

# Banking Product Factory 3.0

## User Guide

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# Overview

The Banking Product Factory allows you to create and maintain banking products. A banking product can further be used in FintechOS digital journeys for processes such as loan origination or a hybrid journey for applying for more products. The banking products are configured from a graphical user interface while Banking Product Factory automatically populates and maintains the underlying data in a consistent data model. Consequently, you have a reliable data model for your product portfolio that you can reference when building digital journeys. Thus you can manage your product portfolio at will, without having to re-code your digital journeys every time a banking product is added, updated, or retired.

For instance, you can use Banking Product Factory to create a loan type with a specific amount interval, availability period, interest rate, commission, credit scoring criteria, etc. You can then use this type of loan as one of the options that are available to the applicant in a loan application digital journey. As your product portfolio evolves and you add new types of loans, modify some of the conditions for your products, or retire products, the options that show up (or no longer show up) in the loan application digital journey change automatically.

## Banking Products Features

Banking Product Factory allows you to customize the product features. Here are some of the customizable features:

- Adjustable interest rates and commissions depending on commercial conditions or participation in campaigns;
- Full versioning functionality;
- Clone a banking product to create a new product based on an existing one;
- Product classification;
- Payment schedules;

- Guarantees;
- Availability periods;
- Scoring rules.

## Integration with Formula Engine

Banking Product Factory leverages the capabilities of the [Formula Engine](#) to implement complex decision modeling for product availability, risk scoring, or insurance rules.

## Applications

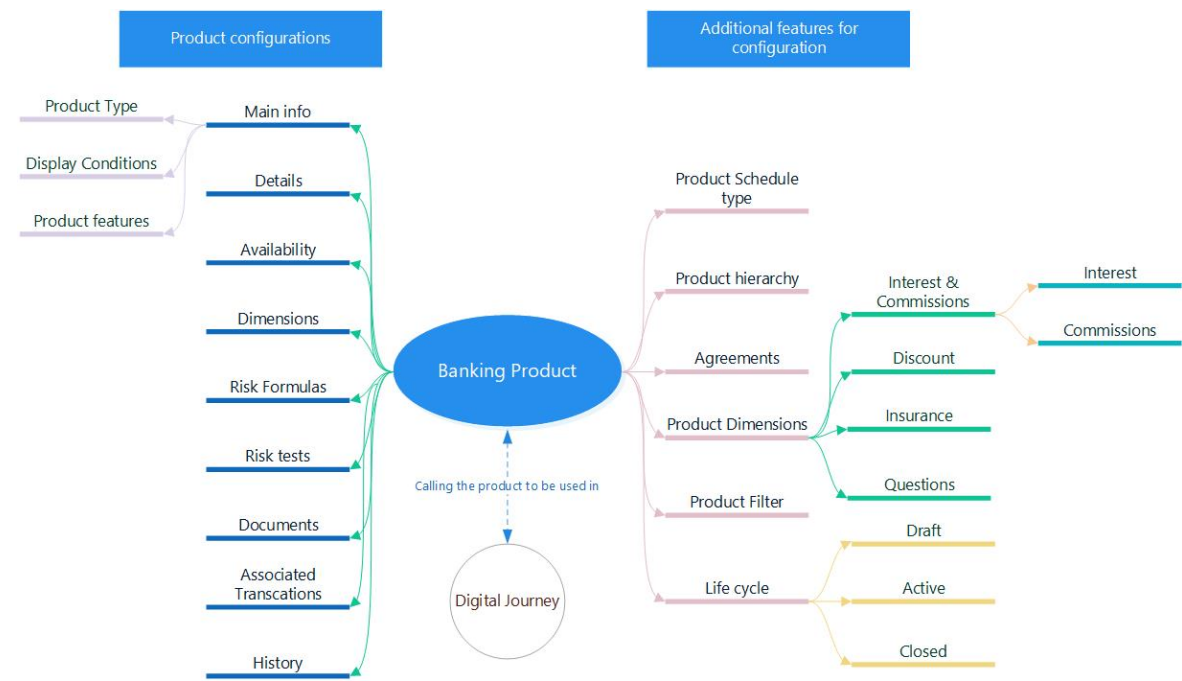
The Banking Product Factory can facilitate business processes, such as:

- Digital onboarding;
- Loan origination;
- Product portfolio management;
- Approval flows.

## Configurations

The diagram below exhibits the extensive configurations applicable when creating a complete and esthetically pleasing banking product. The documentation explains the ramifications drawn below. You can start by establishing the product configurations for an individual product or by setting up the additional features and attaching them to a product.





# Installing Banking Product Factory 3.0

## HINT

This page contains the installation steps for Banking Product Factory v3.0.

If you need to install the Banking Product Factory v**3.0.1**, follow the instructions on [this page](#).

If you need to install the Banking Product Factory v**3.0.2**, follow the instructions on [this page](#).

Follow the steps described below to perform an automatic installation of the Banking Product Factory. This is a process of running a script, the `install_SysPack.bat` file, on your environment. The script automatically imports the content of the **Banking Product Factory v3.0** into your Innovation Studio.

## IMPORTANT!

You must run the script on the machine where Innovation Studio is installed. Make sure you have access rights to Studio's database.

## Dependencies

In order to install **Banking Product Factory v3.0**, first you need to install the following:

- **Innovation Studio** minimum version **v21.2.1**
- **Standard SysPack** minimum version **v21.1.6002**.

## IMPORTANT!

If you are installing **Banking Product Factory v3.0** on top of another version of Banking Product then you must previously run a **correction package**, named

BPFixInit.zip. Find this package in the same **Banking Product Factory v3.0** archive file.

## Pre-Installation Checklist

The SysPack has unique constraints on some of the standard entities like: FTOS\_DFP\_FlowSettings, FTOS\_DFP\_ProcessorSettings, FTOS\_VersionSettings, FTOS\_VersionSettingsItem, FTOS\_EntityStatusSettings, FTOS\_MKT\_AudienceSegments, FTOS\_MKT\_Audience, and for all Banking Product entities.

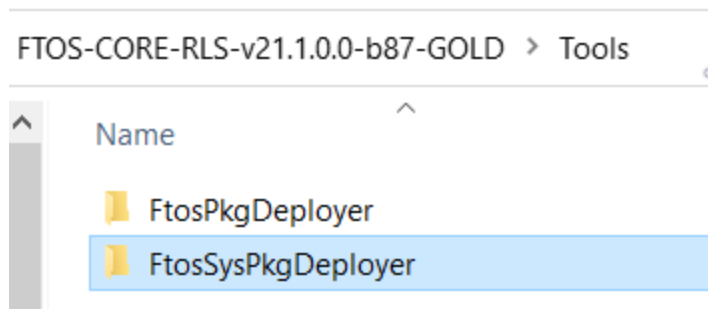
If you have already moved data using the **Configuration Data Deployment Package** menu, then you probably have already configured some unique constraints.

Before running the script, make sure you:

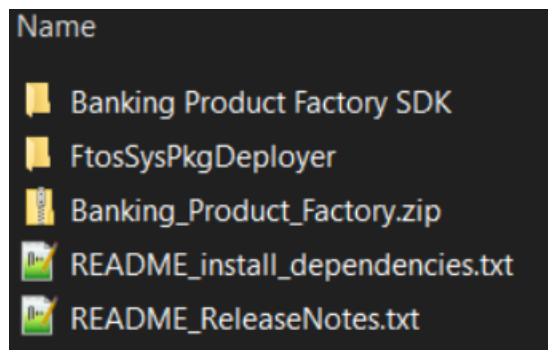
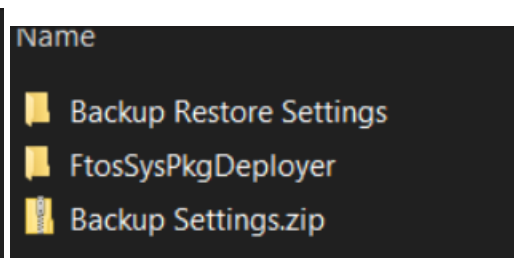
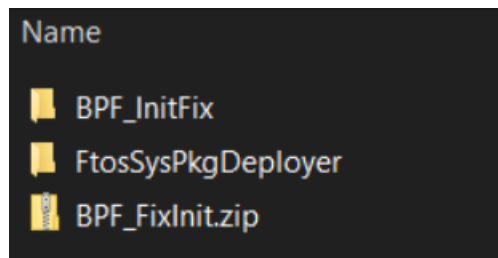
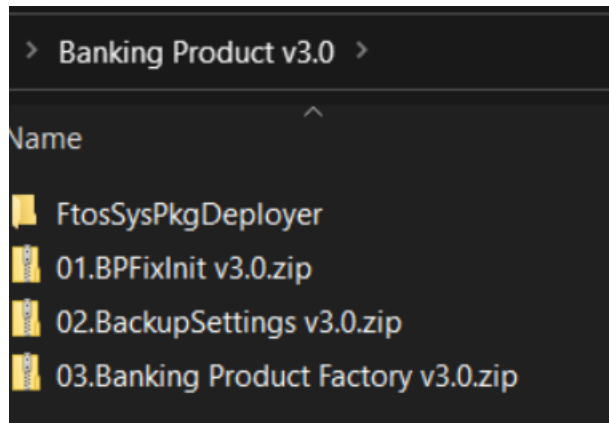
1. Disable the constraints that you have created on your environment, allowing the system to create the new ones after the Banking Product Factory v3.0 is imported.
2. Use the new **Configuration Data Definitions** imported with the Banking Product Factory v3.0 file when you export the data.

## Installation Steps

1. Unzip your Banking\_Product\_factory - v3.0.zip archive file.
2. Locate the *FtosSysPkgDeployer* folder in the FintechOS installation kit (the path is <unzipped\_install\_archive>\Tools\FtosSysPkgDeployer). You need it to install the Banking Product Factory v3.0.



3. Select and copy the *FtosSysPkgDeployer* folder.
4. Navigate to the location where you have unzipped the Banking\_Product\_factory - v3.0.zip (let's call this location *<pkg\_deployer\_dir>*), then paste the *FtosSysPkgDeployer* folder there, within each and every zip file that comes with the package.



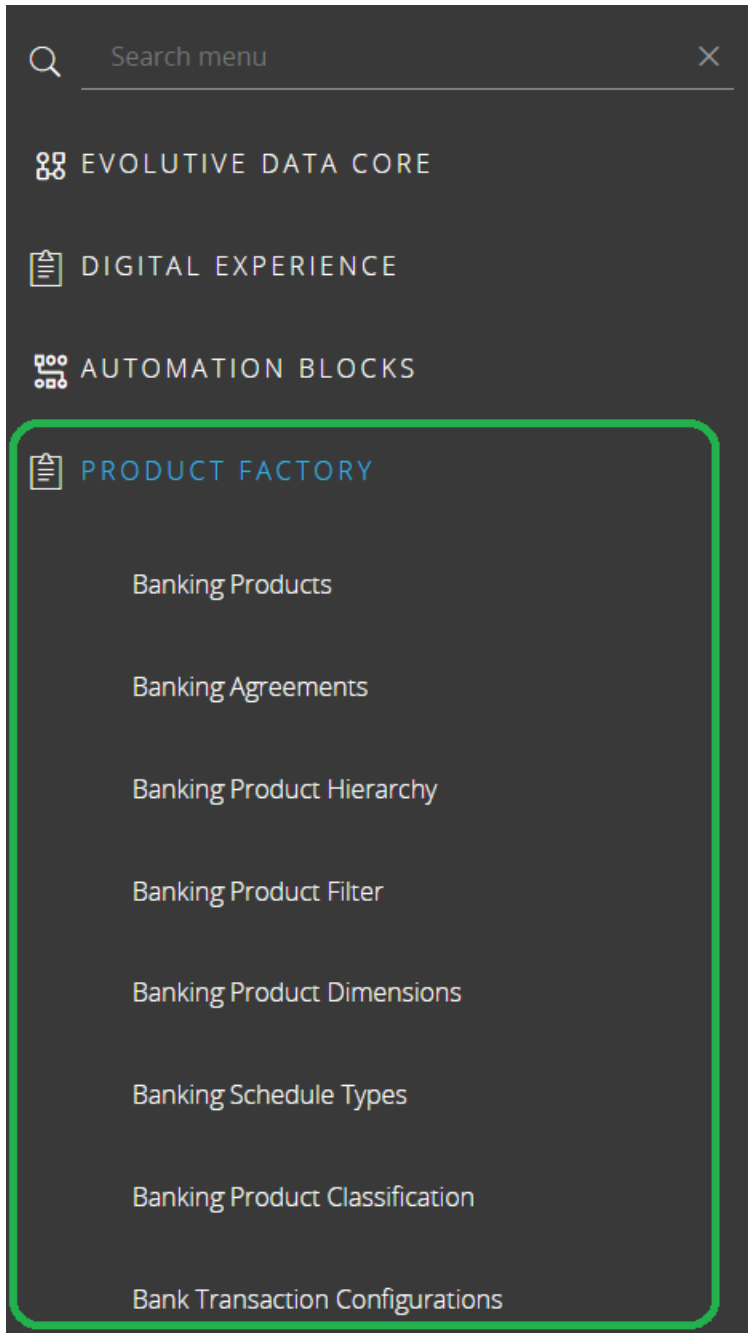
### IMPORTANT!

Each zip file within the **Banking\_Product\_factory - v3.0.zip** must be extracted and installed separately, in the given order!

5. Edit the `install_Syspack.bat` file. Replace the parameters described in the ["install\\_SysPack.bat Parameters Explanation" on page 16](#) section with your own values. Save and close the file.
6. Right-click `install_SysPack.bat` » Run as administrator.

The script starts running in your Windows console. Wait for it to finish. If your parameter values were correct, Innovation Studio has the **Banking Product** menu items visible after a refresh:





The `install_SysPack.bat` file allows you to import both the data model and the data:

**install\_SysPack.bat syntax for Data Model import**

```
FtosSysPkgDeployer.exe -i -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -z <DataBaseServer> -v <DB_user> -k <DB_user_
password> -d "<TheNameOfTheDataBase>" -r "<sypack_path>\01
DeploymentPackages\*.zip"
```

**install\_SysPack.bat syntax for Data import**

```
FtosSysPkgDeployer.exe -g -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -r "<sypack_path>\02
ConfigurationDataDeploymentPackages\*.zip"
```

**NOTE**

The syntax presented here is for information purposes only. Please run the actual `install_SysPack.bat` file.

## install\_SysPack.bat Parameters Explanation

- `<StudioLink>` - The web URL of the Innovation Studio installation, for example *http://localhost/ftos\_studio*.
- `<AdminStudioUser>` - The username of the Innovation Studio user under which this import is executed. The user has to exist in Innovation Studio prior to this operation.
- `<user_password>` - The password for the Innovation Studio user.
- `<DataBaseServer>` - The name of the database server where the FintechOS installation database was created.
- `<DB_user>` - The username of the SQL Server user with administration rights on the FintechOS installation database.
- `<DB_user_password>` - The password for the above mentioned SQL user.
- `<TheNameOfTheDataBase>` - The name of the database where the Banking Product Factory v3.0 is deployed.

- `<syspack_path>` - The physical path to the unzipped Banking Product Factory v3.0 previously downloaded.

#### HINT

For more information about the script, please run `FtosSysPackageDeployer.exe` without any arguments to see the built-in help.

#### IMPORTANT!

If you're using **SQL Server Integrated Authentication**, make sure that the Windows user used for running the script has access to the FTOS database, with read/ write rights. Run the command without the SQL username/ password parameters. If you're using **SQL Server Build In Authentication**, make sure that the SQL Server user has read/ write access to the FTOS database. Run the command with the SQL username/ password parameters.

## Installing Banking Product Factory 3.0.1

#### HINT

This page contains the installation steps for Banking Product Factory v3.0.1. If you need to install the Banking Product Factory v3.0, follow the instructions on [this page](#).

Follow the steps described below to perform an automatic installation of the Banking Product Factory. This is a process of running a script, the `install_SysPack.bat` file, on your environment. The script automatically imports the content of the **Banking Product Factory v3.0.1** into your Innovation Studio.

#### IMPORTANT!

You must run the script on the machine where Innovation Studio is installed. Make sure you have access rights to Studio's database.

## Dependencies

In order to install **Banking Product Factory v3.0.1**, first you need to install the following:

- **Innovation Studio** minimum version **v21.2.1**
- **Standard SysPack** minimum version **v21.1.6002**.

### IMPORTANT!

If you are installing **Banking Product Factory v3.0.1** on top of another version of Banking Product then you must previously run a **correction package**, named **BPFixInit.zip**. Find this package in the same **Banking Product Factory v3.0.1** archive file.

## Pre-Installation Checklist

The SysPack has unique constraints on some of the standard entities like: FTOS\_DFP\_FlowSettings, FTOS\_DFP\_ProcessorSettings, FTOS\_VersionSettings, FTOS\_VersionSettingsItem, FTOS\_EntityStatusSettings, FTOS\_MKT\_AudienceSegments, FTOS\_MKT\_Audience, and for all Banking Product entities.

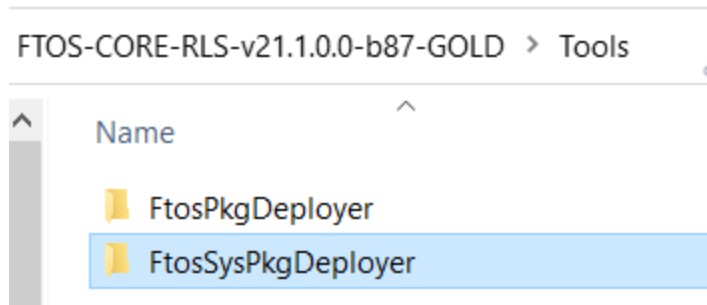
If you have already moved data using the **Configuration Data Deployment Package** menu, then you probably have already configured some unique constraints.

Before running the script, make sure you:

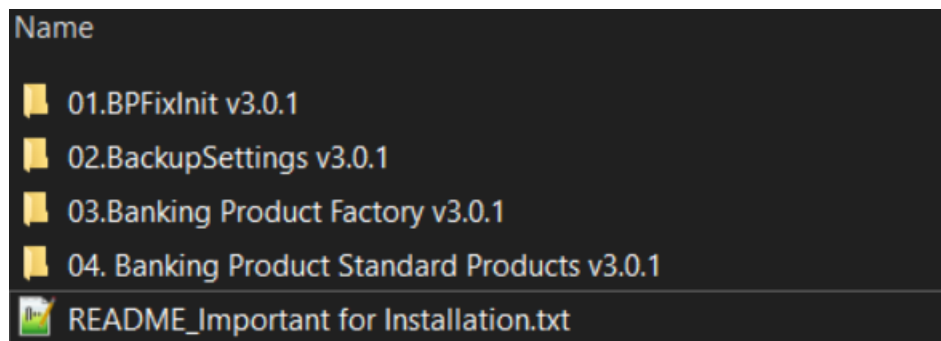
1. Disable the constraints that you have created on your environment, allowing the system to create the new ones after the Banking Product Factory v3.0.1 is imported.
2. Use the new **Configuration Data Definitions** imported with the Banking Product Factory v3.0.1 file when you export the data.

## Installation Steps

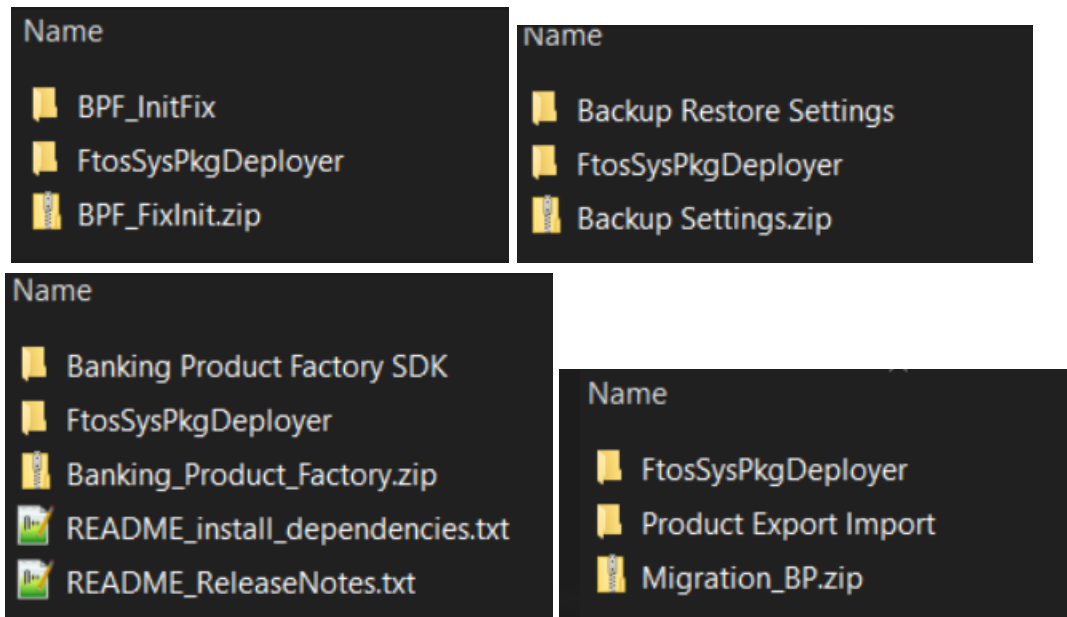
1. Unzip your Banking\_Product\_factory - v3.0.1.zip archive file.
2. Locate the *FtosSysPkgDeployer* folder in the FintechOS installation kit (the path is <unzipped\_install\_archive>\Tools\FtosSysPkgDeployer). You need it to install the Banking Product Factory v3.0.1.



3. Select and copy the *FtosSysPkgDeployer* folder.
4. Navigate to the location where you have unzipped the Banking\_Product\_factory - v3.0.1.zip (let's call this location <pkg\_deployer\_dir>), then paste the *FtosSysPkgDeployer* folder there, within each and every zip file that comes with the package.



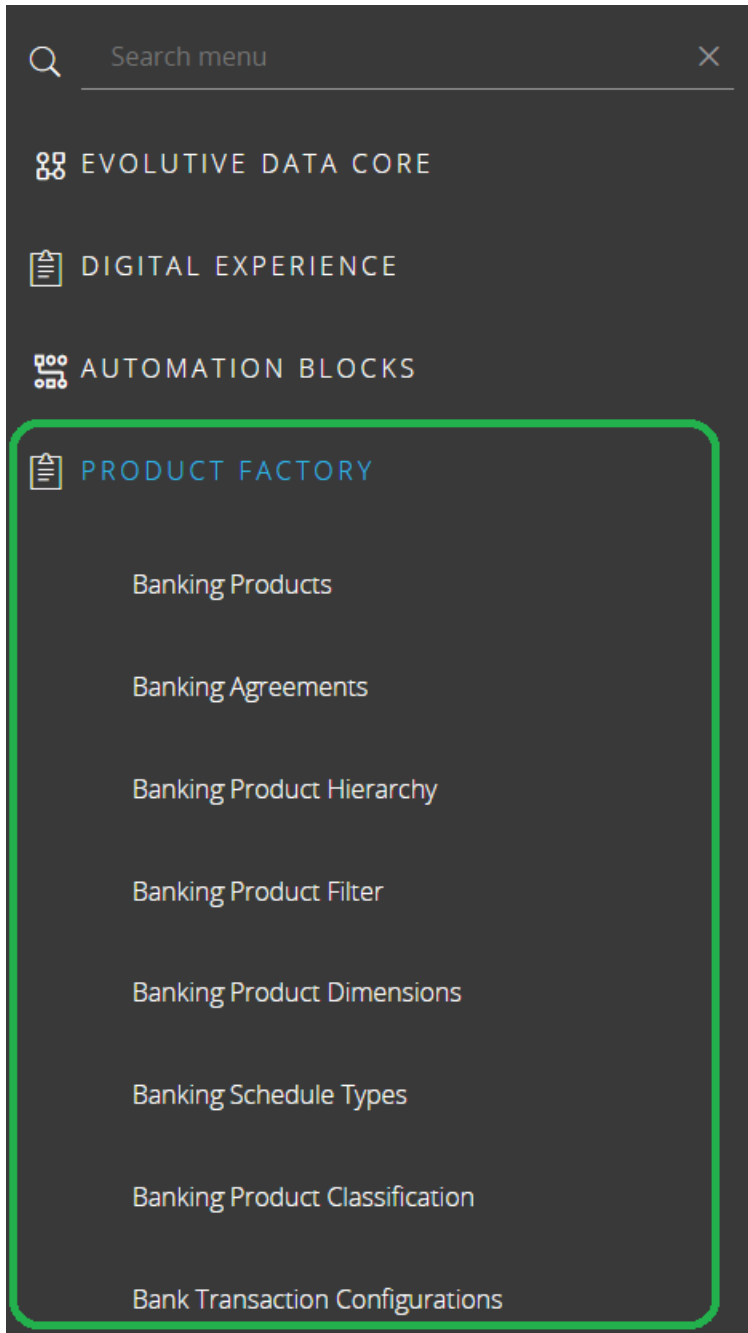


**IMPORTANT!**

Each zip file within the **Banking\_Product\_factory - v3.0.1.zip** must be extracted and installed separately, in the given order!

5. Edit the `install_Syspack.bat` file. Replace the parameters described in the "[install\\_SysPack.bat Parameters Explanation](#)" on page 22 section with your own values. Save and close the file.
6. Right-click `install_SysPack.bat` » Run as administrator.

The script starts running in your Windows console. Wait for it to finish. If your parameter values were correct, Innovation Studio has the **Banking Product** menu items visible after a refresh: .



The `install_SysPack.bat` file allows you to import both the data model and the data:

**install\_SysPack.bat syntax for Data Model import**

```
FtosSysPkgDeployer.exe -i -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -z <DataBaseServer> -v <DB_user> -k <DB_user_
password> -d "<TheNameOfTheDataBase>" -r "<sypack_path>\01
DeploymentPackages\*.zip"
```

**install\_SysPack.bat syntax for Data import**

```
FtosSysPkgDeployer.exe -g -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -r "<sypack_path>\02
ConfigurationDataDeploymentPackages\*.zip"
```

**NOTE**

The syntax presented here is for information purposes only. Please run the actual `install_SysPack.bat` file.

## install\_SysPack.bat Parameters Explanation

- `<StudioLink>` - The web URL of the Innovation Studio installation, for example *http://localhost/ftos\_studio*.
- `<AdminStudioUser>` - The username of the Innovation Studio user under which this import is executed. The user has to exist in Innovation Studio prior to this operation.
- `<user_password>` - The password for the Innovation Studio user.
- `<DataBaseServer>` - The name of the database server where the FintechOS installation database was created.
- `<DB_user>` - The username of the SQL Server user with administration rights on the FintechOS installation database.
- `<DB_user_password>` - The password for the above mentioned SQL user.
- `<TheNameOfTheDataBase>` - The name of the database where the Banking Product Factory v3.0.1 is deployed.

- `<syspack_path>` - The physical path to the unzipped Banking Product Factory v3.0.1 previously downloaded.

#### HINT

For more information about the script, please run `FtosSysPackageDeployer.exe` without any arguments to see the built-in help.

#### IMPORTANT!

If you're using **SQL Server Integrated Authentication**, make sure that the Windows user used for running the script has access to the FTOS database, with read/ write rights. Run the command without the SQL username/ password parameters. If you're using **SQL Server Build In Authentication**, make sure that the SQL Server user has read/ write access to the FTOS database. Run the command with the SQL username/ password parameters.

## Installing Banking Product Factory 3.0.2

#### HINT

This page contains the installation steps for Banking Product Factory **v3.0.2**. If you need to install the Banking Product Factory **v3.0**, follow the instructions on [this page](#).

Follow the steps described below to perform an automatic installation of the Banking Product Factory. This is a process of running a script, the `install_SysPack.bat` file, on your environment. The script automatically imports the content of the **Banking Product Factory v3.0.2** into your Innovation Studio.

#### IMPORTANT!

You must run the script on the machine where Innovation Studio is installed. Make sure you have access rights to Studio's database.

## Dependencies

In order to install **Banking Product Factory v3.0.2**, first you need to install the following:

- **Innovation Studio** minimum version **v21.2.2**
- **SySDigitalSolutionPackages v21.2.2000**.

### IMPORTANT!

If you are installing **Banking Product Factory v3.0.2** on top of another version of Banking Product then you must previously run a **correction package**, named **BPFixInit.zip**. Find this package in the same **Banking Product Factory v3.0.2** archive file.

## Pre-Installation Checklist

The SysPack has unique constraints on some of the standard entities like: FTOS\_DFP\_FlowSettings, FTOS\_DFP\_ProcessorSettings, FTOS\_VersionSettings, FTOS\_VersionSettingsItem, FTOS\_EntityStatusSettings, FTOS\_MKT\_AudienceSegments, FTOS\_MKT\_Audience, and for all Banking Product entities.

If you have already moved data using the **Configuration Data Deployment Package** menu, then you probably have already configured some unique constraints.

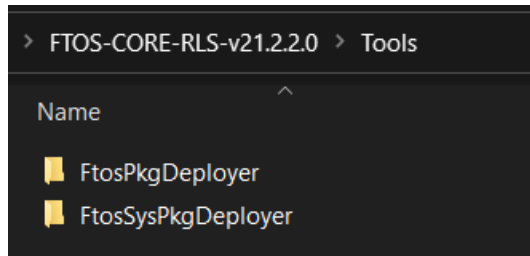
Before running the script, make sure you:

1. Disable the constraints that you have created on your environment, allowing the system to create the new ones after the Banking Product Factory v3.0.2 is imported.
2. Use the new **Configuration Data Definitions** imported with the Banking Product Factory v3.0.2 file when you export the data.

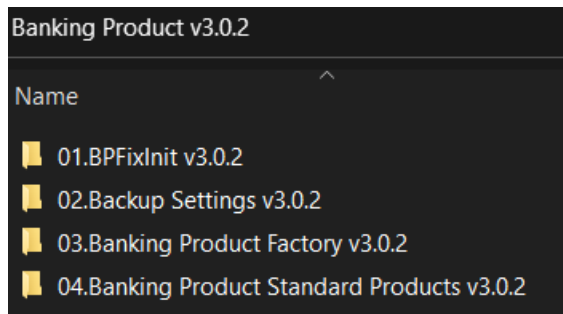


## Installation Steps

1. Unzip your `Banking_Product_factory - v3.0.2.zip` archive file.
2. Locate the `FtosSysPkgDeployer` folder in the FintechOS installation kit (the path is `<unzipped_install_archive>\Tools\FtosSysPkgDeployer`). You need it to install the Banking Product Factory v3.0.2.



3. Select and copy the `FtosSysPkgDeployer` folder.
4. Navigate to the location where you have unzipped the `Banking_Product_factory - v3.0.2.zip` (let's call this location `<pckg_deployer_dir>`), then paste the `FtosSysPkgDeployer` folder there, within each and every zip file that comes with the package.



