ *For further details, see Creating a business line.*

Defining the customer journey

Each *customer journey* corresponds to a specific *persona* . So, when the *persona* are identified, you can create *customer journeys*.

> ☛ *If you wish, you can also create the customer journey first and the persona second.*
>
> 🕮 *A customer journey is used to describe and organize all service interactions between the enterprise and a persona for a given result.*

We can, for example, build the customer journey that corresponds to a "sports holiday" for a "young adult" persona.

Defining the phases of a customer journey

A customer journey is described by several sequenced phases.

> 🕮 *A customer journey phase is a time or experience-bound period within a Customer Journey.*

```
In the example "sports holiday", we identify three phases:
the "selection of holidays", the "qualification of
holidays" selected and the holiday "reservation".
```

> ☛ *The list of phases of a customer journey is accessed from the **Characteristics** properties page, in the **Phases** section.*

Defining the steps in a customer journey

The customer journey *steps* are closely linked to the business line. The customer journey *steps* are organized to most closely represent reality. They are essential because the assessments deal with each of the steps of a customer journey.

> 🕮 *A customer journey step is the basic elementary advancement unit of a customer via a customer journey phase.*

```
In the "reservation" phase of the holiday, we can identify
the following steps: "Validate the order", "Complete the
customer information", "Proceed with payment".
```

Finally, the resources used at each *step* of the customer journey are represented by *channels* .

> 🕮 *A channel is used to identify the enterprise resources used by a persona to achieve a step. For example, a channel can be a phone or internet connexion.*

```
In our example for selling sports holidays, the resources
made available to customers are advertising brochures, web
applications and a support service to answer customer
questions.
```

To describe the steps of a customer journey, we suggest you proceed as follows:

1. Define the customer journey *steps* associated with each phase.
2. Describe the sequences that link the steps.
3. Link the steps to the *channels* concerned.

Understanding customer expectations and painpoints

Each customer journey *step* can be linked to:

- One or more customer expectations.

  A customer expectation is an enterprise result expected by the persona at the end of the journey.

  The expectations of young adults for a sports holiday can concern the context of the holiday or activities offered.

- One or more *Painpoints*.

  A painpoint describes the difficulties encountered by a persona when carrying out a step in the customer journey.

  The painpoints of a group of young adults can concern the painpoint of agreeing, prices that are too high or the possibilities of accessing the vacation site.

Identifying touchpoints

The objective is to identify the organizational elements that are used during the customer journey and that could have an impact on customer satisfaction.

A touchpoint describes an interaction between a persona and an enterprise.

The touchpoints between the customers and the travel agency are by telephone and by email. A support center can thus be put in place.

Each *touchpoint* can be linked to:

- One or more *Involved Resources*.

  📖 *A resource is a means used to perform certain actions.*

  An operator able to answer to questions about a specific holiday, is an Involved resource.

  ☛ *For further details, see Creating an involved resource in a customer journey.*

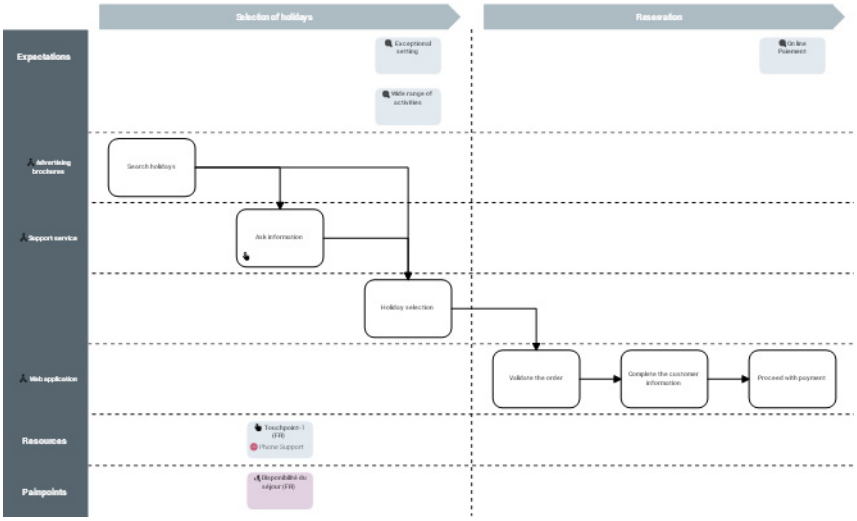
- One or more *business opportunities*.

  📖 *An opportunity characterizes an improvement action for one of the composite elements of the customer journey (steps, touchpoint).*

  To be able to offer another holiday if the holiday selected is no longer available constitutes a business opportunity.

  ☛ *For further details, see Defining the business opportunities of a customer journey.*

- One or more *Painpoints*.



Identifying moments of truth

📖 *A moment of truth is a decisive step for the remainder of the customer journey. Either customers believe that they cannot obtain what they are searching for under the desired conditions and they are not satisfied; Or, on the contrary, they believe that they have found what they are looking for and continue the journey.*

A reservation that is too late constitutes a moment of truth. The sports holiday is completed or, on the contrary, it was canceled due to low staff numbers.

Assessing a Customer Journey

Customer satisfaction can be assessed at each *step* of the customer journey.

You can configure questionnaires to assess the communication channels used by the persona at each step of the customer journey.

☛ *See Creating a satisfaction questionnaire.*

☛ *See Answering a Satisfaction Questionnaire.*

The results of the assessments are then consolidated and can be analyzed with two reports (Global satisfaction and Improvement scope).

☛ *See Customer Journey reports.*

Creating an Action Plan for a Customer Journey

Following the identification of possible improvements to a customer, it is possible to create an action plan.

📖 *An action plan comprises a series of actions, its objective being to reduce risks and events that have a negative impact on company activities.*

☛ *For more information on using action plans, see the "Using action plans" in the **HOPEX Common Features** guide.*

MANAGING THE COMPONENTS OF A CUSTOMER JOURNEY

The following points are covered here:

- Describing persona and persona groups,
- Using Business Lines,
- Building a customer journey,
- Creating a customer journey map.

Describing persona and persona groups

This phase consists of identifying the different customer segments according to their needs and what they bring to the company.

> 🕮 *A persona corresponds to a customer segment targeted by the experience of the client journey.*
>
> ☛ *With the **HOPEX IT Business Management** solution, **Personas** are **Business Partners**.*

Defining persona hierarchy

> 🕮 *A persona group is grouping of personas according to similar objectives on several customer journeys.*

To create a Persona Group:

1. In the navigation bar, select **Customer Journey > Persona**.
   The list of Persona Group appears.
2. Click **New > Persona Group** ✚.
   The Creation of a Persona Group window appears.
3. Enter the name of the group.

   `"Sports customers" and "Young customers", for example.`
4. Click **OK** to close this dialog box.
   The persona group that you have just created appears in the list of Persona Group.

Creating a persona

> 🕮 *A persona corresponds to a customer segment targeted by the experience of the client journey.*

To create a persona:

1. In the list of persona groups, click the **New** ✚ button of the selected persona group.
2. Select Persona.
   A creation widow appears.
3. Fill the **Name** of the persona (young adults for example).
4. Click **OK**.
   The created persona appears in the hierarchy of the persona group.

Accessing persona properties

To access persona properties:

1. From the list of persona, click the **Properties** icon related to the persona.
   The **Overview** property page appears.
2. Use the tabs to access the different property pages.

   ☛ *You can display (or hide) tabs using the button.*

Specifying the fulfillment of a persona

The fulfillment of a persona enables to associate a persona to Org-Units described in your repository.

To specify the fulfillment of a persona:

1. Access the property page **Characteristics > Fulfillment** of a given persona.

   ☛ *You can display (or hide) sections using the **Manage sections** button.*
2. In the **Persona Fulfillment** section, click **New**.
   The Creation of a Persona Fulfillment window appears.
3. Select Org-Unit in the **Object Type** field.
4. Select the required Org-Unit in the **Business Agent Realizer** field.
5. Click **Add**.
   The fulfillment of the persona is added.

Specifying the expectations of a persona

A customer expectation is an enterprise result expected by the persona at the end of the journey.

To create a *Customer Expectation* from a persona:

1. Access the property page **Characteristics > Customer Expectations** of a given persona.

   ☛ *You can display (or hide) sections using the **Manage sections** button.*
2. In the **Customer Expectations** section, connect an existing customer expectation or create a new one.

Using Business Lines

Creating a business line

A business line is a high level classification of main enterprise activities. It corresponds for example to major product segments or to distribution channels. It enables classification of enterprise processes, organizational units or applications that serve a specific product and/or specific market.

To create a business line:

1. In the navigation bar, select **Customer Journey > Business Lines**.
   The list of business lines appears.
2. Click **New > Business lines** +.
   The **Creation of Business Line** window appears.
3. Enter its **Name**.
4. Click **OK**.
   The business line appears in the business line hierarchy.

Connecting a business line to a customer journey

Customer journeys connected to a business line are accessible from the **Characteristics** property page of the business line, in the **Customer journey** section.

Building a customer journey

A customer journey is used to describe and organize all service interactions between the enterprise and a persona for a given result.

A customer journey is associated with a persona. Therefore, a customer journey can be created in three different ways:

- From a persona or a persona group,
- From a customer journey group,
- Directly from the **Customer Journey** navigation menu.

Creating a customer journey

To create a customer journey from the **Customer Journey** navigation menu:

1. Select **Customer Journey > Customer Journeys > List**.
   The list of customer journeys appears.
2. Click the **New** button.
   The **Creation of Customer Journey** window appears.
3. Enter its **Name**.
4. Click **OK**.
   The customer journey appears in the customer journey list.

Connecting a customer journey to a persona

To connect a persona to a customer journey:

1. Access the property page **Characteristics > Details** of a given persona.
2. Connect an existing persona or create a new one in the field **Persona**.

Connecting a customer journey to a business line

To connect a business line to a customer journey:

1. Access the property page **Characteristics > Business lines** of a given customer journey.
2. Connect an existing business line or create a new one.

Creating a customer journey group

A customer journey group consolidates the journeys that comply with similar criteria.

To create a customer journey group:

1. In the navigation bar, select **Customer Journey > Customer journeys > Hierarchy**.
   The list of customer journey groups appears.
2. Click **New > Customer Journey Group** .
   The Creation of Customer Journey Group window appears.
3. Enter the **Name**.
   "Sports holidays" and "cruises", for example.
4. Click **OK**.
   The customer journey group appears in the list of customer journeys.

Using the **Characteristics** properties page of the customer journey, you can then connect the customer journey to the group.

CREATING A CUSTOMER JOURNEY MAP

You can create a customer journey diagram using two different modes.

- Tabular mode: this mode is particularly recommended to create a customer journey map as you can easily add objects and create the general structure of the map.
- Graphical mode: this mode can be used to add or modify objects.

☛ *To switch from tabular mode to graphical mode and vice versa, see Modifying the edition mode of a diagram.*

Creating a customer journey map in tabular mode

To create a customer journey map:

1. From the customer journey list, click the **Create a diagram**  icon related to the selected customer journey.
   The diagram creation window opens.
2. Select **customer journey Diagram > Create diagram in tabular mode**.
   The creation of customer journey map window appears in tabular mode.

☛ *For further information on diagram creation in tabular mode, see Diagrams in Tabular Entry Mode.*

Creating a phase

🕮 *A customer journey phase is a time or experience-bound period within a Customer Journey.*

To create a phase:

1. Click the **Phases** tab.
2. Click **New.**
   The Add Phase window appears.
3. Connect an existing phase or create a new one.

Creating several phases simultaneously

To simultaneously create several phases:

1. Click the **Multiple Add** button.
   The Create Phase window appears.
2. Enter the **Number of phases** you wish to create.
3. If you wish to create phases with steps, specify the **Number of Steps** that you wish to create for each phase.

