



MEGA
SEE THE BIGGER PICTURE

HOPEX 5.0

Release Notes

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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:

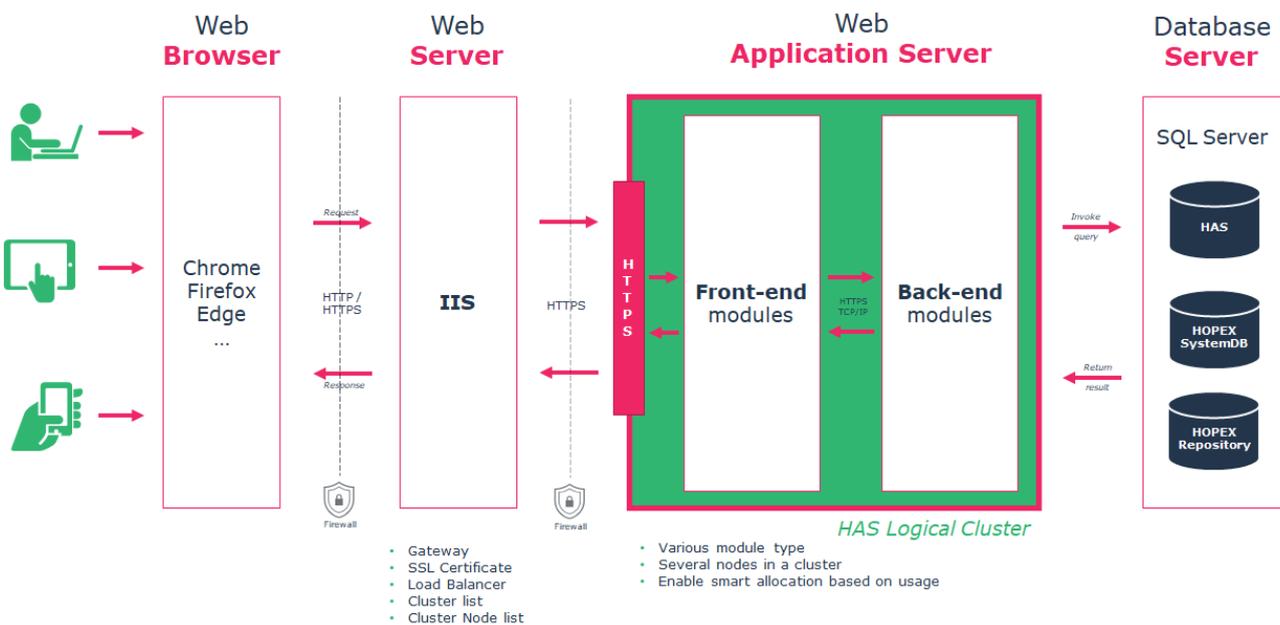


Figure 1 HAS Architecture Overview

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.

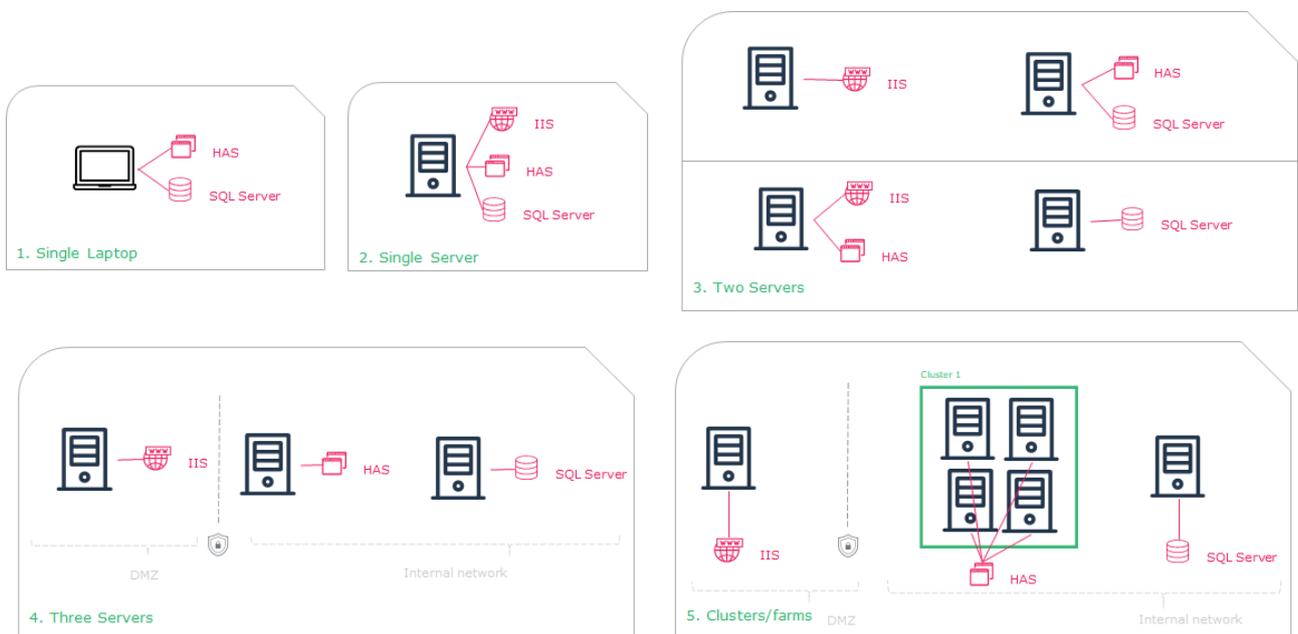
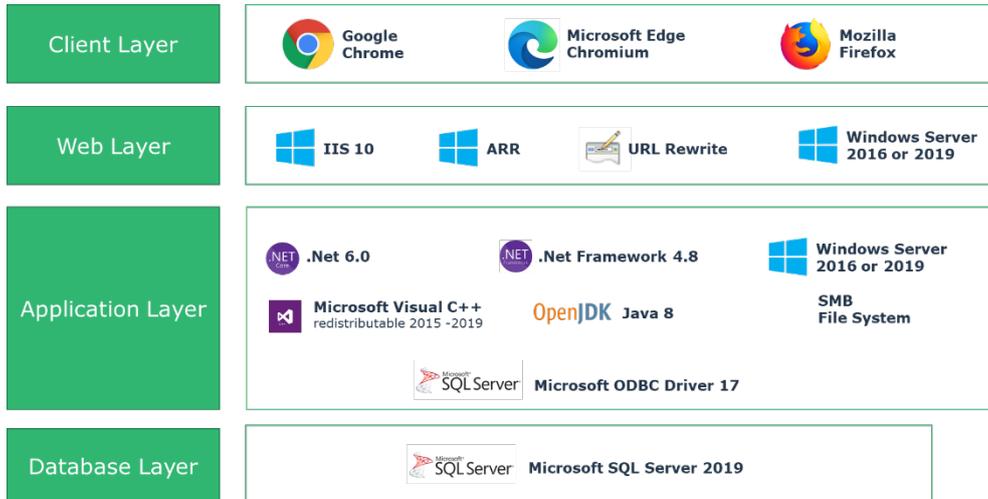


Figure 2 HAS Infrastructure deployment overview

1.2. Technological Stack prerequisite



CAUTION:

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

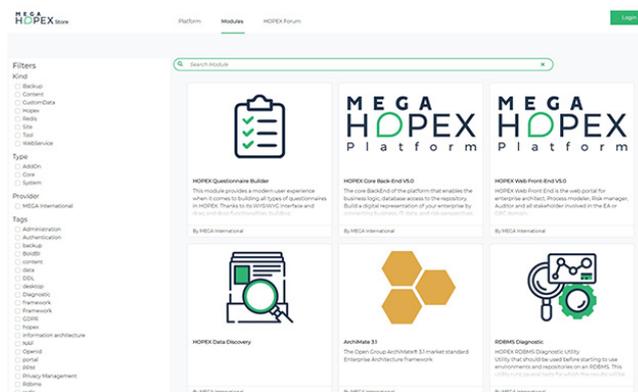
Starting from HOPEX V5 CP2 the pre-requisite is .net 6.0

1.3. 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:

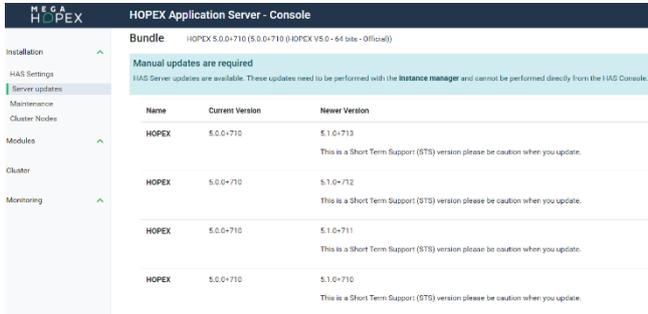
1. The Platform composed of modules
2. A set of complementary modules



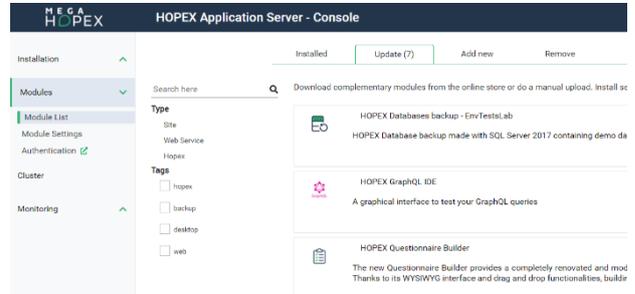
To benefit from the best experience, when using HAS, we recommend you to allow access from the server to the <https://store.mega.com>.

Among the benefits of the MEGA HOPEX Store you will:

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



Visibility of platform update



Visibility of module update

2. Products Update

2.1. HOPEX for the ArchiMate® Framework

2.1.1. ArchiMate 3.1 support and certification

The certification has been updated with the 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

2.1.2. UI/UX improvements

- The ArchiMate desktop is switched to 'public workspace' by default, to align with other products
- Improvement of copy & paste and drag & drop behavior across ArchiMate models (a copy of the object is created)
- Cleanup of inventory objects properties
- Update of the desktop to latest HOPEX UI/UX standards and look and feel
- New relationships matrix reporting / edition capability : Element x (relationship) x element editable relationship matrices
- Integration into the Unified 'Digital Transformation' desktop template
- Improvement of ArchiMate Open Exchange format import performance

2.2. 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.

2.2.1. HOPEX Business Process Analysis

2.2.1.1. UI/UX improvements

- The BPA desktop is switched to 'public workspace' by default, to align with other products
- Default diagram layout is switched to landscape to better accommodate most common presentation choice
- 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 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

See the dedicated UX section for more details.

2.2.1.2. Message flows consistency tooling

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

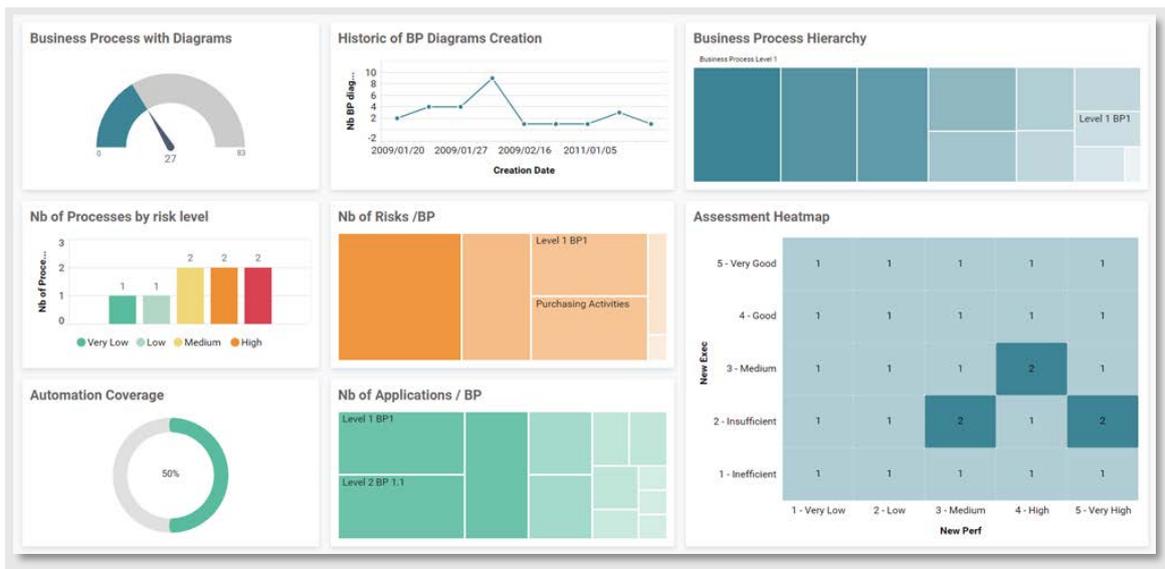
- Ex-Ante tooling to help user creating new consistent models:
 - *Bottom-up*: suggestion of candidate contents to be used when reusing an already described process

- *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.

2.2.1.3. 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:

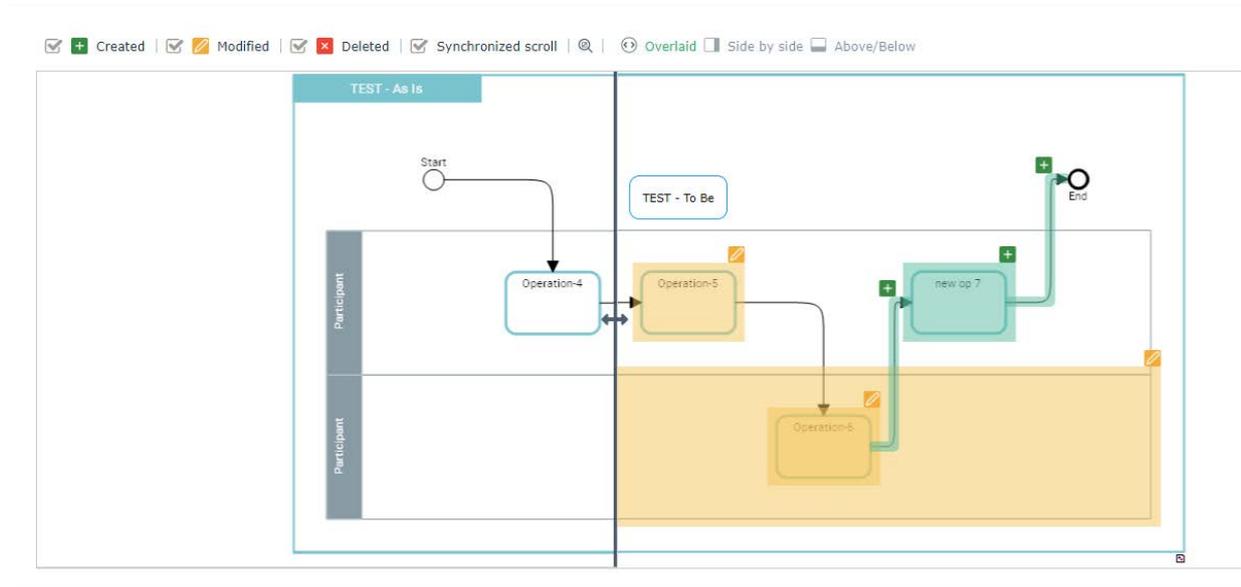
- Gauge of process description overall progress
- Line chart showing the number of new diagrams over time
- Bar chart of number of processes by risk level
- Tree maps
 - Number of Risk per Processes
 - Number of Applications per Processes
 - Hierarchy of Processes
- Donut chart of level of automation
- Heatmap of process assessment



2.2.1.4. 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



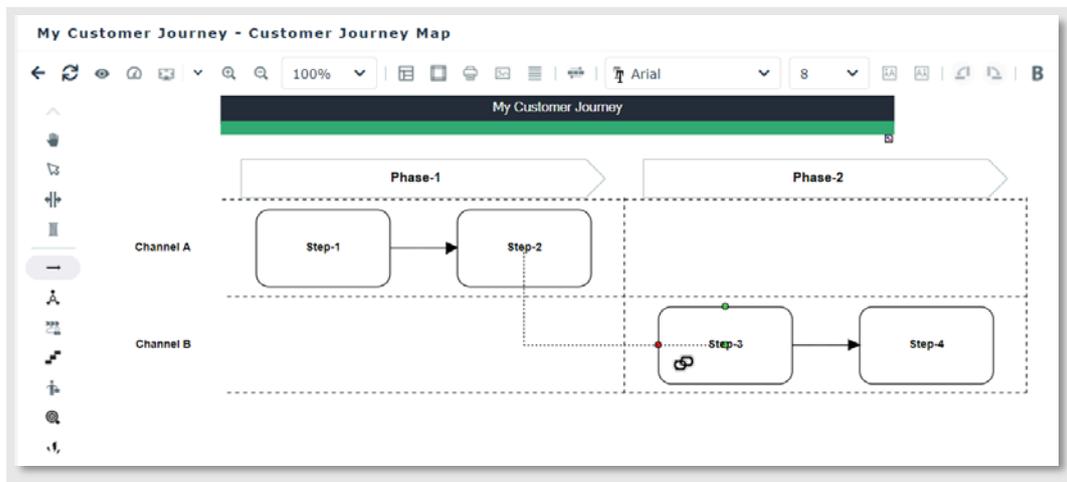
2.2.1.5. Various improvements

- 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 to differentiate the assessments based on organizational context; the existing summary heatmap report remains available for a quick overview.

2.2.2. 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)



2.2.3. 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.

- Former model is available via 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

2.2.4. 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

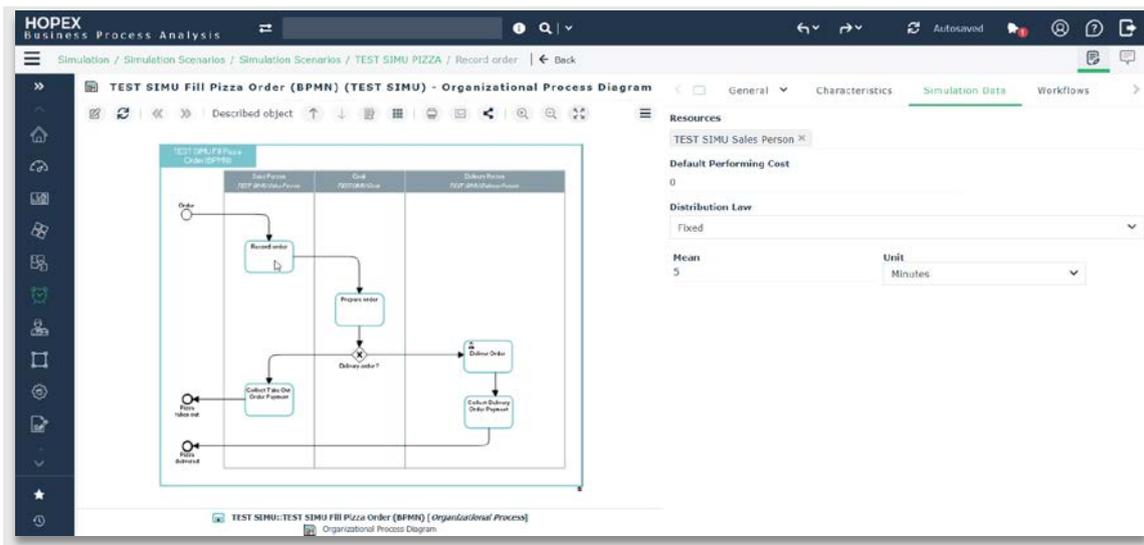
- Import process description and performance metrics from Process Mining tools

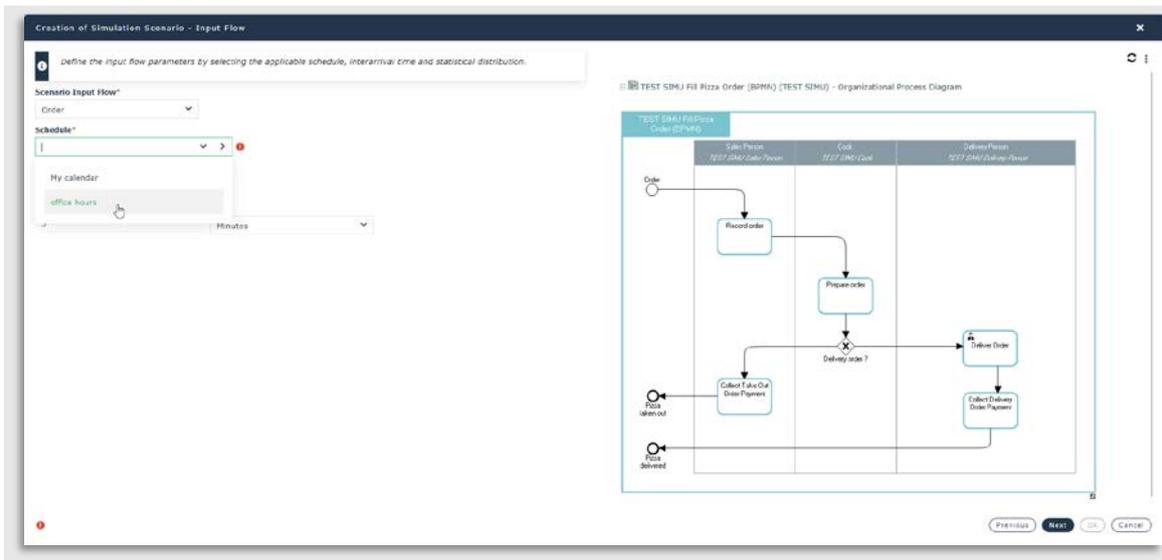
- Initialize simulation data (e.g., operations performing time and statistical distribution, use log as input distribution) based on Process Mining inputs
- Run what if simulation scenarios to assess improvement assumptions, and produce reports

2.2.4.1. New Process Simulation feature

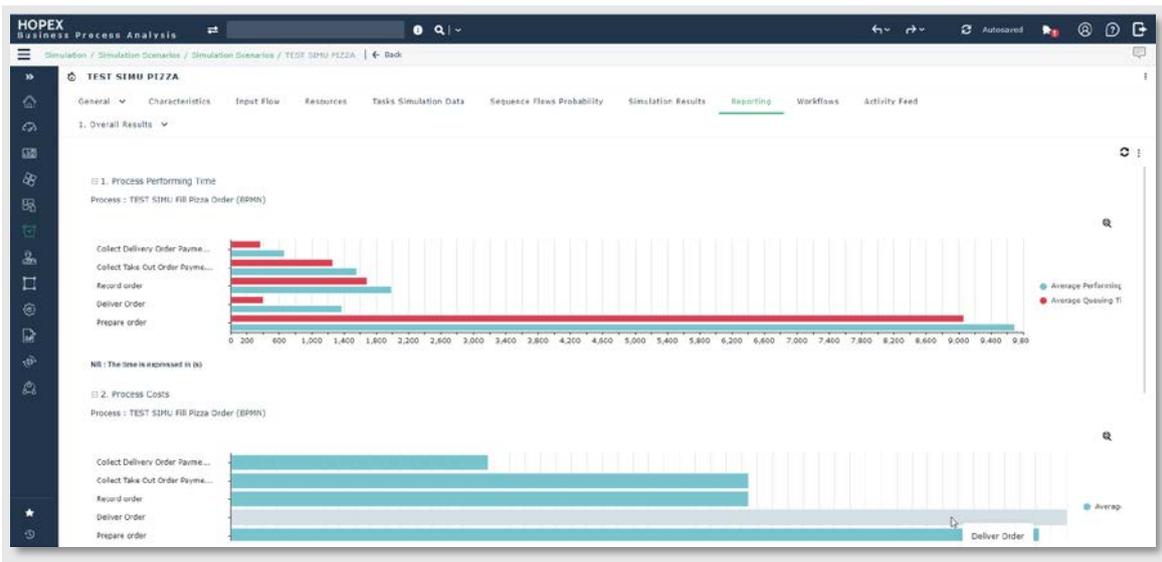
A new “what if?” process simulation feature is made available on top of HOPEX Business Process Analysis.

- 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



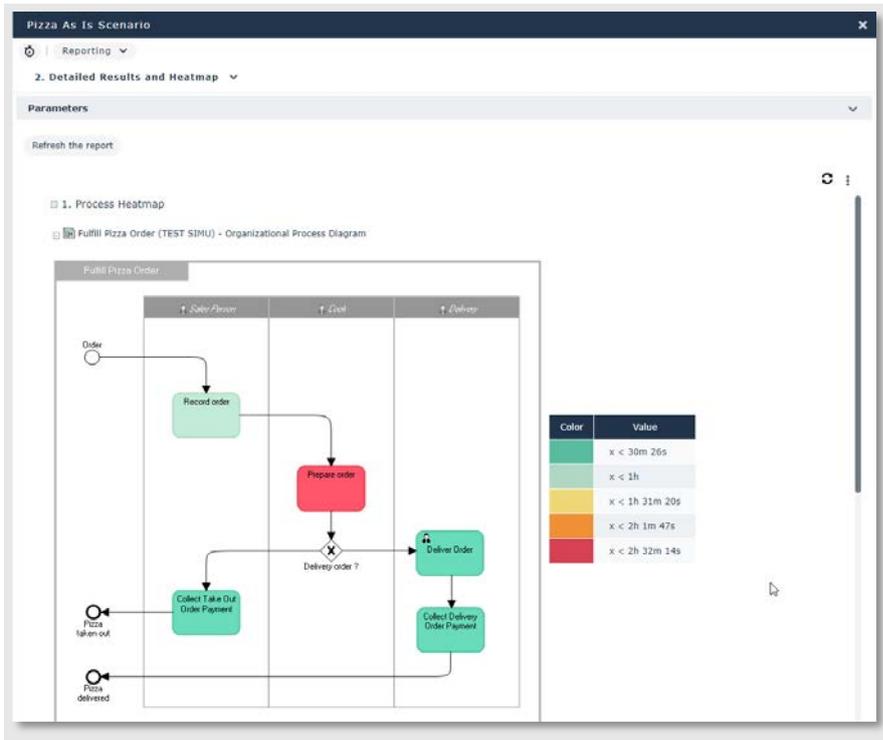


- Standard simulation results computation and reports:
 - Computation of average performing time and cost for processes and tasks
 - Computation of resources utilization workload to help identifying bottlenecks

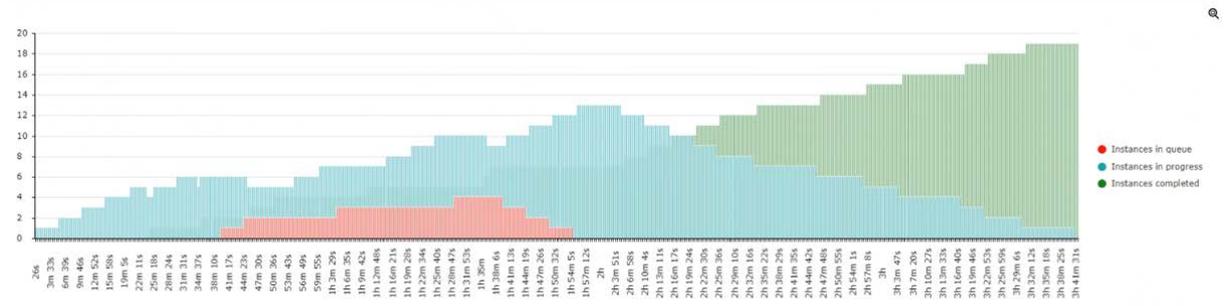


Standard reports are provided:

- 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)

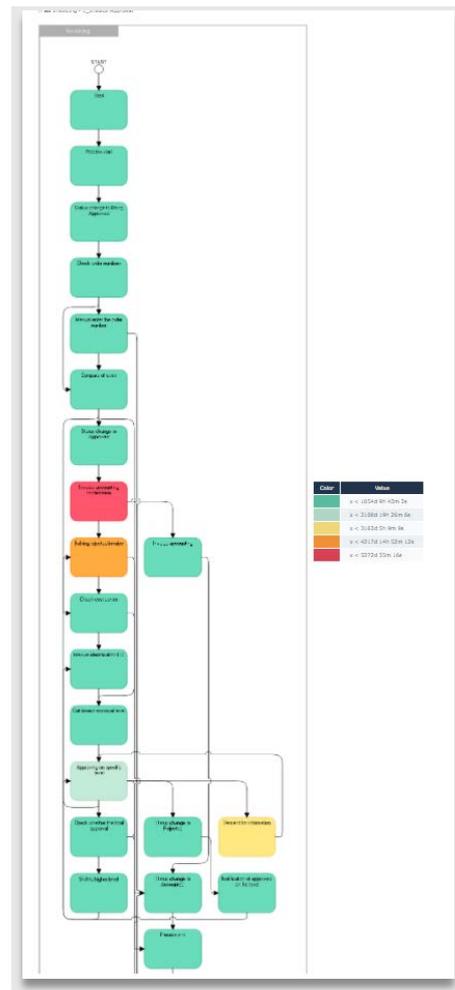
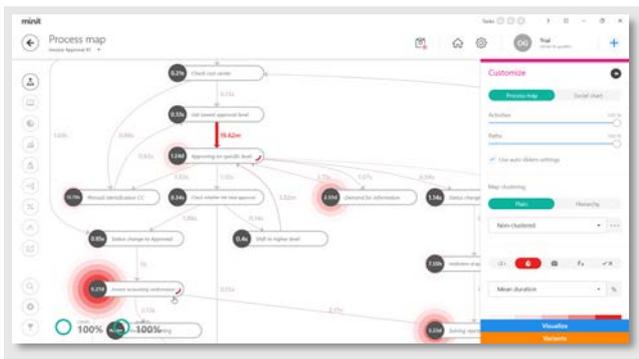


- Simulation scenarios comparison report
 - tables with scenarios A/B comparison and process comparison heatmap
- Simulation scenario and mining import comparison report
- *Note: the simulation engine is delivered as an HOPEX Store module*

2.2.4.2.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.



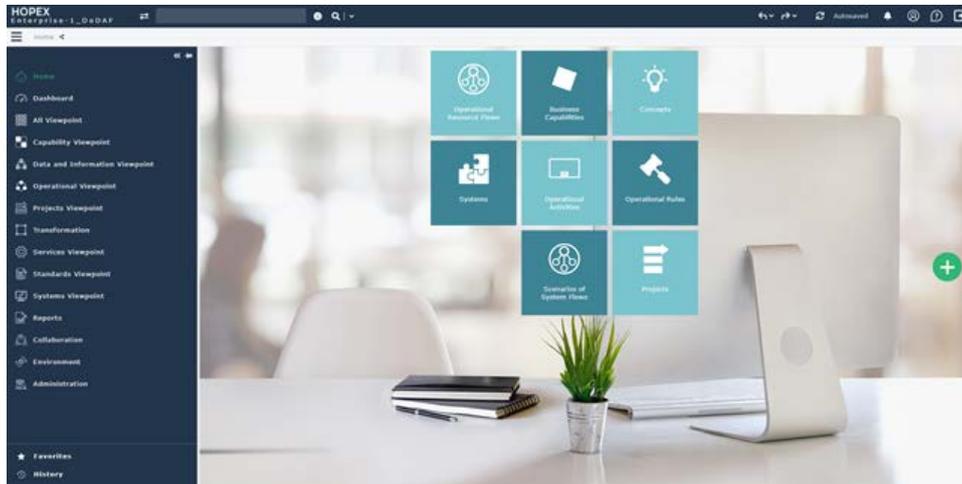
- The process conformance report (derived from the generic comparison report, see above) allows comparing processes
 - Including processes based on mining import (free name-based comparison: no duplication links are required between the processes)
 - Providing a conformance index computation, based on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



2.3. HOPEX DoDAF

2.3.1. Desktop

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

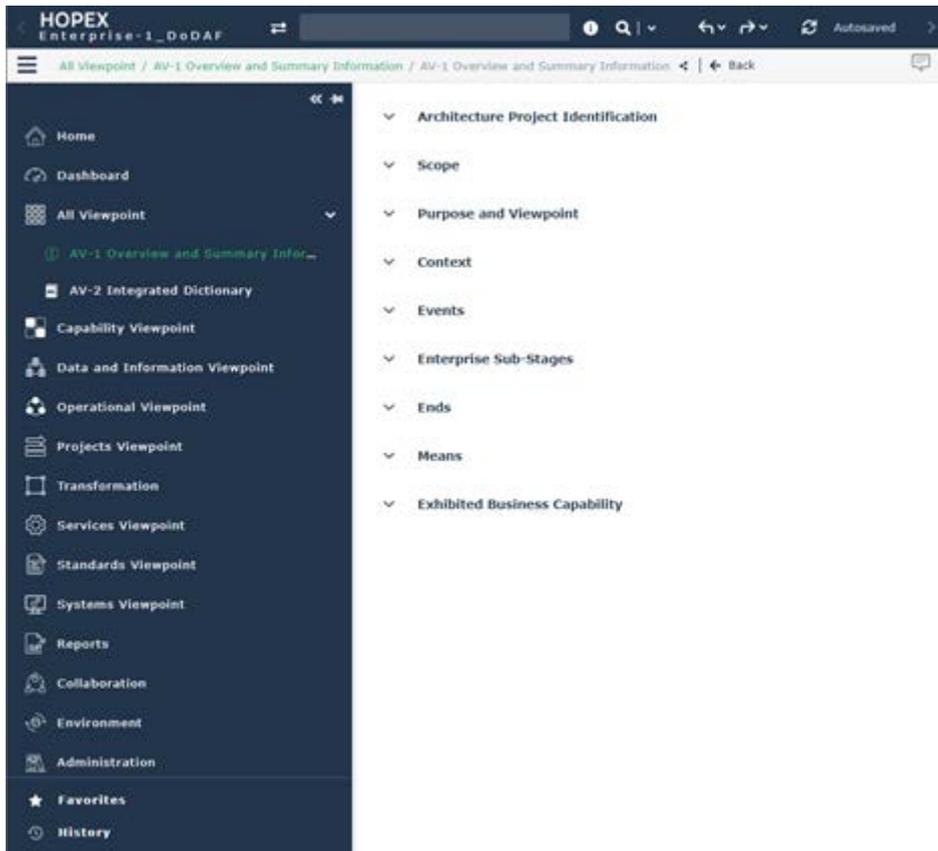


The user workspace is now changed to public mode. This means when the user closes an HOPEX session, he/she is prompted to choose whether to change his/her last workspace modifications.

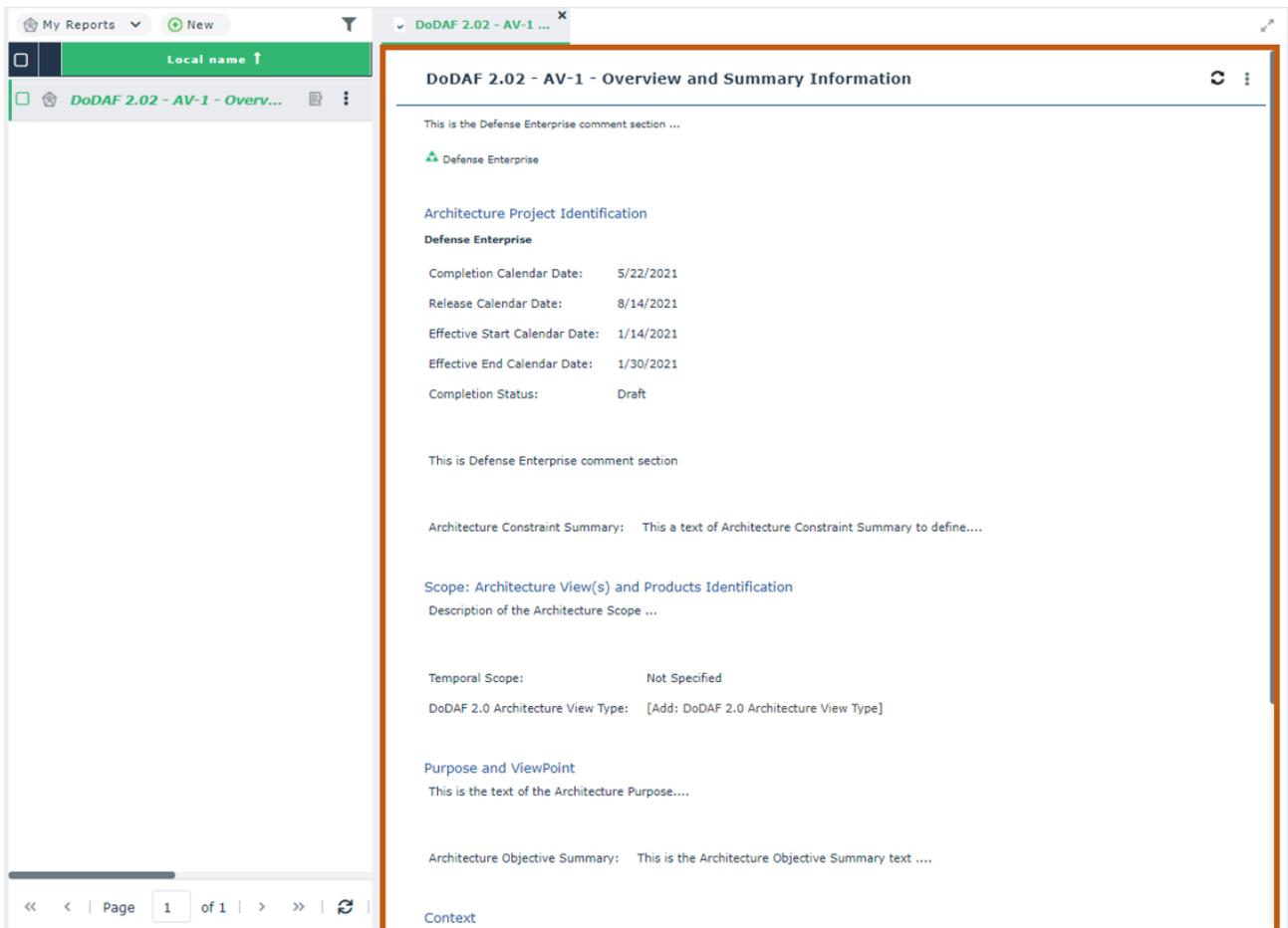


2.3.2. AV1 Improvement

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



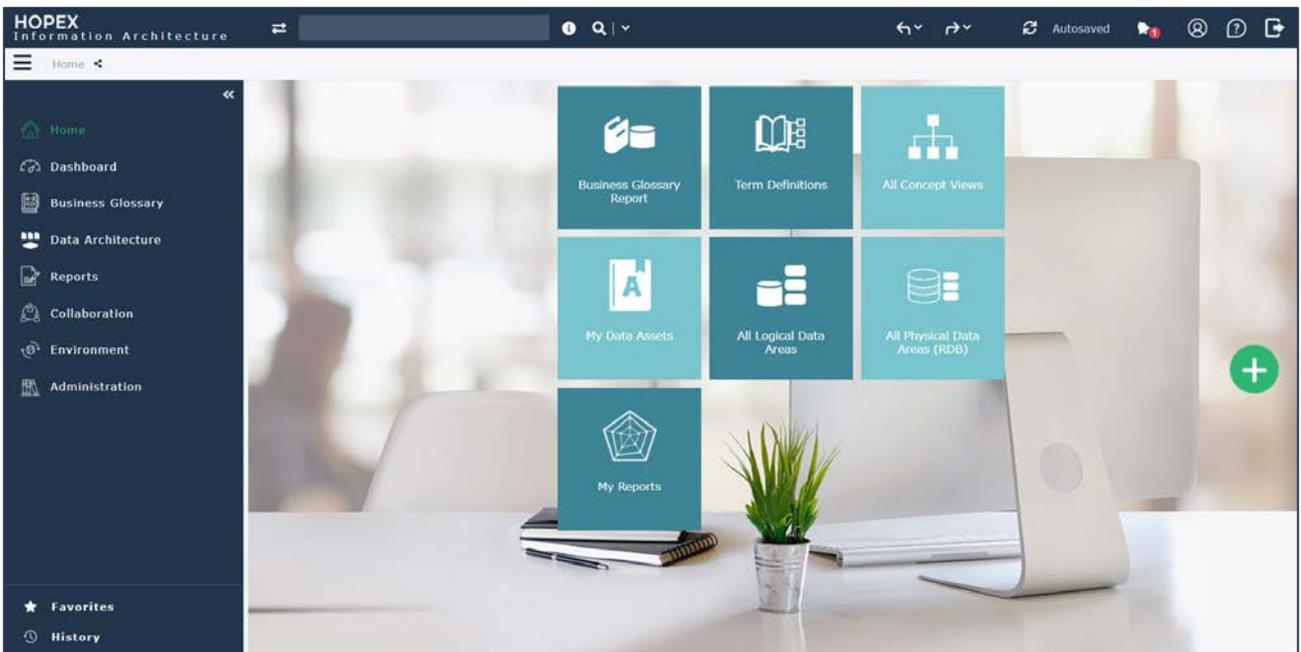
A sample report is available to show all the Architecture textual properties description of the AV1 viewpoint:



2.4. 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 & manage your Information Strategy, discover 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.



In this release, the product benefits from a modernized and simplified UI and a Data Source Extractor now supporting 64-bits drivers and ODBC data sources.

2.4.1. Profiles

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

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 Functional Administrator

IA Functional Administrator is renamed to Data Functional Administrator.

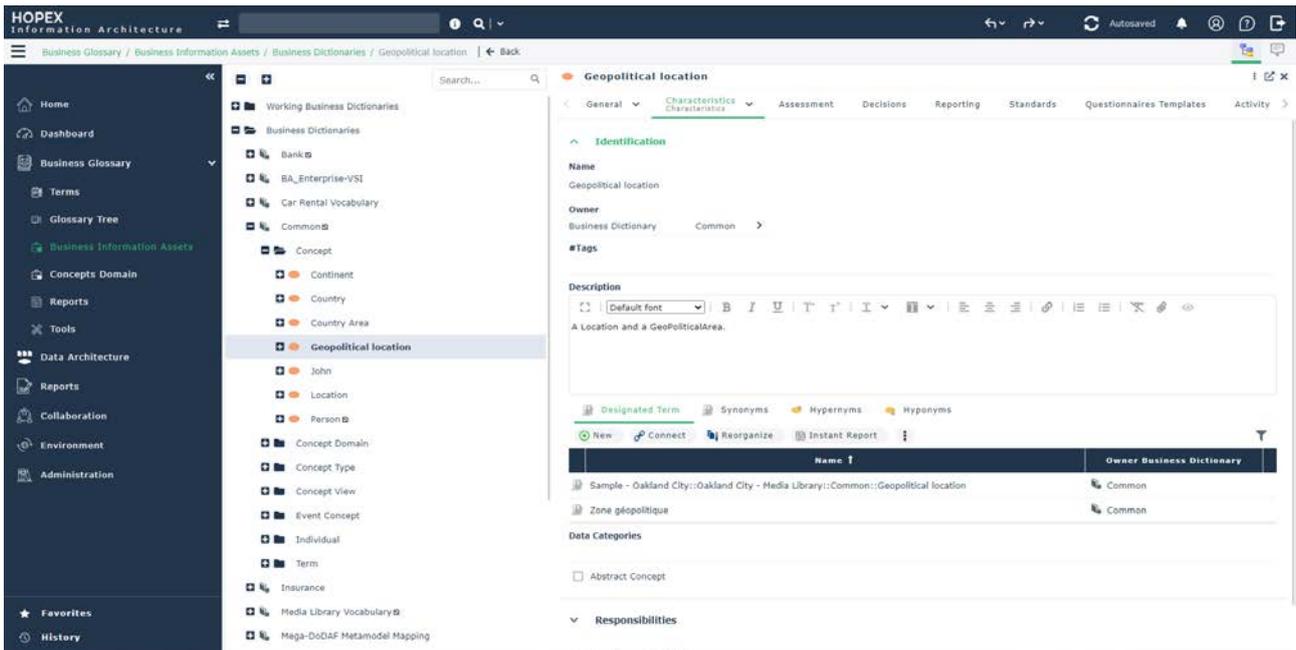
Old Profile(s)	Transformed to profile
IA Functional Administrator	Data Functional Administrator

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

2.4.2. 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.

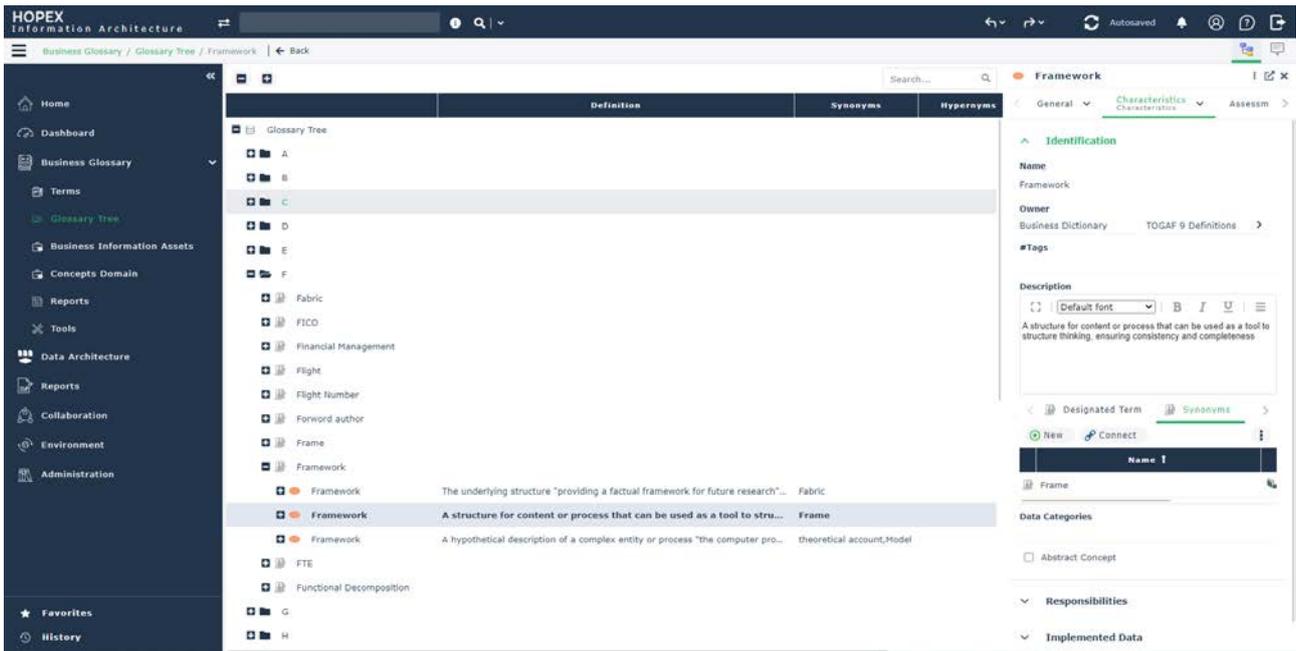
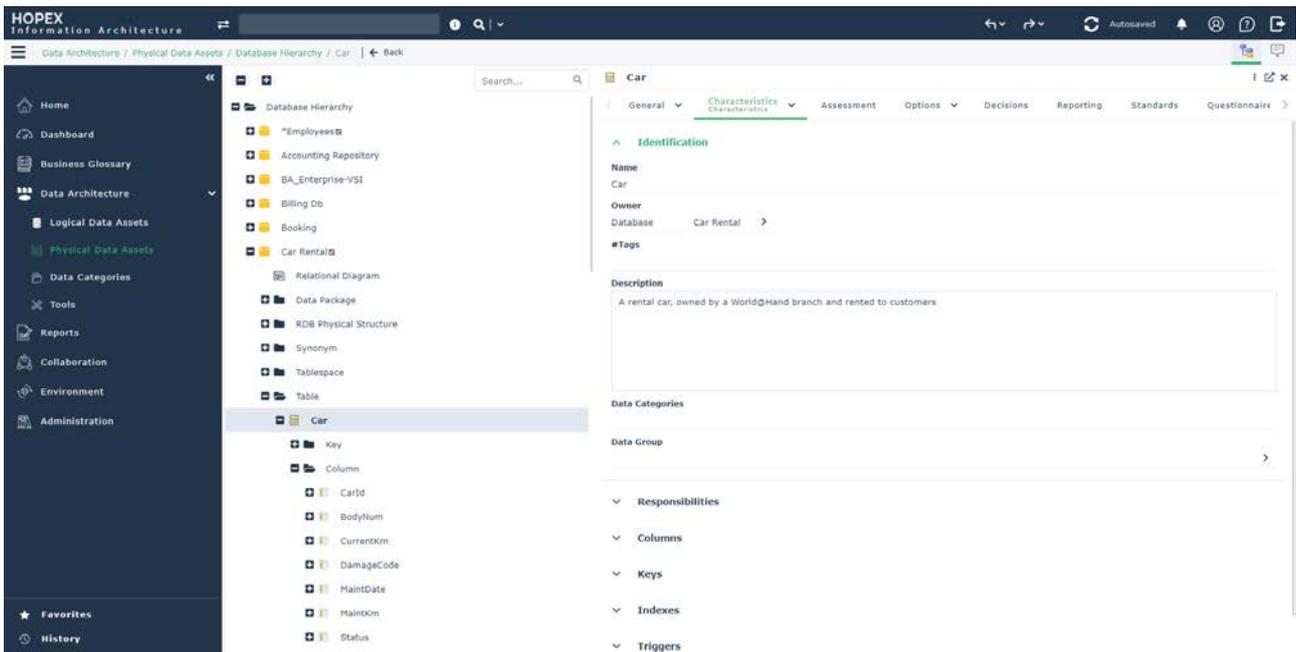


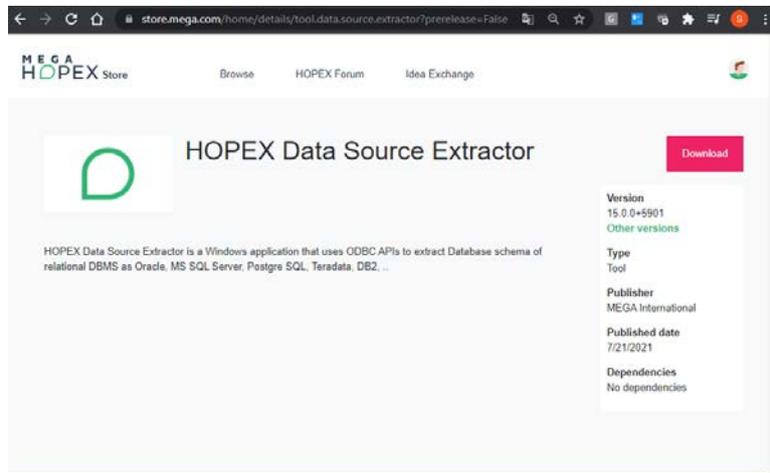
Table property pages are improved to present columns, keys, indexes and triggers in the same panel.



2.4.3. HOPEX Data Extractor

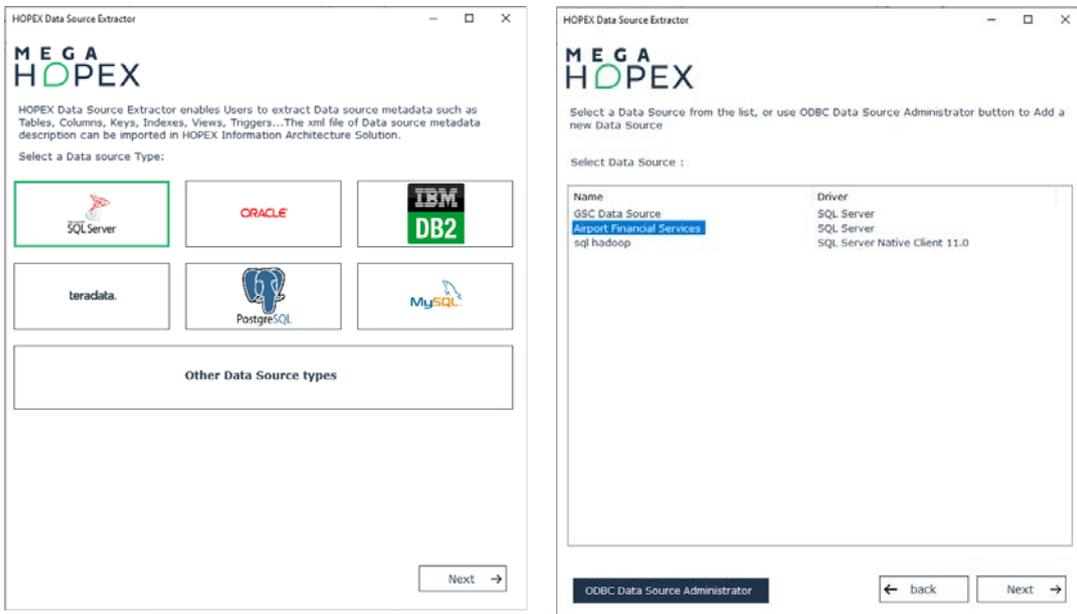
HOPEX Data Extractor tool is renamed “HOPEX Data Source Extractor”. This tool is now available both in 32 and in 64-bits version, to allow the use of 64-bits drivers and ODBC Data Sources.

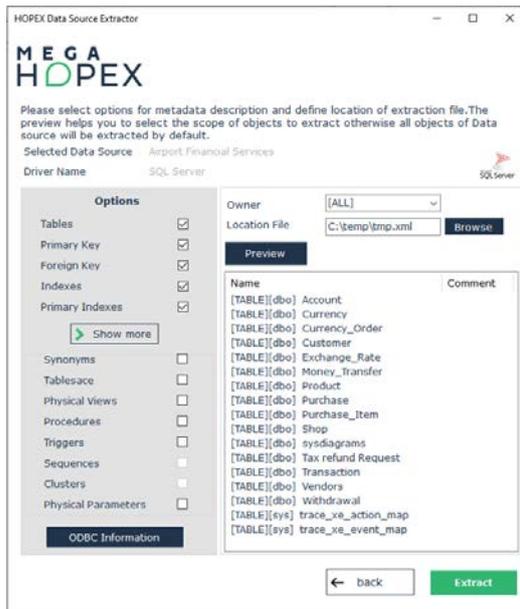
HOPEX Data Source Extractor can be downloaded from HOPEX Store in the “Utilities tools” section.



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.

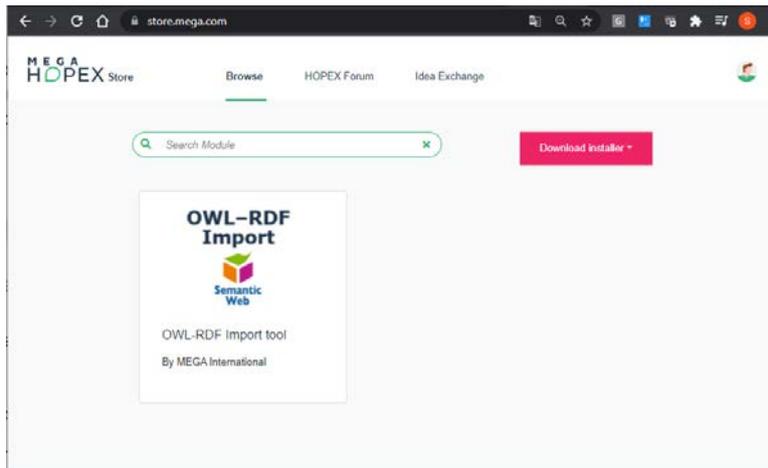
The extraction file can be imported from HOPEX Information Architecture web desktop to create physical Data assets as tables, columns, keys...

2.4.4. HOPEX OWL- RDF Import Tool

A new tool is provided to import Information expressed in Ontology Web language (OWL) and defined in xml file according to the principles of Resource Description Framework (RDF).

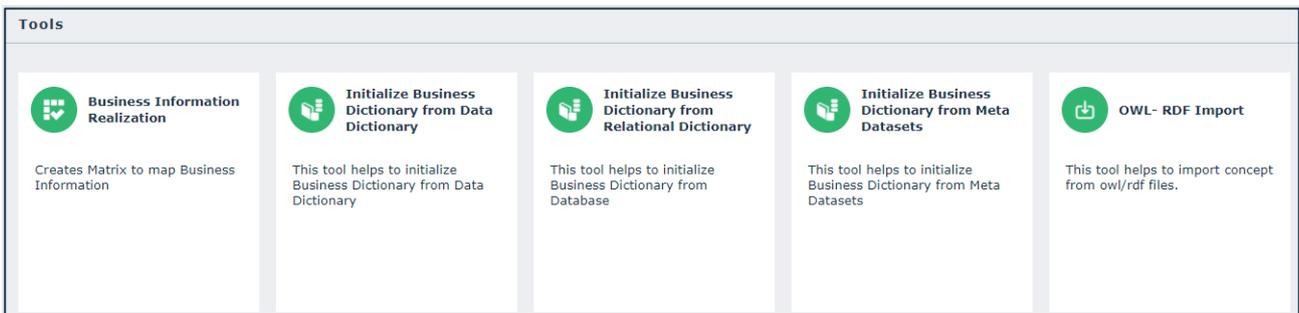
Resources and Information contained in the XML file are imported to build and initialize Business Information level in HOPEX IA Solution. These resources must be mapped to Concepts objects, their relationship, and their properties in HOPEX before the import.

HOPEX OWL-RDF Import tool can be downloaded from the HOPEX Store in the “Utilities Tools” section.



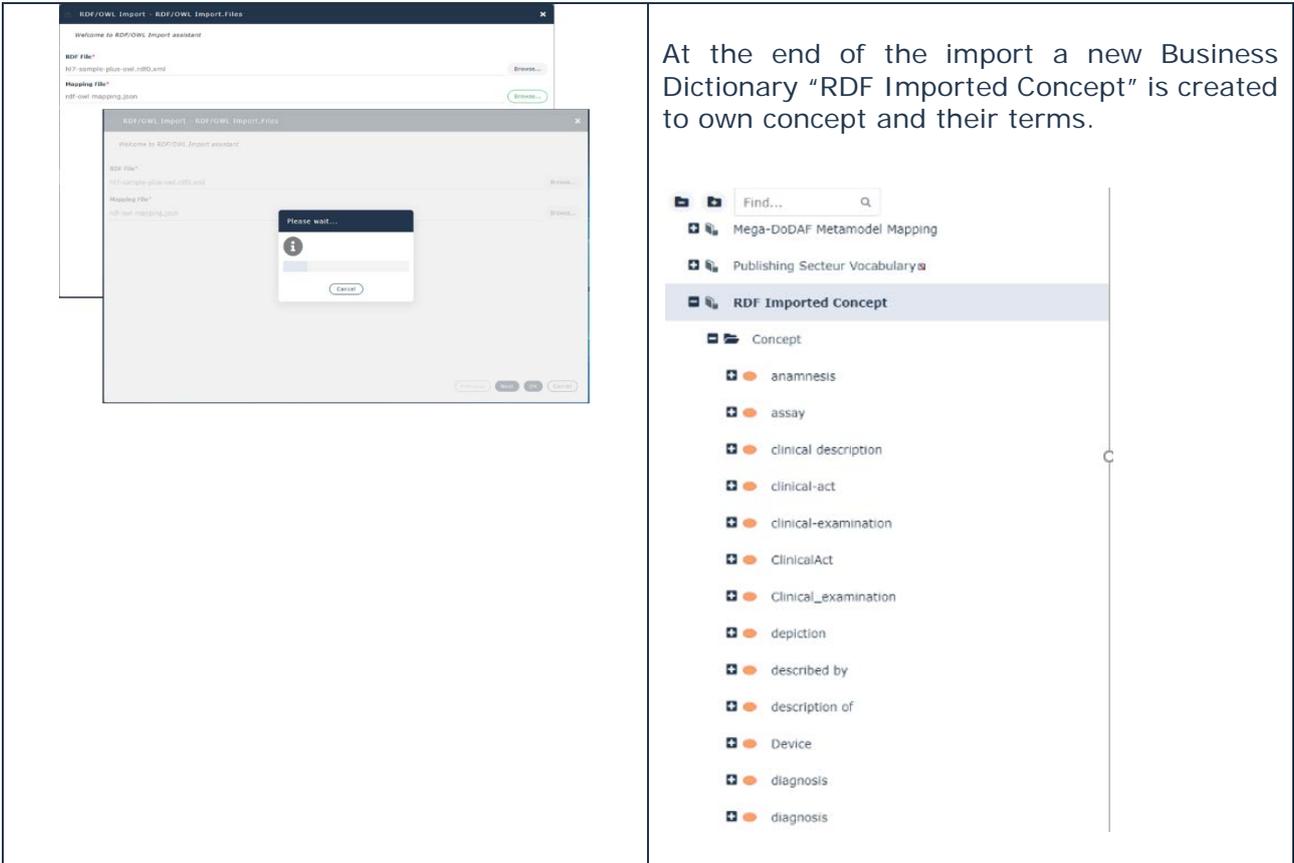
This tool is provided as a sample tool. It can be used directly or extended by the user. In this case, the user can download the Java Source code.

A deployment document is provided with the download tool from HOPEX Store. After tool deployment, the RDF Import tool is available from the tile “Business Glossary -> Tools -> OWL - RDF Import”.



0

You need to specify both the OWL-RDF file that you want to import and the corresponding mapping file.



2.5. 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.

This is why 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.

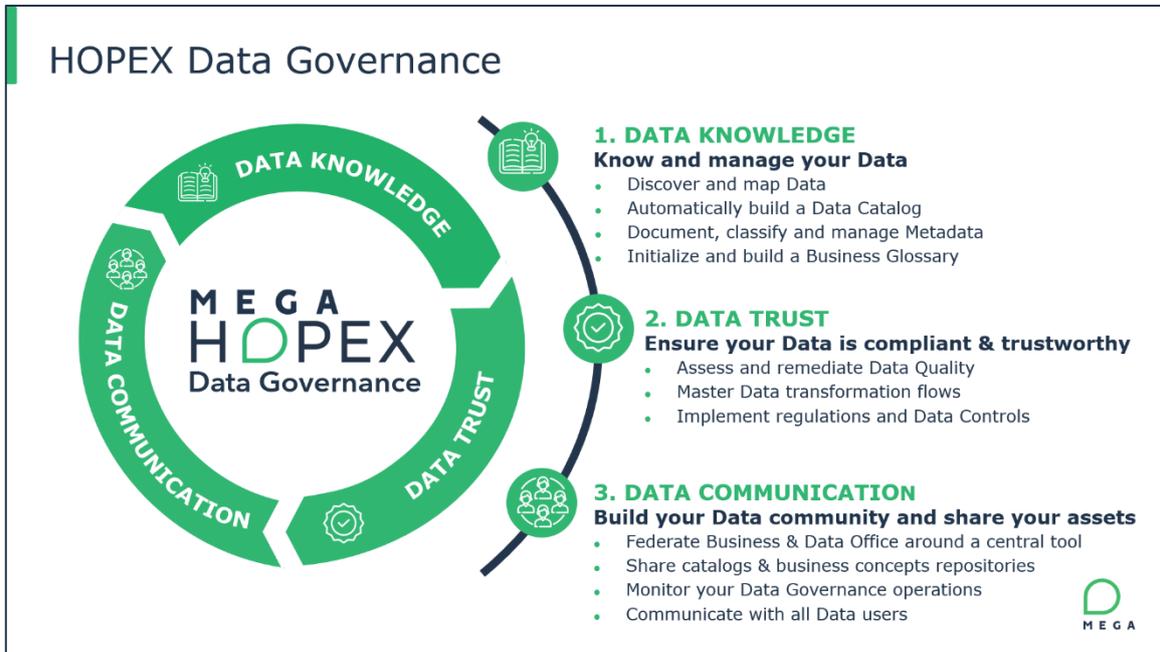


Figure 3 - Steps for a Business Data Governance

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

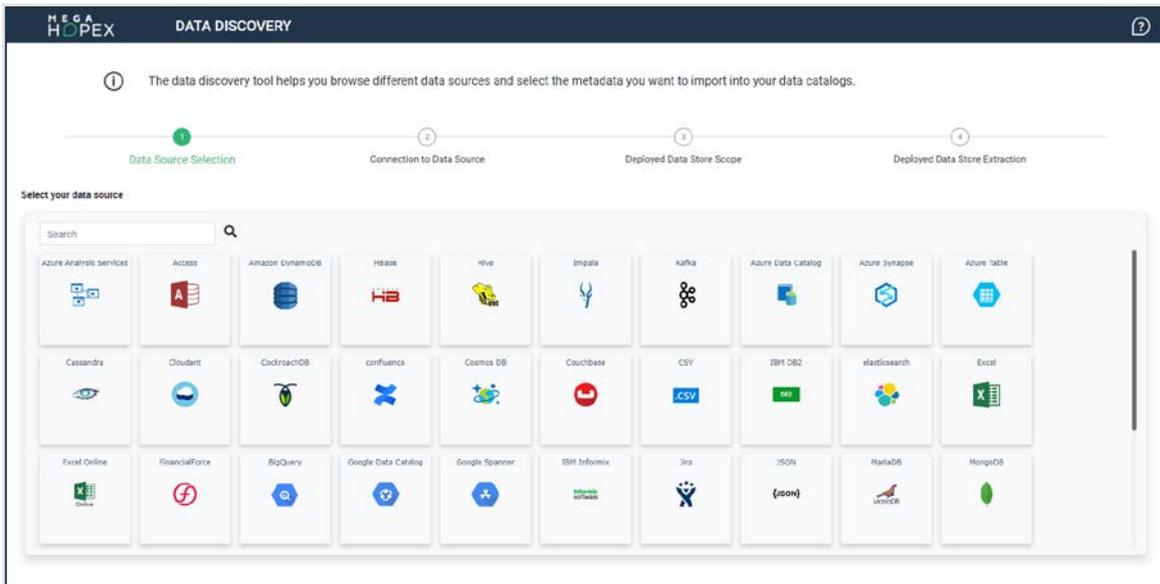


Figure 4 - Data Discovery module and connectors

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.

