HOPEX 5.0

Release Notes #CP4

Last revision: October 3, 2022

Contents

1. Overall architecture & deployment update

1.1. HOPEX Application Server (HAS)

HOPEX Application Server, shortly named “HAS”, is based on a 3-tier web architecture principle including:

- a presentation tier: representing the web user interface. This layer is packaged as a **Front-end** module of web type. There might be several web front-end modules depending on the use case.
- an application tier: representing the business logic of the HOPEX platform. This layer is packaged as a **Back-end** module. The main module for the platform is called **HOPEX Core**.
- a Data tier: representing the persistence mechanisms of the data. This layer is provided by a market RDBMS.

As web application, the HOPEX solutions can be navigated using modern web browsers. The device used to browse the solutions depends on the Front-End module used and its compatibility with laptops, tablets, and mobiles.

The overall architecture of HAS is described in the following architecture view:

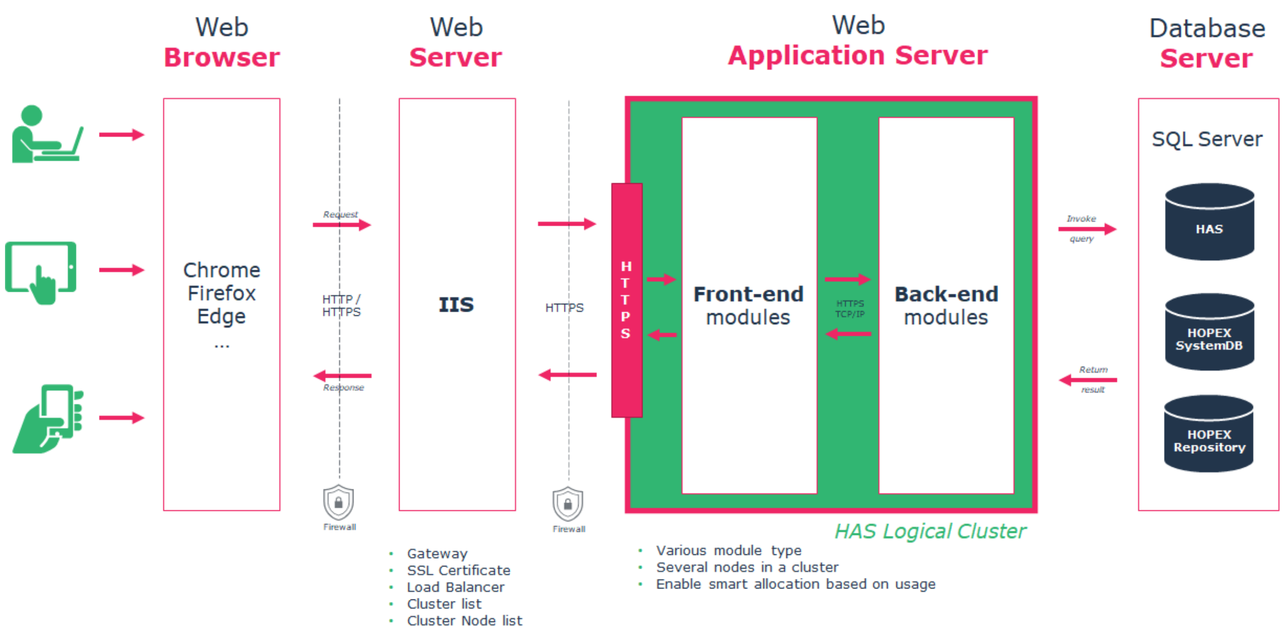


Figure 1 HAS Architecture Overview

The elements of the application architecture can be deployed in various ways. The appropriate infrastructure depends on:

1. Pre-existing infrastructure: IIS servers or Database servers
2. Security constraints
3. Business continuity and disaster recovery plan, based on application business criticality.
4. Production, Pre-production, Training, or Development environments requirements.
5. Number of concurrent users.

The required infrastructure can go from a single server to a farm of servers.

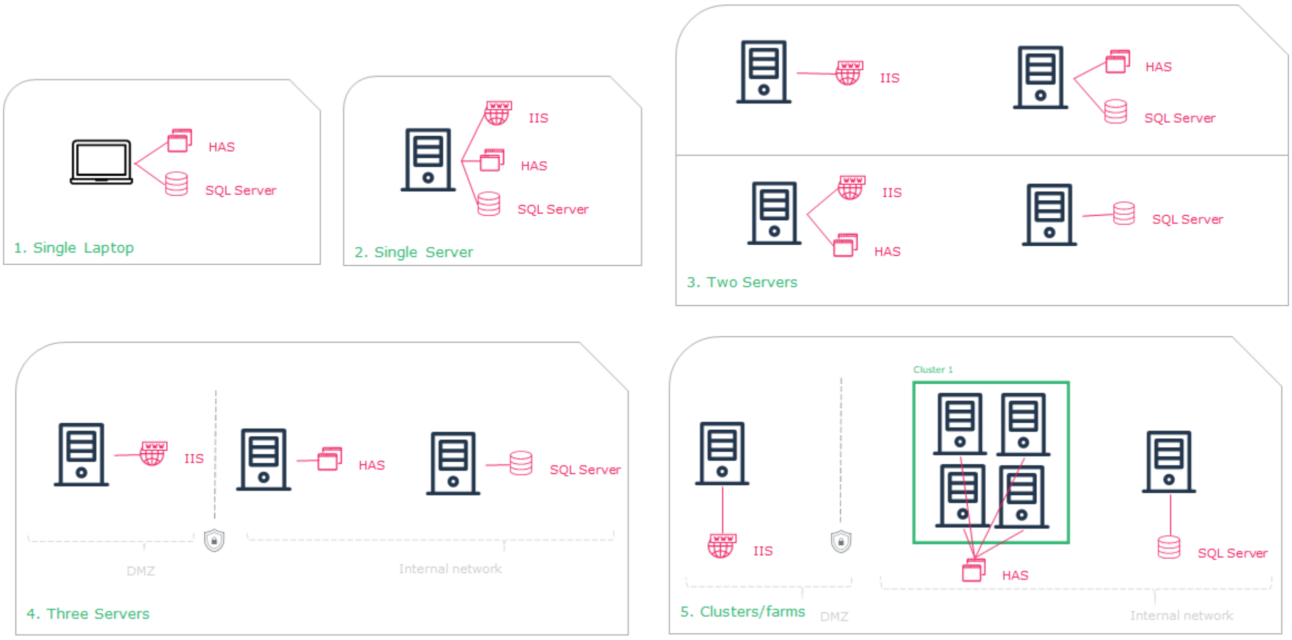
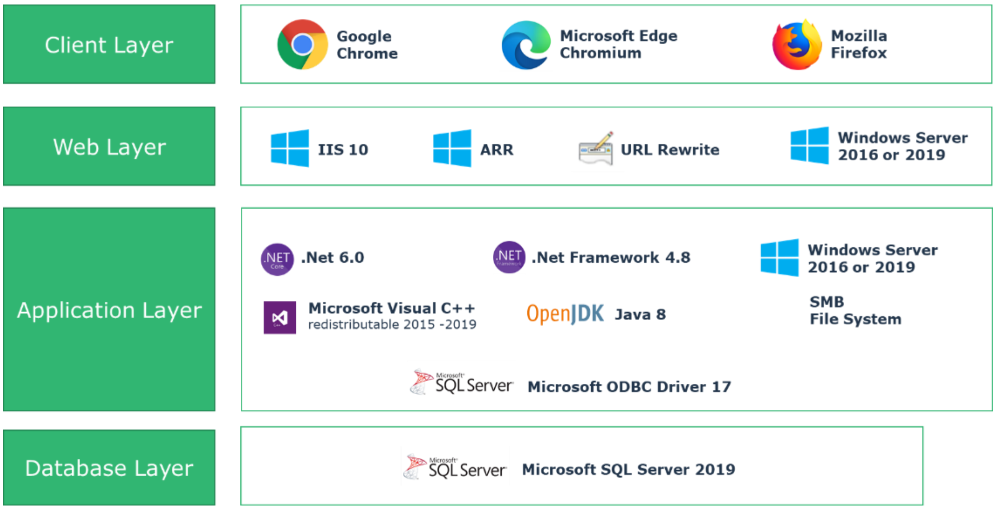


Figure 2 HAS Infrastructure deployment overview

1.2. Technological Stack prerequisite



CAUTION:

For HOPEX V5, V5 CP1 the pre-requisite is .net Core 3.1

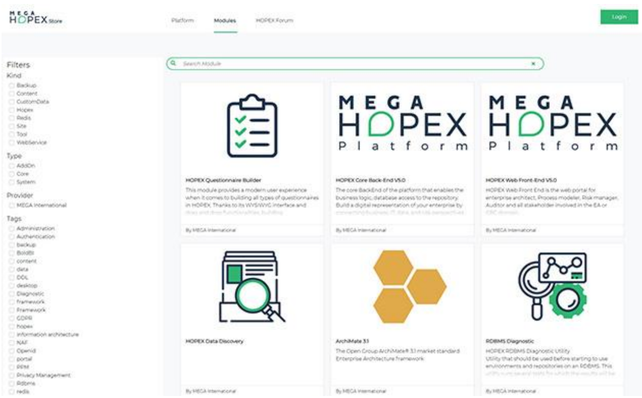
Starting from HOPEX V5 CP2 the pre-requisite is .net 6.0

1.1. MEGA HOPEX Store

MEGA HOPEX Store is the online website that allows to download all the required components to install and deploy the HOPEX solutions.

You will find on the MEGA HOPEX Store:

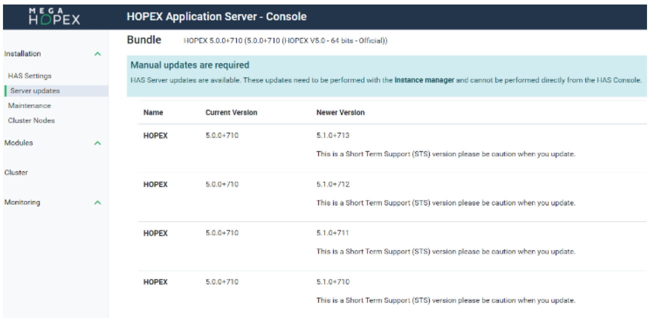
1. The Platform composed of modules
2. A set of complementary modules



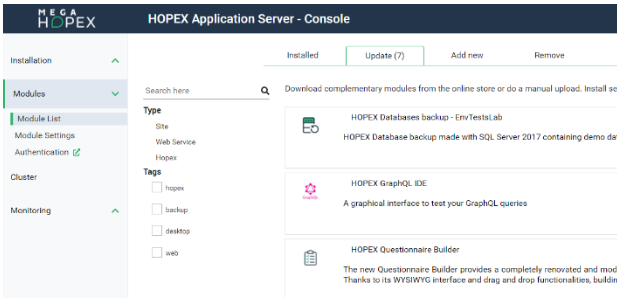
To benefit from the best experience, when using HAS, we recommend you to allow access from the server to the https://store.mega.com.

Among the benefits of the MEGA HOPEX Store you will:

- Have clear visibility on updates, support policy and timeline
- Update your installation directly from the administration console.



Visibility of platform update



Visibility of module update

2. HOPEX for the ArchiMate® Framework

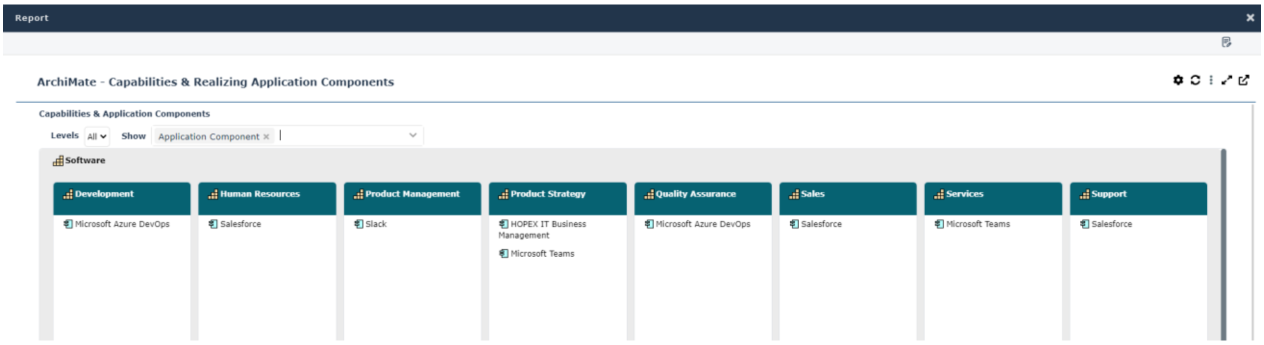
2.1. ArchiMate 3.1 support and certification

The certification has been updated with ArchiMate 3.1 support; See the ArchiMate tool register

- New 'Value Stream' concept and 'Value Stream' Viewpoint
- Updated ArchiMate 3.1 Relationships
- ArchiMate 3.0 compatibility option to enable deprecated relationships
- 3.0 to 3.1 relationships conversion utility
- New "directed" type on Association & updated association line style in diagrams
- Import / export update to 3.1

2.2. UI/UX improvements

- The ArchiMate desktop is switched to 'public workspace' by default, to align with other products
- The ArchiMate desktop has been updated to the latest HOPEX UI/UX standards and look and feel
- ArchiMate has been integrated into the Unified 'Digital Transformation' desktop template to ease joint use with other HOPEX solutions
- Improvement of copy & paste and drag & drop behavior across ArchiMate models (a copy of the object is created)
- Cleanup of inventory objects properties
- New relationships matrix reporting / edition capability: Element x (relationship) x element editable relationship matrices
- Improvement of ArchiMate Open Exchange format import performance
- #CP3 Localization in German language
- #CP3 ArchiMate views can now be duplicated, and their diagrams compared using the standard comparison button in the diagram viewer
- #CP3 A new "capability & realizing applications" breakdown report template (based on tree set definition) is supplied, which uses the 'box in box' renderer; this enables to perform capability map analysis as in other HOPEX solutions.



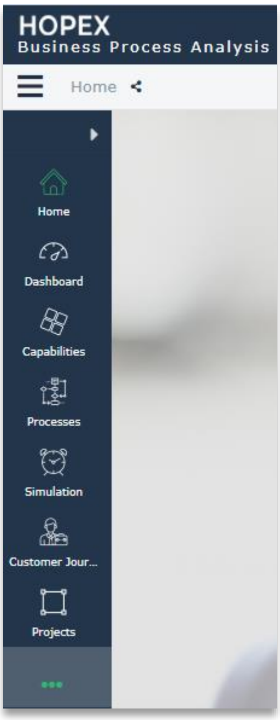
- #CP4 ‘Models Folders’ are now available in the Models tree view, to ease the sorting when many ArchiMate Models are used
- #CP4 “Tags” menu is now available in the ArchiMate desktop

3. HOPEX Business Process Analysis

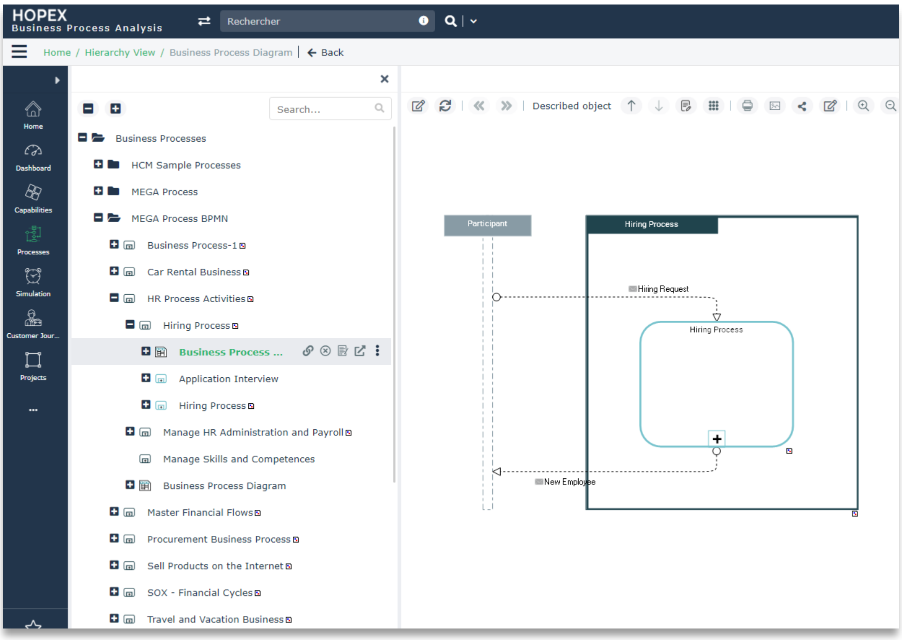
HOPEX BPA benefits from many improvements to ensure you can fully support process enhancement projects starting from Process Discovery to understand how your operations are really executed, Process Simulation to compare various transformation scenario, a modernized Process Modeling engine and new dashboarding capabilities to monitor the progress of your process initiatives.

3.1. UI/UX improvements

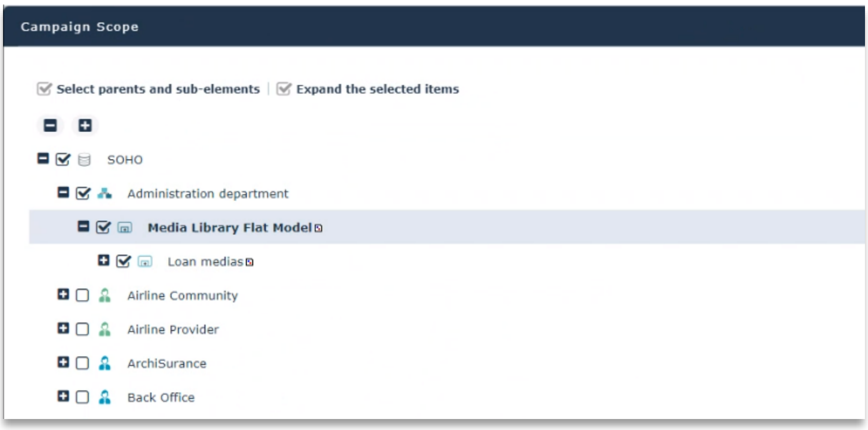
- The BPA desktop is switched to 'public workspace' by default, to align with other products
- The BPA desktop's hamburger Level 1 menu entries labels have been updated and simplified, using one word only whenever possible to obtain a lighter user interface



- The 'Business Processes' icons and diagram shapes color has been updated to a darker shade of blue so as to better separate from 'Organizational Processes'



- The default diagram layout and participant orientation is switched to 'landscape' to better accommodate most common presentation choice
- The Diagram reorganization now allows reorganizing a diagram even if the described process is not on the diagram (it is then added automatically), thus enabling easy beautifying of imported external data (e.g., after third-party MS Visio or BPMN file import) while reducing the amount of manual rework of the diagram
- Silent creation of Pools when adding participant to a BPMN diagram, both in tabular entry and graphical entry, which eases addition, insertion, and modifications of participants within a process and contribute to the diagrams' maintenance workload reduction
- New "Intellibar" controls to insert new participants left / right or above / below a given participant
- The links re-assignment UI (User Interface) has been simplified: the "shift key" keyboard manipulation is no longer required, and links endpoints can be directly grabbed and reassigned
- Add / remove space robustness improvements
- The UI of the processes' properties "System Used" section has been updated with a newer look and feel using multi combo boxes; creation from properties is also re-activated.
- The improved assessment campaign creation wizard from HOPEX IRM is now available in the BPA desktop



See the dedicated UX section for more details.

3.2. Message flows consistency tooling

Renewed message flow top-down consistency tooling (candidate queries, modeling rules, consistency check report)

- Ex-Ante tooling to help user create new consistent models:
  - *Bottom-up*: suggestion of candidate contents to be used when reusing an already described process
  - *Top-down*: initialization of called processes' description with incoming or outgoing message flows (as what was already available for sub processes)
- Ex-Post tooling to help user diagnose existing models' consistency:
  - Modeling rules notify the user when an inconsistent message is defined (e.g., incoming content for an operation with called process which does not appear in the process description below)
  - Identify errors thanks to a consistency check report.

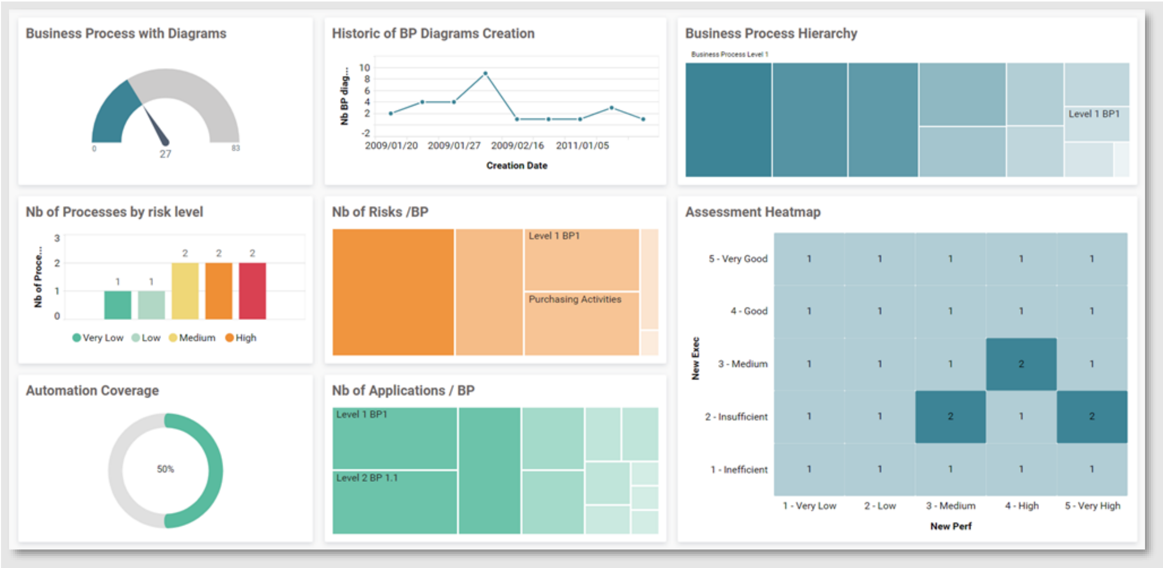
3.3. New Syncfusion / BoldBI dashboards integration

On top of the platform functionality to embed BoldBI dashboards in HOPEX desktops (see platform section), new report data set definitions and guidelines are provided to enable building the following dashboarding widgets in HOPEX Business Process Analysis:

- Gauge of process description overall progress
- Line chart showing the number of new diagrams over time
- Bar chart of number of processes by risk level
- Tree maps

- Number of Risk per Processes
- Number of Applications per Processes
- Hierarchy of Processes

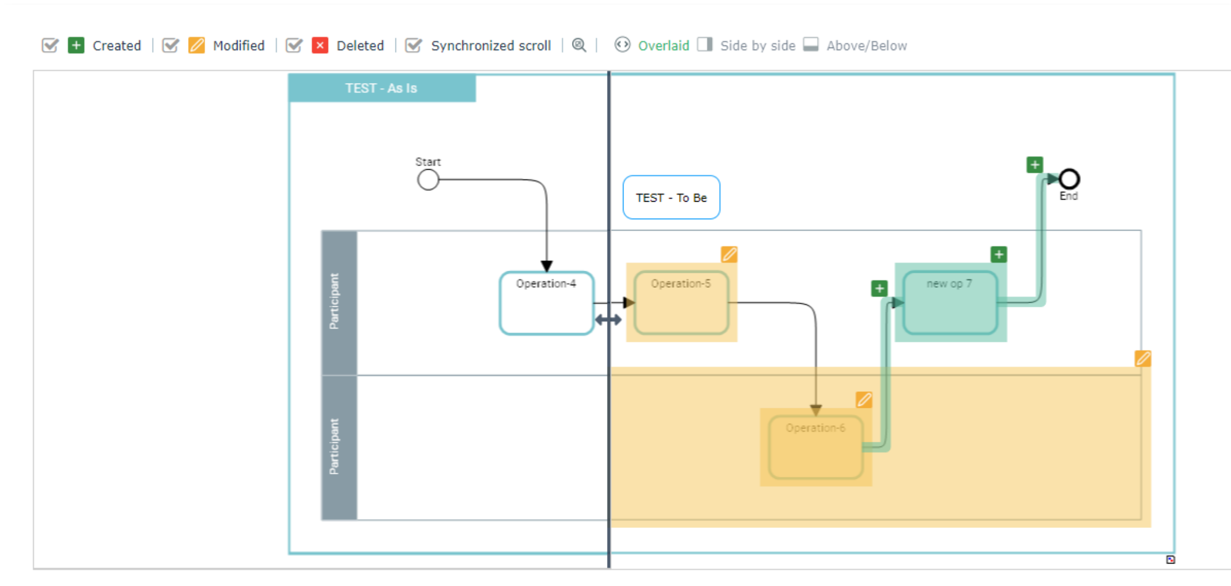
- Donut chart of level of automation
- Heatmap of process assessment



3.4. Process diagrams comparison

Processes' duplicates can be visually compared for an efficient gap analysis of new / modified / deleted items.

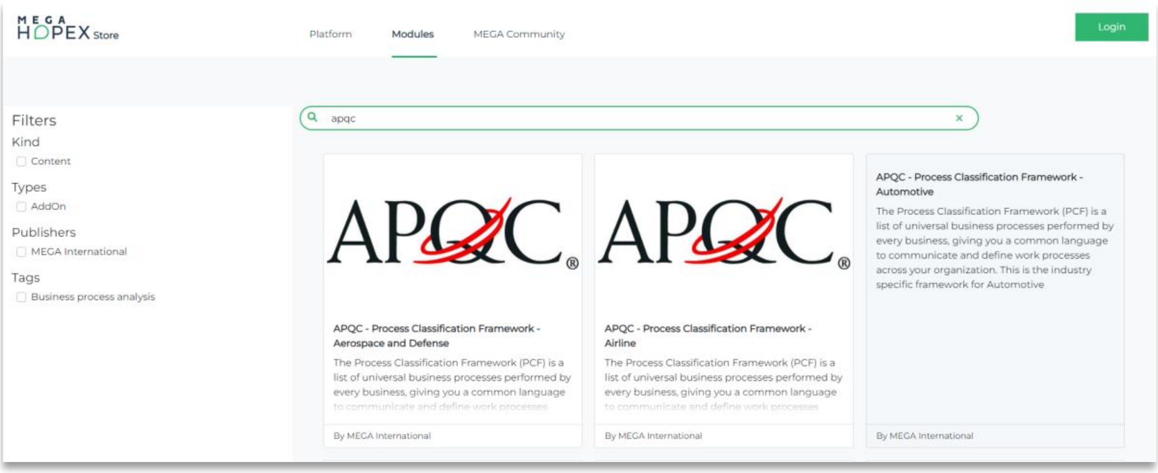
- Filter created / modified / deleted items highlighting
- Processes diagrams sequence flows differences are also highlighted
- Use slide, column, or vertical display mode



3.5. HOPEX Store Contents

New modules are now available from the V5 HOPEX Store

- The APQC modules grant access to industry specific as well as cross industry processes classifications
- One module is provided per industry to ease the installation
- Indicators are now available with each classification

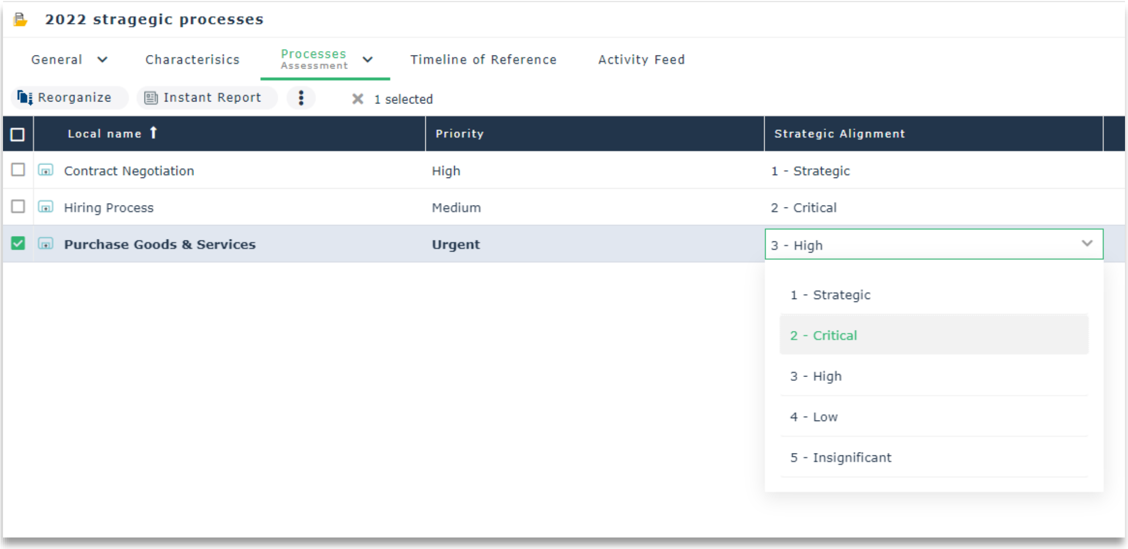


- The ISO 9001:2015 module providing the ISO norm chapter to associate to processes is available on the V5 HOPEX Store

3.6. Process Portfolios

Process Portfolio has been refreshed and updated to newer User Interface HOPEX standards.

- The UI has been updated to hide 'initiatives' / portfolio lines intermediate objects and access processes directly
- The 'data call' platform feature has been instantiated for processes, enabling requesting users to fill in process properties; this is added as a new button on process portfolios.



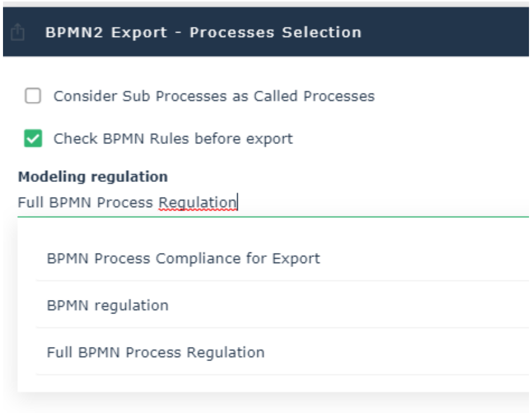
3.7. #CP4 Reports refactoring

- The "process description" reports have been rewritten in java
- The following reports have been rewritten using HOPEX Report Studio, they will now be easier to duplicate and customize with the Studio low code capabilities
  - Organizational Process Catalog
  - Processes with Diagrams
  - Value Stream Catalog
- A new process tree set definition and associated report template 'Process Impact Graph' using the dendrogram renderer is available to help understanding the process context

3.8. Various improvements

- Simplification of standard profiles:
  - Intermediate profiles like 'Process Designer', 'Process Designer (basic)' are deactivated.
  - A conversion is provided to move the users' assignments to the 'Process Manager' profile instead.
- Organizational Process Excel import template improvement: help text, guidance (e.g., drop down lists), diagrams creation and sample data
- Process Assessment reports have been enhanced to take assessment organizational contexts into account
  - Process TIME report has been updated with an additional context parameter

  - A new Process assessment heatmap report has been added to enable the differentiation of assessments, based on organizational context; the existing summary heatmap report remains available for a quick overview.
- BPA modeling rules have been enriched with BPMN export specific rules
  - These additional rules check various items which were causing errors when exporting in BPMN (e.g., objects in the diagram not owned by the process, objects owned by the process and not in the diagram, etc.)
  - The export wizard now proposes to select the tested modeling regulation, and displays the errors, if any.

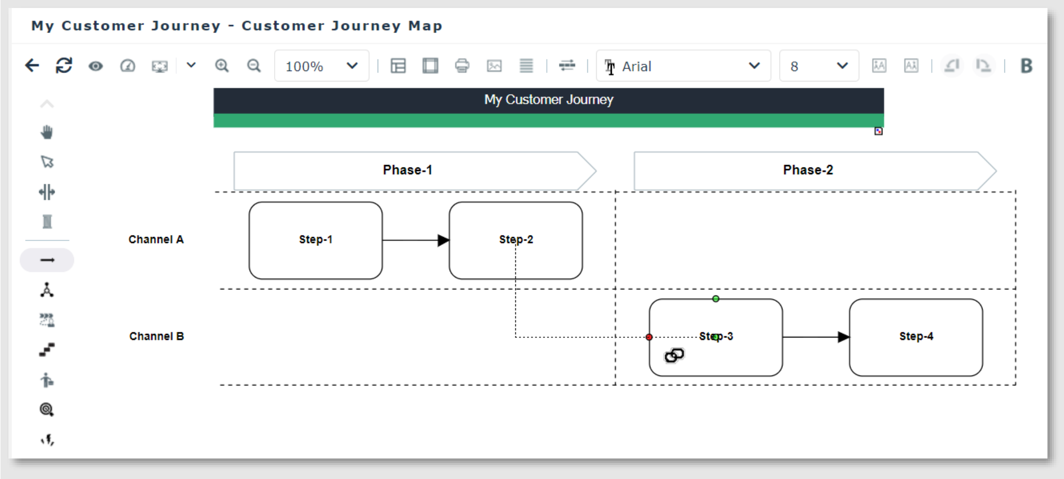


- #CP4 Business Continuity Management menu has been added to the BPA desktop, so that the feature is available for the Process Manager profile when the BCM license is active
- #CP4 Controls are now available in the Organizational Process diagrams tabular entry

3.9. HOPEX Customer Journey

Customer Journey UI/UX improvements:

- Addition of Capabilities to touchpoints, to support a Business Architecture use case for Customer Journey
- Simplification of tabular entry for touchpoints' resources, to focus on most common cases (e.g., Applications, Org-Units)
- Diagram graphical edition & auto-layout is enabled on top of tabular entry automated diagram
- Diagram Look and Feel update (updated shape set to ease automatic / manual diagramming transition)



3.10. HOPEX Risk Mapper

The new "Regulatory & Policy Frameworks" models from HOPEX Integrated Risk Management solution have been integrated in the HOPEX Risk Mapper product and HOPEX Business Process Analysis desktop.

- The former model is available via a compatibility option
- A conversion wizard is proposed to convert all / some of the former data into the new models.

Other:

- Controls can now be displayed in Organizational Process diagrams, activating the "risk and controls" diagram view

3.11. HOPEX Process Simulation

The HOPEX Process Simulation option for HOPEX Business Process Analysis adds the quantitative analysis capabilities to the process description, to close the loop of continuous process improvement cycle

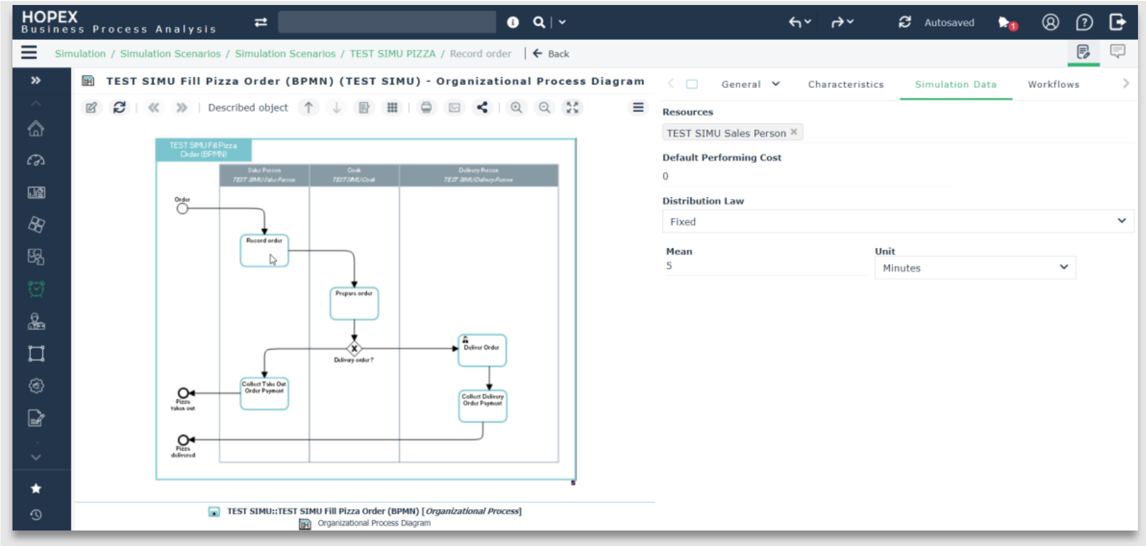
- Import process description and performance metrics from Process Mining tools
- Initialize simulation data (e.g., operations performing time and statistical distribution, use log as input distribution) based on Process Mining inputs
- Run what if simulation scenarios to assess improvement assumptions, and produce reports

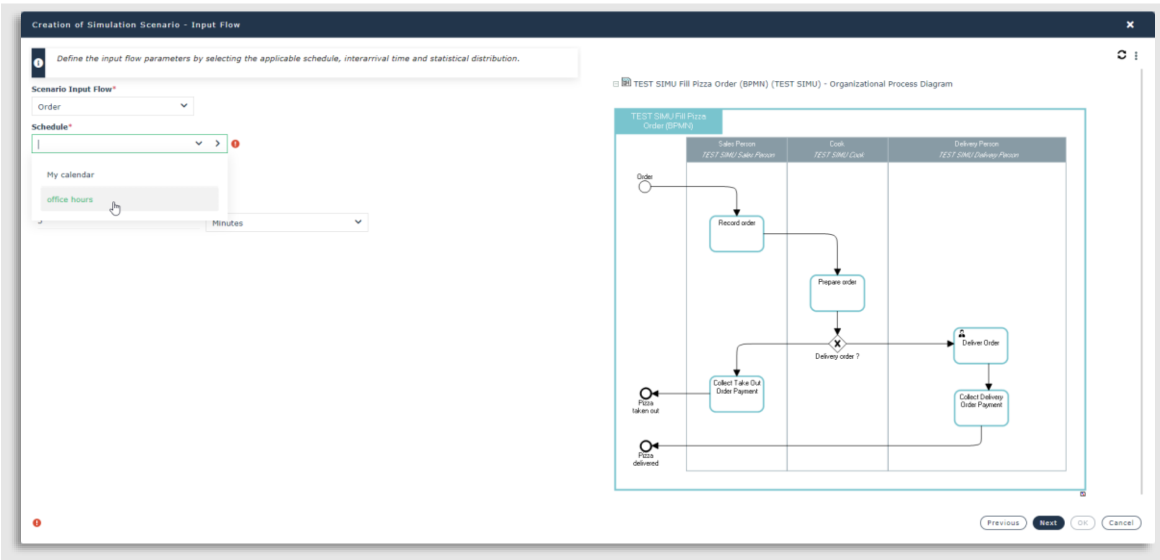
3.11.1. New Process Simulation feature

A new "what if?" process simulation feature is made available on top of HOPEX Business Process Analysis.

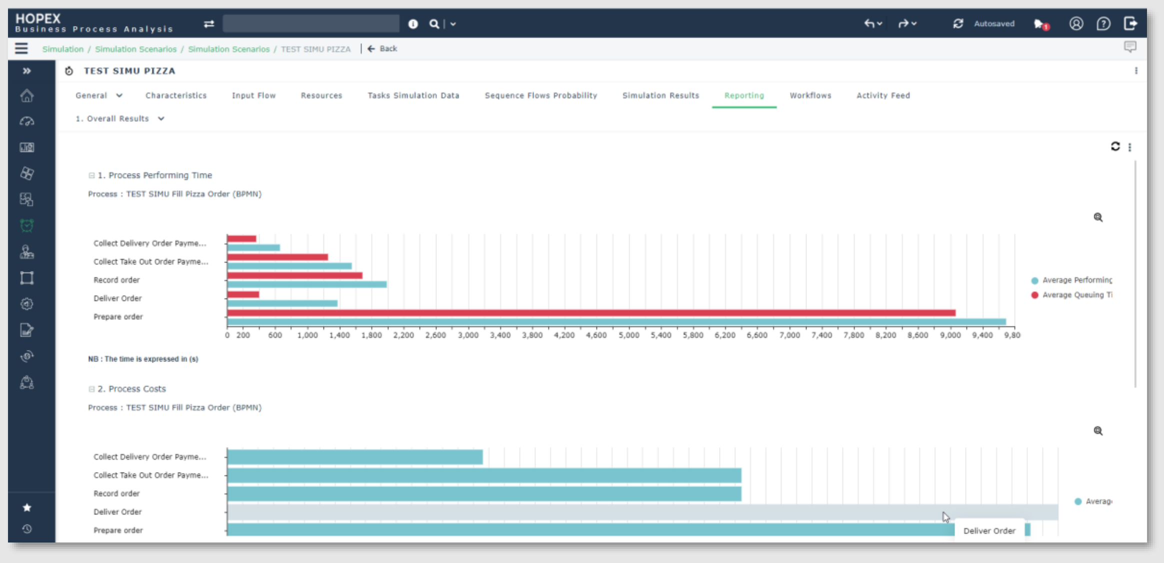
- Process Analysts can set-up Simulation Scenarios on top of process models thanks to a dedicated wizard:

- Assumptions like Input flow and tasks performing time can be captured according to typical statistical distributions or reversed based on Process Mining results
- Resources schedule & quantity can be defined as part of a scenario
- Cost analysis can be performed based on resources hour cost or tasks fixed cost



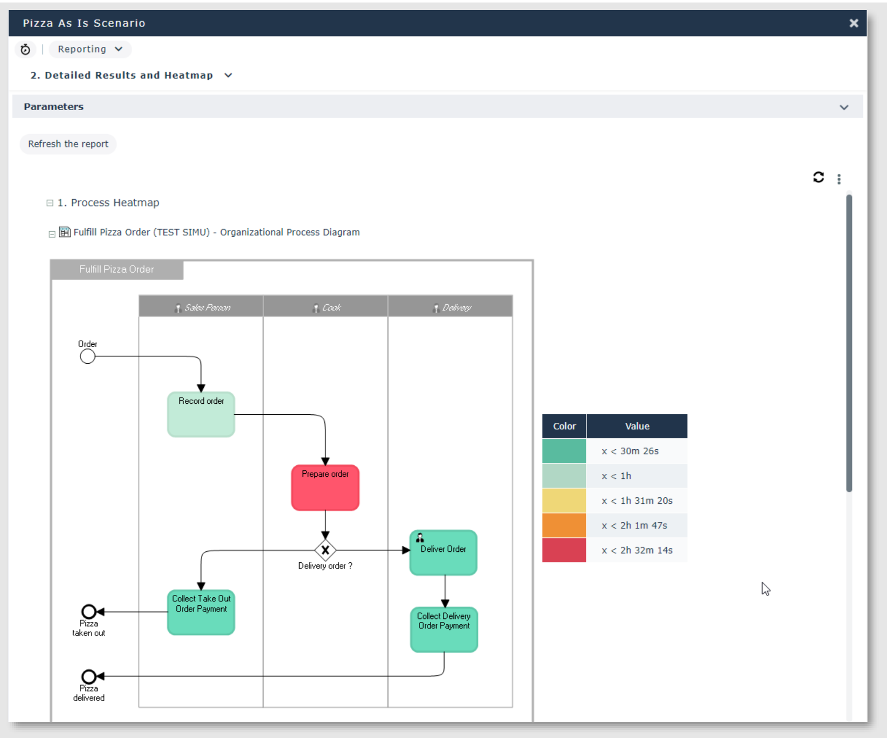


- Standard simulation results computation and reports:
  - Computation of average performing time and cost for processes and tasks
  - Computation of resources utilization workload to help identify bottlenecks

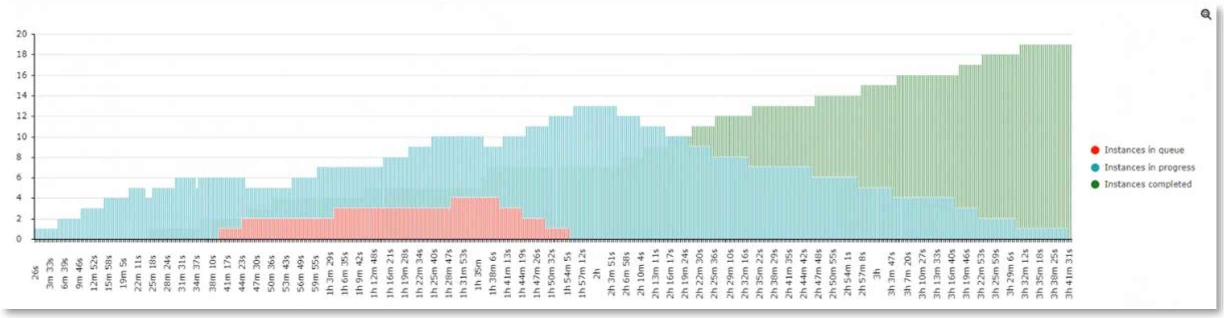


Standard reports are provided:

- Simulation scenario overall results report
- Simulation scenario detailed results & process heatmap report
    - User selectable indicator (performing time, waiting time, cost, utilization)
    - Process diagram heatmap, with color coding for one indicator
    - Tables with user friendly detailed figures presentation in "DD:HH:MM:SS" format



- Simulation load report: this report provides more insight on the overall or resource specific load over the simulation duration, leveraging on the simulation log output (mxml file)

- 

- Simulation scenarios comparison report
    - tables with scenarios A/B comparison and process comparison heatmap
- Simulation scenario and mining import comparison report

- *Note: the simulation engine is delivered as an HOPEX Store module*

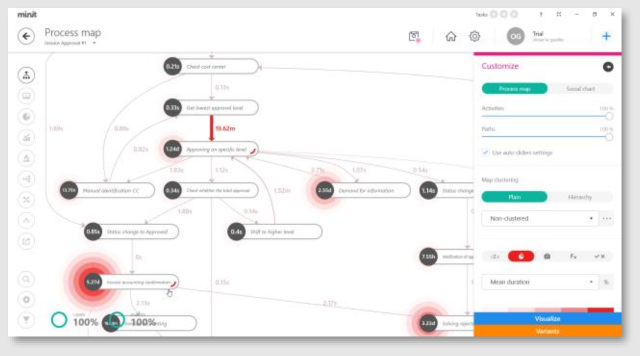
3.11.2. Process Mining Results Integration

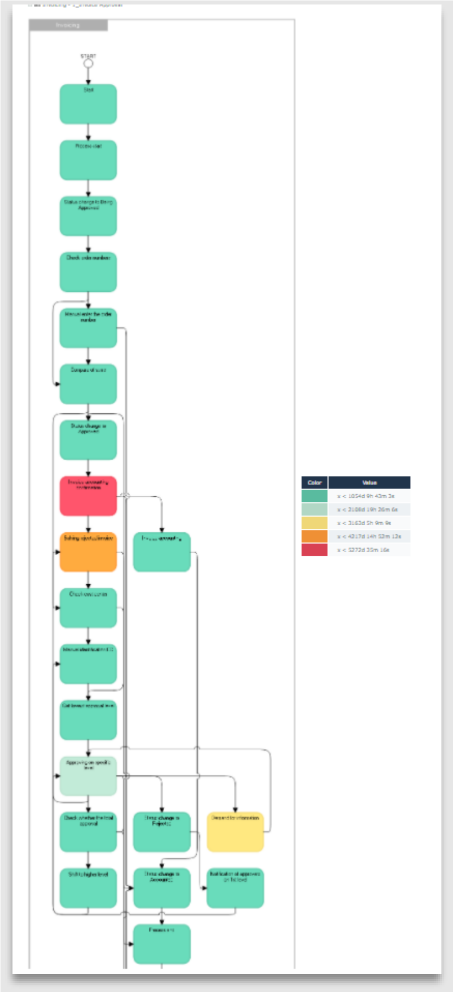
Process Discovery

- Improved ability to import BPMN process description from Process Mining tools and beautify layout using auto layout
- Conversely, the standard BPMN export can be used to perform Process Conformance analysis in Process Mining tools

Process Analysis

- New feature to import a Process Mining “Process Map” snapshot
    - Process Map and associated frequency and duration metrics (as .xml file) can be imported on top of the standard BPMN import which enables the process discovery itself.
- New Process Mining results reports showing these Process Mining metrics as heatmap and tables.





- The process conformance report (derived from the generic comparison report, see above) allows comparing processes
  - Including processes based on mining import (free name-based comparison: no duplication links are required between the processes)
  - Providing a conformance index computation, based on transitions between process tasks

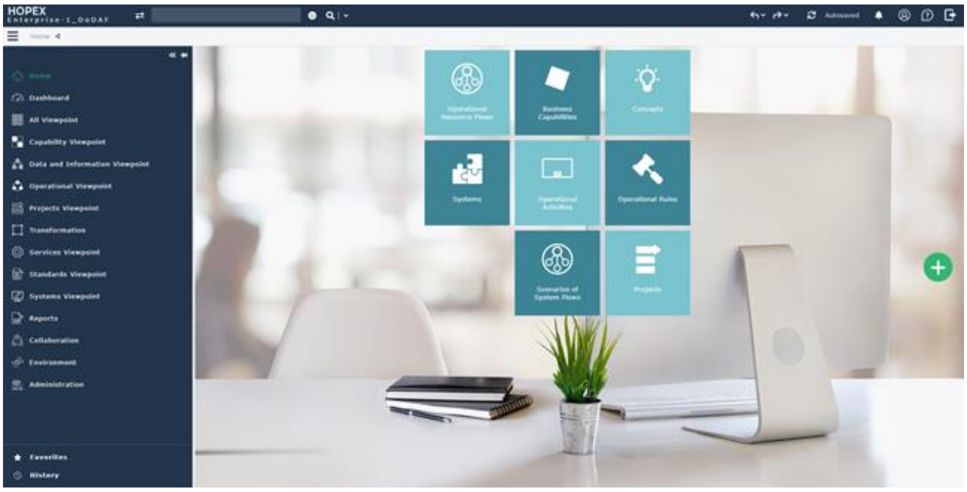
3.11.3. #CP4 Simulation feature improvements

- HOPEX IT Business Management "business functional areas" can now be used as resources in a simulation scenario
- Simulate with "infinite resources": a new option is available to override the resource definition from the model with a generic resource whose amount is set up to the highest possible value. This enables simulating the process regardless of the resources constraint to evaluate the best possible throughput time.
- Simulate process levels beyond level 2: this new option enables the process levels beyond level 2 (e.g. when a subprocess or called process breakdowns into its own subprocesses). The 'tasks' page then switches to a tree view enabling to easily reach the simulation data for the lower-level tasks.

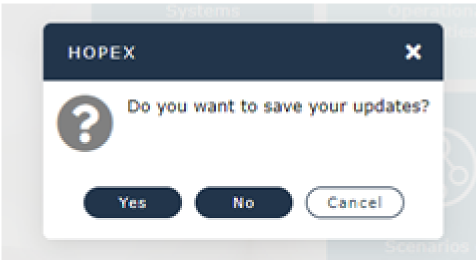
4. HOPEX DoDAF

4.1. Desktop

DoDAF desktop was improved to provide better user Interface and menu access to DoDAF viewpoints.

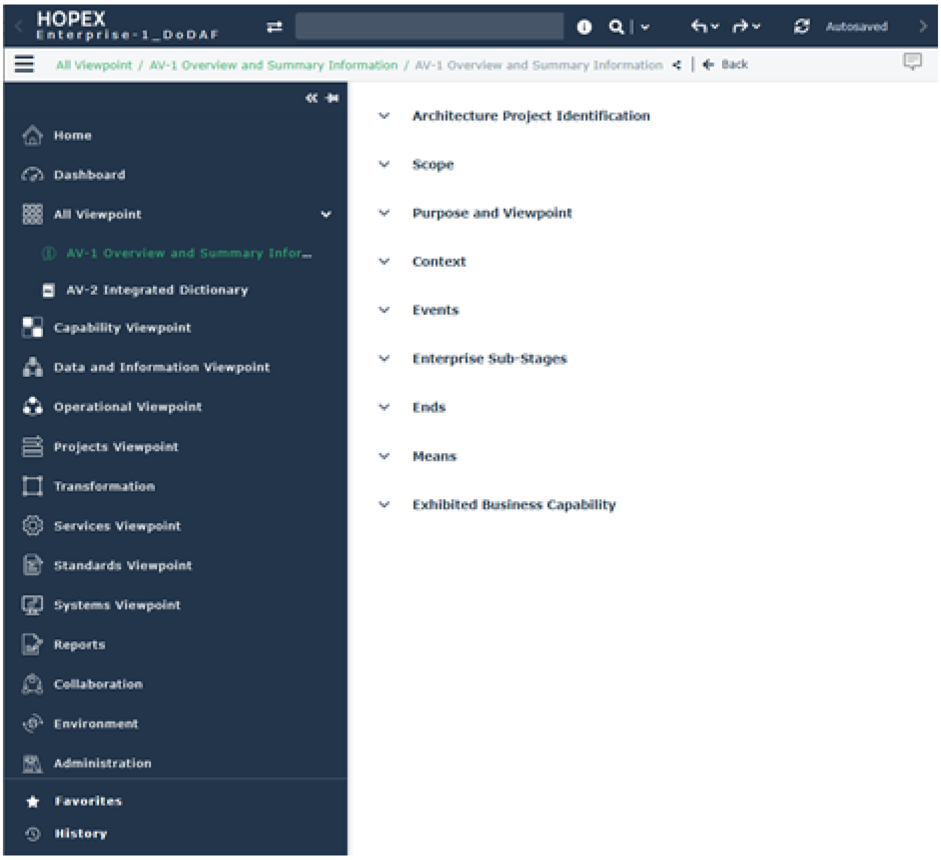


The user workspace is now changed to public mode. This means when the user closes an HOPEX session, he/she is prompted to choose whether to change his/her last workspace modifications.

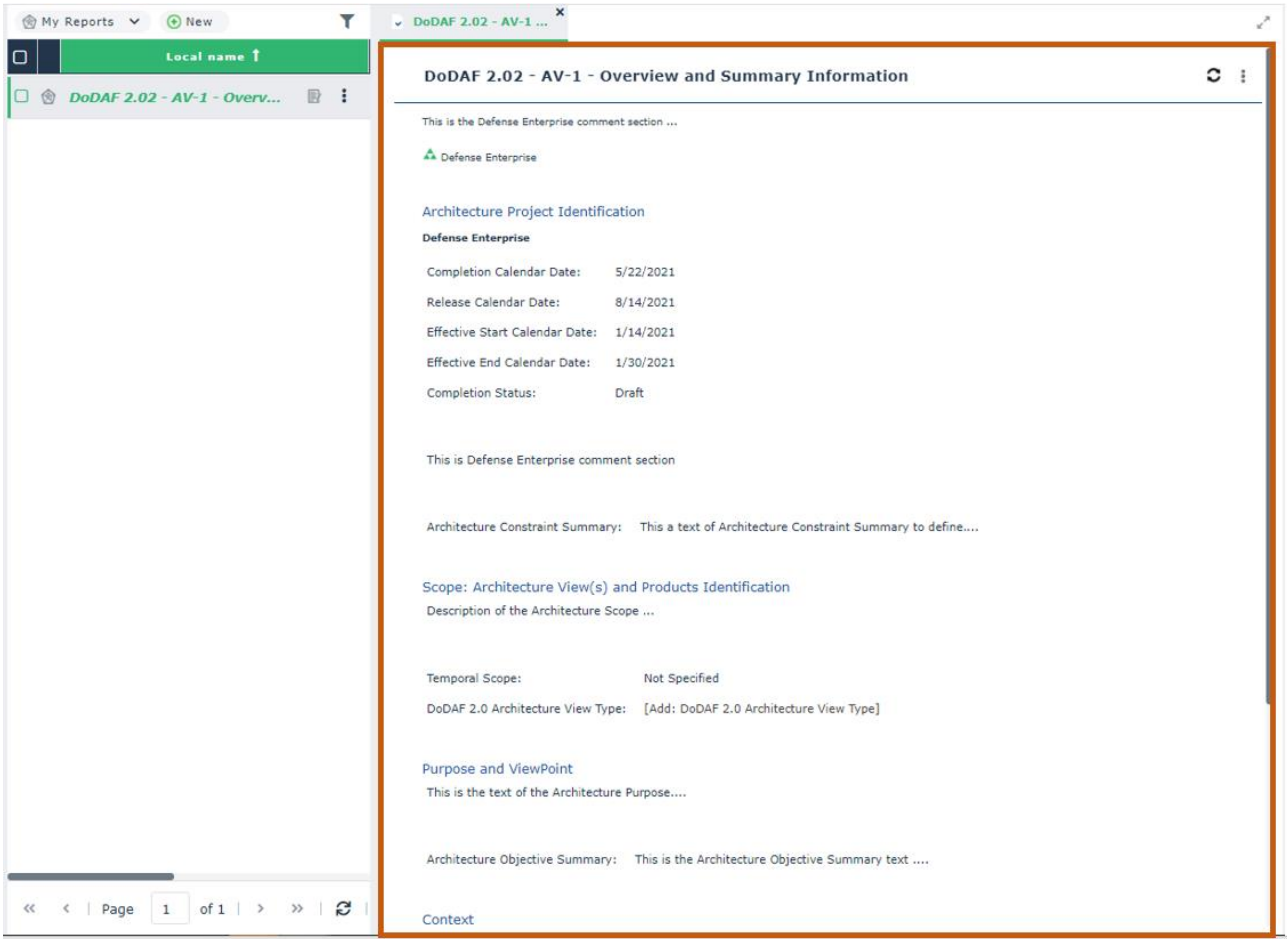


4.2. AV1 Improvement

Properties are added in different sections to describe the AV1 Overview and Summary Information viewpoint.



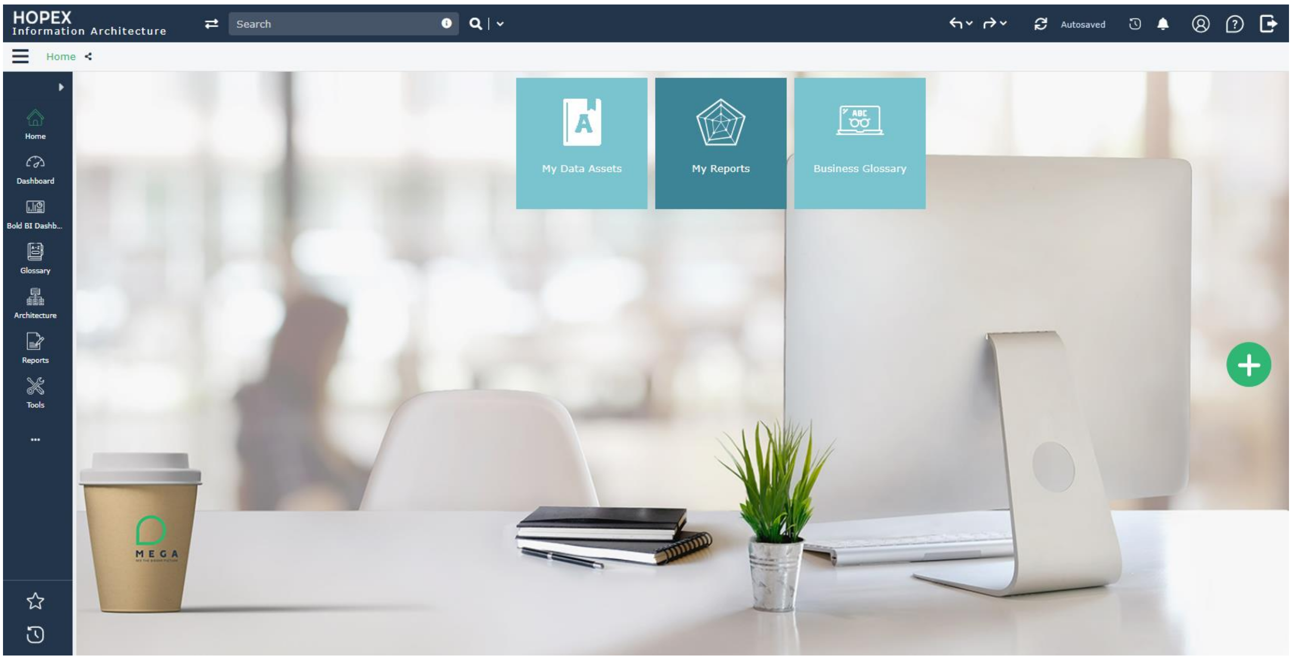
A sample report is available to show all the Architecture textual properties description of the AV1 viewpoint:



5. HOPEX Information Architecture

Information is a critical organizational asset and an essential resource for all business and IT leaders. It enables smarter decisions, provides the basis for new services and experiences for customers.

With HOPEX Information Architecture, you can build & design your Information, reverse and map your technical Data Assets, conduct Business Information Modeling with physical, logical & conceptual modeling, plan company's business information assets in accordance with your Information Strategy, automatically initialize and refine a single version of truth with your Business Glossary.



Since CP 3 improvements have been made to simplify the ergonomics and use of the product. A new glossary content search tool has been implemented to access definitions of business terms and their properties.

Also, the pictures and icons of conceptual objects have been improved.

5.1. Profiles

Profiles to connect and use HOPEX Information Architecture desktop have been simplified for easier administration.

Only the following products exist:

Data Architect

This profile enables access to all menus to define Business Glossary or to design data and database.

Old Profile(s)	Transformed to profile
Business Information Architect	**Data Architect**
Database architect	
Database Administrator	

Data Asset Manager

Data Asset Manager is no longer provided for Information Architecture Solution. It is only used in Data Governance Solution.

The existing assignment with this profile can not be done automatically by default. The use data used this profile in HOPEX Information Architecture Solution in V4 CP xx version and want now to use the V5 version, must decide starting the specific conversion of this profile on HOPEX Administration conversions panel.

Data Functional Administrator

IA Functional Administrator is renamed to Data Functional Administrator.

Old Profile(s)	Transformed to profile
IA Functional Administrator	**Data Functional Administrator**

A conversion process is available to transform profile assignation from old profile(s) to the Data Architect profile.

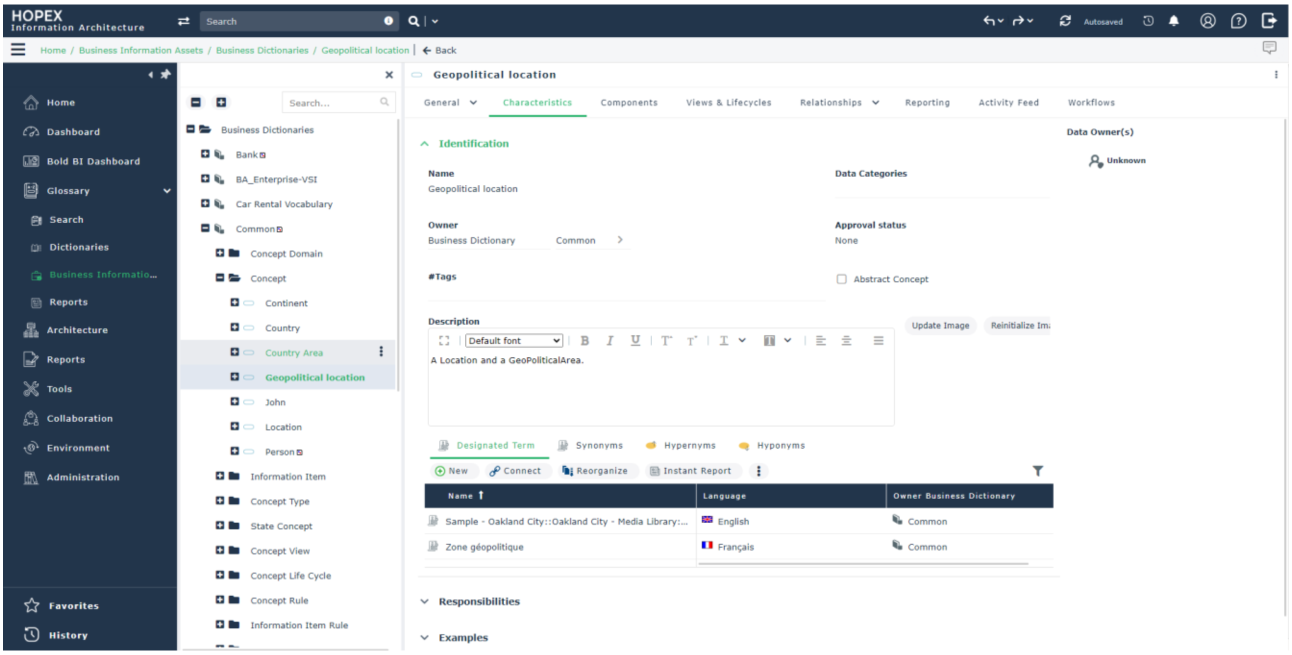
5.2. Renaming

See "***Renaming object type***" in Data Governance Chapter.

5.3. Desktop

HOPEX Information Architecture Desktop is improved and simplified for a better user experience.

We provide now direct links for the definition of terms, concepts, and related domains *(example below for the business glossary).*



To make business glossary easy to use, a new alphabetical navigation is provided to search term definitions and their usage context.

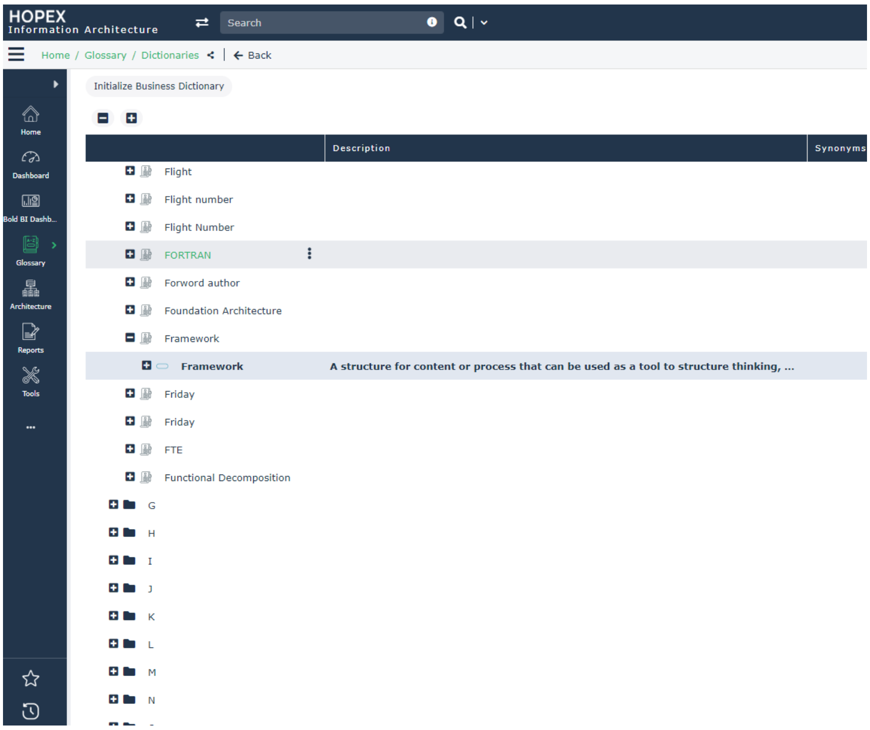
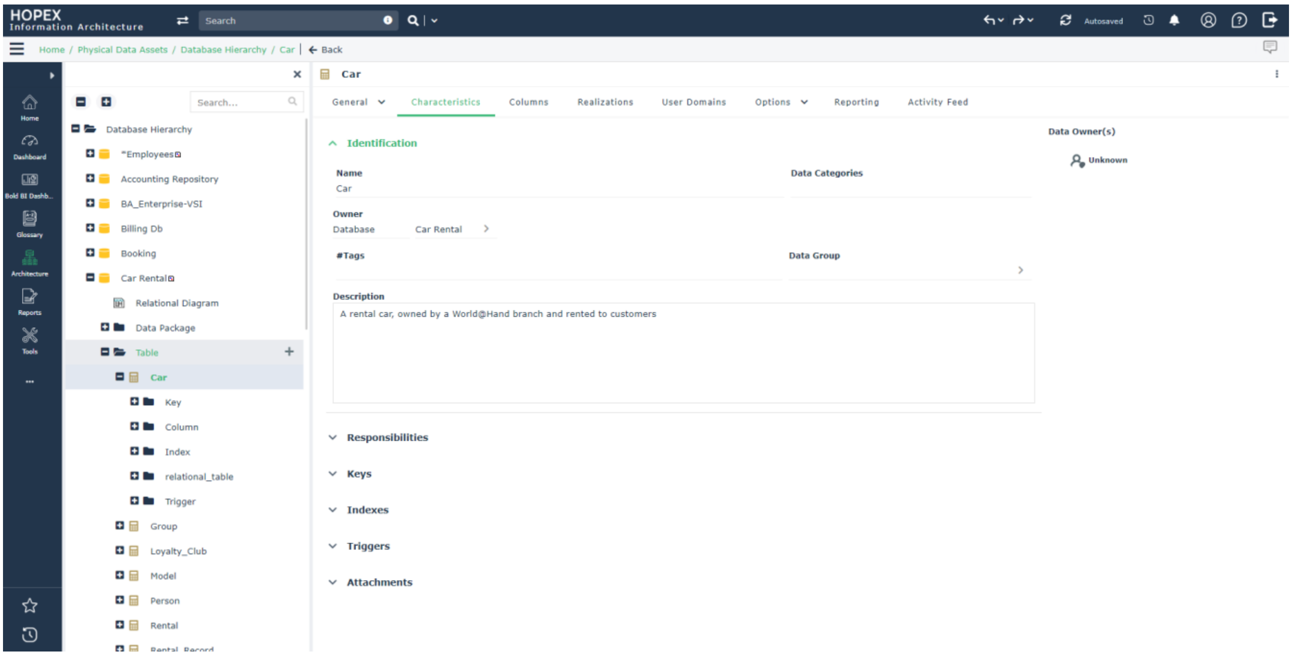
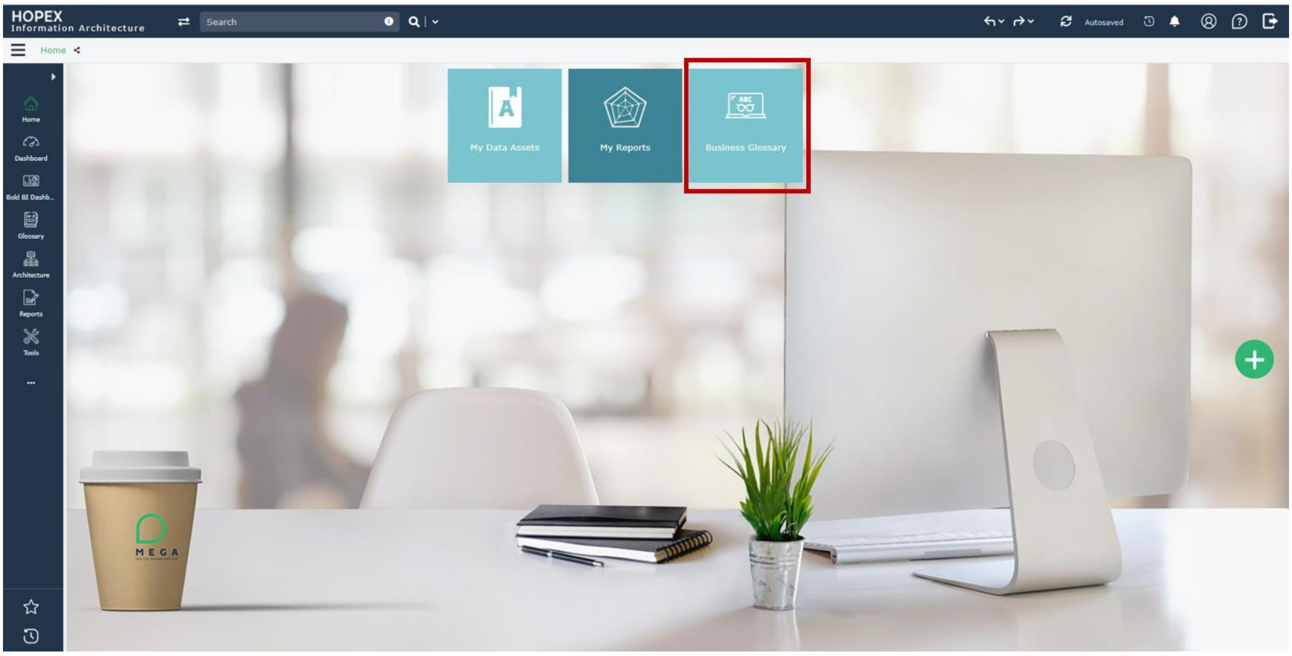


Table property pages are improved to present columns, keys, indexes, and triggers in the same panel.

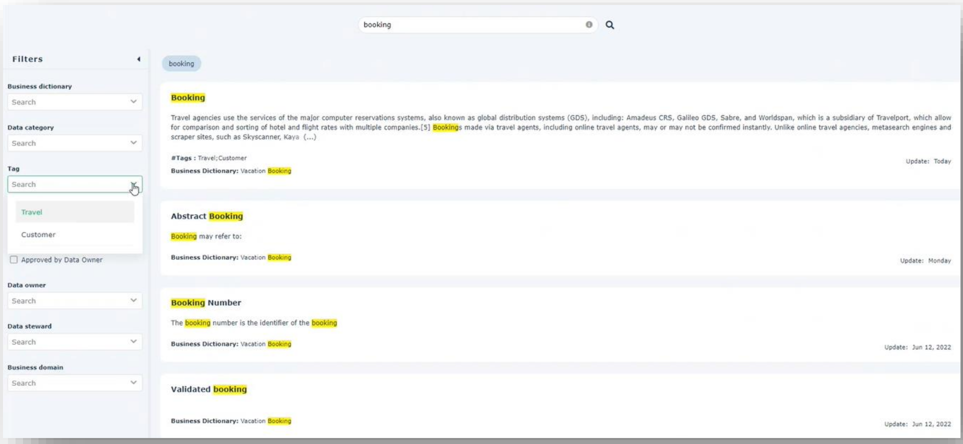


5.4. Business Glossary Search

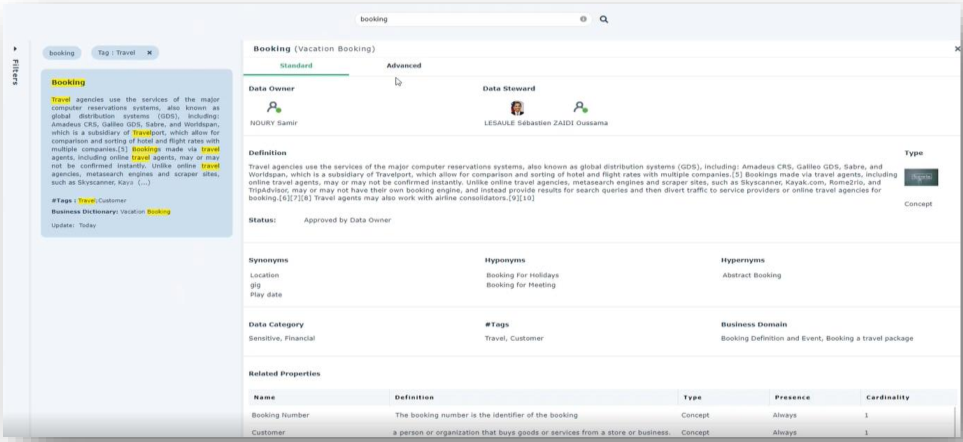
A new glossary tool is provided to search for definitions of business terms and their properties. It is accessible from the tile directly from the home page.



It is possible to apply filters to reduce the search result.



Select the adequate definition and visualize all other properties and descriptions



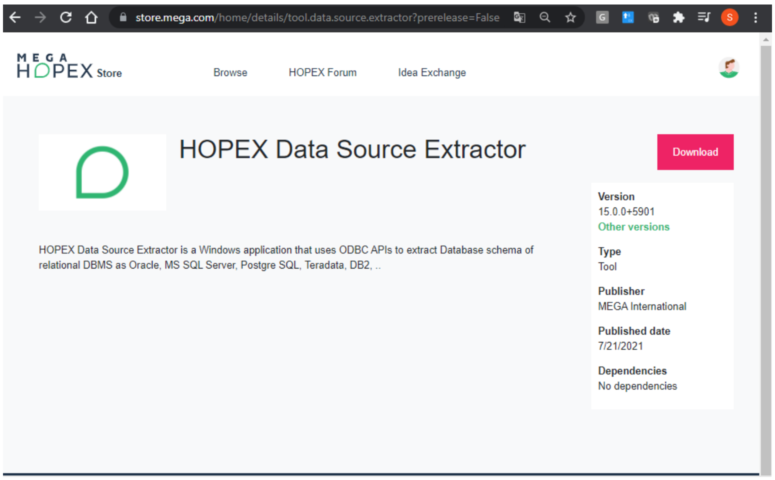
5.5. Improved Pictures

See "***Improved pictures***" in Data Governance Chapter.

5.6. HOPEX Data Extractor

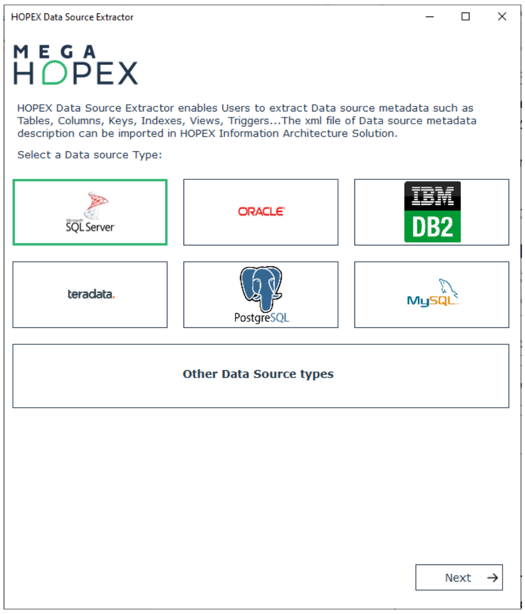
HOPEX Data Extractor tool is renamed "**HOPEX Data Source Extractor**". This tool is now available both in 32 and in 64-bits version, to allow the use of 64-bits drivers and ODBC Data Sources.

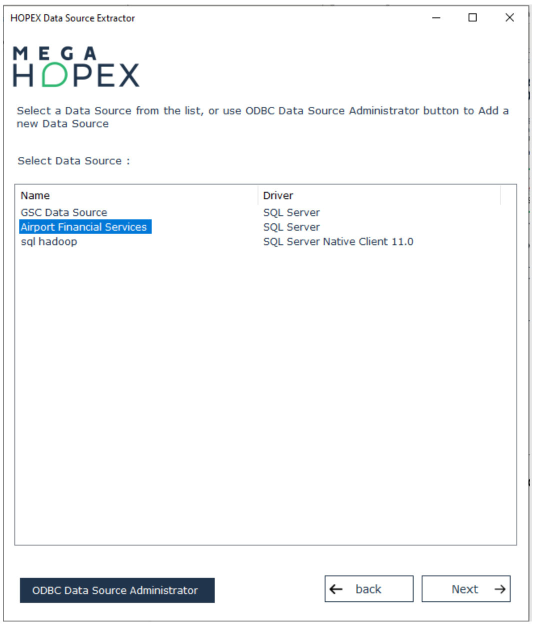
HOPEX Data Source Extractor can be downloaded from HOPEX Store in the "Utilities tools" section.

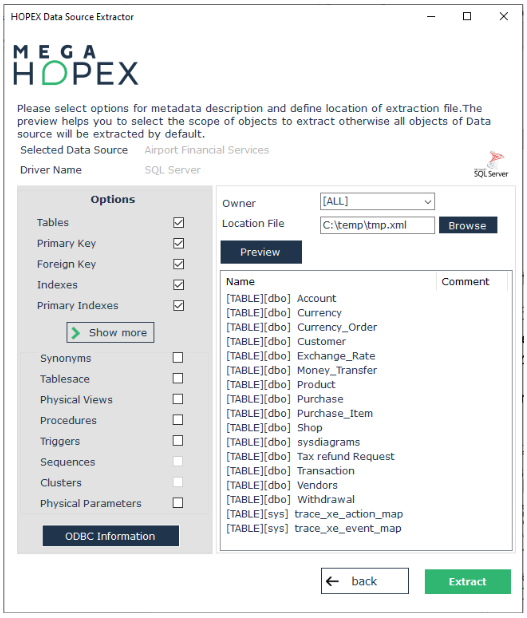


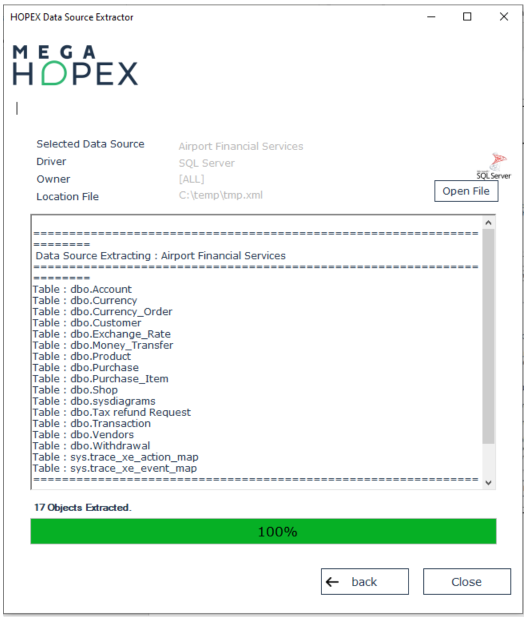
Both tool versions, 32 and 64-bits, are available from GitHub.

The User Interface of the new versions are improved to help Data user to extract DBMS schema definition easily.









The user can easily select Data sources from regular DBMS such as SQL Server, Oracle, DB2, Teradata, Postgres, MySQL and more.

Once connected to the data source, the user can choose among the options list which are the properties describing the metadata of the schema to be extracted.

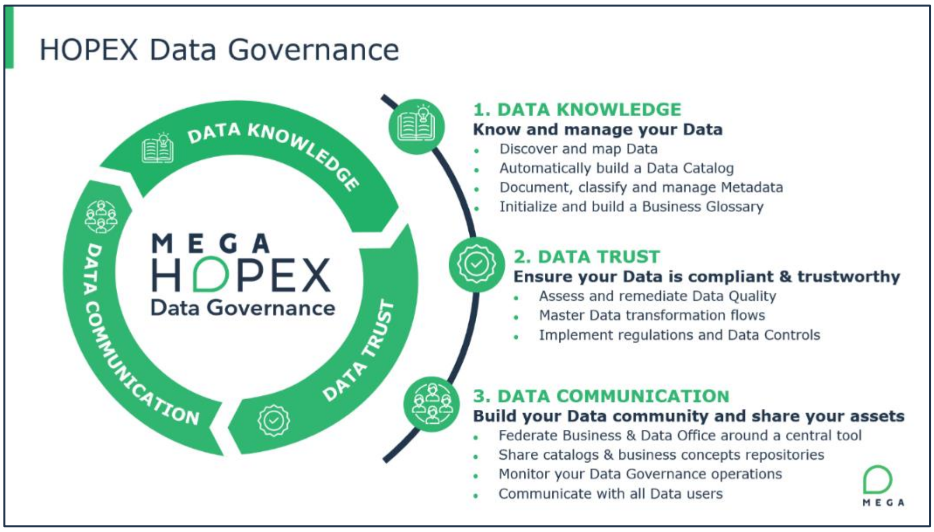
The extraction file can be imported from HOPEX Information Architecture web desktop to create physical Data assets as tables, columns, keys…

Figure 3 - Steps for a Business Data Governance
Figure 4 - Data Discovery module and connectors

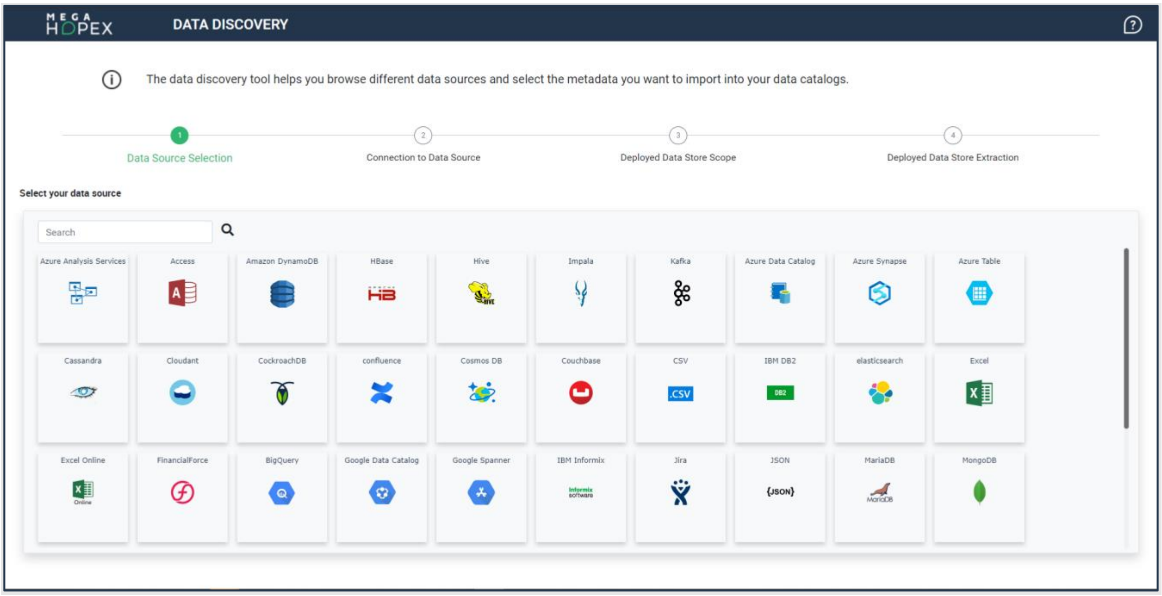
6. HOPEX Data Governance

In the digital world we live in, managing data as a strategic asset is imperative to support business transformation and build innovative business models.

We introduce in HOPEX V5 a new HOPEX Data Governance solution to help Chief Data Officers and the Data Office to understand how data is captured, used and transformed.



The solution easily connects to multiple data sources thanks to data discovery and out-of-the-box connectors to quickly build data repositories.



HOPEX Data Governance supports all data stakeholder missions (data knowledge, quality, compliance…) and benefits from synergies with EA, BPM and GRC to understand how data is managed and exchanged between applications, how it is used in business processes and how to ensure data compliance leveraging HOPEX functionalities.

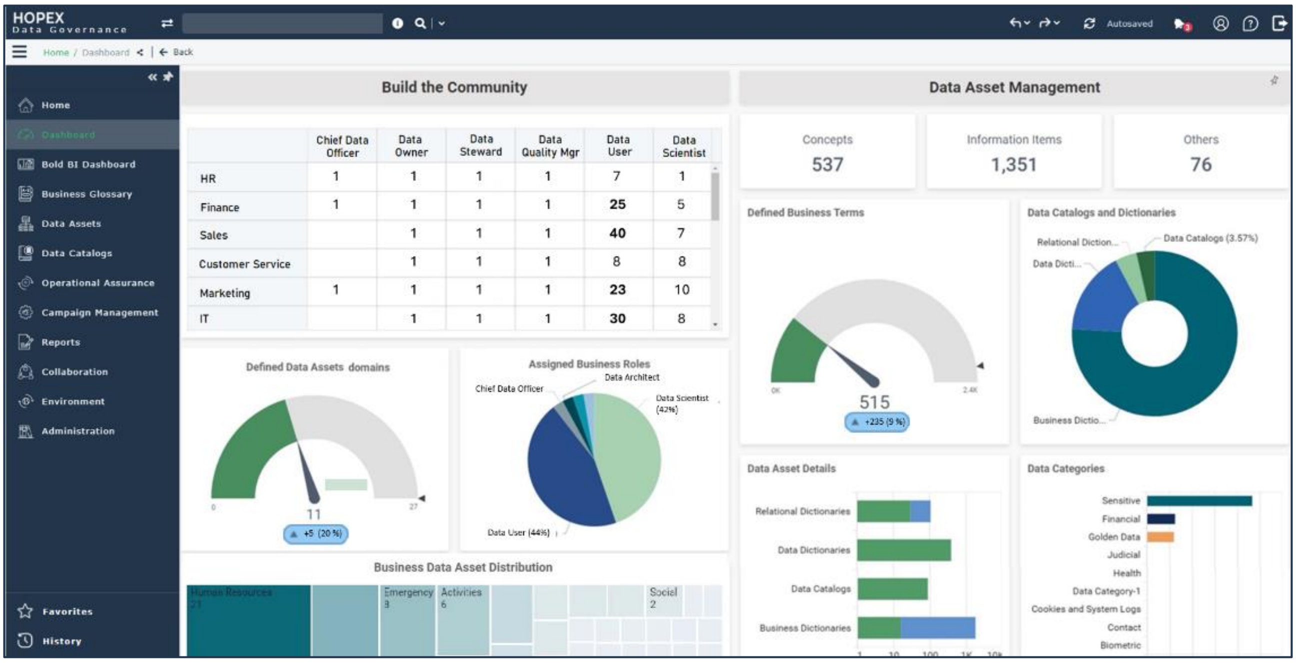


Figure 5 - HOPEX Chief Data Officer dashboard

HOPEX Data Governance includes all features of HOPEX Information Architecture plus many new modules and functionalities needed to perform Data Governance.

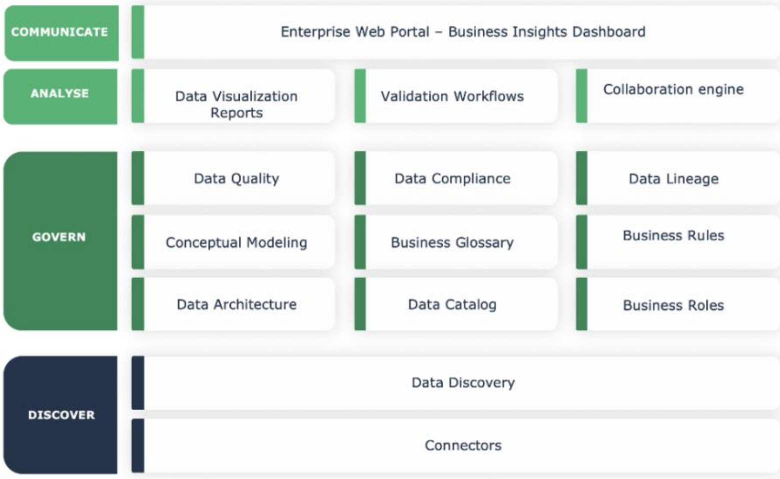


Figure 6 - HOPEX Data Governance functional coverage

6.1. Profiles

These profiles are available in HOPEX Data Governance:

Data Asset manager

This profile has access to these menus: Data Discovery, Data Catalog, Business Glossary, Data Assurance, Data Compliance, Data Reports & Dashboards, except administration functionalities.

Data Architect

This profile enables access to all menus to define Business Glossary or to design data and database.

Data Functional Administrator

This profile has full rights for managing all administrative tasks.

6.2. Renaming

The following object and Diagram types are renamed in HOPEX Data Governance

Renamed Object types

Previous naming		New naming	
EN	FR	EN	FR
Metadata Inventory	Inventaire de métadonnée	Deployed Data Store	Dépôt de données déployé
Business Information Area	Domaine de données métier	Concepts Domain	Domaine de concepts
Business Information Map	Carte de domaine métier	Concept Domain Map	Carte des domaines de concepts
Logical Data Area	Domaine de données logique	Logical Data Domain	Domaine de données logique
Application Data Domain	Domaine de données applicatif	Data domain	Domaine de données
Relational Area	Domain Relationnel	Relational Schema	Schéma relationnel
Information Item	Elément d'information	Concept Property	Propriété de concept
Information Item Component	Composant d'Information de Concept	Concept Property Component	Composant de propriété de concept
Concept Information Item	Elément d'information de concept	Sub-Property	Sous-propriété
Computed Concept Information Item	Elément d'information de concept calculé	Computed Sub-Property	Sous-propriété calculée
Information Item Rule	Règle d'élément d'information	Concept Property Rule	Règle de propriété de concept
Information Item Input Parameter	Paramètre d'entrée d'élément d'information	Concept Property Input Parameter	Paramètre d'entrée de propriété de concept
Information Item Rule Parameter	Paramètre de règle d'élément d'information	Concept Property Rule Parameter	Paramètre de règle de propriété de concept
Information Item Rule Output Parameter	Paramètre de sortie de la règle d'élément d'information	Concept Property Rule Output Parameter	Paramètre de sortie de la règle de propriété de concept

Renamed Diagram types

Previous naming		New naming	
EN	FR	EN	FR
Business Information Area Concept Diagram	Diagramme de concepts du domaine d'information métier	Concepts Domain Diagram	Diagramme du domaine des concepts

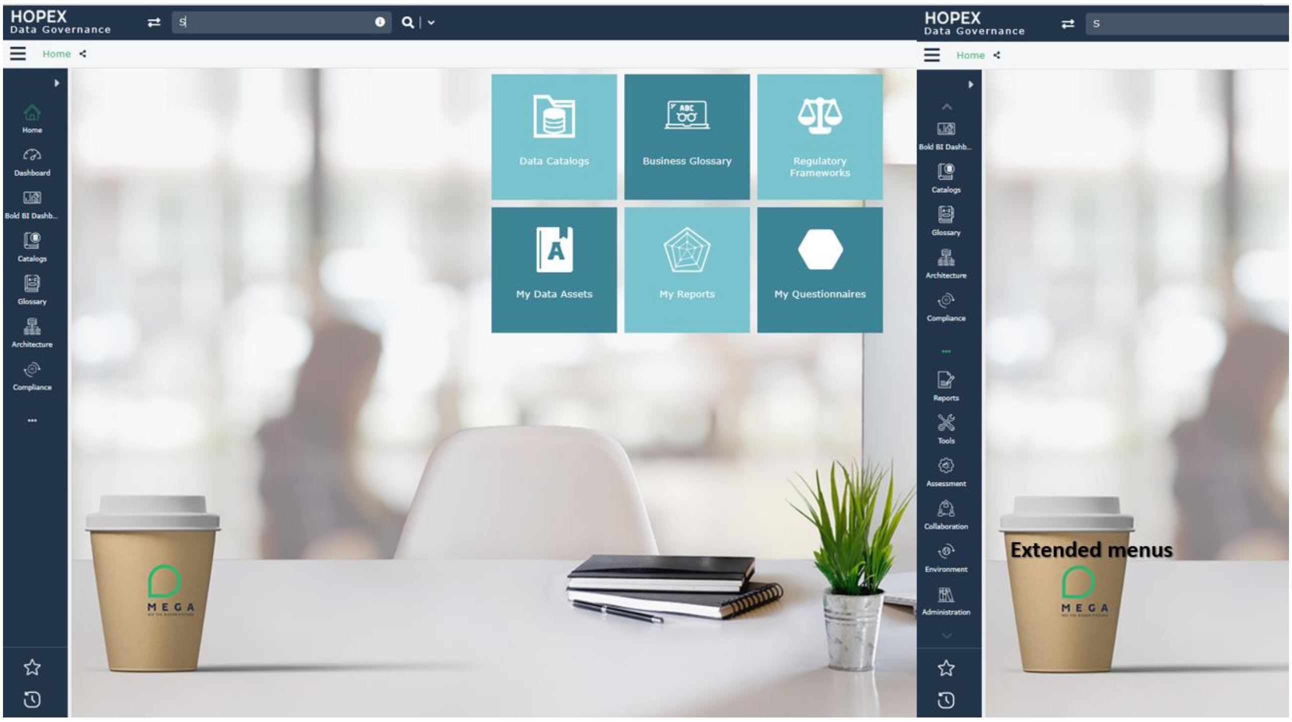
Figure 7 - Simple and direct feature access on user desktop and extended menus

Business Information Area Structure Diagram	Diagramme de structure de domaine d'informations métier	Concepts Domain Structure Diagram	Diagramme de structure de domaine des concepts
Data Area Entity Diagram	Diagramme de domaine de données	Data Domain Entity Diagram	Diagramme de domaine de données
Logical Data Area Diagram	Diagramme de domaine de données logiques	Logical Data Domain Diagram	Diagramme de domaine de données logiques

Figure 8 – Extended menus

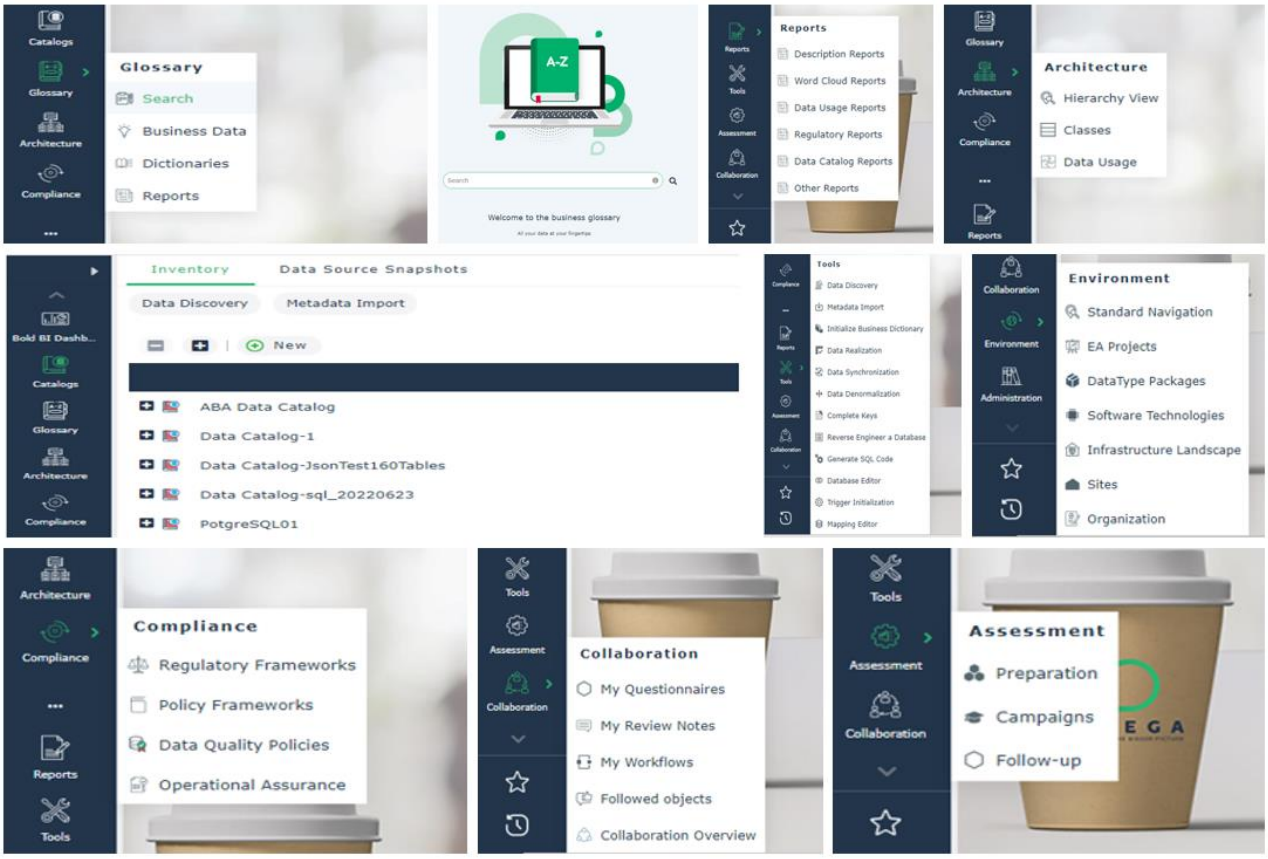
6.3. Desktop

HOPEX Data Governance has a simple and easy to use desktop with shortcuts (tiles).



You can quickly perform Business Glossary, Data Assets, Data Catalog management works and Data Compliance to manage regulatory constraints, Directives, Controls and Data Quality Policies.

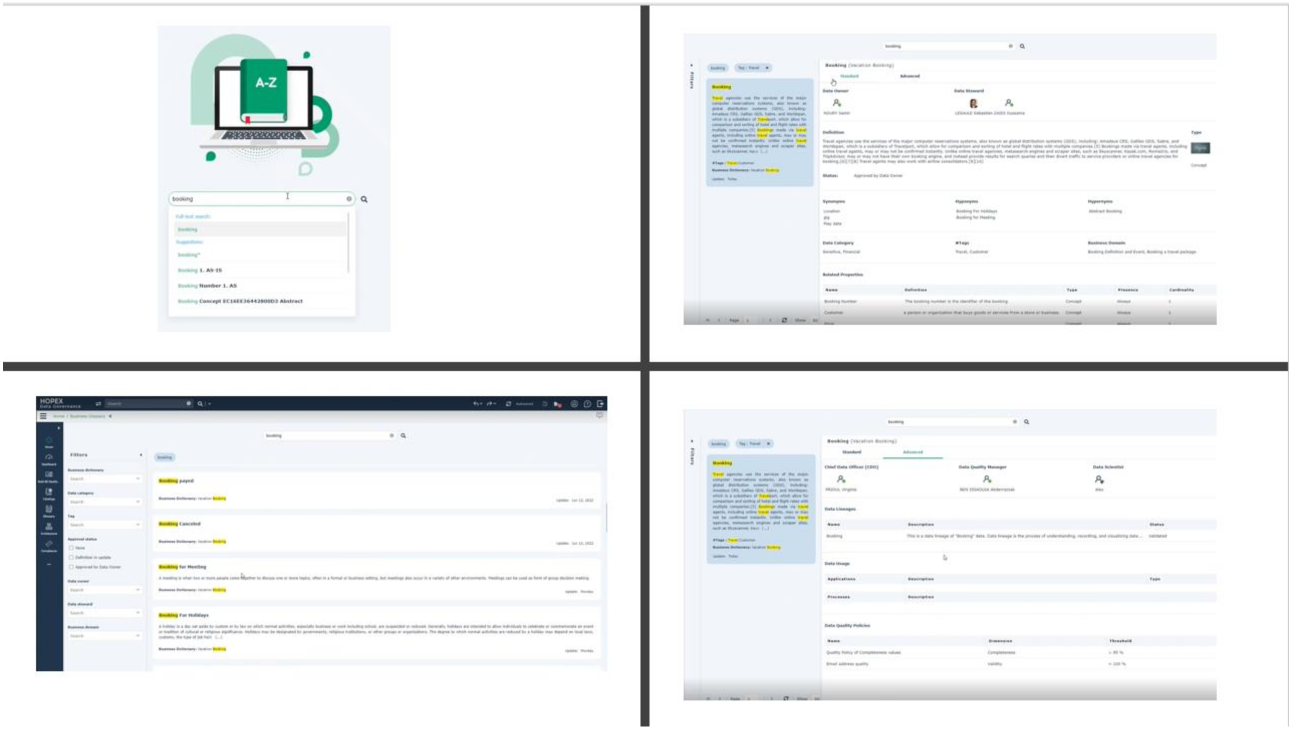
The following figure represents a big picture of functionalities and tools that can be accessible from menus



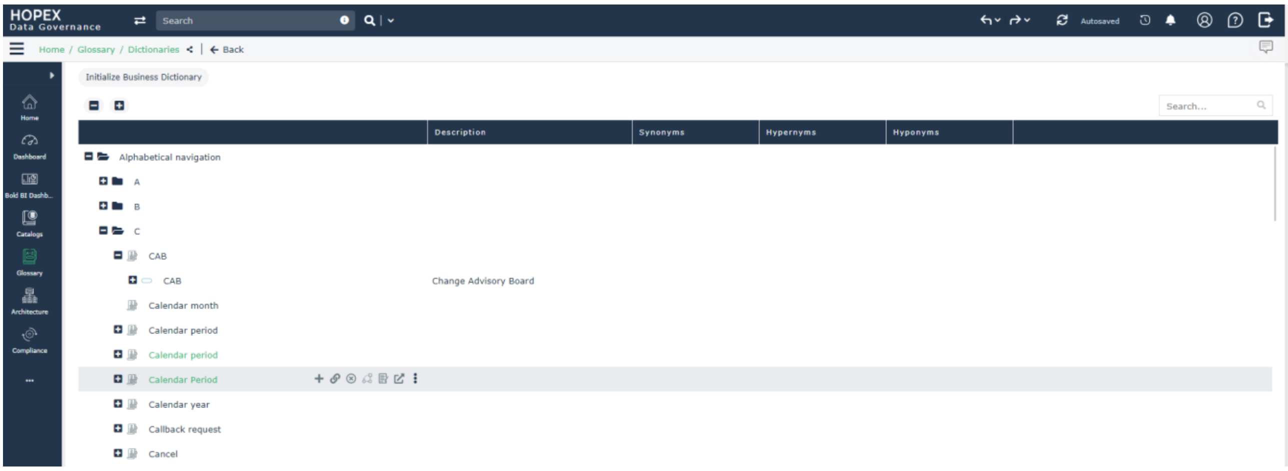
6.4. Business Glossary

6.4.1. Glossary search

Business Glossary is available from business term search tool.