   ☛ *The steps created in the same phase are sequenced.*
4. Click **OK**.

Ordering phases

By default, phases are ordered by the order of creation.

To modify the order of phases in a customer journey:

1. Click the **Phases** tab to access the list of diagram phases.
2. Select the phase whose order you want to modify and click in the **Order** column.
3. Modify the value of the order of the phase.

Creating a step

📖 *A customer journey step is the basic elementary advancement unit of a customer via a customer journey phase.*

To create a step:

1. Click the **Step** tab.
2. Click **New.**
   The **Choose Object Type** window appears.

   ☛ *A step can be associated to a **Sub customer journey**. The choice of the object type allows you to create a customer journey.*
3. Select **Steps** and click **OK**.
   The new step appears in the list of journey phases.
4. Click on the name of the step to update it.

Creating several steps simultaneously

To create several steps simultaneously:

1. In the **Steps** tab, click the **Multiple Add** button..
   A creation window appears.
2. Enter the **Number of Steps** you wish to create.
3. Choose **Sequenced Steps** or **Independent Steps**.
4. Click **OK**.

   ☛ *The steps are created but are not connected to a phase.*

Ordering steps

To define the sequencing order of the steps of a customer journey, you must specify the list of predecessors at each step.

To specify the predecessor of a step of a customer journey from its diagram:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Predecessor** column.
2. Select the adequate step.

Specifying the phase of a customer journey step

To specify that a customer journey step is performed within the context of a phase:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Phase** column.
2. Select the adequate step.

Defining the channels in a customer journey

📖 *A channel is used to identify the enterprise resources used by a persona to achieve a step. For example, a channel can be a phone or internet connexion.*

Channels are related to customer journey steps.

To create a channel:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Channel** column.
2. Connect an existing channel or create a new one.

Defining customer expectations

📖 *A customer expectation is an enterprise result expected by the persona at the end of the journey.*

The expectations of a customer journey are also connected to personas and they must also be connected to the steps in the customer journey that use them.

To connect a new customer expectation to a customer journey:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Expectations** column.
2. Connect an existing expectation or create a new one.

☛ *Expectations can be created from the **Characteristics** property page of a persona.*

Defining customer painpoints

📖 *A painpoint describes the difficulties encountered by a persona when carrying out a step in the customer journey.*

To specify that a new painpoint is connected to a customer journey:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Painpoint** column.
2. Connect an existing painpoint or create a new one.

Creating an involved resource in a customer journey

📖 *A resource is a means used to perform certain actions.*

An involved resource may be an actor, an application or a process.

To create an involved resource in a customer journey:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Involved Resource** column.
2. Connect an existing involved resource or create a new one.

Defining the business capabilities of a customer journey

📖 *.A business capability is a set of features that can be made available by a system (an enterprise or an automated system).*

To specify that a new business capability is connected to customer journey step.:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Involved Capabilities** column.

2. Connect an existing involved capability or create a new one.

Defining the business opportunities of a customer journey

An opportunity characterizes an improvement action for one of the composite elements of the customer journey (steps, touchpoint).

To specify that a new business opportunity is connected to a customer journey:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Opportunity** column.
2. Connect an existing opportunity or create a new one.

Defining a Moment of truth

A moment of truth is a decisive step for the remainder of the customer journey. Either customers believe that they cannot obtain what they are searching for under the desired conditions and they are not satisfied; Or, on the contrary, they believe that they have found what they are looking for and continue the journey.

To specify that a step is a moment of truth:

- From the **Steps** tab, click the cell at the intersection of the step and the **Moment of truth**.
  A specific icon appears to indicate that the step is a moment of truth.

Step declared as a moment of truth

Defining an Action Plan

An action plan comprises a series of actions, its objective being to reduce risks and events that have a negative impact on company activities.

To specify that an action plan is implemented for a specific step:

1. From the **Steps** tab, click the cell at the intersection of the step and the **Action Plan**.
2. Connect an existing action plan or create a new one.

ASSESSING A CUSTOMER JOURNEY

The objective of the **HOPEX Customer Journey** product is to describe your customer journey in order to improve its efficiency. By performing assessments, you can acquire and compare data.

With **HOPEX Customer Journey**, you can assess a customer journey using questionnaires - which are linked to communication channels. It is therefore possible to measure improvements made through the implementation of touchpoints for any sensitive step of the journey.

The following points are covered here:

- Creating a satisfaction questionnaire,
- Answering a Satisfaction Questionnaire,
- Consolidating results and assessments.

Creating a satisfaction questionnaire

With **HOPEX** you can create a satisfaction questionnaire to assess the communication channels used by the persona at each step of the customer journey.

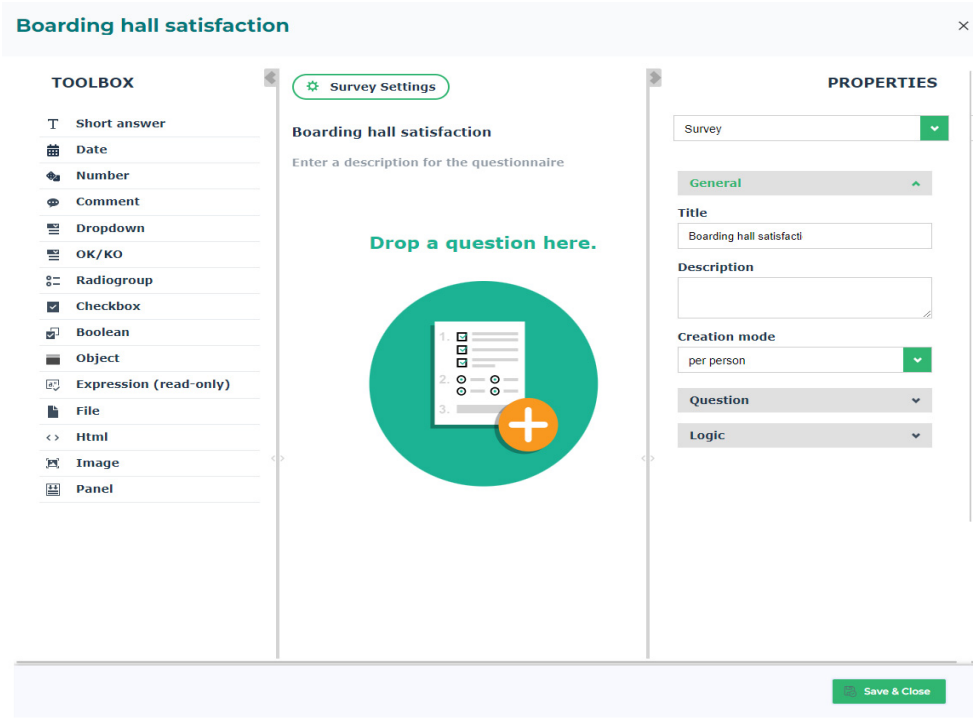
To create a satisfaction questionnaire:

1. From the navigation bar **Customer Journey > Communication Channels**, select a communication channel.
2. Select the **Questionnaire Templates** property page.

   ☛ *You can display (or hide) property pages using the* ⚙ *button.*
3. Click the **New** button.
4. Enter the name of the questionnaire template and click **OK**.
   The questionnaire creation interface appears.
5. Via the toolbox, insert questions.

   ☛ *See Inserting Questions in a Questionnaire Template.*

6. Click the **Save and Close** button to complete the creation of the questionnaire.

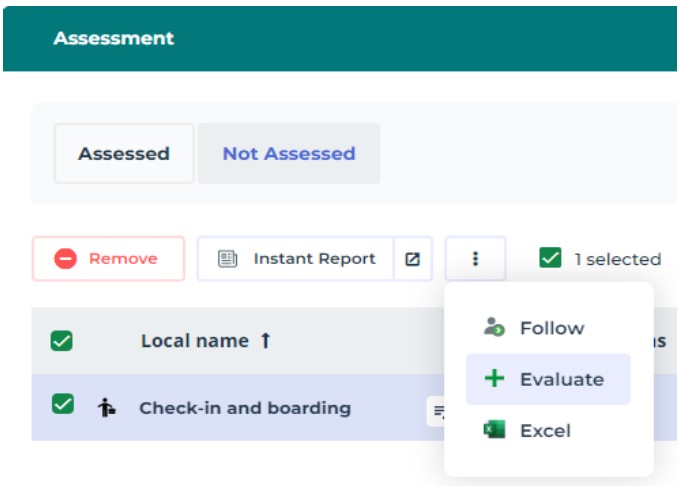


Answering a Satisfaction Questionnaire

To answer a satisfaction questionnaire:

1. Access the navigation menu **Customer Journey > Assessment > Not Assessed** tab.
2. Tick the appropriate customer journey.

3. Click the **More** button and select the **Evaluate** menu.



The assessment window appears. The screen shows all the steps in which a communication channel has to be assessed.

4. Select the adequate step and fill the related questionnaire.
5. Click **OK**, when you are done answering the questionnaire(s) related to a given customer journey.

Consolidating results and assessments

Consolidation rules

Each answer to a question is associated with a value included between 1 and 5.

Overview

The assessment results presented in the diagrams, the lists and properties pages are in general the values of the latest assessment.

Only the reports present average results. The calculation rules for averages are always the same irrespective of the object:

- The average value of the assessments of an object is the average of the assessment values of the object for a given period.

  For example, if for the question "Rapidity of web application" the first answer was "High" (value 5) and a second answer was "Too slow" (value 1), then the average value of assessments equals""(Value 3)

Value of the latest assessment of a question

The value of the latest assessment of a question is used to calculate the values of the last assessment of the steps for which the answers were given.

Value of the latest assessment of a step

Each of the questions associated with a channel are asked for all steps that use the channel.

> For example, the web application channel is used for all the steps in the "Holiday reservation" phase.
>
> The questions on the "Application web" channel can deal with its "Rapidity" and its "Conviviality"

The value of the latest assessment of a step is used to calculate the assessment values of a channel if answers were given.

The value of the last assessment of a step is the average of the values of the latest assessment of each of the questions relating to the step.

> For example, the value of the "Proceed to payment" step is the average calculated using the value of the latest assessment given to the "Rapidity" and to "Conviviality".

Value of the latest assessment of a channel

The value of the latest assessment of a channel is the average of the values of the latest assessment of each of the steps connected to the channel.

Value of the latest assessment of a customer journey

The value of the latest assessment of a customer journey is used to calculate the assessment values of a customer journey group and a persona.

The value of the latest assessment of a customer journey is the average of the values of the latest assessment of each of the steps in the customer journey.

Value of the latest assessment of a customer journey group

The value of the latest assessment of a customer journey group is the average of the values of the latest assessment of the customer journey of the group.

Value of the latest assessment of a Persona

The value of the latest assessment of a persona is used to calculate the assessment values of a persona group.

The value of the latest assessment of a persona is the average of the values of the latest assessment of the customer journeys connected to the persona for a given period of time.

Value of the latest assessment of a Persona Group

The value of the latest assessment of a persona group is the average of the values of the latest assessment of the group persona.