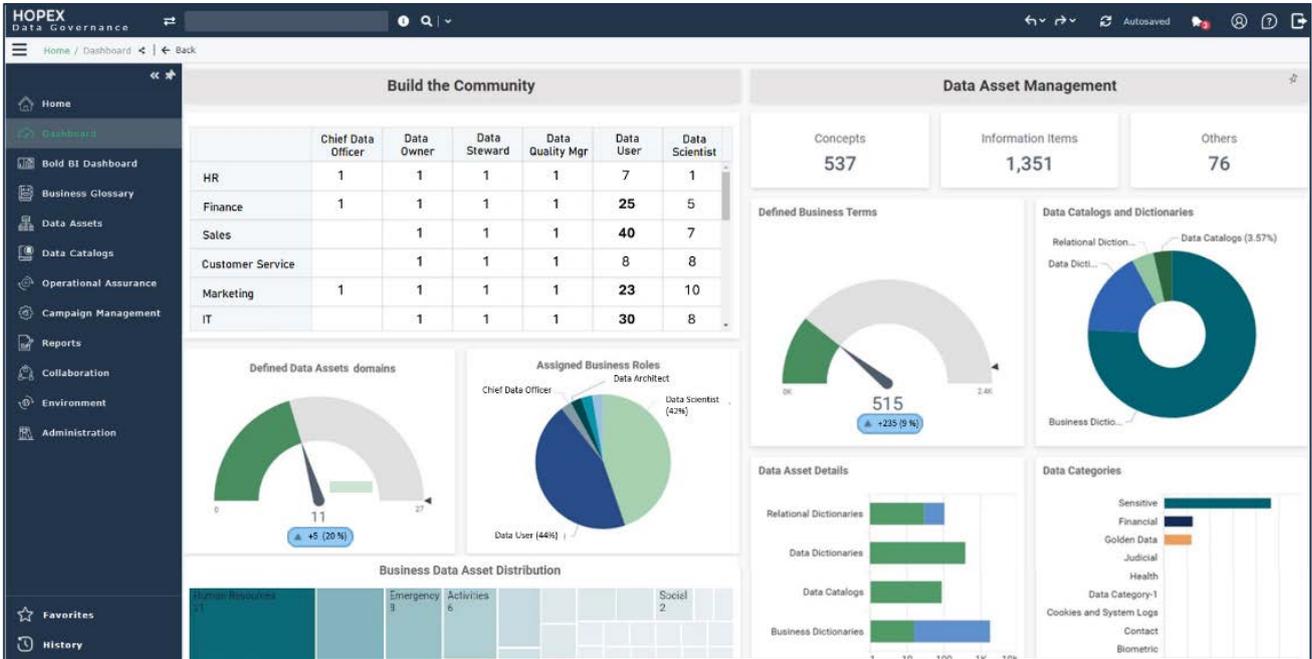


Figure 5 - HOPEX Chief Data Officer dashboard

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

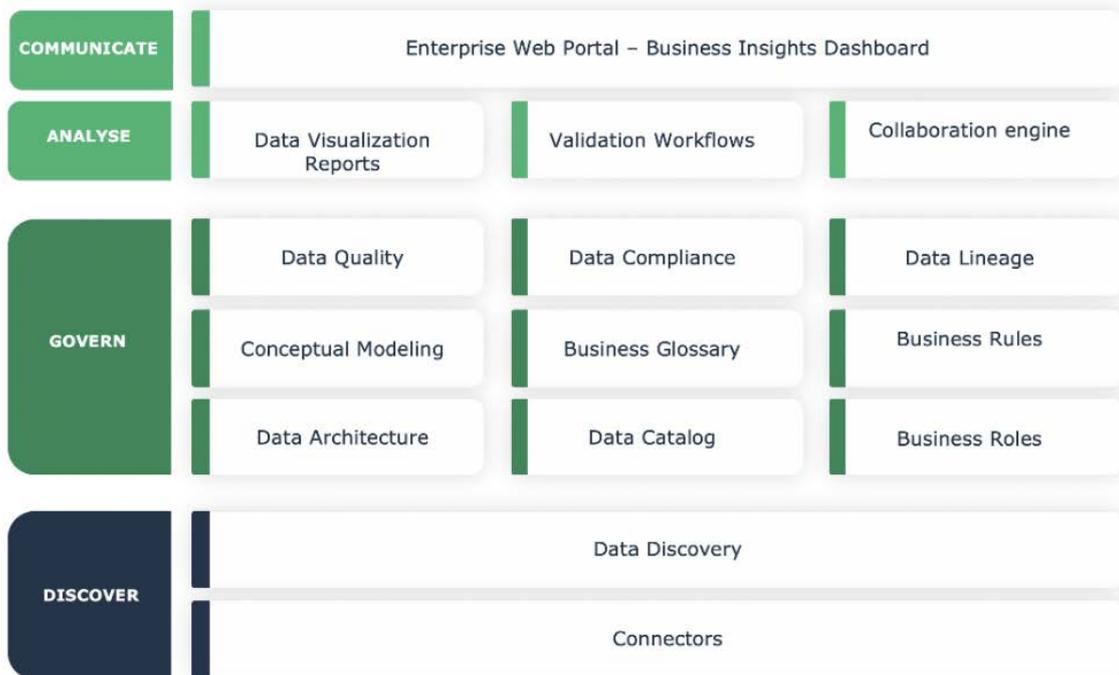


Figure 6 - HOPEX Data Governance functional coverage

2.5.1. 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.

2.5.2. 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

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
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

2.5.3. Desktop

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

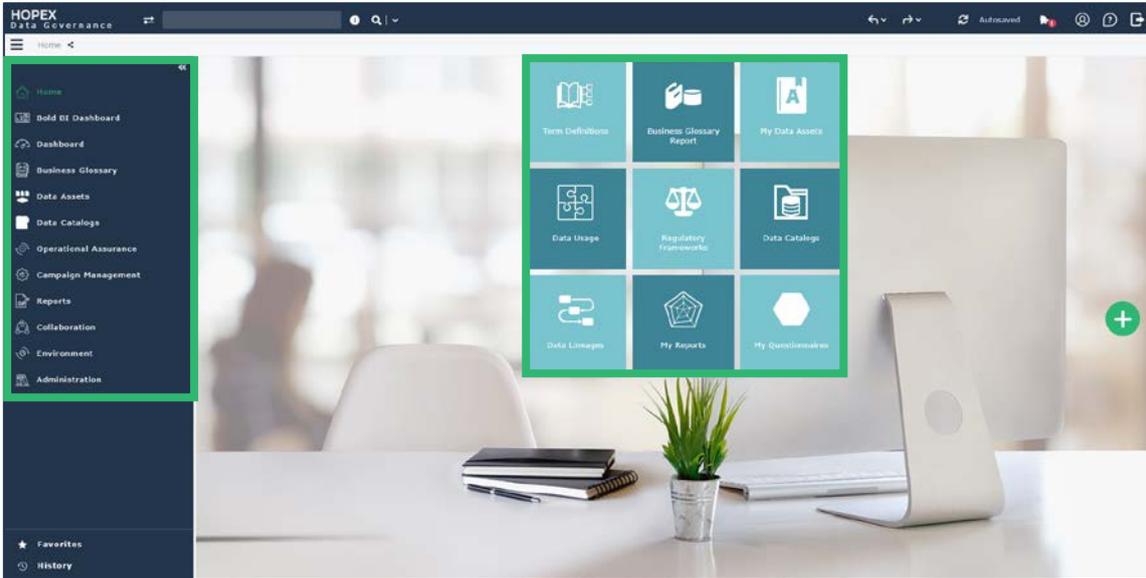
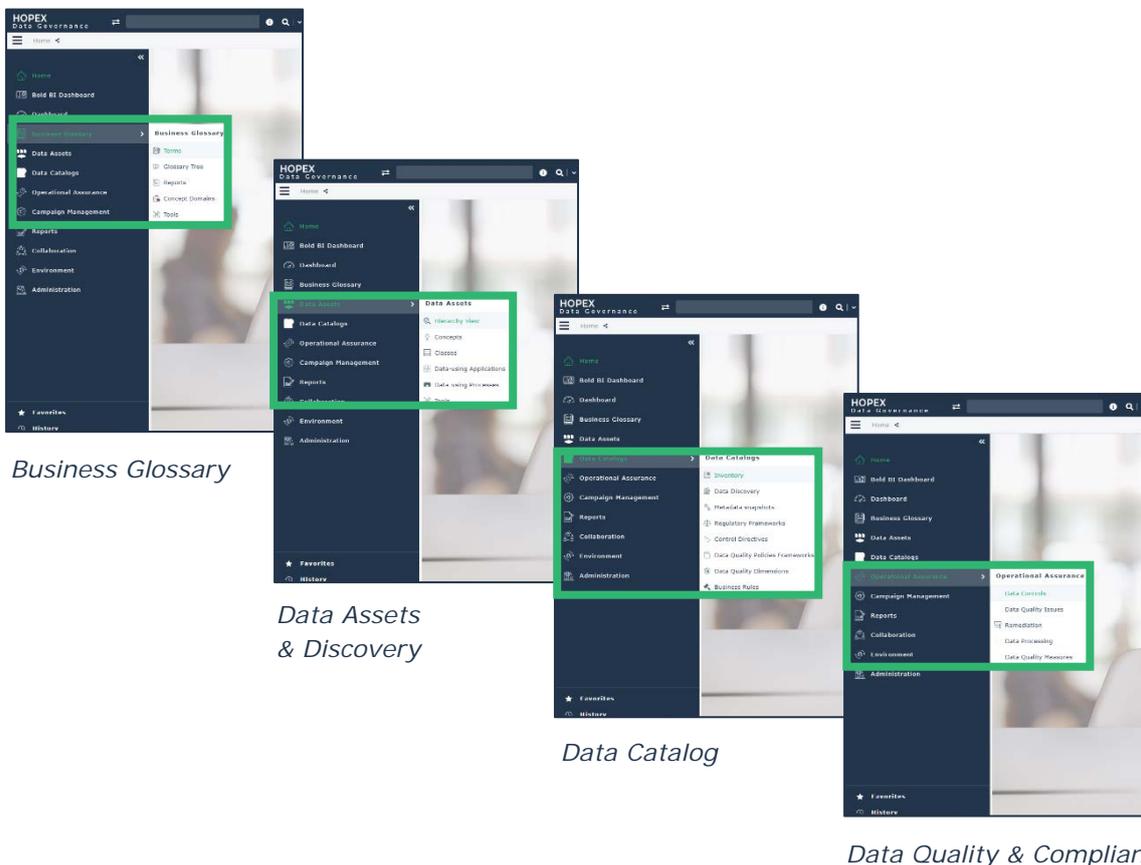


Figure 7 - Simple and direct feature access on user desktop

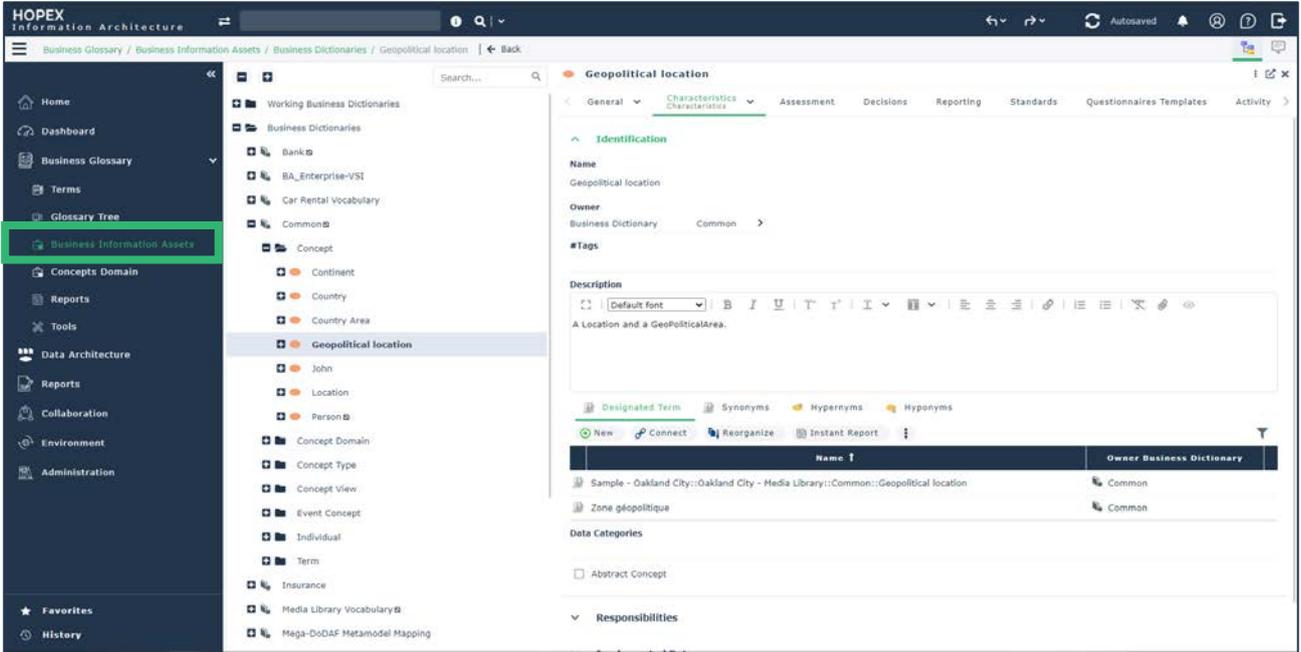
You can quickly perform Business Glossary, Data Assets, Data Catalog management works and Operational Assurance to manage Data Quality issues, Compliance & Controls.



2.5.4. Business Glossary

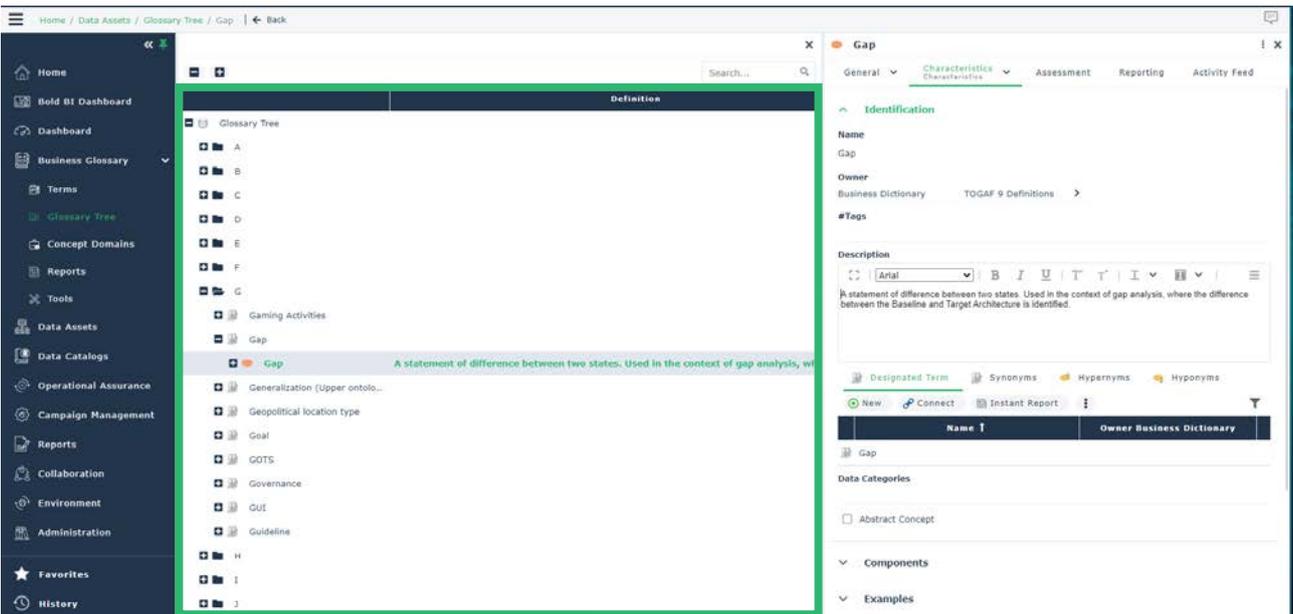
2.5.4.1. New Menu Item

Business Glossary menu is enhanced with a new Business Information Assets alphabetical tree to better access and search Terms and their definitions.



2.5.4.2. New Navigation and search Feature

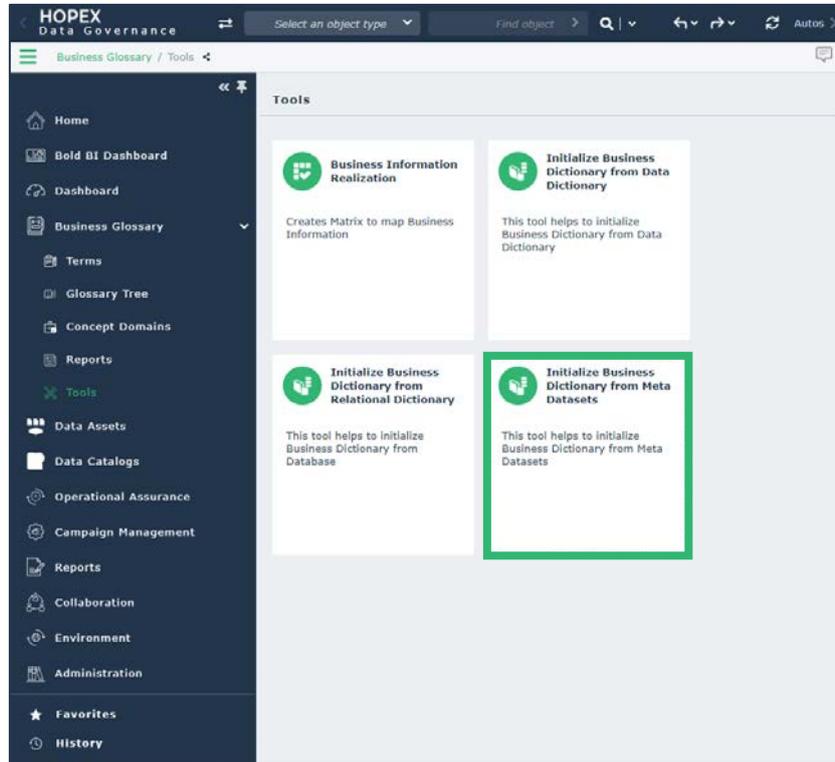
To make glossary easy to use, a new alphabetical navigation is provided to search term definitions and their usage context.



2.5.5. Business Glossary Initialization

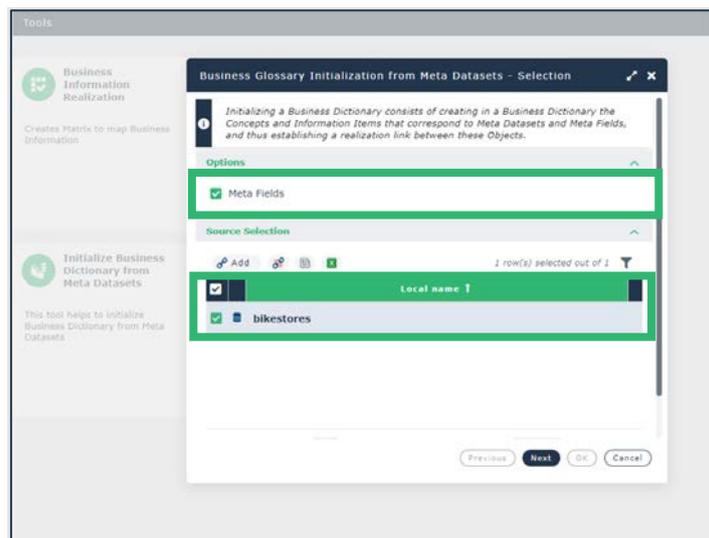
Discovered data assets as meta dataset, meta field, metadata inventory can be used to initialize Business Information and to build the Business Glossary.

In the Business Glossary tools menu, a new tool “Initialize Business Dictionary from Meta Datasets” is added.



In the initialization process, the Data user can select:

- Source Meta dataset
- And optionally use Meta fields to create realization links between objects



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.

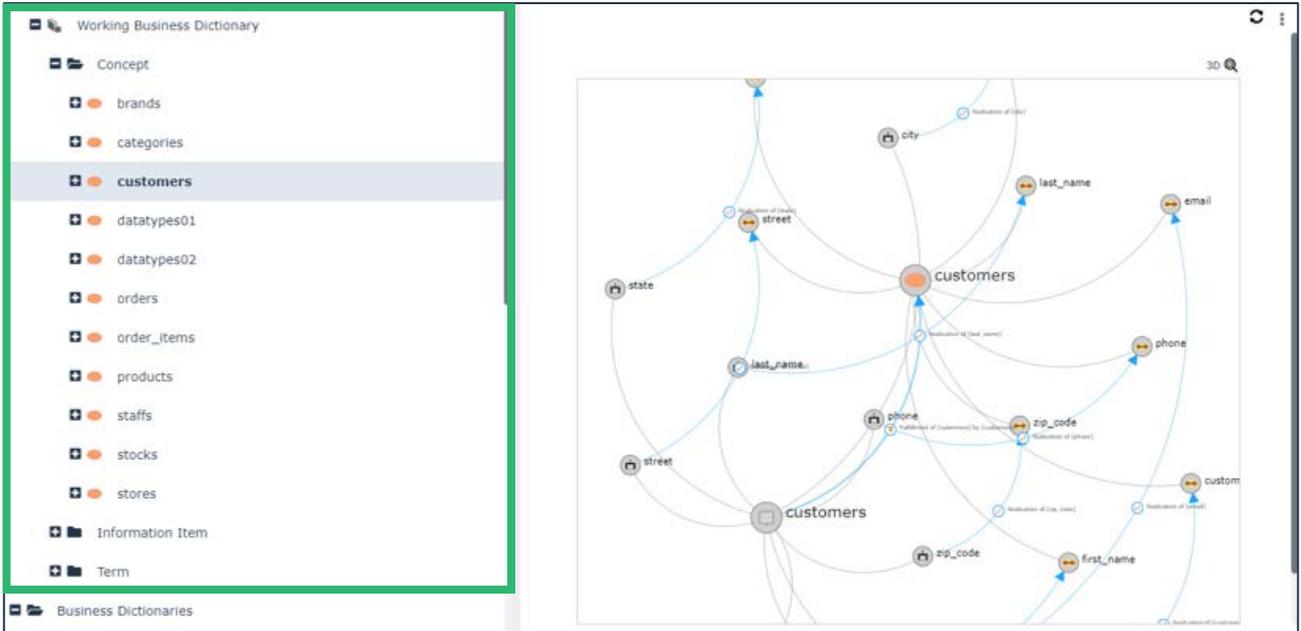


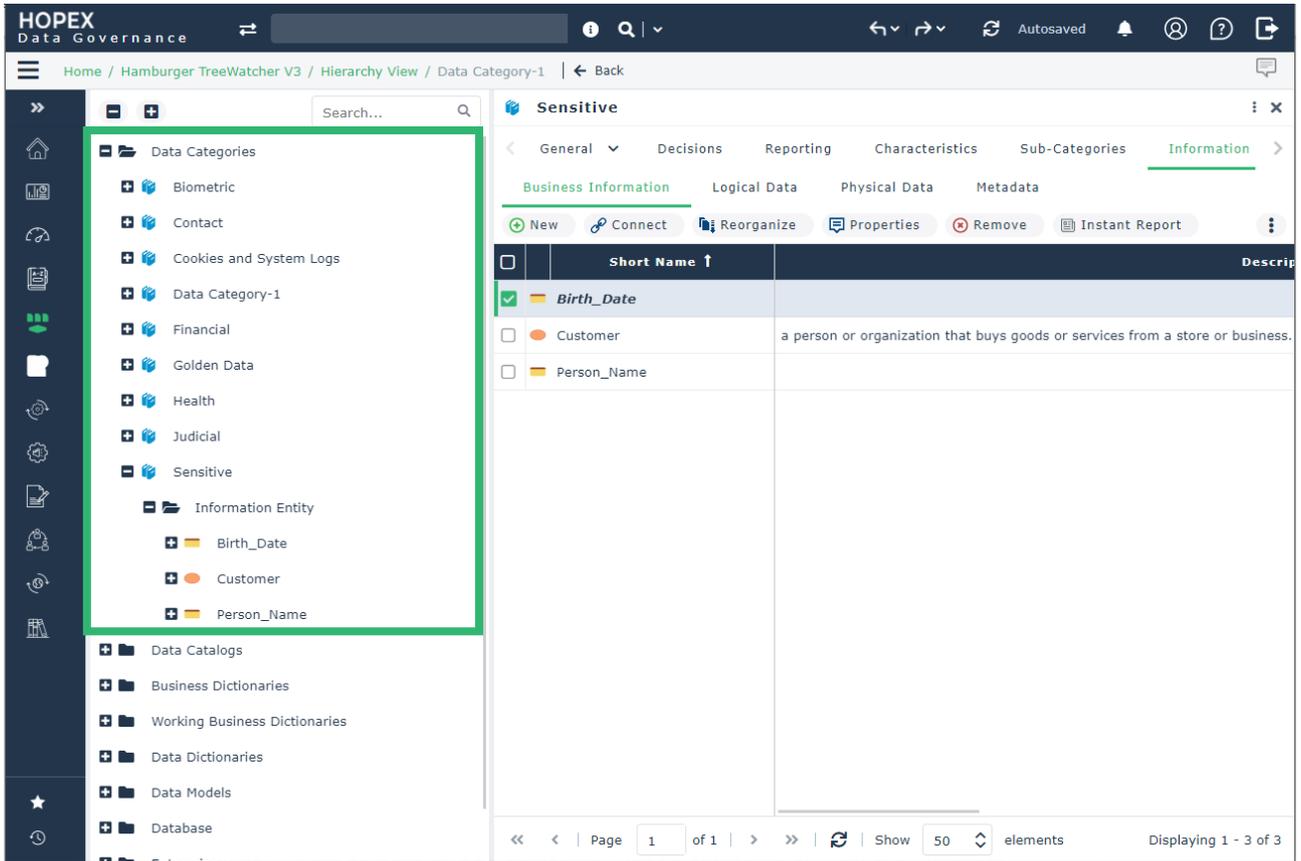
Figure 8 - Created Business Dictionary with navigation links from meta datasets to concepts

2.5.6. Data Assets

Regardless of their conceptual, logical, or physical level, all data assets are now accessible through the "Data Assets" menu.

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

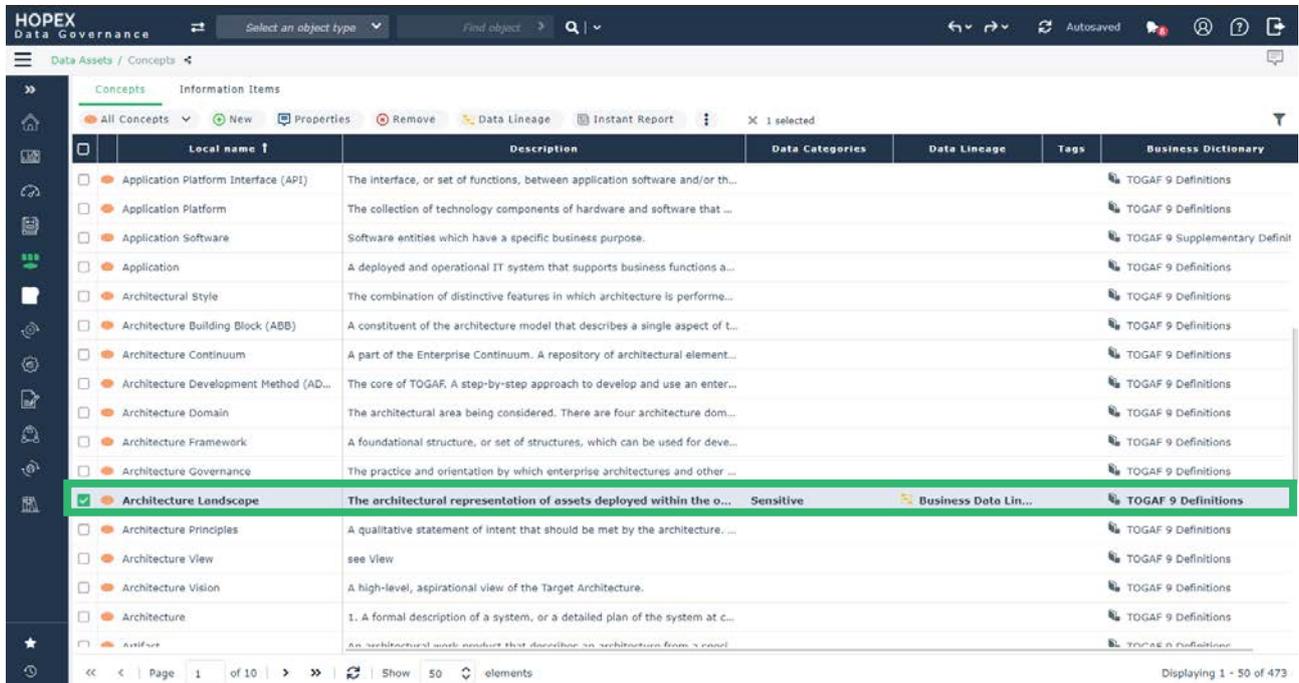
A new navigation root, based on Data categories, helps the Data Asset Manager to access all the objects from a specific and same classification.



Two lists of inventories exist, allowing access to conceptual data (Concepts / Information Items) and logical data (Classes).

These lists directly expose the most important properties to manage data as an asset.

They allow to classify and tag data, and to create or to access Data lineage.



2.5.7. Data Catalog

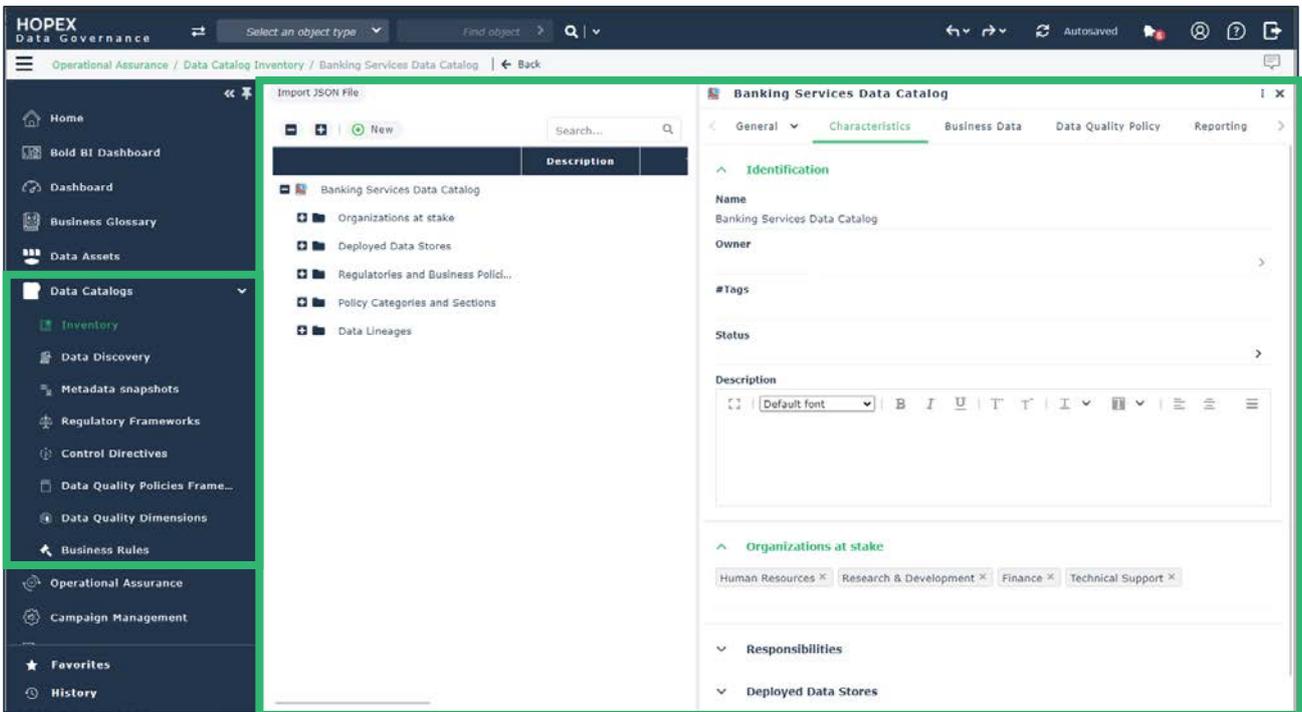
This new Data Catalog functionality is now created as a central Data Governance item to help all the Data Community.

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.

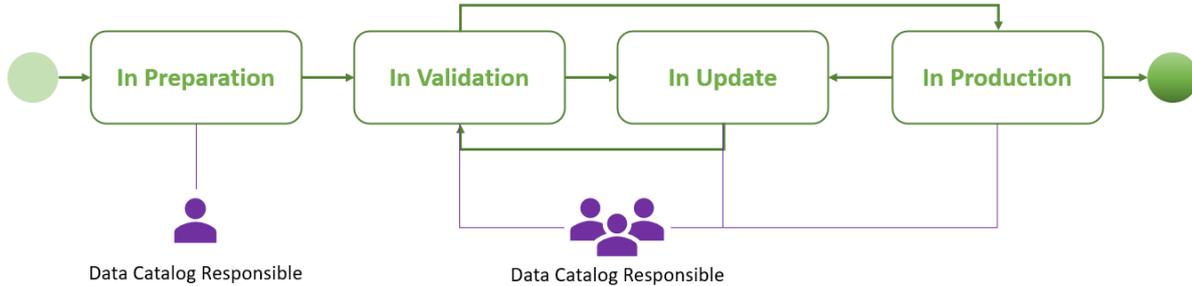


Named access lists with roles & rights can be defined on Data Catalog to indicate who manages and consumes Data catalog.

Note: The Data Catalog is a new concept based on the former HOPEX “Data Assurance Domain”.

2.5.8. 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.

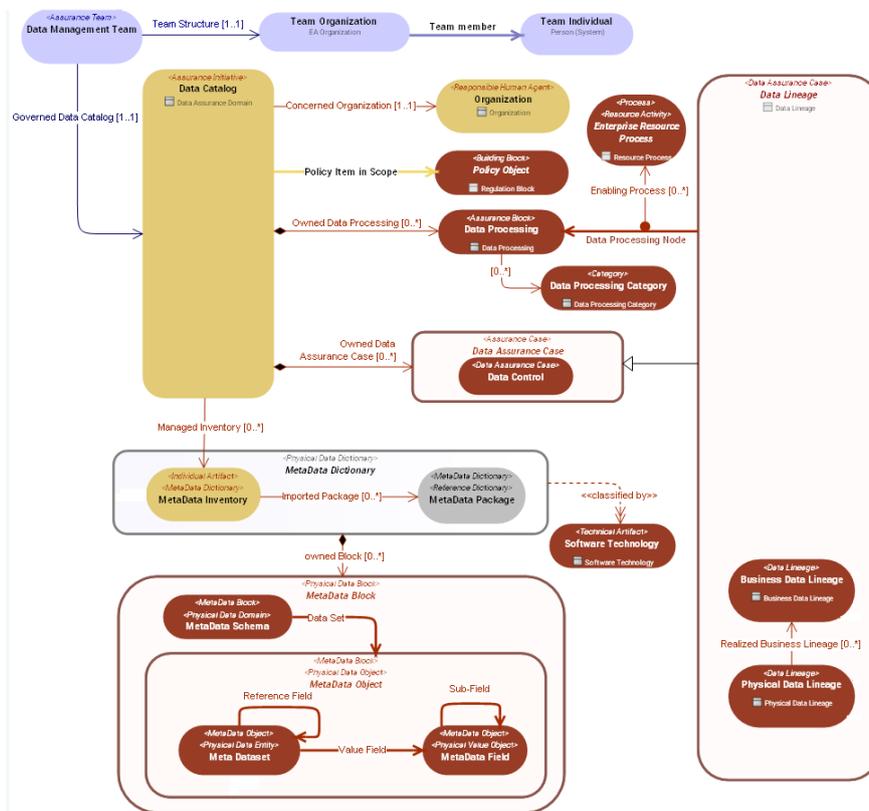


Notifications will be sent to the various managers each time the Data Catalog status changes.

2.5.9. Metadata description

Metadata inventory, meta dataset, meta field, structured meta field, metadata package... are new concepts provided to describe and manage Metadata objects for all Data sources as SQL Databases, NoSQL Databases, or flat Data sources as CSV, WML, Json files...

All these metadata objects will be created by using Data Discovery Tool.

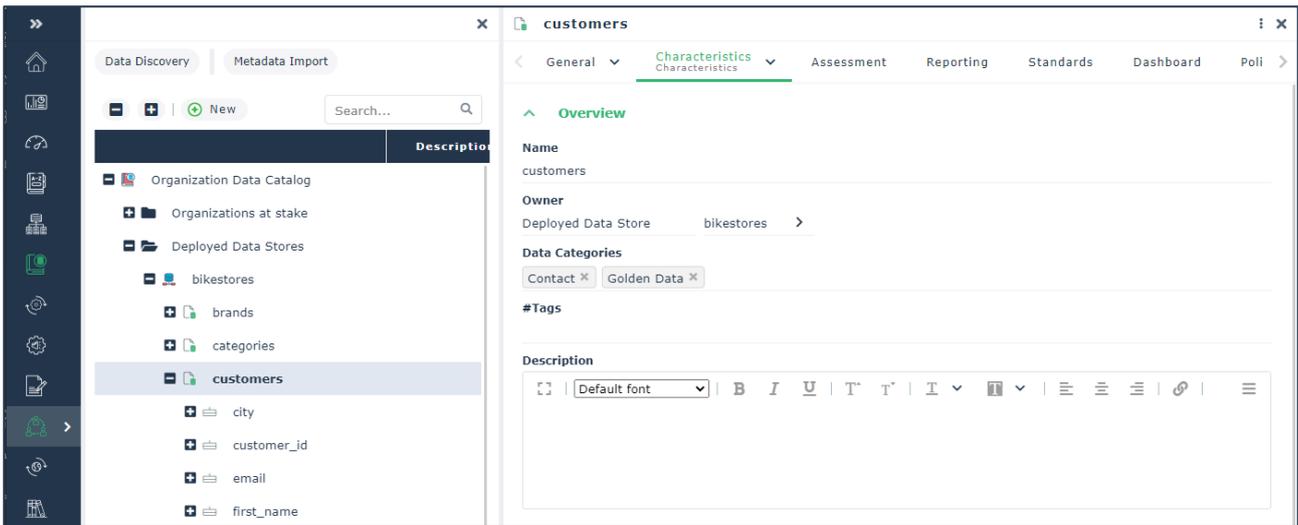


2.5.9.1. Metadata Classifications & tags

Data User can classify metadata objects such as meta dataset, meta field in order to organize them by data categories and identify protected data, golden data, sensitive data and other categories.

The data user is also able to define different tags on the metadata objects to complete their description to logically organize them in a certain taxonomy.

Outlining metadata responsibilities such as data owner facilitates communication and collaboration in data governance processes for better key data assets management.



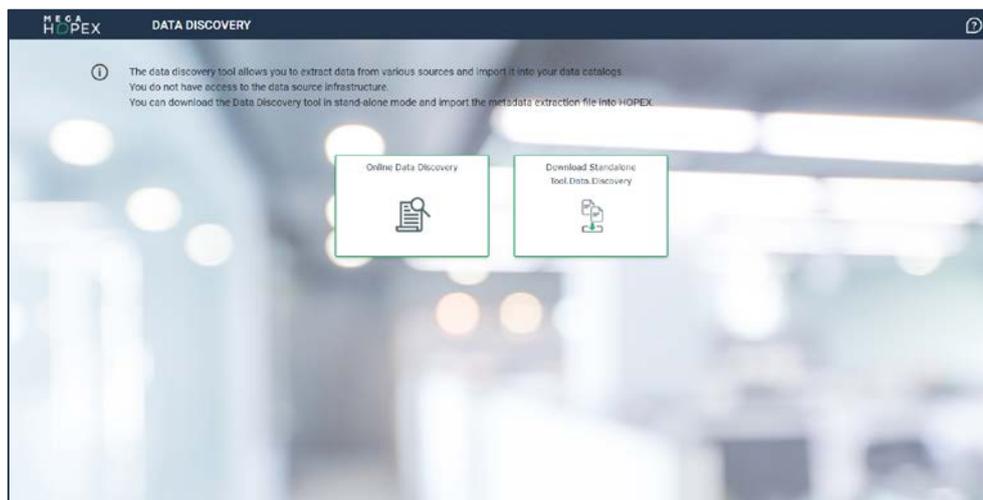
2.5.10. Data Discovery

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.

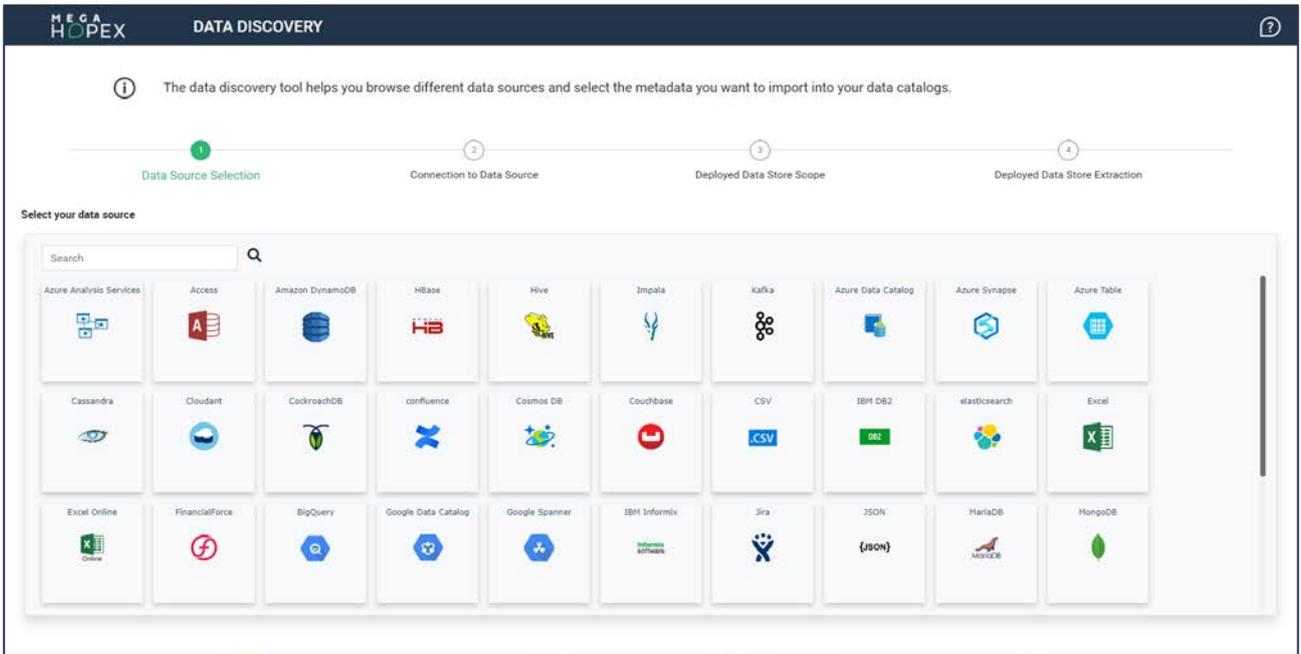
The module can be used in 2 modes:

- **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.
- **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.

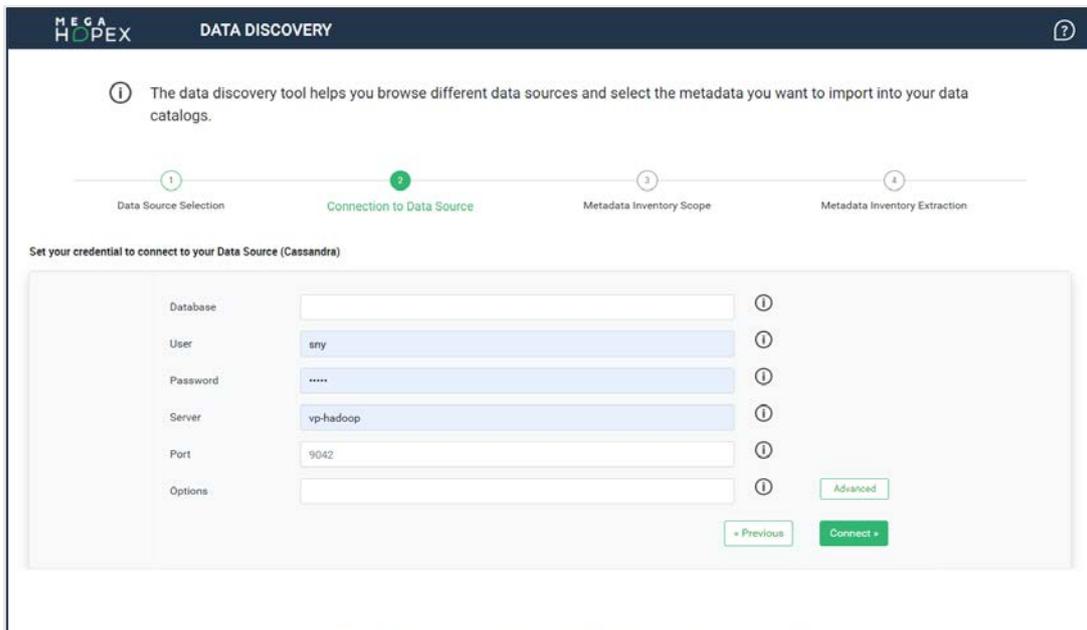


2.5.10.1. Discovery Connectors

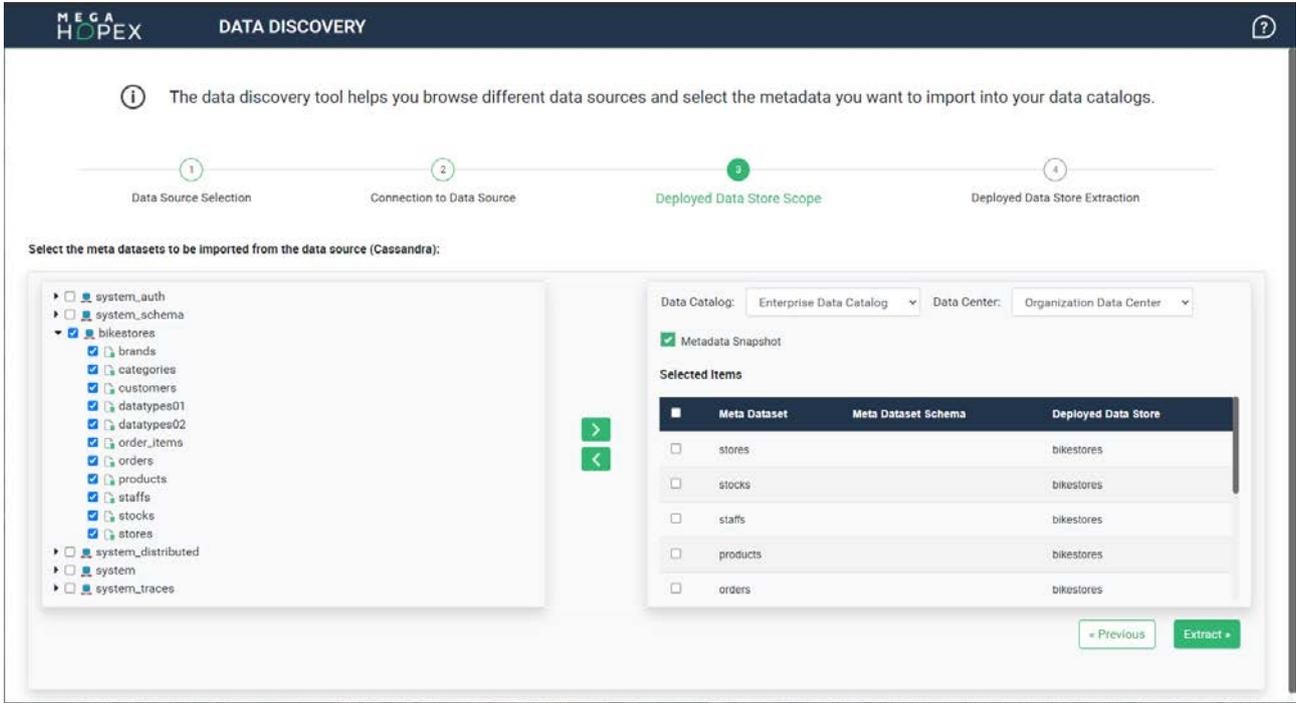
The user can choose first which data source type he/she would like to discover.



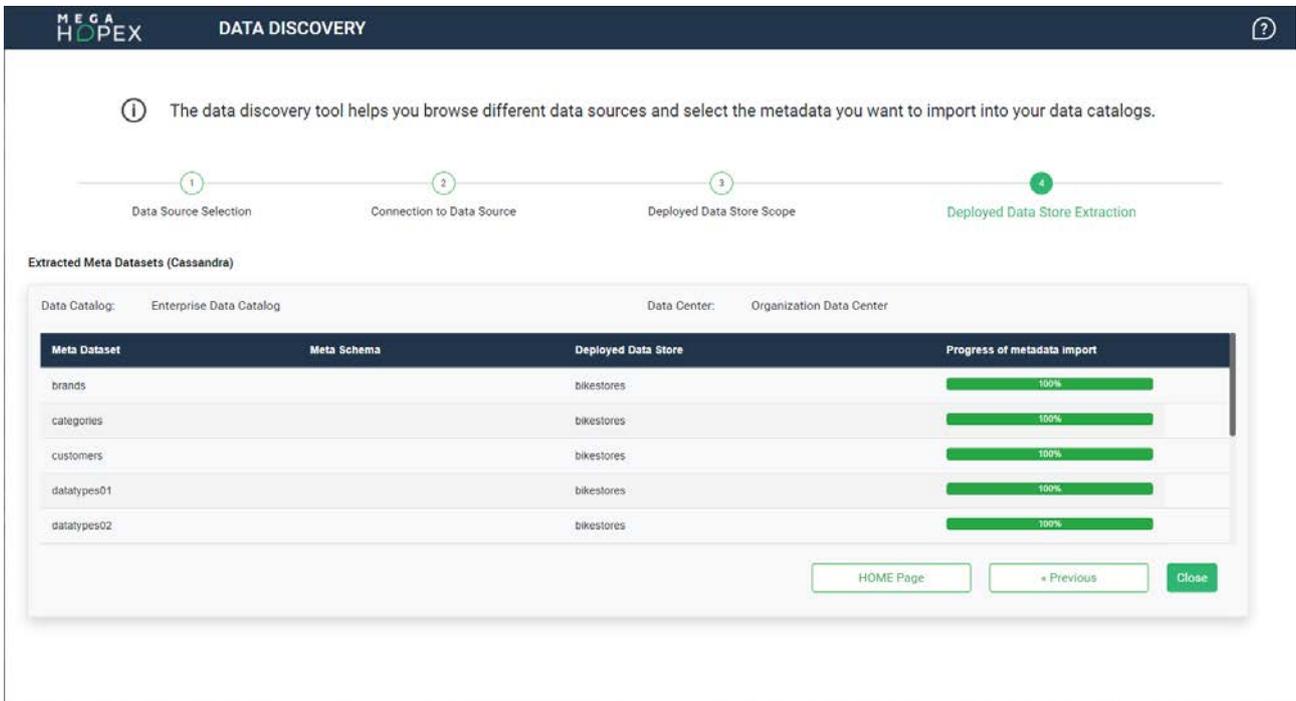
The user can then enter Data source credentials to connect to the system.



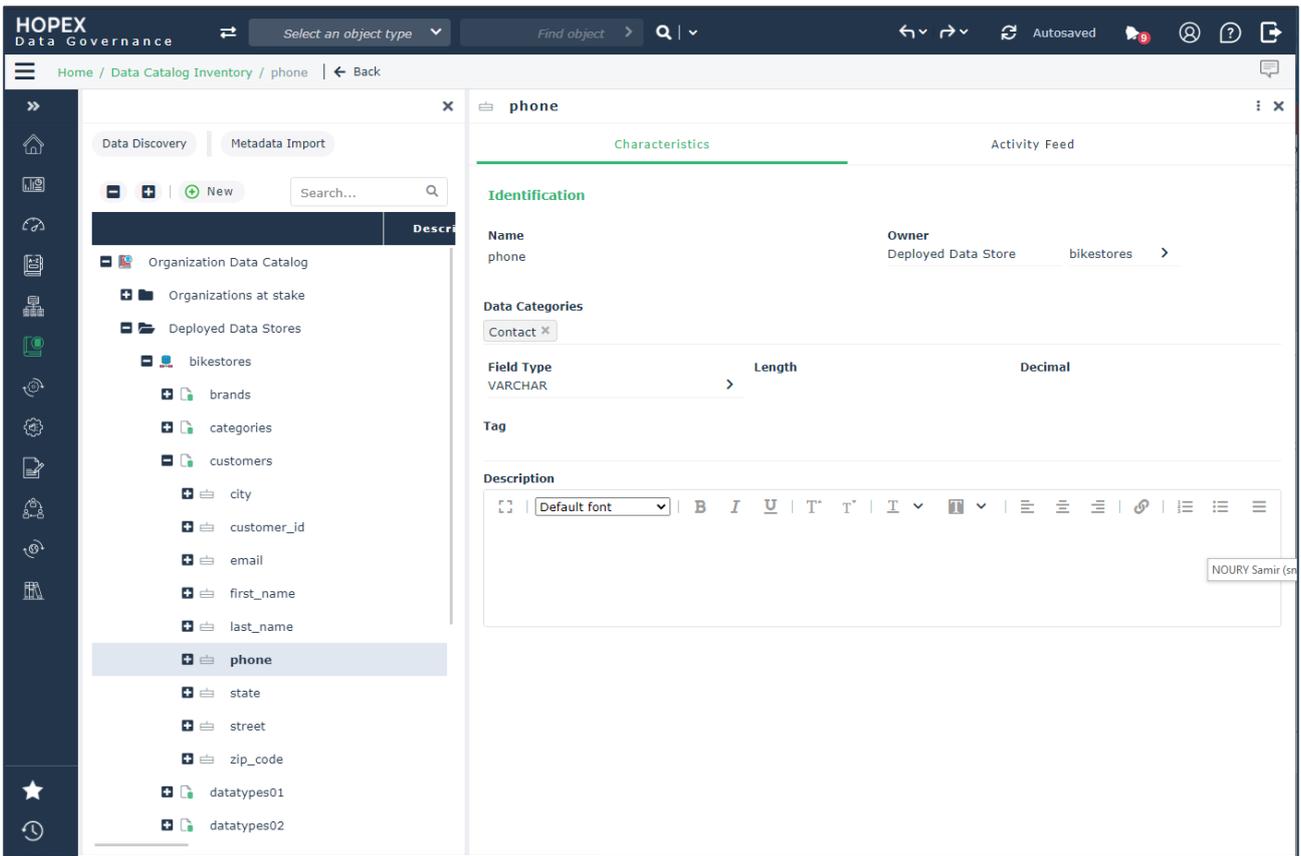
Once Data source is connected, the user can select the scope of metadata to import in HOPEX and select in which Data catalog metadata inventory it will be referenced. Beyond the metadata scope, he can also ask to import qualitative and quantitative indications on the data values.



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.



2.5.11. Business Roles

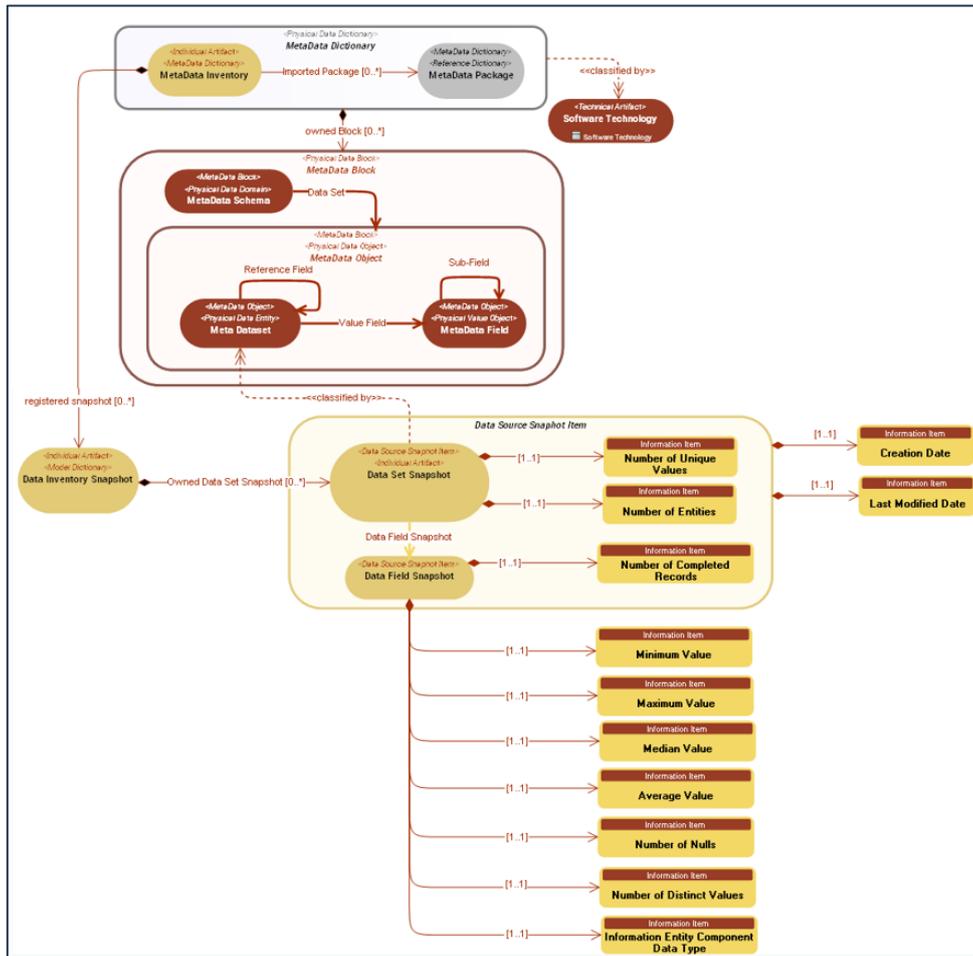
New Business Role are added to manage and define responsibilities on Data Assets.

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.

2.5.12. 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. He/She can visualize metadata snapshot from the menu in the desktop, by specifying the Data Catalog, the metadata inventory snapshot, the snapshot and specific time.

HOPEX Data Governance

Select an object type Find object

Home / Data Catalogs / Data Catalog Snapshots Back

Data Catalog: Organization Data Catalog
 Deployed Data Stores: bikestores
 Snapshot date: bikestores_2021-09-08T07:27:46.611Z

	Number of Row	Number of Uniq...	Field Type	Number Comple...	Number of Dist...	Number of null	Average
bikestores_2021-09-08T07:27:46...							
brands	9						
categories	7						
customers	1445						
city		4	VARCHAR	1445	195	0	0
customer_id		0	INT	1445	1445	0	723
email		1445	VARCHAR	1445	1445	0	0
first_name		1098	VARCHAR	1445	1265	0	0
last_name		336	VARCHAR	1445	753	0	0
phone		178	VARCHAR	178	178	1267	0
state		0	VARCHAR	1445	3	0	0
street		1445	VARCHAR	1445	1445	0	0
zip_code		4	INT	1445	195	0	34200
datatypes01	0						
datatypes02	0						
orders	1615						
order_items	1615						
products	313						
staffs	10						

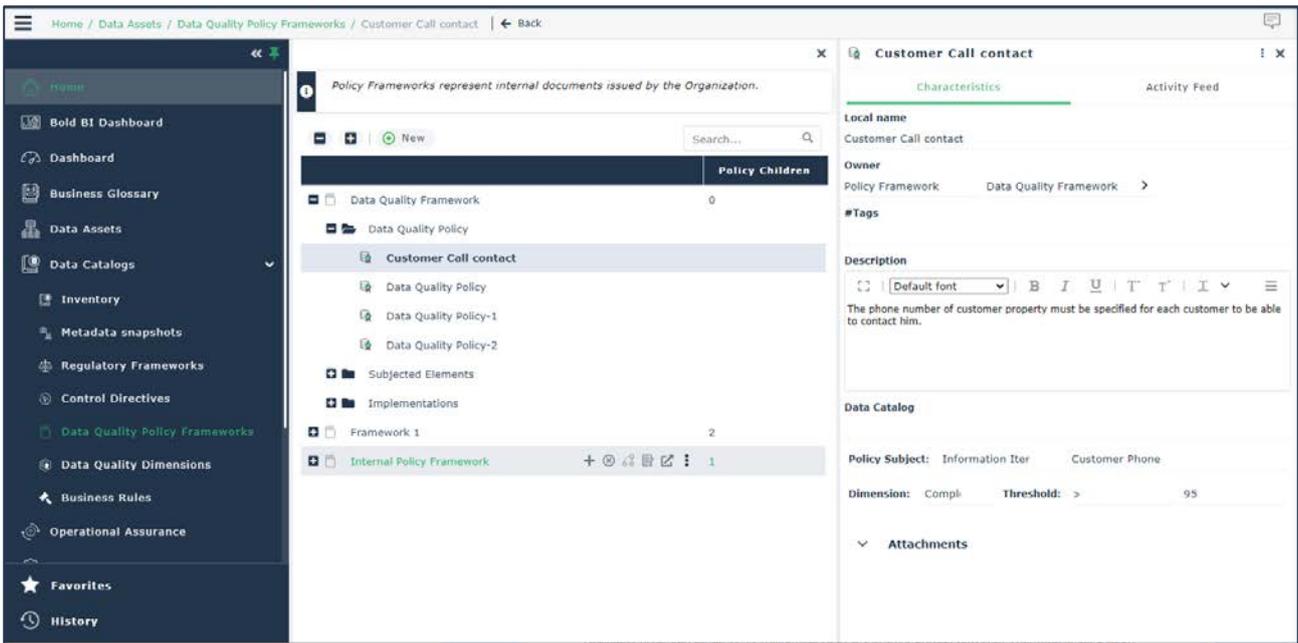
2.5.13. Data Quality Policy

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.

The screenshot shows a web application interface for 'Data Quality Dimensions'. On the left is a navigation menu with options like Home, Bold BI Dashboard, Dashboard, Business Glossary, Data Assets, Data Catalogs, Inventory, Metadata snapshots, Regulatory Frameworks, Control Directives, Data Quality Policy Frameworks, Data Quality Dimensions (highlighted), Business Rules, Operational Assurance, Favorites, and History. The main content area is titled 'Add predefined dimensions' and contains a table of dimensions.

	Description	Data Quality Policy Subject	Threshold Opera...	Value	Unit	Owner
Accessibility	Ease of access and use, at a practical ...				%	Data Quality Di...
Data Quality Policy						
Accuracy	The degree to which data correctly de...				%	Data Quality Di...
Completeness	The proportion of stored data against ...				%	Data Quality Di...
Data Quality Policy						
Customer Call contact	The phone number of customer prope...	Customer Phone	>	95	%	
Data Quality Policy-1			<		%	
Data Quality Policy-2			<		%	
Confidence	Are Data Governance, Data Protection...				%	Data Quality Di...
Consistency	The absence of difference, when comp...				%	Data Quality Di...
Data Quality Dimension-1						SCE
Data Security	Data security covers the notion of em...				%	Data Quality Di...
Freshness	The freshness of the data is essential ...				Time	Data Quality Di...
Reasonability	Reasonability asks whether Data are l...				%	Data Quality Di...
Relevancy	Relevance of data refers to the exten...				%	Data Quality Di...
Timeliness	The degree to which data represent re...				Time	Data Quality Di...

2.5.13.1. Data Quality Assessment

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

The screenshot shows the 'Data Quality Assessment' interface for a dataset named 'customers'. The left sidebar shows a 'Data Catalog' with various entities like 'Organizations at stake', 'Deployed Data Stores', 'BikeStore', 'production', 'brands', 'categories', 'products', 'stocks', 'sales', 'customers', 'orders', 'order_items', 'staffs', and 'stores'. The main area is titled 'customers' and has tabs for 'General', 'Characteristics', 'Assessment' (selected), 'Reporting', 'Standards', 'Questionnaires Templates', 'Dashboard', 'Policy Constraints', and 'Activity Fee'. Under 'Assessment', there is a 'Direct Assessment' section with an 'Evaluate' button and a table of assessment results.

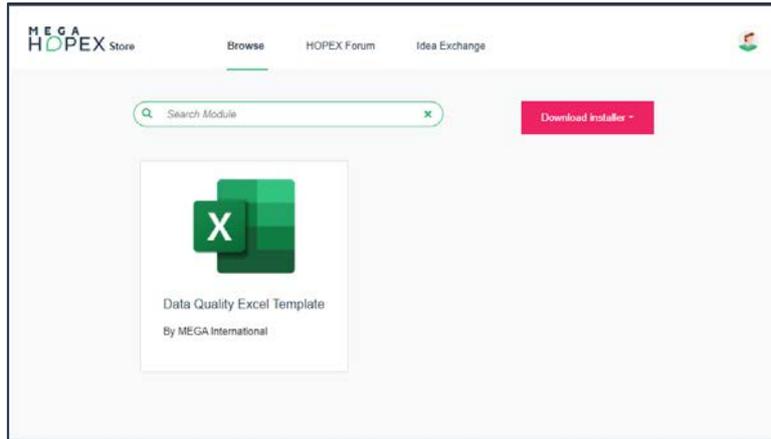
Assessment	A...	Evaluation Date	Completeness	Uniqueness	Timeliness	Validity	Accuracy	Consistency
custo...	N...	6/8/2021	Very Low	Very Low	Low	Medium	Low	Very Low
custo...	N...	8/24/2021	Medium	High	High	Very High	Very High	High
custo...	N...	7/9/2021	Low	Medium	Medium	High	Low	Medium
custo...	N...	9/10/2021	High	Very High	High	High	Very High	Very High

Below the table is a 'Data Quality Progression' section with a 'Refresh the report' button and a line chart. The chart shows 'Quality values' on the y-axis (ranging from 1 to 5) and five dimensions on the x-axis: Consistency, Uniqueness, Validity, Accuracy, and Completeness. The legend indicates: Consistency (blue), Uniqueness (orange), Validity (green), Accuracy (red), Timeliness (purple), and Completeness (brown).