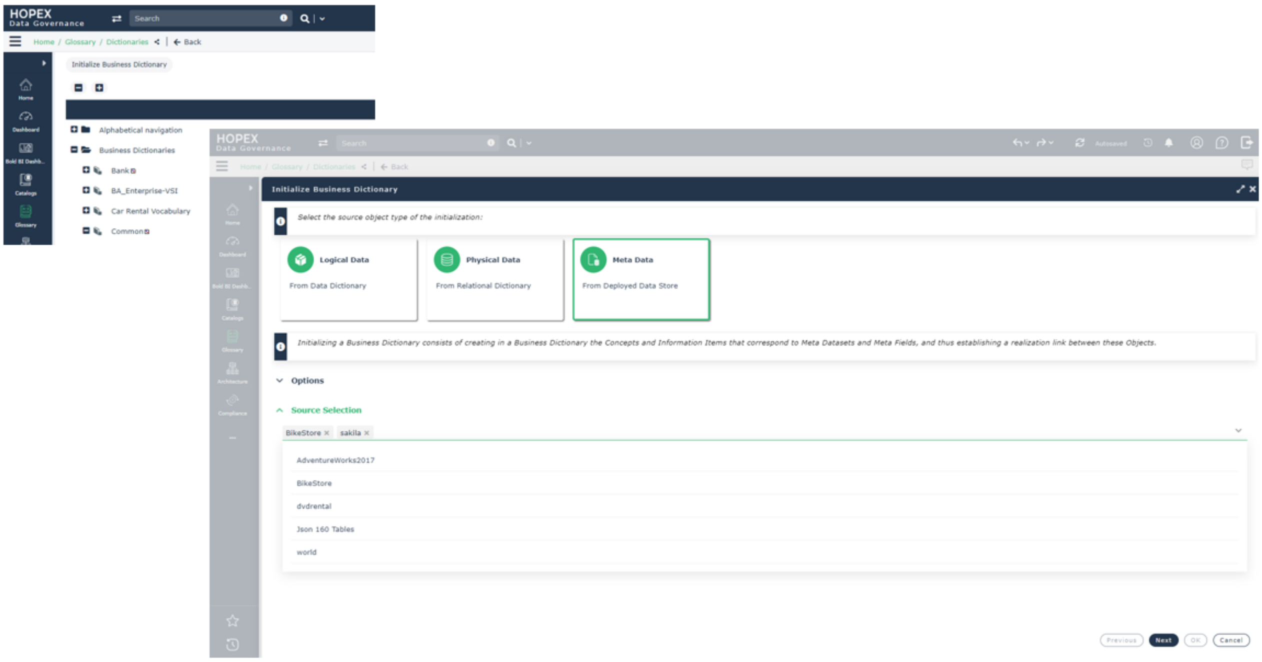
Business Terms alphabetical tree in Glossary menu helps to navigate on term definitions and properties.



6.5. Business Glossary Initialization

Discovered data assets as meta dataset, meta field, metadata inventory can be used to initialize Business Information and to build the Business Glossary.

In the Dictionaries sub menu of Glossary or from tools menu, you have access to "Initialize Business Dictionary" tool.



Initialization tool enable to select the data sources objects that can be physical or logical.

The created business Information is made available in a new Business Dictionary, created from the selected metadata inventory. Data User can provide additional Term definition & Images to enrich each concept to build and share a Business Glossary.

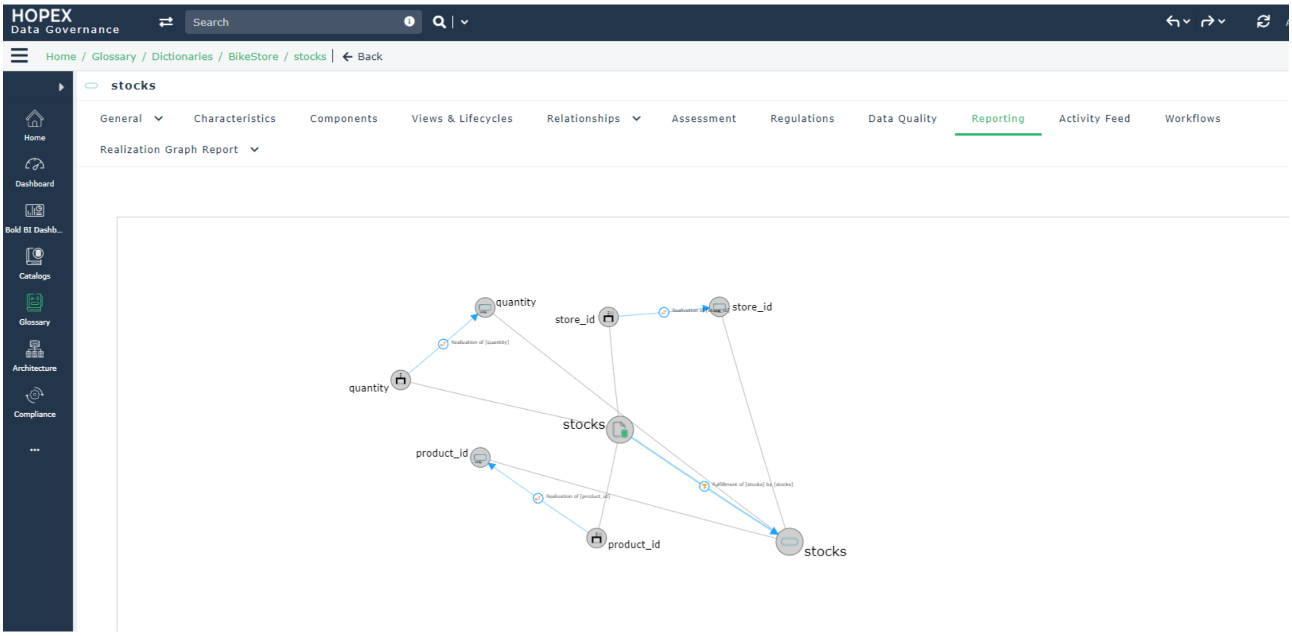
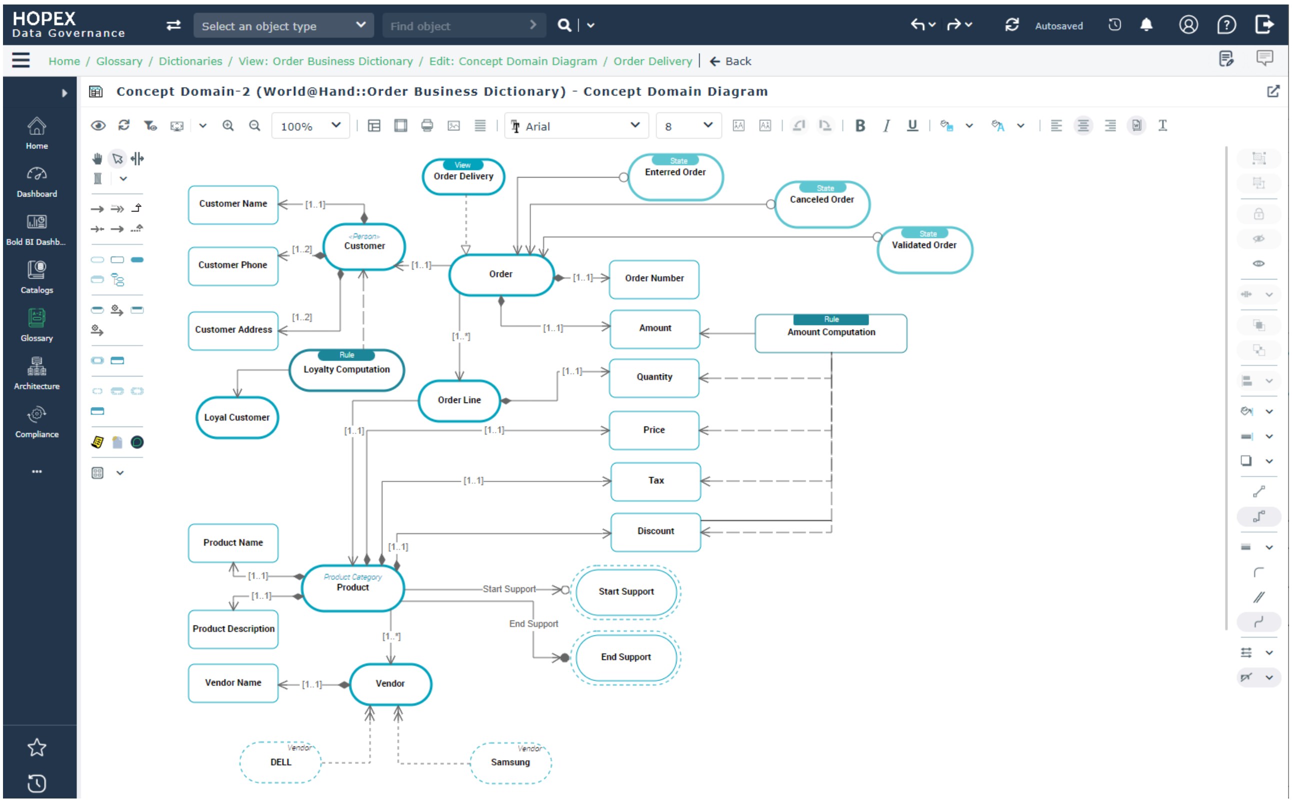


Figure 8 - Created Business Dictionary with navigation links from meta datasets to concepts

6.6. Improved pictures

Pictures and icons of Business information are improved.

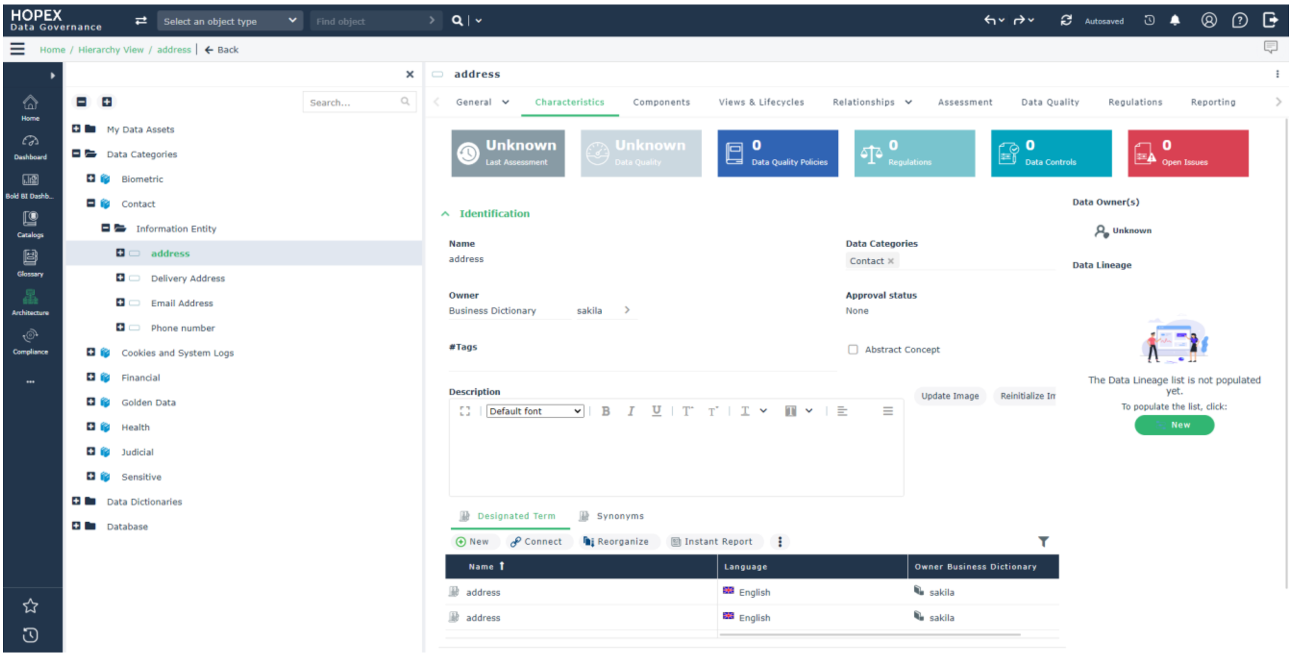


6.7. Data Architecture

In addition to logical data (data dictionary, data domain, classes) ... and physical data (database, column tables...), the Data Architecture menu provides access to the inventories of systems (applications, application systems) and Processes.

The hierarchy view enables to navigate on objects from their containers.

A new navigation root, based on Data categories, helps the Data Asset Manager to access all the objects from a specific and same classification.



6.8. Data Catalog

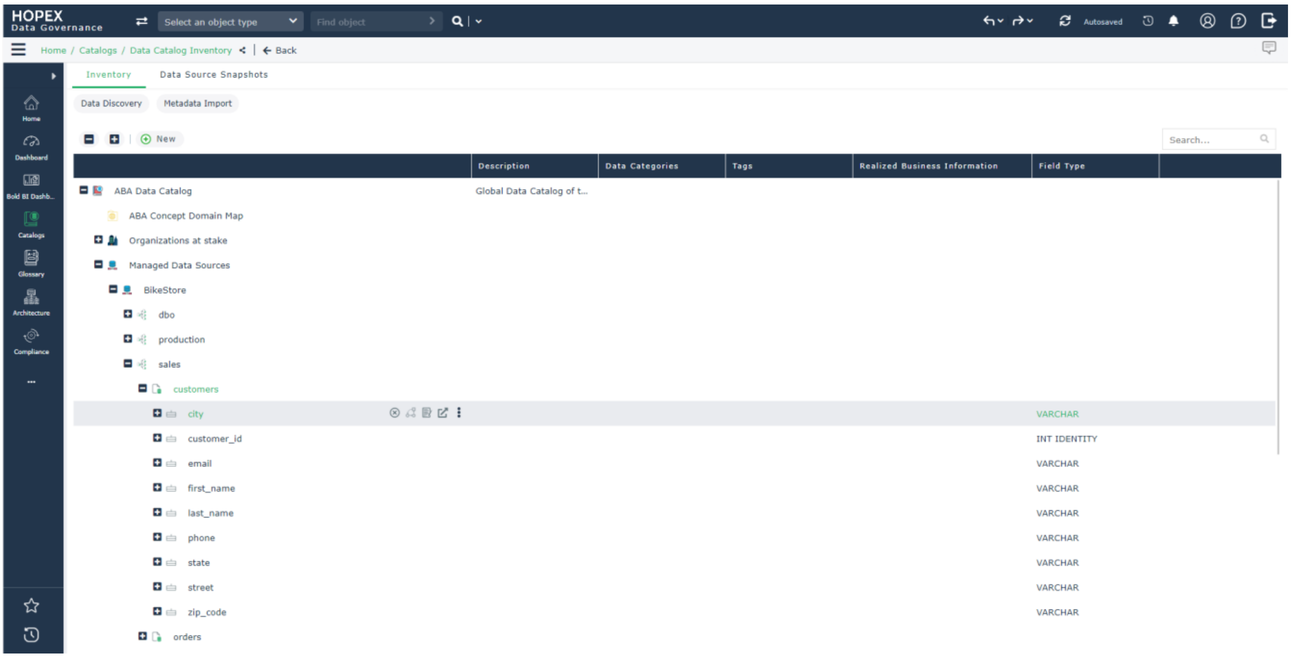
Data Catalog functionality is a central Data Governance tool to help all the Data Community members in Data understanding and managing regulatory compliance and data quality.

Chief Data Officers, Data steward, Data architect, Data scientist and all Data users to define and manage information on the data.

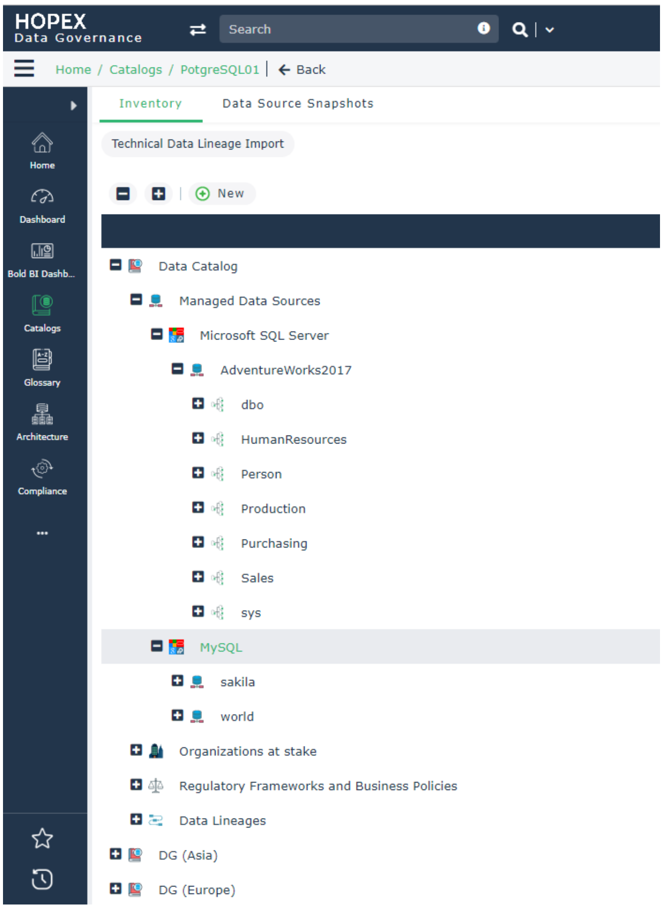
This data contained in Data sources as SQL databases, NoSQL databases or files, are metadata such as the structure, quality, definition and use of data are easily accessible for several data consumers.

One or more data catalogs can be created to manage specific metadata scopes for specific organizations, to achieve quantitative and qualitative goals and compliance purposes for targeted regulatory and Business policies.

A dedicated menu "Data Catalog" is available in the HOPEX Data Governance desktop. It enables access to Data Catalog inventory, Dashboard, Data Discovery tool, and metadata management.

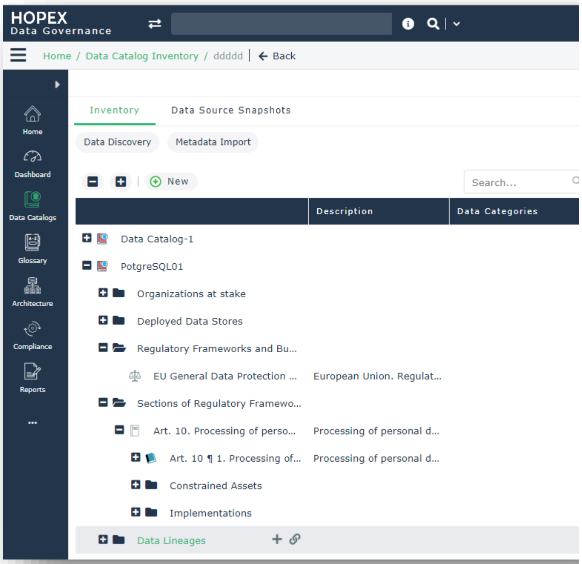


From #CP4 the Data Catalog hierarchy view displays managed Data sources grouped by their software technologies (Oracle, SQL Server, CSV, Postgres, MongoDB, ….)

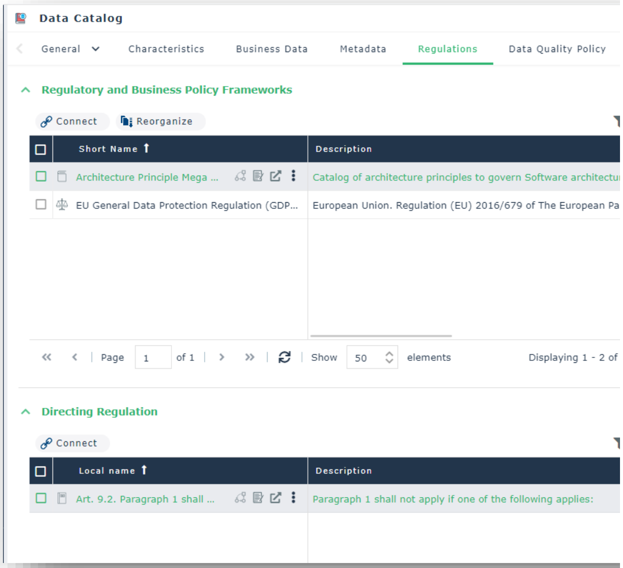


In this hierarchy view, the folder of "Sections of Regulatory Framework" is moved as panel in the property box of Data Catalog.

Until #CP3



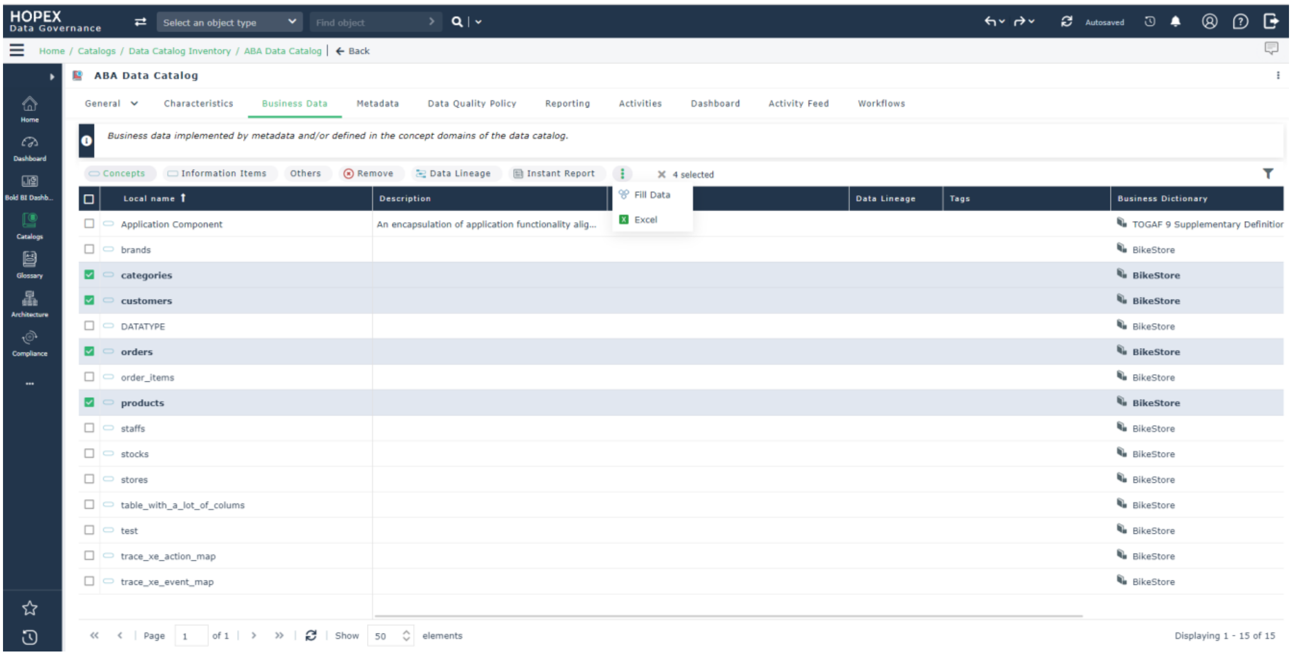
From #CP4



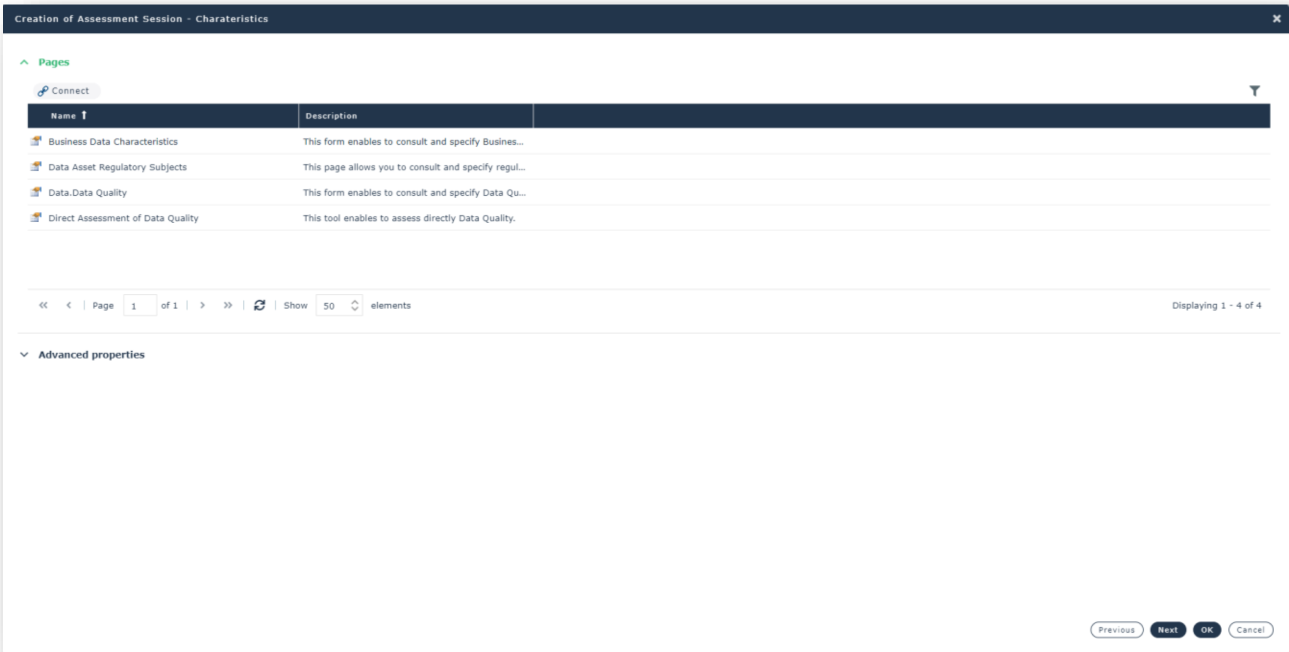
After populating the data catalog via discovery and initializing the business objects, it is possible to specify the Responsible assignment (data owner) of these objects or their business dictionaries or the business domains that use them.

A new tool **"Fill Data"** is available from the inventory of business objects referenced by the Data Catalog.

This tool allows to create a session to ask all the managers of the selected objects to complete their definition, describe their properties, their quality policies, to manage regulatory compliance, and assess their quality for example.

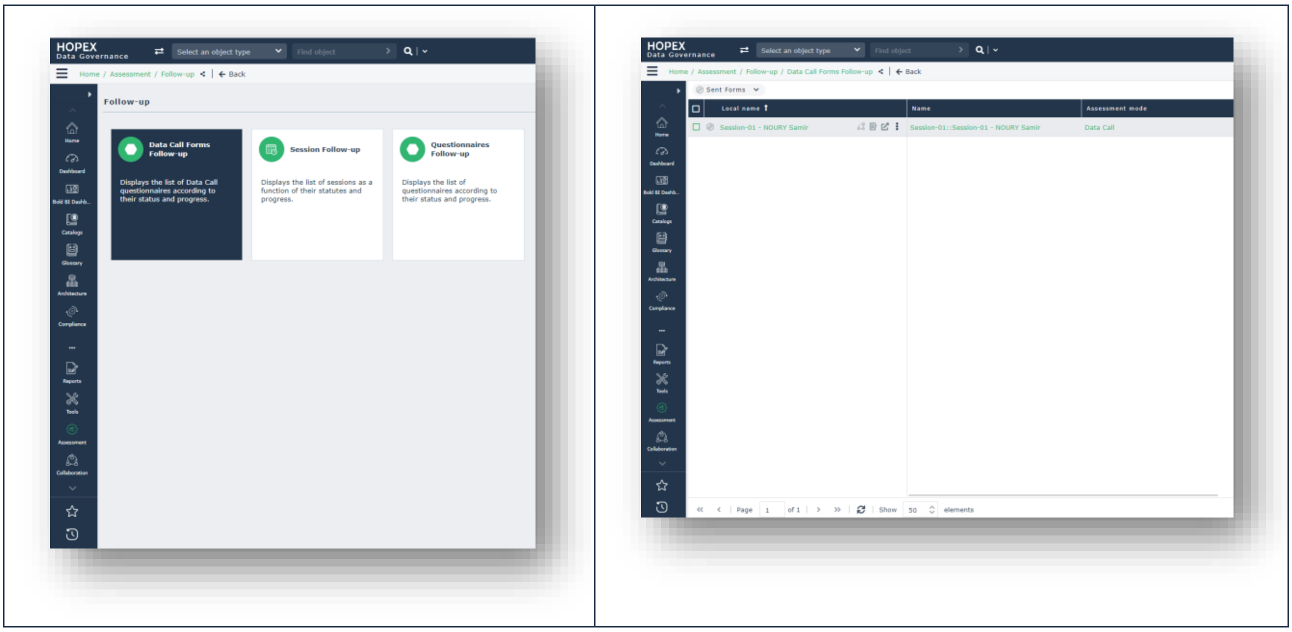


After

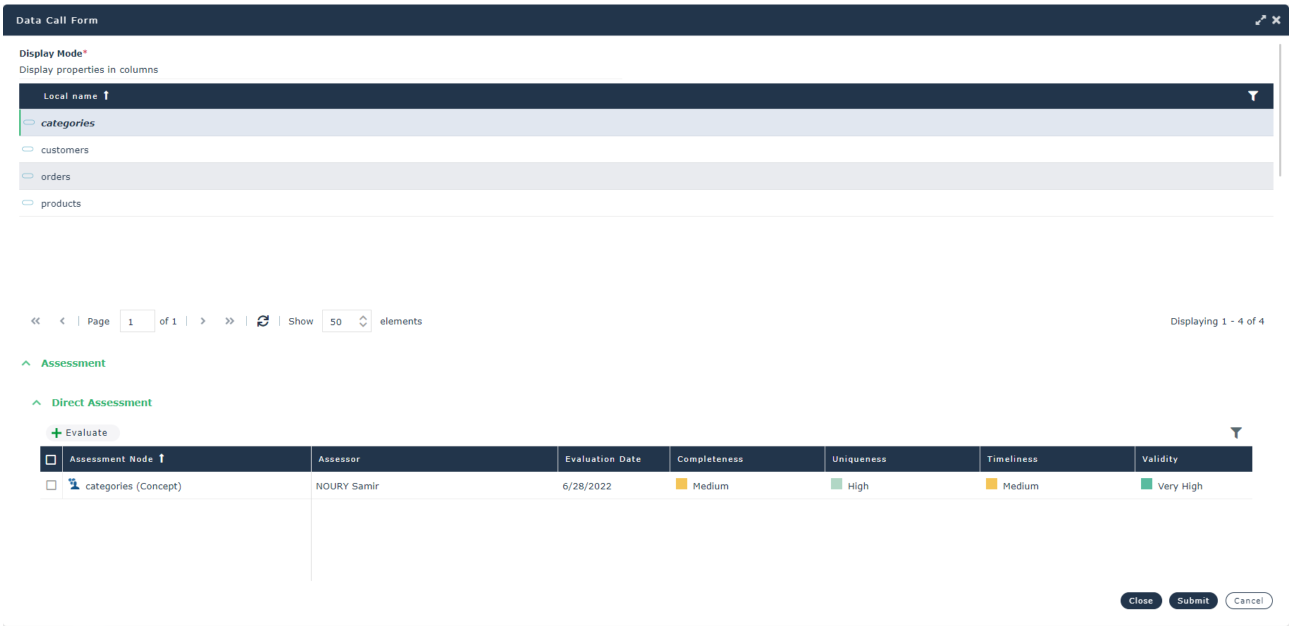


After Session creation new forms are sent to each Data Owner of selected object.

From Assessment menu, a new tile is added to access to these forms for each data responsible.

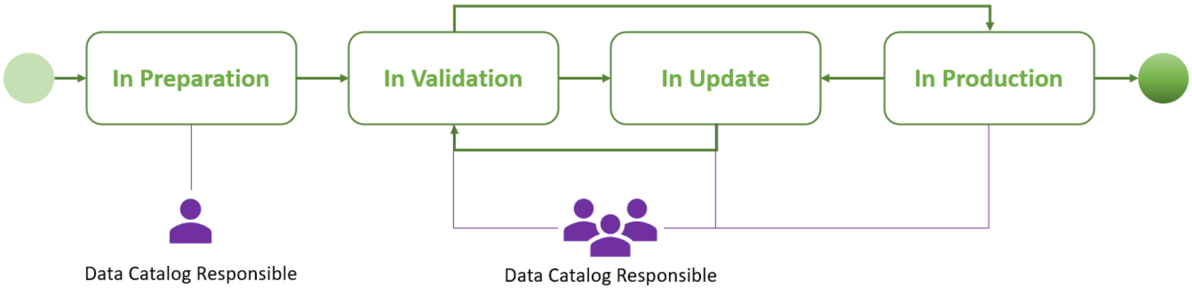


Open “Data call” to complete object description.



6.9. Data Catalog Workflow

A workflow is available to follow the different states of preparation and updating of a Data Catalog. It can be instantiated by the Data Catalog owner and any person responsible assigned to it can participate on its progression.



Notifications will be sent to the various managers each time the Data Catalog status changes.

6.10. Data Discovery

Data Discovery allows any data user to retrieve metadata structure from several and different data sources. It offers several connectors for SQL, NoSQL, or files databases.

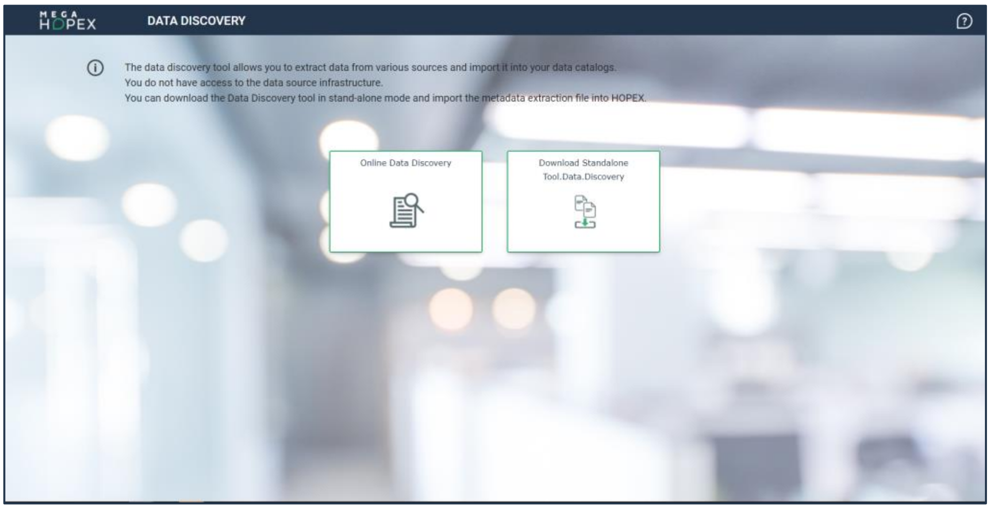
Data Discovery tool is provided as a module. New versions can be downloaded from the HOPEX Store.

The module can be used in 2 modes:

1. **Online mode**: with this mode, the user can use Data Discovery from HOPEX Data Governance Desktop and connect to targeted Data Source infrastructures

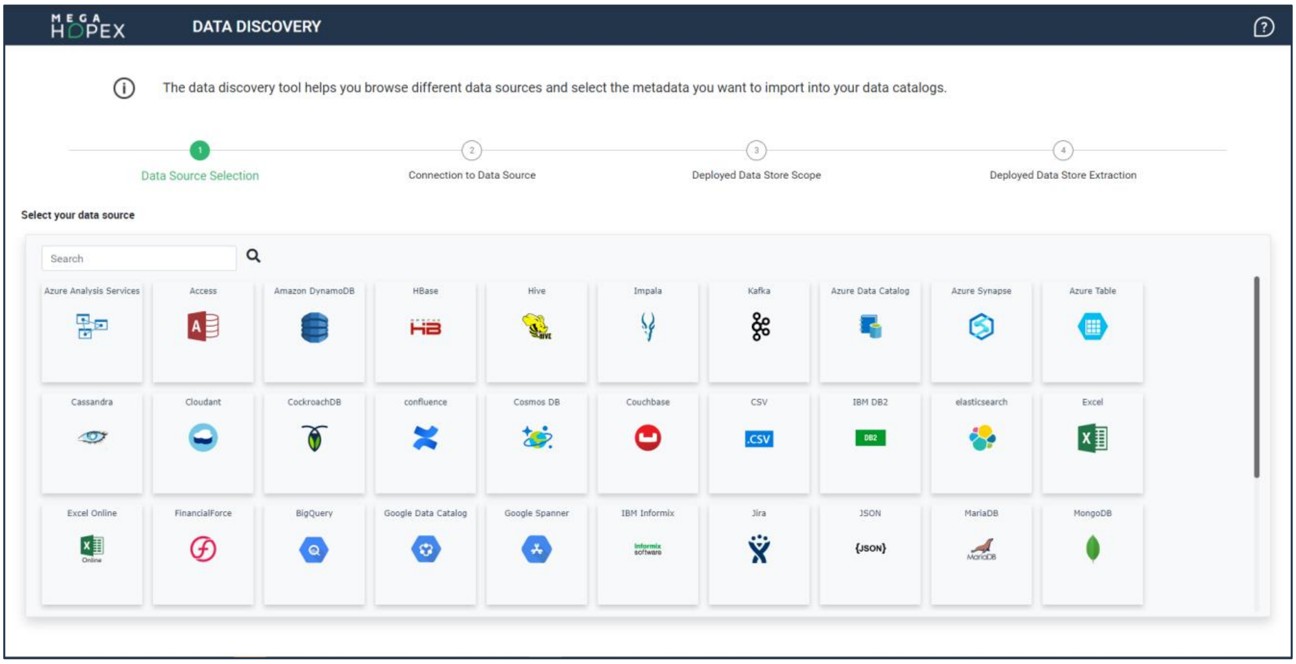
without any restriction to discover metadata. If for some security reasons, it is not possible to access to a given infrastructure, it is recommended to download and use the Data Discovery tool in standalone mode.

2. **Standalone mode**: the same Data Discovery tool can be downloaded from HOPEX Store and used autonomously to discover and generate a limited export metadata from data sources. This meta data structure export can be transmitted and then imported via the HOPEX Data Governance desktop.

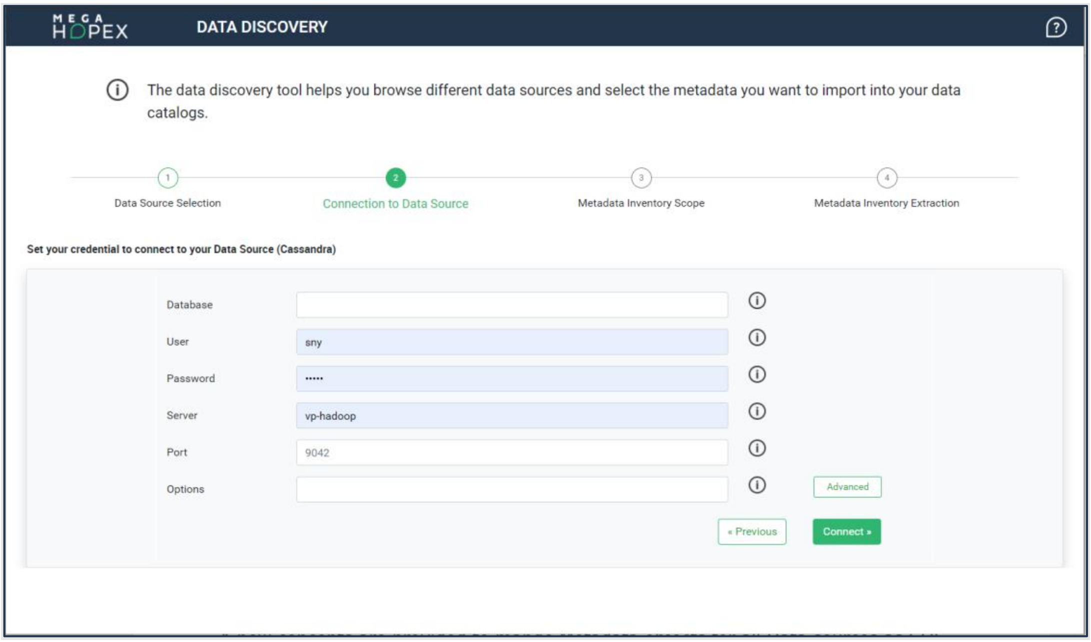


6.10.1. Discovery Connectors

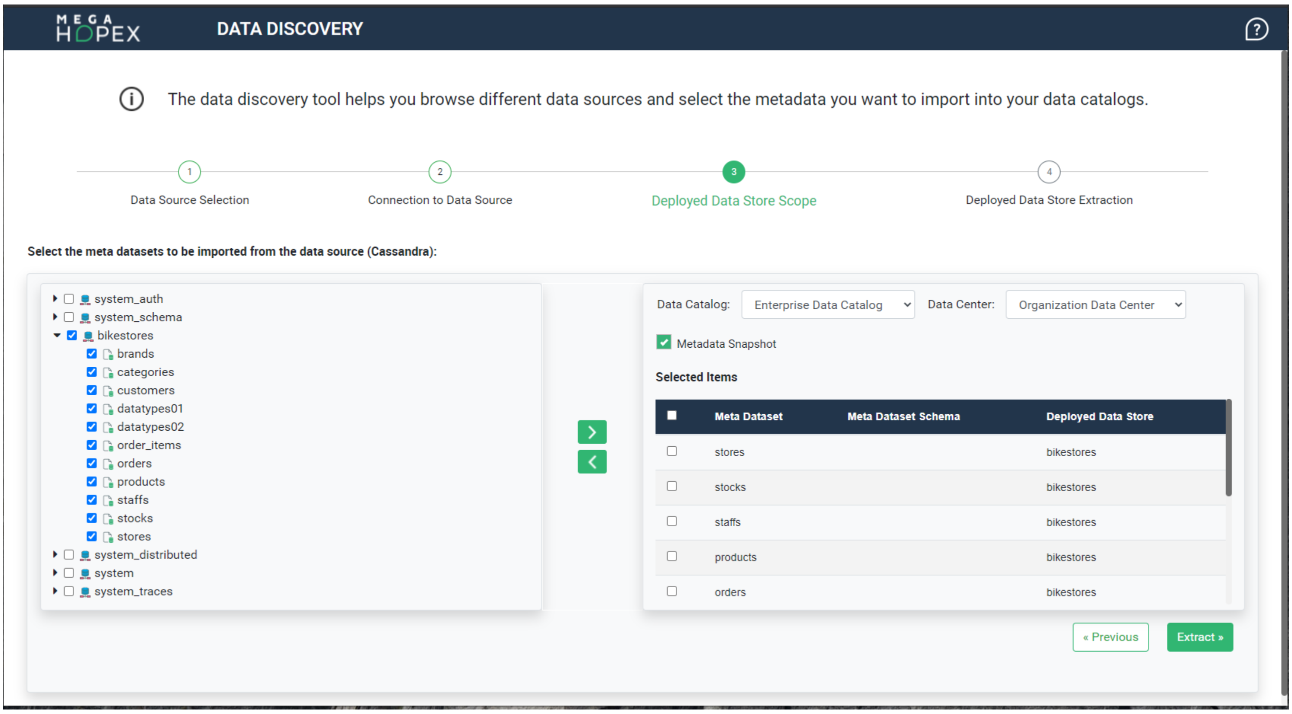
The user can choose first which data source type he/she would like to discover.



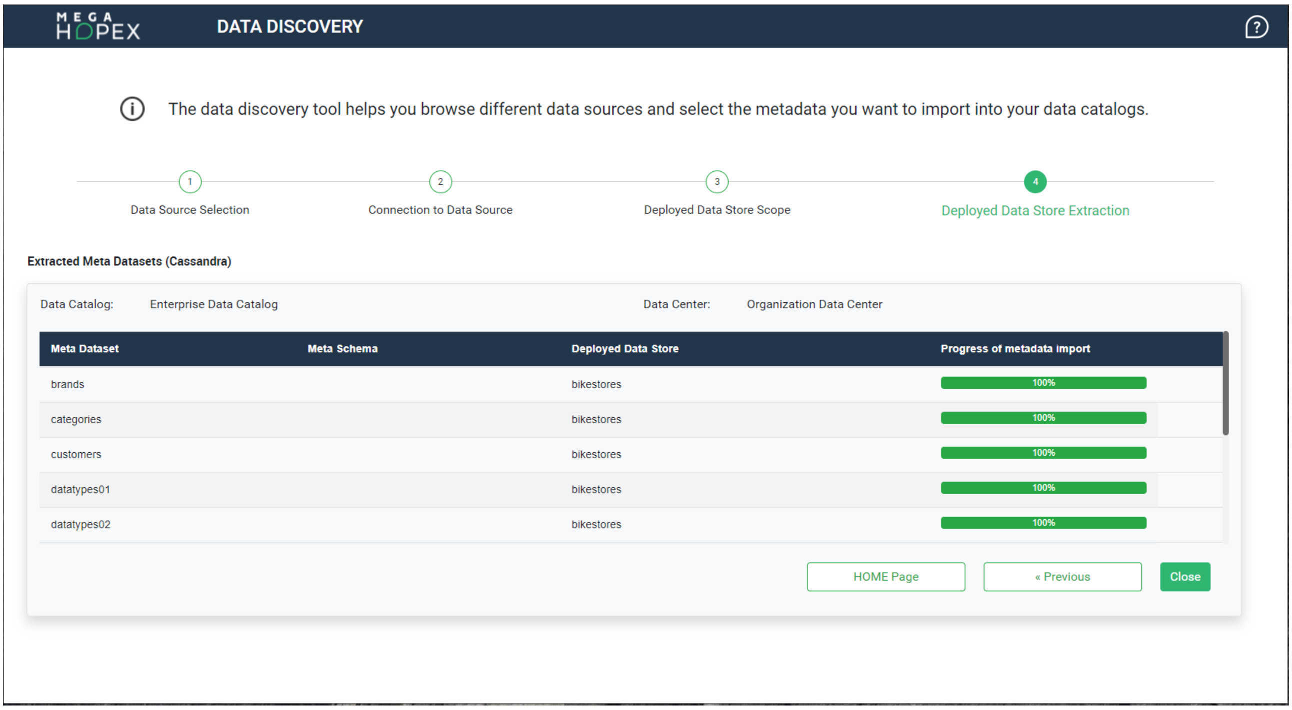
The user can then enter Data source credentials to connect to the system.



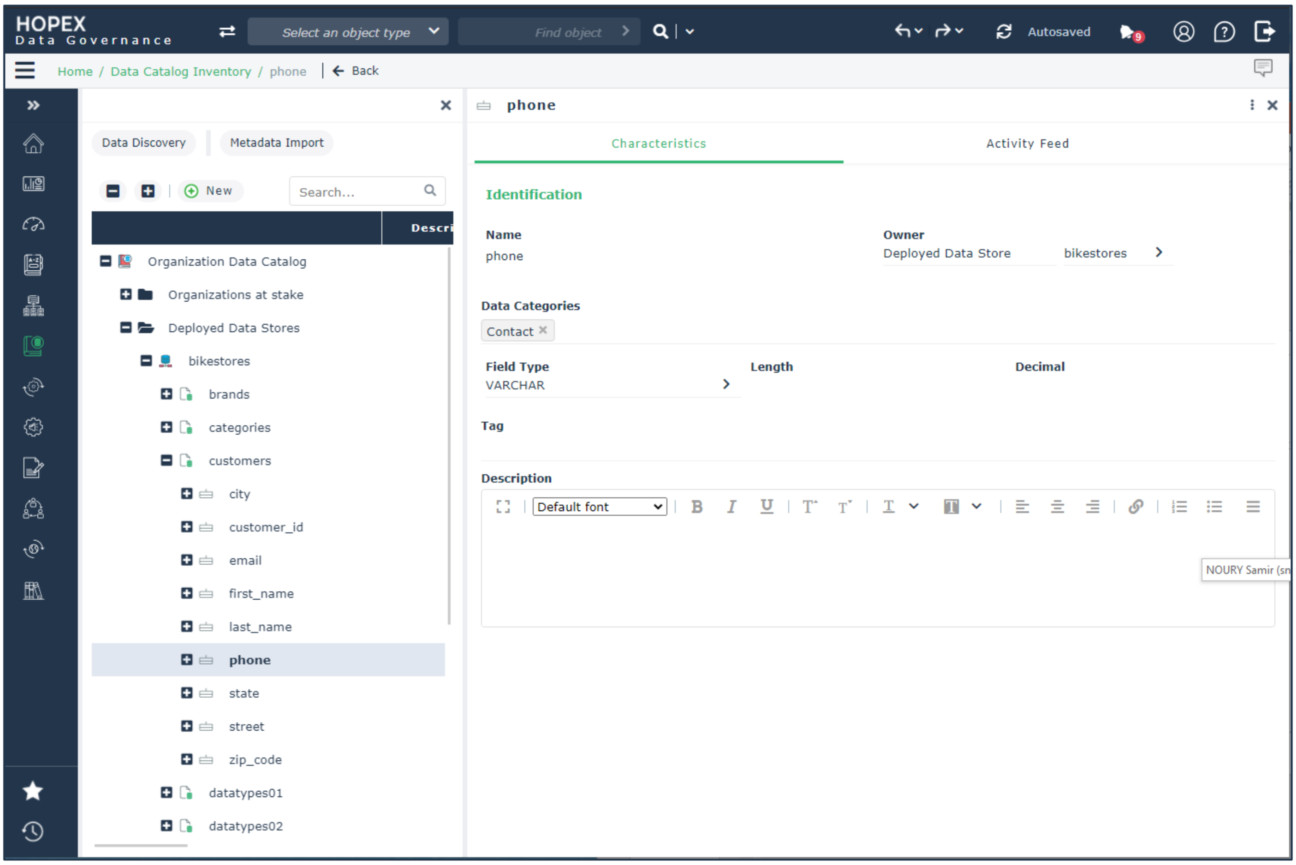
Once Data source is connected, the user can select the scope of metadata to import in HOPEX and select in which Data catalog metadata inventory it will be referenced. Beyond the metadata scope, he can also ask to import qualitative and quantitative indications on the data values.



Metadata scope is first extracted from selected Data source and imported in HOPEX by creating objects to describe metadata information.



After the metadata inventory import, the user can visualize all metadata objects and navigate to them to tag and classify them. The navigation can be done from a Data catalog or from Metadata inventory list.



6.10.2. Data Discovery standalone

From the #CP4 version, the import of Json file in HOPEX of discovered metadata description is scheduled as Job. At the end of the import, a notification and an email are sent to the Current User and Data Catalog owner.

6.11. Business Roles

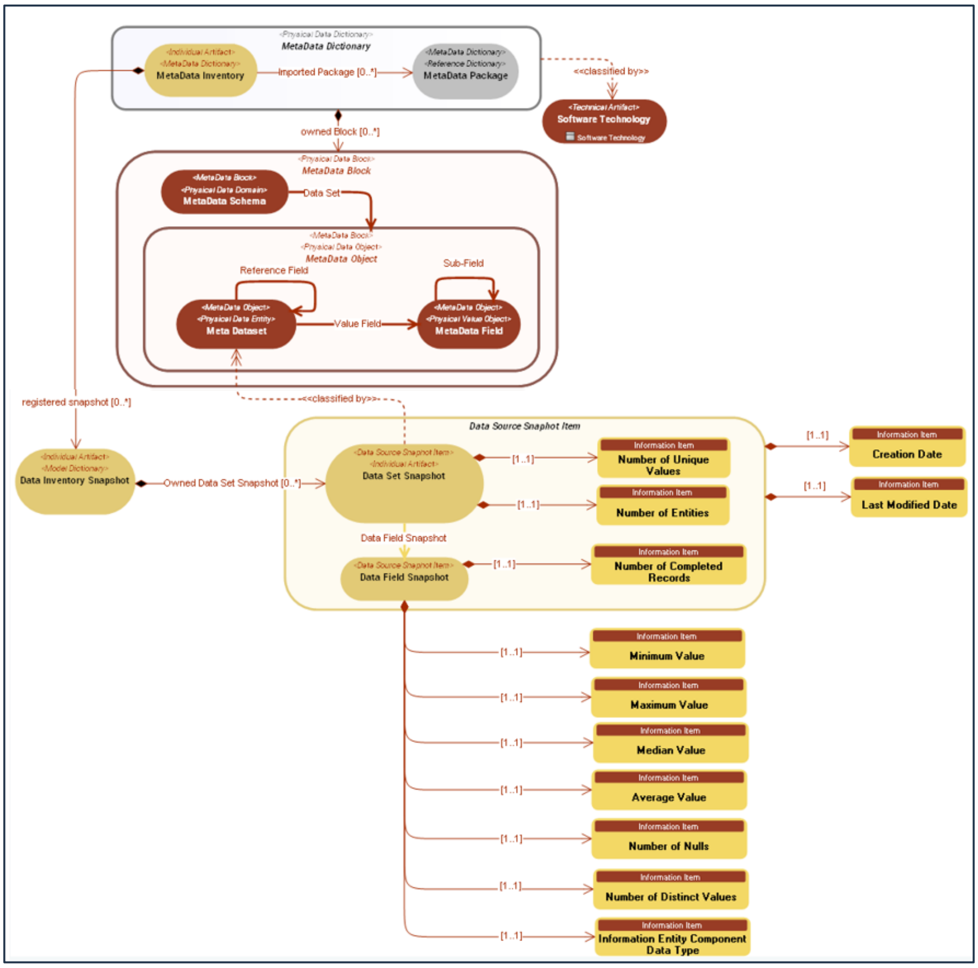
New Business Role are added to manage and define responsibilities on Data Assets.

Business Role	Definition
Data Catalog Owner	The Data Catalog Owner is responsible for Data Catalog creation and related scope definition.
Data Catalog Consumer	The Data Catalog Consumer is a stakeholder consuming Data from the Data Catalog. He/She can collaborate with other managers in the Data Quality improvement process.
Data Manager	The Data Manager will map, organize and classify all company's data and information. He/She will have to set up a repository and make it understandable for everyone.

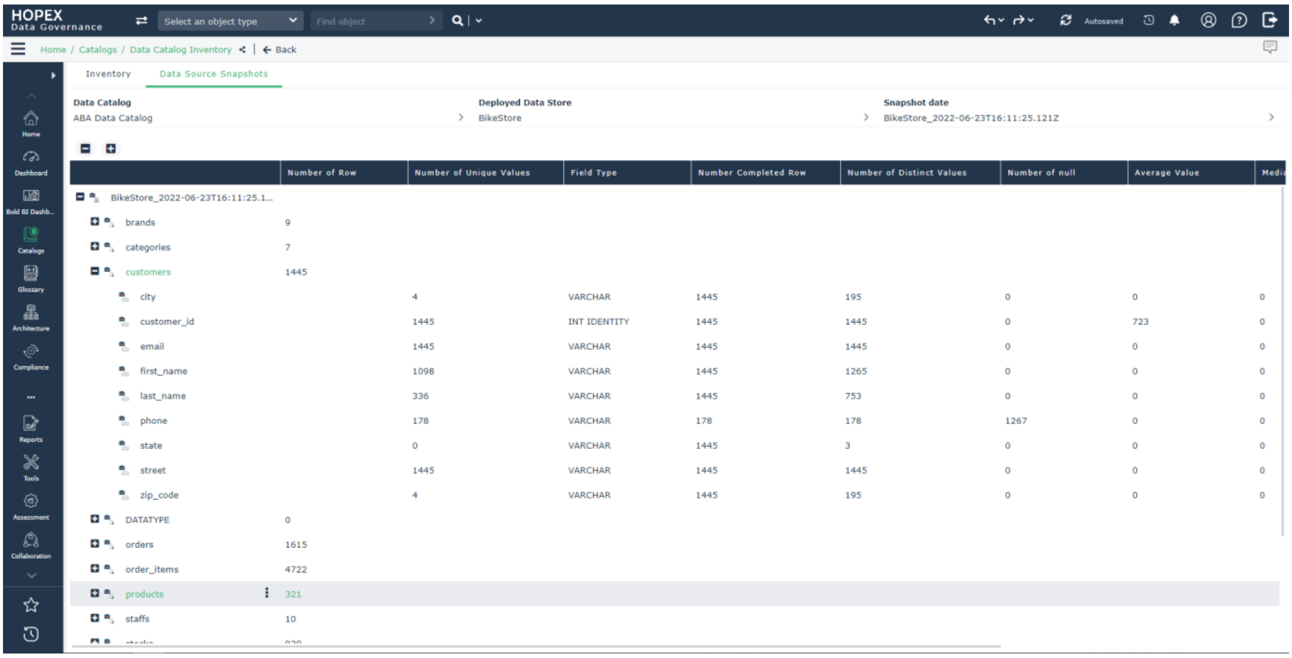
6.12. Metadata snapshot

Metadata snapshots help to retrieve quantitative and qualitative indicators of meta field values at specific time for each meta dataset and at specific time. Meta field snapshots are grouped by metadata inventory snapshot and meta dataset snapshot.

Quantitative indicators	Qualitative indicators
Number of rows in meta dataset	Number of unique values
Number of rows in meta field	Minimum values for integer meta field
Number of null	Maximum values for integer meta field
	Average values for integer meta field
	Number of distinct values



Data user can choose this information in Data Discovery tool at the selection scope step. User can visualize metadata snapshot from the menu in the desktop, by specifying the Data Catalog, the metadata inventory snapshot, the snapshot and specific time.



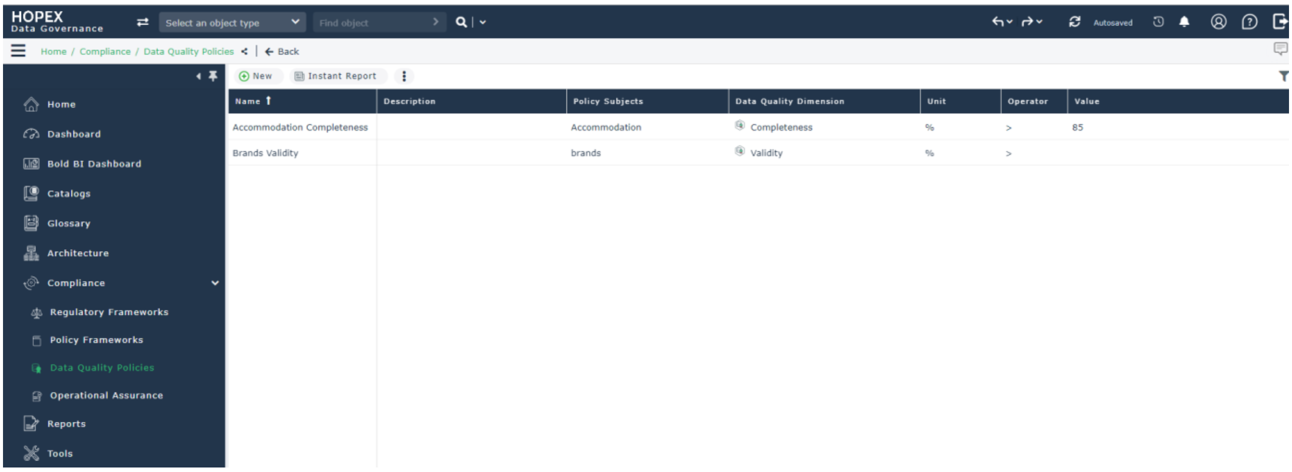
6.13. Data Quality Policy

HOPEX Data Governance enables to design Data Quality. This can be done by specifying Data Quality Policies, Data Quality dimension and quality thresholds.

Data Quality Policy describes how data should exist to be useful and usable within an organization. Data Quality Manager can define the inventory of Data Quality policies to describe its Data requirements, to specify Data assets affected and classify them by Data quality Dimensions.

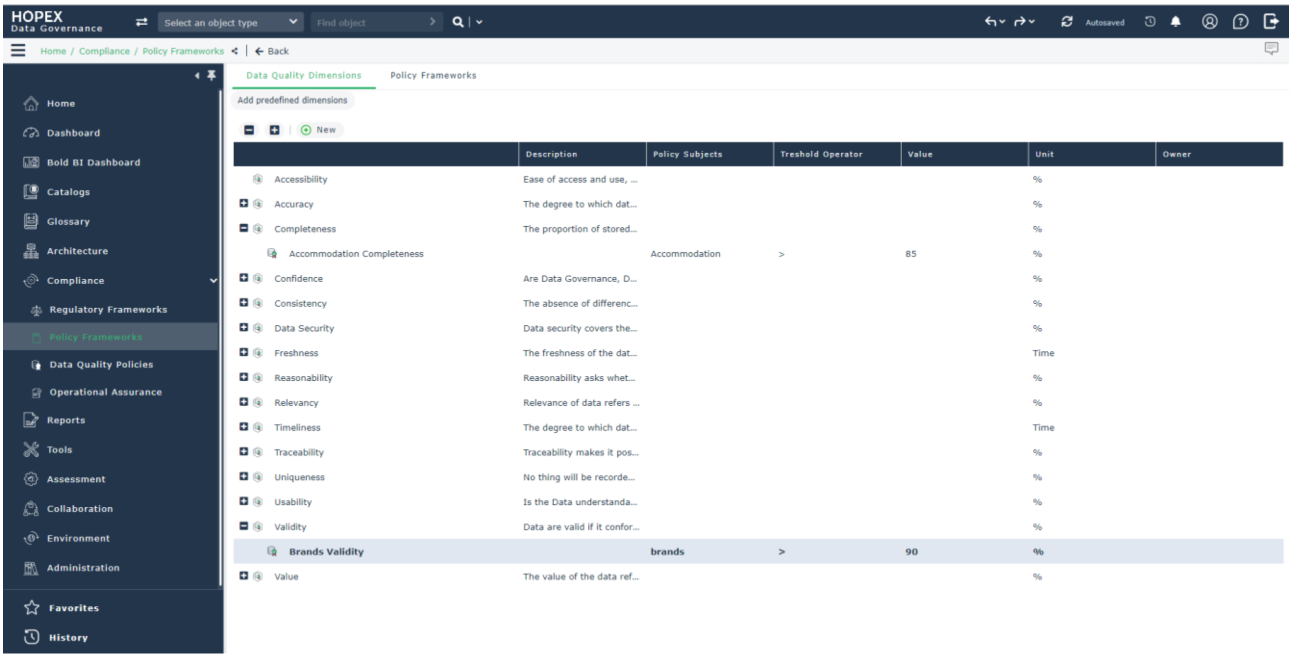
Data Quality Dimension is a measurable feature or characteristic of Data. Data Quality Dimensions provide a vocabulary for defining data quality requirements.

Data Quality Policies can be grouped and managed in policy framework.



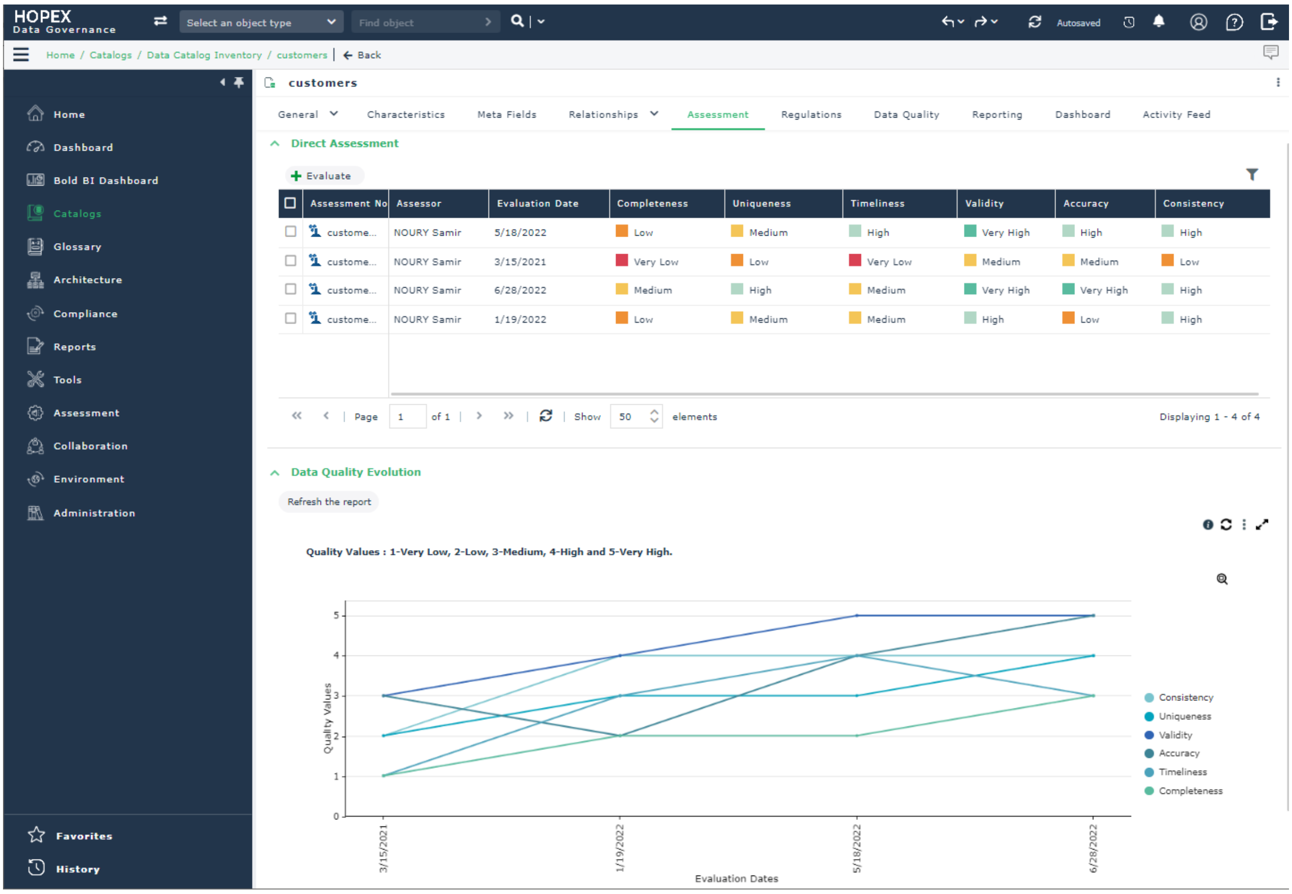
They can be also classified by dimension and accessed from this axis.

Predefined Data Quality dimensions can be easily imported in the User interface by using the "Add predefined dimensions" button.



6.13.1. Data Quality Assessment

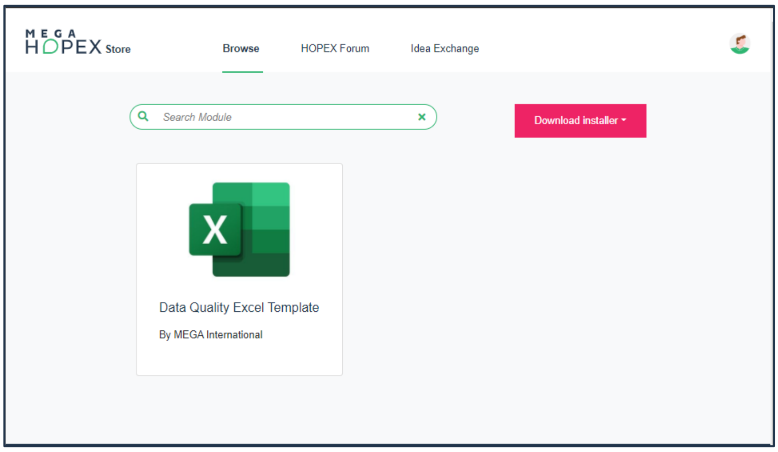
Discovered Data assets (as meta dataset) can be assessed according to the standard Assessment Data Quality dimensions.



6.14. Data Quality Excel Template

Speed up your Data Quality by bulk loading your existing Excel Data Quality dimension evaluations. This Excel Template is an add-on, that can be downloaded from the HOPEX Store. It provides means to import:

- Data Quality dimension values of: Completeness, Uniqueness, Timeliness, Validity, Consistency and Accuracy
- Data Quality dimension values for: conceptual, logical and physical data. For example, "Concept", "Class", "Table".



The Data Quality Excel Template can be deployed in HOPEX as Solution pack procedure.

This Excel Template is mapped to the Data Quality Assessment Template implemented in the direct Assessment tool of HOPEX Data Governance.

Below you can see an example for import of different quality values for a concept

Values are defined in the Excel file:

	A	B	C	D	E	F	G	H	I	J
1	Hopex Identifier	Object Type	Object name	Completeness	Uniqueness	Timeliness	Validity	Accuracy	Consistency	Assessor Name
2		Concept	Artifact	Very Low	Low	Medium	Very High	High	Medium	NOURY Sam
3										
4										

And are imported into HOPEX Data Governance

Assessment Node	Assessor	Evaluation Date	Completeness	Uniqueness	Timeliness	Validity	Accuracy	Consistency
Artifact (Concept)	NOURY Sam	8/21/2020	Very Low	Low	Medium	Very High	High	Medium

6.15. Data Lineage graphical improvement

Data lineage graphics and diagram shapes have been improved for better readability. These improvements relate to data lineage diagrams of business information, logical or physical data.

Participants as Organization and position type are displayed horizontally. Origin data and data subject are displayed in the border of Data lineage.

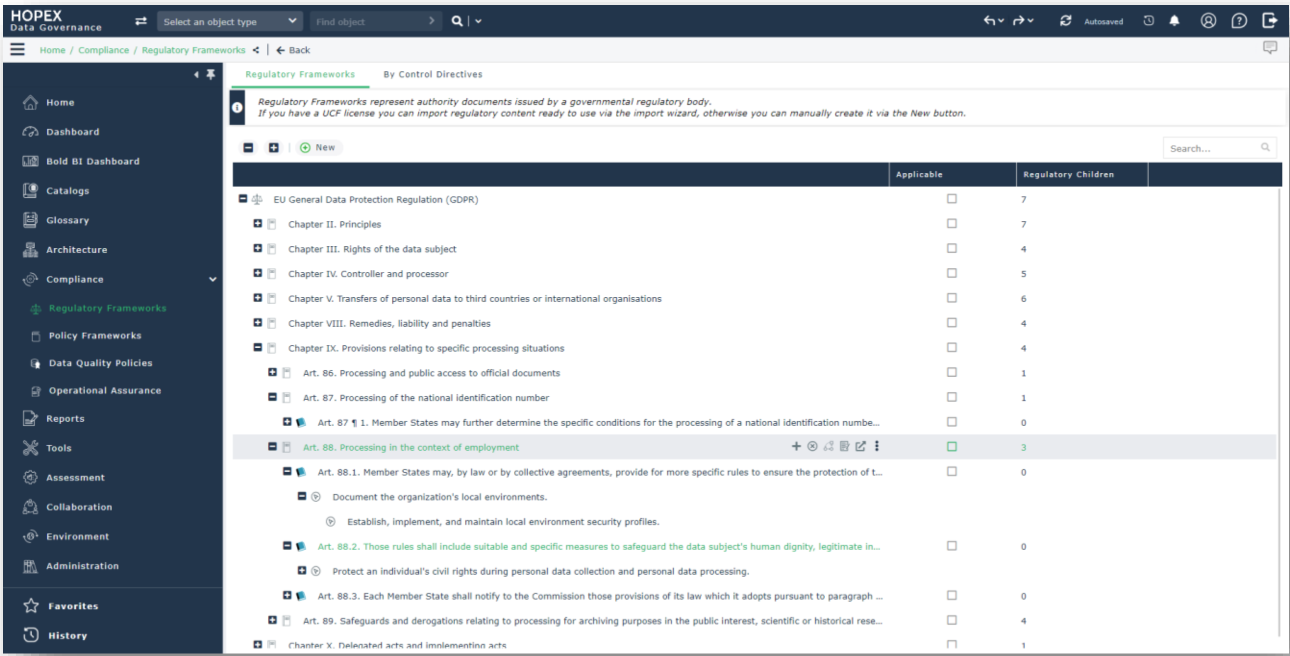
6.16. Unified Compliance Framework

HOPEX Data Governance provides an integration with the Unified Compliance Framework (UCF) library of compliance documents and controls.

Data user can import regulatory frameworks, controls and content enriched by UCF.

UCF helps to implement the appropriate controls for each regulation, while identifying controls shared by multiple regulatory documents. This allows companies to avoid duplicate efforts and to reduce time and cost associated with data compliance.

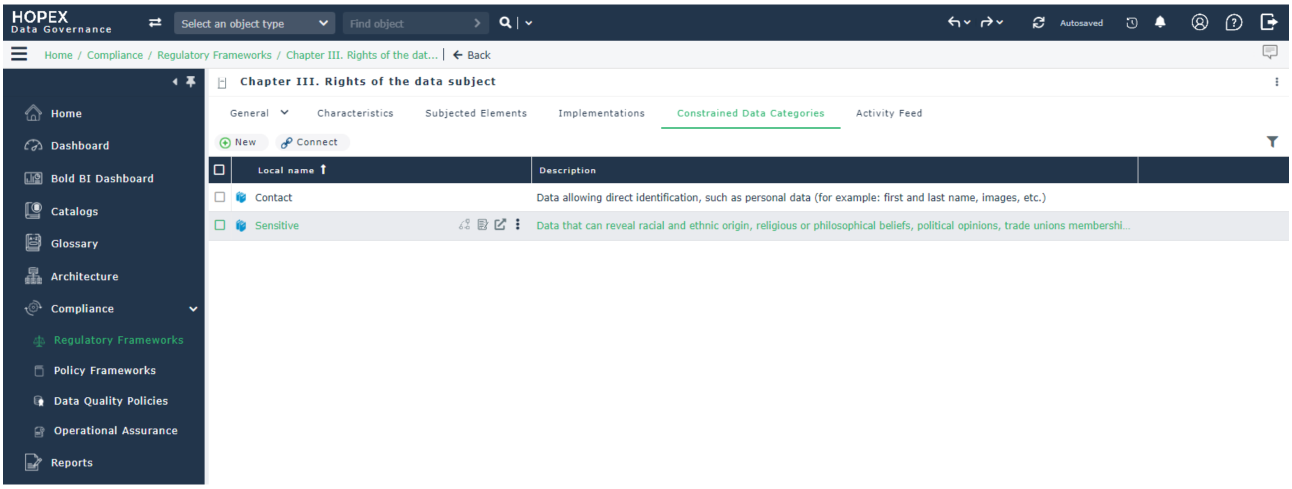
Policies and Rules menu is reorganized to display parts of Regulatory Framework, Business Policy Framework, Business Rules and UCF part: “Control Framework” that is a new submenu.



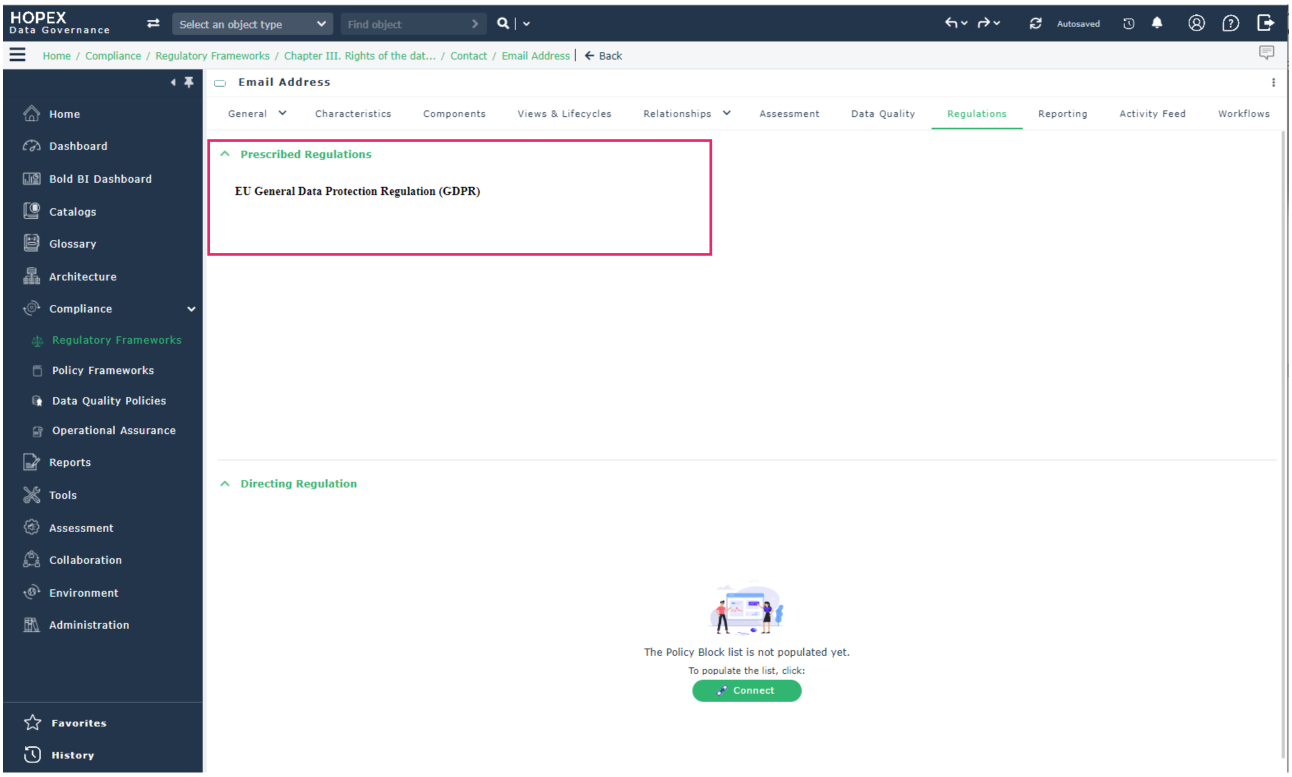
The UCF Import tool is an option and is available for Data Functional Administrator profile that oversees the import of regulatory and control directive.

6.17. Regulatory and Data Categories

From CP3, it is possible to specify on each regulatory, section or article the list of constrained Data Categories.

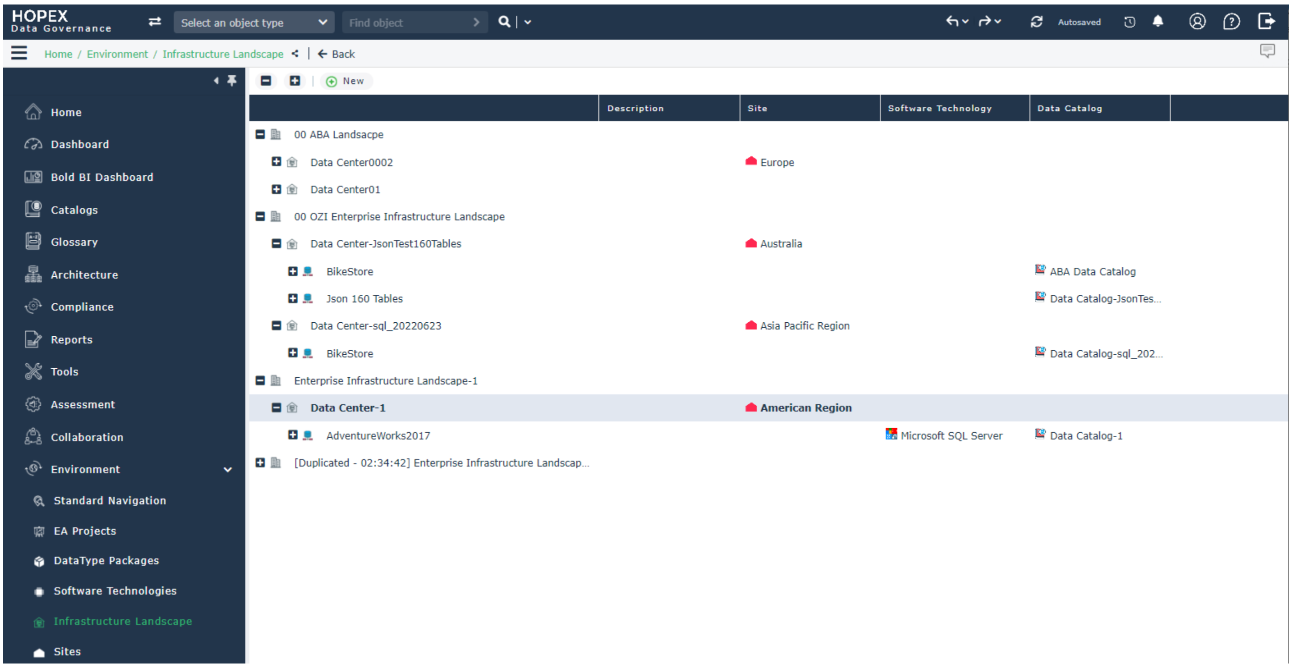


This confirmation is recalled at the level of each datum. So it is very useful later to specify in detail the regulatory parts that concern this data.



6.18. Data Center

Data Center is a new concept defined to indicate where deployed Data Store is located and specified by "site" object. Data centers are used to build an Enterprise Infrastructure landscape.



6.19. Concept Excel Template

Now it is possible to import business data by specifying separately object as concept (for example: Customer, Order, Product….) and other objects as information Item (Customer name, product code, address, age…).

6.20. Dashboards

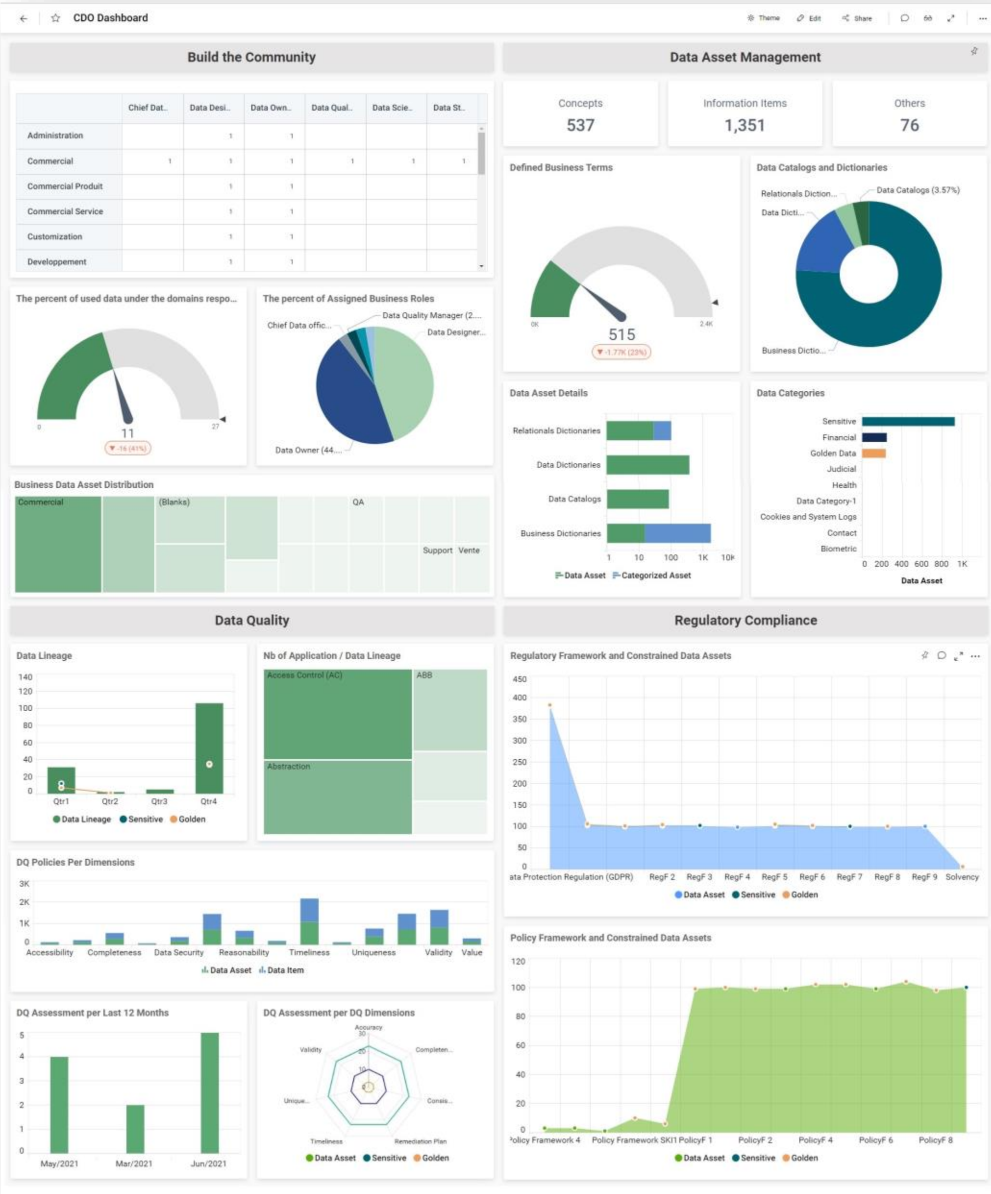
HOPEX Data Governance provides ready-to-use dashboards for Chief Data Officers and Data Managers to manage and follow-up data governance processes.

These dashboards are focused on the following aspects:

- **Build the Community**
  - Concept Domain Map
  - Roles and responsibilities
- **Data Asset Management**
  - Defined Terms
  - Data Assets/Dictionary
  - Data Assets/Data Categories
- **Data Quality**
  - Number of created Data Lineage for sensitive and Golden Data Assets
  - Data Quality Policies per dimension

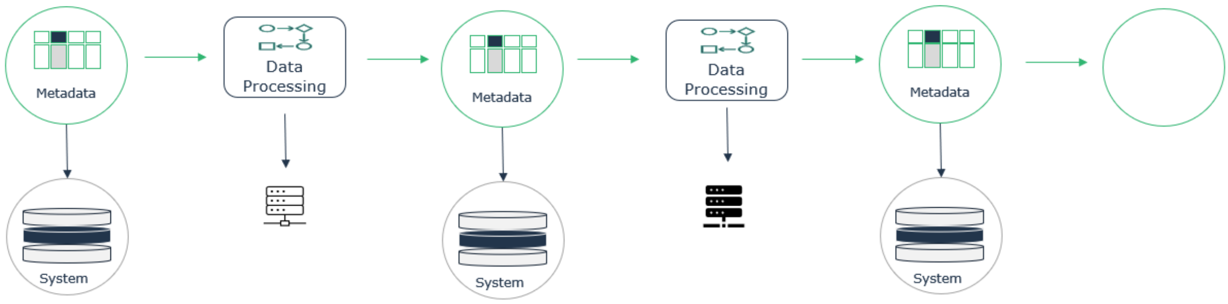
- Data Quality Assessments of last 12 months
- Distribution of DQ Assessment per dimension

- **Regulatory Compliance**
  - Number of constrained sensitive / Golden Data Asset per regulatory
  - Number of constrained sensitive Data / Golden Asset per policy framework



6.21. Technical Data Lineage

From the #CP4, Data Governance Solution integrates new component to help organization to scan their Data sources and application code to build technical Data lineage.



Technical Data Lineage

A new partnership is created between Manta and Mega to offer customers the best features in the context of data processing scans. Manta is a leading reference and pioneer in the field of analysis and extraction of data flows.

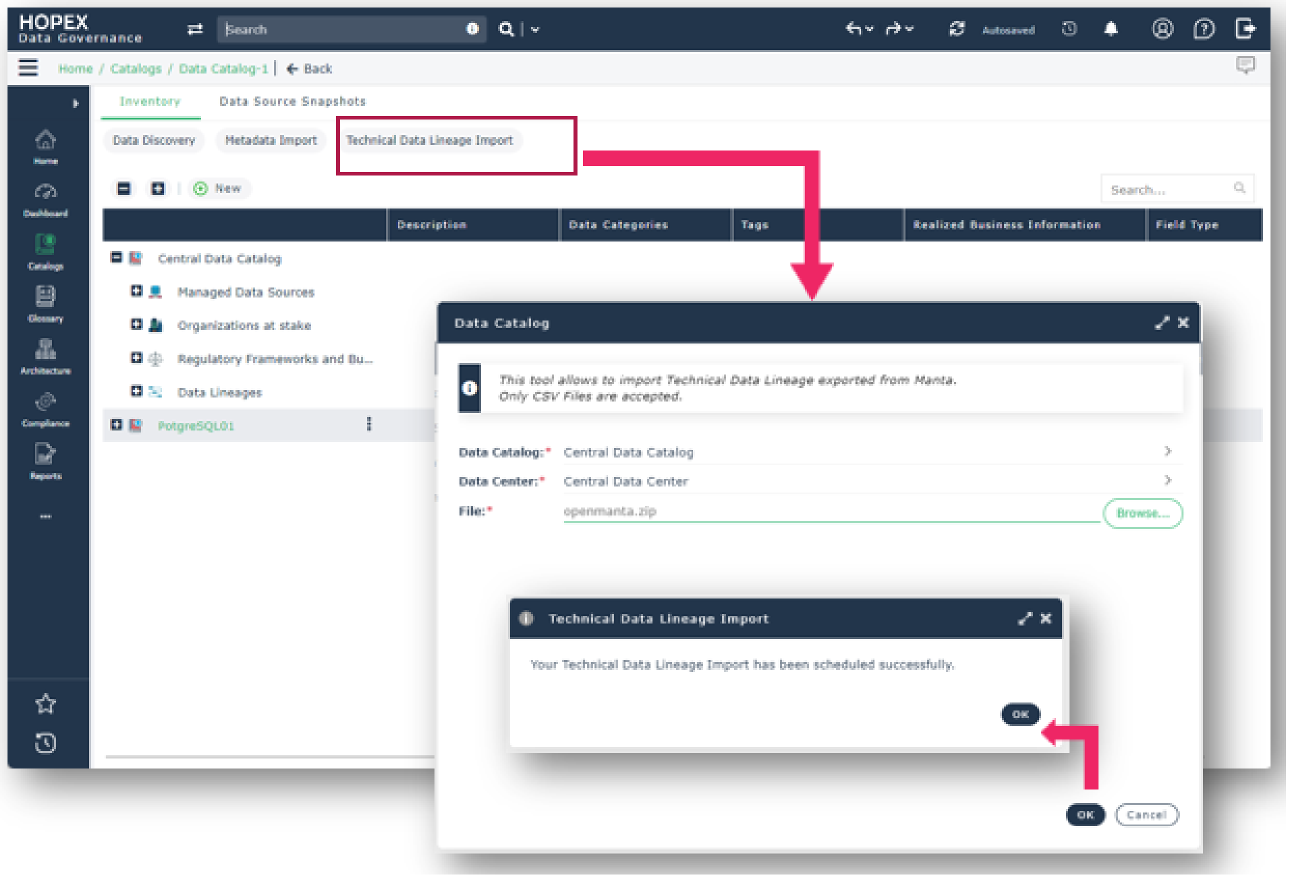
All Technical Data Lineage feature are provided in one new product Option that is protected by a new license: "***HTDL***"

Remark: **to support this new feature of Technical Data Lineage, some modifications are made at the Metamodel that can have impact of some existing diagrams of functional Data Lineage. If this the case, please contact MEGA Support.**

6.21.1. Technical Data Lineage Import

From the #CP4, it will be possible to use Manta scan and export all Technical Data Lineage as CSV files. These files can be imported as zip file at Data Catalog level.

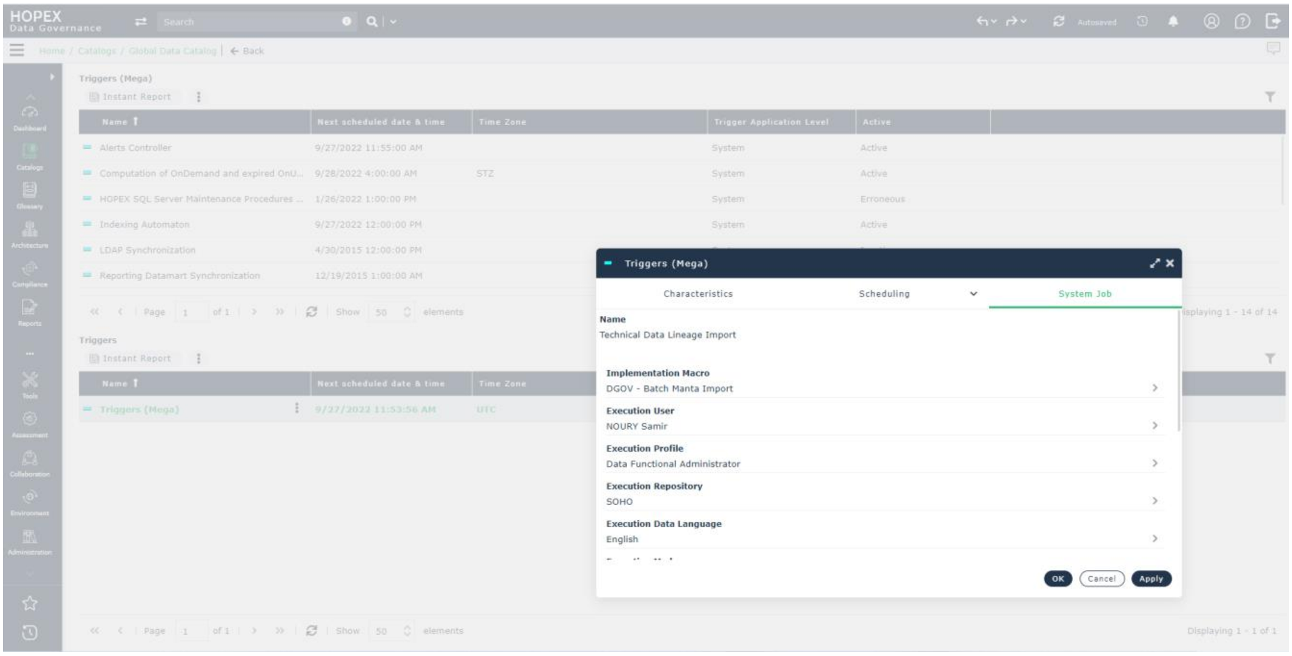
A new button is available From Data Catalog Hierarchy View to import zipped Manta CSV files:



The zip file contains the following csv:

- Dictionary.csv
- Object.csv
- Lineage.csv

The zip file is uploaded in HOPEX as Business document of selected Data Catalog and a new Job is created and scheduled to import all Meta data, data processing and lineage objects in HOPEX.



At the end of the import a notification and email will be sent to Data user that started the import and the Data Catalog Owner.

The imported objects are:

- **Metadata structure**

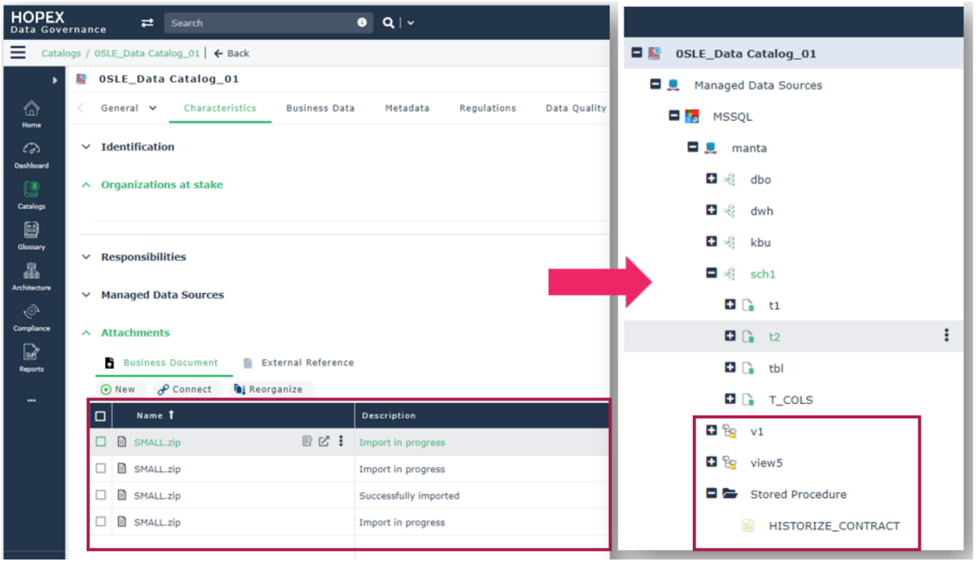
In the case of scanned Data sources, metadata objects as deployed data store, schema, meta dataset, metafield are imported from Dictionary.csv file.

- **Data Processing**

Data processing can be stored Procedure, triggers or programs in the case of scanned code as Cobol.

- **Flows:**

Are Data flow between Data Processing and processed data



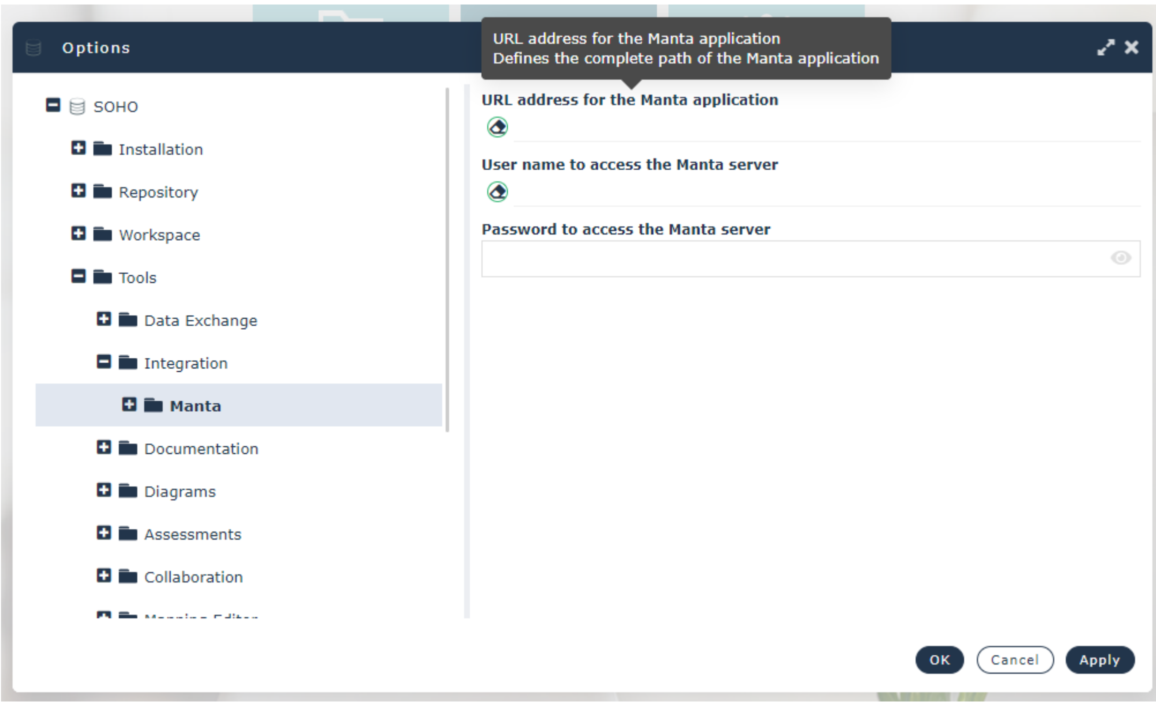
Remarks: from the #CP4 version, in Data Catalog Hierarchy view:

- deployed data stores are now grouped by software technology that represents the Data Source kind

6.21.2. Technical Data Lineage Visualization

When metadata is imported into Manta, it is possible to view their technical Data lineage by calling the Manta Viewer tool.

This access requires parameters to be indicated in the Manta integration option:

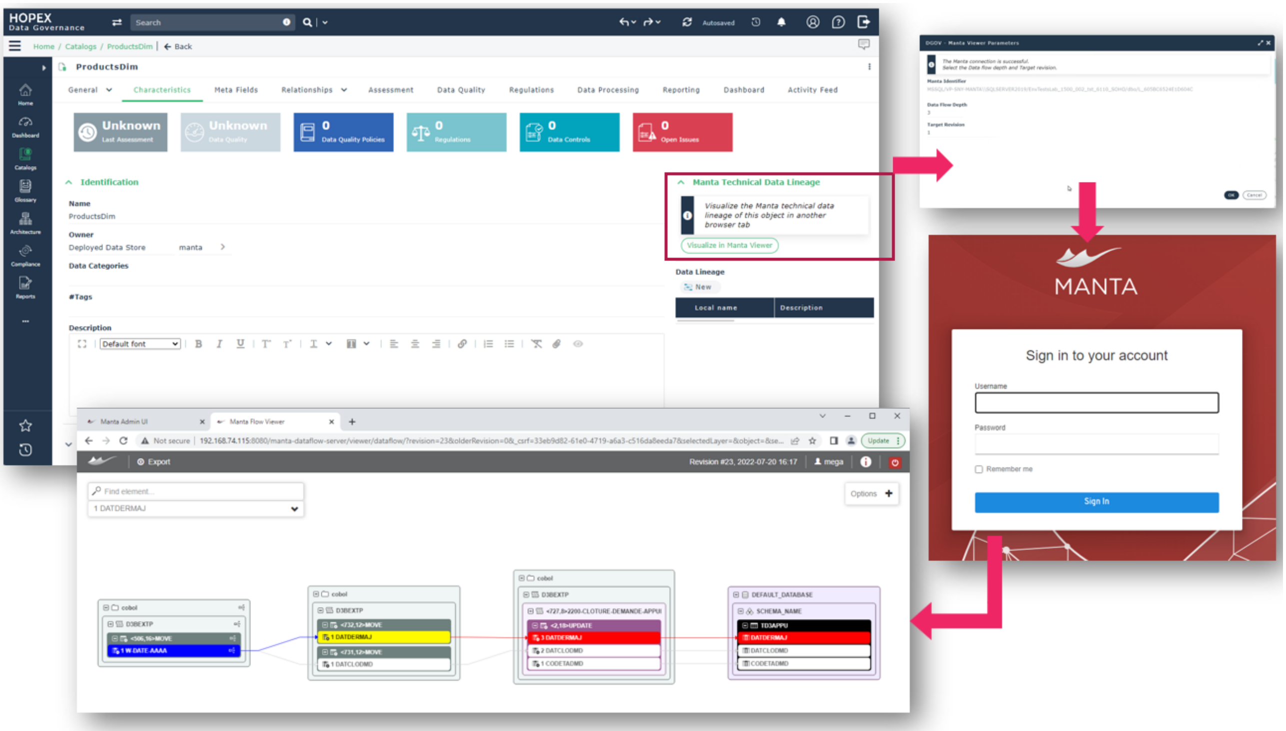


Note that the Manta product can only be deployed On Premise version, so it is important that access is authorized between its server and that of HOPEX, which can be either On Premise or Cloud.

Then from the characteristics page of a meta dataset or meta field, it is possible to call the Manta Viewer.

Other parameters are to be entered such as the level of data flow depth as well as the version of the object in Manta.

For security reason, the user must have its own credentials to access to Manta tool.



6.21.3. Data Processing

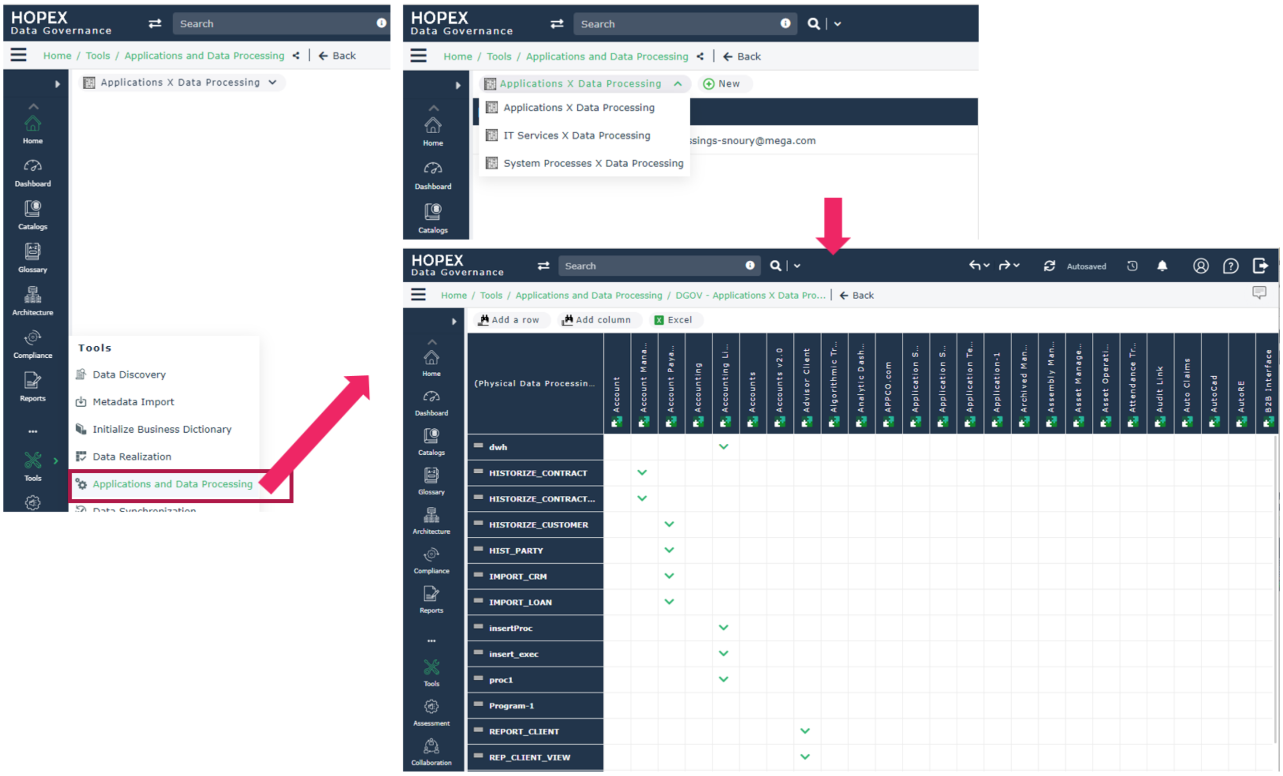
New tabs of Data Processing are available from:

- **Data Catalog**
  - o to access all imported programs that are imported from Manta files and grouped in library that is included in that same Enterprise than the Data Catalog.
- **Meta dataset and Metadata field**
  - o to access to their Data Processing.

6.21.4. Data Processing Mapping

The data processing and their flows produced by Manta can be linked to the applications, their IT service components, micro-services, and System Processes which are inventoried and/or designed in HOPEX HITA and BPA solutions.