01.BPFixInit v3.0.2	
Name	Size
BPF_InitFix	
FtosSysPkgDeployer	
BPF_FixInit.zip	2 KB

02.Backup Settings v3.0.2	
Name	Size
Backup Restore Settings	
FtosSysPkgDeployer	
Backup Settings.zip	4 KB

03.Banking Product Factory v3.0.2	
Name	Size
Banking Product Factory SDK	
FtosSysPkgDeployer	
Banking_Product_Factory.zip	339 KB

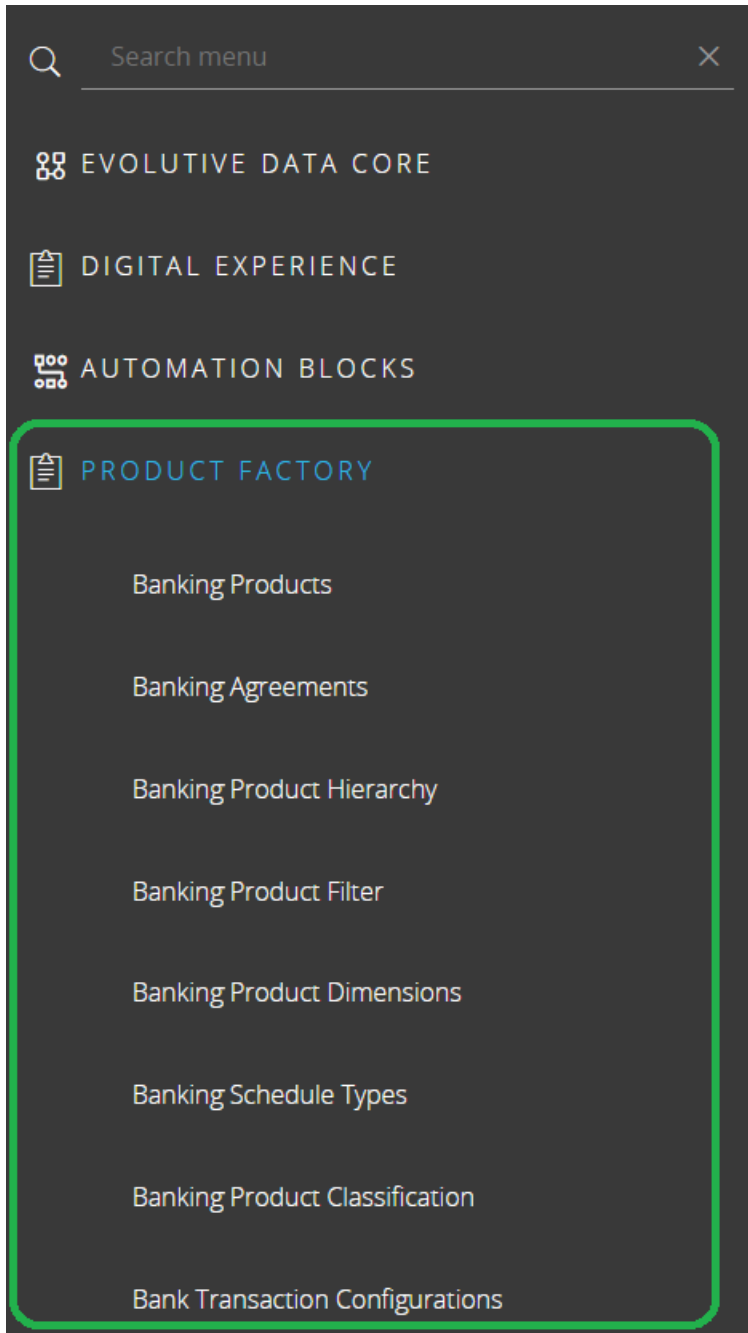
04.Banking Product Standard Products v3.0.2 >	
Name	Size
FtosSysPkgDeployer	
Product Export Import	
Migration_BP.zip	65 KB

**IMPORTANT!**

Each zip file within the **Banking\_Product\_factory - v3.0.2.zip** must be extracted and installed separately, in the given order!

5. Edit the `install_Syspack.bat` file. Replace the parameters described in the ["install\\_SysPack.bat Parameters Explanation" on page 28](#) section with your own values. Save and close the file.
6. Right-click `install_SysPack.bat` » Run as administrator.

The script starts running in your Windows console. Wait for it to finish. If your parameter values were correct, Innovation Studio has the **Banking Product** menu items visible after a refresh:



The `install_SysPack.bat` file allows you to import both the data model and the data:

**install\_SysPack.bat syntax for Data Model import**

```
FtosSysPkgDeployer.exe -i -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -z <DataBaseServer> -v <DB_user> -k <DB_user_
password> -d "<TheNameOfTheDataBase>" -r "<sypack_path>\01
DeploymentPackages\*.zip"
```

**install\_SysPack.bat syntax for Data import**

```
FtosSysPkgDeployer.exe -g -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -r "<sypack_path>\02
ConfigurationDataDeploymentPackages\*.zip"
```

**NOTE**

The syntax presented here is for information purposes only. Please run the actual `install_SysPack.bat` file.

## install\_SysPack.bat Parameters Explanation

- `<StudioLink>` - The web URL of the Innovation Studio installation, for example *http://localhost/ftos\_studio*.
- `<AdminStudioUser>` - The username of the Innovation Studio user under which this import is executed. The user has to exist in Innovation Studio prior to this operation.
- `<user_password>` - The password for the Innovation Studio user.
- `<DataBaseServer>` - The name of the database server where the FintechOS installation database was created.
- `<DB_user>` - The username of the SQL Server user with administration rights on the FintechOS installation database.
- `<DB_user_password>` - The password for the above mentioned SQL user.
- `<TheNameOfTheDataBase>` - The name of the database where the Banking Product Factory v3.0.2 is deployed.

- <syspack\_path> - The physical path to the unzipped Banking Product Factory v3.0.2 previously downloaded.

### HINT

For more information about the script, please run `FtosSysPackageDeployer.exe` without any arguments to see the built-in help.

### IMPORTANT!

If you're using **SQL Server Integrated Authentication**, make sure that the Windows user used for running the script has access to the FTOS database, with read/ write rights. Run the command without the SQL username/ password parameters.

If you're using **SQL Server Build In Authentication**, make sure that the SQL Server user has read/ write access to the FTOS database. Run the command with the SQL username/ password parameters.

# Managing Banking Products

There is a great variety of banking products and hybrid products created in order to offer the best service to a customer. Our Banking Product List offers a global view of every product created in your Core DPA Platform, allowing you to visualize and manage them. Based on viewing rights, a user has access to the existing products.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
<input type="checkbox"/>	AG_OD	Overdraft BankAccoun...					Approved	1
<input type="checkbox"/>	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	TLHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	th	th					Approved	1
<input type="checkbox"/>	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
<input type="checkbox"/>	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
<input type="checkbox"/>	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
<input type="checkbox"/>	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Actions

Due to the overwhelming number of possible products that can be created, the Core DPA Platform has buttons that help shorten the processes of creating or managing a product. Such actions aid the user to quickly streamline several processes.

In the selected banking product's page, in the top right corner, a series of buttons (depicted below in **green**) trigger different actions.

The screenshot shows the 'Main Info' tab of the Banking Product Factory interface. The top navigation bar displays the current status as 'APPROVED', the next status as 'CHOOSE STATUS -', the code as 'EMERGENCY1', the product as 'Emergency for corporate', the start date as '26/02/2021', the end date as '27/02/2021', the version as '1', and the version date as '26/02/2021 02:00'. The main form area contains several input fields: 'Product Type' (Term Loan), 'Banking Product Code' (EMERGENCY1), 'Name' (Emergency for corporate), 'Class' (Corporate), 'SubClass' (Loan Term), 'Category' (Loan Term Secured), 'SubCategory', 'Start Date' (26/02/2021), and 'End Date' (27/02/2021). A toolbar in the top right corner features five green buttons labeled 1 through 5, which correspond to the actions described in the text.

- Button 1 triggers the **duplicate product** action. Thus, a new banking product with the current product's configurations is created. Both products are usable in a digital journey. For the duplicated product, the Banking Product code and Name should be changed according to your business needs.
- Button 2 is the **Save and close** button.
- Button 3 is the **Save and reload** button.
- Button 4 opens the **Banking Product Business Workflow Transitions List**.
- Button 5 creates a **new version of the exiting product**. The new version has to be approved before you start using it. If it is not approved, then the initial version can still be used.

The following pages exhibit the possible major types of banking products.

# Bank Accounts

The basic product for any bank is an account. Below are the possible configurations for a complete account, functional in any digital journey.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

←

+ × ↓ 🔍

BANKING PRODUCTS LIST

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	🔍	🔍	🔍	🔍	🔍	🔍	🔍	
	AG_OD	Overdraft BankAccount...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

5 10 20

1 2 3 4 5 6 7 8 9

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.



## Creating Bank Accounts

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For bank accounts, select Product Type = **Bank Account**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.

Field	Required	Data Type	Details
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fixed Deposit Account</li> <li>• Term Deposit Account</li> <li>• Loan Term Account.</li> </ul>
Allow Overdraft	No	Bool	<p>Only displayed for current account type bank accounts. Select the checkbox if the current account has an overdraft functionality attached to it. Follow the information available on the <a href="#">Current Account with Overdraft</a> page.</p>
Interest is capitalized	Yes	Bool	<p>Only applicable if there is an interest rate. Select the checkbox if true.</p>
Interest payment type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Monthly</li> <li>• Maturity</li> <li>• Yearly</li> <li>• Daily</li> <li>• Quarterly.</li> </ul>

Field	Required	Data Type	Details
Auto Rollover	Yes	Bool	If the checkbox is selected, the contract is automatically prolonged. This is used mostly for deposits or any product that can undergo the extension of contract.
Allow negotiated IR	No	Bool	Select the checkbox if the interest rate is negotiable for this product.
Allow Top Ups	No	Bool	Select the checkbox if sum you can top up the sum of money.
Allow Withdrawals	No	Bool	Select the checkbox if the customer can withdraw money for this product.

**NOTE**

If you select the **Allow Top Ups** and **Allow Withdrawals** checkboxes, then the Top Up Account, Transfer between my bank accounts and Withdraw transaction types are automatically attached in the **Associated Transactions** tab.

Click the **Save and Reload** button at the top right corner of the page.

The screenshot shows the 'Details' tab of the Banking Product Factory interface. At the top is a navigation bar with tabs 1 through 10. Below the tabs, the 'General Data' section is active. It contains several configuration options:

- Bank Account Type:** A dropdown menu currently showing 'Current Account'.
- Allow Overdraft:** A checkbox that is currently unchecked.
- Interest Is Capitalized:** A checkbox that is currently unchecked.
- Interest Payment Type:** A dropdown menu currently showing 'Monthly'.
- Auto Roll Over:** A checkbox that is currently unchecked.
- Allow negotiated IR:** A checkbox that is currently unchecked.
- Allow Top Ups:** A checkbox that is checked (indicated by a checkmark icon).
- Allow Withdraws:** A checkbox that is checked (indicated by a checkmark icon).

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

The screenshot displays the 'Associated Products' section. At the top, there is a header bar with the following information: CURRENT STATUS: APPROVED, NEXT STATUS: CLOSED, CODE: CA VND, PRODUCT: Current Account VND, START DATE: 01/01/2020, END DATE: 31/03/2025, VERSION: 1, and VERSION DATE: 27/03/2020 02:00. Below the header, there is a search bar and a table of associated products. The table has a checkbox column and a Name column. The products listed are: Fixed Deposit Account VND (4 entries), Promissory Note (2 entries), and Promissory Note VND (2 entries).

Current Status	Next Status	Code	Product	Start Date	End Date	Version	Version Date
APPROVED	CLOSED	CA VND	Current Account VND	01/01/2020	31/03/2025	1	27/03/2020 02:00

Associated Products
<input type="checkbox"/> Name
<input type="text" value="q"/>
Fixed Deposit Account VND
Fixed Deposit Account VND
Fixed Deposit Account VND
Fixed Deposit Account VND
Promissory Note
Promissory Note VND
Promissory Note VND

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.



1 Main Info 2 Details 3 **Availability** 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History

**Product Availability**

Currency: EUR ↓

Period Type: Months ↓

Minimum Period: 12

Maximum Period: 120

Minimum Amount: 0

Maximum Amount: 1,000,000

Self Bank Account Associated With The Product

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 342.

Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS

Description
Account is in Persona = Customers with age between 25-35
Age >= 25 - 35
DateValue > 2020-08-17

Click the **Save and Reload** button at the top right corner of the page.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.

Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> highschool	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> higher education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.

Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = <b>Commission discount</b> or <b>Management Fee Discount</b> . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = <b>Commission discount</b> or <b>Management Fee Discount</b> . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = <b>Discount Life Insurance</b> or <b>Interest Discount</b> . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



**EDIT LOAN APPLICATION**

**Eligibility Questions**

We ask for this information so that we can carry out the checks needed to consider you for a mortgage

DEPOSIT SOURCE:

RETIREMENT DATE:

RETIRED: ☐ Yes ☒ No

[Finish](#)

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div> <b>IMPORTANT!</b>              The formula must be activated before attaching it to a product.           </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

The screenshot shows the 'Definition' tab of the 'Formula Mapping' page. It contains the following fields:

- Data Mapping Type:** Formula
- Master Entity:** FTOS\_BNKAP\_RetailApplicantData
- Operation Name:** EligibilityForApplicant
- Name:** EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

The screenshot shows the 'Input' tab of the 'Formula Mapping' page. It displays a list of input parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Input':

- Age: Age
- Citizenship: Citizenship Id
- IsInAMLRiskList: false
- IsRetail: true
- MonthsActualJob: Employ Monts
- NetIncome: netIncome

Click **Output** and configure the output for the formula.

The screenshot shows the 'Output' tab of the 'Formula Mapping' page. It displays a list of output parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Output':

- KOAge: click to map
- KONetIncome: click to map
- KOIsInAMLRiskList: click to map
- KOIsRetail: click to map
- KOMonthsActualJob: click to map
- KOCitizenship: click to map
- FinalResult: click to map

Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

**EDIT RETAIL APPLICANT DATA**

**Income & Outgoings**

We use your expected income and outgoings to work out how much we'll be able to lend and to ensure that any mortgage we may offer you is affordable.

WHAT IS YOUR ANNUAL SALARY BEFORE TAX? €

PAYING MONTHLY FOR OTHER LOANS: €

TOTAL CREDIT CARDS LIMITS: €

OTHER SPENDING: €

LIFE, HEALTH INSURANCE AND PRIVATE PENSIONS

ARE YOU MARRIED? [none]

NUMBER OF CHILDREN: 0

CHILDCARE AND EDUCATION COSTS: €

HOW MANY FINANCIAL DEPENDANTS: 0

MAINTENANCE FOR DEPENDANTS:

EDUCATION LEVEL: [none]

EMPLOYMENT STATUS: [none]

EMPLOYMENT MONTHS:

YOUR RESIDENCE IS: [none]

YOUR RENT IS:

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
0	0
0	Test value
0	Test value
0	Test value
0	100
0	100
0	22.02

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

**TEST SCENARIOS**

Save Output Data **Calculate**

Name	Key	Value
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	0
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	Test value
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	Test value
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	Test value
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	100
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	100
Corporate Loan For IT companies / 19.10.2020, 16.02.21	0	22.02

# Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

**Banking Product Document**

+ Insert X Delete Export Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

**Banking Product Agreement**

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

**Banking Product Document**

Operation Code: 113559 Banking Copies No: 2 Report: Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement  Banking Product

Code  Is Mandatory ☐

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).

## Current Accounts with Overdraft

A current account with an attached overdraft functionality allows customers to withdraw funds from the account even if the available balance goes below zero. If there is a prior agreement with the account provider for an overdraft, and the amount

overdrawn is within the authorized overdraft limit, then interest is normally charged at the agreed rate. If the negative balance exceeds the agreed terms, then additional fees may be charged and higher interest rates may apply. The customer may use the account beyond their available balance (credit balance) and may have a debit balance as low as the approved overdraft/ limit. The overdraft can be added on top of existing current accounts.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
<input type="checkbox"/>	AG_OD	Overdraft BankAccoun...					Approved	1
<input type="checkbox"/>	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	th						Approved	1
<input type="checkbox"/>	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
<input type="checkbox"/>	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
<input type="checkbox"/>	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
<input type="checkbox"/>	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Current Accounts with Overdraft

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.



Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For current accounts with overdraft functionality, select Product Type = **Bank Account**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type or product destination types.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	From the list of possible values, choose <b>Current Account</b> , otherwise you can't attach the overdraft functionality to the account.

Field	Required	Data Type	Details
Allow Overdraft	No	Bool	Only displayed for current account type bank accounts. This is where you specify that the account has an overdraft functionality attached to it, so select the checkbox. The <a href="#">Payment Schedule Types section</a> is displayed after selecting this checkbox.
Interest is capitalized	Yes	Bool	<p>Only applicable if there is an interest rate.</p> <ul style="list-style-type: none"> <li>• If the checkbox is not selected, the interest is paid in the account specified on the contract.</li> <li>• If selected, then the interest is added over the product amount, so that on the next payment date the customer receives the interest applied on both interest and product amount.</li> </ul>

Field	Required	Data Type	Details
Interest Payment Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Monthly</li> <li>• Maturity</li> <li>• Yearly</li> <li>• Daily</li> <li>• Quarterly.</li> </ul>
Auto Rollover	Yes	Bool	<p>If the checkbox is selected here at banking product level, the contract is renewed at maturity date in exactly the same conditions.</p> <p>If the checkbox remains unchecked, the contract is automatically closed at maturity date.</p>

Field	Required	Data Type	Details
Allow negotiated IR	No	Bool	<p>Select if the interest rate is negotiable for this product at the contract level.</p> <ul style="list-style-type: none"> <li>• If selected, the <b>Total Interest Rate</b> field from the banking contract is automatically completed with the value configured on the banking product, but it is editable, so that the bank can change this value and insert the negotiated one.</li> <li>• If not selected, the <b>Total Interest Rate</b> field from the banking contract is automatically completed with the value configured on the banking product, but the value is read-only and cannot be changed.</li> </ul>

Field	Required	Data Type	Details

Field	Required	Data Type	Details
Allow Top Ups	No	Bool	<p>Select if the amount can be topped up with a sum of money.</p> <ul style="list-style-type: none"> <li>If selected, the Top Up Account transaction is automatically loaded , which means that the customer is allowed to make top ups at the contract level. When a top up transaction is recorded in a contract, at the next maturity date the interest is calculated for the initial amount up until the top up date, plus the interest for the full amount (initial amount + top up amount) proportional from top up to payment</li> </ul>



Field	Required	Data Type	Details
			<p>date.</p> <ul style="list-style-type: none"><li>• If not selected, the top up transaction is not allowed at the contract level.</li></ul>

Field	Required	Data Type	Details
Allow Withdrawals	No	Bool	<p>Select if the customer can take out money for this product.</p> <ul style="list-style-type: none"> <li>• If selected, the Withdraw and Transfer between my bank accounts transactions are automatically loaded , which means that the customer is allowed to make withdrawals at the contract level.</li> <li>• If not selected, the Withdraw and Transfer between my bank accounts transactions are not loaded, thus these transaction types are not allowed at the contract level.</li> </ul>

**NOTE**

If you select the **Allow Top Ups** and **Allow Withdrawals** checkboxes, then the Top Up Account, Transfer between my bank accounts and Withdraw transaction types are automatically attached in the **Associated Transactions** tab.

Click the **Save and Reload** button at the top right corner of the page.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History

General Data

Bank Account Type

Current Account

Interest Is Capitalized

☒

Allow negotiated IR

☒

Interest Payment Type

Monthly

Allow Top Ups

☒

Allow Overdraft

☒

Auto Roll Over

☒

Allow Withdraws

☒

Payment Schedule Types

Periodicity Type

Repayment Allocation Method

Holiday Shift For Repayment Installments

☐

Holiday Shift Method

Forward

Defer Due Date

☒

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Days for Repayment	No	Whole number	Insert the number of days for which the grace period applies.

Click the **Save and Reload** button at the top right corner of the page.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Payment Schedule Types** section, you can insert or delete associated payment schedule types. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types. For example, for current accounts with overdraft functionality, select `OverdraftCurrentAccount`.

Click the **Save and Reload** button at the top right corner of the page.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.



Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The number of months after contract activation when the amount unused from the contract starts to be charged with unusage fees.

Field	Required	Data Type	Details
Expire period for Overdraft (Months)	Yes	Whole Number	The number of months after which the overdraft feature of the current account expires and the banking product starts behaving like a simple current account.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see ["Product Filter" on page 342](#).

The screenshot shows the 'Availability Rules' section with a sub-header 'PRODUCT AVAILABILITY ITEM FILTERS'. Below this are four buttons: 'Insert', 'Delete', 'Export', and 'Refresh'. A table with a 'Description' column contains three entries: 'Account is in Persona = Customers with age between 25-35', 'Age >= 25 - 35', and 'DateValue > 2020-08-17'.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions*: a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

### Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter

OptionSet

Description

Name	Display Name
<input type="checkbox"/> High school	Baccalaureat
<input type="checkbox"/> No studies / Primary school	Fără studii sau școală primară
<input type="checkbox"/> Gymnasium studies	Gymnasium studies
<input type="checkbox"/> High school	High school
<input type="checkbox"/> Higher education	Licența
<input type="checkbox"/> postgraduate	Licența universitară
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.
	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

**EDIT INSURANCE ITEM**

**INSURANCE ITEM**

Banking Product: Docs\_Test Code: 123

Item Name: Docs\_Test\_Insurance Insurance List: Test\_Insurance

Start Date: 23/01/2021 End Date: 24/01/2022

Details:

**INSURANCE ITEM FILTERS**

Insert Delete Export Refresh

Filter	Value
Description	Docs_Test == 10-65

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.

Field	Required	Data Type	Details
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.



## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

**EDIT LOAN APPLICATION**

**Eligibility Questions**

We ask for this information so that we can carry out the checks needed to consider you for a mortgage

DEPOSIT SOURCE:

RETIREMENT DATE:

RETIRED: ☐ Yes ☒ No

[Finish](#)

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div> <b>IMPORTANT!</b>              The formula must be activated before attaching it to a product.           </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

The screenshot shows the 'Definition' tab of the 'Formula Mapping' page. It contains the following fields:

- Data Mapping Type:** Formula
- Master Entity:** FTOS\_BNKAP\_RetailApplicantData
- Operation Name:** EligibilityForApplicant
- Name:** EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

The screenshot shows the 'Input' tab of the 'Formula Mapping' page. It displays a list of input parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Input':

- Age: Age
- Citizenship: Citizenship Id
- IsInAMLRiskList: false
- IsRetail: true
- MonthsActualJob: Employ Monts
- NetIncome: netIncome

Click **Output** and configure the output for the formula.

The screenshot shows the 'Output' tab of the 'Formula Mapping' page. It displays a list of output parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Output':

- KOAge: click to map
- KONetIncome: click to map
- KOIsInAMLRiskList: click to map
- KOIsRetail: click to map
- KOMonthsActualJob: click to map
- KOCitizenship: click to map
- FinalResult: click to map

Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

**EDIT RETAIL APPLICANT DATA**

**Income & Outgoings**

We use your expected income and outgoings to work out how much we'll be able to lend and to ensure that any mortgage we may offer you is affordable.

WHAT IS YOUR ANNUAL SALARY BEFORE TAX? €

PAYING MONTHLY FOR OTHER LOANS: €

TOTAL CREDIT CARDS LIMITS: €

OTHER SPENDINGS: €

LIFE, HEALTH INSURANCE AND PRIVATE PENSIONS

ARE YOU MARRIED? [none]

NUMBER OF CHILDREN: 0

CHILDCARE AND EDUCATION COSTS: €

HOW MANY FINANCIAL DEPENDANTS: 0

MAINTENANCE FOR DEPENDANTS:

EDUCATION LEVEL: [none]

EMPLOYMENT STATUS: [none]

EMPLOYMENT MONTHS:

YOUR RESIDENCE IS: [none]

YOUR RENT IS:

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
Pay	0
Salary	Test value
Income	Test value
Interest	Test value
Interest	100
Age	100
Net Income	22.42

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

**EDIT TEST SCENARIO**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

## Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info
2 Details
3 Availability
4 Dimensions
5 Risk Formulas
6 Test Risk Formulas
7 **Documents**
8 Associated Transactions
9 History

---

**Banking Product Document**

+ Insert
X Delete
Export
Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

---

**Banking Product Agreement**

+ Insert
X Delete
Export
Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

ADD BANKING PRODUCT DOCUMENT

---

**Banking Product Document**

Operation Code  
113559
Banking Copies No  
2
Report  
Document Type  
Credit Application

Is Mandatory  
Yes No
Includes Debtor  
Yes No
Includes Coborrower  
Yes No
Requires Signature  
Yes No

Is Accord  
Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement  Banking Product

Code  Is Mandatory ☐

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).

# Cards

A card is a payment card issued by a bank. Cards let customers access funds in checking or savings accounts or make purchases.

To manage banking products:

- 1. Log into Innovation Studio in Developer mode.
- 2. Click the main menu icon at the top left corner.
- 3. In the main menu, click **Product Factory**.
- 4. Click **Banking Products** to open the **Banking Products List** page.

←

+

×

↓

🔍

BANKING PRODUCTS LIST

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	🔍	🔍	🔍	🔍	🔍	🔍	🔍	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OLVND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

51020

123456789

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Cards

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:



Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For cards, select Product Type = **Card**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.

Field	Details
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fix Deposit Account</li> <li>• Term Deposit Account</li> <li>• Loan Term Account.</li> </ul>

Field	Required	Data Type	Details
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div> <p><b>NOTE</b></p> <p>The <b>Collateral Cover Percent</b> field appears when you select this checkbox.</p> </div>
Activation Tranches On Document Submission	No	Bool	Tranches to be granted after certain documents are submitted.
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.

Field	Required	Data Type	Details
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Maximum Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.
Interest Is Capitalized	No	Bool	Only applicable if there is an interest rate. Select if true.
Interest Payment Type	No	Option Set	<p>Select the regularity of interest payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole interest amount is paid at maturity)</li> <li>• Monthly</li> <li>• Trimester</li> <li>• Semestrial</li> <li>• Annual.</li> </ul>
Auto Rollover	No	Bool	<p>If the checkbox is selected, the contract is renewed at maturity date in exactly the same conditions.</p> <p>If it remains unchecked, the contract is automatically closed at maturity date. The field is used mostly for deposits or any product that can undergo the extension of contract.</p>
Allow Negotiated IR	No	Bool	Select if for this product the interest rate is negotiable.
Allow Top Ups	No	Bool	Select if the amount can be topped up with a sum of money.
Allow Withdrawals	No	Bool	Select if the customer can take out money for this product.

Click the **Save and Reload** button at the top right corner of the page.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History10 GL Settings

General Data

Bank Account Type

Current Account

Is Revolving

Allow Overdraft

Auto Disbursement

Max No Disbursements

Is Guaranteed

Allow Collateral Partial Release

Allow CoDebtor

Allow Refinancing

Max No. Of CoDebtors

Interest Is Capitalized

Interest Payment Type

Monthly

Auto Roll Over

Allow negotiated IR

Allow Top Ups

Allow Withdraws

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>



Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Payment Schedule Types** section, you can insert or delete associated payment schedule types. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types.

Click the **Save and Reload** button at the top right corner of the page.

In the **Disbursement Matrix** section, create or insert existing disbursement tranches, configured to fit the product. Usually used for corporate loans, such dividend payments or cash outflows are not done in equal amounts and usually trigger a recalculation in terms of interest. Add multiple such disbursements by clicking the **Insert** button. You can add:

- Name.
- Tranche Percent (%): the percentage of the final amount that goes towards the disbursement.
- Start Month From Activation: the start month for the disbursement. It can be any month in the loan availability period.
- Interest Percent (%): the interest percent for that particular disbursement.
- Unusage Commission Percent (%): a commission paid for the loan amount unused.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

The screenshot shows the 'Associated Products' section of the Banking Product Factory interface. The top navigation bar contains the following information:

- CURRENT STATUS:** APPROVED
- NEXT STATUS:** CLOSED
- CODE:** CA VND
- PRODUCT:** Current Account VND
- START DATE:** 01/01/2020
- END DATE:** 31/03/2025
- VERSION:** 1
- VERSION DATE:** 27/03/2020 02:00

Below the navigation bar, the 'Associated Products' section is visible. It includes a search bar with a magnifying glass icon and a list of products. The list contains the following items:

- Fixed Deposit Account VND
- Fixed Deposit Account VND
- Fixed Deposit Account VND
- Fixed Deposit Account VND
- Promissory Note
- Promissory Note VND
- Promissory Note VND

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

1 Main Info 2 Details 3 **Availability** 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History

**Product Availability**

Currency: EUR ↓

Period Type: Months ↓

Minimum Period: 12

Maximum Period: 120

Minimum Amount: 0

Maximum Amount: 1,000,000

Self Bank Account Associated With The Product

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.

Field	Required	Data Type	Details
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 342.

Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS

<input type="checkbox"/>	Description
<input type="checkbox"/>	Account is in Persona = Customers with age between 25-35
<input type="checkbox"/>	Age <= 25 - 35
<input type="checkbox"/>	DateValue = 2020-08-17

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions*: a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.

Field	Required	Data Type	Details
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.



**EDIT INTEREST & COMMISSION ITEM FILTER**

**INTEREST & COMMISSION ITEM FILTER**

Filter:

OptionSet:

Description:

Name	Display Name
<input type="checkbox"/> High school	Baccalaureat
<input type="checkbox"/> No studies / Primary school	Fără studii sau școală primară
<input type="checkbox"/> Gymnasium studies	Gymnasium studies
<input type="checkbox"/> High school	High school
<input type="checkbox"/> Higher education	Licența universitară
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.

Field	Required	Data Type	Details
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

**EDIT LOAN APPLICATION**

**Eligibility Questions**

We ask for this information so that we can carry out the checks needed to consider you for a mortgage

DEPOSIT SOURCE:

RETIREMENT DATE:

RETIRED: ☐ Yes ☒ No

[Finish](#)

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div> <b>IMPORTANT!</b>              The formula must be activated before attaching it to a product.           </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

**1 Definition** **2 Input** **3 Output**

**FORMULA PARAMETER MAPPING**

Data Mapping Type: Formula

Master Entity: FTOS\_BNKAP\_RetailApplicantData

Operation Name: EligibilityForApplicant

Name: EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

**1 Definition** **2 Input** **3 Output**

**FTOS\_BNKAP\_RetailApplicantData - Input**

- Age: Age
- Citizenship: Citizenship Id
- IsInAMLRiskList: false
- IsRetail: true
- MonthsActualJob: Employ Monts
- NetIncome: netIncome

Click **Output** and configure the output for the formula.

**1 Definition** **2 Input** **3 Output**

**FTOS\_BNKAP\_RetailApplicantData - Output**

- KOAge: click to map
- KOIncome: click to map
- KOIsInAMLRiskList: click to map
- KOIsRetail: click to map
- KOMonthsActualJob: click to map
- KOCitizenship: click to map
- FinalResult: click to map

Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

**EDIT RETAIL APPLICANT DATA**

**Income & Outgoings**

We use your expected income and outgoings to work out how much we'll be able to lend and to ensure that any mortgage we may offer you is affordable.

WHAT IS YOUR ANNUAL SALARY BEFORE TAX? €

PAYING MONTHLY FOR OTHER LOANS €

TOTAL CREDIT CARDS LIMITS €

OTHER SPENDINGS €

LIFE, HEALTH INSURANCE AND PRIVATE PENSIONS

ARE YOU MARRIED? [none]

NUMBER OF CHILDREN: - 0 +

CHILDCARE AND EDUCATION COSTS: €

HOW MANY FINANCIAL DEPENDANTS: - 0 +

MAINTENANCE FOR DEPENDANTS:

EDUCATION LEVEL: [none]

EMPLOYMENT STATUS: [none]

EMPLOYMENT MONTHS:

YOUR RESIDENCE IS: [none]

YOUR RENT IS:

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Test Scenario Type	Formula type 1
Pay	0
Disability	Test value
HealthInsurance	Test value
Interest	Test value
InterestOnCapital	100
Age	100
NetIncome	22.42

☐ Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Name	Value
0	

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

**TEST SCENARIOS**

Name	Value
0	
Corporate Loan For IT companies / 19/10/2020, 16/06/21	
Corporate Loan For IT companies / 19/10/2020, 16/06/21	
Corporate Loan For IT companies / 19/10/2020, 16/06/21	



# Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

**Banking Product Document**

+ Insert X Delete Export Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

**Banking Product Agreement**

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

**Banking Product Document**

Operation Code: 113559 Banking Copies No: 2 Report: Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement  Banking Product

Code  Is Mandatory ☐

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).

# Credit Cards

A credit card allows the customer to make purchases without bringing out any amount of cash. Instead, the customer borrows funds from the issuing bank, to make purchases.

To manage banking products:

- 1. Log into Innovation Studio in Developer mode.
- 2. Click the main menu icon at the top left corner.
- 3. In the main menu, click **Product Factory**.
- 4. Click **Banking Products** to open the **Banking Products List** page.

←

+

×

↓

🔍

BANKING PRODUCTS LIST

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	🔍	🔍	🔍	🔍	🔍	🔍	🔍	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate -4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate -5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHf	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

51020

123456789

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Credit Cards

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. [Main Info](#) - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. [Details](#) - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. [Availability](#) - This tab determines the monetary range and the time frame when the product is available for customers.
4. [Dimensions](#) - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. [Risk Formulas](#) - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. [Test Risk Formulas](#) - Use this tab to test the formula attached above before displaying it in a digital journey.
7. [Documents](#) - This tab contains all the attached documents available for a product.
8. [History](#) - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For credit cards, select Product Type = **CreditCards**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.

Field	Required	Data Type	Details
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.



For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	Choose one from the following: <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fixed Deposit Account</li> <li>• Term Deposit Account</li> <li>• <b>Loan Term Account.</b></li> </ul>
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>
Capital Percent (%)	No	Numeric	Enter the percent of capital that must be paid back on the selected periodicity type basis.

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Payment Schedule Types** section, you can insert or create a payment schedule for the leasing product. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types. Go to ["Payment Schedule Types" on page 353](#) to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

CURRENT STATUS: APPROVED    NEXT STATUS: CLOSED    CODE: CA VND    PRODUCT: Current Account VND    START DATE: 01/01/2020    END DATE: 31/03/2025    VERSION: 1    VERSION DATE: 27/03/2020 02:00

**Associated Products**

☐ Name  
 Search:

Fixed Deposit Account VND
Fixed Deposit Account VND
Fixed Deposit Account VND
Fixed Deposit Account VND
Promissory Note
Promissory Note VND
Promissory Note VND

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see ["Product Filter" on page 342](#).

Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS

Description
Account is in Persona = Customers with age between 25-35
Age >= 25 - 35
DateValue > 2020-08-17

Click the **Save and Reload** button at the top right corner of the page.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.



Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> highschool	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> higher education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.

Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = <b>Commission discount</b> or <b>Management Fee Discount</b> . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = <b>Commission discount</b> or <b>Management Fee Discount</b> . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = <b>Discount Life Insurance</b> or <b>Interest Discount</b> . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"><li>• text</li><li>• numeric</li><li>• option set.</li></ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

**EDIT LOAN APPLICATION**

**Eligibility Questions**

We ask for this information so that we can carry out the checks needed to consider you for a mortgage

DEPOSIT SOURCE:

RETIREMENT DATE:

RETIRED: ☐ Yes ☒ No

**Finish**

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div> <b>IMPORTANT!</b>              The formula must be activated before attaching it to a product.           </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

**1 Definition** **2 Input** **3 Output**

**FORMULA PARAMETER MAPPING**

Data Mapping Type: Formula

Master Entity: FTOS\_BNKAP\_RetailApplicantData

Operation Name: EligibilityForApplicant

Name: EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

**1 Definition** **2 Input** **3 Output**

**FTOS\_BNKAP\_RetailApplicantData - Input**

- Age: Age
- Citizenship: Citizenship Id
- IsInAMLRiskList: false
- IsRetail: true
- MonthsActualJob: Employ Monts
- NetIncome: netIncome

Click **Output** and configure the output for the formula.

**1 Definition** **2 Input** **3 Output**

**FTOS\_BNKAP\_RetailApplicantData - Output**

- KOAge: click to map
- KOIncome: click to map
- KOIsInAMLRiskList: click to map
- KOIsRetail: click to map
- KOMonthsActualJob: click to map
- KOCitizenship: click to map
- FinalResult: click to map

Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



**EDIT RETAIL APPLICANT DATA**

**Income & Outgoings**

We use your expected income and outgoings to work out how much we'll be able to lend and to ensure that any mortgage we may offer you is affordable.

WHAT IS YOUR ANNUAL SALARY BEFORE TAX? €

PAYING MONTHLY FOR OTHER LOANS: €

TOTAL CREDIT CARDS LIMITS: €

OTHER SPENDINGS: €

LIFE, HEALTH INSURANCE AND PRIVATE PENSIONS

ARE YOU MARRIED? [none]

NUMBER OF CHILDREN: 0

CHILDCARE AND EDUCATION COSTS: €

HOW MANY FINANCIAL DEPENDANTS: 0

MAINTENANCE FOR DEPENDANTS:

EDUCATION LEVEL: [none]

EMPLOYMENT STATUS: [none]

EMPLOYMENT MONTHS:

YOUR RESIDENCE IS: [none]

YOUR RENT IS:

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
0	0
0	Test value
0	Test value
0	Test value
0	100
0	100
0	22.02

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
0	0
0	Test value
0	Test value
0	Test value
0	100
0	100
0	22.02

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

## Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

**Banking Product Document**

+ Insert X Delete Export Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

**Banking Product Agreement**

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

**Banking Product Document**

Operation Code: 113559 Banking Copies No: 2 Report: Credit Application Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement  Banking Product

Code  Is Mandatory ☐

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).

# Deposits

A deposit account is a bank account maintained by a financial institution in which a customer can deposit and withdraw money. Deposit accounts can be current accounts/ transactional accounts, savings accounts, deposit collateral accounts or term deposits accounts.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

BANKING PRODUCTS LIST							
<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status
	AG_OD	Overdraft BankAccoun...					Approved
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved
	th	th					Approved
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Deposits

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determine the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - The last tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For deposits, select Product Type = **Deposit**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.



Field	Details
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type or product destination types.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fix Deposit Account</li> <li>• Term Deposit Account</li> <li>• Loan Term Account.</li> </ul> <p>Each bank account type have different configuration and behavior, but these won't be impacted by the values selected in the bank account type list. This information is useful in grouping the bank accounts and for Operational Ledger records. The products that have the <b>Product Type</b> field set to <b>Fix Deposit Account</b> can be registered in the collateral register in order to become a guarantee for a secured loan banking product.</p>
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.

Field	Required	Data Type	Details
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div> <p><b>NOTE</b></p> <p>The <b>Collateral Cover Percent</b> field appears when you select this checkbox.</p> </div>
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Maximum Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

Field	Required	Data Type	Details
Interest Is Capitalized	No	Bool	<p>Only applicable if there is an interest rate.</p> <ul style="list-style-type: none"> <li>• If the checkbox is not selected, the interest is paid in the account specified on the contract.</li> <li>• If selected, then the interest is added over the product amount, so that on the next payment date the customer receives the interest applied on both interest and product amount.</li> </ul>
Interest Payment Type	No	Option Set	<p>Select the regularity of interest payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole interest amount is paid at maturity)</li> <li>• Monthly</li> <li>• Trimester</li> <li>• Semestrial</li> <li>• Annual.</li> </ul>

Field	Required	Data Type	Details
Auto Rollover	No	Bool	<p>If the checkbox is selected, the contract is renewed at maturity date in exactly the same conditions.</p> <p>If it remains unchecked, the contract is automatically closed at maturity date. The field is used mostly for deposits or any product that can undergo the extension of contract.</p>

Field	Required	Data Type	Details
Allow Negotiated IR	No	Bool	<p>Select if the interest rate is negotiable for this product at the contract level.</p> <ul style="list-style-type: none"> <li>• If selected, the Total Interest Rate field from the banking contract is automatically completed with the value configured on the banking product, but it is editable, so that the bank can change this value and insert the negotiated one.</li> <li>• If not selected, the Total Interest Rate field from the banking contract is automatically completed with the value configured on the banking product, but the value is read-only and cannot be changed.</li> </ul>

Field	Required	Data Type	Details
Allow Top Ups	No	Bool	<p>Select if the amount can be topped up with a sum of money.</p> <ul style="list-style-type: none"> <li>If selected, the Top Up Account transaction is automatically loaded , which means that the customer is allowed to make top ups at the contract level. When a top up transaction is recorded in a contract, at the next maturity date the customer receives the interest for the initial amount up until the top up date, plus the interest for the full amount (initial amount + top up amount) proportional from top up to payment date.</li> <li>If not selected, the</li> </ul>

Field	Required	Data Type	Details
			top up transaction is not allowed at the contract level.



Field	Required	Data Type	Details
Allow Withdrawals	No	Bool	<p>Select if the customer can take out money for this product.</p> <ul style="list-style-type: none"> <li>• If selected, the Withdraw and Transfer between my bank accounts transactions are automatically loaded , which means that the customer is allowed to make withdrawals at the contract level.</li> <li>• If not selected, the Withdraw and Transfer between my bank accounts transactions are not loaded, thus these transaction types are not allowed at the contract level. In order to have access to the funds before maturity date, the customer has to</li> </ul>

Field	Required	Data Type	Details
			liquidate the deposit.  In this case the  interest is not paid.

Click the **Save and Reload** button at the top right corner of the page.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History10 GL Settings

General Data

Bank Account Type

Term Deposit Account

Is Revolving

☐

Auto Disbursement

☒

Max No Disbursements

Is Guaranteed

☐

Allow Collateral Partial Release

☐

Allow CoDebtor

☐

Allow Refinancing

☐

Max No. Of CoDebtors

Interest Is Capitalized

☒

Interest Payment Type

Monthly

Auto Roll Over

☒

Allow negotiated IR

☐

Allow Top Ups

☐

Allow Withdraws

☐

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>

Field	Required	Data Type	Details
Grace Type	No	Option set	<p>If you wish to grant a grace period for the product, select the applicable type of grace from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Insert the number of days for which the grace period applies.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Payment Schedule Types** section, you can insert or delete associated payment schedule types. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types.

Click the **Save and Reload** button at the top right corner of the page.

In the **Disbursement Matrix** section, create or insert existing disbursement tranches, configured to fit the product. Usually used for corporate loans, such dividend payments or cash outflows are not done in equal amounts and usually trigger a recalculation in terms of interest. Add multiple such disbursements by clicking the **Insert** button. You can add:

- Name.
- Tranche Percent (%): the percentage of the final amount that goes towards the disbursement.
- Start Month From Activation: the start month for the disbursement. It can be any month in the loan availability period.
- Interest Percent (%): the interest percent for that particular disbursement.

- Unusage Commission Percent (%): a commission paid for the loan amount unused.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

The screenshot displays the 'Associated Products' section of the Banking Product Factory interface. At the top, there is a navigation bar with a back arrow, 'CURRENT STATUS: APPROVED', 'NEXT STATUS: CLOSED', and a table of product details. The table includes columns for CODE, PRODUCT, START DATE, END DATE, VERSION, and VERSION DATE. Below this, the 'Associated Products' section features a search bar and a list of products. The list includes 'Fixed Deposit Account VND' (repeated four times), 'Promissory Note', 'Promissory Note VND', and 'Promissory Note VND'.

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

1 Main Info 2 Details 3 **Availability** 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History

**Product Availability**

Currency: EUR ↓

Period Type: Months ↓

Minimum Period: 12

Maximum Period: 120

Minimum Amount: 0

Maximum Amount: 1,000,000

Self Bank Account Associated With The Product

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.



Field	Required	Data Type	Details
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see ["Product Filter" on page 342](#).

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender possesses the right to prevent merges or acquisitions*: a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.

Field	Required	Data Type	Details
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

**EDIT INTEREST & COMMISSION ITEM FILTER**

**INTEREST & COMMISSION ITEM FILTER**

Filter:

OptionSet:

Description:

Name	Display Name
<input type="checkbox"/> High school	Baccalaureat
<input type="checkbox"/> No studies / Primary school	Fără studii sau școală primară
<input type="checkbox"/> Gymnasium studies	Gymnasium studies
<input type="checkbox"/> High school	High school
<input type="checkbox"/> Higher education	Licența universitară
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.

Field	Required	Data Type	Details
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



← CURRENT STATUS INITIALIZED → NEXT STATUS CHOOSE STATUS →

EDIT LOAN APPLICATION

### Eligibility Questions

We ask for this information so that we can carry out the checks needed to consider you for a mortgage

DEPOSIT SOURCE

RETIREMENT DATE

RETIRED ☐ Yes ☒ No

Finish

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div> <b>IMPORTANT!</b>              The formula must be activated before attaching it to a product.           </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

The screenshot shows the 'Definition' tab of the 'Formula Mapping' page. It contains the following fields:

- Data Mapping Type:** Formula
- Master Entity:** FTOS\_BNKAP\_RetailApplicantData
- Operation Name:** EligibilityForApplicant
- Name:** EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

The screenshot shows the 'Input' tab of the 'Formula Mapping' page. It displays a list of input parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Input':

- Age: Age
- Citizenship: Citizenship Id
- IsInAMLRiskList: false
- IsRetail: true
- MonthsActualJob: Employ Monts
- NetIncome: netIncome

Click **Output** and configure the output for the formula.

The screenshot shows the 'Output' tab of the 'Formula Mapping' page. It displays a list of output parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Output':

- KOAge: click to map
- KONetIncome: click to map
- KOIsInAMLRiskList: click to map
- KOIsRetail: click to map
- KOMonthsActualJob: click to map
- KOCitizenship: click to map
- FinalResult: click to map

Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

**EDIT RETAIL APPLICANT DATA**

**Income & Outgoings**

We use your expected income and outgoings to work out how much we'll be able to lend and to ensure that any mortgage we may offer you is affordable.

WHAT IS YOUR ANNUAL SALARY BEFORE TAX? €

PAYING MONTHLY FOR OTHER LOANS: €

TOTAL CREDIT CARDS LIMITS: €

OTHER SPENDINGS: €

LIFE, HEALTH INSURANCE AND PRIVATE PENSIONS

ARE YOU MARRIED? [none]

NUMBER OF CHILDREN: 0

CHILDCARE AND EDUCATION COSTS: €

HOW MANY FINANCIAL DEPENDANTS: 0

MAINTENANCE FOR DEPENDANTS:

EDUCATION LEVEL: [none]

EMPLOYMENT STATUS: [none]

EMPLOYMENT MONTHS:

YOUR RESIDENCE IS: [none]

YOUR RENT IS:

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
Pay	0
Salary	Test value
Expenses	Test value
Interest	Test value
Interest	100
Age	100
Net Income	22.42

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

**EDIT TEST SCENARIO**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

Name	Value
Corporate Loan	1000000.00
Corporate Loan	1000000.00
Corporate Loan	1000000.00

## Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

**Banking Product Document**

+ Insert X Delete Export Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

**Banking Product Agreement**

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

**Banking Product Document**

Operation Code: 113559 Banking Copies No: 2 Report: Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement  Banking Product

Code  Is Mandatory ☐

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).

# Leasings

A lease is a written agreement specifying the conditions under which a lessor accepts to let out a property to be used by a lessee. The agreement promises the lessee use of the property for an agreed length of time while the owner is assured consistent payment over the agreed period.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

BANKING PRODUCTS LIST							
<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status
	AG_OD	Overdraft BankAccoun...					Approved
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved
	th	th					Approved
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Leasings

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.



Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For leasings, select Product Type = **Leasing**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.

Field	Details
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div> <p><b>NOTE</b></p> <p>The <b>Collateral Cover Percent</b> field appears when you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Maximum Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.
Interest Is Capitalized	No	Bool	Only applicable if there is an interest rate. Select if true.
Interest Payment Type	No	Option Set	<p>Select the regularity of interest payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole interest amount is paid at maturity)</li> <li>• Monthly</li> <li>• Trimester</li> <li>• Semestrial</li> <li>• Annual.</li> </ul>

Field	Required	Data Type	Details
Auto Rollover	No	Bool	If the checkbox is selected, the contract is renewed at maturity date in exactly the same conditions. If it remains unchecked, the contract is automatically closed at maturity date. The field is used mostly for deposits or any product that can undergo the extension of contract.
Allow Negotiated IR	No	Bool	Select if for this product the interest rate is negotiable.
Allow Top Ups	No	Bool	Select if the amount can be topped up with a sum of money.
Allow Withdrawals	No	Bool	Select if the customer can take out money for this product.

1 Main Info	2 Details	3 Availability	4 Dimensions	5 Risk Formulas	6 Test Risk Formulas	7 Documents	8 Associated Transactions	9 History	10 GL Settings
-------------	-----------	----------------	--------------	-----------------	----------------------	-------------	---------------------------	-----------	----------------

## General Data

Is Guaranteed  
☒Allow Collateral Partial Release  
☐Collateral Cover Percent  
50Allow CoDebtor  
☐Allow Refinancing  
☒

Max No. Of CoDebtors

Interest Is Capitalized  
☐Interest Payment Type  
MonthlyAuto Roll Over  
☐Allow negotiated IR  
☒Allow Top Ups  
☐Allow Withdraws  
☐

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>



Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Payment Schedule Types** section, you can insert or create a payment schedule for the leasing product. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types. Go to ["Payment Schedule Types" on page 353](#) to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Guarantees** section, presented if the **Is Guaranteed** checkbox was selected earlier, you can insert or delete guarantees. To insert a guarantee, click the **Insert Existing** button and select one of the following:

- Cash collateral
- Real estate.

To insert a new guarantee, click **Insert** and fill in the name, code and select the guarantee type.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

CODE	PRODUCT	START DATE	END DATE	VERSION	VERSION DATE
CA VND	Current Account VND	01/01/2020	31/03/2025	1	27/03/2020 02:00

### Associated Products

<input type="checkbox"/>	Name
<input type="checkbox"/>	Fixed Deposit Account VND
<input type="checkbox"/>	Fixed Deposit Account VND
<input type="checkbox"/>	Fixed Deposit Account VND
<input type="checkbox"/>	Fixed Deposit Account VND
<input type="checkbox"/>	Promissory Note
<input type="checkbox"/>	Promissory Note VND
<input type="checkbox"/>	Promissory Note VND

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

CODE	PRODUCT	START DATE	END DATE	VERSION	VERSION DATE
2345	Overdraft And	01/01/2020	15/09/2025	1	19/10/2020 06:00

### Product Availability

Currency	Period Type
RON	Months
Minimum Period	Maximum Period
12	67
Minimum Amount	Maximum Amount
456,789	1,234,567

### Self Bank Account Associated With The Product

Self Bank Account For Transactions
RO97RNCB4567894567856

### Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS
<input type="checkbox"/> Insert <input type="checkbox"/> Delete <input type="checkbox"/> Export <input type="checkbox"/> Refresh
<input type="checkbox"/> Description
FormOfBusiness IN S.A.,S.R.L.

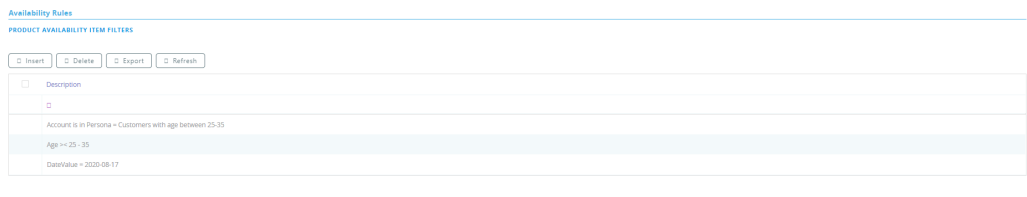
The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The start period for unused amount after the activation.

Field	Required	Data Type	Details
Minimum Advance (%)	No	Whole Number	The minimum down payment that must be paid for the leasing contract to be signed.
Maximum Advance (%)	No	Whole Number	The maximum advance that can be paid for the leasing contract to be signed.
Minimum Residual Value (%)	No	Whole Number	An estimate on the minimum amount the car or product is worth at the end of the lease term.
Maximum Residual Value (%)	No	Whole Number	An estimate on the maximum amount the car or product is worth at the end of the lease term.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 342.



The screenshot shows the 'Availability Rules' section with a sub-header 'PRODUCT AVAILABILITY ITEM FILTERS'. Below this is a toolbar with buttons for 'Insert', 'Delete', 'Export', and 'Refresh'. A table with the following content is displayed:

Description
Account is in Persona = Customers with age between 25-35
Age >= 25 - 35
DateValue = 2020-08-17

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.

- *Lender possesses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.

Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> highschool	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> higher education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.



Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = <b>Commission discount</b> or <b>Management Fee Discount</b> . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = <b>Commission discount</b> or <b>Management Fee Discount</b> . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = <b>Discount Life Insurance</b> or <b>Interest Discount</b> . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

**EDIT LOAN APPLICATION**

**Eligibility Questions**

We ask for this information so that we can carry out the checks needed to consider you for a mortgage

DEPOSIT SOURCE:

RETIREMENT DATE:

RETIRED: ☐ Yes ☒ No

**Finish**

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div> <b>IMPORTANT!</b>              The formula must be activated before attaching it to a product.           </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

The screenshot shows the 'Definition' tab of the 'Formula Mapping' page. It contains the following fields:

- Data Mapping Type:** Formula
- Master Entity:** FTOS\_BNKAP\_RetailApplicantData
- Operation Name:** EligibilityForApplicant
- Name:** EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

The screenshot shows the 'Input' tab of the 'Formula Mapping' page. It displays a list of input parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Input':

- Age: Age
- Citizenship: Citizenship.Id
- IsInAMLRiskList: false
- IsRetail: true
- MonthsActualJob: Employ Monts
- NetIncome: netIncome

Click **Output** and configure the output for the formula.

The screenshot shows the 'Output' tab of the 'Formula Mapping' page. It displays a list of output parameters for the formula 'FTOS\_BNKAP\_RetailApplicantData - Output':

- KOAge: click to map
- KONetIncome: click to map
- KOIsInAMLRiskList: click to map
- KOIsRetail: click to map
- KOMonthsActualJob: click to map
- KOCitizenship: click to map
- FinalResult: click to map

Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

**EDIT RETAIL APPLICANT DATA**

**Income & Outgoings**

We use your expected income and outgoings to work out how much we'll be able to lend and to ensure that any mortgage we may offer you is affordable.

WHAT IS YOUR ANNUAL SALARY BEFORE TAX? €

PAYING MONTHLY FOR OTHER LOANS €

TOTAL CREDIT CARDS LIMITS €

OTHER SPENDINGS €

LIFE, HEALTH INSURANCE AND PRIVATE PENSIONS

ARE YOU MARRIED? [none]

NUMBER OF CHILDREN: 0

CHILDCARE AND EDUCATION COSTS: €

HOW MANY FINANCIAL DEPENDANTS: 0

MAINTENANCE FOR DEPENDANTS:

EDUCATION LEVEL: [none]

EMPLOYMENT STATUS: [none]

EMPLOYMENT MONTHS:

YOUR RESIDENCE IS: [none]

YOUR RENT IS:

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
0	0
0.0000000000000000	Test value
0.0000000000000000	Test value
0.0000000000000000	Test value
0.0000000000000000	100
0.0000000000000000	100
0.0000000000000000	22.00

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

**EDIT TEST SCENARIO**

**TEST SCENARIO**

Test Scenario Type

Key	Value
0	0
0.0000000000000000	Test value
0.0000000000000000	Test value
0.0000000000000000	Test value
0.0000000000000000	100
0.0000000000000000	100
0.0000000000000000	22.00

Save Output Data **Calculate**

**TEST SCENARIO OUTPUTS**

Save Output Data **Calculate**

No data

## Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

**Banking Product Document**

+ Insert X Delete Export Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

**Banking Product Agreement**

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

**Banking Product Document**

Operation Code: 113559 Banking Copies No: 2 Report: Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement  Banking Product

Code  Is Mandatory ☐

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).



# Mortgage Loans

A mortgage is a type of financial product in the form of a loan taken out to buy property or land. In general, mortgages run for a period of 25 or 30 years, but that depends on the applicant applying for the loan. Such types of loans are secured against the value of the property or land until it's paid off.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Mortgage Loans

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

### Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!**For mortgage loans, select Product Type = **Mortgage**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.

Field	Required	Data Type	Details
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, refinancing and guarantees.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fixed Deposit Account</li> <li>• Term Deposit Account</li> <li>• <b>Loan Term Account.</b></li> </ul>
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div> <p><b>NOTE</b></p> <p>The <b>Collateral Cover Percent</b> field appears when you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Max Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

1 Main Info
2 Details
3 Availability
4 Dimensions
5 Risk Formulas
6 Test Risk Formulas
7 Documents
8 Associated Transactions
9 History

General Data

Bank Account Type  
Loan Term Account

Is Revolving  
☐

Auto Disbursement  
☐

Max No Disbursements  
5

Is Guaranteed  
☐

Allow Collateral Partial Release  
☒

Allow CoDebtor  
☒

Allow Refinancing  
☐

Max No. Of CoDebtors  
1

Payment Schedule Types

Periodicity Type  
Monthly

Holiday Shift For Repayment Installments  
☐

Repayment Allocation Method  
CostOrder

Grace Type  
Interest

Product Grace  
GracePeriod

Grace Days for Repayment  
30

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:



Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Payment Schedule Types** section, you can insert or create a payment schedule for the leasing product. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types. Go to ["Payment Schedule Types" on page 353](#) to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Guarantees** section, presented if the **Is Guaranteed** checkbox was selected earlier, you can insert or delete guarantees. To insert a guarantee, click the **Insert Existing** button and select one of the following:

- Cash collateral
- Real estate.

To insert a new guarantee, click **Insert** and fill in the name, code and select the guarantee type.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

CURRENT STATUS: **APPROVED** | NEXT STATUS: **CLOSED** | CODE: CA VND | PRODUCT: Current Account VND | START DATE: 01/01/2020 | END DATE: 31/03/2025 | VERSION: 1 | VERSION DATE: 27/03/2020 02:00

**Associated Products**

☐ Name  
 **Q**  
 Fixed Deposit Account VND  
 Fixed Deposit Account VND  
 Fixed Deposit Account VND  
 Fixed Deposit Account VND  
 Promissory Note  
 Promissory Note VND  
 Promissory Note VND

Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Maximum Period For Disbursement After Activation (Months)	No	Whole Number	The maximum period of disbursement after the this option is set. The number of months during which the disbursement must be made.
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Principal For Early Repayment	No	Whole Number	The minimum principal for when early repayments are made.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.

Field	Required	Data Type	Details
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The start period for unused amount after the activation.
Minimum Advance (%)	No	Whole Number	The minimum down payment that must be paid for the leasing contract to be signed.
Maximum Advance (%)	No	Whole Number	The maximum advance that can be paid for the leasing contract to be signed.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see ["Product Filter" on page 342](#).

Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS

Description
Account is in Persona - Customers with age between 25-35
Age >= 25 - 35
DateValue = 2020-08-17

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.

- *Lender possesses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

For example, once displayed in a Digital Journey, this is how the product looks like:

The screenshot shows a digital journey interface for personalizing a loan. At the top, there are status indicators: 'CURRENT STATUS: INITIALIZED' and 'NEXT STATUS: CHOOSE STATUS'. Below this is a blue header bar that says 'EDIT LOAN APPLICATION'. The main content area is titled 'Personalize your loan'. It features two horizontal sliders. The first slider is for 'Amount', with a range from 15000 to 999999, and a current value of 507500. The second slider is for 'Loan Period', with a range from 60 to 420, and a current value of 240. To the right of the sliders are input fields showing the selected values: '€ 507500' and '240'. At the bottom, the 'Total borrowed amount' is calculated as € 507499.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.



## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " <a href="#">Product Filter</a> " on <a href="#">page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.

Field	Required	Data Type	Details
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

EDIT INSURANCE ITEM

INSURANCE ITEM

Banking Product: Docs\_Test

Code: 123

Item Name: Docs\_Test\_Insurance

Insurance List: Test\_Insurance

Start Date: 23/01/2021

End Date: 24/01/2022

Details:

INSURANCE ITEM FILTERS

+ Insert X Delete Export Refresh

Description

Docs\_Test == 18 - 65

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.

Field	Required	Data Type	Details
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.

Field	Required	Data Type	Details
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>

Field	Required	Data type	Description
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

The screenshot shows a digital journey interface. At the top, there's a navigation bar with 'CURRENT STATUS: INITIALIZED' and 'NEXT STATUS: CHOOSE STATUS-'. Below this is a blue header for 'EDIT LOAN APPLICATION'. The main content area is titled 'Eligibility Questions' and contains the text: 'We ask for this information so that we can carry out the checks needed to consider you for a mortgage'. There are three input fields: 'DEPOSIT SOURCE' with a dropdown menu showing 'Select...', 'RETIREMENT DATE' with a date picker, and 'RETIRED' with radio buttons for 'Yes' and 'No' (where 'No' is selected). A 'Finish' button is located at the bottom right of the form.

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

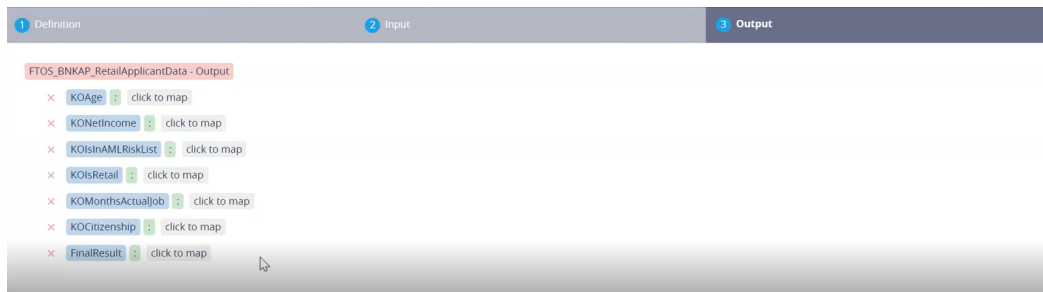
Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula.  <b>IMPORTANT!</b> The formula must be activated before attaching it to a product.

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

Click **Output** and configure the output for the formula.





Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

EDIT TEST SCENARIO

TEST SCENARIO

Test Scenario Type

Formula type 1

Key	Value
id	0
Ownership	Test value
InterestRate	Test value
Interest	Test value
InterestRateCap	100
Age	100
RateIncrease	20.00

☐ Save Output Data

Calculate

TEST SCENARIO OUTPUTS

+ Insert

- Delete

Export

Refresh

☐ Name

0

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History

TEST SCENARIO OUTPUTS

+ Insert

- Delete

Export

Refresh

☐ Name

0

Corporate Loan For IT companies-19-10-2020, 16-06-21

Corporate Loan For IT companies-19-10-2020, 16-06-21

Corporate Loan For IT companies-19-10-2020, 16-07-14

## Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History

Banking Product Document

+ Insert

- Delete

Export

Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

Banking Product Agreement

+ Insert

- Delete

Export

Refresh

☐ Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

MANAGING BANKING PRODUCTS

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Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

Banking Product Document

Operation Code: 113559

Banking Copies No: 2

Report: [dropdown]

Document Type: Credit Application

Is Mandatory: ☒ Yes ☐ No

Includes Debtor: ☒ Yes ☐ No

Includes Coborrower: ☐ Yes ☒ No

Requires Signature: ☒ Yes ☐ No

Is Accord: ☒ Yes ☐ No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see ["Banking Products' Life Cycle" on page 371](#)).

## Overdrafts

An overdraft is an extension of credit from a lending institution that is granted when an account reaches zero. The overdraft allows the account holder to continue withdrawing money even when the account has no funds in it or has insufficient funds to cover the amount of the withdrawal.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.

4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Overdrafts

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.

4. [Dimensions](#) - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. [Risk Formulas](#) - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. [Test Risk Formulas](#) - Use this tab to test the formula attached above before displaying it in a digital journey.
7. [Documents](#) - This tab contains all the attached documents available for a product.
8. [History](#) - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

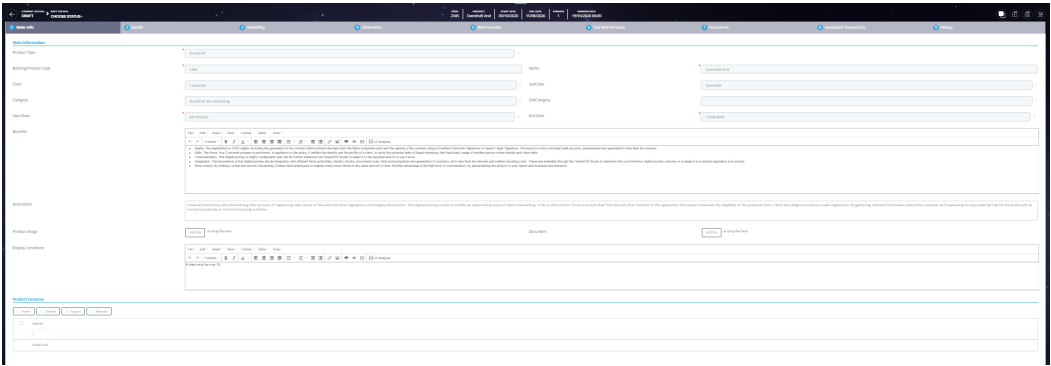
Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <b>NOTE</b>  Your product type selection greatly influences the next steps. It is important to choose the right type of product to build. </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For overdrafts, select Product Type = **Overdraft**.





In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.

Field	Required	Data Type	Details
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fix Deposit Account</li> <li>• Term Deposit Account</li> <li>• Loan Term Account.</li> </ul>
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div> <p><b>NOTE</b></p> <p>The <b>Collateral Cover Percent</b> field appears when you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Activation Tranches On Document Submission	No	Bool	Tranches to be granted after certain documents are submitted.
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

1 Main Info 2 **Details** 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History 10 GL Settings

**General Data**

Bank Account Type  
Loan Term Account

Is Revolving ☐

Allow Overdraft ☐

Auto Disbursement ☒

Max No Disbursements 3

Activation Tranches On Document Submission ☒

Is Guaranteed ☐

Allow Collateral Partial Release ☐

Collateral Cover Percent

Allow CoDebtor ☐

Allow Refinancing ☐

Max No. Of CoDebtors

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Payment Schedule Types** section, you can insert or delete associated payment schedule types. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types. Go to ["Payment Schedule Types" on page 353](#) to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see ["Product Filter" on page 342](#).

Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS

Description	Account	Age	DateValue
Account is in Persona = Customers with age between 25-35	Age >= 25 - 35	DateValue = 2020-08-17	

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions*: a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

**NOTE**

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter"</a> on <a href="#">page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter"</a> on <a href="#">page 342</a> .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter

OptionSet

Description

Refresh

Name	Display Name
<input checked="" type="checkbox"/> High school	<input type="checkbox"/> Baccalaureat
<input checked="" type="checkbox"/> No studies / Primary school	<input type="checkbox"/> Fara studi sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	<input type="checkbox"/> Gymnasium studies
<input checked="" type="checkbox"/> High school	<input type="checkbox"/> High school
<input checked="" type="checkbox"/> Higher education	<input type="checkbox"/> Licenta
<input type="checkbox"/> Higher Education	<input type="checkbox"/> Licenta universitara
<input type="checkbox"/> postgraduate	<input type="checkbox"/> Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	<input type="checkbox"/> Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.