2.5.14. 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										

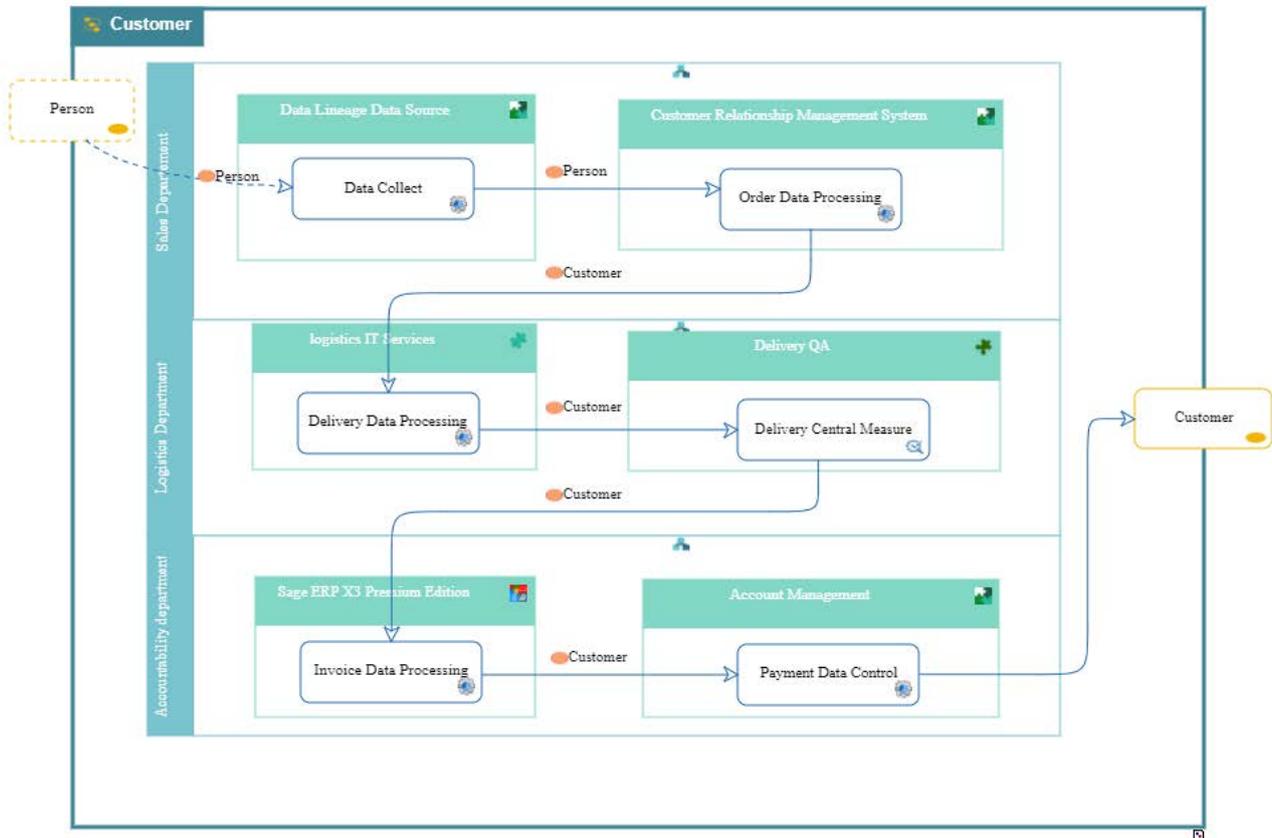
- And are imported into HOPEX Data Governance

Artifact									
Assessment									
Direct Assessment									
+ Evaluate									
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	

2.5.15. 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.



2.5.16. 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.

Regulatory Frameworks represent authority documents issued by a governmental regulatory body. If you have a UCF license you can import regulatory content ready to use via the import wizard, otherwise you can manually create it via the New button.

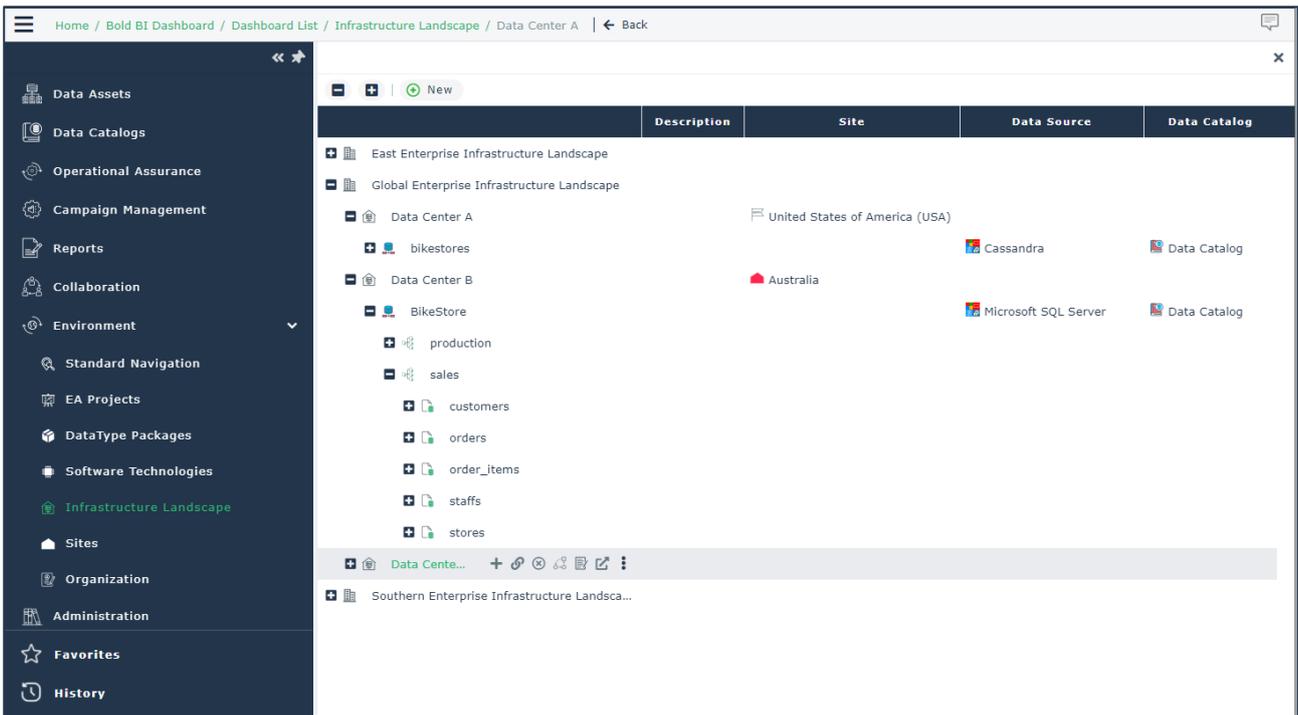
Import UCF Content

	Applicable	Regulatory Chil...
EU General Data Protection Regulation (GDPR)	<input type="checkbox"/>	7
+ Chapter II. Principles	<input type="checkbox"/>	7
+ Chapter III. Rights of the data subject	<input type="checkbox"/>	4
+ Chapter IV. Controller and processor	<input type="checkbox"/>	5
+ Chapter V. Transfers of personal data to third countries or internation...	<input type="checkbox"/>	6
+ Chapter VIII. Remedies, liability and penalties	<input type="checkbox"/>	4
+ Chapter IX. Provisions relating to specific processing situations	<input type="checkbox"/>	4
+ Art. 86. Processing and public access to official documents	<input type="checkbox"/>	1
+ Art. 87. Processing of the national identification number	<input type="checkbox"/>	1
+ Art. 88. Processing in the context of employment	<input type="checkbox"/>	3
+ Art. 89. Safeguards and derogations relating to processing for arc...	<input type="checkbox"/>	4
+ Subjected Elements		
+ Implementations		
+ Chapter X. Delegated acts and implementing acts	<input type="checkbox"/>	1

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

2.5.17. 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.



2.5.18. 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...).

2.5.19. 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**

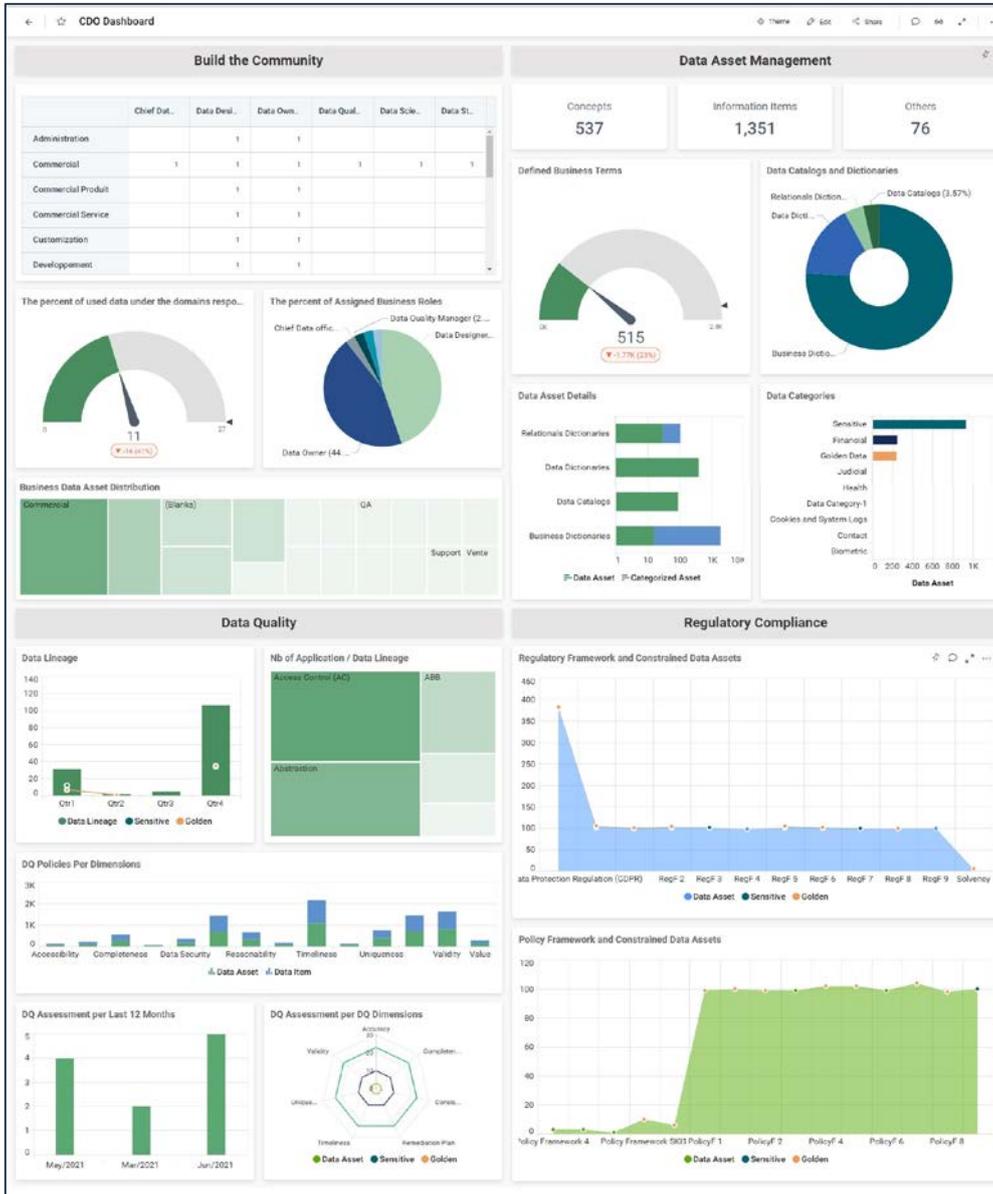
- Defined Terms
- Data Assets/Dictionary
- Data Assets/Data Categories

- **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



2.5.20. Data Domain improvement

From now on, it is possible to choose to define data domains using either logical data or conceptual data. When the client has not yet defined the logical data layer but has conceptual data, it can use concept, information item directly as Data domain components.

2.6. HOPEX IRM

2.6.1. 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.

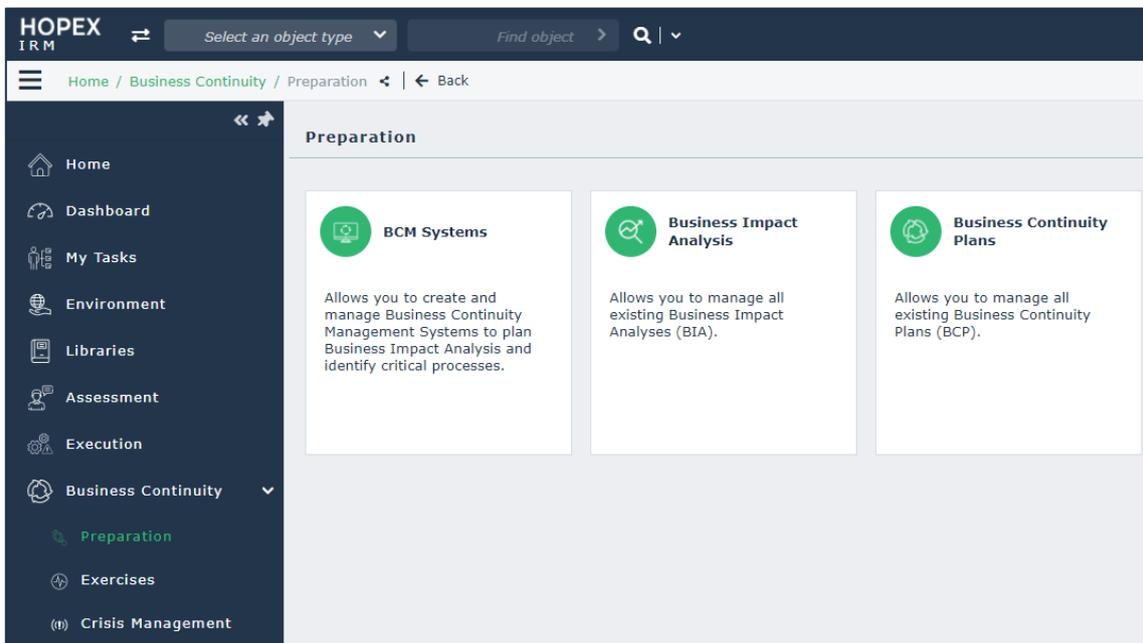


Figure 9 - Business Continuity Management menu

2.6.1.1. Start new BCM project

To launch a new Business Continuity Management project, 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.

The screenshot shows a web-based wizard titled "Create New BCM System". It has three main input sections: "Name*" with the text "My new BCM System"; "Entity*" with a dropdown menu showing "Belgium"; and "Processes", which is a table with a dark header "Local name ↑" and two rows: "Develop and Manage Human Capital" and "Procurement". Above the table are buttons for "New", "Reorganize", "Properties", "Remove", and "Instant Report". At the bottom, there are navigation arrows, "Page 1 of 1", a "Show 50 elements" dropdown, and "Displaying 1 - 2 of 2". "OK" and "Cancel" buttons are at the bottom right.

Figure 10 - BCM System wizard

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.

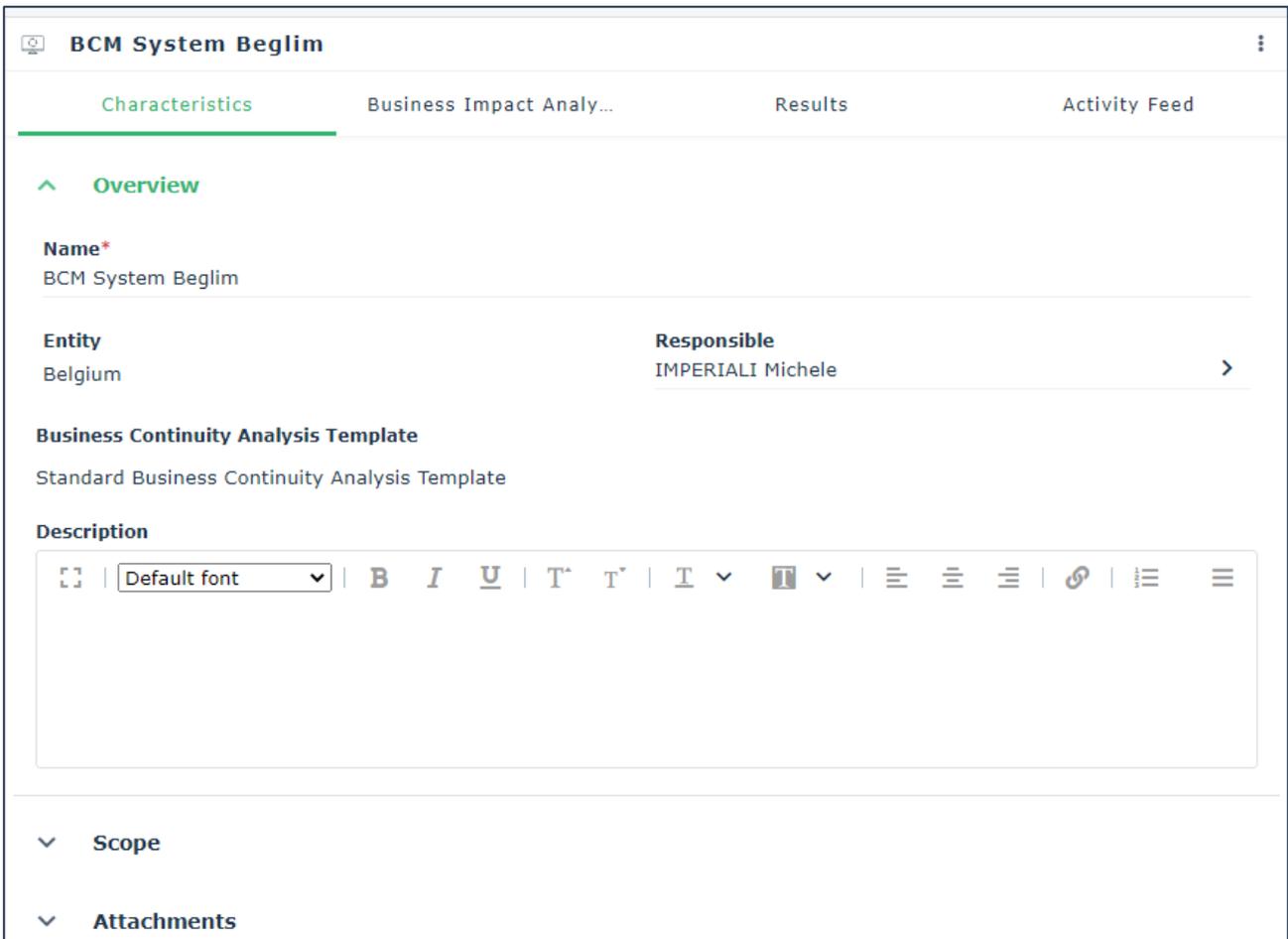


Figure 11 - BCM System property page

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.

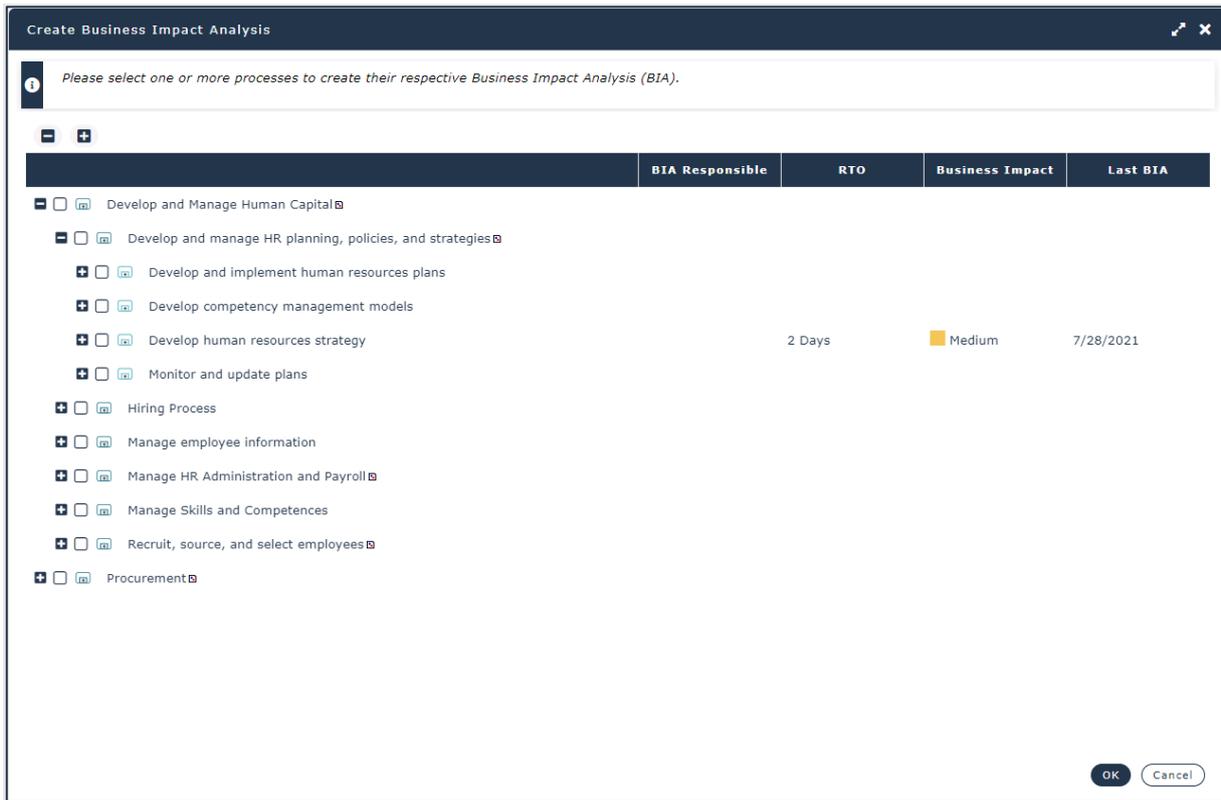


Figure 12 - BIA wizard

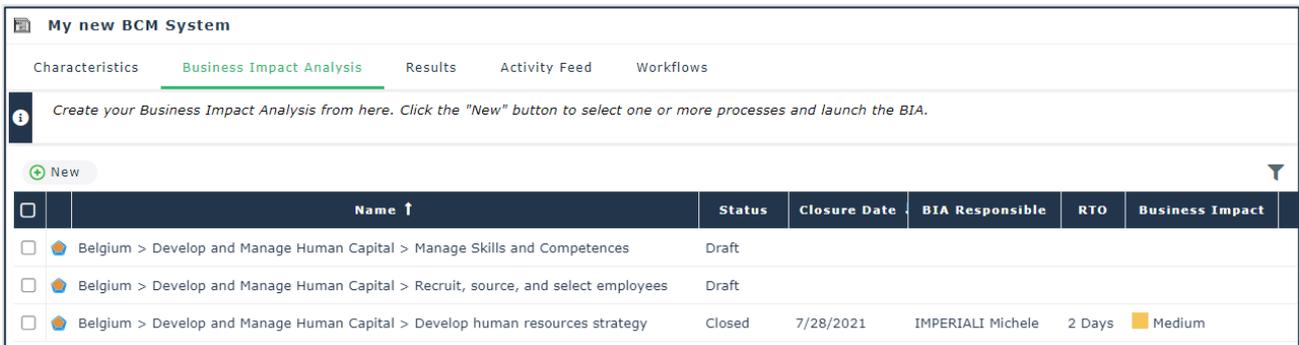


Figure 13 - BIAs of a BCM System

a) 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 impact, reputational impact, environmental impact, 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.
- 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 Template, 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

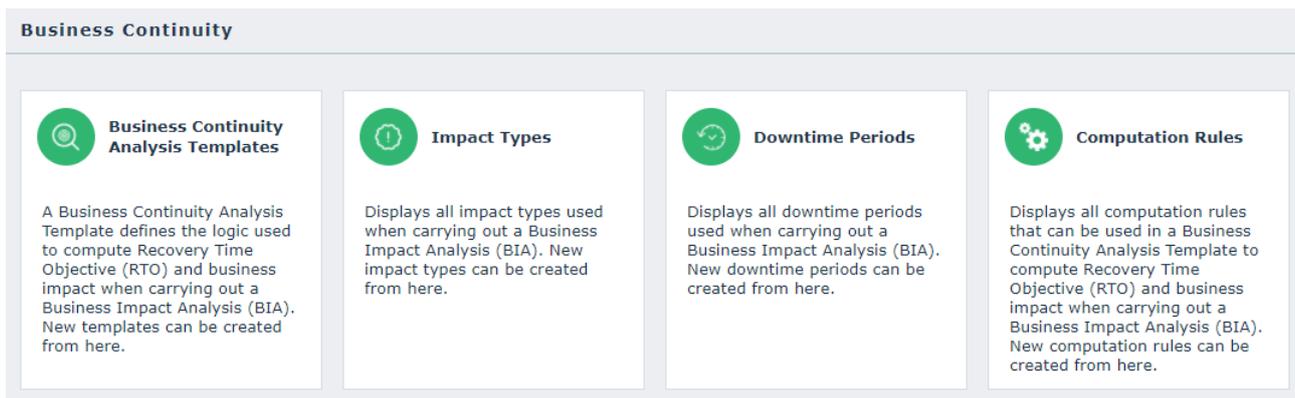


Figure 14 - Admin menu for business continuity

2.6.1.2. 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 is its Recovery Time Objective (RTO), 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.

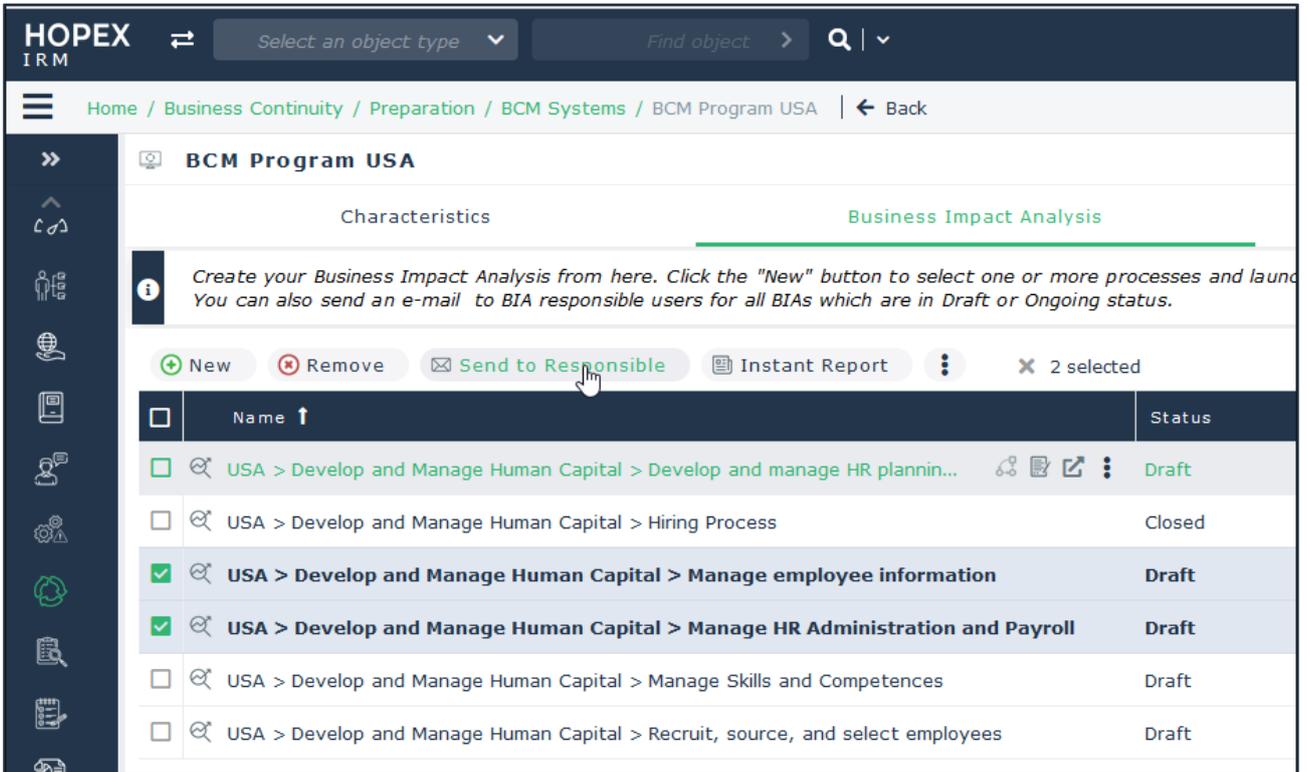


Figure 15 - Send BIA notification emails to responsible users

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

- 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.

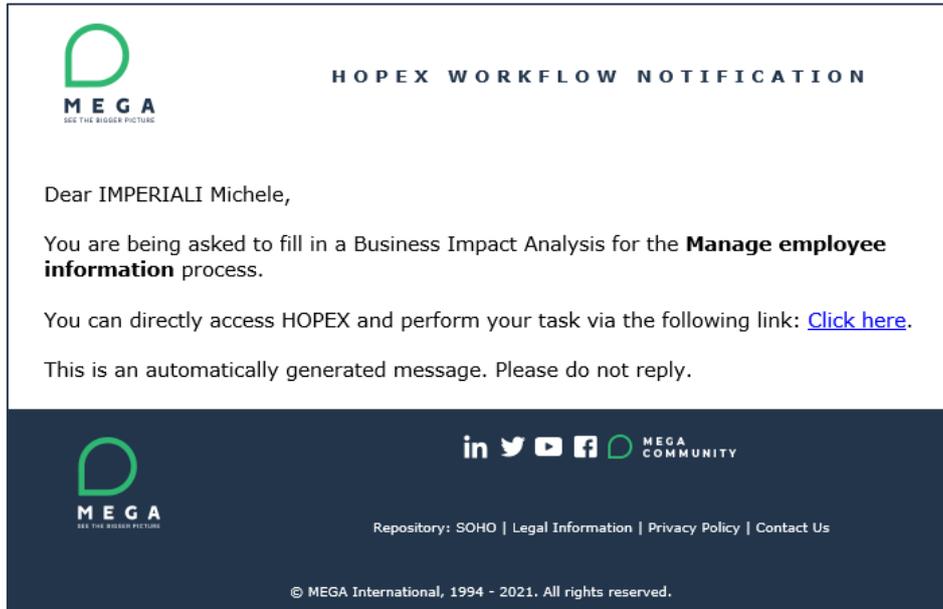


Figure 16 - New BIA to complete email notification

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

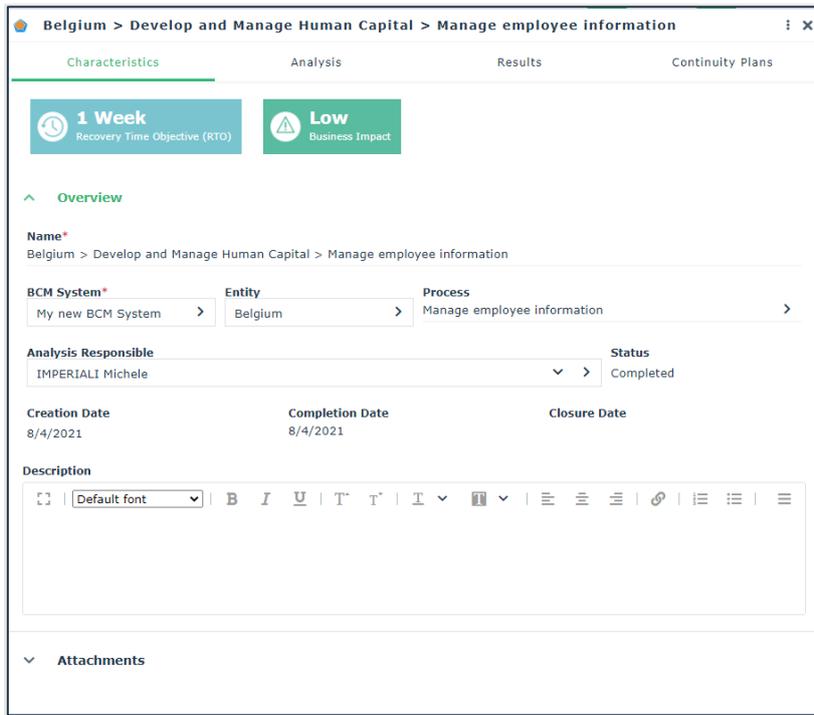


Figure 17 - BIA characteristics property page

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.

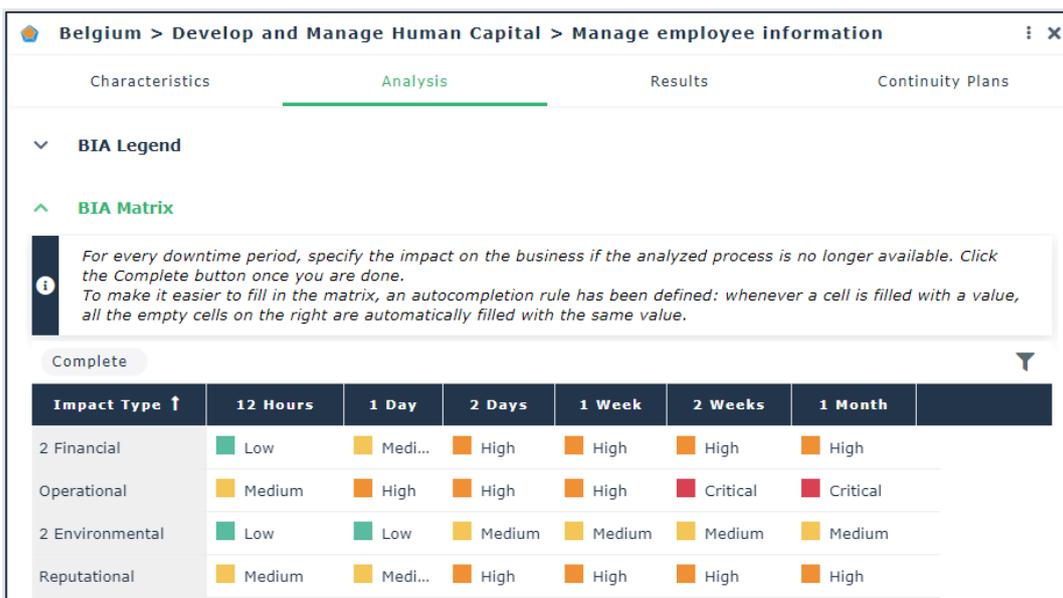


Figure 18 - BIA matrix

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).

a) Fill out a Business Impact Analysis

Contributor users, have a dedicated menu (“My Tasks>Business Impact Analysis”) 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 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.

b) 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.

Belgium > Develop and Manage Human Capital > Manage employee information

Characteristics Analysis **Results** Continuity Plans

Please find below the process Recovery Time Objective (RTO) and business impact, based on the answers provided in the Analysis tab. You are free to override the automatically computed values if you feel they are not correct. To validate this analysis, click the Close BIA button. This will prevent further modifications of the BIA. If you want to make changes to a closed BIA, click the Reopen BIA button.

Computed RTO
2 Weeks

Adjusted RTO
1 Week

Reason for adjusted RTO*

2 weeks is simply too much

Computed Business Impact
Low

Adjusted Business Impact

Close BIA Reopen BIA

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.

2.6.1.3. BCM Project Results

At any given time, BCM managers can access an overview of the overall results of an existing BCM System. The page “Results” of a BCM System displays detailed information on all closed BIAs.

BCM System Belgium

Characteristics Business Impact Analysis **Results** Activity Feed

An aggregated view of the latest closed Business Impact Analysis for each process is provided below. For every process, the RTO and Business Impact resulting from the last BIA are displayed. The process business impact for every analyzed downtime period is also displayed.

Process	RTO	Business Impact	Last BIA	12 Hours	1 Day	2 Days	1 Week	2 Weeks	1 Month
Develop and manage human capital > Manage employee information	2 Days	Low	9/10/2021 Open	Low	Low	Medium	Medium	Medium	Medium
Develop and manage human capital > Manage the Skills and Training of Employees	1 Week	Medium	9/10/2021 Open	Medium	Medium	Medium	Medium	Medium	Medium
Develop and manage human capital > Pay Employees	12 Hours	Critical	9/12/2021 Open	Medium	Critical	Critical	Critical	Critical	Critical
Develop and manage human capital > Find, select and recruit employees	1 Day	Medium	9/12/2021 Open	Medium	Medium	Critical	Critical	Critical	Critical
Develop and manage human capital > Develop and implement HR plans	1 Week	Medium	9/10/2021 Open	Medium	Medium	Medium	Critical	Critical	Critical
Develop and manage human capital > Develop skills management models	1 Week	Low	9/10/2021 Open	Low	Medium	Medium	Medium	Medium	Medium

Figure 20 - BCM System results

This table shows, for every analyzed process, the result of the last Business Impact Analysis, such as the RTO and business impact.

Furthermore, the table displays the evolution of the business impact with respect to the different downtime periods. This info is very valuable to understand at what point in time a given process starts being critical for the business, in case of disruption.

2.6.1.4. 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.

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:

- Triggering Risks - It lists the risks which can trigger the BCP. Risks proposed by default on this list, are all those which impact the BCP process or any of its sub-processes.
- Responsibilities – It defines RACI roles with respect to the current BCP
- Attachments

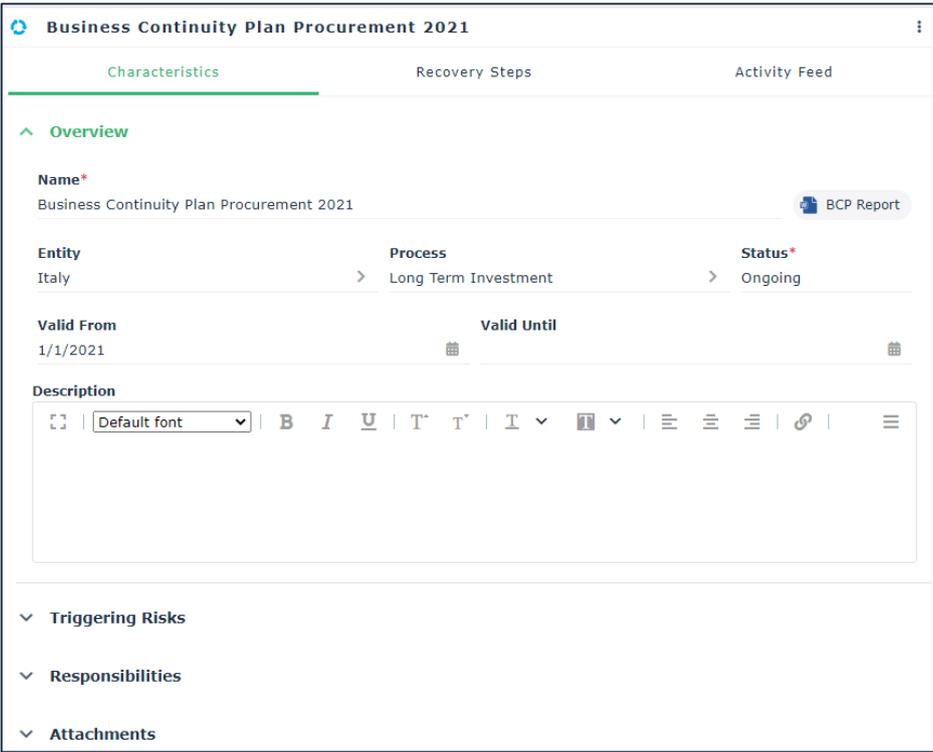


Figure 21 - Business Continuity Plan

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.



Figure 22 - BCP recovery steps

Once a process is analyzed, a new page is added to its properties, called “Business Continuity”.

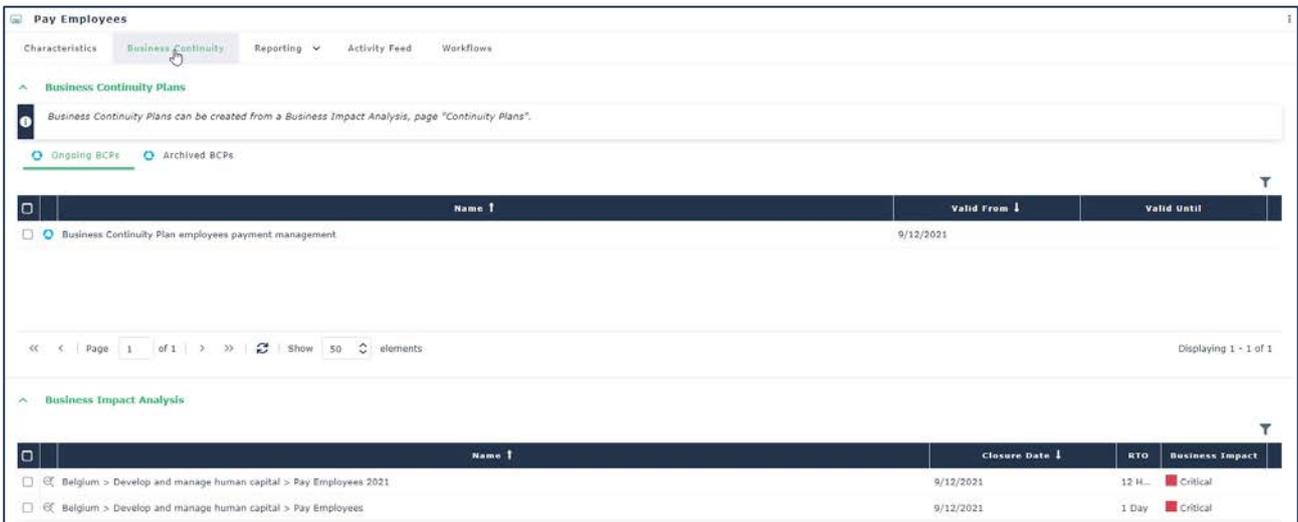


Figure 23 - Process business continuity properties

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.

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.

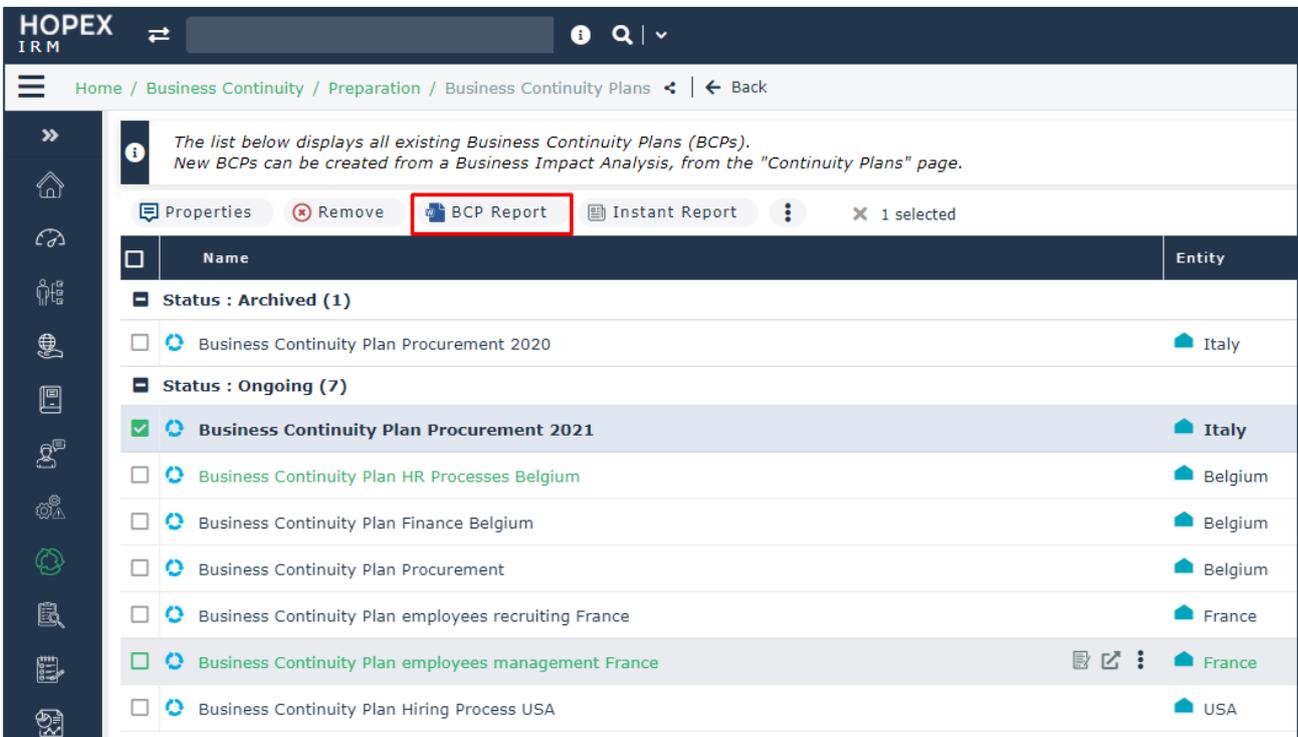


Figure 24 - BCP Word report

2.6.1.5. Test Business Continuity Plans

To regularly test existing Business Continuity Plans, the user can create business continuity exercise 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 BCP 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

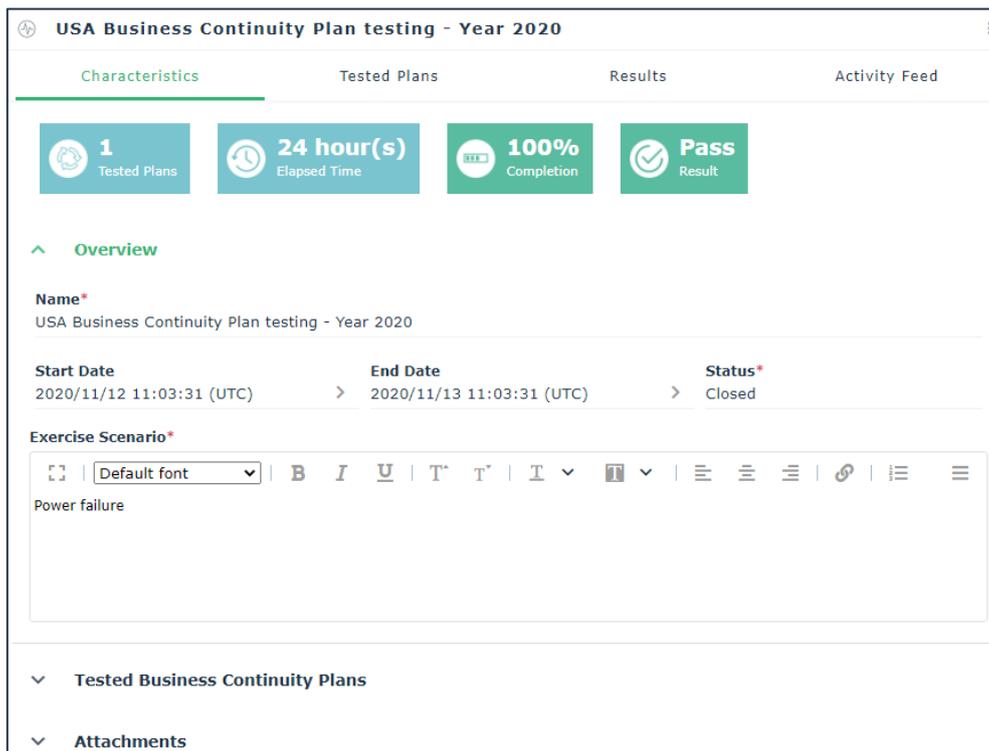


Figure 25 - Business continuity exercise characteristics

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.

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.

USA Business Continuity Plan testing - Year 2020
⋮

Characteristics
Tested Plans
Results
Activity Feed

i All the information regarding the Business Continuity Plans (BCP) being tested is available below. In case of multiple BCPs, use the Business Continuity Plan drop down to switch between them.

Business Continuity Plan
 Business Continuity Plan Hiring Process USA

Start Date
2020/01/01 10:59:46 (UTC)

End Date
2020/01/02 10:59:46 (UTC)

Status*
Completed

Entity
USA

Process
Hiring Process

Description

🔍
Default font
B I U T T I
☰ ☷ ☹
🔗
☰ ☷ ☹
✂
☰

Recovery Steps

➕ New
🔄 Reorganize
⏴

<input type="checkbox"/>	Name	Status	Start Date	End Date	Execution Time	Responsible	Description
<input type="checkbox"/>	1. Step 1	Completed	11/12/2021 6:00:21 ...	11/12/2021 12:00:2...	6h	Ben	Lorem ipsum...
<input type="checkbox"/>	2. Step 2	Completed	11/12/2021 10:00:4...	11/12/2021 12:00:4...	2h	Kate	Lorem ipsum...
<input type="checkbox"/>	3. Step 3	Completed	11/12/2021 9:00:56 ...	11/12/2021 12:00:5...	3h	Alex	Lorem ipsum...

⏪ < | Page 1 of 1 | > ⏩
🔄
Show 50 elements
Displaying 1 - 3 of 3

▼ **Responsibilities**

Figure 26 - 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.

The screenshot displays the 'Results' tab of a business continuity testing interface. At the top, there are four tabs: 'Characteristics', 'Tested Plans', 'Results' (which is active and highlighted in green), and 'Activity Feed'. Below the tabs, an information icon is followed by a text box stating: 'This page displays the results of the business continuity exercise. Once the exercise is in status Closed an automatic algorithm determines whether the exercises succeeded or not. You can override this value providing relevant evidence.'

The main section is titled 'Tested Business Continuity Plans'. It includes an 'Instant Report' button, a filter icon, and a status indicator '1 selected'. Below this is a table with the following columns: 'Name', 'Status', 'Execution Time', 'Process RTO', and 'Pass/Fail'. A single row is visible, representing a plan named 'Business Continuity Plan Hiring Pro...' with a status of 'Comple...', an execution time of '1d', a process RTO of '1 Day', and a 'Pass' result.

Below the table, there is a pagination control showing 'Page 1 of 1' and 'Show 50 elements'. To the right, it says 'Displaying 1 - 1 of 1'. Below the pagination, three summary metrics are shown: 'Completion Rate' at 100%, 'Success Rate' at 100%, and 'Computed Result' as 'Pass' with a green checkmark.

At the bottom, there is an 'Exercise Results' section with a rich text editor toolbar containing options for font size, bold, italic, underline, text color, background color, bulleted list, numbered list, and link.

Figure 27 - 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 it will be considered 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.

2.6.1.6. 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 be 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 plan¹ 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 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

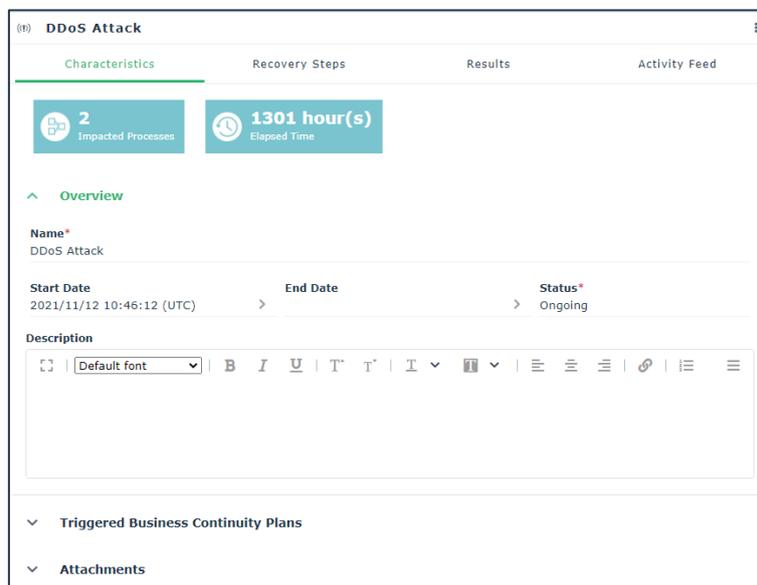


Figure 28 - Crisis property page

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.

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.

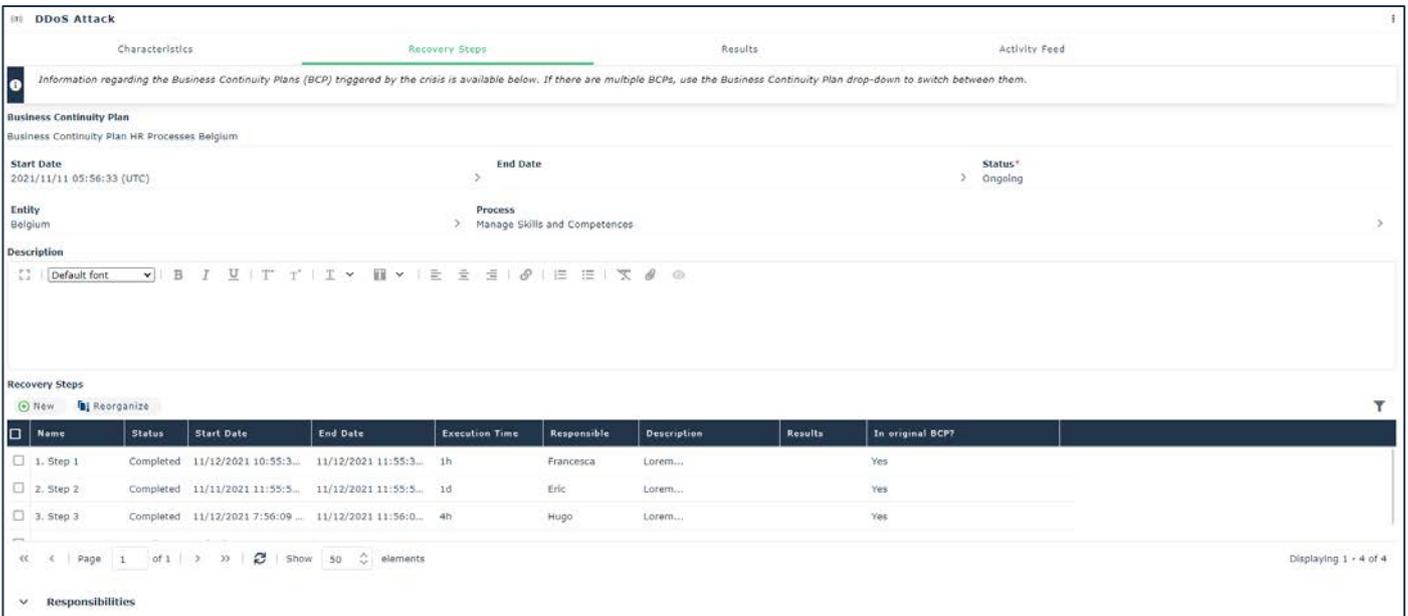


Figure 29 - Crisis recovery steps

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.

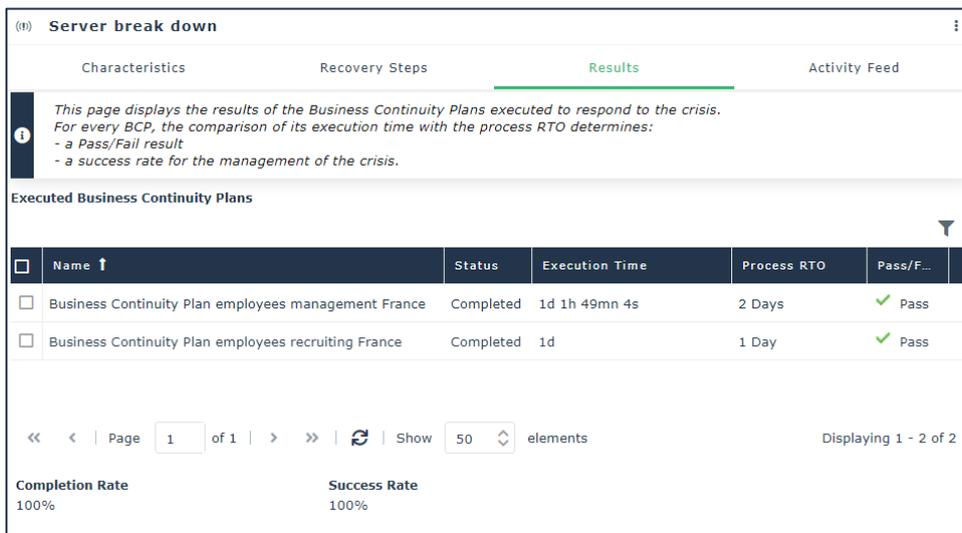


Figure 30 - Crisis management results

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 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 lesson learned.

2.6.1.7. 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 an unplanned 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, 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.

2.6.1.8. 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	<p>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.</p> <p>All continuity plans, tested by an ongoing exercise, where the current user is responsible for one or more BCP steps.</p> <p>All continuity plans, triggered by an ongoing crisis, where the current user is responsible for one or more BCP steps.</p>	IRM FA, IRM Manager, Risk Manager, Incident and Losses Manager
My Tasks>Business Continuity (contributor)	<p>All BIAs to be filled by the current user (these are the BIAs in status Ongoing or Completed, where the current user is BIA responsible).</p> <p>All continuity plans, tested by an ongoing exercise, where the current user is responsible for one or more BCP steps.</p> <p>All continuity plans, triggered by an ongoing crisis, where the current user is responsible for one or more BCP steps.</p>	IRM Contributor
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

2.6.2. Questionnaire Builder

2.6.2.1. 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. ²
- **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).

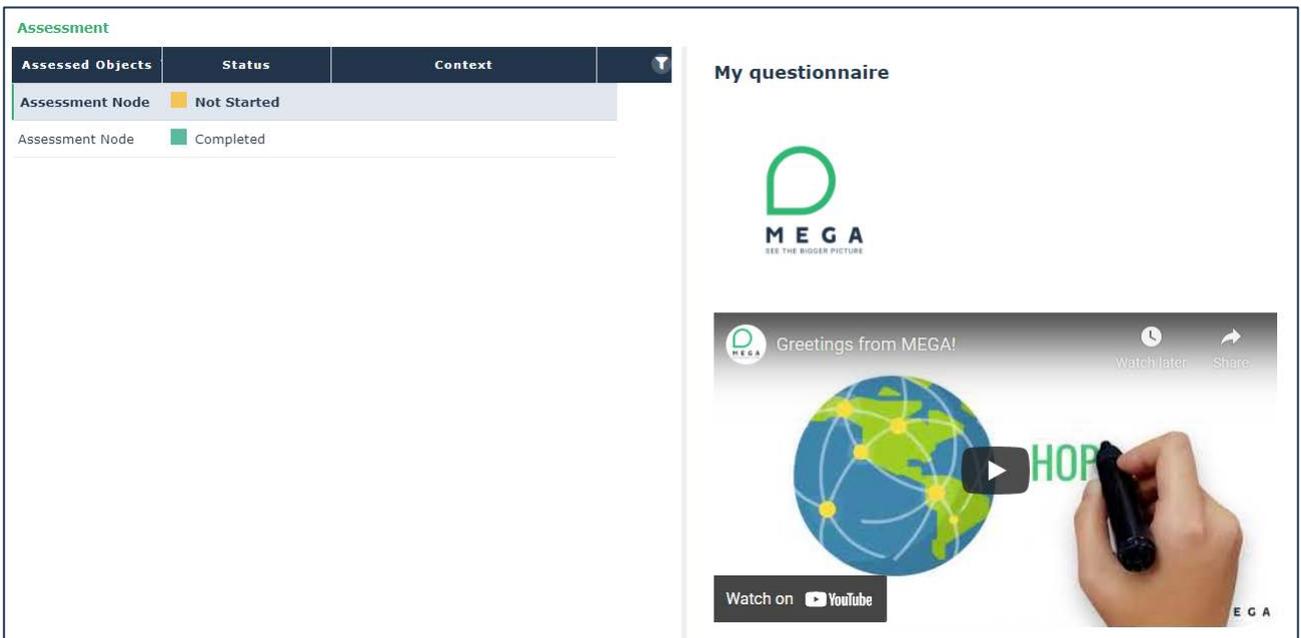


Figure 31 - Questionnaire with image and video

² 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;`

Is visible?
Expression (?)
 Press ctrl+space to get expression completion hint

 Is delegation authorized?
Currency

Display Style

Format

Maximum Fraction Digits

Minimum Fraction Digits

 Use Grouping

Figure 32 - Expression question properties

Assessed Objects	Status	Contact	temp
Assessment N...	Not Started		1. Expr 21,300.581 Euros
Assessment Node	Not Started		2. question2 100.58
			3. question3 21200.0005

Figure 33 - Expression question

2.6.2.2. 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.

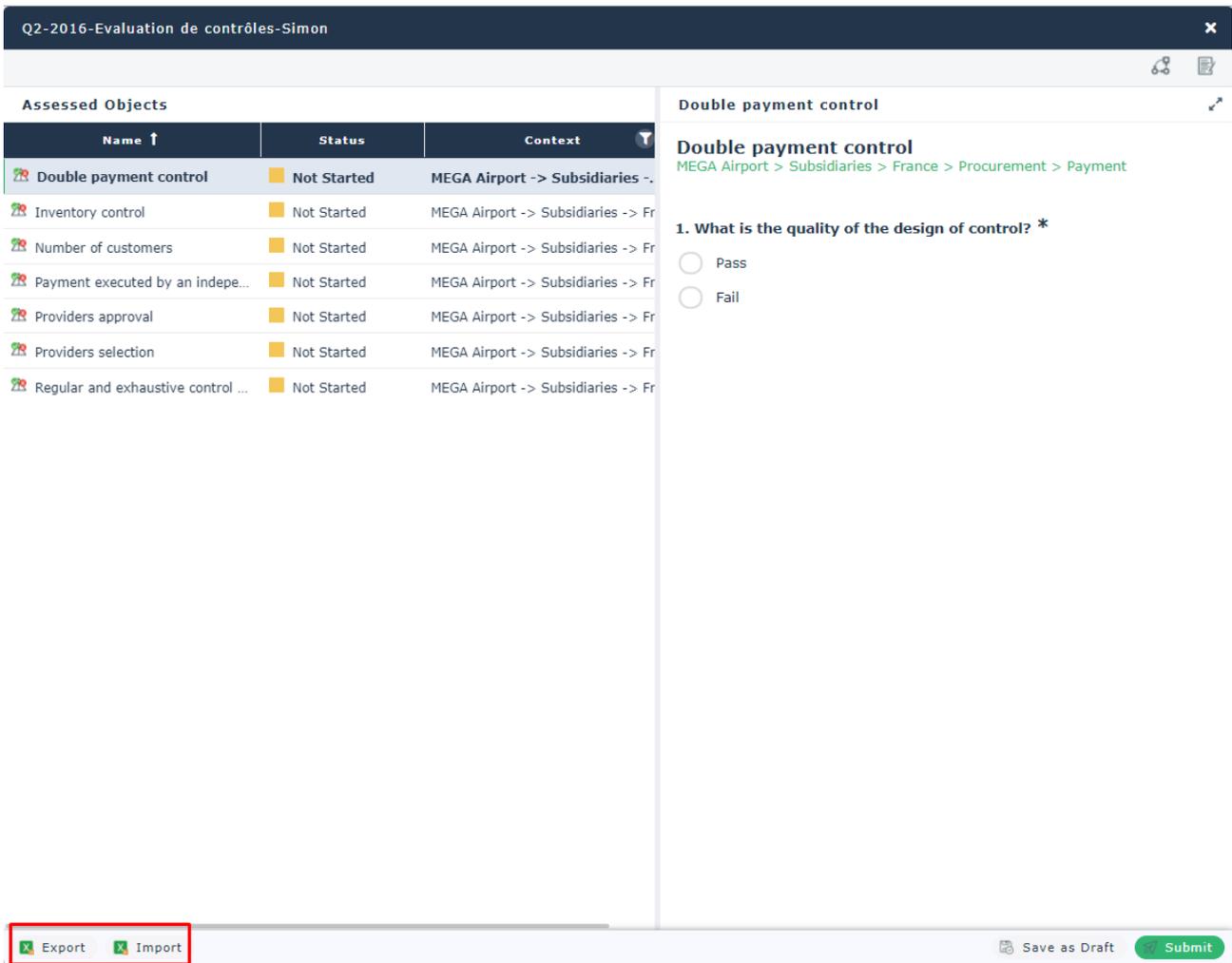


Figure 34 - Questionnaires Excel export/import

2.6.2.3. 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 a questionnaire template, section "Question"
- In the properties of each question, section "Layout"

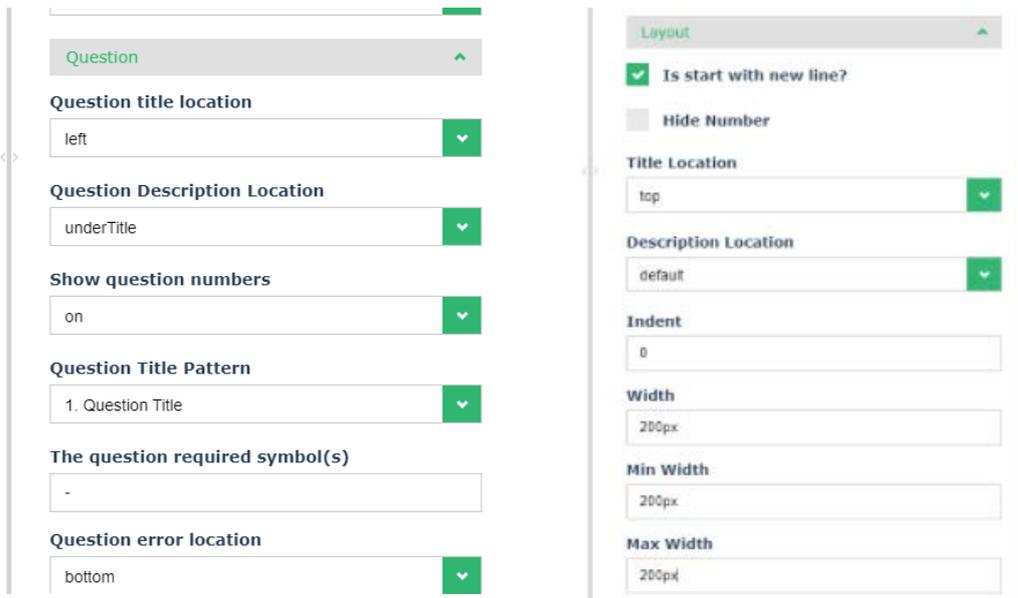


Figure 36 - Manage questions layout

2.6.2.4. 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.



Figure 37 - Define tooltip on a question's possible answer

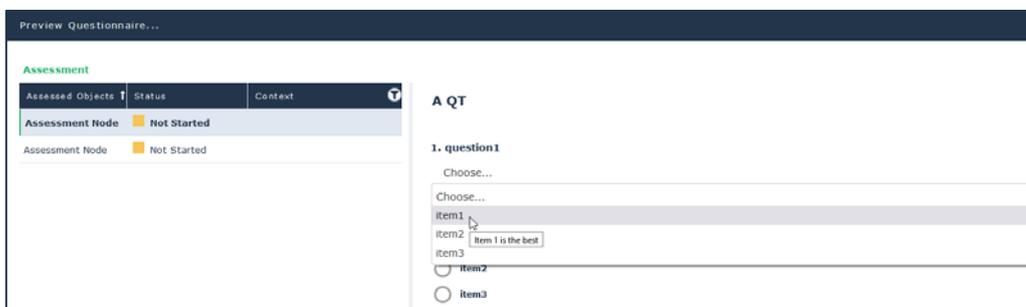


Figure 38 – Rendering of a tooltip on a dropdown question

2.6.2.5. 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 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 change too.

2.6.3. Key Indicators

2.6.3.1. 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.