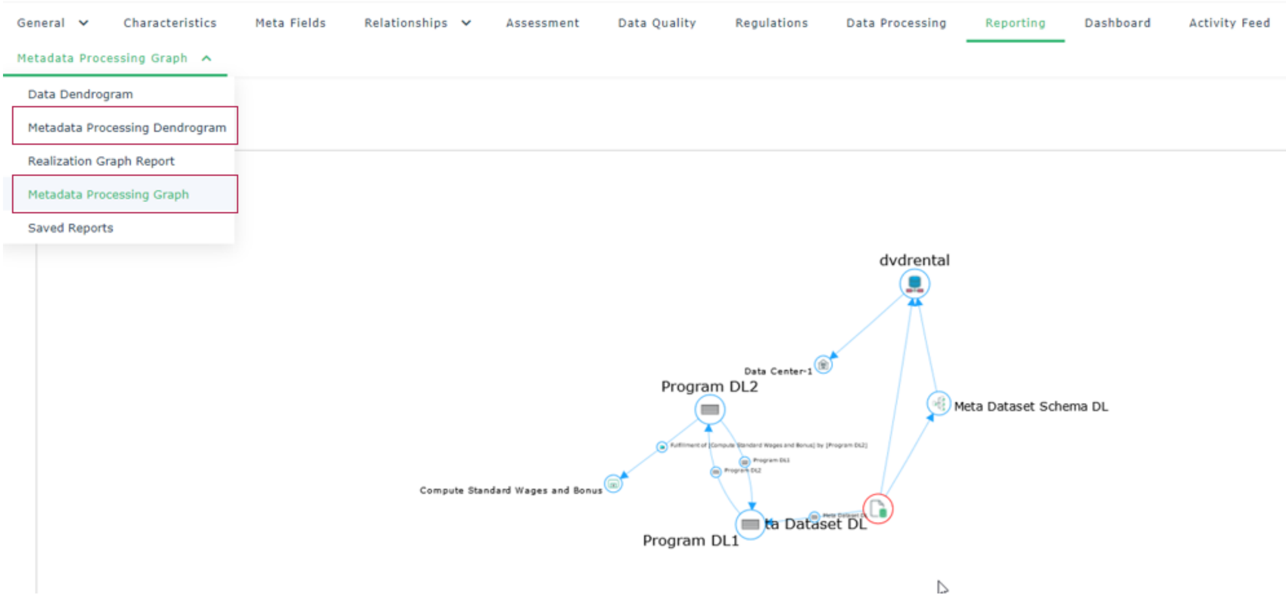
New matrixes are provided to make this mapping manually. They are available from "Application and Data Processing" sub menu of "Tools" menu.



6.22. Reports

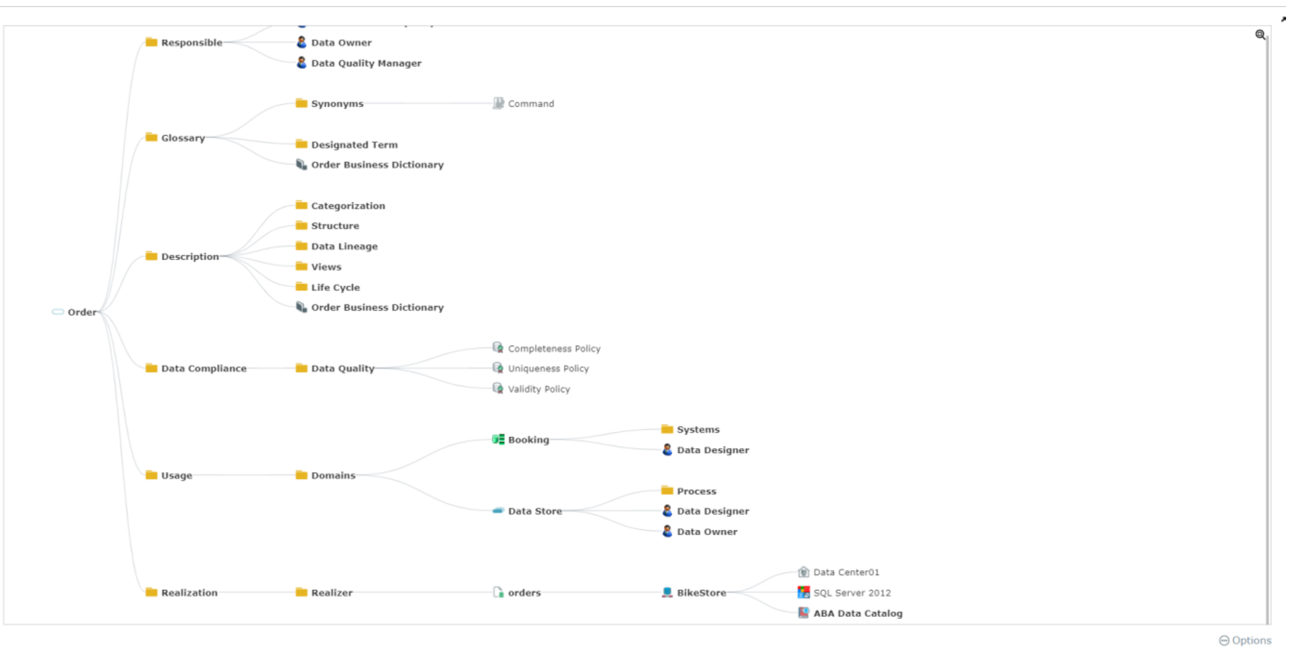
New reports are available to visualize Data Processing from Metadata reporting page:

- Metadata Processing Dendrogram
- Metadata Processing Graph



○ Data Dendrogram Report

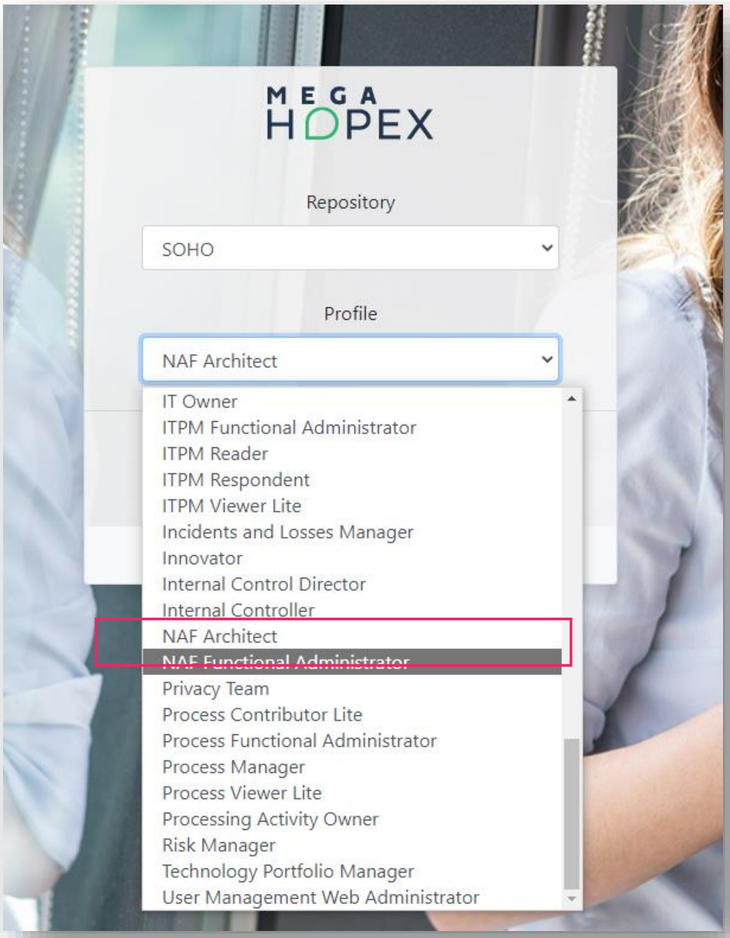
A new report in the form of a dendrogram summarizes all the description of a data which are grouped in folders. This report replaces the old dendrogram reports which presented the same information but in a partial way.



7. NAF Improvement

From the CP3 NAF has his own Desktop and profiles instead of EA Enterprise Desktop.

○ Profiles

<table>
<tr>
<td>
</td>
<td><u>NAF Architect</u>:

Can have use and describe NAF Views and Sub views.

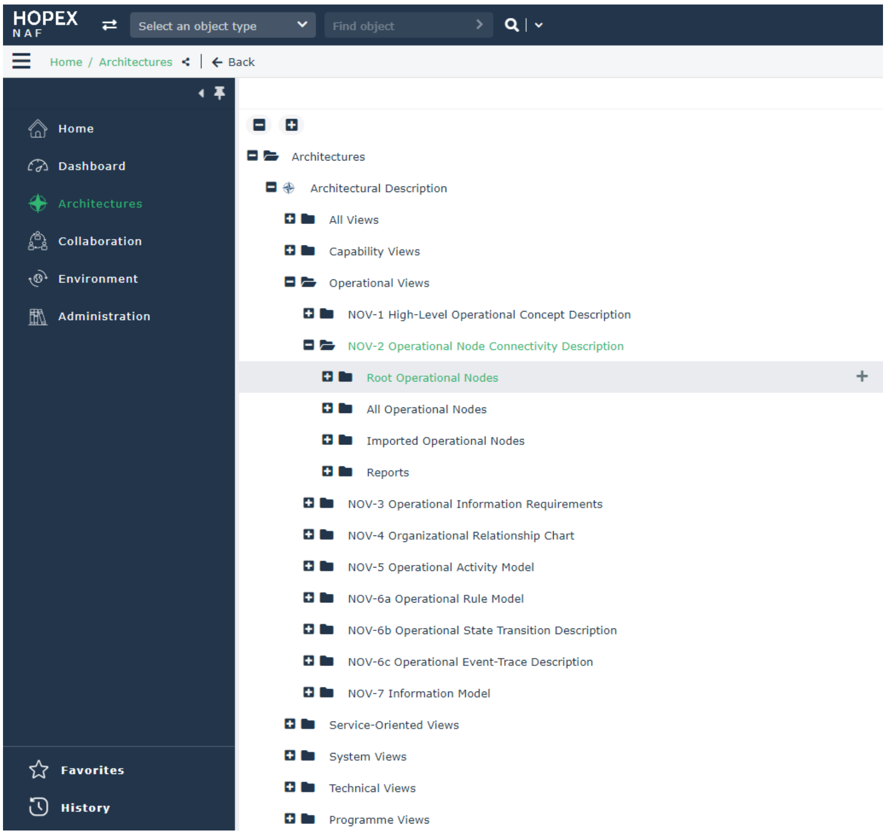
<u>NAF Functional Administrator</u>:

This profile enables to have access to all NAF Views and sub views but also access to administration menus to manage persons, profile, assignment… etc.</td>
</tr>
</table>

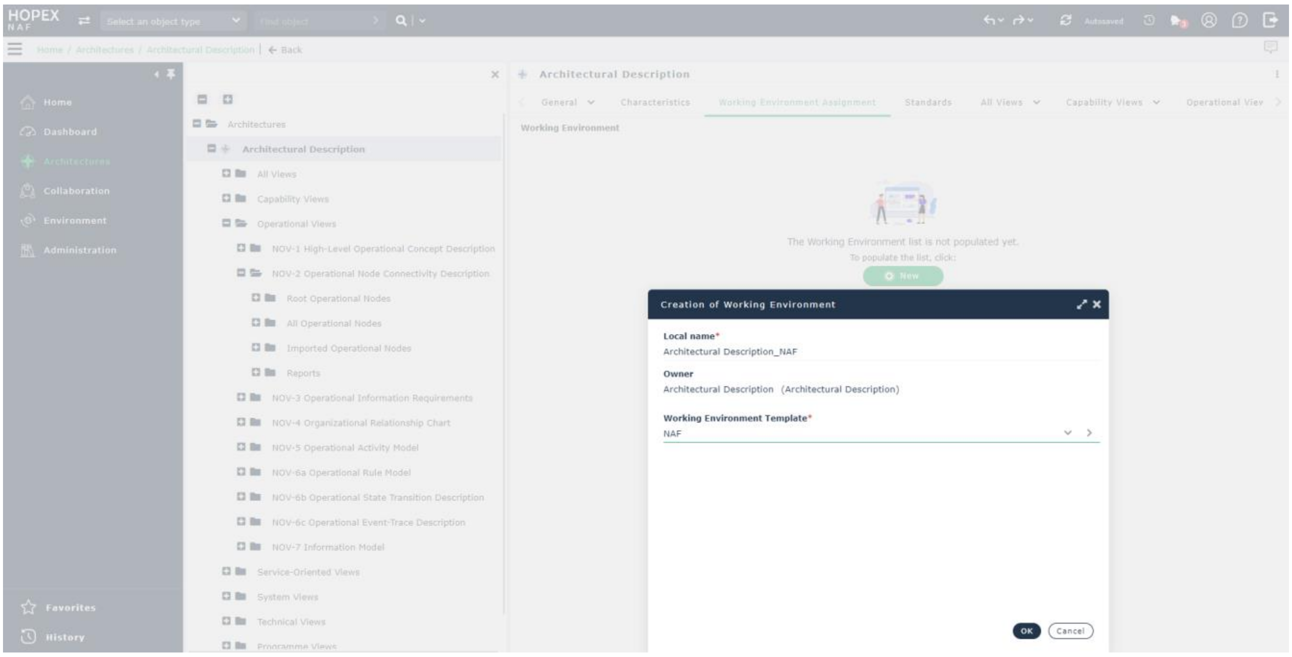
Remark: for existing Customer, it is necessary to create a new Profile Assignment to have access to this new Desktop.

7.1. Desktop

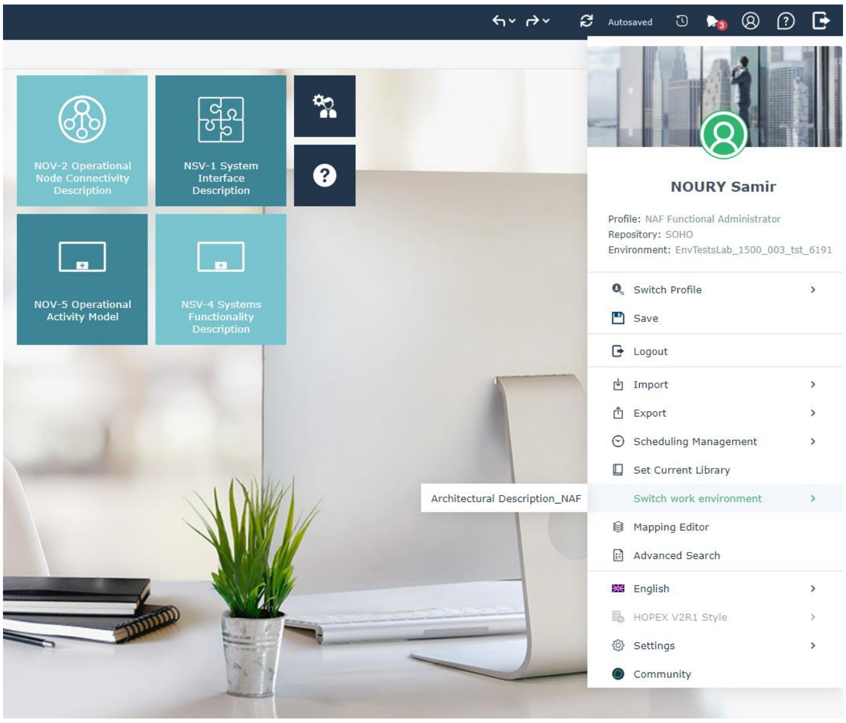
By default, the new Desktop give access to the same Architecture Description navigator as before.



Now from the CP3, it is possible to create a new working environment on architecture description object to Visualize NAF Views and sub views as menu and sub menus in the Desktop.



Switch on this working environment.


Autosaved
NOV-2 Operational Node Connectivity Description
NSV-1 System Interface Description
NOV-5 Operational Activity Model
NSV-4 Systems Functionality Description
NOURY Samir
Profile: NAF Functional Administrator
Repository: SOHO
Environment: EnvTestsLab_1500_003_tst_6191
Switch Profile
Save
Logout
Import
Export
Scheduling Management
Set Current Library
Architectural Description_NAF
Switch work environment
Mapping Editor
Advanced Search
English
HOPEX V2R1 Style
Settings
Community

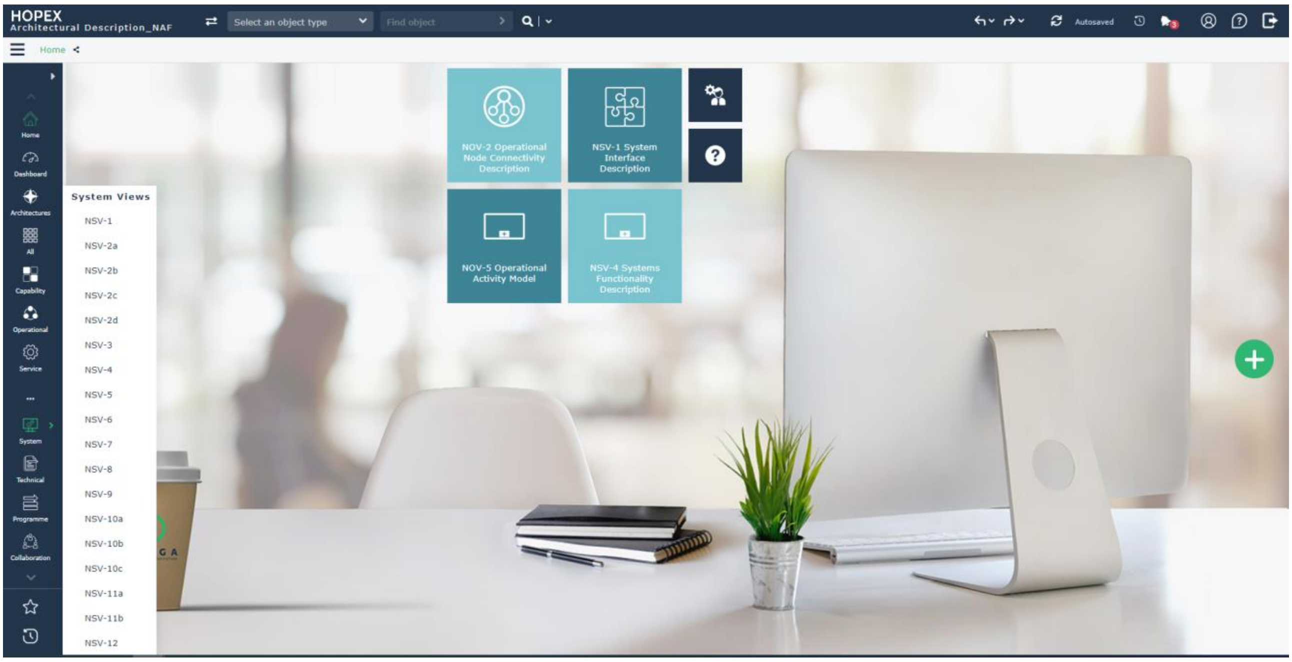

HOPEX
Architectural Description_NAF
Select an object type
Find object
Autosaved
Home
System Views
NSV-1
NSV-2a
NSV-2b
NSV-2c
NSV-2d
NSV-3
NSV-4
NSV-5
NSV-6
NSV-7
NSV-8
NSV-9
NSV-10a
NSV-10b
NSV-10c
NSV-11a
NSV-11b
NSV-12
NOV-2 Operational Node Connectivity Description
NSV-1 System Interface Description
NOV-5 Operational Activity Model
NSV-4 Systems Functionality Description

Figure 9 - Business Continuity Management menu

8. HOPEX IRM

8.1. Business Continuity Management

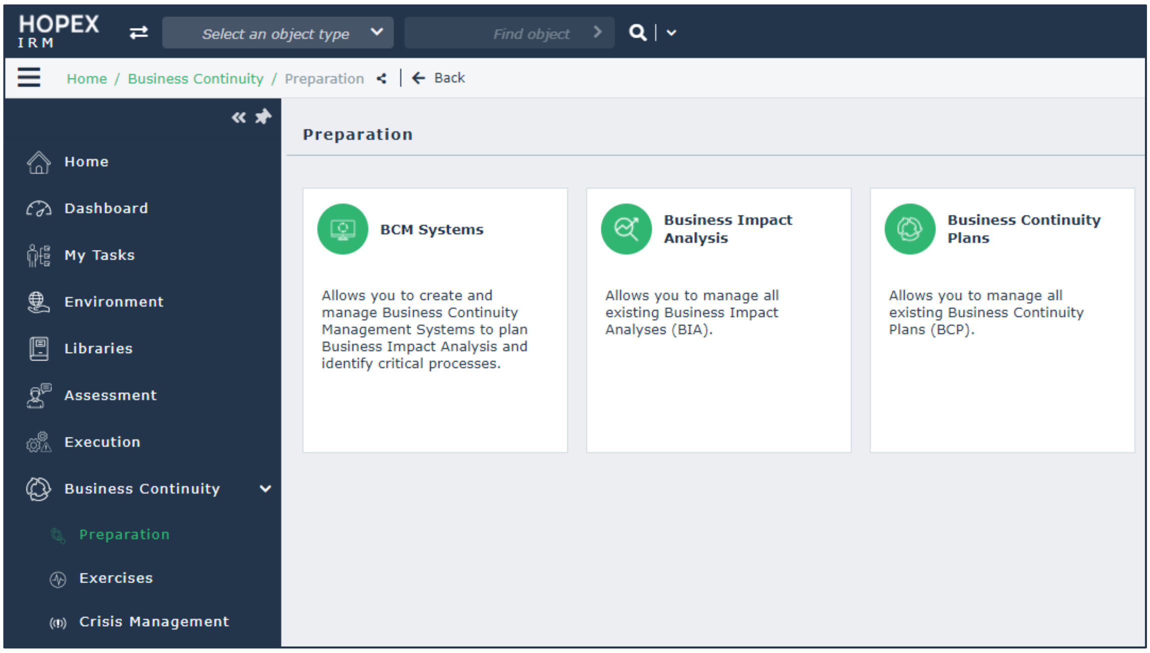
Business continuity may be defined as "the capability of an organization to continue the delivery of products or services at pre-defined acceptable levels, following a disruptive incident".

HOPEX IRM now integrates a comprehensive Business Continuity Management (BCM) module, allowing organizations to:

Analyze the criticality of their processes via Business Impact Analysis (BIAs);

Build and test Business Continuity Plans (BCPs) and

Manage disrupting events to ensure the recovery of affected operations within the pre-defined time objectives.

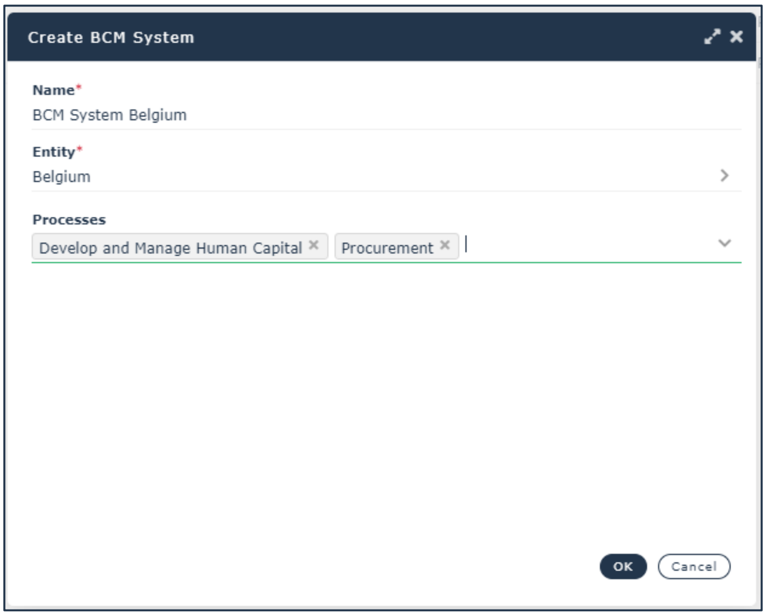


8.1.1. Start new BCM initiative

To launch a new Business Continuity Management initiative, the user must create a BCM System. This is the object which defines the scope of the continuity project, i.e. the entity and processes starting from which the various Business Impact Analysis (BIAs) are launched and monitored.

Figure 10 - BCM System wizard

Figure 11 - BCM System property page



BCM Systems can be created from the menu "Business Continuity>Preparation>BCM Systems".

To create a BCM system, the user should provide:

A name

An entity – This is the main entity whose processes are analyzed for business continuity purposes

A list of business processes – These are the root processes, also referred to as the BCM System scope, starting from which the user can select the processes to analyze via a BIA. This field proposes all the business processes directly linked to the selected entity.

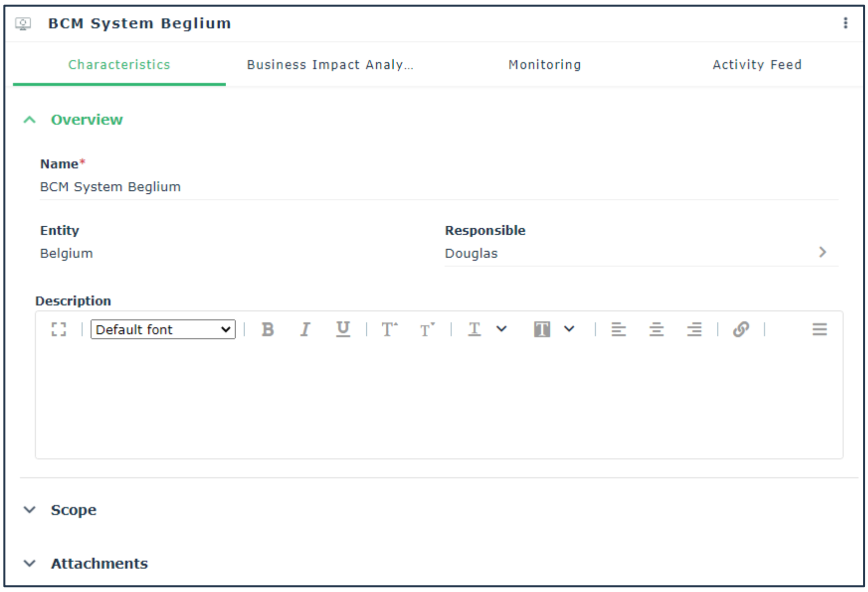


Figure 12 - BIA wizard

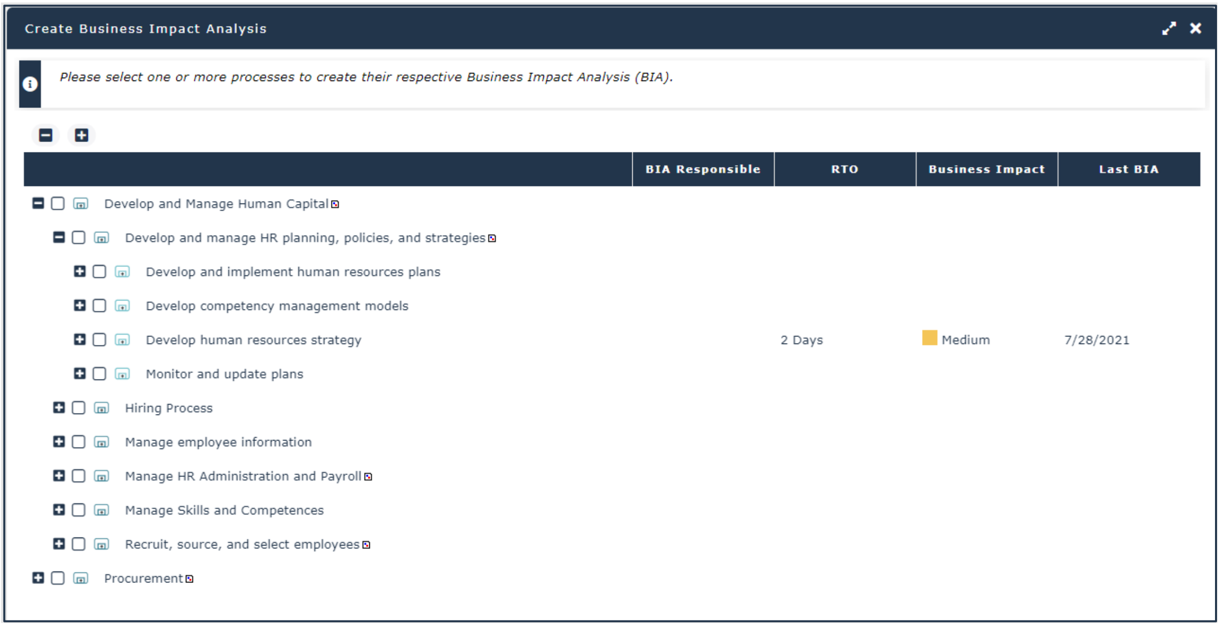
From a BCM System the user can create one or more Business Impact Analysis, through a dedicated wizard, available from the page "Business Impact Analysis".

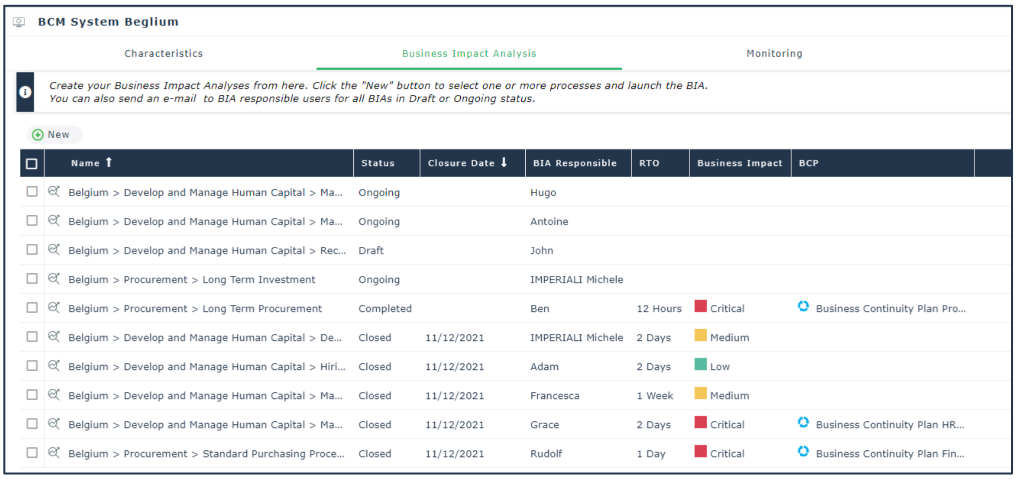
This wizard allows to select the processes to be analyzed, via a hierarchy of processes, built starting from the business processes belonging to the BCM System scope.

For every process selected via this wizard, a new BIA is created with status "Draft".

Every BIA has a responsible, which by default is the process owner.

Figure 13 - BIAs of a BCM System





8.1.2. Business Continuity Analysis Template

Every new BCM System uses a template, called Business Continuity Analysis Template, which defines the entire logic that is used when carrying out Business Impact Analyses.

The Business Continuity Analysis Template defines things such as:

The list of impact types that are assessed via the BIA (e.g. financial, reputational, operational, regulatory, environmental, etc.).For every impact type, the user can specify:

A weight that will be used to compute the BIA results.
The possible answers and their weights.

The list of downtime periods that will be used when assessing every given impact on the analyzed processes. For every downtime period, the user can specify a weight that is used to compute the BIA results.

The possible outcomes of the BIA in terms of business impact (e.g. critical, medium, low).

The rules that are used to compute respectively:

The weight of each pair (question, answer)
The Recovery Time Objective (RTO)
The business impact

By default, HOPEX delivers one standard template, called "Standard Business Continuity Analysis Template", thus every new BCM System will be created using this template.

If the organization defines its own template, the wizard to create a new BCM System will include an additional field to specify what template should be used when carrying out the BIAs.

Only the IRM Functional Administrator can create new Business Continuity Analysis Templates, using the dedicated menu Administration>Business Continuity.

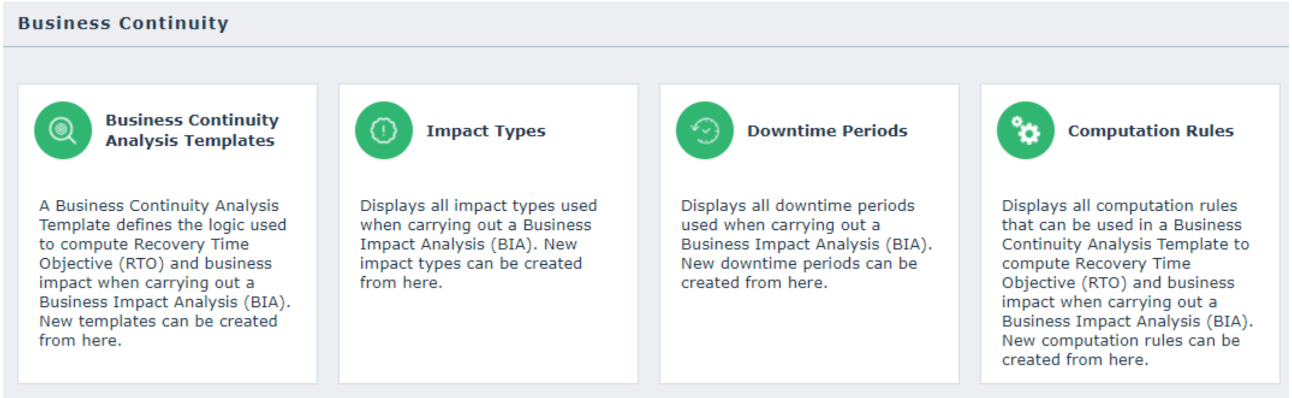
Important! Once a BCM System is created, it is not possible to change the associated Business Continuity Analysis Template.

From the Administration>Business Continuity menu, the IRM Functional Administrator can:

- Create new Business Continuity Analysis Templates
- Create new impact types and downtime periods
- Create new rules to compute the results of the BIAs

Figure 15 - Send BIA notification emails to responsible users

Figure 14 - Admin menu for business continuity

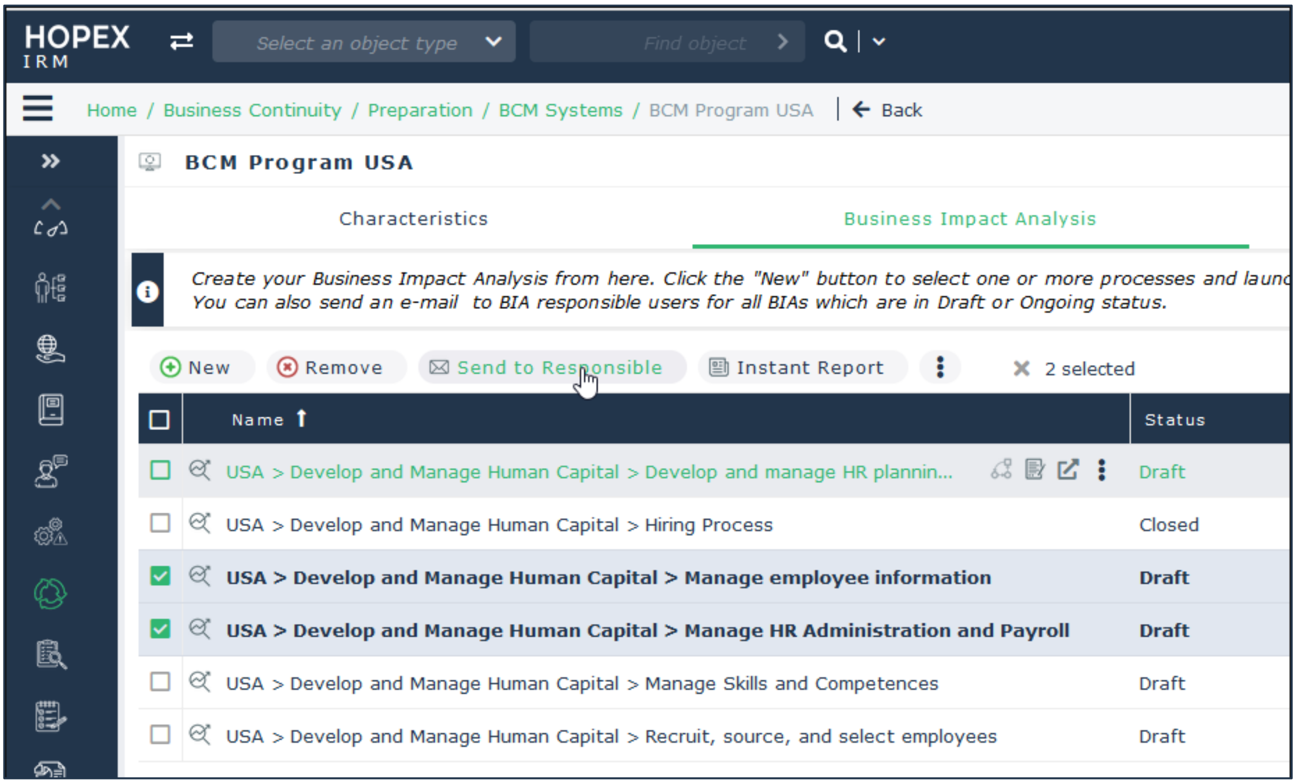


8.1.3. Managing a Business Impact Analysis

The objective of a Business Impact Analysis (BIA) is to assess the business impact of a given process and what its Recovery Time Objective (RTO) is, which is defined as the maximum tolerable time of process unavailability.

To manage all existing Business Impact Analysis the user can do so via the menu "Business Continuity>Preparation>Business Impact Analysis".

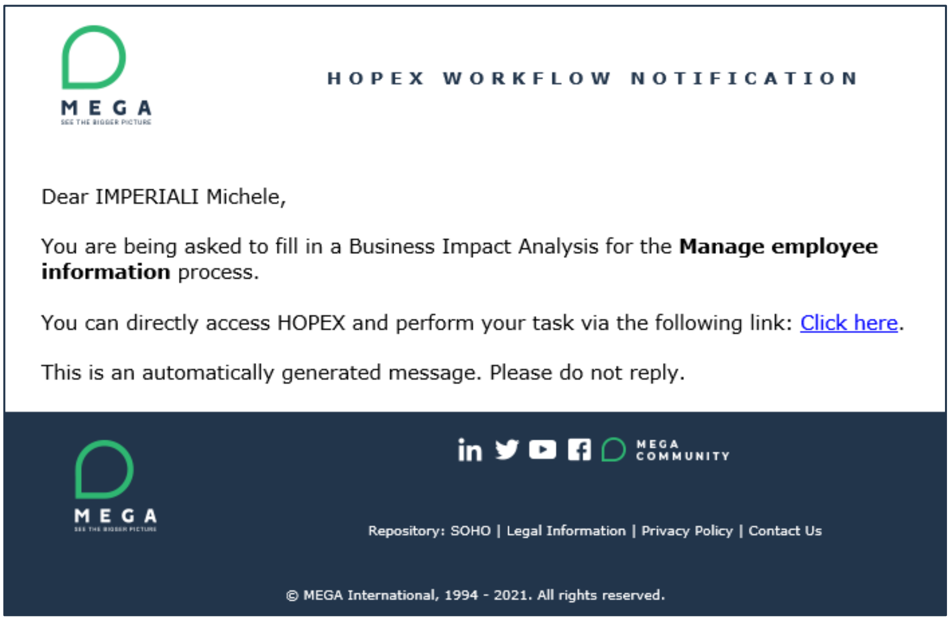
Important! BIAs must be created from within a BCM System, from the page "Analysis". From this page the user can select one or more BIAs and use the dedicated button "Send to Responsible" to notify via email the responsible users that they are required to fill out the BIA.



For main IRM users, via the menu "My Tasks>Business Continuity", they can access to:

Figure 16 - New BIA to complete email notification

- All BIAs in status ongoing or completed where the logged in user is identified as responsible (i.e. it is the person who must fill out the BIA).
- All BIAs, with status different from closed, belonging to a BCM System where the logged in user is responsible.


HOPEX WORKFLOW NOTIFICATION

Dear IMPERIALI Michele,

You are being asked to fill in a Business Impact Analysis for the **Manage employee information** process.

You can directly access HOPEX and perform your task via the following link: Click here.

This is an automatically generated message. Please do not reply.

MEGA COMMUNITY

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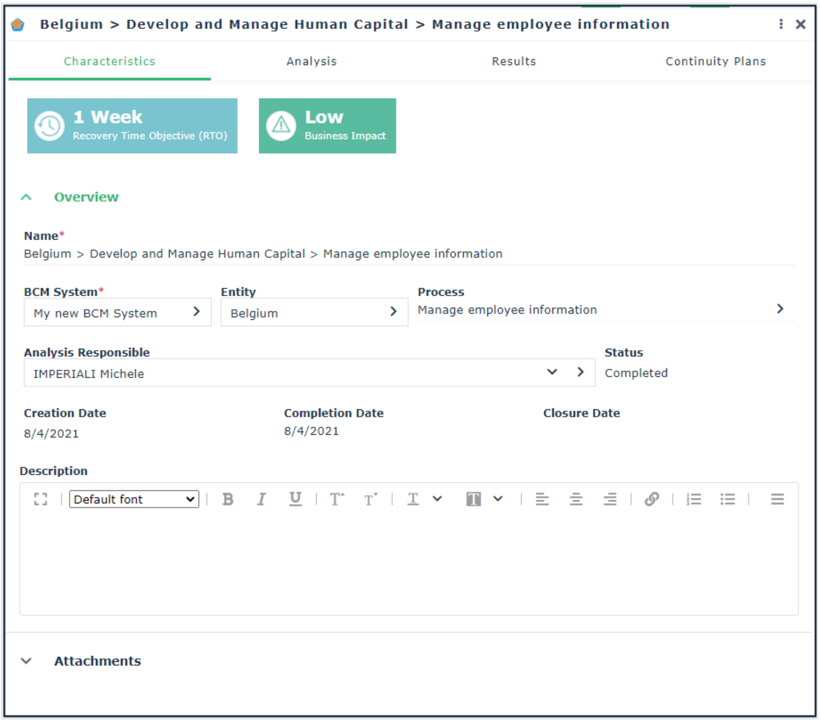
A BIA is characterized by the following info:

Dashboard indicators highlighting the results of the BIA
Name
BCM System the BIA belongs to
Entity the analyzed process belongs to
Analyzed process
BIA responsible – The user in charge to fill out the BIA
Status – When the BIA is in Draft status this field is hidden, and a button "Send to Responsible" allows to notify the BIA responsible via email that he/she has to fill out the BIA. Once the button is clicked the BIA is moved to the status ongoing and the button disappears
Creation Date – This is the creation date of the BIA
Completion Date – Date at which the BIA responsible filled out the BIA
Closure Date – Date at which the manager has validated the BIA results and closed the BIA to prevent further modifications

Figure 17 - BIA characteristics property page

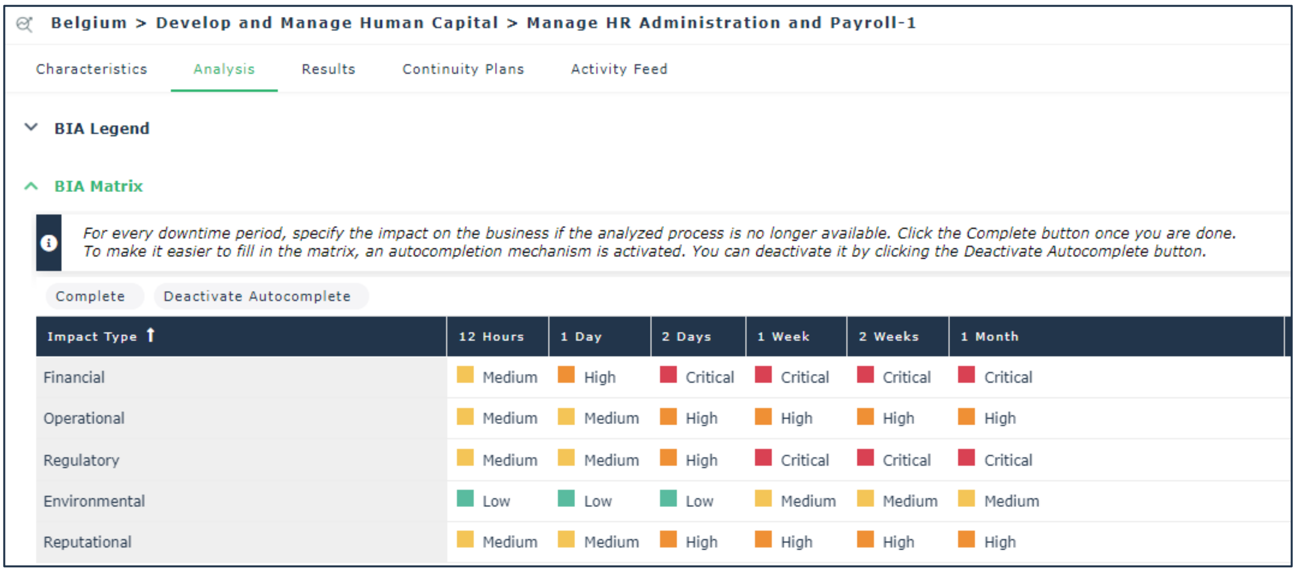
Figure 18 - BIA matrix



Like for all other main HOPEX objects, it is also possible to add attachments to every BIA.

The Analysis page is where the actual analysis is carried out. It is here that the BIA responsible has to answer questions regarding the various types of impacts the business will face when the process is disrupted by an incident.

Until the BIA is in draft status, i.e., it has not been sent to the BIA responsible, this page is empty, and a message warns the user that the BIA has not been sent to the responsible yet.



The Analysis page contains two sections:

BIA Legend – It is collapsed by default and provides valuable info regarding the meaning of the various impact types and possible answers that the BIA responsible uses to fill out the BIA.

BIA Matrix – It contains the actual table to be filled out to compute the process business impact and Recovery Time Objective (RTO).

8.1.4. Fill out a Business Impact Analysis

Contributor users, have a dedicated menu ("My Tasks>Business Continuity") to access to all BIAs where they are identified as responsible.

BIAs listed under this menu are in one of the following statuses:

- Ongoing – These are the BIAs yet to be filled out by the contributor.
- Completed – These are the BIAs the contributor has filled out. He/she can reopen the BIA and modify their answers before resubmitting it for validation.

To mark a BIA as completed, the user must fill out all cells of the BIA matrix, which means respond to every question regarding the different impact types and downtime periods.

To help the process owner save time, if a past BIA exists for the process under analysis, the new BIA will be prefilled with the latest existing BIA answers.

To make it easier to fill out the BIA matrix, whenever the user fills out a cell, an algorithm automatically fills out with the same value all cells on its right.

This autocompletion mechanism is activated by default, but can be disabled via the dedicated button "Deactivate Autocomplete" visible on top of the BIA matrix.

Once the user has filled out the matrix, he/she can flag the BIA as completed clicking the button "Complete" displayed on top of the matrix.

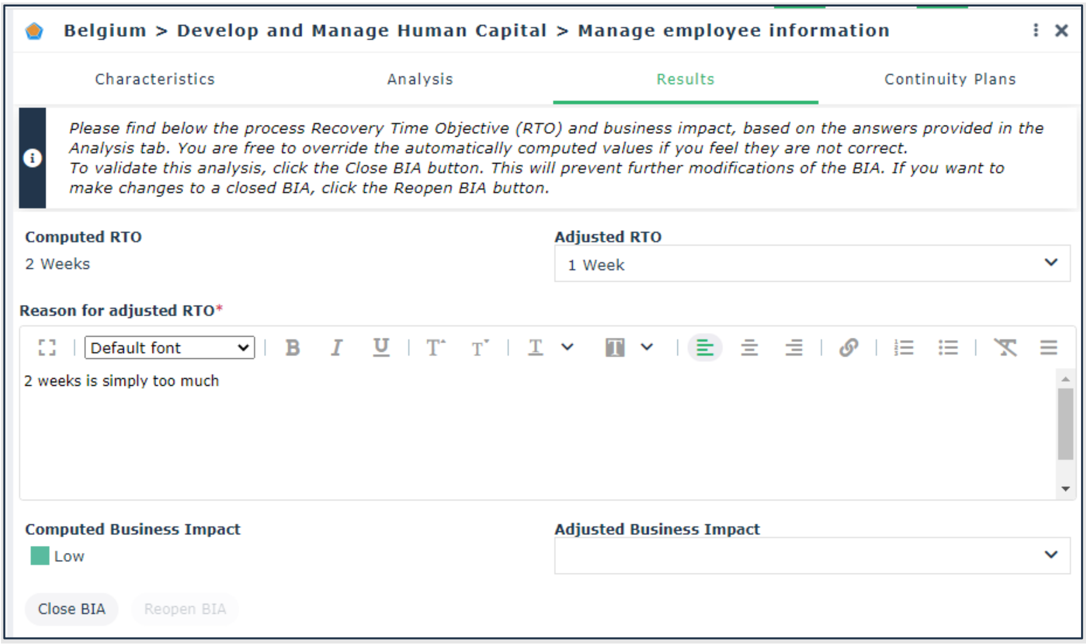
This will move the BIA in completed status and will launch the automatic computation of the BIA results, i.e., the Recovery Time Objective (RTO) and the business impact, both displayed in the Results page.

8.1.5. Validate BIA results

From the BIA Results page, the BCM manager can eventually override the values computed by the algorithm for both RTO and business impact, providing a mandatory explanation for the adjusted values.

Figure 20 - BCM System monitoring

Figure 19 - BIA Results

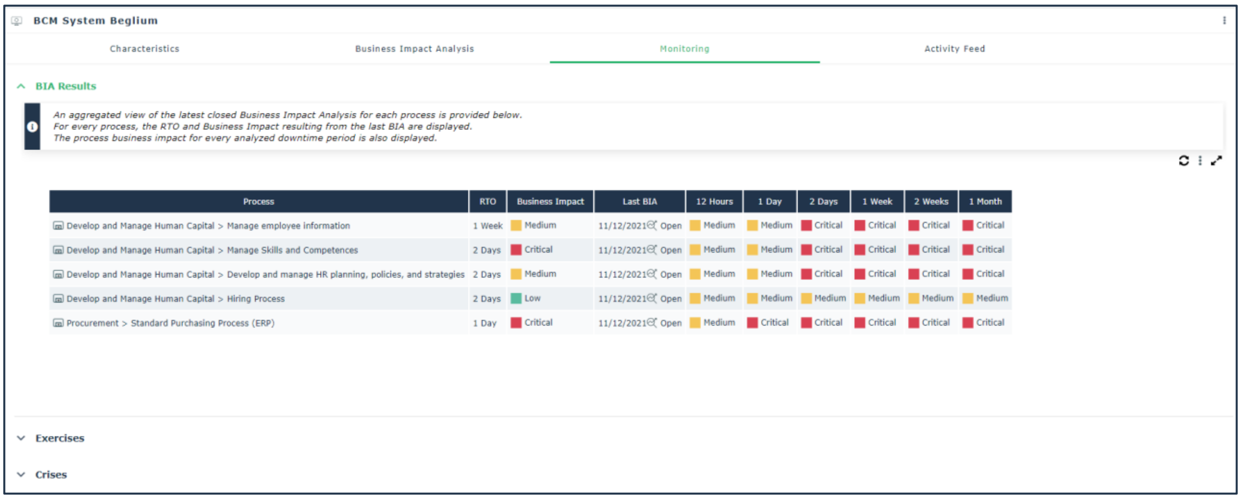


If the user overrides the automatic computed RTO and business impacts, it is the overridden value that is displayed on the BIA dashboard, and not the automatically computed one.

Once the BCM manager has reviewed the BIA results, he can close the BIA, via the "Close BIA" button. This will prevent any further modification of the BIA results. It is always possible to reopen a BIA, if new edits are required, via the "Reopen BIA" button.

8.1.6. BCM System Monitoring

At any given time, BCM managers can monitor a given BCM System. The page "Monitoring" of a BCM System displays detailed information on all closed BIAs, BCP exercises and crisis.



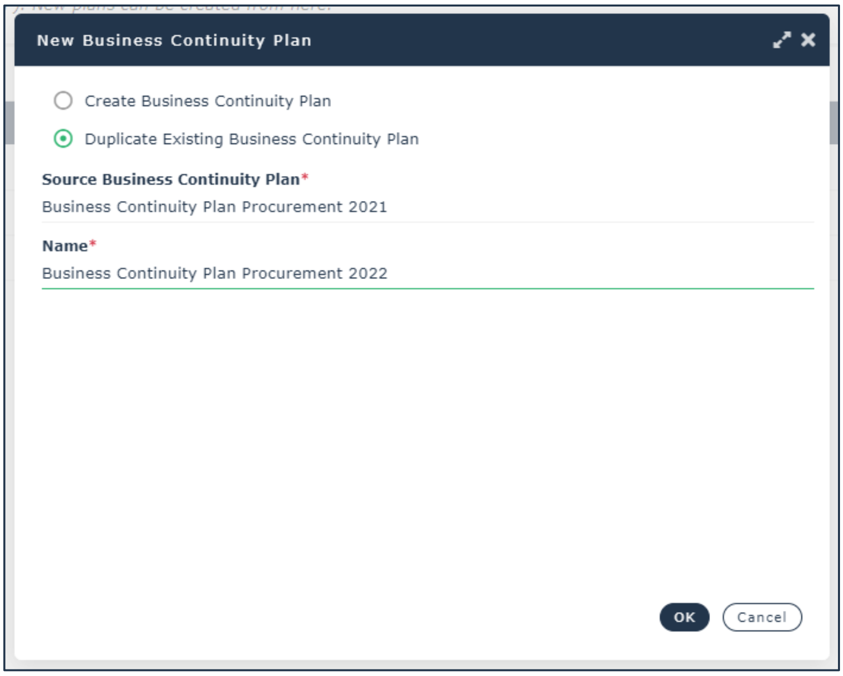
8.1.7. Managing Business Continuity Plans

The objective of a Business Continuity Plan (BCP) is to identify all the steps required to recover a process from an incident and ensure operational continuity.

Business Continuity Plans can be created from within a Business Impact Analysis and are automatically associated with the process analyzed by the BIA.

To make it easier to manage the review of existing BCPs, it is possible to duplicate BCPs. The result is a BCP which is an exact replica of the existing one, which can be archived for audit purposes.

Figure 21 - Duplicate existing BCP



A list of all existing BCPs can be accessed from the menu Business Continuity>Preparation>Business Continuity Plans.

A BCP is characterized by an overview, which contains the following info:

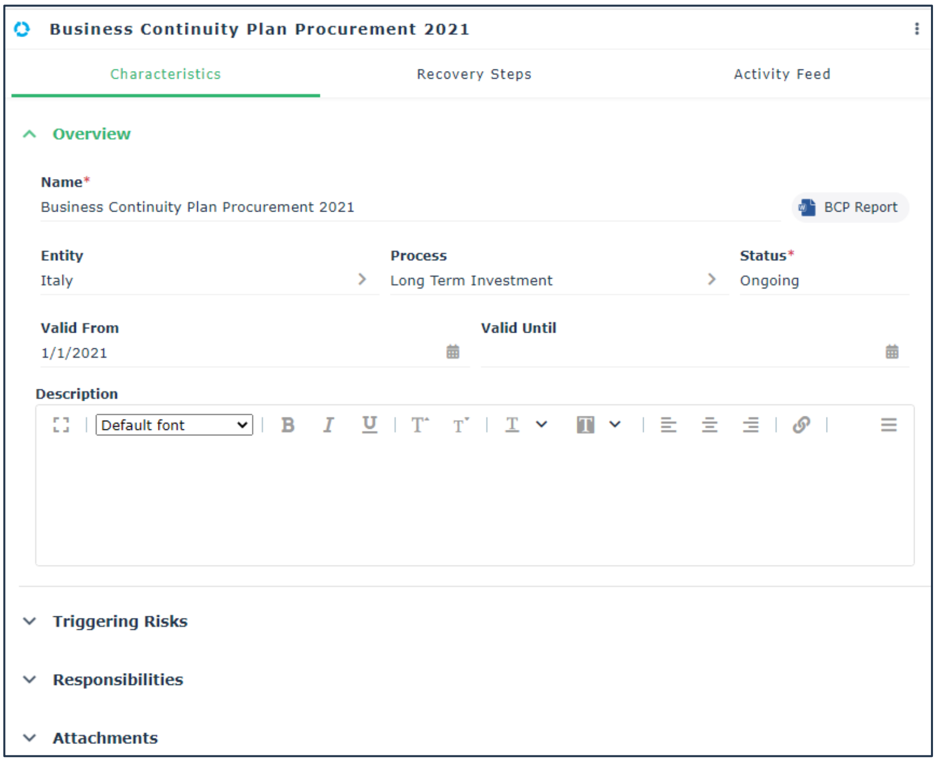
- Name and button to download the BCP in Word format
- Entity – Together with the field Process, it defines the scope of the BCP
- Process
- Status
- Valid From and Valid Until – It is the validity period of the BCP
- Description

There are then the following additional sections:

Figure 22 - Business Continuity Plan

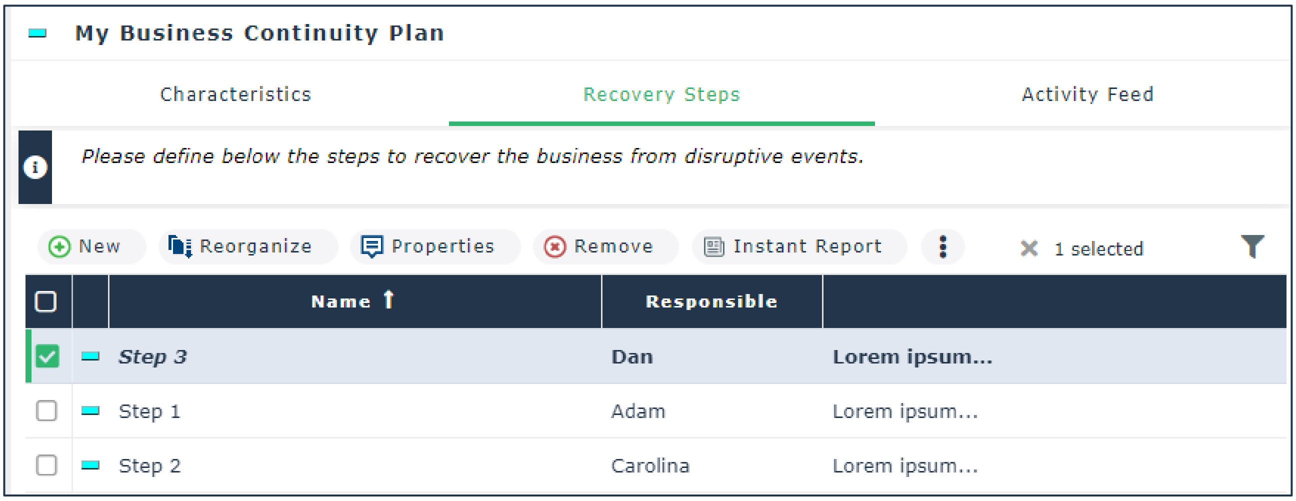
Figure 23 - BCP recovery steps

- Triggering Risks - It lists the risks which can trigger the BCP. By default this list is automatically filled with all risks impacting the BCP process.
- Responsibilities – It defines RACI roles with respect to the current BCP
- Attachments



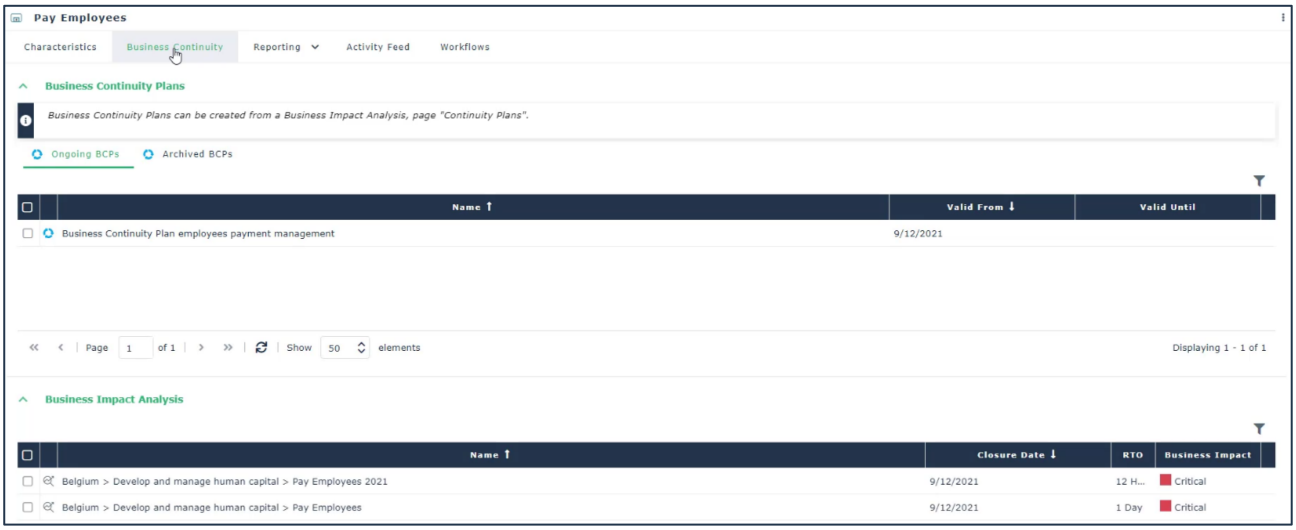
To define how to recover the process after a disrupting event, the BCM manager shall define the recovery steps in the corresponding page.

Recovery steps are characterized by a description and a responsible person.



Once a process is analyzed, a new page "Business Continuity" is added to its properties.

Figure 24 - Process business continuity properties



From this page, users can access to the full list of business continuity plans defined on the process, whether they are ongoing or archived, plus the full list of business impact analyses.

Figure 25 - BCP Word report

To access to the full list of BCPs existing in the environment, there is a dedicated menu, under Business Continuity>Preparation>Business Continuity Plan

From any list of BCPs, or from within the property page, it is possible to download a Word version of the business continuity plan.

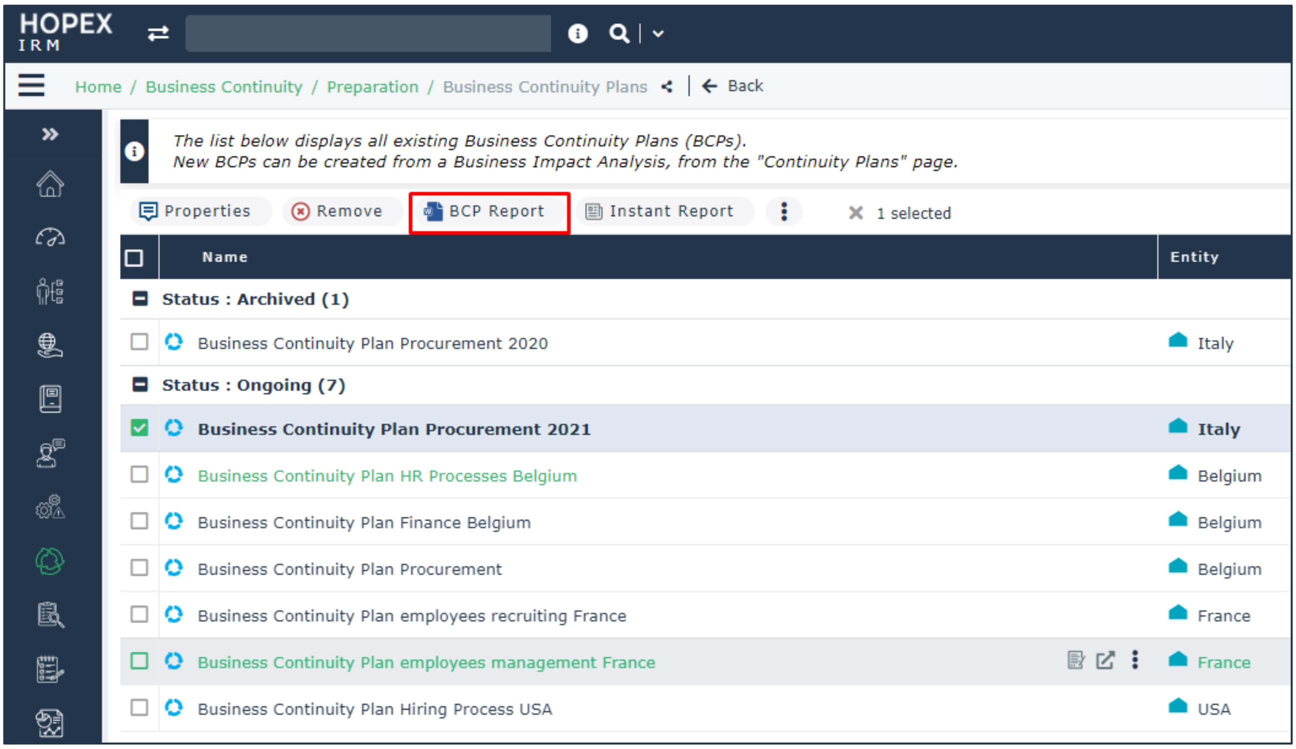


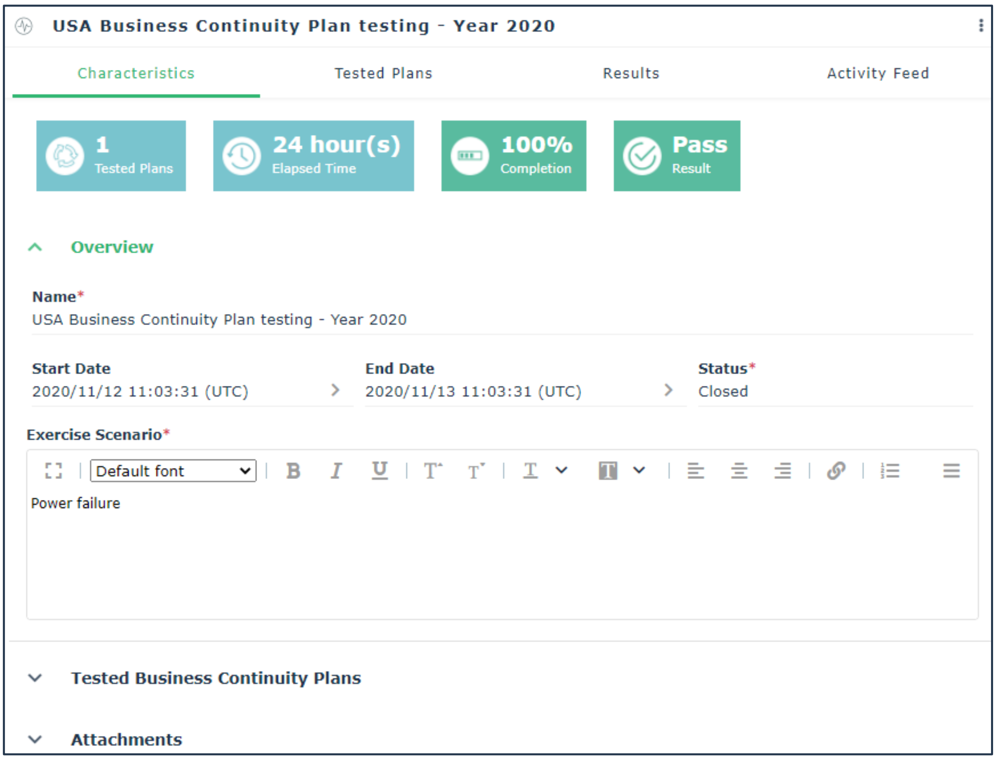
Figure 26 - Business continuity exercise characteristics

8.1.8. Test Business Continuity Plans

To regularly test existing Business Continuity Plans, the user can create business continuity exercises from the menu Business Continuity>Exercises.

In the Characteristic page of an exercise, the user can find the following info:

- A dashboard with the number of BCPs tested by the exercise, the hours taken to complete it, the completion rate and whether the exercise was successful or not
- Basic information such as the exercise start and end date, status, and scenario
- The list of business continuity plans tested by the exercise
- Any relevant attachment

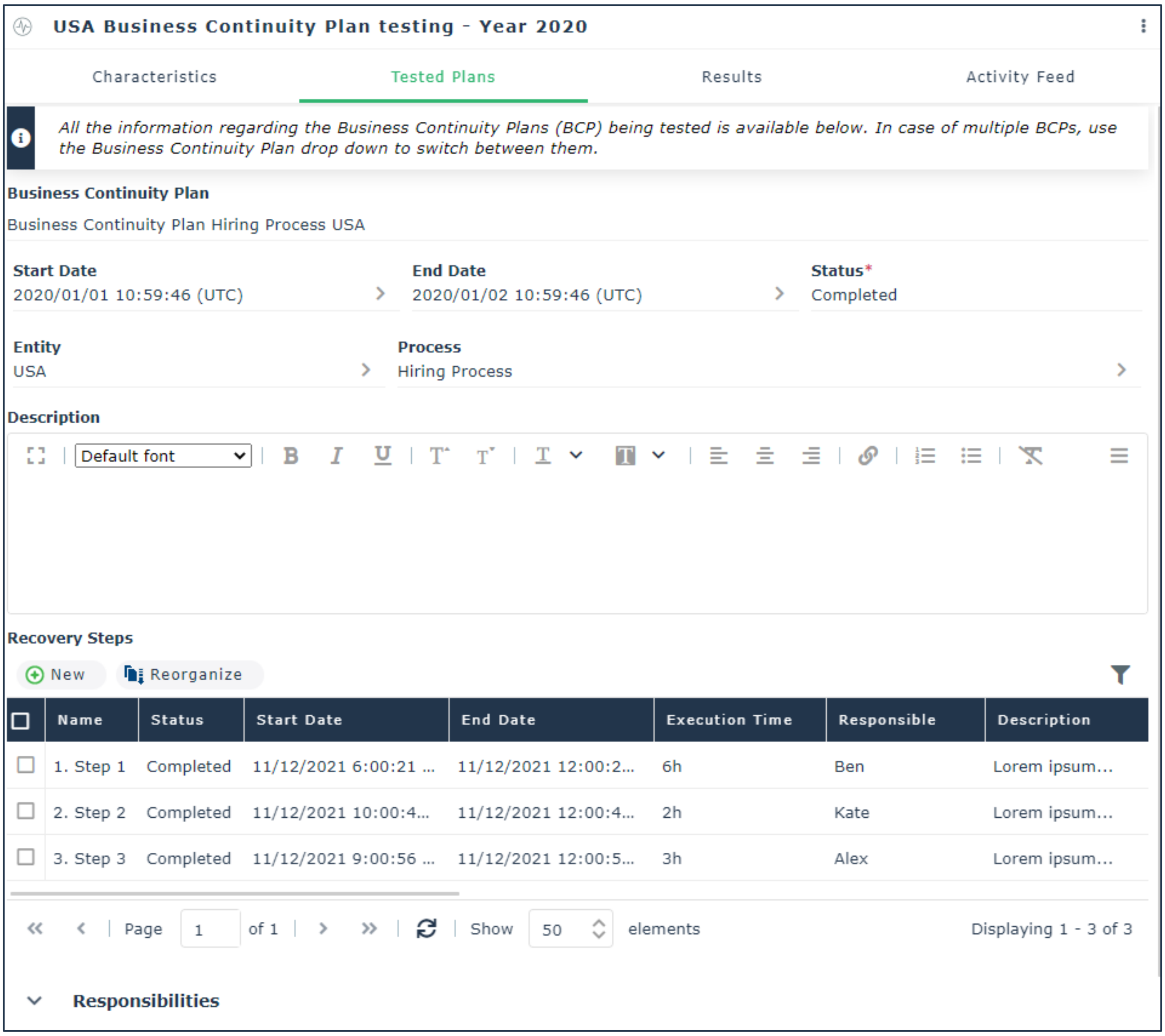


From the Tested Business Continuity Plans section, the user can select one or more BCPs and trigger an email notification to be sent to all BCP stakeholders, informing them about the scheduled exercise.

The email notification includes the concerned BCP as attachment.

To access the details about every business continuity plan being tested, the user shall access the "Tested Plans" page, where for every BCP, the list of recovery steps, responsibilities and attachments is provided.

Figure 27 - Tested plans details

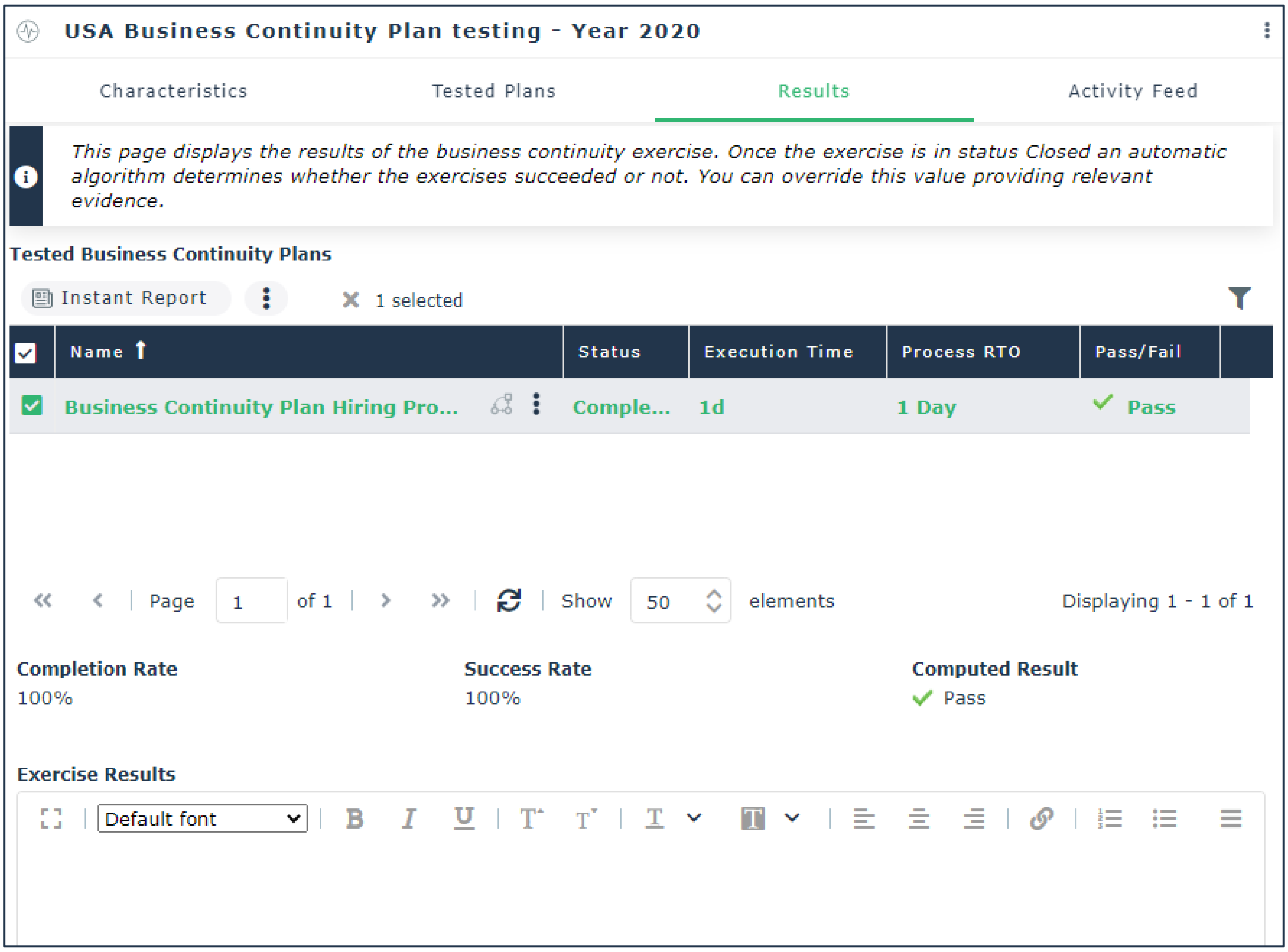


Starting from this page, the user can manage each BCP being tested. This means:

- Modify the BCP status, its start and end date
- Modify or delete existing BCP recovery steps, or adding new ones. In the latter case, a column “In original BCP?” will inform the user if the step was not originally included in the BCP.

To monitor the overall progress of the exercise, a dedicated page “Results” is available.

Figure 28 - Business continuity exercise results



From this page the user can monitor the status of each BCP, and the time taken to complete it. This time is automatically compared with the associated process Recovery Time Objective. If the time taken to complete the BCP is less than the process RTO, the BCP is considered as passed, otherwise as failed.

Based on the Pass/Fail score of the tested business continuity plans, two rates are computed automatically:

Completion Rate -> The percentage of BCPs which were completed, regardless the time taken

Success Rate -> The percentage of BCPs which were completed in a time which is less than the associated process RTO

If the Success Rate is equal to 100%, the exercise is considered as Pass. The user can override this value.

Additional comments can also be provided in a dedicated "Exercise Results" field to record any evidence and lesson learned.

8.1.9. Managing Crises

HOPEX IRM now integrates an intelligent mechanism which warns GRC professionals in case of potential crisis striking the organization, guiding every stakeholder towards the full recovery of impacted processes.

The way HOPEX realizes that a process may have been impacted by an incident is simple: whenever an incident is linked to a risk, which in turns impacts a process of the organization for which a BCP exists, the user is prompted with a warning, and he/she can decide whether to trigger the corresponding business continuity plan[1] or not.

Once the user is prompted with the crisis warning, he/she can either decide to trigger a new crisis or add the impacted process to an existing one.

As soon as the wizard is closed, all persons identified in the RACI of the business continuity plan of the impacted process and those responsible for one or more recovery steps will be notified via email in order to ensure a prompt recovery.

The email notification includes the concerned BCP as attachment.

The user can access a full list of current and past crisis via the menu Business Continuity>Crisis Management.

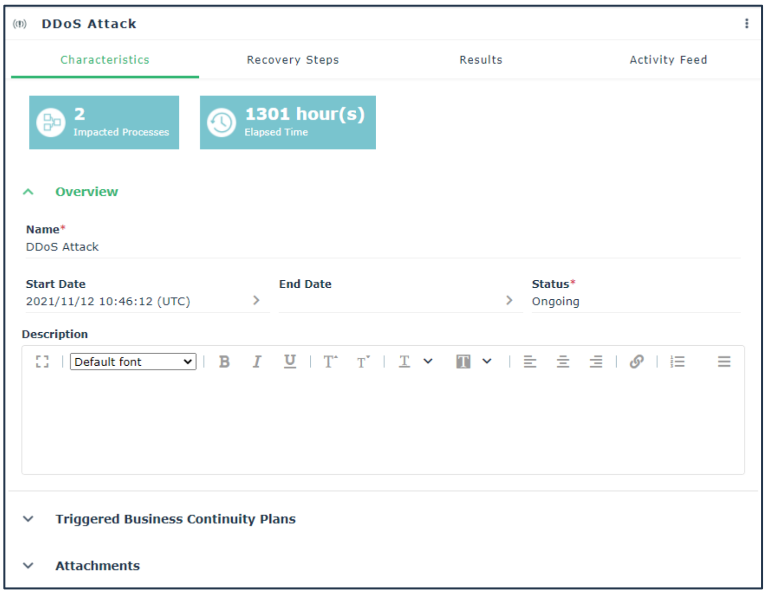
In the Characteristic page of a crisis, the user can find the following info:

- A dashboard with the number of processes impacted by the crisis and the hours passed since the beginning of the adverse event
- Basic information such as the crisis start and end date, status, and description
- The list of business continuity plans triggered by the crisis
- Any relevant attachment

[1] The requirements that must be met are: incident must be in a status which is either “To be validated” or “Validated”, the risk linked to the incident must be in the scope of the process. The process must have an associated BCP in status “Ongoing”, and the risk must be listed in the “Triggering Risks” list.

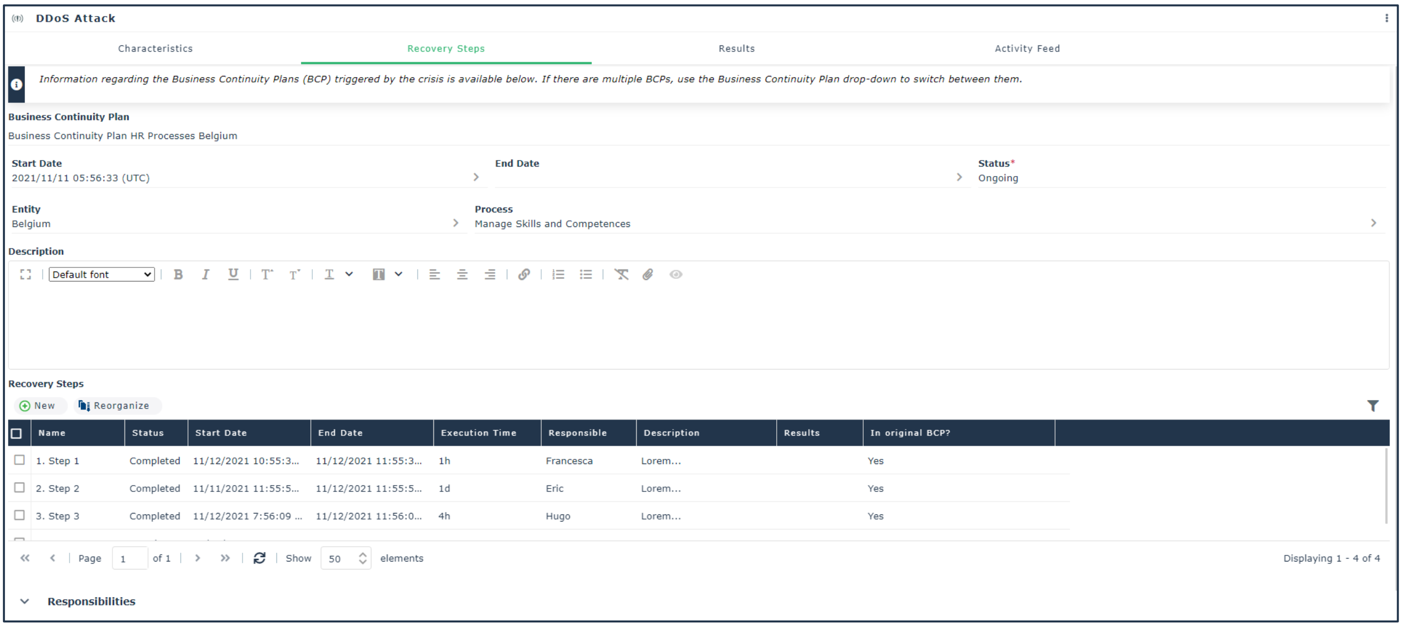
Figure 29 - Crisis property page

Figure 30 - Crisis recovery steps



To access the details about every business continuity plan triggered by the crisis, the user shall access the “Recovery Steps” page, where for every BCP, the list of recovery steps, responsibilities and attachments is provided.

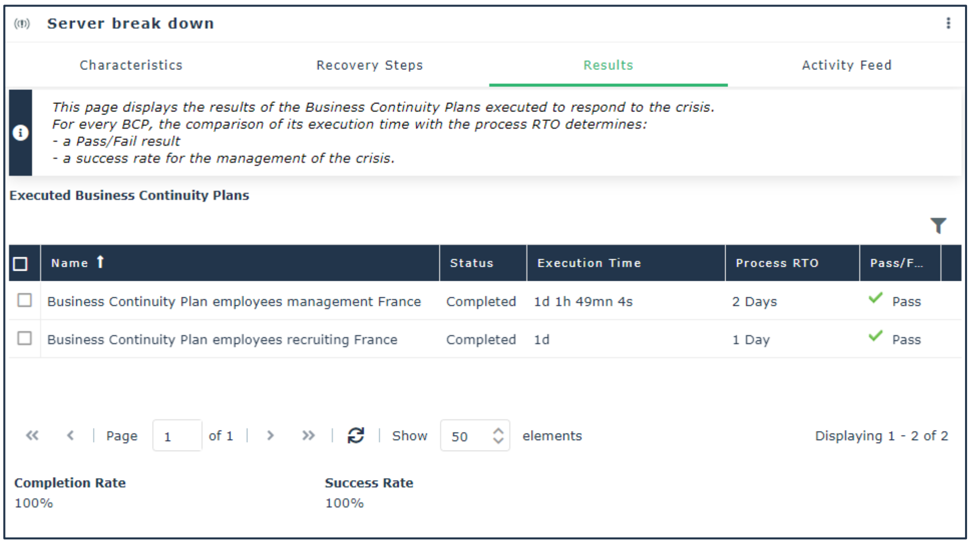
Figure 31 - Crisis management results



Starting from this page, similarly to what is available for BCP exercises, the user can manage each BCP triggered by the crisis. This means:

- Modify the BCP status, its start and end date
- Modify or delete existing BCP recovery steps, or adding new ones. In the latter case, a column "In original BCP?" will inform the user if the step was not originally included in the BCP.

To monitor the overall progress of the BCP triggered by the crisis, a dedicated page "Results" is available.



From this page the user can monitor the status of each BCP, and the time taken to complete it. This time is automatically compared with the associated process Recovery Time Objective. If the time taken to complete the BCP is less than the process RTO, the BCP is considered as passed, otherwise it will be considered as failed.

Based on the Pass/Fail score of the triggered business continuity plans, two rates are computed automatically:

Completion Rate -> The percentage of BCPs which were completed, regardless the time taken

Success Rate -> The percentage of BCPs which were completed in a time which is less than the associated process RTO

Additional comments can also be provided in a dedicated “Crisis Results” field to record any evidence and lessons learned.

8.1.10. BCM Concepts

The following main concepts exist in HOPEX to manage everything related to Business Continuity Management.

Concept	Description
BCM System	This is the main entry point of a BCM initiative. It is used to define the scope of the business continuity management project, i.e. the entity and main processes starting from which the various Business Impact Analysis (BIAs) will be launched and monitored.
Business Impact Analysis (BIA)	The Business Impact Analysis (BIA) is the object which allows to study the business criticality of a given process. It consists in a questionnaire which is meant to analyze the evolution of the impact that the business will face in case of process disruption, as time goes by.
Business Continuity Plan	The Business Continuity Plan (BCP) outlines the set of steps required to recover a process affected by a disrupting event.
Crisis Management	The Crisis Management is the crisis control room. From this object it is possible to access to all BCPs triggered by a crisis and thus ensure all required recovery steps are executed as planned.

In addition to the concepts listed above, other new concepts have been introduced to manage the logic implemented to carry out the Business Impact Analysis.

Concept	Description
Business Continuity Analysis Template	This is the object that holds the entire logic used by the BIA, such as: the list of impact types for which the user should provide an answer, the list of downtime periods and the rules to automatically compute the BIA results.
Impact Type	These are the types of impacts that are used by the BIA to compute the criticality of a given process (e.g. Financial, Operational, Regulatory, Reputational, Environmental…)
Downtime Period	These are time periods which are used by a BIA to ask the question “what is the impact if the process is unavailable for this amount of time?” (e.g. 1 hour, 2 hours, 1 day…)
Computation Rules	These objects hold the macros which compute the BIA results, based on the answers provided by the user.

8.1.11. Simpler BCM initiative scope definition – #CP4

A new command has been introduced in the pop-up menu of Business Processes to quickly add them to BCM Systems.

Check the on-line documentation for more details:

HOPEX BCM > Managing BCM Systems > Creating a BCM System and Defining its Scope[2].

8.1.12. Create a new BIA from the assessed object – #CP4

A new command has been introduced in the contextual menu of Business and Organizational Processes to quickly create a BIA.

Check the on-line documentation for more details:

HOPEX BCM > Defining a Business Impact Analysis > Creating a BIA (Business Impact Analysis)[3].

8.1.13. E-mails from BCP Test and Crisis management have been reviewed – #CP4

The content of the e-mails has been aligned with all the other IRM-related e-mails. Also, the login link in those e-mails has been changed to bring the user directly to the properties of the object he should access.

8.1.14. Product Key and Profiles Access Rights

A new product key is now available to filter all concepts and menu entries related to BCM. The key name is "HOPEX BCM".

The IRM desktop is now enriched with new entries, to provide access to the main BCM features. The table below provides a description for each new menu entry, together with the profiles which can access it.

Menu Entry	Description	Profiles with Access Right
My Tasks>Business Continuity	Lists all Business Impact Analysis that either belong to a BCM System for which the current user is in charge, or have the current user set as BIA responsible. All continuity plans, tested by an ongoing exercise, where the current user is responsible for one or more BCP steps. All continuity plans, triggered by an ongoing crisis, where the current user is responsible for one or more BCP steps.	IRM FA, IRM Manager, Risk Manager, Incident and Losses Manager
My Tasks>Business Continuity (contributor)	All BIAs to be filled by the current user (these are the BIAs in status Ongoing or Completed, where	IRM Contributor

[2] To be able to view the documentation, you must login to the MEGA Community or to HOPEX.
[3] To be able to view the documentation, you must login to the MEGA Community or to HOPEX.

	the current user is BIA responsible). All continuity plans, tested by an ongoing exercise, where the current user is responsible for one or more BCP steps. All continuity plans, triggered by an ongoing crisis, where the current user is responsible for one or more BCP steps.	
Business Continuity>Preparation	It allows to launch BIAs and build BCPs.	IRM FA, IRM Manager
Business Continuity>Exercise	It allows to schedule and run BCP tests.	IRM FA, IRM Manager
Business Continuity>Crisis Management	It allows to create and follow-up on ongoing crisis, giving access to the information related to BCPs to recover disrupted processes.	IRM FA, IRM Manager, Risk Manager, Incident and Losses Manager
Administration> Business Continuity	It allows to define the logic and algorithms used when carrying out BIAs in order to compute business impact and RTO.	IRM FA

8.1.15. BCM has been integrate into BPA – #CP4

BCM has been added to BPA as a possible option.

With this change, BPA profiles will be able to access the Continuity menu and cover the BCM use case.

Check the on-line documentation for more details:

HOPEX BCM > Introduction to HOPEX BCM > Tasks by Profiles[4].

8.1.16. Available profiles – #CP4

Some profiles have been granted access to BCM menus and functionalities (if a BCM key is available to the user)

- Risk Manager, as an end-user
- Process Functional Administrator, as an administrator
- Process Manager, as an end-user.

End users are not able to access the Administration area of the menu.

[4] To be able to view the documentation, you must login to the MEGA Community or to HOPEX.

Figure 32 - Questionnaire with image and video

8.2. Questionnaire Builder

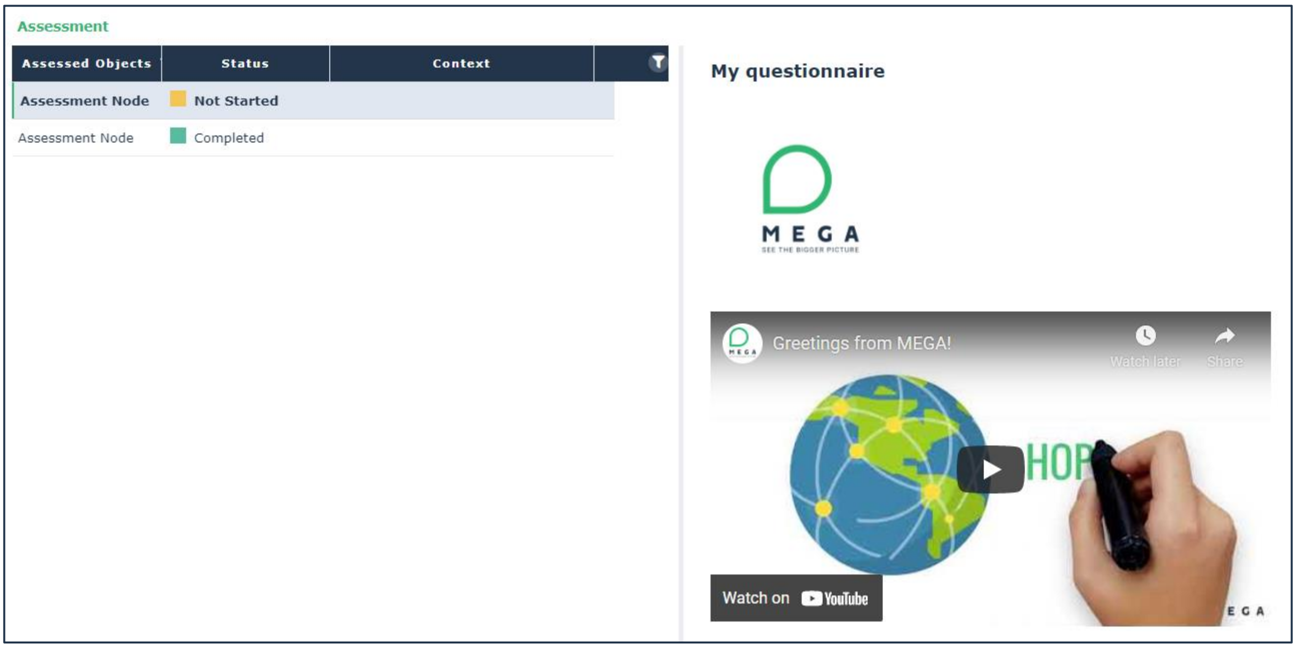
8.2.1. New Question Types

HOPEX V5 now provides three new types of questions:

HTML – It allows to add HTML content to existing questionnaires. For example, users can include YouTube videos simply copy-pasting the code provided by YouTube in the HTML question content. [5]

Image – It allows to add images to existing questionnaires.

Expression – It allows to compute mathematical computations and other type of expressions that can then be displayed to the respondent (e.g. in case of risk assessment, the inherent risk can be computed based on the user's answers to impact and likelihood and displayed right into the questionnaire).



[5] Make sure your HOPEX installation CSP is configured to allow content coming from external sources (e.g. in order to be able to include YouTube videos in your questionnaires, the following text must be added to your installation CSP: *frame-src *.youtube.com;*

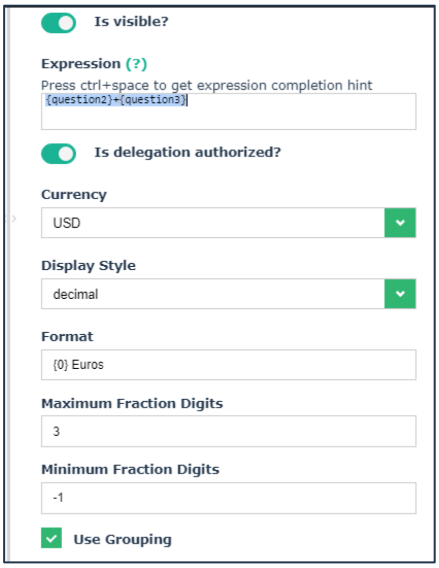


Figure 33 - Expression question properties

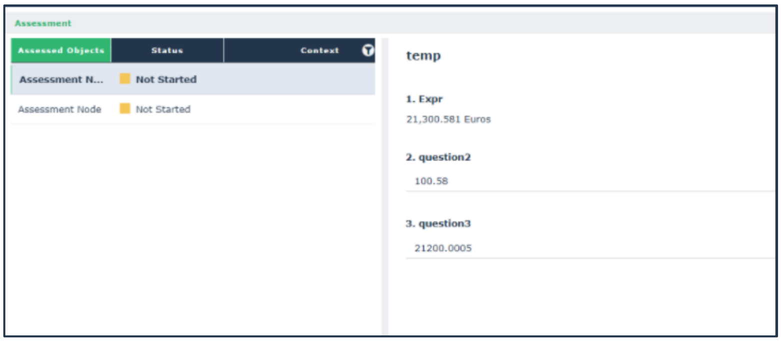


Figure 34 - Expression question

8.2.2. Excel Export/Import

From any questionnaire users can now export the list of questions in Excel format, answer the questions directly in Excel and then import them back into HOPEX.

This functionality makes it possible for anyone to complete a questionnaire, without having to access to HOPEX.

The following questions are not included in the export:

Panel - Questions of type panel are not represented in the Excel file. Only the questions they contain are considered.

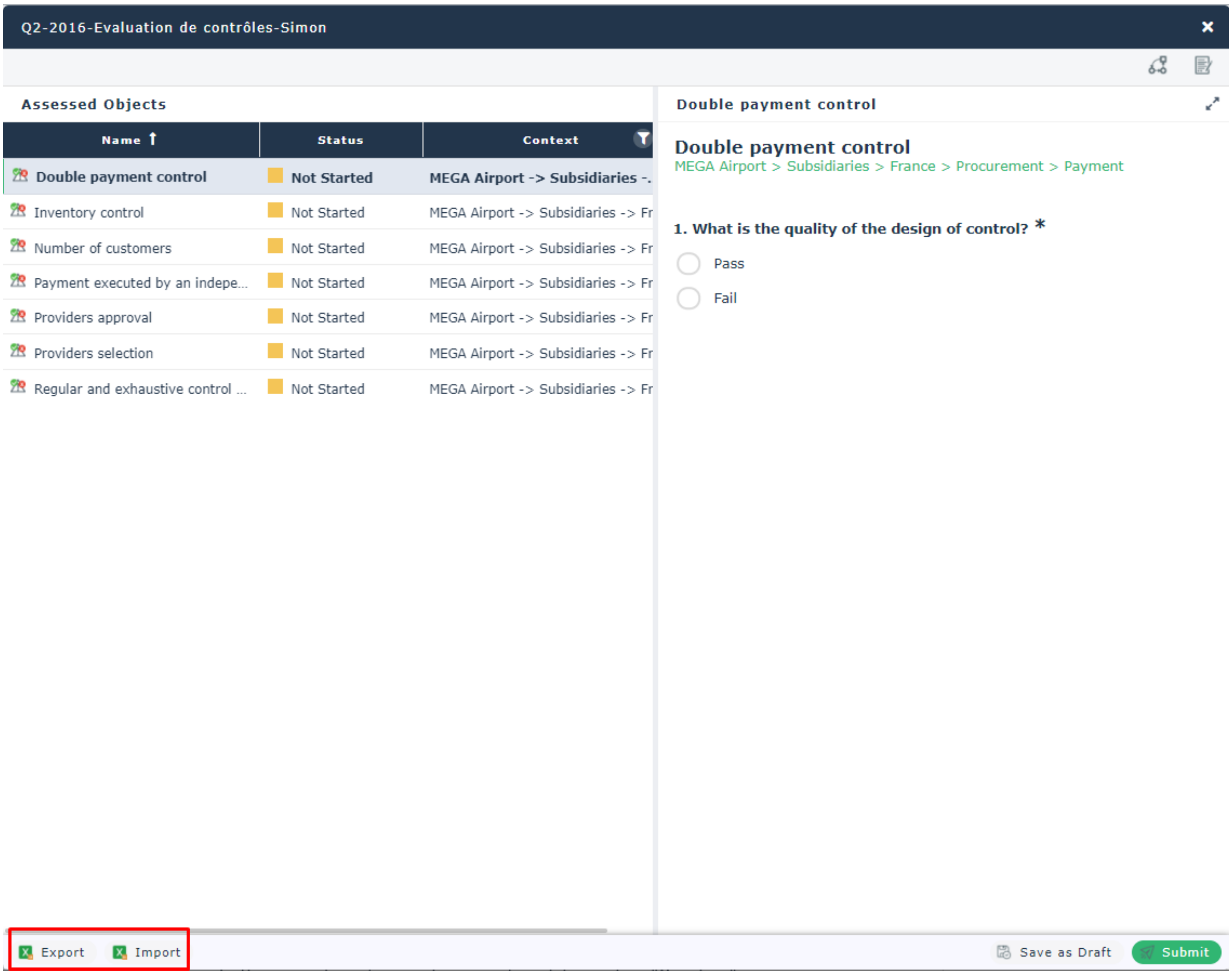
HTML and Image – Questions of type HTML and Image require no answer, therefore they are not included in the Excel file.

Object – Questions of type Object are included in the Excel file, but only for information purposes, i.e. inform the end user that the questionnaire does provide a question which allows to link HOPEX Objects, but this is not possible using the Excel file.

File - Questions of type File are included in the Excel file, but only for information purposes, i.e. inform the end user that the questionnaire does provide a question which allows to upload documents, but this is not possible using the Excel file.

Checkbox - Questions of type Checkbox are included in the Excel file, but only for information purposes, i.e. inform the end user that the questionnaire does provide a question of type checkbox, but this is not possible to answer it using the Excel file.

Figure 35 - Questionnaires Excel export/import



8.2.3. Questionnaire Layout Management

Additional options are now available to modify the default layout of questionnaire instances. These options are to be found:

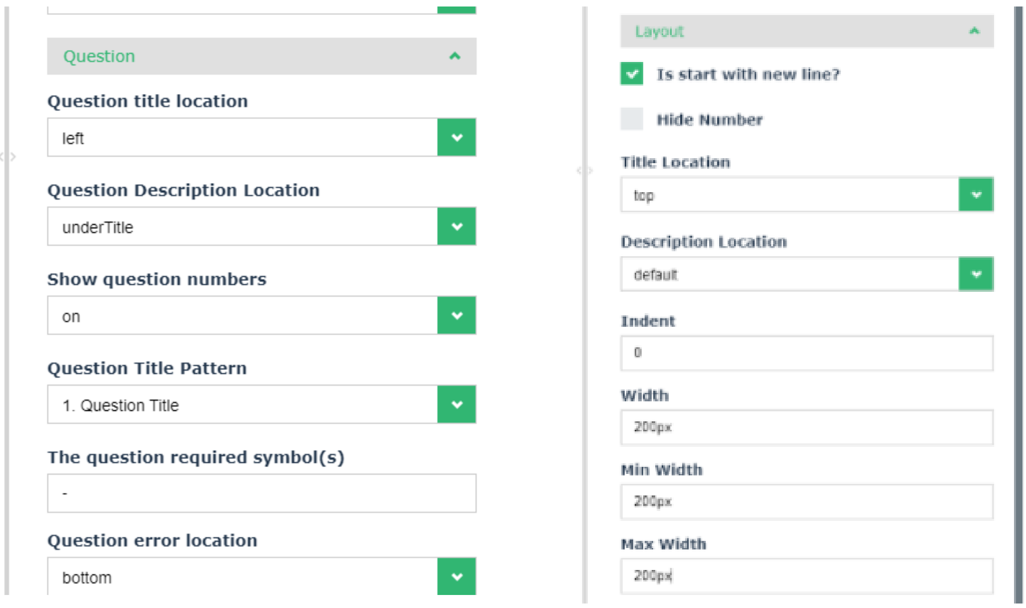
- In the properties of the questionnaire, section "Question"
- In the properties of each question, section "Layout"

Figure 37 - Manage questions layout

Figure 38 - Define tooltip on a question's possible answer

Figure 39 – Rendering of a tooltip on a dropdown question

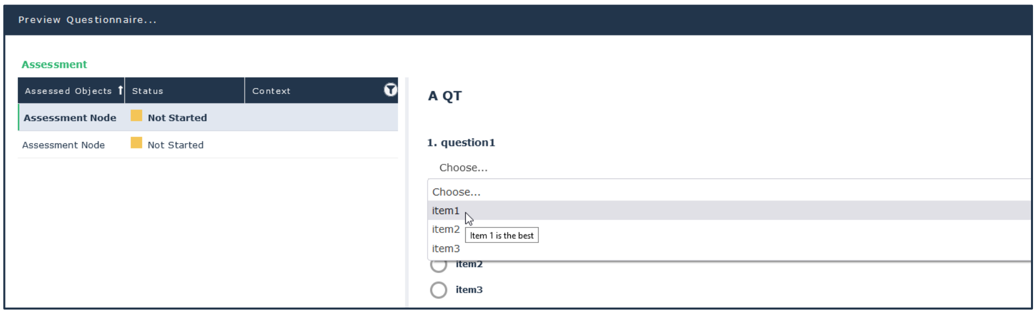
Figure 36 - Questionnaire layout properties



8.2.4. Question tooltips

It is now possible to add tooltips on possible answers to a questionnaire's question. This feature applies to questions of type dropdown, checkbox and radio button. It allows to provide explanatory text to the questionnaire's respondent.

To do so the user has to use the questionnaire builder, open the properties of the question, open the "Choices" group, click on the "Edit" button of the answer for which he/she wants to define a tooltip and use the dedicated "Tooltip" text field to do so.


Preview Questionnaire...
Assessment
Assessed Objects
Status
Context
Assessment Node
Not Started
Assessment Node
Not Started
A QT
1. question1
Choose...
Choose...
item1
item2
item3
Item 1 is the best
item2
item3

8.2.5. Questionnaire JSON

In order to make sure that past questionnaires are not affected if the questionnaire template they are based on changes over time a new mechanism has been put in place.

Whenever a questionnaire is closed, the associated JSON code is stored into a comment attribute. The JSON code is saved in the language used by the user when the questionnaire was closed. If the user tries to open such questionnaires, the questionnaire builder will display the content of this JSON; This means that from now on, edits to the corresponding questionnaire template will not impact the questionnaire instance.

An option called "Display closed questionnaires based on JSON archived at the time of questionnaire closure." has been added to the HOPEX options, under the menu "Tools>Assessment", to activate/deactivate the mechanism via which, when a closed questionnaire is opened, the questionnaire builder reads the content of the stored JSON code.

For questionnaires which are not closed the behavior remains the same, that is the questionnaire builder will display the questions of the associated questionnaire template, so if the questionnaire template changes, the questions displayed in the instance will change too.

8.3. Key Indicators

8.3.1. Automatic Value Computation

It is now possible to automatically compute the values of an indicator via a business-defined logic.

To do so, users must exploit a new concept, called Indicator Value Computation Logic (a new section in the admin menu allows to create new logics).

Through this concept it is possible to specify the logic to be used to compute the Key Indicator values.