Field	Required	Data type	Description
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.

Field	Required	Data Type	Details
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.



Field	Required	Data Type	Details
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.

Field	Required	Data type	Description
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

The screenshot shows a digital journey interface for a mortgage application. At the top, there's a progress bar with 'CURRENT STATUS: INITIALIZED' and 'NEXT STATUS: CHOOSE STATUS-'. Below this is a blue header bar that says 'EDIT LOAN APPLICATION'. The main content area is titled 'Eligibility Questions' and includes a sub-header: 'We ask for this information so that we can carry out the checks needed to consider you for a mortgage'. There are three input fields: 'DEPOSIT SOURCE' with a dropdown menu showing 'Select...', 'RETIREMENT DATE' with a date picker, and 'RETIRED' with radio buttons for 'Yes' and 'No' (where 'No' is selected). A 'Finish' button is located at the bottom right of the form.

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

In the **Add Banking Product Formula** page, fill in the following fields:

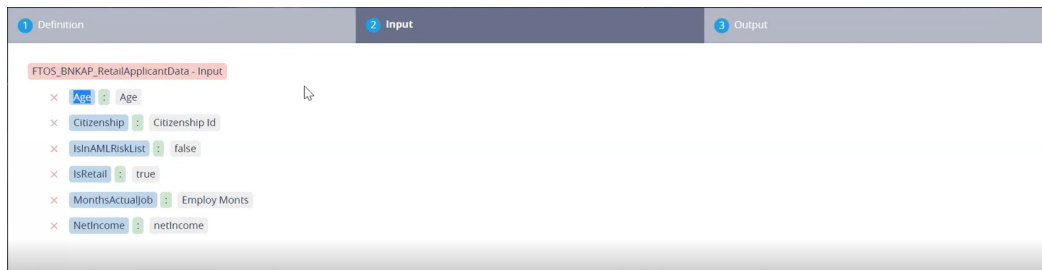
Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula.  <b>IMPORTANT!</b> The formula must be activated before attaching it to a product.

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

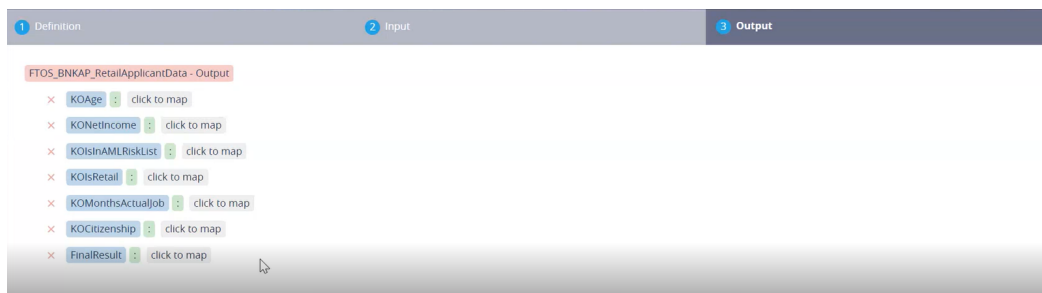
The screenshot shows the 'Formula Mapping' page with the 'Input' tab selected. The 'FORMULA PARAMETER MAPPING' section contains the following parameters:

- Data Mapping Type:** Formula
- Master Entity:** FTOS\_BNKAP\_RetailApplicantData
- Operation Name:** EligibilityForApplicant
- Name:** EligibilityForApplicant\_EligibilityForApplicant\_1602250301662\_RetailMortgage

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.



Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

EDIT TEST SCENARIO

TEST SCENARIO

Test Scenario Type

Formula type 1

Key	Value
0	0
Company	Test value
InterestRate	Test value
Offset	Test value
InterestMargin	100
Age	100
NetIncome	23.45

☐ Save Output Data

TEST SCENARIO OUTPUTS

Name
0
No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History

TEST SCENARIOS

Name
0
Corporate Loan for IT companies-19.10.2020_16.06.21
Corporate Loan for IT companies-19.10.2020_16.06.21
Corporate Loan for IT companies-19.10.2020_16.07.14

# Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info2 Details3 Availability4 Dimensions5 Risk Formulas6 Test Risk Formulas7 Documents8 Associated Transactions9 History

Banking Product Document

ReportId	Banking Copies No	Operation Code
Q	Q	Q
AContractLG	1	
LoanContract	2	

Banking Product Agreement

Code
Q

MANAGING BANKING PRODUCTS

253

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

## ADD BANKING PRODUCT DOCUMENT

## Banking Product Document

Operation Code <input type="text" value="113559"/>	Banking Copies No <input type="text" value="2"/>	Report <input type="text" value="Credit Application"/>	Document Type <input type="text" value="Credit Application"/>
Is Mandatory <input checked="" type="radio"/> Yes <input type="radio"/> No	Includes Debtor <input checked="" type="radio"/> Yes <input type="radio"/> No	Includes Coborrower <input type="radio"/> Yes <input checked="" type="radio"/> No	Requires Signature <input checked="" type="radio"/> Yes <input type="radio"/> No
Is Accord <input checked="" type="radio"/> Yes <input type="radio"/> No			

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 371).

## Term Loans

A term loan is a banking product which defines a loan for a specific amount that has a specified repayment schedule and either a fixed or floating interest rate.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.

4. Click **Banking Products** to open the **Banking Products List** page.

Code	Name	Class	SubClass	Category	SubCategory	Status	
AG_OD	Overdraft BankAccount...					Approved	1
SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
TLHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
th	th					Approved	1
TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

## Creating Term Loans

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.



4. [Dimensions](#) - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. [Risk Formulas](#) - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. [Test Risk Formulas](#) - Use this tab to test the formula attached above before displaying it in a digital journey.
7. [Documents](#) - This tab contains all the attached documents available for a product.
8. [History](#) - This tab displays the versions of the product, along with workflow status and the user who modified the product.

## Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> <li>• Bank Account</li> <li>• Term Loan</li> <li>• Card</li> <li>• Overdraft</li> <li>• Leasing</li> <li>• Mortgage</li> <li>• Credit Card</li> <li>• Deposit</li> </ul> <div> <p><b>NOTE</b></p> <p>Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see <a href="#">"Product Hierarchy" on page 346</a>
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

**IMPORTANT!** For term loans, select Product Type = **Term Loan**.

**1 Main info** 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History 10 Gt. Settings

**Main Information**

Product Type: Term Loan External Code: EUR1

Banking Product Code: TL\_EUR Name: TermLoanTest

Class: Corporate SubClass: Loan Term

Category: Loan Term Unsecured SubCategory:

Start Date: 27/05/2021 End Date: 27/05/2029

Benefits: [Rich Text Editor]

Description: [Text Area]

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.

Field	Required	Data Type	Details
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

## Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Current Account</li> <li>• Savings Account</li> <li>• Fixed Deposit Account</li> <li>• Term Deposit Account</li> <li>• <b>Loan Term Account.</b></li> </ul>

Field	Required	Data Type	Details
Is Revolving	No	Bool	<p>Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payable.</p> <div> <p><b>NOTE</b></p> <p>If a term loan is revolving, its attached limit must also be revolving, meaning that the Available Amount of the limit is replenished either on each repayment of the principal or on loan contract closure.</p> </div>
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.

Field	Required	Data Type	Details
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div> <b>NOTE</b>            The <b>Collateral Cover Percent</b> field appears when you select this checkbox.         </div>
Activation Tranches On Document Submission	No	Bool	Tranches to be granted after certain documents are submitted.
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.



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General Data

Bank Account Type

Loan Term Account

Is Revolving

☐

Auto Disbursement

☒

Max No Disbursements

Is Guaranteed

☒

Allow Collateral Partial Release

☒

Collateral Cover Percent

120

Allow CoDebtor

☐

Allow Refinancing

☒

Max No. Of CoDebtors

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> <li>• Once (the whole amount is paid at maturity)</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Bimonthly</li> <li>• Trimestrial</li> <li>• 4 Weeks</li> <li>• Semestrial</li> <li>• Annual</li> <li>• 30Days.</li> </ul> <div> <p><b>NOTE</b></p> <p>If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The <a href="#">repayment allocation method</a> represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div> <p><b>NOTE</b></p> <p>The <b>Country Calendars</b> section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> <li>• None - the due date is not shifted.</li> <li>• Forward - the due date is shifted to the last working day before the initially calculated due date.</li> <li>• Backward - the due date is shifted to the next working day after the initially calculated due date.</li> </ul> <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> <li>• Both</li> <li>• Principle</li> <li>• Interest.</li> </ul>

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.
Penalty for grace period	No	Bool	<p>If you select the checkbox, the penalty interest is applied on the loan contract without taking into consideration the grace period defined at contract level, being calculated for the difference between system date - due date, if the grace period passed and the customer didn't pay the due amounts.</p> <p>If you leave this checkbox unselected, the penalty interest is applied on the loan contract taking into consideration the grace period defined at contract level, being calculated for system date - due date + grace days for repayment.</p>

In the **Payment Schedule Types** section, you can insert or delete types. To insert a new payment schedule type, click **Insert Existing** and select one of the types.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Product Guarantees** section, presented if the **Is Guaranteed** checkbox was selected earlier, you can insert or delete guarantees. To insert a guarantee, click the **Insert Existing** button and select one of the following:

- Cash collateral
- Real estate.

To insert a new guarantee, click **Insert** and fill in the name, code and select the guarantee type.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.

CURRENT STATUS	NEXT STATUS	CODE	PRODUCT	START DATE	END DATE	VERSION	VERSION DATE
APPROVED	CLOSED	CA VND	Current Account VND	01/01/2020	31/03/2025	1	27/03/2020 02:00

**Associated Products**

☐ Name

Fixed Deposit Account VND
Fixed Deposit Account VND
Fixed Deposit Account VND
Fixed Deposit Account VND
Promissory Note
Promissory Note VND
Promissory Note VND

Click the **Save and Reload** button at the top right corner of the page.

In the **Disbursement Matrix** section, create or insert existing disbursement tranches, configured to fit the product. Usually used for corporate loans, such dividend payments or cash outflows are not done in equal amounts and usually trigger a recalculation in terms of interest. Add multiple such disbursements by clicking the **Insert** button. You can add:

- Name.
- Tranche Percent (%): the percentage of the final amount that goes towards the disbursement.
- Start Month From Activation: the start month for the disbursement. It can be any month in the loan availability period.
- Interest Percent (%): the interest percent for that particular disbursement.
- Unusage Commission Percent (%): a commission paid for the loan amount unused.

## Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

**Product Availability**

Currency: EUR

Period Type: Months

Maximum Period For Disbursement After Activation (Months): 12

Minimum Period: 1

Maximum Period: 60

Minimum Principal For Early Repayment: 1,000

Minimum Amount: 1,000

Maximum Amount: 200,000

Start Period For Unusage After Activation(Months): 1

Minimum Advance ( % ): 20

Maximum Advance ( % ): 50

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> <li>• Days</li> <li>• Weeks</li> <li>• Months</li> <li>• Years</li> <li>• Once.</li> </ul> <div> <b>NOTE</b>            The period type must be the same as the measurement unit of the Periodicity Type selected in the <b>Details</b> tab.         </div>
Maximum Period For Disbursement After Activation (Months)	No	Whole Number	The maximum period of disbursement after the this option is set. The number of months during which the disbursement must be made.
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Principal For Early Repayment	No	Whole Number	The minimum principal for when early repayments are made.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.



Field	Required	Data Type	Details
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The start period for unused amount after the activation.
Minimum Advance (%)	No	Numeric	The minimum advance percentage from the contract's financed value applicable at the contract level.
Maximum Advance (%)	No	Numeric	The maximum advance percentage from the contract's financed value applicable at the contract level.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 342.

Availability Rules

PRODUCT AVAILABILITY ITEM FILTERS

Description
Account is in Persona - Customers with age between 25-35
Age >= 25 - 35
DateValue = 2020-08-17

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.

- *Lender can monitor borrower's current ratio:* the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

For example, this is how it displays within a Digital Journey in the FintechOS Portal:

The screenshot shows a web interface titled "EDIT LOAN APPLICATION" with a sub-header "Personalize your loan". It features two horizontal sliders. The first slider, labeled "Amount", has a range from 15000 to 999999 and a current value of 507500. The second slider, labeled "Loan Period", has a range from 60 to 420 and a current value of 240. To the right of the sliders are two input fields: the first shows "€ 507500" and the second shows "240". At the bottom, a summary line states "Total borrowed amount € 507499". The interface also includes a top navigation bar with "CURRENT STATUS: INITIALIZED" and "NEXT STATUS: CHOOSE STATUS -".

## Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

### NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

## Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " <a href="#">Product Filter</a> " on <a href="#">page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.

Field	Required	Data Type	Details
Description	No	Text area	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342.</a>
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the <b>Save and Reload</b> button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

## Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

EDIT INSURANCE ITEM

INSURANCE ITEM

Banking Product: Docs\_Test

Code: 123

Item Name: Docs\_Test\_Insurance

Insurance List: Test\_Insurance

Start Date: 23/01/2021

End Date: 24/01/2022

Details:

INSURANCE ITEM FILTERS

+ Insert X Delete Export Refresh

Description

Docs\_Test == 18 - 65

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

## Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.

Field	Required	Data Type	Details
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.

Field	Required	Data Type	Details
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

## Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>



Field	Required	Data type	Description
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

### IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:

The screenshot shows a mobile application interface for editing a loan application. At the top, there's a navigation bar with 'EDIT LOAN APPLICATION'. Below it, a section titled 'Eligibility Questions' contains a sub-header: 'We ask for this information so that we can carry out the checks needed to consider you for a mortgage'. The form has three input fields: 'DEPOSIT SOURCE' (a dropdown menu), 'RETIREMENT DATE' (a date picker), and 'RETIRED' (radio buttons for 'Yes' and 'No', with 'No' selected). A blue 'Finish' button is at the bottom right. The background of the app shows a blurred image of a modern building.

## Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

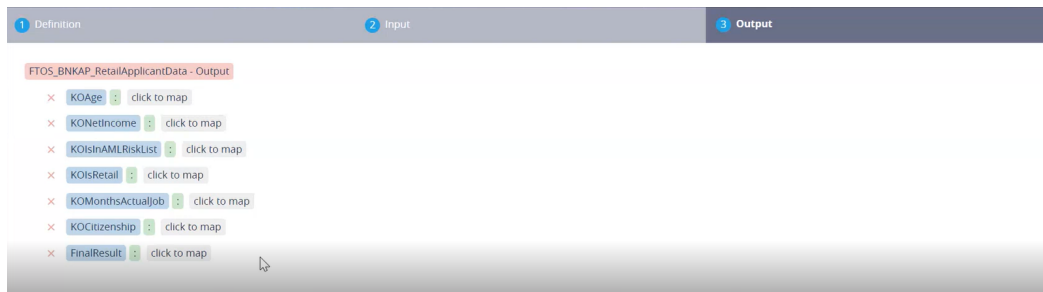
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="background-color: #f9cb9c; padding: 10px; margin-top: 10px;"> <p><b>IMPORTANT!</b></p> <p>The formula must be activated before attaching it to a product.</p> </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

## Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

EDIT TEST SCENARIO

TEST SCENARIO

Test Scenario Type

Formula type 1

Key	Value
Ownership	Test value
InterestRate	Test value
Interest	100
InterestRate	100
Age	20.00

☐ Save Output Data

TEST SCENARIO OUTPUTS

Insert

Delete

Export

Refresh

Name

No data

Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.

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TEST SCENARIO OUTPUTS

Insert

Delete

Export

Refresh

Name

Corporate Loan For IT companies-19-10-2020, 16-06-21

Corporate Loan For IT companies-19-10-2020, 16-06-21

Corporate Loan For IT companies-19-10-2020, 16-07-14

## Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

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Banking Product Document

Insert

Delete

Export

Refresh

ReportId	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

Banking Product Agreement

Insert

Delete

Export

Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

MANAGING BANKING PRODUCTS

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Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

**ADD BANKING PRODUCT DOCUMENT**

Banking Product Document

Operation Code: 113559

Banking Copies No: 2

Report: [Dropdown]

Document Type: Credit Application

Is Mandatory: ☒ Yes ☐ No

Includes Debtor: ☒ Yes ☐ No

Includes Coborrower: ☐ Yes ☒ No

Requires Signature: ☒ Yes ☐ No

Is Accord: ☒ Yes ☐ No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement

GDPR

Banking Product

Current Account Classic

Code

56789

Is Mandatory

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

## History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 371).

History				
Version	Created By	Created On	Workflow Status	Workflow Log
1	John	2020-01-01 10:00:00	Active	
2	John	2020-01-01 10:00:00	Active	

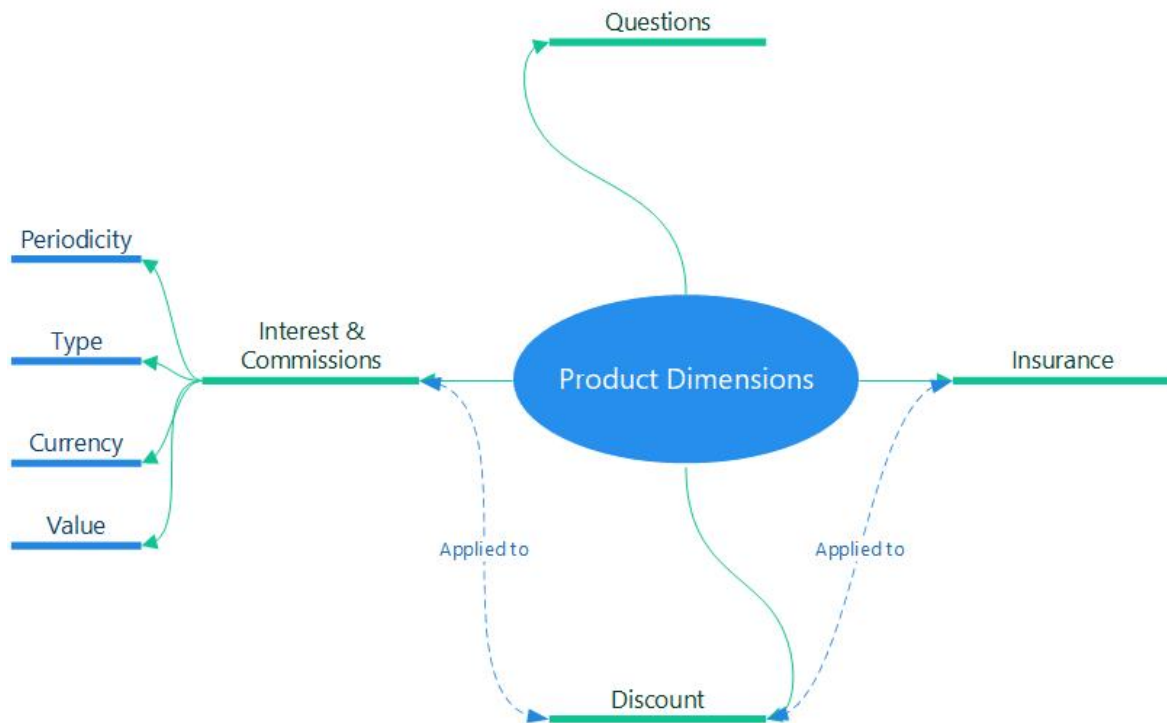
# Product Dimensions

Product dimensions group together the notions of interest and commissions. Such notions transcend the banking product offered to a customer, presenting the configurations for the finance world. The **Product Dimensions** menu in Innovation Studio is a convenient place to manage the variety of interest rates and the multitude of commissions used for different banking products.

Since inflation affects the interest, it is mandatory to keep track of the changes, to register any new values for the rates and apply them to customers. Commissions are equally important, they represent the fees the bank has for offering a product or service. Fees keep the business going, being a steady flow of money to the bank's revenue. To stay competitive, banks apply discounts to the two mentioned above. For contracting a loan, for example, a customer takes on an insurance. This insurance is part of the product dimensions. Lastly, to determine important details about a customer when they are applying for a product, it is important to have questions for the "Know Your Customer" process to determine their eligibility.

The **Product Dimensions** menu allows you to manage the following dimensions:

- Commissions
- Commissions list
- Interest
- Interest list
- Insurance
- Insurance list
- Discounts
- Questions.



There are two possible options for building the product dimensions:

- Expand the **Banking Product Dimensions** menu and configure each of the items enumerated above with its respective menu in the Innovation Studio.
- Another option is to start building the banking product and configure the dimensions in the banking product's page > **Dimensions** tab.

# Managing Interests and Commissions

Interests and commissions are set up independently from the banking products. They are available in banking products in the form of interest lists or commission lists respectively, after they have been grouped together based on their use.

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<b>Interest Definition Best Practices</b> .....	<b>299</b>
<b>Interest Lists</b> .....	<b>306</b>
<b>Commission Types</b> .....	<b>307</b>

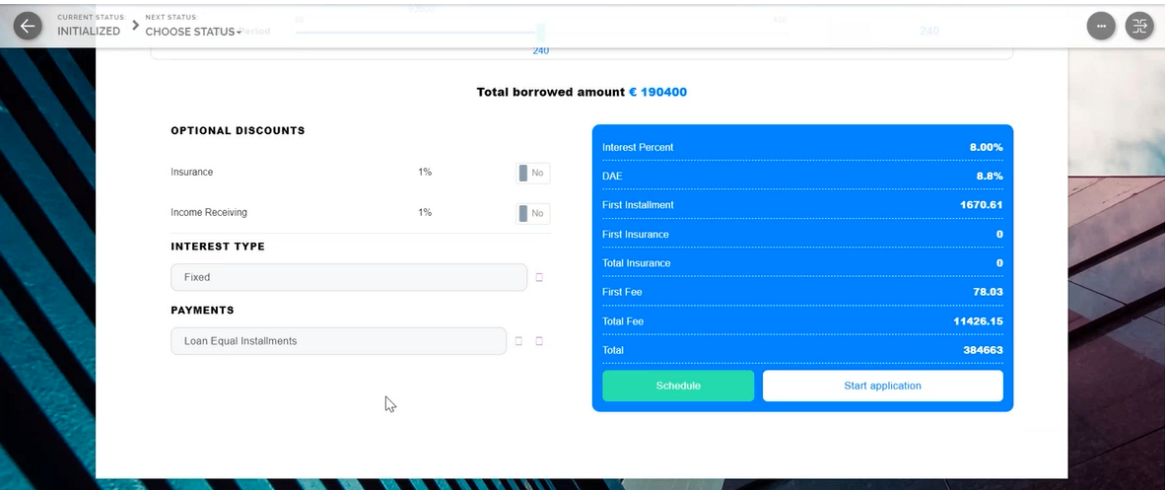


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## Interests

Innovation Studio has a dedicated menu item, **Interests**, to aid the users in creating and updating interests and applying them to a product. There are three main types of interests: fixed, base and variable. Banks can set up variable interests for loans and also calculate the amount each customer has to pay.

The following picture illustrates how the interests can be shown in a loan origination digital journey:



To manage interests:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.

4. Click **Interests** to open the **Interest List** page.

INTEREST LIST			
<input type="checkbox"/>	Code	Name	Interest Type
	asdsa	as	Variable
	FB12M	Corporate Floating BIBOR 1 Year	Variable
	FB1M	Corporate Floating BIBOR 1M	Variable
	FBM2	Corporate Floating BIBOR 2M	Variable
	FB3M	Corporate Floating BIBOR 3M	Variable
	FB6M	Corporate Floating BIBOR 6M	Variable
	CC11	Credit Card Interest1	Variable

5. In the **Interest List** page, you can:

- Add a new interest by clicking the **Insert** button at the top right corner.
- Edit an existing interest from the list by double clicking it.
- Delete an interest by selecting it and clicking the **Delete** button at the top right corner.

The **Edit Interest** page allows you to configure interest settings.

EDIT INTEREST

INTEREST

Code

BIB1M

Name

BIBOR 1 Month

Is Default

☐

Use Banking Formula

☐

Interest Type

Base Type

Reference Interest Period

1M

Is Penalty

☐

Is Credit Line Interest

☐

For Sight Deposit

☐

Is Debit Order Interest

☐

Description

**HINT**

Read about how and when to use each interest type on the dedicated [Interest Definition Best Practices](#) page.

## Adding Interests

To create a new interest, click the **Insert** button on the top right side of the page. In the newly opened **Add Interest** page, fill in the following fields from the **Interest** section:

Field	Required	Data Type	Details
Code	Yes	Text	Insert a code for this particular interest.
Name	Yes	Text	Insert a name.
Is Default	No	Bool	Select the checkbox if the interest is a default one.
Use Banking Formula	No	Bool	Select the checkbox if the interest is of type Banking Formula.

Field	Required	Data Type	Details
Interest Type	Yes	Option set	<p>Select the type of interest:</p> <ul style="list-style-type: none"> <li>• <b>Fixed</b> - the interest has one value during the validity period.</li> <li>• <b>Base Type</b> - used for calculating the variable type, i.e. ROBOR.</li> <li>• <b>Variable</b> - an interest rate formed from a Base Type interest + a variable percent, e.g. EURIBOR + 4%.</li> <li>• <b>Collection</b> - a combination of previously defined fixed and/or variable interest rates.</li> <li>• <b>Banking Formula</b> - an interest rate that can be defined as a banking formula from the Formula Engine.</li> <li>• <b>Banded</b> - an interest rate that can be defined as a collection of values that is applied depending on the amount. For example, the bank wants to apply an</li> </ul>

Field	Required	Data Type	Details
			<p>interest rate of 5% for borrowed amount between 1 and 10,000, an interest rate of 4.5 % for the amounts between 10,001 and 20,000, and an interest rate of 4% for amounts surpassing 20,001.</p> <div> <p><b>IMPORTANT!</b> If you choose <b>Variable</b>, a new field <b>Base Interest</b> is displayed.</p> <p><b>Banded</b> interest can be used only for <b>Current Account with Overdraft</b> banking products.</p> </div>
Base Interest	Yes	Lookup	Only displayed for variable interest types. Select (or insert) the base type interest used for calculating the variable interest.

Field	Required	Data Type	Details
Reference Interest Period	No	Option set	<p>Choose the interest reference period (where M = months, Y = years):</p> <ul style="list-style-type: none"> <li>• 1M</li> <li>• 1Y</li> <li>• 2M</li> <li>• 3M</li> <li>• 6M</li> </ul>
For Sight Deposit	No	Bool	Used only for deposits when the interest is at sight. It is used when a customer wishes to end a deposit before the maturity date (end date). The customer does not receive the full interest, but a sight interest because the deposit has not reached its maturity.
Is For Overdraft	No	Bool	If this interest is an interest applicable to the overdraft amount of a contract based on a banking product that allows overdraft operations, select this checkbox.
Is Penalty	No	Bool	<p>If this interest is a penalty interest, select this checkbox. Penalty interests are only possible for loans.</p> <div> <p><b>IMPORTANT!</b></p> <p>If you select this checkbox, two new fields, <b>Is General</b> and <b>Apply to Loan Item (If Overdue)</b> are displayed.</p> </div>

Field	Required	Data Type	Details
Is General	Yes	Bool	<p>Only displayed for interests applicable as penalties. If selected, this penalty interest is applied to all the loan contract's operation items that are overdue for payment, instead of having to define different penalty interests for each operation item that is subject to penalty interest calculation on a contract. This can be useful when you need to define one mass penalty interest to be applied to all the overdue amounts subject to penalty interest calculation resulting from repayment schedule processing.</p> <p>If a banking product has in its attached interests list an interest with <b>Is General = True</b>, then at the contract level the penalty percent is applied to all operation items that are overdue and are marked with <b>Include In Penalty Calculation = True</b>.</p> <div> <p><b>NOTE</b></p> <p>You can specify which operation items should be used by Core Banking for penalty interest calculation within the <b>Add/ Edit</b></p> </div>

Field	Required	Data Type	Details
			<p><b>Operation Item</b> pages, selecting the <b>Include In Penalty Calculation</b> checkbox and then selecting an item from the <b>Penalty Item (for Repayment Notification)</b> list. Read more about operation items in the <a href="#">Core Banking user guide</a>.</p> <p>An interest list cannot contain a penalty interest with <b>Is General = True</b> and another penalty interest with <b>Is General = False</b>.</p>
Applied To Loan Item (If Overdue)	Yes	Bool	Only displayed for interests applicable as penalties that have <b>Is General = False</b> . Select the operation item of the loan contract for which the penalty interest is applied.
Is Credit Line Interest	No	Bool	Interest that is applicable to the credit line.
Is Debit Order Interest	No	Bool	Interest that is applicable at each debit order.
Description	No	Text area	Insert a description for the interest.

Click the **Save and Reload** button at the top right corner of the page.



## Interest Value

The **Interest Value** section is available only for Fixed, Base Type, and Variable interest rates . Insert the values (usually the interest rate index to your margin) by filling in the following fields:

Field	Data Type	Description
Value	Numeric	Interest rate percentage.
Status	Option set	Select either Active or Draft to enable or disable the interest rate.
Begin Date	Date	Select the day when the interest rate becomes applicable.
End Date	Date	Select the last day when the interest rate is applicable.
Shock	Whole Number	Percentage threshold at which the interest no longer follows the base value, e.g. if the interest increases by 5%, that 5% is the shock suffered and the interest no longer is calculated at base value.

EDIT INTEREST VALUE

INTEREST VALUE

Value  Status

Valid From  Valid To

Shock

### NOTE

The margin is placed in a variable interest.

Click the **Save and Reload** button at the top right corner of the page.

## Interest Rates Collections

The **Interest Rates Collections** section is available only for **Collection** type interests. Such collections can hold more than one interest types, each with its own start period and installment. This is useful for example, when applying a fixed interest rate for the first 7 years of a mortgage loan, and applying a variable interest rate for the remaining period.

Insert the values in the section fields:

Field	Data Type	Description
Master Interest	Text	The name of the interest.
Interest	Option set	Select a previously defined interest.

Field	Data Type	Description
Collection Item Start Date	Date	Select the day when the interest rate becomes applicable.
Collection Item End Date	Date	Select the last day when the interest rate is applicable.
Start Period (Installment No)	Whole Number	Select the first installment when the interest rate becomes applicable.
End Period (Installment No)	Whole Number	Select the last installment when the interest rate is applicable.

## Banking Formula Interest Rate

When creating an interest rate based on a banking formula, the **Use Banking Formula** checkbox is selected. In addition, the **Banking Formula Type** field allows you to pick from already defined banking formulas. Click the arrow next to the field. A list of available banking formulas opens. Click the **Insert** button to create a new banking formula. Add a name for the banking formula. Insert or create an interest, banking product formulas, and test scenarios.

After all configurations are made, the interest options are displayed in a Digital Journey in the following way:

The screenshot displays a digital journey interface for configuring a loan. At the top, a progress bar shows the current status as 'INITIALIZED' and the next status as 'CHOOSE STATUS'. The main content area is titled 'Total borrowed amount € 190400'. It includes sections for 'OPTIONAL DISCOUNTS' (Insurance and Income Receiving, both at 1% with 'No' selected), 'INTEREST TYPE' (Fixed), and 'PAYMENTS' (Loan Equal Installments). A summary table on the right lists various financial metrics.

Summary Table Data	
Interest Percent	8.00%
DAE	8.8%
First Installment	1670.61
First Insurance	0
Total Insurance	0
First Fee	78.03
Total Fee	11426.16
Total	394663

At the bottom of the summary table, there are two buttons: 'Schedule' (green) and 'Start application' (white).

## Interest Definition Best Practices

This page presents a series of recommendations about defining interests to be used in conjunction with banking products and contracts based on these banking products. For step by step instructions on how to add interests and how to fill in each field on the page, please read the dedicated [Interests](#) page.

### General Notes

- The validity period of an interest (the period between the values entered in the **Valid from** and **Valid to** fields) is taken into consideration when searching for the values of each interest.
- The system performs validations to ensure that the time intervals for interest validity do not overlap. It also ensures that the interest has a valid value at any given time of a contract's life cycle.
- Penalty calculations are applied to overdue payment amounts in contracts, while interests are applied to remaining payment amounts.  
You can specify that an interest is penalty if you select the **Is Penalty** checkbox in the **Interest** page:

**INTEREST**

Code EU 6M	Name Euribor 6M	Is Default <input type="checkbox"/>	Use Banking Formula <input type="checkbox"/>
Interest Type Variable	Base Interest Euribor 6M Reference		
<b>Is Penalty</b> <input type="checkbox"/>		For Sight Deposit <input type="checkbox"/>	
Is For Overdraft <input type="checkbox"/>	Is Credit Line Interest <input type="checkbox"/>	Is Debit Order Interest <input type="checkbox"/>	
Description			

### IMPORTANT!

We advise against defining collection interests for penalties. Instead, create interests for penalties using [Business Formulas](#).