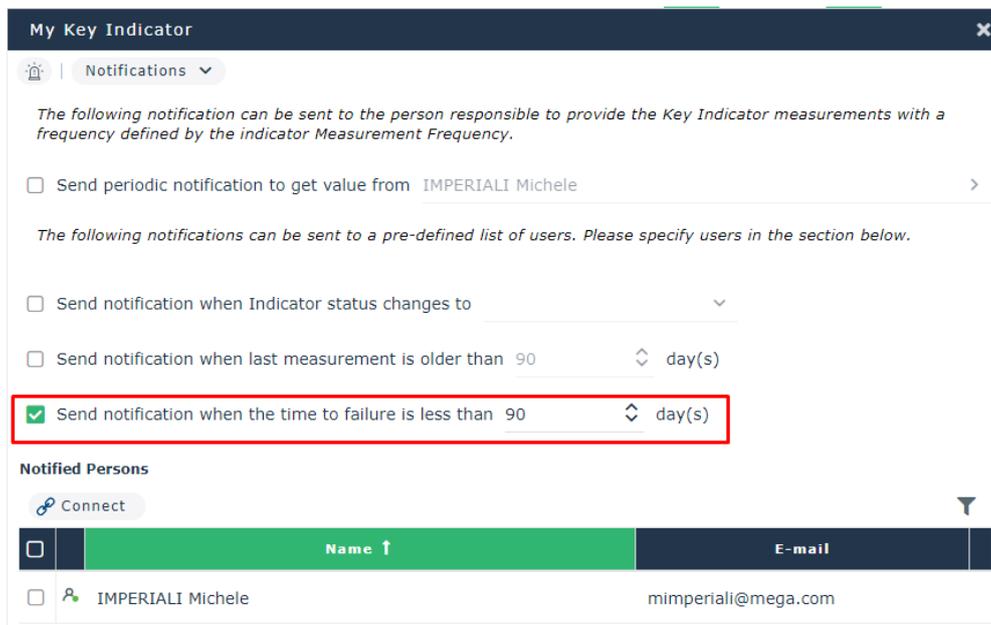


Figure 39 - Key indicator time to failure notification

2.6.3.2. 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.

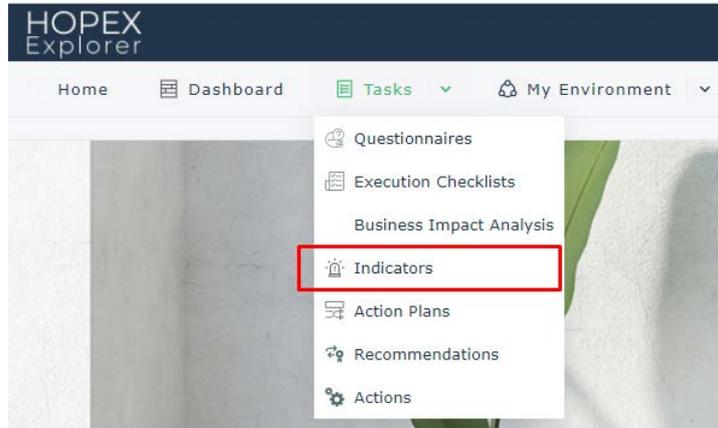


Figure 40 - Indicators menu for IRM Contributors

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

2.6.4. 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:

1. Control Assessment Campaign
2. 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.

2.6.4.1. Reports

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

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.

a) 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.

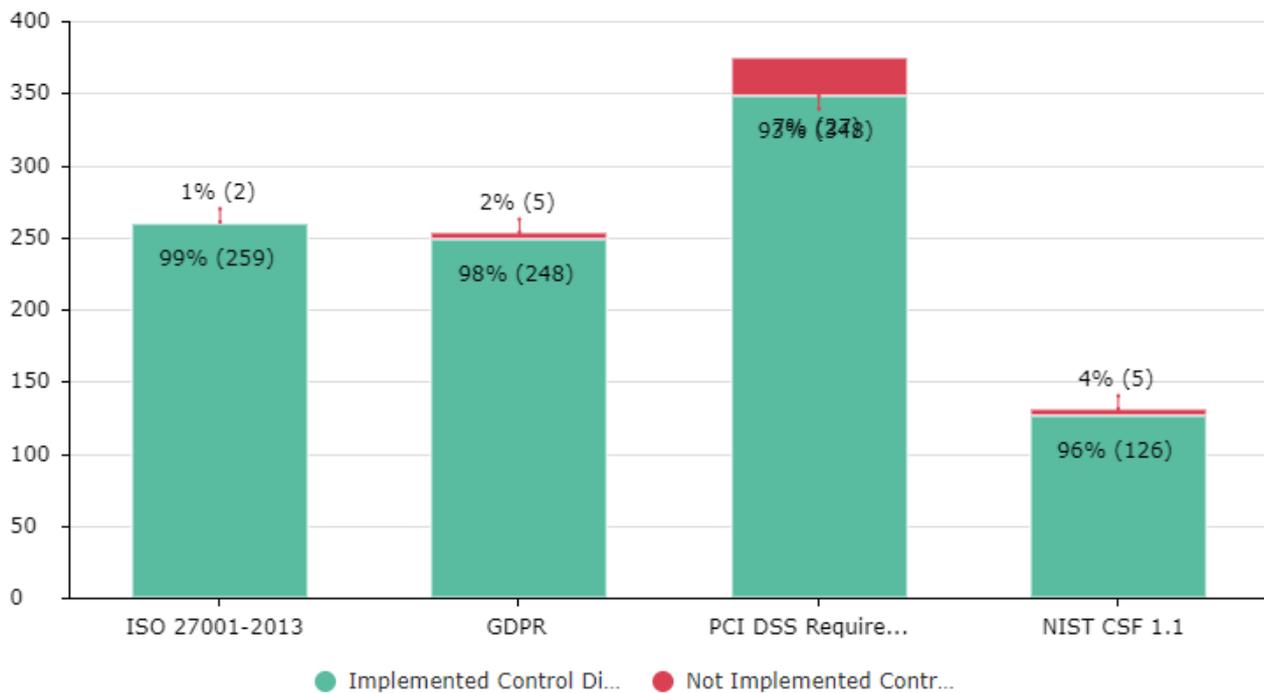


Figure 41 - Report Regulatory Framework Implementation

b) 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

- 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	

Figure 42 - Report Regulatory Compliance Overview

c) Report Compliance by Regulatory Framework

This stacked bar chart report displays the overall compliance level given 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.

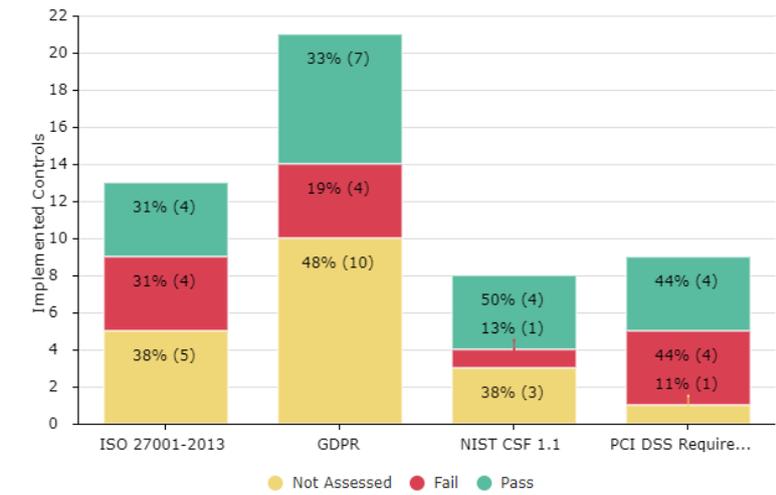


Figure 43 - Report Compliance by Regulatory Framework

d) 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.

	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

Figure 44 - Report Regulatory Compliance by Entity

e) 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:

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

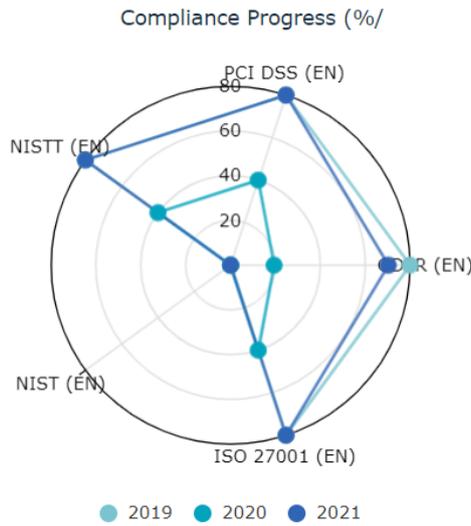


Figure 45 - Report Regulatory Compliance Progress

f) 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:

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



Figure 46 - Assets failed controls

g) 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.

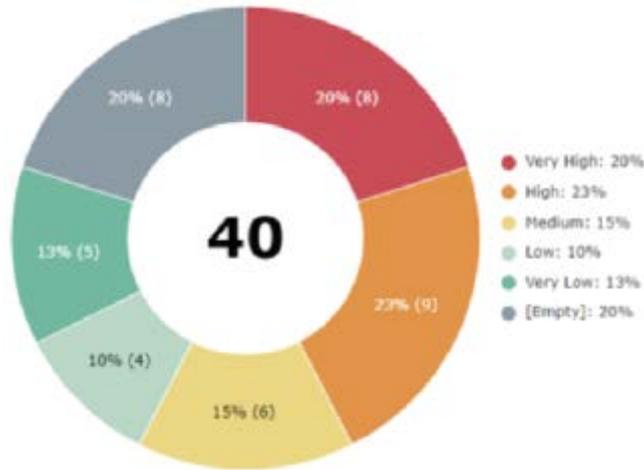


Figure 47 - Report Issues by Impact

2.6.4.2. Policy Frameworks

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

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

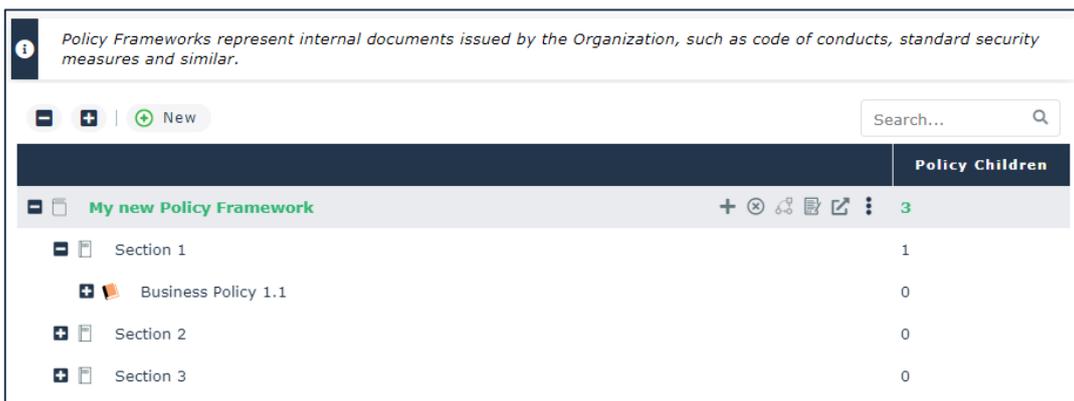


Figure 48 - Create new Policy Frameworks

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 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:

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

2.6.4.3. 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.

2.6.5. IRM Contributor

2.6.5.1. Desktop

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

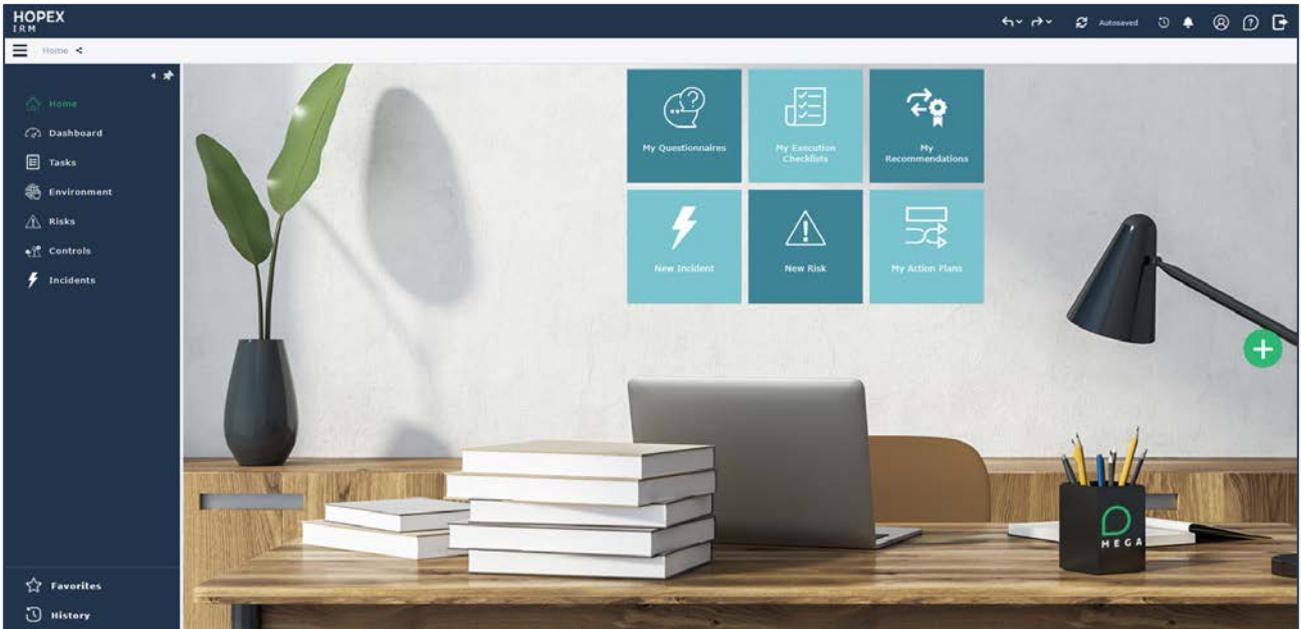


Figure 49 - IRM Contributor desktop

2.6.5.2. 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

2.6.6. 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.

2.6.6.1. 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 create³. Options are:

1. Risk Assessment
2. Control Assessment

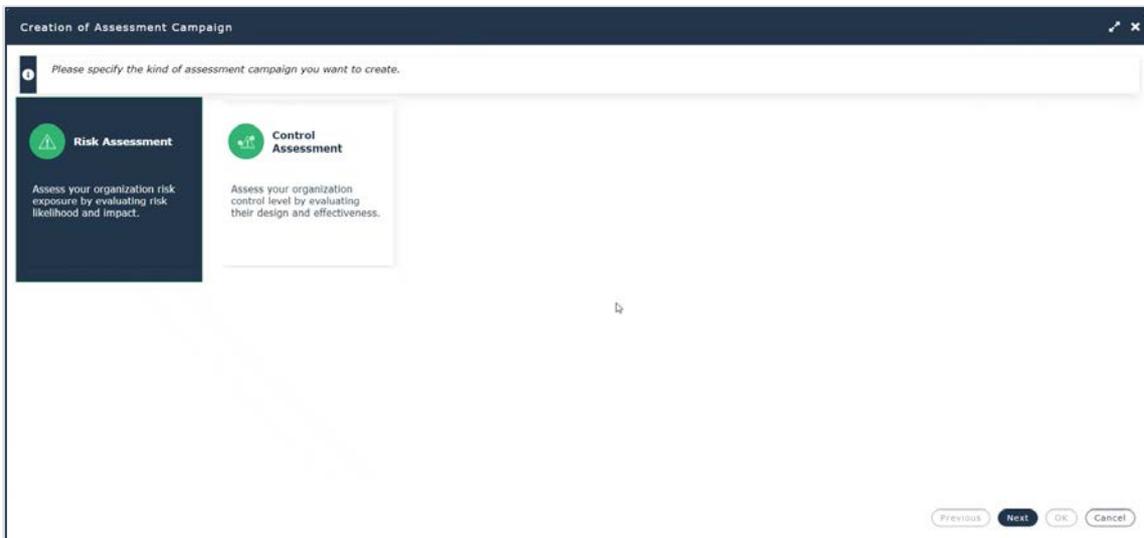


Figure 50 – Assessment Campaign wizard: select type of Assessment Campaign

2.6.6.2. 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 parameters⁴.

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.

³ In case of Execution Campaigns, since the only option is to execute controls, the user is not prompted with this introductory step.

⁴ This step only proposes Assessment Template which have been defined for the object selected at the previous step.

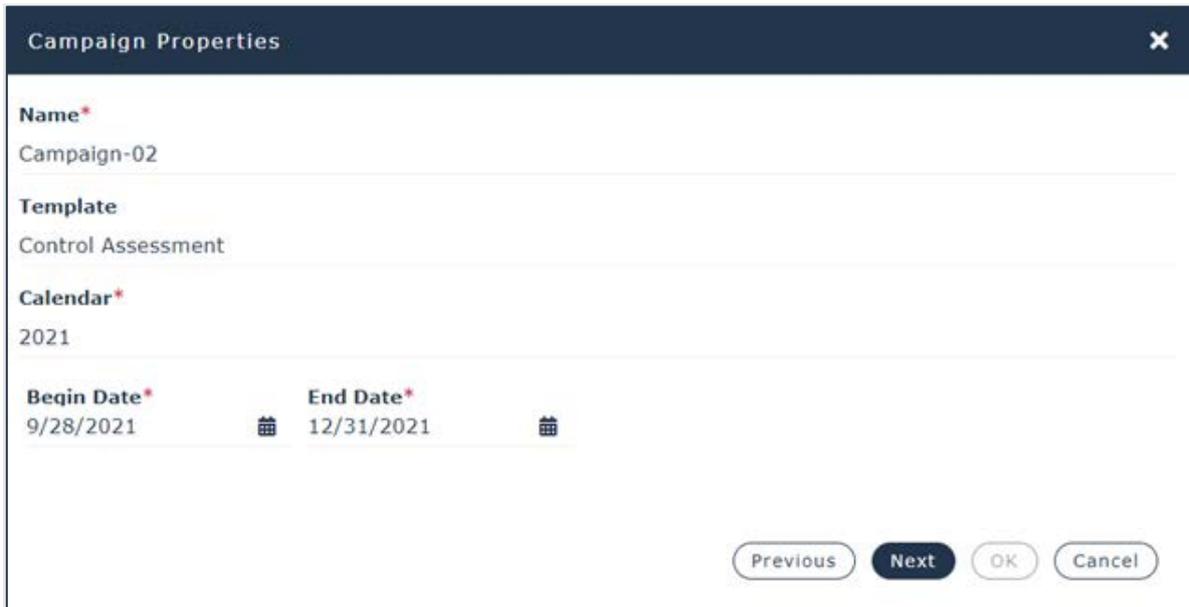


Figure 51 – Assessment Campaign Wizard: select Assessment Template

2.6.6.3. 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)

The screenshot shows a 'Select Assessed Objects' dialog box. It includes a search bar and checkboxes for 'Select parents and sub-elements' and 'Expand the selected items'. Below is a tree view of the organization structure: MyCompany > Corporate Headquarters > Subsidiaries > Belgium. A table displays the following data:

	Assessment Freshness	Net Risk	Open Incidents	Forecast Risk
Budget overrun	44 months	Medium	0	None
Burried substances	None	None	0	None
Change risk	61.5 months	Low	0	None
Contractual risk	None	None	0	None
Data encryption	61.5 months	None	0	None
Insufficient budget	66.5 months	None	0	None

Figure 52 - Campaign Wizard: scope selection

2.6.6.4. 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:

1. No available respondent for a given risk/control to assess
2. No available email for a given respondent
3. No steering calendar for a control⁵

⁵ Only applicable to control execution campaigns

Additional information is also provided, such as:

- **Assessed Objects** - The total number of objects that will be assessed⁶
- **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.

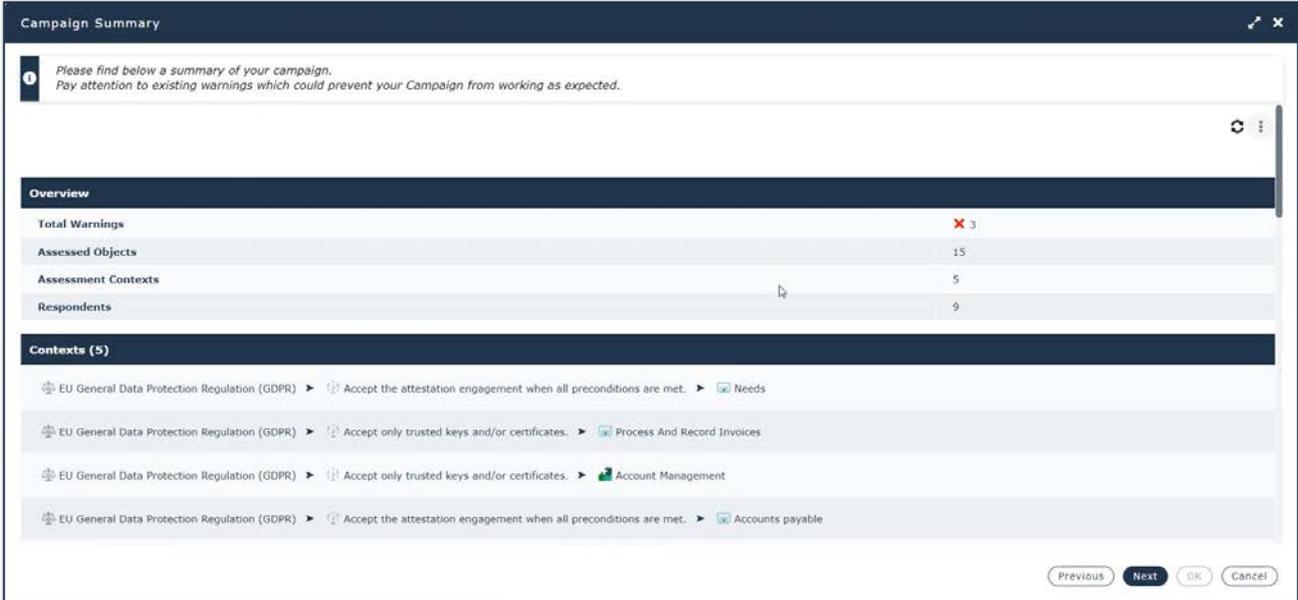


Figure 53 - Campaign summary report

Respondents (10)		
Name	E-mail	Workload
Rafael	webeval@mega.com	2
Stacy	webeval@mega.com	2
Alex	No email	1

Figure 54 - Campaign summary report: no respondent warning

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.

Assessed Objects (1)						
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

Figure 55 - Campaign summary report: no steering calendar warning

⁶ A risk/control assessed in two different contexts is counted twice

2.6.6.5. 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.

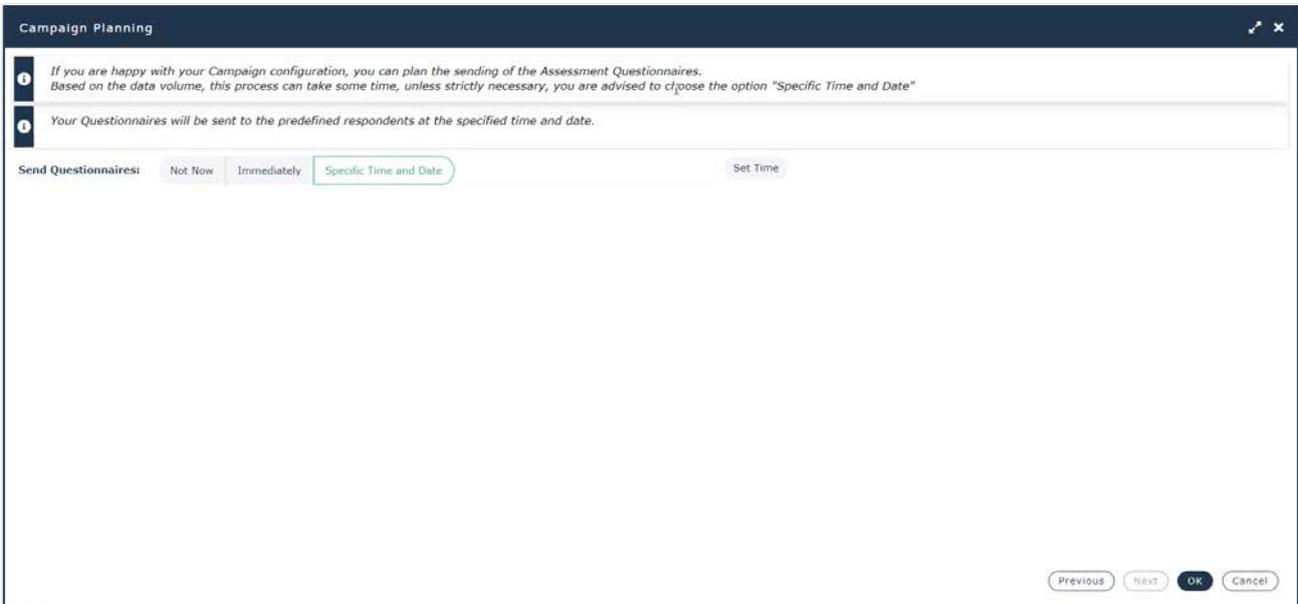


Figure 56 - Campaign planning

2.6.6.6. 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:

1. Reminder sent X days after the checklist creation
2. 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 "_Parameterization".

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:

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

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

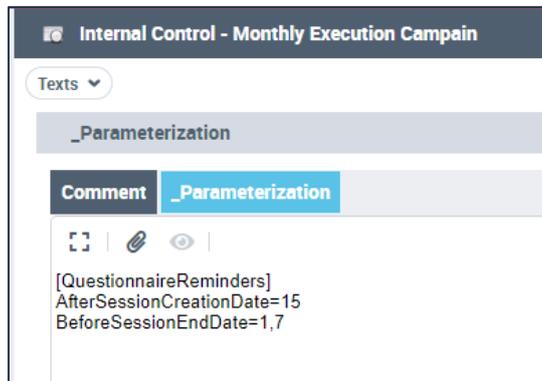


Figure 57 - Define reminders on control steering calendar

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.

Checklist Reminders and Early Closure Dates

You can use the table below to setup email reminders for your control execution checklists, based on their steering calendars. You can define as many reminders as you like, using a comma separated notation. For example, if you want to setup two reminders to be sent one and two weeks after the submission of the control execution checklist, fill the second column of the table with "1,14". You can also define an early closure for specific steering calendars, so that its checklists are not left open for too long.

Steering Calendar ↑	Days after check...	Days before che...	Close after (day...
Internal Control - Monthly Execution Campaign	15	1,7	5

Figure 58 - Define reminders and early closure date for control execution checklists

2.6.6.7. 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.

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 Campaign	1	Scheduled	2021/07/01 03:00:00	

Figure 59 - Execution campaign steering calendars details

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.

2.6.6.8. 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.

Assessed Object	Assessment Context	Respondent	Completion Date	Control Level	Impact	Likelihood
Invoice paid twice	Billing	VERDIER Olivier	11/15/2021	Frequent obse...	Very Low	Likely
Purchase not financially validated	Billing	VERDIER Olivier	11/15/2021	Ineffective	High	Possible

Figure 60 - Access questionnaires/checklists answers from within a campaign

2.6.7. 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.

2.6.8. Automatic computation of Control Level on Risks

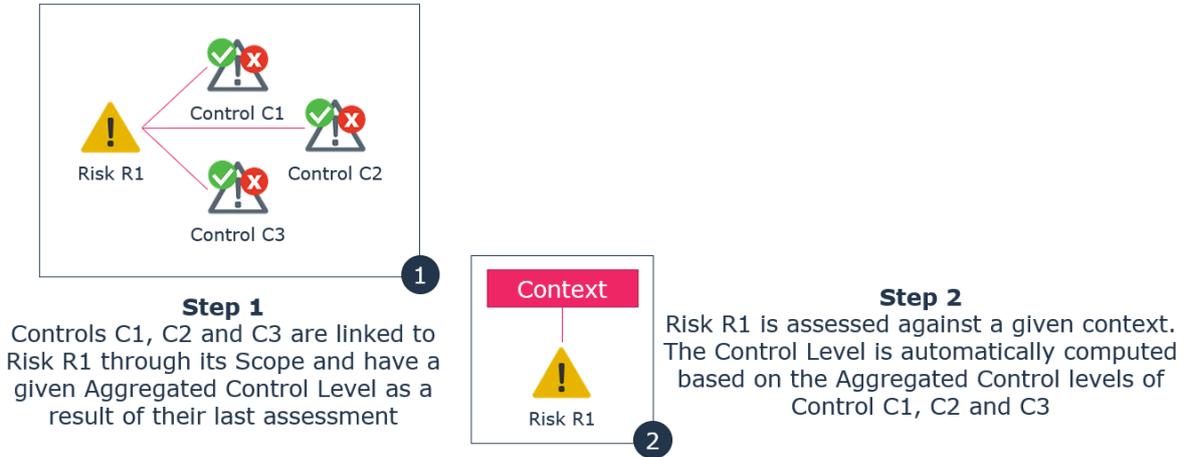
HOPEX IRM now intelligently prefills the "Control Level" question within a Risk Assessment questionnaire, based on available information on controls mitigating the risk.

2.6.8.1. 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 the control level within a given risk assessment.



2.6.8.2. Computation Algorithm

Figure 61 - Automatic computation of control level on risks

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.

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 Lev
Pass	1	[90% - 100%]
Fail	0	<90%

Control - Control Level

Figure 62 - Internal values used by Control Level algorithm

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 = $(3-1) * 25 / 3 = 16,6 \rightarrow 17$
- **Risk Control Level = Ineffective (16)**

Figure 63 - Example of control level computation on a risk

2.6.8.3. 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

Figure 64 - New control level labels

2.6.9. Assessment Templates Improvements

2.6.9.1. 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.

a) 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.

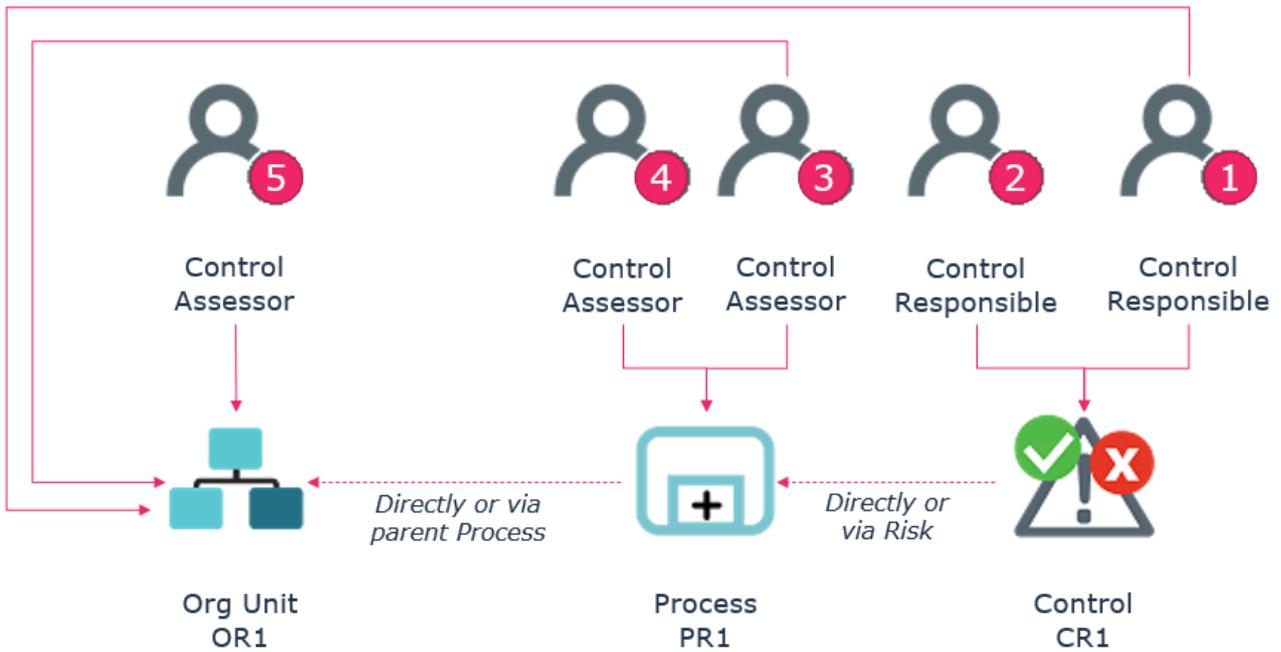


Figure 65 - Control questionnaire respondent

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.

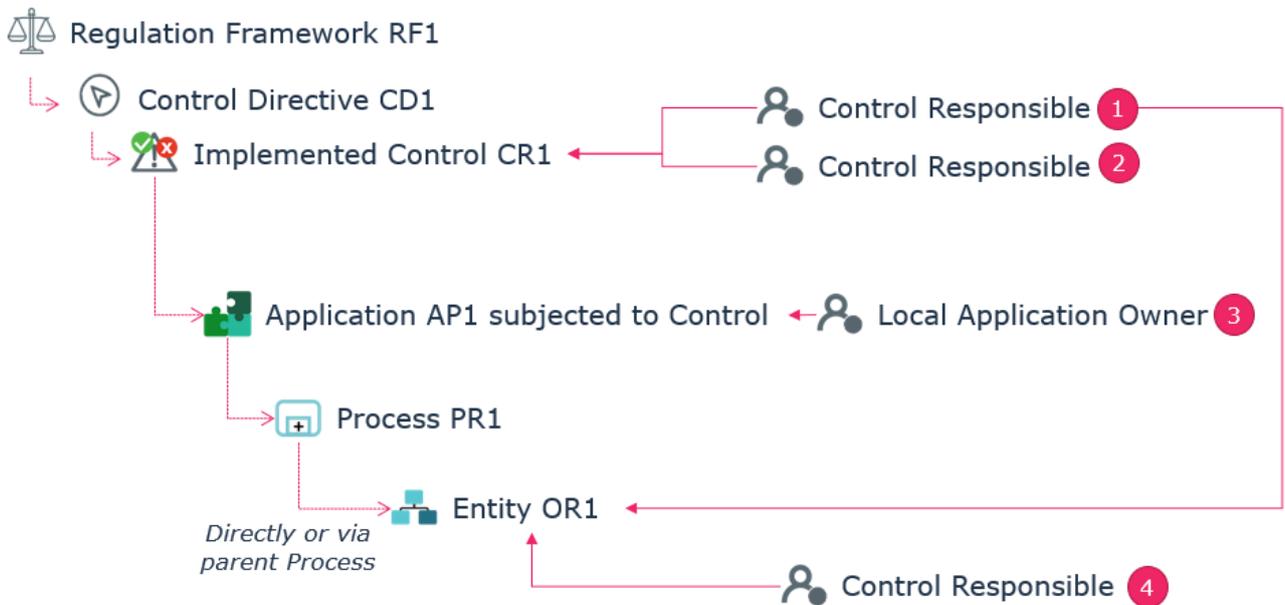
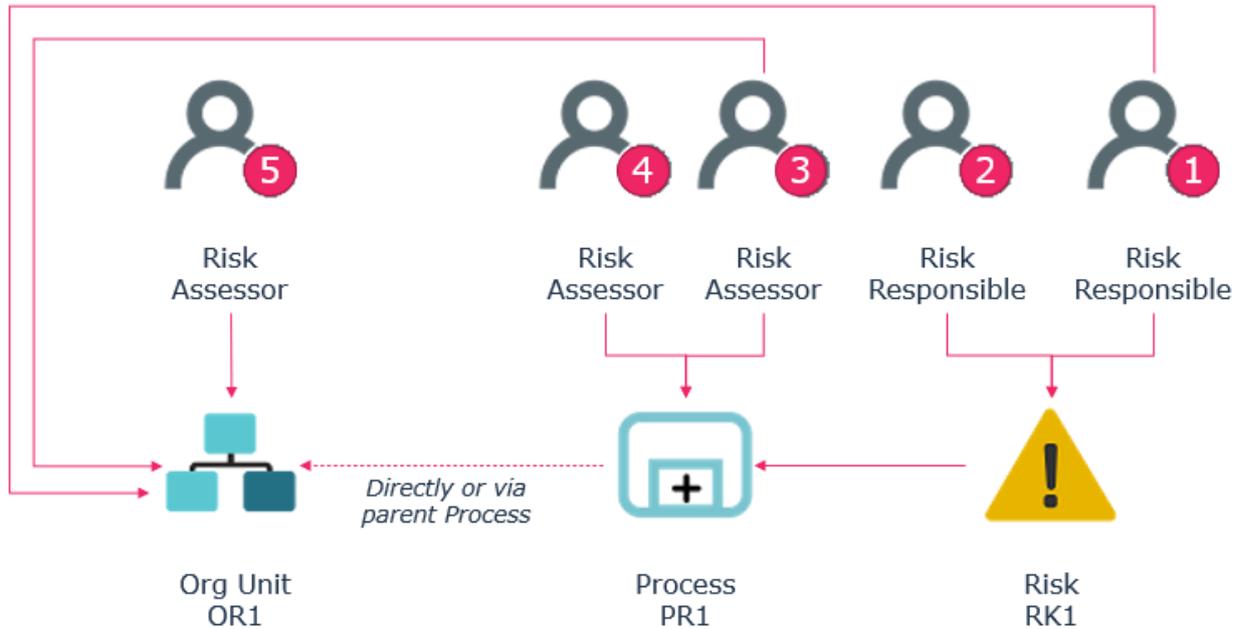


Figure 66 - Control questionnaire respondent

b) 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.



2.6.9.2. Controls proposed in Campaign scope definition tree

Figure 67 - Risk questionnaire respondent

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.

2.6.9.3. 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.

2.6.10. 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.

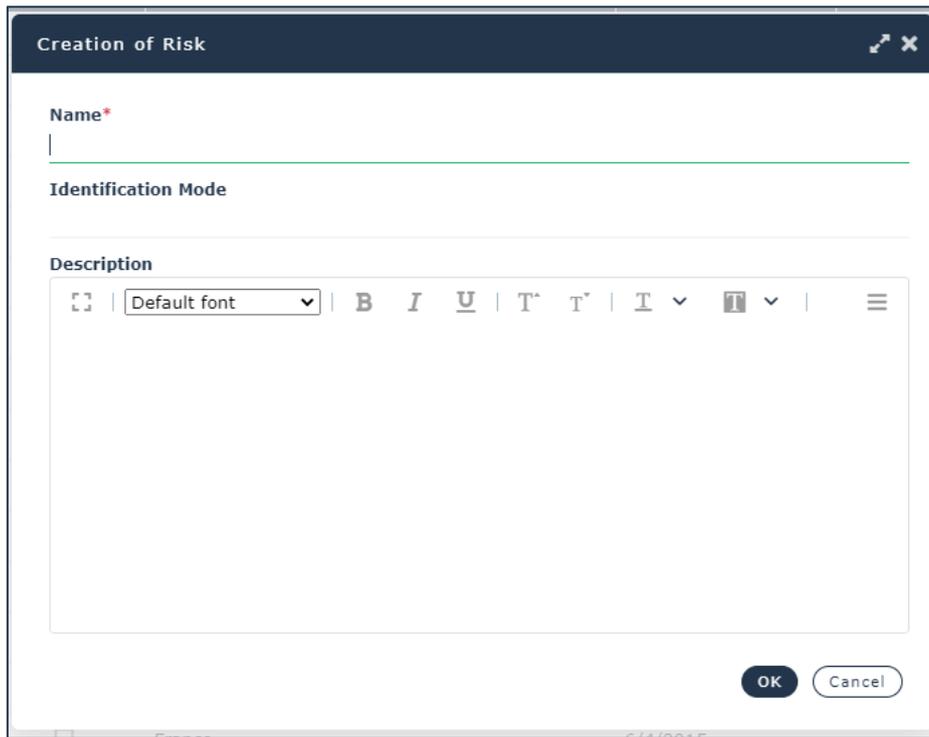


Figure 68 - Risk creation wizard

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.

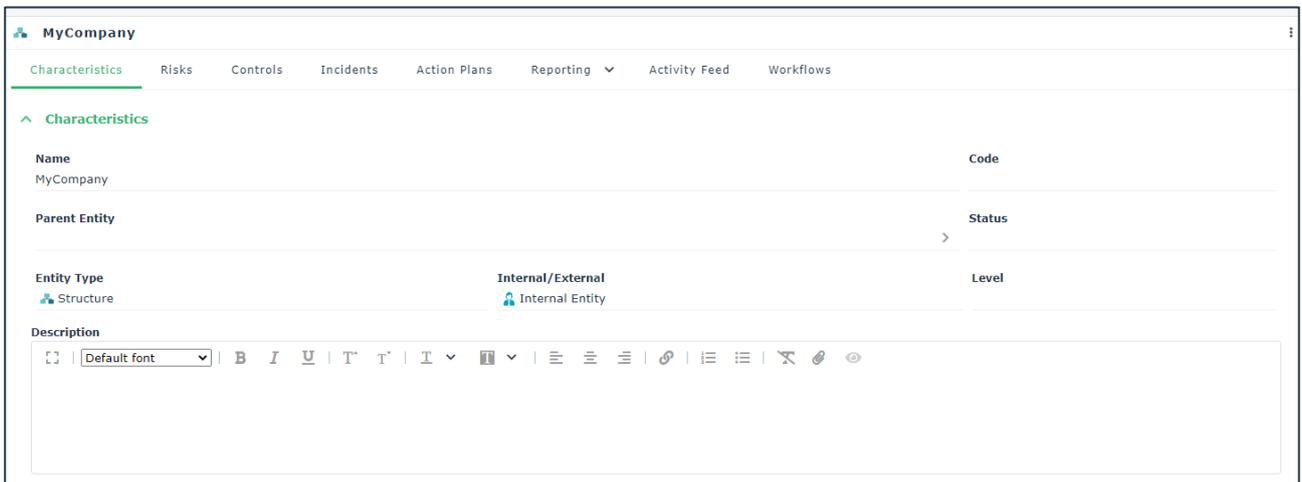


Figure 69 - New property pages

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

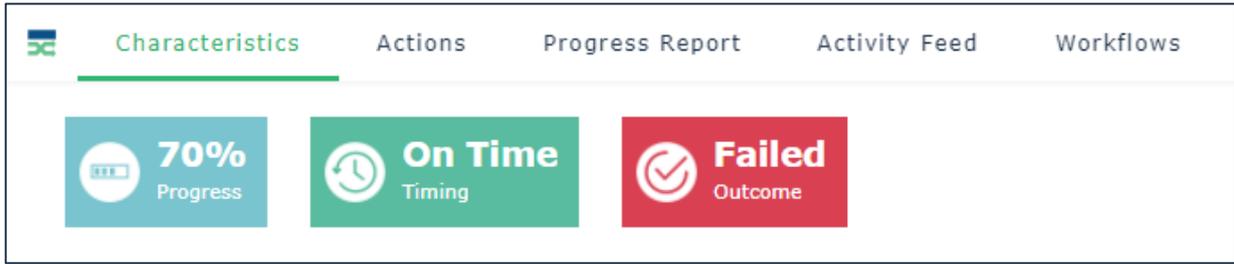


Figure 70 - Action plan dashboard indicators

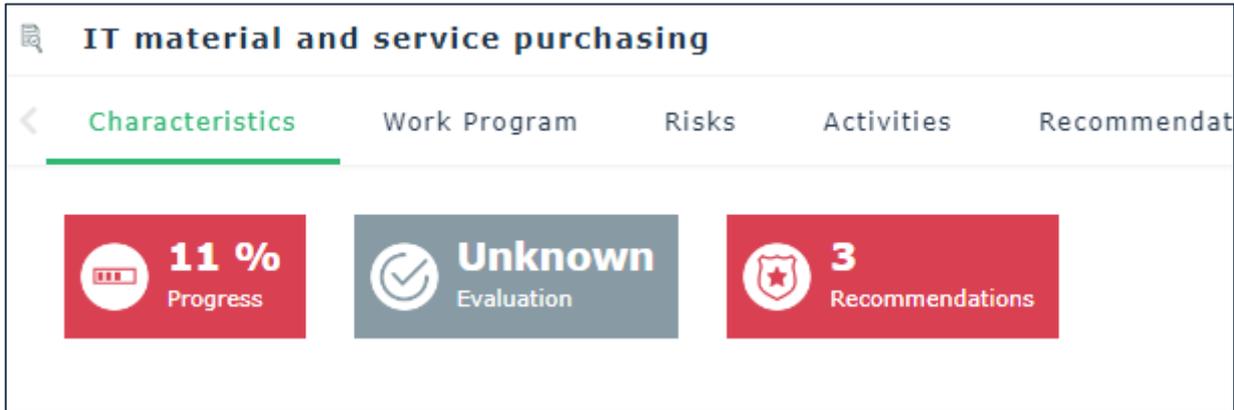


Figure 71 - Audit dashboard indicators

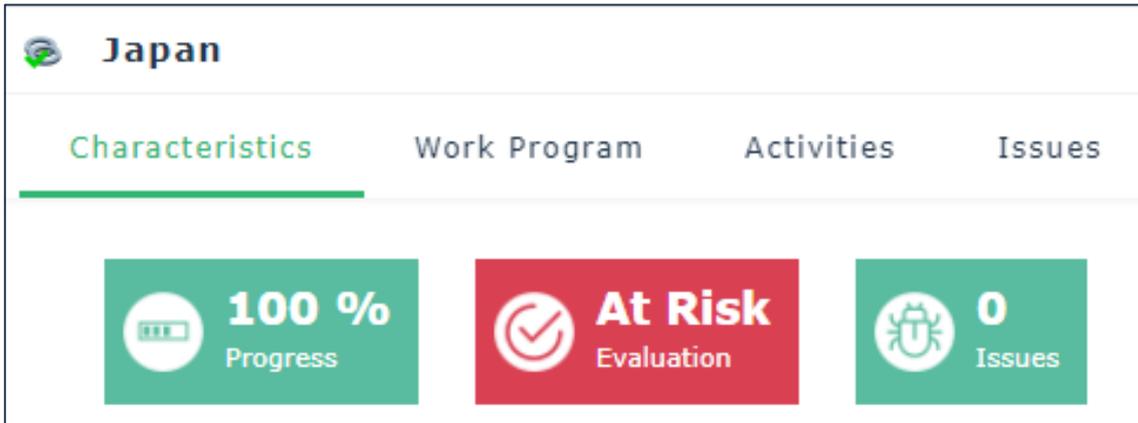


Figure 72 - Test dashboard indicators

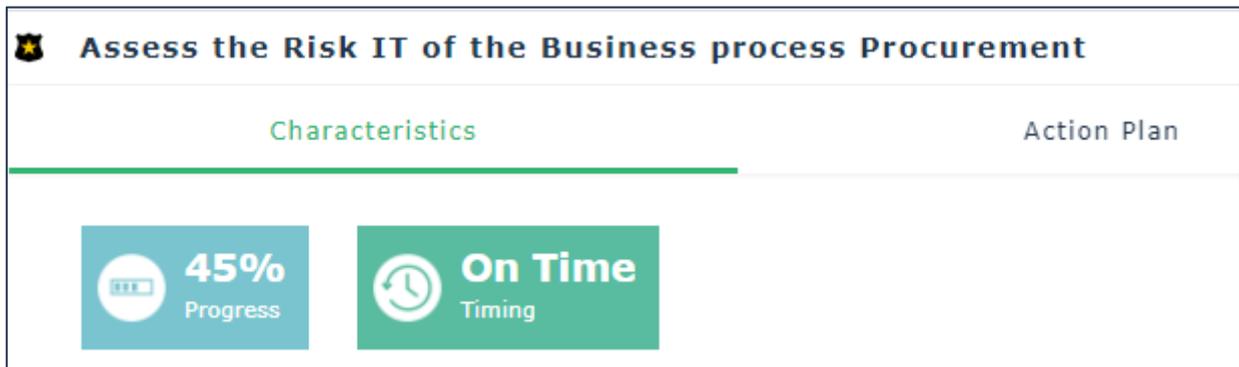


Figure 73 - Recommendation dashboard indicators

2.6.11. Regulation Frameworks Conversion Wizard

Only for existing clients.

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).

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.

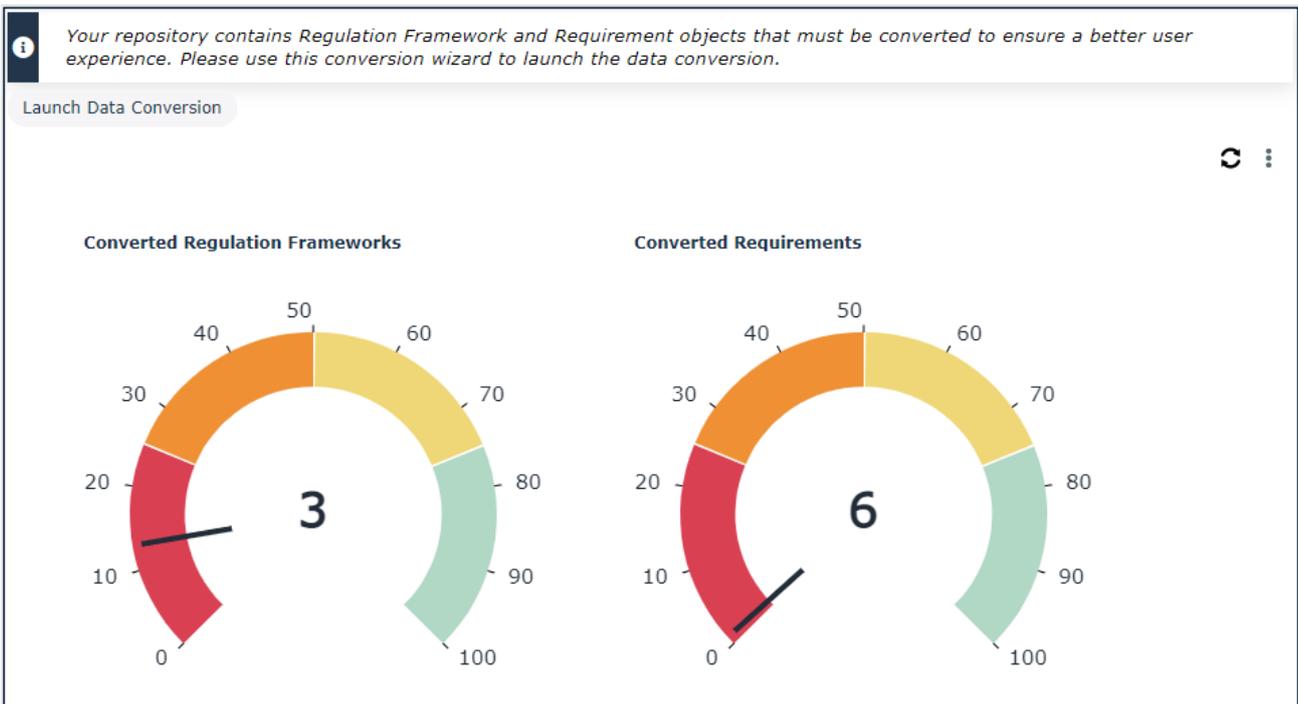


Figure 74 - Regulation Frameworks and Requirements conversion reports

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.

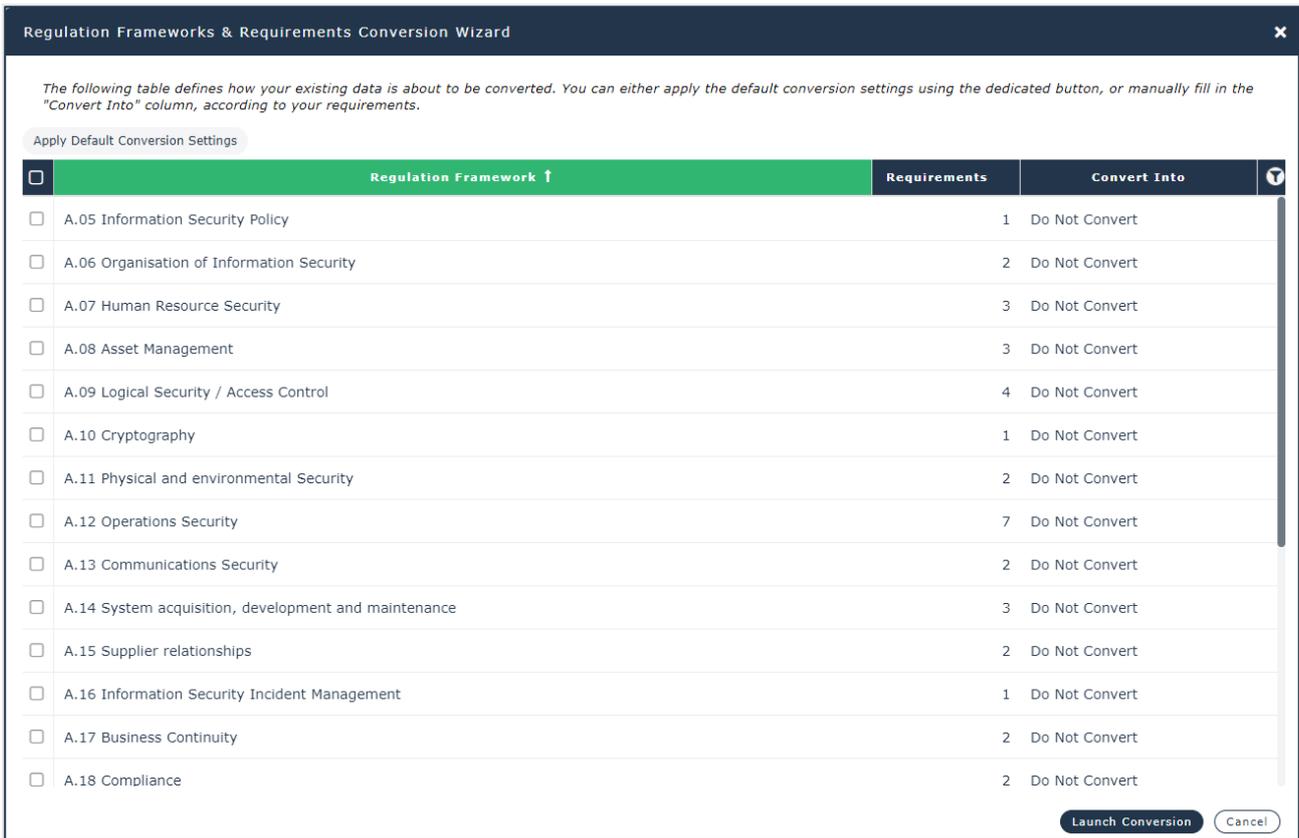


Figure 75 - Regulation Frameworks and Requirements conversion wizard

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

2.6.11.1. 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.

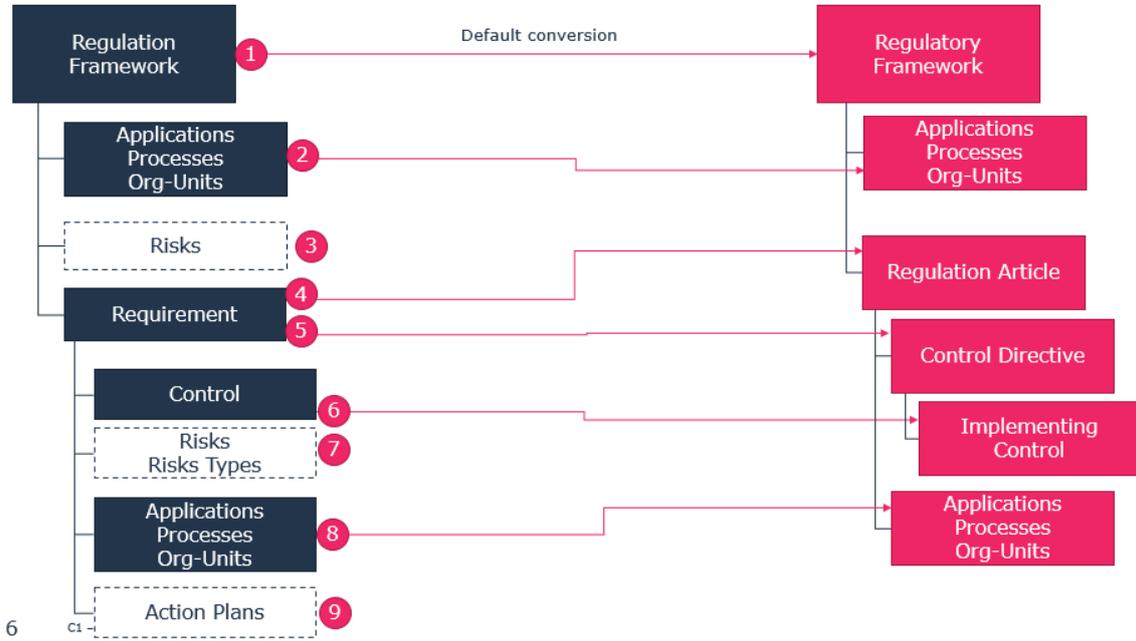


Figure 76 - Conversion logic of Regulation Framework towards Regulatory Framework

The numbers in the above infographic mean the following:

1. By default, for each regulation framework a regulatory framework with the same name is created
2. All applications, processes and org-units in the regulation framework scope, will appear within the regulatory framework Subjected Elements section
3. The meta-association Risks is not considered
4. For every requirement of the regulation framework a regulation article with the same name is created
5. For every requirement a control directive is also created, of type mandated, with name equal to the requirement name
6. All controls linked to the requirement will appear under the Implementation section of the newly created control directive
7. The meta-associations with risks & risk types are not considered
8. All applications, processes and org-units in the requirement scope will appear under the Subjected Elements section of the newly created regulation article
9. The meta-association Action Plans is not considered

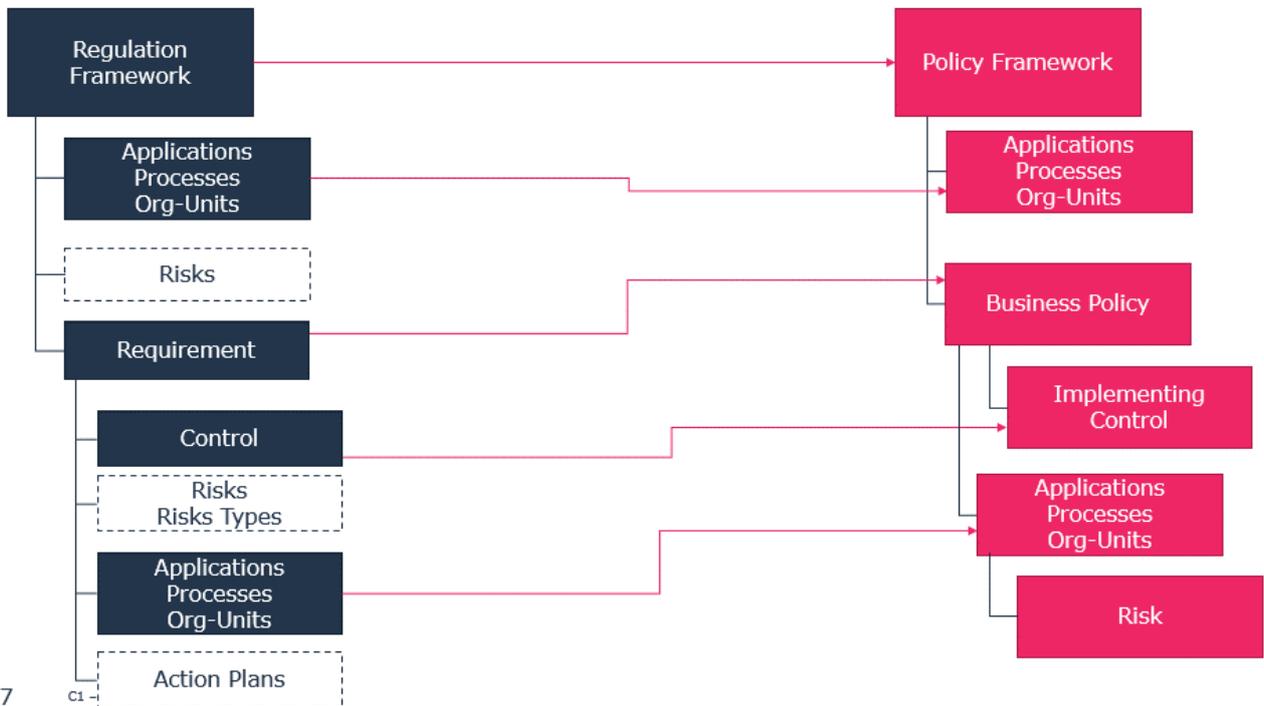


Figure 77 - Conversion logic of Regulation Framework towards Policy Framework

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 78 - 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.

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

Figure 79 - Requirement meta-attributes conversion

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

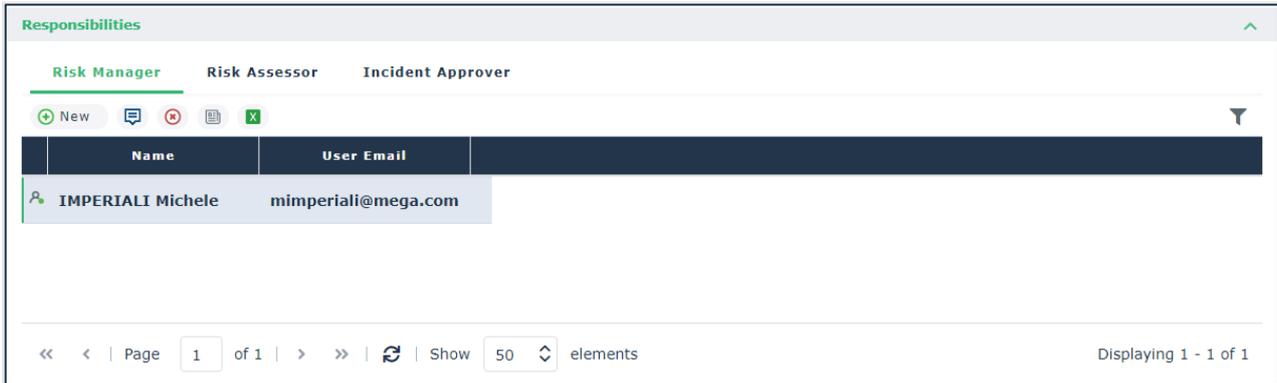


Figure 80 - Define entity's responsibilities

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

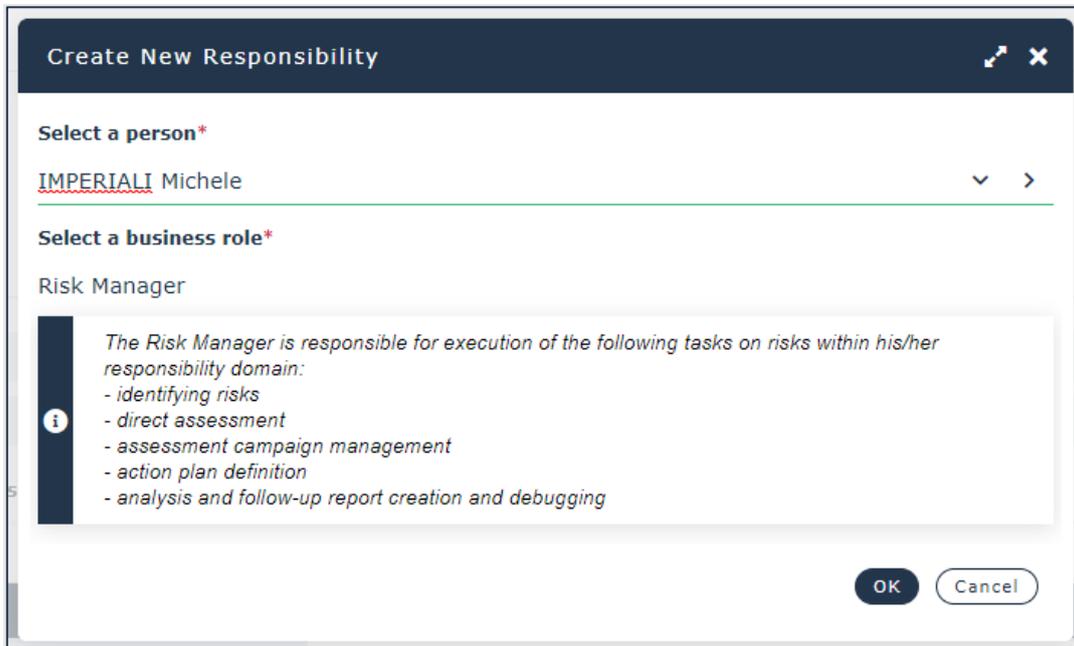


Figure 81 - New business responsibility wizard

2.6.12.1. 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 entity⁷.
- 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.

2.6.12.2. 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.
- 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.

2.6.12.3. 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.

⁷ This field was originally placed in the entity characteristics section, and it was technically called “Risk and Control Assessor”

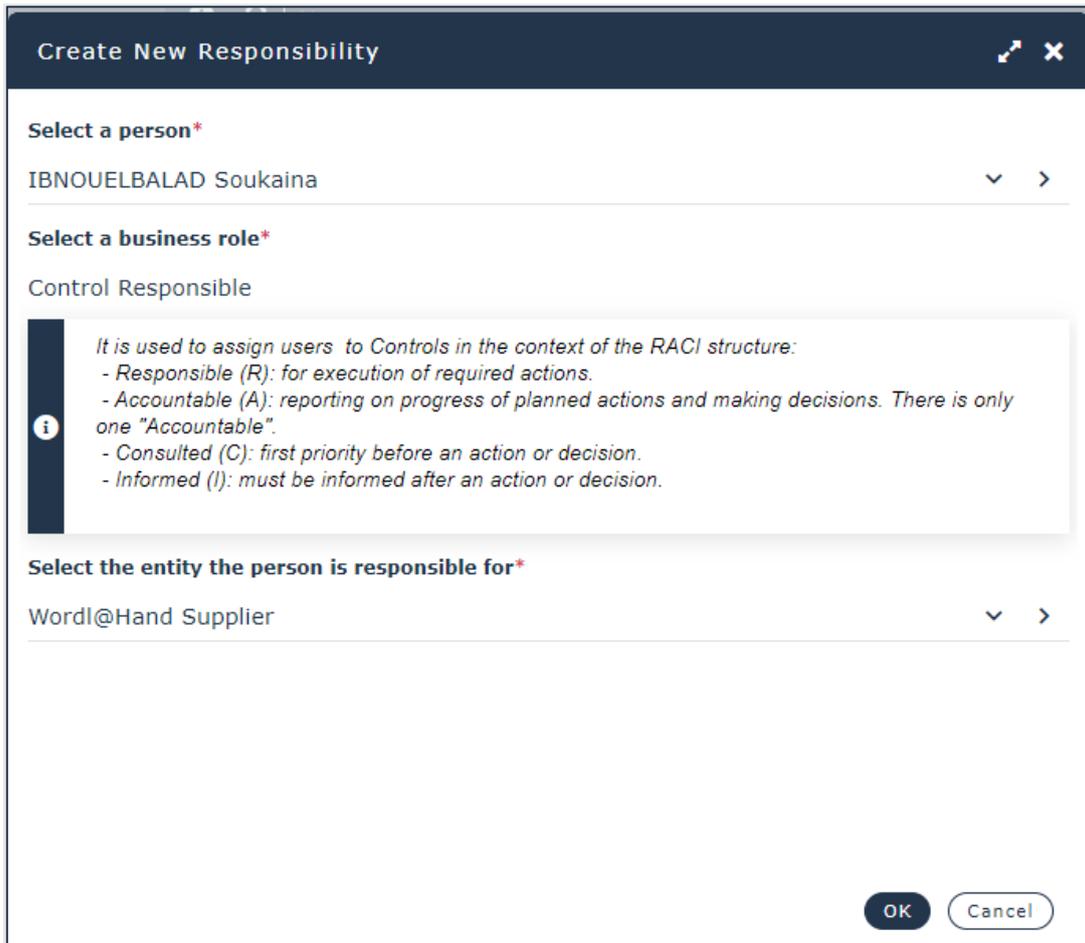


Figure 82 - Control Responsible wizard

2.6.13. 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

2.6.14. Other Modifications and Improvements

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

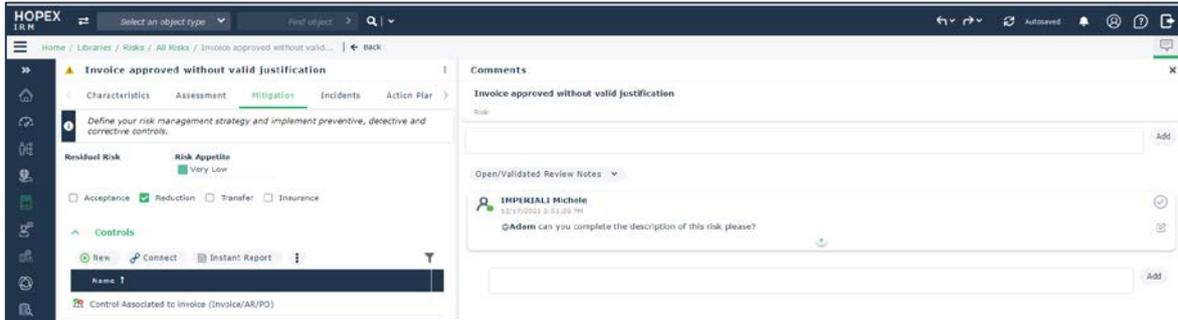


Figure 83 - Review Notes

2.6.14.2. Risk Heatmaps

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



Figure 84 - Risk heatmaps

2.6.14.3. 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.