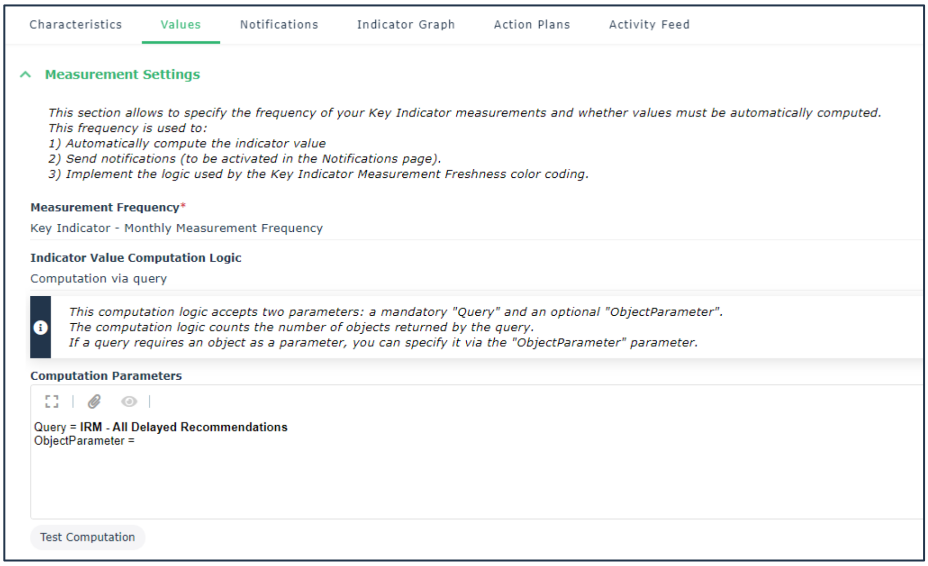
A ready to use Indicator Value Computation Logic exists, which allows to specify a query to be launched (with the frequency given by the “Measurement Frequency”) and, if necessary, the query parameter.

Once the query is launched, HOPEX will count the query results and store the value in the indicator (e.g. “number of delayed action plans”).

A “Test Computation” button allows to simulate the computation to ensure that the setup is correct.

Figure 40 - Key Indicator automatic value computation

Figure 41 - Key indicator time to failure notification



8.3.2. Time to Failure Notification

A new email notification is available in the Notifications property page of a Key Indicator. It allows to trigger an automatic notification to a predefined list of users (list "Notified Users") whenever the Time to Failure is smaller than a user-defined number of days.

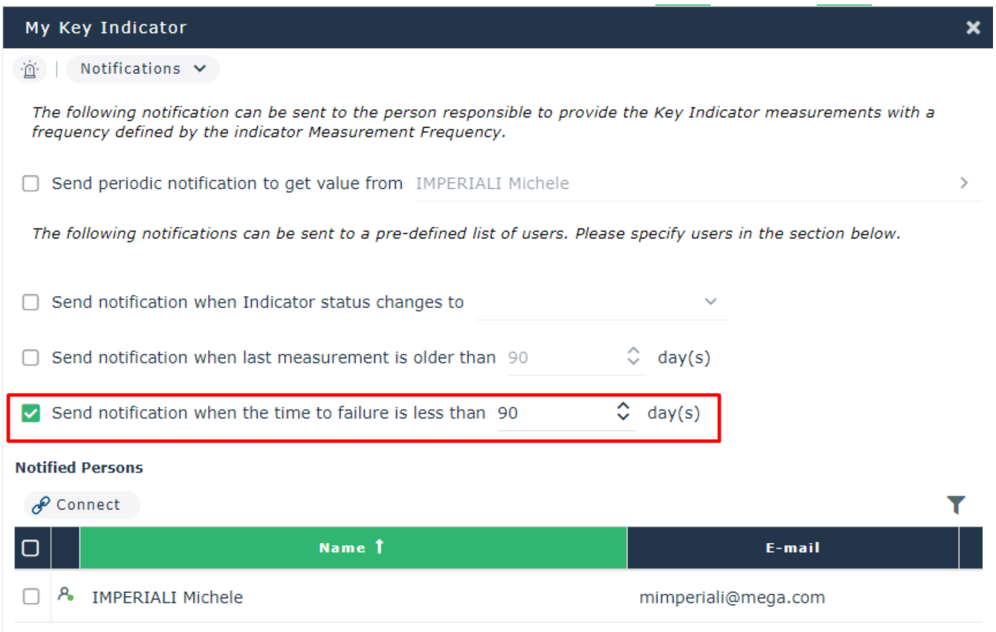


Figure 43 - Indicators menu for IRM Contributors

8.3.3. Key Risk Indicators – #CP4

A link to risks has been added, along with a list of risks connected to the Key Indicator

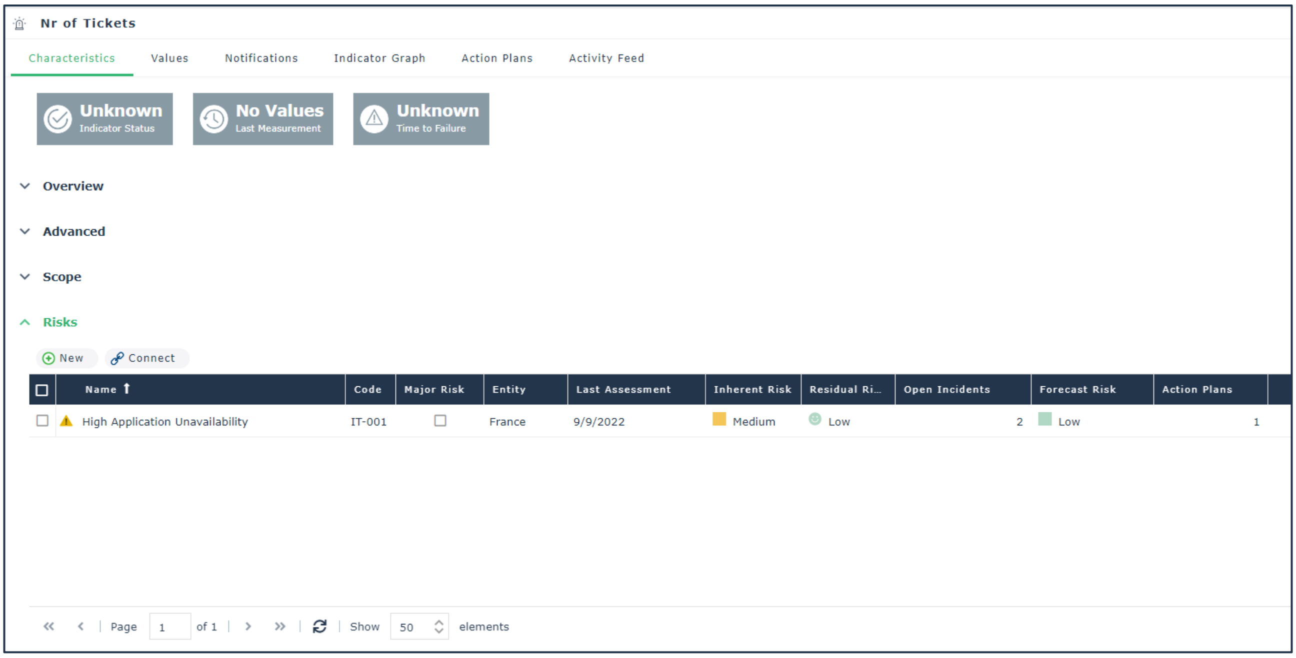
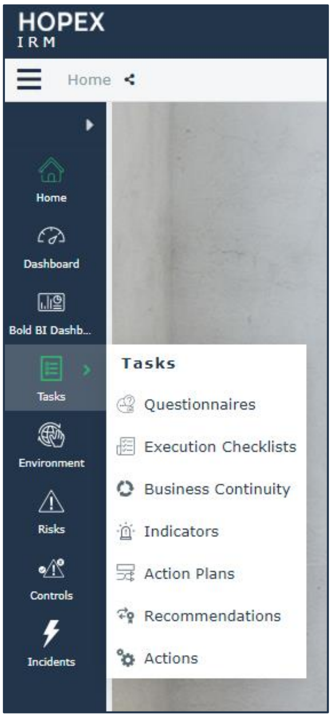


Figure 42 - Key Indicators Characteristics: Risks

8.3.4. Key Indicators for IRM Contributor

A new menu "Indicators" has been added to the IRM Contributor desktop, under Tasks, to let the user access to all Key Indicators he/she is in charge for.

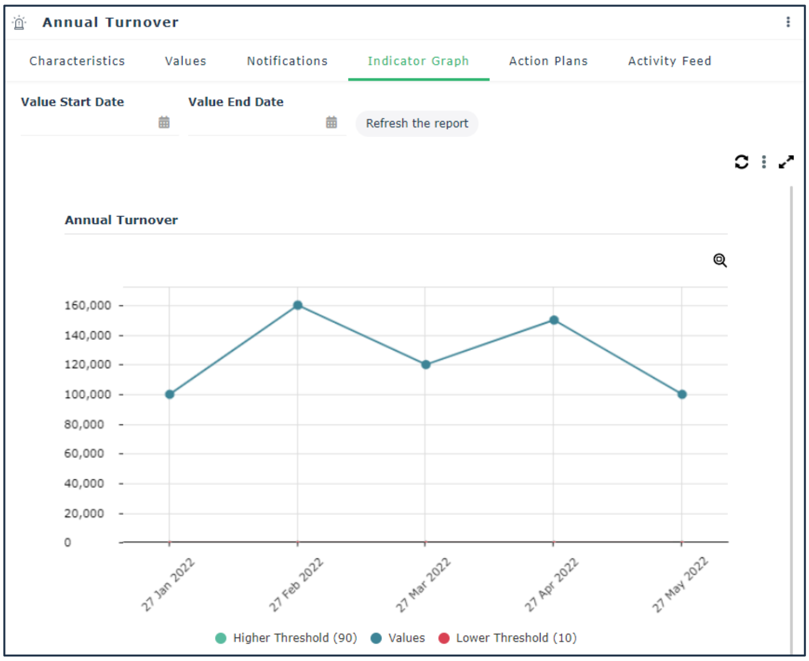


From this menu the user can access to all indicators where he/she is defined as the "Value Provider".

8.3.5. Reports

All standard Key Indicator reports have been enriched with two additional date parameters (Value Start and End Date), to filter the indicator values considered by the report.

Figure 44 - Key Indicator report



8.4. IT Compliance

HOPEX IRM now provides a dedicated template to carry out control assessments starting from a list of applicable regulations, and a set of ready to use reports, in order to fully address the concerns of Compliance Officers and CISOs, helping them demonstrate compliance to applicable regulations, and ensuring IT assets are duly secured.

The new Assessment Template, called "Control Assessment by Entity and Regulatory Framework", allows to carry out an assessment of controls in the context of applications and processes of an entity impacted by a given regulatory framework.

The template is available from two entry points:

- Control Assessment Campaign
- Direct Multiple Control Assessment

Once the user selects the new template, the wizard allows to specify the scope of the assessment, i.e. the entity and the regulatory framework.

Based on the selected parameters, the assessment will include all controls linked to a control directive which belongs to the selected regulation framework, and which impact:

- A process linked directly or via a hierarchy of processes to the selected entity,
- An application which is linked to a process which in turn is linked directly or via a hierarchy of processes to the selected entity.

Figure 45 - Report Regulatory Framework Implementation

8.4.1. Reports

Several new reports have been delivered to help compliance officers and the different stakeholders monitor various compliance indicators.

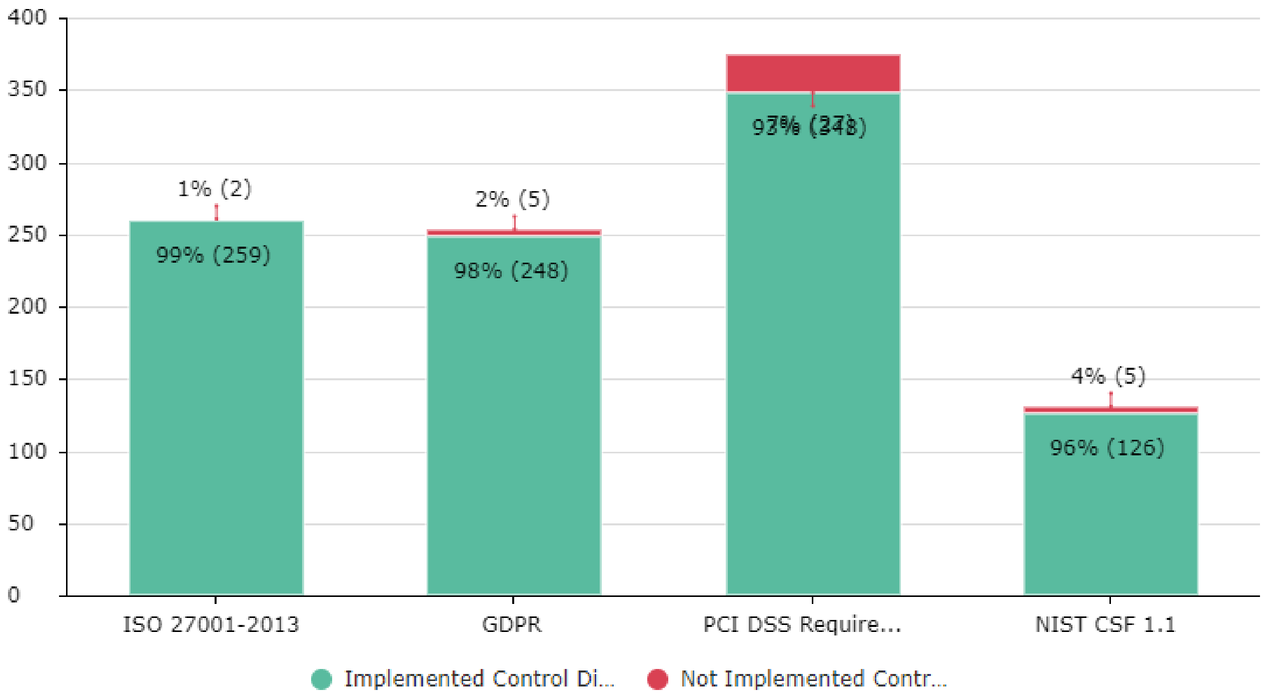
They are listed under the menu Analysis>Compliance: Regulatory Framework Implementation, Regulatory Compliance Overview, Compliance by Regulatory Framework, Regulatory Compliance by Entity, Regulatory Compliance Progress.

Moreover, a new report "Failed Controls" has been added to the menu Analysis>Controls>Follow-up, and the report "Issues by Impact" has been added to the menu Analysis>Controls>Remediation.

8.4.1.1. Report Regulatory Framework Implementation

This stacked bar chart report displays the overall implementation of one or more regulatory frameworks. A regulatory framework is considered as "implemented" if all its mandatory control directives have an associated control.

It accepts as parameter one or more regulatory frameworks, and it displays for each one a stacked bar chart with the percentage of mandated control directives with an associated control.



8.4.1.2. Report Regulatory Compliance Overview

This table report displays the compliance details with respect to a given regulatory framework. In particular, the report provides the following info:

- Regulatory framework and its effective date
- Compliance and implementation %
- Implemented controls, their control level and last assessment date
- Existing control issues

Figure 46 - Report Regulatory Compliance Overview
Figure 47 - Report Compliance by Regulatory Framework

- Existing action plans, together with info regarding plan progress, status and forecast cost

Control Level | Implementing Control | Action Plan Status

Regulatory Framework	Effective Date	Compliance %	Implementation %	Implementing Control	Control Level	Last Assessment	Issue	Action Plan	Action Plan Completion	Action Plan Status	Action Plan Cost
EU General Data Protection Regulation (GDPR)	4/27/2016	25.0%	75.0%	Access Controls to ERP are reviewed each quarter	Pass	8/19/2015					
				Accounts Reconciliation Regarding Invoices	Not Assessed						
				Badge control	Fail	8/14/2014					
				All keys must be stored in a secured location	Fail	8/19/2015	Issue-1	Action Plan-sid		On Time	0.0

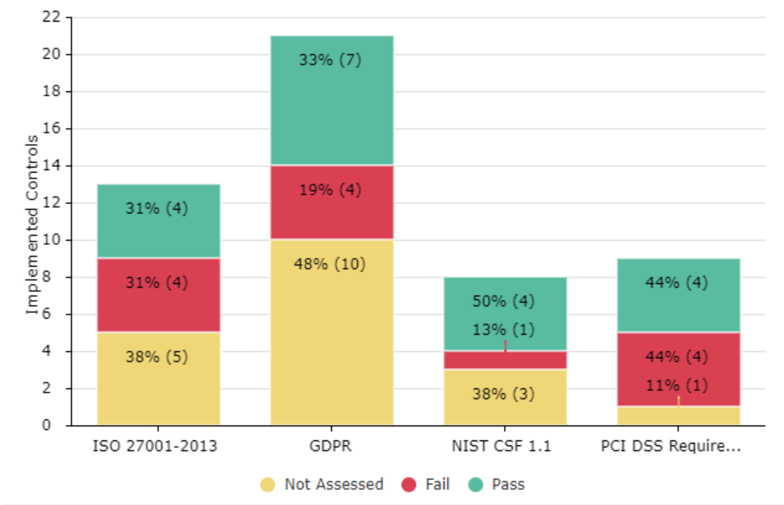
8.4.1.3. Report Compliance by Regulatory Framework

This stacked bar chart report displays the overall compliance level with respect to one or more regulatory frameworks.

It accepts as parameter one or more regulatory frameworks, and it displays for each one a stacked bar chart with the percentage of controls associated to the control directives, grouped by their assessment level, as follows:

Pass – These are the controls with aggregated control level equal to 100%
Fail – These are the with aggregated control level less than 100%
Not Assessed – These are the controls with aggregated control level empty

This report is also available as a dashboard widget.



8.4.1.4. Report Regulatory Compliance by Entity

This aggregation report provides an overview of the compliance level of a given entity with respect to all applicable regulatory frameworks.

It accepts as parameter an entity to display the average compliance level to applicable regulations.

The report displays a tree with all the selected entity processes and applications for which a control linked to existing regulations has been assessed.

Figure 48 - Report Regulatory Compliance by Entity

	Compliance Level
Administration department	4%
GDPR	4%
Process personal data relating to criminal offenses when required by law.	0%
Approval of needs control	0%
Needs	Not Assessed
Include the organizational structure and contact information in the Binding Corporate Rules.	0%
Sensitive outbound Application Communications are cyphered	0%
Billing	Not Assessed
Allow individuals to change their personal data collection consent preferences.	100%
Control all methods of remote access and teleworking	100%
Booking Management	Pass

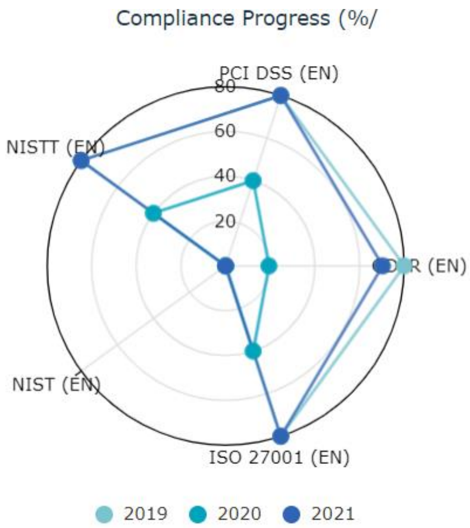
8.4.1.5. Report Regulatory Compliance Progress

This radar chart shows the evolution over time of the compliance level of a given entity with respect to a given set of regulations.

The report has three mandatory parameters:

Figure 49 - Report Regulatory Compliance Progress

- **Entities** – This defines the organization whose compliance level shall be shown
- **Regulatory frameworks** – These are the regulations to include in the chart
- **Observation periods** – These are the time intervals that will be used to observe the evolution of the compliance level over time.



8.4.1.6. Report Failed Controls

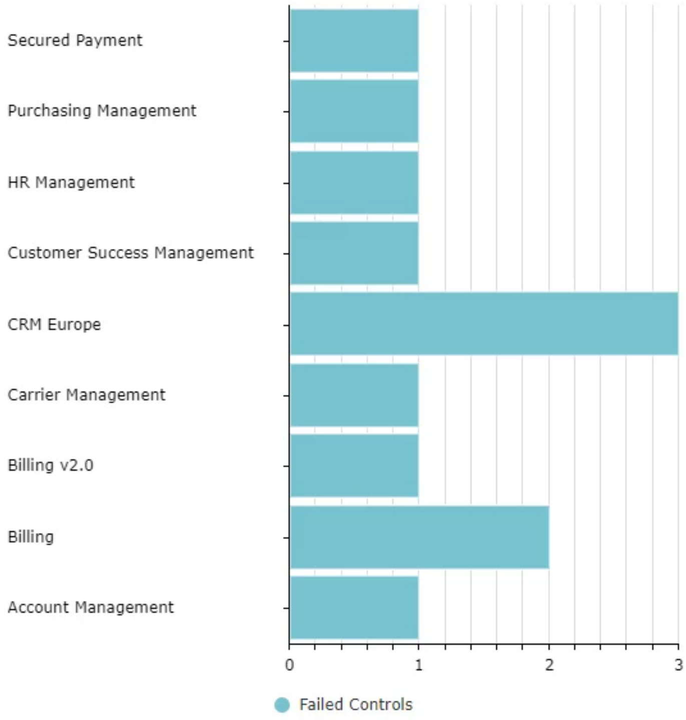
This report is a bar chart which shows the number of failed controls with respect to a given list of processes or applications.

The report parameters allow to:

1. Define a start and end date to filter the controls to be included in the chart, based on their creation date
2. Select the processes or applications to include in the report

Figure 50 - Assets failed controls

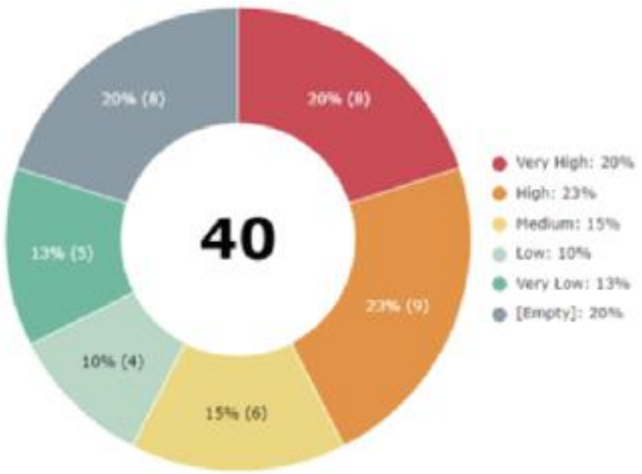
Figure 51 - Report Issues by Impact



8.4.1.7. Report Issues by Impact

This report is a pie chart which groups existing issues by their impact.

It is possible to filter this report by issue status and the type of control impacted by the issue, for example to focus only on issues impacting on IT controls.

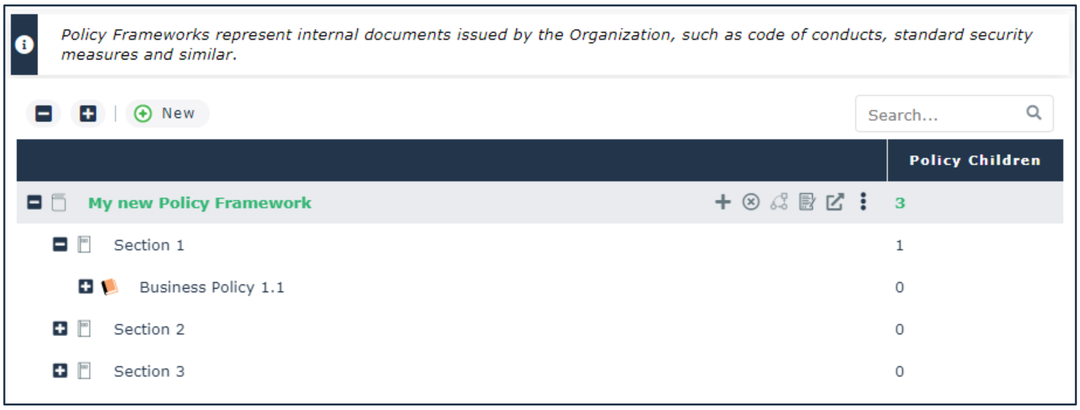


8.4.2. Policy Frameworks

HOPEX users can now also manage Policy Frameworks, that is any internal document the company should comply with. Policy Frameworks are made of Policy Framework Sections and Business Policies which constitute the elementary requirements the company shall comply with.

New Policy Frameworks can be created from the menu Environment>Compliance>Policy Frameworks.

Figure 52 - Create new Policy Frameworks



At every level of the policy framework, it is possible to define elements of the organizations which are affected by it, such as entities, processes and/or applications.

The approach around policy frameworks is dual with respect to the Regulatory

Figure 53 - IRM Contributor desktop

Frameworks: in order to implement a business policy, the organization must associate a specific control to it, via the section Enforcement.

Once applicable policy frameworks are created in the HOPEX library, compliance professionals can access them, via two menus:

3. Environment>Compliance>All Business Policies, which displays a flat list of all existing business policies the organization shall comply with,
4. Environment>Compliance>By Policy Framework which displays the hierarchy of existing policy frameworks.

8.4.3. Compliance and Internal Audit

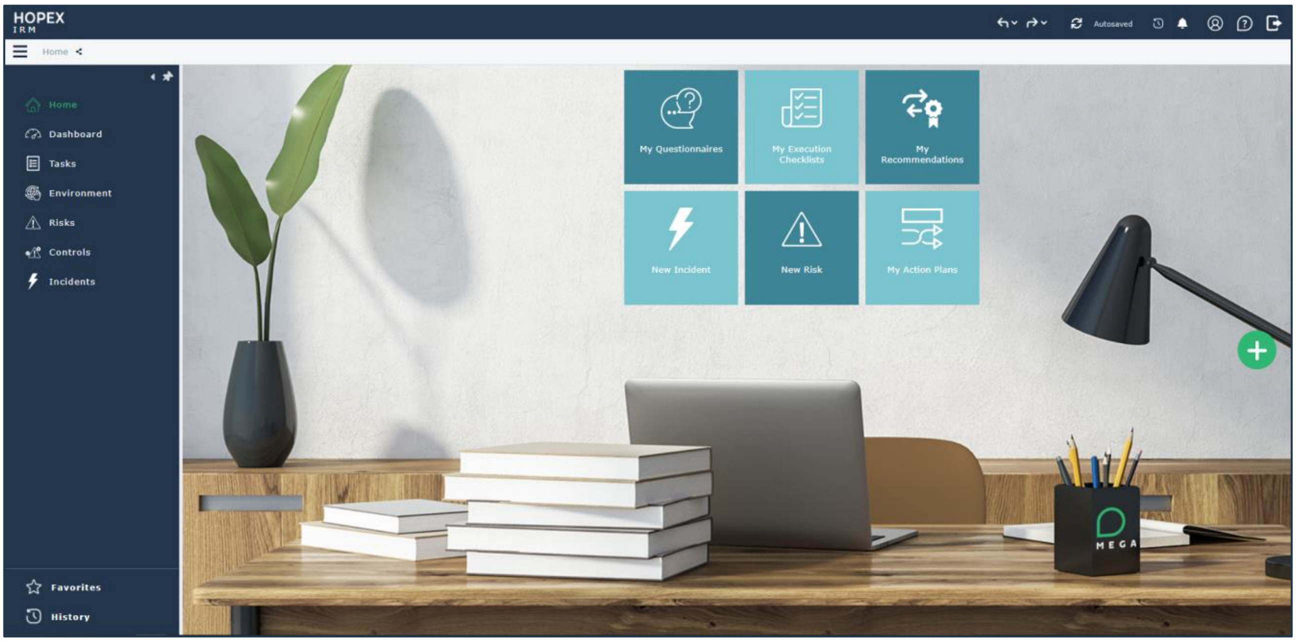
Audit directors can now access to the compliance menus, such as Environment>Compliance and Libraries>Compliance.

These menus give them access to the entire list of regulations and policies the organization must comply with.

8.5. IRM Contributor

8.5.1. Desktop

IRM Contributor desktop has been completely redesigned, and it now provides a UX similar to the main users one. Among the most important improvements, this new desktop no longer provides the Edit/Browse mode.



8.5.2. Main Lists

The main list views of the IRM Contributor desktop have been reviewed to ensure the user has access to all elements that he/she might be involved in.

Environment>Business Processes

The query which populates this list now retrieves:

1) All Business Processes where the current user has a business role

2) All Business Processes which are in the context of an Assessment Node, regardless the Assessed Object, where the Assessment Signatory contains the current user

3) All Business Processes linked to an Org-Unit where the user has a business role

Environment>Organizational Processes

Same approach as for Business Processes

Environment>Entities

The query which populates this list now retrieves:

1) All Org-Units where the current user has a business role

2) All Org-Units which are in the context of an Assessment Node, regardless the Assessed Object, where the Assessment Signatory contains the current user

3) All Org-Units which are assigned as location for a given localized business role (e.g. a user being Risk Assessor for Risk RK1 with respect to Org-Unit OR1)

Environment>Applications

The query which populates this list now retrieves:

1) All Applications where the current user has a business role

2) All Applications which are in the context of an Assessment Node, regardless the Assessed Object, where the Assessment Signatory contains the current user

Environment>Business Lines

The query which populates this list now retrieves:

1) All Business Lines which are in the context of an Assessment Node, regardless the Assessed Object, where the Assessment Signatory contains the current user

2) All Business Lines linked to an Org-Unit where the user has a business role

Risks

The query which populates this list now retrieves:

1) All Risks where the current user has a business role

2) All Risks which are in the scope of any of the elements of my environment

Controls

The query which populates this list now retrieves:

1) All Controls where the current user has a business role

2) All Controls which are in the scope of any of the elements of my environment

Incidents

The query which populates this list now retrieves:

1) All Incidents where the current user has a business role

2) All Incidents in the scope of any element of my environment

8.6. Managing Assessment and Execution Campaigns

The wizard to create and schedule Assessment and Execution Campaigns has been completely reviewed.

It is now also possible to define reminders on control checklists.

8.6.1. Autocompletion removed in Control Execution

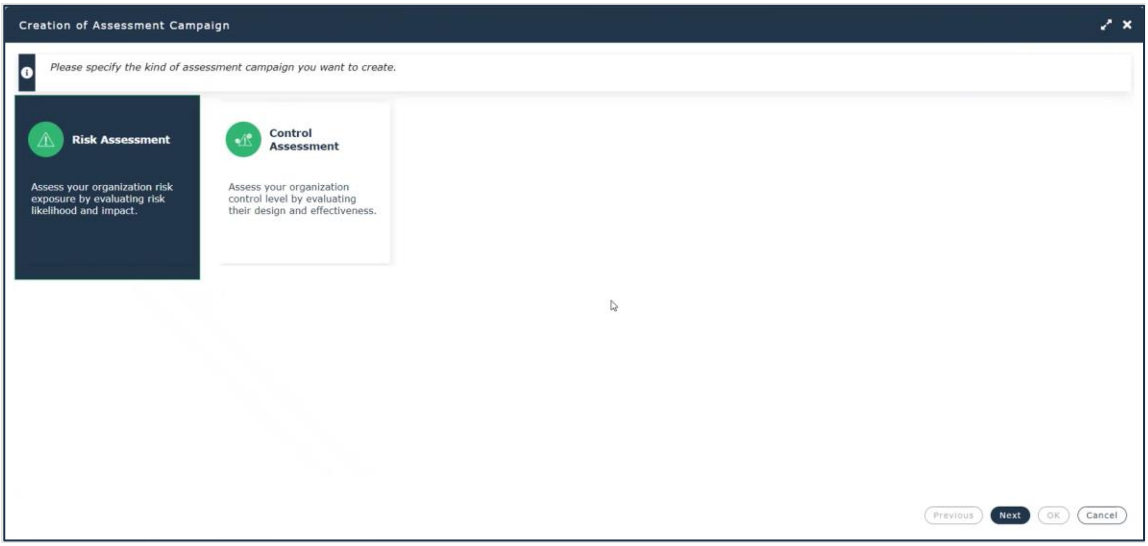
Given the automatic nature of Control Execution, autocompletion has been deactivated to avoid checklists to be filled even if the owner has never opened it.

Figure 54 – Assessment Campaign wizard: select type of Assessment Campaign

8.6.2. Choosing Assessment Campaign Type

When creating an Assessment Campaign, the user is prompted with a wizard whose first step allows to specify what type of campaign the user wants to create[6]. Options are:

Risk Assessment
Control Assessment



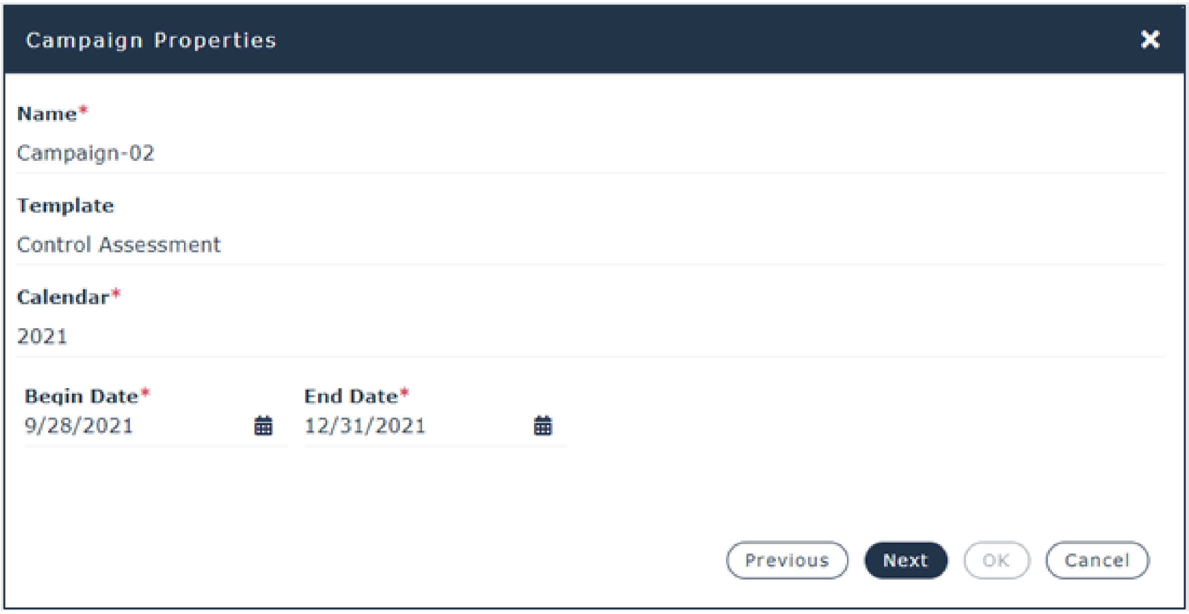
8.6.3. Selecting Assessment Template for the Campaign

Once the user selects the preferred option, the next step allows to specify the Assessment Template and a few additional parameters[7].

If the user does not want to specify a template at this stage, he/she can do so, and specify the preferred template when creating the campaign sessions.

[6] In case of Execution Campaigns, since the only option is to execute controls, the user is not prompted with this introductory step.
[7] This step only proposes Assessment Template which have been defined for the object selected at the previous step.

Figure 55 – Assessment Campaign Wizard: select Assessment Template



8.6.4. Defining Campaign Scope

The step to define the Assessment scope has also been reviewed. The proposed improvements also affect the wizard used when carrying out a Direct Multiple Assessment.

Only for execution campaigns…

This step is available only if at the previous step of the wizard the user chooses "yes" for the field "Specify campaign scope via a tree".

Defining the campaign scope via a tree provides greatest granularity if the user wants to have the liberty to select control by control which ones to include in the execution campaign and which ones to exclude.

However, using this option new controls that are eventually added to the repository during an ongoing campaign, will not be automatically included in it.
If this is a required functionality, the user should select "no" for the field "Specify campaign scope via a tree".

At this moment, the wizard will prompt the user to specify the root entity for the campaign and will automatically collect all controls which are in scope for the selected entity.

The tree to define the campaign scope now also includes informative columns which help the user select the risks or controls that should be included in the assessment.

For risks, the following information is provided:

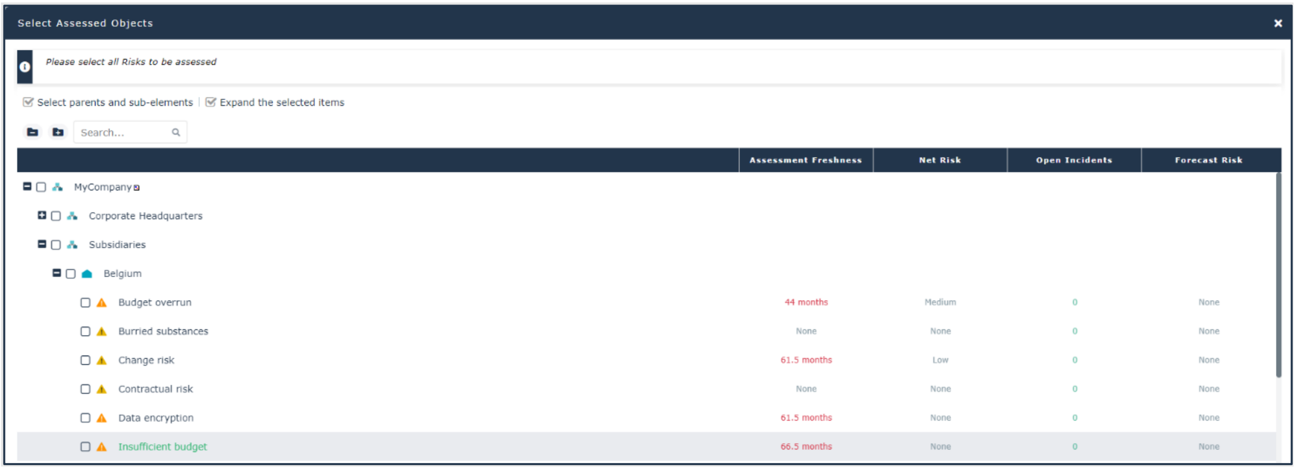
Assessment Freshness
Net Risk
Open Incidents

Forecast Risk

For controls, the following information is provided:

Assessment Freshness (only in case of control assessment)
Open Issues
Aggregated Pass Control Level (only in case of control assessment)
Aggregated Execution Level (only in case of control execution)

Figure 56 - Campaign Wizard: scope selection



8.6.5. Campaign Overview Report

The campaign summary report has also been completely reviewed.

An overview table, displayed at the beginning of the report, highlights possible warnings that could prevent the campaign from working as expected.

Warnings can be of three types:

- No available respondent for a given risk/control to assess
- No available email for a given respondent
- No steering calendar for a control[8]

[8] Only applicable to control execution campaigns

Figure 57 - Campaign summary report

Figure 58 - Campaign summary report: no respondent warning
Figure 59 - Campaign summary report: no steering calendar warning

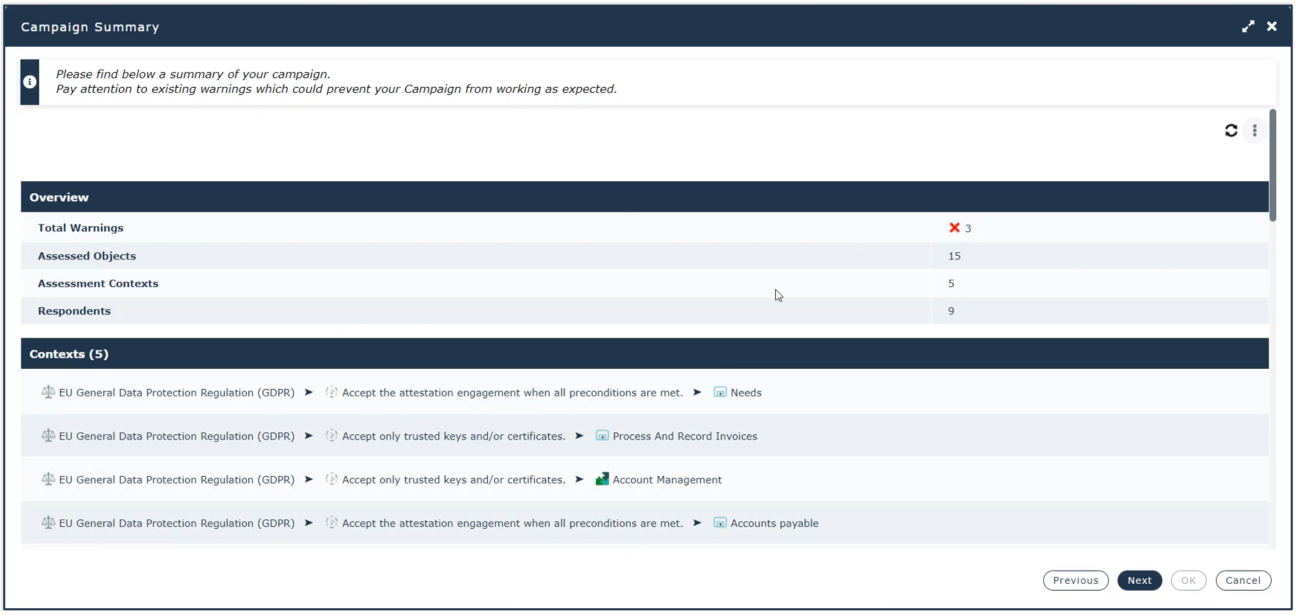
Additional information is also provided, such as:

Assessed Objects - The total number of objects that will be assessed[9]

Assessment Contexts – The total number of contexts involved in the assessment (e.g. entities, processes, applications…)

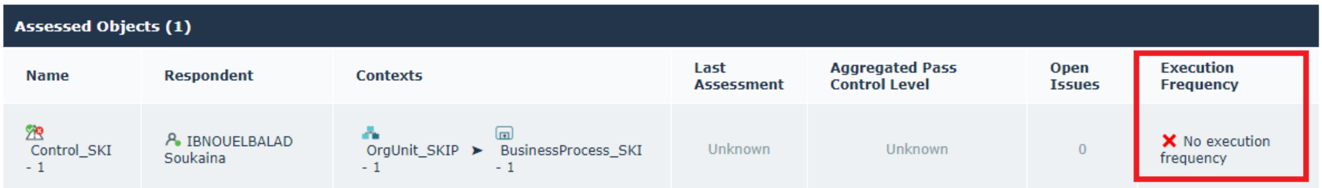
Respondents – The total number of people involved in the assessment

The table which follows, called "Contexts", provides full details regarding the Assessment Contexts.



Name	E-mail	Workload
Rafael	webeval@mega.com	2
Stacy	webeval@mega.com	2
Alex	No email	1

Furthermore, a table "Assessed Objects" provides a detailed view of all objects about to be assessed, with inline warnings in case of no respondent or, for control execution campaigns, no steering calendar.



Name	Respondent	Contexts	Last Assessment	Aggregated Pass Control Level	Open Issues	Execution Frequency
Control_SKI - 1	IBNOUELBALAD Soukaina	OrgUnit_SKIP - 1 ➤ BusinessProcess_SKI - 1	Unknown	Unknown	0	No execution frequency

[9] A risk/control assessed in two different contexts is counted twice

8.6.6. Campaign statistics review – #CP4

The report shown when creating a Campaign has been improved for better readability.

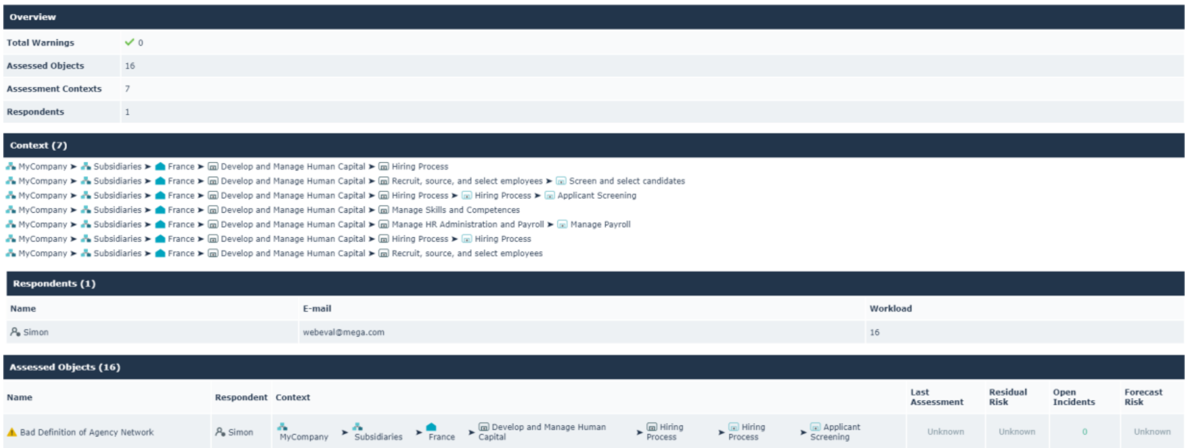


Figure 60 - Campaign Summary

8.6.7. Campaign Planning

The last step of the wizard allows to schedule the campaign and send the assessment questionnaires. Three options are available:

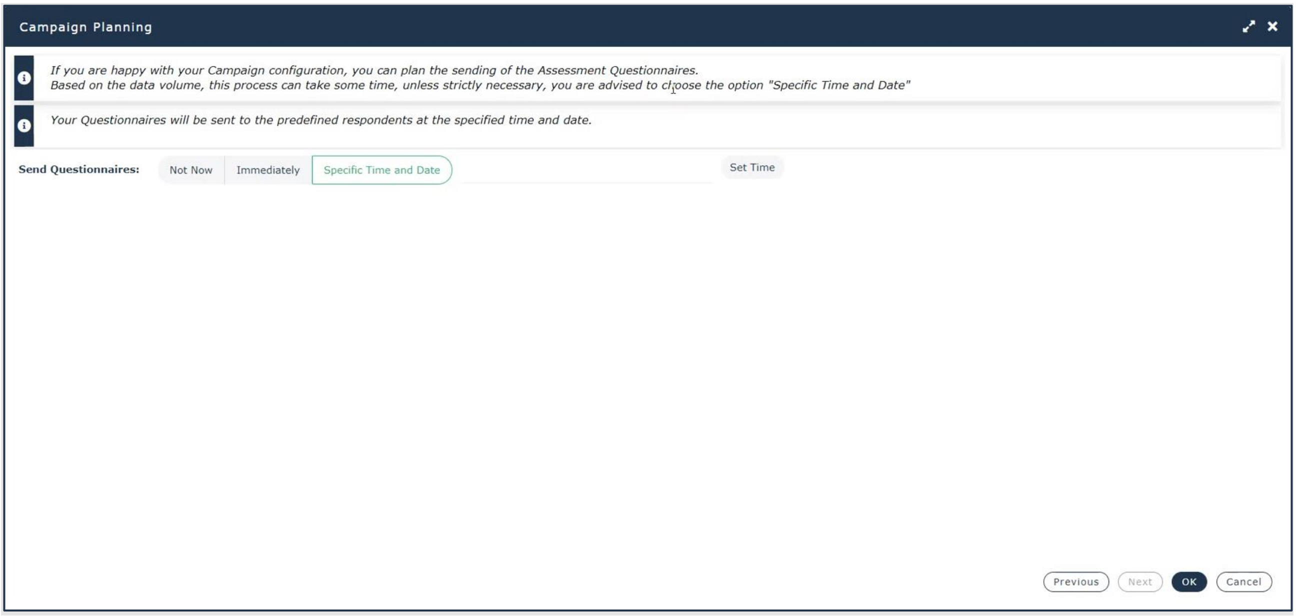
Not Now – No questionnaires are created and/or sent. The user will have to manually create a session within the campaign, specify its scope and schedule when the questionnaires shall be generated and sent.

Immediately – Questionnaires are created and sent immediately after the wizard is closed. Using this option, the wizard automatically creates one assessment session which includes the entire campaign scope. This option is not recommended in case of high data volumes. If the campaign overview report contains errors that were not fixed, the wizard will not allow to select this option.

Specific Time and Date – This is the recommended option. It works similarly to the “Immediately” option, although questionnaires are created and sent at the specified time and date. If the campaign overview report contains errors that were not fixed, the wizard will not allow to select this option.

After confirmation of this last step, the campaign is officially launched and moved into “In Progress” status.

Figure 61 - Campaign planning



8.6.8. Define checklist reminders and sessions early closure

HOPEX now allows to define automatic email reminders on control execution checklists and early closure dates for sessions that must be closed before the creation of the next one.

The reminders are sent to checklist respondents.

Both reminders and early closure' settings can be defined on any steering calendar.

Two types of reminders can be set on any given steering calendar:

Reminder sent X days after the checklist creation
Reminder sent X days before automatic session closure

For each type, the user can specify as many reminders as required, simply specifying the number of days (comma separated).

This parametrization must be done in the properties of each Steering Calendar, in the page "Texts", under "_Parametrization".

The syntax to be used is the following:

[QuestionnaireReminders]
AfterSessionCreationDate=15
BeforeSessionEndDate=1,7
CloseAfter=25

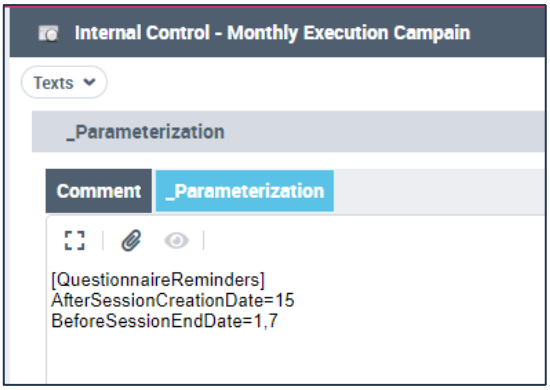
In the example described above, a reminder will be sent to the checklist respondents:

1. 15 days after the checklists were sent out
2. 7 days and 1 day before the checklists will be automatically closed

And the session of execution checklists will be closed after 25 days.

Figure 62 - Define reminders on control steering calendar

Figure 63 - Define reminders and early closure date for control execution checklists



From an ongoing campaign, the default settings can be overridden specifying custom settings for each steering calendar used by the controls executed within the campaign.

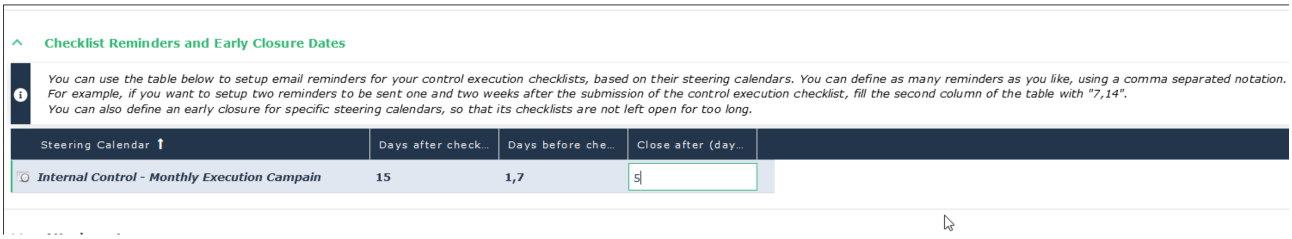


Figure 64 - Execution campaign steering calendars details

8.6.9. Execution Campaign GANTT Report

The GANTT report of control execution campaigns has been enriched with a table which provides information on all the campaign steering calendars, their associated controls and the time and date of the next execution.

Figure 65 - Access questionnaires/checklists answers from within a campaign

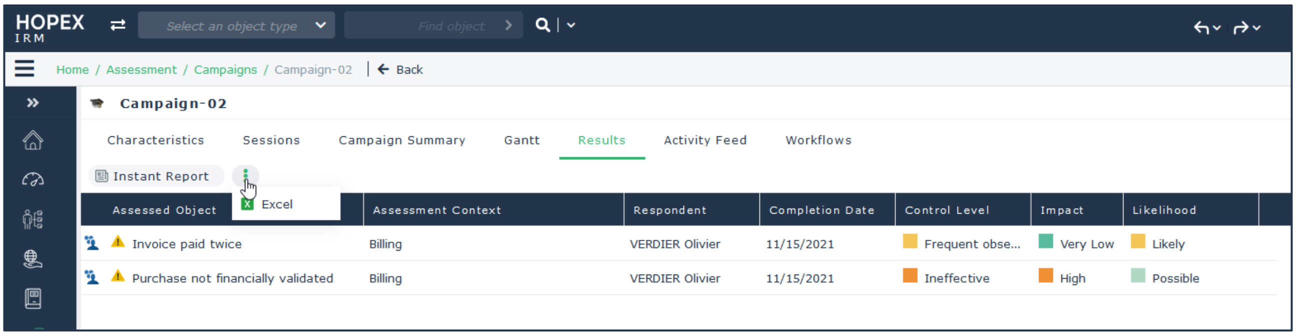

Calendars

Name	Controls	Job Status	Next Execution (UTC)
Internal Control - Daily Execution Campaign	1	Scheduled	2021/06/23 03:00:00
Internal Control - Monthly Execution Campain	1	Scheduled	2021/07/01 03:00:00

Furthermore, the existing GANTT chart, now also displays not only the current and past controls execution sessions, but also the future ones, thus providing an overall view of the entire campaign schedule.

8.6.10. Assessment Campaign Results

Accessing the results of an ongoing campaign (either assessment or execution) has never been easier. Every campaign is now equipped with a dedicated Results page which displays the answers of all questionnaires/checklists which have been closed.



8.7. Controls Checklists Autocompletion

Whenever a user receives a control checklist, if the control was already executed in the past, the checklist questions are automatically prefilled with the answers that were provided the last time. The user can either change these answers or modify them before submitting the questionnaire.

8.7.1. Autocompletion removed in Control Execution – #CP4

Given the automatic nature of Control Execution, autocompletion has been deactivated to avoid checklists to be filled even if the owner has never opened it.

8.8. Automatic computation of Control Level on Risks

HOPEX IRM now intelligently prefills the "Control Level" question within a Risk Assessment questionnaire, based on available information on controls mitigating the risk.

8.8.1. Prerequisites for the automatic computation

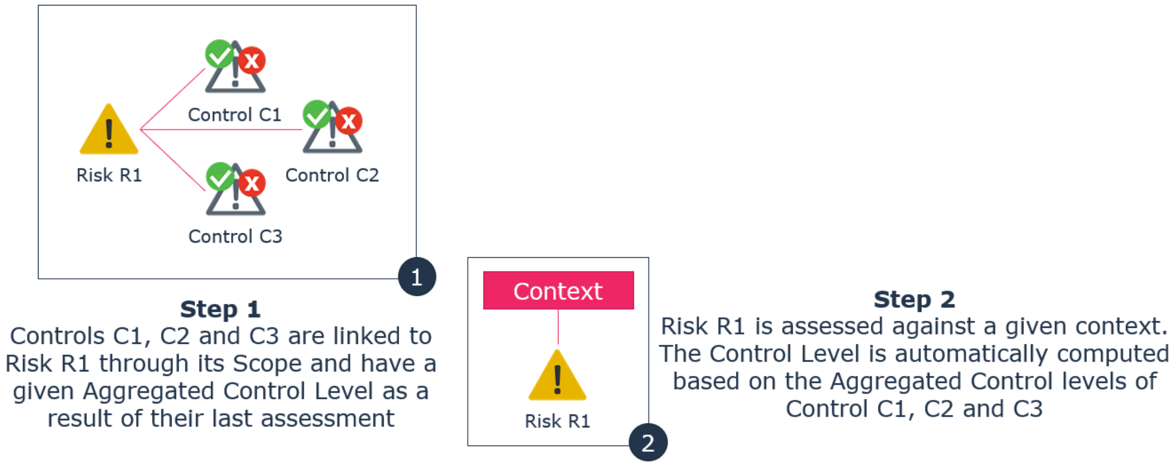
When assessing a given risk, for the control level question to be prefilled, the following pre-requisites must be met:

- The risk is mitigated by one or more controls
- The controls have been previously assessed, and thus their "Aggregated Control Level" is not empty

The following infographic further illustrates the scenario of automatic computation of

Figure 66 - Automatic computation of control level on risks

the control level within a given risk assessment.



8.8.2. Computation Algorithm

The control level on the risk is computed following the pseudo algorithm described below:

- Total number of failed controls, multiplied by 25, divided by the total number of controls, rounded up to the biggest integer (e.g., 8.2 = 9). The obtained value is called Averaged Controls Level.

- The risk control level is computed considering the one which has the internal value which is closest to the averaged controls level.

- In case of two different control levels with equally distant internal values, the algorithm selects the smallest.

The following infographic displays the internal values used by the algorithm to carry out the computation.

Figure 67 - Internal values used by Control Level algorithm

Figure 68 - Example of control level computation on a risk

Figure 69 - New control level labels

Control Level	Internal Value
Very Strong	1
Strong	4
Medium	9
Weak	16
Very Weak	25

Risk - Control Level

Control Level	Internal Value	Aggr. Control Levl
Pass	1	[90% - 100%]
Fail	0	<90%

Control - Control Level

The following infographic provides an example of how the new algorithm works.

Control	Aggr. Control Level	Control Level Value
C1	90%	1
C2	45%	0
C3	0%	0

- Averaged Control Level = (3-1)*25/3 = 16,6 -> 17
- **Risk Control Level** = Ineffective (16)

8.8.3. New Labels

The control level labels have been reviewed as follows.

Control Level	New Label EN	New Label FR
Very Strong	Effective	Efficace
Strong	Few observations	Perfectible
Medium	Frequent Observations	Peu Efficace
Weak	Ineffective	Inefficace
Very Weak	Inexistent	Inexistant

8.9. Assessment Templates Improvements

8.9.1. Control/Risk Questionnaire Respondent

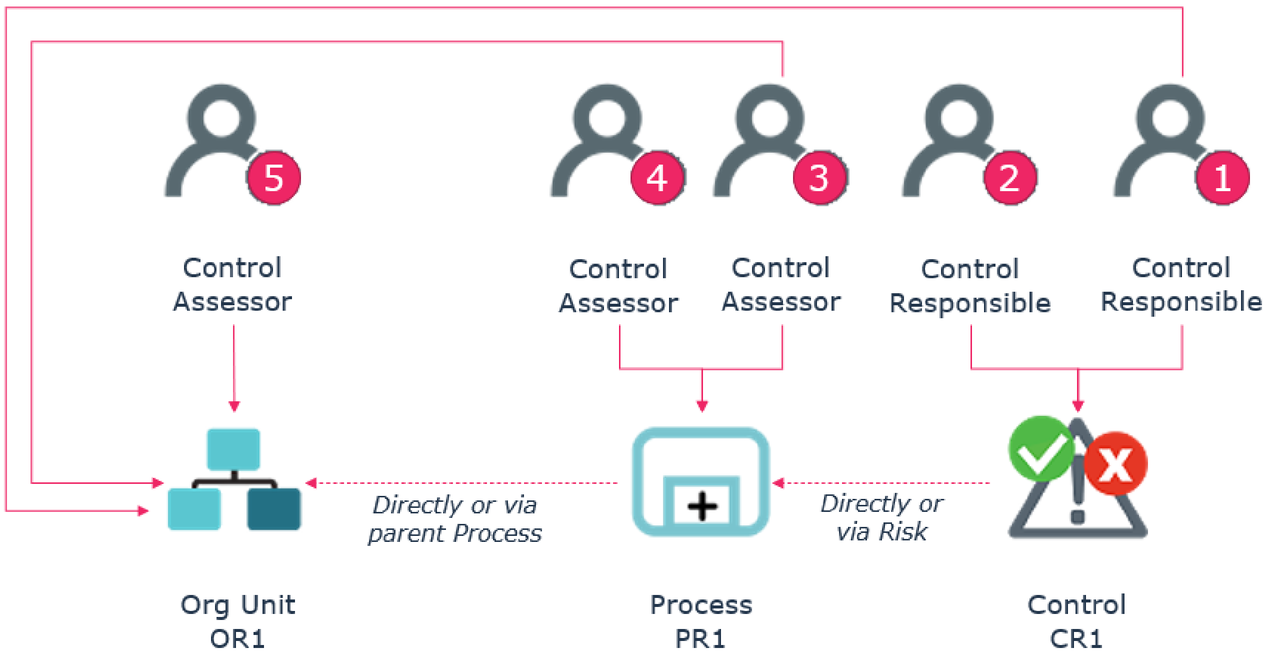
The logic to identify the respondent of assessment questionnaires and execution checklists has been fully revisited, in order to provide greater flexibility to the end users.

Figure 70 - Control questionnaire respondent

8.9.1.1. Control Assessments and Execution Campaigns

For the standard assessment templates "Control Assessment" and "Control Execution" the respondent of a control questionnaire can be defined in 5 different ways, as illustrated in the graphic below.

Starting from the right-hand side, as soon as the algorithm finds a match, it uses it to define the control questionnaire respondent.



For the standard assessment template "Control Assessment by Entity and Regulatory Framework" the respondent of a control questionnaire can be defined in 4 different ways, as illustrated in the graphic below.

This logic only applies for controls linked to applications while, for controls linked to processes, the standard logic applies.

Starting from the top, as soon as the algorithm finds a match, it uses it to define the control questionnaire respondent.

Figure 71 - Control questionnaire respondent

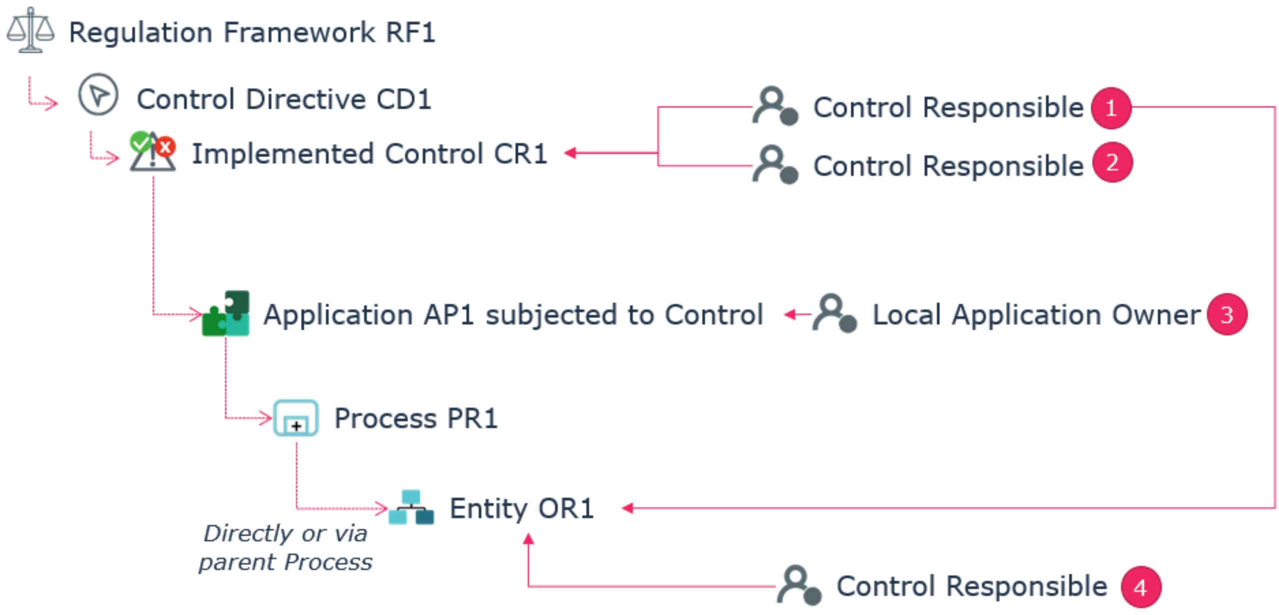
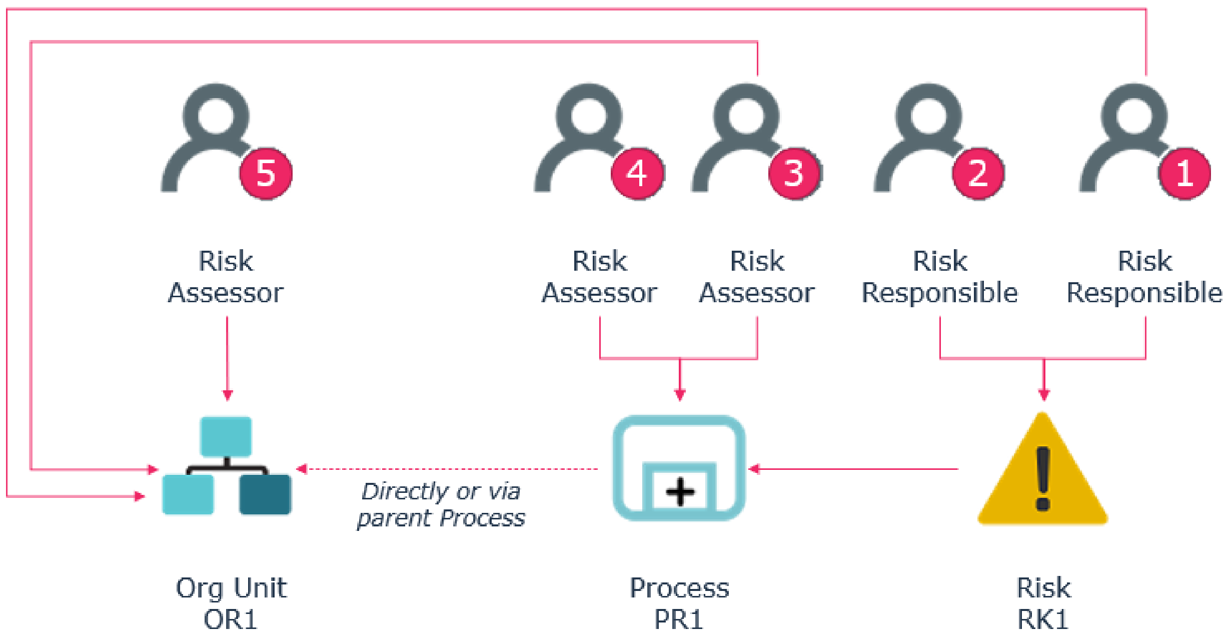


Figure 72 - Risk questionnaire respondent

8.9.1.2. Risk Assessment Campaigns

Using the same approach of the control assessment campaigns, also the assessment templates on risks have been reviewed. The respondent of a risk questionnaire can now be defined in 5 different ways, as illustrated in the graphic below.

Starting from the right-hand side, as soon as the algorithm finds a match, it uses it to define the risk questionnaire respondent.



8.9.2. Controls proposed in Campaign scope definition tree

In the following templates: "Control Assessment" and "Control Execution", the tree used to select the Controls to include in the campaign now also includes controls linked to a risk which is in turn linked to the business/organizational process, or to the entity.

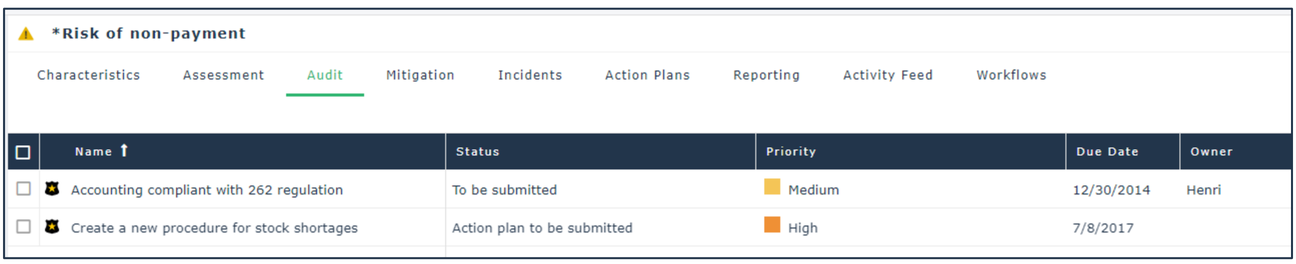
8.9.3. Assessed Characteristics and Scoring Rules

Both wizards and property pages of assessed characteristics and scoring rules have been completely redesigned in order to provide better guidance for users defining their own assessment templates.

8.10. Internal Audit

Several enhancements have been made for the Internal Audit solution, many concerning the overall UX and other focused on strengthening the linkage with the other IRM modules.

A new Audit page has been added to the properties of a Risk to provide evidence of all Recommendations issued by the audit team.



Name	Status	Priority	Due Date	Owner
Accounting compliant with 262 regulation	To be submitted	Medium	12/30/2014	Henri
Create a new procedure for stock shortages	Action plan to be submitted	High	7/8/2017	

Figure 73 - Audit recommendations for a risk

8.10.1. Excel Import – #CP4

The IRM import template is now available to Audit profiles.

8.10.2. Menu and WET – #CP4

8.10.2.1. Menu restructuring

The third levels have been replaced by tabs:

- Audit > Execution
- Audit > Remediation

8.10.2.2. Columns added to lists

Columns containing information on:

- Audit Progress
- Number of Audit Recommendations

Have been added in the following lists:

- Audit>Execution>Ongoing Audits, Other Audits
- My Task>Audit>Past Audits

8.10.3. Audit Workflow – #CP4

In the Audit workflow, when validating closing report, a condition has been added to check that all the audit activities linked to the audit are in status To be validated or Validated. The message has been changed to better reflect this condition.

Also, when sending out the closing report and recommendations, the message in the condition has changed: From Recommendation Responsible to Recommendation Owner to reflect the naming used in the properties of a recommendation.

8.10.4. Recommendation Workflow – #CP4

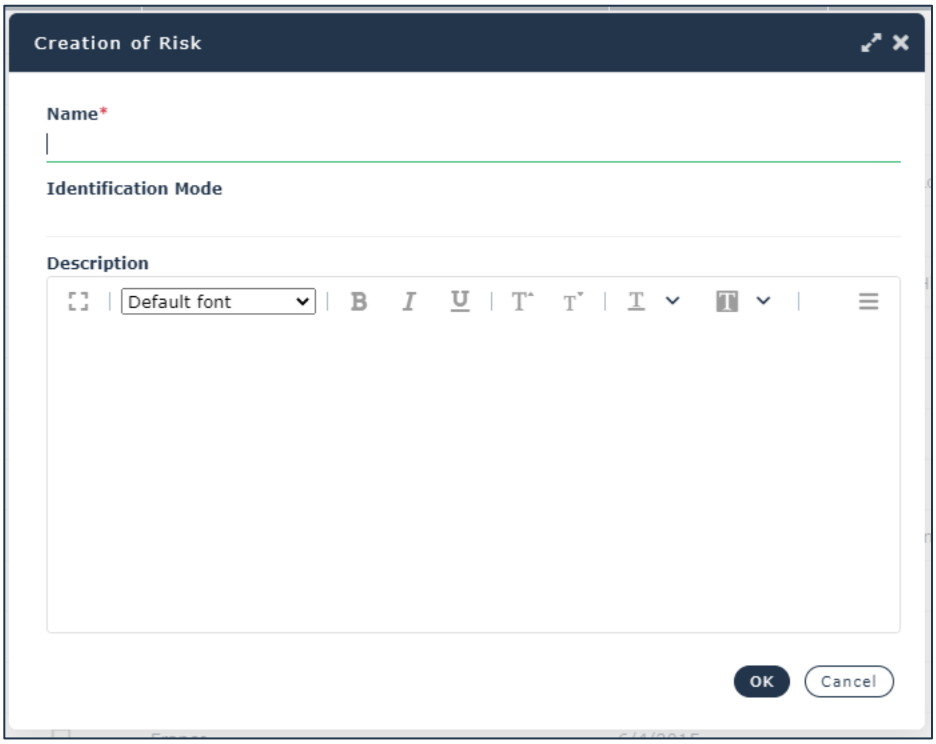
A new status "*Rejected*" has been created in the Recommendation workflow to record also rejected Recommendations.

Check the on-line documentation here for more details.

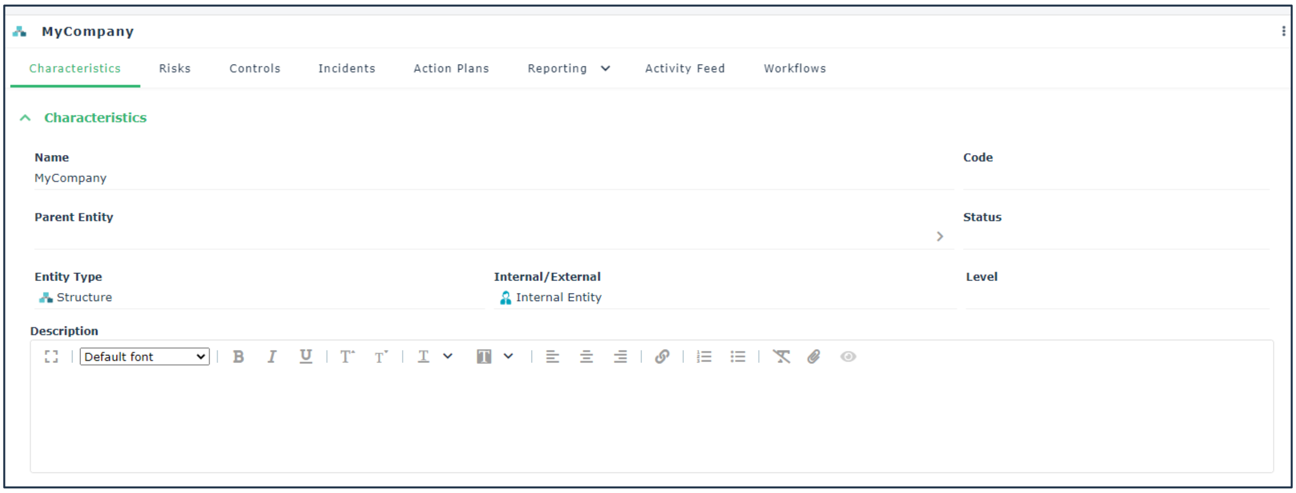
8.11. Wizards and Property Pages

Specific wizards have been implemented for main IRM objects, to collect few basic information at object creation time. This includes risk, control, incident, issue, action plan, finding and recommendation.

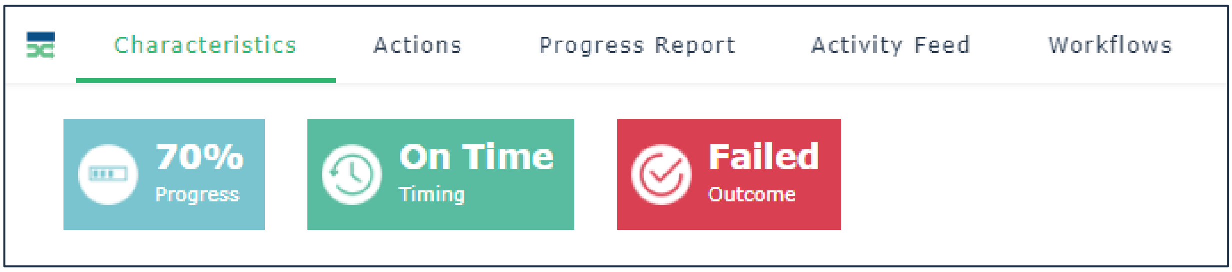
Figure 74 - Risk creation wizard

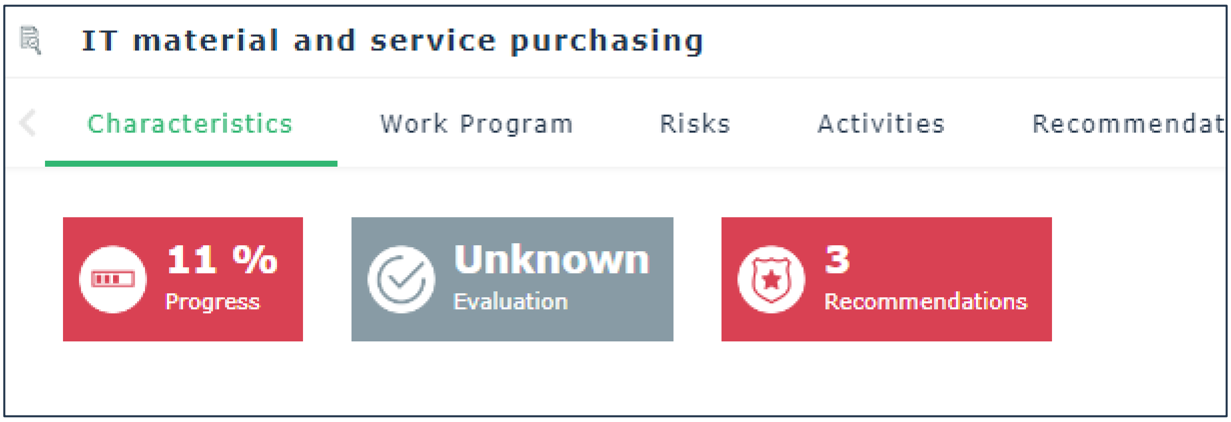


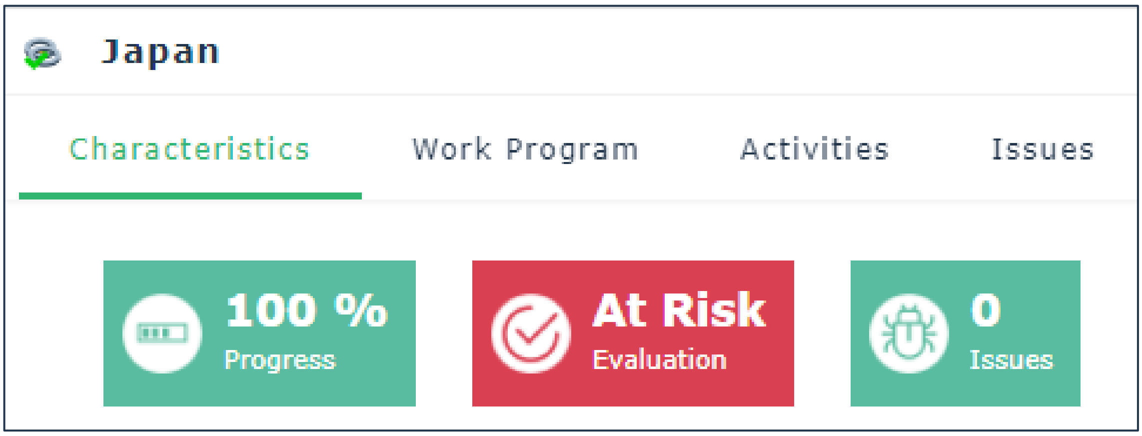
Furthermore, the layout of the property page of main objects has also been reviewed. Fields are better distributed across the available space, and dedicated pages have been created to provide a more direct access to GRC-specific concepts, such as risks, controls, incidents, issues and action plans.

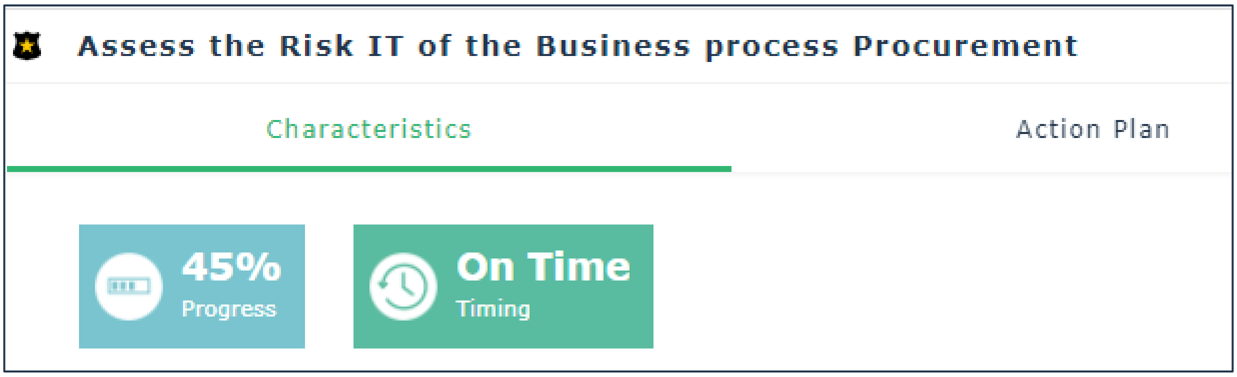


In some cases, like for audit and action plan meta-classes, new indicator dashboards have been designed.




IT material and service purchasing
Characteristics
Work Program
Risks
Activities
Recommendat
11 %
Progress
Unknown
Evaluation
3
Recommendations


Japan
Characteristics
Work Program
Activities
Issues
100 %
Progress
At Risk
Evaluation
0
Issues


Assess the Risk IT of the Business process Procurement
Characteristics
Action Plan
45%
Progress
On Time
Timing

8.11.1. Organizational Processes – #CP4

8.11.1.1. Operations added to Organizational Process

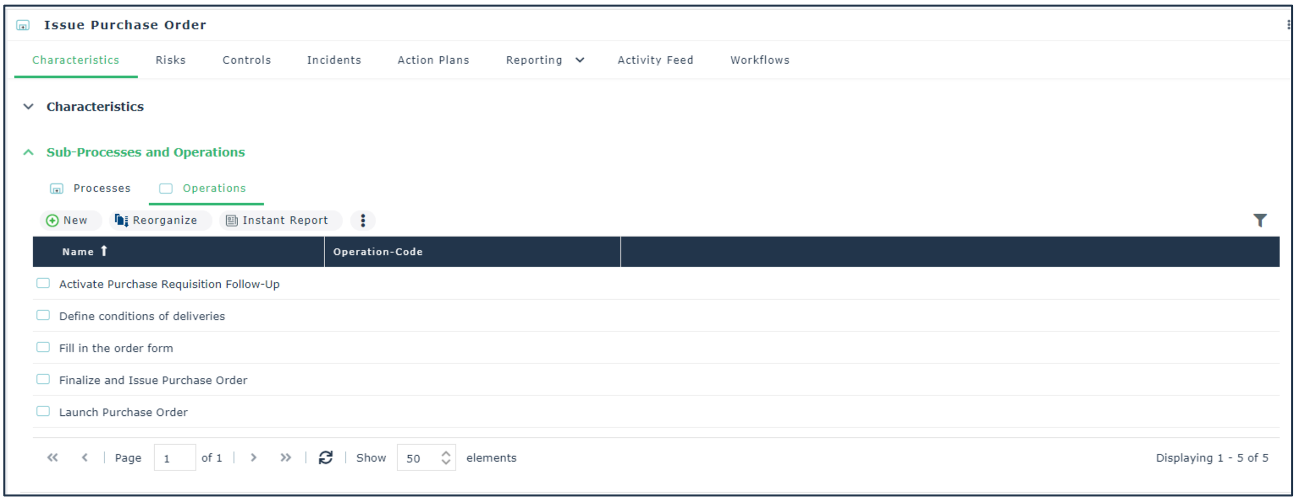


Figure 75 - Organizational Process Characteristics: Sub-processes and Operations

The list of operations connected to an organizational Process has been added to its property page.

8.11.2. Action Plans – #CP4

8.11.2.1. Progress History

Elements in the list will be sorted by decreasing "Progress Date".

Also the wizard to create the progress will prevent the selection of a future date, while the field "Progress (percentage)" will be initialized with the last available progress value.

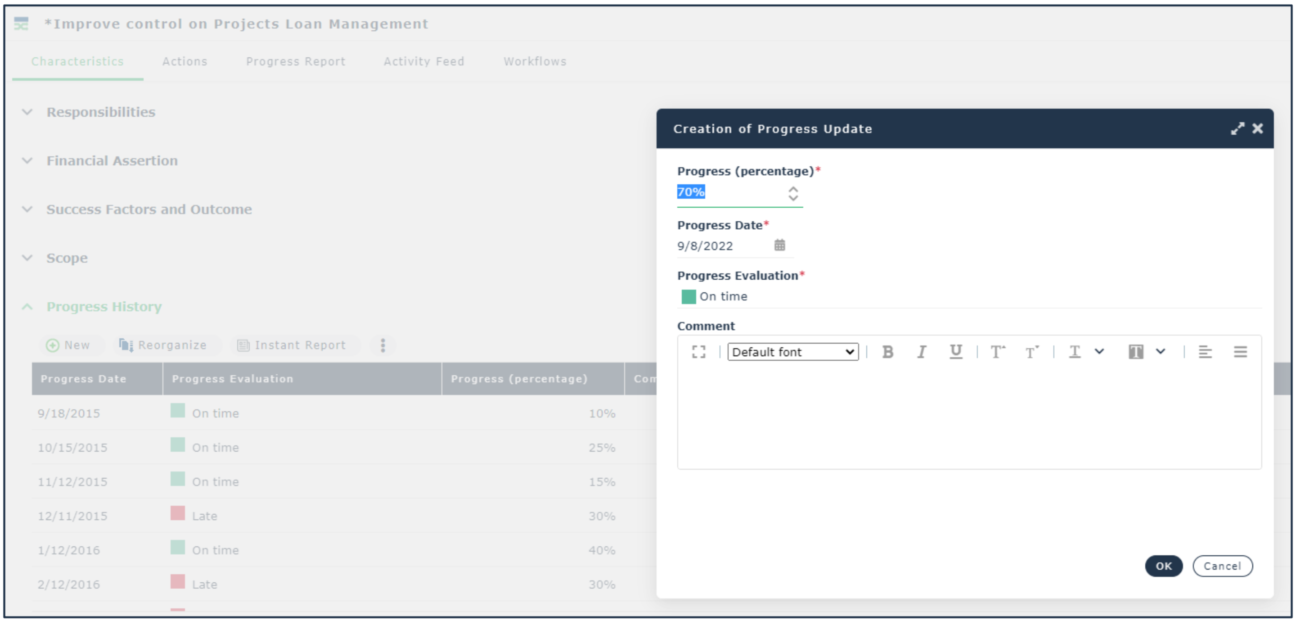


Figure 76 - Action Plan Characteristics: Progress History

8.11.3. Audit Plans – #CP4

The column Progress has been added to the Audits list.

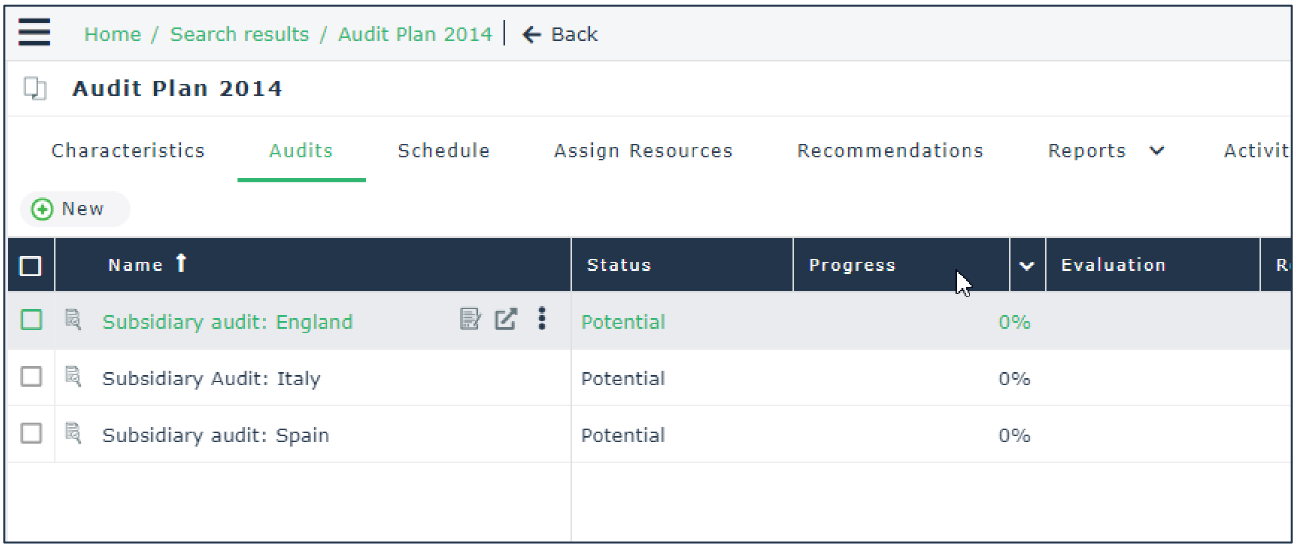


Figure 77 - Audit Plan Audits

8.11.4. Assessment Campaign – #CP4

The layout of the Characteristics property page has been reviewed.

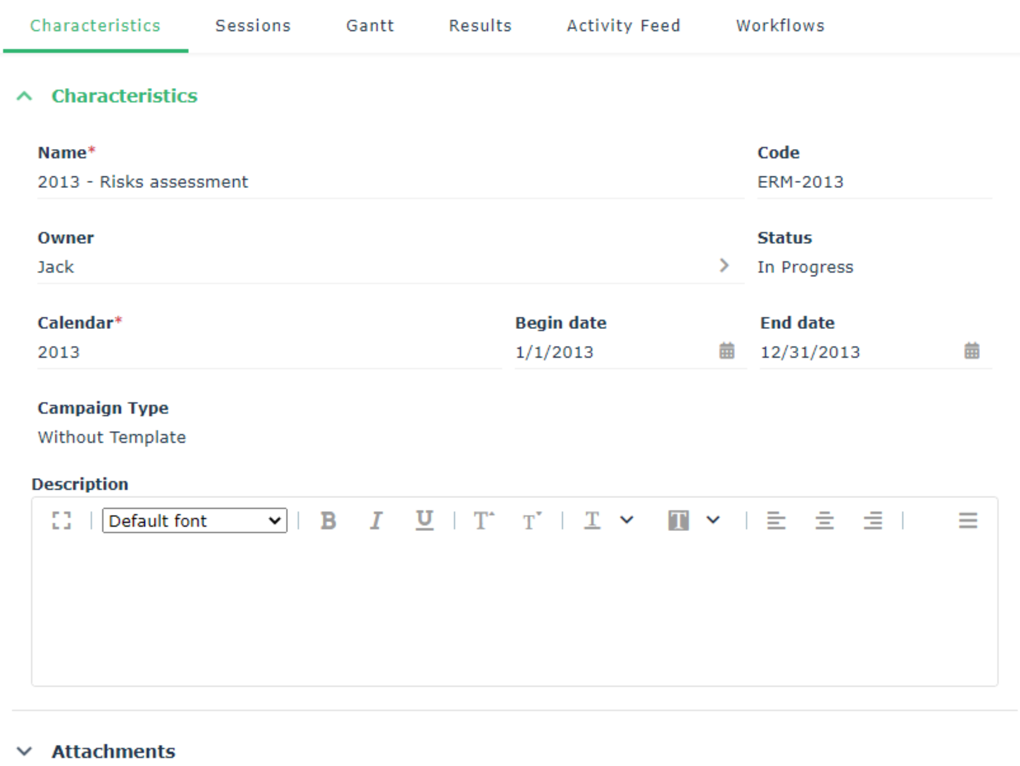


Figure 78 - Assessment Campaign Characteristics

8.11.5. Assessment Session – #CP4

The layout of the Characteristics property page has been reviewed.

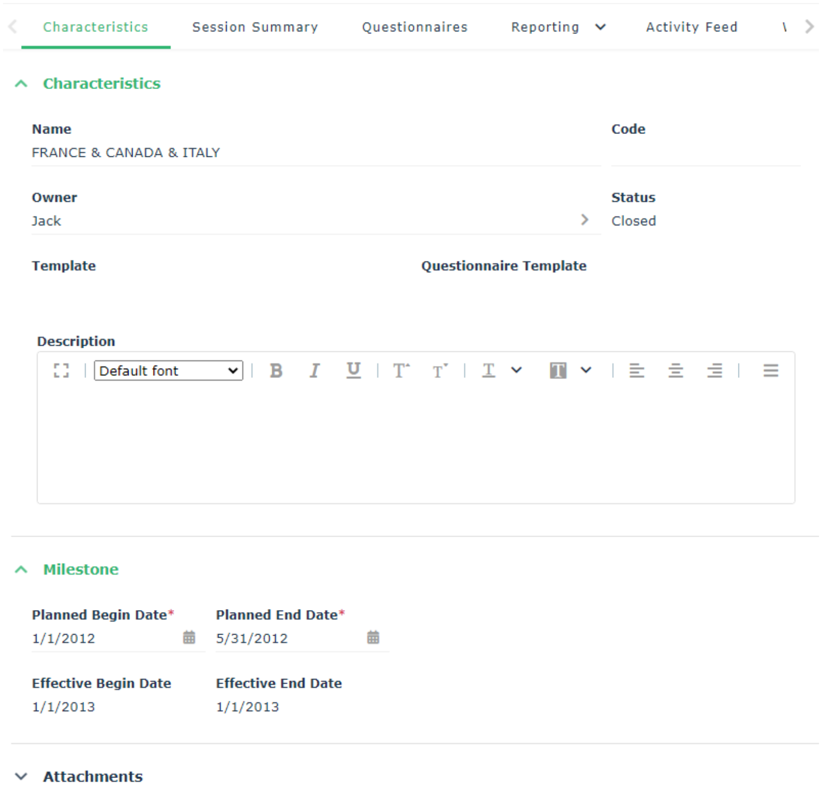


Figure 79 - Assessment Session Characteristics

8.11.6. Questionnaire – #CP4

The layout of the Characteristics property page has been reviewed.

8.11.7. Questionnaire template – #CP4

The layout of the Characteristics property page has been reviewed.

8.11.8. Assessment template – #CP4

The layout of the Characteristics property page has been reviewed.

8.11.9. Gross Income – #CP4

The layout of the Characteristics property page has been reviewed.

8.11.10. Risk Type – #CP4

The layout of the Characteristics property page has been reviewed.

Some information has been added:

- Parent Risk Type
- Sub Risk Types
- Risk Factors.

Some new property pages have been added:

- Risks
- Incidents.

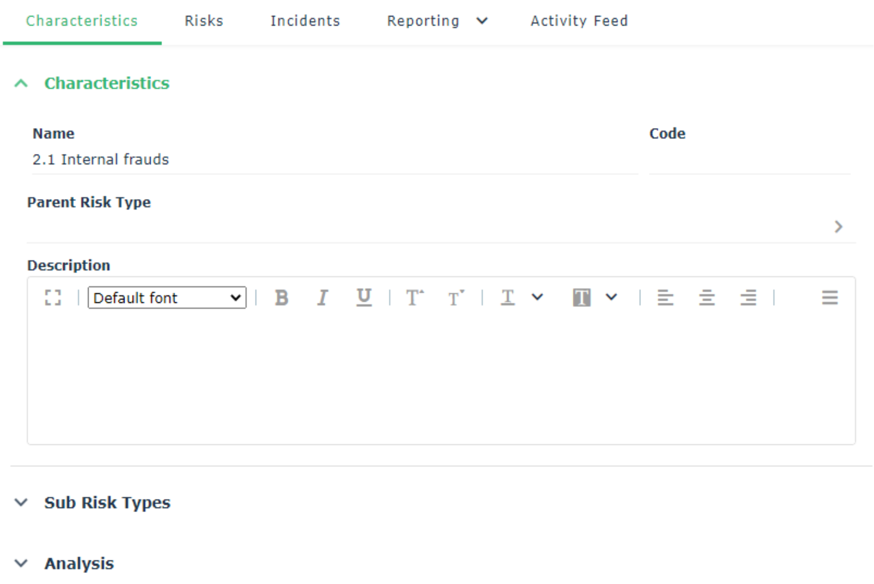


Figure 80 - Risk Type Characteristics

8.11.11. Risk Factor – #CP4

The layout of the Characteristics property page has been reviewed.

Some information has been added:

- Parent Risk Factor
- Sub Risk Factors
- Risk Types.

Some new property pages have been added:

- Risks.

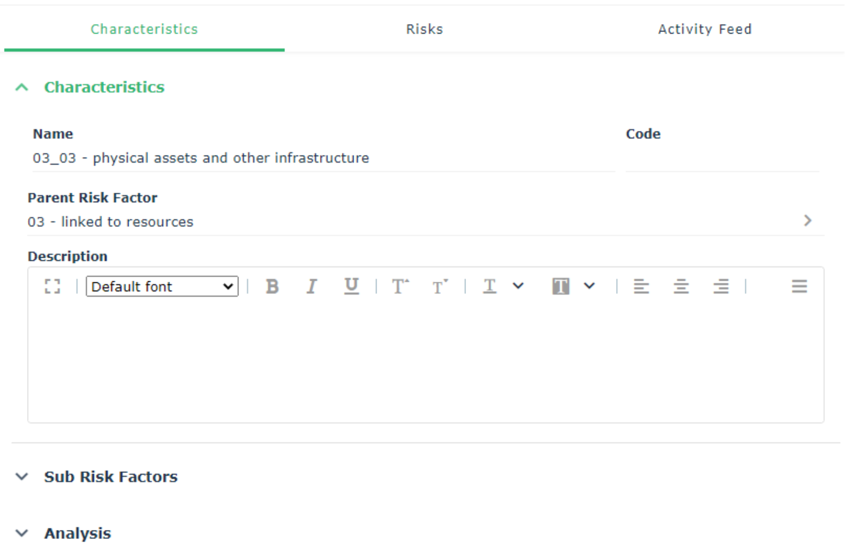


Figure 81 - Risk Factor Characteristics

8.11.12. Risk Consequence – #CP4

The layout of the Characteristics property page has been reviewed.

Some information has been added:

- Parent Risk Consequence
- Sub Risk Consequences
- Risk Types.

Some new property pages have been added:

- Risks.

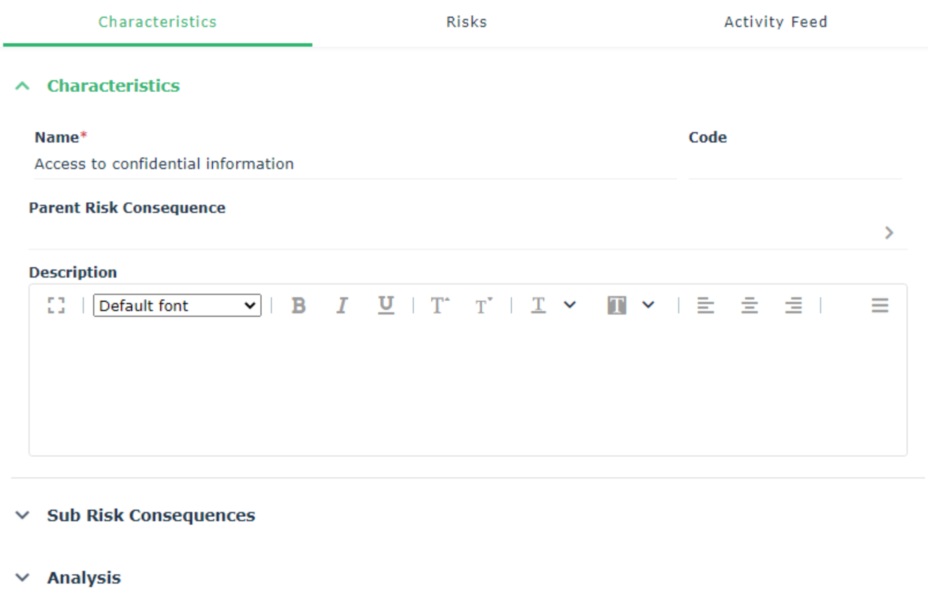


Figure 82 - Risk Consequences Characteristics

8.11.13. Control Type – #CP4

The layout of the Characteristics property page has been reviewed.

Some information has been added:

- Parent Control Type
- Sub Control Types.

Some new property pages have been added:

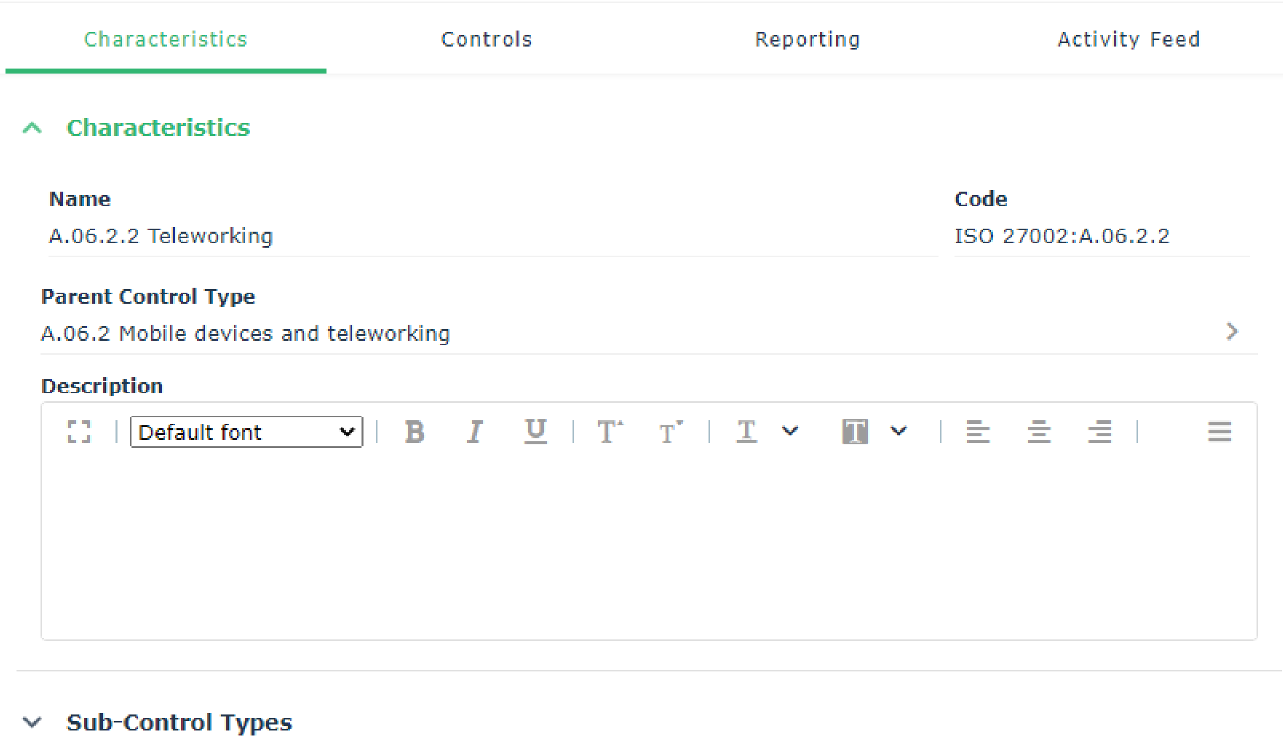


Figure 83 - Control Type Characteristics

- Controls.

8.11.14. Business Documents – #CP4

Multi-selection has been added to the Version History property page.

A new command gives the possibility to update the current version with a new document.

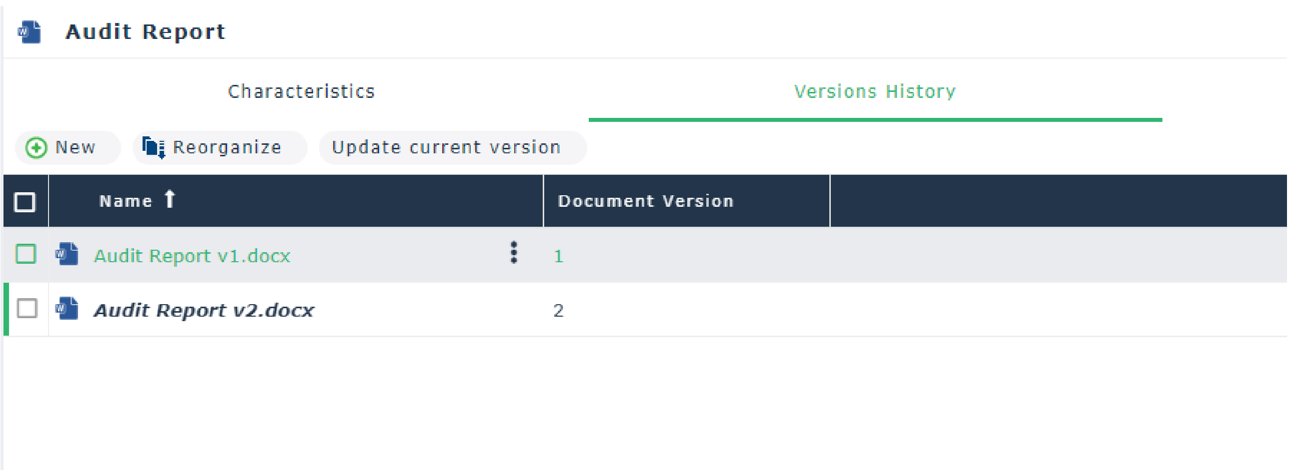


Figure 84 - Business Document Versions History

Check the on-line documentation for more details:

Common Features > Managing Documentation > Using Business Documents > Managing Business Documents[10].

[10] To be able to view the documentation, you must login to the MEGA Community or to HOPEX.

8.11.15. Business Continuity Analysis Template – #CP4

Instant Report and Excel Export commands have been removed from the following lists:

- Impact Types
- Possible Values
- Downtime Periods
- Business Impacts Values.

The button to access the properties of Business Impact Values has been removed, along with the possibility to *Create* and *Delete* from this list. Only *Link* and *Unlink* are available.

8.11.16. "Group by" has been removed on some lists of objects – #CP4

The default grouping on the Status attribute has been removed, and a column with the Status added.

8.11.17. Candidate MetaTrees – #CP4

When connecting the following object, along with the usual Query Editor and Candidate Queries, Candidate MetaTrees have been added:

- Control Type
- Risk Type.

8.12. Reporting

8.12.1. Action Plan Progress Report – #CP4

It is now possible to close the chapters of this report (in the properties of Action Plans).

The line chart has been reviewed to implement large timeframes without any progress update and the legend has been removed.

8.12.2. Bow-tie analysis – #CP4

The bow-tie analysis report has been added to the reports available in the Reporting property page of the Risk.

8.12.3. Duplicated Controls report removed – #CP4

The duplicated controls report in the Reporting property page of Org-Units has been removed.

8.13. Regulation Frameworks Conversion Wizard

<u>Only for existing clients</u>.

A dedicated page, accessible via the IRM Functional Administration profile, under the menu Administration>Tools>Regulation Data Conversion, allows to launch the data conversion wizard, to convert existing regulation frameworks and requirements towards the new compliance concepts, introduced since V4CP1, following the integration of HOPEX IRM with UCF (i.e. Regulatory/Policy Frameworks, Regulation Sections and Policy Framework Sections, Regulation Articles and Business Policies, and Control Directives).