Consolidated results

The consolidated results on the customer journey are presented in:

- Diagrams,

  ☛ *For further details, see Representation of consolidated results in the diagrams.*

- Lists,

  ☛ *For further details, see Representation of consolidated results in the lists.*

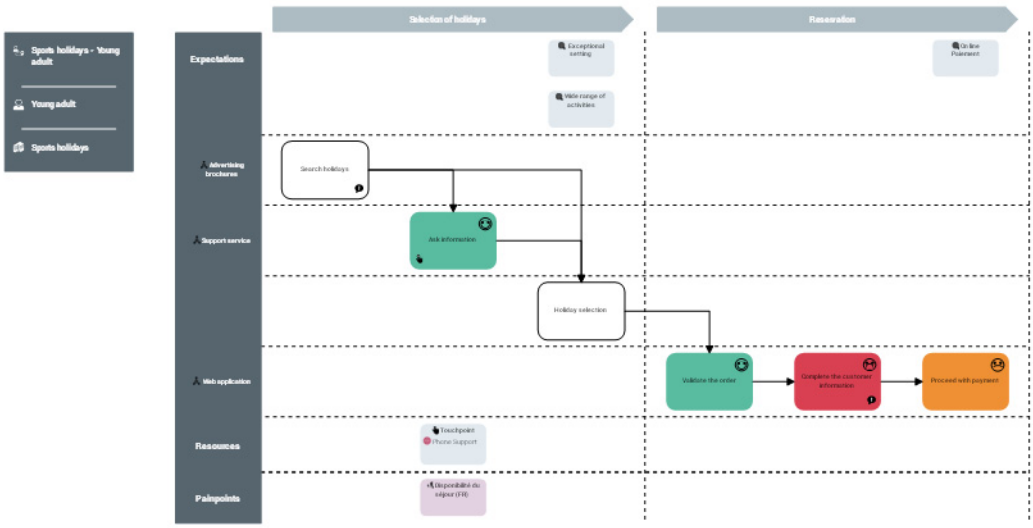
- Dedicated reports.

  ☛ *For further details, see Customer Journey reports.*

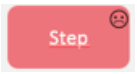
Representation of consolidated results in the diagrams

After assessment of a customer journey, the shape of the steps in the customer journey diagram is modified to present the results of the latest assessment of steps.

☛ *For more details on calculating the value of the assessment, see Value of the latest assessment of a step.*



Mapping a journey after assessment

Journey step	Comment
	Customer satisfaction very low
	Customer satisfaction low
	Customer satisfaction neutral
	Customer satisfaction high
	Customer satisfaction very high
	Customer satisfaction not assessed

Presentation of the shape of steps differs according to the consolidated result of assessments.

Representation of consolidated results in the lists

After assessment of a customer journey, the consolidated results of the latest assessment appears in the lists. For example:

- In the **Assessment > Assessed Customer Journeys** folder,
- In the properties page for the customer journey in the **Assessments** tab.

> ☛ *For more details on calculating the value of the assessment, see Value of the latest assessment of a step.*

CUSTOMER JOURNEY REPORTS

This paragraph presents the list of reports available from the Report property page of a customer journey.

- Global satisfaction
- Improved scope

Global satisfaction

This report presents the results of the satisfaction of persona with the various customer journeys.

Report parameters

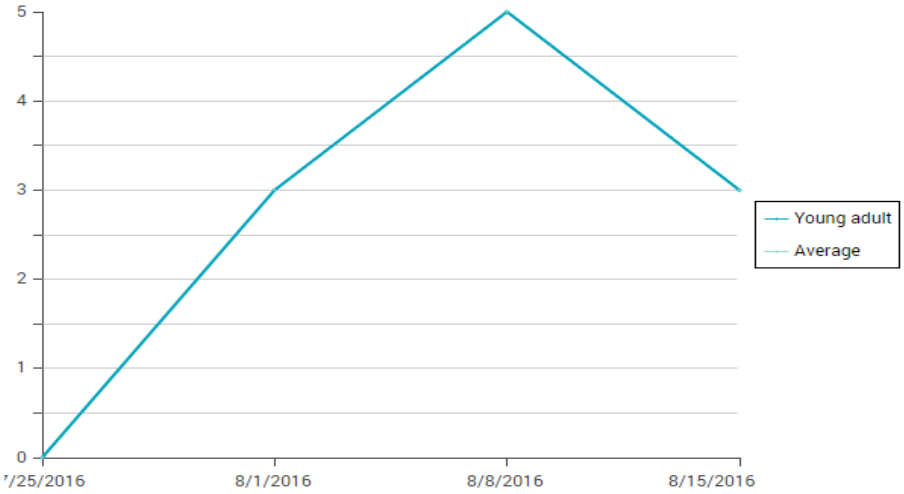
Parameter	Parameter type	Constraints
Assessment values	"All assessment values" or "Latest assessment values"	Mandatory
From Date	Date	Today's date by default.
To	Date	Today's date by default.

Persona satisfaction

The first chapter presents a summary view of the satisfaction of persona with the customer journey for given dates.

- The x-axis carries the dates of the assessment period.
- The y-axis carries the value of the latest assessment of persona.
  The table under the curve indicates the value of the latest assessment of each persona at different dates.

  ☛ *For more details on calculating the satisfaction of a persona, see Value of the latest assessment of a Persona.*
- The figure presents a curve by persona and a curve that presents the average.



Customer Journey	Persona	Assessment Date	Customer Satisfaction
Sports holidays - Young adult	Young adult	01/08/2016	Neutral
Sports holidays - Young adult	Young adult	07/08/2016	Neutral
Sports holidays - Young adult	Young adult	09/08/2016	Very High
Sports holidays - Young adult	Young adult	15/08/2016	Very High
Sports holidays - Young adult	Young adult	17/08/2016	Very Low

Satisfaction of customer journey groups

The table is organized as follows:

- Each row is associated with a customer journey group assessed between the two dates given as a parameter.

  ☛ *The group expands to show the results of the customer journeys to which they are connected.*

- Each column is associated with a persona
- The cells present the satisfaction of the persona with the corresponding journey group (or with the customer journey itself).

  ☛ *For more details on calculating the satisfaction of the persona for a customer journey, see Value of the latest assessment of a customer journey and Value of the latest assessment of a customer journey group.*

Improved scope

This report presents the assessment results with respect to the resources associated with the touchpoints.

Report parameters

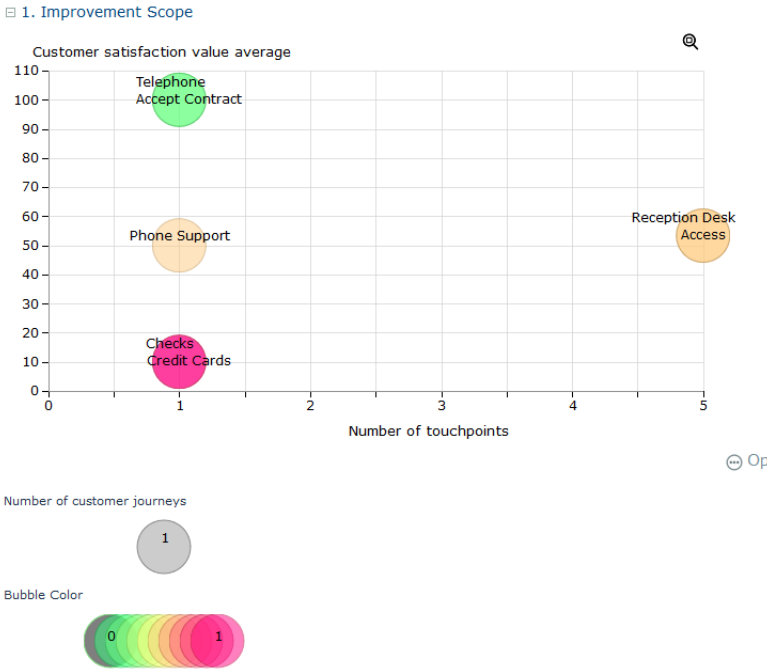
Parameter	Parameter type	Constraints
Assessment values	"All assessment values" or "Latest assessment values"	Mandatory
From Date	Date	Mandatory, today's date by default.
To	Date	Mandatory, today's date by default.

Assessment of the scope

The first chapter of this report presents a bubble chart that is used to assess the efficiency of the touchpoints with respect to the assessment period.

- Each bubble represents a touchpoint.
- The size of the bubble represents the number of customer journeys that use the touchpoint resource.
- The color of the bubble represents the average value of the assessment of the resource for the steps assessed.
- The x-axis shows the number of touchpoints to which the resource is connected.
- The y-axis presents the average value of the assessment of the resource for the steps assessed.

> ☛ *The x-axis presents the same information as the color of a bubble. Thus, the red bubbles are at the bottom of the diagram and the green bubbles are on top.*



The table under the bubble diagram specifies the value of the latest assessment of each person at different dates.

> ☛ *For more details on calculating the satisfaction of a persona, see Value of the latest assessment of a customer journey.*

Customer Journey	Persona	Assessment Date	Customer Satisfaction
Sports holidays - Young adult	Young adult	01/08/2016	Neutral
Sports holidays - Young adult	Young adult	07/08/2016	Neutral
Sports holidays - Young adult	Young adult	09/08/2016	Very High
Sports holidays - Young adult	Young adult	15/08/2016	Very High
Sports holidays - Young adult	Young adult	17/08/2016	Very Low

The latest table of the report details the data presented in the bubble diagram.

- Each row is associated with a resource (if appropriate connected to a number of touchpoints).
- The first column specifies the average value of the assessment of the resource for the steps assessed.
- The second column specifies the number of touchpoints to which the resource is connected.
- The third column specifies the number of customer journeys to which the resource is connected.
- The name of the customer journey that uses the resource is specified in the fourth column.
- The fifth column specifies the percentage of steps noted as moments of truth that use the resource.
- The last column draws up the list of channels to which the resource is connected.

	Customer satisfaction value average	Number of touchpoints	Number of customer journeys	Customer journeys	Percentage of moment of truth	Impacted Channels
Reception Desk	53.34	5.0	1.0	Sports holidays - Young adult	40.0 %	Web application Support service Advertising brochures
Accept Contract	100.0	1.0	1.0	Sports holidays - Young adult		Web application
Telephone	100.0	1.0	1.0	Sports holidays - Young adult		Web application
Phone Support	50.01	1.0	1.0	Sports holidays - Young adult		Support service

☛ *For more details on calculating the satisfaction a persona for a customer journey, see Consolidation rules.*

RISKS AND CONTROLS

Managing risks, ensuring and maintaining compliance with new regulations provides a real opportunity for those managing enterprise changes. In this context, **HOPEX Risk Mapper** offers full visibility to the risks faced by the company.

The **HOPEX Business Process Analysis** repository covers all enterprise resources, from global value streams to IT resources. The **HOPEX Risk Mapper** approach allows managers to ensure traceability of compliance controls across business and application layers.

With **HOPEX Risk Mapper**, it is easier to integrate the risk management policy and the compliance controls for corporate governance by, on the one hand, setting realistic goals, and on the other hand, by supplying the deliverables and information required by all the org-units involved.

RISK MANAGEMENT STEPS

Associated with **HOPEX Business Process Analysis**, **HOPEX Risk Mapper** is used to assess the risks, to mitigate them and finally to control them thanks to an effective control policy.

The recommended risk management process consists of the following steps.

Analyzing the environment

Risk Management context includes internal environment and external environment.

- The external environment mainly refers to compliance frameworks and external org-units.

  ☛ *For further details, see External Environment.*

- The internal environment describes the organization.

  ☛ *For further details, see Internal Environment.*

Identifying, analyzing and assessing risks

It is necessary to identify the risks concerned, then analyze and assess them to get the elements required for their treatment.

Identifying risks

Several risk identification methods exist, depending on the context:

- Method based on organization objectives achievement
- Method based on lists of risk types, risk factors or control types applied to a risk occurrence context
- Method based on historical data (databases of incidents, claims, faults, etc.)

  ☛ *For further details, see Identifying risks.*

Analyzing Risks

This consists of completing the identification of each risk by precisely indicating what could occur, where, when, why, and how this could occur. This analysis could reveal new risks that were not directly identified in the previous step.

☛ *For further details, see Defining Risk Characteristics.*

Assessing Risks

After having identified and analyzed the risks faced by the enterprise, the next step is to estimate their importance so as to highlight the most important risks to be address.