The following sections display examples of each interest type's typical definition:

## Fixed Interest

The fixed interest has one value during the validity period.

Define fixed interests by selecting **Interest Type = Fixed** and entering values for determined intervals of time.

The following picture shows how the value of a fixed interest differs depending on its validity period:

**INTEREST**

Code: FI6      Name: Corporate Fix Interest 6%      Is Default: ☐      Use Banking Formula: ☐

Interest Type: Fixed

Is Penalty: ☐      For Sight Deposit: ☐

Is For Overdraft: ☐      Is Credit Line Interest: ☐      Is Debit Order Interest: ☐

Description:

---

**INTEREST VALUE**

+ Insert    X Delete    Export    Refresh

	Value	Status	Valid From	Valid To
	6.00	Active	01/01/2019	31/10/2019
	2.25	Active	01/11/2019	31/12/2019
	6.00	Active	01/01/2020	31/12/2021

## Base Type Interest

The base type interest is used for calculating the variable type, i.e. EURIBOR or IRCC. The EURIBOR base type interest is updated on a daily bases by the European Central Bank.

Define base type interests by selecting **Interest Type = Base Type** and entering values for determined intervals of time.

The following picture shows how the value of a base type interest differs depending on its validity period:

**INTEREST**

Code: BIB1M Name: BIBOR 1 Month Is Default: ☐ Use Banking Formula: ☐

Interest Type: Base Type Reference Interest Period: 1M

Is Penalty: ☐ For Sight Deposit: ☐

Is For Overdraft: ☐ Is Credit Line Interest: ☐ Is Debit Order Interest: ☐

Description:

**INTEREST VALUE**

+ Insert X Delete Export Refresh

	Value	Status	Valid From	Valid To
	1.30	Active	02/01/2020	05/02/2020
	1.06	Active	07/02/2020	31/03/2020
	1.26	Active	01/04/2020	31/05/2020
	1.08	Active	06/02/2020	06/02/2020

## Variable Interest

The variable interest is an interest rate formed from a Base Type interest + a variable percent, e.g. EURIBOR + 4%.

Define variable interests by selecting Interest Type = Variable, selecting a predefined base interest from the list, then entering values for the variable percents for determined intervals of time.

The following picture shows how the value of a variable interest differs depending on its validity period:

## INTEREST

Code: FB1M

Name: Corporate Floating BIBOR 1M

Is Default: ☐

Use Banking Formula: ☐

Interest Type: Variable

Base Interest: BIBOR 1 Month

Is Penalty: ☐

For Sight Deposit: ☐

Is For Overdraft: ☐

Is Credit Line Interest: ☐

Is Debit Order Interest: ☐

Description:

## INTEREST VALUE

<input type="checkbox"/>	Value	Status	Valid From	Valid To
<input type="checkbox"/>	2.00	Active	01/01/2020	01/01/2022
<input type="checkbox"/>	1.90	Active	01/07/2019	31/12/2019
<input type="checkbox"/>	1.80	Active	01/01/2019	30/06/2019

## Collection Interest

The collection interest is a combination of previously defined fixed and/ or variable interest rates. It can be used for fixed to float interest contracts. The validation of each composing interest is performed on intervals. For example, for a term loan contract, the bank may apply a fixed interest for the first 12 months of the contract, then for the second and third year another fixed interest, and then for the remaining period a variable interest rate.

Define collection interests by selecting Interest Type = Collection, then selecting predefined interests as elements of the collection that are applicable on specific time intervals and depending on the contract's number of installment. The system performs validations to ensure that the time intervals and the installment intervals do not overlap and no time or installment interval is left undefined.

The following picture shows how the value of a collection interest differs depending on the contract's number of the installments:

## BANKING PRODUCT FACTORY USER GUIDE

### INTEREST

Code	Name	Is Default	Use Banking Formula
FixFloat	FixToFloat	<input type="checkbox"/>	<input type="checkbox"/>
Interest Type			
Collection			
Is For Overdraft	Is Credit Line Interest	Is Debit Order Interest	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Description			
<div></div>			

### INTEREST RATES COLLECTIONS

+ Insert

X Delete

Export

Refresh

<input type="checkbox"/> Interest	Collection Item Start Date	Collection Item End Date	Start Period (Installment No)	End Period (Installment No)
Corporate Fix Interest 6%	01/01/2021	31/01/2050	1	12
Corporate Floating BIBOR 3M	01/01/2021	31/01/2050	13	300

## Banded Interest

The banded interest, applicable for contracts based on current account with overdraft banking products, can be defined as a collection of values that is applied depending on the amount. For example, the bank wants to apply an interest rate of 5% for borrowed amount between 1 and 999.99, an interest rate of 3 % for the amounts between 1000 and 3999.99, and an interest rate of 4.9% for amounts surpassing 4000.

Example of a banded interest:

FromValue	ToValue	InterestRate
0	999.99	5
1000	3999.99	3
4000	10000000	4.9

Define several banded interests by selecting Interest Type = Banded and entering values for determined intervals of time. Later, create a collection type interest, select the **Is For Overdraft** checkbox, and use the previously defined banded interests to define the specify the values applicable for overdraft amount intervals.

The following picture shows how three banded interests are used within a collection type interest to define bands of different value to be applied for different amounts of overdraft contracts:



BANKING PRODUCT FACTORY USER GUIDE

INTEREST

Code

BandedEUR

Name

BandedEUR

Interest Type

Collection

Is For Overdraft

☒

BANDED INTERESTS

+ Insert

X Delete

Export

Refresh

<input type="checkbox"/>	Interest	Min Utilized Amount	Max Utilized Amount	Collection Valid From	Collection Valid To
<input checked="" type="checkbox"/>	BandedEUR_C1	0.00	999.99	01/01/2021	31/12/2021
<input checked="" type="checkbox"/>	BandedEUR_C3	4,000.00	10,000,000.00	01/01/2021	31/12/2021
<input checked="" type="checkbox"/>	BandedEUR_C2	1,000.00	3,999.99	01/01/2021	31/12/2021

INTEREST

Code

BandedEUR\_C1

Name

BandedEUR\_C1

Interest Type

Banded

Base Interest

Description

Fix 5%

INTEREST VALUE

+ Insert

X Delete

Export

Refresh

<input type="checkbox"/>	Value	Status	Valid From	Valid To
<input checked="" type="checkbox"/>	5.00	Active	01/01/2021	31/12/2021

INTEREST

Code

BandedEUR\_C2

Name

BandedEUR\_C2

Interest Type

Banded

Base Interest

IRCC 3M

Description

IRCC 3M + 1

INTEREST VALUE

+ Insert

X Delete

Export

Refresh

<input type="checkbox"/>	Value	Status	Valid From	Valid To
<input checked="" type="checkbox"/>	1.00	Active	01/01/2021	31/12/2021

IMPORTANT!

Banded interest can be used only for **Current Account with Overdraft** banking products.



## Interest Lists

An interest list allows you to group multiple interests into a collection of interests that you can use in a banking product. You can group under the same umbrella the following types of interests created individually in the ["Interests" on page 289](#): variable interest, base type and fixed interest.

To manage interest lists:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory** -> **Banking Product Dimensions**.
4. Click **Interest List** to display the **Interest List List** page.

### INTEREST LIST LIST

 Name	
	
	Corporate Current Account
	Corporate Fix Deposit Interest USD
	Corporate Fix Deposit Interest VND
	Corporate Interest 10
	Corporate Interest VND
	Corporate Overdraft Line
	Credit Card Interest List

5. In this page, you can:
  - Add a new interest list by clicking the **Insert** button at the top right corner of the page.
  - Edit an interest list from the section by double clicking it.

- Delete an interest list from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Interest List** page allows you to configure interest list settings.

**EDIT INTEREST LIST**

**INTEREST LIST**

Name: Corporate Current Account

**INTEREST**

+ Insert existing X Remove existing

Name	Code	Description
Corporate Current Account	Co CA	

## Adding Interest Lists

To create a new interest list, follow these steps:

1. Click the **Insert** button on the top right side of the page. The **Add Interest List** page is displayed.
2. Enter a **Name** for the interest list.
3. Click the **Save and Reload** button at the top right corner of the page.
4. Click the **Insert existing** button to add the applicable interests in the **Interest** section.
5. Click the **Save and Close** button at the top right corner of the page.

## Commission Types

Commission types are used to categorize [commissions](#) according to their intended usage. For example, there are administration fee type commissions, front-end fee type commissions, payment holiday fee type commissions and so on.

To manage commission types:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Commission Types** to open the **Commission Types List** page.

COMMISSION TYPES LIST	
<input type="checkbox"/> Name	Periodicity Type
<input type="text" value="Q"/>	<input type="text" value="Q"/>
Administration Fee	Monthly
Commission Undrawn Amount (overdraft) Monthly	Monthly
Commission Undrawn Amount (overdraft) Once	Once
Commission Unusage Monthly	Monthly
Commission Unusage Once	Once
<div>5 10 20 1 2 3</div>	

5. In the **Commission Types List** page, you can:
  - Add a new commission type by clicking the **Insert** button at the top right corner of the page.
  - Edit an existing commission type by double-clicking it.
  - Delete a commission type by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Commission Type** page allows you to configure commission type settings.

EDIT COMMISSION TYPE	
COMMISSION TYPE	
Commission Schema	Payment Holiday
Name	Payment Holiday Fee
Periodicity Type	Once
Operation Item	Payment Holiday Fee

## Adding Commission Types

To create a new commission type, click the **Insert** button on the top right side of the page. In the newly opened **Add Commission Type** page, fill in the following fields from the **Commission Type** section:

Field	Data Type	Details
Commission Schema	Lookup	Select the schema to which this commission type belongs, if any.
Name	Text	Enter the name of the commission type.
Periodicity type	Option set	Automatically filled-in when you choose the commission type.
Operation Item	Lookup	Select the operation item to which this commission type should be applied.

Click the **Save and Reload** button at the top right corner of the page. The new commission type is created and ready to be used.

## Commissions

Commissions are the fees taken by the bank for offering a product or service such as opening an account, for cash withdrawals, for transfers, for making payments in certain countries, for exchanging currencies, for emitting debit cards, for handling documents etc. These commissions vary from bank to bank, based on their policy. Innovation Studio has a dedicated menu for managing commissions in order for a bank to build its network of commissions. These commissions are grouped into lists and attached to banking products, so they reach the contracts.

To manage commissions:

## BANKING PRODUCT FACTORY USER GUIDE

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Commissions** to open the **Commission List** page.

COMMISSION LIST						
<input type="checkbox"/>	Name	Commission Type	Currency	Commission Percent Appli...	Periodicity Type	Commission Value Is Perc...
<input type="checkbox"/>	CA Administration Fee	Administration Fee	RON		Monthly	<input type="checkbox"/>
<input type="checkbox"/>	Cancel Fee	Payment Holiday Fee	EUR		Once	<input type="checkbox"/>
<input type="checkbox"/>	ComFormulaPercentage	Management Fee	USD	Remaining Value	Monthly	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Commission Unused Amo...	Commission Unusage	EUR	Unused Amount	Once	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Corporate Current Acccou...	Management Fee	VND			<input checked="" type="checkbox"/>

5. In the **Commission List** page, you can:
  - Add a new commission by clicking the **Insert** button at the top right corner of the page.
  - Edit an existing commission by double-clicking it.
  - Delete a commission by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Commission** page allows you to configure commission settings.

EDIT COMMISSION											
COMMISSION											
Name	Corporate Loan Term Front-End Fee VND		Commission Type	Front-end Fee							
Periodicity Type	Once		Currency	VND							
Is For Unusage	<input type="checkbox"/>		Commission Value Is Percentage	<input checked="" type="checkbox"/>							
Is Included Into Repayment Schedule Installment	<input type="checkbox"/>		Automatic Load On Contract	<input checked="" type="checkbox"/>							
Use Banking Formula	<input type="checkbox"/>			Mandatory For Applicant							
COMMISSION VALUE											
<input type="button" value="+ Insert"/> <input type="button" value="X Delete"/> <input type="button" value="Export"/> <input type="button" value="Refresh"/>											
<input type="checkbox"/>	Commission Percent	Commission Value	Valid From	Valid To	Status						
<input type="checkbox"/>	2.00		01.01.2020	31.12.2020	Active						

**IMPORTANT!**

The value of a commission used in active contracts cannot be edited. Instead, you can modify the value's validity and add a new value with a future validity period. For details, see the [Editing The Value Of A Commission Already In Use](#) section.

**HINT**

Read about how and when to use commissions based on their periodicity type on the dedicated [Commission Definition Best Practices](#) page.

## Adding Commissions

To create a new commission, click the **Insert** button on the top right side of the page. In the newly opened **Add Commission** page, fill in the following fields from the **Commission** section:

Field	Data Type	Details
Name	Text	Enter the name of the commission.

Field	Data Type	Details
Commission type	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> <li>• Administration Fee</li> <li>• Commission Undrawn Amount (overdraft) Monthly</li> <li>• Commission Undrawn Amount (overdraft) Once</li> <li>• Commission Unusage Monthly</li> <li>• Commission Unusage Once</li> <li>• Commission Usage Monthly</li> <li>• Commission Usage Once</li> <li>• Front-end Fee</li> <li>• Management Fee</li> <li>• Payment Holiday Fee</li> <li>• Repayment Fee.</li> </ul> <div> <p><b>IMPORTANT!</b></p> <p>The types have a periodicity already set: once/ monthly/ trimester etc.</p> </div>
Periodicity type	Option set	Automatically filled-in when you choose the commission type.
Status	Option set	Select either Active or Draft to enable or disable the commission.
Currency	Option set	Select the currency of the commission from the drop-down.
Is For Unusage	Bool	Select this checkbox if the commission is applied for amount unused from the contract's amount. Usually this commission is applied for unused overdraft amounts.



Field	Data Type	Details
Commission value is percentage	Bool	Select this checkbox if the commission is measured by percentage, not as a fixed value.

Field	Data Type	Details
Commission percent applied to	Option set	<p>Only displayed if you select the checkbox next to the <b>Commission value is percentage</b> field. Choose one of the following:</p> <ul style="list-style-type: none"> <li>• Remaining value - the percentage applies to the contract's remaining to be repaid value .</li> <li>• Financed value - the percentage applies to the contract's financed value.</li> <li>• Paid value - the percentage applies to the anticipated payment performed on the contract.</li> <li>• Unused amount - the percentage applies to the contract's unused amount from the granted value.</li> <li>• Used amount - the percentage applies to the contract's used amount from the granted value.</li> <li>• Overdraft limit amount - the percentage applies to the contract's overdraft limit amount.</li> <li>• Amount - the percentage applies to the contract's amount.</li> </ul> <p>For <b>Term Loan, Mortgage</b> or <b>Overdraft</b> banking products the calculation method is as follows:  If percentAppliedTo =</p>

Field	Data Type	Details
		<p>financedAmount, then  <math>\text{financedAmount} = \text{amountDue} - \text{advanceAmount};</math>            If percentAppliedTo = amount, then <math>\text{financedAmount} = \text{amountDue};</math>            If percentAppliedTo = remainingValue, then, if Contract Status = ContractVersionDraft, then <math>\text{financedAmount} = (-1) * \text{mainBankAccountBalance}.</math> No negative values are allowed, so if the result is negative, then <math>\text{financedAmount} = \text{null}.</math>            Default value <math>\text{financedAmount} = \text{null}.</math></p> <p>For <b>Current Account with Overdraft</b> banking products the calculation method is as follows:            If percentAppliedTo = overdraftLimitAmount, then <math>\text{financedAmount} = \text{overdraftLimitAmount};</math>            If percentAppliedTo = usedAmount, then if (periodType == Once), <math>\text{financedAmount} = \text{overdraftLimitAmount} - \text{availableAmountForOverdraft},</math> else <math>\text{financedAmount} = \text{null}.</math>            Default value <math>\text{financedAmount} = \text{null}.</math></p>
Is included in repayment schedule installment	Bool	<p>If true and the Periodicity Type is not Once, the commission is included into the Repayment Schedule (should be provided with a column where to put this Commission).</p>

Field	Data Type	Details
Automatically load on contract	Bool	Select this checkbox if the commission should be automatically loaded on the contracts based on banking products using this commission.
Mandatory for applicant	Bool	This checkbox makes the commission mandatory to be paid by a customer. If the bank negotiated with a customer to not pay this commission, put the value zero.
Use Banking Formula	Bool	Select the checkbox if the commission is to be defined with an attached business formula for value.
Is For Contract Version	Bool	<p>Select the checkbox if the commission is applied when a new version of the contract is created.</p> <div> <p><b>NOTE</b></p> <p>If a version for a contract is created more than once on the same day, then all commissions with Is For Contract Version = True that were not notified yet for each previous version are deleted. At the end of the day, there is only one commission for the latest version.</p> </div>

Click the **Save and Reload** button at the top right corner of the page.

In the **Commission value** section, insert or delete the values of the commission.

EDIT COMMISSION VALUE

COMMISSION VALUE

Commission Percent

2

Commission Value

Valid From

24/04/2020

Valid To

24/04/2021

Status

Active

To add a new commission value, click **Insert** and fill in the following fields in the newly opened **Commission** page:

Field	Data Type	Details
Commission percent	Numeric	The percent representing the commission.
Commission value	Numeric	The value of the commission.
Valid from	Date	Select the day when the commission value becomes applicable.
Valid to	Date	Select the last day when the commission value is applicable.
Status	Option set	Select either Active or Draft to enable or disable the commission.

Click the **Save and Close** button at the top right corner of the page.

## Commission Definition Best Practices

This page presents a series of recommendations about defining commissions to be used in conjunction with banking products and contracts based on these banking products. For step by step instructions on how to add commissions and how to fill in each field on the page, please read the dedicated [Commissions](#) page.

### General Notes

- Each commission type has a specific periodicity. Some commissions are taken once within a contract, others can occur monthly, and others when a specific contract event occurs. When you select the **Commission Type**, the **Periodicity Type** is automatically filled in by the system.
- If you select the **Is Included Into Repayment Schedule Installment** checkbox for a commission and the **Periodicity Type** is different than **Once**, then the commission is included into the repayment schedule. Note that the repayment schedule should be provided with a column to place the commission.

Let's say you define an Administration Fee or a Management Fee with the **Is Included Into Repayment Schedule Installment** checkbox selected:

**COMMISSION**

Name: DFUNITS Commission Type: Administration Fee

Periodicity Type: Monthly Currency: EUR Status: Active

Is For Unusage: ☐ Commission Value Is Percentage: ☒ Commission Percent Applied To: Financed Value

**Is Included Into Repayment Schedule Installment:** ☒ Automatic Load On Contract: ☒ Mandatory For Applicant: ☒

Use Banking Formula: ☐ Is For Contract Version: ☐

When defining the payment schedule type detail, you only need to select the fee type and not the actual fee:

**PAYMENT SCHEDULE TYPE DETAIL**

Title: dfunit

Column Type: Fee Dimension Column Repayment Schedule: AdministrationFee Calculation Method: Effective Rate

Fee: Fee Type: Administration Fee Source: SourcePercent

Is Calculated In Advance?: ☐ Totalization For Grace Period: ☐

Operation Item: Loan Admin Fee Is calculated Upfront: ☐

- Please only define maximum one commission of each type with the **Is Included Into Repayment Schedule Installment** checkbox selected for every banking product.
- If you select the **Mandatory for Applicant** checkbox for a commission, then, at contract level, the commission cannot be deleted, but its value can be edited.
- If you select the **Is For Unusage** checkbox for a commission, then you are defining a commission for the unused amount of a contract and the **Commission Percent Applied To** field is automatically completed with the **Unused Amount** value.

- If you select the **Commission Value Is Percentage** checkbox for a commission, then the values of the commission can only be percentages. In this case, you must select the contract's operation item to which the commission's percent must be applied. The operation item must be selected from the **Commission Percent Applied To** drop-down. If you deselect the **Commission Value Is Percentage** checkbox, then the values of the commission can only be numeric values.
- The validity period of a commission (the period between the values entered in the **Valid from** and **Valid to** fields) is taken into consideration when searching for the values of each commission type.
- The system performs validations to ensure that the time intervals for the same commission's validity do not overlap. It also ensures that the commission has a valid value at any given time of a contract's life cycle.

#### **Editing The Value Of A Commission Already In Use**

The system does not allow you to modify the value of a commission already in use in active contracts. However, the bank may decide to alter its commission values starting next month, so the new values must be entered into the system.

The following instructions show how to edit the value of a commission attached to a banking product with **Approved** status and having contracts based on that banking product.

1. On the **Commission List** page, double-click the commission whose value has to be changed. The **Edit Commission** page is displayed.
2. In the **Commission Value** section, select the value that is in its validity period and double-click it.

**COMMISSION**

Name: DFADVANCE Commission Type: Front-end Fee

Periodicity Type: Once Currency: EUR Status: Active

Is For Unusage: ☐ Commission Value Is Percentage: ☒ Commission Percent Applied To: Financed Value

Is Included Into Repayment Schedule Installment: ☐ Automatic Load On Contract: ☒ Mandatory For Applicant: ☒

Use Banking Formula: ☐ Is For Contract Version: ☐

---

**COMMISSION VALUE**

+ Insert X Delete Export Refresh

Commission Percent	Commission Value	Valid From	Valid To	Status
10.00		14/06/2021	30/06/2021	Active

- On the newly displayed **Edit Commission Value** page, change the date from the **Valid To** field into the last day when this commission value should be used in contracts.

**EDIT COMMISSION VALUE**

**COMMISSION VALUE**

Commission Percent: 10 Commission Value:

Valid From: 14/06/2021 Valid To: 31/07/2021

Status: Active

- Click the **Save and Close** button at the top right corner of the page.
- Back in the **Commission List** page, in the **Commission Value** section, click the **Insert** button. The **Add Commission Value** page is displayed.
- Complete the fields for the new commission value record, filling in the new **Commission Percent** or **Value**. Make sure the date entered in the **Valid From** field is the next day after the previous commission value is not active anymore. Enter a date further in the future for the **Valid To** field. Select the **Active** status for the new commission value record.

**ADD COMMISSION VALUE**

**COMMISSION VALUE**

Commission Percent: 12.5 Commission Value:

Valid From: 01/08/2021 Valid To: 31/12/2021

Status: Active

- Click the **Save and Close** button at the top right corner of the page.



8. Back in the **Commission List** page, in the **Commission Value** section, observe the newly added commission value, valid starting the next day after the previously existent commission value ends its validity.

COMMISSION VALUE

+ Insert X Delete Export Refresh

Commission Percent	Commission Value	Valid From	Valid To	Status
10.00		14/06/2021	31/07/2021	Active
12.50		01/08/2021	31/12/2021	Active

Contracts created after the new commission value's Valid From date automatically use the new commission value.

The following sections display examples of the typical definition commissions grouped on their periodicity:

## One Time Fee (Once) Commissions

One time fees are commissions that the bank requires to be paid once and not on a regular basis during the contract's life cycle.

### NOTE

For Once periodicity type commissions applied to loan contracts, the Percentage commission values should not be applied to Used or Unused Amount.

For Front-End Fee commission types with default Once periodicity type, the Percentage commission values should not be applied to Remaining Value.

For Once periodicity type commissions with the Is For Contract Version checkbox selected, the commission is posted on new contract versions if the Automatic Load On Contract checkbox is also selected. For commissions thus defined, the Percentage commission values can be applied to Remaining Value, but not to Used Amount or Unused Amount.

Other than the previously described situation, we advise against defining Once periodicity type commissions with the Is For Contract Version checkbox selected.

The following example illustrates a one time fee of 0.02% applied to the paid value of early repayment on contracts. The commission is not included into the repayment schedule of installments, it is not automatically loaded on the contract or mandatory for the applicant:

BANKING PRODUCT FACTORY USER GUIDE

COMMISSION

Name

RepaymentFee EUR %

Commission Type

Repayment Fee

Periodicity Type

Once

Currency

EUR

Status

Active

Is For Unusage

☐

Commission Value Is Percentage

☒

Commission Percent Applied To

Payed Value

Is Included Into Repayment Schedule Installment

☐

Automatic Load On Contract

☐

Mandatory For Applicant

☐

Use Banking Formula

☐

Is For Contract Version

☒

COMMISSION VALUE

+ Insert

X Delete

Export

Refresh

<input type="checkbox"/>	Commission Percent	Commission Value	Valid From	Valid To	Status
<input checked="" type="checkbox"/>	0.02		01/01/2021	31/12/2031	Active

IMPORTANT!

All the Front-End Fee commission types with Once periodicity type applied to a contract are notified and must be paid when the contract is approved. The [Core Banking system parameter FrontEndFee](#) defines the type of commission that is automatically notified at the contract approval.

CURRENT STATUS: APPROVED

NEXT STATUS: CLOSED

CONTRACT NUMBER: 3569

ACTIVATION DATE: 20/08/2021

CREATED BY: vladb

VERSION: 2

VERSION DATE: 20/08/2021 03:00

CONTRACT CATEGORY: Normal

Tooltips On

FEES & COMMISSIONS

Refresh

<input type="checkbox"/>	Fee	Currency	Fee Date	Percent Fee	Value Fee	Periodicity Type
<input type="checkbox"/>	Commission Applied To Amount	EUR	20/08/2021	10.0000	12.50	Monthly
<input checked="" type="checkbox"/>	Corporate Loan Term Front-End Fee EUR	EUR	20/08/2021	4.0000	51.00	Once
<input type="checkbox"/>	RepaymentFee EUR	EUR	20/08/2021		18.50	Once

CURRENT STATUS: PROCESSED

EDIT REPAYMENT NOTIFICATION

REPAYMENT NOTIFICATION

No. 199204

Contract 3569

Currency EUR

Notification Date 20/08/2021

Maturity Date 20/08/2021

Total Amount 276

REPAYMENT NOTIFICATION DETAILS

Export

Refresh

<input type="checkbox"/>	Operation Item	Value	Remaining/Value	Is Paid
<input checked="" type="checkbox"/>	Front-end Fee	51.00	0.00	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Advance	225.00	0.00	<input checked="" type="checkbox"/>

PAYMENT ALLOCATIONS

<input type="checkbox"/>	Payment No.	Payment Date	Operation Item	Allocated Amount	DueDate	Delay (days)
<input checked="" type="checkbox"/>	9928	20/08/2021	Front-end Fee	51.00	20/08/2021	0
<input checked="" type="checkbox"/>	9928	20/08/2021	Advance	225.00	20/08/2021	0

## Periodical Commissions

Periodical commissions are required to be paid on a regular basis during the contract's life cycle, monthly or every 3 months depending on the commission type's defined periodicity. For such commissions, the `Is Included Into Repayment Schedule Installment` checkbox is automatically selected and the commission is included into the repayment schedule. The repayment schedule template should be provided with a column to place this commission type.

For periodical type commissions, such as commissions with `Periodicity Type = Monthly`, if you leave the `Commission Value Is Percentage` checkbox unselected, then the commission values are defined as straight forward values. Make sure that the formula in the repayment schedule template has the following types defined: fixed value, linear, linear on year.

If you select the `Commission Value Is Percentage` checkbox, then you can select the contract's operation item to which the percentage must be applied. The possible options are those listed in the drop-box next to `Commission Percent Applied To` field:

- `Remaining value` - the percentage applies to the contract's remaining to be repaid value .
- `Financed value` - the percentage applies to the contract's financed value.
- `Paid value` - the percentage applies to the anticipated payment performed on the contract.
- `Unused amount` - the percentage applies to the contract's unused amount from the granted value.
- `Used amount` - the percentage applies to the contract's used amount from the granted value.
- `Overdraft limit amount` - the percentage applies to the contract's overdraft limit amount.
- `Amount` - the percentage applies to the contract's amount.

**NOTE**

For term loan, mortgage, current account and deposit contracts, do not define commissions with Commission Percent Applied To = Overdraft limit amount.

Define and use commissions with Commission Percent Applied To = Overdraft limit amount for contracts based on current account with overdraft banking products.

The following example illustrates a monthly 0.15% commission applied to the unused amount of contracts. The commission is included into the repayment schedule of the monthly installments and it is automatically loaded on the contract:

**COMMISSION**

Name: Commission Undrawn Amount (overdraft) EUR Monthly      Commission Type: Commission Undrawn Amount (overdraft) Monthly

Periodicity Type: Monthly      Currency: EUR      Status: Active

Is For Unusage: ☐      Commission Value Is Percentage: ☒      Commission Percent Applied To: Unused Amount

Is Included Into Repayment Schedule Installment: ☒      Automatic Load On Contract: ☒      Mandatory For Applicant: ☐

Use Banking Formula: ☐      Is For Contract Version: ☐

---

**COMMISSION VALUE**

+ Insert    X Delete    Export    Refresh

Commission Percent	Commission Value	Valid From	Valid To	Status
0.15		01/01/2021	31/12/2021	Active

## Commissions Attached to Contract Transactions

The banks can define commissions for performing certain transactions (events) on contracts.

These commissions can also be defined with straight forward values or as percentages.

**NOTE**

For commissions attached to contract transactions, do not select the Automatically load on contract checkbox.

For such commissions, the Percentage commission values should not be applied to

Used Amount or Unused Amount.

If the **Is Negotiable** checkbox is selected at product level when **adding an interest & commission item**, then at transaction level the value or percentage of the commission brought from the banking product level can be edited, otherwise the commission cannot be changed.

The following example illustrates a commission applied to an early repayment contract event. You can see the same commission mentioned as a repayment notification detail after approving the event:

CURRENT STATUS: **APPROVED**

CURRENT STATUS: **NOT STATUS PROCESSED**

Event

Contract

1010

Customer

John Doe

Transaction Type

Early Repayment

Currency

EUR

Event Date

27/07/2021

Event Value

1,019.54

Charge Fee

RepaymentFee EUR

Repayment Fee Percent

18.5

Repayment Fee For Repayment

189.5

Repayment Principal Amount

1,000

Other Fees Total Value

0

Repayment Values

Keep Contract Period

☒

Interest Value

1.04

Future Installments No

12

UNPAID INFO

No.	Due Date	Remaining Value	Interest	Principal	Total Installment
1	27-07-2021	7,300.00	1.04	1,000.00	1,001.04
1	05-08-2021	6,300.00	7.22	546.64	683.86
2	05-09-2021	5,393.36	24.81	929.95	554.76
3	05-10-2021	5,423.41	22.60	522.76	554.76
4	05-11-2021	4,891.25	20.38	534.38	554.76
5	05-12-2021	4,356.87	18.15	536.61	554.76

EDIT REPAYMENT NOTIFICATION

Repayment Notification

No.

automat

Contract

1010

Currency

EUR

Notification Date

27/07/2021

Maturity Date

27/07/2021

Total Amount

1,019.54

Repayment Notification Details

Export

Refresh

Operation Item	Value	Remaining Value	Is Paid
Repayment Fee	18.50	18.50	<input type="checkbox"/>
Loan Interest	1.04	1.04	<input type="checkbox"/>
Loan Principal	1,000.00	1,000.00	<input type="checkbox"/>

As you see below, when performing an early repayment contract event and on the banking product's commissions list there is a commission with the same type as the commission placed in the event, then the event automatically retrieves the commission from the list defined at the banking product level:

EDIT INTEREST & COMMISSION ITEM

INTEREST & COMMISSION ITEM

Banking Product

TLAUTODISB

Code

OLIC

Start Date

27/01/2020

Interest List

TermLoan Eur

Minimum Interest Rate ( % )

4

Item Name

Onboarding Loan I&C

End Date

04/04/2050

Commission List

Term Loan Eur

Is Negotiable

☒

EDIT COMMISSION LIST

COMMISSION LIST

Name

Term Loan Eur

COMMISSION

+ Insert existing

- Remove existing

☐

Name

☐

Commission Applied To Amount

☐

Commission to Remaining Value

☐

Corporate Loan Term Front-End Fee EUR

☐

New Contract Version Commission

☐

Payment Holiday Fee

☒

RepaymentFee EUR

The commission used within the example presented above is defined as follows:

COMMISSION

Name

RepaymentFee EUR

Commission Type

Repayment Fee

Periodicity Type

Once

Currency

EUR

Status

Active

Is For Usage

☐

Commission Value Is Percentage

☐

Is Included Into Repayment Schedule Installment

☐

Automatic Load On Contract

☐

Mandatory For Applicant

☐

Use Banking Formula

☐

Is For Contract Version

☒

COMMISSION VALUE

+ Insert

- Delete

Export

Refresh

<input type="checkbox"/>	Commission Percent	Commission Value	Valid From	Valid To	Status
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input checked="" type="checkbox"/>		18.50	01/01/2021	31/12/2031	Active

PRODUCT DIMENSIONS

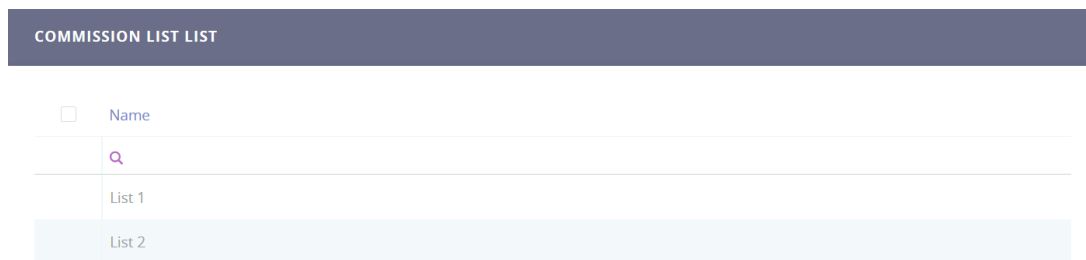
326

## Commission Lists

A commission list allows you to group multiple commissions into a collection of commissions that you can use in a banking product. It is possible to group under the same umbrella the following types of commissions created individually in the ["Commissions" on page 309](#) menu: Front-end fee & Management fee & Repayment fee.