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.

2.6.14.4. 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				

Figure 85 - Residual Risk computation algorithm

2.6.14.5. 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

Figure 86 - Assessed objects context in questionnaires layout

2.6.14.6. 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”

2.6.14.7. 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.

2.6.14.8. 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.

2.6.14.9. 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.

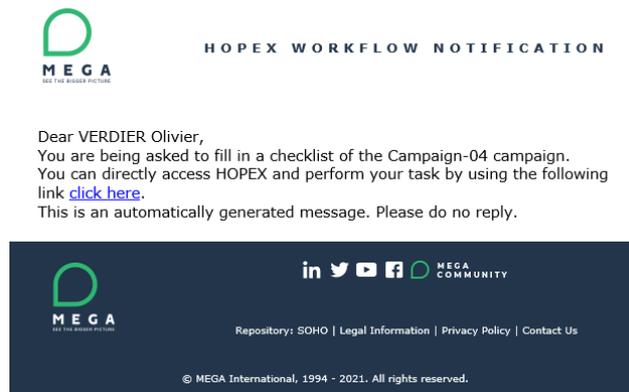


Figure 87 - Workflow email notification

2.6.14.10. 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

2.6.14.11. 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 available⁸. 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 from 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.

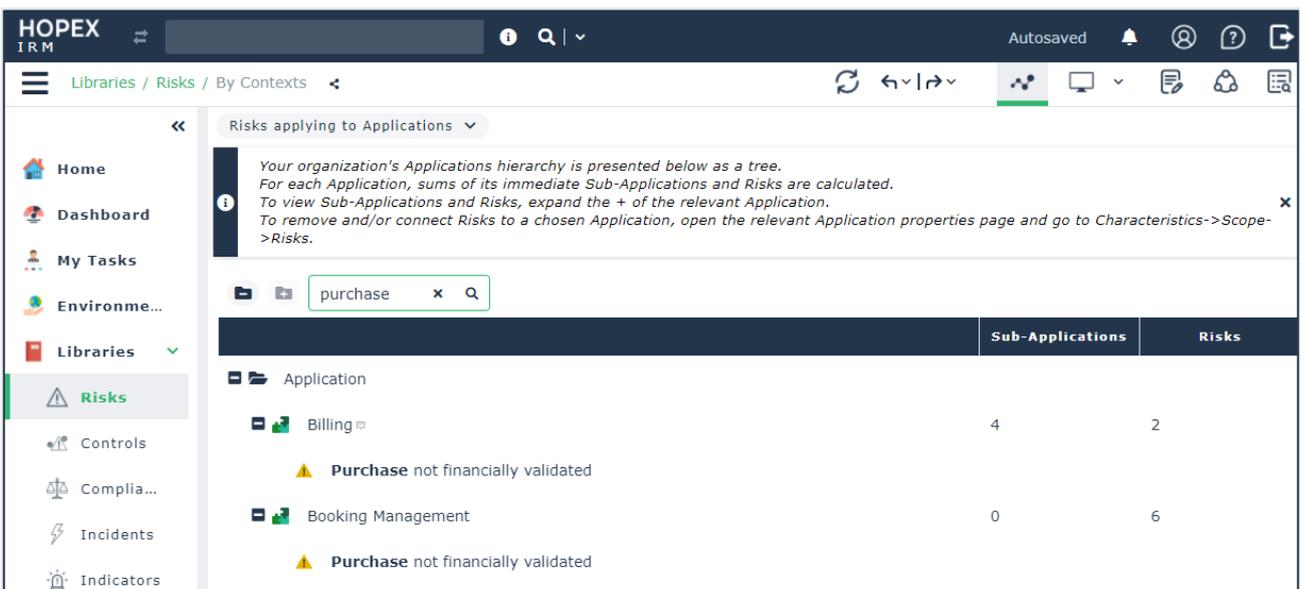


Figure 89 - Quickly find objects within trees

⁸ Some of these columns are hidden by default

2.6.14.12. 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”

2.6.14.13. 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).

2.6.14.14. 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.

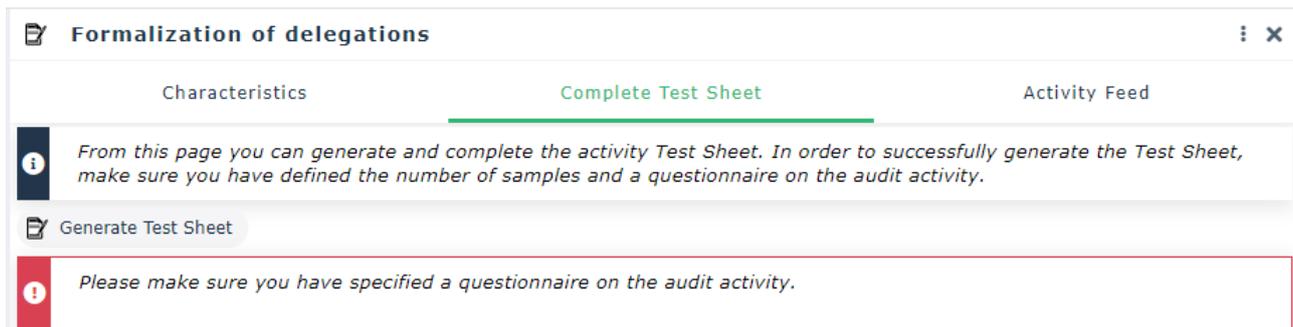


Figure 90 - Generate test sheet

2.6.14.15. 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”.

2.6.14.16. 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

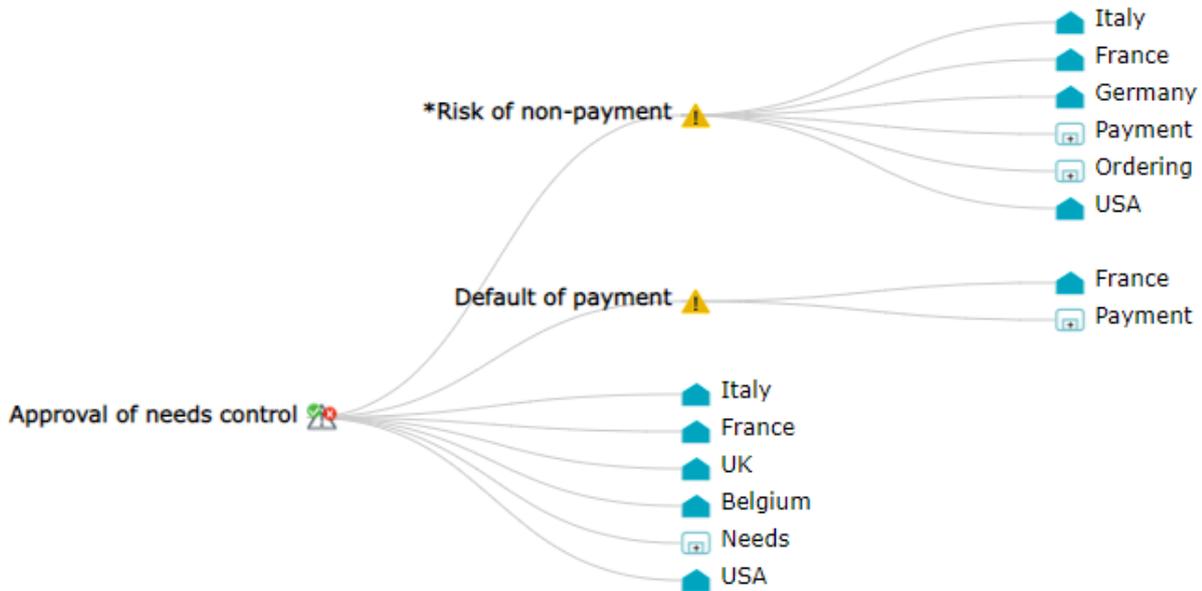


Figure 91 - Control environment report

2.6.14.17. 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

Figure 92 - Campaign questionnaires status distribution

2.6.14.18. 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.

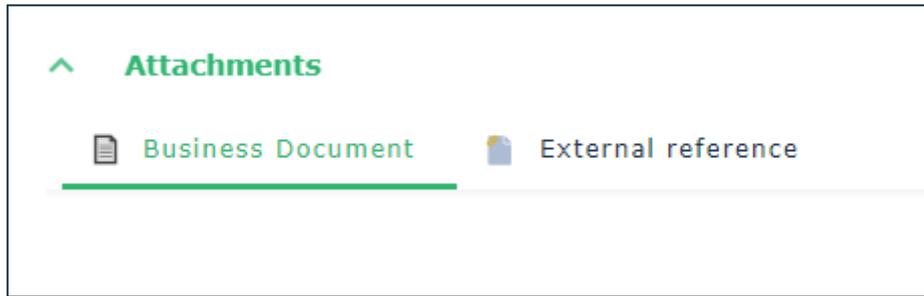


Figure 93 - External references

2.6.14.19. Various Renaming

The following renaming were introduced in this version:

- 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.

2.6.14.20. 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:

- My Tasks>Assessment

- My Tasks>Execution
- Assessment>Campaigns
- Assessment>Follow-up
- Execution>Campaigns
- Execution>Follow-up

2.6.14.21. Action Plans Actions

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

2.6.14.22. Menu structure modifications

The list views “Risks without Context” and “Controls without Controlled Element” are now accessible via dedicated menus, respectively Libraries>Risks>Without Context and Libraries>Controls>Without Controlled Element.

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:

1. Work Program, to access the user work program and the global work program,
2. 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 control libraries menus:

- Libraries>Controls>All Controls
- Libraries>Controls>Orphan Controls
- Libraries>Controls>Controls by Incidents

Have been merged into one single page, under Libraries>Control Register.

Figure 94 - Control Register

<input type="checkbox"/>	Name ↑	Code
<input type="checkbox"/>	Access Controls to ERP are reviewed each quarter	IT-001
<input type="checkbox"/>	Accounts Reconciliation Regarding Invoices	P-C06
<input type="checkbox"/>	All keys must be stored in a secured location	IT-004
<input type="checkbox"/>	Approval of needs control	ct_432
<input type="checkbox"/>	Badge control	ct_224
<input type="checkbox"/>	Check that revenues and inputs are allocated to the r...	ct_254
<input type="checkbox"/>	Connection control	ft_254

Same goes for the menus:

- Libraries>Risks>All Risks
- Libraries>Risks>Orphan Risks
- Libraries>Risks>Materialized Risks

Now merged in one single page, under Libraries>Risk Register.

And the menus:

- Libraries>Incidents>All Incidents
- Libraries>Incidents>Orphan Incidents

Now merged in one single page, under Libraries>Incident Register.

2.6.14.23. 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.

2.6.15. Removed Features

2.6.15.1. 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).

2.6.15.2. 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.

2.6.15.3. 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

2.6.15.4. Business Roles

In order to futhr 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

2.6.15.5. Local Currency on Entity

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

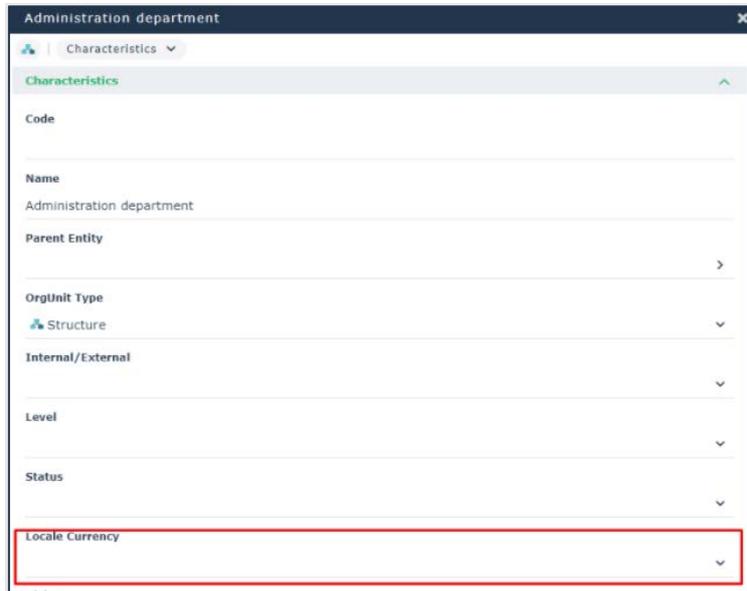


Figure 95 - Removed Local Currency field on Org-Unit property page

2.6.15.6. 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.

2.7. 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.

2.7.1. User Experience

2.7.1.1. Desktop

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

2.7.1.2. Profile simplification

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

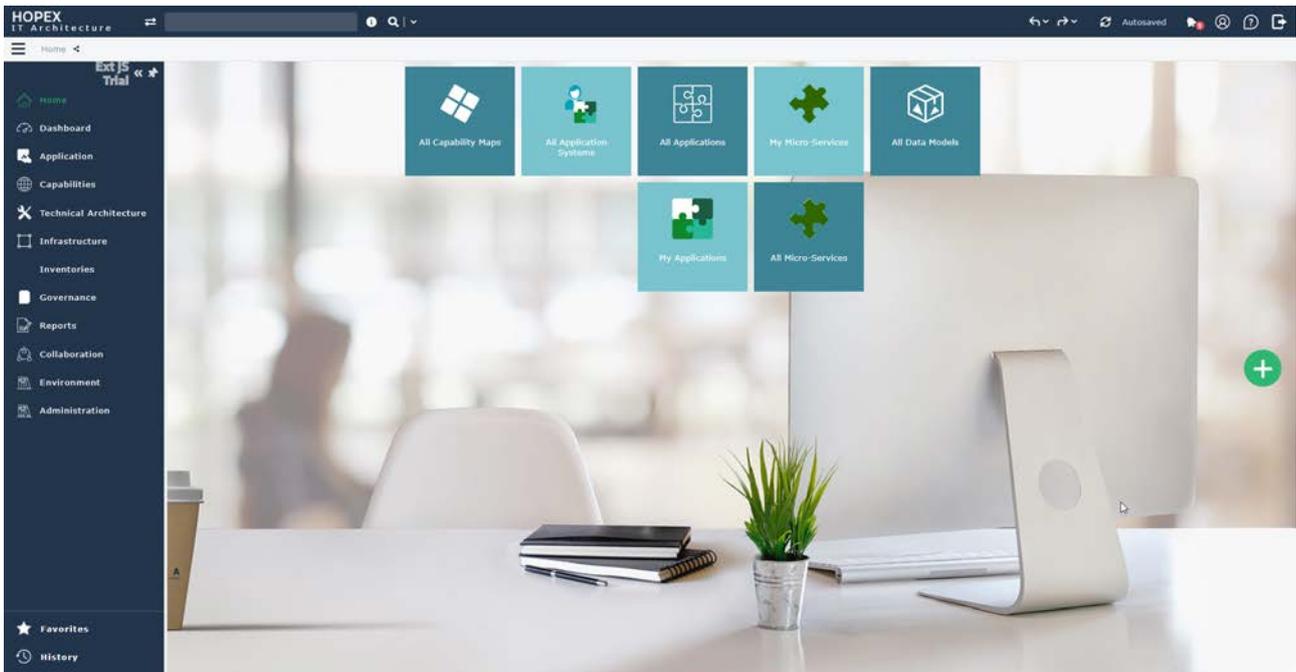
Menus	IT Arc Func Admin	IT Architect	Application Designer	Applications Viewer and Applications Viewer (lite)
Home	W	W	W	R
Dashboard	W	W	W	R
Ideation	W	W	W	R
Business IT Alignment	W	W	W	R
Data Management	W	W	W	R
System Architecture	W	W	W	R
Application Architecture	W	W	W	R
Application Design Resources	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.

2.7.1.3. 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.

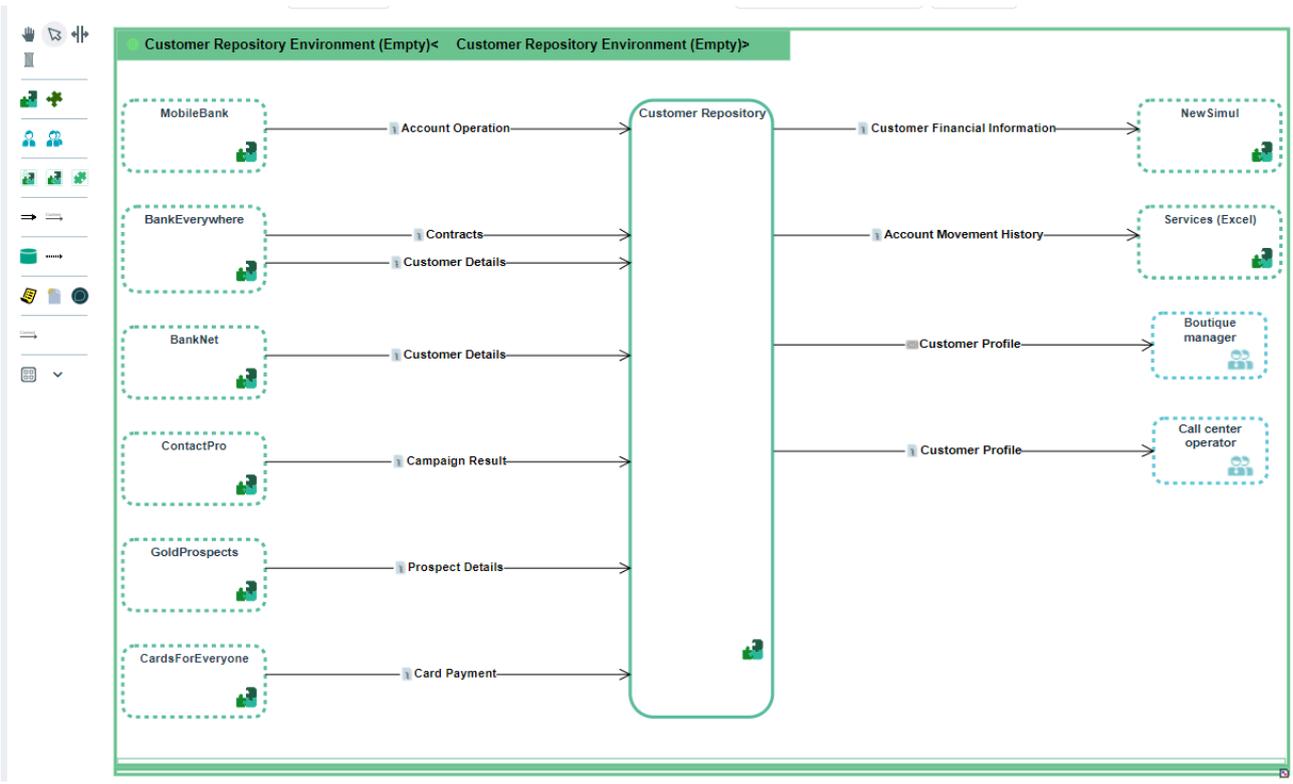


2.7.1.4. New menus

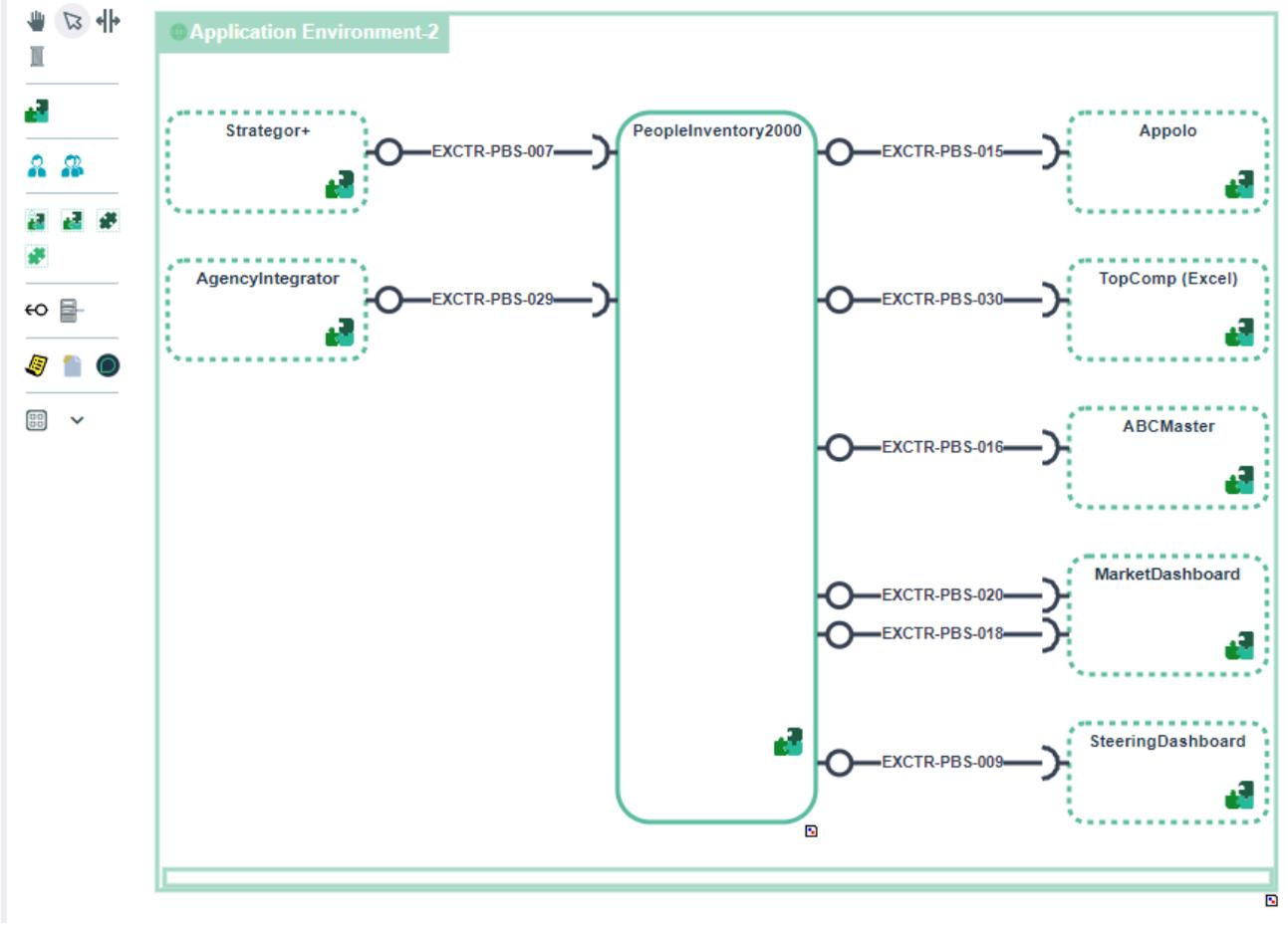
IT Architecture menus have been reviewed for rationalization and simplification purposes.

2.7.1.5. Shapes and icons review

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



Navigation and toolbars for the diagram viewer, including a search bar, zoom level set to 100%, and a font dropdown set to Arial.



2.7.1.6. Property pages review

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

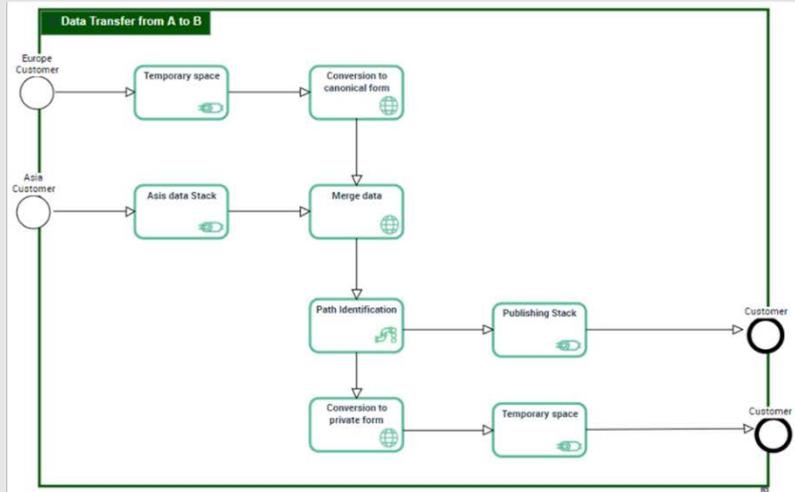
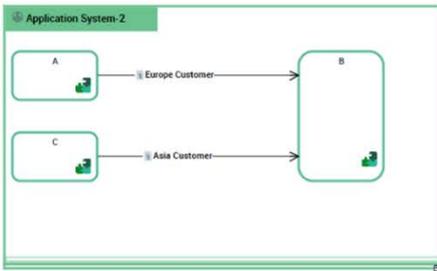
The screenshot displays the 'Accounting' object's property page in the HOPEX IT Architecture software. The interface includes a top navigation bar with the HOPEX logo and a search bar. The main content area shows the 'Accounting' object with various tabs. The 'Characteristics' tab is selected, showing a table of attributes for the 'Accounting' object. The attributes are: Name (Accounting), Owner (Library, Payroll), #Tags, Code, Version Number, Application Type (Cloud Computing, On-Premises), Service Level Agreement, Functional scope, and Responsibility. A rich text editor is visible below the table.

2.7.2. 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)

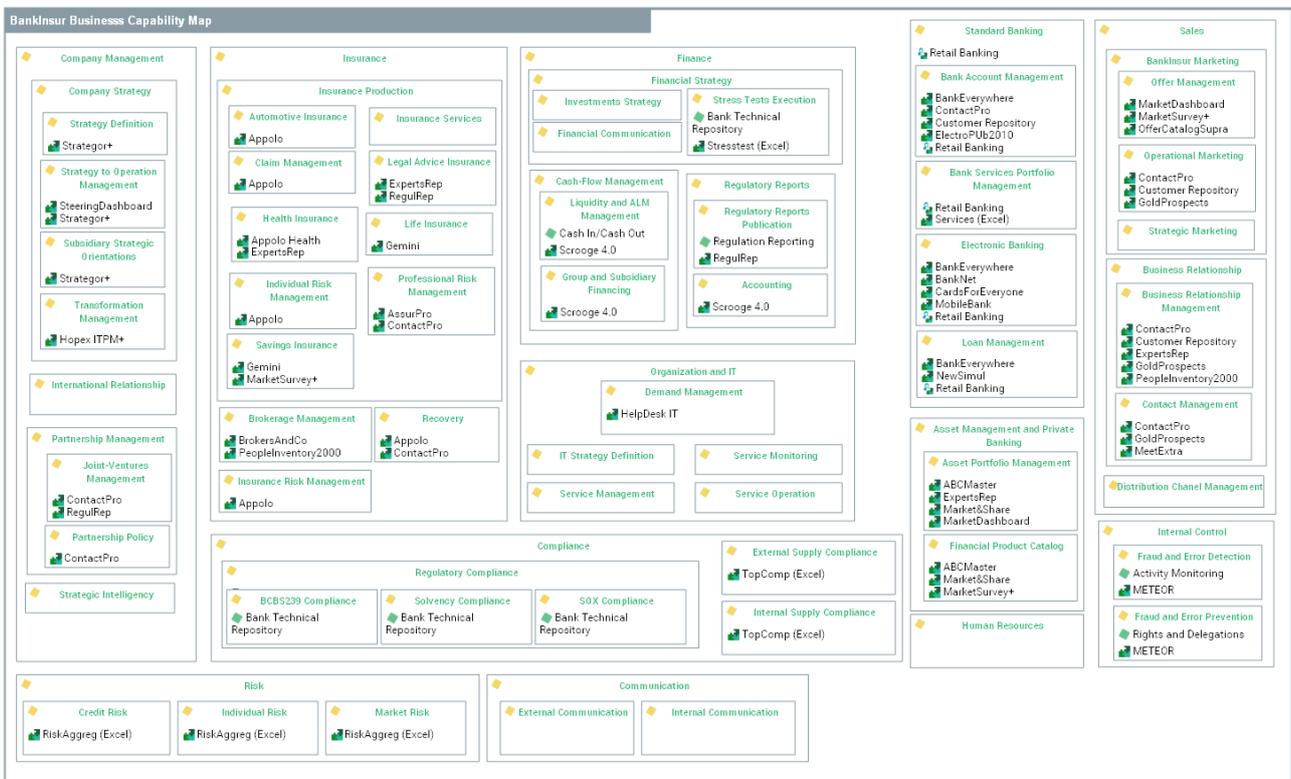
It is possible to zoom in a software communication chain diagram from a content in scenario of flows.

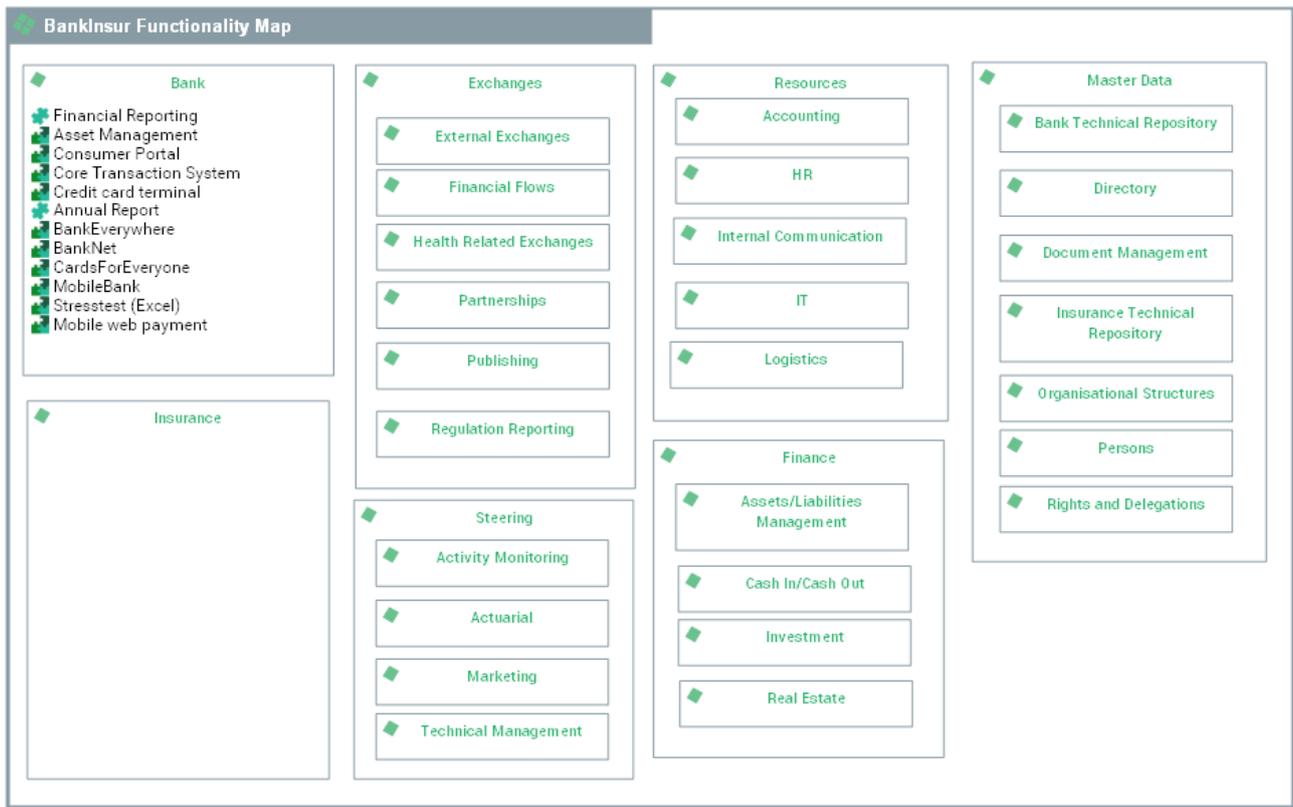


2.7.3. Modelling improvements

2.7.3.1. 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.





2.7.3.2. Wizards for Environment diagrams

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).

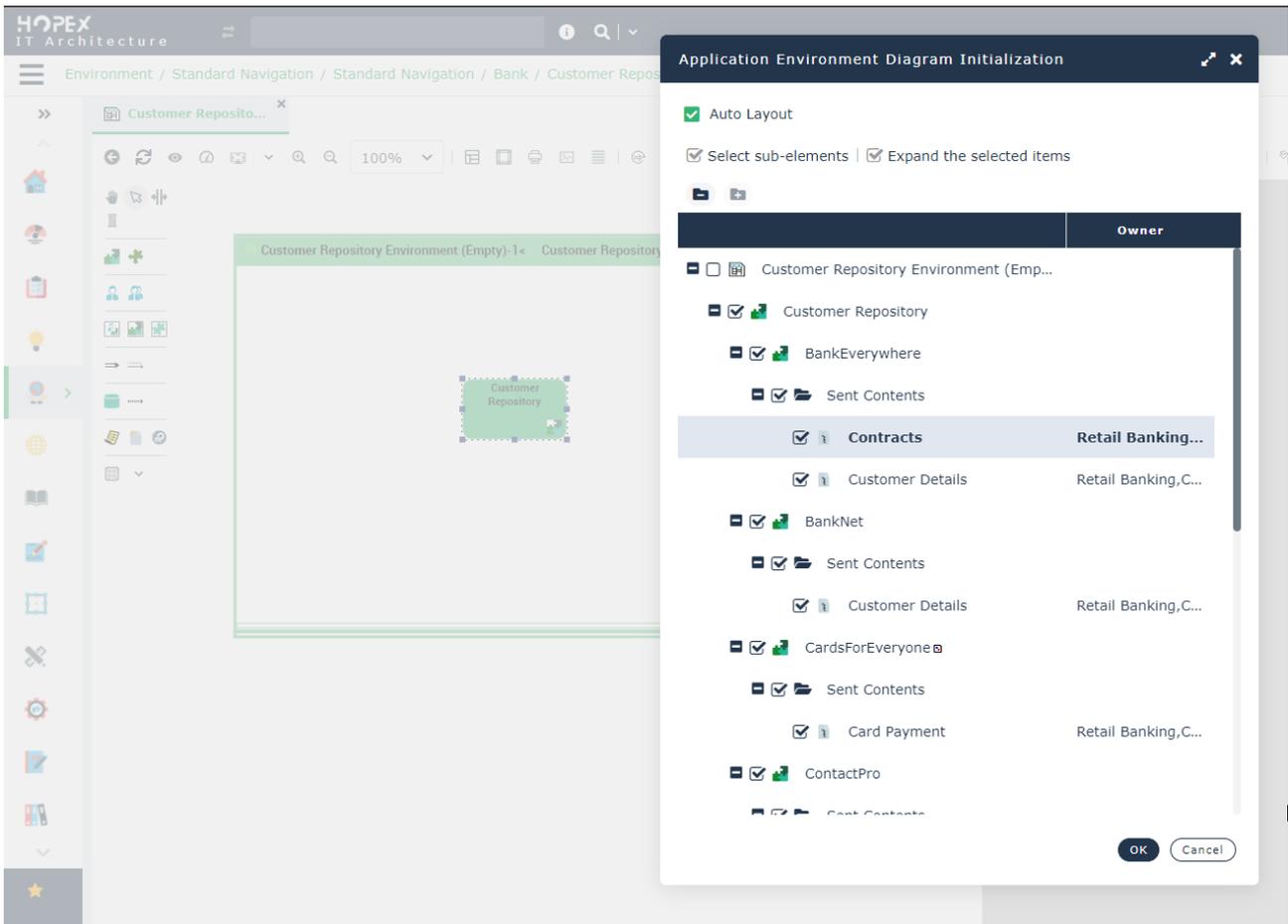


Figure 96 - Initialization wizard

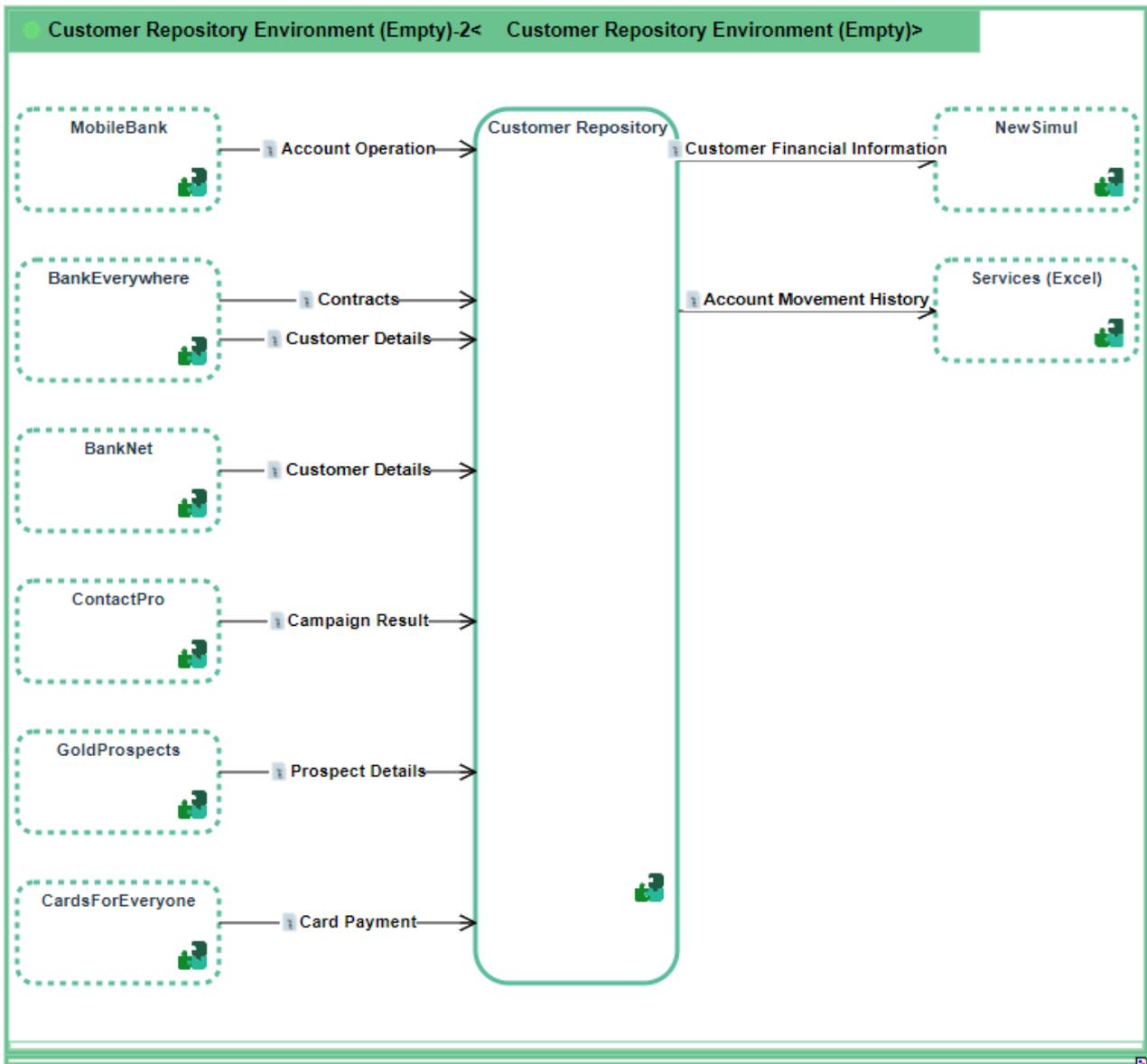
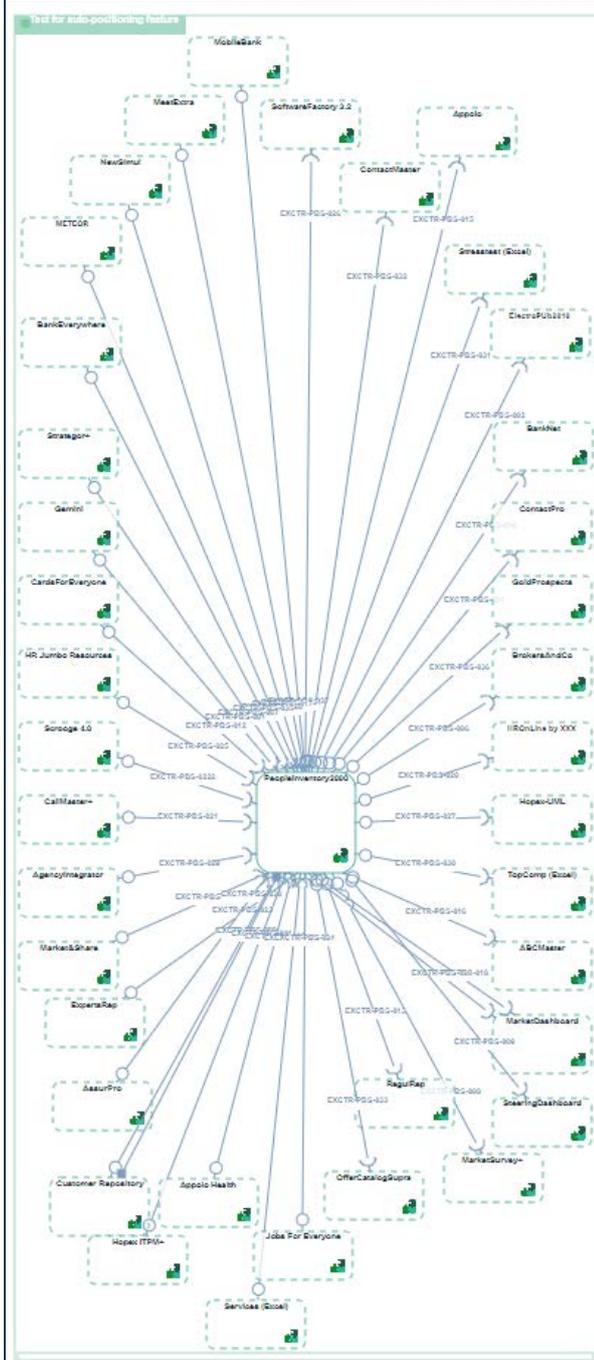


Figure 97 - Initialization result with auto-positioning feature

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

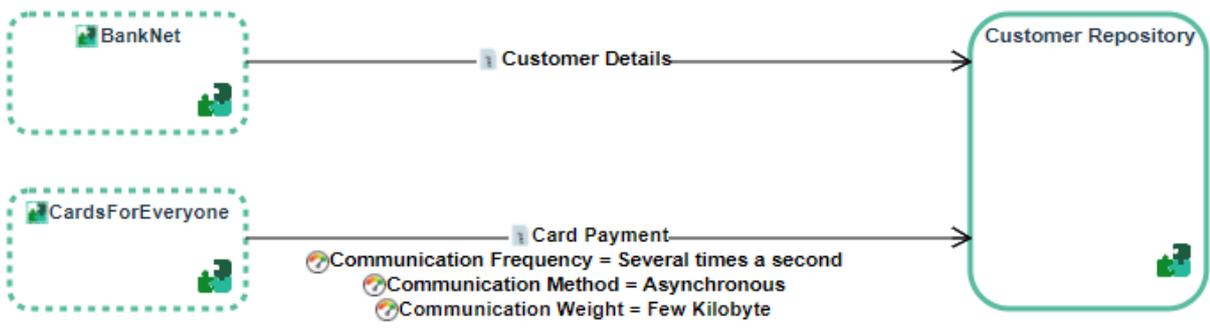


2.7.3.3. Improvement of flow categorization

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

- Communication Frequency
 - Communication Frequency = Several times a millisecond
 - Communication Frequency = Several times a second
 - Communication Frequency = Several times an hour
 - Communication Frequency = Several times a day
 - Communication Frequency = Several times a week
 - Communication Frequency = Several times a month
 - Communication Frequency = Several times a year
- Communication Method
 - Communication Method = Asynchronous
 - Communication Method = Synchronous
- Communication Weight
 - Communication Weight = Few Kilobyte
 - Communication Weight = Some hundreds of Kilobytes
 - Communication Weight = Few Megabyte
 - Communication Weight = Some hundreds of Megabytes
 - Communication Weight = Some Gigabyte
 - Communication Weight = Some Terabyte
- Required Bandwidth
 - Required Bandwidth = Few hundreds of kilobits per second
 - Required Bandwidth = Some hundreds of kilobits per second
 - Required Bandwidth = Around 1 Megabit per second
 - Required Bandwidth = Few Megabits per second
 - Required Bandwidth = More than 5 Megabits per second
- Required Latency
 - Required Latency = Few milliseconds
 - Required Latency = Some tens of milliseconds
 - Required Latency = Around 100 milliseconds
 - Required Latency = Some hundreds of milliseconds
 - Required Latency = Some seconds

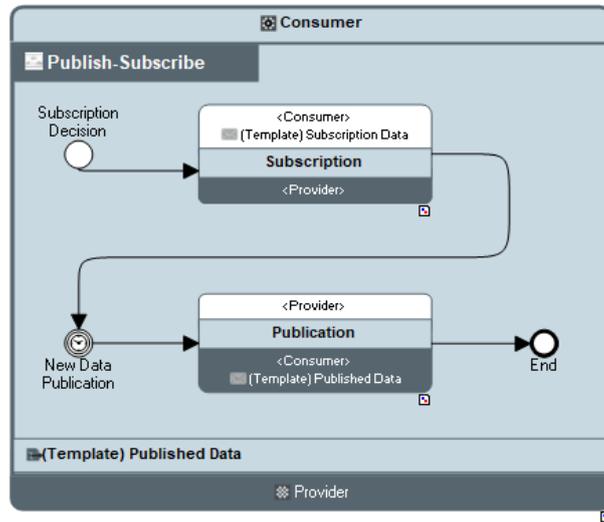
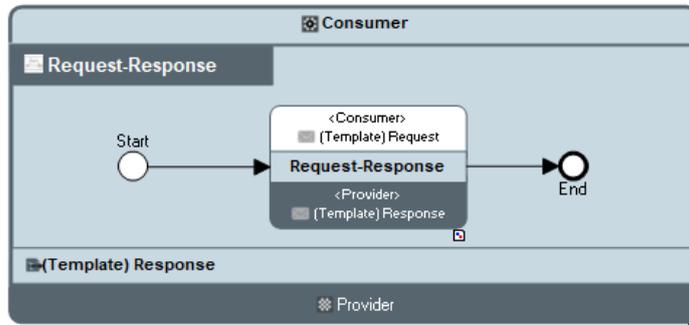
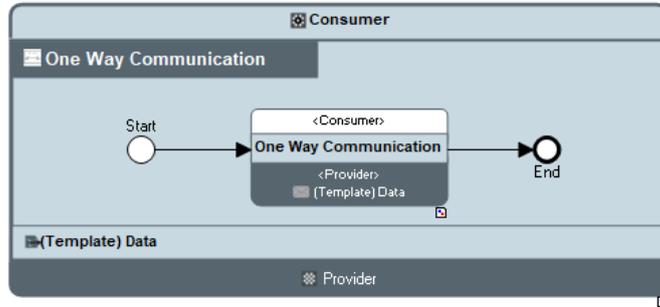
Flow categorization can be displayed in flow diagrams:



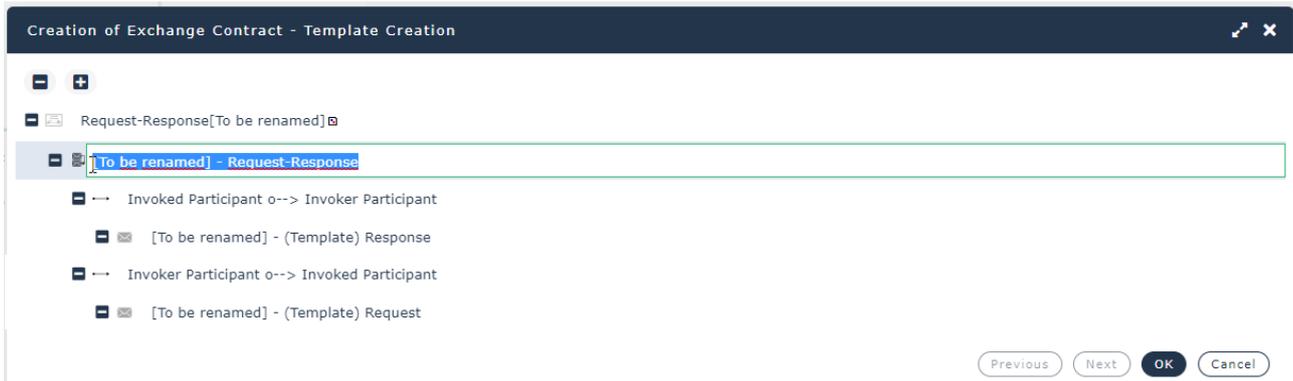
2.7.4. Structure diagram improvements

2.7.4.1. 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.

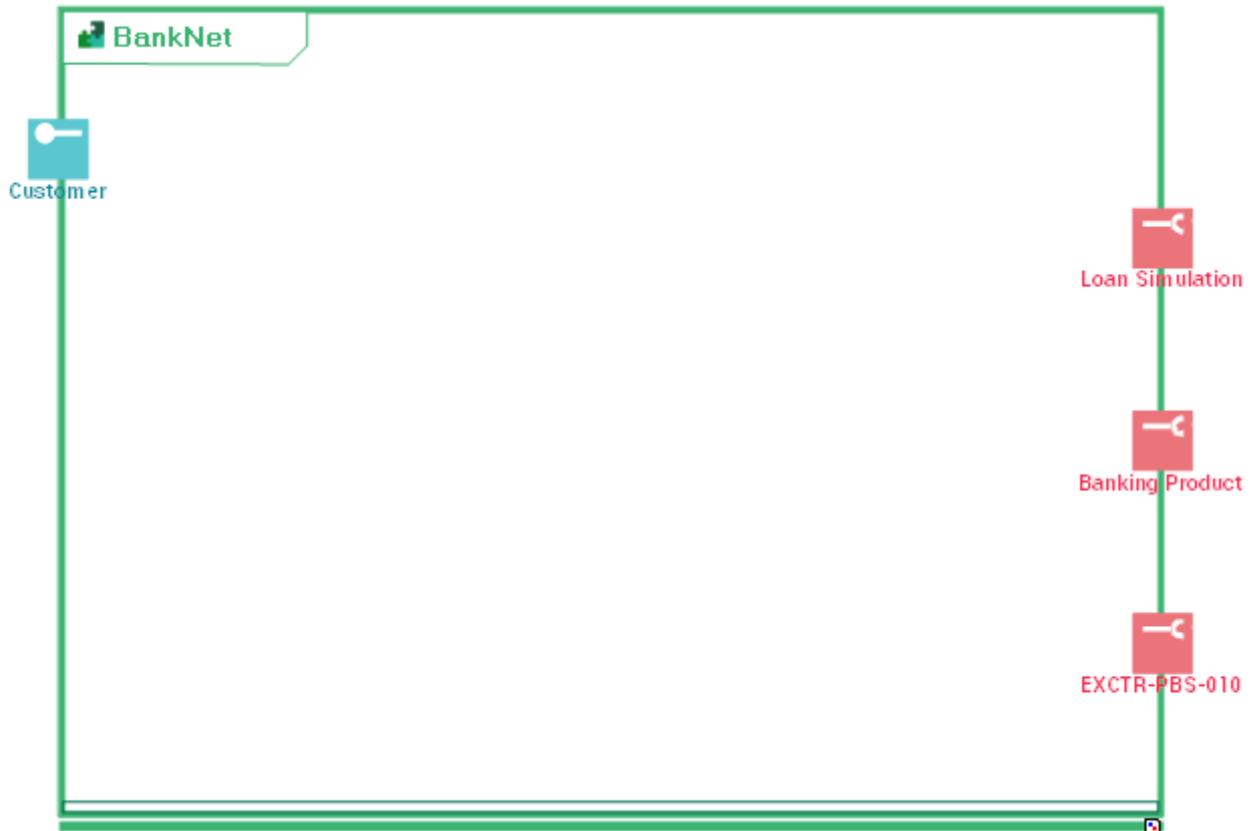


The creation wizard allows to personalize Exchange and Message Flow names from the selected template.



2.7.4.2. 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).



2.7.5. Deployment Architecture improvements

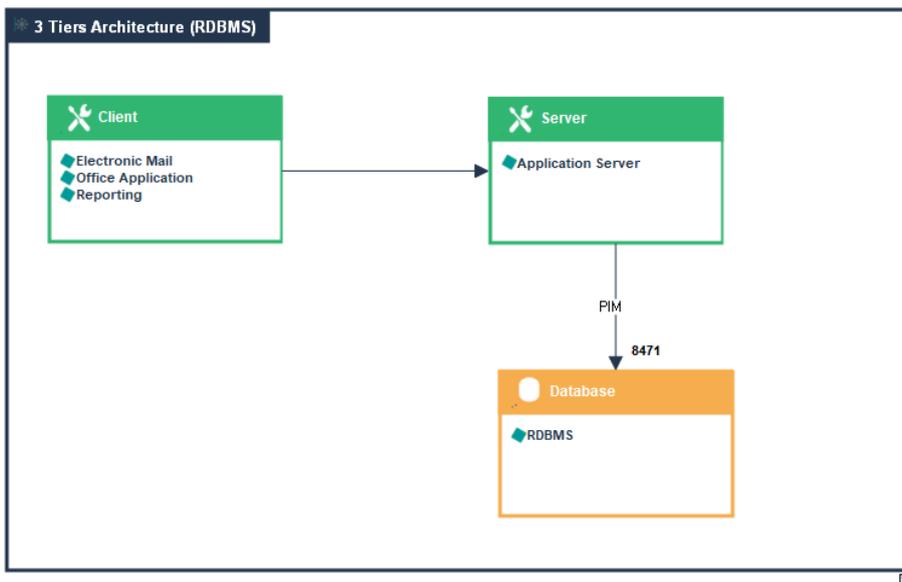
2.7.5.1. Deployment Architecture renaming

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

2.7.5.2. 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



Creation of Application Deployment Architecture - Deployable Packages

Local name
 Application Deployment Architecture

The new deployment architecture based on the model can reuse existing deployable packages of the application or create new ones.
 If new packages are created, it is possible to specify which software technologies are required: Hopex proposes the technologies identified directly in the model or those that cover the technical functionalities required by the model.

Name	Reuse existing?	Deployment Package	DeploymentTechnologies	DeploymentPackageType
Client	<input type="checkbox"/>		Office 2013 BI Report Studio	Deployable Application Pack...
Database	<input type="checkbox"/>			Deployable Data Package
Server	<input type="checkbox"/>		cc:Mail Domino Webmail Email Manager Express Reporter Go! Office Impromptu Web Reports	Deployable Application Package

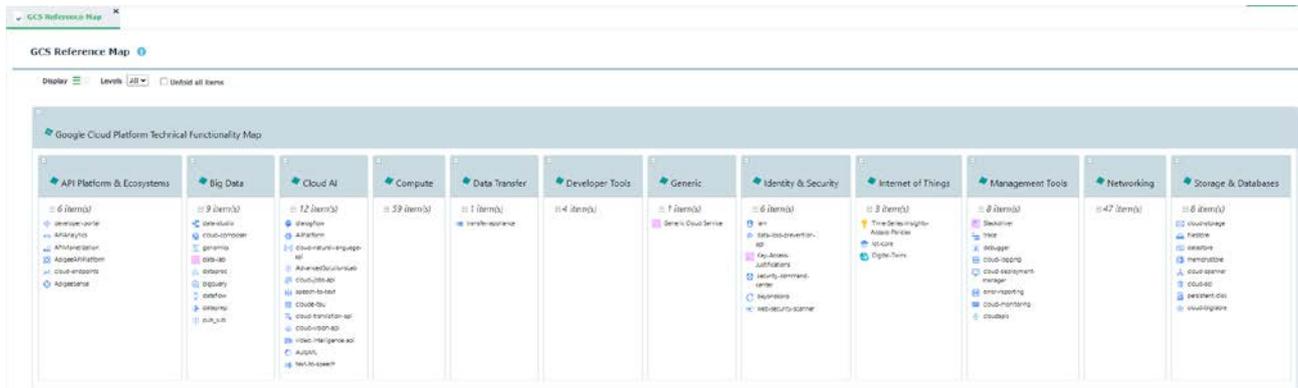
Instant Report

Page 1 of 1 | Show 50 elements | Displaying 1 - 3 of 3

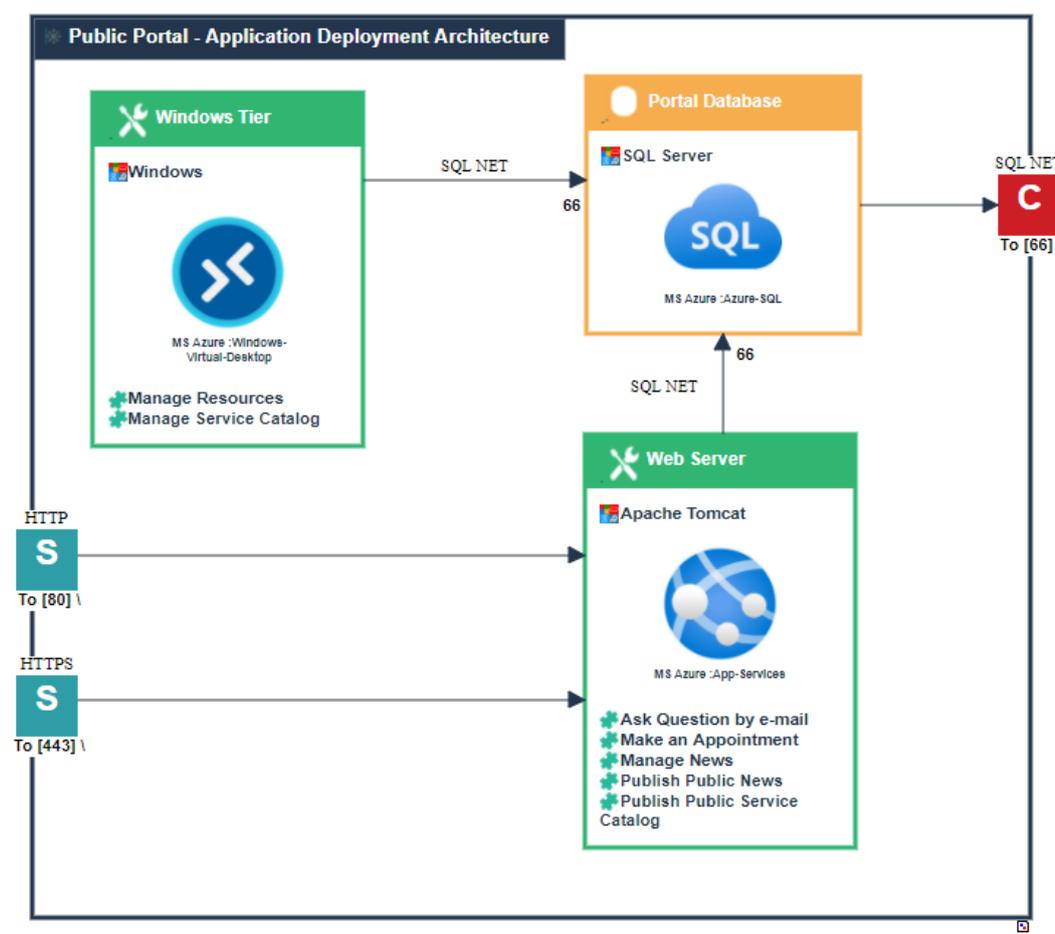
Previous Next OK Cancel

2.7.5.3. 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.

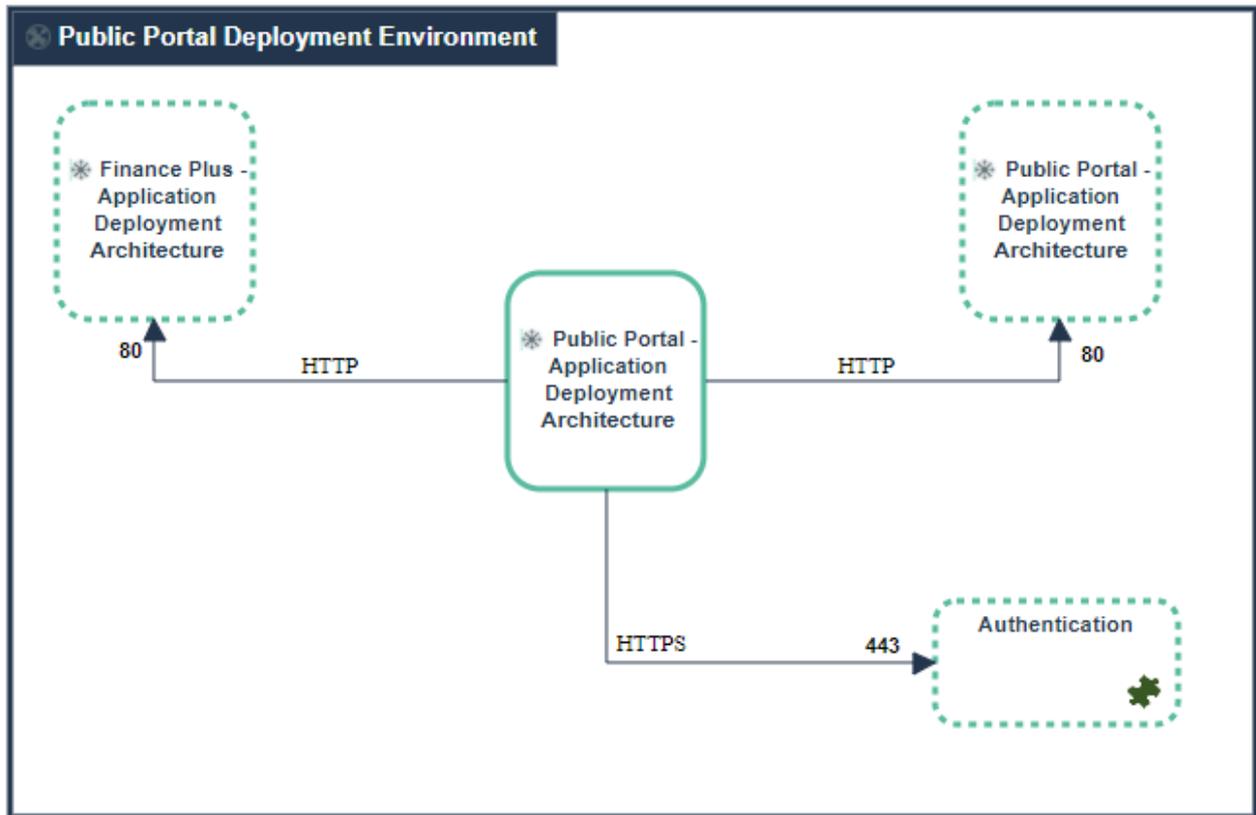


Cloud services (or IT Devices) can be used in Deployment Architecture to define prescription for deployable package hosting solution. Cloud services (or IT Devices) image will then be displayed in the deployable package shape.