Risks are assessed taking into account:

- their occurrence
- their impact

☛ *For further details, see Assessing risks.*

Remediating Risks

The acceptable level for each risk is defined based on previous evaluations.

Remediating risks involves:

- identification of the various options possible
- assessment of these options
- preparation and implementation of remediation plans:
  - Implementing a control
  - Controls

Risk Control Monitoring and Policy

Policies and procedures are established and implemented to help ensure that risk responses are effectively carried out.

Monitoring is accomplished through ongoing management activities or independent assessments, or both.

RISK ENVIRONMENT ANALYSIS

Analysis of the environment in which the risk management project will be carried out enables definition of basic parameters according to which risks must be managed, with an indication of project scope. This analysis includes the internal and external environments of the organization, its strategic objectives and the specific objectives of the risk management activity.

Internal Environment

The internal environment includes the culture and spirit of the organization. It sets the basis for how risk is viewed and addressed by all entity co-workers, particularly risk management philosophy and risk appetite, integrity and ethical values, and the environment in which the organization operates.

It is possible to identify a company overview (Organizational Chart, processes, responsibilities, etc.).

Defining the internal environment ensures that risk management acknowledges the major objectives of the organization.

Internal org-units

The different org-units concerned must be involved at each step of the risk management project via a communication and consultation process.

This enables building a solution that will be better accepted by the different stakeholders.

To access all the org-units of the company:

- From the navigation bar, select **Processes > Hierarchy > Resources > Org-Units**.

To define the list of *org-units* concerned, **HOPEX Risk Mapper** enables you to enter the enterprise organizational chart.

☛ *For more information on organizational charts, see Org-Units and Organizational Charts*.

Organization Processes

To access all the processes of the company:

- From the navigation bar, select **Processes > Hierarchy**.
  You can see the process maps, the process categories and the processes of the company.

External Environment

To describe the external environment in which the organization operates, **HOPEX** enables you to define:

- The list of regulations that impact the organization and the associated requirements, see Regulations or standards.
- The list of external stakeholders of the organization and their objectives and requirements, see External org-units: objectives and requirements.

Regulations or standards

To manage your compliance environment in HOPEX, you can:

- import ready-to-use regulatory content from a wizard (if you have a UCF license);

  ☛ *For further details, see Using UCF Import.*

- create regulatory frameworks manually;

  🕮 *A regulatory framework is an authority document falling under any of following categories: regulations (rules of law that, if not followed, can result in penalties), or standards.*

- create policy frameworks and business policies manually.

  🕮 *A policy framework consists of a number of business policies. Policy frameworks may contain sections.*

Creating a Regulatory Framework and their content manually

If you do not use UCF import, you can create your own regulatory content.

☛ *The regulatory content you manually create is automatically considered as applicable.*

To create a regulatory framework:

1. From the navigation bar, select **Controls & Risks > Compliance > Regulatory Frameworks**.
2. Click the **New** button.
   A creation window appears.
3. Enter the name of the regulatory framework.
4. Click **OK**.
   The new regulatory framework appears the list of regulatory frameworks.

To create content for your regulatory framework:

1. In the list of regulatory frameworks, click the **New** + button of the selected regulatory framework.
2. Select **Regulation Article**.

   ☛ *If need be, you can create Regulation Sections to organize content.*

Creating a Policy Framework and its content

You can create policy frameworks and their content (business policies).

🕮 *A policy framework consists of a number of business policies. Policy frameworks may contain sections.*

To create a policy framework:

1. From the navigation bar, select **Controls & Risks > Compliance > Policy Frameworks**.
2. Click the **New** button.
   A creation window appears.
3. Enter the name of the policy framework.
4. Click **OK**.
   The new policy framework appears in the list of policy frameworks.

To create the content of a policy framework:

1. In the list of policy frameworks, click the **New** + button of the selected policy framework.
2. Select **Business policy**.

☛ *If need be, you can create Policy Framework sections to organize your content.*

External org-units: objectives and requirements

Defining the various parties concerned by risks faced by the enterprise is important in the majority of activities. This analysis is generally necessary from the first steps of a risk management project.

🕮 *An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.*

External org-units to be considered can be:

- Legislators
- Government agencies, ministries and local administrations
- Interest groups such as ecological lobbies
- Emergency services
- Financial institutions and other private sector fund suppliers
- Customers of the organization, including their managers, executives and personnel
- Suppliers and sub-contractors
- Persons who may be affected by enterprise activities due to their geographical location
- The media

To access all the org-units of the company:

❱ From the navigation bar, select **Processes > Hierarchy > Resources > Org-Units**.

IDENTIFYING RISKS

The identification of risk events involves the inventory of the internal and external events that could compromise the achievement of objectives. A distinction must be made between those that represent risks, those that constitute opportunities and those that result from both simultaneously. Opportunities are integrated in the strategy of the organization or in the objective setting procedure.

Risk events can be identified using several approaches that involve operational management to differing degrees.

Risk Identification Methods

Method based on risk type or risk factor lists

It is possible to start by defining a list of generic risks faced whatever the activity. In particular, this includes natural disaster, IT system failure, human error, fraud, etc.

An initial list drawn up by a central team will avoid a complete analysis of risks with business function operational managers, to concentrate on risks that are specific to their activity. This list could be based on regulatory texts and lists provided by professional partners (professional associations, insurance companies, etc.).

This list can then be completed during interviews with operational managers of processes who can define the types of risks to which they are vulnerable to give a precise definition. In this case you identify the processes and the stakeholders or org-units of the organization concerned by these risk types or these risk factors.

A risk identification questionnaire is prepared, from which each stakeholder selects risk types and risk factors of particular concern.

A questionnaire can therefore be produced and sent to the various stakeholders to enable them to identify risk events that concern them.

☛ *See **HOPEX Common Features** for more information on questionnaires.*

Replies to these questionnaires are then analyzed by experts in each of the subjects concerned, in consultation with the stakeholders concerned if necessary, to finalize risk identification.

It is then possible to remove from this generic list, which has been supplemented by risks specific to the activity, those risk events that do not apply to the particular field (example: a purely manual activity that does not require the services of an IT system.

Method based on enterprise objectives and process diagrams

It is possible to determine the risks of not achieving organization objectives or not satisfying regulatory or organization internal requirements using the description of organization processes.

To do this, we select the processes that contribute to achieving these objectives or satisfying these requirements. Next, determine the risks by analyzing the flows exchanged between the org-units participating in these processes as well as the operations executed by these org-units. From among these flows and operations, determine which ones could, in the event of malfunction, prevent the achievement of objectives or the satisfaction of requirements of the organization.

This approach can be supplemented by using other risk identification criteria such as risk type or risk factor lists if these are available.

If enterprise process diagrams already exist, they can help to identify risks.

Risk events can be associated with each of the modeled processes.

Risks associated with a process are visible in the **Control & Risks** section of the process **Characteristics** property page.

Method of identification from incidents repository

All types of stored history can be used, such as repositories of incidents, faults, claims, etc.

Identification consists of analyzing repositories to determine risk events. You should then specify for each risk its appearance context (process, organization org-unit, enterprise site, etc.).

☛ *See the **HOPEX LDC** user guide for more information on incidents (events) repository management.*

Accessing Risks

To access identified risks:

- From the navigation bar, select **Controls & Risks > Risks**.

Creating a Risk

To create a risk:

1. From the navigation bar, select **Controls & Risks > Risks**.
2. Click **New**.
   The creation window opens.
3. Enter the **Name**.
   The risk appears in the list of risks.

Defining Risk Characteristics

To access characteristics of a risk:

1. From the list of risks, click the **Properties** icon related to the risk.
   The **Overview** property page appears.
2. Click the **Characteristics** tab.

   ☛ *You can display (or hide) pages using the*  *button.*

   The Characteristics property page appears.

   ☛ *You can display (or hide) sections using the* ***Manage sections*** *button.*

Defining risk characteristics

- In the **Characteristics** section, you can fill the following elements:
  - Identification **Code**
  - **Name**
  - Risk severity (**Major** check box)
  - Risk **owner**

    ☛ *By default the owner is the user who created the risk.*
  - Risk **Identification Mode**
  - Risk **Description**
  - **Status**

    ☛ *This field cannot be modified. It is automatically filled by the Workflow related to the risk.*

Defining Risk responsibilities

In the **Responsibilities** section, you can assign a level of responsibility to different persons.

Specifying Responsibilities

To assign a level of responsibility to the persons concerned by the risk:

❱ Create responsibility assignations in one of the following tabs.

Responsibility	Explanation
Responsible	Persons responsible for execution of required actions.
Accountable	Persons reporting on progress of planned actions and making decisions. There is only one "Accountable" for each action.
Consulted	Persons consulted as first priority before an action or decision.
Informed	Must be informed after an action or decision.

Defining the scope of a risk

In the **Scope** section, you can connect objects to the risk or see the objects connected to the risk.

The risk can be connected to the following objects:

- Objects from process hierarchy such as **Process Categories**, **Processes** and **Operations**.

  📖 *A process category defines a group of processes. It is linked to a Process Map or a higher level Process Category. It regroups several Processes and/or other categorized elements (e.g. Value Streams, Applications). It serves as an intermediate categorization level in the process hierarchy, so as to provide a guided and progressive access to finer grained processes.*

  📖 *A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the BPMN notation, the process represents a sub-process from the organizational point of view.*

  📖 *An operation is an elementary step in process executed by an org-unit. It cannot be broken down. An operation can be industrial (manufacturing a component), logistical (receiving a delivery), or can involve information processing (entering an order).*

- **Entities**

  📖 *An entity can be internal or external to the enterprise: an entity represents an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external entity represents an organization that exchanges flows with the enterprise, Example: customer, supplier, government office.*

- **Objectives**

  📖 *An objective is a goal that a company/organization wants to achieve, or is the target set by a process or an operation. An objective allows you to highlight the features in a process or operation that require improvement.*

- **Applications**,

  📖 *An application is a software component that can be deployed and provides users with a set of functionalities.*

- **Business Lines**

  📖 *A business line is a high level classification of main enterprise activities. It corresponds for example to major product segments or to distribution channels. It enables classification of enterprise processes, organizational units or applications that serve a specific product and/or specific market.*

Defining risk typology, causes and consequences

In the risk **Analysis** section, you can fill the following elements:

- **Risk types**

  A risk type defines a risk typology standardized within the context of an organization.

- **Risk factors**

  A risk factor is an element which contributes to the occurrence of a risk or which triggers a risk. Several Risks can originate from a same Risk Factor Examples: the use of a hazardous chemical product, the complexity of an application, the size of a project, the number of involved parties, the use of a new technology, the lack of quality assurance, the lack of rigor in requirements definition…

- **Risk consequences**

  A risk consequence can be positive or negative. It is associated with a type, which enables its characterization, for example: image, environment, employees.

- **Associated Risks**

Cause-and-Effect Diagram

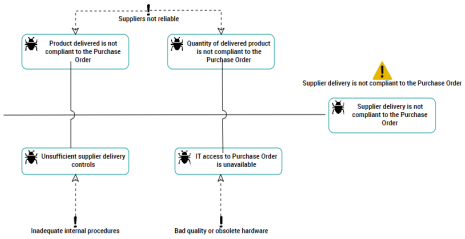
Analysis of the most important risks can be completed with the help of a cause-and-effect diagram to describe the sequence of its causes and/or its effects. This study could reveal new risks or risk factors.

A Cause-and-Effect diagram, also called a "Ishikawa Diagram" or a "Fishbone Diagram" enables description of a sequence of causes and effects for problem or issue analysis.

To create a cause-and-effect diagram:

1. In the list of risks, click the **Create Diagram** icon related to the selected risk.
   The diagram creation window opens.