To manage commission lists:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory -> Banking Product Dimensions**.
4. Click **Commissions List** to display the **Commission List List** page.



5. In this page, you can:
  - Add a new commission list by clicking the **Insert** button at the top right corner of the page.
  - Edit a commission list from the section by double clicking it.
  - Delete a commission list from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Commission List** page allows you to configure commission list settings.

**EDIT COMMISSION LIST**

**COMMISSION**

Name: Comision Credit Clasic

**COMMISSION**

+ Insert existing X Remove existing

<input type="checkbox"/>	Name
<input type="checkbox"/>	Comision administrare 1%
<input type="checkbox"/>	Comision analiza dosar Credit Clasic

## Adding Commission Lists

To create a new commission list, follow these steps:

1. Click the **Insert** button on the top right side of the page. The **Add Commission List** page is displayed.
2. Enter a **Name** for the commission list.
3. Click the **Save and Reload** button at the top right corner of the page.
4. Click the **Insert existing** button to add the applicable commission in the **Commission** section.
5. Click the **Save and Close** button at the top right corner of the page.

## Item Filters

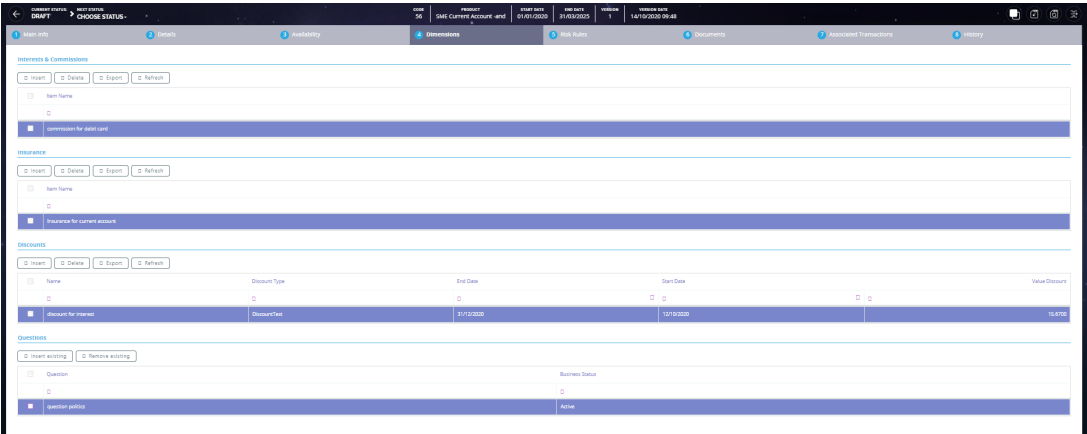
You can define filtering criteria for your interests and commissions which you can later on call in your banking products.

To manage filtering criteria:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**.



- 4. Click **Banking Product** to open the **Product List** page. Select the product where you want to add the filter.
- 5. In the **Dimensions** tab, insert or edit an interest or a commission.



- 6. In the **Interest & Commission Item Filters** section, click **Insert**.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter

SumaCredit

Value

45,000

Until Value

500,000

Description

SumaCredit >= 45000 - 500000

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the "Product Filter" on <a href="#">page 342</a> .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
until Value/ until Date	No	Text/Date	Select the maximum value/ date for the filter.

Field	Required	Data Type	Details
Description	No	Text area	This field is automatically filled in after the <b>Save and Reload</b> button is clicked. The values/ dates inserted above are turned into an expression.
<b>For Lookup attributes</b>			
Filter	Yes	Option set	Select a filter created earlier in the <a href="#">"Product Filter" on page 342</a> .
Option set	No	Option set	Automatically filled in with the option set name created for the attribute.
Description	No	Text area	Add a description if needed.
grid of options	No	grid	This field is automatically filled in after the <b>Save and Reload</b> button is clicked. The values of the option set are displayed. Select the checkbox for the values you wish to include in the filter.

**EDIT INTEREST & COMMISSION ITEM FILTER**

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

<input checked="" type="checkbox"/> Name	DisplayName
<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> highschool	Scălașorul
<input checked="" type="checkbox"/> No studies / primary school	Fără studii sau școală primară
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licență
<input type="checkbox"/> higherEducation	Licență universitară
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

- Click the **Save and Close** button at the top right corner of the page.

## Insurance

When building a product, it may require to add an insurance to it such as a credit insurance, life insurance, house insurance etc.

For any banking product it is possible to select an existing insurance or to create a new one. To add a new one, follow these steps:

- Log into Innovation Studio in Developer mode.
- Click the main menu icon at the top left corner.
- In the main menu, expand **Product Factory-> Banking Product Dimensions**.
- Click **Insurances** to open the **Insurances List** page.

INSURANCES LIST	
<input type="checkbox"/>	Name
<input type="text" value="q"/>	
<input type="checkbox"/>	Full home insurance
<input type="checkbox"/>	Light home insurance

5. In the **Insurances List** page, you can:

- Add a new insurance by clicking the **Insert** button at the top right corner of the page.
- Edit an existing insurance by double clicking it.
- Delete an insurance by selecting it and clicking the **Delete** button at the top right corner of the page.

## Adding Insurances

To create a new insurance, click the **Insert** button on the top right side of the page. In the newly opened **Add Insurance** page, fill in the following fields from the **Insurance** section:

Field	Data Type	Details
Code	Text	Insert a code for the insurance.
Name	Text	Insert a suggestive name for the insurance. Make sure it is a unique name.
Period Type	Option set	Select the type of period for the insurance: <ul style="list-style-type: none"> <li>• Once</li> <li>• Monthly</li> <li>• Trimestrial</li> <li>• Semestrial</li> <li>• Annual.</li> </ul>
Currency	Option set	Select the corresponding currency for the insurance.
Insurer	Option set	Insert the name of the company that issues the insurance.
Operation item	Option set	Select the corresponding operation item responsible for notification
Is mandatory for applicant	Bool	If selected, then the insurance is mandatory for the customer.

Field	Data Type	Details
Is mandatory for debtor	Bool	If selected, the insurance is mandatory for the debtor.
Is Included Into Repayment Schedule Installment	Bool	If selected, the insurance is included in the payment installments.
Class	Option set	Select the class of insurance for this specific insurance: <ul style="list-style-type: none"> <li>• Credit insurance</li> <li>• Home insurance</li> <li>• Life insurance</li> <li>• Other insurance.</li> </ul>
Insurance Value is Percentage	Bool	If selected, the insurance value is a percentage from the banking product's value.
Description	Text area	Insert a suggestive description for the insurance.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance value** section, insert or delete the values of the insurance.

To add a new insurance value, click **Insert** and fill in the following fields in the newly opened **Add Insurance Value** page:

Field	Data type	Description
Begin date	Date	Select a date when the value is valid for the insurance.
End date	Date	Select the end date when the value is no longer valid.
Percent	Numeric	Select the percentage for the insurance.
Value	Numeric	Select the value for the insurance.
Interest discount	Numeric	Select the discount to be applied to the insurance.


Click the **Save and Close** button.

# Insurance Lists

An insurance list allows you to group multiple insurances into a collection that you can use in a banking product. It is possible to group under the same umbrella the following classes of insurances created individually in the ["Insurance" on page 331](#) menu: Credit, Home, Life, and Other insurances.

To manage commission lists:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory -> Banking Product Dimensions**.
4. Click **Insurance List** to display the **Insurances Lists List** page.

INSURANCES LISTS LIST	
<input type="checkbox"/>	Name
	
	Home insurances

5. In this page, you can:
  - Add a new insurance list by clicking the **Insert** button at the top right corner of the page.
  - Edit an insurance list from the section by double clicking it.
  - Delete an insurance list from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Insurance List** page allows you to configure insurance list settings.

EDIT INSURANCE LIST

INSURANCE LIST

Name

Home insurances

FTOS\_BP\_INSURANCEXFTOS\_BP\_INSURANCELIST

+ Insert existing

X Remove existing

<input type="checkbox"/>	Name
	Q
	Full home insurance
	Light home insurance

## Adding Insurance Lists

To create a new insurance list, follow these steps:

1. Click the **Insert** button on the top right side of the page. The **Add Insurance List** page is displayed.
2. Enter a **Name** for the insurance list.
3. Click the **Save and Reload** button at the top right corner of the page.
4. Click the **Insert existing** button to add the applicable insurance in the **Insurance** section.
5. Click the **Save and Close** button at the top right corner of the page.

## Discounts

Banks can offer discounts of any nature for any banking product. You can either select an existing discount or create a new one.

To add a new discount, follow these steps:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Discounts** to open the **Discounts List** page.

Here you can add a new discount by clicking the **Insert** button, or delete an existing discount by clicking the **Delete** button on the right.

5. Click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Applied to dimension	Yes	Option set	Select one of the dimensions: <ul style="list-style-type: none"> <li>• Interest</li> <li>• Commission</li> <li>• Insurance.</li> </ul>
<b>Interest</b>			
Interest Type	Yes	Option set	Select one type from the list.
Interest	No	Option set	Select the exact interest configured in the <a href="#">"Interests" on page 289</a> menu.
<b>Commission</b>			
Commission Type	Yes	Option set	Select one type from the list.
Commission	No	Option set	Select the exact commission configured in the <a href="#">"Commissions" on page 309</a> menu.
<b>Insurance</b>			



Field	Required	Data Type	Details
Insurance Class	Yes	Option set	Select one from the list.
Insurance	No	Option set	Select the exact insurance configured in the <a href="#">"Insurance" on page 331</a> menu.

- Click the **Save and Reload** button at the top right corner of the page.
- In the **Discount** section, the products where the discount is attached is displayed. If it is empty, there is no banking product associated.

**EDIT DISCOUNT DICTIONARY**

**DISCOUNT DICTIONARY**

Name: Interest Discount Applied to Dimension: Interest

Interest Type: Fixed

**DISCOUNTS**

Export Refresh

Banking Product	Name	Start Date	End Date	Value Discount
Loan	Term Commission	01/06/2020	31/05/2021	100.0000
Loan	Term Commission	01/06/2020	31/05/2021	100.0000

- Click the **Save and Close** button at the top right corner of the page.

## Questions

The **Questions** menu helps you build interactive questions for a banking product to which a customer should respond. The questions are further used to determine the eligibility of a customer or their scoring. All questions are held in the [FTOS\\_BP\\_Question](#) entity. The questions can later be added to a digital journey as well. For example, here's a digital journey with a question in the Loan Origination, displayed to determine the customer's eligibility.

The screenshot shows a web application interface for editing a loan application. At the top, there's a navigation bar with 'CURRENT STATUS: INITIALIZED' and 'NEXT STATUS: CHOOSE STATUS'. Below this is a blue header bar that says 'EDIT LOAN APPLICATION'. The main content area is titled 'Eligibility Questions' and includes a sub-header: 'We ask for this information so that we can carry out the checks needed to consider you for a mortgage'. There are three form fields: 'DEPOSIT SOURCE' with a dropdown menu showing 'Select...', 'RETIREMENT DATE' with a date picker, and 'RETIRED' with radio buttons for 'Yes' and 'No' (the 'No' button is selected). A 'Finish' button is located at the bottom right of the form area.

## Adding Questions

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Questions** to open the **Banking Product Questions List** page.  
Here you can add a new question by clicking the **Insert** button, or delete an existing question by clicking the **Delete** button on the right.
5. Click **Insert** and fill in the following fields:

The screenshot shows two parts of the application. The top part is the 'BANKING PRODUCT QUESTION' form, which has fields for 'Question' (containing 'Question1'), 'Question Type' (a dropdown menu with 'Test' selected), 'Is for solicitant?' (a checkbox), 'Is for coborrower?' (a checkbox), 'Answer Entity' (a dropdown menu with 'Account' selected), and 'Answer Field' (a dropdown menu with 'Phone' selected). The bottom part is a table titled 'BANKING PRODUCTS' with three columns: 'Name', 'Product Type', and 'Banking Product Code'. The table contains two rows of data.

Name	Product Type	Banking Product Code
bank account	Bank Account	bank accou
Corporate Loan for IT companies	Term Loan	123456

Field	Required	Data type	Description
Question	Yes	Text	Insert the appropriate name.
Question Type	Yes	Option set	Select the type of answer the client has to give: <ul style="list-style-type: none"> <li>• text</li> <li>• numeric</li> <li>• option set.</li> </ul>
Is for solicitant?	No	Bool	If selected, then the question is aimed at the customer soliciting the banking product.
Is for coborrower?	No	Bool	If selected, then the question is aimed at the customer who is coborrower for a banking product.

Field	Required	Data type	Description
Answer entity	No	Option set	<p>Select the entity where the answer should go.</p> <div> <p><b>NOTE</b></p> <p>The entity must be directly related to the entity on which the questions are posted. If the two entities are not related, the question is not displayed in the flow.</p> </div>
Answer Field	No	Option set	Select the attribute of the previously selected entity where the answer is recorded.

- Click the **Save and Reload** button at the top right corner of the page.

### IMPORTANT!

In order for the question to be added to the banking product, the status must be changed from draft to active.

- The **Banking Products** section displays the products which use the question. If the section is empty, there is no associated product to the question. To add a question to a banking product, see ["Bank Accounts" on page 32](#)
- Click the **Save and Close** button at the top right corner of the page.

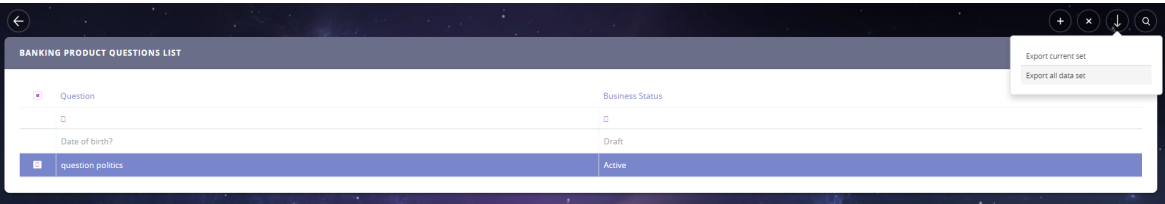
## Deleting Questions

Delete a question by selecting it and clicking the **Delete** button at the top right corner of the page.

## Exporting Questions

To export the questions locally, click the **Export** icon and select between export current set or export all data set. The first exports the selected question, the other exports all the questions.

The exported file is an Excel file downloaded locally. It includes the name of the question and its business statuses.



# Product Filter

To aid in the creation, analysis and categorization of banking products, Innovation Studio has a dedicated functionality for product filtering. Its purpose is to aid users navigate through the list of products based on a filtering scope.

The following sections in each **Availability** tab of a banking or insurance product page assist you in filtering through the attributes: **Product Availability Item Filters**, **Interest & Commissions Item Filters** and **Insurance Item Filters**.

## Adding Product Filters

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**.
3. Click **Banking Product Filter** to open the **Banking Product Filters List** page.

Here you can add a new filter by clicking the **Insert** button, or delete an existing filter by clicking the **Delete** button on the right.

4. Click **Insert** and fill in the following fields:

**EDIT BANKING PRODUCT FILTER**

**BANKING PRODUCT FILTER**

Name: Varsta

Filter Scope: Availability

Filter Type: Numeric Interval

**PRODUCT AVAILABILITY ITEM FILTERS**

Description	Value
Varsta >< 19 - 55	

**INTEREST & COMMISSION ITEM FILTERS**

Field	Required	Data type	Description
Name	No	Text	Insert a name for the filter you are building.
Filter Scope	Yes	Option set	Choose one of the attributes for filtering: <ul style="list-style-type: none"> <li>• Availability</li> <li>• InterestCommissions</li> <li>• Insurance</li> <li>• All</li> </ul>
Filter Type	Yes	Option set	Choose one of the dedicated types: <ul style="list-style-type: none"> <li>• Text Value</li> <li>• Numeric Value</li> <li>• Numeric Interval</li> <li>• Date Value</li> <li>• Date Interval</li> <li>• OptionSet</li> <li>• LookUp</li> </ul>

For OptionSet and LookUp attributes, you can add multiple values.

If you select LookUp attribute, two new fields are displayed: Entity and Entity View. For more details, see [Views](#).

ADD BANKING PRODUCT FILTER

BANKING PRODUCT FILTER

Name

test

Filter Scope

InterestCommission

□ □

Filter Type

LookUp

□ □

Entity

Account

□ □

Entity View

default

□ □

- Click the **Save and Reload** button at the top right corner of the page.

6. Fill in the following fields in the **Product Availability Item Filter** section:

Filter	Required	Data type	Description
Filter	Yes	Option set	This is the name inserted earlier.
Value	Yes	Text	This is the starting value for the attribute.
Until value	Yes	Text	This is the ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

7. Click the **Save and Close** button at the top right corner of the page.

**HINT**

The data inserted here is shown in tab **3. Availability** in the **Product Availability Item Filter** section of the Banking Product page.



The screenshot displays the 'Availability' configuration page in the Banking Product Factory. It includes a top navigation bar with tabs: Main Info, Details, Availability (active), Interest & Commission, Risk Rules, Documents, and History. The 'Product Availability' section contains input fields for Currency (USD), Period Type (Months), Minimum Period (1), Maximum Period (60), Minimum Principal For Early Repayment, Minimum Amount (1,000), and Maximum Amount (100,000). The 'Availability Rules' section features a table titled 'PRODUCT AVAILABILITY ITEM FILTERS' with a search icon and a filter rule: 'Varsta <= 18 - 60'. Action buttons for Insert, Delete, Export, and Refresh are located above the table.

## Deleting Product Filters

To delete a Product Filter:

1. Open the **Product Filter** menu. Click on the filter to be deleted.
2. Click the **Delete** button on the right-side of the corner. Confirm the deletion.

### IMPORTANT!

If the filter is used, the following error message is displayed:

*Cannot delete record of type ProductFilter\_1. Other data is related to it. This could be a cascading item.*

# Product Hierarchy

The banking system has developed numerous products and services to tend to their customers' needs and to stay competitive ahead of times. To aid consultants and developers manage these products, Innovation Studio offers a dedicated menu, **Banking Product Hierarchy**, where a hierarchy can be built

There are two ladders available with two levels. The organization is purely liberal to the bank.

## Product Class

This ladder is designed to categorize the major banking products any bank offers. For example purposes, here is a demonstrative structure:

- Personal
- Corporate
- Public Limited Companies
- Non Profit organizations.

### Adding Product Classes

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Class** menu item.
2. The **Banking Product Classes List** page is displayed. It shows all the existing classes configured so far. To add a new class, click the **Insert** button.
3. Enter a Class Name. Choose an appropriate name for your banking hierarchy.
4. Click the **Save and Reload** button at the top right corner of the page.

5. Four sections are displayed: **Banking Product Subclasses**, **Banking Product Categories**, **Banking Product Subcategories**, and **Banking Products**. Add the associated subclasses, categories, subcategories and products in each respective section.

## Product Subclass

These are subordinated to the classes above. For example, some subclasses for banking products are:

- authenticated
- unauthenticated
- teenagers/ students.
- existing, authenticated customer
- existing, un-authenticated customer
- new, un-authenticated customer
- new, authenticated customer.

## Adding Product Subclasses

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Subclass** menu item.
2. The **Banking Product Subclasses List** page is displayed. It shows all the existing subclasses configured so far. To add a new subclass, click the **Insert** button.
3. Choose from the option set one for the subclasses pre-existing or insert a new subclass.
4. Enter a Subclass Name.
5. Click the **Save and Reload** button at the top right corner of the page.

6. Two new sections are displayed: **Banking Product Categories** and **Banking Product Subcategories**. Add the associated category and subcategory in each respective section.

## Product Category

Here is a possible structure for category:

- saving
- investing.

### Adding Product Categories

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Category** menu item.
2. The **Banking Product Categories List** page is displayed. It shows all the existing categories configured so far. To add a new category, click the **Insert** button.
3. Choose from the option set one for the classes pre-existing or insert a new class.
4. Choose from the option set one of the subclasses pre-existing or insert a new subclass.
5. Enter a Category Name.
6. Enter a Code for the category.
7. Click the **Save and Reload** button at the top right corner of the page.
8. The **Banking Product Subcategories** section is displayed. Insert an associated subcategory in this section.

## Product Subcategory

For example, here is a structure for subcategory:

- savings account
- term deposit
- direct equity
- equity mutual funds
- debt mutual funds.

## Adding Product Subcategories

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Subcategory** menu item.
2. The **Banking Product Subcategories List** page is displayed. It shows all the existing subcategories configured so far. To add a new subcategory, click the **Insert** button.
3. Choose from the option set one for the classes pre-existing or insert a new class.
4. Choose from the option set one of the subclasses pre-existing or insert a new subclass.
5. Choose from the option set one of the category pre-existing or insert a new category.
6. Enter a Subcategory Name.
7. Click the **Save and Close** button at the top right corner of the page.

# Banking Product Classification

If a bank has to classify its product offer, Banking Product Factory has an inbuilt feature, accessible through the **Banking Product Classification** menu item, which allows you to manage classification items. Once defined, a product classification can be attached to different products, and then the contracts based on these products further inherit the same classification. Banking product classification has no business functionality implications, being intended only for the bank's internal segmentation needs.

## Adding Product Classifications

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**.
3. Click **Banking Product Classification** to open the **Banking Product Classifications List** page.

Here you can add a new classification by clicking the **Insert** button, or delete an existing classification by clicking the **Delete** button on the right.

4. Click **Insert** and fill in the following fields in the newly displayed **Add Product**

**Classification page:**

ADD PRODUCT CLASSIFICATION

PRODUCT CLASSIFICATION

Classification Type

Restructuring

Name

Classification Restructuring Level1

Is Default

☐

Code

RESTRUCTL1

Valid From

22/10/2021

Valid To

31/12/2021

BANKING PRODUCT CLASSIFICATION

CONTRACT CLASSIFICATIONS

Field	Required	Data type	Description
Classification Type	Yes	Lookup	Select the type of classification for the new banking product classification record.
Name	Yes	Text	Insert a name for the new classification item.
Is Default	Yes	Boolean	If this checkbox is selected, then this becomes the default banking product classification item.
Code	Yes	Text	Insert a unique code for the new classification item.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

5. Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products that will be classified with this new classification item. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts that will be classified with this new classification item. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

### HINT

The data inserted here is shown in tab **1. Main Info** in the **Product Classification** section of each Banking Product page.



# Payment Schedule Types

The **Banking Schedule Types** menu creates payment schedules, a quintessential part of a loan. Its menu items help you configure the installments, dates and calculations.

## Schedule Element Class

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**, click **Banking Schedule Types**, and open the **Schedule Element Class** menu item.
4. Click the **Insert** button to add a new class.
5. In the newly opened **Add Scheduled Element Class**, select an **Element Type**: Insurance or Commission.
6. Add a name for the element class.
7. Click the **Save and close** button. Repeat as many times as needed.

## Payment Schedule Types

In Innovation Studio, payment schedule types come with a business workflow attached in order to block changes to schedule types that are actively used on banking products. Read more about [Business Workflows](#).

In order to do that, the following statuses are available:

- **Draft** - first, default, every field is editable;
- **Active** - manually selected, fields are no longer editable. The **Duplicate** button is visible. By pressing this button the current schedule type gets duplicated in a draft new schedule type that can be further edited. Only active schedule types can be added to a banking product;
- **Draft** - not manually selected. It is available when a **New Version** button is visible;
- **Closed** - manually selected.

When transitioning a schedule type from Draft to Active, the following server-side validations are being performed:

- The **Interest** column needs to be calculated after the calculation of the **RemainingValue** column. Please change the order in the grid.
- The column {0-ex.TotalInstallment} with formula {1-ex.Principal+Interest} has column {2-ex.Principal} calculated after formula. Change the order in the grid.

**NOTE** A set of out-of-the-box schedule type templates are available with the Active status in Innovation Studio. The templates contain only the mandatory fields, no commissions or interests are defined.

Follow the steps below to create a new payment schedule type:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**, click **Banking Schedule Types**, and open the **Payment Schedule Types** menu item. The **Payment Schedule Types List** page is displayed, showing all the already created schedule types.
4. Click the **Insert** button to add a new type.
5. In the newly opened **Add Payment Schedule Type** page, fill in the following fields:

Field	Required	Data Type	Details
Name	No	Text	Insert a suggestive name for the type.
Payment schedule code	No	Numeric	Insert a code for the type to keep track of them.
Product Type	No	Option set	Select a product type to associate with the payment schedule type. Depending on the Product Type, different calculation rules are triggered. For example, the product type Overdraft has only the payment at maturity.

Field	Required	Data Type	Details
Schedule Interest Calculation Type	No	Option set	<p>Select from the list a type of calculation for the interest.</p> <p>When an annual interest rate is specified, in order to calculate the Installment for an interval of days, first the annual interest rate should be transformed in to a daily base. To make this transformation there are some accepted conventions. Innovation Studio implemented the following conventions: 30/360, 30/365, Actual/Actual, where Actual for years can be either 365 or 366. Other schedule interest calculation types can also be defined, as needed.</p> <p>In practice may be also encountered the Actual/360 or Actual/365.</p>

Field	Required	Data Type	Details
Is With Equal Installments	No	Bool	Select the checkbox if the installments are equal. If there are Commissions that appear on the Payment Schedule, these Commissions are added to the equal Installments, not included within.
Installment Value Custom	No	Bool	<p>If you select the checkbox, with multiple disbursements, the Principal component of the Installments is the one calculated for the entire Financed Amount, even if it was not entirely disbursed.</p> <p>For example, if Financed Amount is 10.000 EURO and the value calculated for Principal component of the Installments is 800 EURO, and the customer disburses only 5.000 EURO, the Principal component remains 800, but the Interest is calculated for 5.000 EURO that were disbursed.</p>

Field	Required	Data Type	Details
Use Fix Maturity Date (from Activation Date)	Yes	Bool	<p>If you select the checkbox, then the Maturity Date equals to Activation Date plus the Contractual Period in Months, i.e. the number of installments depends on the Activation Date.</p> <p>If the checkbox remains unselected, the number of installments are fixed, the Maturity Date is equal to the First Installment plus the Contractual Period in Months, e.g. Installment date is on the first day of the month, this results in the Maturity day to be the first day of the month.</p>
Measurement Unit	Yes	Option set	<p>Select from the list the type of measurement unit applicable for the payment schedule type.</p> <p>Possible values: Days, Weeks, Months, Years, Once.</p> <p>Default value: Months.</p>

EDIT PAYMENT SCHEDULE TYPE

PAYMENT SCHEDULE TYPE

Name

Equal principal Weekly

Payment schedule code

EPW

Product Type

Term Loan

Schedule Interest Calculation Type

52 weeks

Is With Equal Installments

Adjust First Installment

Installment Value Custom

Use Fix Maturity Date

PAYMENT SCHEDULE TYPE DETAILS

Export

Refresh

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Insurance class	Source	Display
<input checked="" type="checkbox"/>	RemainingValue	RemainingFormula				(All) ✓
<input checked="" type="checkbox"/>	Interest	Effective Rate				✓
<input checked="" type="checkbox"/>	Principal	Linear				✓
<input checked="" type="checkbox"/>	TotalInstallment	ColumnFormula				✓

6. Click the **Save and reload** button.

7. In the newly displayed **Payment Schedule Type Details** section, add the information needed, according to the table below.

The fields change according to the selection of **Column Type** and **Calculation Method**.

ADD PAYMENT SCHEDULE TYPE DETAIL

PAYMENT SCHEDULE TYPE DETAIL

Title

Docs\_Testinstallment

Column Type

Payment Schedule Dimension

Column Repayment Schedule

TotalInstallment

Calculation Method

ColumnFormula

Is Calculated in Advance?

Adjust Last Installment

Operation Item

Formula

Principal-interest-ResidualRate

Field	Required	Data Type	Details
Title	Yes	Text	Insert a suitable title for the detail.

PAYMENT SCHEDULE TYPES

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Field	Required	Data Type	Details
Column type	Yes	Option set	<p>Select one of the types:</p> <ul style="list-style-type: none"> <li>• Payment Schedule Dimension</li> <li>• Fee Dimension</li> </ul> <div> <p><b>NOTE</b></p> <p>New option set fields are displayed, <b>Fee, Fee Type</b> and <b>Source</b>.</p> </div> <ul style="list-style-type: none"> <li>• Insurance Dimension.</li> </ul> <div> <p><b>NOTE</b></p> <p>New option set fields are displayed, <b>Insurance class</b> and <b>Source</b>.</p> </div> <p>The selected type triggers changes in the displayed fields.</p>
Column Repayment Schedule	Yes	Option set	<p>Select one of the columns that is assigned in the Payment Schedule.</p>



Field	Required	Data Type	Details
Calculation Method	Yes	Option set	<p>Select a method. It triggers changes in the fields.</p> <p>There are the predefined values that are taken into consideration when calculating the Interest:</p> <ul style="list-style-type: none"> <li>• Linear: calculated as Amount / Number of Installments.</li> <li>• Effective Rate: percent applied to the Source field (see below), usually to the Remaining Value.</li> <li>• Fixed Value: a constant value that is completed in the Payment Schedule.</li> <li>• Column Formula: formulas having other columns as parameters. Formula used is specified in the field <b>Formula</b> that is displayed when this option is set.</li> <li>• Remaining Formula: specific to a column of Remaining.</li> <li>• Once: the value is paid once.</li> <li>• LinearOnYear: a value calculated based on the Remaining Value at the</li> </ul>

Field	Required	Data Type	Details
			<p>beginning of the credit year and a given percentage, divided in installments with the specified periodicity.</p> <ul style="list-style-type: none"> <li>• FeeOnce: takes into account a fee that is paid once.</li> <li>• ProductLevelFixedValue: method that calculates the capital percent defined for cards and credit cards type of products.</li> </ul> <p>The selected calculation method triggers changes in the displayed fields.</p>
Operation Item	No	Option set	It is the item allocated to a column in the Payment Schedule on which the amount calculated at this step is allocated. Select an item from the list.
Fee	No	Option set	Select a fee configured in the Product Dimensions.
Fee Type	Yes	Option set	Select a fee type configured in the Product Dimensions. This is helpful when, for different banking products, there are different values applicable for the same type of fee.

Field	Required	Data Type	Details
Source	No	Option set	It is the source element from the JSON file returned by the Payment Schedule calculation from where to take the value.
Insurance type	No	Option set	Select an insurance type.
Is Calculated In Advance?	No	Bool	Select the checkbox if the calculation is done in advance.
Is calculated Upfront	No	Bool	Option available for Insurance Dimension and Fee Dimension. Select the checkbox for insurance or commissions that need to be paid at the activation of the lending contract.
Totalization For Grace Period	No	Bool	This checkbox is available when the Calculation method is set to Effective Rate or Fixed Value. If selected, then the values that are not applied during Grace period are added to the first non-grace installment.
Adjust Last Installment	No	Bool	This checkbox should be true most of the time, as rounding loses of precision can exist, and the sum of Principal paid monthly should be exactly the same as the Financed Amount.

Field	Required	Data Type	Details
Operation Item	No	Option set	Select the operation item from the list for which this schedule type details should apply.
Formula	No		<p>This checkbox is available when the Calculation method is set to Column Formula or Remaining Formula or Once or LiniarOnYear. The formula can use other Schedule Details Names.</p> <p>For example, for a total installment calculated as Principal+Interest+ManagementFee that were added to Payment Schedule Type Details earlier.</p>

8. Click the **Save and close** button. Repeat to add more details.

#### NOTE

The first installment can be adjusted in situations when the algorithm forces an equal installment, by adjusting the Principal paid in the first interval.

For a Payment Schedule with equal installments, the first installment interest is calculated for the number of days between Activation Date and First Installment Date.