2.7.5.4. Micro-Services

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

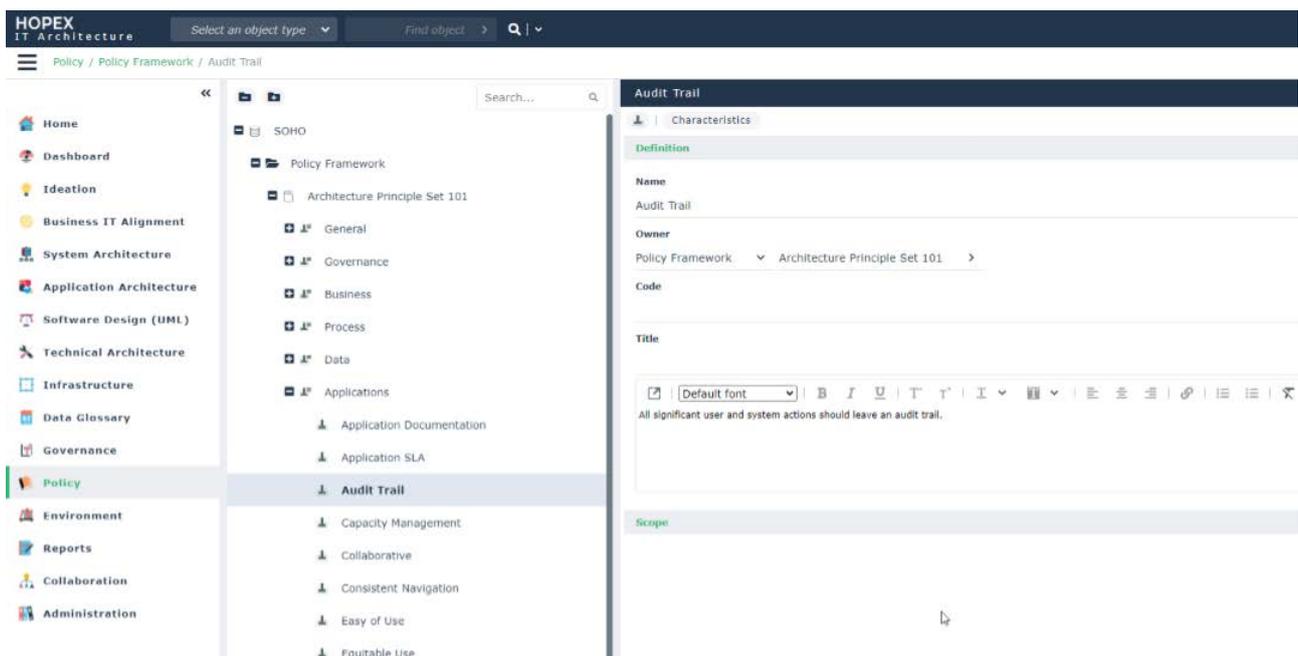


2.7.6. Governance

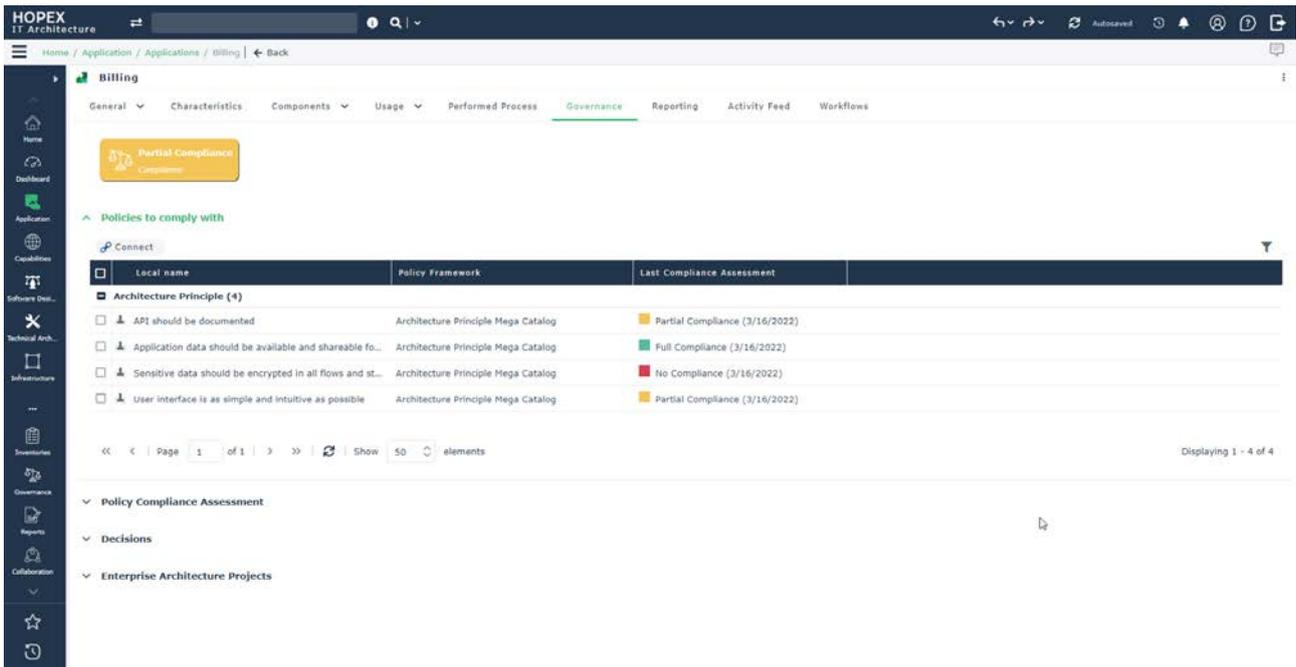
2.7.6.1. Business Policy and Architecture Principles Compliance

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:



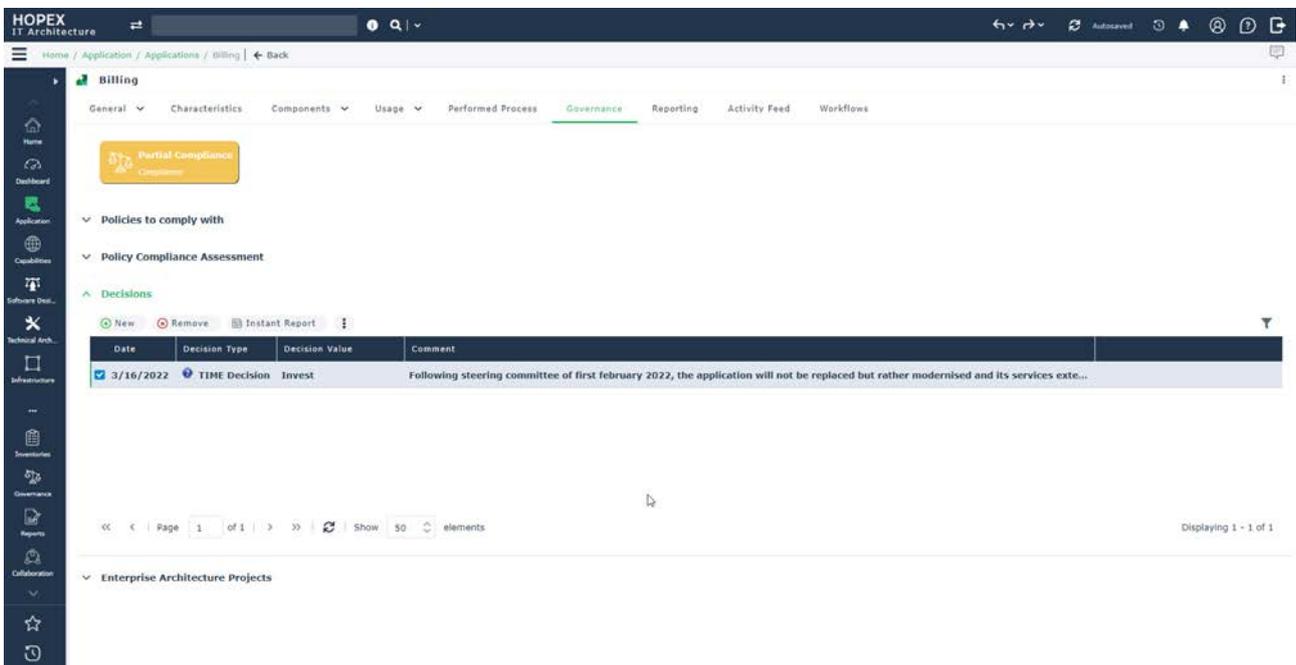
Then it is possible to assess compliance of an IT building block against those policies and/or principles.



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

2.7.6.2. Decision recording

It is now possible to record decisions for application?



2.7.7. Miscellaneous

2.7.7.1. Technology Stack

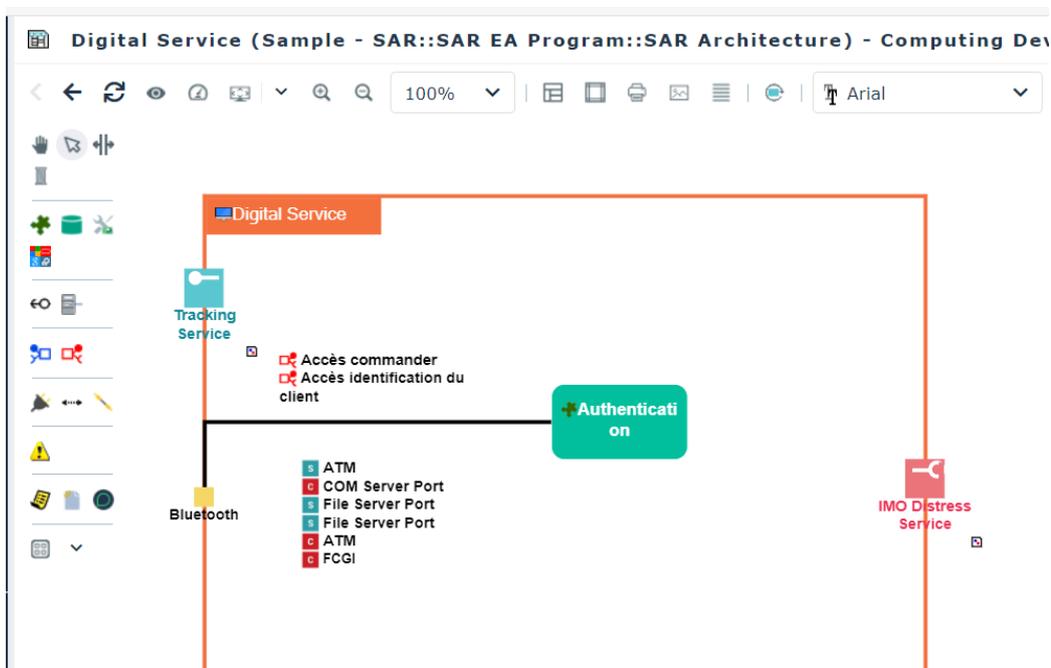
It is now possible to link Technology Stacks to IT Service and Microservices (like application).

2.7.7.2. 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.

2.7.7.3. 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.



2.8. HOPEX ITPM/ITBM

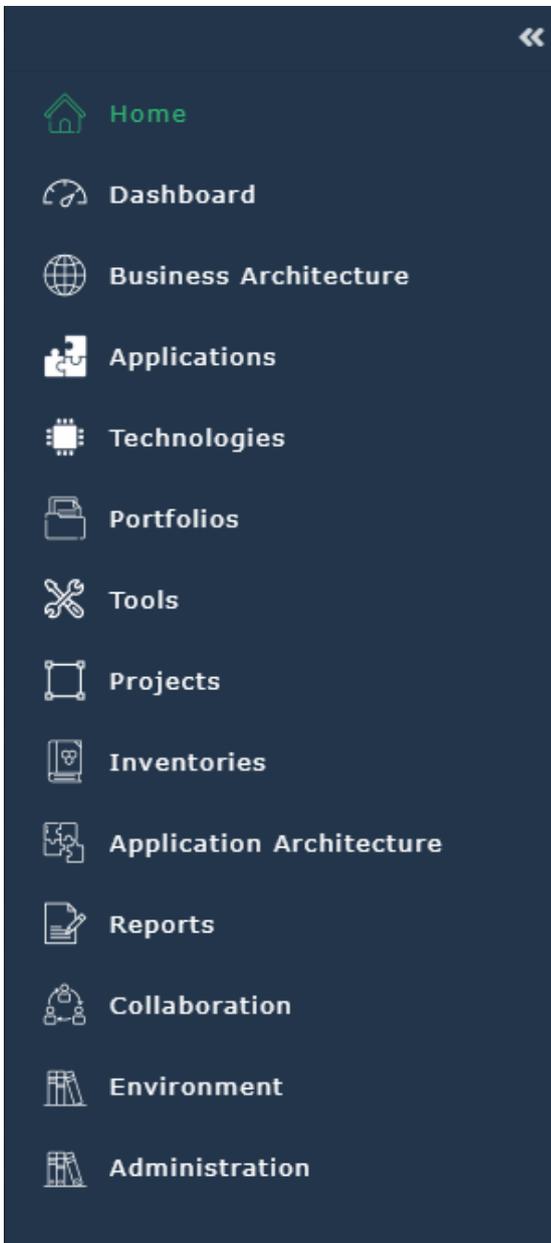
Many improvements are meant to accelerate EA projects from strategy to execution. This is achieved by automating the data collection with application discovery, increasing the business focus of ITBM with more powerful and flexible capability maps and the addition of customer journeys.

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

2.8.1. User experience

2.8.1.1. 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:

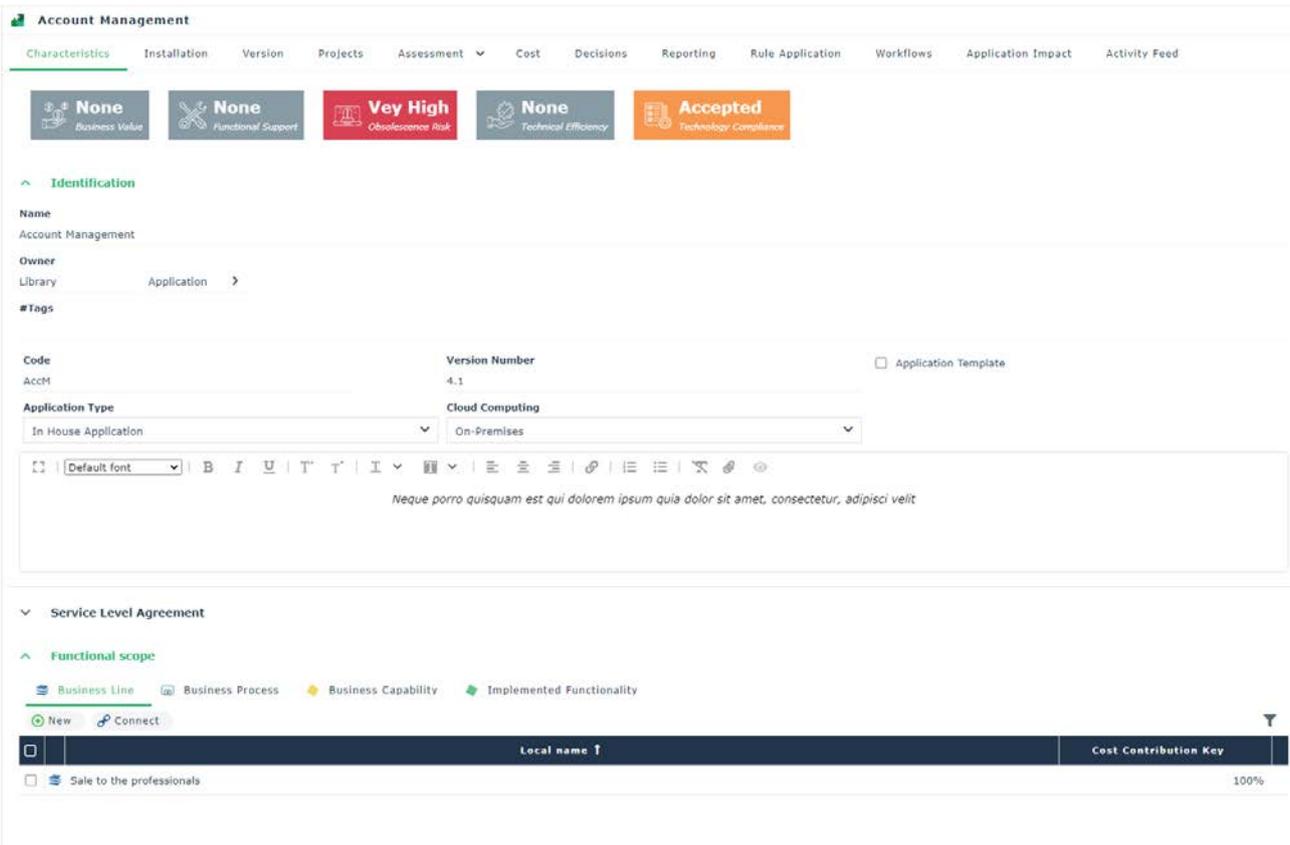
- Quick access to Business Capability Map Breakdown reports (box in box), via the “Business Architecture / Capability Maps” menu item (see chapter 2.8.2)
- Direct access to Applications and Technologies through dedicated menu entries
- A new “Tools” menu entry, listing business and use case-oriented functionalities
- All main concepts of the solution are accessible via the “Inventories” menu

2.8.1.2. Property pages improvements

Main objects’ property pages have been reviewed and enhanced.

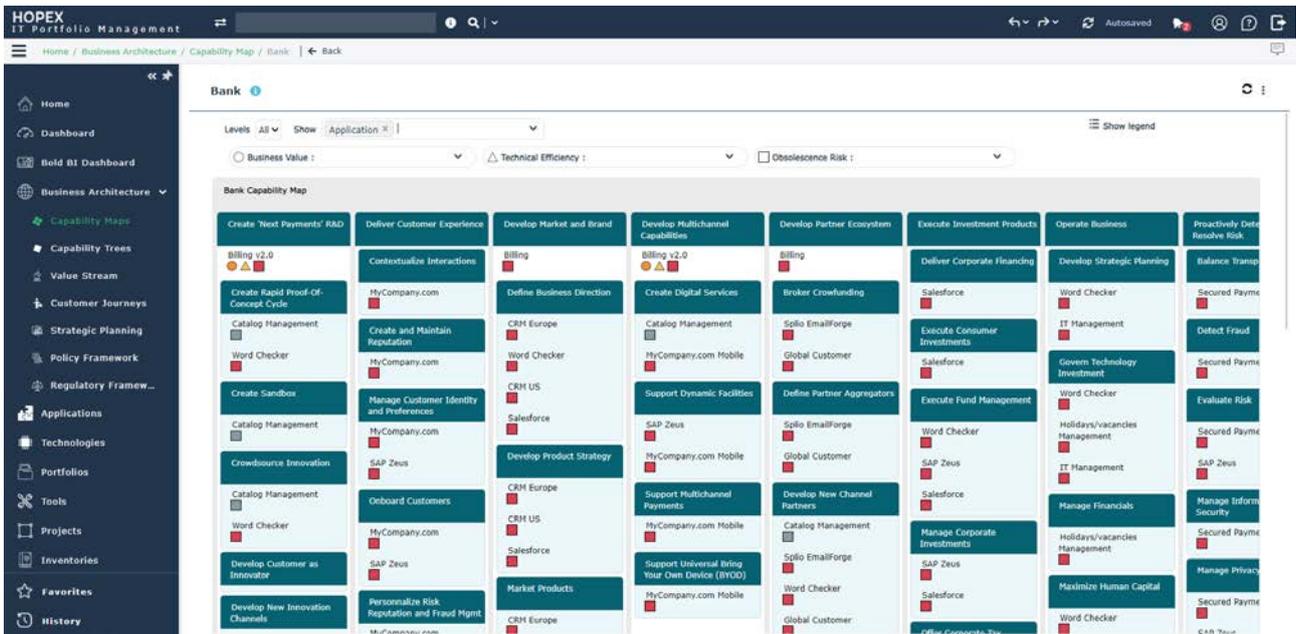
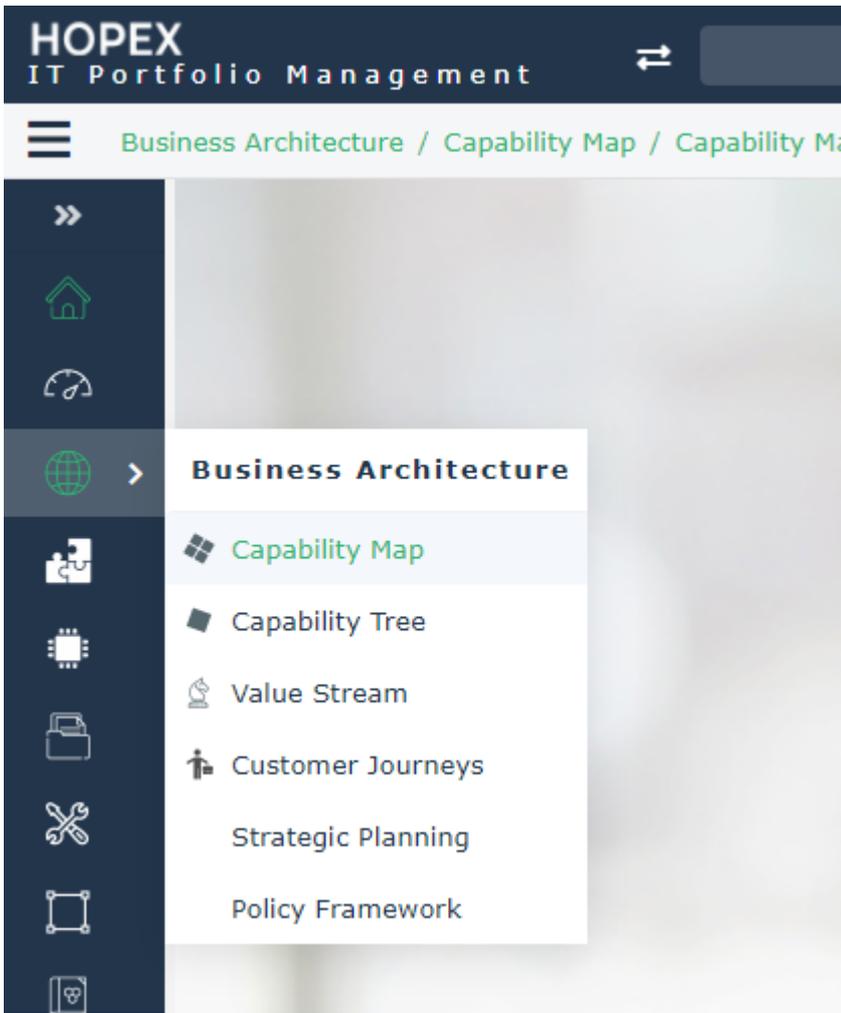
The use of multicolumn for properties maximizes the available space.

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.



2.8.2. Business capability Map quick access

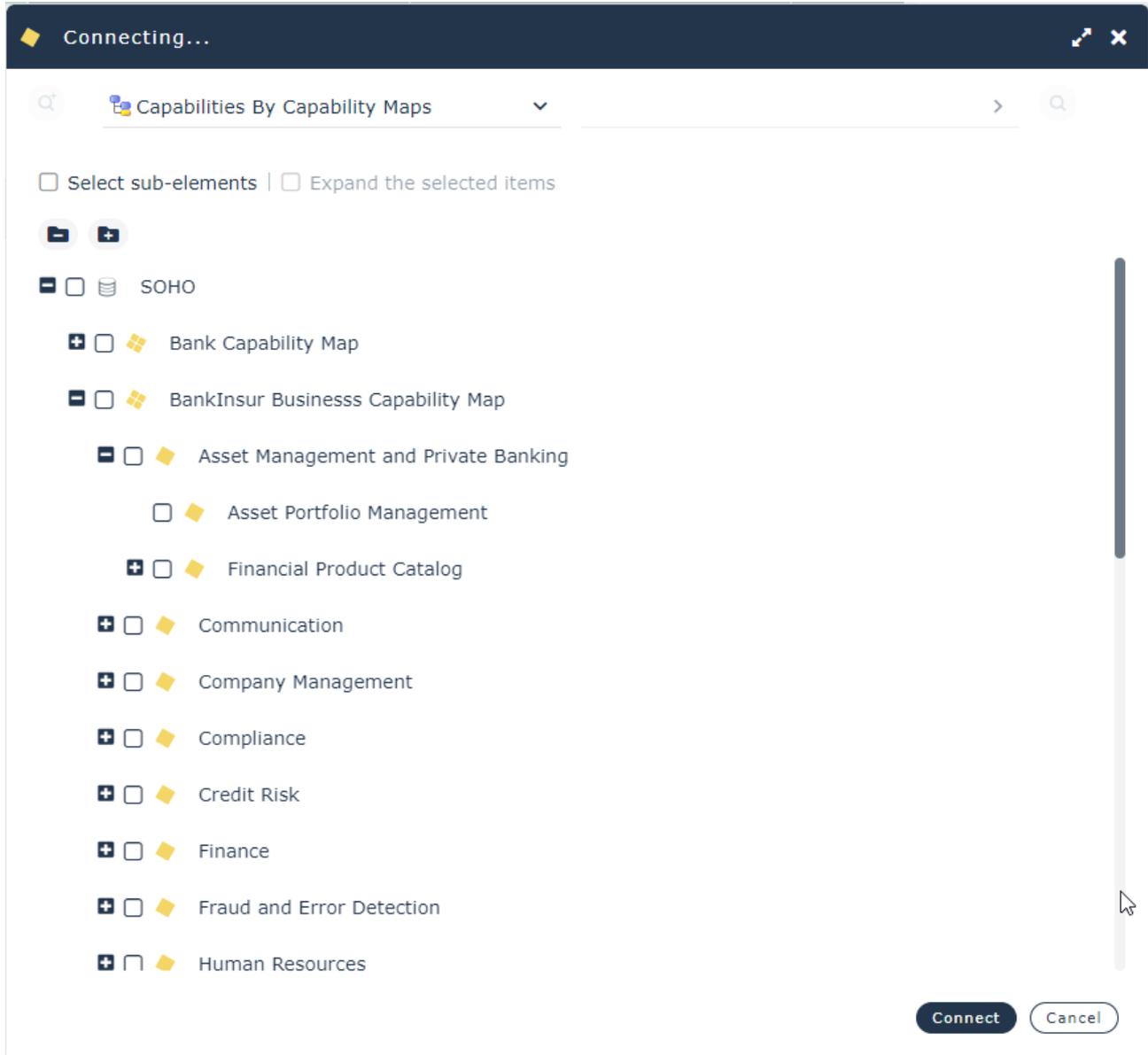
For IT Business users to quickly access, consult and navigate through their capability maps, a dedicated menu entry has been created, displaying the list of available Business Capabilities Map Breakdown reports.



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

2.8.3. 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).

2.8.4. 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

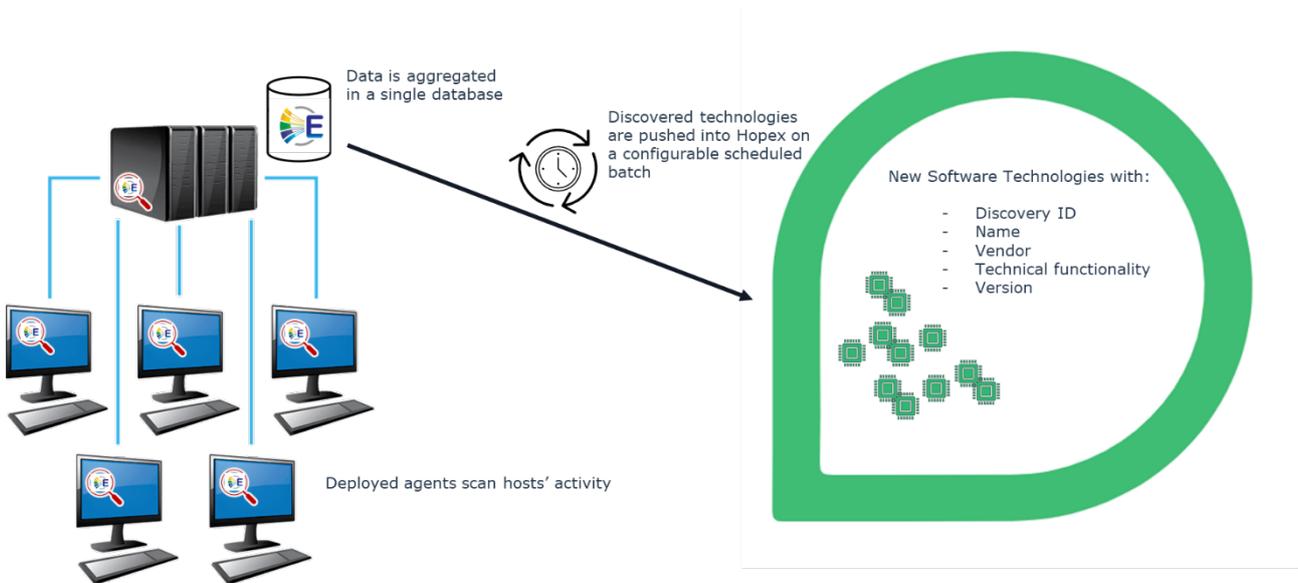
2.8.5. On-premises and private cloud technology Discovery

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)



2.8.6. 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.

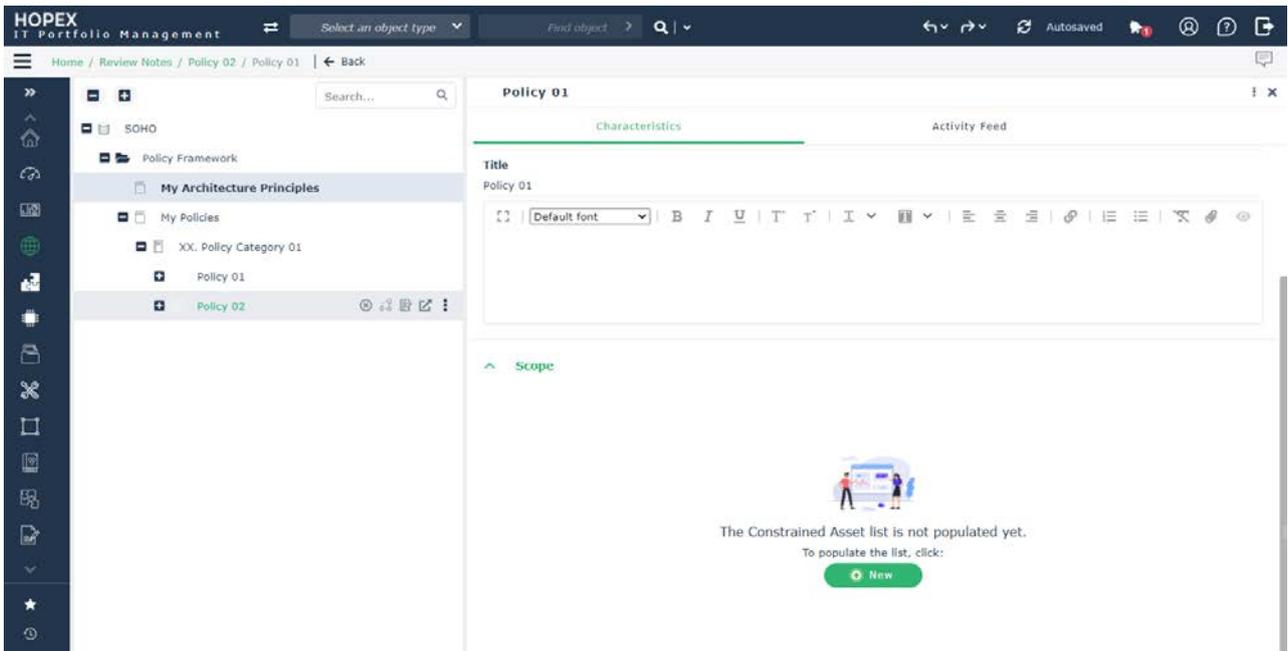
2.8.7. Customer Journey integration

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](#).

	Local name ↑	Customer Journey Group	Business Partner	Customer Satisfaction
<input type="checkbox"/>	*Online Banking - Customer experience Loan ...	Online banking experience	Loan applicant (25 - 45 yo)	High
<input type="checkbox"/>	Health Insurance purchase Duplicate	Online banking experience	Mobile customers	Very High
<input type="checkbox"/>	Health Insurance purchase	Online banking experience	Internet customers	Neutral
<input type="checkbox"/>	Internet Banking - Customer Journey	Online banking experience	Loan applicant (25 - 45 yo)	High
<input type="checkbox"/>	Ordering pizzas for a game event	Online banking experience	Online banking customers	Not Evaluated

2.8.8. 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.

2.8.9. 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.

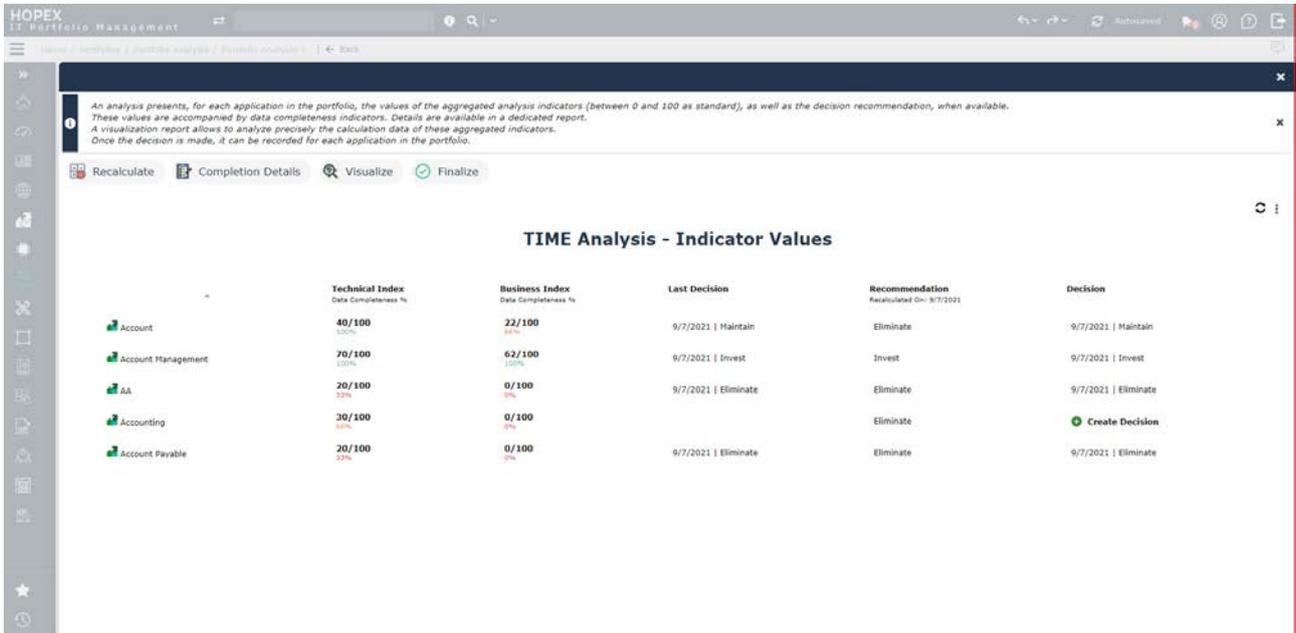
Analysis steps:

- 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

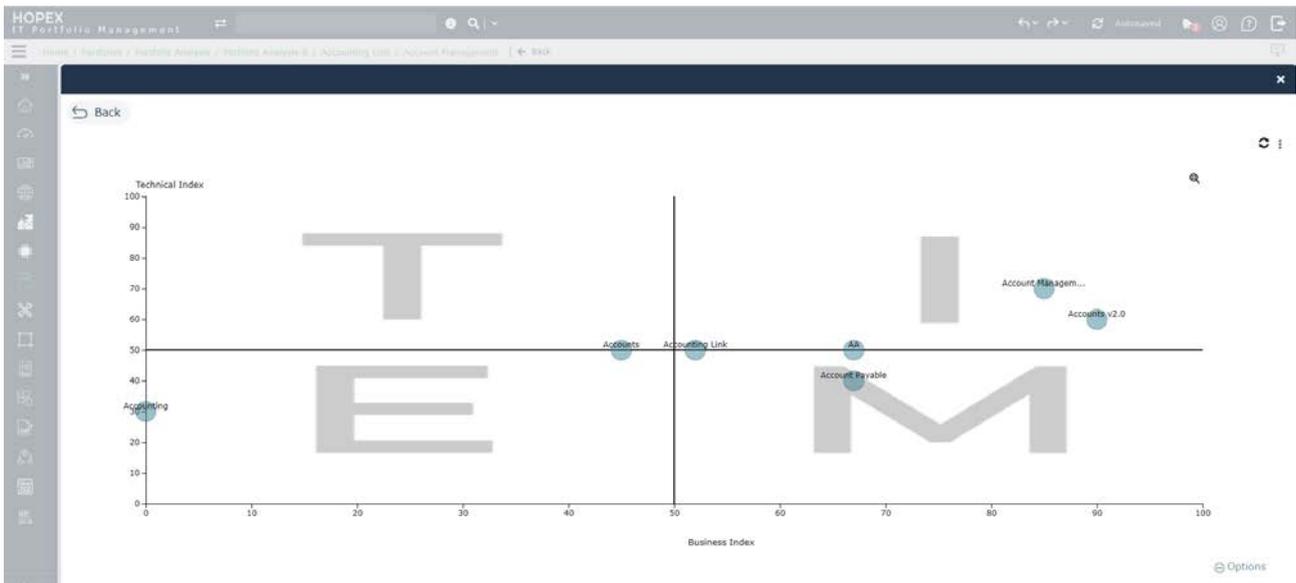
2.8.9.1.TIME Rationalization

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.

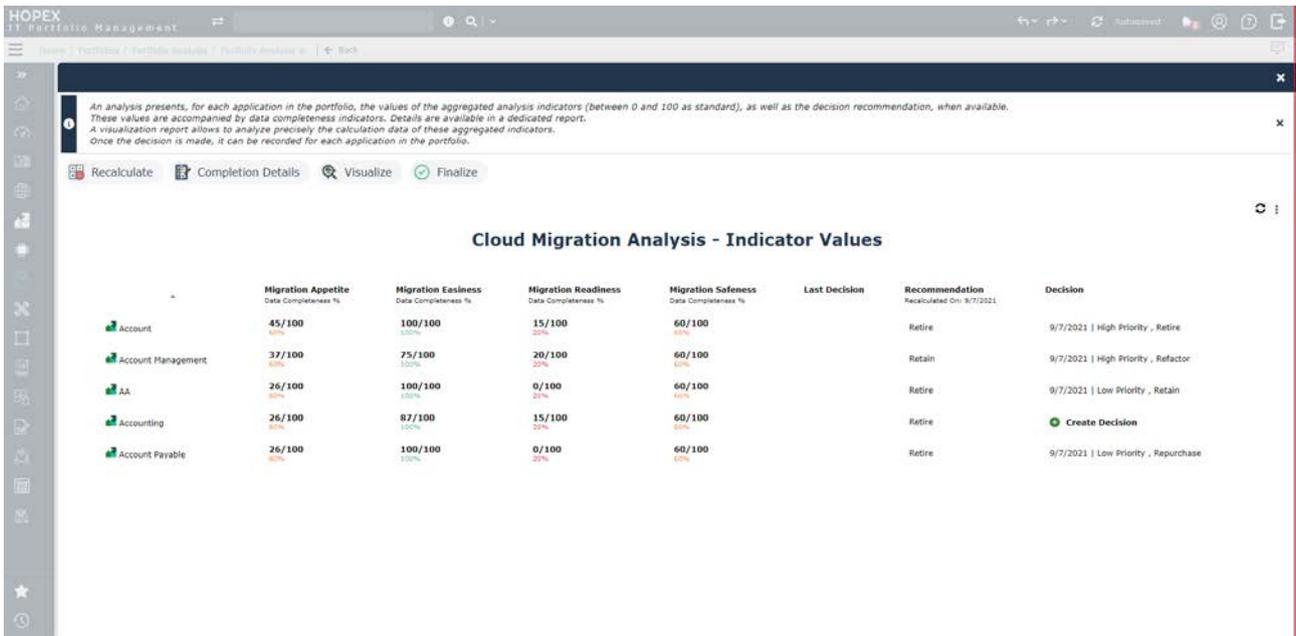


2.8.9.2. Cloud migration

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

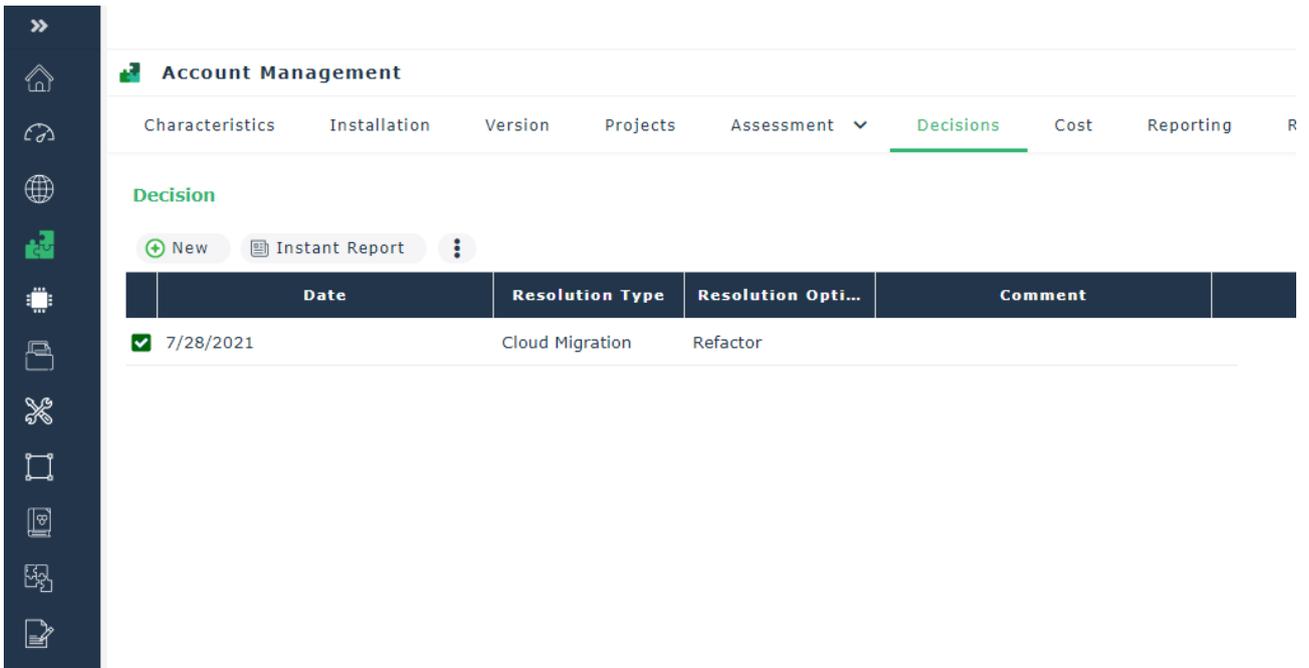
Amongst these 6 possible decisions a user can record on the given application, only 3 can be recommended by HOPEX. Others result from information not handled by HOPEX, like license costs for example.



2.8.10. Recording Decisions on Applications

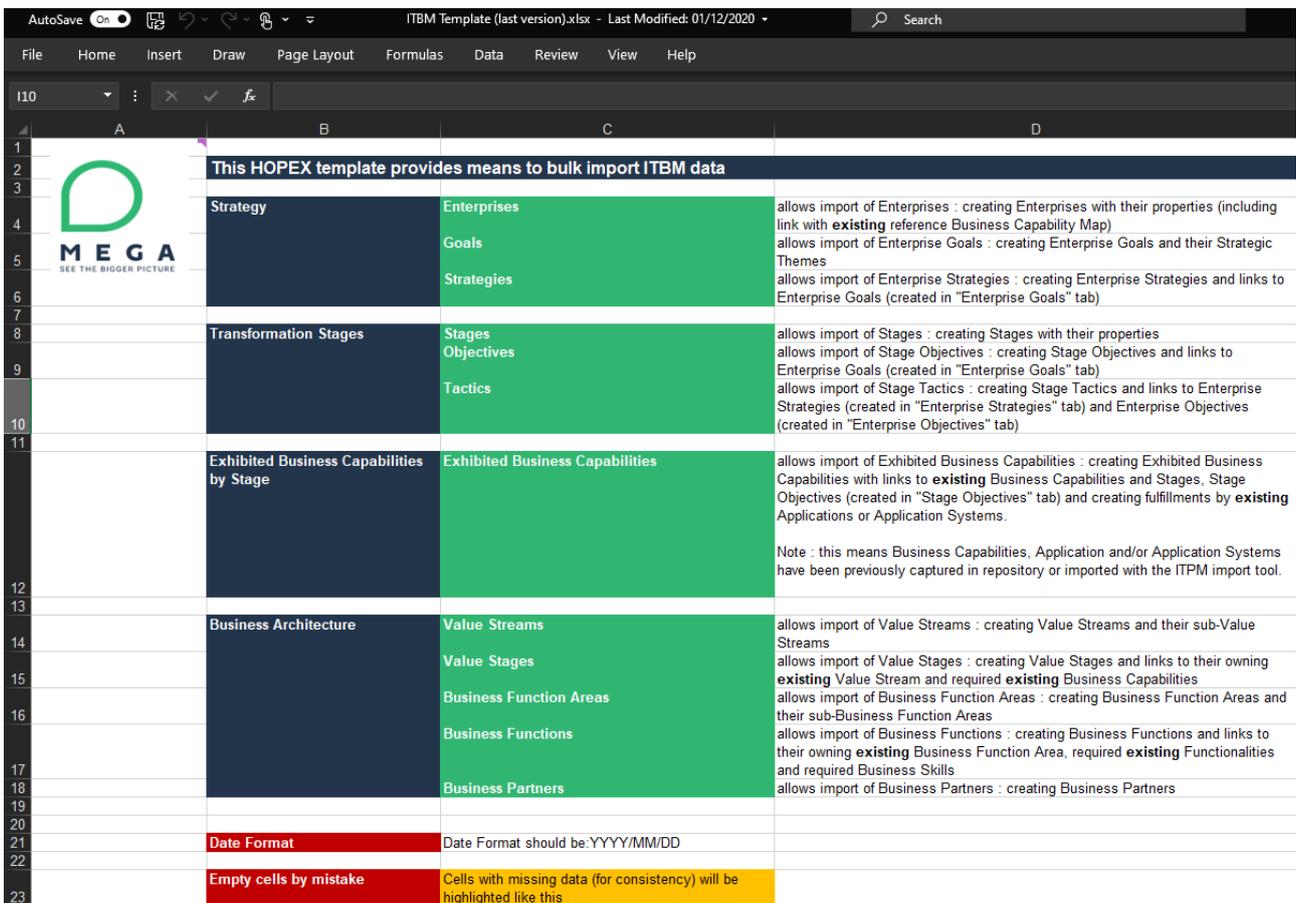
Through a dedicated property page “Decisions”, a user can record decisions on an application. Decisions are characterized by:

- 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



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

2.9. HOPEX Privacy Management

2.9.1. Minor modifications

2.9.1.1. Tags

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

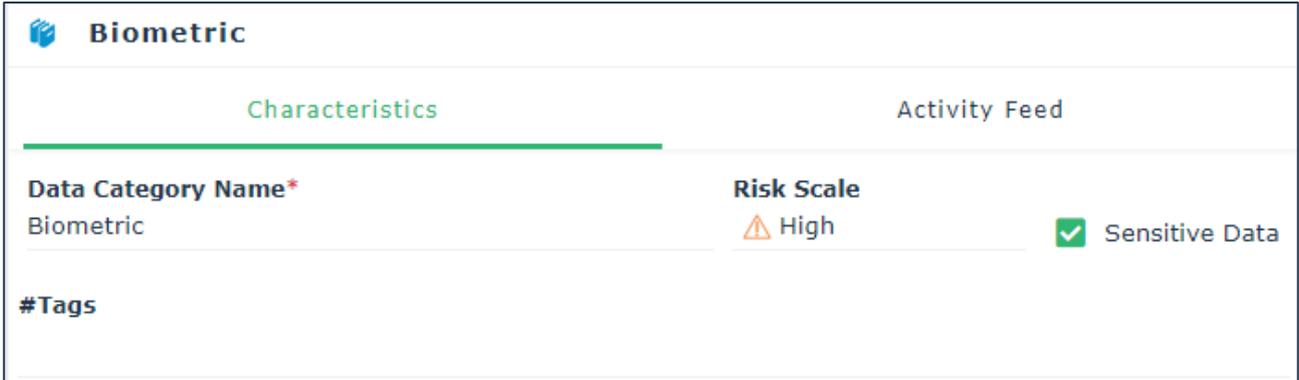


Figure 98 - Tags field on main HOPEX Privacy Management objects

2.9.1.2. Data Breaches Attachments

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

2.9.1.3. Profile Renaming

The profile "Activity Owner" is now renamed into "Processing Activity Owner".

2.9.2. Removed Features

2.9.2.1. Record of Processing Hierarchy View

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

2.9.2.2. Processing Activity Scope

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

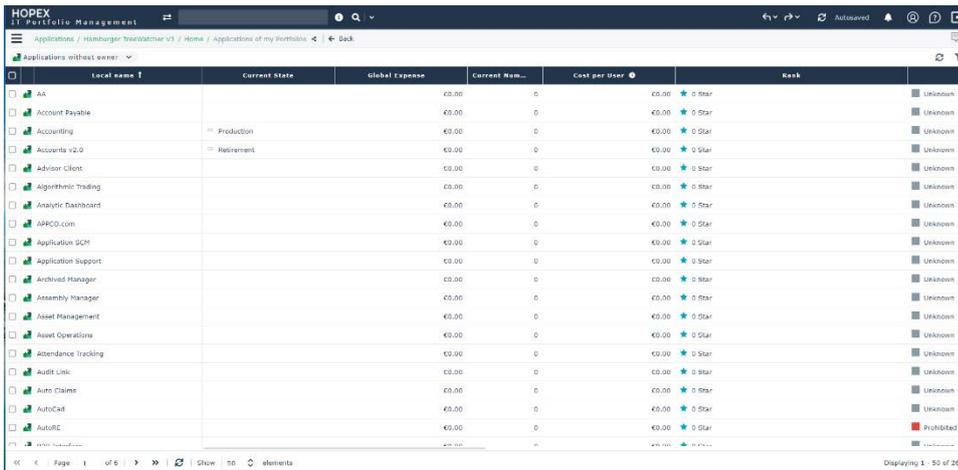
This section is used for managing visibility rights over the processing activity record, and the third parties were not fitting into this use case. If a third party must be defined on the processing activity, this must be done in the Details page, within the table "Processing Elements".

2.9.2.3. Removed Profiles

Two standard profiles have been removed from the solution:

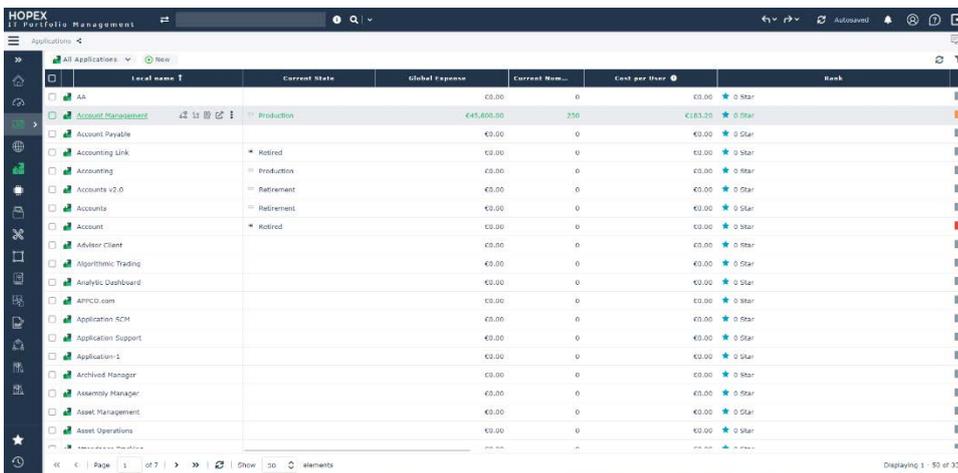
1. **Privacy Management Functional Administrator** -> This profile was to be used to assign user logins. If you happened to use this profile, you can now use the HOPEX Administrator profile instead
2. **DPO Correspondent** -> This profile had the same functional specifications of the Privacy Team one.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

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.



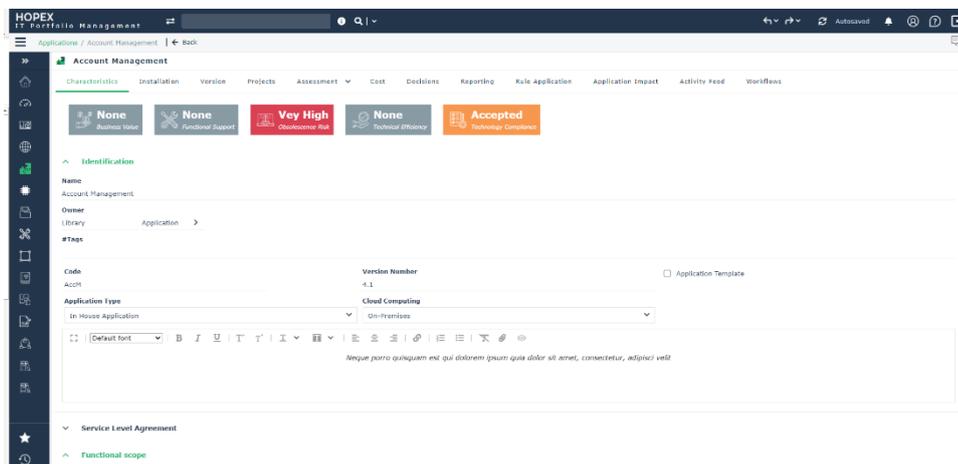
3.1.2. Lists

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.

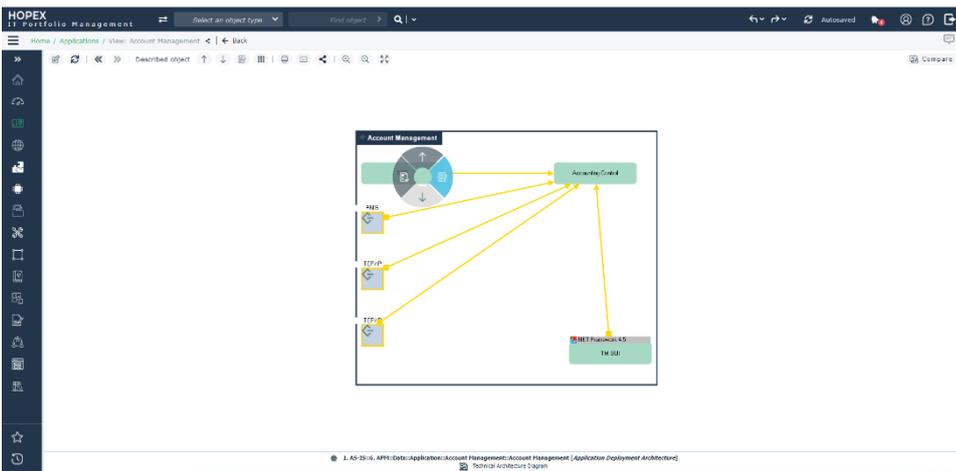


Local name	Current State	Global Expense	Current Mem...	Cost per Hour	Rank
CO ABA 01	Production	€0.00	0	€0.00	4 Stars
CO ABA 02	Preparation	€0.00	0	€0.00	3 Stars
A post Test-A		€0.00	0	€0.00	0 Stars
aa (FR)	Production	€0.00	0	€0.00	4 Stars
AA		€0.00	0	€0.00	4 Stars
ABCMaster		€1,544,000.00	0	€0.00	0 Stars
Account Management	Production	€10,800.00	250	€183.20	3 Stars
Account Payable		€0.00	0	€0.00	3 Stars
Account Receivable		€0.00	0	€0.00	0 Stars
Accounting Link	Retired	€0.00	0	€0.00	0 Stars
Accounting	Production	€0.00	0	€0.00	0 Stars
Accounts v2.0	Retirement	€0.00	0	€0.00	3 Stars
Accounts	Retirement	€0.00	0	€0.00	3 Stars
Account	Retired	€0.00	0	€0.00	0 Stars
Advisor Client		€0.00	0	€0.00	0 Stars
AgencyIntegrator		€2,944,980.00	0	€0.00	0 Stars
Algorithmic Trading		€0.00	0	€0.00	0 Stars
Analytic Dashboard		€0.00	0	€0.00	0 Stars
ASPCO.com		€0.00	0	€0.00	0 Stars

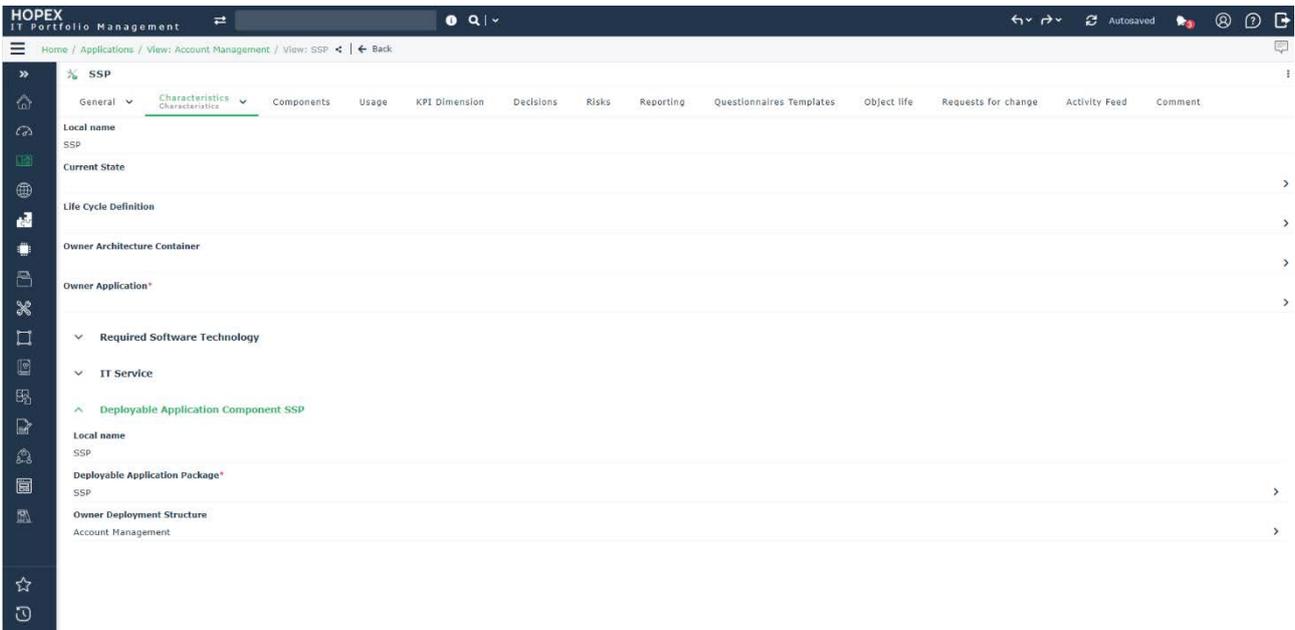
3.1.3. Open Diagram from list in view mode

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.

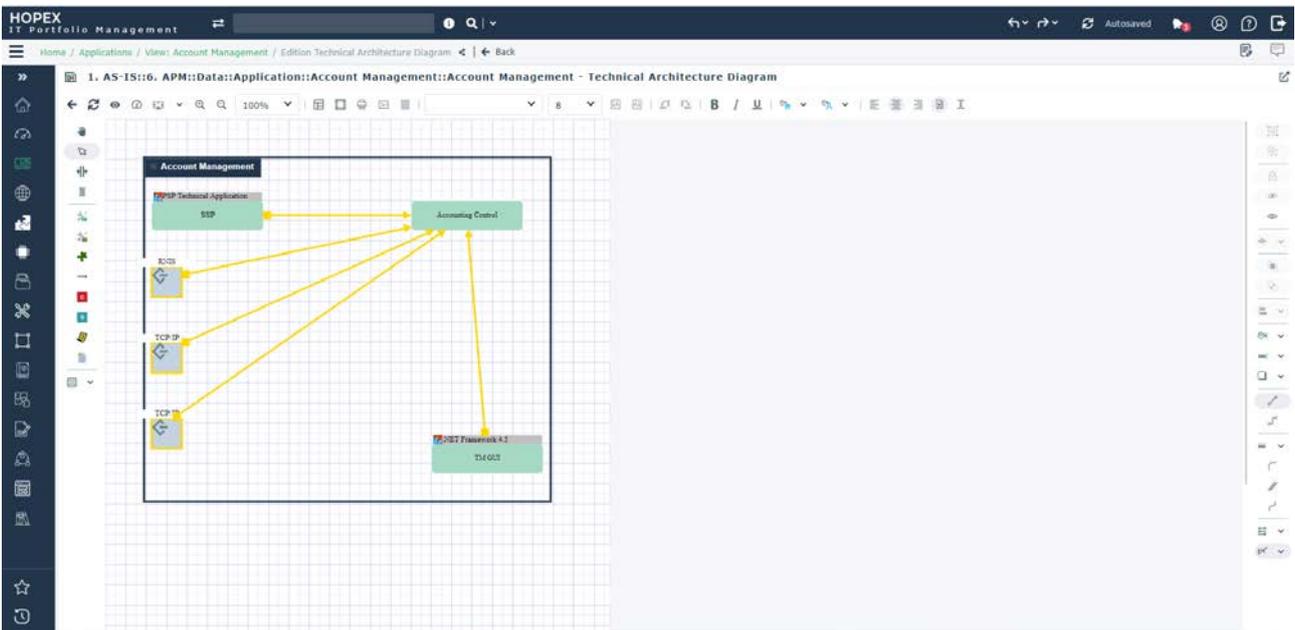


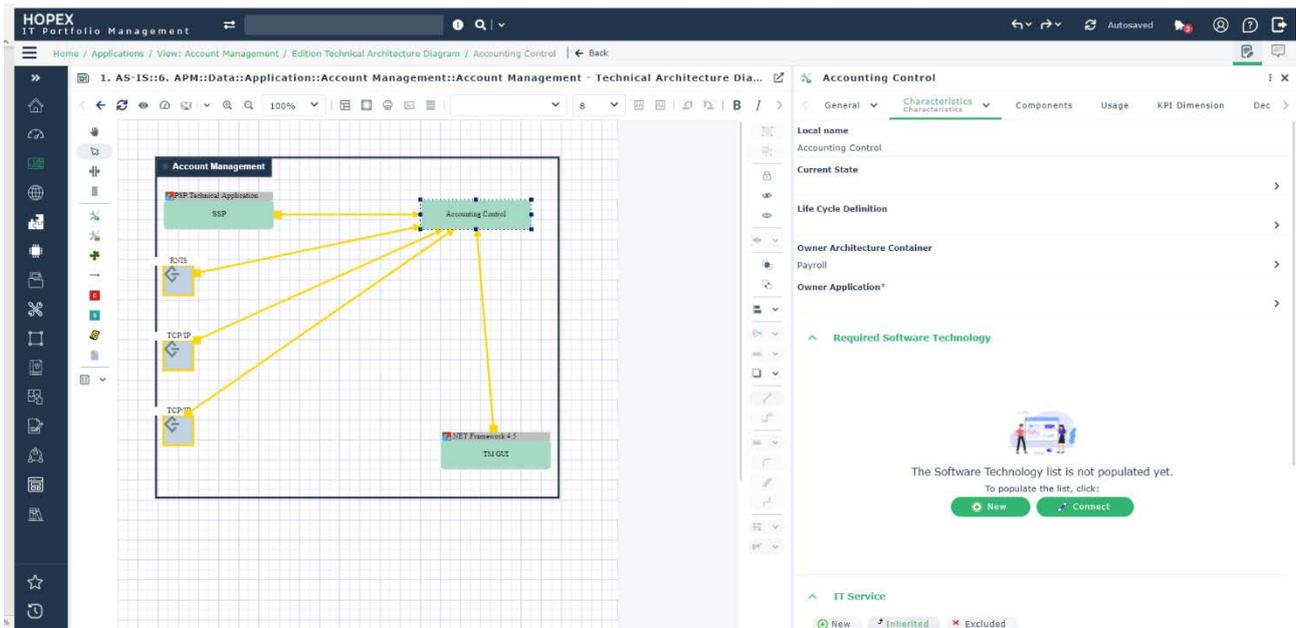
Users can dive directly from the diagram (right-click) to properties or reports, which will also replace the previous diagram displayed; and activate the back button.



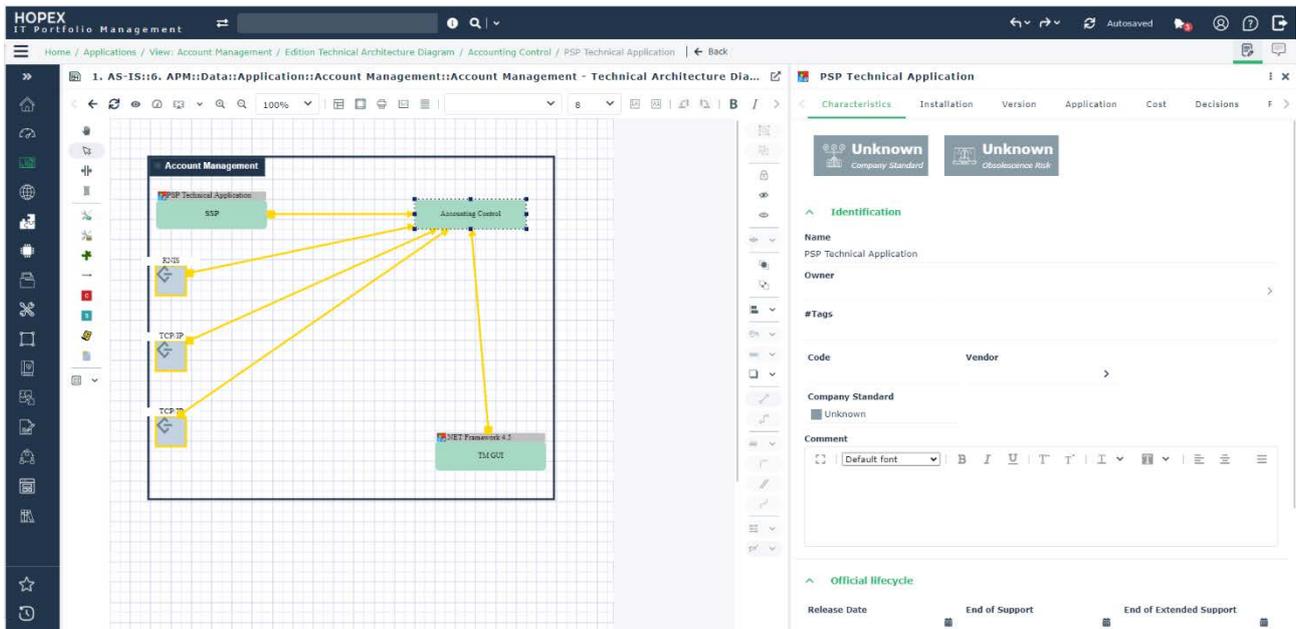
3.1.4. Open Diagram from list in edit mode

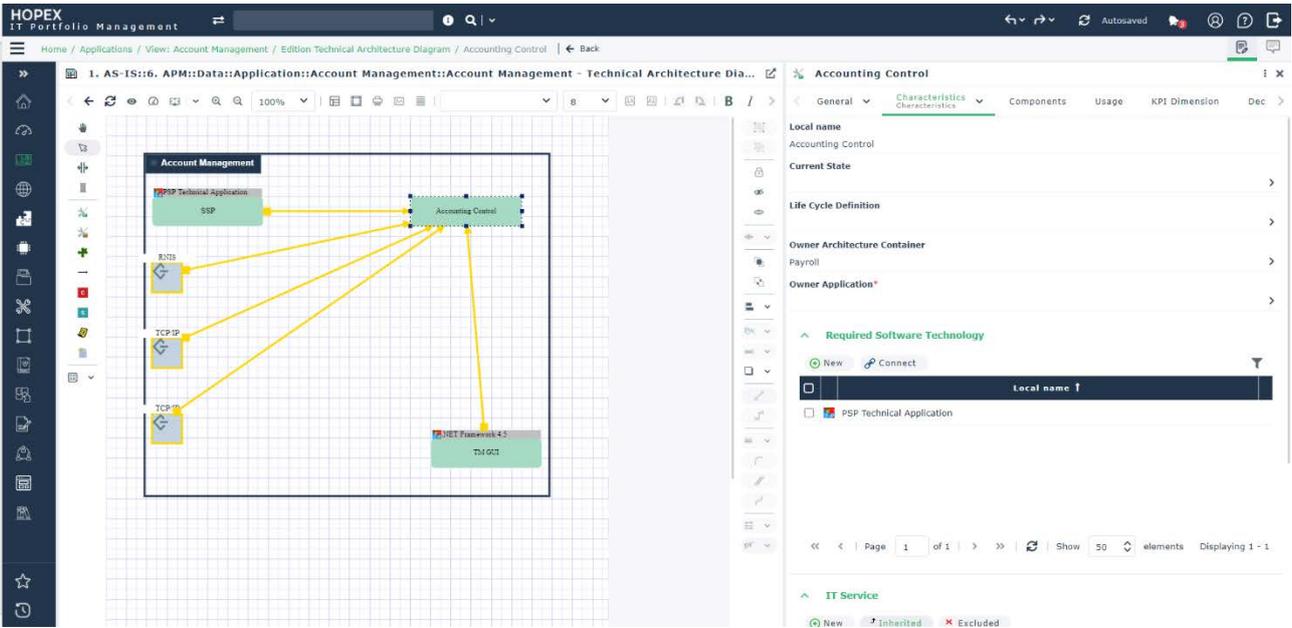
Creating / editing a diagram from a list opens the diagram in edit mode. In this case the properties button on the right of the toolbar displays / hides a side panel with properties, letting the user complete or consult the objects information and adjust its working space.