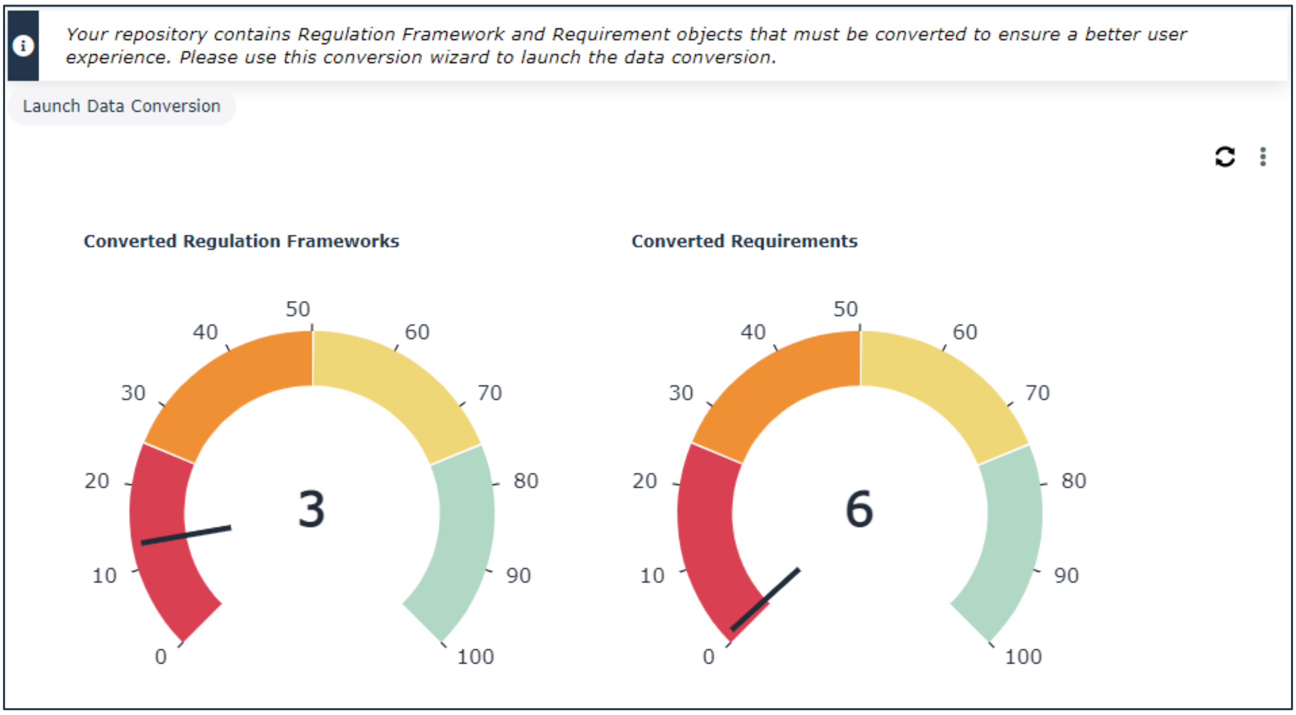


Figure 85 - Regulation Frameworks and Requirements conversion reports

The conversion process does not actually modify the original data, but simply creates new objects based on the new meta-model. This means that no data is lost, and users can always access to the old regulation frameworks and requirements if needed.

If the user environment contains data still to be converted, this page displays a button to launch the data conversion, and two reports show the percentage of existing regulation frameworks and requirements yet to be converted.

Important – For a Requirement to be converted, it is mandatory for it to belong to a regulation framework. Furthermore, a regulation framework which contains another regulation framework, can only be converted into an empty regulatory framework, since the new meta-model does not support hierarchies of regulatory frameworks.

Once the user clicks on the button “Launch Data Conversion” a one-step wizard allows to select the regulation frameworks to be converted. To specify if and how an existing regulation framework should be converted, the user is presented with a table which lists all regulation frameworks which have not yet been converted.

From this table the user must fill in the column “Convert Into” to select whether the regulation framework should be converted into a regulatory framework, a policy framework, or if it should not be converted.

A button "Apply Default Conversion Settings", when clicked, defines a standard

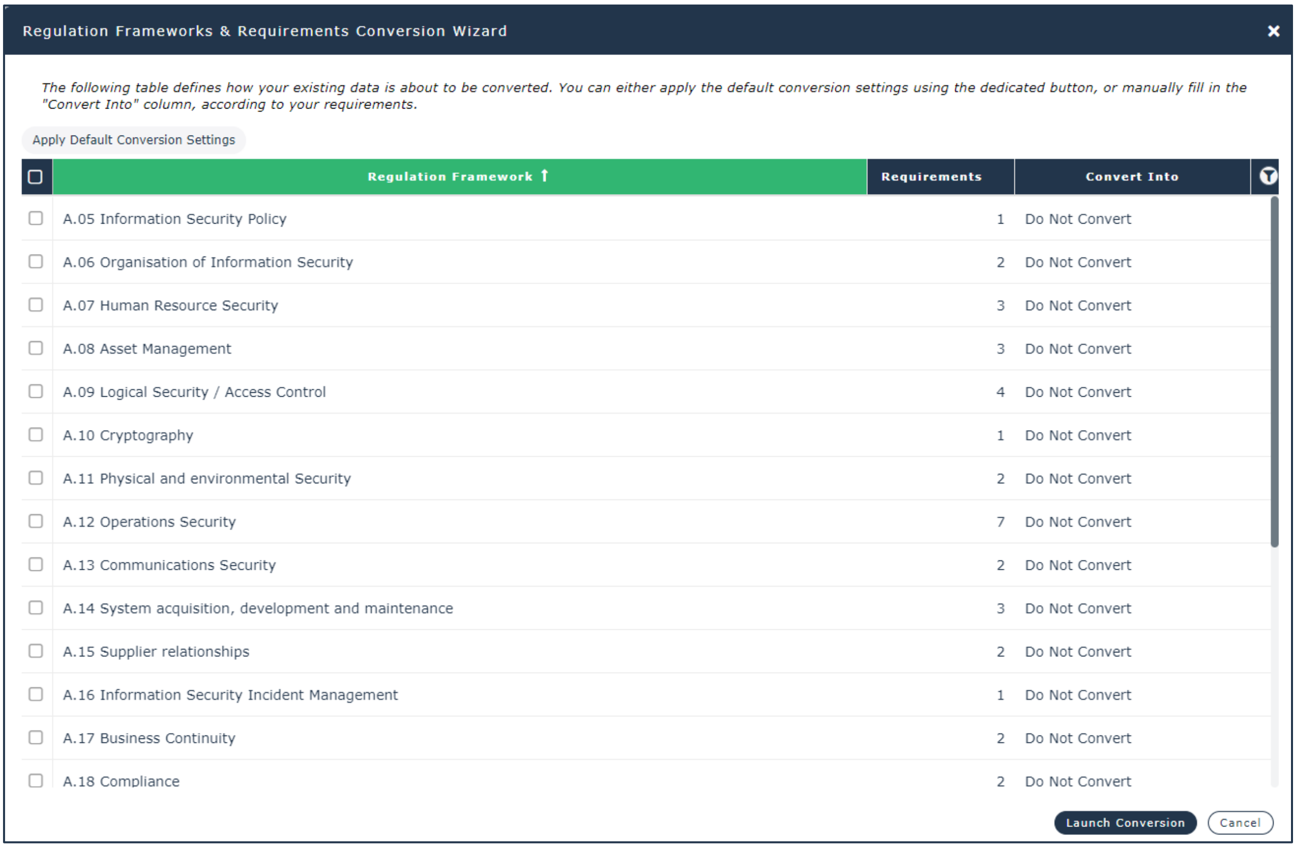


Figure 86 - Regulation Frameworks and Requirements conversion wizard

conversion towards the new regulatory framework meta-class, for all existing regulation frameworks.

8.13.1. Message before converting – #CP4

A new message has been added before launching the conversion to recap the number of elements impacted by the conversion.

8.13.2. Conversion algorithm

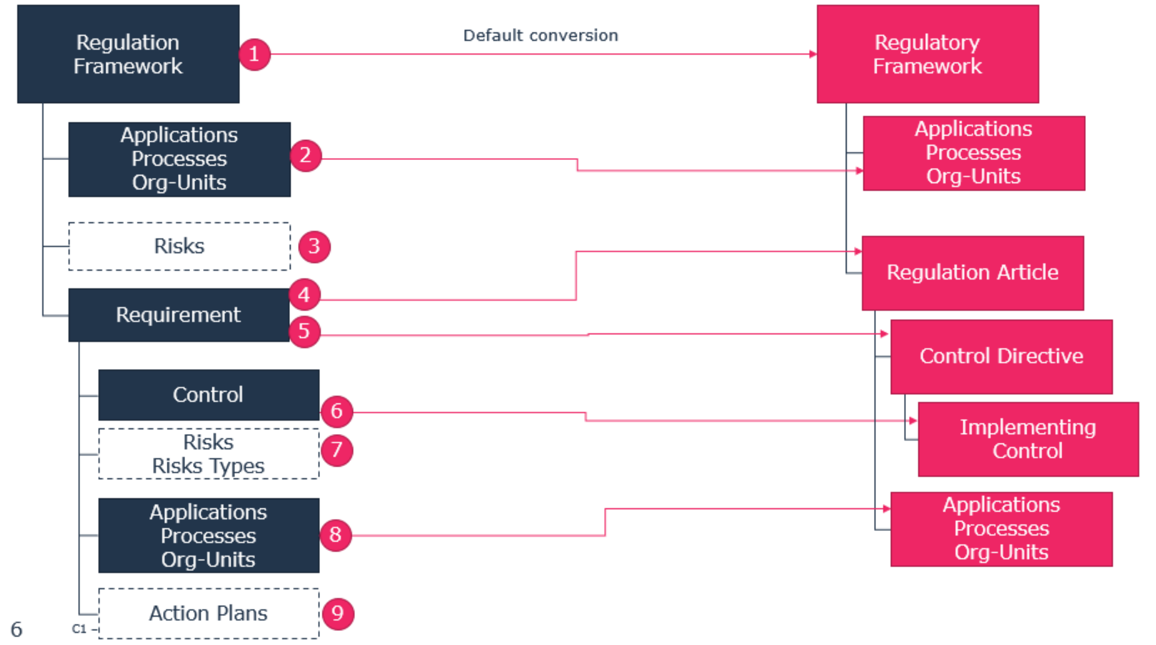
When converting a regulation framework, the following happens:

Based on whether the conversion is towards a regulatory or policy framework, a new regulatory/policy framework is created, with the same name of the original regulation framework

Several regulation articles/business policies are created, one for every requirement of the original regulation framework. The name of the regulation article/business policy is equal to the requirement it originated from

For every regulation article, also a control directive is created, with the same name of the regulation article. This is the concept which allows to create the link towards implementing controls.

The following infographic contains a graphical summary of the conversion logic.



The numbers in the above infographic mean the following:

5. By default, for each regulation framework a regulatory framework with the same name is created
6. All applications, processes and org-units in the regulation framework scope, will appear within the regulatory framework Subjected Elements section
7. The meta-association Risks is not considered
8. For every requirement of the regulation framework a regulation article with the same name is created

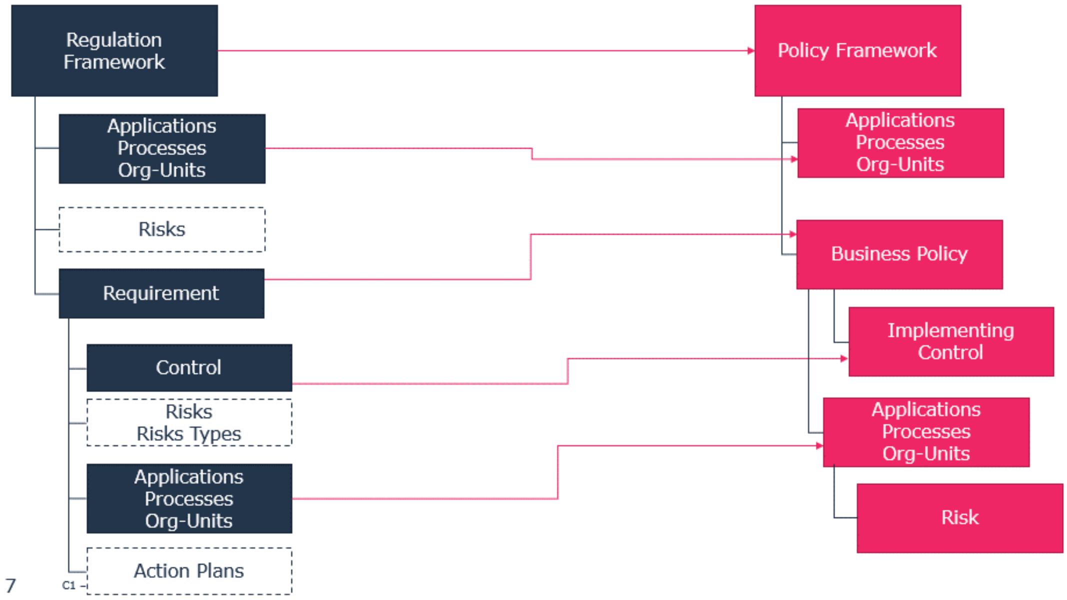
For every requirement a control directive is also created, of type mandated, with name equal to the requirement name

All controls linked to the requirement will appear under the Implementation section of the newly created control directive

The meta-associations with risks & risk types are not considered

All applications, processes and org-units in the requirement scope will appear under the Subjected Elements section of the newly created regulation article

The meta-association Action Plans is not considered



The following table documents how the meta-attributes of a converted regulation framework are copied in the newly created regulatory framework.

Regulation Framework	Regulatory Framework
Code	Policy Code
Name	Name
Regulation Scope	**DISCARDED**
Regulation Date	Regulation Release Date
Application Begin Date	Effective Date
Application End Date	**DISCARDED**
Expiration Date	**DISCARDED**
Regulation Status	**DISCARDED**
Comment	Comment

Figure 88 - Regulation Framework meta-attributes conversion

The following table documents how the meta-attributes of a converted requirement are copied in the newly created regulation article.

8.14. IRM Business Roles

HOPEX IRM exploits a list of pre-defined business roles to:

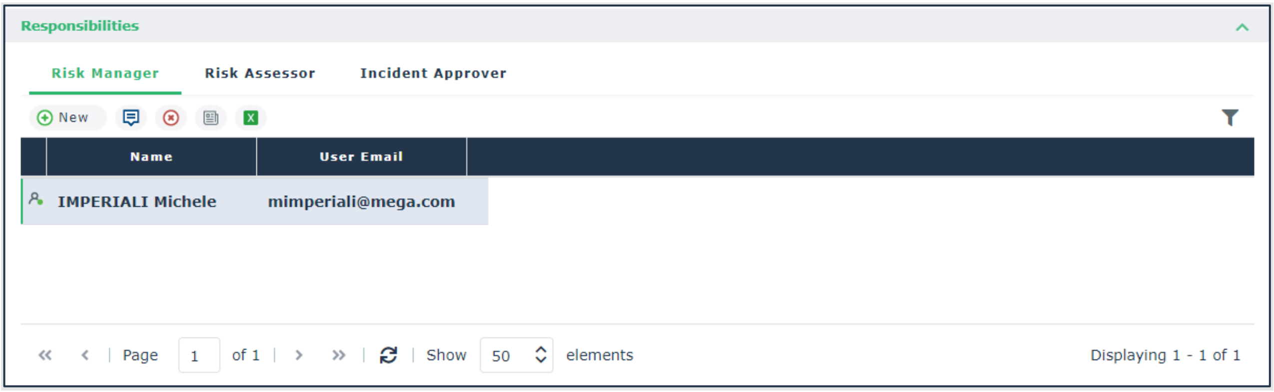
- Identify the respondents for risks and controls assessments and execution campaigns
- Specify users that are entitled to create incidents or validate them

Important – By default, only the IRM Functional Administrator profile has the right to

Requirement	Regulation Article
Requirement Nature	DISCARDED
Priority	DISCARDED
Expiration Date	DISCARDED
Issuer	DISCARDED
Code	Policy Code
Requirment Internal Status	DISCARDED
Requirment Official Status	DISCARDED
Type of Legislation Source	DISCARDED
Sanction Type	DISCARDED
Sanction	DISCARDED
Suggested Test	DISCARDED
Name**	Label
Comment	Comment

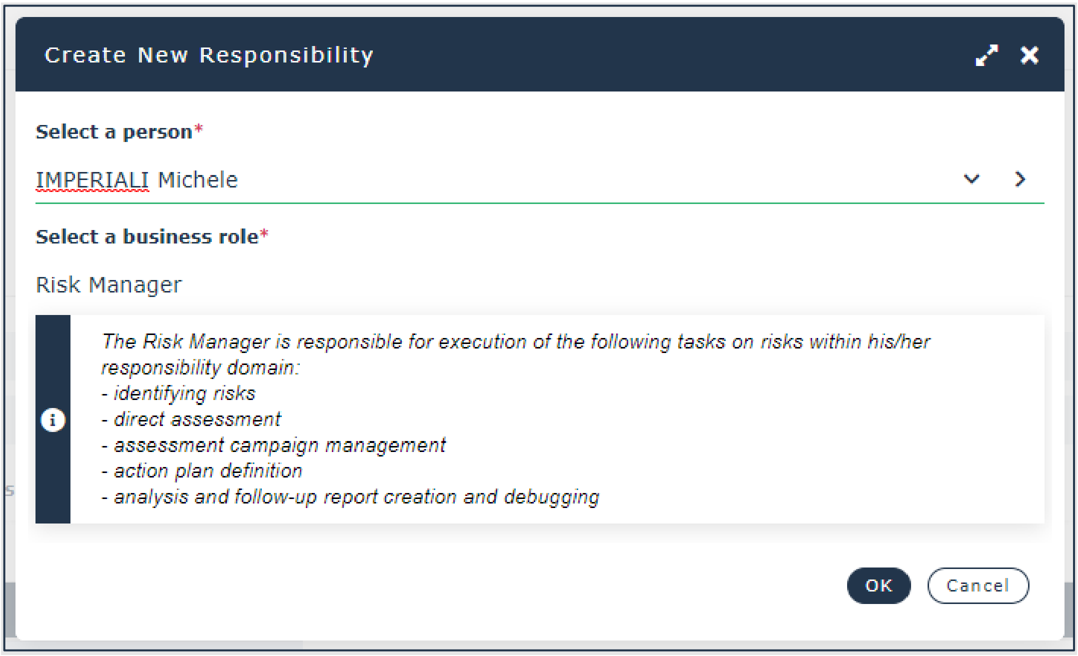
Figure 89 - Requirement meta-attributes conversion

edit these roles on the entity. All other profiles have only read rights.



A new wizard to define the responsibility exposes a description for the selected business role, to better explain which are the role's responsibilities.

Figure 90 - New business responsibility wizard



8.14.1. Entity Responsibilities

Among the business roles available within HOPEX IRM, there are some which are entitled to be defined at the entity level.

To help users define responsibilities for a given entity, a new section has been added to its properties. This section is called "Responsibilities" and it allows to define:

Risk Managers – Person(s) in charge for the management of risks impacting the entity.

Risk Assessors – Person(s) in charge for the assessments of risks impacting the entity[11].

Control Assessors – Person(s) in charge for the evaluation and execution of controls implemented in the context of the entity

Incident Approvers – Person(s) in charge for the approval of incidents affecting the entity.

Incident Declarers – Person(s) in charge for the creation of incidents within his/her scope.

8.14.2. Process Responsibilities

The section Responsibilities of both Organizational and Business Processes has been enriched with two additional Business Roles:

- Risk Assessors – Person(s) in charge for the assessments of risks impacting the process. It is possible to limit this role to a specific entity.

[11] This field was originally placed in the entity characteristics section, and it was technically called "Risk and Control Assessor"

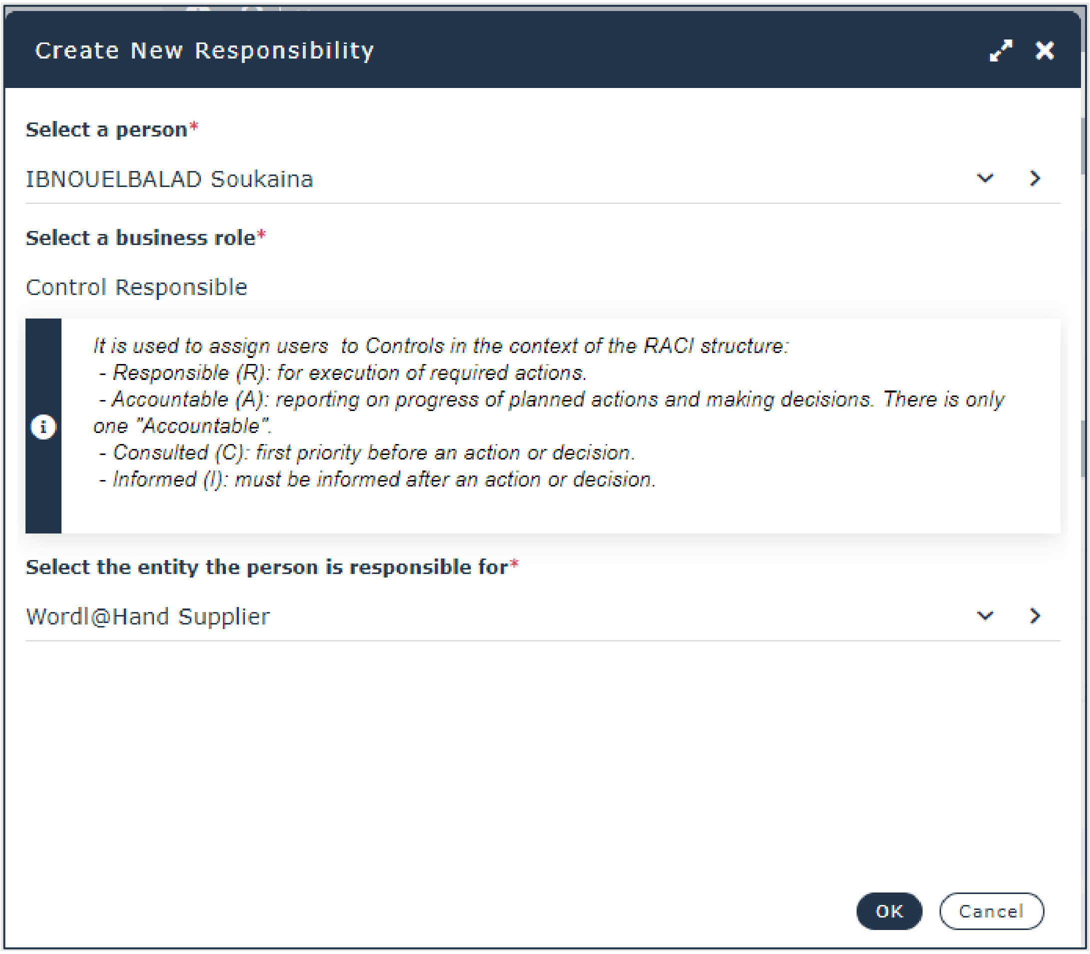
Figure 91 - Control Responsible wizard

- Control Assessors – Person(s) in charge for the evaluation and execution of controls implemented in the context of the process. It is possible to limit this role to a specific entity.

8.14.3. Control Responsible

The wizard allowing to define a Control Responsible on a Control has been reviewed to add a new field which allows to define the entity the person is responsible for.

The entity the person is control responsible for, is an information used when carrying out assessment or execution campaigns, to identify the person who should receive the assessment questionnaire or execution checklist.



8.15. Data Access Rules

The Data Access Rules on Risk, Control, Incident and Action Plan have been reviewed. All these rules apply only to the following profiles: IRM Contributor, Internal Controller, Auditor.

Risk Modification

Only the users with the following business roles can edit a Risk:

- Risk Owner

- Risk Accountable
- Risk Responsible
- All users with a Risk Manager business role with respect to an Org-Unit which is directly, or indirectly (via a sub Org-Unit) linked to the Risk via its scope section

Control Modification

Only the users with the following business roles can edit a Control:

- Control Owner
- Control Accountable
- Control Responsible

Incident Visibility and Modification

If the Incident does not have an associated Entity, anybody can see it and edit it.

Otherwise, only the users with the following business roles can view and edit an Incident:

- Incident Declarer
- All users who hold either the business role Incident Approver or Risk Manager with respect to the Org-Unit linked to the Incident as "Declarant's Entity"

Action Plan Visibility

Only the users with the following business roles can see an Action Plan:

- All users holding a business role with respect to the Action Plan

Action Plan Modification

Only the users with the following business roles can edit an Action Plan:

- Action Plan Owner
- Action Plan Accountable
- Action Plan Responsible

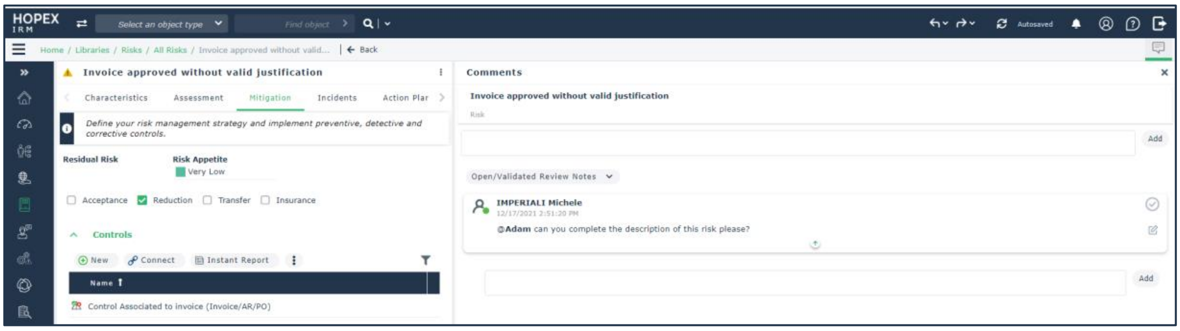
Figure 92 - Review Notes

8.16. Other Modifications and Improvements

8.16.1. Review Notes

Review notes have been added to all main IRM objects. The full list being: Risk; Control; Issue; Incident; Action Plan; Action (Action Plan); Finding; Recommendation; Key Indicator; Organizational Process; Business Process; Application; Audit; Test; Audit Activity; Test Activity; BCM System; BIA; BCP; Business Continuity Step; BCP Instance; Business Continuity Step Instance; Crisis Management; Policy Framework; Policy Fr
Figure 93 - Home page tiles

Section; Business Policy; Regulatory Framework; Regulation Section; Regulation Article; Control Directive; Objective.



8.16.2. Home Page Tiles

Default home page tiles for GRC profiles have been reviewed. New tiles have also been created, such as the "Reports" tile, allowing to quickly access to all reports, and the "Process-Risk-Control" tile, which leads to the tree structure of processes, risks and controls.

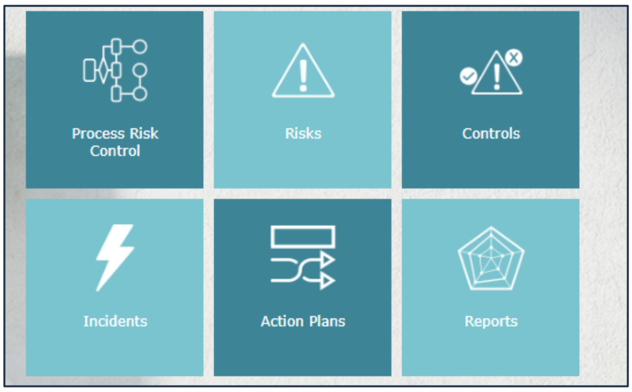


Figure 94 - Environment tree with risk and control data
Figure 95 - Risk heatmaps

8.16.3. Environment Trees

All trees under the menu Environment have been completely reviewed to provide in one single page information related to risks, controls and incidents.

8.16.4. Risk Heatmaps

The axis of inherent and residual risk heatmaps have been inverted to be aligned with market standards.

8.16.5. Skip node creation in assessment aggregation

A new option "Skip node creation" is now available on the property page of an aggregation step. When this option is checked, the aggregation step will skip the creation of the related assessment nodes. It will simply carry out the computation on the entry nodes and provide the results to the next aggregation step.

Figure 96 - Residual Risk computation algorithm

Thanks to this option, it is now possible to gain a significant amount of time when executing the aggregation steps.

This option should only be used when there is no interest in exploiting in a report the results of the assessment nodes that are normally generated when executing the aggregation step. Furthermore, the option must never be used on the last aggregation step, otherwise it would prevent the generation of the assessment nodes holding the result of the overall aggregation.

Figure 97 - Assessed objects context in questionnaires layout

8.16.6. Residual risk computation algorithm

The algorithm which computes the residual risk, starting from inherent risk and control level has been reviewed has displayed in the image below.

INHERENT RISK					
25	Medium	Medium	High	High	Very High
16	Low	Medium	Medium	High	High
9	Low	Low	Medium	Medium	Medium
4	Very Low	Low	Low	Low	Low
1	Very Low	Very Low	Very Low	Very Low	Very Low
	1	4	9	16	25
	CONTROL LEVEL				

8.16.7. Questionnaire instance layout

A new column displaying the context of a questionnaire assessment has been added to the list of assessed objects.

Furthermore, it is now possible to use filters on all of the existing columns.

Assessed Objects

Name ↑	Status	Context
Budget over...	Not Started	MyCompany -> Subsidiaries -> Belgium
Data encryp...	Not Started	MyCompany -> Subsidiaries -> Belgium

8.16.8. Questionnaire instance naming

The rule to automatically compute the name of the questionnaires has been updated as follows:

If questionnaires are created “by person”: "[Campaign Name] - [Respondent]"

If questionnaires are created “by assessed object”: “[Campaign Name] - [Respondent]: assessed object name”

If questionnaires are created “by context”: “[Campaign Name] - [Respondent]: Context1>context2”

Figure 98 - Workflow email notification

8.16.9. Questionnaire instance Closure Date

A new field "Completion Date" is now available on questionnaire instances, providing the date at which the respondent completed the questionnaire.

8.16.10. Questionnaire Template property page

The scoring rules used by a questionnaire template are now listed within the section “Scoring Rules” in the property page Characteristics of the questionnaire template.

8.16.11. Workflow email notifications

All standard workflow email notifications have been reviewed and updated.

The content of the notification message has been made consistent throughout the solution and a new, modern HTML template is now used by the email messages.

Figure 99 - Risk heatmaps new layout

8.16.12. Risk heatmaps

All standard risk heatmap reports have been reviewed to update their layout.

Inherent Risk

Impact \ Likelihood	Rare	Possible	Likely	Probable	Certain
Very High	0	0	0	0	5
High	0	0	0	2	1
Medium	2	0	3	3	2
Low	3	3	4	3	0
Very Low	4	2	1	2	0

Residual Risk

Control Level \ Inherent Risk	Very Low	Low	Medium	High	Very High
Inexistent	0	5	3	3	4
Ineffective	0	1	1	3	0
Frequent observations	0	1	3	0	0
Few observations	0	2	3	0	2
Effective	4	4	0	1	0

8.16.13. List views and meta-trees and columns

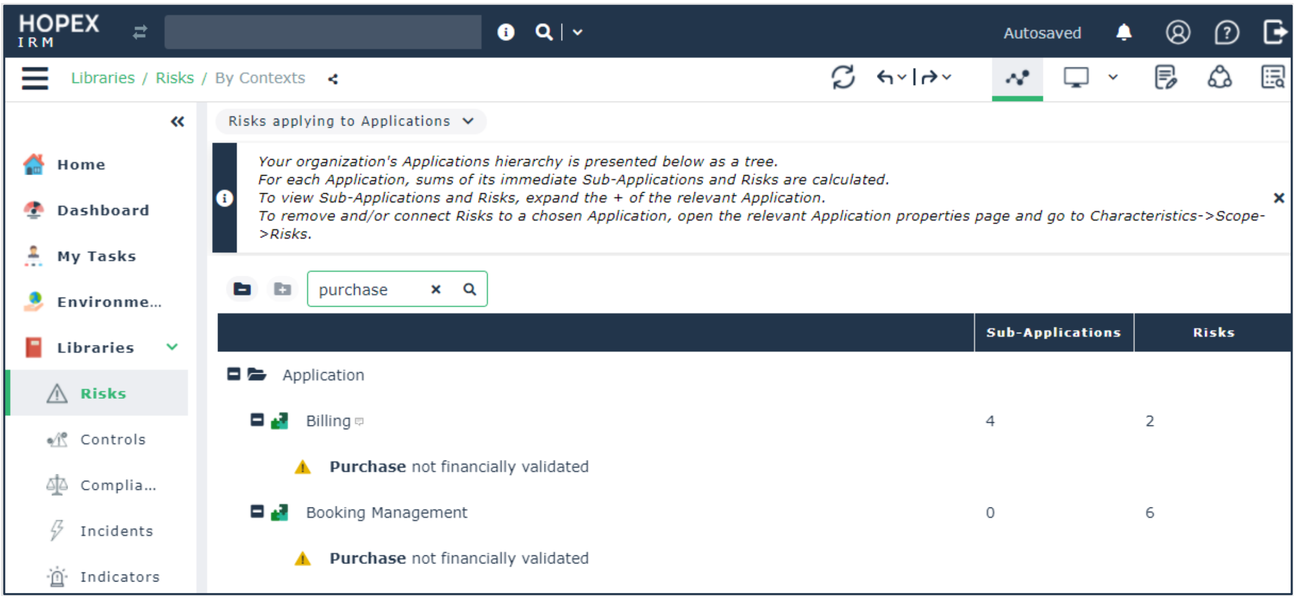
All main risk, controls and incidents list views and meta-trees have been reviewed to add additional columns and provide additional information readily available[12]. When applicable, also the list in the objects' property pages have been enriched with additional columns.

Where possible, several alternate lists have been merged into one in order to provide a single-entry point to the list of objects. Starting form this list, the user can apply required filters on existing columns and obtain the desired filtered list of objects.

Furthermore, all meta-trees are now equipped with a contextual search to search elements within the tree.

[12] Some of these columns are hidden by default

Figure 100 - Quickly find objects within trees



8.16.14. Incident Creation Wizard

The incident creation wizard which requires to enter the “Declarant’s entity” has been improved as follows:

- If the user who creates the incident holds the business role of Incident Declarer with respect to one or more entities, this wizard will not be shown, and the incident will be created with field "Declarant's Entity" equal to the first entity among those for which the user is Incident Declarer
- If the user is not defined as Incident Declarer anywhere, HOPEX checks if he/she has at least a responsibility assignment with respect to an existing entity. If he/she has one or more responsibility assignments, the wizard will not be shown, and HOPEX uses the first one to initialize the field “Declarant’s Entity”

8.16.15. Auditors Issued Recommendations

A new section has been added to the menu "My Tasks>Remediation>Recommendations to Implement", which provides the list of recommendations issued by the current user (i.e. those where he/she is the owner).

8.16.16. Test Sheets Management

It is now much easier and intuitive to create test sheets from within audit and test activities.

The page “Complete Test Sheet” accessible from either the audit or test activity is always displayed and provides a button via which the user can easily launch the generation of the test sheet. If a pre-requisite for the test sheet generation is not met, this page also shows a warning message to guide the user towards the resolution of the problem.

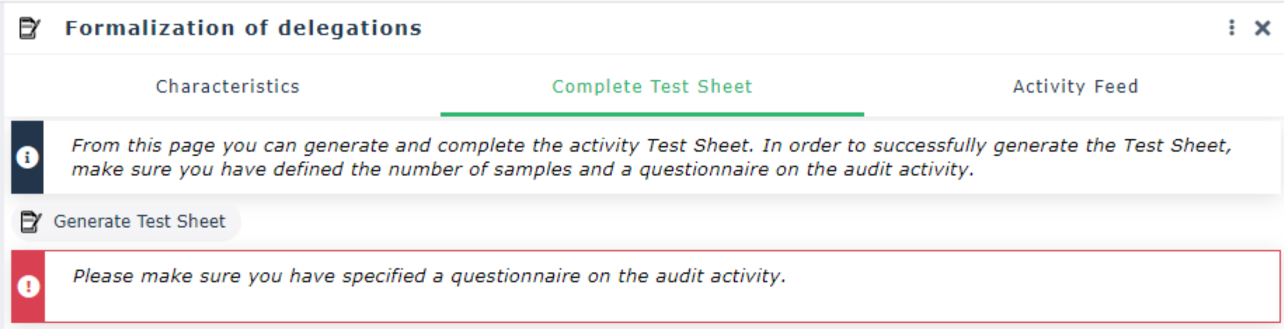


Figure 101 - Generate test sheet

8.16.17. Risk property page restructuring

The property page "Controls and Action Plans" of a risk, has been renamed into "Mitigation" and it now only displays the risk appetite together with the risk reduction strategy and the list of existing controls.

Action Plans and Incidents have been moved into separate pages: respectively "Action Plans" and "Incidents".

8.16.18. Control property page restructuring

The property pages of a control have been reviewed and layout improved.

In particular:

The list of risks linked to the control, originally displayed under the section Scope, is now displayed in a separate dedicated section Risks, which is right below.

The list of incidents linked to the control, originally displayed under the section Scope, is now displayed in a separate dedicated page Incidents

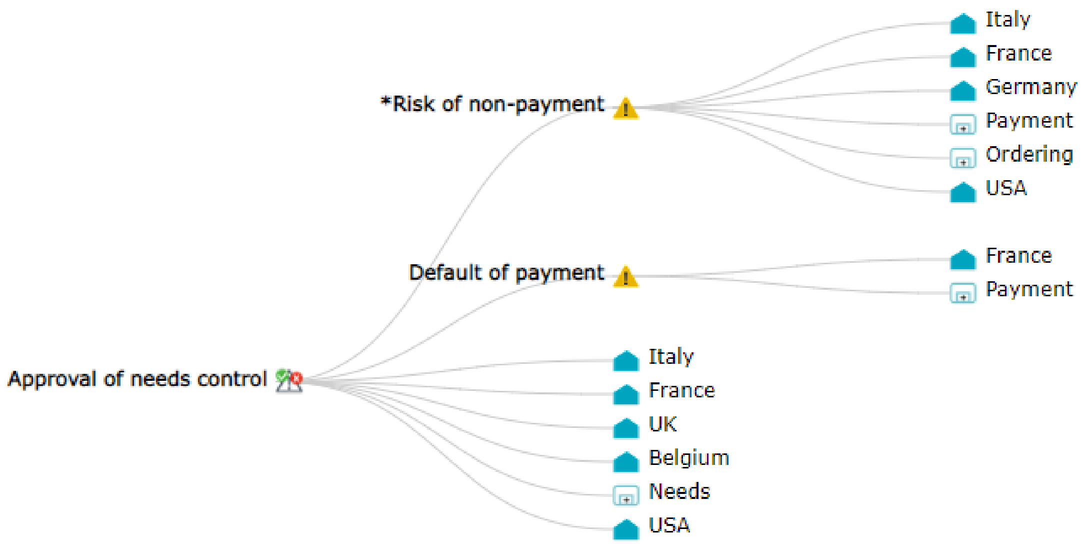
The page Action Plans now displays both action plans directly linked to the control and those which are linked to an issue linked to the control

A new reporting page is now available. Like with the risk, this page displays the control environment. It consists in a dendrogram displaying all main elements linked to the control

Figure 102 - Control environment report

Figure 103 - Campaign questionnaires status distribution

Figure 104 - External references



8.16.19. Review Campaign Follow-up & Statistics report

The assessment campaign reports under the page "Report>Follow-up & Statistics" have been reviewed in order to improve layout and usability.

	Questionnaires						
	In Progress	To Be Reassigned	Canceled	In Delegation	Closed	To Be Validated	To Be Sent
IBNOUELBALAD Soukaina	0	0	0	0	1	0	0
TOTAL	0	0	0	0	1	0	0

8.16.20. External references

All main HOPEX IRM objects which were equipped with a section "Documents" to let users attach relevant documents, now also provide the option to add external references.

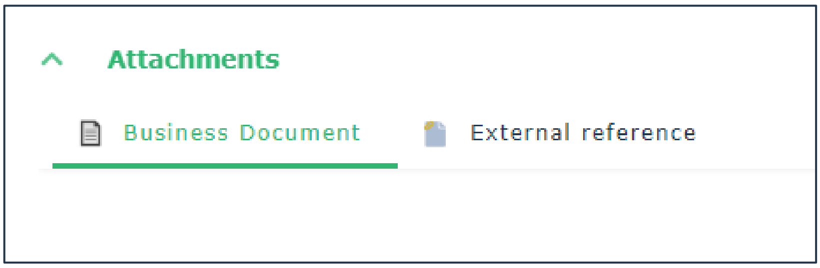
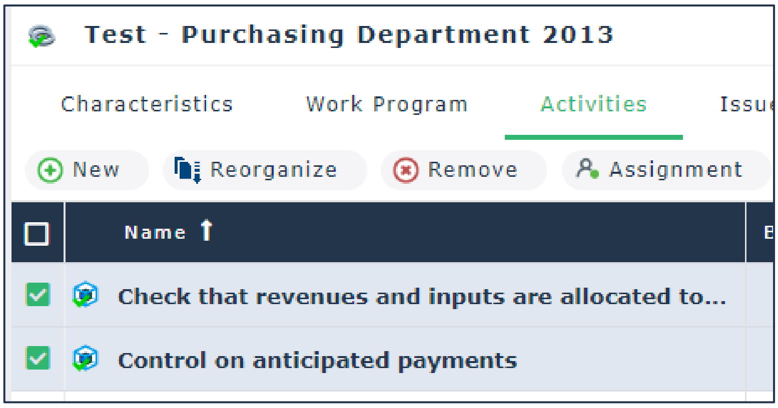

Attachments
Business Document
External reference

Figure 105 - Assign Test Activity Responsible

8.16.21. Assigning Responsible for Test Activity

Similarly to the Internal Audit, it is now possible to assign responsible to one or more test activities, directly for the list of activities displayed in the properties of a test.



8.16.22. Various Renaming

The following renaming were introduced in this version:

- The home page tile "All Business Processes" has been renamed into "Process Risk Control", and the "All Organizational Processes", which was pointing to the same page, has been removed
- The profile "Incident and Losses Administrator" has been renamed into "Incident and Losses Manager" since its original name would easily lead to the misunderstanding that this role is a Functional Administrator while it is not (for example, he does not have access to the Administration section of HOPEX, and therefore he cannot manage users);
- The risk meta-attribute "Net Risk" has been renamed into "Residual Risk";
- Key Risks have been renamed into Major Risks;
- Questions of type "Single Input" have been renamed into "Short Answer";
- The menu Strategies, under Environment, has been renamed into Objectives;
- The meta-class "UCF Control Directive" has been renamed into "Control Directive" since it is now used broadly when working with regulatory content, and not only in the context of the integration with UCF.
- The field "Target Risk" displayed in various areas of the solution has been renamed into "Risk Appetite"
- The RACI section contained in the property page of risks and action plans has been renamed into Responsibilities.

8.16.23. Questionnaires/checklists list views columns

The columns displayed on main campaigns and questionnaires/checklist list views have been reviewed in order to provide better insights to the users when browsing these lists.

Affected lists are to be found under:

2. My Tasks>Assessment
3. My Tasks>Execution

4. Assessment>Campaigns
5. Assessment>Follow-up
6. Execution>Campaigns
7. Execution>Follow-up

8.16.24. Action Plans Actions

It is now possible to have actions with the same name, as long as they belong to different action plans.

8.16.25. Menu structure modifications

The menus Assessment>Results and Execution>Results have been deleted since the same information is available via the reports accessible respectively through the menus Analysis>Controls>Assessment and Follow-up and Analysis>Controls>Execution.

Two tiles have been added to the menu My Tasks>Audit. Respectively:

Work Program, to access the user work program and the global work program,
Past Audits, to display all the user past audits

The menus "Vacation Requests to Review" and "Expenses to Review", originally under My Tasks>Time & Expenses, have been moved within the section My Tasks>Review.

The menu "Libraries" has been renamed into "Registers" and it was partially reorganized to provide a better user experience and easier access to the main IRM concepts.

The Risks submenu now leads to one single page, displaying:

All Risks
Orphan Risks
Materialized Risks

Same approach has been followed for the Controls submenu, which now leads to one single page, displaying:

- All Controls
- Orphan Controls
- Controls by Incidents

Same approach has been followed for the Incidents submenu, which now leads to one single page, displaying:

Open Incidents
All Incidents
Orphan Incidents
Macro Incidents

For the Action Plans submenu, the Action Plans by Scope tile has been removed, and the alternate lists "Delayed Action Plans", "My Action Plans" and "My Delayed Action Plans" have also been removed, since all the information is now made available through one single list of all action plans, which can be easily filtered using the dedicated columns.

For the Indicators submenu, the Indicators by Entities tile has been removed, since the same info is now made available through a dedicated column on the main Key Indicators list view.

8.16.26. Inline Edit

All main list and tree list views now provide the inline edit. For list views edit is possible on all columns which are not computed, while for trees the edit is mainly possible for the object's name.

8.16.27. Technical improvements – #CP4

The *mA9b3WwxH5bJ* java macro used for context in Direct Assessment has been reviewed and wrapped in another VB macro to easily manage custom context.

8.16.28. Menu and WET – #CP4

8.16.28.1. Environment menu reorganized

The list in Environment has been reordered as follows:

- Organization
- Risks
- Controls
- Compliance
- Documents
- Financial
- Objectives

8.16.28.2. Business Impact Values menu

A new menu has been created to manage Business Impacts Values in the Administration > Business Continuity menu.

8.16.29. UX improvements – #CP4

8.16.29.1. Alternate list

The old drop-down selection in the top of the lists in the following menus have been replaced with the new tab renderer:

- Assessment > Follow-up
- Execution > Follow-up

8.16.30. Repeated title in Questionnaires removed – #CP4

The repeated name of the assessed object in the top part of Questionnaires has been removed

8.17. Removed Features

8.17.1. Regulation Frameworks and Requirements

The menu of HOPEX IRM and HOPEX Explorer, together with existing property pages, have been reviewed to remove any reference to Regulation Frameworks and Requirements which are now replaced by the new meta-model (Regulatory Framework, Regulation Section, Regulation Article and Control Directives).

8.17.2. Control Systems

A new option has been added to the HOPEX options to hide control systems form HOPEX IRM.

The option is called "Control Systems activation" and it must be selected in order for control systems to be available in the solution.

8.17.3. Assessment Templates

The following Assessment Templates have been removed from the standard:

- Risk Assessment per Business Line
- Risk Assessment per Business Process
- Risk Assessment per Organizational Process
- Control Assessment per Application
- Direct Testing Assessment Template
- Indirect Testing Assessment Template
- Vendor Assessment

8.17.4. Business Roles

In order to further streamline HOPEX, some legacy business roles have been removed from the standard. These are:

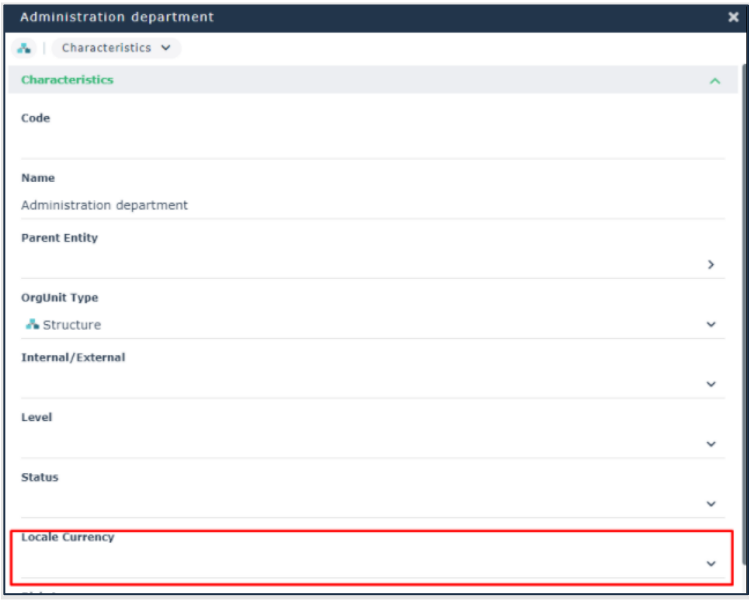
- Business User ERM – It is now substituted by the IRM Contributor profile
- Local Risk Manager – It is now substituted by the Risk Manager business role which can be defined at the entity level
- Risk Stakeholder
- Business User Internal Control – It is not substituted by the IRM Contributor profile
- Audit Director – It is now substituted by the Audit Director profile
- Audit Functional Administrator – It is now substituted by the IRM Functional Administrator profile with Internal Audit product license
- Auditor – It is now substituted by the Auditor profile
- Auditor/Controller
- Auditor/Controller/Compliance Controller
- Compliance Controller
- Compliance Functional Administrator
- Compliance IC and Audit Director/Manager
- Compliance Manager
- Control Executer

- Control Tester
- IC and Audit Director – It is substituted by the IRM Manager with Internal Audit and Internal Control product licenses
- Internal Control Director – It is substituted by the IRM Manager with Internal Control product license
- Internal Controller – It is substituted by the IRM Contributor with Internal Control product license
- Risk Assessor (deprecated)
- Risk Functional Administrator – It is substituted by the IRM Functional Administrator with ERM product license

8.17.5. Local Currency on Entity

The field "Local Currency" available on the Org-Unit property page has been removed.

Figure 106 - Removed Local Currency field on Org-Unit property page



8.17.6. Campaigns Refresh Button

The button Refresh which was available from the list of controls execution campaigns is no longer available

This button allowed to recompute the scheduling jobs of the selected campaigns.

This same functionality is now made available via the button "Schedule Checklists" which is to be found in the property page "Sessions", section "Steering Calendars" of every execution campaign.

9. HOPEX IT Architecture

Many new functionalities in HOPEX IT Architecture focus on facilitating the work of solution architects. They can now simply leverage a library of cloud services (Azure, Google Cloud, AWS) to quickly model cloud architectures. New wizards accelerate the initialization of environment diagrams and new modeling capabilities have been added to model integration chains and micro-services.

The solution UI/UX has been modernized and is now aligned to all other HOPEX solutions.

9.1. User Experience

9.1.1. Desktop

The IT Architecture desktop is switched to 'public workspace' by default, to align with other products.

9.1.2. Profile simplification

To simplify the offer, some IT Architecture profiles have been removed. Usable profiles are:

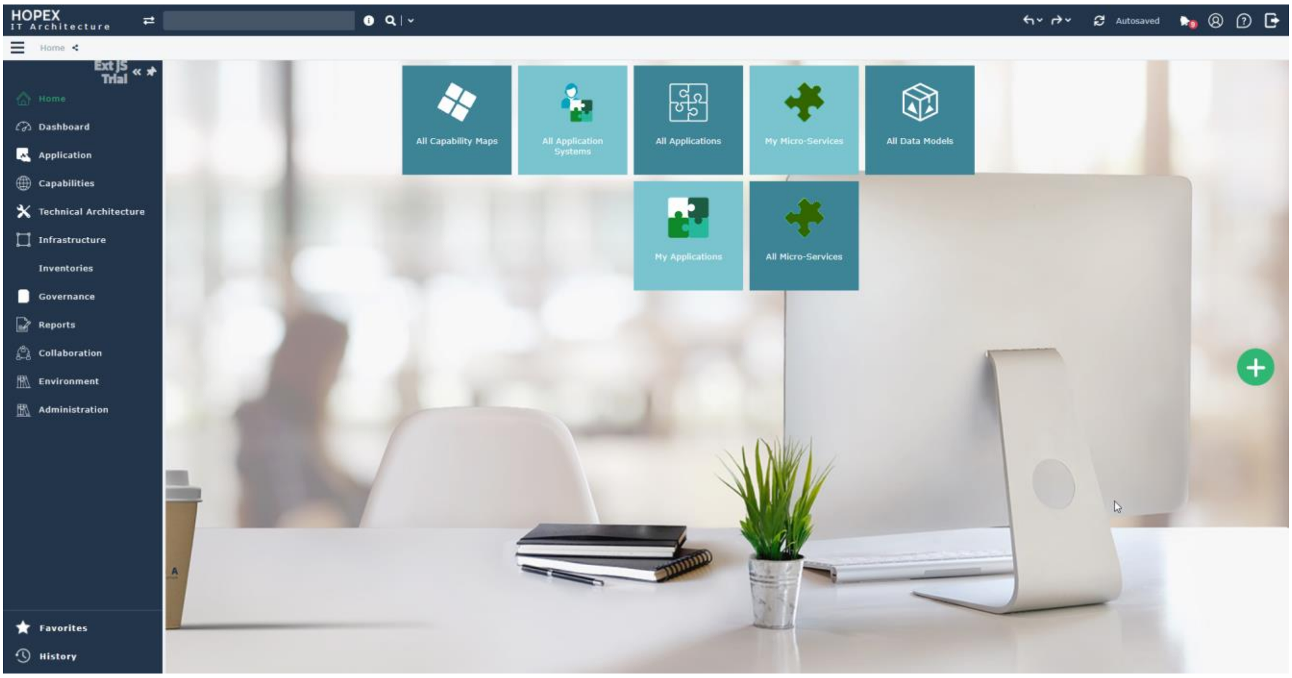
Menus	IT Arc Func Admin	IT Architect	Application Designer	Applications Viewer and Applications Viewer (lite)
Home	W	W	W	R
Dashboard	W	W	W	R
Ideation	W	W	W	R
Business IT Alignment	W	W	W	R
Data Management	W	W	W	R
System Architecture	W	W	W	R
Application Architecture	W	W	W	R
Application Design Resources	W		W	R
Technical Architecture	W	W	W	R
Infrastructure	W	W	W	R
Templates and References	W	W	W	R
Governance	W	W	W	R
Policy	W	W	W	R
Environment	W	W	W	
Reports	W	W	W	R
Collaboration	W	W	W	
Administration	W			

A migration tool will transfer existing assignment from deprecated profiles to "IT Architect" profile when updating the HOPEX environment.

9.1.3. User Interface

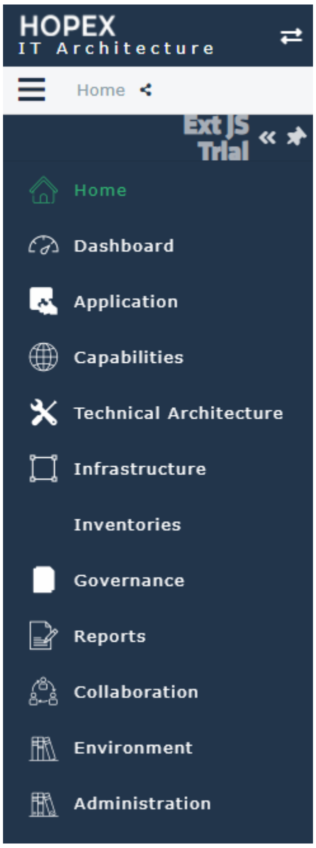
Many improvements have been made to simplify the usage of the solution and make the navigation more intuitive.

The solution now uses a new desktop look and feel.



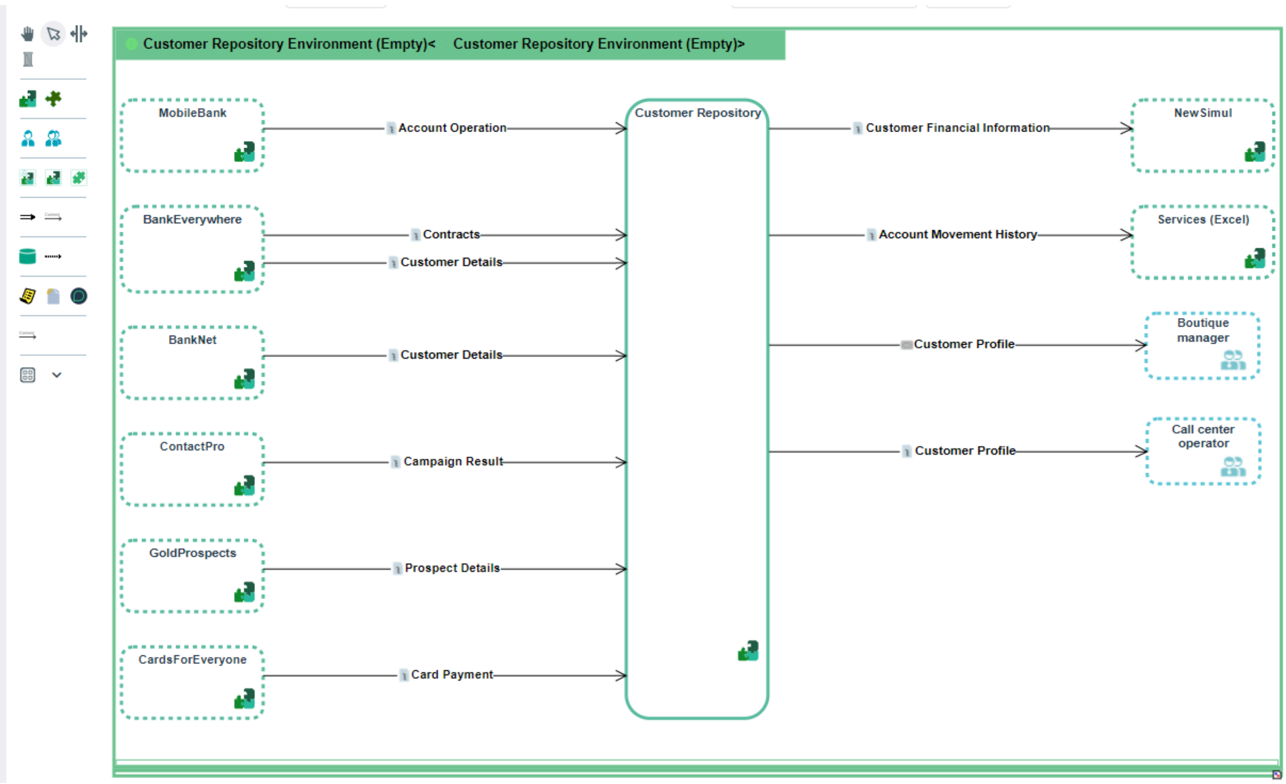
9.1.4. New menus

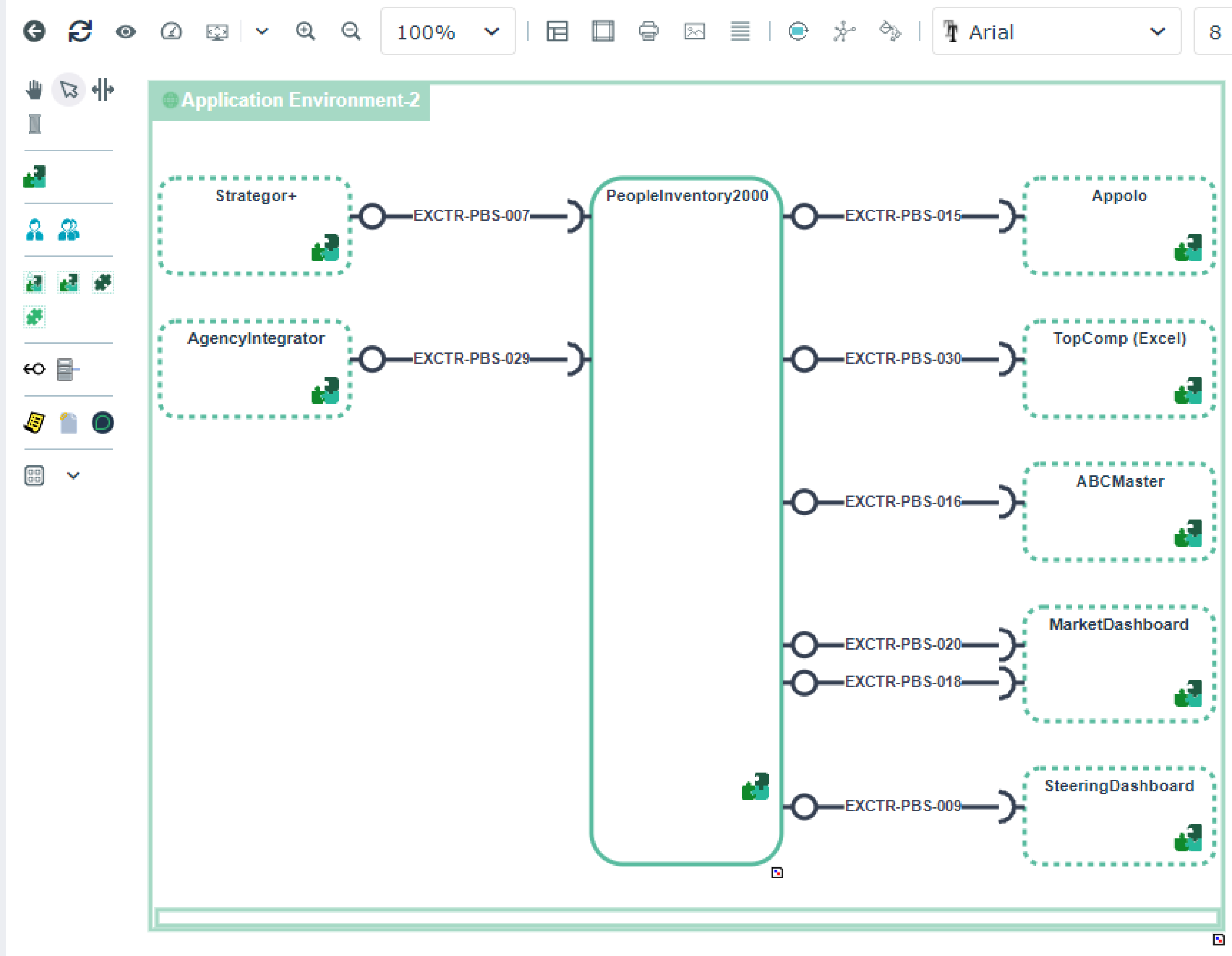
IT Architecture menus have been reviewed for rationalization and simplification purposes.



9.1.5. Shapes and icons review

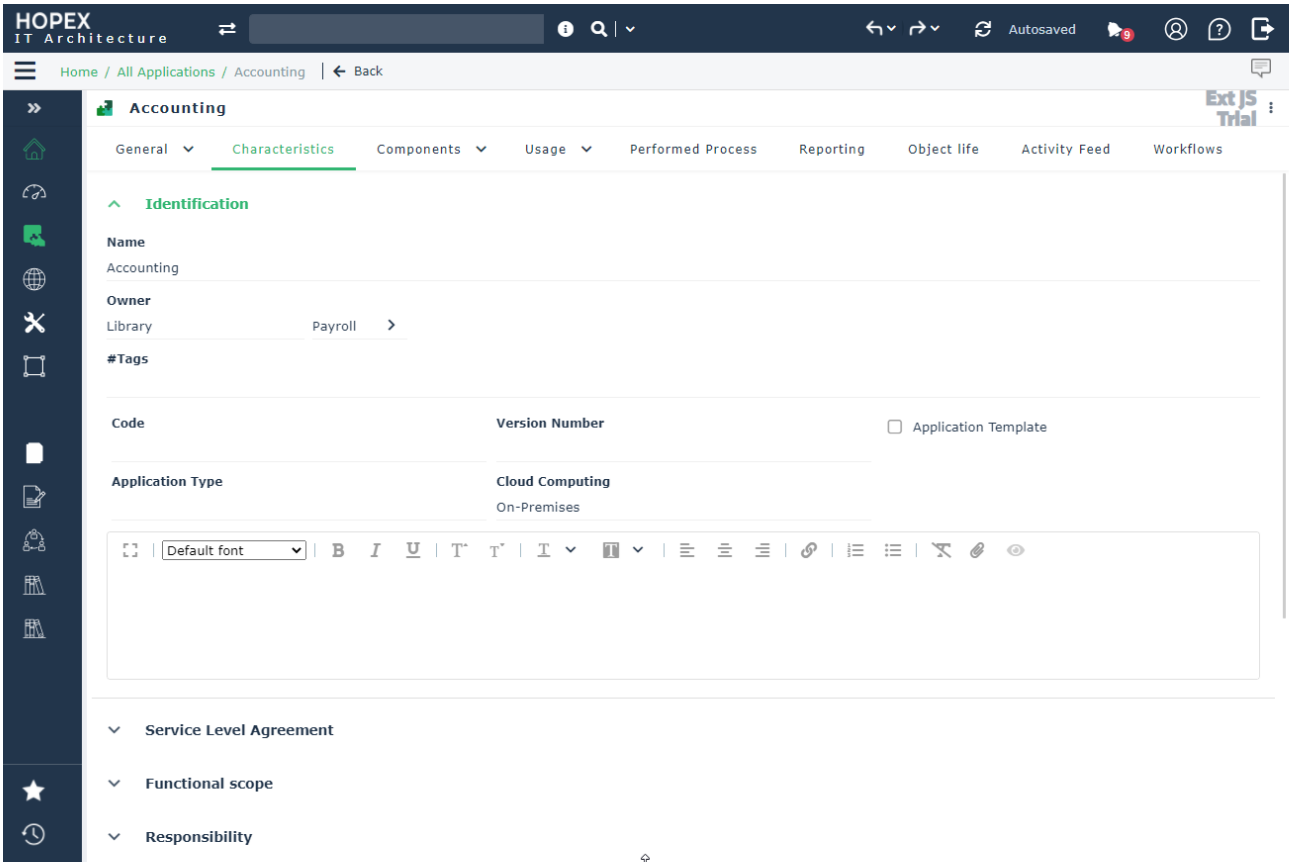
New rules for IT Architecture shapes have been set to improve look and readability.


Customer Repository Environment (Empty)< Customer Repository Environment (Empty)>
MobileBank
BankEverywhere
BankNet
ContactPro
GoldProspects
CardsForEveryone
Customer Repository
Account Operation
Contracts
Customer Details
Customer Details
Campaign Result
Prospect Details
Card Payment
Customer Financial Information
Account Movement History
Customer Profile
Customer Profile
NewSimul
Services (Excel)
Boutique manager
Call center operator


100%
Arial
Application Environment-2
Strategor+
AgencyIntegrator
EXCTR-PBS-007
EXCTR-PBS-029
PeopleInventory2000
EXCTR-PBS-015
EXCTR-PBS-030
EXCTR-PBS-016
EXCTR-PBS-020
EXCTR-PBS-018
EXCTR-PBS-009
Appolo
TopComp (Excel)
ABCMaster
MarketDashboard
SteeringDashboard

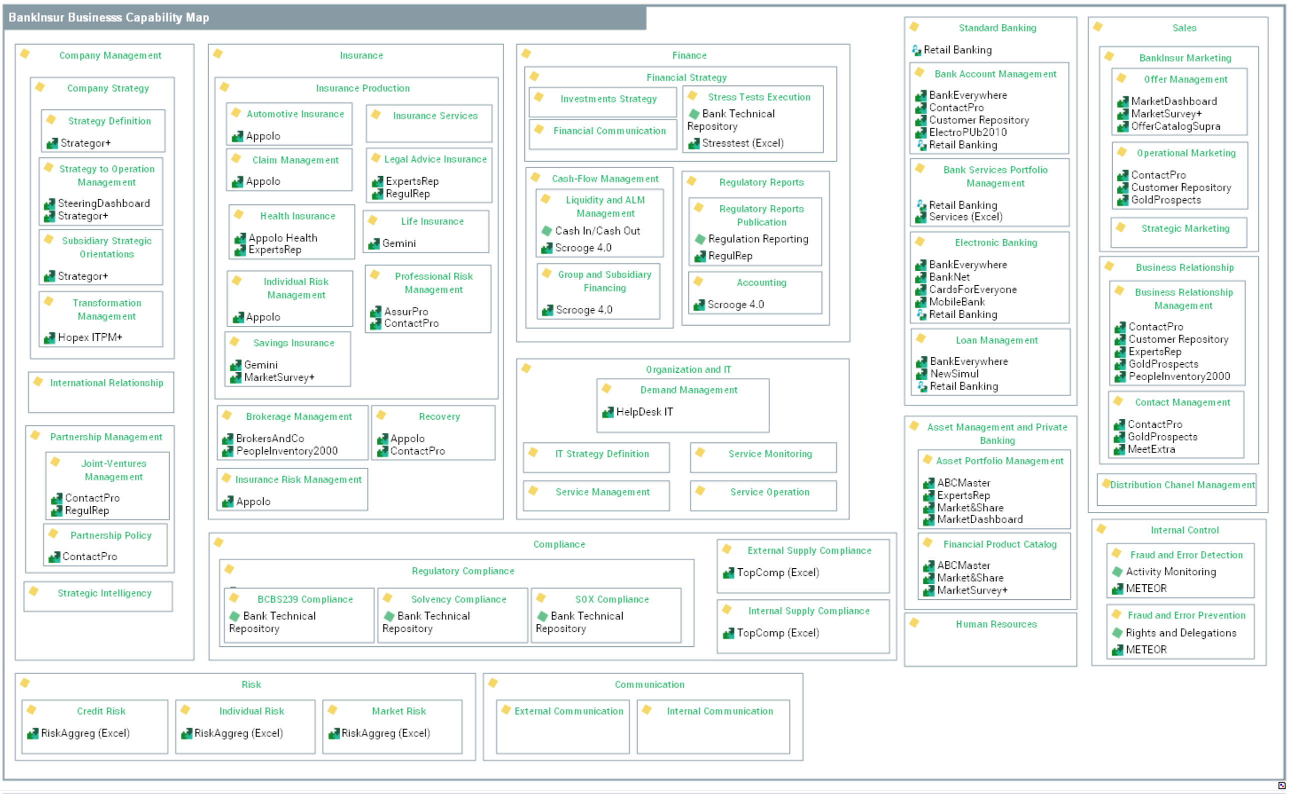
9.1.6. Property pages review

Property pages of main objects have been improved using columns display of attributes.



9.2. Business Capability Map and Functionality Map

An improved Business Capability (tree) diagram has been added to come closer to former City Planning diagram and extend the features to Functionality (tree) diagram.



9.3. Environment diagrams Initialization

To accelerate modelling activities, IT Architecture proposes an initialization wizard for environment diagrams (structure, scenario of flows, deployment, logical application system diagrams) of Application System, Application etc.

The wizard searches and proposes all existing application flows (or interactions) defined in the repository around the environment "subject" and proposes to "reuse" some of them in the new diagram. User selects which contents and partners he/she wants to "reuse" and wizard creates corresponding needed objects.

(Note the wizard can be used in conjunction with another wizard which places automatically objects in the diagram: see next new feature).

Figure 107 - Initialization wizard

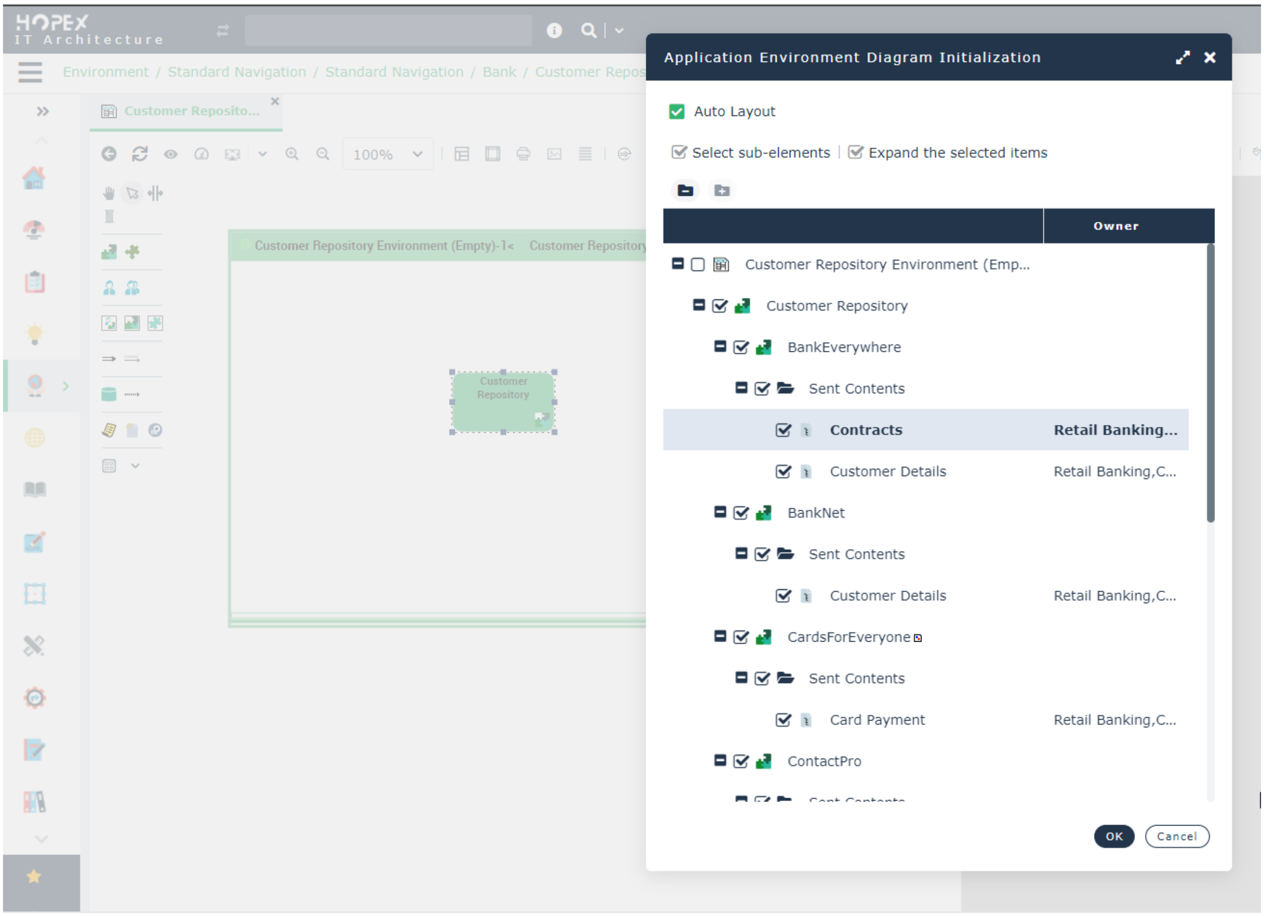
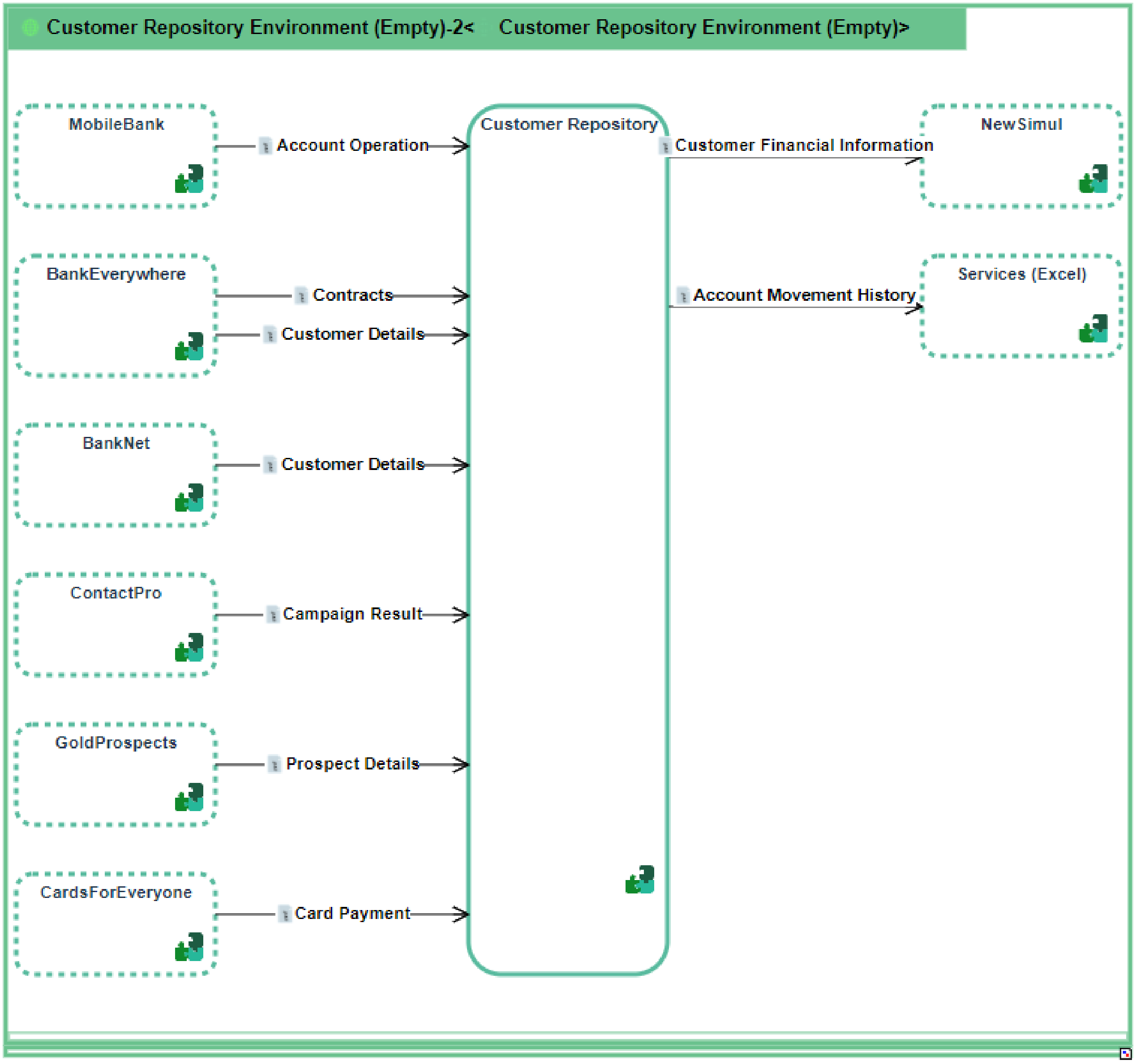


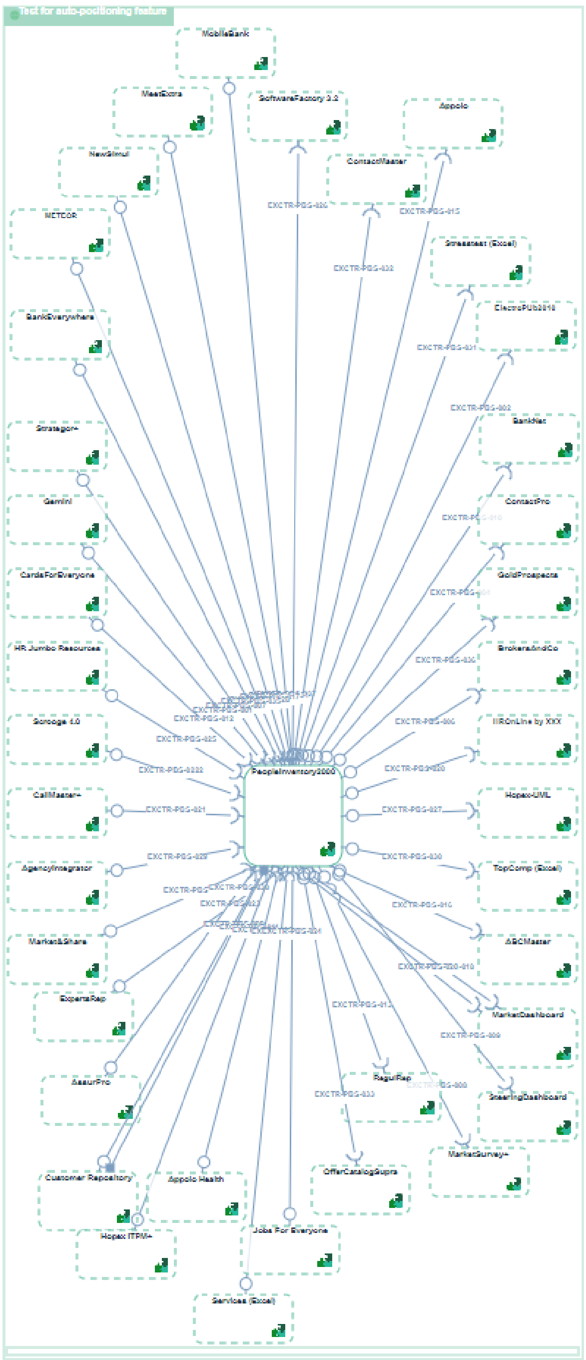
Figure 108 - Initialization result with auto-positioning feature



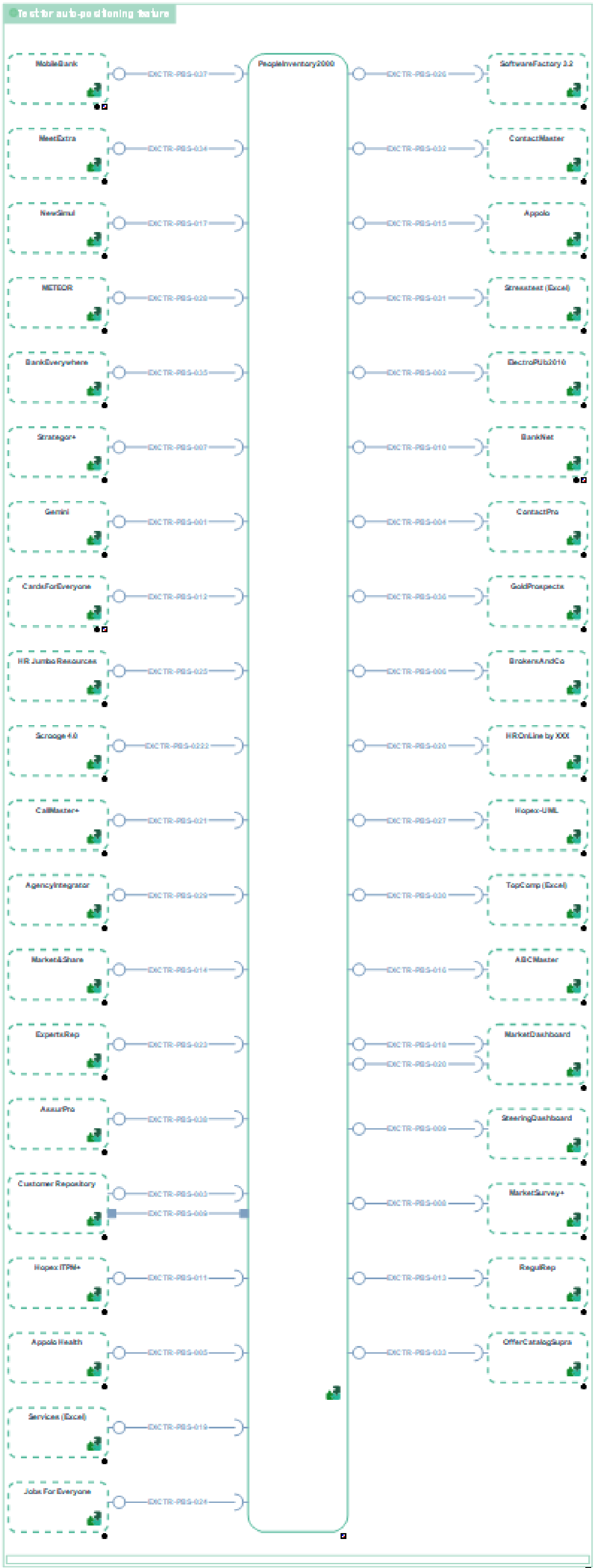
HOPEX provides an auto-positioning feature in environment diagrams (structure or scenario of flows diagram) of Application System, Application etc.

This feature can be launched manually by user or automatically in the context of the initialization wizard (previous feature).

Before

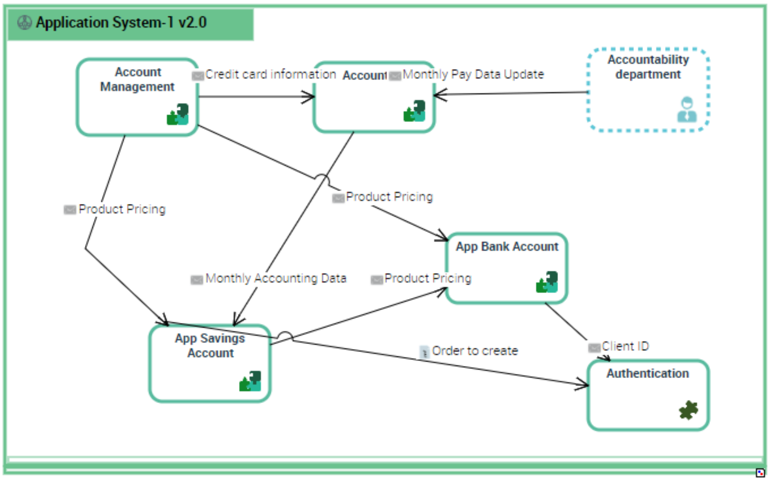


After

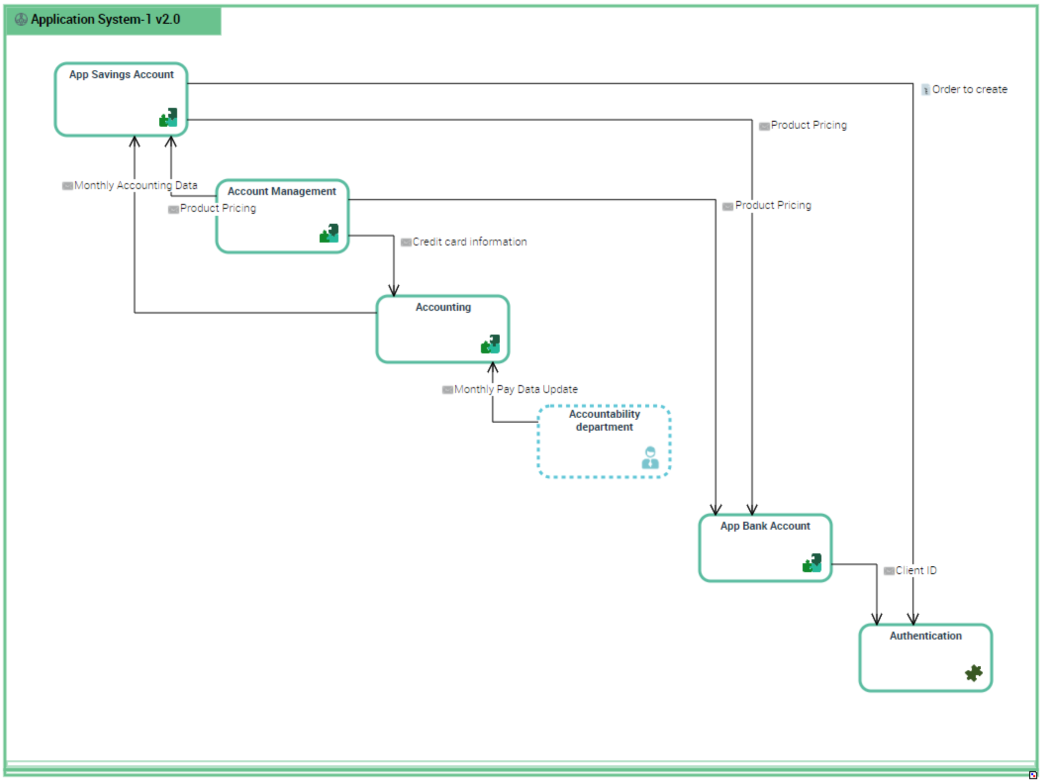


From #CP4, other diagrams for structure and scenario of flows have been improved with an auto-layout feature (with a specific positioning canvas).

Scenario of flows.
Before:

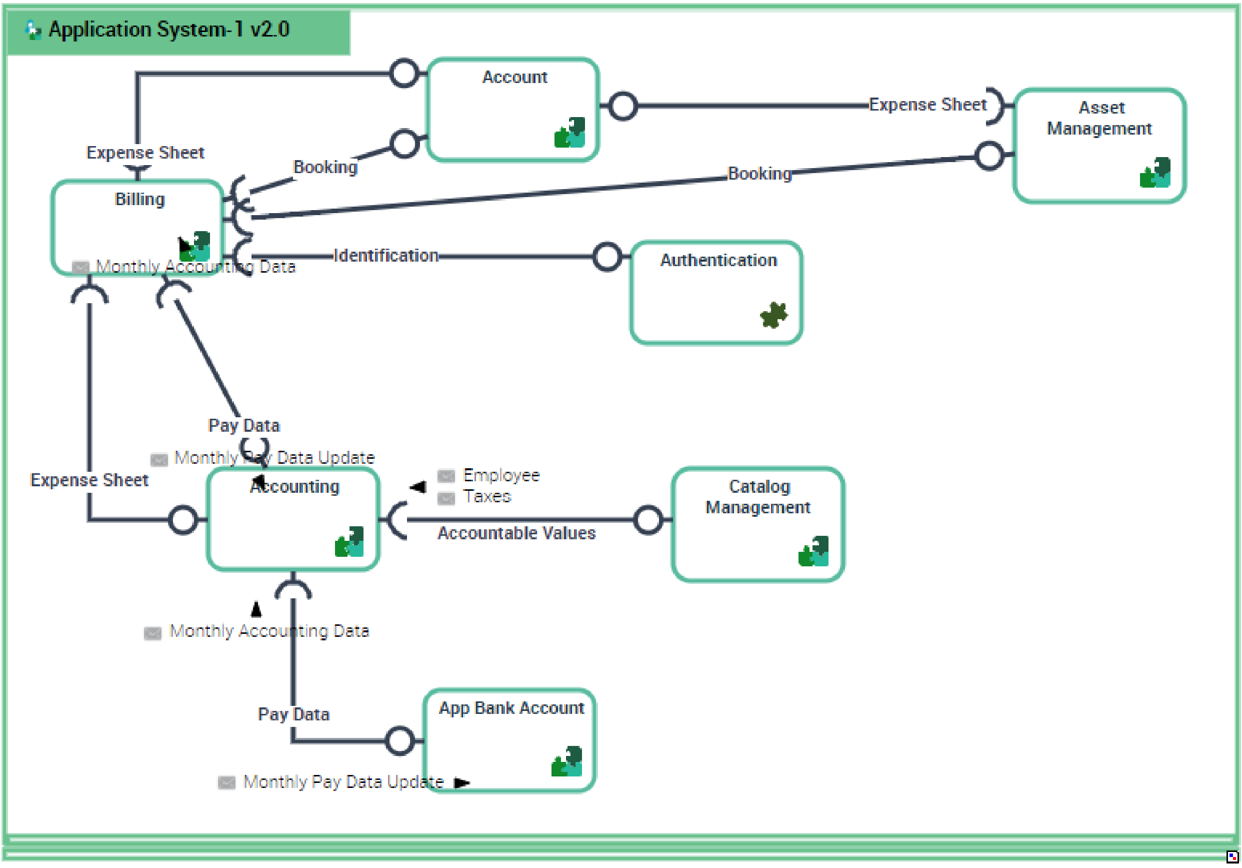


After:

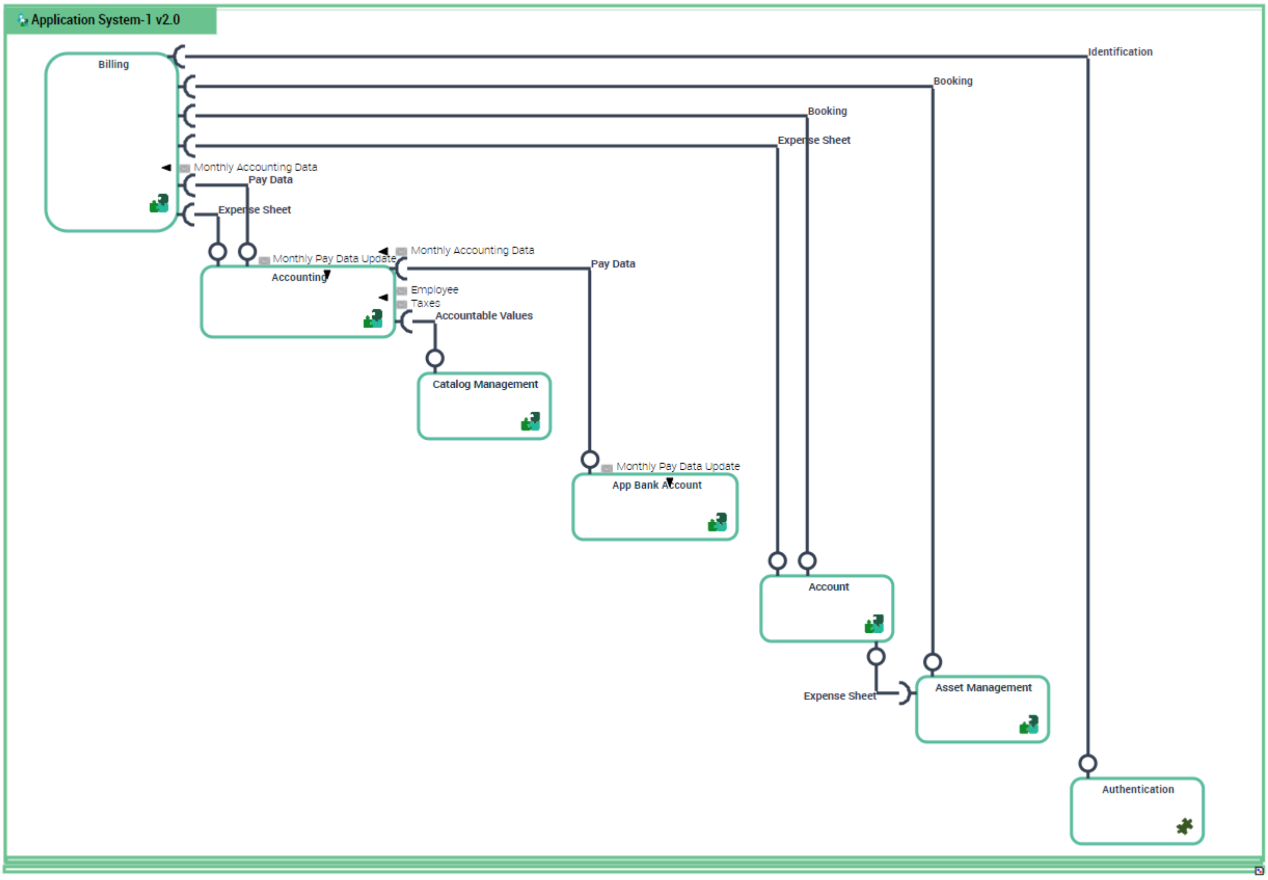


Structure diagram.

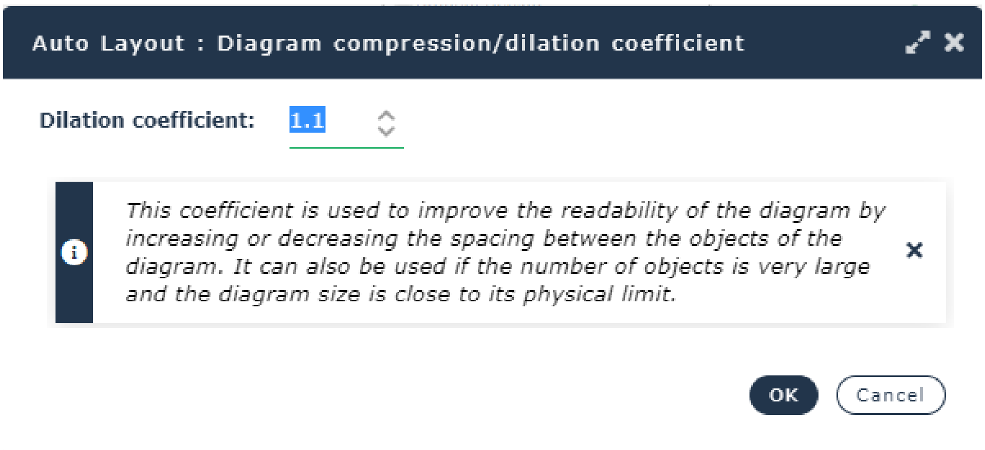
Before:



After:

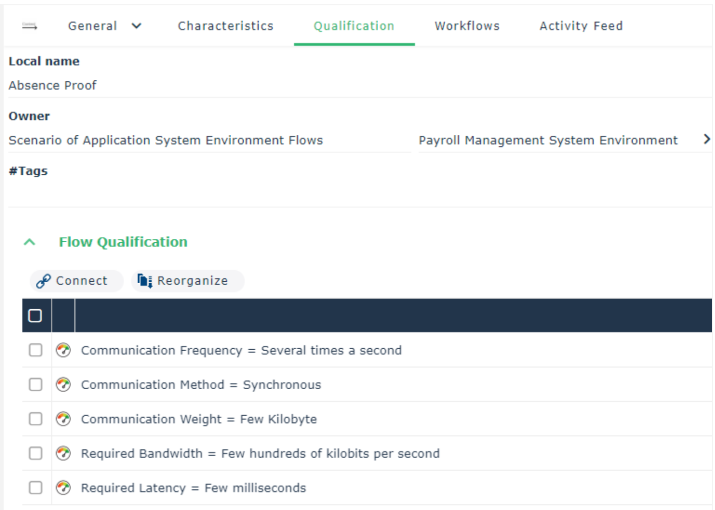


This feature come with the capability to define a coefficient influencing spaces between objects during auto-layout calculation process.

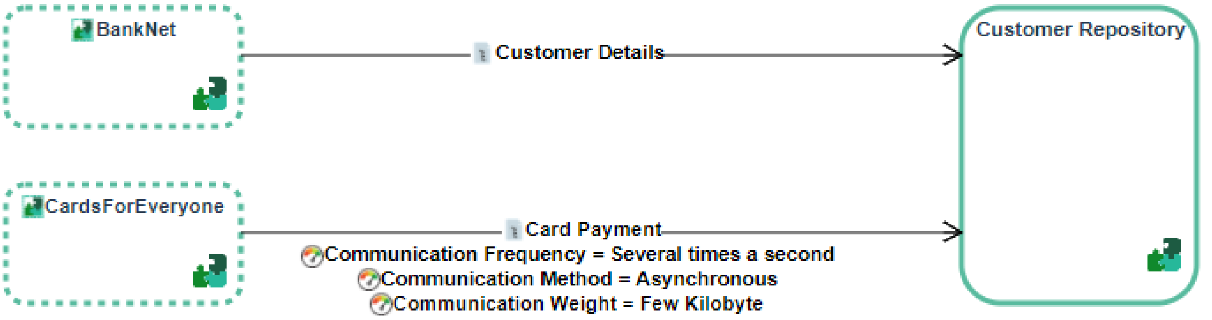


9.4. Application flow modeling

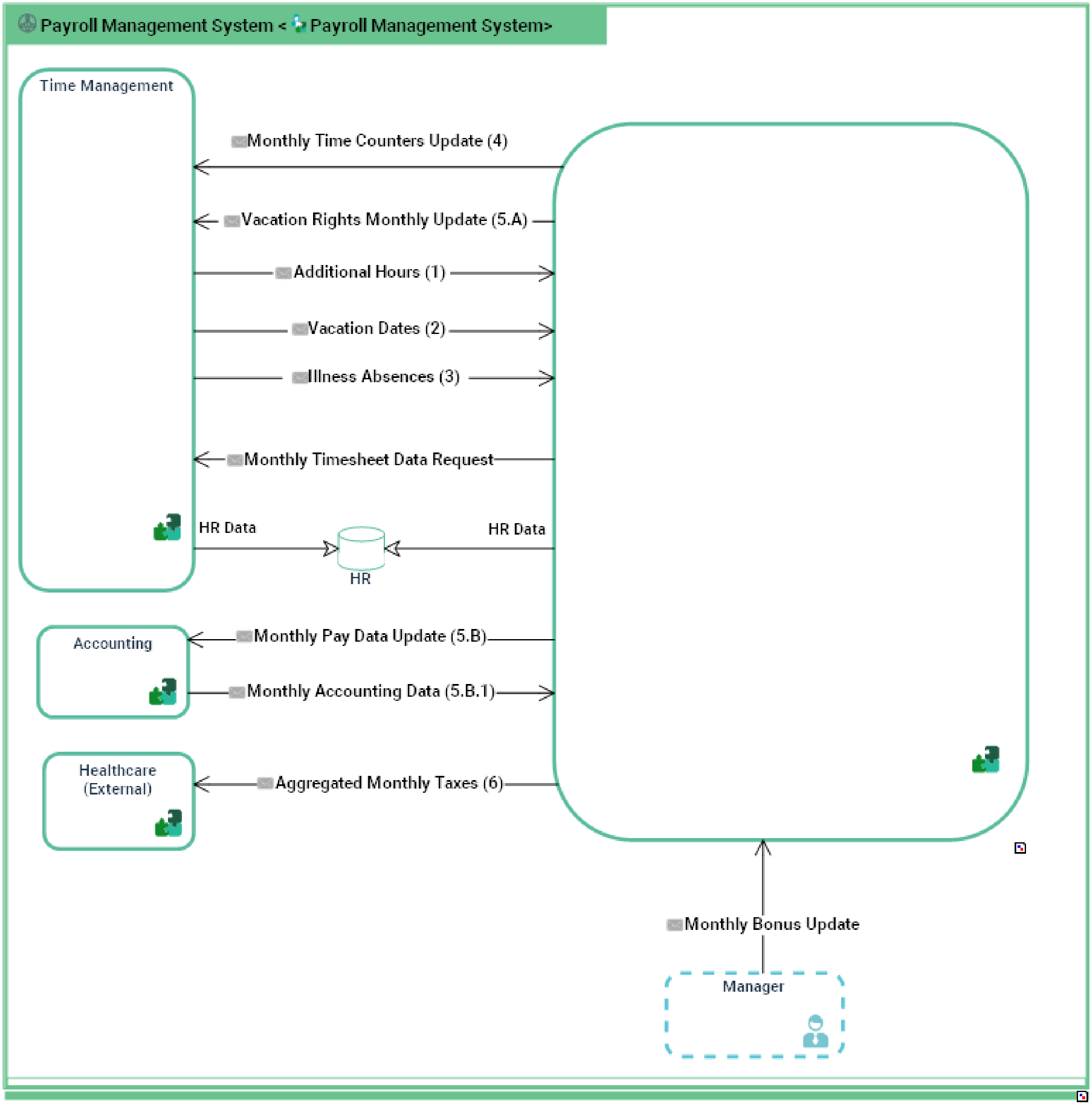
Application flow description has been improved with categories. Flow order can be manually captured and HOPEX provides following categories and values (but can be completed by customer if needed):



Flow categorization can be displayed in flow diagrams:

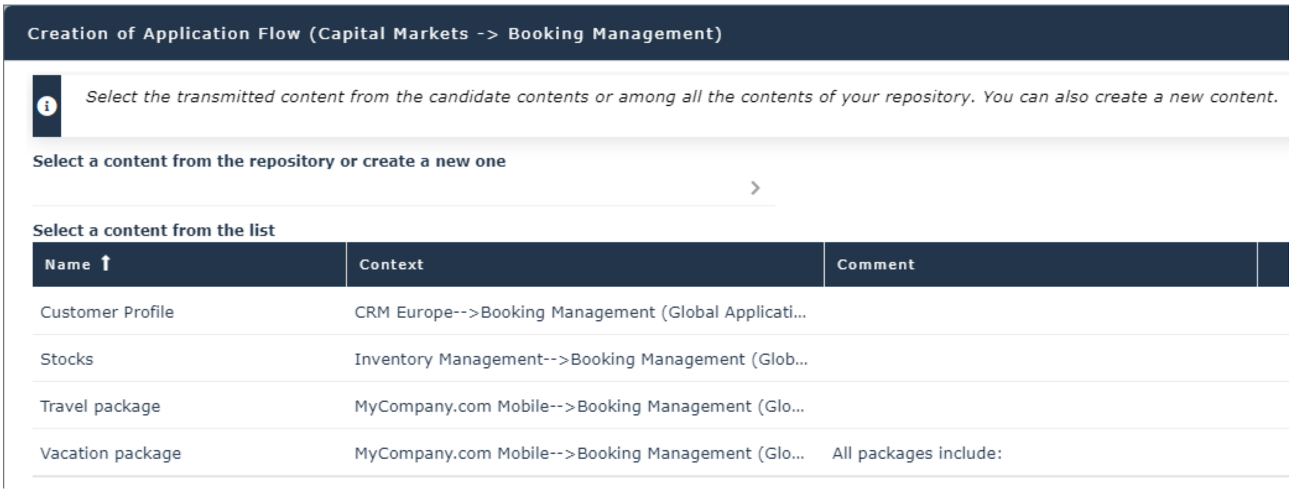


From CP3, it is now possible now to order application flows inside a scenario to visualize sequences and potential branches:



(Orders are captured in scenario of flows property page).

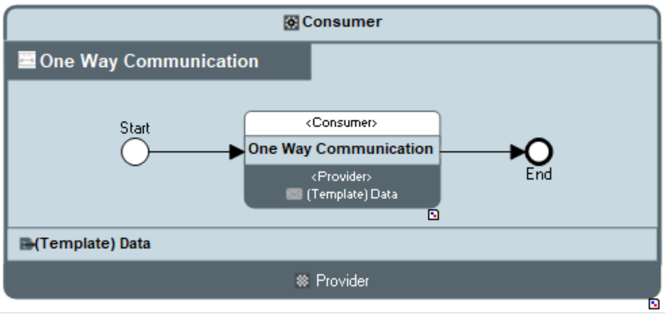
From #CP4, the application flow creation wizard has been improved. Now it proposes a list of existing content sent and/or received by the 2 components user wants to link with the new application flow. User can still select another content by using auto-completion assistance or select tool; or create a new one.