2. Select **Cause and Effect** diagram.
   The diagram creation window appears.



Cause-and-effect diagram

In the above example, we analyze possible causes of the "Supplier delivery non-conform to purchase order" risk.

We list possible causes of the problem, and for each cause we specify the corresponding risk factors. At this point it is possible to identify new risks.

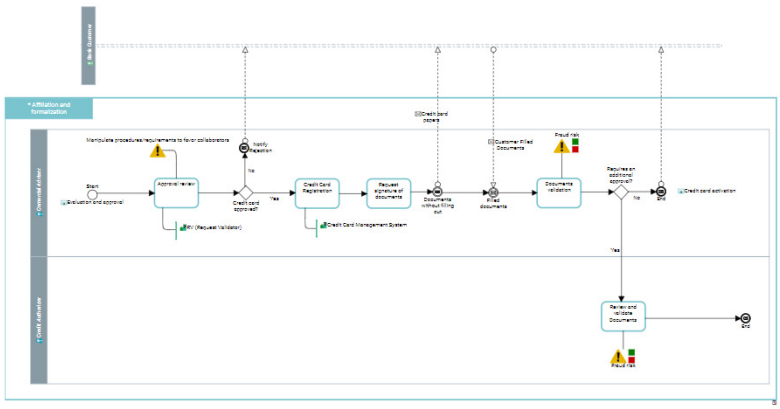
Representing a risk in a Process Diagram

You can represent *risks* and *controls* in a process diagram.

To display risks in a process diagram with their likelihood:

1. Select **Views and Details** button.
2. In the right pane of the window, select “Risks and Controls” view.

Risks can be displayed in the diagram with colors that indicate their impact and likelihood.



The colors vary according to the values resulting from the risk assessments.

Impact: medium, Likelihood: possible

Impact: very low, Likelihood: possible

ASSESSING RISKS

In **HOPEX Risk Mapper**, risk assessment is qualitative, using predefined impact scales (e.g., 1 to 4) to map and identify critical risks. Experts can perform direct assessments, specifying a global risk evaluation on a given date.

Risk assessment results can be displayed in dedicated reports for easier analysis.

☛ *For more details on the risks reports, see Risk-related reports.*

Risk Assessment

You can create new assessments to assess a risk on all objects of the organization to which it is connected - for example processes or org-units.

To create an assessment on a risk:

1. Select the risk and open its properties.
2. Open the **Assessment** property page.

   ☛ *You can display (or hide) pages using the*  *button.*

    *The **Simple Assessment** page is provided for compatibility with previous versions, if needed.*
3. Click the **Evaluate** button.
   A page offering to select context(s) appears if several contexts are available for the risk concerned.
4. Select the adequate context(s).
5. Click **Next**.
6. Assign values for the risk being assessed:
   - **Impact**: the impact of the risk when it occurs.
   - **Likelihood**: the probability that the risk will occur.
   - **Control level**: the control efficiency in mitigating the risk.
7. Specify the **Measure Date** if necessary.
8. Click **OK**.
   An assessment is created.

Risk Summary

HeatMap by Entity/Risk Type/Process

When the likelihood and the impact of a risk have been specified, you can obtain a summary view of risks to highlight the risks to be treated as a matter of priority.

☛ *For more details on the risks reports, see Heatmap Report.*

RISK TREATMENT AND CONTROLS

The assessment of risks produced a list of risks that could require treatment, with their estimation and order of priority.

Treating risks involves the identification of the various options possible, assessment of these options and the preparation and implementation of treatment plans.

Before determining the appropriate treatment actions, it can be useful to review the risk analysis and extend it to obtain the information required for identifying the different treatment options. The design of risk treatment measures should be based on a perfect understanding of the risks concerned; this understanding is obtained from an appropriate level of risk analysis. It is particularly important to identify risk causes so that the risks themselves will be treated and not just their symptoms.

It is not generally profitable, or indeed desirable, to implement all possible risk remediations. It is however necessary to select and implement a combination of the most appropriate of these.

Defining risk mitigation

When risks have been analyzed and assessed, management determines how each of these risks should be treated.

Defining Risk mitigation

You can precise mitigation for a given risk:

- In the **Mitigation > Risk Strategy** property page, tick the appropriate risk control level.
  - **Acceptance**
    The risk is accepted and no action is taken to try to reduce the risk.
  - **Reduction**
    Risk likelihood can be reduced by installing additional controls, or the severity of its consequences can be reduced if the risk occurs.
  - **Transfer** (sub-contractor)
    The risk can also be shared with other partners, in particular when they have greater skills in controlling the risk. For example, you can sub-contract a dangerous activity to a partner specialized in the particular field. In such cases, it should be noted that it is often necessary to carry out a new risk study, since the introduction of a new partner can bring additional risks.
  - **Insurance**
    To supplement all the above approaches, it is often necessary to resort to insurance, in particular for risks of low likelihood but with high severity. In such cases, the insurer will generally request that risk prevention and reduction measures also be implemented.

Implementing a control

To prevent a risk from occurring, you can implement controls.

- In the **Mitigation > Controls** property page, connect an existing control or create a new one.

  ☛ *For more details, see Risk prevention controls.*

  🕮 *A control is a set of rules and means enabling the assurance that a legal, regulatory, internal or strategic requirement is respected.*

Risk prevention controls

Installation of prevention controls to reduce risk likelihood and impact can be a solution for risk reduction.

To indicate the controls that enable risk prevention:

1. Open the **Reduction > Preventive Controls** property page of the risk.
2. Connect an existing control or create a new one. Select the **Control** tab.

Implementing Action Plans

The use of action plans is available with the **HOPEX Risk Mapper** product.

🕮 *An action plan comprises a series of actions, its objective being to reduce risks and events that have a negative impact on company activities.*

☛ *For more information on the use of action plans, see **HOPEX Common Features**.*

CONTROLS

Identifying Controls

It is generally preferable to inventory existing controls before implementing new ones.

To do so, controls can be identified in various ways:

- From risks
  Certain controls are installed to meet a particular risk.
- From control type lists
  Control type lists are associated with certain regulations (eg.: COBIT).
- From diagrams of existing processes
  Similarly to risk identification, it is possible to examine the operation of each step in the process from its diagram, if this exists, to discover the controls installed.
- From specialist expertise
  A specialist in a particular field is often able to describe controls which are or should be implemented.
- From incident databases
  By consulting past events, controls that could have prevented them or reduced their consequences can be proposed.

Accessing Controls

To access controls:

❱ From the navigation bar, select **Controls & Risks > Controls** .

Defining Control Characteristics

In the **Characteristics** property page of a control, you can specify:

- its **Code** enabling unique identification of the control
- **Name**
- **Owner**

  ☛ *By default the **owner** is the control creator.*

- **Nature**:
  - Corrective
  - Detective
  - Preventive

RACI on a control

HOPEX enables to define the responsibility level of the various persons on a control.

To assign responsibilities to the persons concerned by the control:

❱ Create responsibility assignations in one of the following tabs:

Responsibility	Explanation
Responsible	Persons responsible for execution of required actions.
Accountable	Persons reporting on progress of planned actions and making decisions. There is only one "Accountable" for each action.
Consulted	Persons consulted as first priority before an action or decision.
Informed	Must be informed after an action or decision.

Defining the scope of a Control

A control can be linked to different objects types:

- Objects from process hierarchy such as **Process Categories**, **Processes** and **Operations**.

  A process category defines a group of processes. It is linked to a Process Map or a higher level Process Category. It regroups several Processes and/or other categorized elements (e.g. Value Streams, Applications). It serves as an intermediate categorization level in the process hierarchy, so as to provide a guided and progressive access to finer grained processes.

  A process is a set of operations performed by org-units within a company or organization, to produce a result. It is depicted as a sequence of operations, controlled by events and conditions. In the BPMN notation, the process represents a sub-process from the organizational point of view.

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  An entity can be internal or external to the enterprise: an entity represents an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external

entity represents an organization that exchanges flows with the enterprise, Example: customer, supplier, government office.

- **Applications**,

  An application is a software component that can be deployed and provides users with a set of functionalities.

- **Business Lines**

  A business line is a high level classification of main enterprise activities. It corresponds for example to major product segments or to distribution channels. It enables classification of enterprise processes, organizational units or applications that serve a specific product and/or specific market.

Analyzing Controls

The *control types* enable specification of regulation frameworks that apply to a given control.

A control type allows the classification of controls implemented in a company in accordance with regulatory or domain specific standards (Cobit, etc.).

Implementing Controls

To specify the fulfillment of a control:

1. Access the **Characteristics > Scope** property page of the control.

The control can be implemented by, for example:

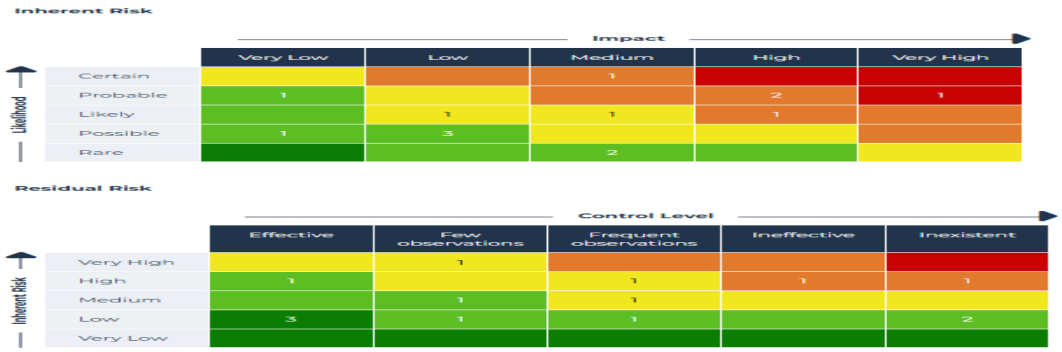
- a *process*: this can be the process on which the control is implemented or it can be a risk preventive process (example: "Account manager training" to prevent the "Overselling" risk)
- an *operation*: this is the operation on which the control is executed.

RISK-RELATED REPORTS

This paragraph presents the list of reports available with **HOPEX Business Process Analysis** and dedicated to risks handling.

Heatmap Report

This report inventories risks incurred by a set of processes as well as the controls implemented. It presents, in the form of a matrix, distribution of risks and controls associated with a list of processes in relation to these criteria.



Report parameters

Subject of this report type is a set of processes.

VALUE STREAMS

Value streams of the enterprise can be described in the form of functional processes. For example, when an enterprise operates out of numerous geographical locations, organization of process operations can vary significantly between regions.

It is therefore useful to have a summary view, independent of organizational structure, to represent steps in the value stream connected to enterprise business and common to all organizational variants.

A functional representation of the value stream also facilitates improvement in enterprise operation.

Indeed, when the operation of process is represented, this enables local optimization of each process.

This structure however remains partitioned by existing organizational structures. More significant changes require a broader view of the value stream, independent of organization. This global view is represented by the value stream diagram.

HOPEX Business Process Analysis enables the creation and description of enterprise value streams.