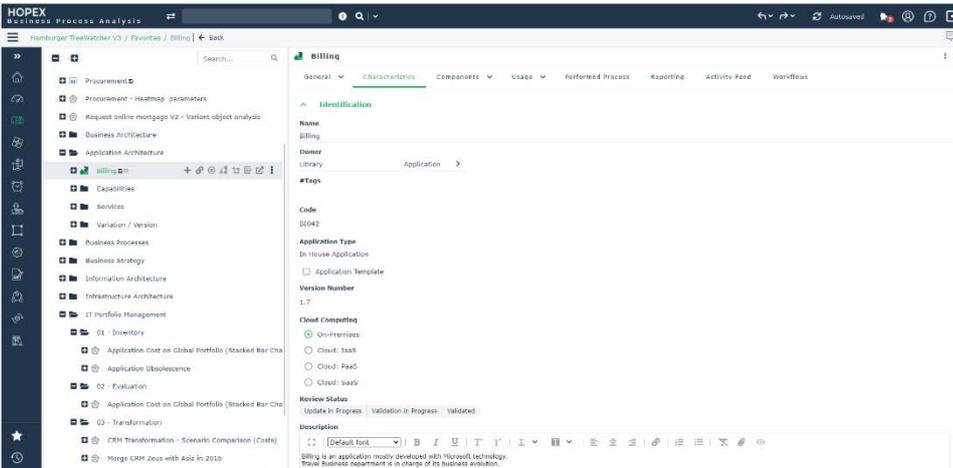
While inside the properties of a given object, should the user move to another object's properties...the breadcrumb tracks it all to come back to the previous properties page. This is very convenient for not losing the context of work.



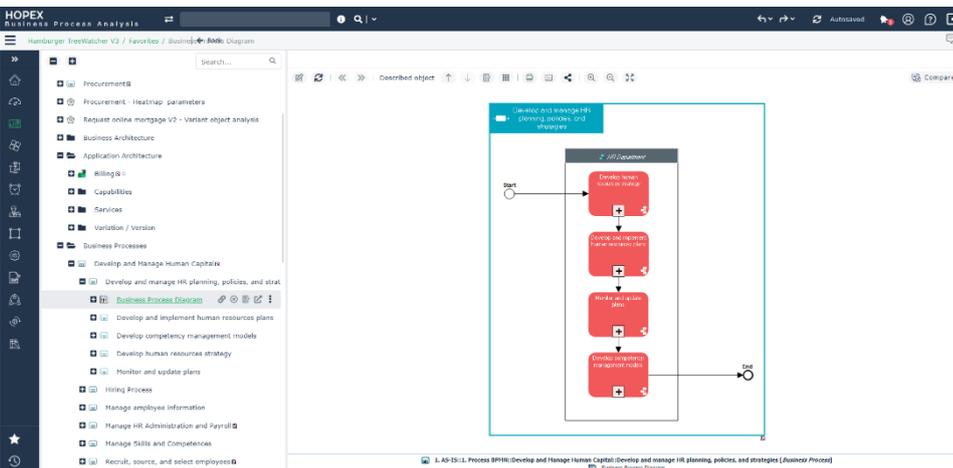


3.1.5. Trees

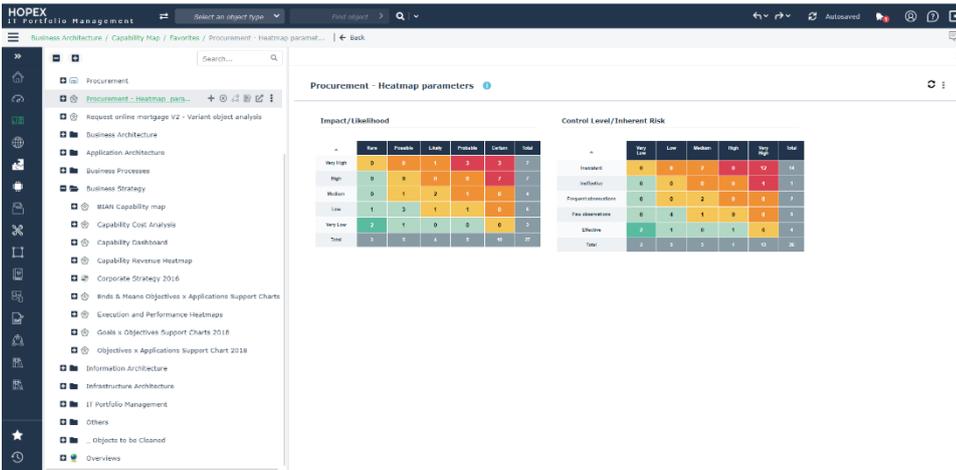
Trees are very convenient for hierarchies and classifications. Navigation is made easier as clicking a Tree element directly opens its properties with no need for using the floating toolbar icon.



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

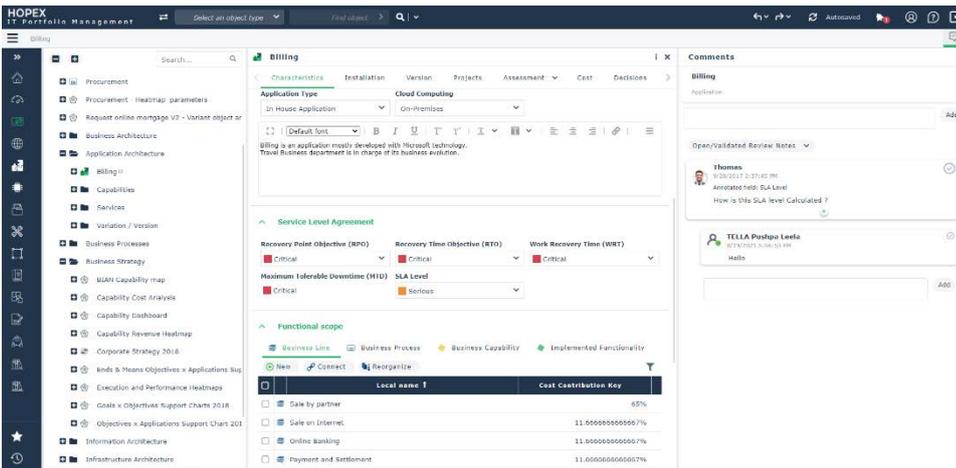


Same thing, clicking a report object inside the Tree opens the report in the main panel.



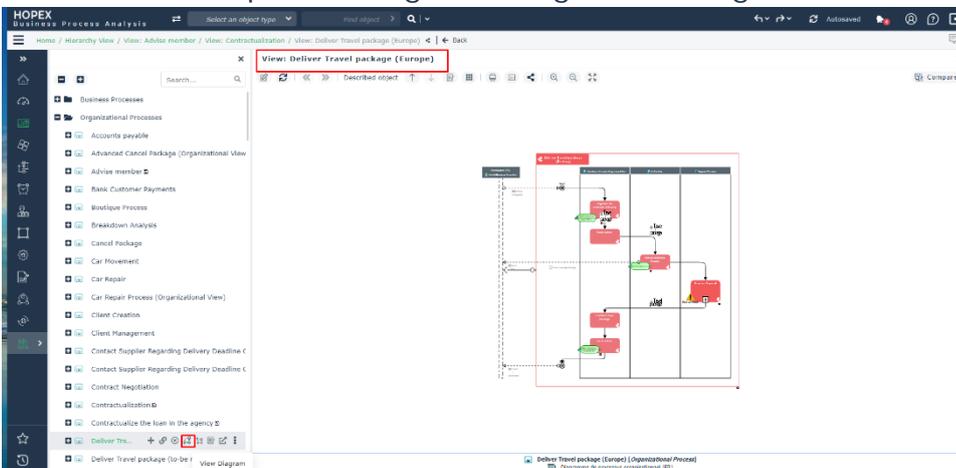
Closing the main panel (x icon) make the Tree take the complete available space.

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

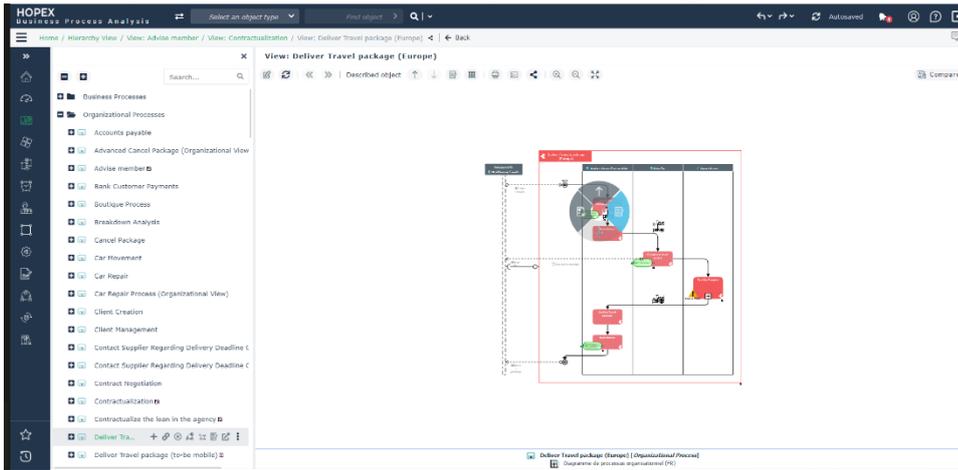


3.1.6. Open diagram from the Tree in view mode

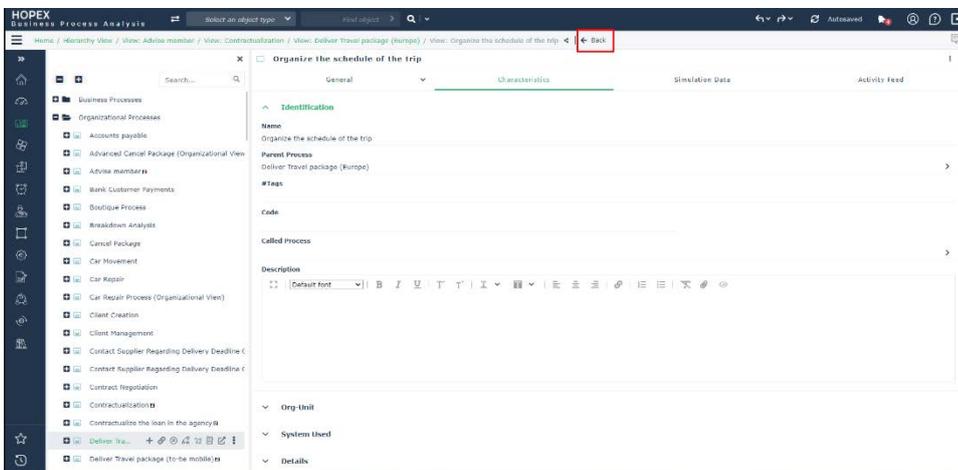
When the user opens a Diagram using the floating toolbar..,



...then opening properties will replace the Diagram.



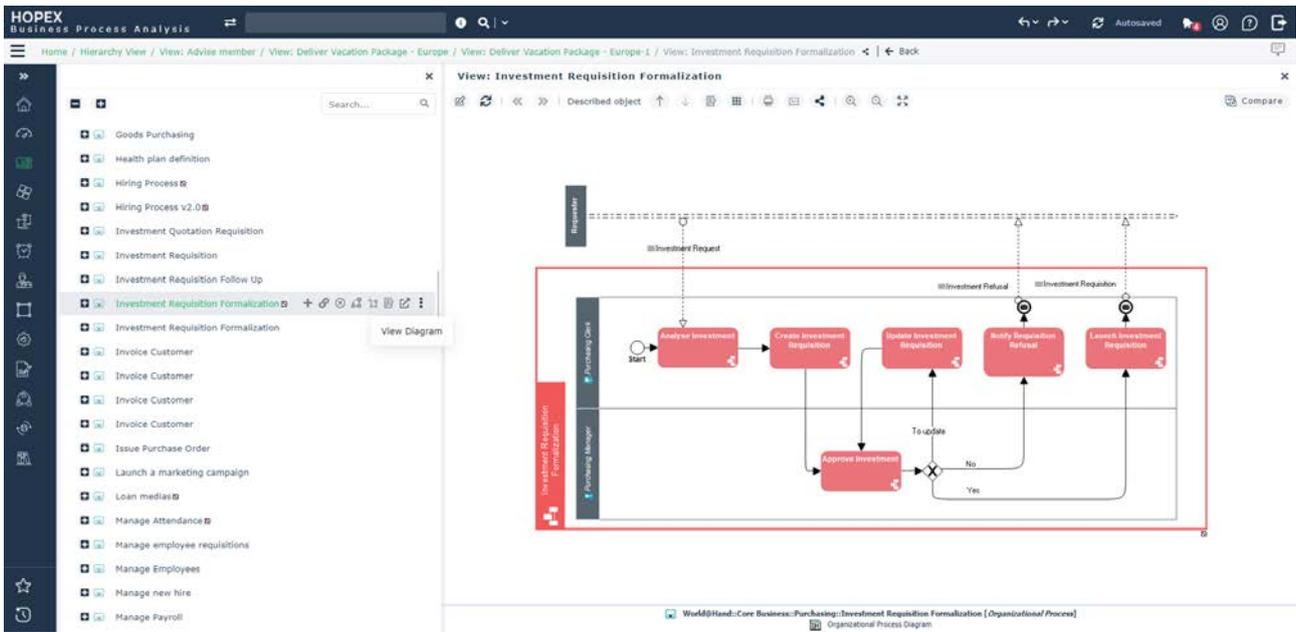
You can always go back to the diagram by clicking the back button.



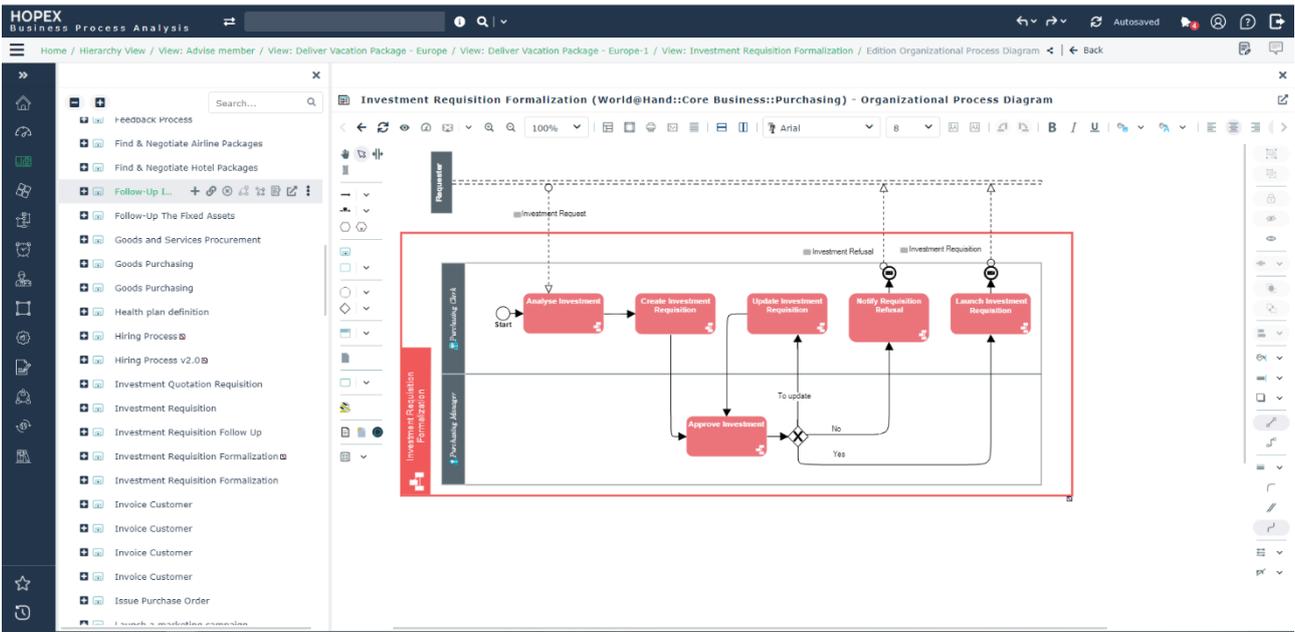
3.1.7. Open Diagram from the Tree in edit mode

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

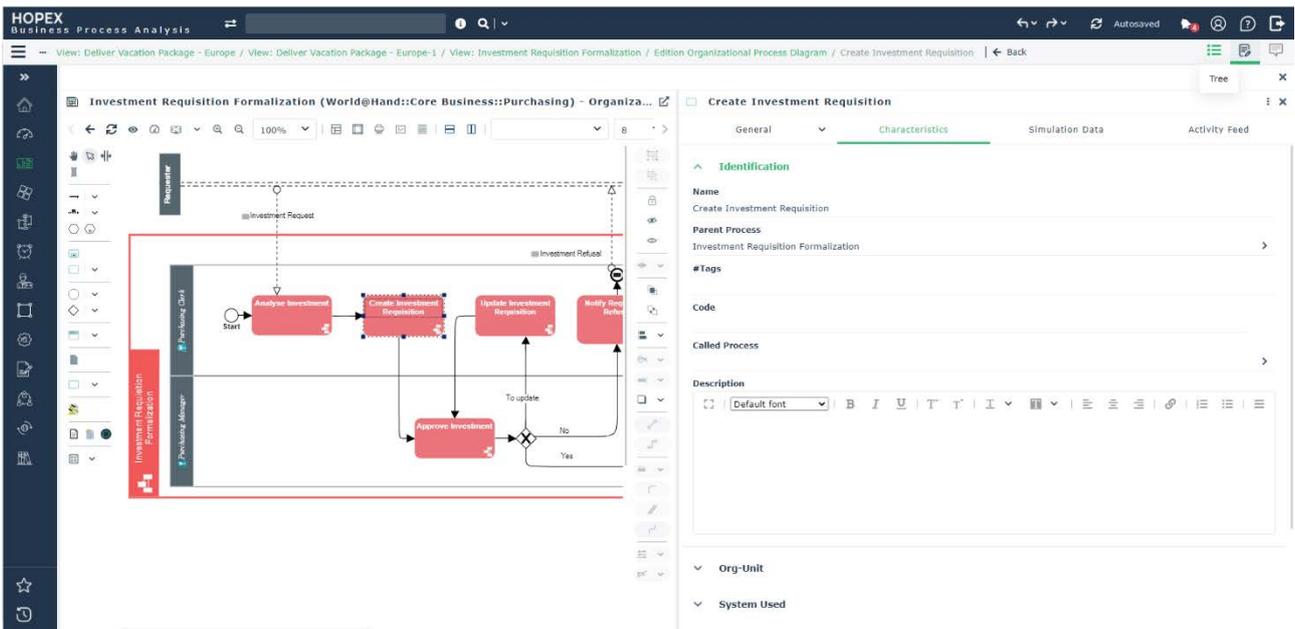
Tree will be hidden by default so that users can have enough space for diagram & properties. He can always reopen the tree by clicking the tree icon on toolbar.

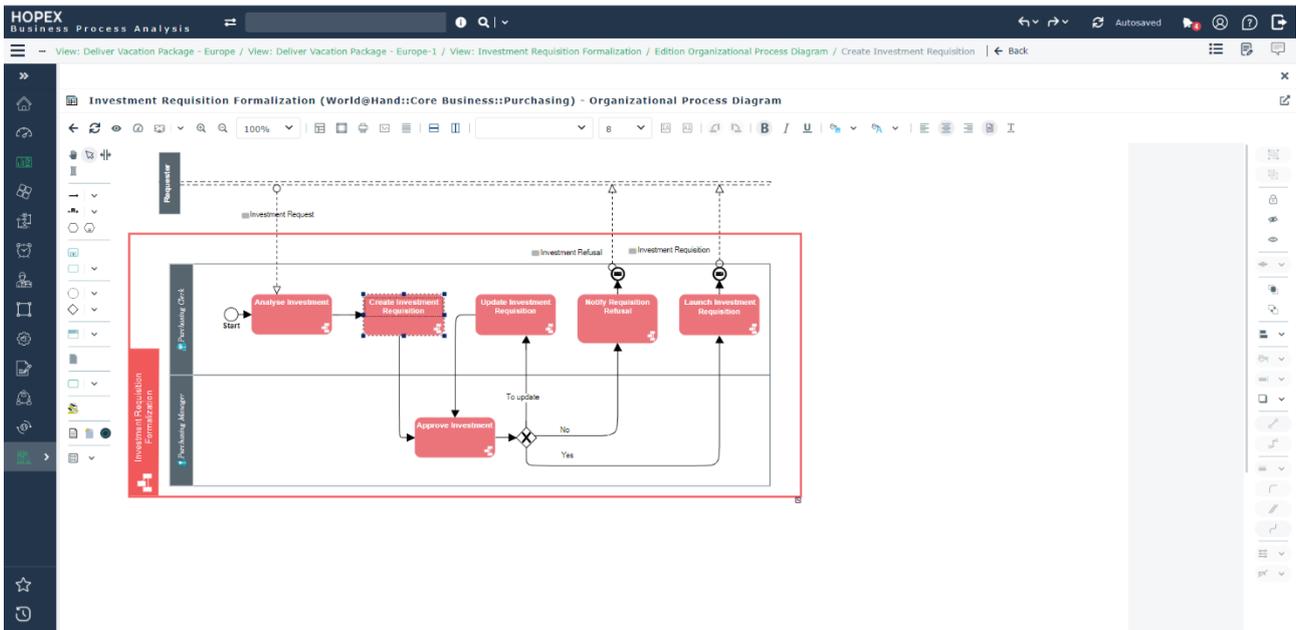


The properties of the diagram in edit mode will open the properties panel to your right. You have the possibility to close the property panel if it is no longer needed.

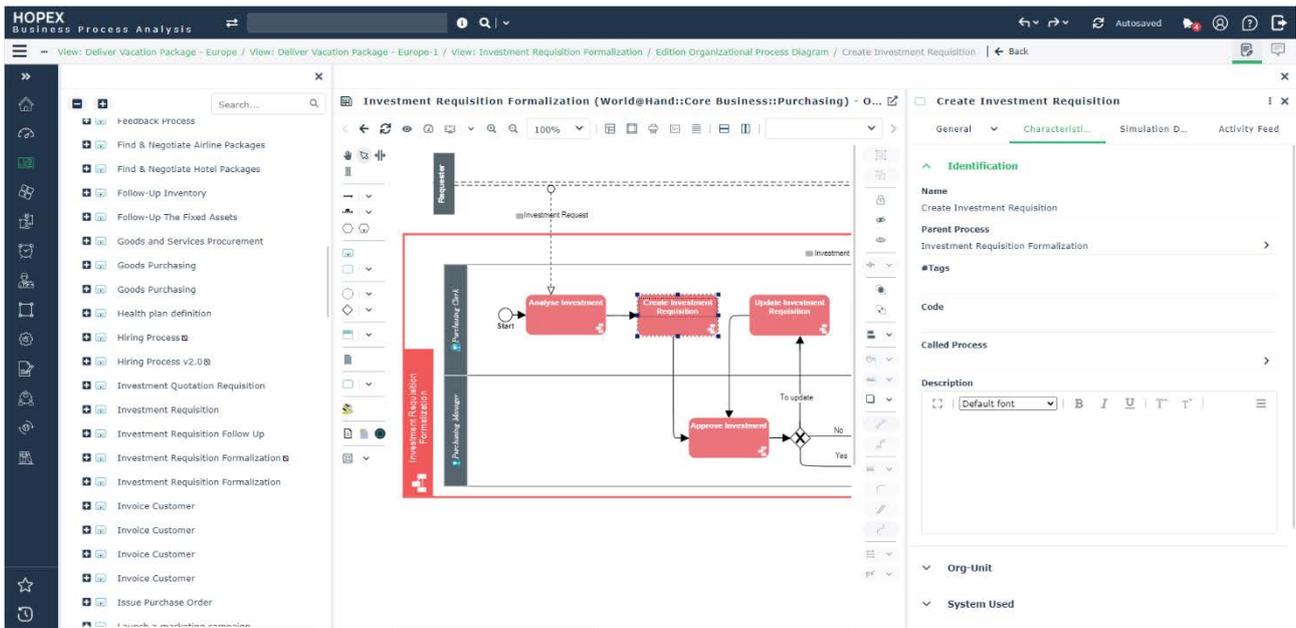


By default, the tree is hidden when you open properties of diagram in edit mode to have more space to edit diagram and view its properties.





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.



3.1.8. 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

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
BLAN 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

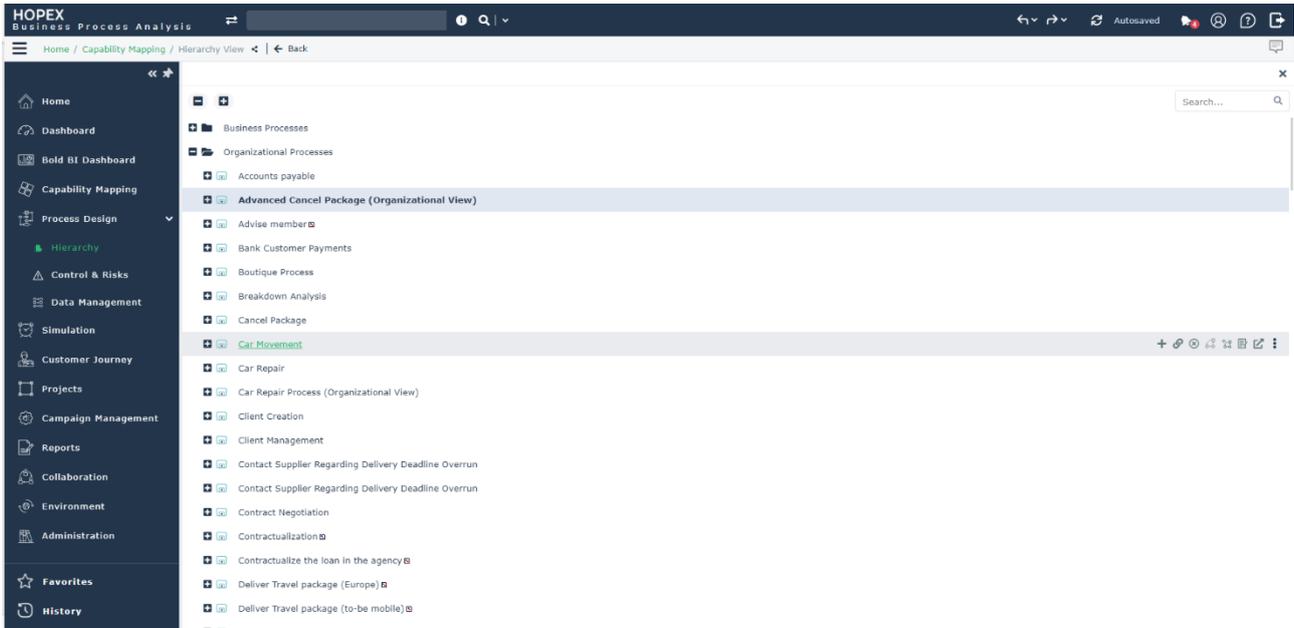
Displaying 1 - 9 of 9

HOPEX Business Process Analysis

Home / Hierarchy View < | Back

Search...

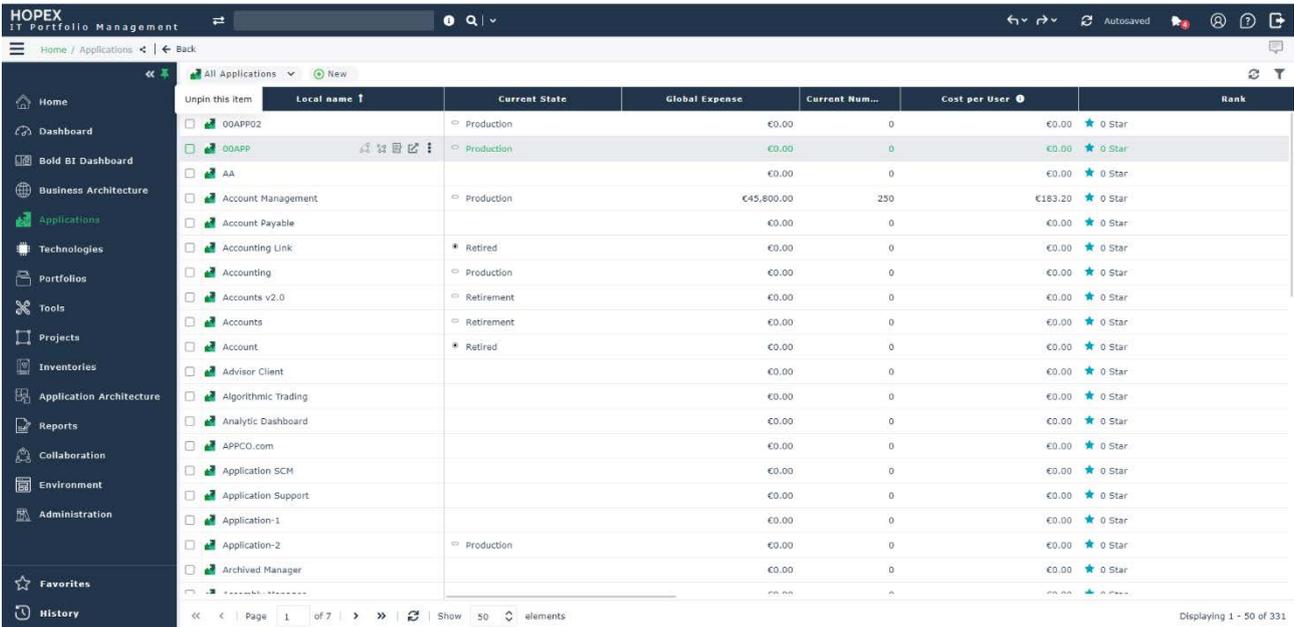
- Business Processes
- Organizational Processes
 - Accounts payable
 - Advanced Cancel Package (Organizational View)
- Process Design
 - Member Payments
 - Hierarchy
 - Control & Risks
 - Data Management
 - Cancel Package
 - Car Movement
 - Car Repair
 - Car Repair Process (Organizational View)
 - Client 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)

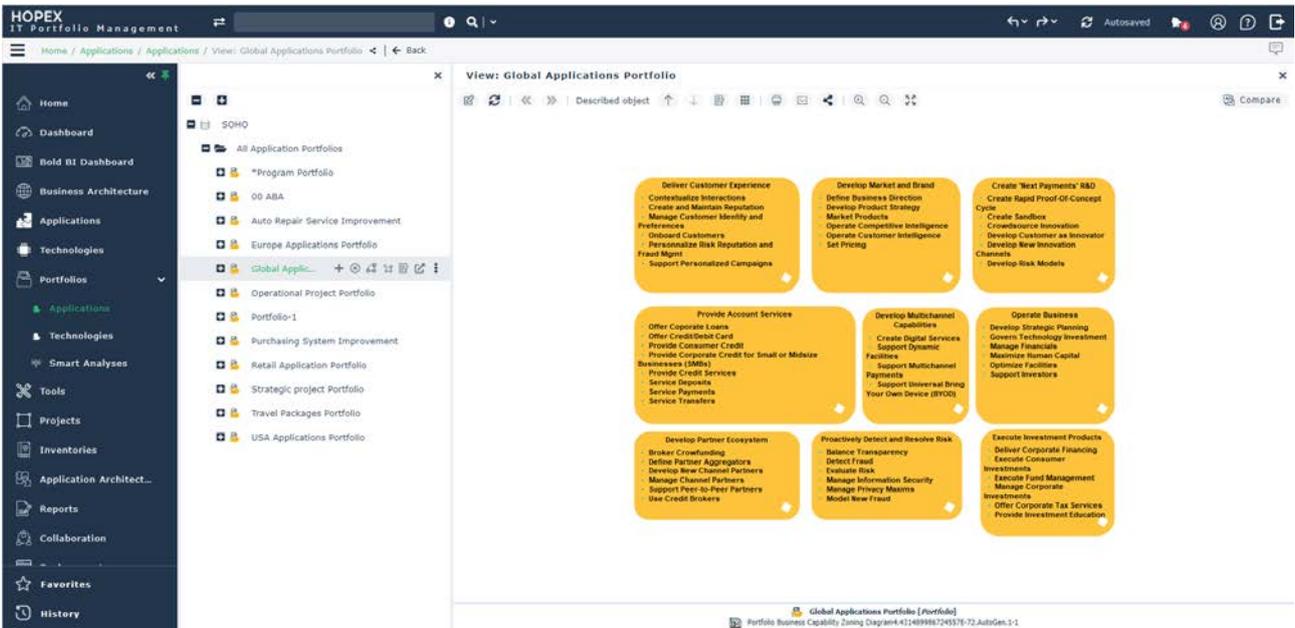


3.1.9. Pin the navigation panel

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.



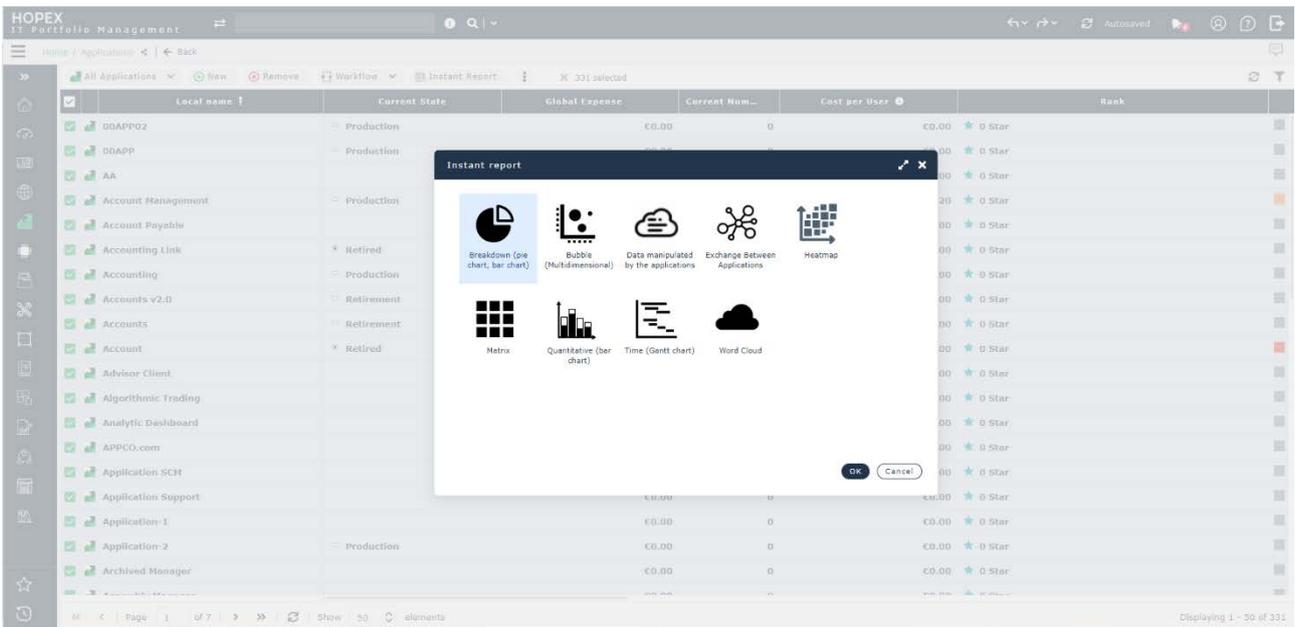


3.1.10. Browser back button

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

3.1.11. 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.

The screenshot shows the 'Breakdown (pie chart, bar chart)' panel. On the left, there are controls for 'Group by*' (Current State), 'Compute characteristic', and 'Threshold*' (2%). The donut chart displays the following data:

Category	Percentage
Production	11%
Retired	9%
Retirement	14%
[Empty]	66%

The total value shown in the center of the donut chart is 331. The right panel shows details for '00APP', including characteristics like Business Value (None), Functional Support (None), Obsolescence Risk (Very High), and Technical Efficiency (None). It also shows an 'Unknown' category for Technology Compliance and an 'Identification' section with fields for Name, Owner, #Tags, Code, Version Number, and Application Type.

The 'List' panel below shows a table with columns for 'Local name' and 'Name'. It lists '00APP' and '00APP02'. The interface includes navigation controls like 'Page 1 of 1', 'Show 50 elements', and 'Displaying 1 - 38 of 38'.

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

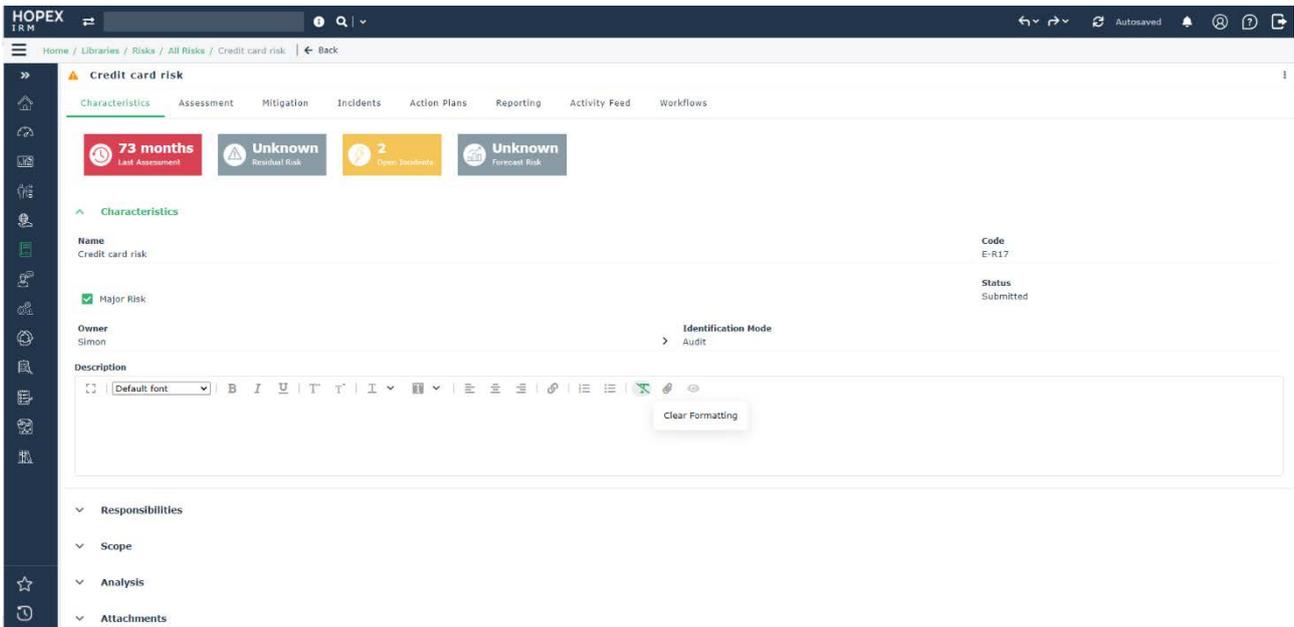
The screenshot shows the 'HOPEX Business Process Analysis' interface. The top navigation bar includes 'Process Design / Control & Risks / Risks / Financial Loss / Properties / Bad Image Impact'. The main area displays a table with 121 selected items. The table has the following columns: Local name, Owner, Maj..., Status, Impact, Likelihood, Inherent..., Control L..., Residual..., Risk App..., Identificatio..., and Risk Type.

Local name	Owner	Maj...	Status	Impact	Likelihood	Inherent...	Control L...	Residual...	Risk App...	Identificatio...	Risk Type
*Risk of non-payment	Simon	Valida...	Medium	Probable	High	Effective	Low	Low	Survey	Execution...	
Architecture lacks flexibility	Simon	Valida...	Low	Probable	Medium	Inexistent	High	Low	Survey	Clients, P...	
Bad Definition of Agency Network											
Bad Image Impact											
Bad Media Technology Choice											
Bad Strategy Applicability											
Bad Technology Choices		Valida...	Medium	Probable	High	Inexistent	Very ...	Low	Survey	Damage L...	
Benefits are not being offered to all eligible employees	Jack	Valida...	Low	Rare	Low	Frequent ...	Medium	Low	Workshop		
Budget overrun	Antoine	Valida...	Low	Likely	Medium	Few obse...	Medium	High	Survey		
Barried substances		Valida...						Very Low	Survey	Damage L...	
Car breakdown											
Change management overload	Antoine	Submi...	Low	Rare	Low	Effective	Low	Low	Workshop		
Change risk		Valida...	Low	Possible	Low	Few obse...	Low	Very Low	Survey		
Contractual risk		Valida...						Very Low	Survey	Clients, P...	
Counterparty risks		Valida...						Low	Survey		
Creation of an Imaginary supplier			Low	Likely	Medium	Few obse...	Medium	Low	Workshop	Clients, P...	
Credit card risk	Simon	Submi...						Low	Audit		
Damage to physical assets	Simon	Valida...						Very Low	Survey	Damage L...	
Data encryption	Tommaso	Valida...						Very Low	Workshop		
Data Quality	Julius										

The interface includes navigation controls like 'Page 1 of 3', 'Show 50 elements', and 'Displaying 1 - 50 of 121'.

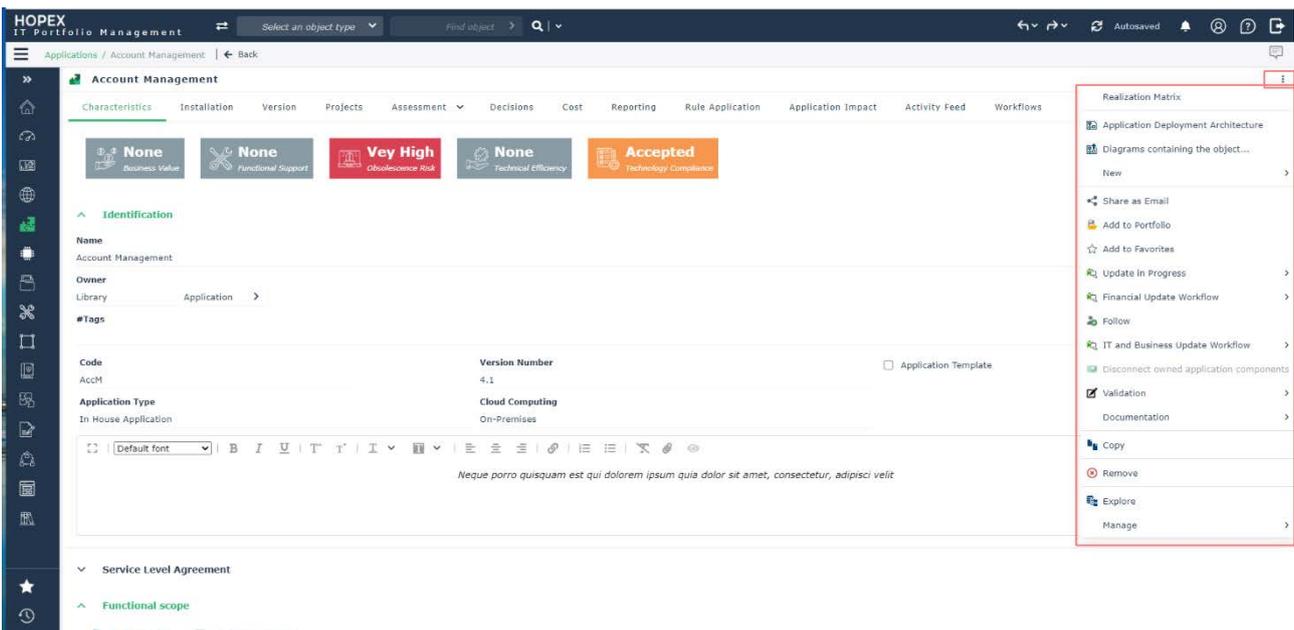
3.1.12. Tabs on property page

Property pages present several tabs grouping the details by themes.



3.1.13. “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.



3.2. 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.

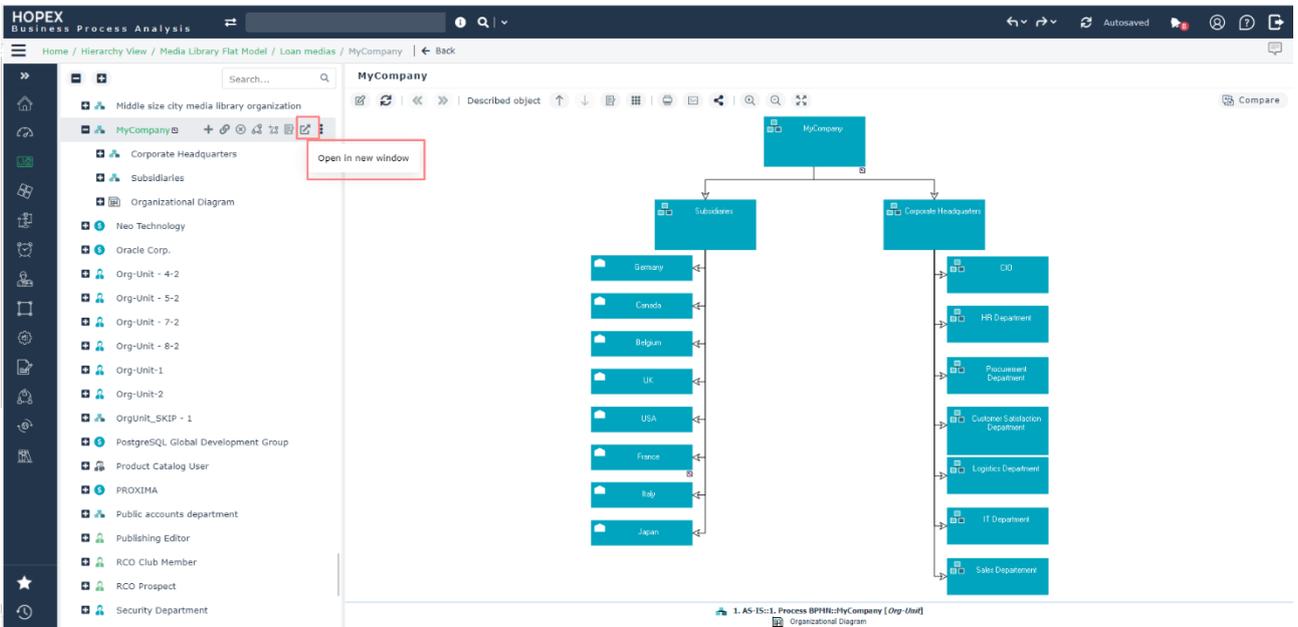
This is done using the “open in new browser” icon. This icon is available on both the object’s floating toolbar and on the toolbar of the diagram itself.

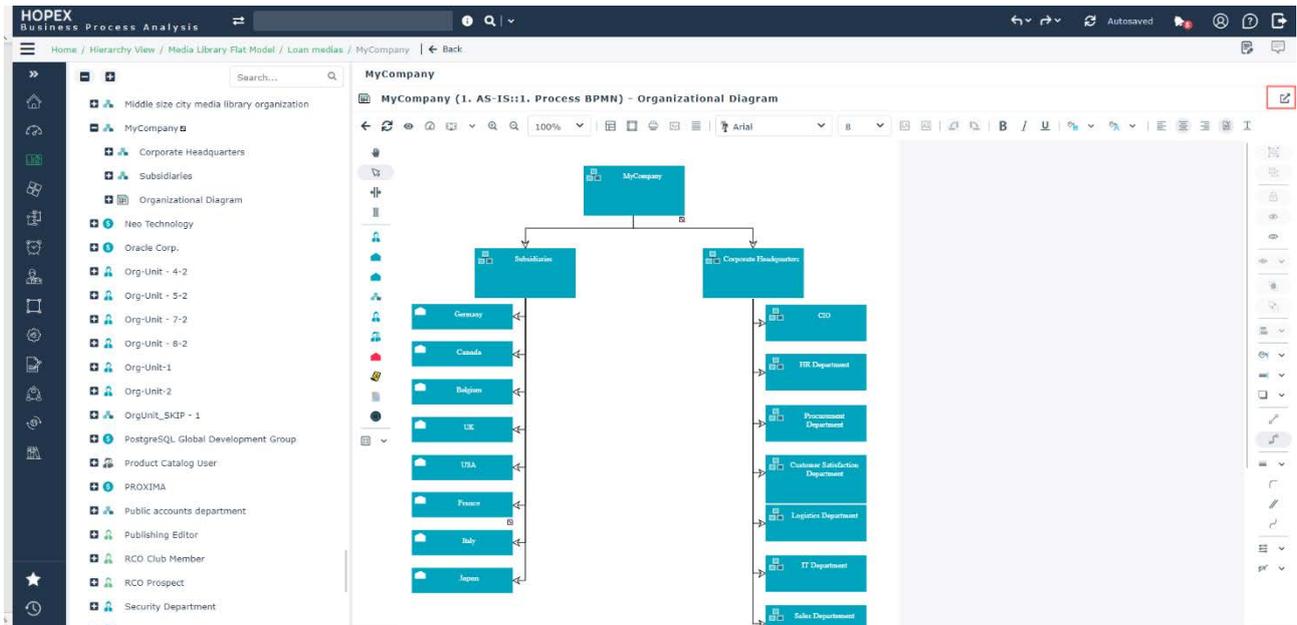
HOPEX Business Process Analysis

Process Design / Control & Risks / Risks < | Back

Local name	Owner	Maj...	Status	Impact	Likelihood	Inherent...	Control ...	Residual ...	Risk App...	Identification...	Risk Type
*Risk of non-payment	Simon	<input type="checkbox"/>	Validated	Medium	Probable	High	Effective	Low	Low	Survey	Execution, ...
Architecture lacks flexibility	Simon	<input checked="" type="checkbox"/>	Validated	Low	Probable	Medium	Inexistent	High	Low	Survey	Clients, Pro...
Bad Definition of Agency Network		<input type="checkbox"/>									
Bad Image Impact		<input type="checkbox"/>	Submit...	Very Low	Possible	Low	Few observ...	Low	Low		
Bad Media Technology Choice		<input type="checkbox"/>									
Bad Strategy Applicability		<input type="checkbox"/>									
Bad Technology Choices		<input type="checkbox"/>	Validated	Medium	Probable	High	Inexistent	Very HL...	Low	Survey	Damage to ...
Benefits are not being offered to all eligible employees	Jack	<input type="checkbox"/>	Validated	Low	Rare	Low	Frequent e...	Medium	Low	Workshop	
Budget overrun	Antoine	<input checked="" type="checkbox"/>	Validated	Low	Likely	Medium	Few observ...	Medium	High	Survey	
Buried substances		<input type="checkbox"/>	Validated						Very Low	Survey	Damage to ...
Car breakdown		<input type="checkbox"/>									
Change management overload	Antoine	<input checked="" type="checkbox"/>	Submit...	Low	Rare	Low	Effective	Low	Low	Workshop	
Change risk		<input type="checkbox"/>	Validated	Low	Possible	Low	Few observ...	Low	Very Low	Survey	
Contractual risk		<input type="checkbox"/>	Validated						Very Low	Survey	Clients, Pro...
Counterparty risks		<input type="checkbox"/>	Validated						Low	Survey	
Creation of an imaginary supplier		<input type="checkbox"/>	Low	Likely	Medium	Few observ...	Medium	Low	Workshop		Clients, Pro...
Credit card risk	Simon	<input checked="" type="checkbox"/>	Submit...						Low	Audit	
Damage to physical assets	Simon	<input checked="" type="checkbox"/>	Validated						Very Low	Survey	Damage to ...
Data encryption	Tommaso	<input checked="" type="checkbox"/>	Validated						Very Low	Workshop	
Data Quality	Julius	<input type="checkbox"/>									

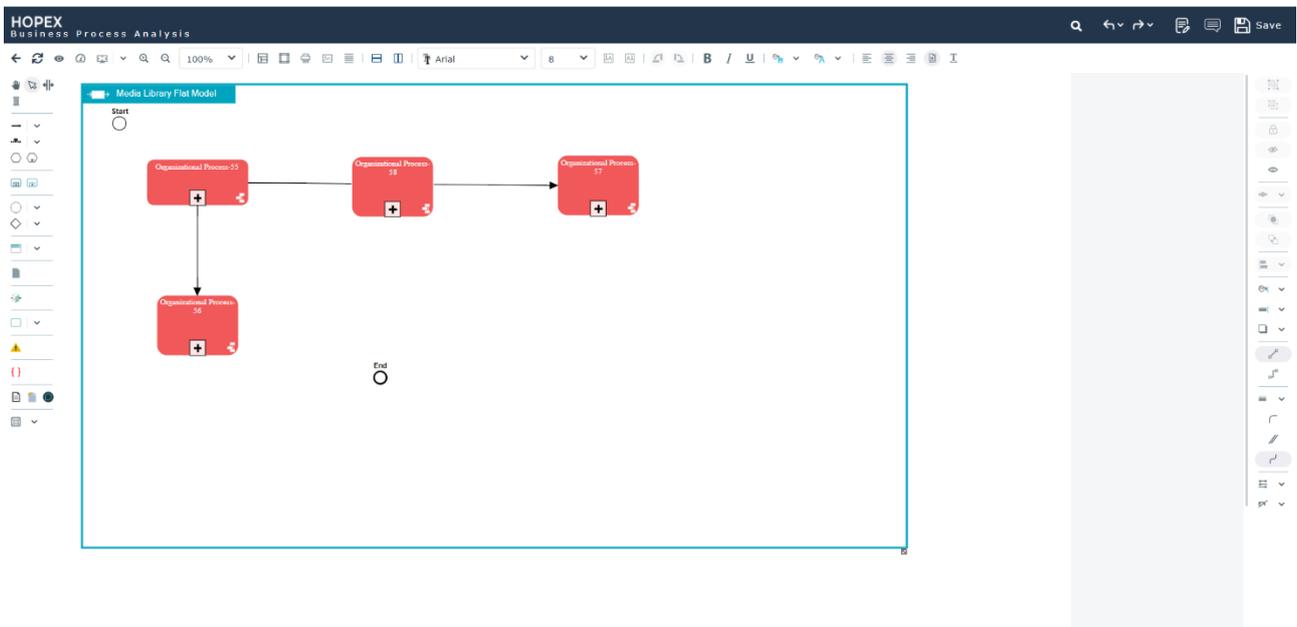
Page 1 of 3 | Show 50 elements | Displaying 1 - 50 of 122



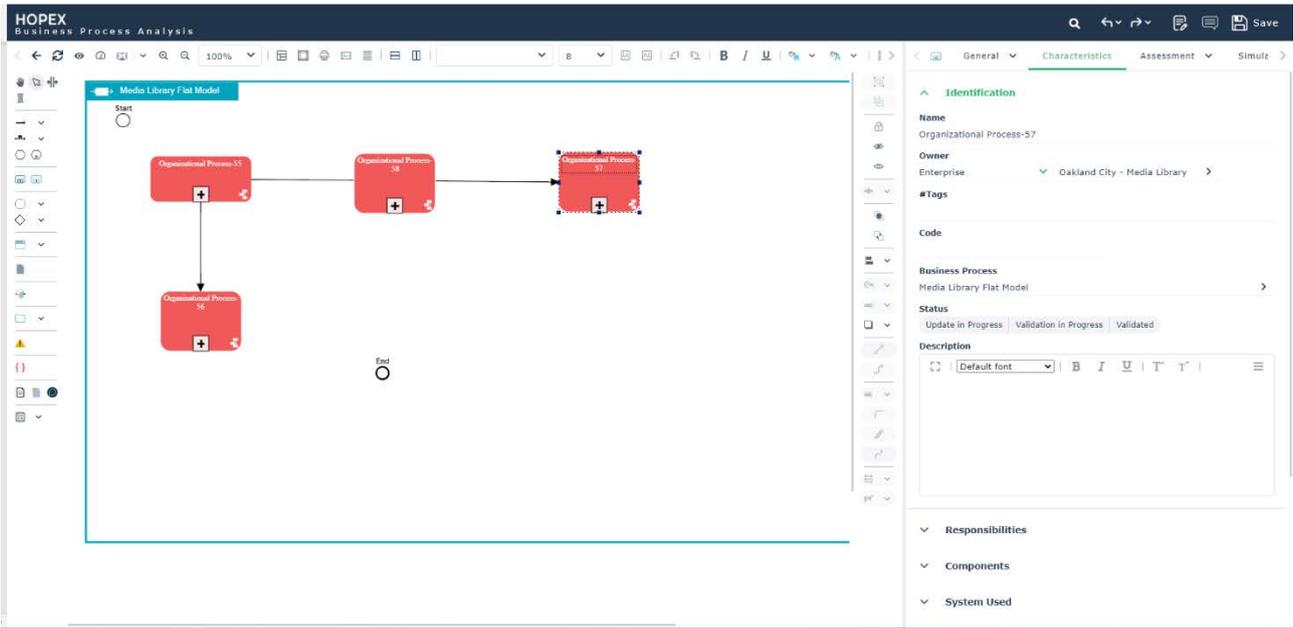


When using the new browser tab:

- 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...

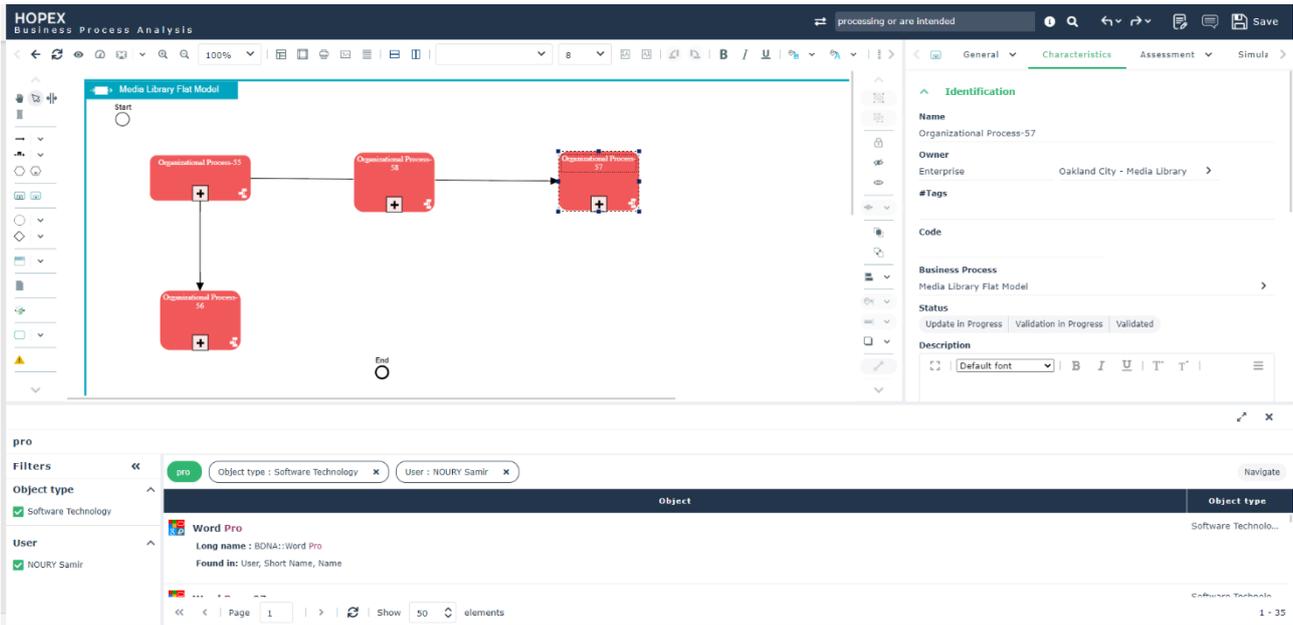


... with the ability on the top tool bar to display properties and add comments as previously seen on the main application page.

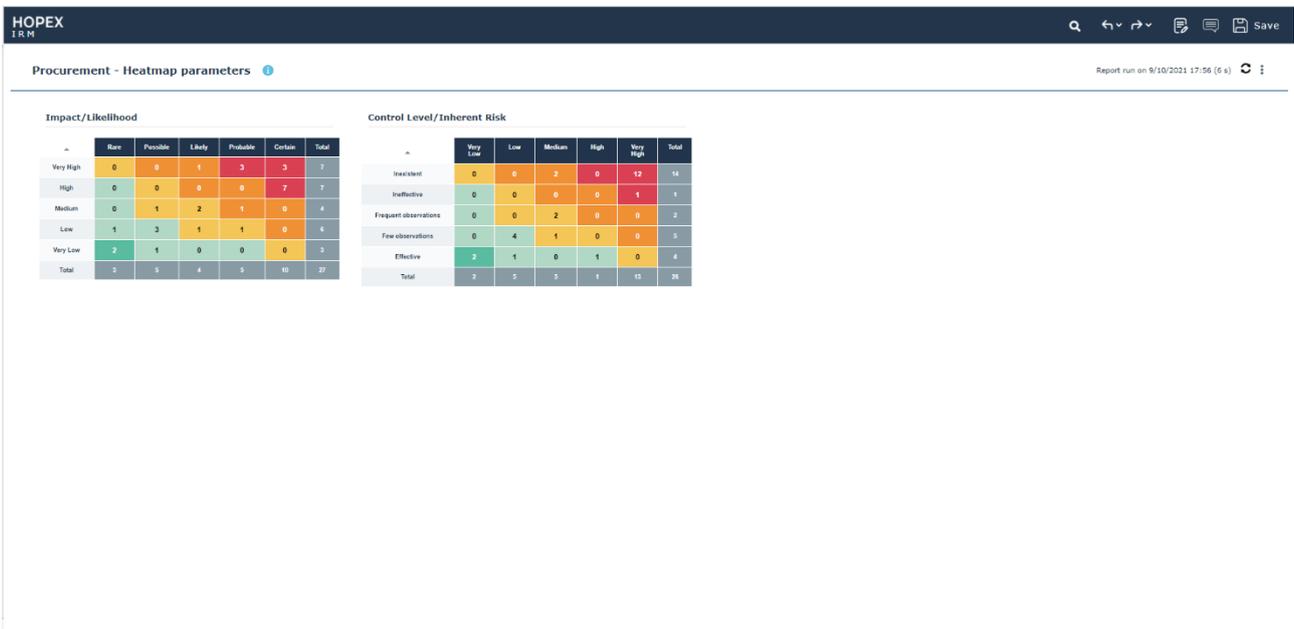
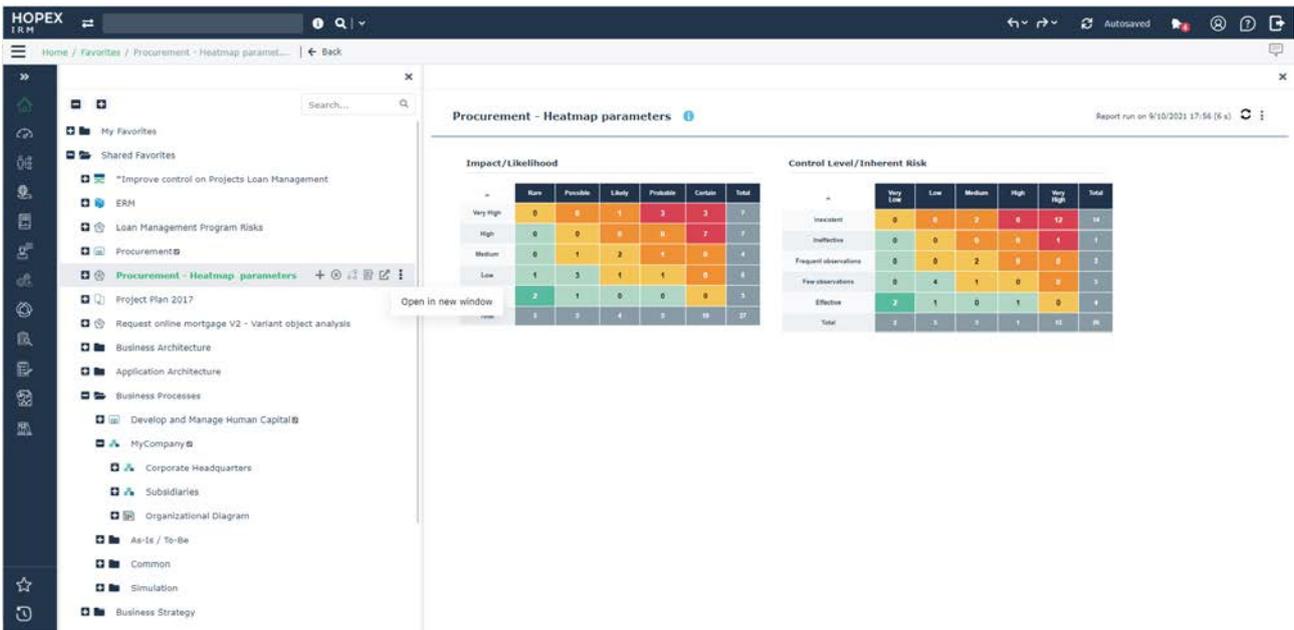


The detached browser tab provides access to regular search capability on top to quickly drag & drop objects in properties or inside the diagram.

Remark. 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.