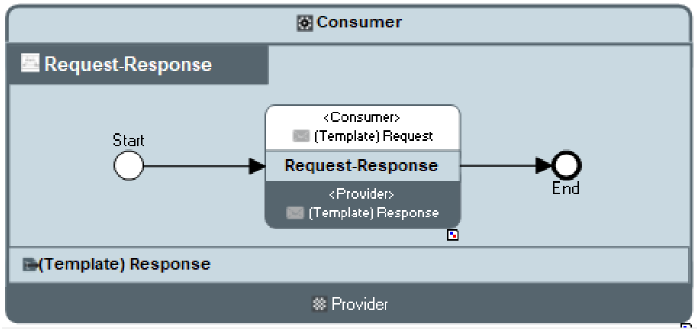


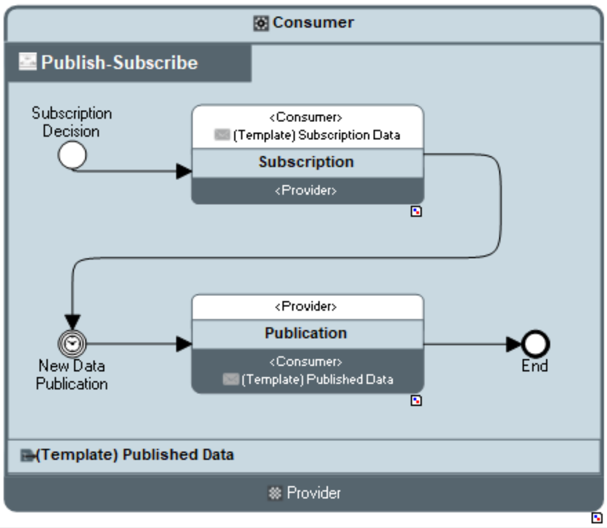
9.5. Structure diagrams

9.5.1. Improvement of Exchange Contract creation

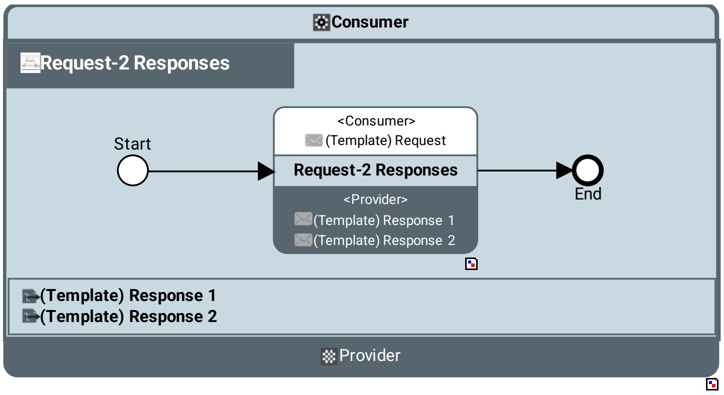
It is now possible to create Exchange Contract Templates that will be used as canvas for Exchange Contract creation. 3 standard Exchange Contract Templates are provided and HOPEX customer can create new ones quite simply.

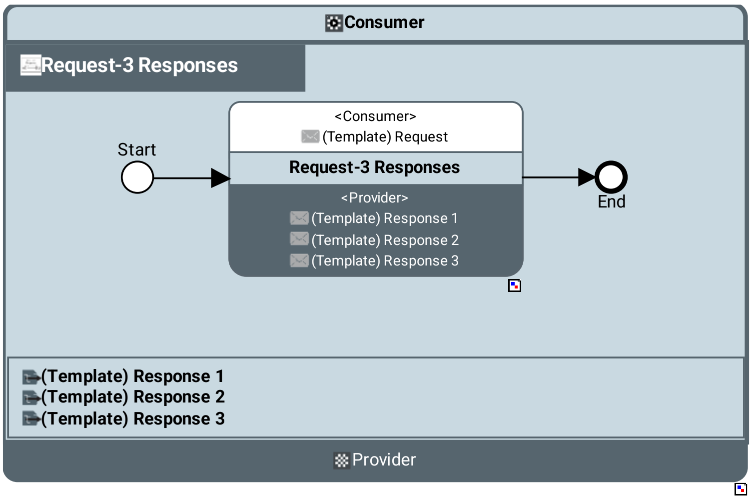


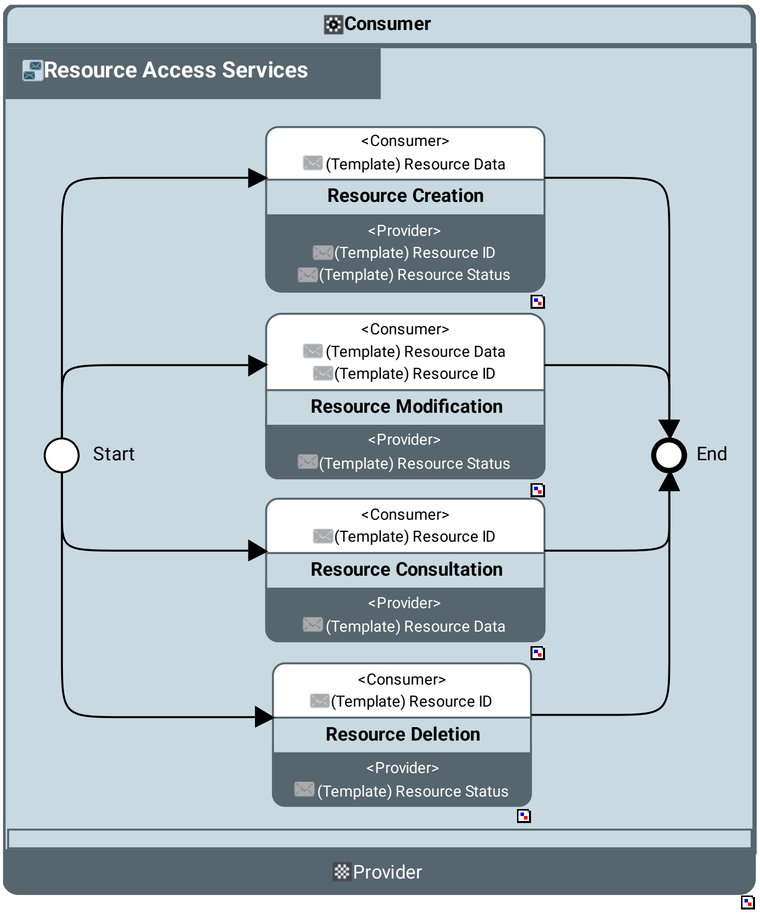




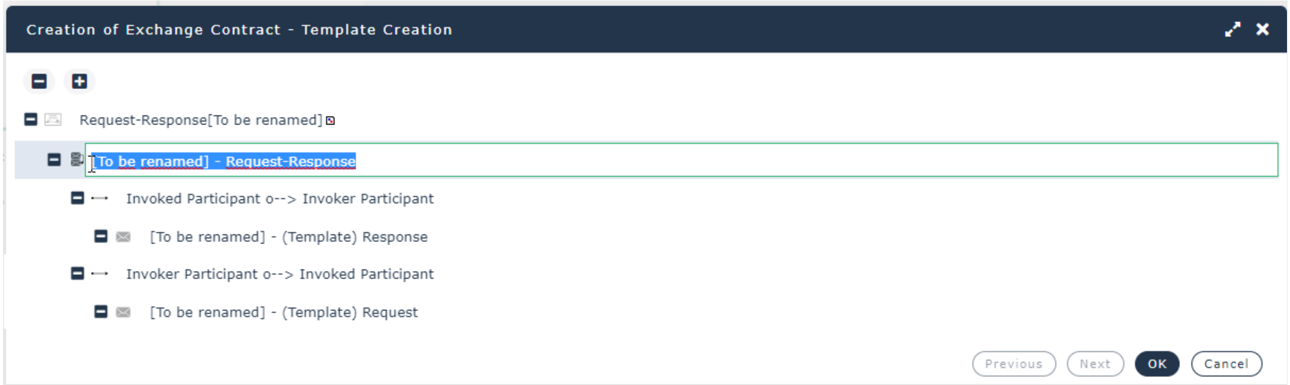
From #CP4, 3 new standard Exchange Contract Templates are provided:


Consumer
Request-2 Responses
Start
<Consumer>
(Template) Request
Request-2 Responses
<Provider>
(Template) Response 1
(Template) Response 2
End
(Template) Response 1
(Template) Response 2
Provider


Consumer
Request-3 Responses
Start
<Consumer>
(Template) Request
Request-3 Responses
<Provider>
(Template) Response 1
(Template) Response 2
(Template) Response 3
End
(Template) Response 1
(Template) Response 2
(Template) Response 3
Provider


Consumer
Resource Access Services
<Consumer>
(Template) Resource Data
Resource Creation
<Provider>
(Template) Resource ID
(Template) Resource Status
<Consumer>
(Template) Resource Data
(Template) Resource ID
Resource Modification
<Provider>
(Template) Resource Status
Start
End
<Consumer>
(Template) Resource ID
Resource Consultation
<Provider>
(Template) Resource Data
<Consumer>
(Template) Resource ID
Resource Deletion
<Provider>
(Template) Resource Status
Provider

The creation wizard allows to personalize Exchange and Message Flow names from the selected template.



9.5.2. Improvement of structure diagram initialization

Service Points and Request Points are automatically positioned on the boundaries of the concerned Building Block (Service Points on the left hand-side and Request Points on the right hand-side).

9.6. Deployment Architecture

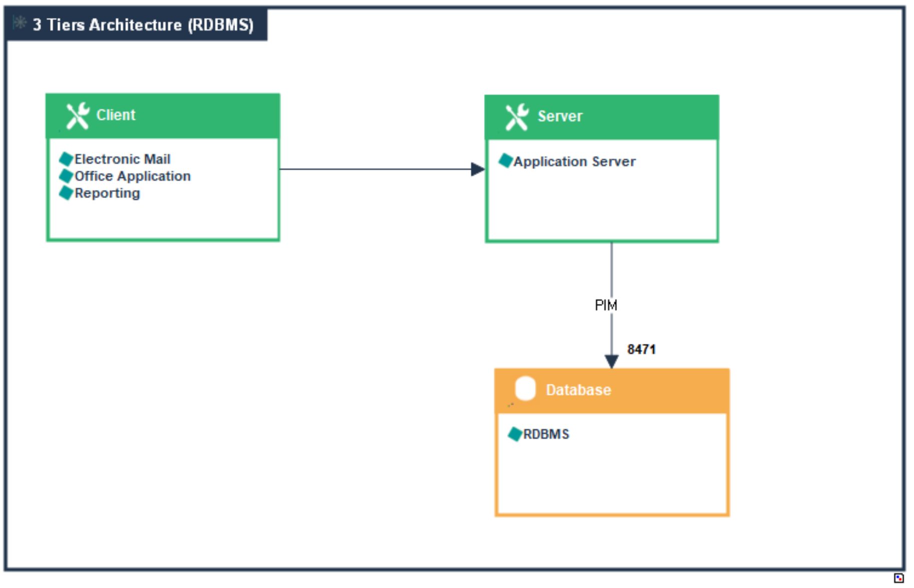
9.6.1. Deployment Architecture renaming

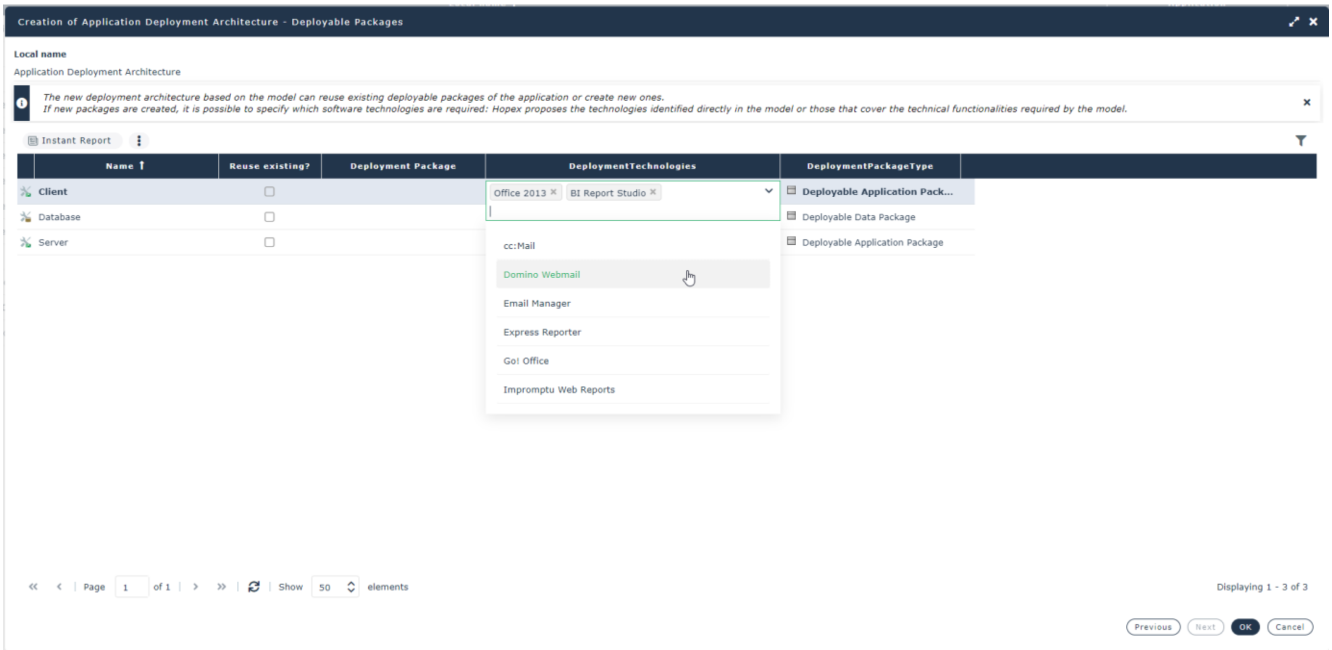
Technical Architecture diagram and components are renamed as Deployment diagram and components. Technical Architecture is kept as the layer name (also including technology and stacks inventories etc.).

- Application System Technical Architecture -> Application System Deployment Architecture
- Application Technical Architecture -> Application Deployment Architecture
- Application Technical Area -> Deployable Application Package
- Technical Data Area -> Deployable Data Package

9.6.2. Improvement of Deployment Architecture creation

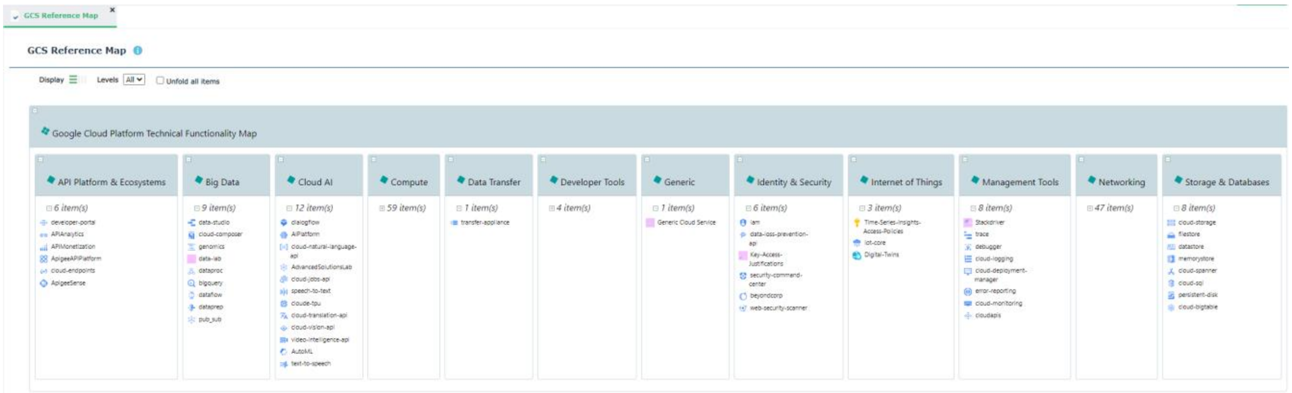
It is now possible to create Deployment Architecture Templates that will be used as canvas for Deployment Architecture creation. A Deployment Architecture template is composed of



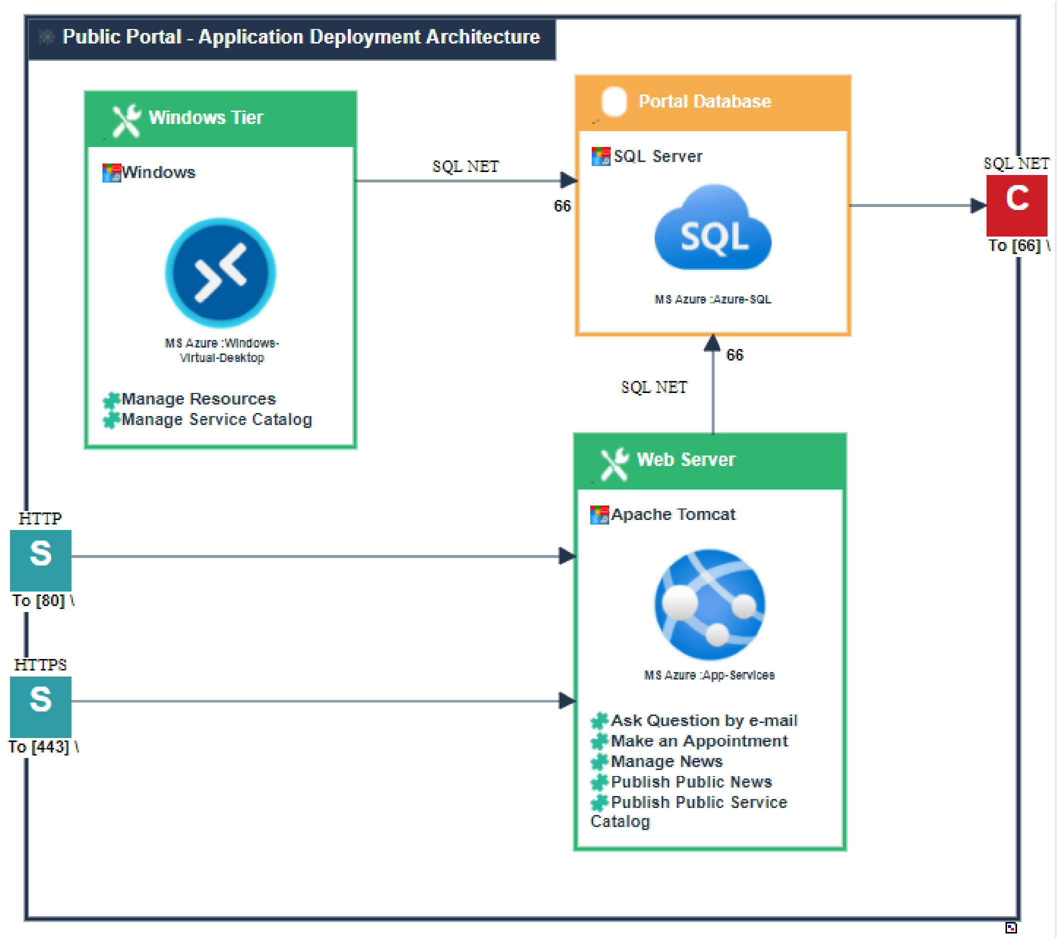


9.6.3. Cloud Services

It is possible to import in HOPEX the cloud service catalogs of Amazon (AWS), Microsoft (Azure) and Google (GCS). Imported files contain service cloud names and images.

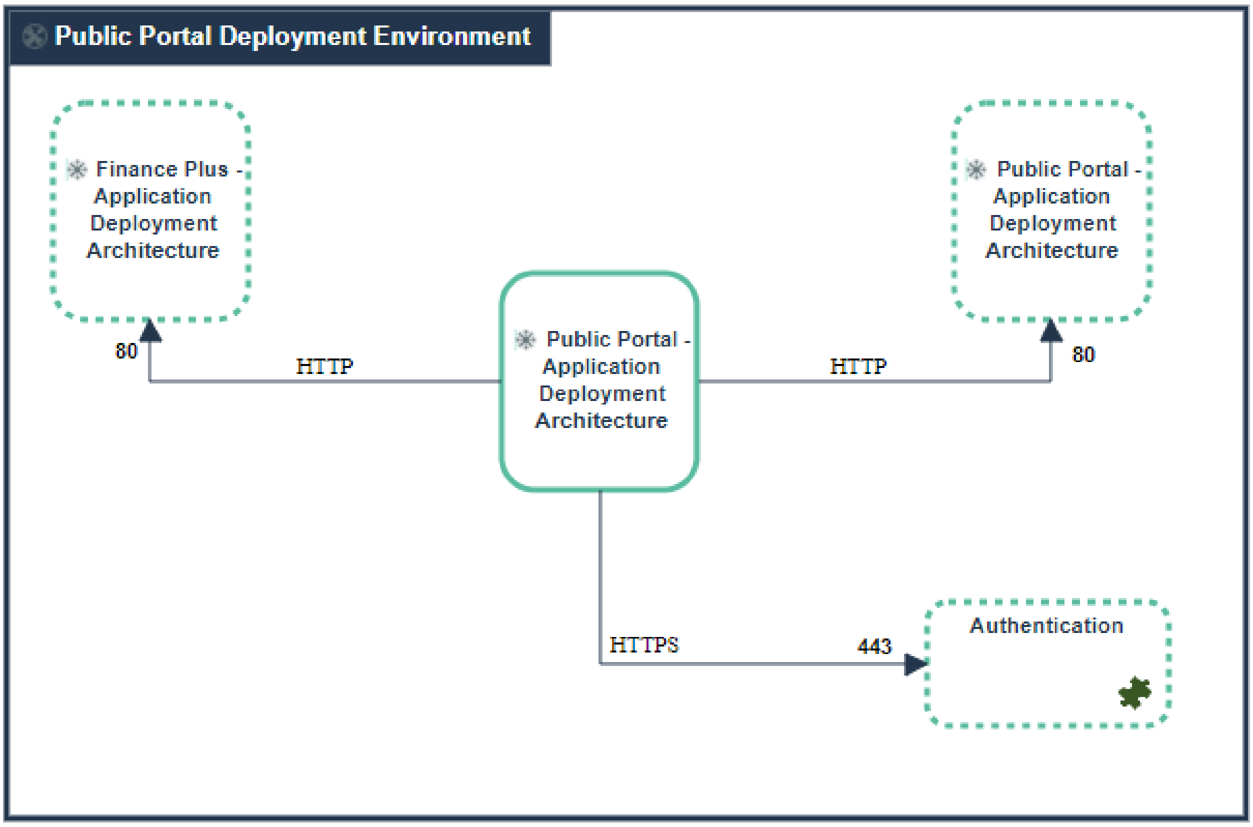


Cloud services (or IT Devices) can be used in Deployment Architecture to define prescription for deployable package hosting solution. Cloud services (or IT Devices) image will then be displayed in the deployable package shape.



9.6.4. Micro-Services

It is now possible to add a micro-service in a deployment architecture (as a self-deployed component).

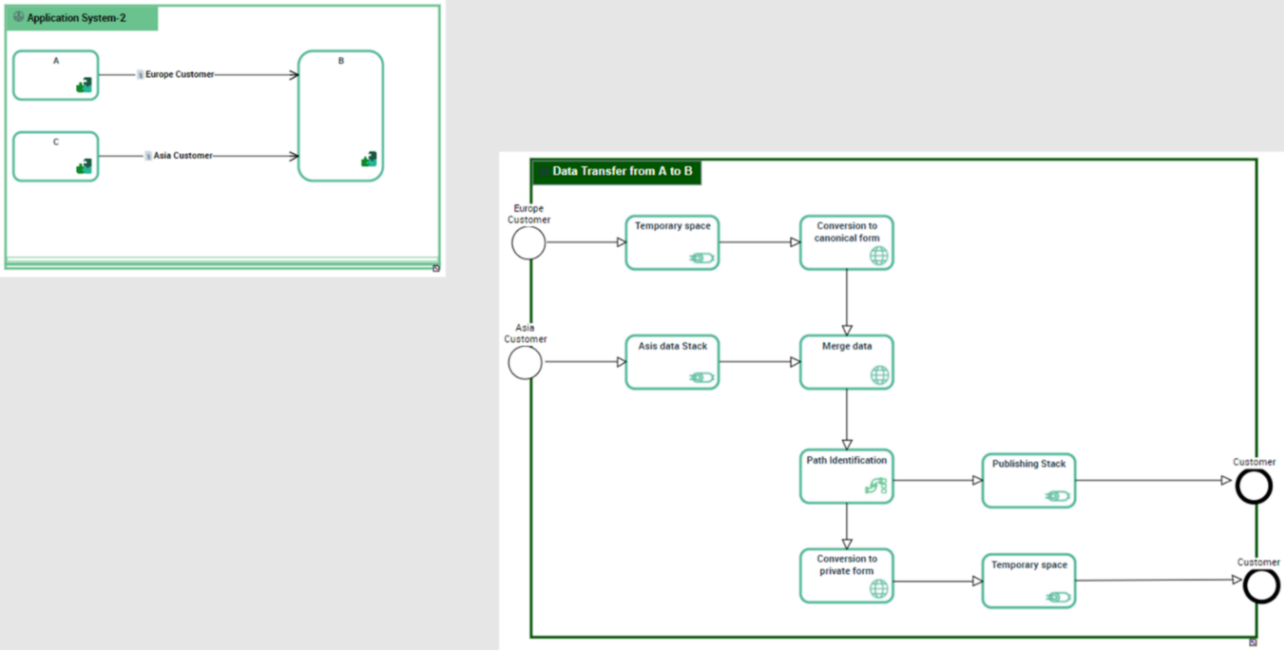


9.7. New modelling capability: ESB, EAI ...

A new modeling capability allows to design integration chain using the Enterprise Integration Pattern notation. This model allows to design integration process supporting application flow from all HOPEX scenarios of flows. Main concepts are:

- Communication system (to identify main integration system)
- Software Communication Chain
- Communication Services (blocks of a software communication chain). 3 kind of services can be used:
  - Channel (is a place where an application can read and/or write information)
  - Router (determines which destination channels should be used in next step)
  - Translator (converts a message from a format to another)

It is possible to zoom in a software communication chain diagram from a content in scenario of flows.



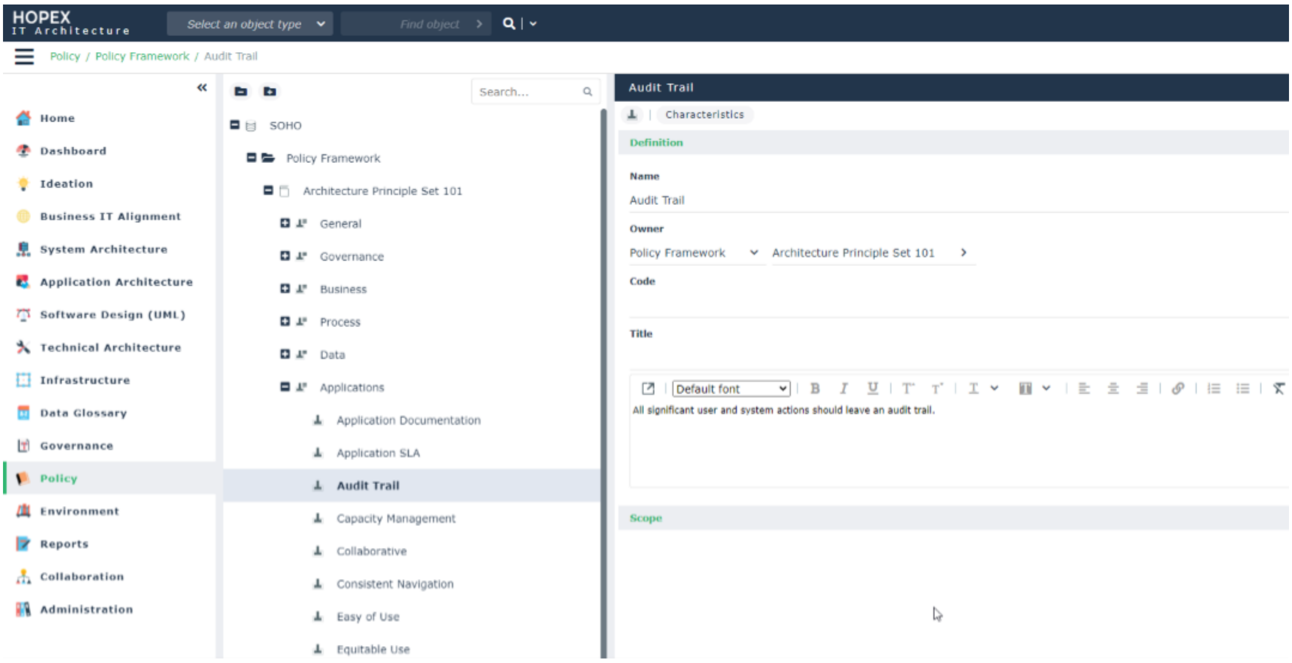
From CP3, a new report is provided to analyze communication components rationalization:

9.8. Governance

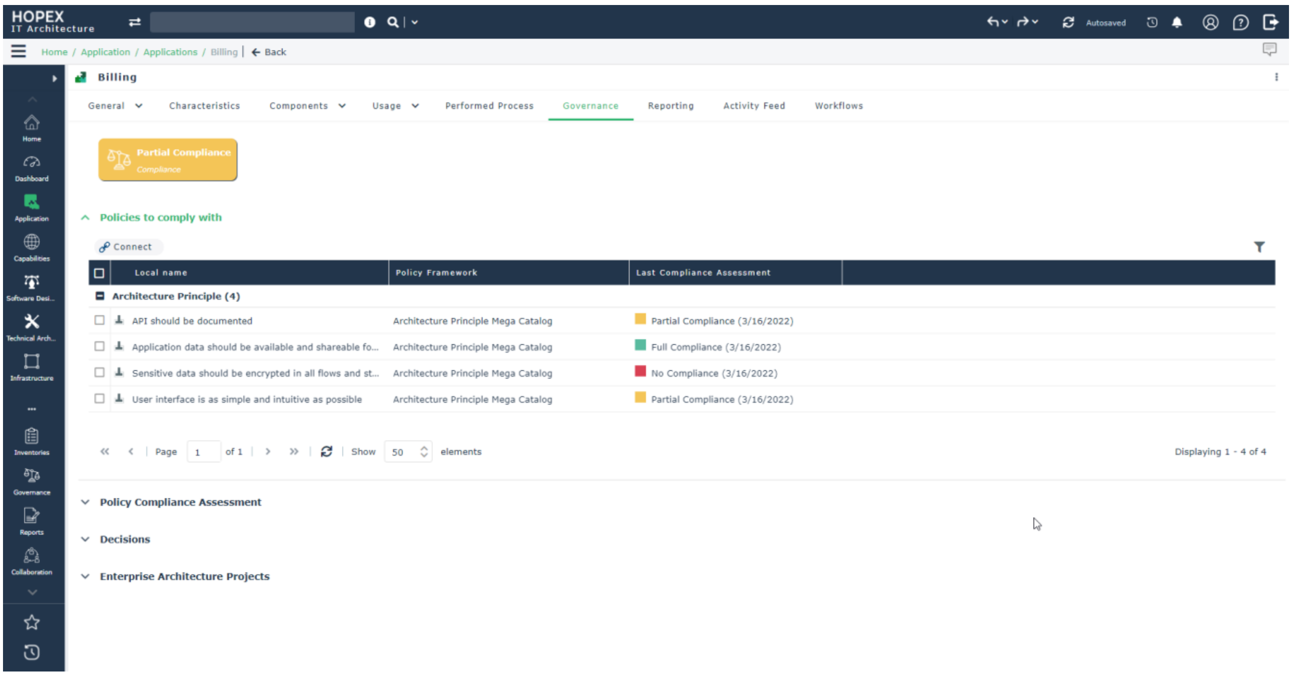
9.8.1. Business Policy and Architecture Principles Compliance

It is now possible to define architecture principles in a category tree and link them to building blocks they apply to. Existing capability to define business policies and categorize them in sections has been added to IT Architecture also.

Both concepts are handled in a dedicated tree:



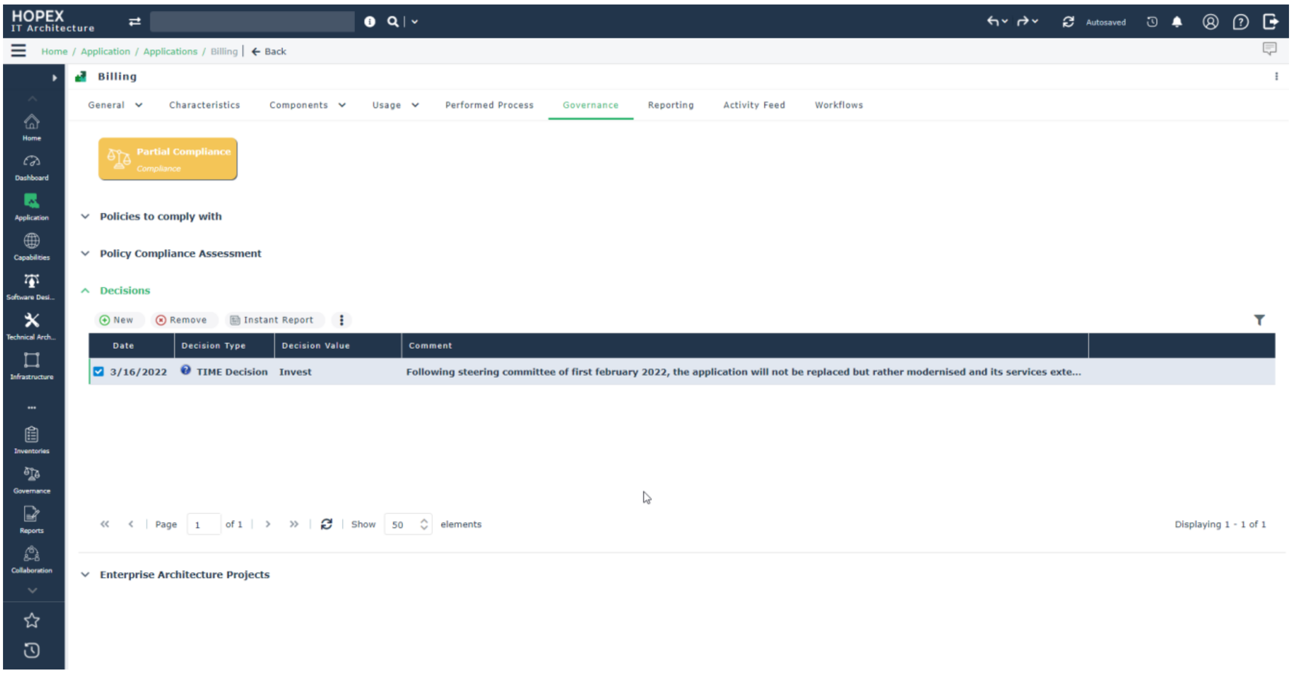
Then it is possible to assess compliance of an IT building block against those policies and/or principles.



Note : Mega provides a standard catalogue of architecture principles and customer can easily define their own if needed.

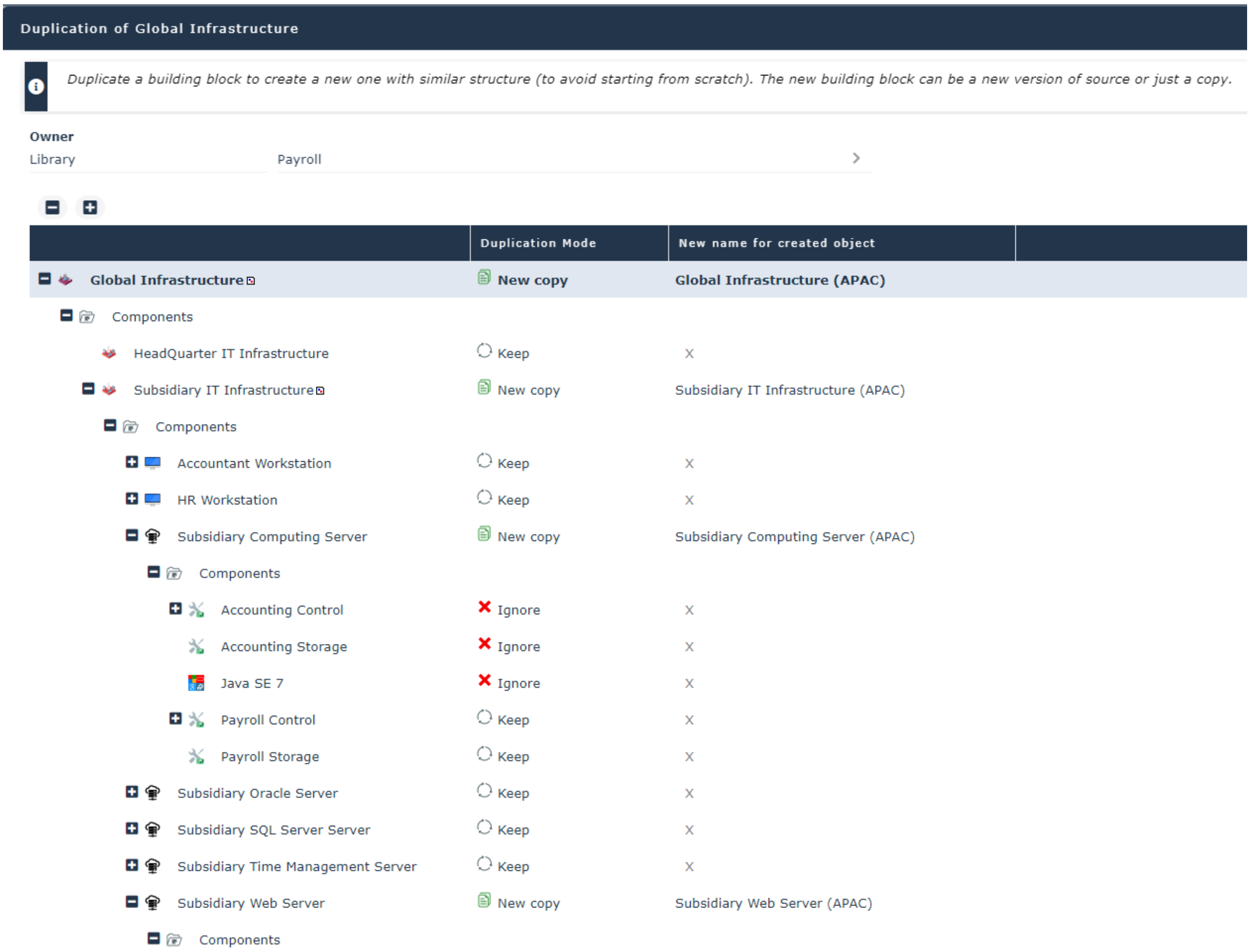
9.8.2. Decision recording

Il is now possible to record decisions for application?



9.9. Smart duplication tool

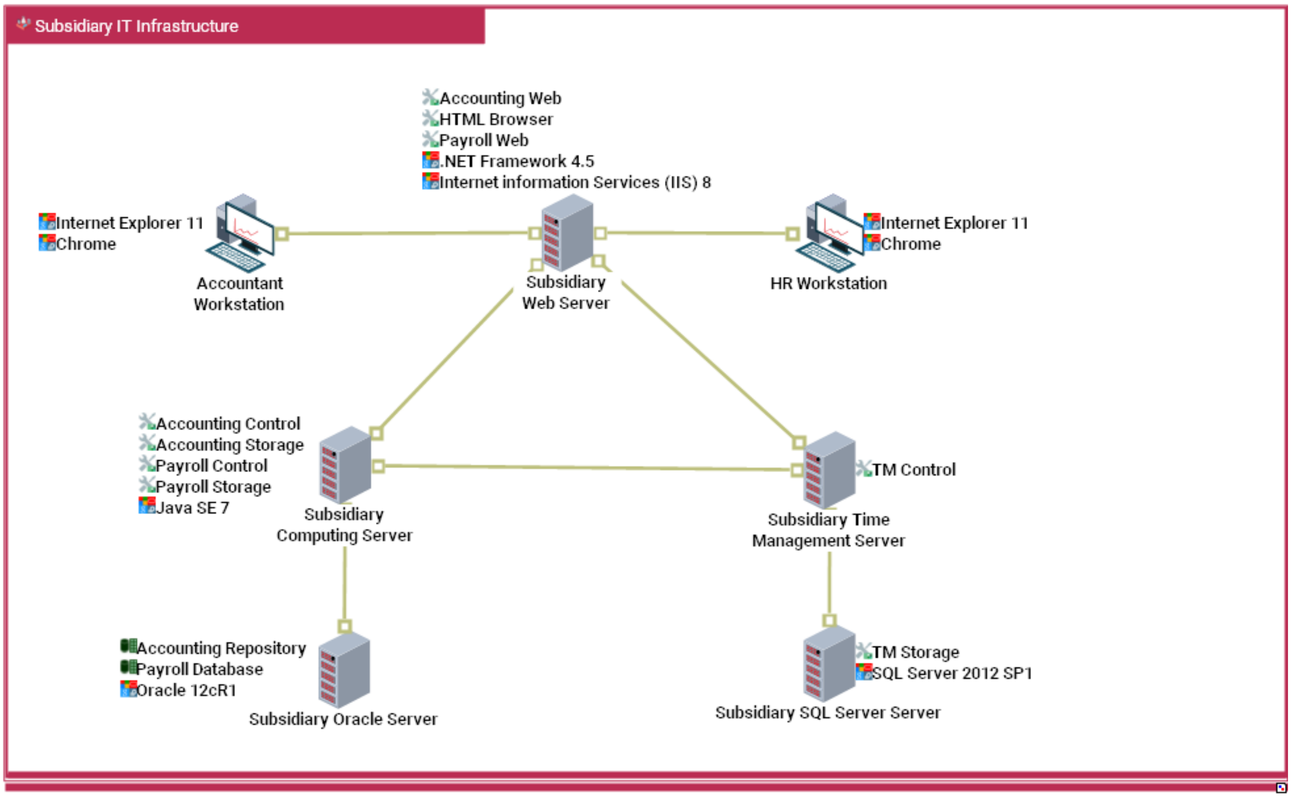
From CP3, a new tool allows to duplicate a building block deeply by selecting how each of its components are processed (they can be kept as it is, duplicated also or removed during duplication process).



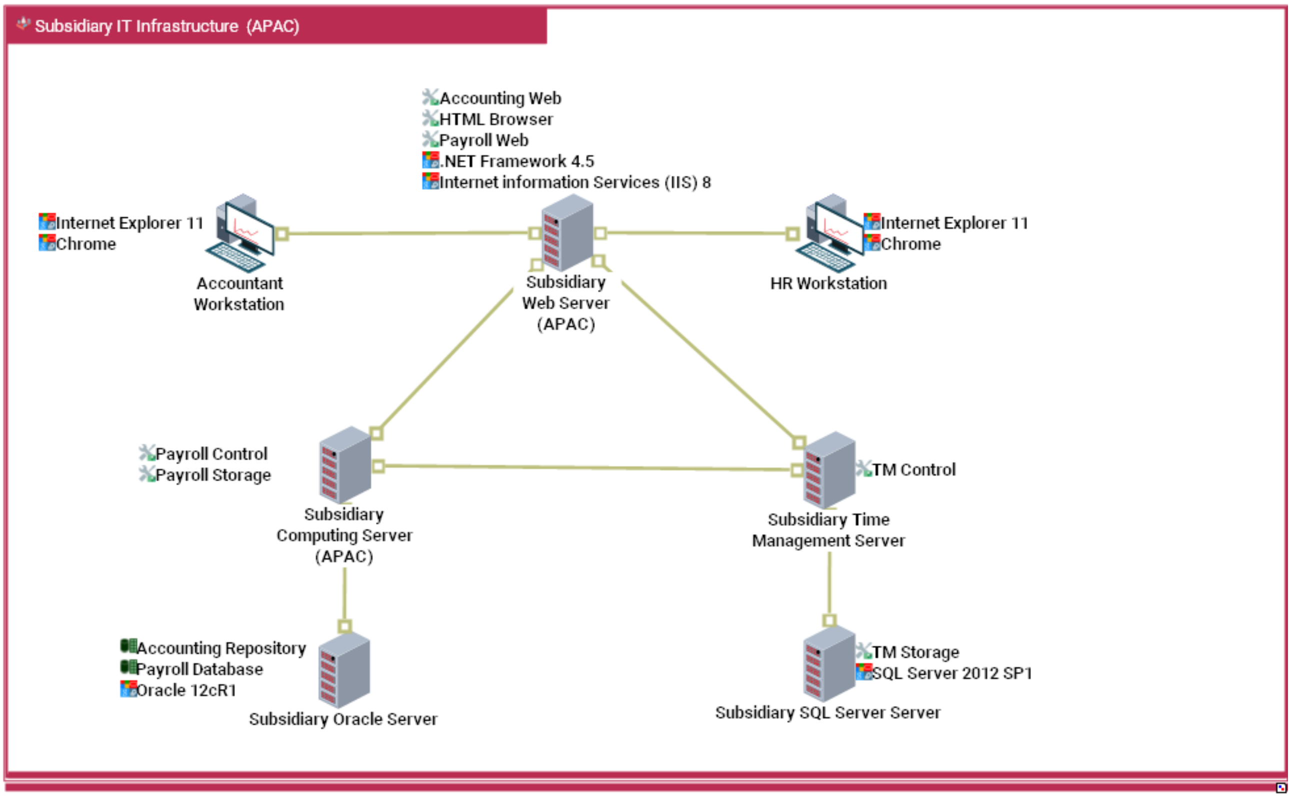
This tool can be used for following building blocks :

- Application System Environment, Application System
- Application Environment, Application, Micro-Service, IT Service
- Business Capability Map, Business Capability, Functionality Map, Functionality, Technical Functionality Map, Technical Functionality
- Logical Application system, Logical Application System Environment
- Application Deployment Environment
- Resource Architecture, Resource Architecture Environment, Resource Configuration, IT Infrastructure, Hardware

Duplication source:



Duplication result:



9.10. Miscellaneous

9.10.1. Technology Stack

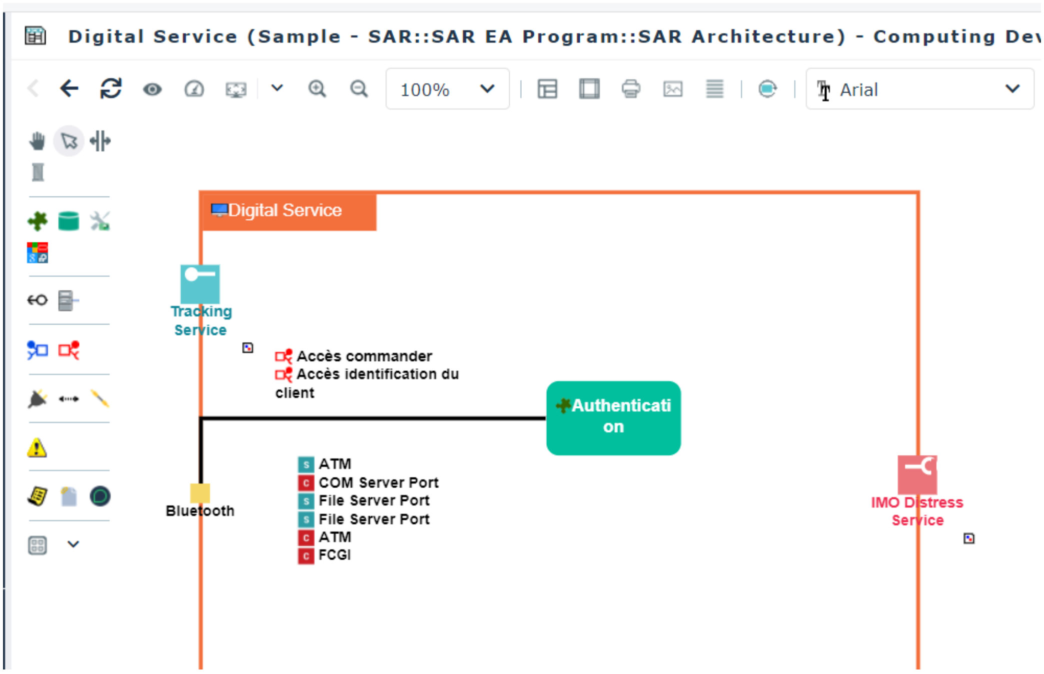
It is now possible to link Technology Stacks to IT Service and Microservices (like application).

9.10.2. Deployment Architecture Environment

A new concept ("Deployment Architecture Environment") defines how an application deployment integrates in its environment(s). A diagram is attached to this new concept.

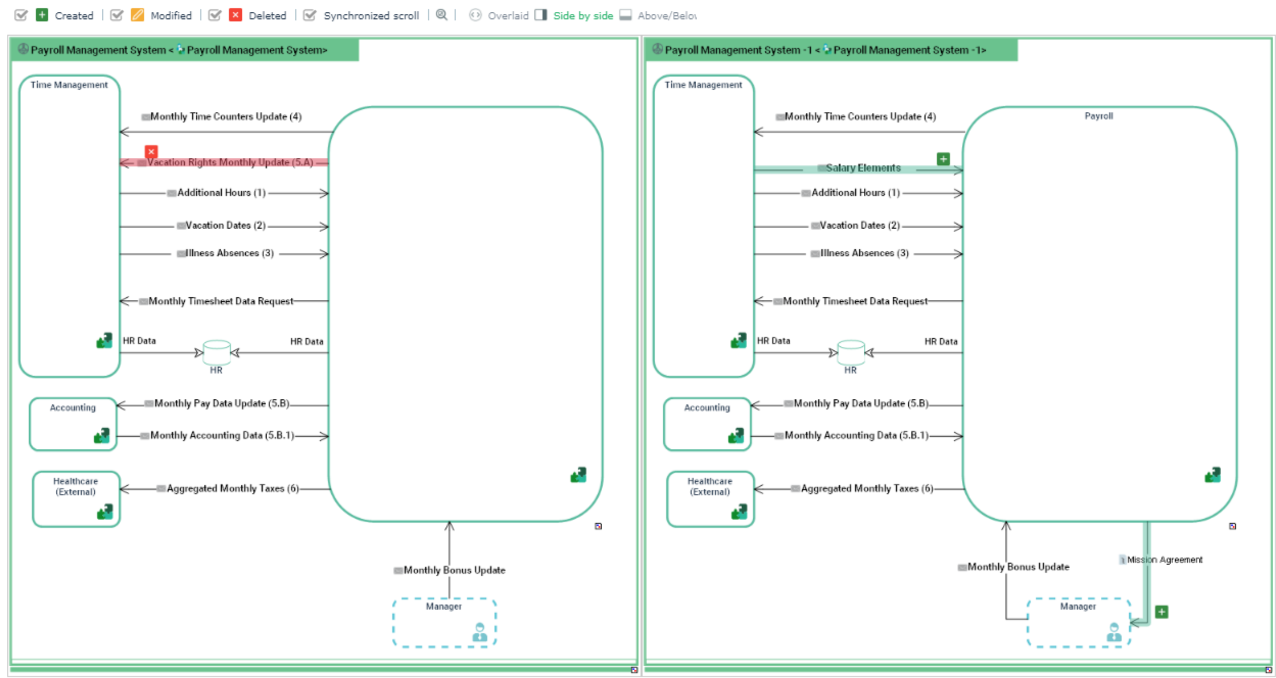
9.10.3. Infrastructure Device Assembly diagram

New capability to define binding between a logical communication port (of the IT Device) and hosted Deployable Package. It is then possible to detail which client/server port of the deployable package is reached through this communication port, and by extension, which Service/Request Point is concerned.



9.10.4. Comparison report

The generic comparison report now compares and highlight the IT flows from the HOPEX IT Architecture solution

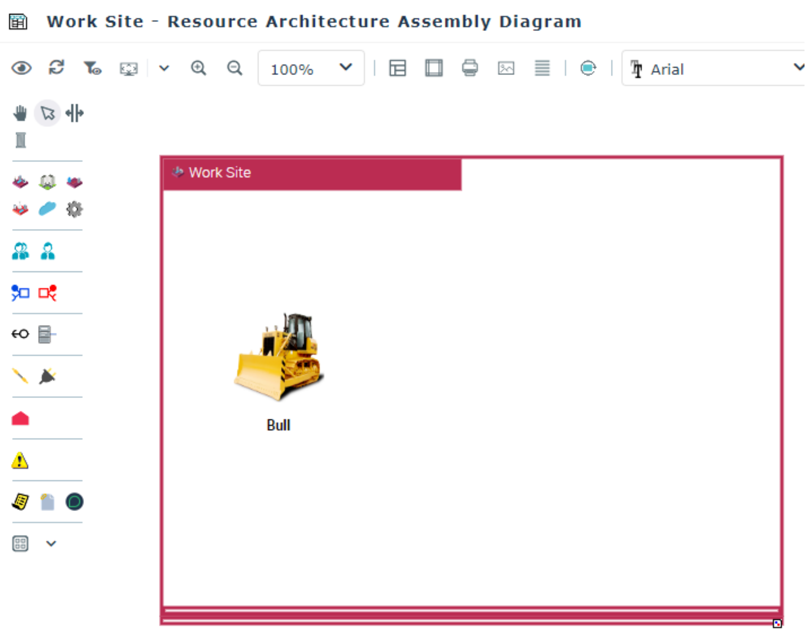


Legend

Owner	Element	Type	Created	Modified	Deleted	Description
Payroll Management System	Vacation Rights Monthly Update	Application Flow			X	This object does not exist in target
Payroll Management System -1	Salary Elements	Application Flow	X			This object does not exist in source
Payroll Management System -1	Mission Agreement	Application Flow	X			This object does not exist in source

9.10.5. Infrastructure Layer Diagrams

From #CP4, an hardware can now be associated with a specific picture that will be used in diagrams:



10. HOPEX ITPM/ITBM

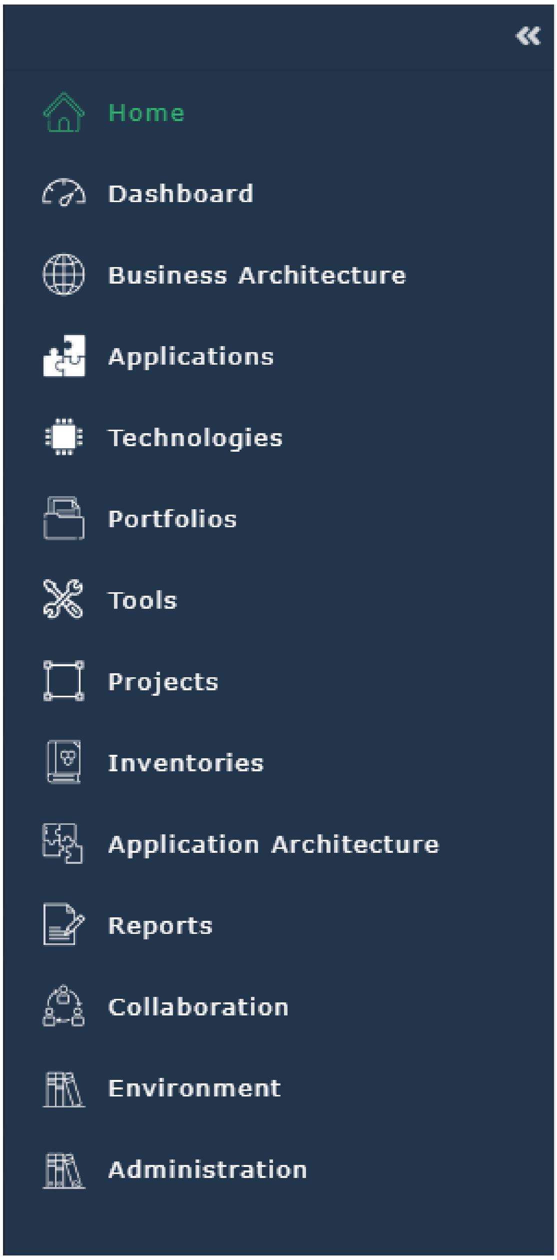
Many improvements are meant to accelerate EA projects from strategy to execution. This is achieved by automating the data collection with application discovery, increasing the business focus of ITBM with more powerful and flexible capability maps and the addition of customer journeys.

This new version also introduces smart recommendations to help you take objective data-driven decisions on application rationalization and cloud migration.

10.1. User experience

10.1.1. Menu reorganization

Menu entries have been reduced to a manageable number and reorganized to give the product a more business oriented ergonomic.



Main improvements are:

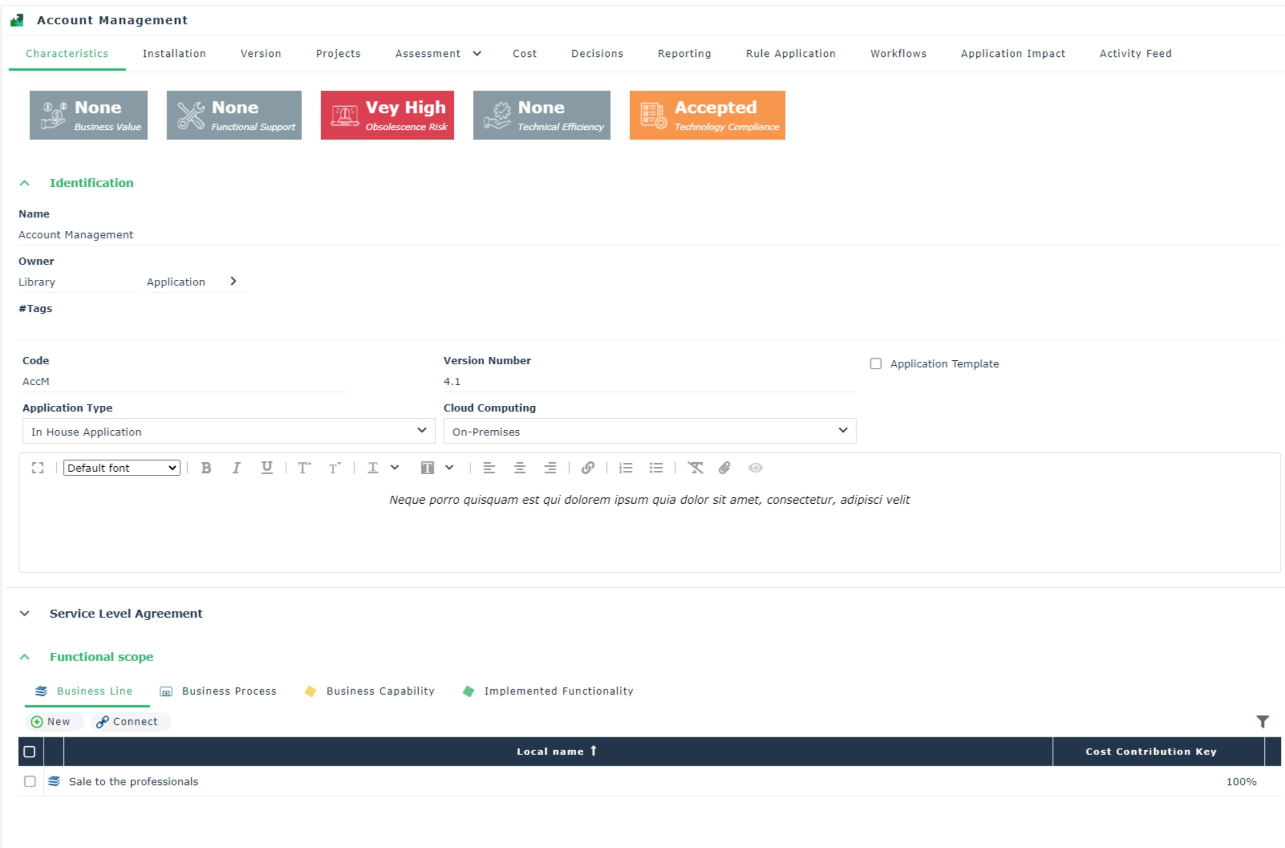
- Quick access to Business Capability Map Breakdown reports (box in box), via the "Business Architecture / Capability Maps" menu item (see chapter 10.2)
- Direct access to Applications and Technologies through dedicated menu entries
- A new "Tools" menu entry, listing business and use case-oriented functionalities
- All main concepts of the solution are accessible via the "Inventories" menu

10.1.2. Property pages improvements

Main objects' property pages have been reviewed and enhanced.

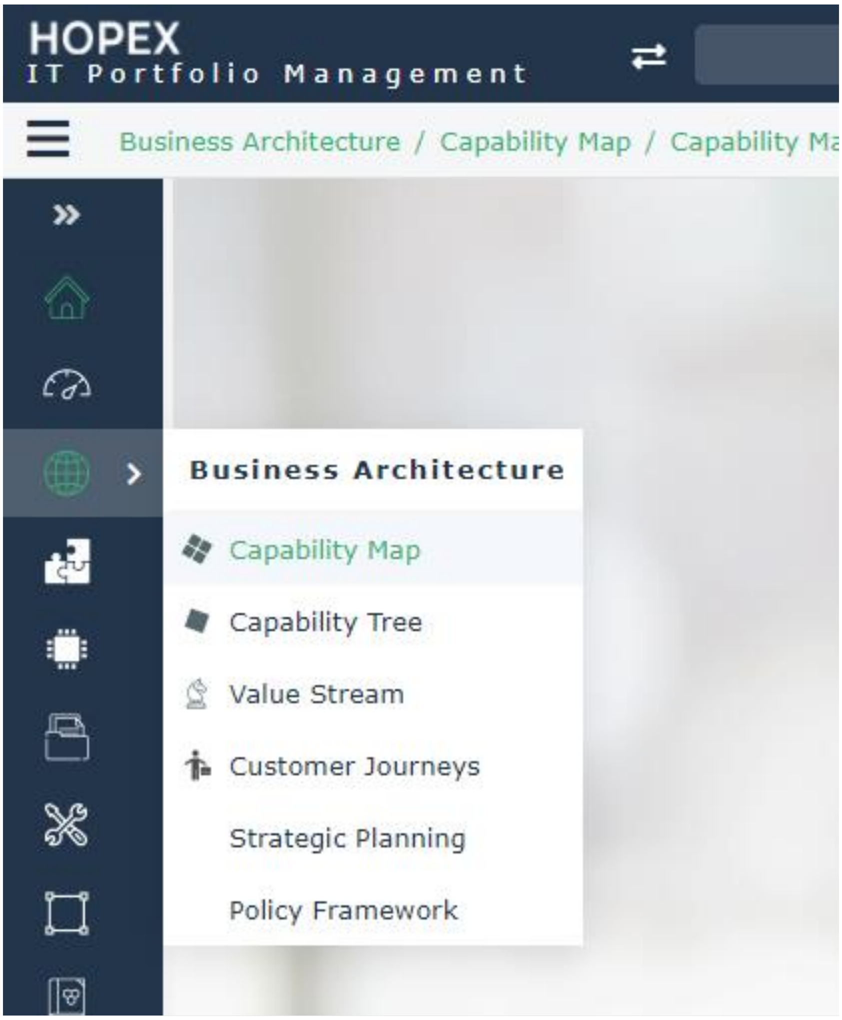
The use of multicolumn for properties maximizes the available space.

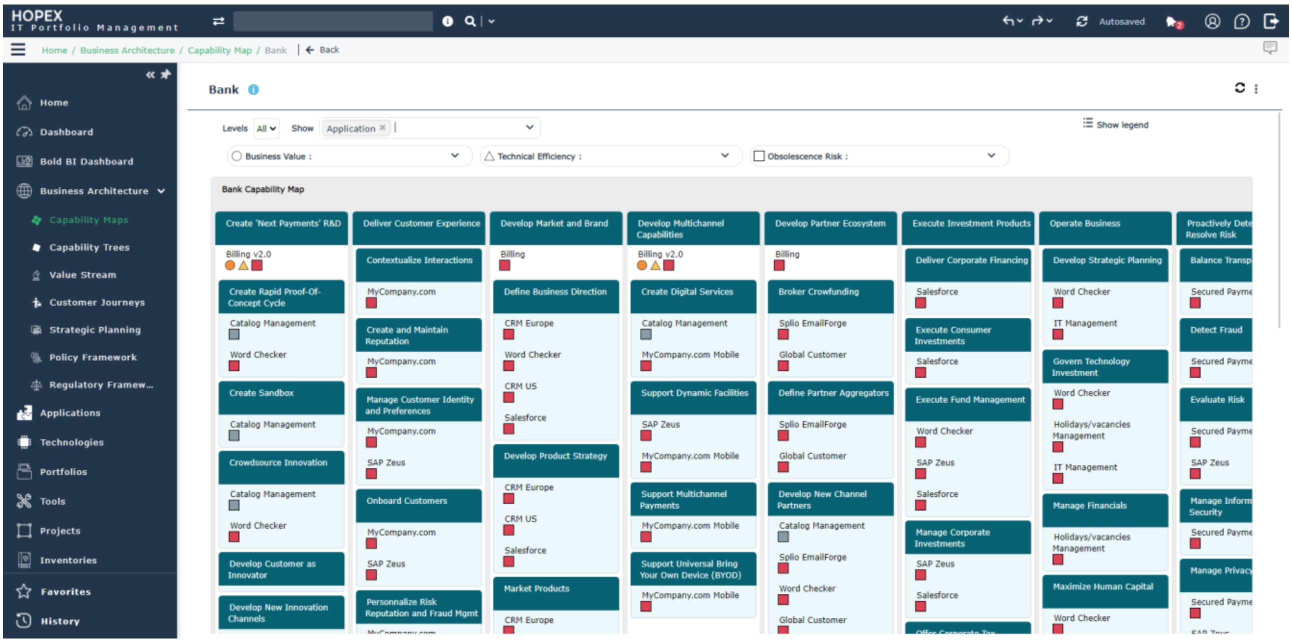
Indicators are clearly and colorfully visible at the top of the Characteristics property page, to highlight the current status and calculated properties of the product's main concepts.



10.2. Business capability Map quick access

For IT Business users to quickly access, consult and navigate through their capability maps, a dedicated menu entry has been created, displaying the list of available Business Capabilities Map Breakdown reports.

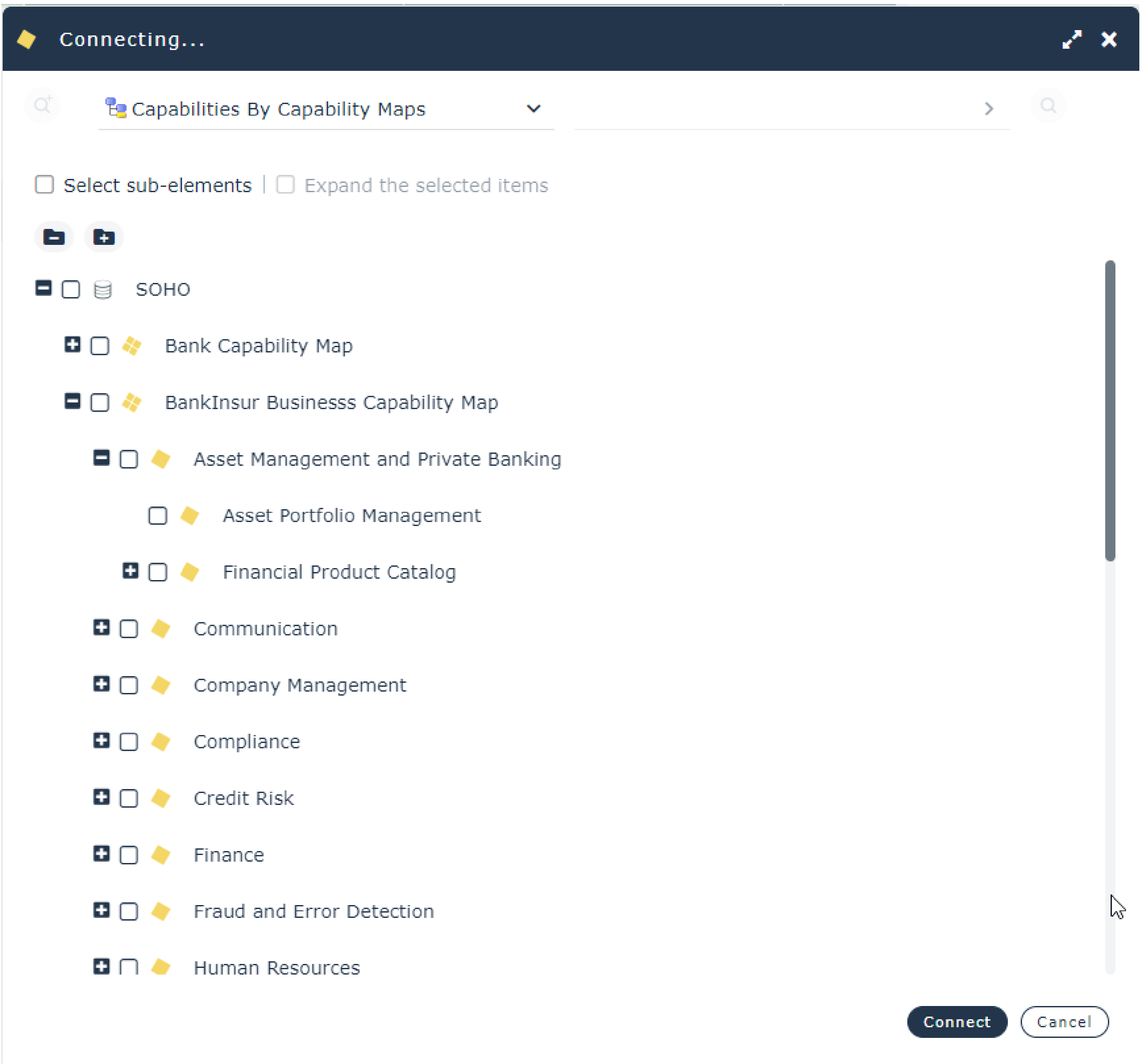




Capability Map Breakdown report has benefited from extensive improvements made on the Box in Box report. For further detail, please refer to Breakdown Reports.

10.3. Improvement of capability selection (v4.2)

Connecting a business capability to something is now done via a business capability map tree by default (instead of the complete alphabetical list).



Similarly, connecting a technical functionality to something is now done via a technical functionality map tree by default (instead of the complete alphabetical list).

10.4. Improved Enterprise hierarchy

Existing Enterprise hierarchy has been improved and new Stage levels have been added:

- Business Operating Models with diagrams
- Business Operating Scenarios with diagrams
- Resource Operating Models with diagrams
- Reference Business Information Map with diagrams

- Referenced Data Maps with diagrams

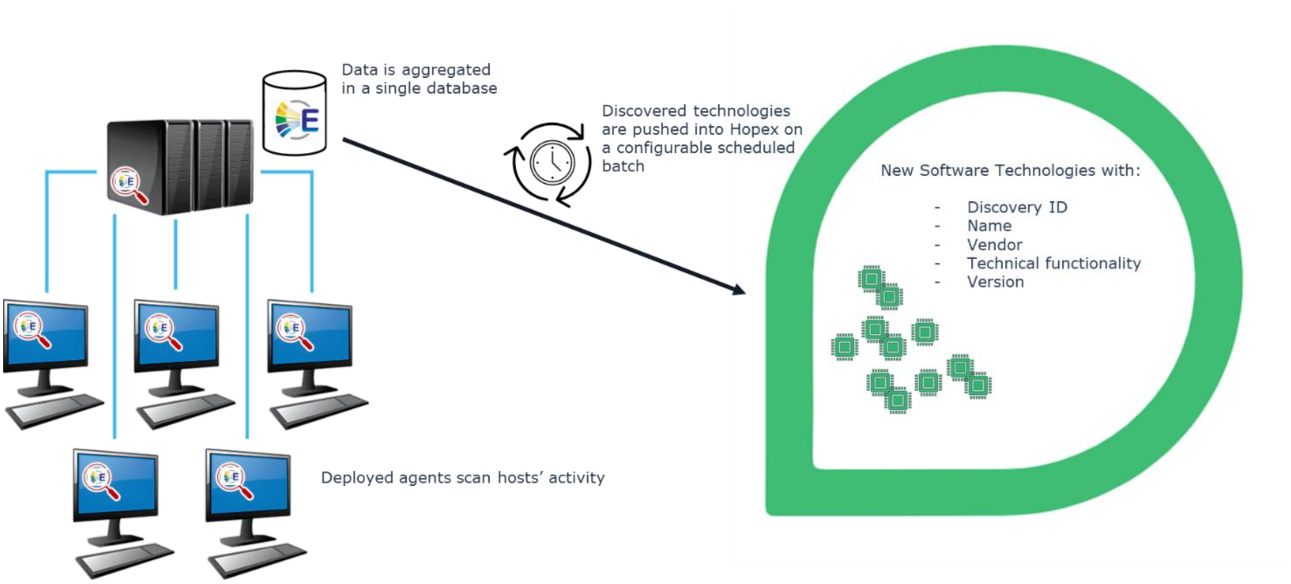
10.5. On-premises and private cloud technology Discovery

Thanks to the partnership with Eracent© and their discovery solution Eracent© ITMC®, users are now able to import into HOPEX, newly discovered technologies on deployed assets. This integration will help you quickly populate your repository with all applications and technologies running on you network, from Data Centers to Desktops and mobile devices.

Eracent ITMC agents are deployed on-premises and private cloud assets and scan their hosts for software installations and usage. All gathered data is aggregated in a common Eracent ITMC database, hosted also on the client's network.

Based on a configurable scheduled batch, newly discovered technologies are being pushed and created into HOPEX, valuing the following information:

Name
Vendor (linked to the matching Org-Unit)
Discovery Id (will be used for normalization into IT-Pedia)
Technical functionality
Version (linked to the matching Varied Object)



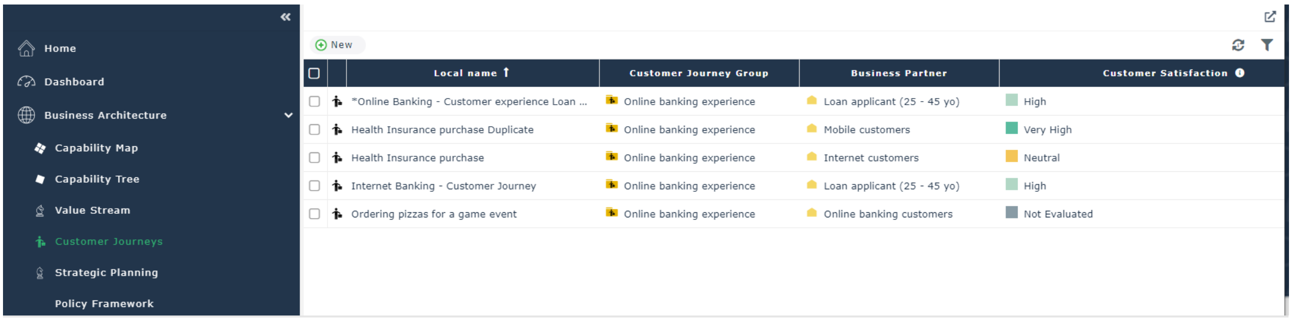
10.6. New industry content

Some industry reference models, such as Business Architecture Guild's industry (restricted to Guild members, see https://www.businessarchitectureguild.org/page/INDREF for more information) or

BIAN capability maps, are now embedded in ITBM. HOPEX users can leverage on this content to start and accelerate their EA projects.

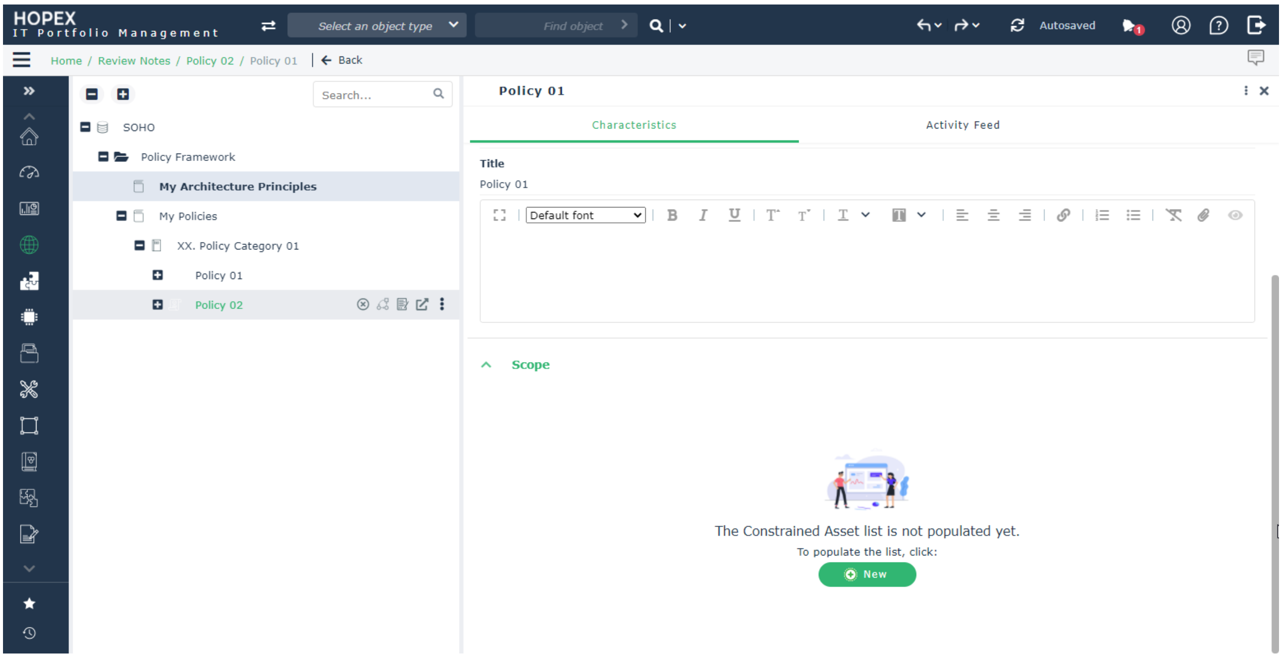
10.7. Customer Journey integration

The Customer Journey Mapping module is now included in ITBM to enhance the business support. It allows enterprise architects to better engage with business stakeholders with a customer centric view. For further details on Customer Journey latest improvements, please refer to HOPEX Customer Journey.



10.8. Policy Framework

It is now possible to define some Policy Frameworks and/or Architecture Principle sets in ITPM.



Business policies and architecture principles can be categorized with as many levels as customer wants. Then each business policy or architecture principle can be described with its scope: the assets that should be compliant with it.

10.9. Smart Analysis

The value of an EA repository is to provide a single view of the IT landscape of an organization to help users take decisions and share them across the organization.

ITPM/ITBM now includes Smart Analysis, enabling portfolio owners to get recommendations on possible actions (on different topics), and record decisions. Recommendations are made using aggregated scores when possible or dedicated questions to collect the missing data of a given problematic.

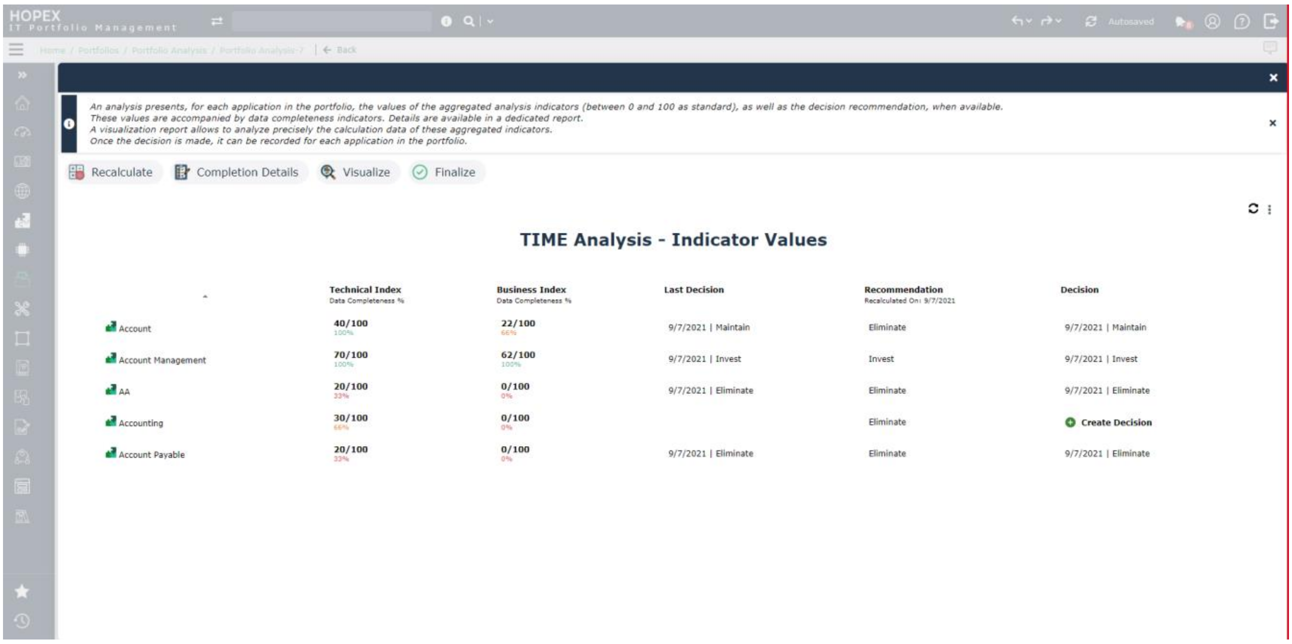
Analysis steps:

- Data completion checking to assess analysis relevancy
- Data analysis with dedicated report to compare portfolio application scores
- Decision recommendation when possible
- Decision recording for each application

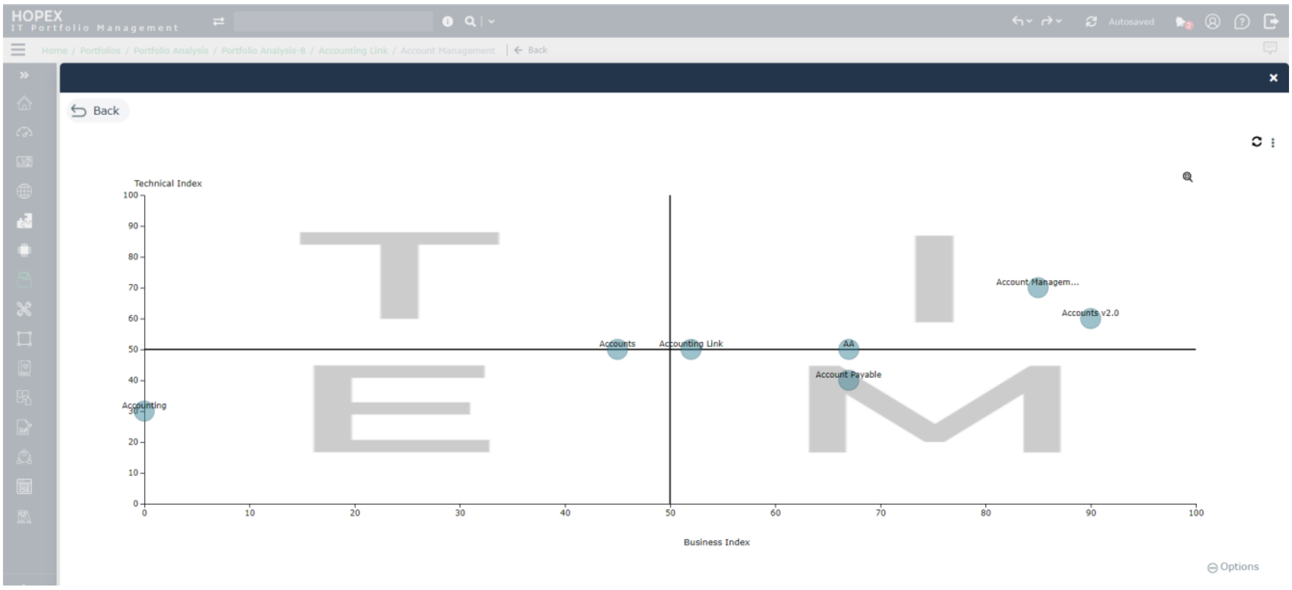
10.9.1. TIME Rationalization

This analysis shows rationalization recommendations on a given portfolio's applications. Possible decisions are:

- Tolerate
- Invest
- Modernize
- Eliminate



These results can also be shown on a TIME matrix to identify which action should be taken on which application of the given portfolio.



10.9.2. Cloud migration

This analysis gives a portfolio manager keys and recommendations on whether an application should be migrated on the cloud, and how. Possible decisions are known as the 6 "R":

Rehosting: simple to execute. Allows to postpone rearchitecting decision while taking advantage of some of the cloud benefits.

Re-platforming: small refactoring upon basic rehosting.

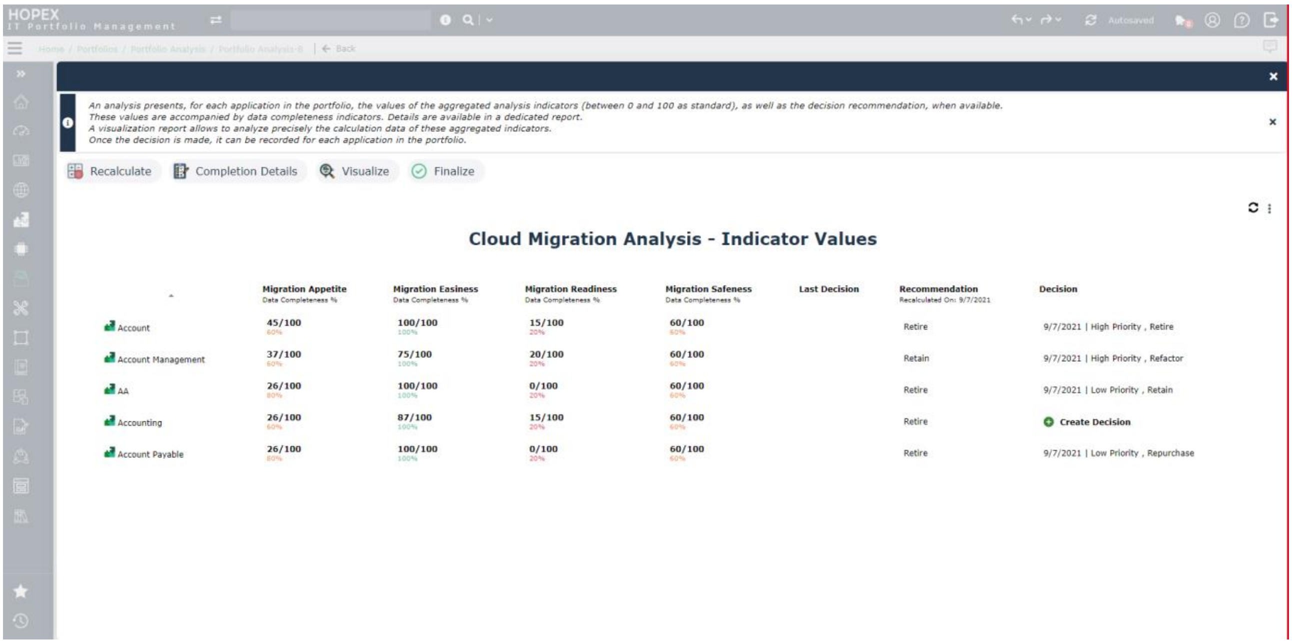
Refactoring: rearchitecting application to take full advantage of cloud capabilities

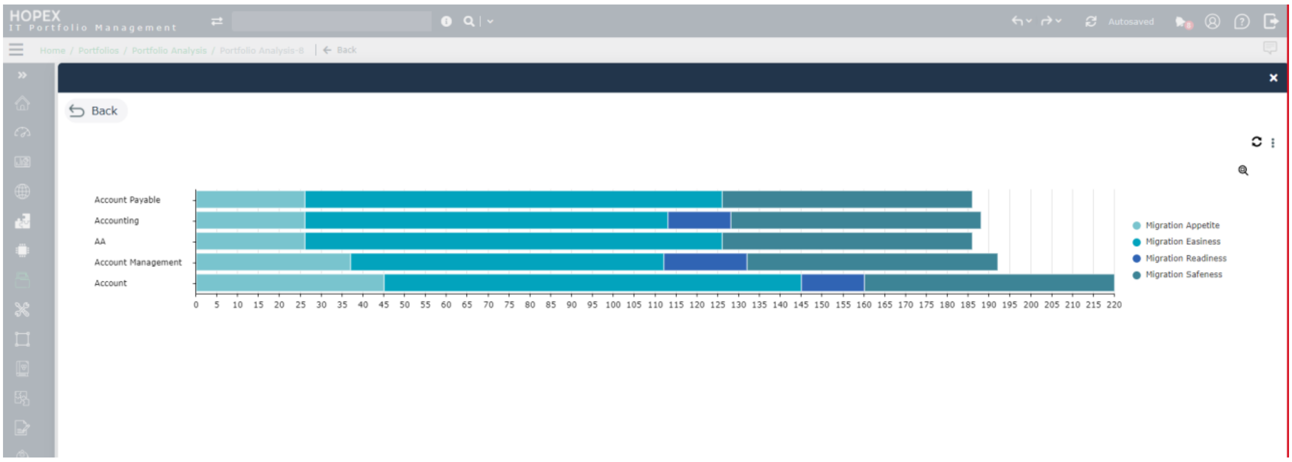
Retiring

Retaining

Repurchase

Amongst these 6 possible decisions a user can record on the given application, only 3 can be recommended by HOPEX. Others result from information not handled by HOPEX, like license costs for example.

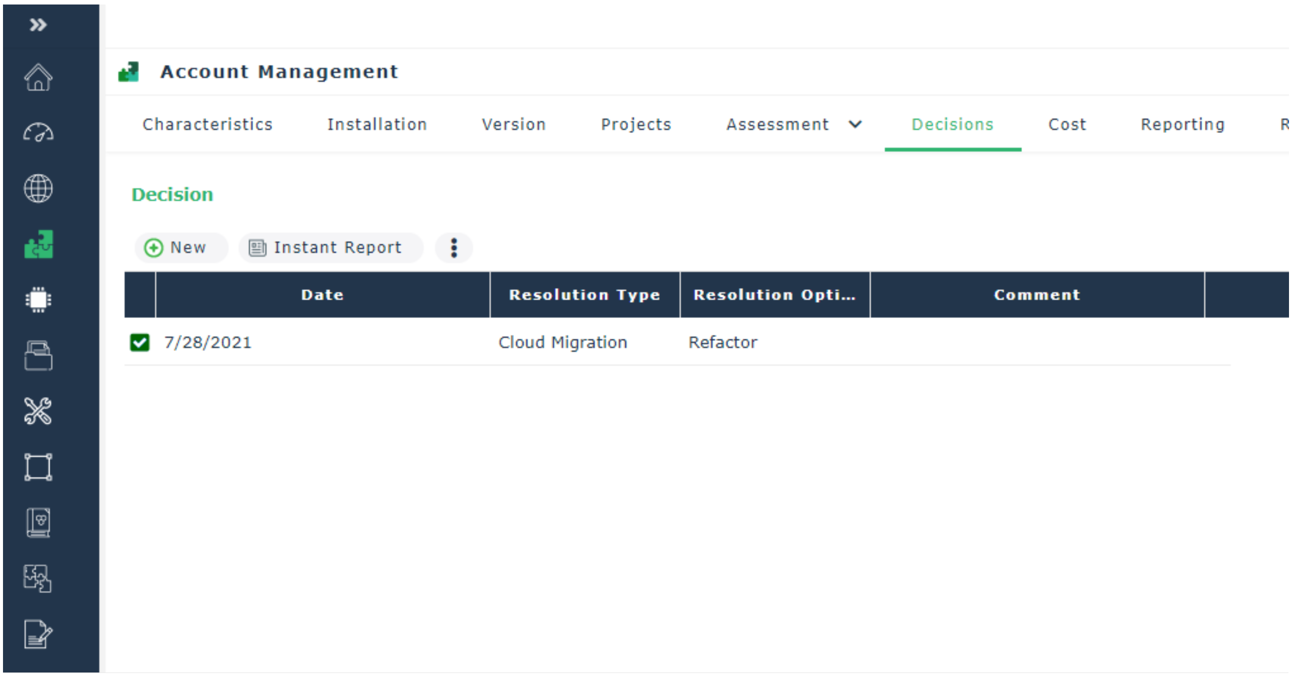




10.10. Recording Decisions on Applications

Through a dedicated property page “Decisions”, a user can record decisions on an application. Decisions are characterized by:

- The date of the decision
- The decision type (Cloud migration or TIME rationalization as standard delivered types, or other custom decision types to come)
- The decision value (amongst values, parameterized for each decision type)
- An optional (but recommended) comment



10.11. Improvement of deployed asset localization

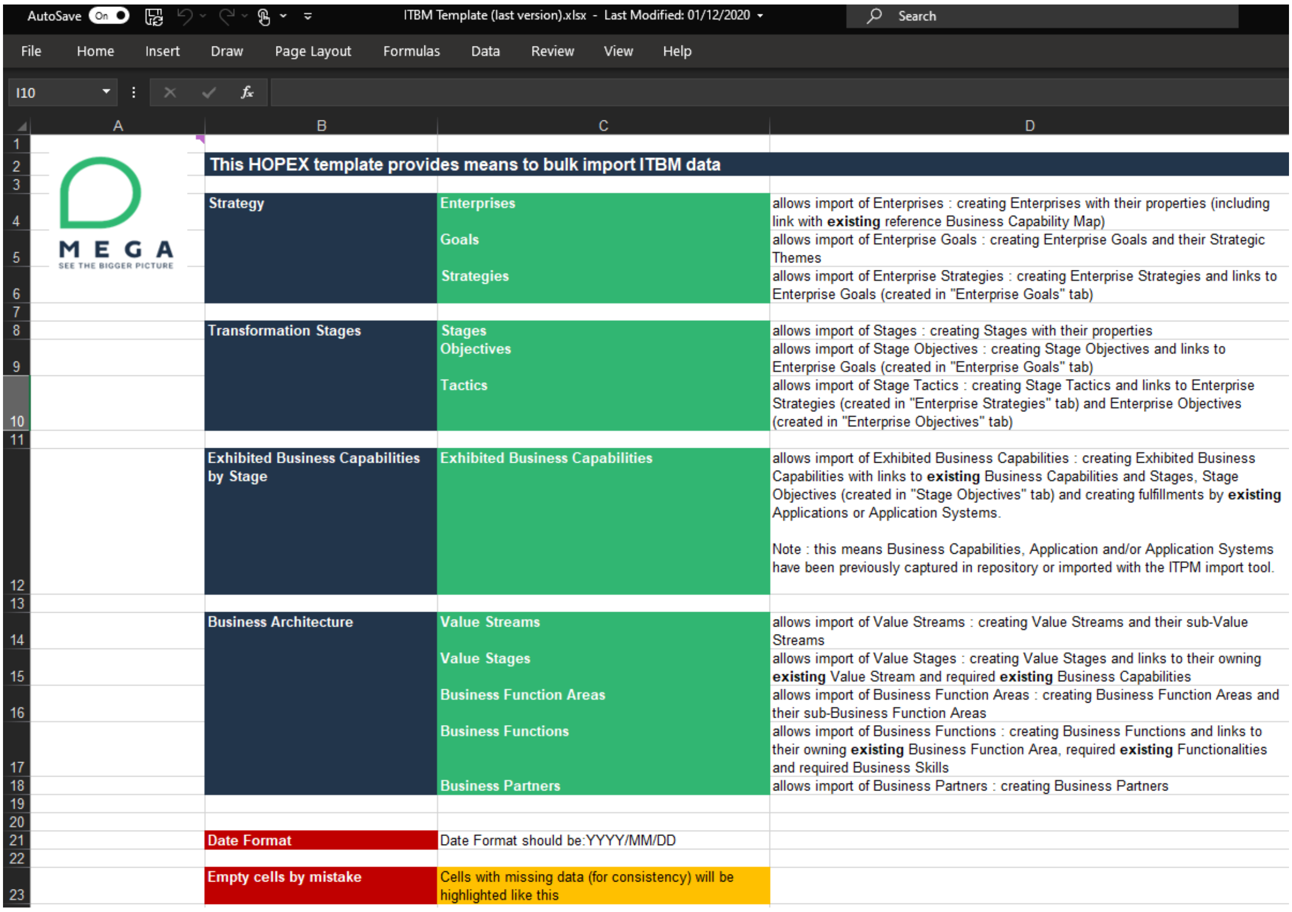
Software installations were formerly located via the "site" object. Now we distinguish the geographical localization and the company premises. A data center object is now used to represent premises, that can be geographically located via the site object.

During migration, data conversion is made by creating a data center from site used. A link between the data center and the site is made.

This new Data Center object is shared with Data Governance and IRM solutions.

10.12. Excel import tool for ITBM (v4.1)

Mega provides an excel import tool for "BASP" data in the HOPEX store as a solution pack.



This HOPEX template provides means to bulk import ITBM data		
Strategy	**Enterprises**	allows import of Enterprises : creating Enterprises with their properties (including link with **existing** reference Business Capability Map)
	Goals	allows import of Enterprise Goals : creating Enterprise Goals and their Strategic Themes
	Strategies	allows import of Enterprise Strategies : creating Enterprise Strategies and links to Enterprise Goals (created in "Enterprise Goals" tab)
Transformation Stages	**Stages**	allows import of Stages : creating Stages with their properties
	Objectives	allows import of Stage Objectives : creating Stage Objectives and links to Enterprise Goals (created in "Enterprise Goals" tab)
	Tactics	allows import of Stage Tactics : creating Stage Tactics and links to Enterprise Strategies (created in "Enterprise Strategies" tab) and Enterprise Objectives (created in "Enterprise Objectives" tab)
Exhibited Business Capabilities by Stage	**Exhibited Business Capabilities**	allows import of Exhibited Business Capabilities : creating Exhibited Business Capabilities with links to **existing** Business Capabilities and Stages, Stage Objectives (created in "Stage Objectives" tab) and creating fulfillments by **existing** Applications or Application Systems. Note : this means Business Capabilities, Application and/or Application Systems have been previously captured in repository or imported with the ITPM import tool.
Business Architecture	**Value Streams**	allows import of Value Streams : creating Value Streams and their sub-Value Streams
	Value Stages	allows import of Value Stages : creating Value Stages and links to their owning **existing** Value Stream and required **existing** Business Capabilities
	Business Function Areas	allows import of Business Function Areas : creating Business Function Areas and their sub-Business Function Areas
	Business Functions	allows import of Business Functions : creating Business Functions and links to their owning **existing** Business Function Area, required **existing** Functionalities and required Business Skills
	Business Partners	allows import of Business Partners : creating Business Partners
Date Format	Date Format should be:YYYY/MM/DD	
Empty cells by mistake	Cells with missing data (for consistency) will be highlighted like this	

This tool can be used for importing data from former solution “Business Architecture” into ITBM (see Voices post on this subject).

11. HOPEX Privacy Management

11.1. Menu and WET

11.1.1. Menus renamed – #CP4

The first level menus have been renamed.

11.2. Minor modifications

11.2.1. Tags

All major objects in HOPEX Privacy Management now provide a #Tags field to add user defined tags to the object.

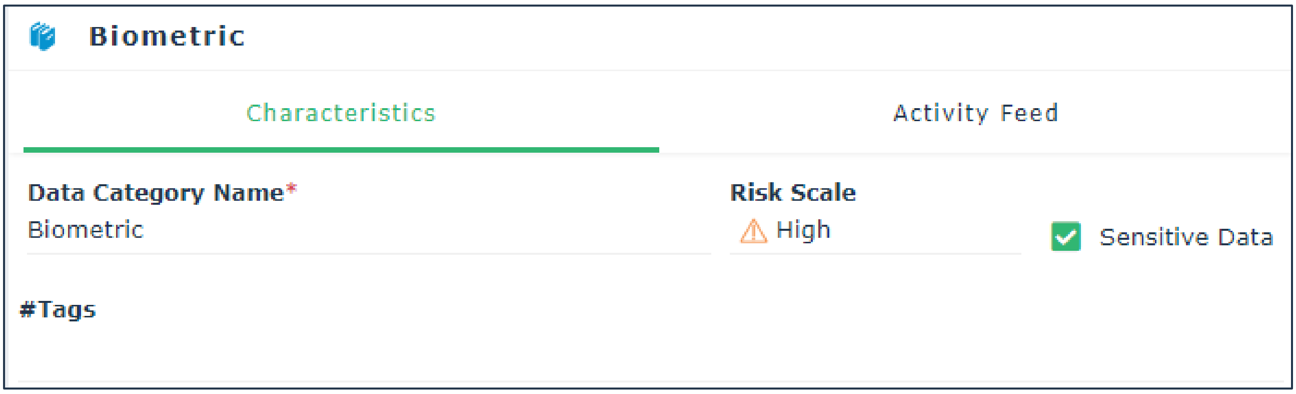


Figure 109 - Tags field on main HOPEX Privacy Management objects

11.2.2. Data Breaches Attachments

It is now possible to attach documents to any given data breach thanks to the dedicated section “Attachments”.

11.2.3. Profile Renaming

The profile “Activity Owner” is now renamed into “Processing Activity Owner”.

11.3. Removed Features

11.3.1. Record of Processing Hierarchy View

The hierarchy view of “processing activities” is no longer available. This was accessible from the menu “Record of Processing.”

11.3.2. Processing Activity Scope

The section “Scope” in the processing activity Characteristics property page, no longer proposes the option to link third parties.

This section is used for managing visibility rights over the processing activity record, and the third parties were not fitting into this use case. If a third party must be defined on the processing activity, this must be done in the Details page, within the table “Processing Elements”.

11.3.3. Removed Profiles

Two standard profiles have been removed from the solution:

- **Privacy Management Functional Administrator** -> This profile was to be used to assign user logins. If you happened to use this profile, you can now use the HOPEX Administrator profile instead
- **DPO Correspondent** -> This profile had the same functional specifications of the Privacy Team one. If you happened to use this profile, you can now use the Privacy Team profile instead.

12. UX Improvements

12.1. Improved navigation between panels

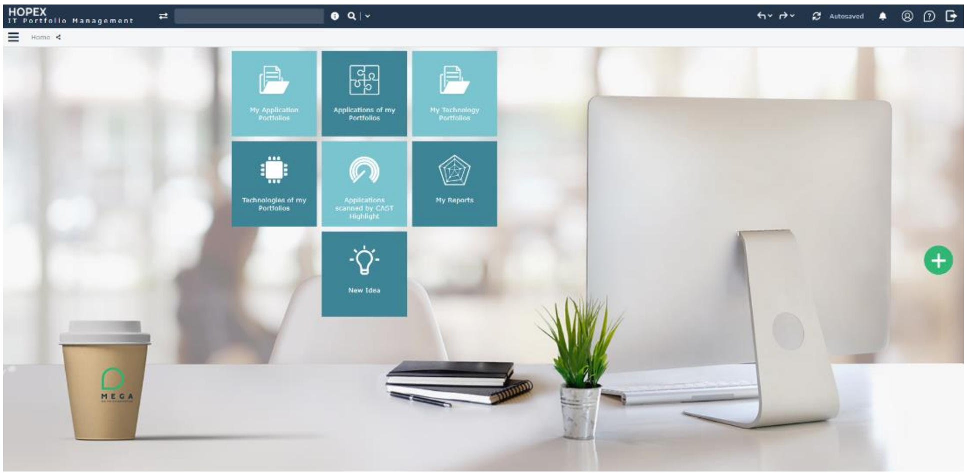
The display and logic of the panels (central, left and right) have been revisited to optimize navigation and maximize legibility of diagrams, reports, wizards, workflows and property pages.

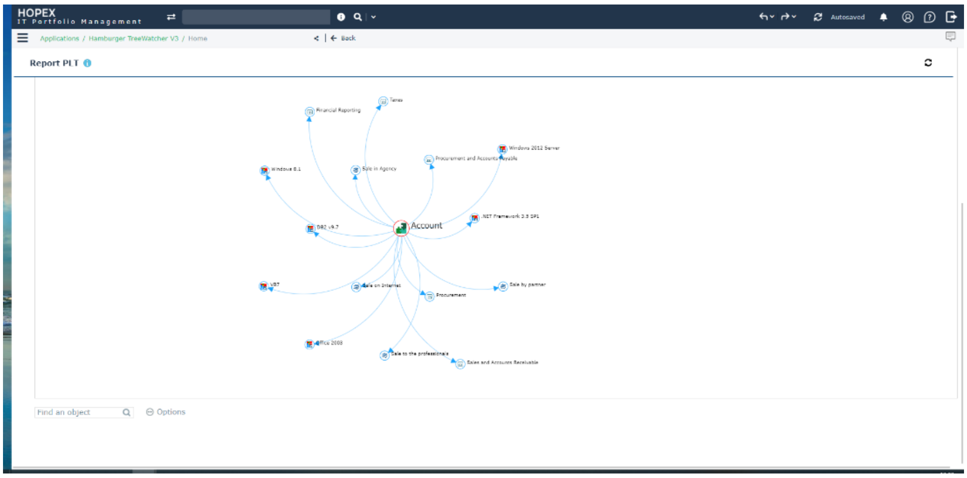
The section is extensive about the various combinations of opening & closing panels and what options are displayed according to the context. This said, this new behavior is intuitive and should require no learning.