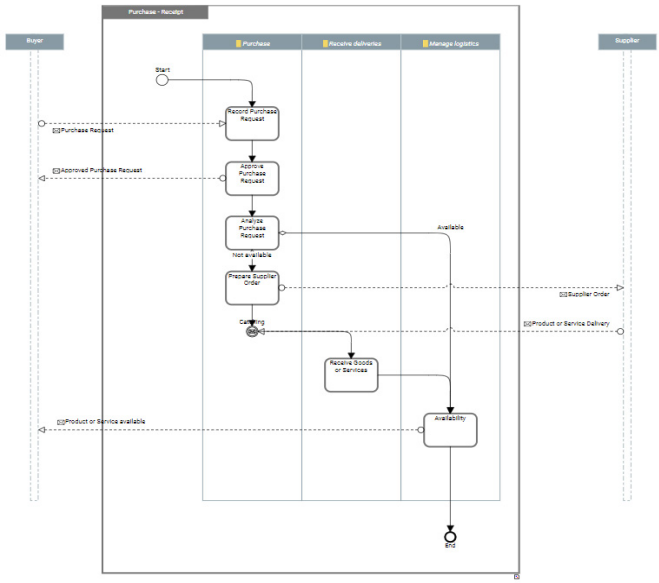
- ✓ Value streams management
- ✓ Representing a Value Stream

REPRESENTING A VALUE STREAM

☛ *To display Value Chains, **Value streams modeling** must be activated through Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis.*

Value Stream Example

The following diagram presents an example of a value stream:



"Purchase reception" value stream

The purchase request is recorded and must then be approved. The requester is informed of the approval or rejection of the request. If the request is validated, an analysis of the required order is carried out.

If stock is lower than a given threshold, an order is prepared and sent to the supplier for resupply.

If the product is available, or as soon as it is received from the supplier, it is made available to the requester.

In this example, the *business functions* concerned are represented in columns.

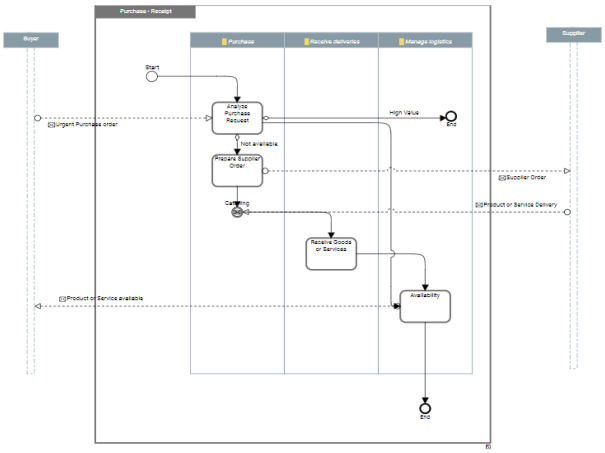
📖 *A business function is a conceptual unit of the division of responsibilities in an enterprise. It is used to structure the management of information processing, energy, and equipment produced or used. Business functions define the skills and the functionalities necessary to the enterprise to fulfill its mission.*

In the organization previously presented, three org-units: purchasing assistant, purchasing manager and buyer, systematically participate to execute the first four steps: record and approve the request, analyze and send the order.

Optimization of the organized process "Process Purchase Requests" has saved one step: when amount of the order is not significant, the purchasing assistant can himself approve or refuse the purchase request.

In the case of urgent orders, you can again save steps by authorizing the purchasing assistant to send the order when the amount is not significant.

We obtain the following value stream for processing of urgent orders:



"Purchase reception" value stream

The first step consists of analyzing the purchase request. If the total amount is large, normal processing is carried out.

Otherwise, the availability request and a restock request are sent, if necessary. Continuation of this value stream is identical to the previous one: when the order has been received, it is made available to the requester.

Value Stream representation principles

Highlighting organizational choices

Each enterprise has activities related to its business that must be performed whatever the organization in place. These activities can be purchasing, sales, sales administration, manufacturing, etc.

Defining their organization consists of assigning these activities to the org-units that will perform them.

We can distinguish between:

- Processes relating to the business of the enterprise: these are difficult to change unless the enterprise decides to totally review its business.
- Processing depending on organizational choices.

Number of steps

Certain steps in process are exclusively linked to the chosen organization. In such cases, it is useful to check whether these steps provide any real added value to clients or only concern the way things are done.

Delivery times can also be reduced by restructuring the order of these steps.

To highlight possible improvements, you can represent a value streams by flows exchanged between enterprise *value stage*.

> 🕮 *A value stage is a distinct, identifiable phase or step within a value stream that has a unique entrance criteria, exit criteria, and identifiable participating business function or business functional area.*

VALUE STREAMS MANAGEMENT

A value stream is an end-to-end collection of Value Stages that creates an outcome for a customer, who may be the ultimate customer or an internal end-user of the value stream.

Prerequisites to using value streams

One option is used to display the value streams.

To do so:

- To display Value Chains, **Value streams modeling** must be activated through Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis.

Accessing Value Streams with HOPEX Business Process Analysis

To access the list of *Value chains*:

- Expand the **Value Streams** folder from the navigation menu Process > Hierarchy.

Creating a value stream

To create a *Value Stream* from the navigation bar:

1. Select the **Processes** navigation menu.
2. Select the **Hierarchy** tab.
3. Click **New > Value stream** .
   The value stream creation window appears.
4. Enter the **Local name** of the Value stream.
5. Click **OK**.
   The value chain is created and added to the list of value streams.

Creating a value stream diagram

To create a value stream diagram:

1. In the Value Stream list, click the button **Create Diagram** related to the selected Value Stream.
   The diagram creation window opens.
2. Select the diagram type you want to create.
   - Value Stream Diagram: it is a BPMN diagram that allows to precisely describe value streams.
   - Business to Capability Map Diagram: it is a simplified diagram that allows to easily describe value stream steps and their links with with Business Capabilities.

     *To display this diagram, activate the **Capabilities visibility** option through Main Menu > Settings > Options > HOPEX Solutions > Business Process Analysis.*

The value stream diagram

The value stream diagram shows the sequence of the value creation steps performed, the events that occur and the conditions under which they are sequenced. It also makes it possible to assign the participants who carry out these value-creation steps to the business skills needed to implement them. This representation of a Value Stream helps to answer the following question: "What are the skills needed to implement the Value Stream?".

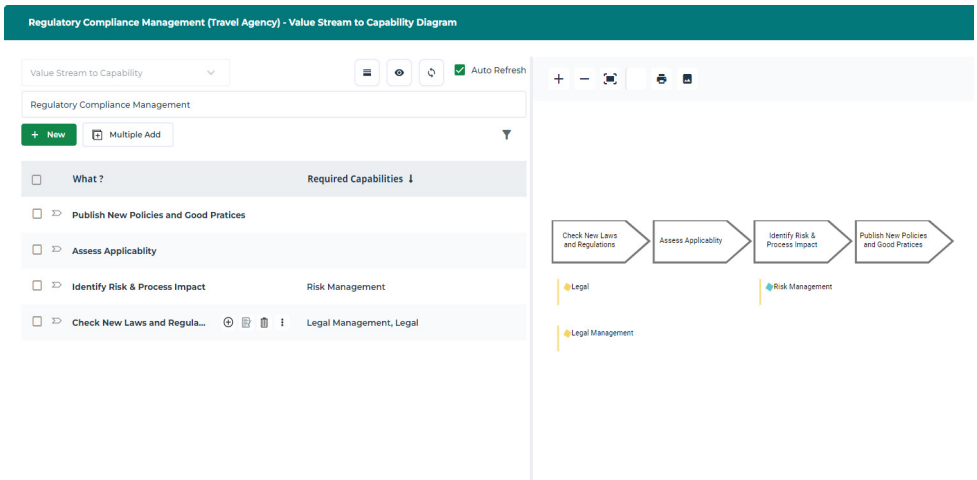
This type of diagram makes it possible to describe precisely the company's value streams as presented in paragraph : Value Stream Example.

The value stream to capability diagram

The value stream to capability diagram can only be used in tabular input mode.

This diagram makes it easy to initialize a value stream diagram by creating the value stream steps and the links they have with the different business capabilities.

☛ *For more information on using tabular input, see the "Entering a diagram in tabular mode" in the **HOPEX Common Features** guide.*



☛ *For more information on business capabilities see Business Capability Maps.*

Representing the value stream fulfillment with HOPEX Business Process Analysis

You can represent the fulfillment of a value stream by a process.

To access the list of *Value Streams* from **Processes** navigation menu:

1. Select **Hierarchy**.
2. Expand the **Processes** folder.
3. Open the **Characteristics** property page of the process.
4. In the **Fulfillments** section, click the **New** button.
   A creation window opens.
5. Select **Value Stream Fulfillment** and click **Next**.
6. Connect an existing value chain or create a new one.

BUSINESS CAPABILITY MAPS

HOPEX Business Process Analysis offers a methodological framework established from international standards (BIZBOK and other architectural frameworks of NAF/DoDAF and TOGAF type), as well as our experience in this area. Our method consists of analyzing the business capabilities of your enterprise and checking their suitability with your business functions and skills. This work leads to a better understanding of the current state of your organization ('As-Is').

Business Architecture helps managers define the operating architecture of their enterprise to remain in compliance with its business model and to adapt to changes in the enterprise and in its economic and regulatory environment. Thus the analysis of the company's *business capabilities* makes it possible to identify and implement the services that the company plans to offer.

> 🕮 *A business capability map is a set of business capabilities with their dependencies that, together, define a framework for an enterprise stage.*
>
> 🕮 *.A business capability is a set of features that can be made available by a system (an enterprise or an automated system).*

DESCRIBING BUSINESS CAPABILITIES WITH HOPEX BUSINESS PROCESS ANALYSIS

This step consists, on the one hand, in describing what the company is able to deliver (the business capabilities) and, on the other hand, in describing how it delivers it (functionalities covered, skills and business functions).

Prerequisites to use of business capabilities

An option is used to display the business capabilities and the business skills.

To activate this option:

1. In the workspace, open the **Options** navigation window.
2. In the tree on the left, select **HOPEX Solutions > Business Process Analysis**.
3. Tick the box **Capability visibility**.

Building the Capability Maps and Business Function Elements

The goal of this work is to check the suitability between the *business capabilities* of the enterprise, the *business functions* delivering this capabilities as well as the required functionalities and business skills.

This consists of the following tasks:

- Describing the existing architecture of business capabilities,
- Accessing business capability components.

Describing the existing architecture of business capabilities

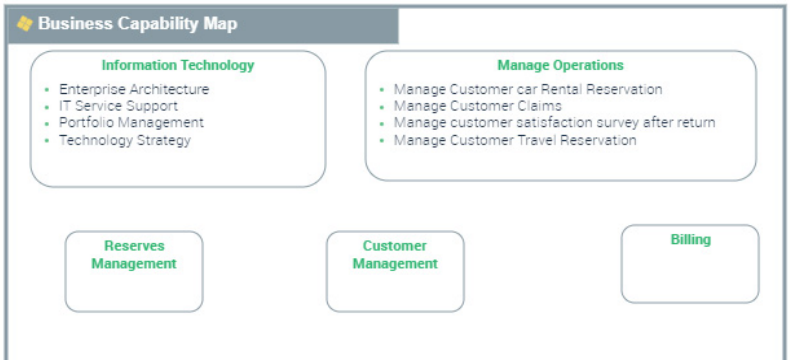
Building the business capability map

A business capability map describes what the enterprise is capable of producing for its internal needs or for meeting the needs of its clients.

> 🕮 *A business capability map is a set of business capabilities with their dependencies that, together, define a framework for an enterprise stage.*
>
> 🕮 *.A business capability is a set of features that can be made available by a system (an enterprise or an automated system).*

The capability map thus presents the business capabilities of the highest level for one of the stages of the enterprise.

In this example, the business capability to deliver pizzas is based on the business capability to cook them.