3.3. Multi-combo Box improvements

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

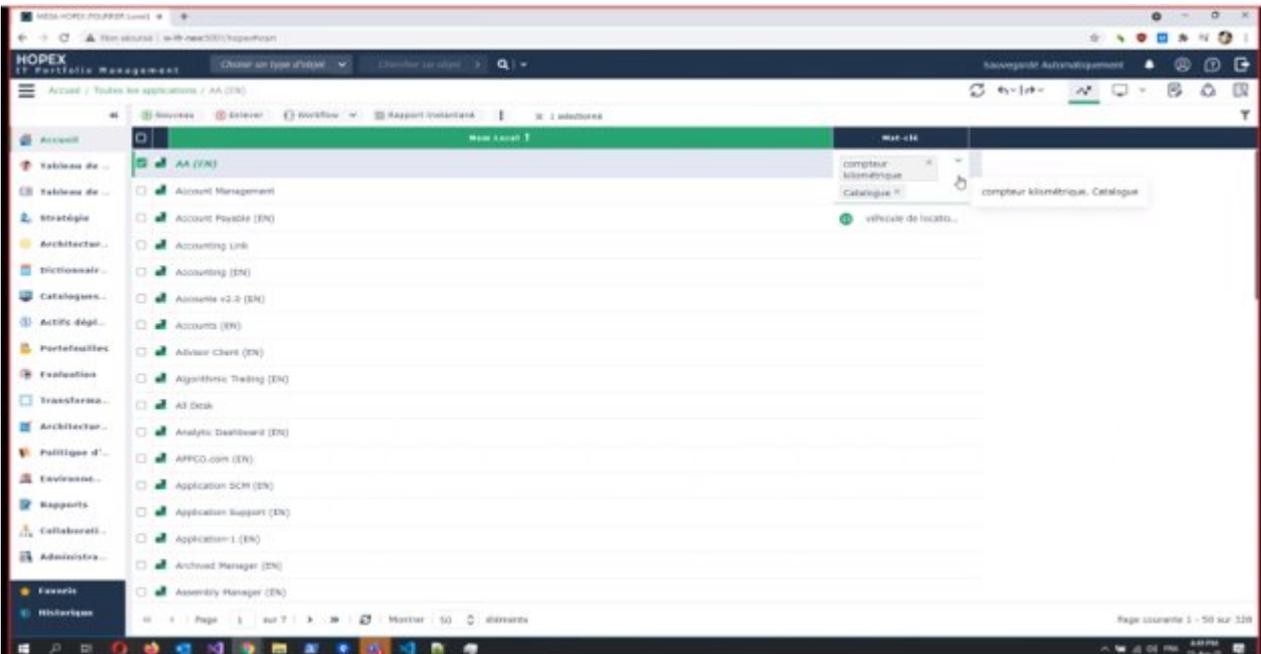
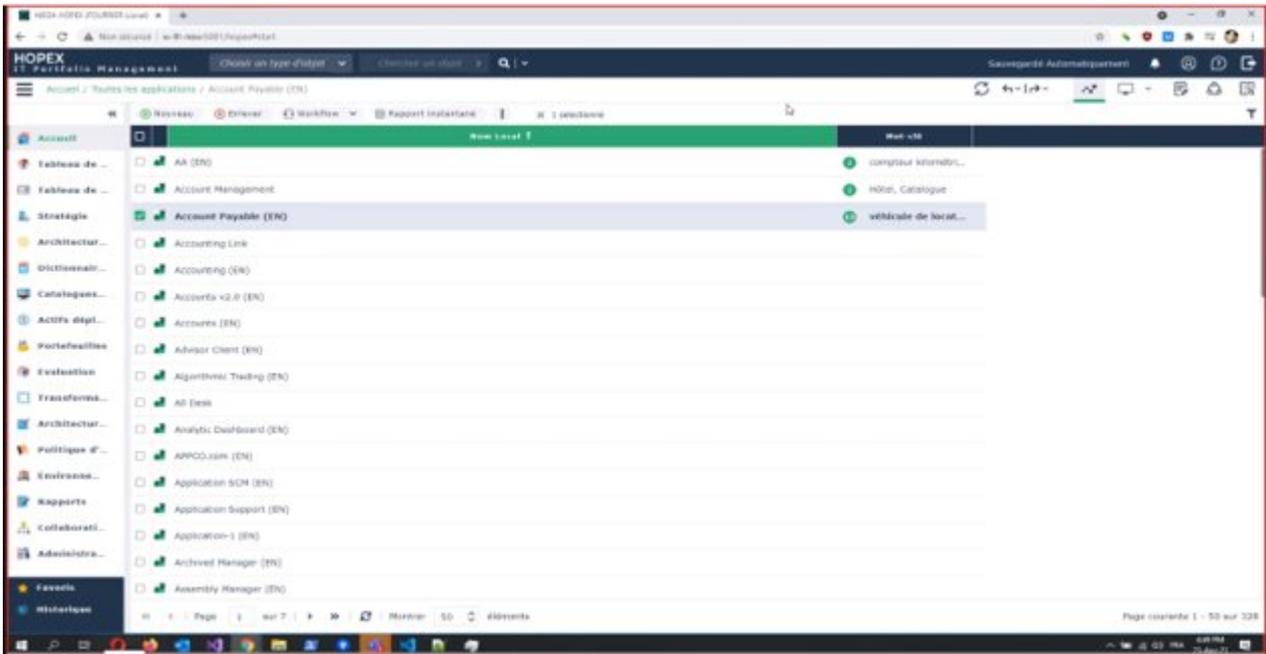
After “N” items are selected, and the multi-combo box is not in focus, the input field displays as many items as possible in the available space. Not all selected items can be displayed at the same time because the space is limited to the size of the input field.

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
Brazil		0
Canada	2	2
France	3	12
Germany	2	2

Properties

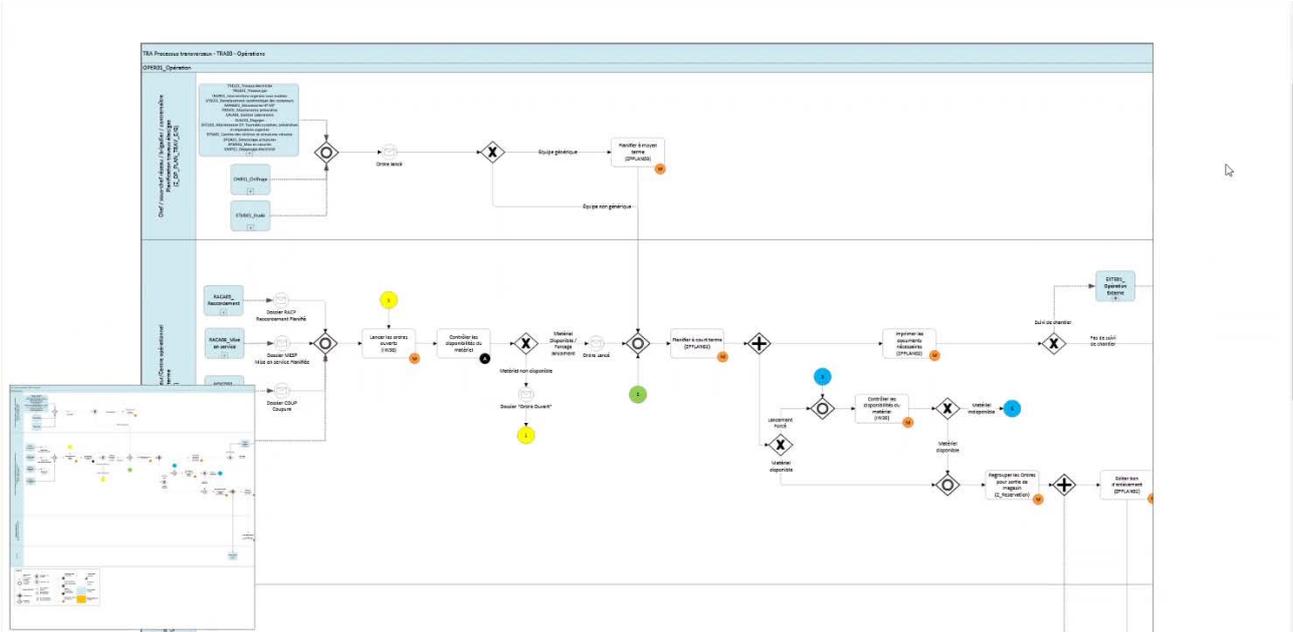


Parameter to use: Param (Display=Count)

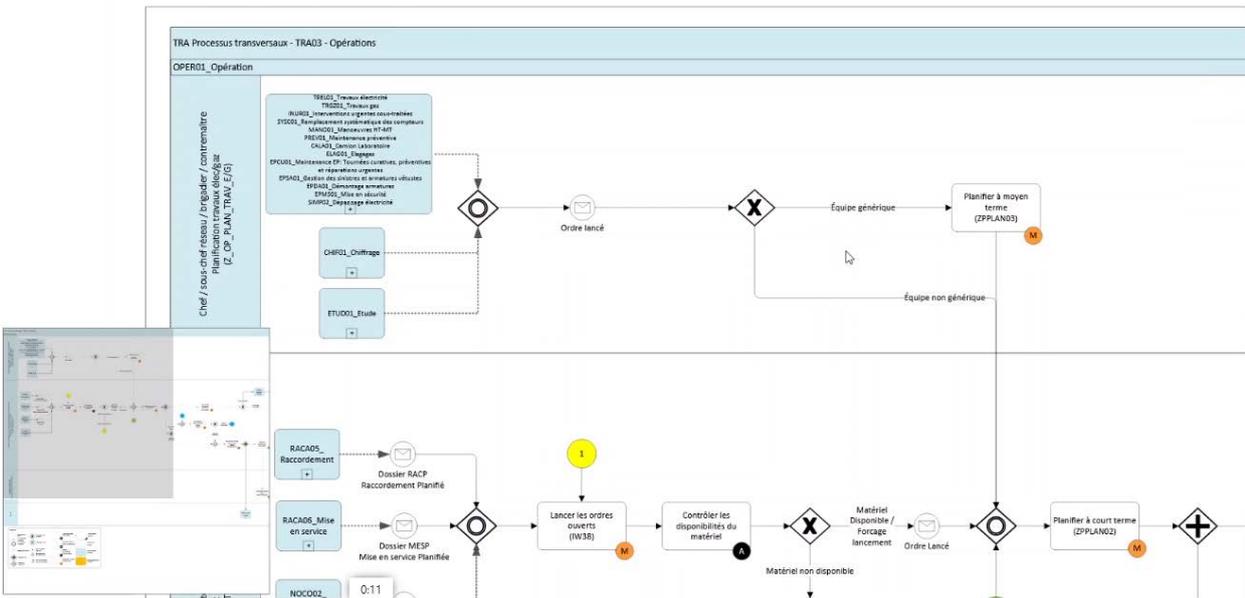
You can use any one among three types of parameters available. : Count, Text, Count and Text

3.4. Clickable SVG diagrams in static websites

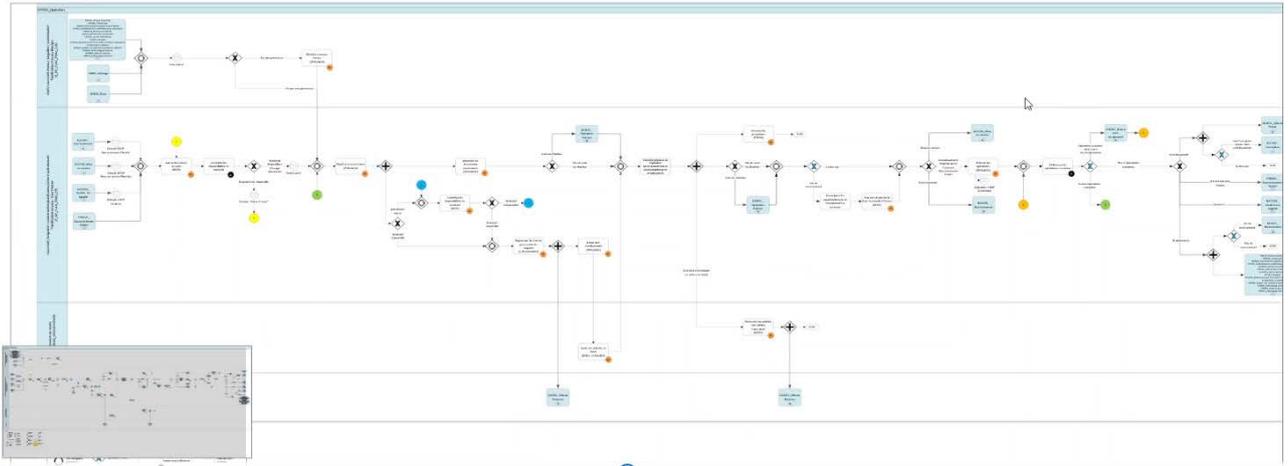
You can now click & zoom inside the diagrams generated in SVG format.



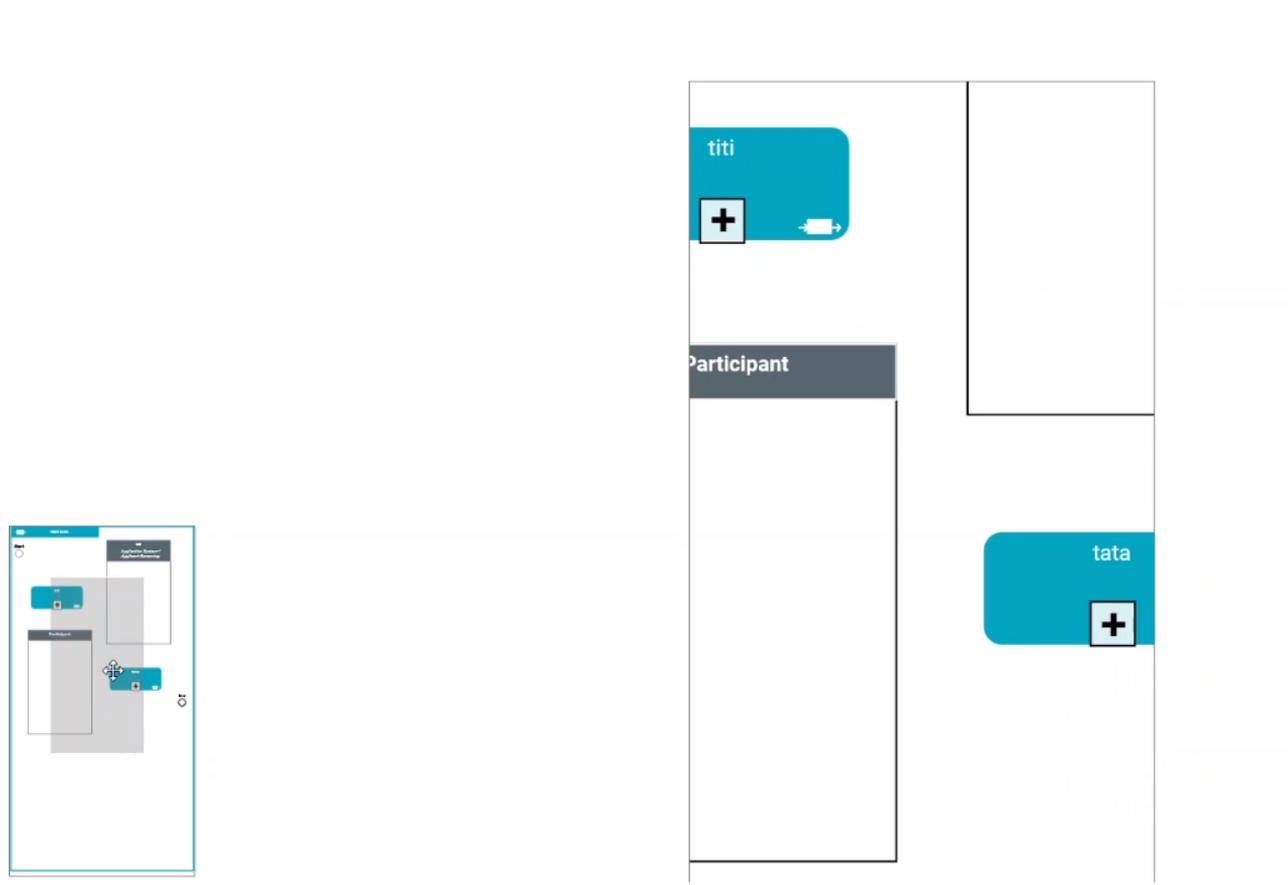
Business Process Diagram



Business Process Diagram



Business Process Diagram



3.5. Style sheet enhancements

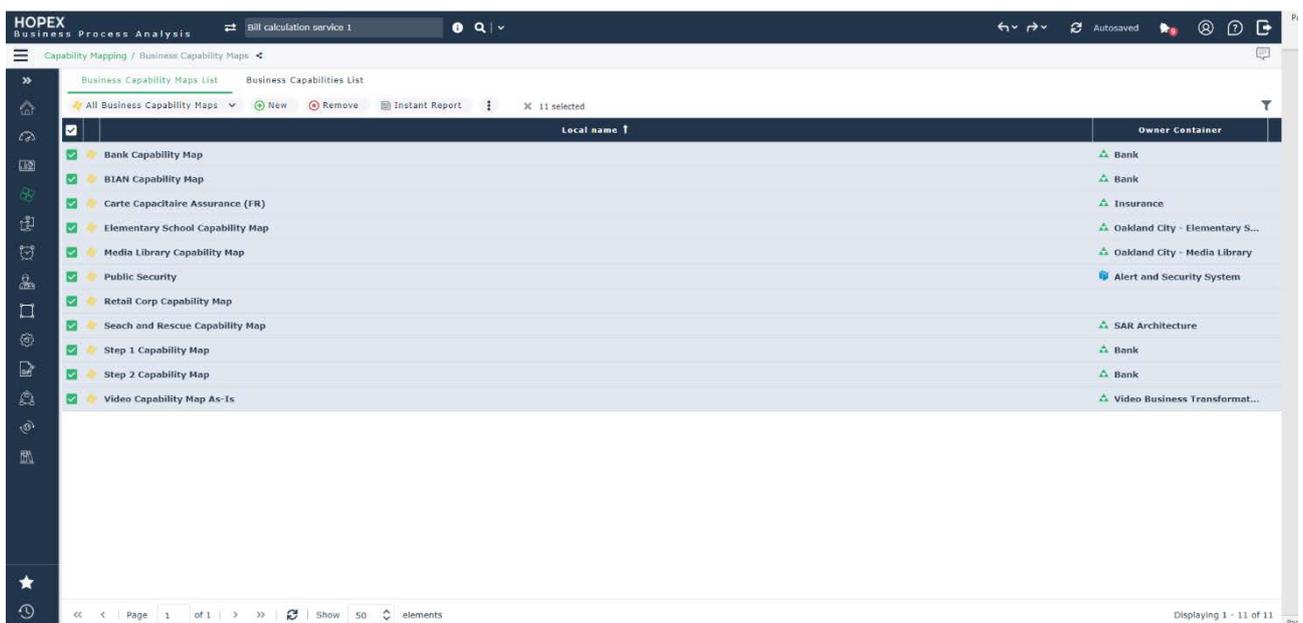
Various changes have been made to the style sheet (colors, contrast, thickness...) to provide comfort to the eye and to bring attention to important elements but in a soft manner.

- Scrollbars will now show up on focus & on hover 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

3.6. 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.

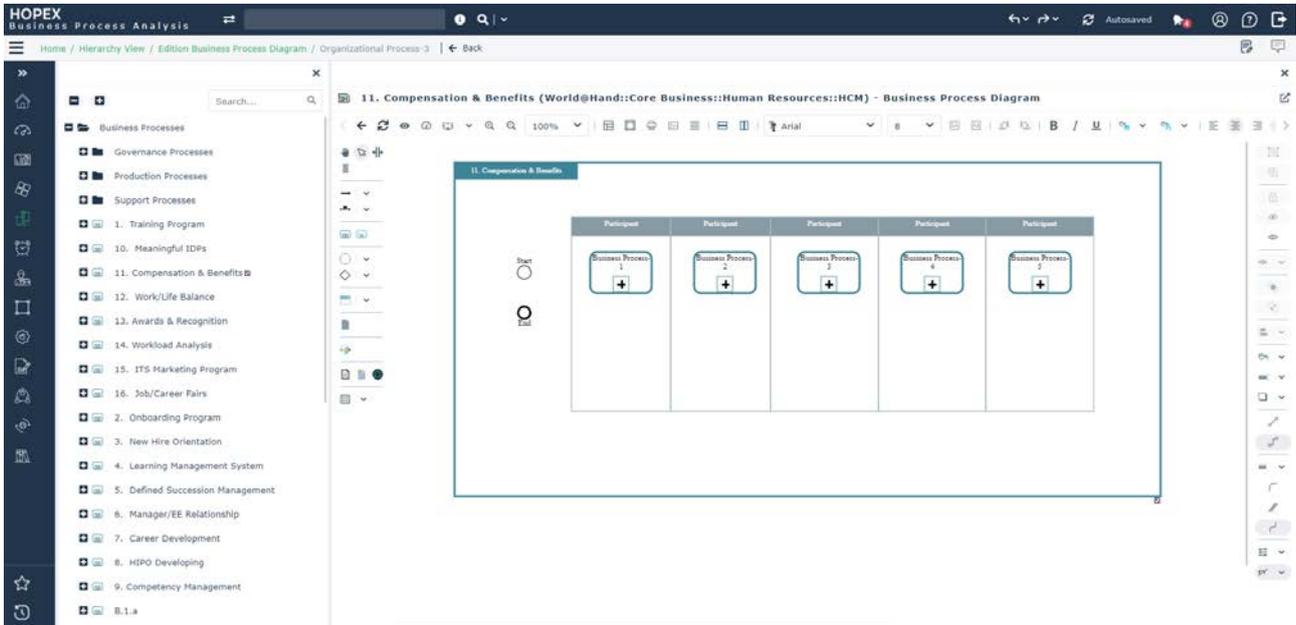
Also, the number of selected items is shown along with the ability to cancel the selection in one single click (x).



3.7. 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.



3.8. Unified 'Digital Transformation' Desktop

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

- Update of the desktop to latest UI/UX standards
- 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

3.9. '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

4. Report Improvements

4.1. Default Report Name

By default, the name of the report is now based on the Report Template Name.

4.2. Save as Report

Saving a report no longer raises the question of parameters.

4.3. Breakdown Report

4.3.1. 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.

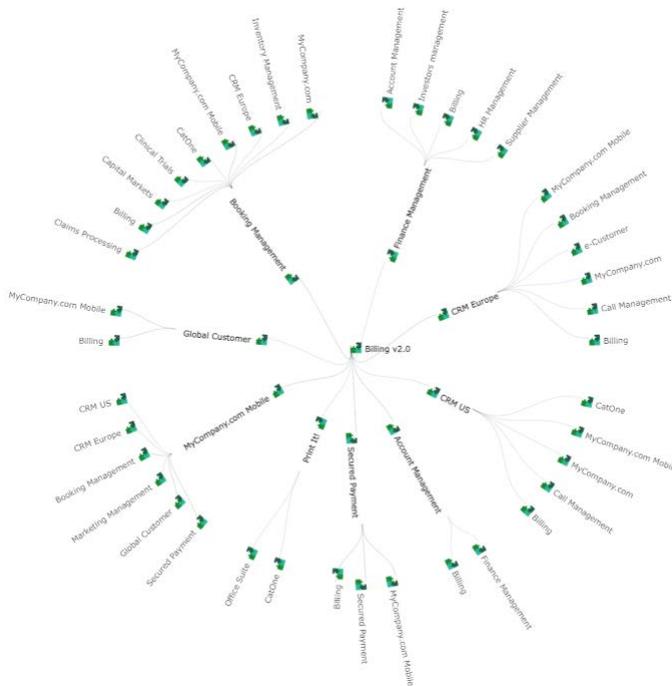
4.3.2. Show more

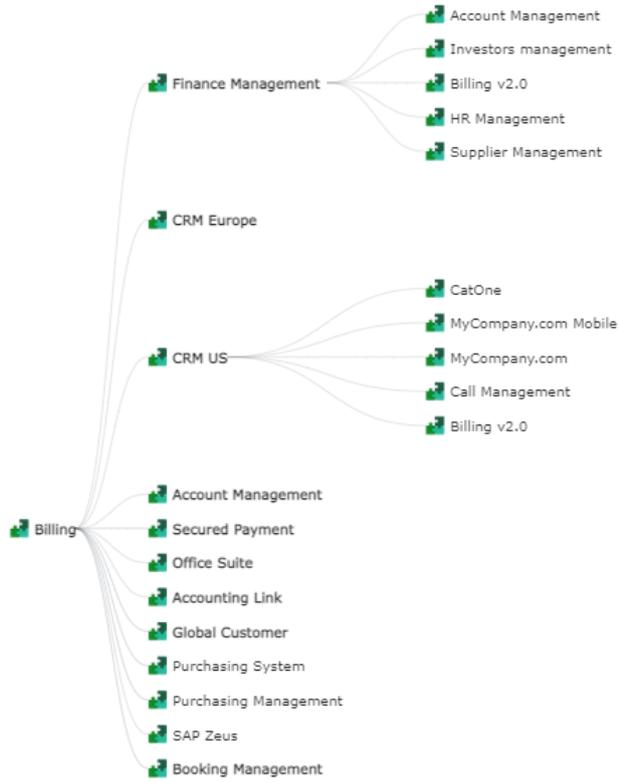
When there are many items to show in the available space, then “more” link allows users to load 10 more items so that users can see the items in progressive batches.

4.4. Dendrogram Reports

4.4.1. Style

The readability of this rendering has been improved.

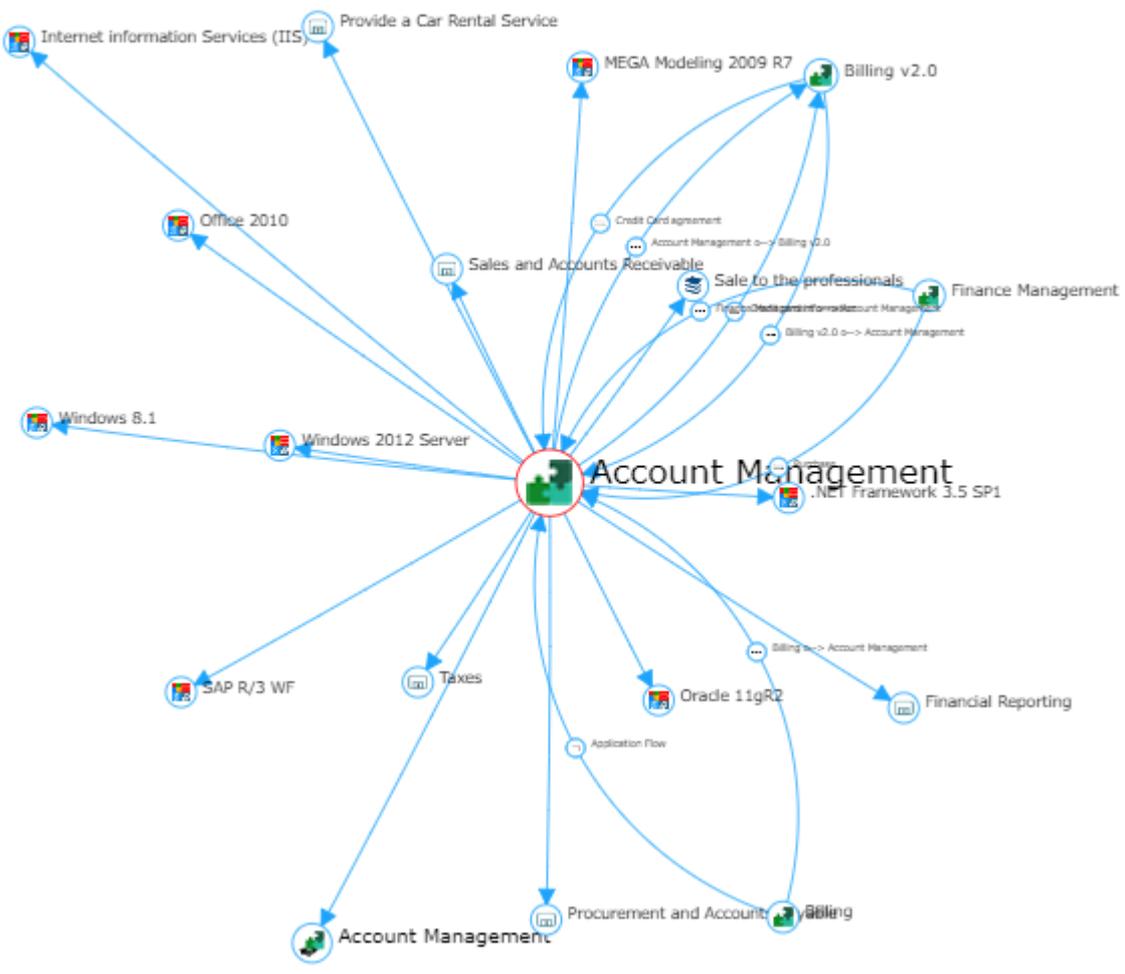




4.5. Expand the Reports

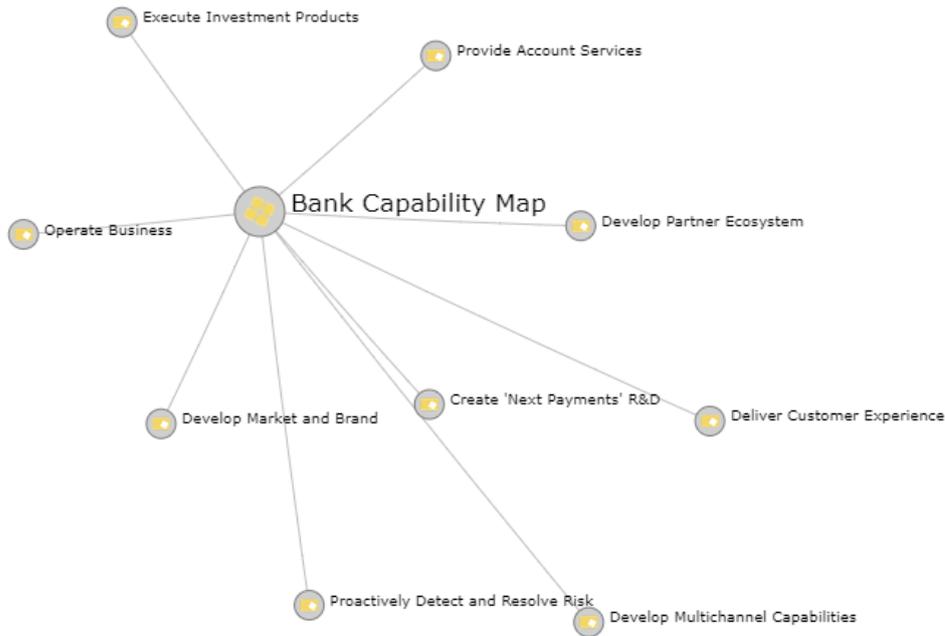
Some reports are expandable and can be displayed in full screen:

- Dendrogram
- Graph



4.6. Graph Reports

The readability of this rendering has been improved.



4.7. Volume limits for Reports

4.7.1. 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

4.7.2. Limits of GraphSet

Volume limits for GraphSets are available as parameters. These limits trigger a display for the end user.

Fix the limit for GraphSet Nodes

1000

Fix the limit for GraphSet Arcs

10000

4.7.3. Limits of TreeSet

Fix the limit for TreeSet Nodes

50000

Fix the limit for TreeSet properties

50

4.7.4. 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.

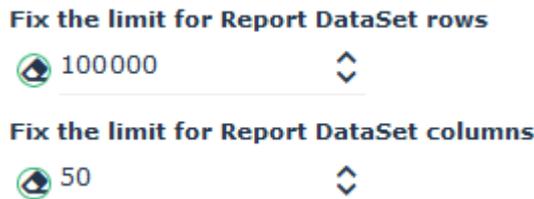
4.7.5. Limit of Dendrogram

The number of displayed objects is limited to 30 000.

4.7.6. Increase of Report DataSet Limits

4.7.6.1. 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

4.7.6.2. Export (CSV)

If the limit is reached this case file is not generated, a message warns the user that the limit is reached.

4.7.7. Increase of Matrix Report Limits

The volume of Matrices is now limited to 50k cells.

4.7.8. Supervision Alerts

Supervision Alerts have been added for Report DataSet, GraphSet, TreeSet.

Example:

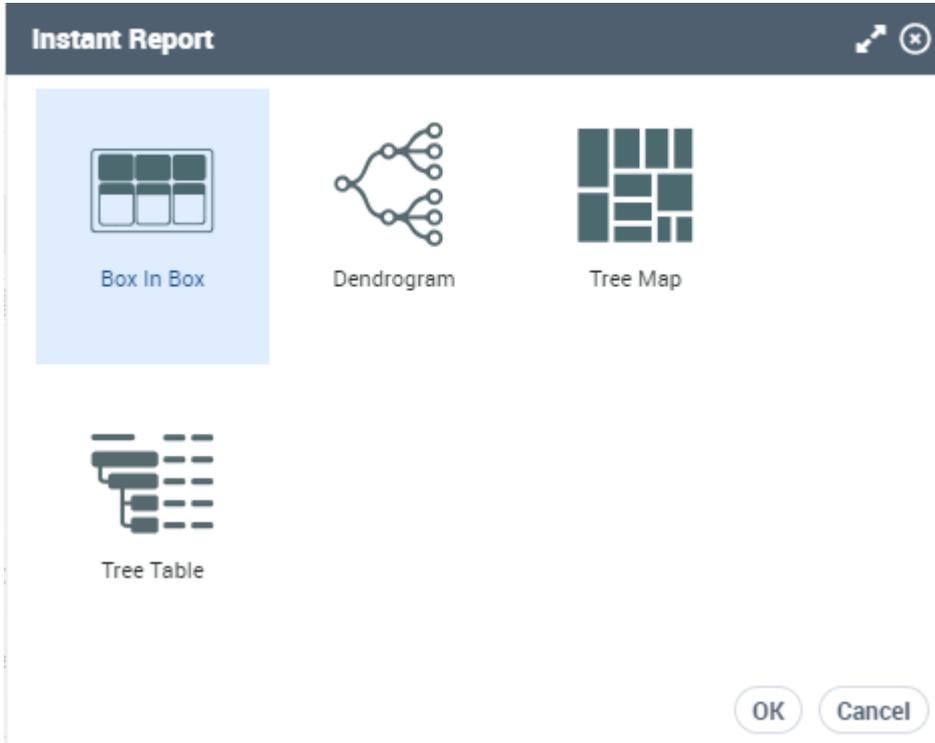
Report DataSet Generate (Alert): means that Report DataSet has been completely generated but the limit set as maximum has been exceeded (either the limit has been disabled or increased).

Report DataSet Generate (Truncated). It is of type "error". The Report DataSet is incomplete.

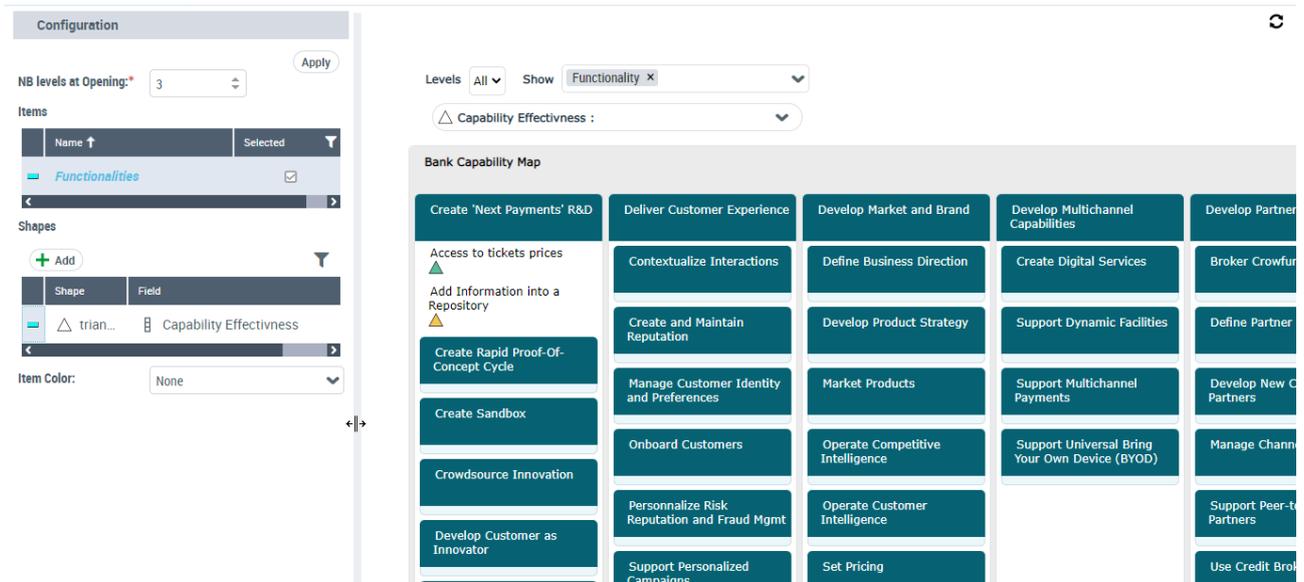
5. HOPEX Customizer

5.1. 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

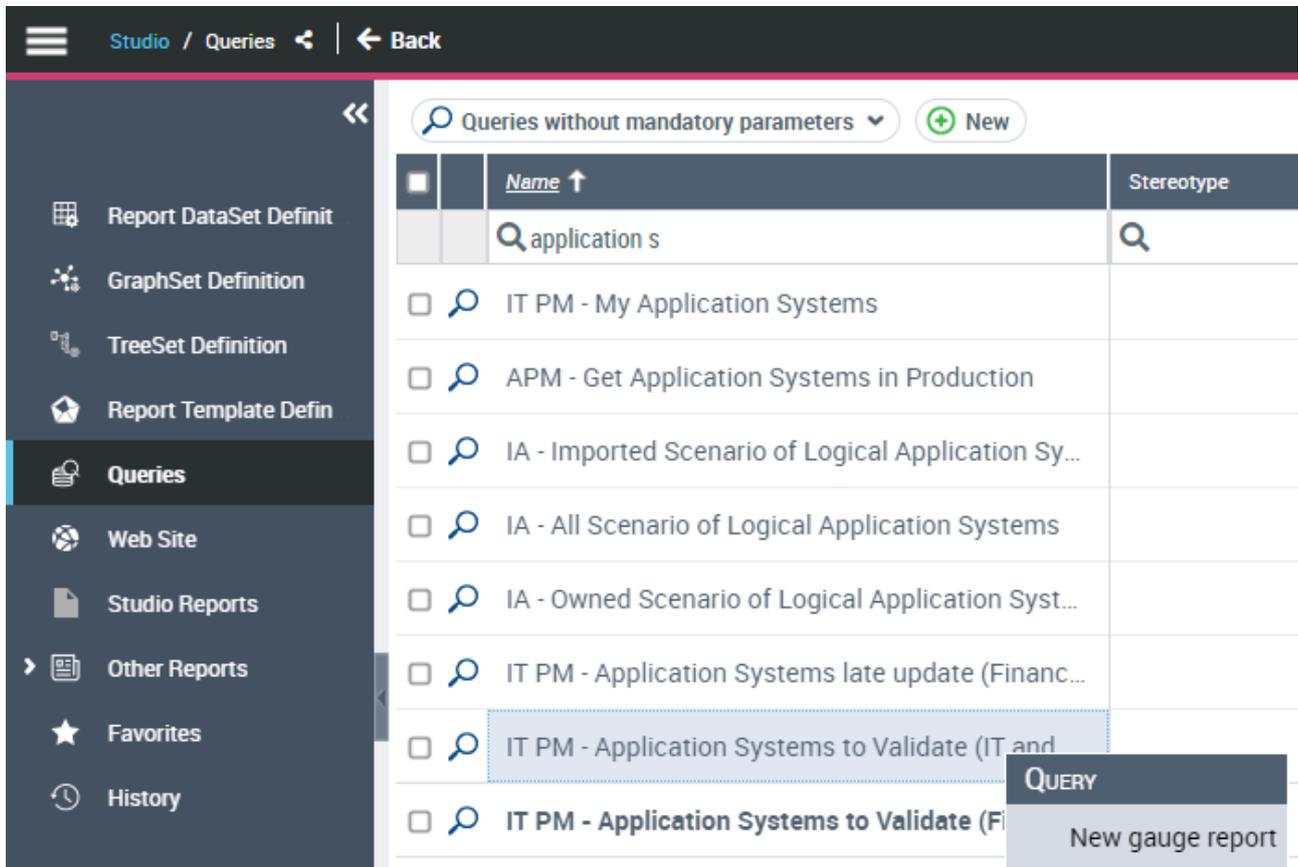
5.1.1. Breakdown Report Style Parameters

The current available parameter is:

- Min Column width
- Display icons

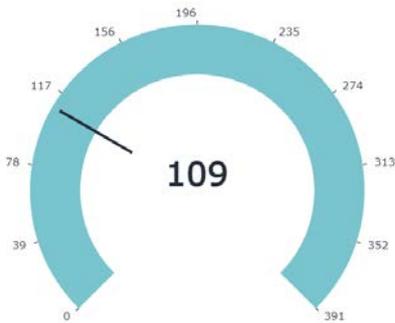
5.2. Gauges Reports

It is now very easy to define a new Gauge report representing several occurrences, just choose a query in the studio:

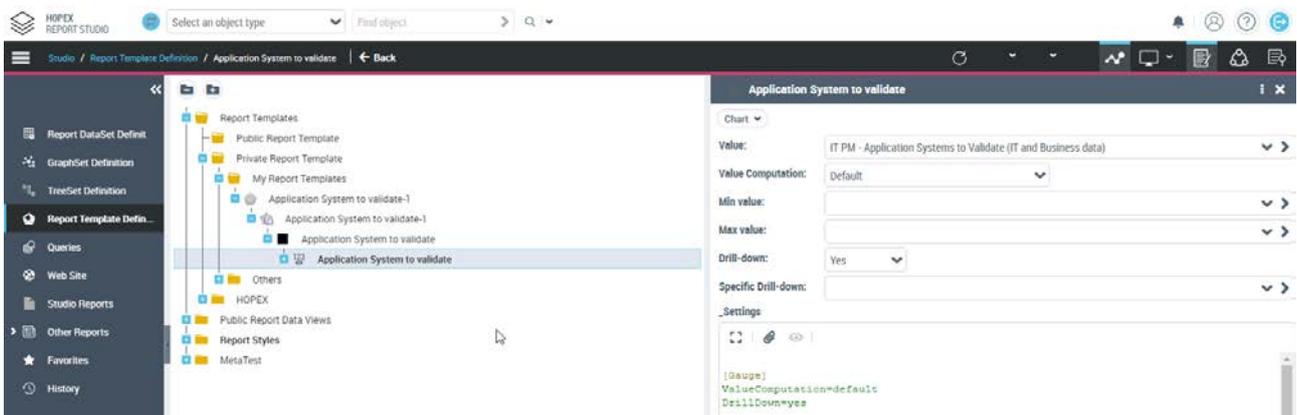


The Gauge Report is done:

Application System to Validate



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

5.3. 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

Configuration

NB levels at Opening:

Properties

Reorganize

Name ↑	Selected
Business Value	<input type="checkbox"/>
Cap Effectivness	<input type="checkbox"/>
Cap Efficiency	<input type="checkbox"/>
Capability Effectivness	<input type="checkbox"/>

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

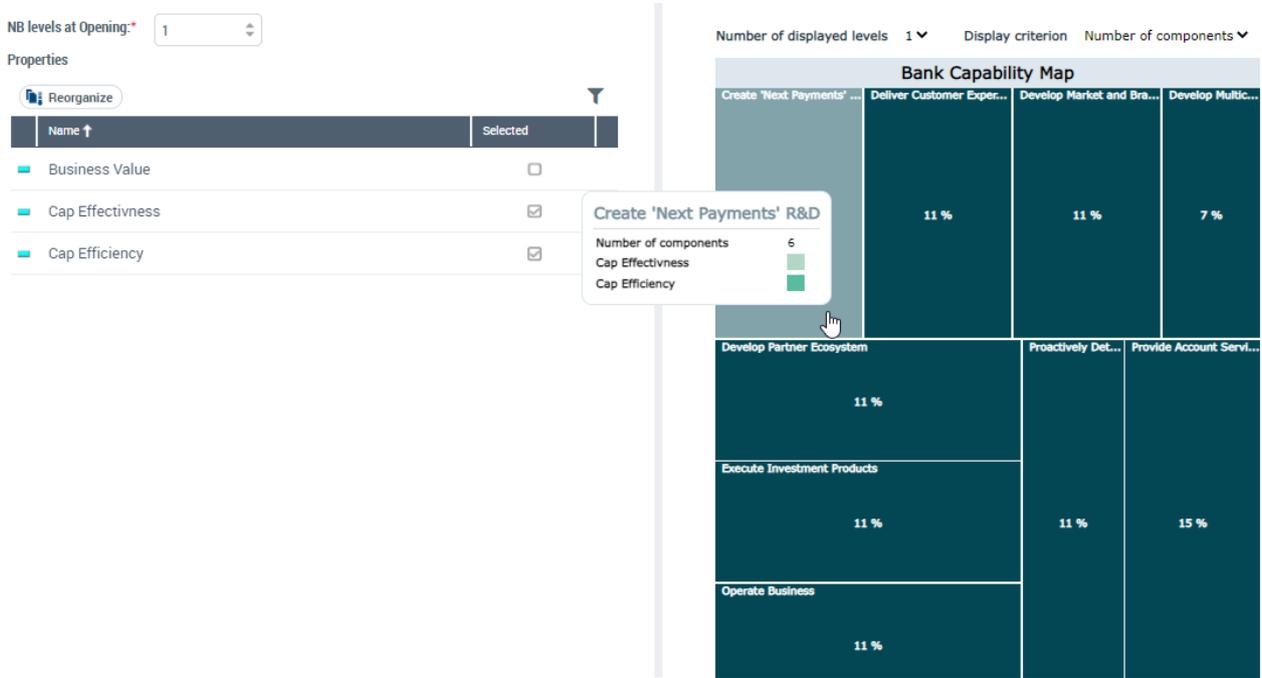
5.3.1. Dendrogram Style Parameters

The current style parameters are:

- Arc or Node Colors
- Display Mode: Horizontal / Vertical

5.4. 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

5.4.1. TreeMap Style Parameters

The current style parameters are:

- Box Colors
- Box Border Color or Thickness
- Proportional Text Size

5.5. 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.

Configuration

NB levels at Opening:

Properties

Reorganize

Name ↑	Selected
Financial Impact	<input checked="" type="checkbox"/>
Capability Effectiveness	<input type="checkbox"/>

	Financial Impact
Bank Capability Map	
Create 'Next Payments' R&D	
Create Rapid Proof-Of-Concept Cycle	
Create Sandbox	
Crowdsource Innovation	

More possibilities are offered at the level of the Report Template:

- Add Filters
- Add style elements
- Condition some styles

5.5.1. Group properties in a single column

	Performance	Business Value	Efficiency	Risk
Bank Capability Map				
Create 'Next Payments' R&D	High 1/19/2017	High	Medium	Medium
Create Rapid Proof-Of-Concept Cycle	Very Low 1/19/2017	Very Low	N/A	Very High

The parametrization defines the columns and their content:

Columns

Columns

New
Reorganize
Properties
Remove

Local name ↑	Cell Content
Performance	Performance Assessment Date
Business Value	Business Value
Efficiency	Efficiency
Risk	Risk

5.5.2. Display occurrences in a cell

This example displays the set of functions expected by a capability

	Expected Functionalities
▶ Bank Capability Map	
▼ Create 'Next Payments' R&D	<ul style="list-style-type: none"> ◆ Access to tickets prices ◆ Add Information into a Repository
▶ 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 column that is displayed and the column content. The functionalities are displayed as properties and not displayed in the tree.

Tree ▾

NB levels at opening:

	Report Tree Node	Display	Display by default	Display Property
▶ BZX - B cap			No	
▶ Business Capability Map	Business Capabilit...	Default	Yes	
▶ B component	B component	Default	No	
▶ Business Capability	Business Capability	Default	Yes	
▶ Functionalities	Functionalities	Hide Node	Yes	Functionalities
▶ Business Line	Business Line	Default	No	

Columns

Columns

Local name ↑	Cell Content	Multiple Columns Header
Expected Functionalities	Functionalities	

5.5.3. 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:

— Tree

Display: TreeTable

NB levels at opening: 3

	Report Tree Node	Display	Display by default
▶ BZX - B cap			No
▶ Business Capability Map	Business Capabil...	Default	Yes
▶ B component	B component	Default	No
▶ Business Capability	Business Capability	Default	Yes
▶ Expected Functionalities	Functionalities	Hide Node	Yes
▶ realising agents	realising agents	Hide Branch	Yes
▶ Realised Functionalities	functionalities	Default	Yes

←

— Columns

Columns

+ New

Local name ↑	Cell Content	Multiple Columns Header
Functionalities		Expected Functionalities

5.5.4. 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

5.6. Matrices & Table Reports

5.6.1. New Horizontal and Vertical Headers

		Residual Risks					
		Very Low	Low	Medium	High	Very High	Sum
Inherent Risks	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.

5.6.2. 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.

5.6.3. 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

5.7. TreeSet Definition

5.7.1. Sort Data

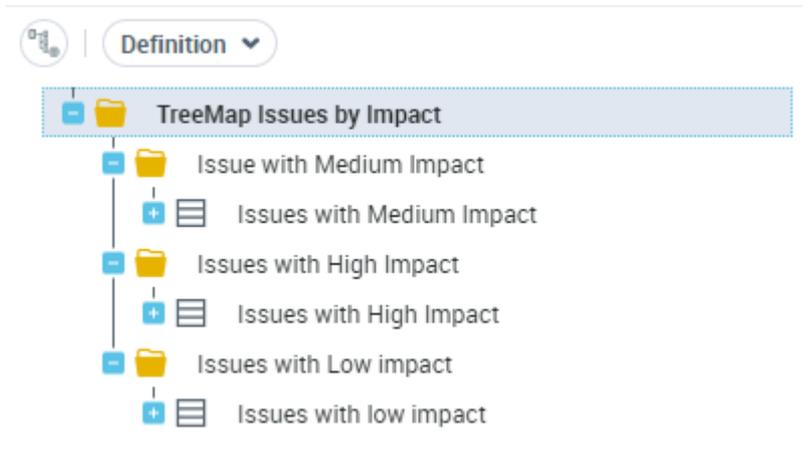
The sort order is kept in treeset and will be used by default in all reports using these data.

The order of the TreeSet Collection is defined by:

- Order of the MetaAssociationEnd
- Sort instruction defined in Queries

5.7.2. 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:



5.7.3. Additional properties

All MetaAssociationEnd with Card-max 1 can be used in the Property definition.

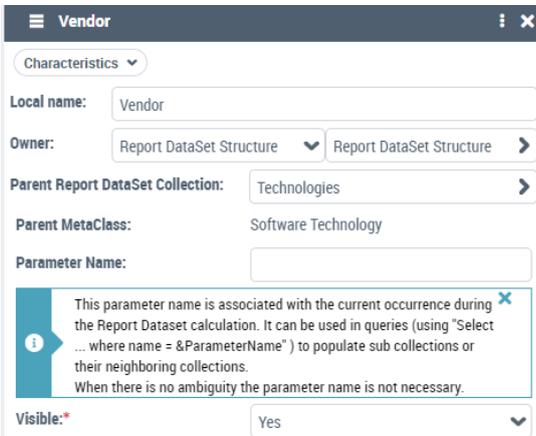
Example: Display the Declarant’s Entity of issues

	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

5.8. DataSet Definition

5.8.1. Help in UI

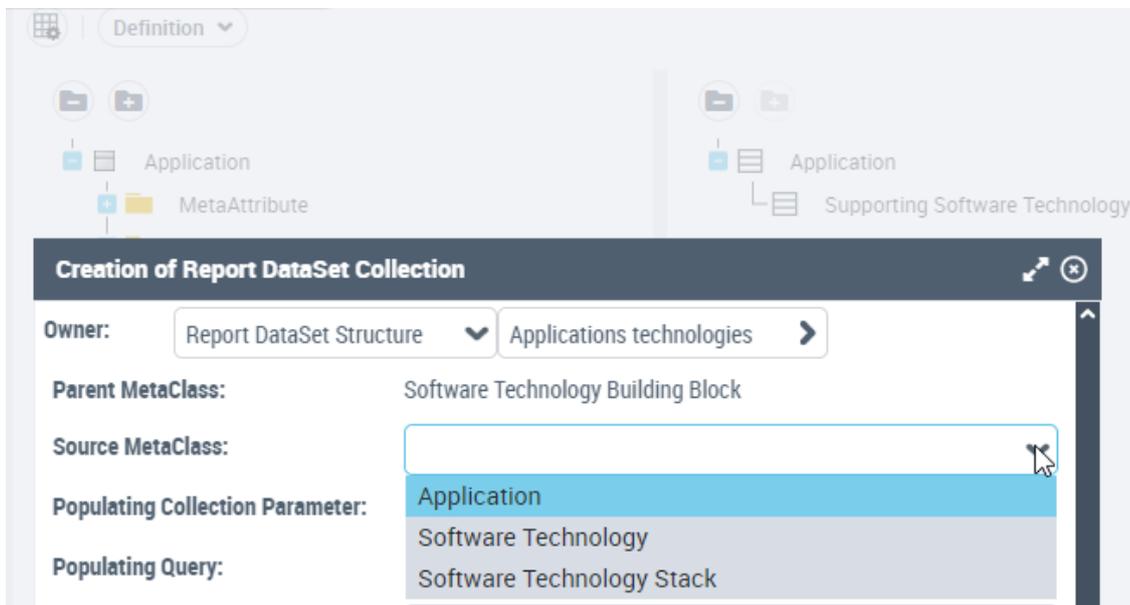
Comments have been added to document some elements presented in the UI:



5.8.2. Filter Data from Abstract MetaClass

The use of generic Metaassociation requires to filter sometimes the data to address only one of the subtype of the target abstract meta class.

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 :



5.8.3. Use any Query to build Report DataSet Collection

It is now possible to use queries implemented by macros to build collections.

5.9. Report Parameters

5.9.1. 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.

5.10. Definitions Checking

The profiles HOPEX Customiser and HOPEX Customiser Publisher 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
✘	<i>Requirement</i> Only candidate MetaAssociationEnd can be used as provider	

5.11. API - Export Report DataSet in Batch Mode

To export any Report DataSet in CSV format from HOPEX use the **CSVExport** Operator.

5.12. 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.

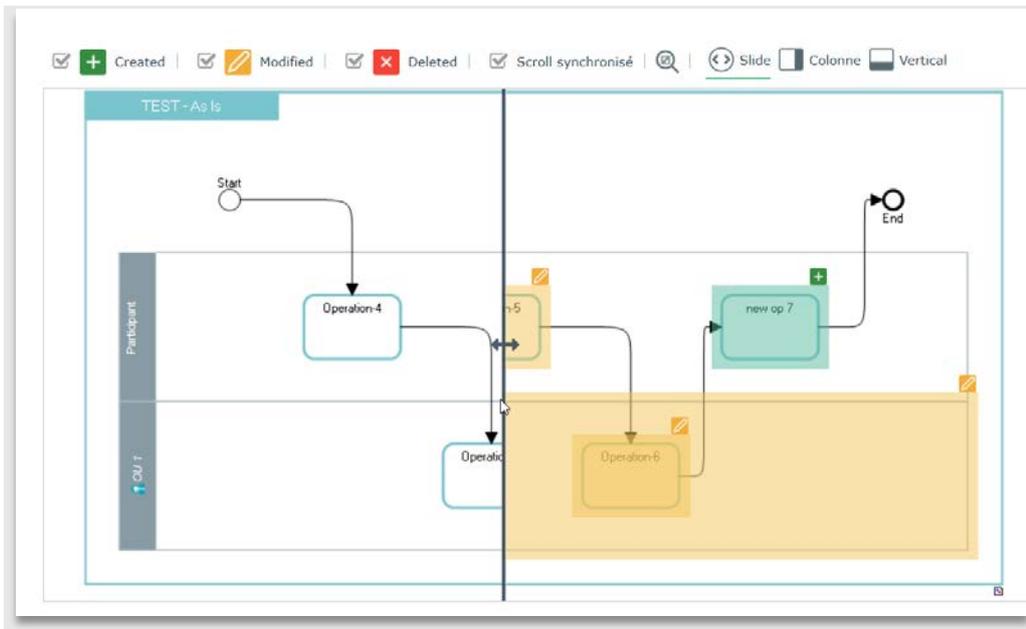
5.13. Diagram Comparison Renderer

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 be highlighted also

- .

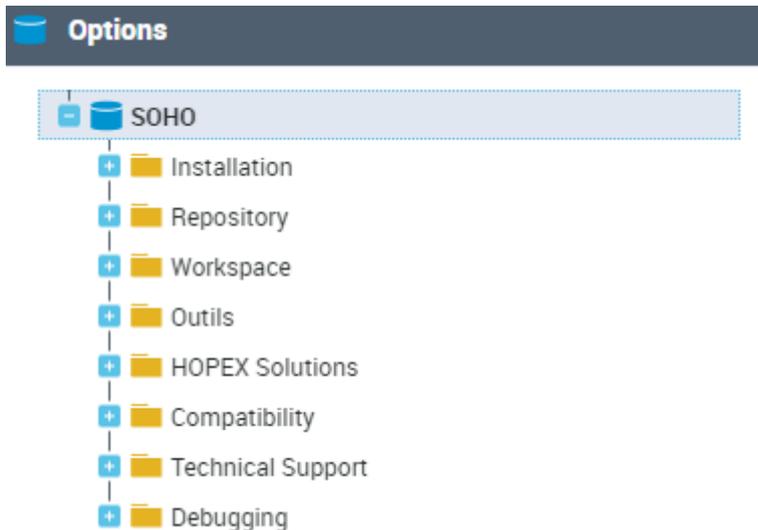


6. Common Features

6.1. Options

6.1.1. 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.



6.1.2. 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.

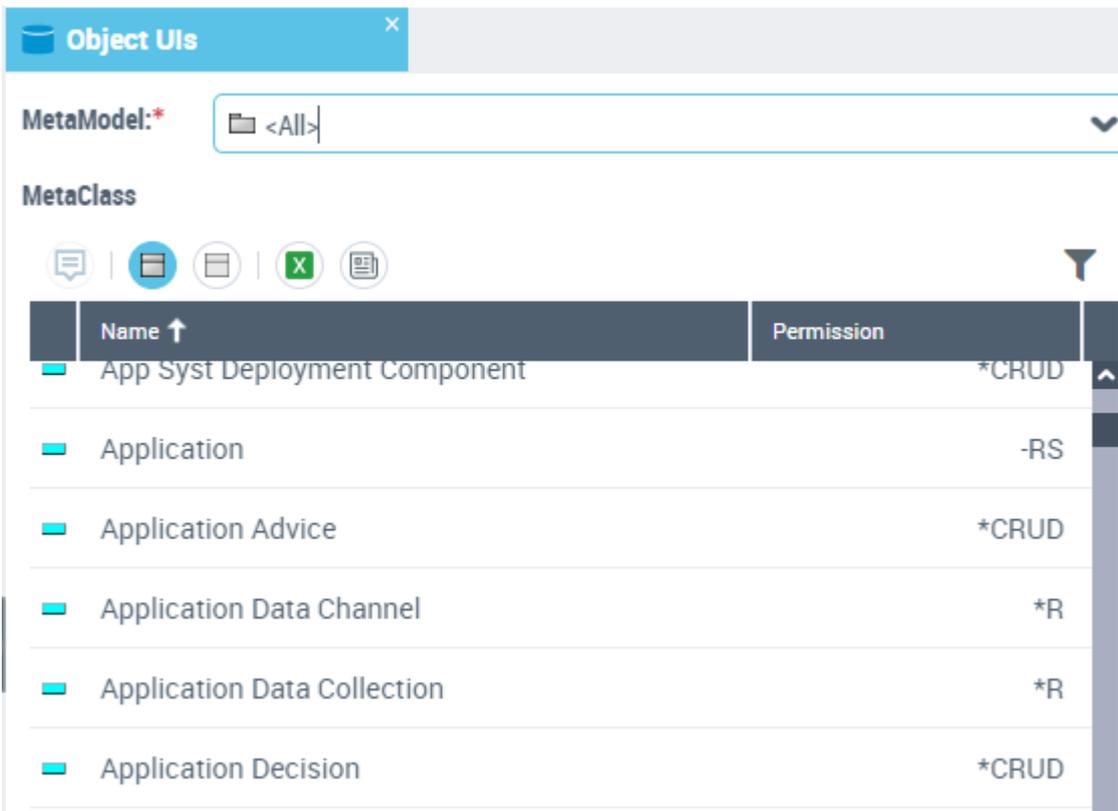
Therefore, the metamodel access option is no longer available, and replaced by the “Display technical metamodel” option activated for all administrator and customizers profiles.

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.

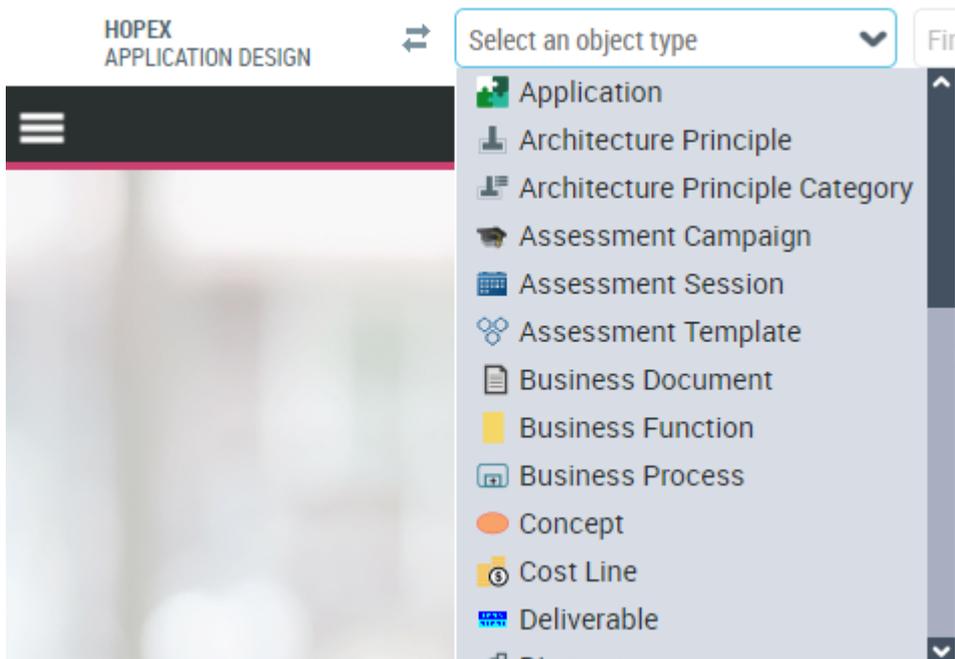
The “Display Administration Properties and links” option activates the Administration Tab and all his content and activates the “See Administration Properties” in the Advanced Search Tool. This option is activated for all administrator and customizers profiles.

6.2. Permission Improvement

A new feature allows to define the set MetaClass that will be “Searchable” that is available in the Desktop Search Bar for a given Profile.



In the Application Designer Desktop:



All **“Readable”** Metaclass remains available in the Advanced Search Tool.

By default, a new MetaClass is not Searchable, the default Permission remains **“CRUD”**. A conversion tool takes into account all the Custom MetaClass to make them **“Searchable”**.

6.3. 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).

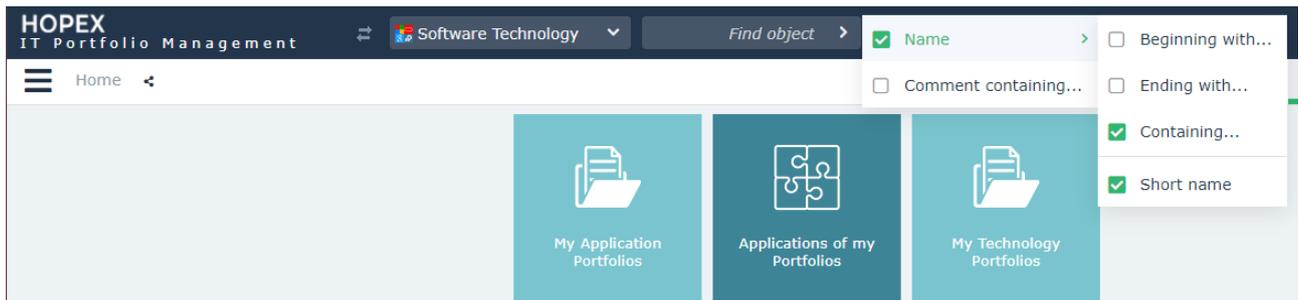
6.4. Search Tool

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.

6.4.1. 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.

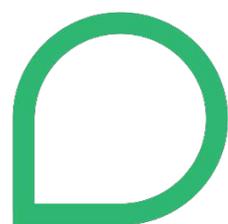
If the repository is indexed, the nearmatch is used to enhance the performance of the search bar for Name containing and Comment containing also in the Advanced Query in the Wizard Mode and ERQL Mode.



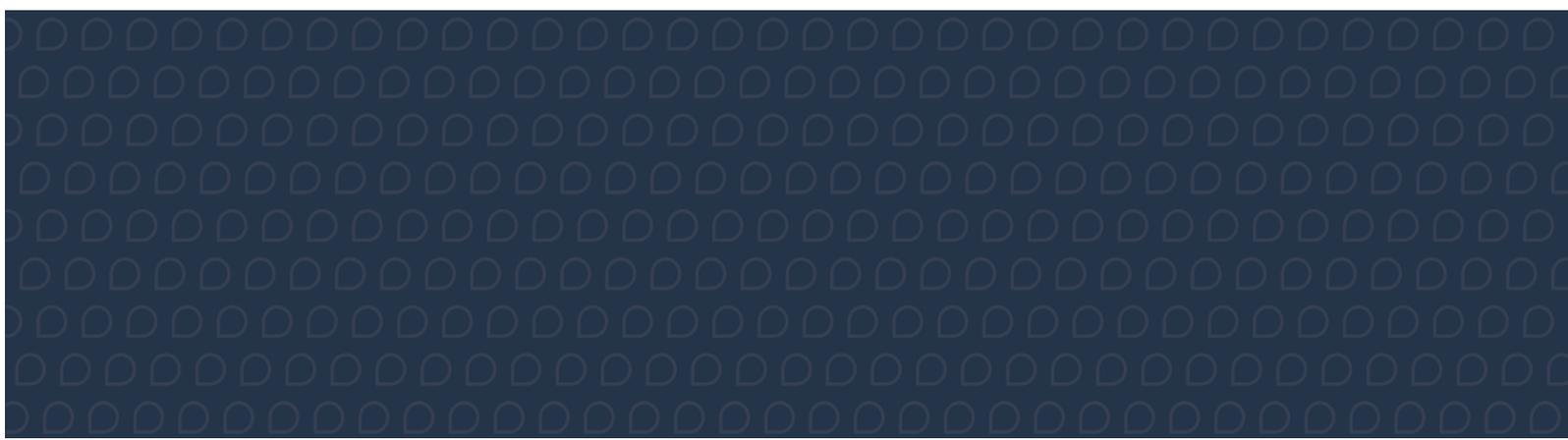
7. Deprecated & Removed Products

7.1. Removed Products

- HOPEX Business Architecture (superseded by HOPEX IT Business Management)



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