12.1.1. Home page

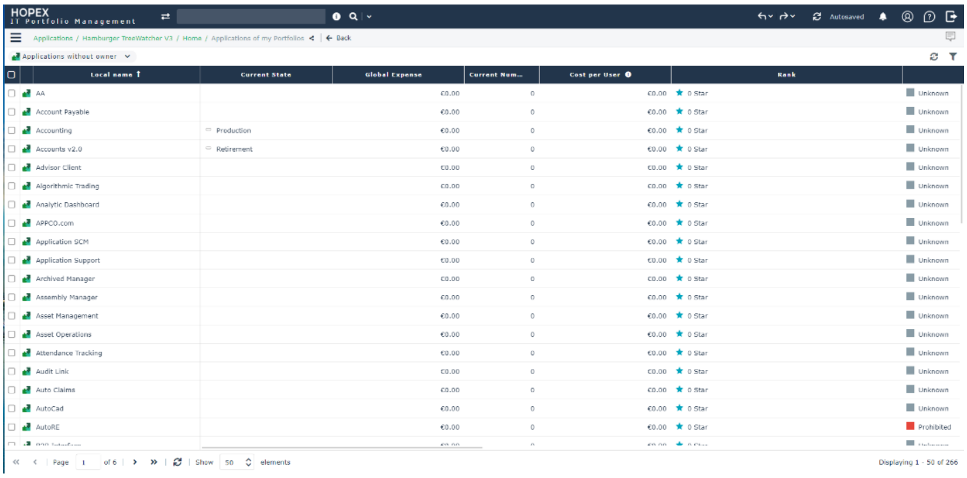
As a general principle, buttons are hidden unless they are relevant to the user's working context, making pages lighter.

To facilitate reading, when a user opens a report or property page from the homepage, it will always take full screen rather than opening inside the right - often too small – panel.



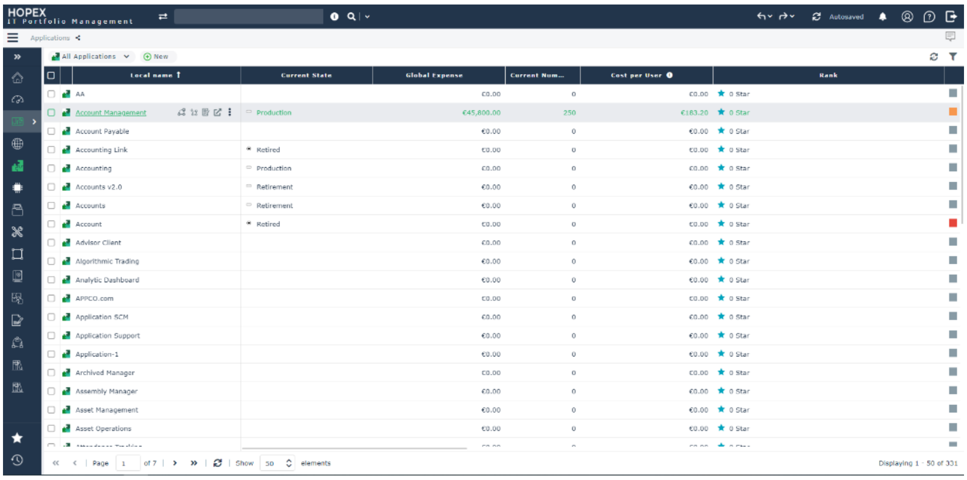


When the user clicks a home page tile, the content (list or tree) also opens in full page mode, while the navigation menu is automatically hidden.



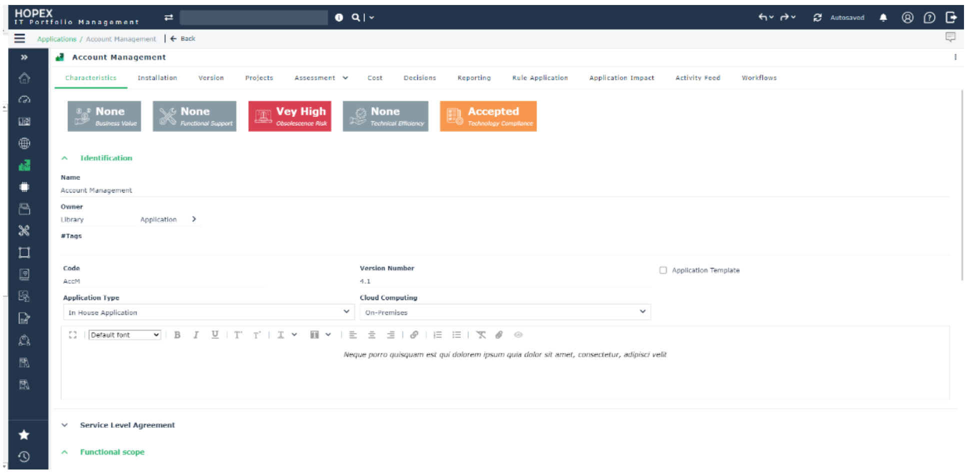
12.1.2. Lists

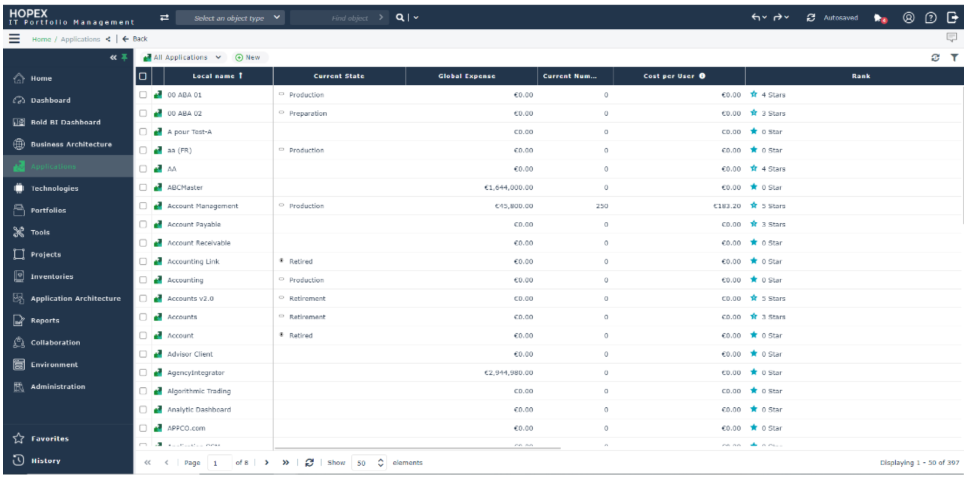
When on a list...



...clicking an object now directly opens its properties in full page mode, without requiring using the floating toolbar properties icon.

The second-from-the-top tool bar now proposes a back button which instantly displays the previous screen, in this case the original list the user started from.

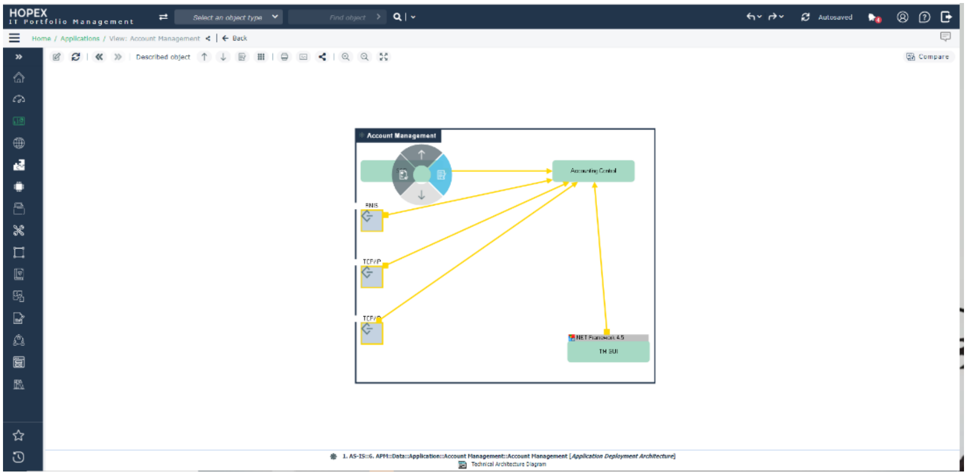




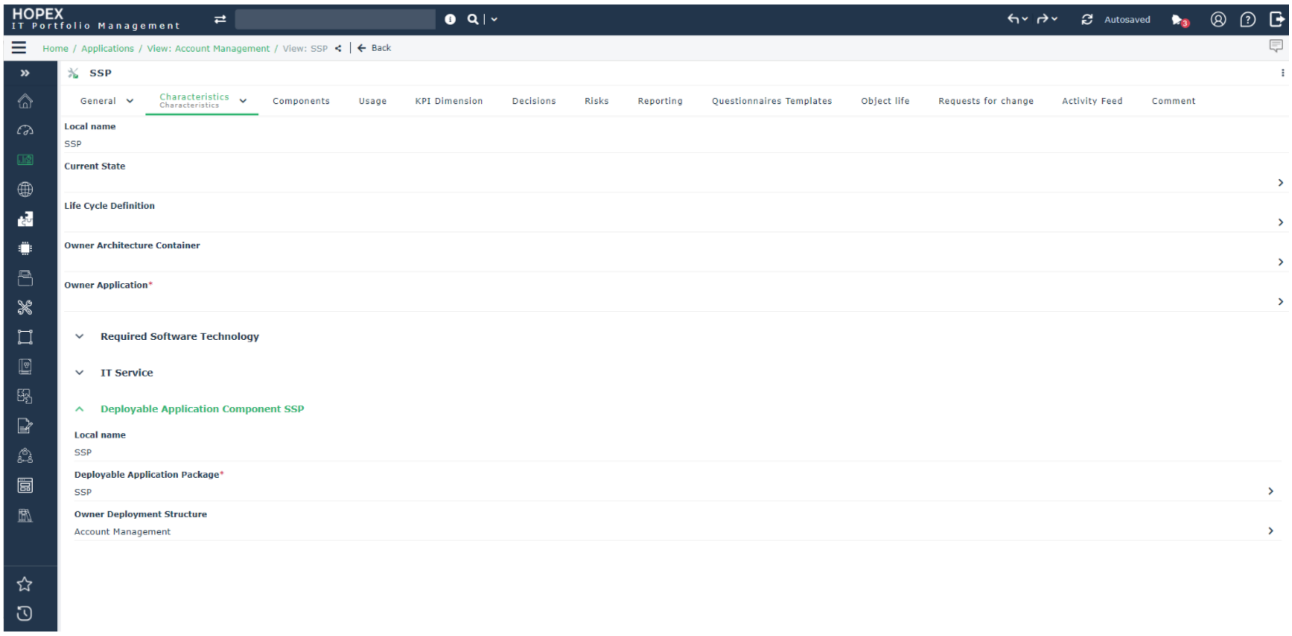
12.1.3. Open Diagram from list in view mode

Similarly, when opening a diagram from a list, the diagram is displayed in the central panel, side windows being closed by default, with the back button showing up.

You can always add comments to diagram's objects by using the comment button on the right side of the second toolbar.

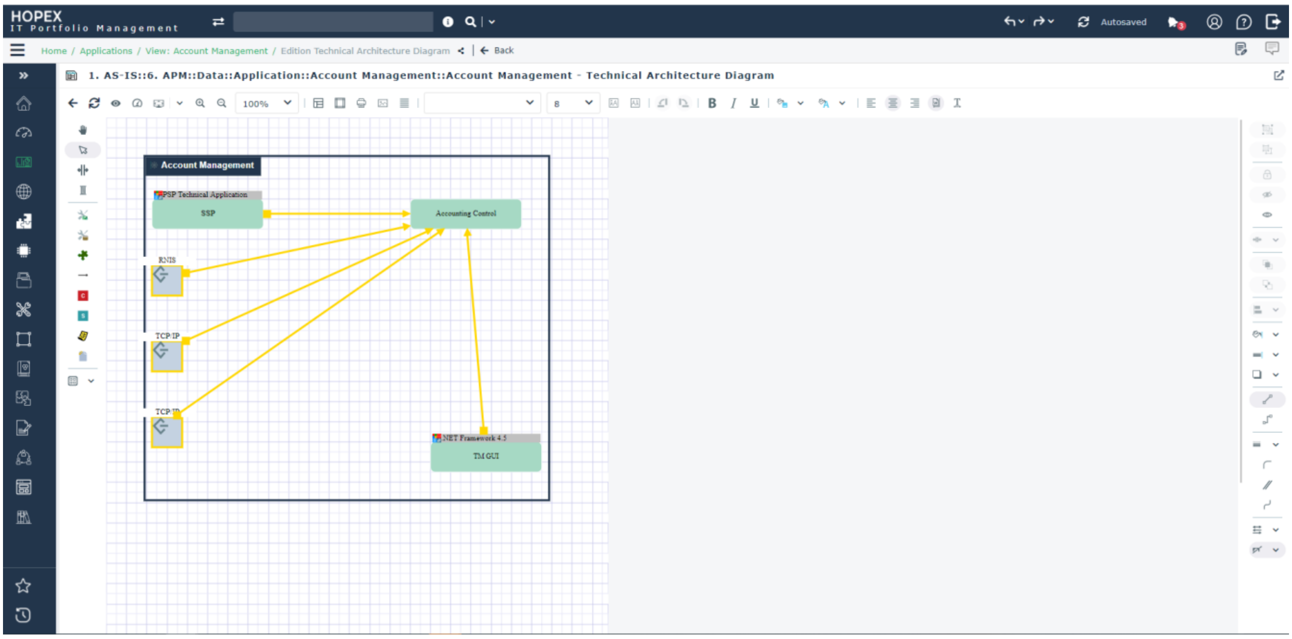


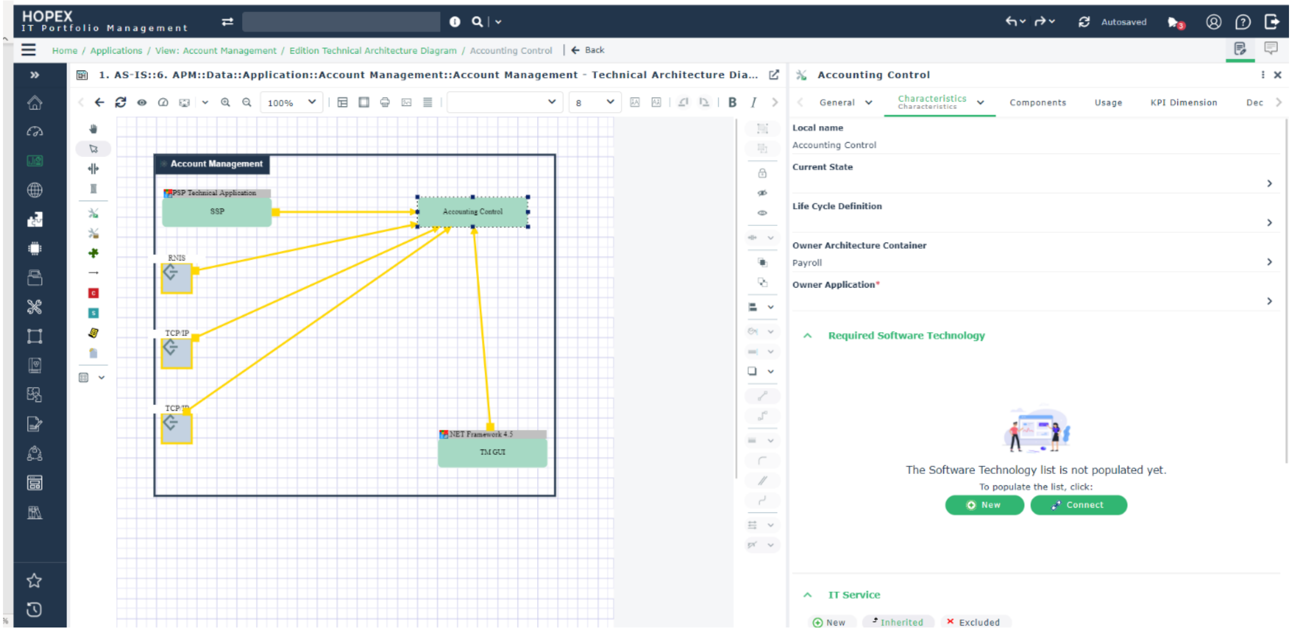
Users can dive directly from the diagram (right-click) to properties or reports, which will also replace the previous diagram displayed; and activate the back button.



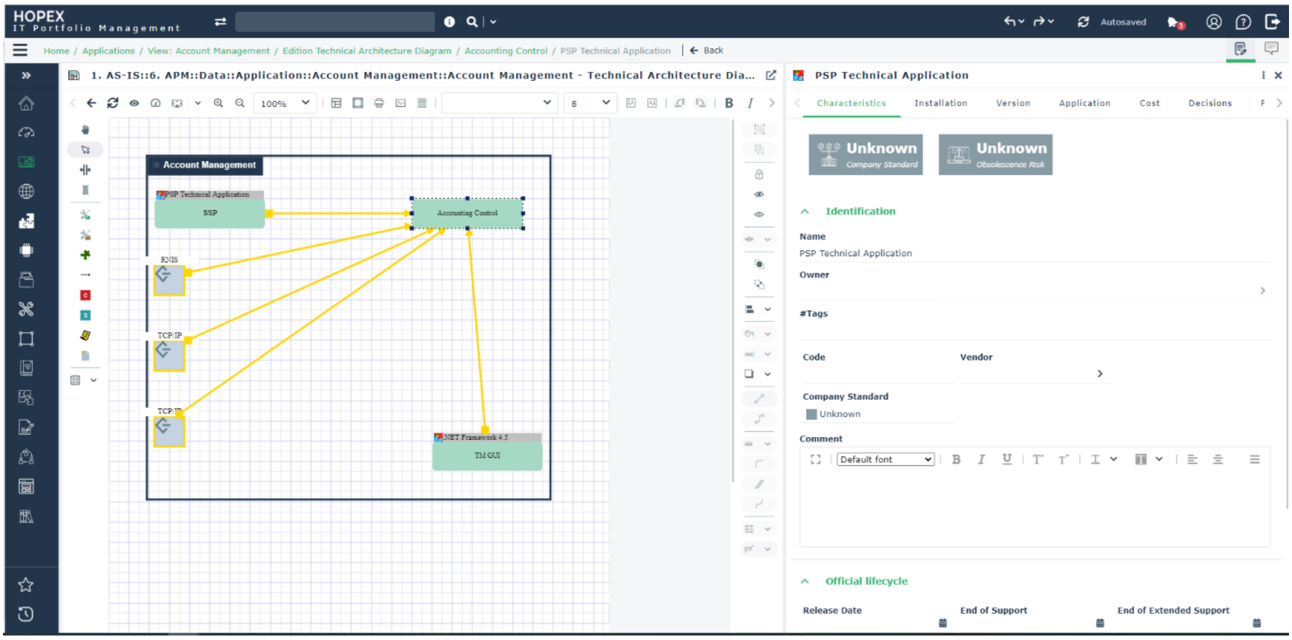
12.1.4. Open Diagram from list in edit mode

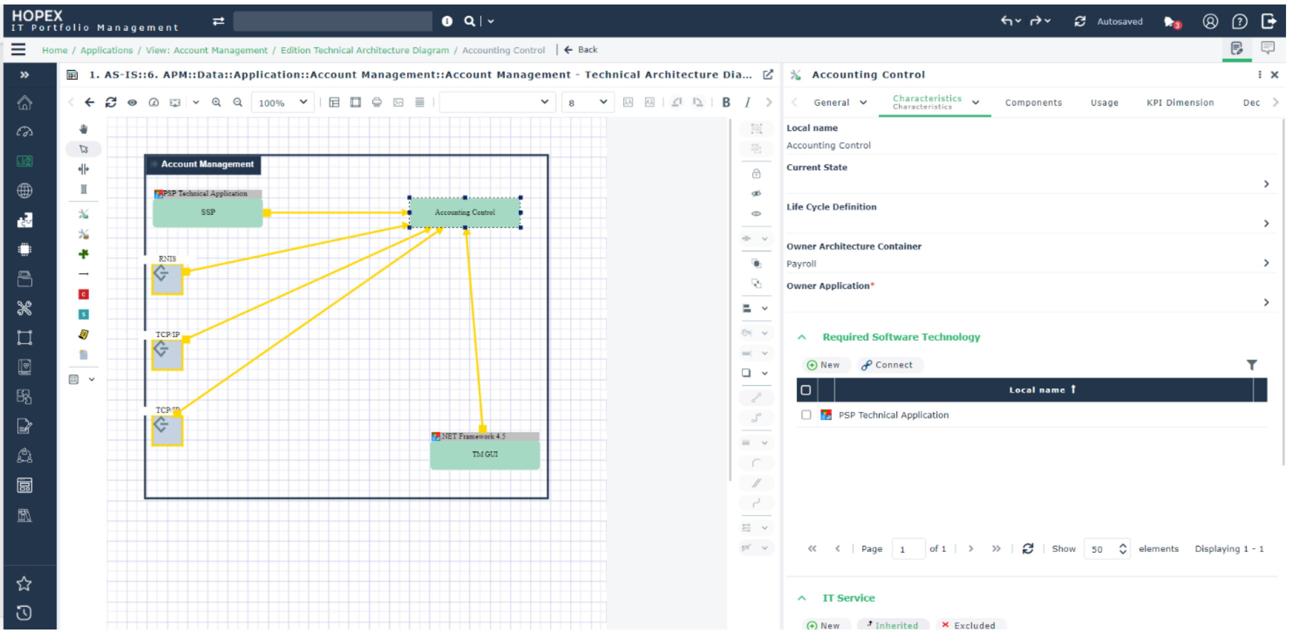
Creating / editing a diagram from a list opens the diagram in edit mode. In this case the properties button on the right of the toolbar displays / hides a side panel with properties, letting the user complete or consult the objects information and adjust its working space.





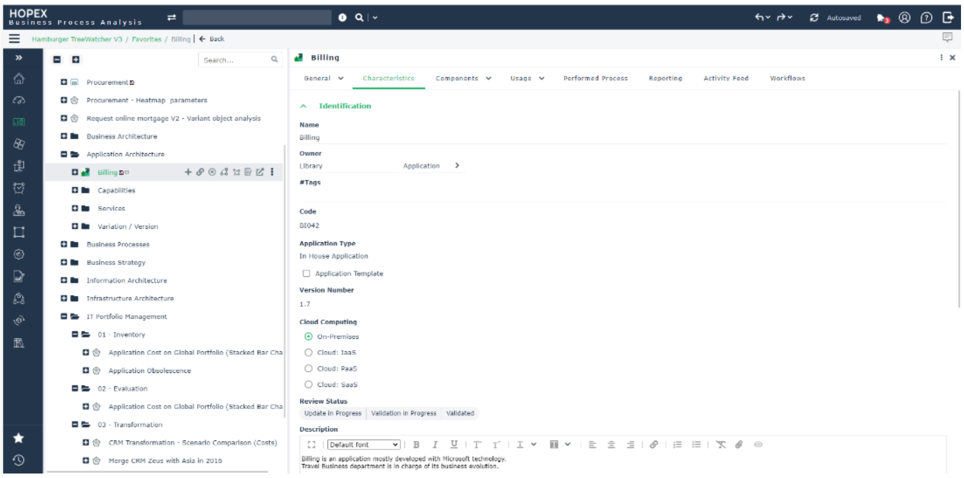
While inside the properties of a given object, should the user move to another object's properties...the breadcrumb tracks it all to come back to the previous properties page. This is very convenient for not losing the context of work.



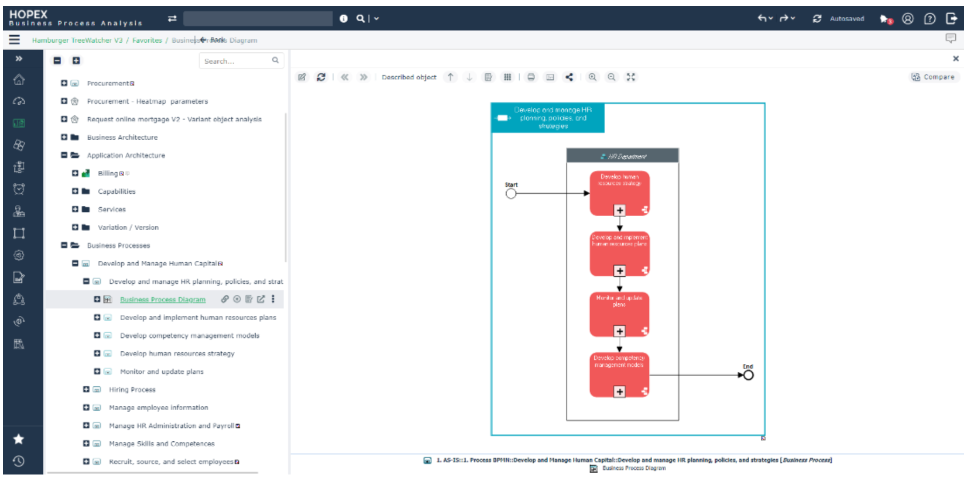


12.1.5. Trees

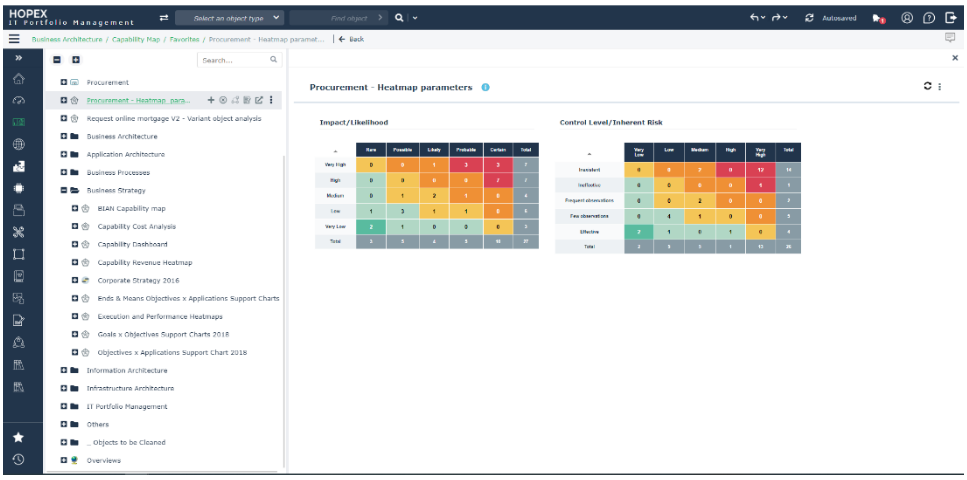
Trees are very convenient for hierarchies and classifications. Navigation is made easier as clicking a Tree element directly opens its properties with no need for using the floating toolbar icon.



If the object in the Tree is an actual diagram, the click opens the diagram in main panel as expected.

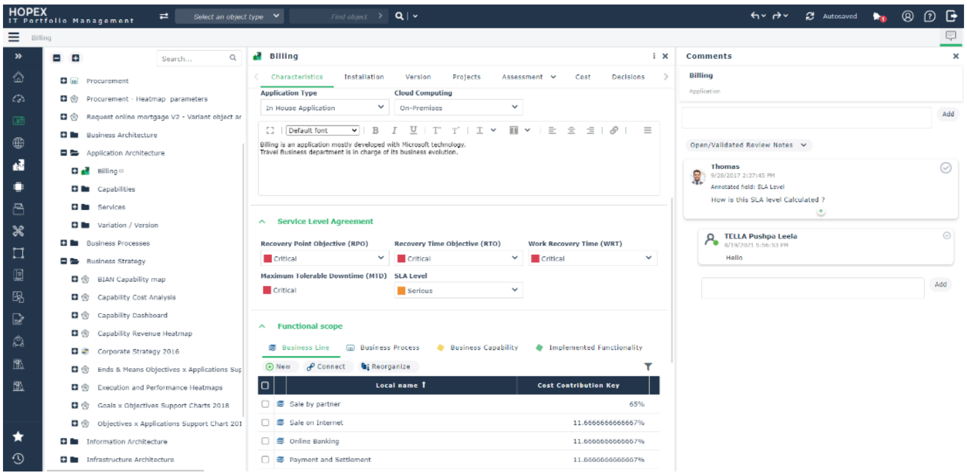


Same thing, clicking a report object inside the Tree opens the report in the main panel.



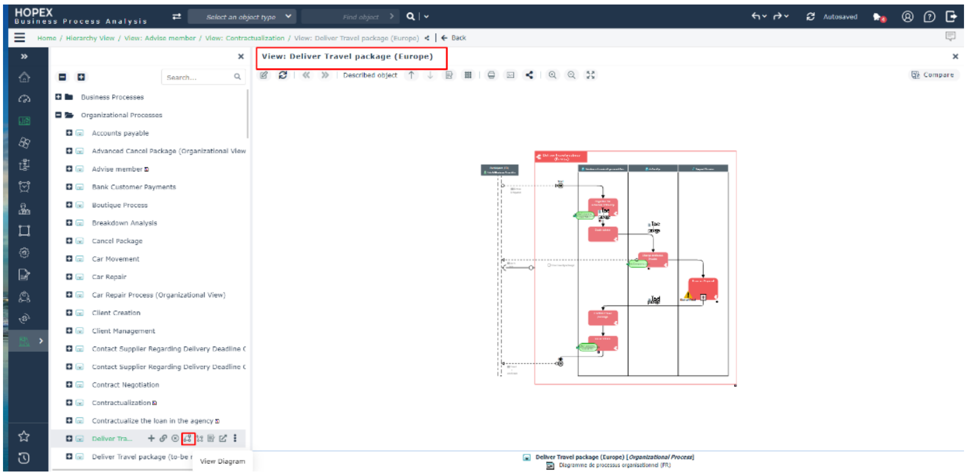
Closing the main panel (x icon) make the Tree take the complete available space.

It is always possible to add comments via the comment icon.

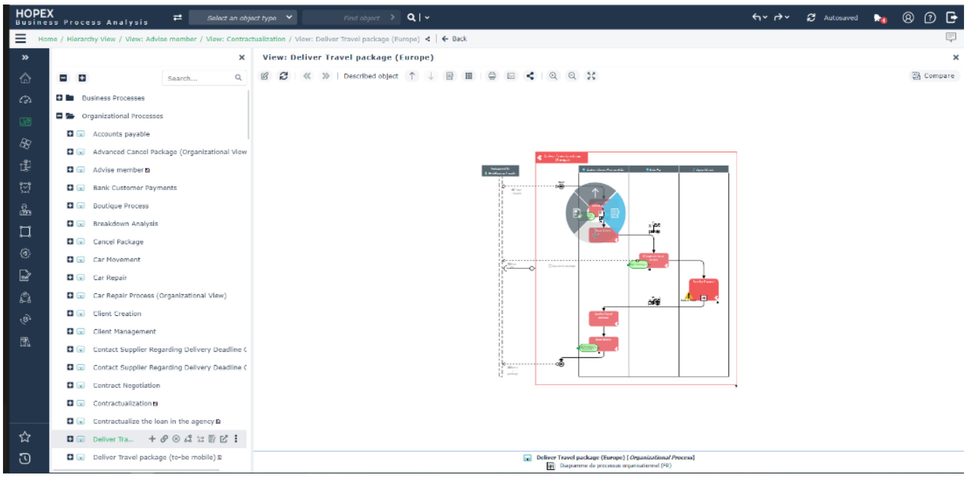


12.1.6. Open diagram from the Tree in view mode

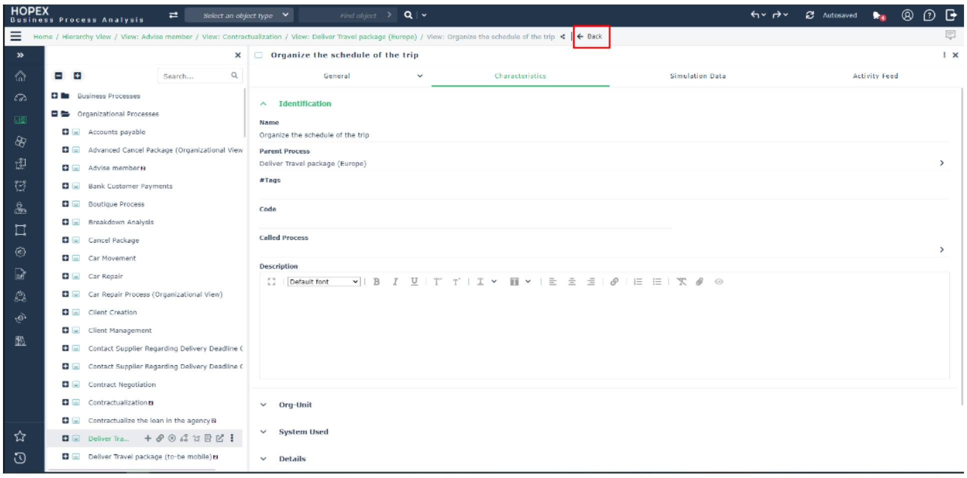
When the user opens a Diagram using the floating toolbar..,



...then opening properties will replace the Diagram.



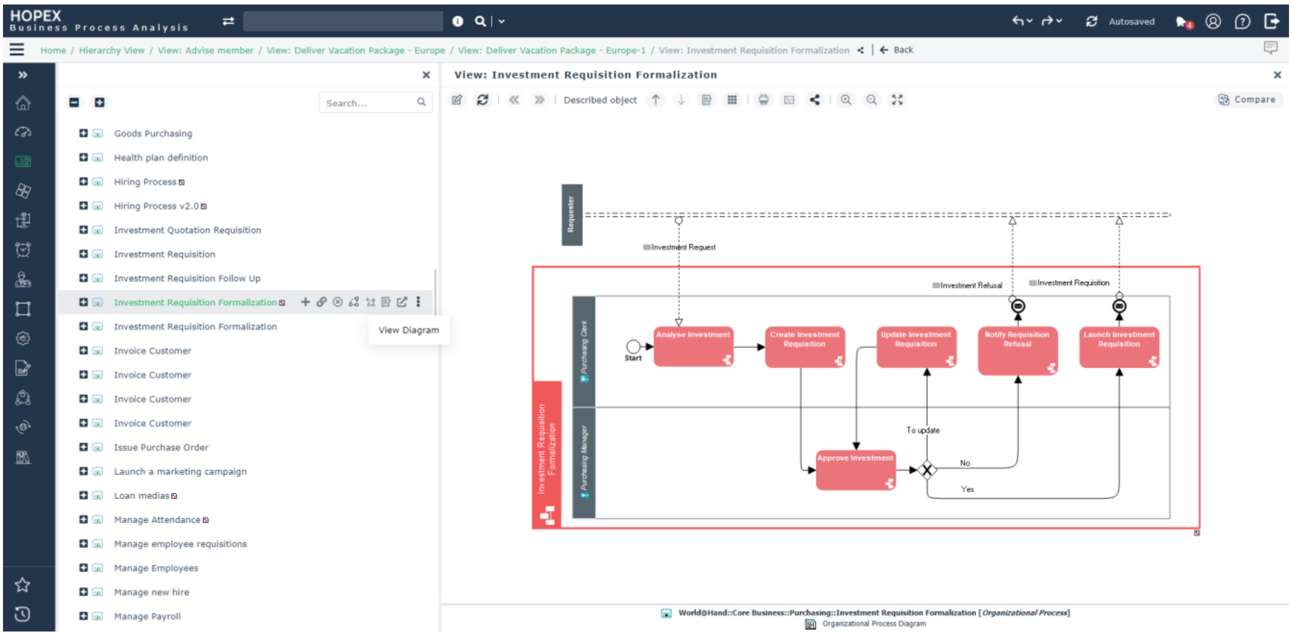
You can always go back to the diagram by clicking the back button.

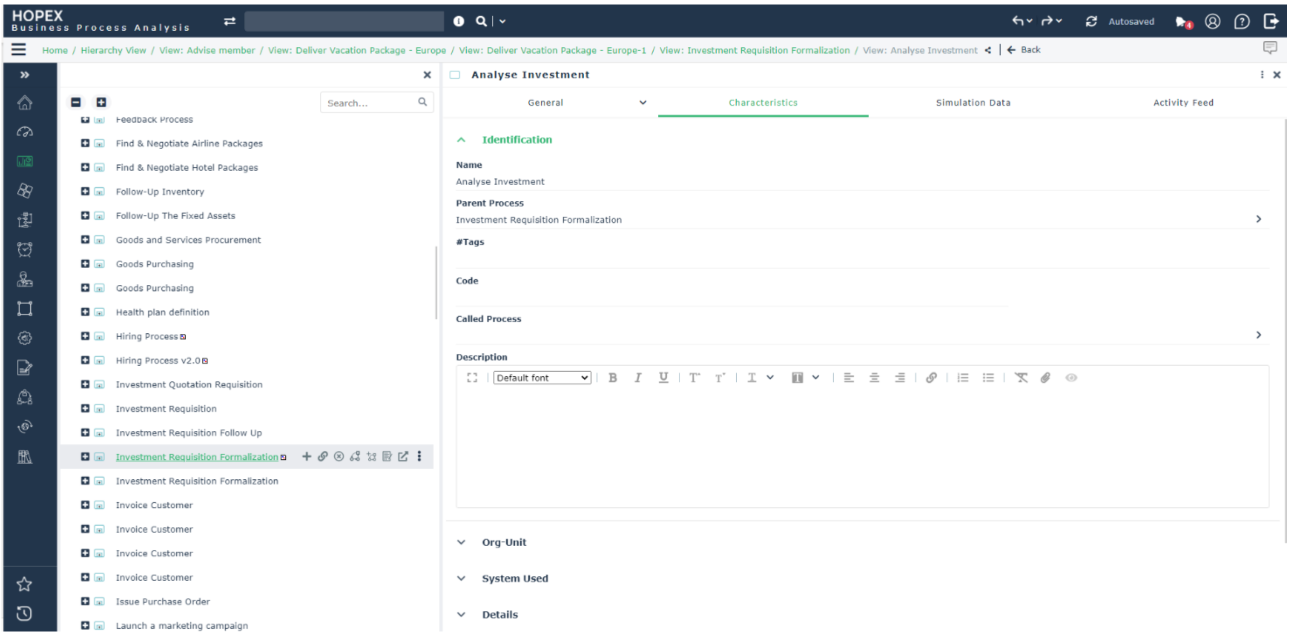


12.1.7. Open Diagram from the Tree in edit mode

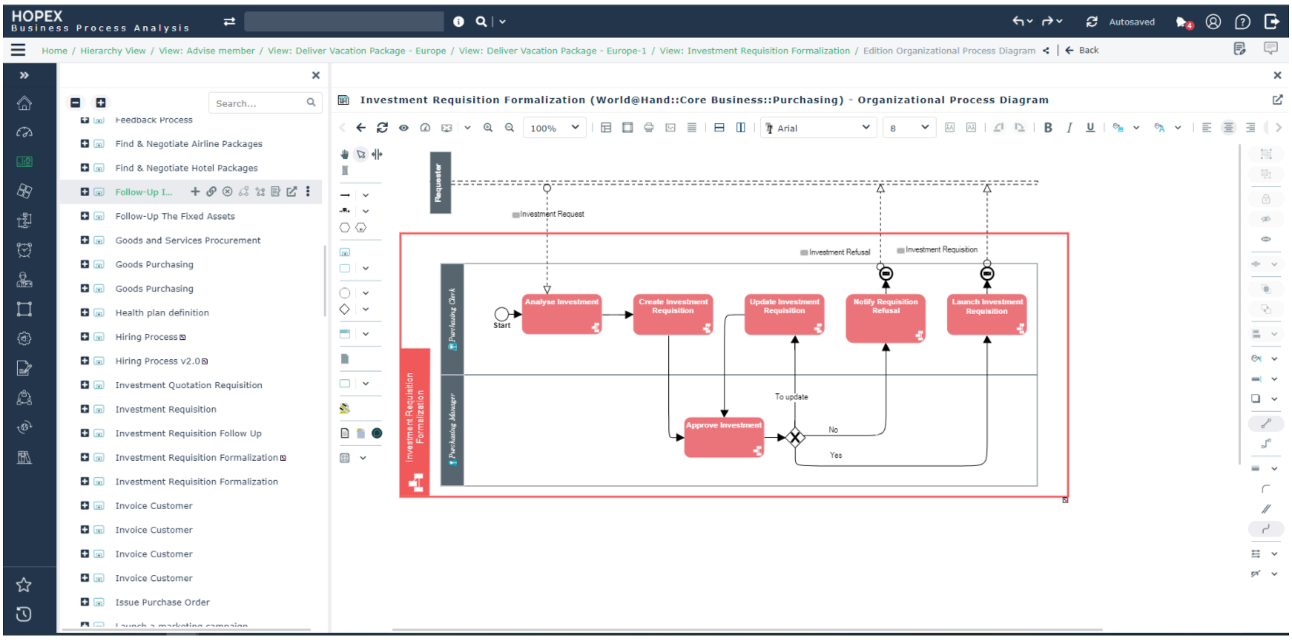
When the user opens a Diagram in edit mode using the floating toolbar, you will see contextual icon "properties".

Tree will be hidden by default so that users can have enough space for diagram & properties. He can always reopen the tree by clicking the tree icon on toolbar.

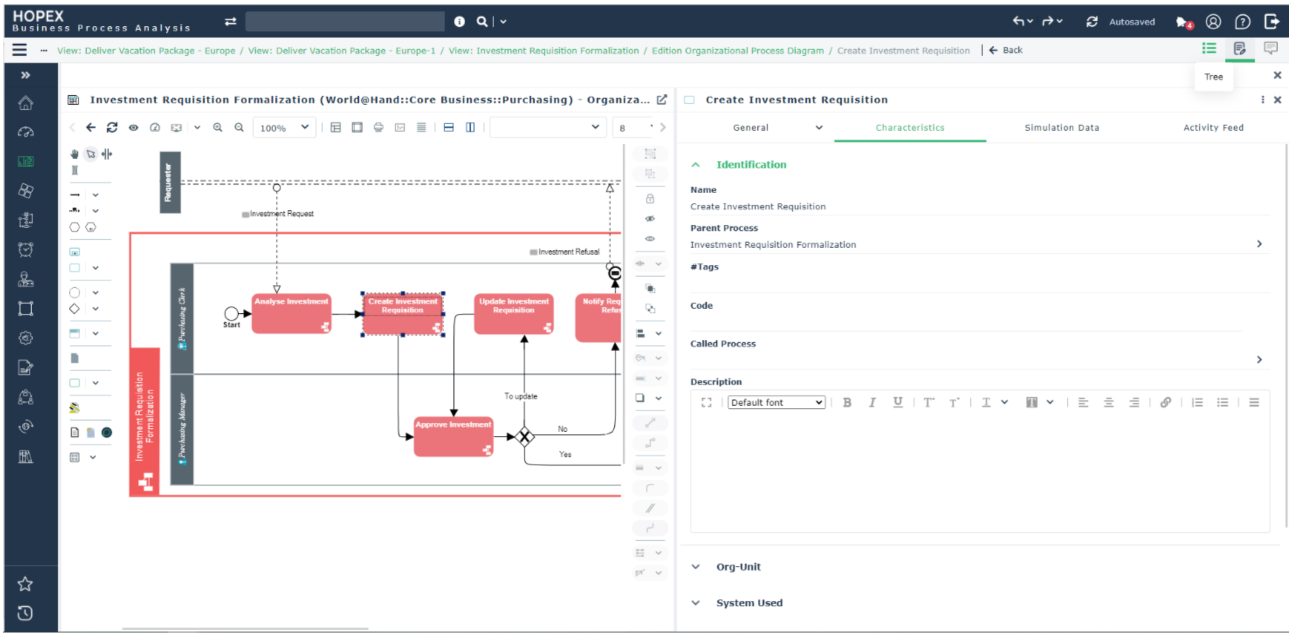


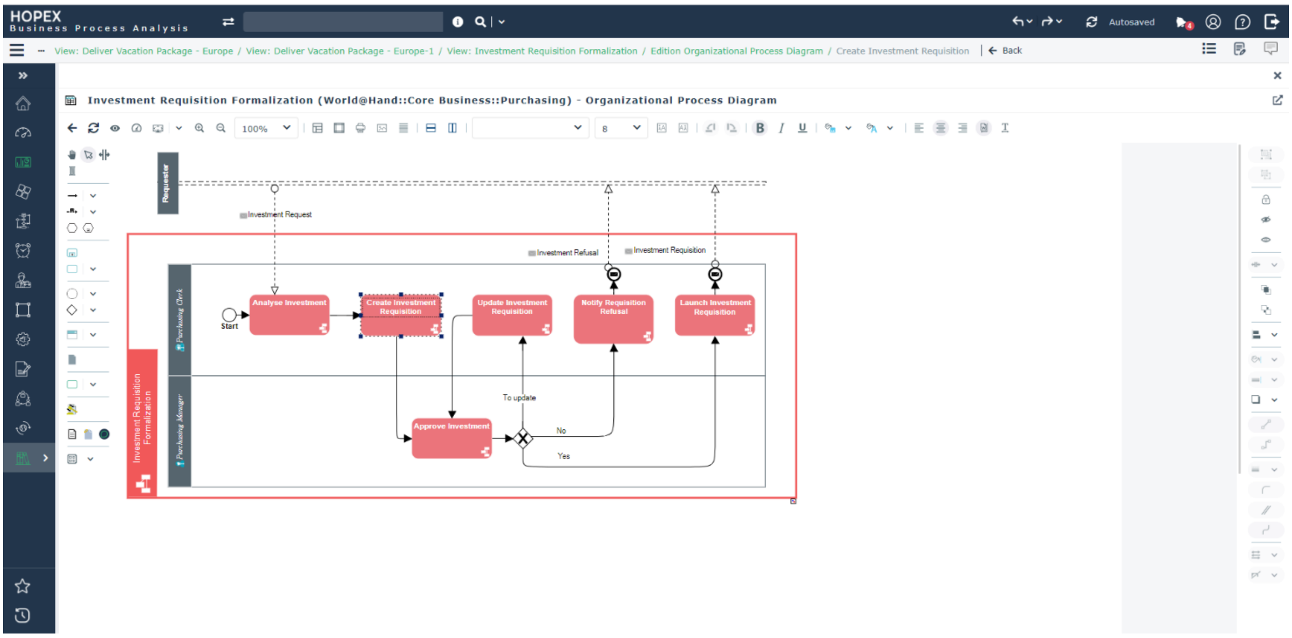


The properties of the diagram in edit mode will open the properties panel to your right. You have the possibility to close the property panel if it is no longer needed.

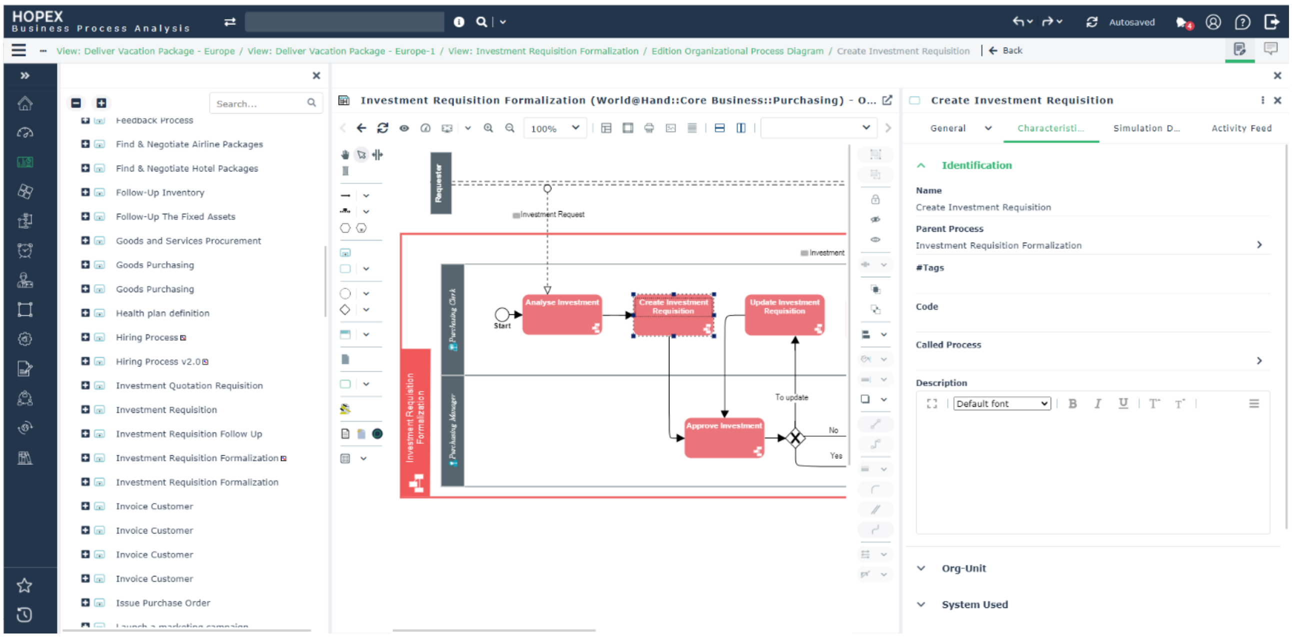


By default, the tree is hidden when you open properties of diagram in edit mode to have more space to edit diagram and view its properties.





If you want to display the Tree to drag & drop objects, select the contextual icon which appears on toolbar only when the tree is hidden.



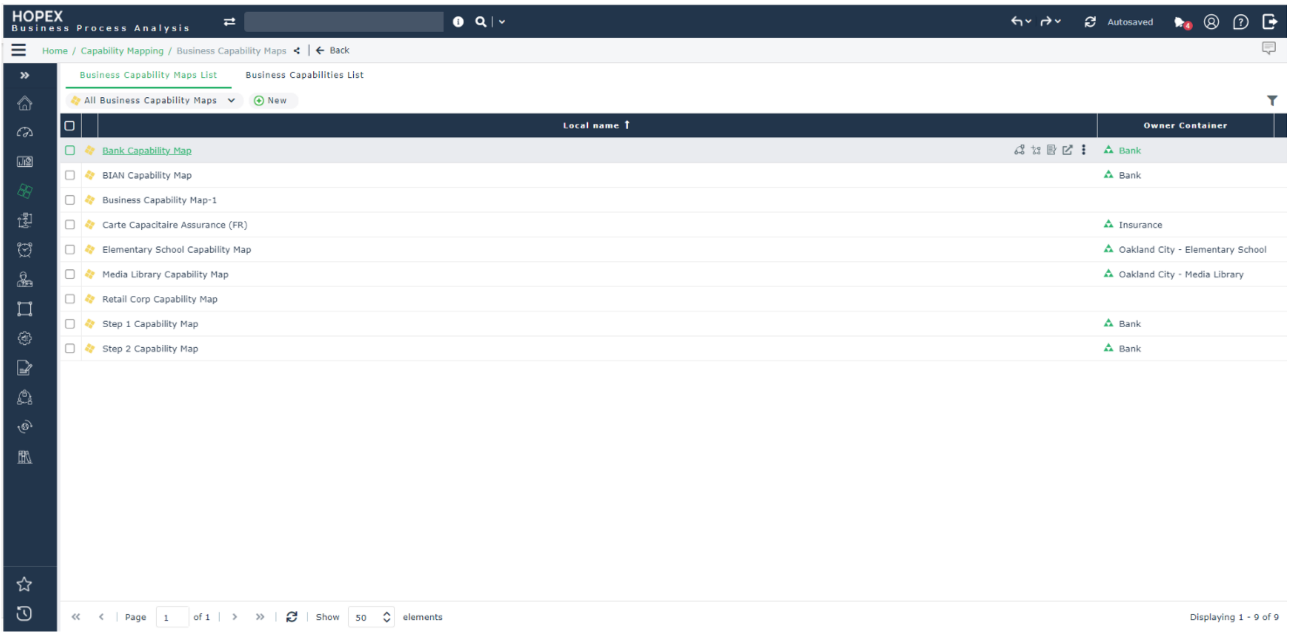
12.1.8. Navigation menu

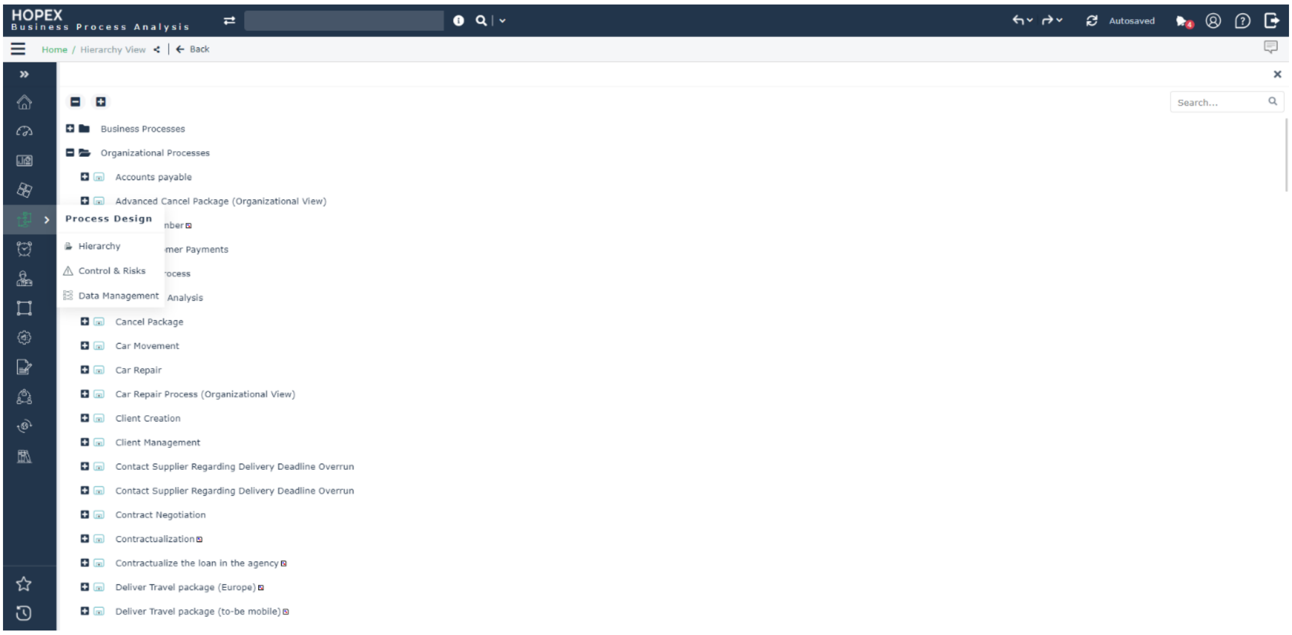
The navigation menu provides access to all content and key features of HOPEX.

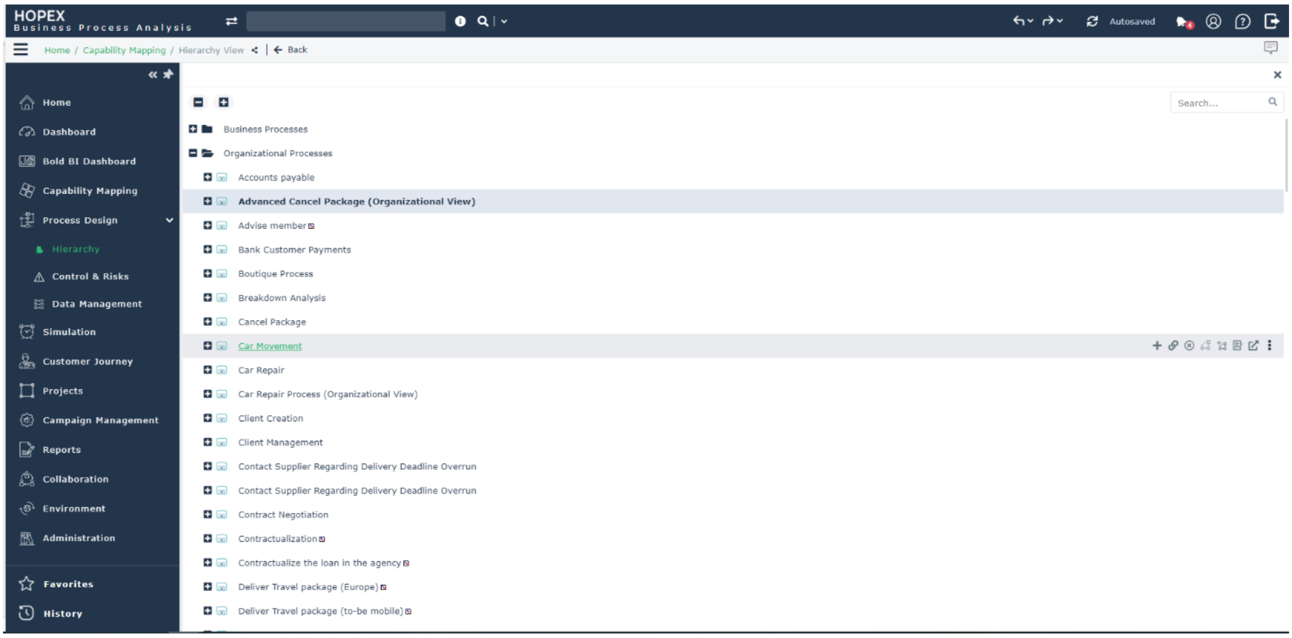
Hovering on any navigation menu icon shows the name of the menu item & displays the sub-menu items if there are any.

All icons have been converted to monochrome icons to make it lighter and the selected icon is displayed in green.

When the user opens any menu item from navigation menu, the menu will collapse by default and the corresponding Lists / Tree will appear in the main panel.


HOPEX
Business Process Analysis
Autosaved
Home / Capability Mapping / Business Capability Maps
Back
Business Capability Maps List
Business Capabilities List
All Business Capability Maps
New
Local name
Owner Container
Bank Capability Map
Bank
BIAN Capability Map
Bank
Business Capability Map-1
Carte Capacitaire Assurance (FR)
Insurance
Elementary School Capability Map
Oakland City - Elementary School
Media Library Capability Map
Oakland City - Media Library
Retail Corp Capability Map
Step 1 Capability Map
Bank
Step 2 Capability Map
Bank
Page 1 of 1
Show 50 elements
Displaying 1 - 9 of 9

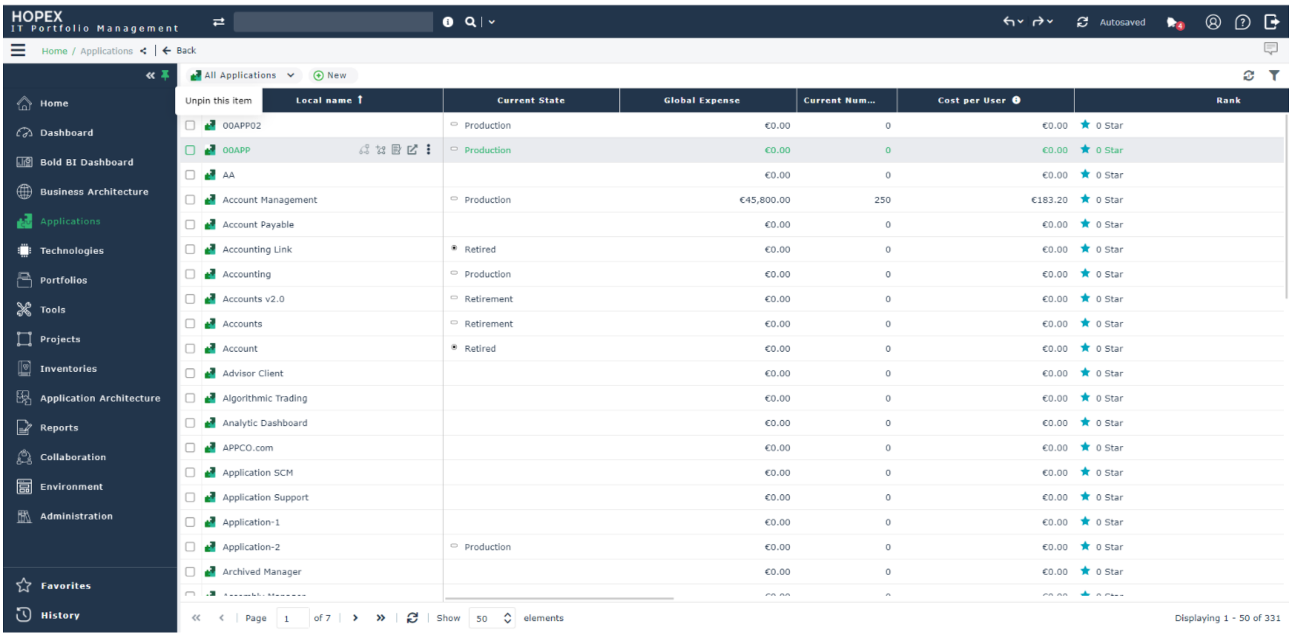

HOPEX
Business Process Analysis
Autosaved
Home / Hierarchy View
Back
Search...
Business Processes
Organizational Processes
Accounts payable
Advanced Cancel Package (Organizational View)
Process Design
Hierarchy
Control & Risks
Data Management
Cancel Package
Car Movement
Car Repair
Car Repair Process (Organizational View)
Client Creation
Client Management
Contact Supplier Regarding Delivery Deadline Overrun
Contact Supplier Regarding Delivery Deadline Overrun
Contract Negotiation
Contractualization
Contractualize the loan in the agency
Deliver Travel package (Europe)
Deliver Travel package (to-be mobile)

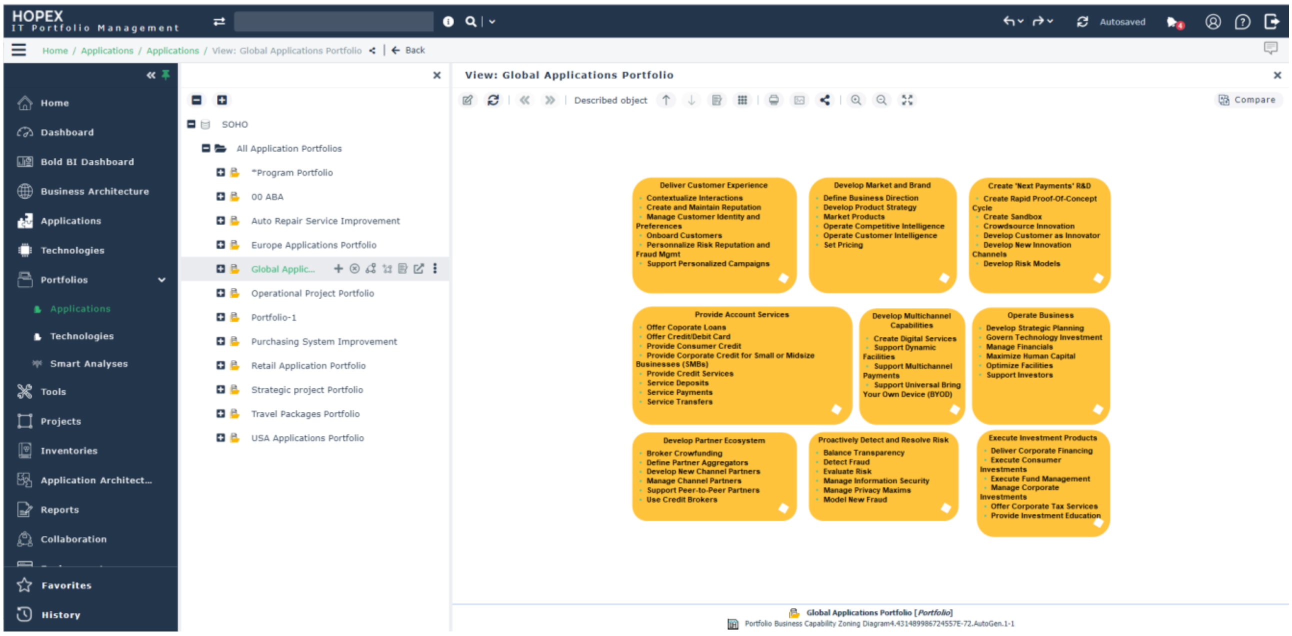


12.1.9. Pin the navigation panel

By default, the navigation panel collapses as soon as you select any of the navigation panes. Pinning the navigation panel prevents it from collapsing.

This pin action is saved until you relaunch the application.



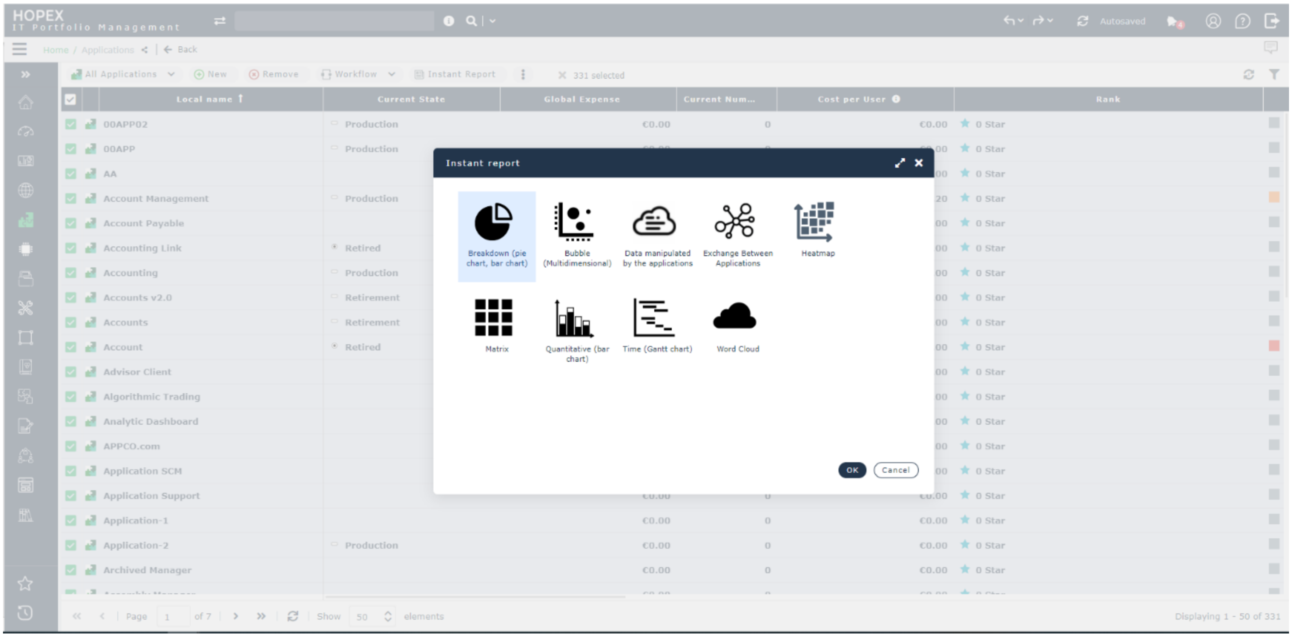


12.1.10. Browser back button

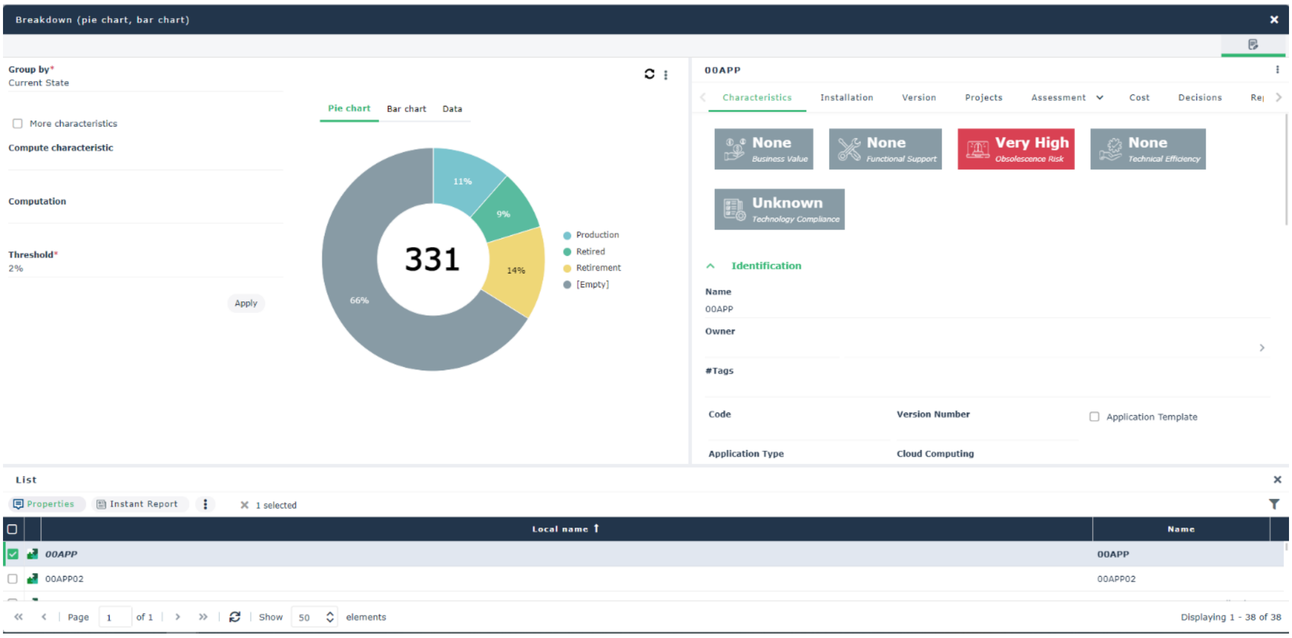
The browser back feature is now supported allowing the user to go back to the initial home screen.

12.1.11. Instant report

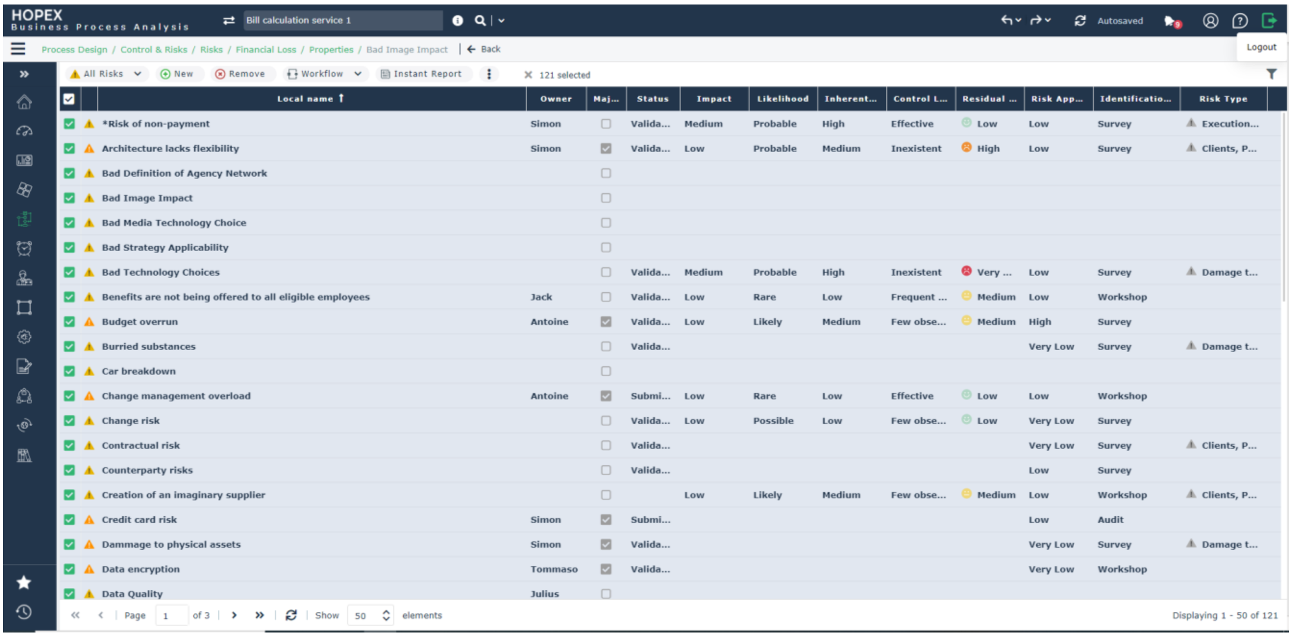
Available from a selection of items in a list, the Instant Report opens in full screen mode for maximum visualization comfort.



Once generated, individual records making up the report can be seen at the bottom, and the details on a specific record in the right panel once the property icon has been selected.

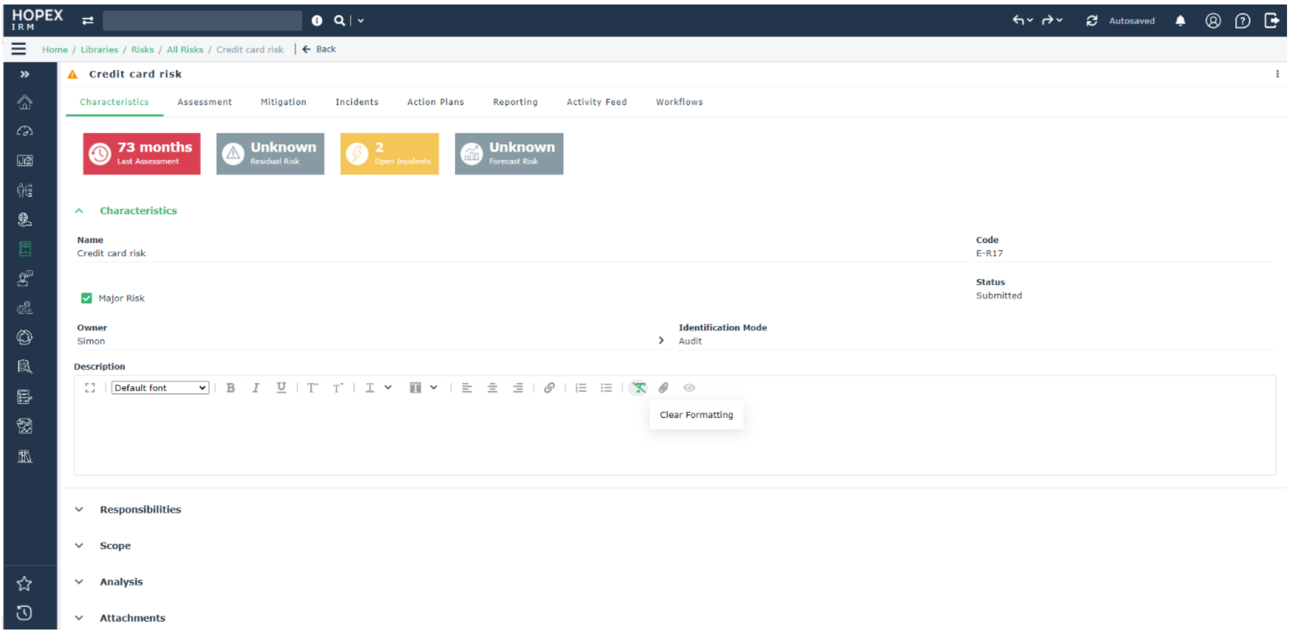


Closing the Instant Report reverts back to the initial list used to generate the report.



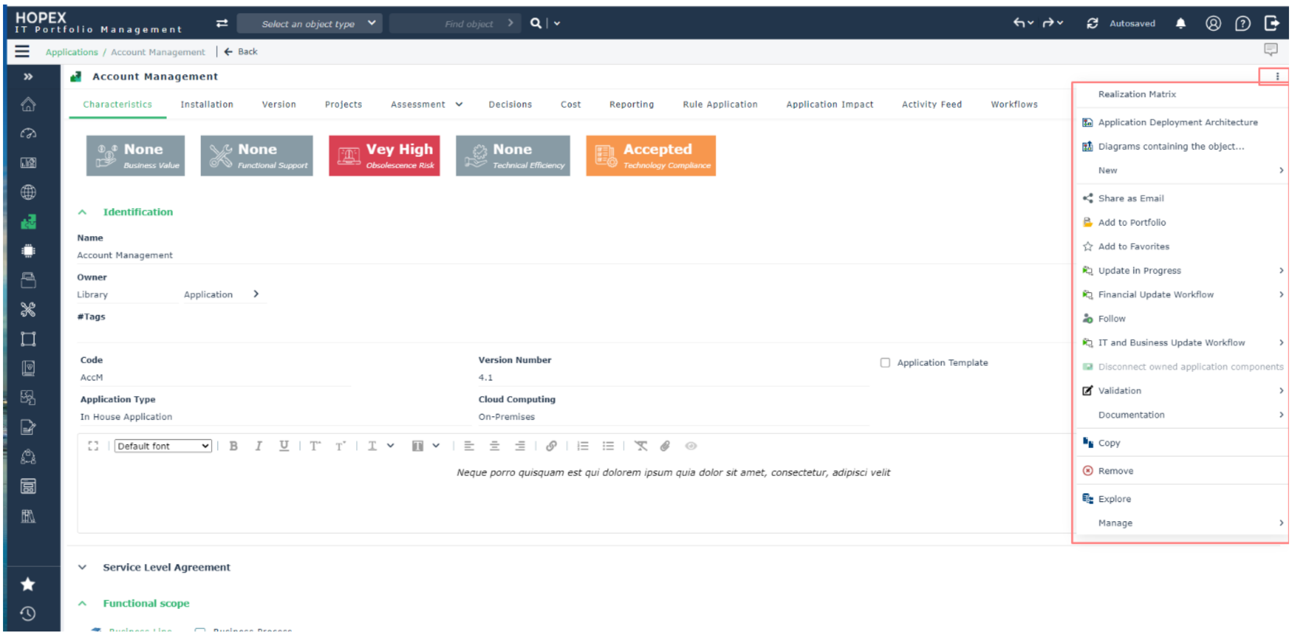
12.1.12. Tabs on property page

Property pages present several tabs grouping the details by themes.



12.1.13. "More" on properties header

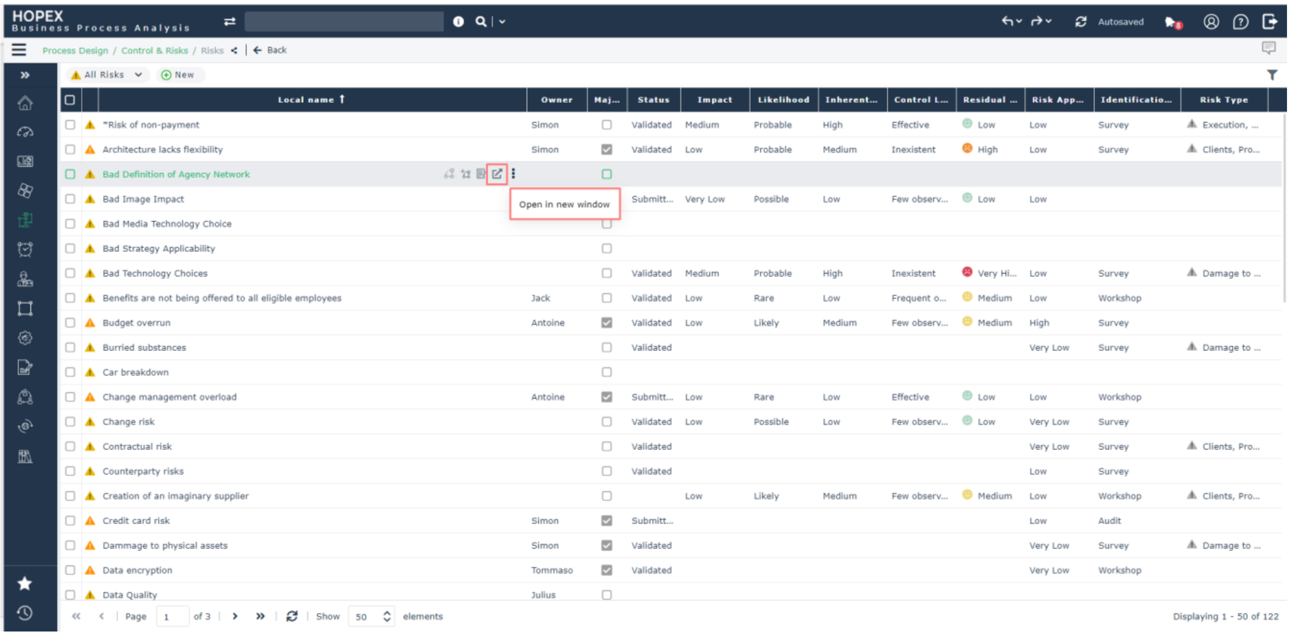
There is a "more" shown by " ⋮ " on the right of the properties header launching a contextual menu with additional features depending on the object and the context.

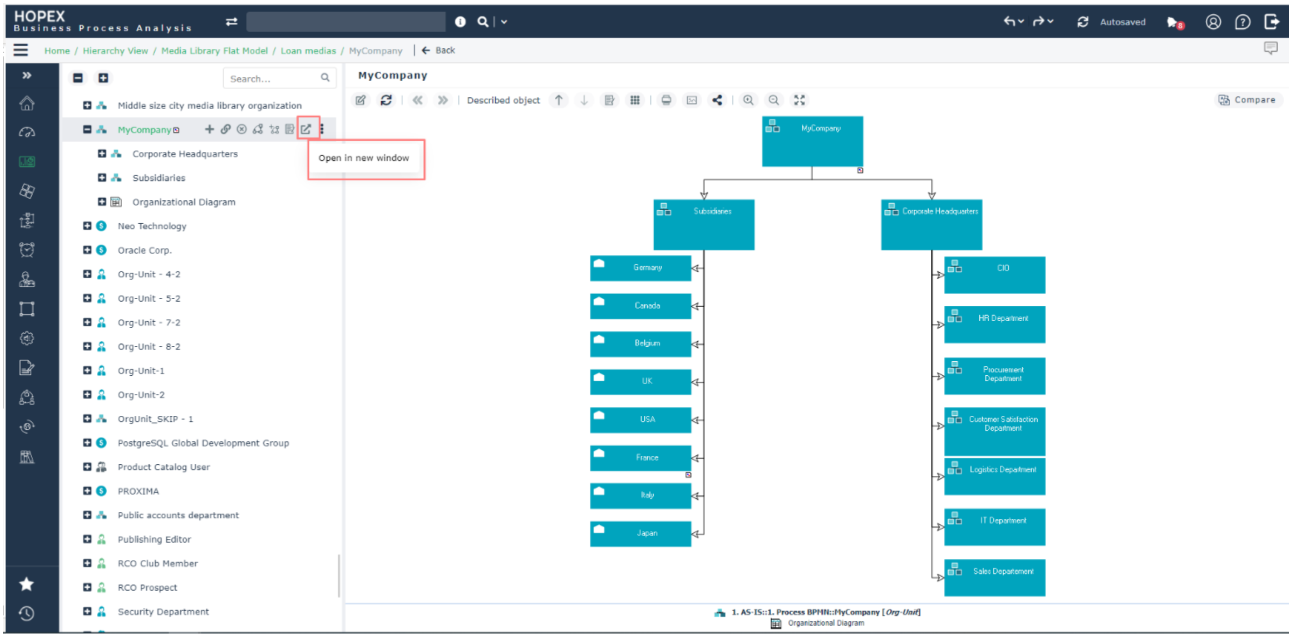


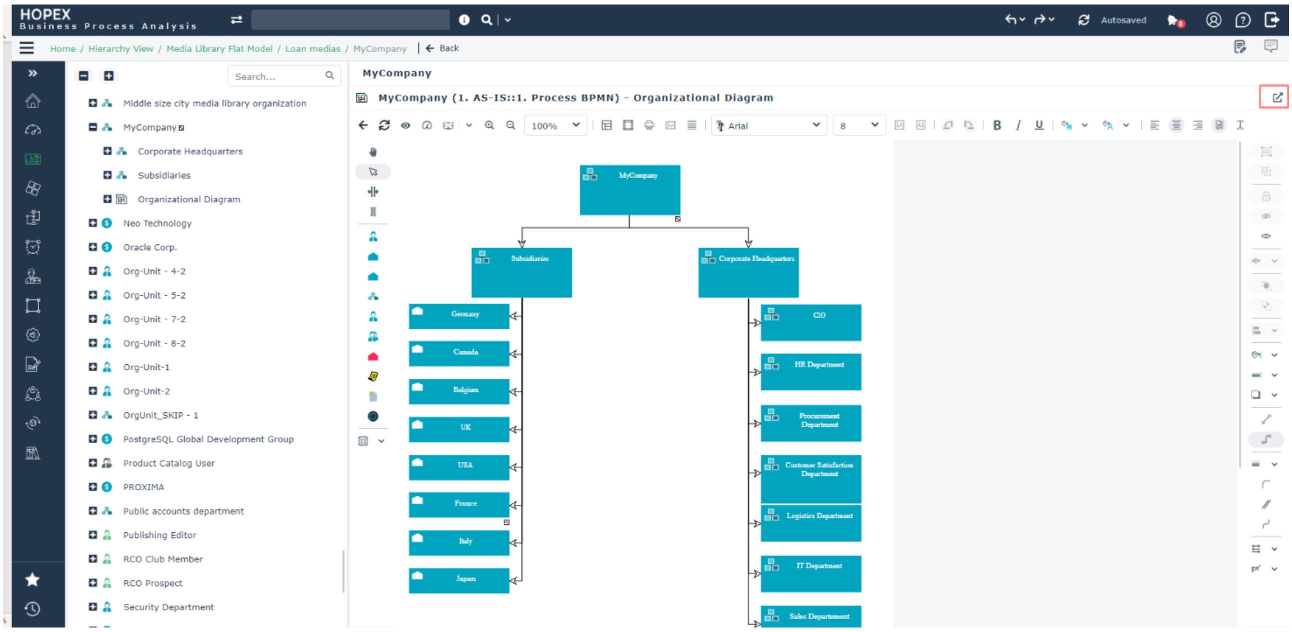
12.2. Open objects in multiple browser tabs

To facilitate the side-by-side work either on the same screen or on different screens it is possible to open a property page, a diagram, or a report on a separate browser tab.

This is done using the "open in new browser" icon. This icon is available on both the object's floating toolbar and on the toolbar of the diagram itself.

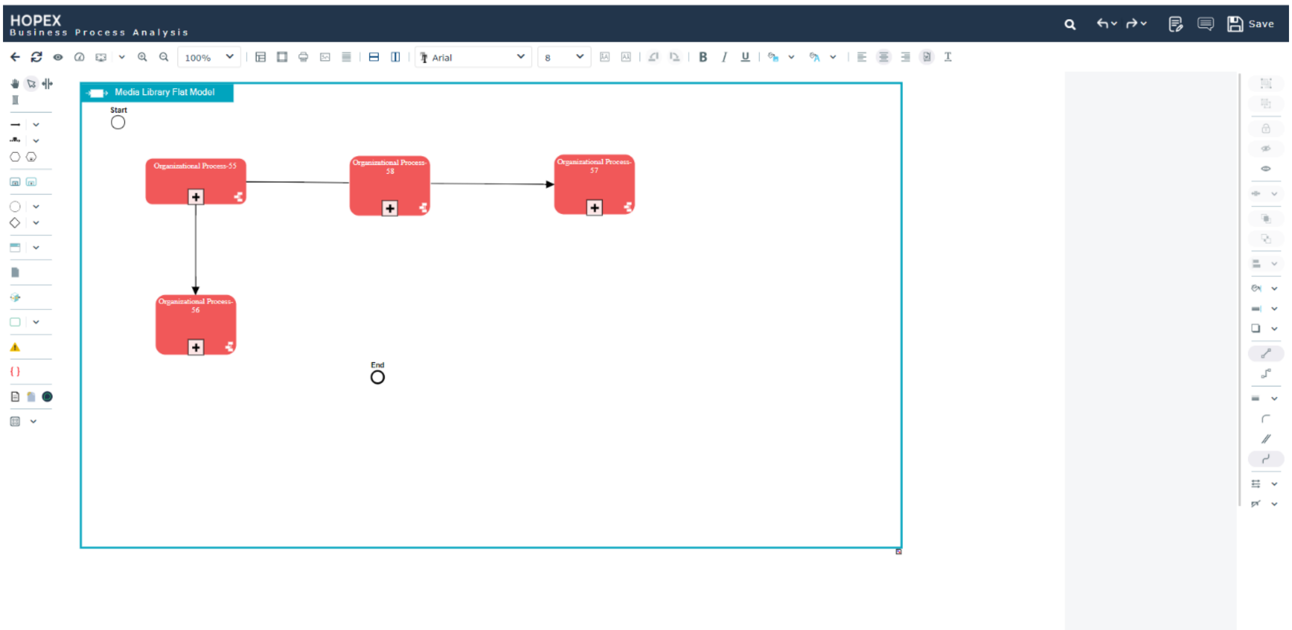

HOPEX
Business Process Analysis
Process Design / Control & Risks / Risks
All Risks
New
Bad Definition of Agency Network
Open in new window
Displaying 1 - 50 of 122


HOPEX
Business Process Analysis
Home / Hierarchy View / Media Library Flat Model / Loan medias / MyCompany
MyCompany
Open in new window
Corporate Headquarters
Subsidiaries
Organizational Diagram

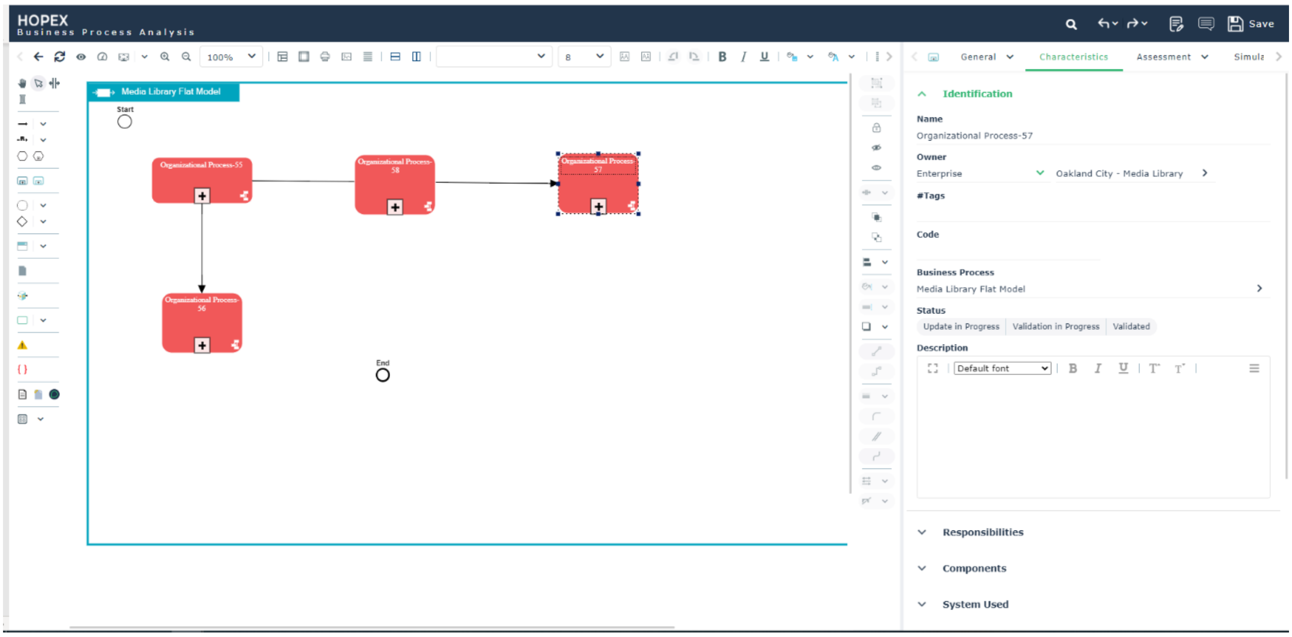


When using the new browser tab:

- if the selected element is a regular object (meaning not a diagram), the new tab displays by default the property page of the object
- If the source is a diagram, the new tab will display the diagram itself as shown below...

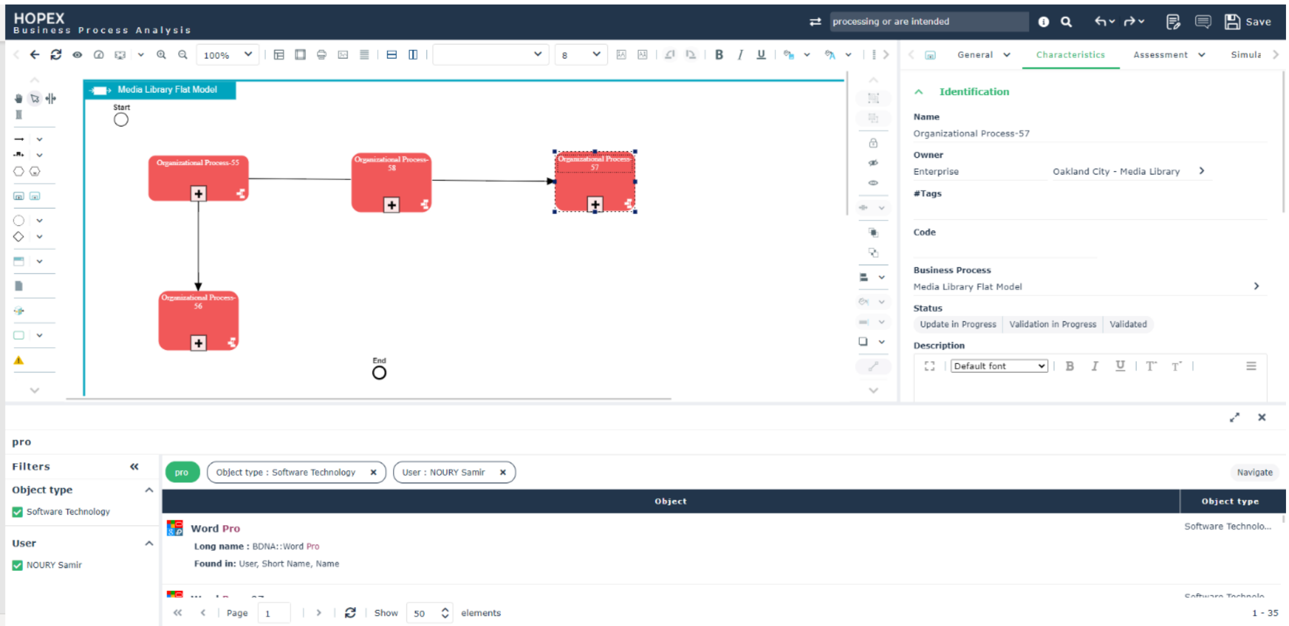


... with the ability on the top tool bar to display properties and add comments as previously seen on the main application page.

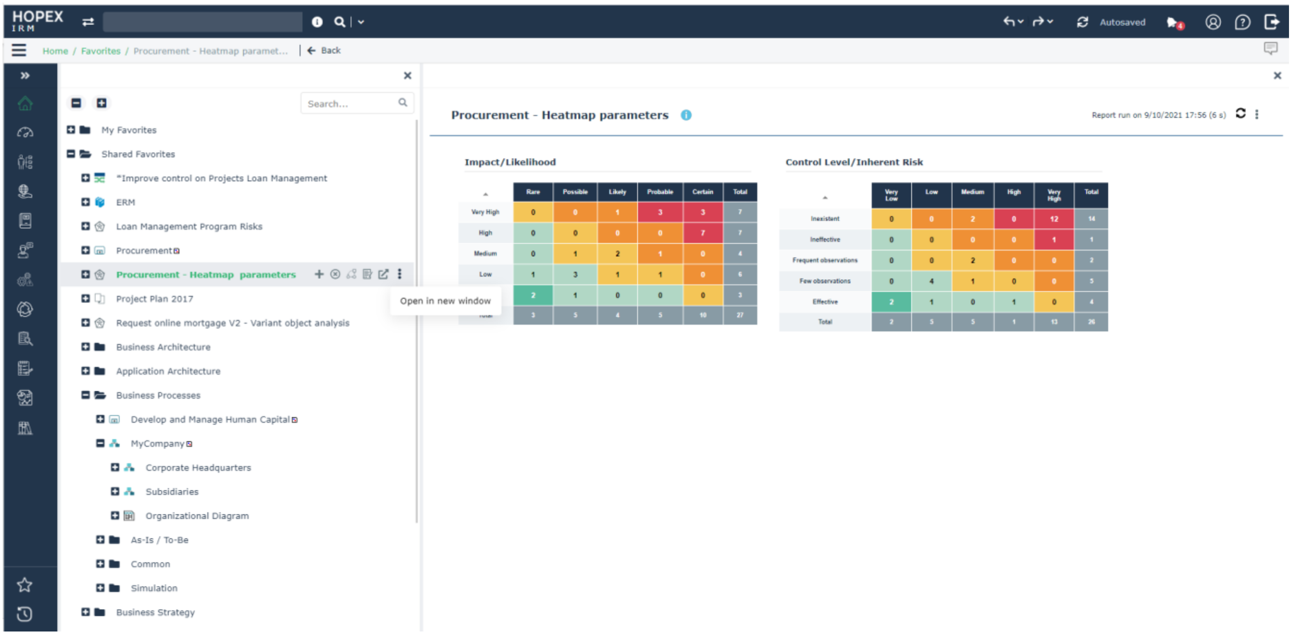


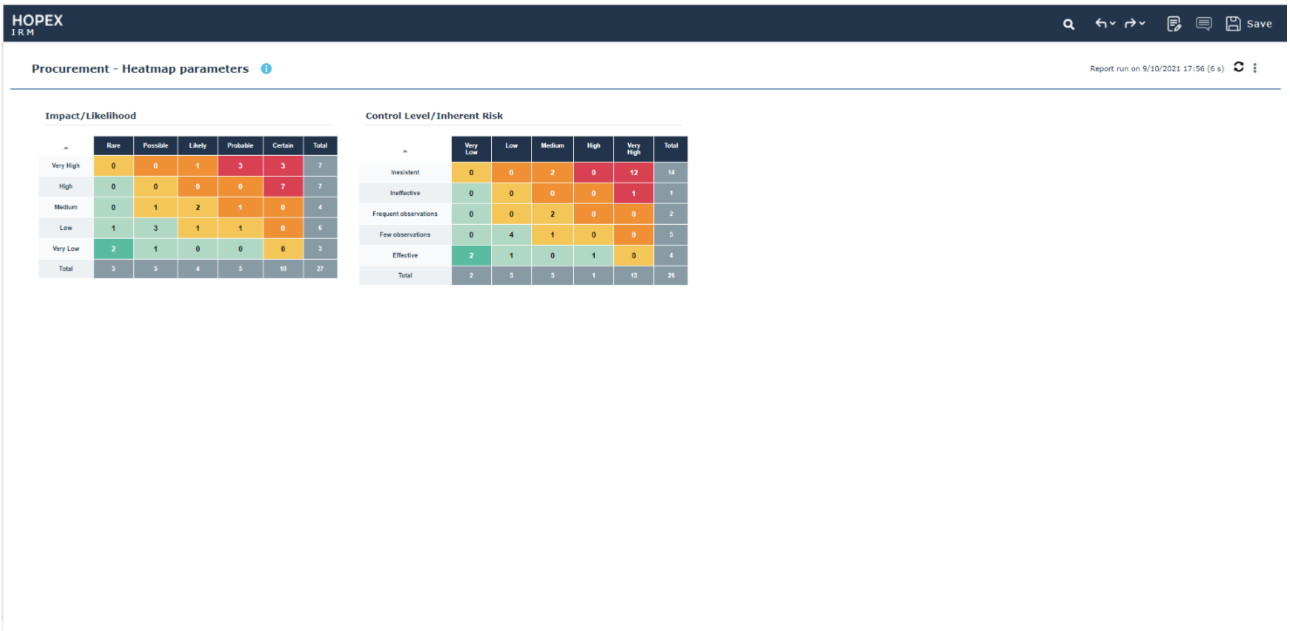
The detached browser tab provides access to regular search capability on top to quickly drag & drop objects in properties or inside the diagram.

<u>Remark</u>. There is no Tree available on this new browser page for the moment. The search is the only way to look, find and drag & drop an object onto the diagram.



You can also open a report inside a new browser tab by using the floating toolbar. In this case the view will be quite minimalist.





12.3. Multi-combo Box improvements

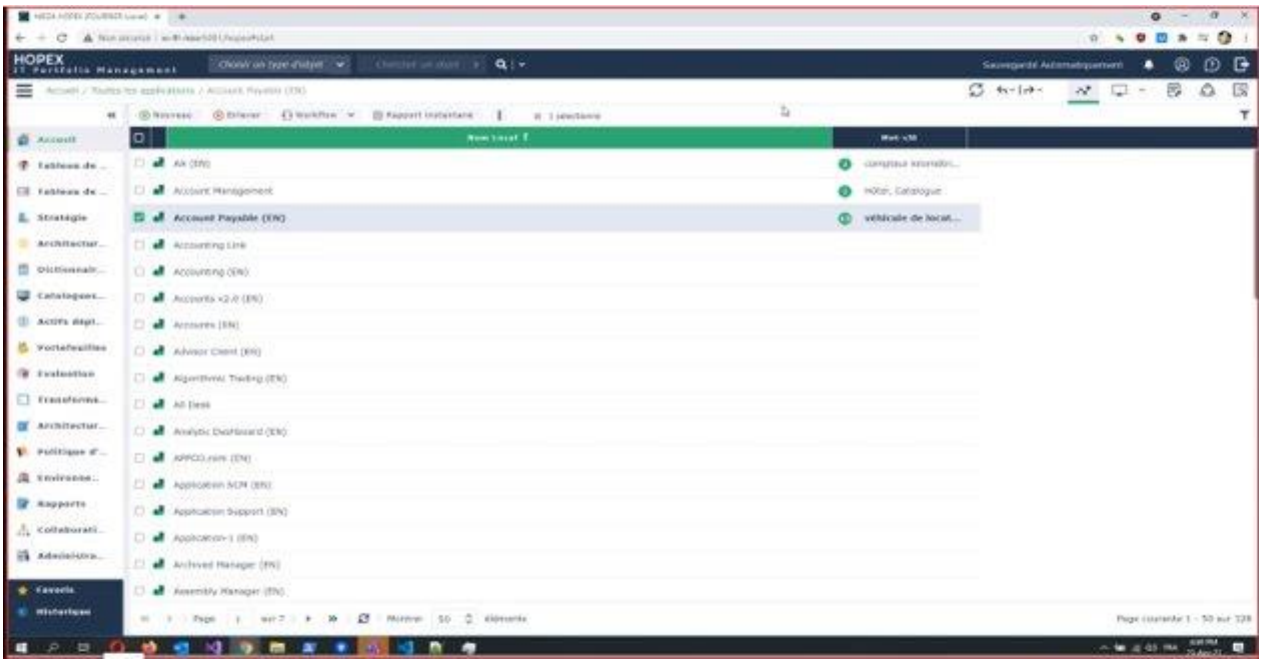
Multi-combo boxes are used in several places inside HOPEX, to perform multiple selection of objects.

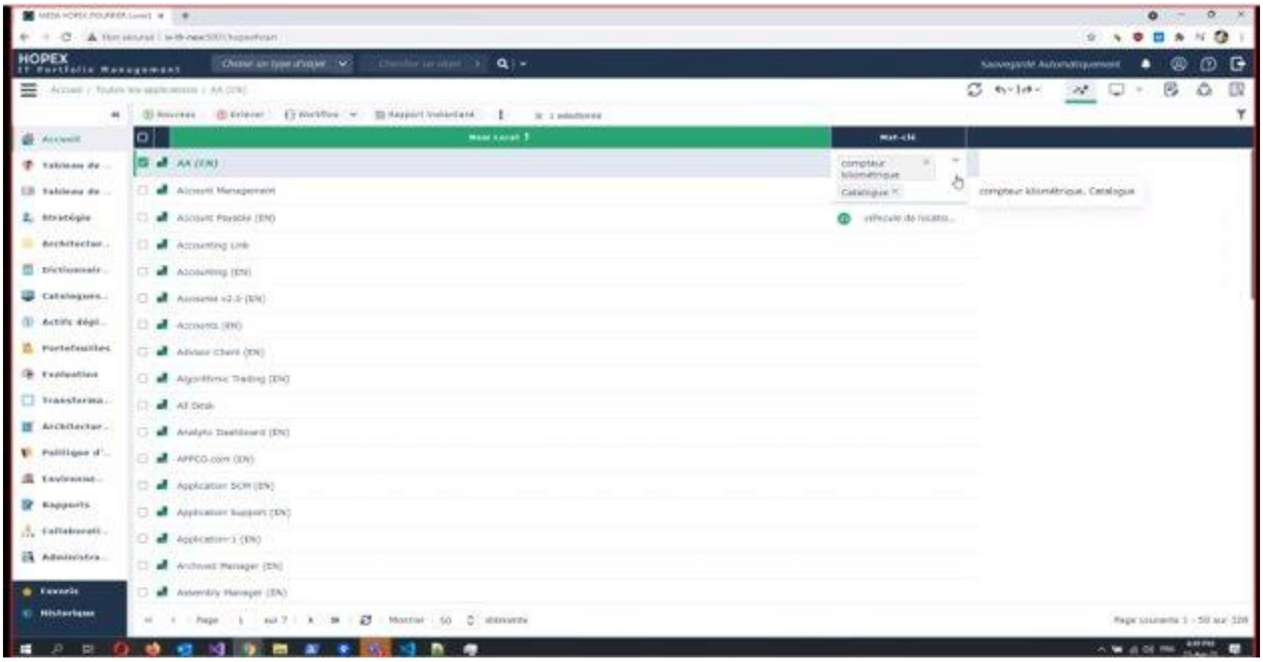
After "N" items are selected, and the multi-combo box is not in focus, the input field displays as many items as possible in the available space. Not all selected items can be displayed at the same time because the space is limited to the size of the input field.

If more items have been selected, an [n] More labels indicate the number of hidden items.

Possibility to switch from count number to list in the table. Users can edit the fields directly on lists without searching for the attribute in property page.