Normally, for this first installment, the number of days can be lower or higher than the normal interval, so the Interest calculated makes the first installment to be different than the others.

The following picture illustrates the payment schedule type and the details defined for Credit Card Installments calculation:

**EDIT PAYMENT SCHEDULE TYPE**

**PAYMENT SCHEDULE TYPE**

Name: Credit Card Installments

Product Type: [none]

Is With Equal Installments: ☐

Payment schedule code: CC

Schedule Interest Calculation Type: 30/360

Installment Value Custom: ☐ Use Fix Maturity Date: ☐

Measurement Unit: Months

**PAYMENT SCHEDULE TYPE DETAILS**

Export Refresh

Column Repayment Schedule	Calculation Method	Fee
CapitalPercent	ProductLevelFixedValue	
ManagementFee	FixedValue	Management Fee Fix 5
RemainingValue	RemainingFormula	
Interest	EffectiveRate	
Principal	ColumnFormula	
TotalInstallment	ColumnFormula	

**EDIT PAYMENT SCHEDULE TYPE DETAIL**

**PAYMENT SCHEDULE TYPE DETAIL**

Title: Principal

Column Type: Payment Schedule Dimension

Payment Schedule Dimension: Principal

Adjust Last Installment: ☒

Operation Item: Loan Principal

Formula:  $(\text{remainingValue} + \text{managementFee}) * \text{CapitalPercent} / 100.00$

## Payment Schedule Type Column

The **Payment Schedule Type Column** menu helps you configure the calculation steps. The order of the steps is determined by the **Calculation column**.

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**, click **Banking Schedule Types**, and open the **Payment Schedule Type Columns** menu item. The **Schedule Type Column List** page is displayed, showing all the already created schedule type columns.
3. Click the **Insert** button to add a new column type.
4. In the newly opened **Add Schedule Type Column** page, select a column type from the list:
  - Payment Schedule Dimension
  - Fee Dimension

- Insurance Dimension.

EDIT SCHEDULE TYPE COLUMN

SCHEDULE TYPE COLUMN

Column TypePayment Schedule DimensionNameInterestCapitalized

PAYMENT SCHEDULE TYPE DETAILS

☐ Column Repayment Schedule

☐ InterestCapitalized

☐ InterestCapitalized

Calculation Method

ColumnFormula

Effective Rate

Fee

Source

Display

YES

Calculator

JS

5. Enter a Name for the column.
6. Click the **Save and reload** button.
7. A new section is displayed:

Field	Required	Data Type	Details
Title	Yes	Text	Insert a suitable title for the Payment Schedule element.
Column type	Yes	Option set	Select one of the types: <div><div>1. Payment Schedule Dimension</div><div>2. Fee Dimension</div><div>3. Insurance Dimension.</div></div>
Column Repayment Schedule	Yes	Option set	Select a product schedule type column.
Calculation Method	Yes	Option set	Select a calculation method.

8. Click the **Save and reload** button.
9. The **Payment Schedule Type Details** section is displayed. Fill in the fields as indicated above in the [Payment Schedule Types](#) chapter.

ADD PAYMENT SCHEDULE TYPE DETAIL

PAYMENT SCHEDULE TYPE DETAIL

Title

Docs

Column Type

Payment Schedule Dimension

Column Repayment Schedule

Interest

Calculation Method

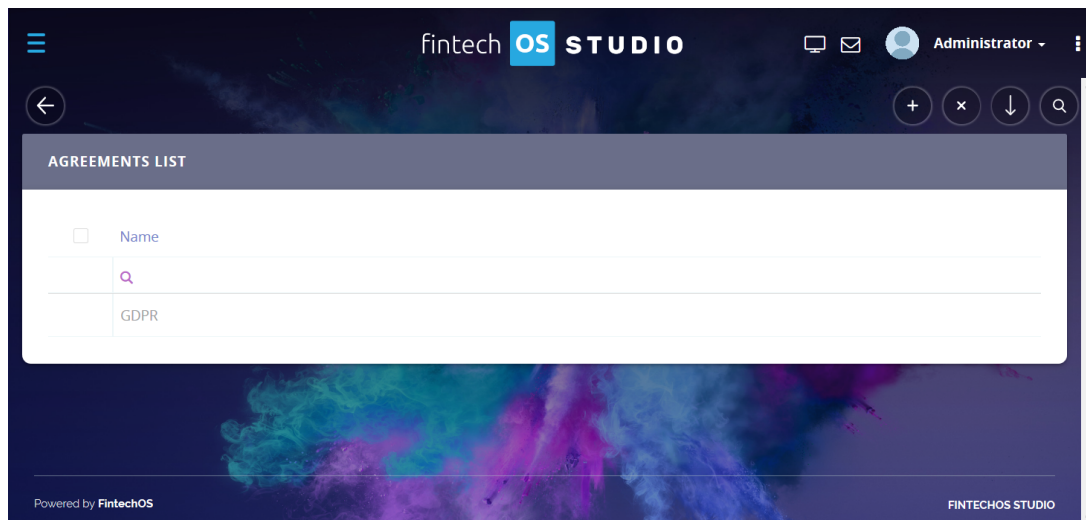
ColumnFormula

# Agreements

Agreements are set up independently from the banking products because a product may require multiple types of agreements, while a certain type of agreement can be required by multiple products.

To manage agreements:

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**.
3. Click **Banking Agreements** to open the **Agreements List** page.



4. In this page, you can:
  - Add a new agreement by clicking the **Insert** button at the top right corner of the page.
  - Edit an agreement from the section by double clicking it.
  - Delete an agreement from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Agreement** page allows you to configure agreement settings.



# Adding Agreements

1. To create a new agreement, click the **Insert** button on the top right side of the page. In the newly opened **Add Agreement** page, fill in the following fields from the **Agreement** section:

Field	Details
Name	Name of the agreement. The name must be unique.
Display Name	The display name of the agreement.
Code	Code of the agreement. The code must be unique.

2. Click the **Save and Reload** button at the top right corner of the page. The **Banking Product Agreements section** is displayed.
3. Click the **Insert** button to attach an agreement to the banking product.

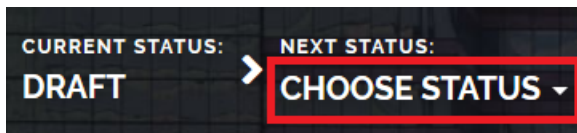
## Banking Product Agreements

The **Banking Product Agreements** section allows you to associate the agreement with banking products (see "[Managing Banking Products](#)" on page 30 for details) and specify if the association is mandatory.

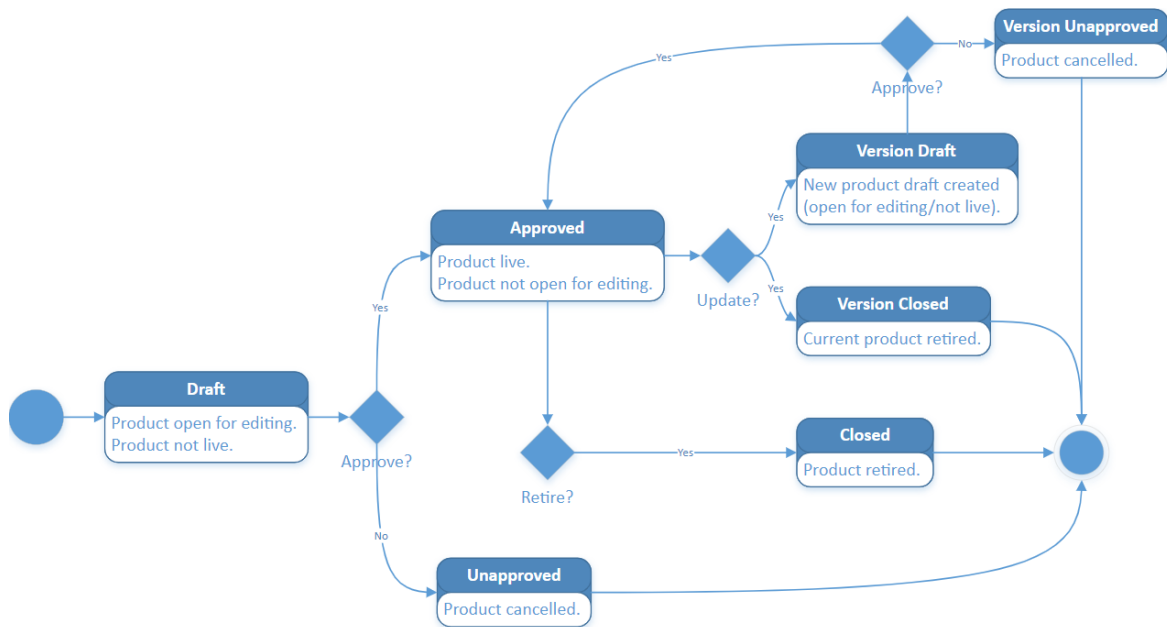
**NOTE** You can also associate banking products with agreements from a banking product (see [Documents tab in a banking product page](#) for details).

# Banking Products' Life Cycle

You can manage a banking product's life cycle by changing its status from the top right corner of the screen.



The product status transitions are illustrated below:



Note that:

- Once a product is live, its settings can no longer be modified.
- If you want to update a live product, you must create a new product version.
- When you create a new product version, the current version is retired.
- Every product version starts in a draft state and must go through an approval process before going live.
- Only one version of a product can be live at one time.

# Using Banking Products in Digital Journeys

To use a banking product built previously in a Form Driven Flow, a consultant or developer has to create an endpoint with a script. Later, in the **Advanced** tab of a digital journey, they must call the endpoint and add the product to the journey.

In the **Advanced** tab of a digital journey, apply the code example in FTOS\_BP\_GetBankingProductDetails, but changing the Banking product ID.

In this entity all information regarding a banking product is stored, therefore, all fields configured prior are available.

The endpoints are configured during the installation process. For more, details see [Creating Endpoints](#).

The following are the endpoints that call the information built in a banking product:

## FTOS\_BP\_GetDiscountDetail

Returns the discount information.

### Inputs:

- **productDiscountId** - from FTOS\_BP\_BankingProductDiscount;
- **bankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductid); optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **discountInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

### Outputs:

Object with details about the provided discount from FTOS\_BP\_BankingProductDiscount and associated FTOS\_BP\_Discount. If use Banking Formula is checked, then the value is equal to the formula result.

**Call example:**

```

1  //with formula
2  var data = {
3      "productDiscountId": "32d391e4-9f26-4315-9c1d-
    ebd54bfa4e1d",
4      "bankingProductId": "25b9efdf-6ca5-48c5-8507-
    5543a22377b2",
5      "discountInput": {
6          "Amount": 6000.00
7      }
8  };
9  ebs.callActionByName("FTOS_BP_GetDiscountDetail", data,
10 function(s){ if(s.UIResult){console.log
    (s.UIResult.Data.discountDetail);}});
11 /*
12 [
13     {
14         "id": "32d391e4-9f26-4315-9c1d-ebd54bfa4e1d",
15         "name": "discountAAAA",
16         "discountTypeId": "f0da4a04-a513-4394-8b60-
    96d0a9409d7c",
17         "value": 5.3,
18         "startDate": {
19             "invariantDate": "2021-03-01"
20         },
21         "endDate": {
22             "invariantDate": "2021-12-31"
23         },
24         "appliedToDimension": "a16d6728-76ac-4d72-8fa7-
    a992e9a6a63f",
25         "interestTypeId": "3a5ffd12-bfc6-4826-bb81-
    7e49d2f1c2c6",
26         "commissionTypeId": null,
27         "insuranceClassId": null,
28         "insuranceId": null,
29         "isOptionalDiscount": false,
30         "isPercentage": true,
31         "useFormula": true,
32         "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
    b2c052cafe0b"
    }
    ]
    */

```

```

33     }
34 ]
35 */
36 //without formula (value only)
37 var data = {
38     "productDiscountId": "32d391e4-9f26-4315-9c1d-
    ebd54bfa4e1d"
39 };
40 ebs.callActionByName("FTOS_BP_GetDiscountDetail", data,
41 function(s){ if(s.UIResult){console.log
    (s.UIResult.Data.discountDetail);}}});
42
43 /*
44 [
45     {
46         "id": "32d391e4-9f26-4315-9c1d-ebd54bfa4e1d",
47         "name": "discountAAAA",
48         "discountTypeId": "f0da4a04-a513-4394-8b60-
    96d0a9409d7c",
49         "value": 5,
50         "startDate": {
51             "invariantDate": "2021-03-01"
52         },
53         "endDate": {
54             "invariantDate": "2021-12-31"
55         },
56         "appliedToDimension": "a16d6728-76ac-4d72-8fa7-
    a992e9a6a63f",
57         "interestTypeId": "3a5fffd12-bfc6-4826-bb81-
    7e49d2f1c2c6",
58         "commissionTypeId": null,
59         "insuranceClassId": null,
60         "insuranceId": null,
61         "isOptionalDiscount": false,
62         "isPercentage": true,
63         "useFormula": false,
64         "formulaTypeId": null
65     }
66 ]
67 */

```

## FTOS\_BP\_GetAvailableProductImage

Returns the product image.

**Input:**

- **bakingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductid)

**Output:**

- **productImage** - from FTOS\_BP\_BankingProduct (attribute: productImage)

**Call example:**

```

1 | ebs.callActionByNameAsync("FTOS_BP_
   | GetAvailableProductImage", { bankingProductId :
   | "f625e5e5-bc51-4bf8-8ff0-b8a295694a23" })
2 |     .then(function (e) {
3 |         var img = e.UIResult.Data;
4 |     }).catch(function (err) {
5 |         console.log(err);
6 |     });

```

## FTOS\_BP\_GetBankingProductDetails

Returns the product details.

**Input:**

- **bakingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductid)

**Output:**

Section with the following fields:

- **product.Name** - from FTOS\_BP\_BankingProduct (attribute: Name)
- **product.ProductImage** - from FTOS\_BP\_BankingProduct (attribute: productImage )
- **product.Benefits** - from FTOS\_BP\_BankingProduct (attribute: Benefits)

- **product.DisplayConditions** - from FTOS\_BP\_BankingProduct (attribute: displayConditions)
- **product.NoOfDebtor** - from FTOS\_BP\_BankingProduct (attribute: NoOfDebtor)

Call example:

```
1 ebs.callActionByNameAsync('FTOS_BP_
  GetBankingProductDetails', { bankingProductId :
  "f625e5e5-bc51-4bf8-8ff0-b8a295694a23"})
2 .then(function (res) {
3   res = res.UIResult;
4 }).catch(function (err) {
5   console.log(err);
6 })
```

## FTOS\_BP\_GetAvailabilityFiltersOnProduct

Returns the availability filters configured on a product.

Input:

- **BankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductId)

Output:

- **filterName** - from FTOS\_BP\_ProductAvailabilityItemFilter (attribute: name)
- **FilterValue** - from FTOS\_BP\_ProductAvailabilityItemFilter (attribute: textValue)

Call example:

```
1 ebs.callActionByNameAsync('FTOS_BP_
  GetAvailabilityFiltersOnProduct', { bankingProductId :
  "f625e5e5-bc51-4bf8-8ff0-b8a295694a23"})
2 .then(function (res) {
3   res = res.UIResult;
4 }).catch(function (err) {
5   console.log(err);
6 })
```



## FTOS\_BP\_GetProductType

Returns the types of banking product in which there are active banking products.

**Input:**

- **currentDate** - new Date();

**Output:**

- function **getProductType** from library BankingProductHelper.Utils - returns an object with product types.

**Call example:**

```
1 | var p = {};  
2 | p.currentDate = new Date();  
3 | ebs.callActionByNameAsync("FTOS_BP_GetProductType",  
   | p).then(function (e) {  
4 |     var type = e.UIResult.Data;  
5 |     }).catch(function (err) {  
6 |         console.log(err);  
7 |     });
```

## FTOS\_BP\_GetAvailableProductFeatures

Returns the product features.

**Input:**

- **BankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductid)

**Output:**

- section with all features from FTOS\_BP\_Feature for the sent banking product.

**Call example:**

```

1 ebs.callActionByNameAsync("FTOS_BP_
  GetAvailableProductFeatures", { bankingProductId :
  "f625e5e5-bc51-4bf8-8ff0-b8a295694a23"})
2 .then(function (e) {
3     var features = e.UIResult.Data;
4     });

```

## FTOS\_BP\_GetAvailableProductsExtra

Returns the product extras.

### Input:

- **currentDate** - date
- **productId** - ID of banking product Type - from FTOS\_BP\_BankingProduct (attribute: bpProductId)

### Output:

```

bankingProductCode: "HOUSE"
bankingProductId: "bd47d581-e67f-44f7-9be1-ff0b051a73cc"
bankingProductName: "1st House"
bankingProductType: "MG"
bankingProductId: "e9f52e35-1faa-4cb7-b4bc-d685f326c907"
features: Array(4)
  0: {base_name: "3.50% Fixed Annual IR"}
  1: {base_name: "Instant approval"}
  2: {base_name: "No fees"}
  3: {base_name: "Only 5% Downpayment"}
  length: 4
  __proto__: Array(0)
producting: [{"Name": "m-2.png", "RealName": "m-2_43b8271f-a8a0-47b2-a0fb-28dd9dd2fe48.png"}]
  __proto__: Object
1: {bankingProductId: "5a326c60-7672-4e45-bafe-0e7cb02cf2dd", bankingProductName: "Construction Loan", bankingProductCode: "PERSONAL", bankingProductId: "e9f52e35-1faa-4cb7-b4bc-d685f326c907"}
2: {bankingProductId: "51423eee-6202-48d7-997e-99ae55a7c3de", bankingProductName: "Mortgage", bankingProductCode: "MORTGAGE", bankingProductId: "e9f52e35-1faa-4cb7-b4bc-d685f326c907"}

```

### Call example:

```

1 var p = {}
2 p.currentDate = new Date();
3 p.productId = "E9F52E35-1FAA-4CB7-B4BC-D685F326C907"
4 p.filterList = [{ "name": "age", "value": 25 }];
5 ebs.callActionByNameAsync("FTOS_BP_
  GetAvailableProductsExtra", p).then(function (e) {
6     var data = e.UIResult.Data.products;
7     });

```

## FTOS\_BP\_GetPrimaryAttribute

Returns the primary attribute.

### Input:

- **FromEntity** - entity ID

**Output:**

- the name of Primary attribute from current entity.

**Call example:**

```

1 | var p={};
2 | p.FromEntity = "9a9ec886-296b-487d-aff9-30b8e1eb43b8";
   //ID of FTOS_BP_BankingProduct entity
3 | ebs.callActionByNameAsync("FTOS_BP_GetPrimaryAttribute",
   p).then(function (s) {
4 |                                     if (s.UIResult.Data) {
5 |                                         var primaryattribute =
   s.UIResult.Data.Records[0].Name;
6 |                                     }
7 | });
8 |
9 | //Returns "Name"

```

## FTOS\_BP\_GetProductDocuments

Returns the documents on a banking product.

**Input:**

- **bankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductid)

**Output:**

- section with data from FTOS\_BP\_BankingProductDocument for the current banking product.

**Call example:**

```

1 | var p = {};
2 | p.bankingProductId = "f625e5e5-bc51-4bf8-8ff0-
   b8a295694a23";
3 | ebs.callActionByNameAsync('FTOS_BP_GetProductDocuments',
   p).then(function (res) {
4 |     res = res.UIResult;

```

```
5 |    });
```

## FTOS\_BP\_GetInterestDetail

Returns the interest details.

### Input:

- **interestListId** - from FTOS\_BP\_InterestList (attribute: FTOS\_BP\_InterestListId);
- **interestId** - from FTOS\_BP\_Interest (attribute: FTOS\_BP\_InterestId);
- **bankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductId) - optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **interestInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

The scope of the endpoint can be an `interestListId` returning all interests in that list or an `interestId` returning all the details for a specific interest.

### Output:

- object with details about all the interests in the interest list from FTOS\_BP\_Interest and FTOS\_BP\_InterestValue. If interest type is BankingFormula, then `interestRate` is equal to the formula result.

### Call example:

- **minimal:**

```
1 | var data = {};
```

```

2 | data.interestListId = "c7a1b28c-e3f4-4259-b8e5-
   | 638b21bb69a7";
3 | ebs.callActionByName("FTOS_BP_GetInterestDetail", data,
4 | function(s){ if(s.UIResult){console.log
   | (s.UIResult.Data);}}});

```

• **maximal:**

```

1 | var data = {
2 |   "interestListId": "a8d82639-82e3-464f-aa40-
   | e6592daf6bd1",
3 |   "bankingProductId": "3438f5a5-fd00-4745-bb77-
   | 820baeffe3f6",
4 |   "formulaInputId": "2872f33f-b757-48b2-a1d1-
   | 203bef75813d",
5 |   "interestInput": {
6 |     "Amount": 6000.00
7 |   }
8 | };
9 | ebs.callActionByName("FTOS_BP_GetInterestDetail", data,
10| function(s){ if(s.UIResult){console.log
   | (s.UIResult.Data);}}});

```

## FTOS\_BP\_GetCommissionDetail

Returns details from the commission.

**Input:**

- **commissionListId** - from FTOS\_BP\_CommissionList (attribute: FTOS\_BP\_CommissionListId);
- **commissionId** - from FTOS\_BP\_Commission (attribute: FTOS\_BP\_CommissionId);
- **bankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductId); optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;

- **commissionInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

The scope of the endpoint can be a `commissionListId` returning all interests in that list, or a `commissionId` returning all the details for a specific commission.

#### Output:

- object with details about all the commissions in the commission list from `FTOS_BP_Commission` and `FTOS_BP_CommissionValue`. If use Banking Formula is selected, then commission value or commission percent is equal to the formula result.

#### Call example:

```

1  var data = {
2      "commissionListId": "86309408-6bf6-4550-9bb8-
    6d49919175bd",
3      "bankingProductId": "25b9efdf-6ca5-48c5-8507-
    5543a22377b2",
4      "commissionInput": {
5          "Amount": 6000.00
6      }
7  };
8  ebs.callActionByName("FTOS_BP_GetCommissionDetail",
    data,
9  function(s){ if(s.UIResult){console.log
    (s.UIResult.Data.commissionList);}});
10
11  /*
12  [
13      {
14          "id": "01c0ad2e-21bd-4290-aba5-5230a6c184e8",
15          "name": "TC1",
16          "commissionTypeId": "6e2653aa-73ee-452a-b6d6-
    8c0a8cdb89cb",
17          "periodicityTypeId": "1cc04a28-88e0-46df-a089-
    31d04bbde6df",
18          "currencyId": "fc9c53a8-31c6-41ff-a979-
    9c7788d32fb0",
19          "entityStatusId": "facc388-151a-4c83-8953-
    cbac7d6c442a",

```

```

20         "isForUnusage": false,
21         "valueIsPercent": false,
22         "includedInRepaymentSchedule": true,
23         "percentAppliedTo": "f87376c8-15fc-45cc-b8c2-
7786b03593aa",
24         "automaticLoadOnContract": false,
25         "mandatoryForApplicant": true,
26         "useFormula": true,
27         "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
b2c052cafe0b",
28         "commissionValue": 5.3,
29         "commissionPercent": null,
30         "rateValidFrom": null,
31         "rateValidTo": null
32     }
33 ]
34 */
35
36
37 var data = {
38     "commissionId": "01c0ad2e-21bd-4290-aba5-
5230a6c184e8",
39     "bankingProductId": "25b9efdf-6ca5-48c5-8507-
5543a22377b2",
40     "commissionInput": {
41         "Amount": 15000.00
42     }
43 };
44 ebs.callActionByName("FTOS_BP_GetCommissionDetail",
data,
45 function(s){ if(s.UIResult){console.log
(s.UIResult.Data.commissionList);}});
46
47 /*
48 [
49     {
50         "id": "01c0ad2e-21bd-4290-aba5-5230a6c184e8",
51         "name": "TC1",
52         "commissionTypeId": "6e2653aa-73ee-452a-b6d6-
8c0a8cdb89cb",
53         "periodicityTypeId": "1cc04a28-88e0-46df-a089-
31d04bbde6df",
54         "currencyId": "fc9c53a8-31c6-41ff-a979-
9c7788d32fb0",

```

```

55     "entityStatusId": "faccc388-151a-4c83-8953-
    cbac7d6c442a",
56     "isForUnusage": false,
57     "valueIsPercent": false,
58     "includedInRepaymentSchedule": true,
59     "percentAppliedTo": "f87376c8-15fc-45cc-b8c2-
    7786b03593aa",
60     "automaticLoadOnContract": false,
61     "mandatoryForApplicant": true,
62     "useFormula": true,
63     "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
    b2c052cafe0b",
64     "commissionValue": 5.1,
65     "commissionPercent": null,
66     "rateValidFrom": null,
67     "rateValidTo": null
68   }
69 ]
70 */

```

## FTOS\_BP\_CallFormula

Call a formula from banking product.

### Input:

- **formulaType** - from FTOS\_BP\_Formula ( attribute: formulaTypeId );
- **bankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductid);
- **id** - input ID.

### Call example:

```

1  ebs.callActionByNameAsync("FTOS_BP_CallFormula",
2  {
3      "formulaType": FORMULA_TYPE_ID,
4      "bankingProductId": BANKING_PRODUCT_ID,
5      "id": RECORD_ID
6  })
7  .then(function (result) { console.log(JSON.stringify
    (result))})

```



## FTOS\_BP\_Simulate

Get a simulation from PaymentSchedule with different parameters.

### Input:

Mandatory inputs:

- **Amount**
- **LoanPeriod**
- **BankingProductId**
- **ScheduleType.**

Optional inputs:

- **InterestType** - Fixed, Variable, Collection, BankingFormula
- **Optional** - list of selected optional product discounts (ex: [{"Name":"Insurance","ProductDiscountId":"35b36b84-24e0-409c-9799-7426d4273c9e"}] )
- **InterestCommission** - list of filtered interest list and commission list (ex: [{"interestListId":"0e096545-f9f2-4a24-8cf9-12b39e8af039","interestListName":"ListaPL2","commissionListId":"a2e435ed-4998-4750-ab0d-e89cb81d2ecb","commissionListName":"AdminFee"}] )
- **Insurance** - list of the selected or filtered insurances: (ex: [{"insuranceListId":"dbfc46f3-9f5c-4f89-ba15-383210c4cd48"}] )
- **interestCommissionFilterList** - interest/ commission filter list
- **insuranceFilterList** - insurance filter list
- **discountFilterList** - discount filter List
- **givenInterestRate** - a given interest rate that overwrites Interest Rate from product for Fixed interest type
- **givenInterestMargin** - a given interest margin that overwrites Interest Margin from product for interest type Variable

- **jsonMultipleInterestRates** - the list of interests to use for repayment plan Calculation (ex: [{"InterestRate":8.000000, "FromInstNo":1, "ToInstNo":5}, {"InterestRate":10.00000, "FromInstNo":6, "ToInstNo":300}])
  - "InterestRate": 8.000000 interest percent defined as interest type = Collection on the banking product/Dimensions/InterestList/Interes
  - from-to installment numbers defined as interest type = Collection on the banking product/Dimensions/InterestList/Interest
- **ProductField**
  - used currently only for CreditCard product
  - you can use it as bellow, multiple numeric attributes defined at the banking product level
  - "FieldName": "CapitalPercent" - percentage field defined at the banking product level / Details section, representing a percentage to be applied as formula for the schedule detail principal column
  - "FieldValue": 6 - if provided, its value is considered for calculation. If not provided the value is read from the banking product configuration.
- **jsonInputFormula** - it is usually provided when interest type is BankingFormula or Collection and represents the formula input json (just like test formula). It can contain inputs for interest/commission/insurance/discount

```

1  "jsonInputFormula": {
2      "interestInput":{
3          "Amount": 6000.00
4      }
5  }

```

#### Call example:

- The reduced version:

```

ebs.callActionByNameAsync("FIS_BP_Simulate",
{
  "Amount":640000,"LoanPeriod":240,"BankingProductId":"2c835f00-3afb-4ab6-ae7e-0ce0b8b4394b","ScheduleType":"Loan Equal Installments"
})
.then(function (result) { console.table(result)})

```

- The full version:

```

1  ebs.callActionByNameAsync("FTOS_BP_Simulate", {
2    "bankingProductId": "3783c622-c15a-476a-8834-
d0850d5e8ca2",
3    "amount": 712000,
4    "downPayment": 356000,
5    "loanPeriod": 240,
6    "interestType": "f37646db-739c-477c-91df-
f294737b59bd",
7    "recordId": "bcd1358c-aef7-4e13-bc91-c3f6e56885f3",
8    "scheduleType": "Loan Equal Installments",
9    "optional": [
10     {
11       "Name": "Income Receiving",
12       "ProductDiscountId": "8c1cf49e-9aff-4353-8341-
9daed8e9fa88"
13     }
14   ],
15   "discount": [
16     {
17       "Name": "Interest Discount",
18       "ProductDiscountId": "de770415-9bfe-4a7f-8425-
02c0ebd1a5e7"
19     }
20   ],
21   "jsonFilterCommission": [
22     {
23       "name": "FinancedAmount",
24       "value": 356000
25     }
26   ],
27   "jsonInsuranceFilter": [
28     {
29       "name": "FinancedAmount",
30       "value": 356000
31     }
32   ],
33   "jsonDiscountFilter": [
34     {
35       "name": "FinancedAmount",
36       "value": 356000
37     }
38   ]
39 })

```

```

40     .then(function (result) {
41         console.log(result.UIResult.Data.Records[0]);
42     });

```

- Another example for Interest Type = Banking Formula:

```

1  ebs.callActionByNameAsync("FTOS_BP_Simulate", {
2      "bankingProductId": "3783c622-c15a-476a-8834-
   d0850d5e8ca2",
3      "amount": 712000,
4      "downPayment": 356000,
5      "loanPeriod": 240,
6      "interestType": "f37646db-739c-477c-91df-
   f294737b59bd",
7      "scheduleType": "Loan Equal Installments",
8      "optional": [{
9          "Name": "Income Receiving",
10         "ProductDiscountId": "8c1cf49e-9aff-4353-8341-
   9daed8e9fa88",
11     }],
12     "jsonFilterCommission": [],
13     "jsonInsuranceFilter": [],
14     "jsonDiscountFilter": [],
15     "jsonInputFormula": {
16         "interestInput": {
17             "Amount": 6000.00
18         }
19     }
20 })
21 .then(function (result) {
22     console.table(result.UIResult.Data.Records[0]);
23 });

```

VM1073:22

(index)	Value
InterestPercent	'7.00%'
IRR	'7.23%'
FirstInstallment	2760.06
FirstInsurance	0
TotalInsurance	0
FirstFee	0
TotalFee	0
Total	662416.57
ScheduleJson	'{"paymentSchedule":[{"InstallmentNo":1,...
InterestId	'c6f87d91-c625-4acb-9ec0-31f5864ca609'
InterestListId	'0e096545-f9f2-4a24-8cf9-12b39e8af039'
cntInterestId	2
InterestCommissionItemId	'edbe876f-06e6-499d-b9a5-33939962a067'
cntInterestCommissionItemId	2
CommissionListId	'a2e435ed-4998-4750-ab0d-e89cb81d2ecb'
OutputInterestJson	'{"BaseInterestPercent":8.0000, "Interes...
OutputCommissionJson	null
OutputInsuranceJson	null

- Another example for Interest Type = Collection and child interest as formula:

```

1  ebs.callActionByNameAsync("FTOS_BP_Simulate", {
2    "bankingProductId": "3783c622-c15a-476a-8834-
   d0850d5e8ca2",
3    "amount": 700000.00,
4    "downPayment": 350000,
5    "loanPeriod": 240,
6    "interestType": "f37646db-739c-477c-91df-
   f294737b59bd",
7    "scheduleType": "Loan Equal Installments",
8    "optional": [{
9      "Name": "Income Receiving",
10     "ProductDiscountId": "8c1cf49e-9aff-4353-8341-
   9daed8e9fa880",
11   }],
12   "jsonFilterCommission": [],
13   "jsonInsuranceFilter": [],
14   "jsonDiscountFilter": [],
15   "jsonInputFormula": {
16     "interestInput":{
17       "Amount": 700000.00

```

```

18         }
19     }
20 })
21 .then(function (result) {
22     console.table(result.UIResult.Data.Records[0]);
23 });

```

VM1078:22

(index)	Value
InterestPercent	'7.00%'
IRR	'7.23%'
FirstInstallment	2713.55
FirstInsurance	0
TotalInsurance	0
FirstFee	0
TotalFee	0
Total	651250.27
ScheduleJson	'{"paymentSchedule":[{"InstallmentNo":1,"...
InterestId	'c6f87d91-c625-4acb-9ec0-31f5864ca609'
InterestListId	'0e096545-f9f2-4a24-8cf9-12b39e8af039'
cntInterestId	2
InterestCommissionItemId	'edbe876f-06e6-499d-b9a5-33939962a067'
cntInterestCommissionItemId	2
CommissionListId	'a2e435ed-4998-4750-ab0d-e89cb81d2ecb'
OutputInterestJson	'{"BaseInterestPercent":8.0000, "Interest...
OutputCommissionJson	null
OutputInsuranceJson	null

► Object

> |

## FTOS\_BP\_GetInsuranceDetail

Returns details from an insurance.