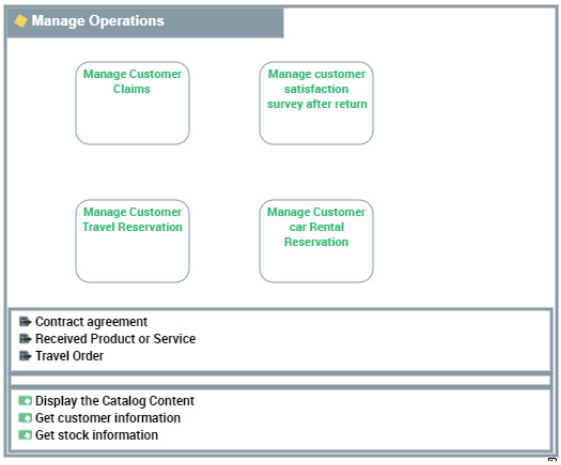
☛ *For more details on business capability map diagrams, see Creating a business capability map diagram.*

Describing the business capability breakdown

Business capabilities are then described more precisely to identify:

- a more detailed granularity capability breakdown;
- the expected effects of the capability;
- the business skills or functionalities required for each of them;
- the dependencies between capabilities (expected effect of one dependent from the result of the other).

For example, the business capability that consists of managing operations is broken down into a number of business capabilities such as: "Handle customer complaints", "Manage travel reservations".



Defining the business skills and functionalities associated with business functions

To be able to subsequently check that each business capability is implemented by a suitable component, you must define the required business skills and functionalities, for each business function.

> ☛ *For more details on the capabilities and functionalities associated with business capabilities, see Defining the business skills and functionalities associated with business capabilities.*

HOPEX Business Process Analysis provides a report available detailing the breakdown of capabilities.

> ☛ *For more details on breakdown maps, see Breakdown Report of Business Capabilities.*

Accessing business capability components

To access the list of Business Capability Maps:

- From the **Capabilities** navigation menu, expand **Business Capability Maps**.

To access the list of Business Skill Maps:

- From the **Capabilities** navigation menu, expand **Business Skill Maps**.

To access the list of Functionality maps:

- From the **Capabilities** navigation menu, expand **Functionality Maps**.

DESCRIBING A BUSINESS CAPABILITY MAP

☛ *To display business capabilities, business capabilities maps and business skills, check that the **HOPEX Solutions > Business Process Analysis > Capability visibility** option is activated.*

Building the Business Capability Map

A business capability map is used to represent the main business capabilities that interact with an enterprise.

Properties of a business capability map

The **Characteristics** property page of a business capability map provides access to:

- its **Name**,
- its **Owner**, by default on creation of the business capability map, the current enterprise.
- the text of its **Description**.

With **HOPEX Business Process Analysis**, a business capability map is described by the following pages:

- The **Structure** page which allows to specify:
  - The list of business capability components owned which are part of the business capability map
  - The dependency between these components

    ☛ *For more details on business capacity structure, see Using the capability compositions and Defining business capability dependencies.*
- The **Capability Usage** page provides access to the enterprise stages that use the capability map.

  A Business Transformation Stage is a kind of Enterprise Transformation Stage aiming at the alignment of the enterprise business operating model to its business strategy and corresponding exhibited business capabilities (business model).

Creating a business capability map diagram

To create a business capability map diagram:

1. In the list of business capability maps, click **Create a diagram**  .
   The diagram creation window opens.
2. Select **Capability Structure** and click **Create a diagram in graphical mode**.

The capability structure diagram appears. The frame of the business capability map described appears in the diagram.

☛ *Tabular entry mode is available for this diagram. For more information on using tabular input, see the "Entering a diagram in tabular mode" in the **HOPEX Common Features** guide.*

Using the capability compositions

The components represented in a business capability map diagram are **Capability Compositions**. Each capability composition is associated with a business capability.

📖 *A **Business capability component** is the involvement of a business capability in the context of a business capability map (one and only one) linked to an enterprise.*

To add a business capability component in the diagram:

- From the object inserting bar, click **Capability Composition**

☛ *If the business capability is associated with functionalities, they also appear. For more details on business Skills and functionalities associated with business capabilities, see Defining the business skills and functionalities associated with business capabilities.*

Defining business capability dependencies

A dependency link between one capability composition and another is used to specify the elements on which this dependency is based.

For example, "Billing" uses "Order Management". Note that the expected result (business effect) of "Billing" is an "Invoice" and the expected result (business effect) of "Order Management" is a "Order to be delivered".

Dependent Business Effect and **Desired Business Effect** are the business capability results.

☛ *A single capability composition can have more than one dependency within a single diagram.*

To create dependency links between two capability compositions:

- From the object inserting bar, click the **Business capability dependency** → button and connect the dependent business capability to the required business capability.

To enter the results concerned by a dependency between two business capability components:

1. Open the **Characteristics** properties dialog box.
2. Fill the **Dependent Business Effect** field with the result of the user component.

   For example, "Invoice".
3. Fill the **Desired Business Effect** field with the result of the component used.

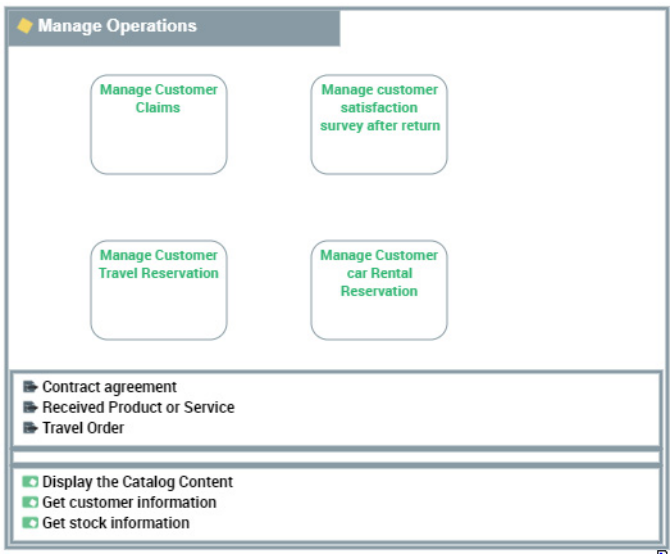
   For example, "Order to be delivered".

Describing a Business Capability

A business capability can be based on business sub-capabilities. The capabilities expected by the business capabilities described are the capabilities associated with each business sub-capability.

For example, the business capability that consists of managing operations is broken down into a number of business capabilities such as: "Handle customer complaints", "Manage travel reservations".

The capability structure diagram describes the composition of a business capability.



Creating a business capability

You can create a new business capability in several ways:

- From a business capability map
- From the property page of a business capability map

To create a *Business Capability* from a business capability map diagram:

1. Click the **Capability Composition** button.
   The Add Capability Composition window appears.
2. Enter the name of the new business capability and click **Create**.
   The new business capability appears in the diagram.

The properties of a business capability

The **Characteristics** property page of the business capability map provides access to:

- its **Owner**, by default on creation of the business capability, the current enterprise.
- its **Name**,
- the text of its **Description**.

A capability map is described by the following property pages:

- the **Structure** page specifies a part of the list of components that constitute the business capability described, as well as the dependencies between these components,

  ☛ *For more details on the structures of a business capability, see Defining the structure of a business capability.*

- the **Expected Capabilities** property page is used to specify a list of business skills and functionalities that are expected from the business capability.

  ☛ *For more details on the skills and functionalities associated with a business capability, see Defining the business skills and functionalities associated with business capabilities.*

- The **Capability Usage** section provides access to the capacity maps that use the capability described.

  ☛ *For more details on the components of a business capability, see Using the capability compositions.*

Creating a capability structure diagram

To create a capability structure diagram:

1. Open the **Diagram** property page of the business capability of your choice and click **Create a diagram**.
2. Select **Capability Structure** and click **Create a diagram in graphical mode**.

The capability structure diagram appears. The frame of the business capability described appears in the diagram.

You can construct this diagram in tabular input mode.

☛ *For more information on using tabular input, see the "Entering a diagram in tabular mode" in the **HOPEX Common Features** guide.*

Defining the structure of a business capability

The components represented in a business capability structure diagram are **Capability Composition**. Each capability composition is associated with a business capability.

📖 *A **Business capability component** is the involvement of a business capability in the context of a business capability map (one and only one) linked to an enterprise.*

☛ *For more details on how to use business components in a diagram, see Using the capability compositions.*

A dependency link between one capability composition and another is used to specify the elements on which this dependency is based, that is, the effect of one required by the effect of the other.

> ☛ *For more details on creating dependency links between two capability compositions, see Using the capability compositions:*

The capability compositions and their dependencies appear in the **Structure** property page of the business capability described.

Defining the business skills and functionalities associated with business capabilities

> 🕮 *A business skill is a capability acquired by a person or an organization through a specific training.*

> 🕮 *A functionality is a service required to perform a work. This functionality is generally necessary within an activity in order to execute a specific operation. If it is a software functionality, it can be provided by an application.*

Each business capacity is associated with business skills and functionalities.

To associate a *skill* with a business capability:

1. Open the **Expected Capabilities** properties window of the business capability.
2. In the **Expected Business Skill** section, click **New**.
   An **Expected Business Skill** creation dialog box opens.
3. Click, for the **Connect a Business Skill** check box.
4. Specify the name of the skill.
5. Click **OK**.
   The business skill appears in the list of skills associated with the business capability.

> ☛ *For more information on enterprise skills, see Describing Business Skills.*

To associate a *functionality* with a business capability:

1. Open the **Expected Capabilities** of the business capability.
2. In the **Expected Functionality** section, click **New**.
   An **Add functionality** window appears:
3. Click the down arrow.
4. Select a functionality.
5. Click **OK**.
   The functionality appears in the list of functionalities associated with the business capability.

> ☛ *For more information on enterprise functionalities, see Describing functionalities.*

The business skills, functionalities and the expected effects appear in the diagrams, at the bottom of the frame of the capability described.

A report is available to check the suitability between the business capability map and the operational environment, for more details, see Breakdown Report of Business Capabilities.

Breakdown Report of Business Capabilities

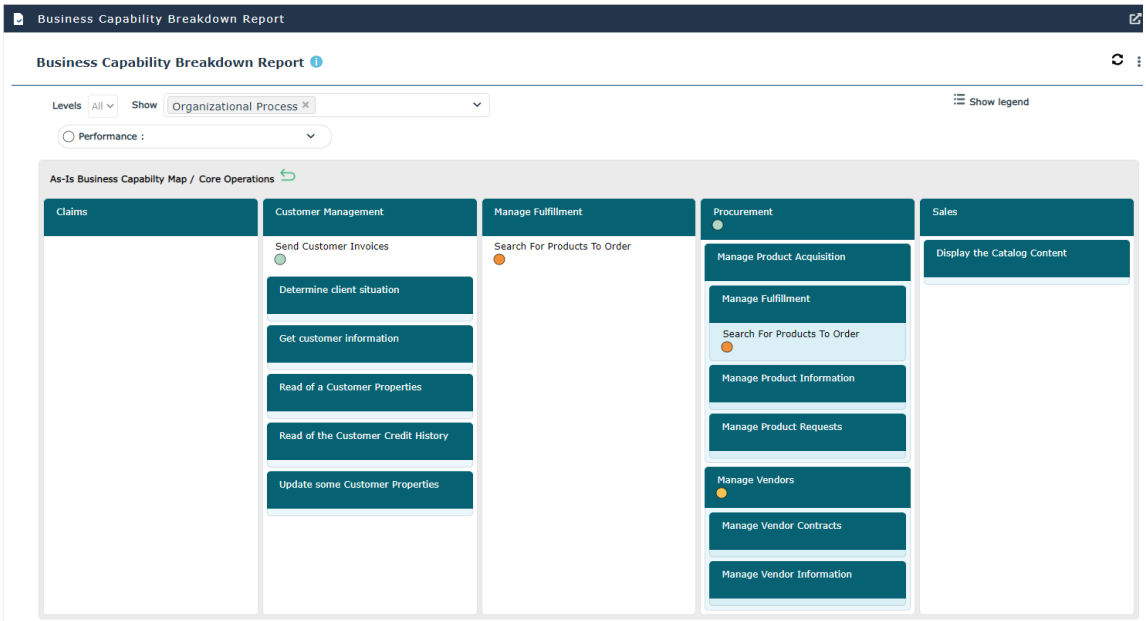
You can use this breakdown report to display the realization coverage of business capability elements by operational elements such as business skills, functionalities or processes, according to different approaches: Organizational, Business/Data, Logical/Physical Application, etc.