Sub-Entities
Processes
Legal Aid 0 0
Legal Entity 0 0
Librarian 0 0
Library director 0 0
Manager 0 0
Media Library Member 0 1
Media library organizational environment 0 0
Middle size city media library organization 0 1
MyCompany 2 1
Corporate Headquarters 9 0
Subsidiaries 9 0
Belgium 2 11
Properties
Brazil 0
Canada 2 2
France 3 12
Germany 2 2



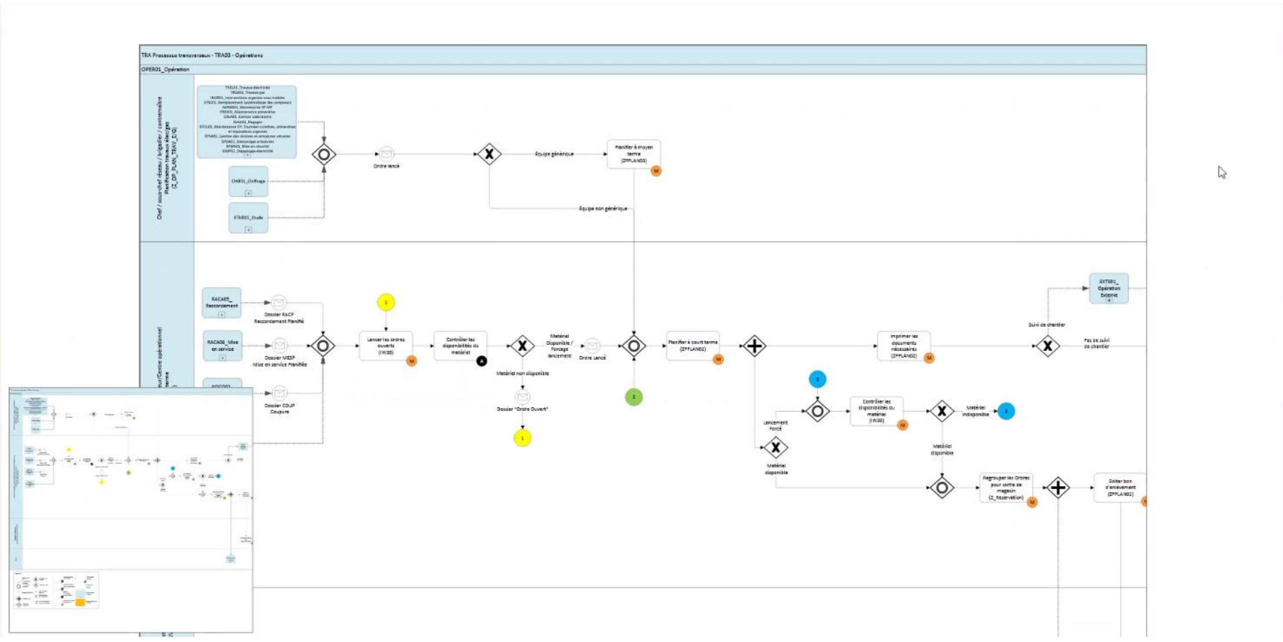


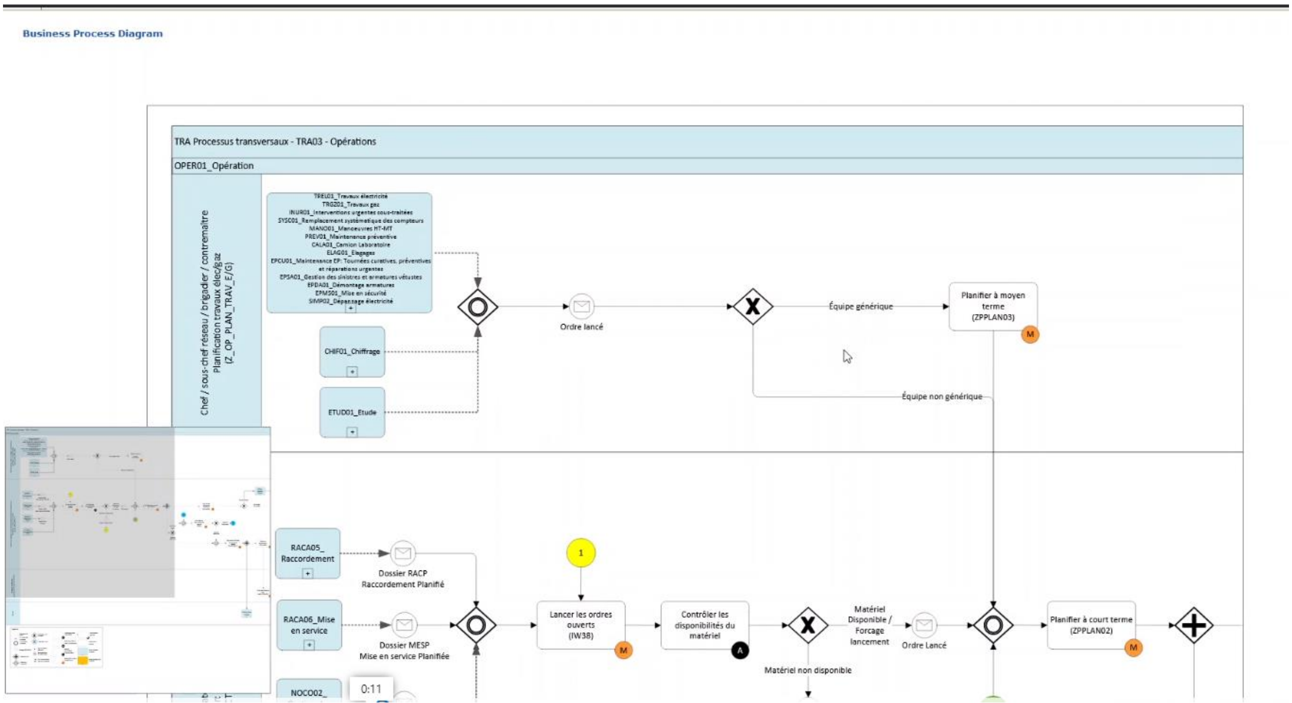
Parameter to use: Param (Display=Count)

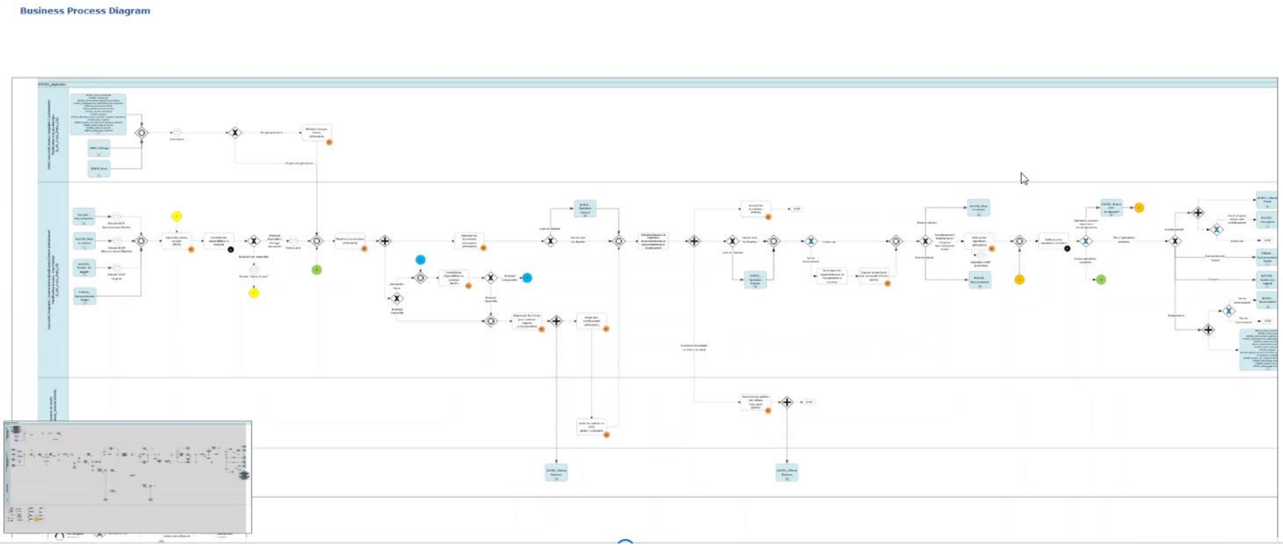
You can use any one among three types of parameters available. : Count, Text, Count and Text

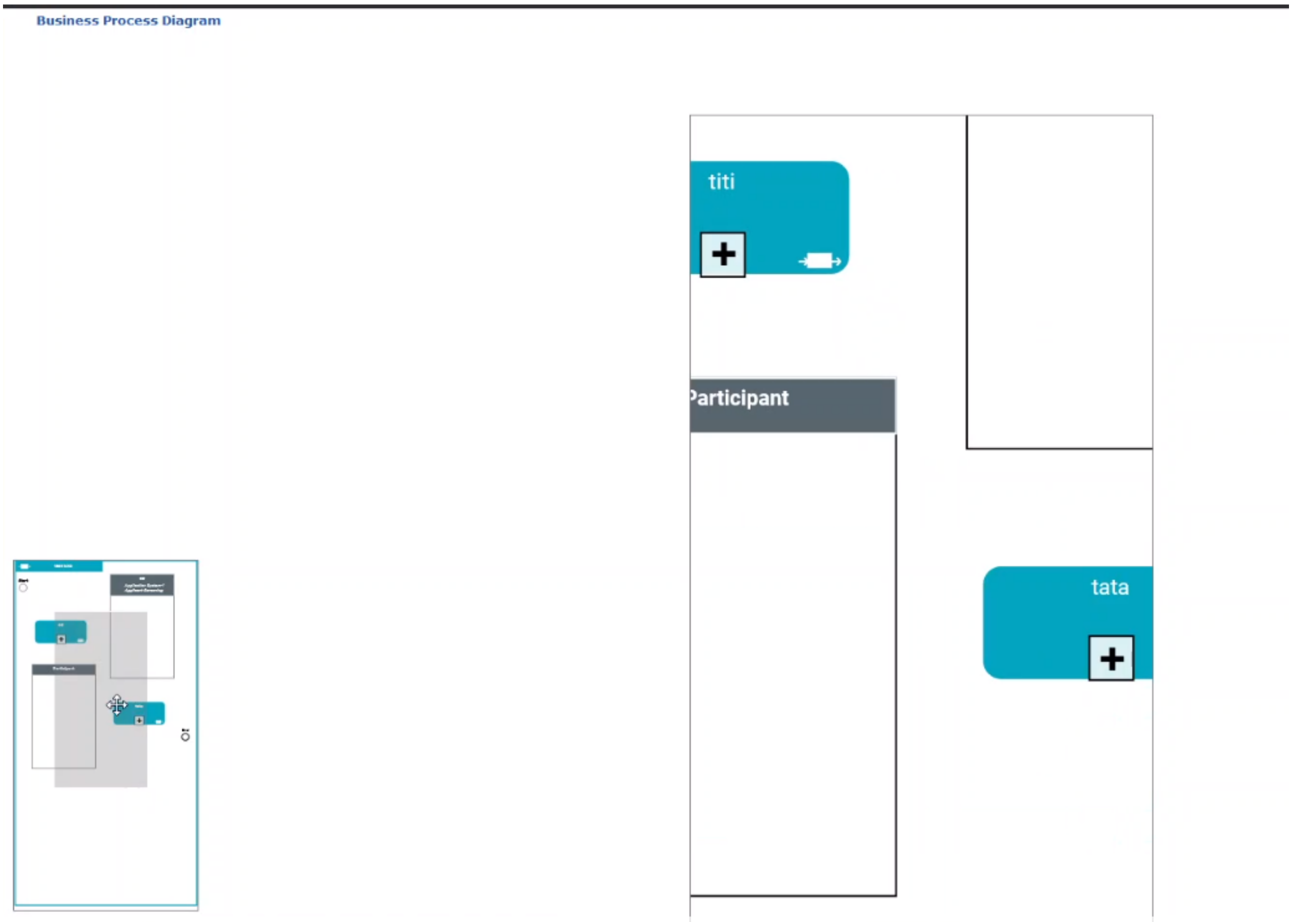
12.4. Clickable SVG diagrams in static websites

You can now click & zoom inside the diagrams generated in SVG format.






Business Process Diagram


Business Process Diagram
titi
Participant
tata

12.5. Style sheet enhancements

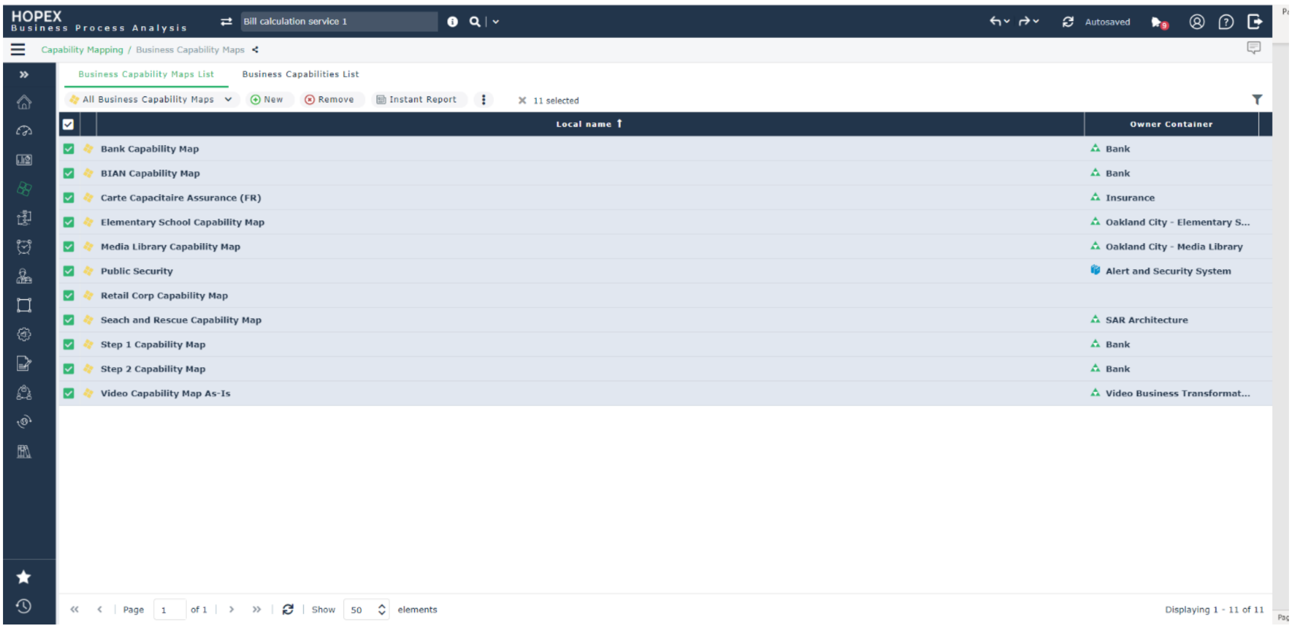
Various changes have been made to the style sheet (colors, contrast, thickness...) to provide comfort to the eye and to bring attention to important elements but in a soft manner.

- Scrollbars will now show up on focus & on hoover will expand
- Tabs UI is enhanced
- Review notes UI are modernized
- Overall font size and line height is reduced
- Focus on input fields is improved
- Background color of panel headers has been removed
- Background color of groups has been removed
- Lists show more rows as the font & line heights are reduced while maintaining sufficient line spacing

12.6. Selection of items inside a list

When selecting items in a list the top toolbar will only show relevant action buttons. The action buttons include text to be fully comprehensible.

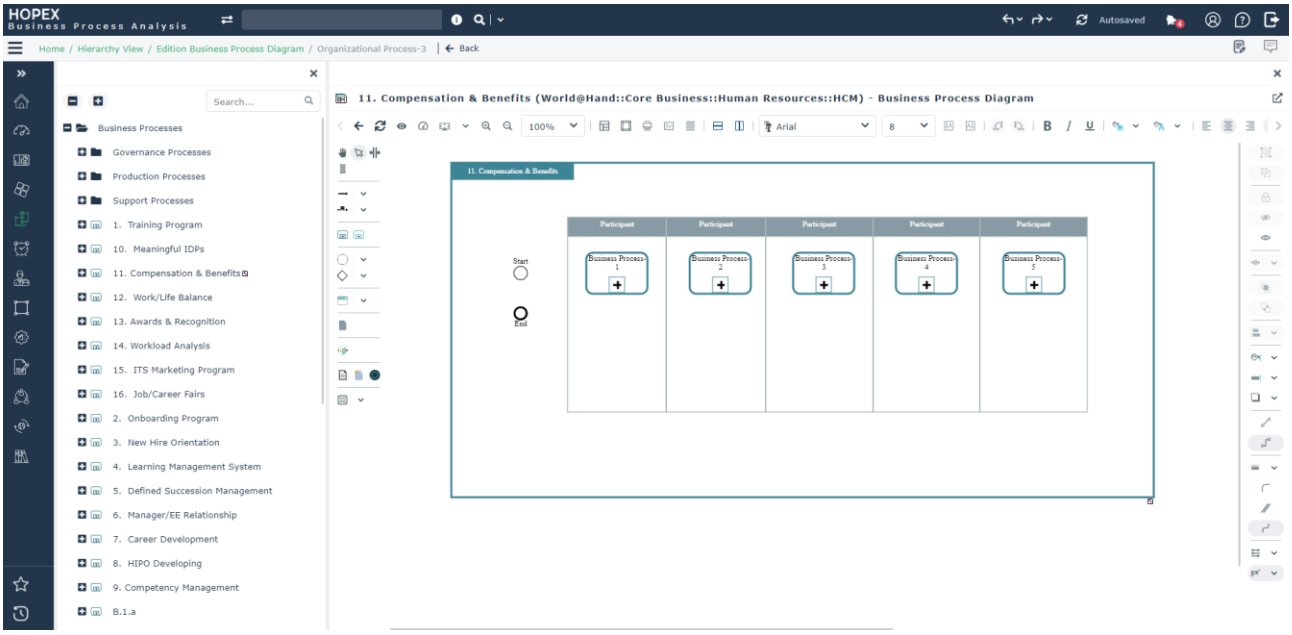
Also, the number of selected items is shown along with the ability to cancel the selection in one single click (x).



12.7. New process participants now follow orientation

A Participant is a swim lane in a process. When adding a participant from the Intellibar then the orientation of the participant will match the general layout of the process itself (horizontal or vertical).

The orientation of the diagram is automatically saved for each diagram and is no longer a global option.

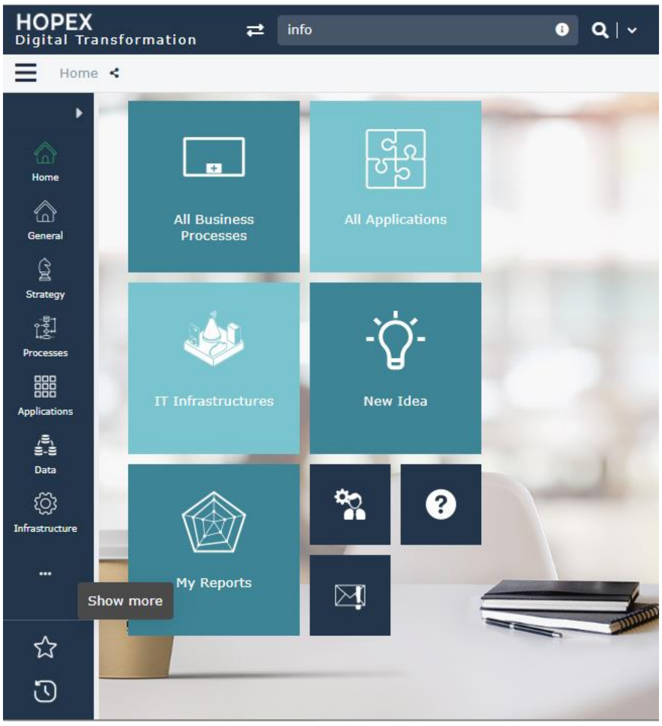


12.8. Unified 'Digital Transformation' Desktop

The Digital Transformation Desktop, accessible via the Digital Transformation Architect Profile

Update of the desktop to latest UI/UX standards

Level 1 menus names have been reviewed and reduced to one word as much as possible, to propose a lighter user interface



Integration of HOPEX IT Business Management (in replacement of HOPEX Business Architecture)

Integration of HOPEX for the ArchiMate® Framework

HOPEX Risk Mapper menus update

The Digital Transformation desktop is available out of the box and no longer requires a "solution pack" import

12.9. ‘Public workplace’ for all desktops

All desktops are switched to ‘public workspace’ except for HOPEX META Studio which stays in ‘private workspace’.

As a sample, the desktop of profile 'Enterprise Architect' switches to 'Public workspace'. This means that it is no longer possible to control discard, refresh, or dispatch of workspace. Modifications are public to all since they are done

S

13. Reporting

13.1. Create a report

13.1.1. Default Report Name

By default, the name of the report is now based on the Report Template Name.

13.1.2. Automatic opening of the report – #CP4

When creating a new report from a list of reports, the report is open once the parameters are filled in.

13.2. Save as Report

Saving a report no longer raises the question of parameters.

○ Bar Chart Reports

13.2.1. Removal of 0% labels – #CP4

0% labels that clutter the display and do not provide information are no more displayed.

13.3. Breakdown Report

13.3.1. Filters

Filters are automatically displayed or hidden according to the type of object displayed in the boxes. In this way only relevant filters are available.

From CP3, the behavior of the filters is slightly modified so that the filtering on components prevails over items:

- If a component is filtered it is not displayed even if it contains items
- If a component is not filtered it is displayed even if it does not contain any items
- If a component is displayed, the items it contains are also displayed unless they are filtered

▪ Items – #CP4

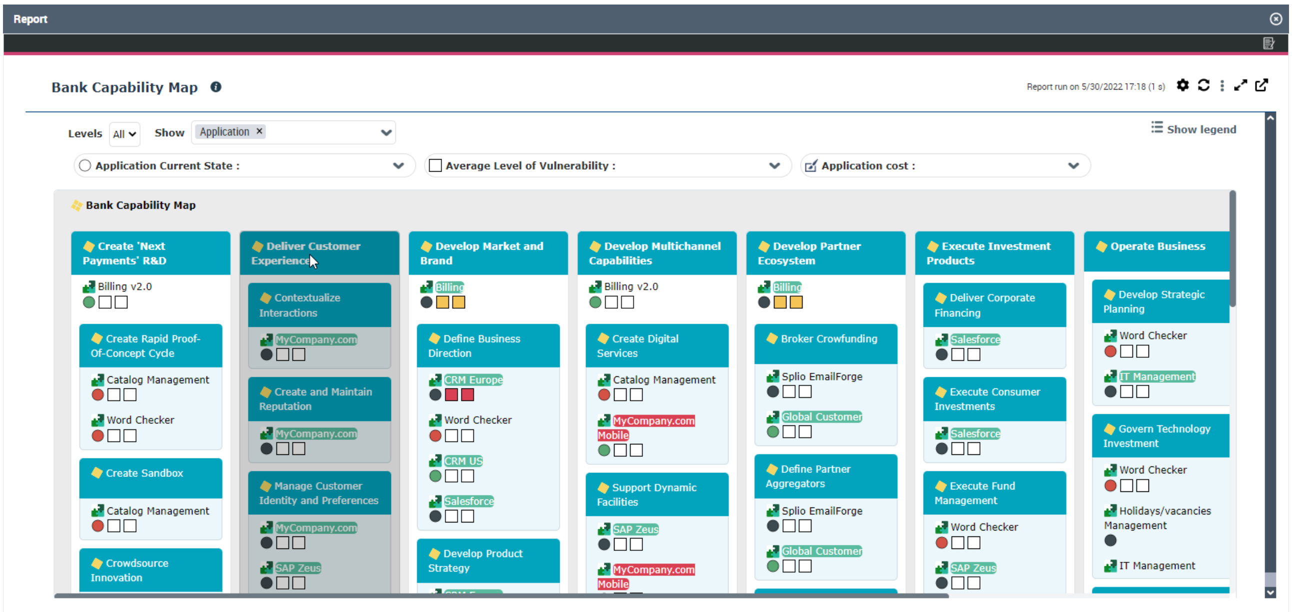
By default the items are automatically displayed when opened.

13.3.2. Show more

When there are many items to show in the available space, then “more” link allows users to load 10 more items so that users can see the items in progressive batches.

13.3.3. Look & Feel

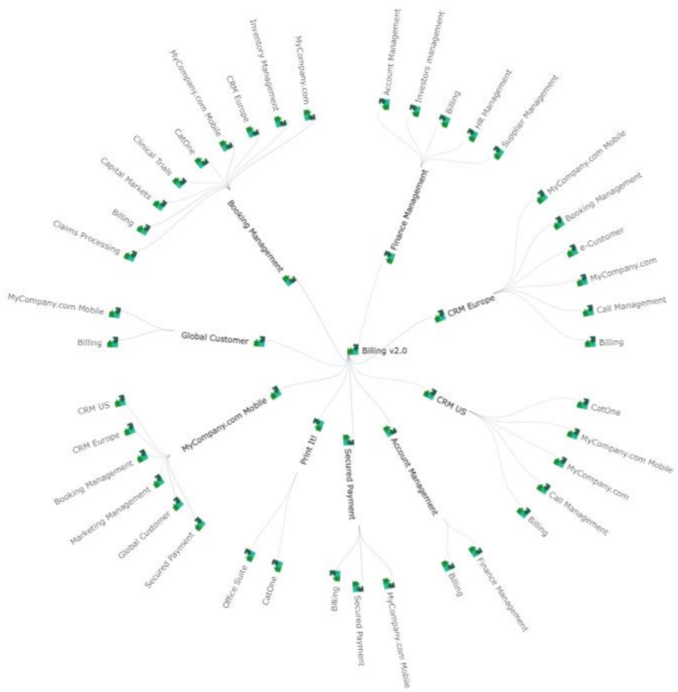
From CP3, the colors have been slightly revised and the boxes better highlighted.

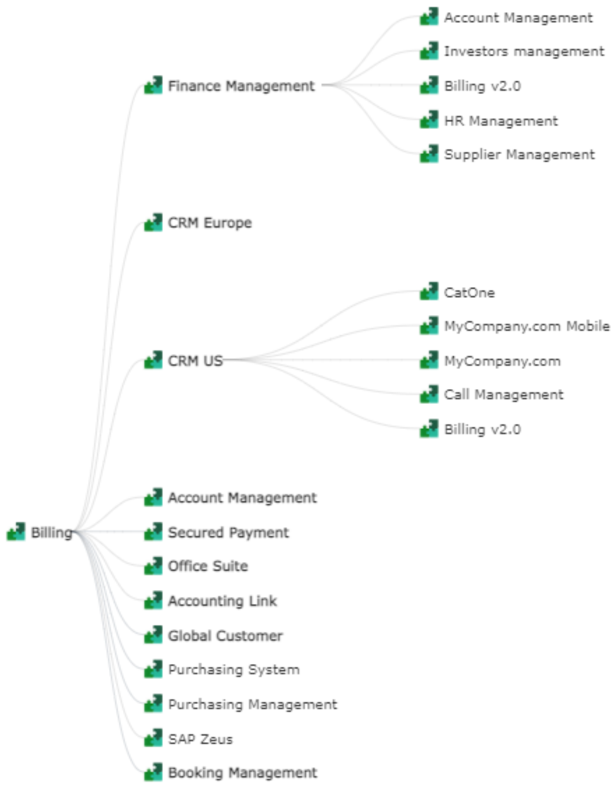


13.4. Dendrogram Reports

13.4.1. Style

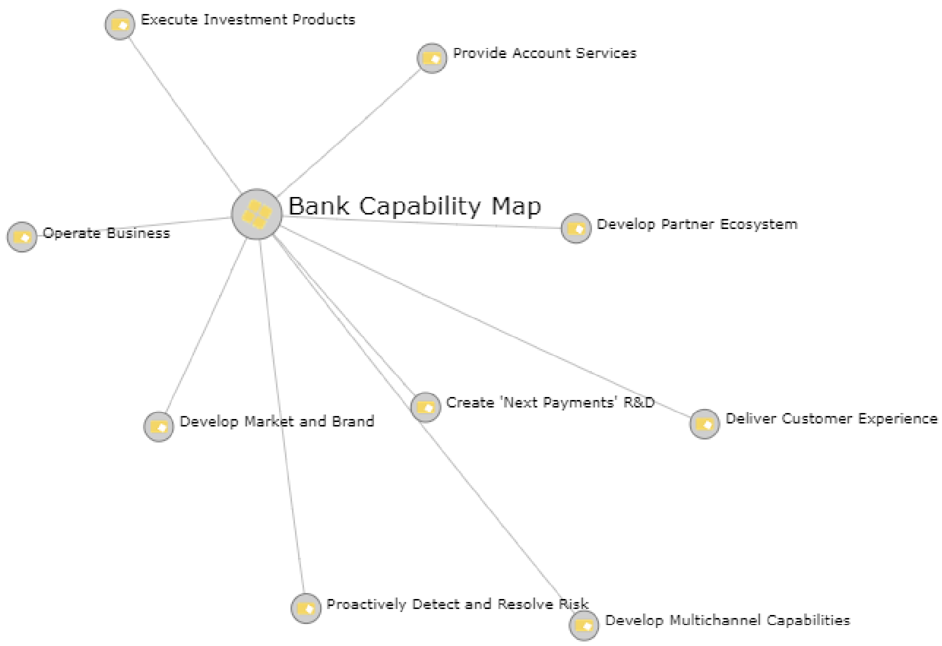
The readability of this rendering has been improved.





13.5. Graph Reports

The readability of this rendering has been improved.



13.6. TreeTable Reports

From CP3, the size of the arrows and the indentation have been slightly revised.

	Begin Life date	Cost	Current State
Bank Capability Map			
Create 'Next Payments' R&D			
Create Rapid Proof-Of-Concept Cycle			
Create Sandbox			
Crowdsource Innovation			
Develop Customer as Innovator			
Develop New Innovation Channels			
Develop Risk Models			
Deliver Customer Experience			
Contextualize Interactions			
Create and Maintain Reputation			
Manage Customer Identity and Preferences			
Onboard Customers			

13.7. Expand the Reports

Some reports are expandable and can be displayed in full screen:

- Dendrogram
- Graph

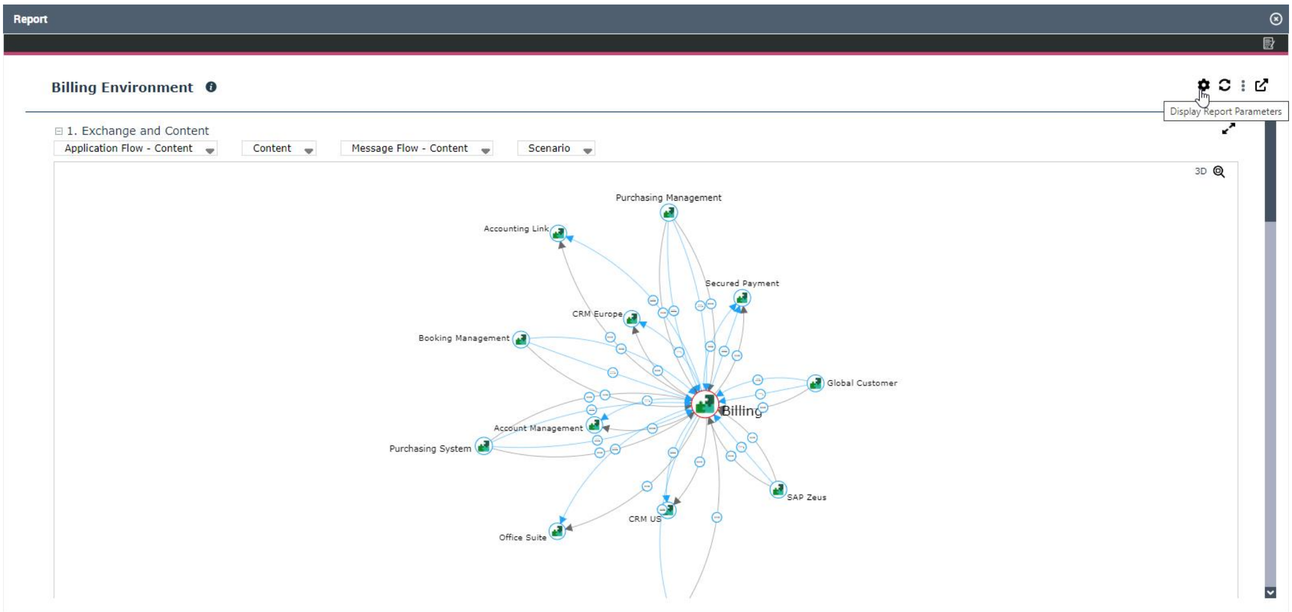
From CP3, any Report Chapter can be expanded.

13.8. Open Report in a new tab

From CP3, any Report can be open in a new tab of the browser.

13.9. Access to Report Parameters

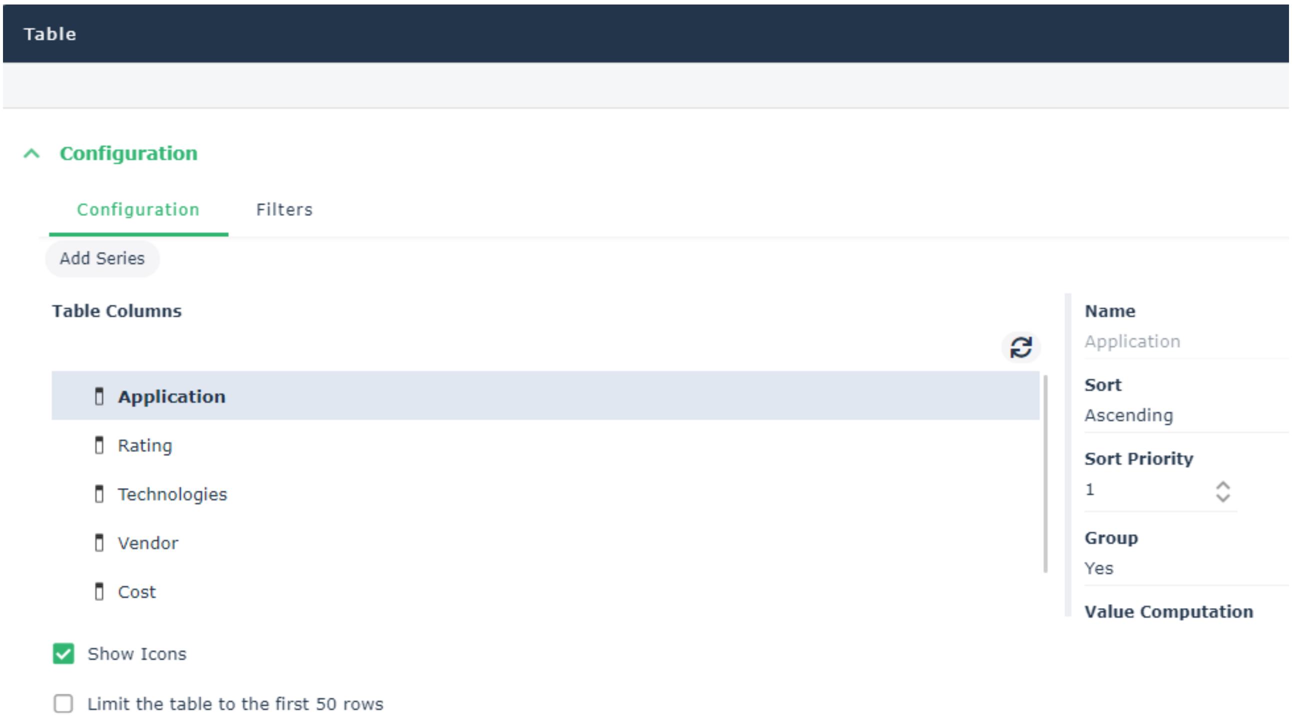
From CP3, when a report is displayed, it is possible to easily modify its title or parameters using a form accessible from a new 'Display Report Parameters' button.



13.10. Instant Reports

13.10.1. Matrix and Table type Instant Reports

From CP3, a new option enables to display the icons presented in the matrix or table.



13.11. Volume limits for Reports

13.11.1. Interaction Improvements

The reloading of reports has been limited so that the following actions do not trigger a refresh:

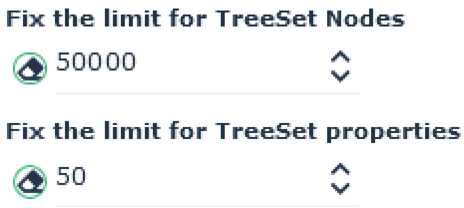
- switch to full screen

- filtering of the data displayed in the report
- Re-open the same report

13.11.2. Limits of GraphSet

Volume limits for GraphSets are available as parameters. These limits trigger a display for the end user.

13.11.3. Limits of TreeSet



13.11.4. Limit of TreeMaps

For readability reasons, the number of boxes displayed at a given level is limited to 100 and a message is displayed below the report if this limit is exceeded.

13.11.5. Limit of Dendrogram

The number of displayed objects is limited to 30 000.

13.11.6. Increase of Report DataSet Limits

13.11.6.1. Volume

The volume of a Report DataSet is now limited to 100k rows and 50 columns.

The cell text size is limited to 32767 characters

13.11.6.2. Export (CSV)

If the limit is reached this case file is not generated, a message warns the user that the limit is reached.

13.11.7. Increase of Matrix Report Limits

The volume of Matrices is now limited to 50k cells.

13.11.8. Supervision Alerts

Supervision Alerts have been added for Report DataSet, GraphSet, TreeSet.

Example:

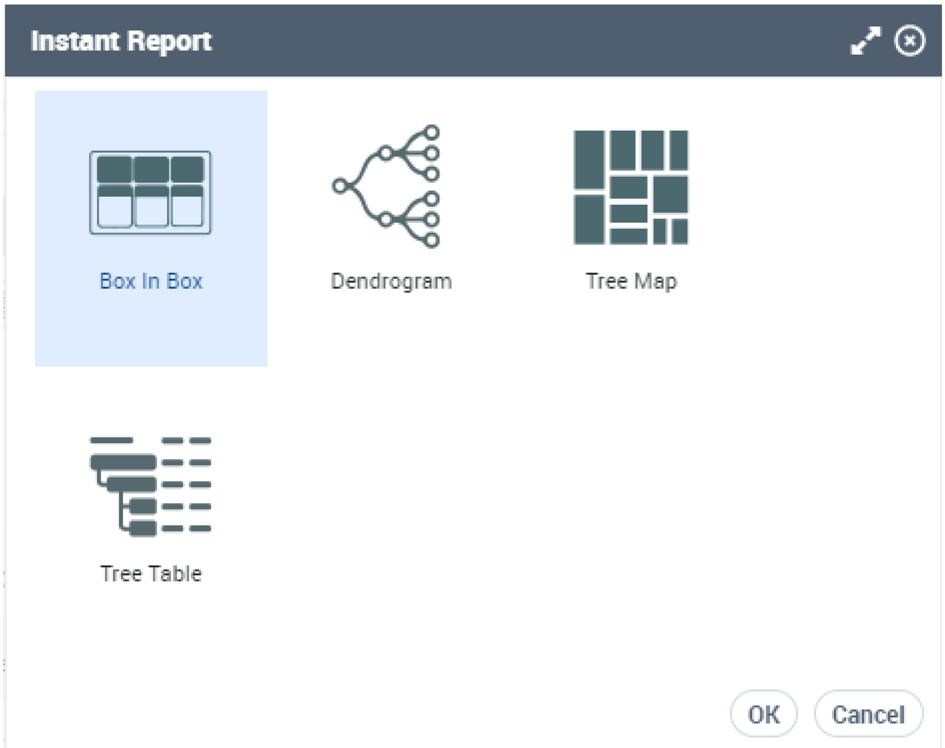
Report DataSet Generate (Alert): means that Report DataSet has been completely generated but the limit set as maximum has been exceeded (either the limit has been disabled or increased).

Report DataSet Generate (Truncated). It is of type "error". The Report DataSet is incomplete.

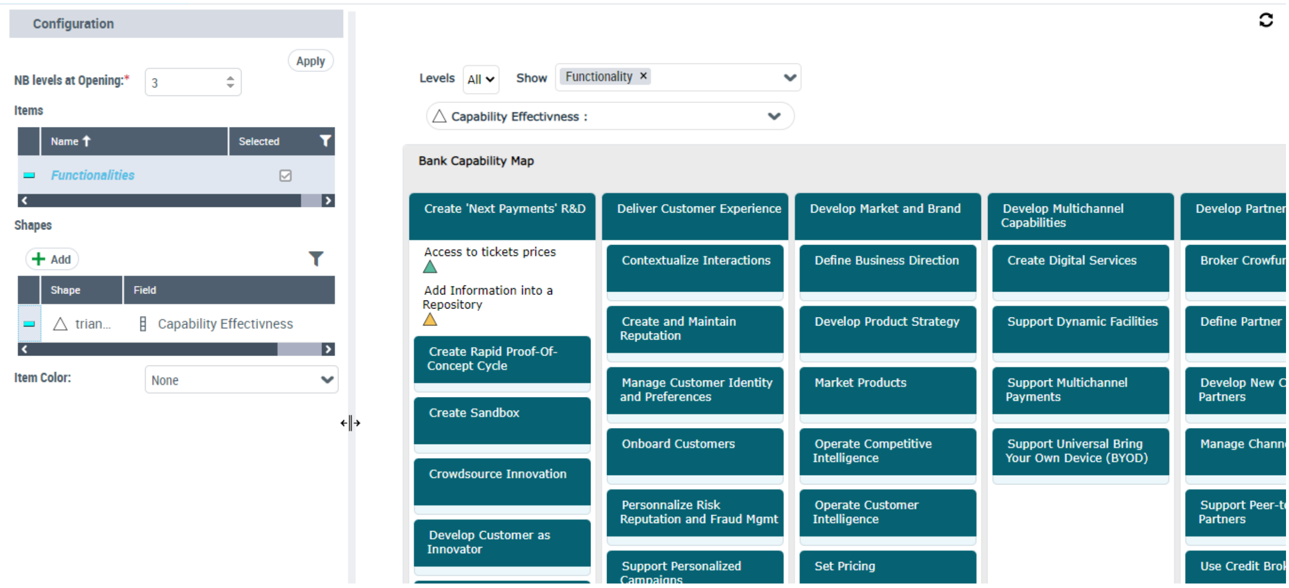
14. HOPEX Customizer

14.1. Breakdown Reports

From a Preview page of a TreeSet Definition an Instant Report feature allows to define Breakdown Reports



It is possible to choose the elements that are displayed in the boxes and for those the relevant indicators.



More possibilities are offered at the level of the Report Template:

Choose the item to display in the boxes

Choose the items indicator and their shapes

Color the items color according to one of the indicators

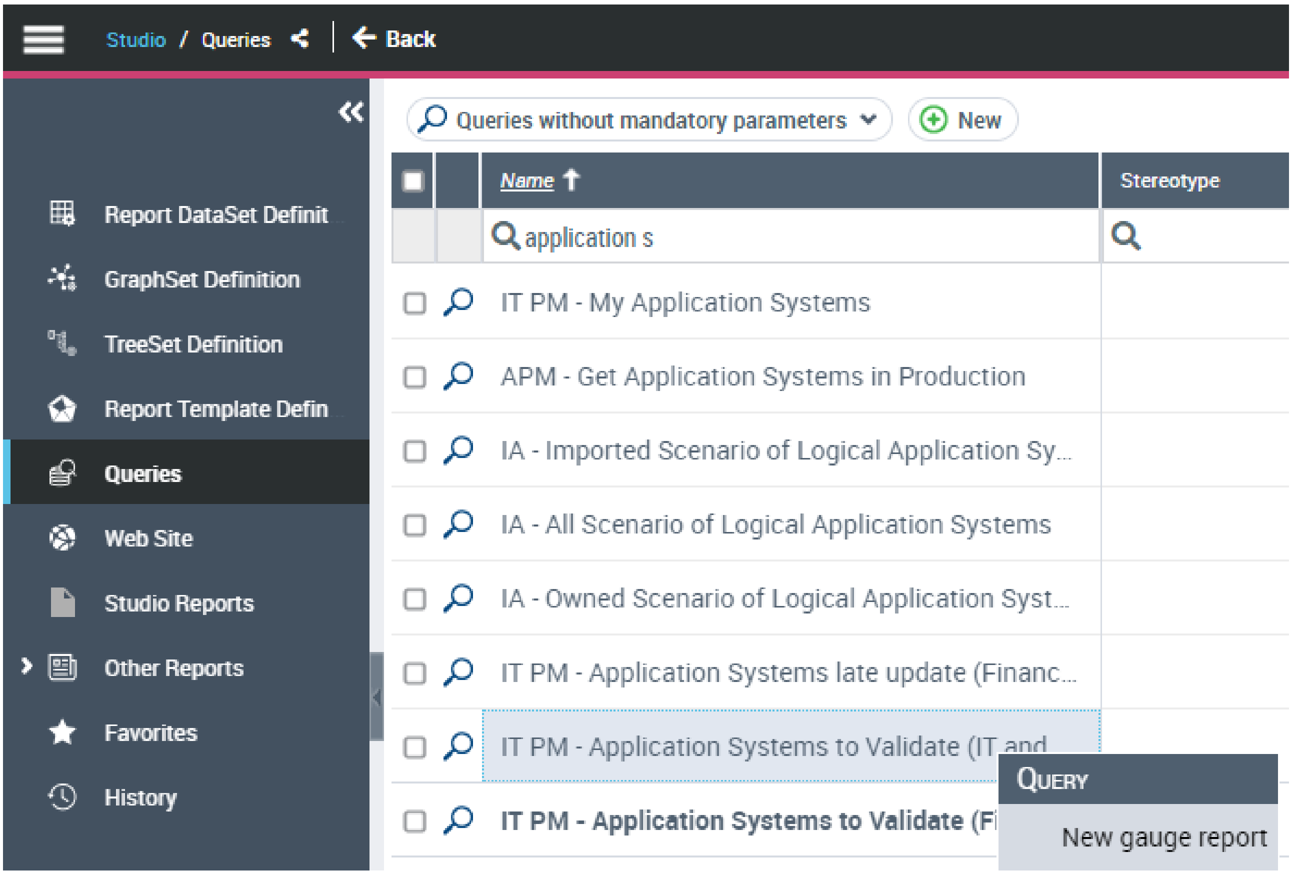
14.1.1. Breakdown Report Style Parameters

The current available parameter is:

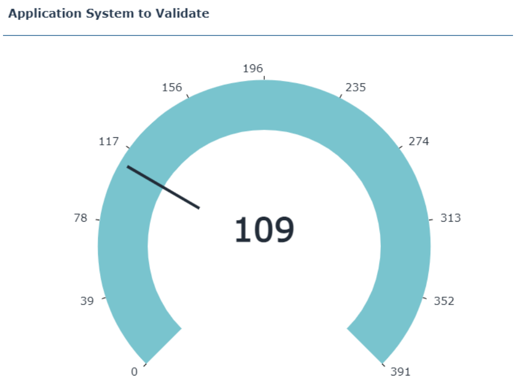
- Min Column width
- Display icons
- Show Items

14.2. Gauges Reports

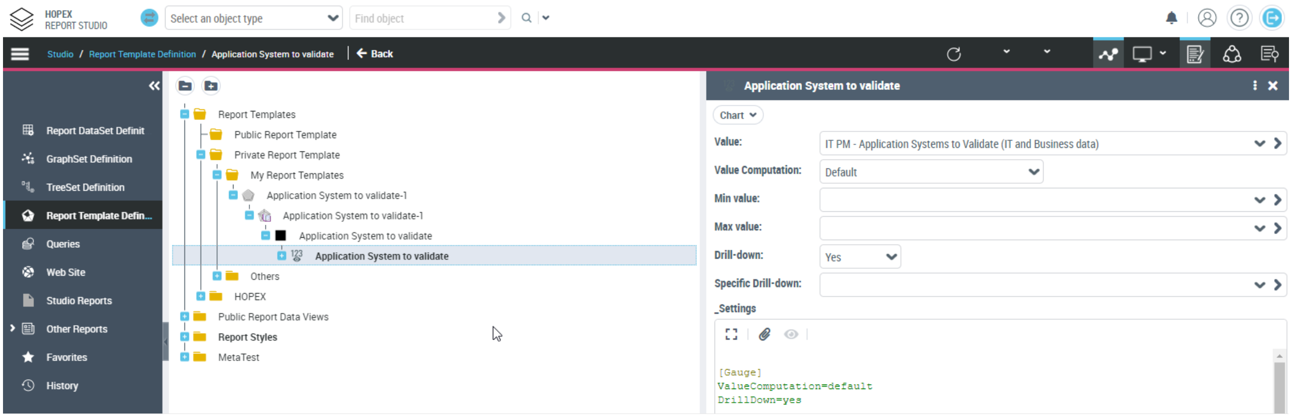
It is now very easy to define a new Gauge report representing several occurrences, just choose a query in the studio:



The Gauge Report is done:



The corresponding Report Template can be modified to change the default behavior for example, change the max value or define a specific drill down.



See Standard Report Template: IRM - Regulation Data Conversion

14.3. Dendrogram Reports

From the preview page of a Treeset Definition the "instant report" function allows to define a dendrogram and to choose the number of unfolded levels at opening and the properties available in the tooltips of the objects

More possibilities are offered at the level of the Report Template:

- Add Filters
- Display a property instead of the object name
- Change the object picture

- Add style elements
- Condition some styles

14.3.1. Dendrogram Style Parameters

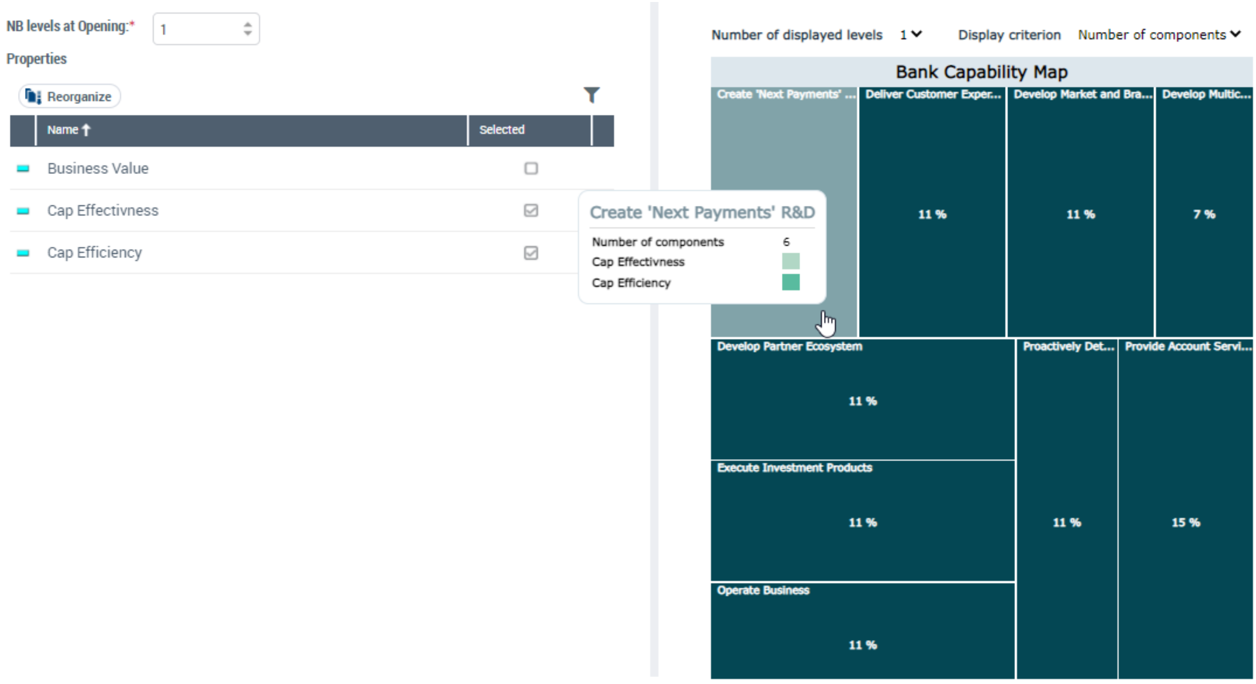
The current style parameters are:

Arc or Node Colors

Display Mode: Horizontal / Vertical

14.4. TreeMap Reports

From the preview page of a Treeset Definition the "instant report" function allows to define a TreeMap and to choose the number of unfolded levels at opening and the properties available in the tooltips of the objects.



More possibilities are offered at the level of the Report Template:

- Add Filters
- Display a property instead of the object name
- Add style elements
- Condition some styles

14.4.1. TreeMap Style Parameters

The current style parameters are:

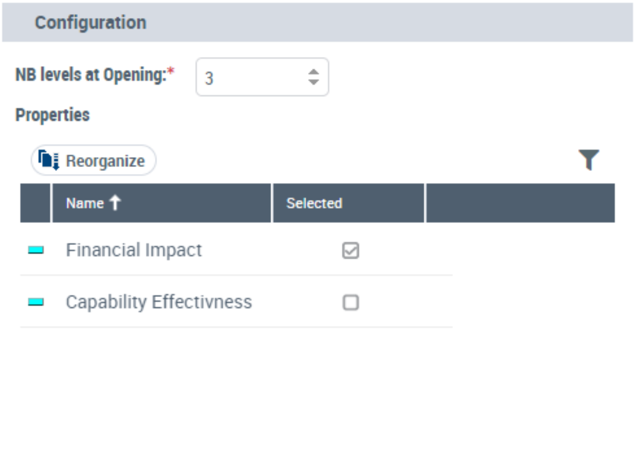
Box Colors

Box Border Color or Thickness

Proportional Text Size

14.5. TreeTable Reports

From the preview page of a Treeset Definition the "instant report" function allows to define a TreeTable and to choose the number of unfolded levels at opening and the Properties displayed in column.

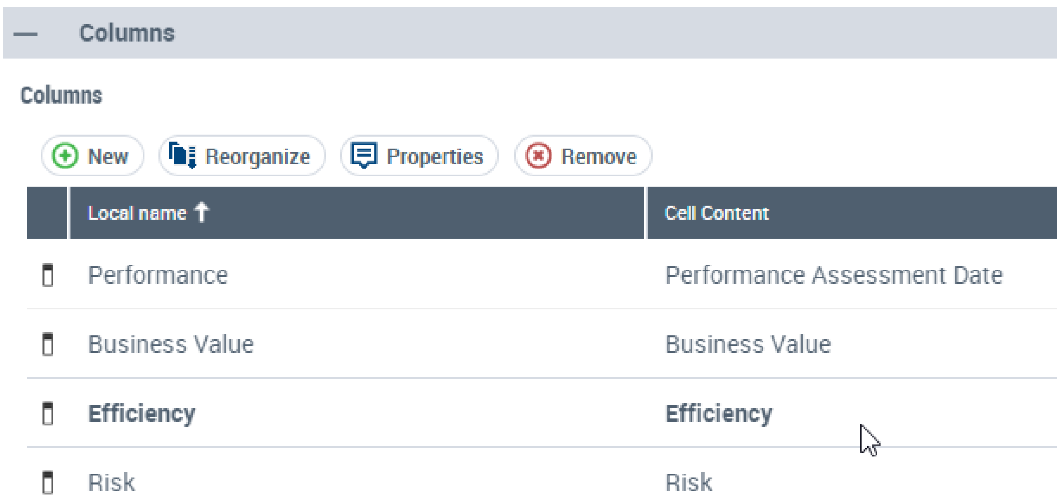


More possibilities are offered at the level of the Report Template:

- Add Filters
- Add style elements
- Condition some styles

14.5.1. Group properties in a single column

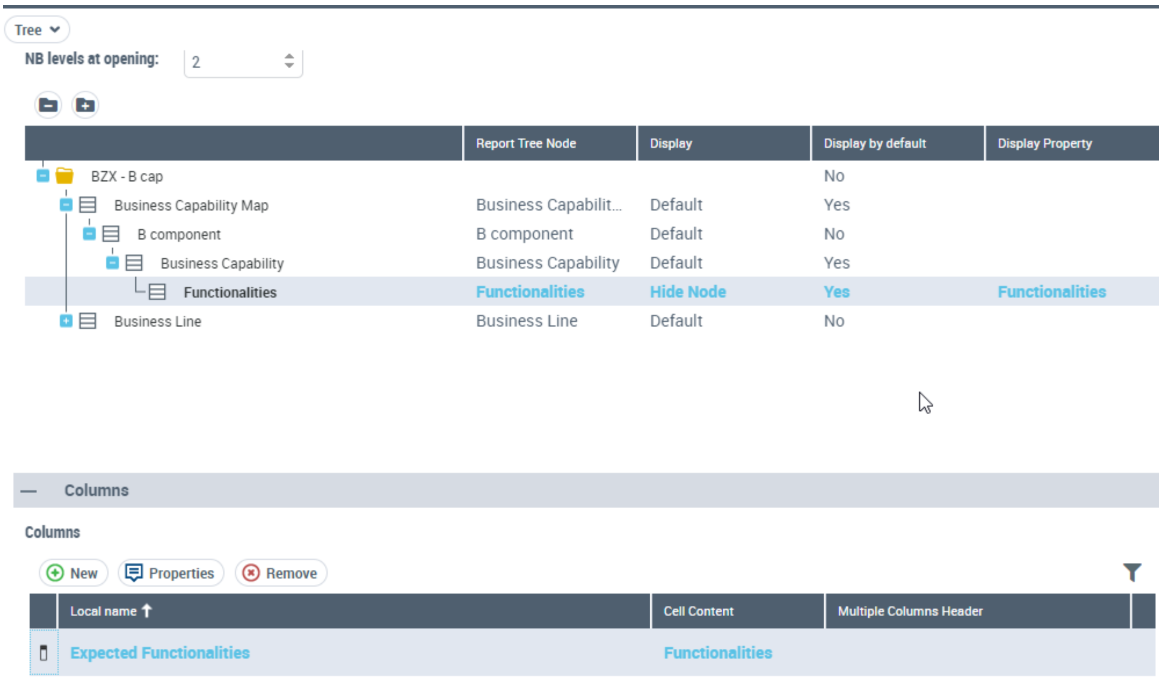
The parametrization defines the columns and their content:



14.5.2. Display occurrences in a cell

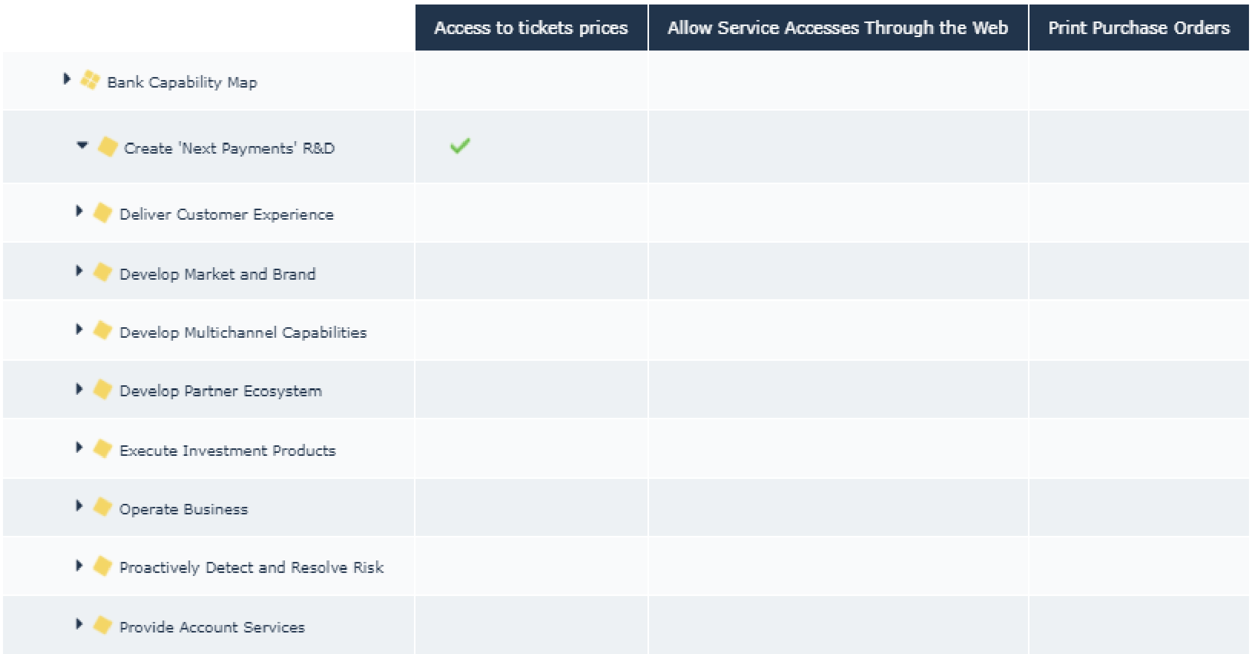
This example displays the set of functions expected by a capability

The parameterization defines the column that is displayed and the column content. The functionalities are displayed as properties and not displayed in the tree.



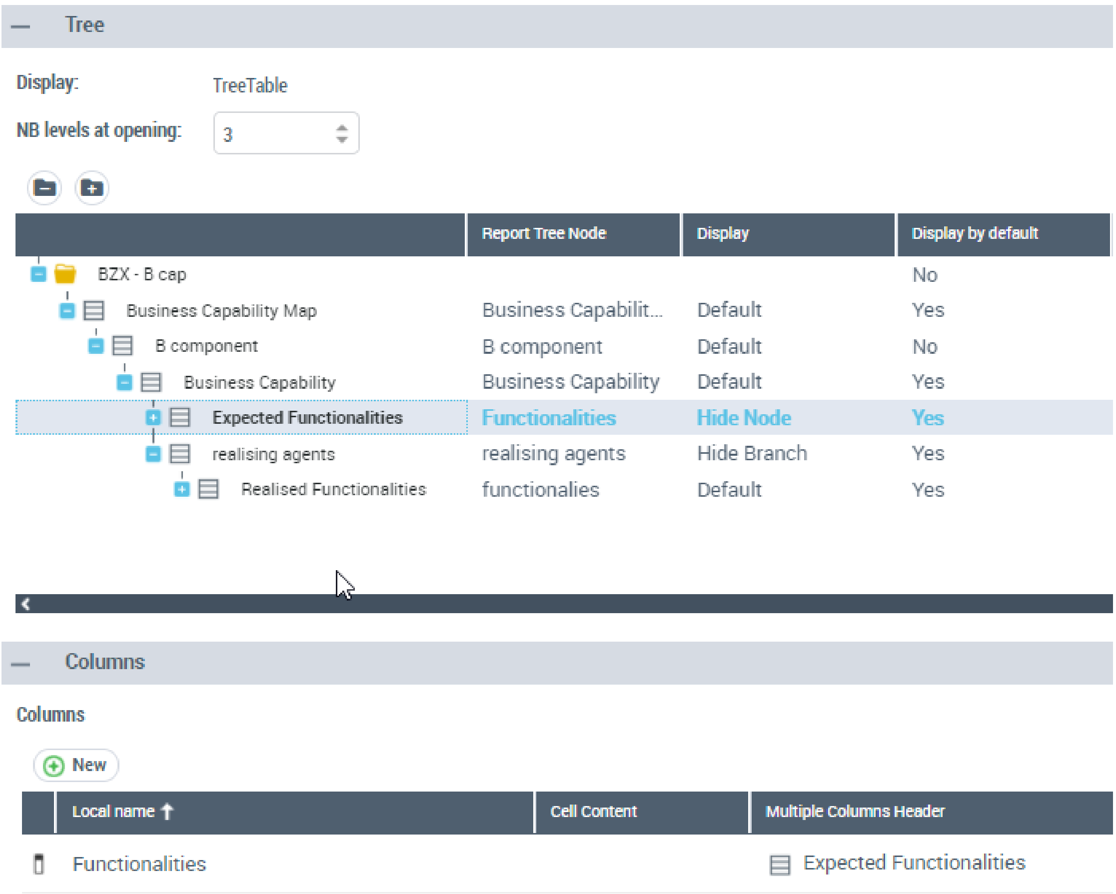
14.5.3. Build matrices

This example displays the set of functions performed by a capability in relation to those expected



	Access to tickets prices	Allow Service Accesses Through the Web	Print Purchase Orders
Bank Capability Map			
Create 'Next Payments' R&D	✔		
Deliver Customer Experience			
Develop Market and Brand			
Develop Multichannel Capabilities			
Develop Partner Ecosystem			
Execute Investment Products			
Operate Business			
Proactively Detect and Resolve Risk			
Provide Account Services			

The parameterization defines the element of the TreeSet that are displayed and the collection used to build the different columns:



14.5.4. Style Parameters

New style parameters available and allow to change:

Text font, size alignment or color for the table, column, or cell or title

Border or Background Color for the table, column, or cell

The Header of Rows, of Columns

The Objects display menu and icon

Row height, Column or Table width

Show/hide Column Title, Title

14.6. Matrices & Table Reports

14.6.1. New Horizontal and Vertical Headers

Residual Risks

Inherent Risks	Very Low	Low	Medium	High	Very High	Sum
Very Low	4	0	0	0	0	4
Low	0	6	4	3	0	13
Medium	0	0	6	4	0	10
High	0	2	0	3	3	8
Very High	0	0	1	0	4	5
Sum	4	8	11	10	7	

At Report Template Level, Code templates can be used to define the titles and Headers of the Matrices or Tables.

14.6.2. Default display

All Matrix or Table reports built from the Studio are modified and parameters allow to control this display:

Object icons are no longer displayed.

Matrix headers are tilted.

14.6.3. Matrix & Table Style Parameters

New style parameters available and allow to change:

The Display of object icon

The Column Header Text orientation

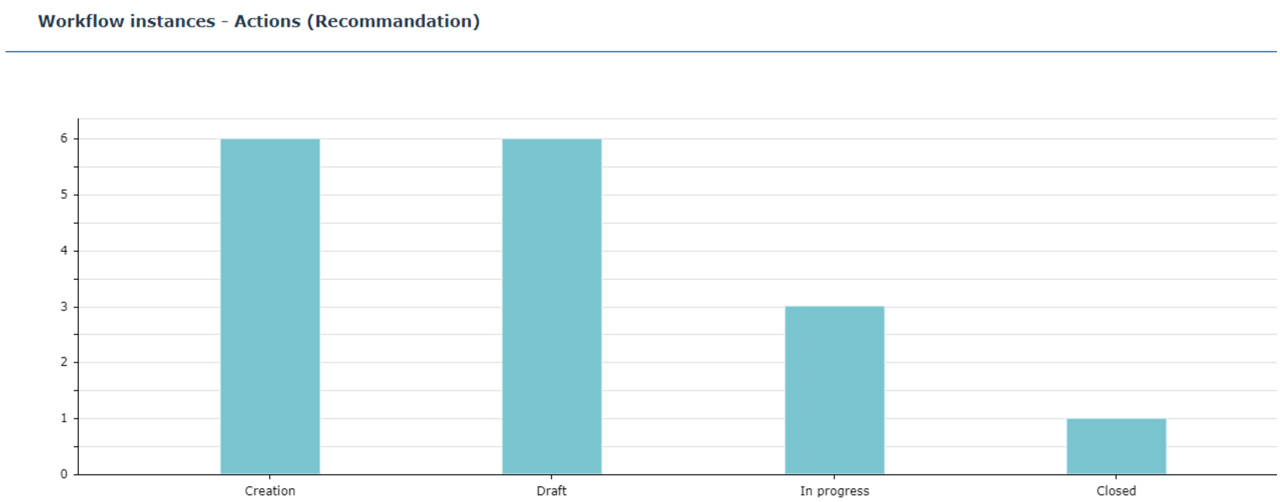
Add a Header on Column, on Rows

- **Remove null values in heatmaps or table – #CP4**

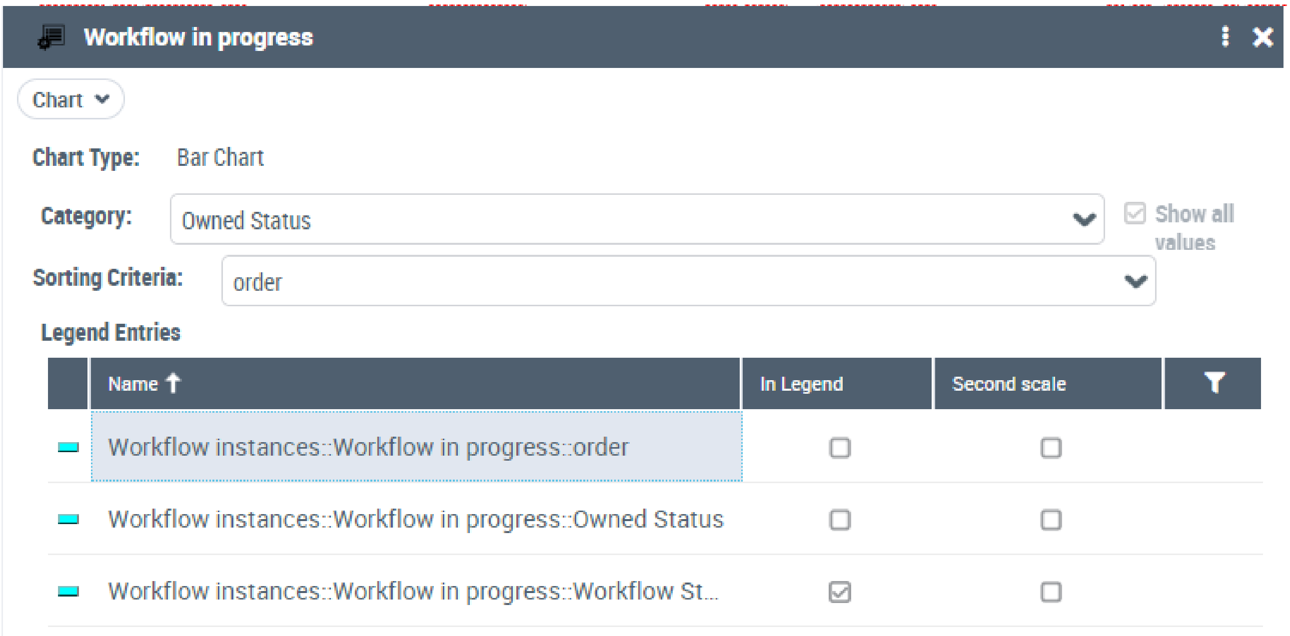
The parameter "Display blank for zero value" allows to display an empty value when the value of a table cell is = 0.

14.6.4. Sort Axis in specific order

From CP3, it is possible to sort an axis on a specific column of the table to avoid the default sort (name of occurrence)

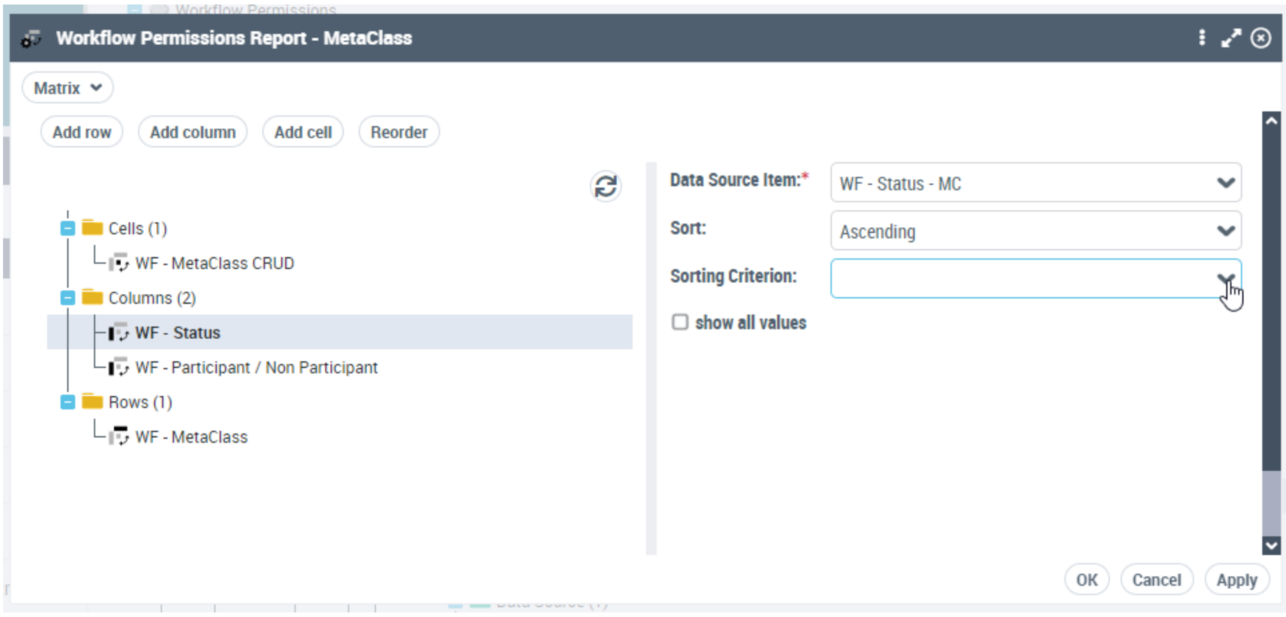


This can be done by giving a sorting criterion in the report view:



14.6.5. Sort matrix in specific order – #CP4

It is possible to sort a column content on a specific criterion to avoid the default sort



14.7. TreeSet Definition

14.7.1. Sort Data

The sort order is kept in TreeSet and will be used by default in all reports using these data.

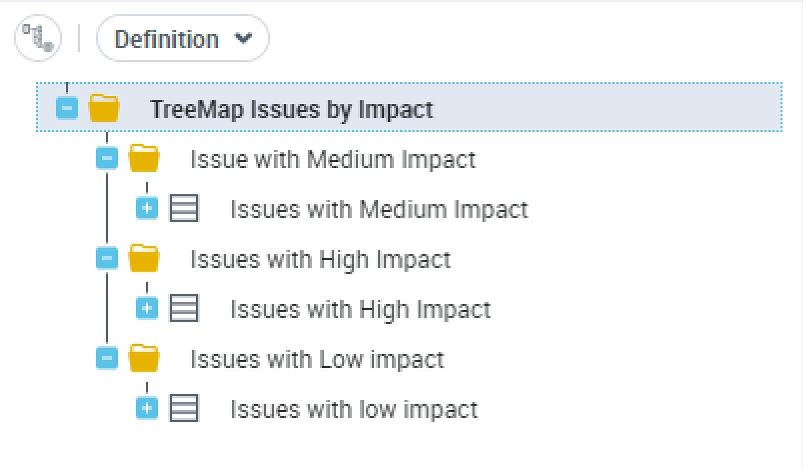
The order of the TreeSet Collection is defined by:

Order of the MetaAssociationEnd

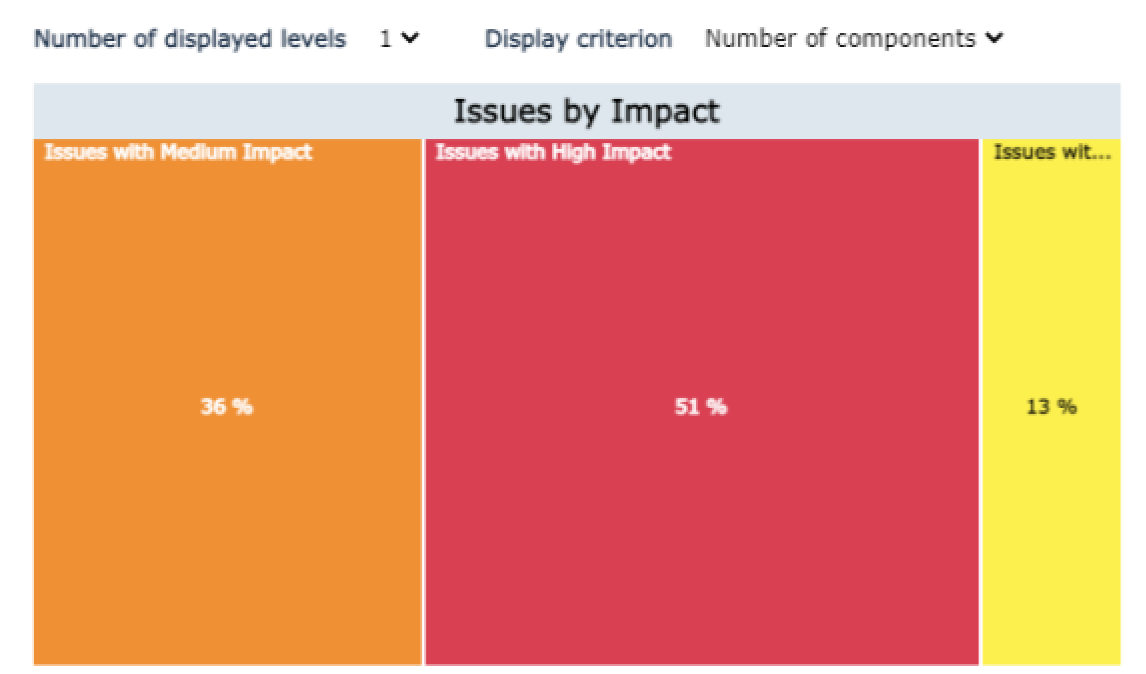
Sort instruction defined in Queries

14.7.2. Group objects in Tree Reports

It is possible to perform groupings in the 'tree' reports by using folders.



Then the folders are used in the corresponding reports. This example shows the issues grouped by impact:



14.7.3. Additional properties

All MetaAssociationEnd with Card-max 1 can be used in the Property definition.

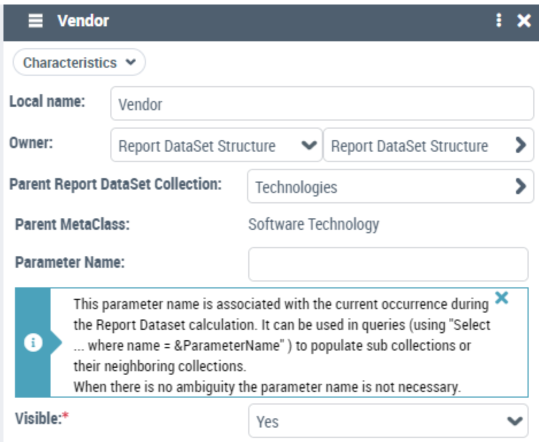
Example: Display the Declarant's Entity of issues

	Declarant's Entity
Issue with Medium Impact	
Bills not approved	Italy
Customer claims not treated	UK
Falsified Credit Card	Germany
Major proof falsified	Italy
Bad translation	
Credit card expired	France

14.8. DataSet Definition

14.8.1. Help in UI

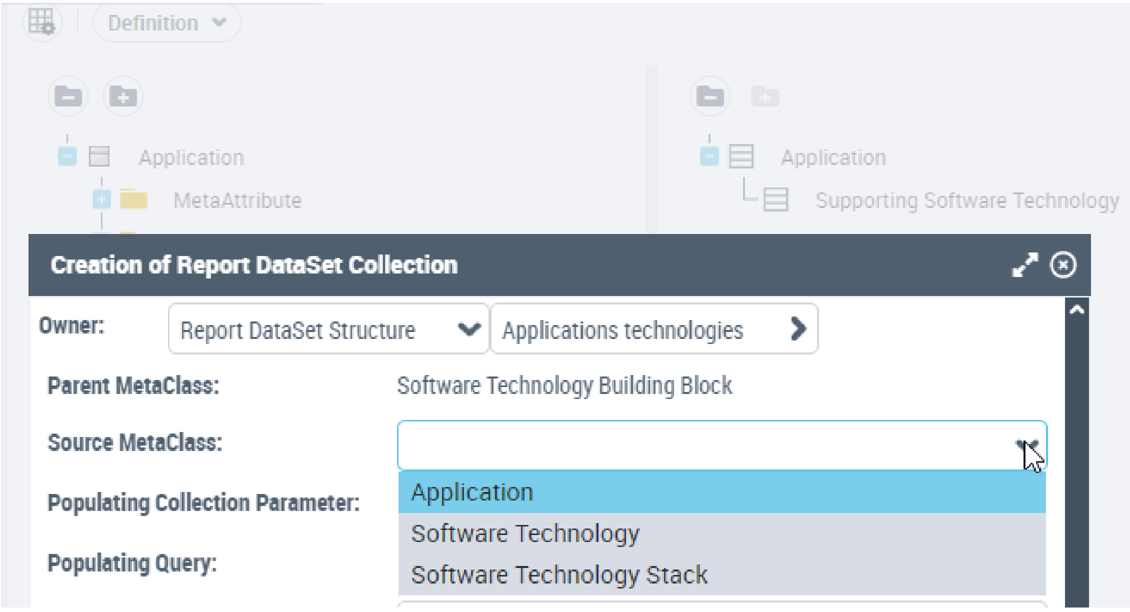
Comments have been added to document some elements presented in the UI:



14.8.2. Filter Data from Abstract MetaClass

The use of generic MetaAssociation requires to filter sometimes the data to address only one of the subtypes of the target abstract metaclass.

Example: To display in a column all the technologies supporting an application and in another one a property concerning only the software technology it is necessary to filter the collection:



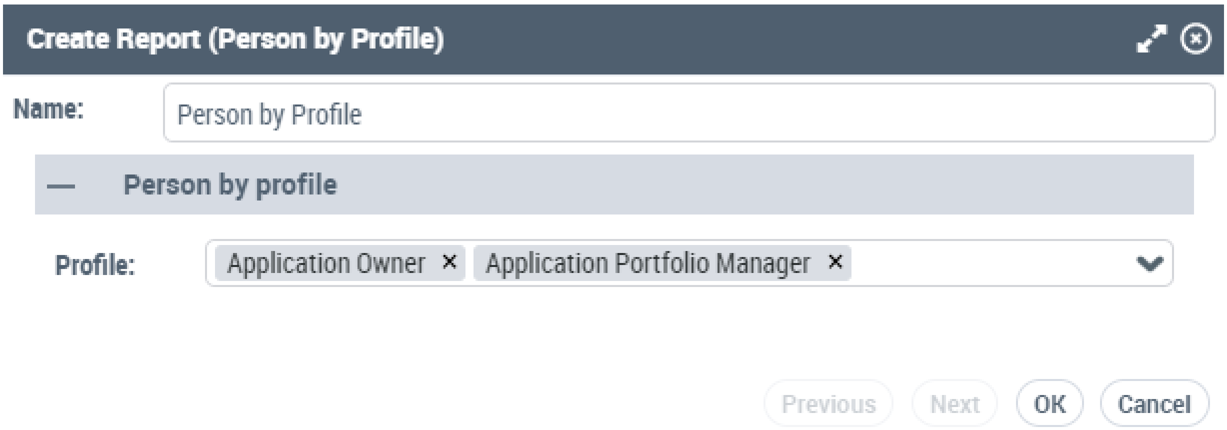
14.8.3. Use any Query to build Report DataSet Collection

It is now possible to use queries implemented by macros to build collections.

14.9. Report Parameters

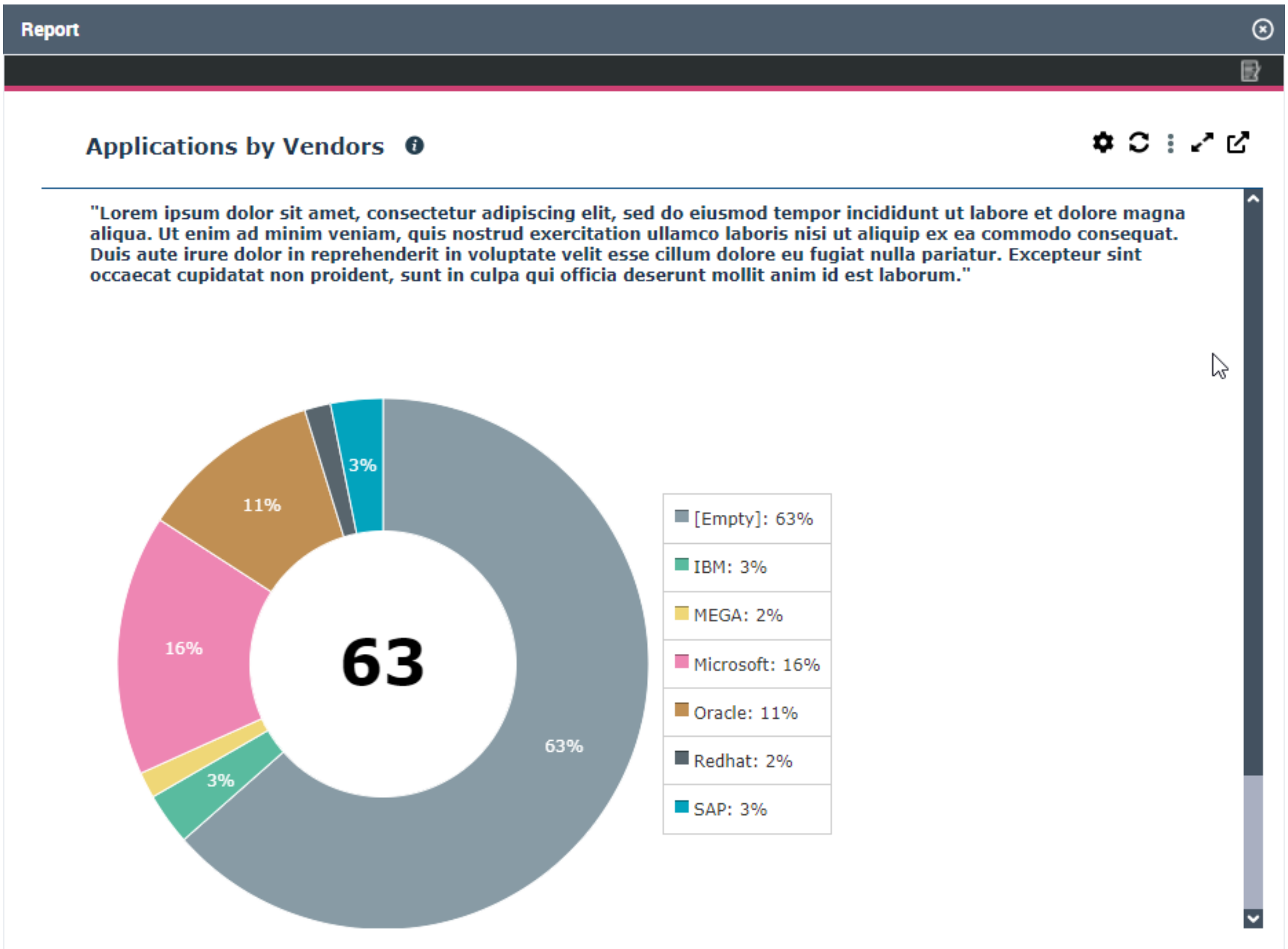
14.9.1. Use multi-combo-box for report parameter

All parameters based on metaclasses whose declared volume is below 200 will be presented automatically as a multi-combobox.



14.10. Text in Reports

From CP3, it is possible to display text in the reports. The view comment is automatically displayed above the chart.



14.11. Definitions Checking

Both HOPEX Customizer and HOPEX Customizer Publisher profiles have now a dedicated modeling regulation active by default.

Modeling Regulation have been added to help in the definition of:

- Report DataSet
- Report GraphSet
- Report TreeSet

Reports Customisation Regulation

GraphSet Regulation

Result	Rule Definition	Diagnosis
	Requirement Only candidate MetaAssociationEnd can be used as provider	

14.12. API - Export Report DataSet in Batch Mode

To export any Report DataSet in CSV format from HOPEX use the **CSVExport** Operator.

14.13. Security updates impacting Reports integration

In order to improve CSP compliance and performance, reports integration has been changed in this version.

It is necessary to review all custom Reports integration that use HTML Formatters.

A technical document detailing impact and procedure is available.(see Updating virtual reports document)

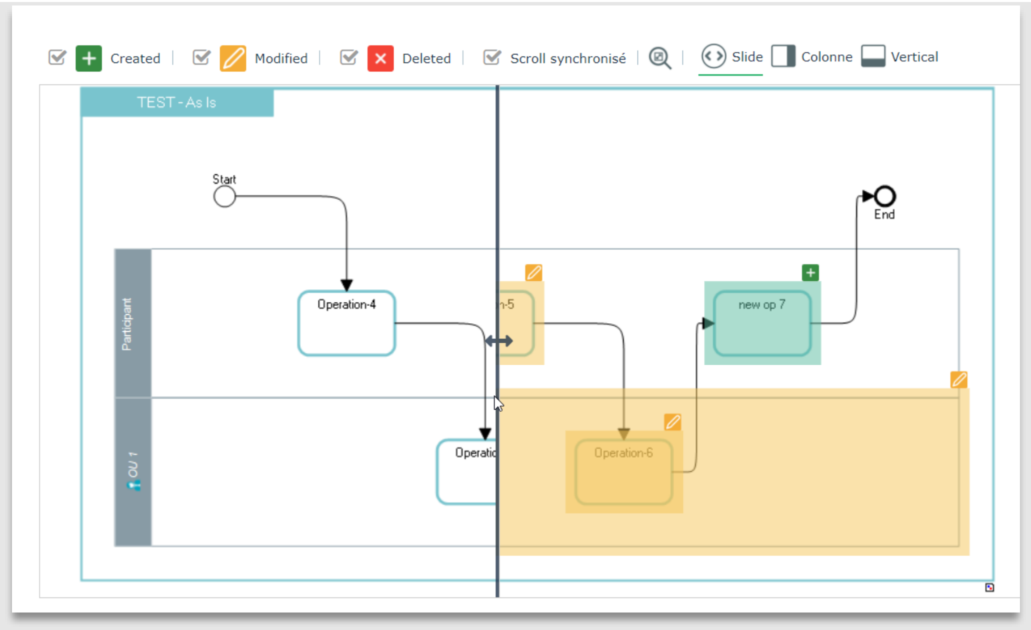
In the future, also iFrames will be supported by the standard HOPEX CSP. This also impacts specific renderers, for example on the use of script tags and inline scripts.

14.14. Diagram Comparison Renderer

A new Renderer is available in Java to build Diagram Comparison Reports.

The functional code can define the layers that appear as different modification (icon, name, colors) in the renderer.

The Links can also be highlighted.

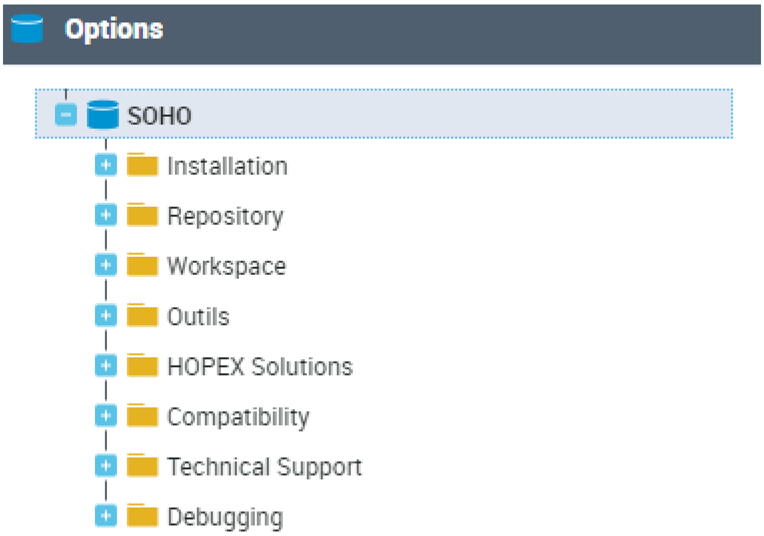


15. Common Features

15.1. Options

15.1.1. Organization

The organization of the options has been reviewed and notably the set of options valid only in the Windows front-end has been moved to the compatibility group.



15.1.2. New visibility Options

The classification of the metamodel by level (beginner, advanced, expert) is removed and replaced by the distinction between the "Business" or "Technical" metamodel.

Therefore, the metamodel access option is no longer available, and replaced by the "Display technical metamodel" option activated for all administrator and customizers profiles.

The "Display Advanced User Interfaces" option enable the extended view of options as well as some other specific user interfaces. This option is activated for all administrator and customizers profiles.

The "Display Administration Properties and links" option activates the Administration Tab and all his content and activates the "See Administration Properties" in the Advanced Search Tool. This option is activated for all administrator and customizers profiles.

15.2. Passwords management

From HOPEX V4 CP6 or HOPEX #CP3, password policy has change. All newly create user and default user have a password.

15.3. Default password for new environment

To enforce security at environment creation, default users now have password.

Person(system)	login	Default password
HOPEX Administrator	System	Hopex
MEGA	MEGA	Hopex

15.4. Password for new user

The rule described after are valid for new or existing environment. Check that your user creation process is compliant with this new version.

15.4.1. SMTP Server is Enabled

To enforce security at user creation from thick or thin client an e-mail is sent to the new user to manage its password and security question.

15.4.2. SMTP Server is Disabled

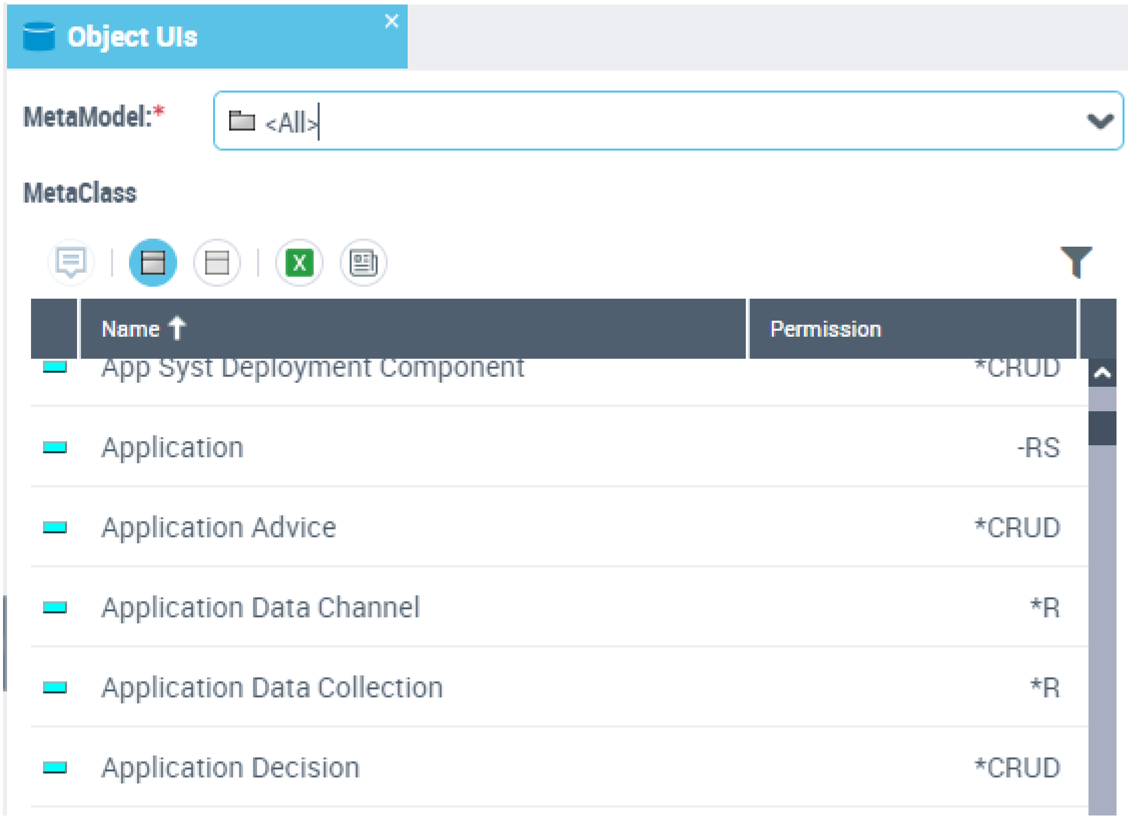
To enforce security at user creation from thick or thin client the administrator set a default password that need to be change at the first connection on the thin client.

15.4.3. Notes

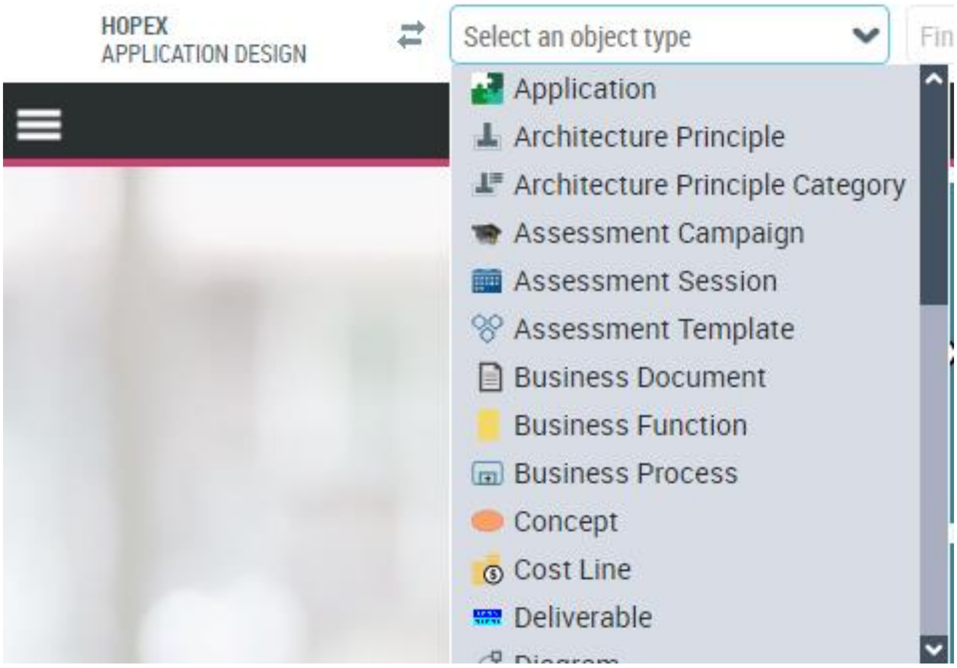
User "SysMA" that is not accessible for interactive connection must not have any password.

15.5. Permission Improvement

A new feature allows to define the set MetaClass that will be "**S**earchable" that is available in the Desktop Search Bar for a given Profile.



In the Application Designer Desktop:



All “**R**eadable” Metaclass remains available in the Advanced Search Tool.

By default, a new MetaClass is not Searchable, the default Permission remains “CRUD”. A conversion tool considers all the Custom MetaClass to make them “Searchable”.

15.6. Explorer Tool

By default, the "Explorer" tool is only available for Customizer profiles and Functional Administrator profiles. Other profiles need to select the “Activate Explorer” option (Tools > Explorer).

15.7. Search Tool

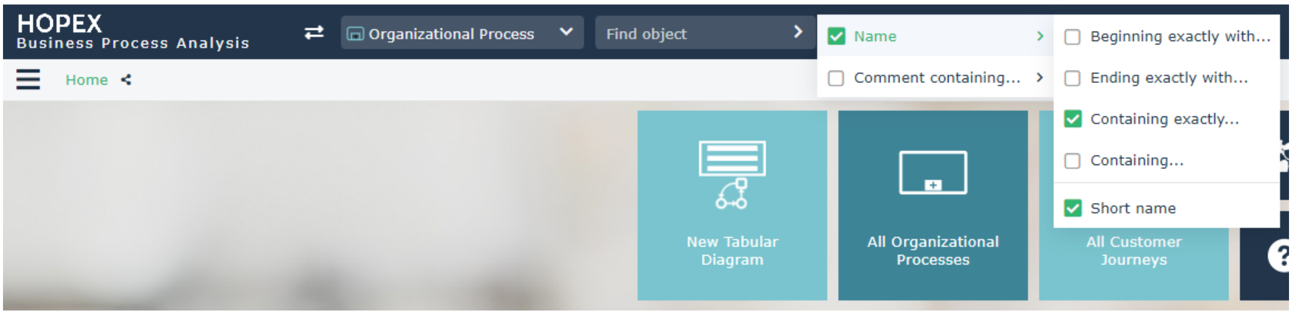
By default, all metaclasses are available in this tool except the abstract metamodel and the Building block role metaclasses. The option “View all object type” makes them available.

15.7.1. Nearmatch

A new operator has been added in ERQL syntax, allowing to make fuzzy match search on attributes of a metaclass. It also applies stemming rules to search word of the same family. The nearmatch operator is only available on indexable metaclasses and metaattributes.

15.7.2. Search bar

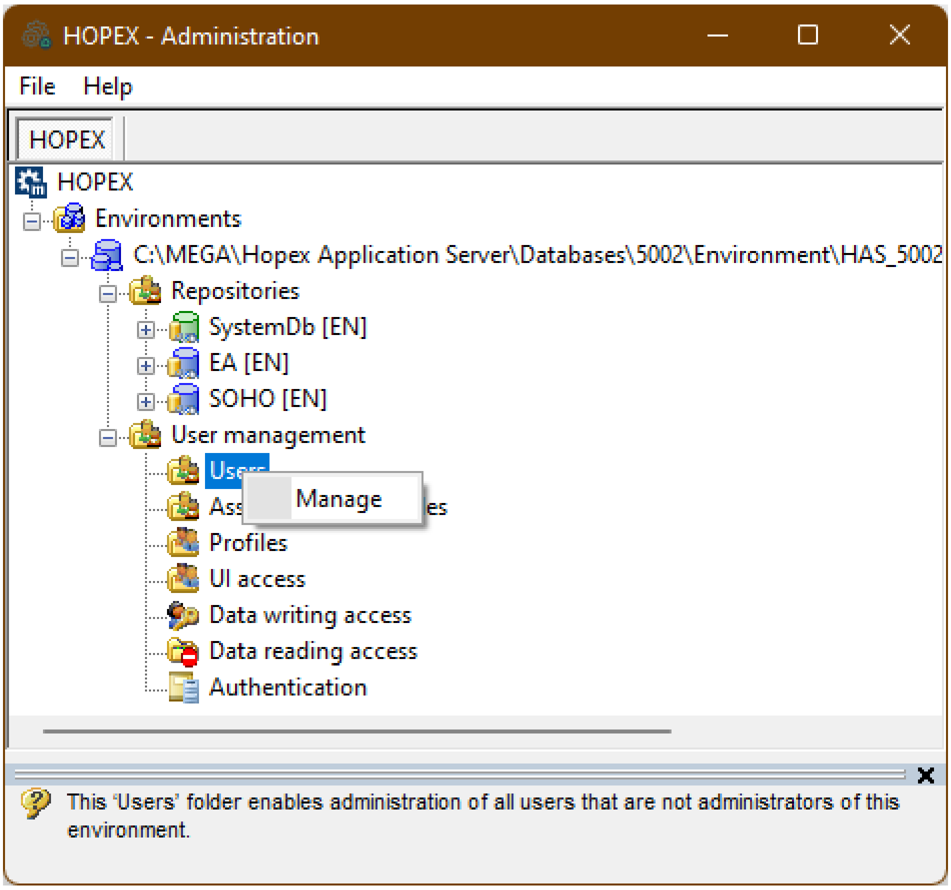
If the repository is indexed, the nearmatch is used to enhance the performance of the search bar for Name containing and Comment containing also in the Advanced Query in the Wizard Mode and ERQL Mode.
From HOPEX #CP4, you can also ask for an exact match on the name and comment.



15.8. Administration.exe

To engage the use of HOPEX WEB GUI, several menus of Administration Windows app has been deactivated. (HOPEX #CP3 and higher)

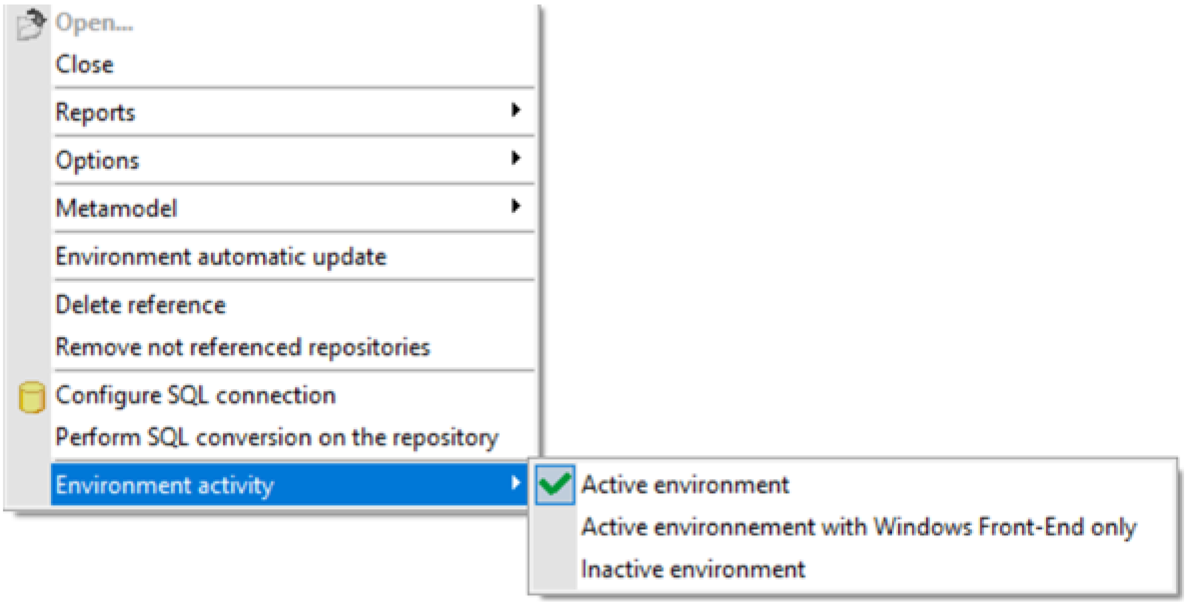
"Repositories/.../Locks/Manage"
"Repositories/.../Workspaces/Manage"
"Repositories/.../Repository Snapshots/Manage"
"Repositories/.../Repository Snapshots/Configuration of Snapshots creation software"
"User Management/Users/Manage"
"User Management/Assignment of Profiles/Manage"
"User Management/Profiles/Manage"
"User Management/UI Access/Manage"
"User Management/Authentication/LDAP Servers"
"User Management/Authentication/Manage Authentication Group"
"User Management/Authentication/Manage Authentication Parameter"



These menus are not deactivated if one of this condition is not fulfil:

Administration.exe is parts of an HAS instance
HOPEX Web Front-End module “hopex.dtpx” is ready

- The Environment activity is not "Active Environment"



16. Deprecated & Removed Products

16.1. Removed Products

HOPEX Business Architecture (superseded by HOPEX IT Business Management)

MEGA

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