> ☛ *For more details on how to associate a business capability with operational elements, see Describing Fulfillment of a Business Capability.*

Report example

The example below enables viewing of the coverage rate of the business capability map specified as parameters by processes.

☛ *For more details on business capability maps, see Building the Business Capability Map.*



Example of a business capability map breakdown report

☛ *For more details on use of a breakdown report, see the, chapter "Handling a Breakdown Report" in the **HOPEX Common Features** guide.*

DESCRIBING A BUSINESS SKILL MAP

A business skill map is a set of business skill with their dependencies that, together, define a framework for an enterprise stage.

☛ *To display business capabilities, business capabilities maps and business skills, check option **HOPEX Solutions > Business Process Analysis > Capability visibility** is activated.*

Creating a Business Skill Map diagram

To create a business skill map diagram:

❱ From the **Capabilities** navigation menu, expand **Business Skill Maps**.

The properties of a business skill map

The **Characteristics** properties page of the business skill map provides access to:

- its **Owner**, by default during creation of the business skill map, the current enterprise.
- its **Name**,
- the text of its **Description**.

With **HOPEX Business Process Analysis** a business skill map is described by:

- the **Structure** page that specifies the list of business skill components owned and the dependencies between them.

☛ *For more information on the components of business skills, see Creating a business skill component in a diagramand Defining the business skill dependencies.*

Creating a Business Skill Diagram

To create a business skill diagram:

1. In the list of Business Skill Maps, click the **Create a diagram** icon related to the business skill of your choice.
   The diagram creation window opens.

To create a business skill component in a diagram, see Creating a business skill component in a diagram.

To define the dependencies of business skills, see Defining the business skill dependencies

Creating a business skill component in a diagram

The components represented in a business skill map are **Business skills**.

A business skill is a capability acquired by a person or an organization through a specific training.

To add a sub-skill to the business skill map diagram:

- In the object inserting bar, click the **Business Skill Component** .

Defining the business skill dependencies

You can create a dependency link between two business skills to specify that one business skill is required for the other in the context of a skill map.

To create dependency links between two business skills:

- From the object inserting bar, click the **Business skill dependency** button and connect the source business component to the target business component.

Describing Business Skills

To be able to subsequently check that each business capability is implemented by a suitable business skill, you must define the required business skills and functionalities, for each business function.

The **Characteristics** property page of the business skill provides access to:

- its **Owner**, by default during creation of the business skill map, the current enterprise.
- its **Name**,
- the text of its **Description**.

With **HOPEX Business Process Analysis** a business skill is described by the following pages:

- the **Structure** page specifies a list of business skill held and the dependencies between them.

  ☛ *For more details on business skill diagrams, see Creating a Business Skill Diagram.*
- the **Fulfillments** page provides access to the list of architecture elements that implement the business skill.
- The **Capability Usage** page,
  - The **Owner** section provides access to the skill maps that use the skill described.

    ☛ *For more details on the skills used, see Creating a business skill component in a diagram.*

DESCRIBING A FUNCTIONALITY MAP

A functionality map is a set of functionalities with their dependencies that, jointly, define the scope of a hardware or software architecture.

The properties of a functionality map

The **characteristics** page of a functionality map provides access to:

- its **Owner**, by default on creation of the business function, the current enterprise.
- its **Name**,
- the text of its **Description**.

With **HOPEX Business Process Analysis** a Functionality map is described by:

- the **Structure** page is used to specify a list of components owned by the functionality map and the dependencies between them.

  For more information on the components of a functionality map, see Creating a functionality component in a functionality map diagram and Defining Functionality dependencies.

Creating a functionality map

To create a functionality map:

1. From the **Capabilities** navigation menu, expand **Functionality Maps**.
2. Click **New > Functionality Map**.

Creating a functionality component in a functionality map diagram

The components represented in a functionality map are **Functionality components**.

To add a functionality component in the functionality map diagram:

- In the object inserting bar, click **Functionality component** .

Defining Functionality dependencies

A dependency link between one functionality and another is used to specify the elements on which this dependency is based.

For example, for a "Pizza delivery" functionality, there must first be a "Prepare pizzas" functionality. Note that the effect of the "Deliver pizzas" functionality is a "Pizza delivered" functionality and the effect of the "Prepare the pizzas" functionality is a "Cooked pizza".

To create dependency links between two functionalities in a functionality map diagram:

1. In the insert toolbar, click **Functionality Dependency**.

2. Click the functionality component, and keeping the left mouse button pressed, move the cursor to the functionality component used.
3. Release the mouse button.
   The creation window for the functionality dependency opens.
4. Click **OK**.
   The link appears in the diagram.

> ☛ *A single sub-functionality can have more than one dependency within a single diagram.*

Describing functionalities

> 🕮 *A functionality is a service required to perform a work. This functionality is generally necessary within an activity in order to execute a specific operation. If it is a software functionality, it can be provided by an application.*

The **Characteristics** property page of the functionality provides access to:

- its **Owner**, by default during creation of the functionality, the current enterprise.
- its **Name**,
- the text of its **Description**.

> ☛ *For more information on the use of expected functionality effects, see Defining Functionality dependencies.*

With **HOPEX Business Process Analysis**, a functionality is described in the following pages:

- the **Structure** page is used to specify a list of functionalities owned and the dependencies between them.

  > ☛ *For more information on the structure of functionalities, see Creating a Functionality Diagram.*

- the **Fulfillments** page provides access to the list of architecture elements that implement the functionality.
- The **Capability Usage** page,
  - The **Owner** section provides access to the skill maps that use the skill described.

  > ☛ *For more details on relationships between functionalities, see Creating a functionality component in a functionality map diagram.*

Creating a Functionality Diagram

To create a functionality diagram:

1. Open the **Diagram** property page of the functionality of your choice and click **Create a diagram**.
2. Select **Functionality Structure** and click **Create a diagram in graphical mode**.
   The diagram opens in the edit area. The frame of the functionality described appears in the diagram.

To create a functionality from a functionality diagram, see Creating a functionality component in a functionality map diagram.

To define the dependencies of sub-functionalities, see Defining Functionality dependencies.

DESCRIBING COMPONENT FULFILLMENT

To represent the implementation of a component such as a business capability or functionality you must create a **Fulfillment** of the component.

Describing Fulfillment of a Business Capability

Creating a business capability realization

A business capability can be achieved either by an application or an application system, or by an org-unit or a process.

To associate a process to a business capability, you must create a business capability fulfillment.

> 🕮 *An implementation describes the relationship between a logical entity and a physical entity that implements it. The physical entity gives the list of logical entities that it implements.*

To specify that a business capability is fulfilled by a process:

1. Open the **Fulfillments** property page of the business capability that interests you.
2. Click **New**.
   The creation window for a business capability realization opens.
3. Select the object type of your choice via the dropdown menu.
4. Select the object type **Processes** for example.
5. Select the desired process category and click **OK**.
   The capability fulfillment appears in the list with the name of the selected process.

Analyzing business capability fulfillment

HOPEX Business Process Analysis provides reports to display fulfillment coverage of business capability elements by operational elements such as applications, and according to different perspectives: Organizational, Business/ Data, Logical/Physical Application, etc.

> ☛ *For more details on fulfillment reports for business capabilities, see Breakdown Report of Business Capabilities.*

Creating Fulfillment of a Business Skill

A business skill can be fulfilled by an org-unit.

To associate an org-unit with a business skill, you must create a business skill fulfillment.

> 🕮 *An implementation describes the relationship between a logical entity and a physical entity that implements it. The physical entity gives the list of logical entities that it implements.*

To specify that a business skill is fulfilled by an org-unit:

1. Open the **Fulfillments** property page of the business skill that interests you.
2. Click **New**.
   The creation window for a business skill realization opens.
3. Select **Reusing an org-unit**.
4. Select the org-unit that interests you and click **OK**.
   The business skill fulfillment appears in the list with the name of the selected org-unit.

Creating Fulfillment of a Functionality

A functionality can be achieved either by an application or application system, or at a conceptual level, by a logical application or application system.

To associate an application with a functionality, you must create a functionality fulfillment.

> 🕮 *An implementation describes the relationship between a logical entity and a physical entity that implements it. The physical entity gives the list of logical entities that it implements.*

To specify that a functionality is implemented by an application:

1. Open the **Fulfillments** property page of the functionality that interests you.
2. Click **New**.
   The creation window for a functionality realization opens.
3. Select **Reusing an existing**.
4. Select the **Application** object type.
5. Select the application that interests you and click **OK**.
   The functionality fulfillment appears in the list with the name of the selected application.

ACTION PLANS

HOPEX Business Process Analysis allows you to specify, implement and follow up *action plans* defined for managing, for example, a Customer Journey.

> 🕮 *An action plan comprises a series of actions, its objective being to reduce risks and events that have a negative impact on company activities.*

The following points are covered here:

- ✓ Managing Action Plans with HOPEX Business Process Analysis
- ✓ Managing actions with HOPEX Business Process Analysis

Managing Action Plans with HOPEX Business Process Analysis

An *Action plan* can be set up, for example, to improve the efficiency of a process.

> 🕮 *An action plan comprises a series of actions, its objective being to reduce risks and events that have a negative impact on company activities.*

Creating Action Plans with HOPEX Business Process Analysis

To create an action plan:

1. From the navigation bar, select **Projects > Action Plans**.
2. Click **New**.

With **HOPEX Business Process Analysis**, an action plan is connected to a process.

To create an action plan from a process, for example:

1. Open the **Action Plans** property page of the process that interests you.
2. Click **New**.
3. Enter the **Name** and the dates (**Planned Begin Date** and **Planned End Date**) and click **OK**.
   The new action plan is created in the list of action plans of the process.

Characterizing Action Plans

☛ *For more details on action plans characteristics, see chapter "Entering Action Plan Information" in the **HOPEX Common Features** guide.*

Accessing the list of Action Plans

To access the list of action plans:

- From the navigation bar, select **Projects > Action Plans**.
  The list of action plans appears.

The execution of an Action Plan

During the execution, an action plan takes different states. Passage between states is submitted for the approval of the action plan owner or the action plan approver.

☛ *For more details on an action plan execution, see the, chapter "Action plan execution" in the **HOPEX Common Features**guide.*

With **HOPEX Business Process Analysis**, actions can be created as long as the action plan is not closed.

☛ *For further details, see Managing actions with HOPEX Business Process Analysis.*

Having specified the characteristics of a new action plan, the creator can: **Send** the action plan to the "Approver" user.

The action plan "Approver" user can: **Reject** or **Start** the action plan.

When the action plan actions are closed, the "Owner" user must **Close** the action plan.

After having consulted action plan follow-up reports, the "Approver" user can: **Close** or **Reopen** the action plan for complementary actions.

Preparing the action plan progress follow-Up

Action plan progress is specified at periodic dates by the action plan responsible user.

HOPEX Business Process Analysis offers the opportunity to regularly remind the action plan owner user by email to update the progress of his action plan using a steering calendar.

☛ *For more details on an action plan execution, see the, chapter "Action plan execution" in the **HOPEX Common Features**guide.*

Managing actions with HOPEX Business Process Analysis

With **HOPEX Business Process Analysis**, the action plan **Owner** can propose and assigning *actions* corresponding to the execution of the action plan.

📖 *An action is included in an action plan and represents a transformation or processing in an organization or system.*

To create actions, the action plan status must be "In progress", that is it has been validated by the "Approver" user.

☛ *For more details on the actions management, see "Managing action" chapter in guide* ***HOPEX Common Features****.*