### Input:

- **insuranceListId** - from FTOS\_BP\_InsuranceList (attribute: FTOS\_BP\_InsuranceListId);
- **insuranceId** - from FTOS\_BP\_Insurance (attribute: FTOS\_BP\_InsuranceId);

- **bankingProductId** - from FTOS\_BP\_BankingProduct (attribute: FTOS\_BP\_BankingProductId) - optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **insuranceInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

The scope of the endpoint can be an `interestListId` returning all interests in that list or an `interestId` returning all the details for a specific interest.

#### Output:

Object with details about all the insurances in the insurance list from FTOS\_BP\_Insurance and FTOS\_BP\_InsuranceValue. If use Banking Formula is selected, then insurance value or insurance percent is equal to the formula result.

#### Call example:

```

1  var data = {
2      "insuranceListId": "bf2c45ba-3ea4-4447-9c96-
   45a708fc94c8",
3      "bankingProductId": "25b9efdf-6ca5-48c5-8507-
   5543a22377b2",
4      "insuranceInput": {
5          "Amount": 6000.00
6      }
7  };
8  ebs.callActionByName("FTOS_BP_GetInsuranceDetail", data,
9  function(s){ if(s.UIResult){console.log
   (s.UIResult.Data.insuranceList);}}});
10
11  /*
12  [
13      {
14          "id": "f93416a9-c3f9-4824-9d72-05160c3666bc",
15          "name": "Test Insurance Formula1",
16          "code": "testI_F1",
17          "description": null,

```

```

18         "insurer": "ASIROM",
19         "isMandatoryForApplicant": true,
20         "isMandatoryForDebtor": false,
21         "valueIsPercent": false,
22         "periodicityTypeId": "1cc04a28-88e0-46df-a089-
31d04bbde6df",
23         "currencyId": "fc9c53a8-31c6-41ff-a979-
9c7788d32fb0",
24         "useOnPaymentSchedule": true,
25         "scheduleElementClassId": "d74c21fe-bb12-413f-
83d7-26ab40f34226",
26         "operationItemId": null,
27         "useFormula": true,
28         "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
b2c052cafe0b",
29         "insuranceValue": 5.3,
30         "insurancePercent": null,
31         "interestDiscount": null,
32         "rateValidFrom": null,
33         "rateValidTo": null
34     },
35     {
36         "id": "24284701-7d60-4a80-8589-5ab867f9db81",
37         "name": "TestInsurance_Values2_Percentage",
38         "code": "testI_V2P",
39         "description": null,
40         "insurer": "Generali",
41         "isMandatoryForApplicant": true,
42         "isMandatoryForDebtor": false,
43         "valueIsPercent": false,
44         "periodicityTypeId": "1cc04a28-88e0-46df-a089-
31d04bbde6df",
45         "currencyId": "fc9c53a8-31c6-41ff-a979-
9c7788d32fb0",
46         "useOnPaymentSchedule": true,
47         "scheduleElementClassId": "d74c21fe-bb12-413f-
83d7-26ab40f34226",
48         "operationItemId": null,
49         "useFormula": false,
50         "formulaTypeId": null,
51         "insuranceValue": 146,
52         "insurancePercent": null,
53         "interestDiscount": null,
54         "rateValidFrom": "2021-03-07T22:00:00Z",
55         "rateValidTo": "2021-12-30T22:00:00Z"

```



```

56     }
57 ]
58 */
59
60 var data = {
61     "insuranceId": "f93416a9-c3f9-4824-9d72-
62     05160c3666bc",
63     "bankingProductId": "25b9efdf-6ca5-48c5-8507-
64     5543a22377b2",
65     "insuranceInput": {
66         "Amount": 6000.00
67     }
68 };
69 ebs.callActionByName("FTOS_BP_GetInsuranceDetail", data,
70 function(s){ if(s.UIResult){console.log
71 (s.UIResult.Data.insuranceList);}});
72
73 /*
74 [
75     {
76         "id": "f93416a9-c3f9-4824-9d72-05160c3666bc",
77         "name": "Test Insurance Formula1",
78         "code": "testI_F1",
79         "description": null,
80         "insurer": "ASIROM",
81         "isMandatoryForApplicant": true,
82         "isMandatoryForDebtor": false,
83         "valueIsPercent": false,
84         "periodicityTypeId": "1cc04a28-88e0-46df-a089-
85         31d04bbde6df",
86         "currencyId": "fc9c53a8-31c6-41ff-a979-
87         9c7788d32fb0",
88         "useOnPaymentSchedule": true,
89         "scheduleElementClassId": "d74c21fe-bb12-413f-
90         83d7-26ab40f34226",
91         "operationItemId": null,
92         "useFormula": true,
93         "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
94         b2c052cafe0b",
95         "insuranceValue": 5.3,
96         "insurancePercent": null,
97         "interestDiscount": null,
98         "rateValidFrom": null,
99         "rateValidTo": null
100     }
101 ]
102 */

```

94		]
95		* /

## FTOS\_BP\_CalculatePMT

Returns the value for the calculated PMT, or payment terms for a loan or investment.

### Input:

**Mandatory** input parameters:

- **InstallmentsNo** - The number of installments
- **PeriodicityType** - The type of periodicity for PMT calculation. The possible values are the names of the records from the [FTOS\\_CB\\_PeriodicityType](#) entity.
- **InterestCalculationMethod** - The method to be used for interest calculation. The possible values are the names of the records from the [FTOS\\_BP\\_InterestCalculationType](#) option set.

**Optional** input parameters:

- **FinancedAmount** - The loan's financed amount
- **InterestPercent** - The annual interest percentage
- **GracePeriodPrincipal** - If the value is 1, then the installment is skipped at the beginning. If the parameter is not present, its value is considered 0.
- **FutureValue** - The balloon value. If the parameter is not present, its value is considered 0.
- **InterestType** - The type of calculation for the interest, with 0 for InArrears and 1 for InAdvance.

### Output:

- **PMTValue** - the calculated value of the PMT
- **PrincipalValue** - the principal value.

**Call example:**

```
1 ebs.callActionByNameAsync('FTOS_BP_CalculatePMT', {
2   "jsonParam": {
3     "FinancedAmount": 10000,
4     "InterestPercent": 5,
5     "InstallmentsNo": 12,
6     "GracePeriodPrincipal": 1,
7     "PeriodicityType": "Monthly",
8     "FutureValue": 1000,
9     "InterestCalculationMethod": "30/360",
10    "InterestType": 0
11  }
12 }).then(function (o) {
13   console.table(o.UIResult.Data)
14 });
```

```

> ebs.callActionByNameAsync('FTOS_CB_CalculatePMT', {
  "jsonParam": {
    "FinancedAmount": 10000,
    /* Loan Financed Amount*/
    "InterestPercent": 5,
    /* Annual interest percentage*/
    "InstallmentsNo": 12,
    /* Mandatory, Number of installments */
    "GracePeriodPrincipal": 1,
    /* Installment skipped at the
begining, if not present it is considered 0 */
    "PeriodicityType": "Monthly",
    /* Mandatory, Posible Values: 30Days, 4
Weeks, Annual, Bimonthly, Monthly, Once,
Semestrial, Trimestrial, Weekly*/
    "FutureValue": 1000,
    /* advance amount - if not present it
is considered to be 0 */
    "InterestCalculationMethod": "30/360",
    /* Mandatory, Posible Values: 30Days,
30/365, 30/360, 52 weeks, Actual/365(366),
30/Actual, 52 weeks/2 */
  }
}).then(function (o) {
  console.table(o.UIResult.Data)
});
< ▶ Promise {<pending>}

```

VM1214:19

(index)	PMTValue	PrincipalValue
0	842.95	1000

▶ Array(1)

&gt;

## FTOS\_BP\_CalculateRepaymentSchedule

Returns an array of json records representing the installments of a repayment schedule, that must be stored and presented as in the picture bellow, customized for every project:

CONTRACT REPAYMENT SCHEDULE DETAILS

	No.	Due Date	Remaining	Interest	Principal	ResidualValue	Total
	1	15-08-2020	10,000.00	50.00	746.42		796.42
	2	15-09-2020	9,253.58	46.27	750.15		796.42
	3	15-10-2020	8,503.43	42.52	753.90		796.42
	4	15-11-2020	7,749.53	38.75	757.67		796.42
	5	15-12-2020	6,991.86	34.96	761.46		796.42
	6	15-01-2021	6,230.40	31.15	765.27		796.42
	7	15-02-2021	5,465.13	27.33	769.09		796.42
	8	15-03-2021	4,696.04	23.48	772.94		796.42

### Input:

#### Mandatory input parameters:

- **ScheduleType** - the name of the Payment Schedule found in the [FTOS\\_BP\\_PaymentScheduleType](#) entity
- **InterestPercent** - the interest rate for the calculation, defined at the banking product level. The interest rate must be annual, so if you are using a monthly interest rate, you must transform it into an annual rate, multiplying it with 12.
- **Amount** - the financed amount, usually also containing the residual value if present, but not the advance value
- **InstallmentsNo** - the number of installments
- **PeriodicityType** - the periodicity of the schedule. The possible values are the names of the records from the [FTOS\\_CB\\_PeriodicityType](#) entity.
- **InstallmentDay** - the day of month for each installment

#### Optional input parameters:

- **AdvanceAmount** - the advance value, where  
 $\text{AdvanceAmount} + \text{Amount} = \text{CreditValue}$
- **GracePeriodInterest** - the number of installments having grace period applied on the Interest column
- **GracePeriodPrincipal** - the number of installments having grace period applied on the Principal column
- **LastDueDate** - the  
date of the last installment unmodified for recalculation
- **BlockInstallmentNo** -  
the installment number that is blocked for recalculation
- **BlockAmount** - the value of the capital that is blocked for recalculation
- **ActivationDate** - the activation date of the contract. This is considered at the adjustment of the first installment for the columns that have Effective Rate as calculation method.
- **FirstDueDate** - the due date of the first installment
- **BlockInterestAmount** -  
the value of the interest for the grace period if recalculation includes the grace period
- **HolidayShift** - the system takes into account not working days/national holidays, according to the sent value. If true and Sunday or Saturday are defined as nonworking days, then the DueDate excludes these dates.
- **CalculateDAE** - specifies whether to show the effective annual interest rate: for 0 or null, the DAE is not displayed; for 1, only the DAE percent is displayed, and for 2, the original schedule containing a column with DAE percent is displayed.
- **installmentValue** -  
if there is a locked value for installments, this value should be provided here (equal installments)

- **principalValue** -  
if there is a locked value for principal, this value should be provided here (equal principal)
- **InstallmentMethod** - the method for calculating the installment (Actual Month or Next Month)
- **MaturityDate** - the date for the end of the contract
- **InterestCapitalization** - specifies if the interest is capitalized for deposit calculation
- **UpFrontValue** -  
the amount for upfront commissions, taxes, insurances paid once at the beginning of the contract
- **ResidualValue** - the residual value amount for insurance business
- **ResidualInInstallment** - the method of display for the residual value: for 0, it is displayed in a new schedule line, for 1, it is displayed in the last schedule line
- **Commission** - an array [] of commissions with periodicity different than Once.

[

- **SourceValue** -  
the value of the commission when the commission is defined as value. Mandatory if the line is present.
- **SourcePercent** -  
the percent of the commission when the commission is defined as a percentage. Mandatory if the line is present.
- **FeePeriodicityType** - the periodicity of the commission. Mandatory if the line is present.
- **GracePeriodFee** - it can have its own grace period for a number of installments
- **BlockFeeAmount** - the blocked amount in case of recalculation

- **FeeDate** - the date of the fee being applied to the contract. Mandatory if the line is present.
- **FeeId** - the fee from the FTOS\_BP\_Commission entity selected from the banking product level. Mandatory if the line is present.
- **IsUpfront** - for commissions that are included into the payment schedule and the first commission value is paid at the activation date. Possible values: 0,1. The parameter is optional and if it is not included into the JSON request, the value comes from payment schedule detail column setting.

]

- **Insurance** - an array [] of insurances with periodicity different than Once.

[

- **SourceValue** - the value of the insurance when the insurance is defined as value. Mandatory if the line is present, and mutually exclusive if the SourcePercent is present.
- **SourcePercent** - the percent of the insurance when the insurance is defined as a percentage. Mandatory if the line is present, and mutually exclusive if the SourceValue is present.
- **InsurancePeriodicityType** - the periodicity of the insurance. Mandatory if the line is present.
- **GracePeriodInsurance** - it can have its own grace period for a number of installments
- **BlockInsuranceAmount** - the blocked amount is case of recalculation
- **InsuranceDate** - the date of the insurance applied to the contract. Mandatory if the line is present.
- **InsuranceId** - the insurance from the FTOS\_BP\_Insurance entity selected from the banking product. Optional if InsuranceClassId is present.



- **InsuranceClassId** - the insurance class from the FTOS\_BP\_ScheduleElementClass entity selected on the FTOS\_BP\_Insurance entity when defining the insurance. Optional if InsuranceId is present.
- **IsUpfront** - for insurances that are included into the payment schedule and the first commission value is paid at the activation date. Possible values: 0,1. The parameter is optional and if it is not included into the JSON request, the value comes from payment schedule detail column setting.

]

- **MultipleInterestRates** - an array [] of interest rates

[

- **InterestRate** - the interest percent defined as interest type = Collection on the banking product **Dimensions > Interest List > Interest** level
- **FromInstNo** - the From installment number defined as interest type = Collection on the banking product **Dimensions > Interest List > Interest** level
- **ToInstNo** - the To installment number defined as interest type = Collection on the banking product **Dimensions > Interest List > Interest** level

]

- **CapitalPercent** - the percentage field defined at the banking product level (Credit Card) in the **Details** tab, representing a percentage to be applied as a formula to the schedule detail principal column.

#### Input variables example:

```

1  {
2    "ScheduleType":
3    "Loan Equal Principal Actual with ResidualValue",
4    "InterestPercent": 6,
5    "Amount": 10000,
   "InstallmentsNo": 13,

```

```

6      "AdvanceAmount": 400,
7      "GracePeriodInterest": null,
8      "GracePeriodPrincipal": 0,
9      "PeriodicityType": "Monthly",
10     "LastDueDate": "2020-8-12",
11     "BlockInstallmentNo": 0,
12     "BlockAmount": 0,
13     "ActivationDate": "2020-8-12",
14     "FirstDueDate": "2020-8-12",
15     "BlockInterestAmount": 0,
16     "HolidayShift": true,
17     "HolidayCountry": "Country:Thailand",
18     "CalculateDAE": 2,
19     "installmentValue": 796.42,
20     "principalValue": null,
21     "InstallmentDay": 15,
22     "InstallmentMethod": "ActualMonth",
23     "MaturityDate": "2021-8-12",
24     "InterestCapitalization": 0,
25     "UpFrontValue": 400.00,
26     "ResidualValue": 200,
27     "ResidualInInstallment": 0,
28     "Commission": [
29         {
30             "SourceValue": 1,
31             "SourcePercent": 0.01,
32             "FeePeriodicityType": "Trimestrial",
33             "GracePeriodFee": 0,
34             "BlockFeeAmount": 0,
35             "FeeDate": "2020-8-12",
36             "FeeId": "c86d68e5-2b48-439f-9bc6-
38df317bff2a",
37             "IsUpfront": 0
38         }
39     ],
40     "Insurance": [
41         {
42             "SourceValue": 10,
43             "SourcePercent": null,
44             "InsurancePeriodicityType": "Trimestrial",
45             "GracePeriodInsurance": 0,
46             "BlockInsuranceAmount": 0,
47             "InsuranceDate": "2020-8-12",
48             "InsuranceId": "66128D6D-C2AA-4B5C-932B-
7502C2E18288",

```

```
49         "InsuranceClassId": "61D36493-3DF9-44F0-
50         B372-BAC569346E80",
51         "IsUpfront": 0
52     },
53 ],
54     "MultipleInterestRates": [{
55         "InterestRate": 8.000000,
56         "FromInstNo": 1,
57         "ToInstNo": 3
58     }],
59     "CapitalPercent": 6
60 }
```

Output:

An array of json records representing the installments of a repayment schedule.

Case Studies

Loan Equal Installment - Minimal Call

← PAYMENT SCHEDULE TYPE

Tooltips On

Name

Loan Equal Installments

Payment schedule code

CLEQS

Product Type

Term Loan

Schedule Interest Calculation Type

30/360

Is With Equal Installments

☒

Adjust First Installment

☐

Installment Value Custom

☐

Use Fix Maturity Date

☒

PAYMENT SCHEDULE TYPE DETAILS

+ Insert

× Delete

Export

Refresh

<input type="checkbox"/> Column Repayment Schedule	Calculation Method	Fee	Source	Display	Calculation
				(All)	
RemainingValue	RemainingFormula				13
PMT	FixedValue				18
Interest	Effective Rate				19
Principal	ColumnFormula				24
TotalInstallment	ColumnFormula				26

Call example:

```

1  var jp = {
2      "ScheduleType": "Loan Equal Installments",
3      "InterestPercent": 6,
4      "Amount": 10000,
5      "InstallmentsNo": 13,
6      "PeriodicityType": "Monthly",
7      "ActivationDate": "2020-8-12",
8      "InstallmentDay": 15
9  };
10 ebs.callActionByName("FTOS_BP_
    CalculateRepaymentSchedule", {jsonParam:jp},
11 function(s){ if(s.UIResult){console.log
    (s.UIResult.Data);}}});

```

### Returned data:

```

{
  "InstallmentNo": 12,
  "DueDate": "2021-07-15T00:00:00",
  "NoDays": 30,
  "InstallmentTypeId": "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d",
  "remainingValue": 1581.02,
  "pMT": 796.42,
  "interest": 7.91,
  "principal": 788.51,
  "totalInstallment": 796.42,
  "ScheduleTypeId": "af636c50-9c0b-4e74-8a7a-a8cc91c258a5",
  "isEarlyRepayment": "false"
},
{
  "InstallmentNo": 13,
  "DueDate": "2021-08-15T00:00:00",
  "NoDays": 30,
  "InstallmentTypeId": "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d",
  "remainingValue": 792.51,
  "pMT": 796.42,
  "interest": 3.96,
  "principal": 747.51,
  "totalInstallment": 751.47,
  "ScheduleTypeId": "af636c50-9c0b-4e74-8a7a-a8cc91c258a5",
  "isEarlyRepayment": "false"
}
],
"ReturnValue": 0
}
=== end message ===

▼ (13) [{"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}]
▶ 0: {InstallmentNo: 1, DueDate: "2020-08-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 10000, -}
▶ 1: {InstallmentNo: 2, DueDate: "2020-09-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 9253.58, -}
▶ 2: {InstallmentNo: 3, DueDate: "2020-10-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 8503.43, -}
▶ 3: {InstallmentNo: 4, DueDate: "2020-11-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 7749.53, -}
▶ 4: {InstallmentNo: 5, DueDate: "2020-12-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 6991.86, -}
▶ 5: {InstallmentNo: 6, DueDate: "2021-01-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 6230.4, -}
▶ 6: {InstallmentNo: 7, DueDate: "2021-02-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 5465.13, -}
▶ 7: {InstallmentNo: 8, DueDate: "2021-03-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 4696.04, -}
▶ 8: {InstallmentNo: 9, DueDate: "2021-04-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 3923.1, -}
▶ 9: {InstallmentNo: 10, DueDate: "2021-05-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 3146.3, -}
▶ 10: {InstallmentNo: 11, DueDate: "2021-06-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 2365.61, -}
▶ 11: {InstallmentNo: 12, DueDate: "2021-07-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 1581.02, -}
▶ 12: {InstallmentNo: 13, DueDate: "2021-08-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 792.51, -}

```

## Loan Equal Principal Actual with Fees and Insurances

PAYMENT SCHEDULE TYPE

Loan Equal Principal Actual

CLEQPA

Product Type

[none]

Schedule Interest Calculation Type

Actual/365(366)

Is With Equal Installments

Adjust First Installment

Installment Value Custom

Use Fix Maturity Date

PAYMENT SCHEDULE TYPE DETAILS

+ Insert

✕ Delete

📄 Export

🔄 Refresh

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Source	Display	Calculation
<input type="checkbox"/>	Q	Q	Q	Q	(All)	Q
	RemainingValue	RemainingFormula			<input checked="" type="checkbox"/>	1
	Interest	Effective Rate			<input checked="" type="checkbox"/>	2
	Principal	Liniar			<input checked="" type="checkbox"/>	3
	LifeInsurance	Effective Rate		SourcePercent	<input checked="" type="checkbox"/>	4
	HomeInsurance	Liniar		SourceValue	<input checked="" type="checkbox"/>	5
	ManagementFee	Effective Rate	Annual Admin Fee	SourcePercent	<input checked="" type="checkbox"/>	6
	TotalInstallment	ColumnFormula			<input checked="" type="checkbox"/>	7

The actual Annual Admin Fee must be defined within the FTOS\_BP\_Commission entity, and also the Insurances within the FTOS\_BP\_Insurance entity, Make sure you have at least one insurance with class Life Insurance, Monthly, defined as percentage, and one with class HomeInsurance, Monthly, defined as value. These Commissions and Insurances are called by Id within the request of the FTOS\_BP\_CalculateRepaymentSchedule endpoint.

### Call example:

```

1  var jp = {
2    "ScheduleType": "Loan Equal Principal Actual",
3    "InterestPercent": 6,
4    "Amount": 10000,
5    "InstallmentsNo": 13,
6    "PeriodicityType": "Monthly",
7    "ActivationDate": "2020-8-12",
8    "InstallmentDay": 15,
9    "InstallmentMethod": "ActualMonth",
10   "Commission": [
11     {

```

```

12         "SourceValue": null,
13         "SourcePercent": 2,
14         "FeePeriodicityType": "Monthly",
15         "GracePeriodFee": 0,
16         "BlockFeeAmount": 0,
17         "FeeDate": "2020-8-12",
18         "FeeId": "6ab39765-f535-4560-be0b-
24c92755946c"
19     }
20 ],
21     "Insurance": [
22     {
23         "SourceValue": 5,
24         "SourcePercent": null,
25         "InsurancePeriodicityType": "Monthly",
26         "GracePeriodInsurance": 0,
27         "BlockInsuranceAmount": 0,
28         "InsuranceDate": "2020-8-12",
29         "InsuranceId": "a2f2230e-ec59-44ad-bf73-
39556b2ed15d" ,
30         "InsuranceClassId": null
31     },
32     {
33         "SourceValue": null,
34         "SourcePercent": 1.5,
35         "InsurancePeriodicityType": "Monthly",
36         "GracePeriodInsurance": 0,
37         "BlockInsuranceAmount": 0,
38         "InsuranceDate": "2020-8-12",
39         "InsuranceId": "1c67cf62-032d-49d1-bfa1-
e36299ace050" ,
40         "InsuranceClassId": null
41     }
42 ]
43 };
44 ebs.callActionByName("FTOS_BP_
CalculateRepaymentSchedule", {jsonParam:jp},
45 function(s){ if(s.UIResult){console.log
(s.UIResult.Data);}}});

```

Part of the returned data:

```

    "DueDate": "2021-08-15T00:00:00",
    "NoDays": 31,
    "InstallmentTypeId": "de9ebf4e-d541-4742-8979-55182a4ff3ef",
    "remainingValue": 769.24,
    "interest": 3.91,
    "principal": 769.24,
    "lifeInsurance": 0.98,
    "homeInsurance": 0.38,
    "managementFee": 1.30,
    "totalInstallment": 775.81,
    "ScheduleTypeId": "627e27ba-7d07-4e0c-b043-770b86a05cde",
    "isEarlyRepayment": "false"
  }
},
"ReturnValue": 0
}
=== end message ===

```

```

▼ (13) [{...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}] ⓘ
  ▼ 0:
    DueDate: "2020-08-15T00:00:00Z"
    InstallmentNo: 1
    InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef"
    NoDays: 3
    ScheduleTypeId: "627e27ba-7d07-4e0c-b043-770b86a05cde"
    homeInsurance: 0.38
    interest: 4.92
    isEarlyRepayment: "false"
    lifeInsurance: 1.23
    managementFee: 1.64
    principal: 769.23
    remainingValue: 10000
    totalInstallment: 777.4
    ▶ __proto__: Object
  ▼ 1:
    DueDate: "2020-09-15T00:00:00Z"
    InstallmentNo: 2
    InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef"
    NoDays: 31
    ScheduleTypeId: "627e27ba-7d07-4e0c-b043-770b86a05cde"
    homeInsurance: 0.38
    interest: 46.91
    isEarlyRepayment: "false"
    lifeInsurance: 11.73
    managementFee: 15.64
    principal: 769.23
    remainingValue: 9230.77

```

## Loan Equal Installments with Residual Value

**PAYMENT SCHEDULE TYPE** Tooltips On

Name:  Payment schedule code:

Product Type:  Schedule Interest Calculation Type:

Is With Equal Installments: ☒ Adjust First Installment: ☐ Installment Value Custom: ☐ Use Fix Maturity Date: ☒

**PAYMENT SCHEDULE TYPE DETAILS**

+ Insert ✕ Delete 📄 Export 🔄 Refresh

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Source	Display	Calculation
<input type="checkbox"/>	Q	Q	Q	Q	(All) ▼	Q
	RemainingValue	RemainingFormula			<input checked="" type="checkbox"/>	2
	PMT	FixedValue			<input type="checkbox"/>	3
	Interest	Effective Rate			<input checked="" type="checkbox"/>	4
	Principal	ColumnFormula			<input checked="" type="checkbox"/>	5
	ResidualValue	FixedValue			<input checked="" type="checkbox"/>	9
	TotalInstallment	ColumnFormula			<input checked="" type="checkbox"/>	10

### Call example:

```

1  var jp = {
2    "ScheduleType": "Loan Equal Installments with
3      ResidualValue",
4    "InterestPercent": 6,
5    "Amount": 10000,
6    "InstallmentsNo": 13,
7    "AdvanceAmount": 400,
8    "GracePeriodInterest": null,
9    "GracePeriodPrincipal": 0,
10   "PeriodicityType": "Monthly",
11   "LastDueDate": "2020-8-12",
12   "BlockInstallmentNo": 0,
13   "BlockAmount": 0,
14   "ActivationDate": "2020-8-12",
15   "FirstDueDate": "2020-8-12",
16   "BlockInterestAmount": 0,
17   "HolidayShift": true,
18   "HolidayCountry": "Country:Thailand",
19   "CalculateDAE": 2,
20   "installmentValue": 796.42,
21   "principalValue": null,
22   "InstallmentDay": 15,

```



```

22     "InstallmentMethod": "ActualMonth",
23     "MaturityDate": "2021-8-12",
24     "InterestCapitalization": 0,
25     "UpFrontValue": 0.00,
26     "ResidualValue": 200,
27     "ResidualInInstallment": 0,
28     "Commission": [],
29     "Insurance": []
30 };
31 ebs.callActionByName("FTOS_BP_
CalculateRepaymentSchedule", {jsonParam:jp},
32 function(s){ if(s.UIResult){console.log
(s.UIResult.Data);}}});

```

### Part of the returned data:

```

    "interest": 4.88,
    "principal": 731.66,
    "residualValue": 0.00,
    "totalInstallment": 736.54,
    "dae": 11.2416973,
    "ScheduleTypeId": "b4c75678-6c12-494e-b257-6aba21f1ac46",
    "isEarlyRepayment": "false"
  },
  {
    "InstallmentNo": 14,
    "DueDate": "2021-08-12T00:00:00",
    "NoDays": 30,
    "InstallmentTypeId": "02fa5f7e-ad27-4672-9a23-a7849c77953b",
    "remainingValue": 0.00,
    "pmt": 0.00,
    "interest": 0.00,
    "principal": 0.00,
    "residualValue": 200.00,
    "totalInstallment": 200.00,
    "dae": 11.2416973,
    "ScheduleTypeId": "b4c75678-6c12-494e-b257-6aba21f1ac46",
    "isEarlyRepayment": "false"
  }
],
"ReturnValue": 0
}
=== end message ===

(15) [(-), (-), (-), (-), (-), (-), (-), (-), (-), (-), (-), (-), (-), (-)]
> 0: {InstallmentNo: 0, DueDate: "2020-08-12T00:00:00", NoDays: 30, InstallmentTypeId: "0e1bac06-b521-44ac-8a29-803d4683182d", remainingValue: 0, ...}
> 1: {InstallmentNo: 1, DueDate: "2020-08-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 10000, ...}
> 2: {InstallmentNo: 2, DueDate: "2020-09-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 9268.51, ...}
> 3: {InstallmentNo: 3, DueDate: "2020-10-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 8533.36, ...}
> 4: {InstallmentNo: 4, DueDate: "2020-11-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 7794.54, ...}
> 5: {InstallmentNo: 5, DueDate: "2020-12-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 7052.02, ...}
> 6: {InstallmentNo: 6, DueDate: "2021-01-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 6305.79, ...}
> 7: {InstallmentNo: 7, DueDate: "2021-02-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 5555.83, ...}
> 8: {InstallmentNo: 8, DueDate: "2021-03-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 4802.12, ...}
> 9: {InstallmentNo: 9, DueDate: "2021-04-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 4044.64, ...}
> 10: {InstallmentNo: 10, DueDate: "2021-05-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 3283.37, ...}
> 11: {InstallmentNo: 11, DueDate: "2021-06-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 2518.3, ...}
> 12: {InstallmentNo: 12, DueDate: "2021-07-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 1749.4, ...}
> 13: {InstallmentNo: 13, DueDate: "2021-08-12T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 976.66, ...}
> 14: {InstallmentNo: 14, DueDate: "2021-08-12T00:00:00", NoDays: 30, InstallmentTypeId: "02fa5f7e-ad27-4672-9a23-a7849c77953b", remainingValue: 0, ...}
length: 15
  __proto__: Array(0)

```

## Data Visualization Example

No.	Due Date	Remaining	Interest	Principal	ResidualValue	Total	
1	15-08-2020	10,000.00	50.00	746.42		796.42	
2	15-09-2020	9,253.58	46.27	750.15		796.42	\$
3	15-10-2020	8,503.43	42.52	753.90		796.42	\$
4	15-11-2020	7,749.53	38.75	757.67		796.42	\$
5	15-12-2020	6,991.86	34.96	761.46		796.42	\$
6	15-01-2021	6,230.40	31.15	765.27		796.42	\$
7	15-02-2021	5,465.13	27.33	769.09		796.42	\$
8	15-03-2021	4,696.04	23.48	772.94		796.42	\$
9	15-04-2021	3,923.10	19.62	776.80		796.42	\$
10	15-05-2021	3,146.30	15.73	780.69		796.42	\$
11	15-06-2021	2,365.61	11.83	784.59		796.42	\$

## Code:

```

<div class="row" data-template-id="row_11">
  <div class="col-xs-12">
    <div id="payment-details">&nbsp;</div>
  </div>
</div>

```

## Call example:

```

1  var stId = ebs.getCurrentEntityData
   ().scheduleTypeId; // stId = Schedule Type Id
2  function unCapitalize(string) {
3    return string[0].toLowerCase() + string.slice(1);
4  }
5  var status = '';
6  function compareValues(key, order = 'asc') {
7    return function innerSort(a, b) {
8      if (!a.hasOwnProperty(key) || !b.hasOwnProperty
   (key)) {
9        return 0;
10     }
11
12     const varA = (typeof a[key] === 'string')
13       ? a[key].toUpperCase() : a[key];
14     const varB = (typeof b[key] === 'string')
15       ? b[key].toUpperCase() : b[key];

```

```

16
17     let comparison = 0;
18     if (varA > varB) {
19         comparison = 1;
20     } else if (varA < varB) {
21         comparison = -1;
22     }
23     return (
24         (order === 'desc') ? (comparison * -1) :
comparison
25     );
26 };
27 }
28 showRepaymentSchedule ();
29 function showRepaymentSchedule () {
30     //here we have used other entities contract,
ContractRepaymentSchedule,
ContractRepaymentScheduleDetail (basically this last
entity contain the schedule details)
31     //so this endpoint bellow is arbitrary and usually
get replaced by something else
32     ebs.callActionByName('FTOS_CB_
PaymentScheduleFields', { scheduleId:
ebs.getCurrentEntityId(), scheduleTypeId: stId },
function (rsp) {
33         var columnsFields = [];
34         rsp.UIResult.Data.fields.map(function (o) {
35             columnsFields.push(o);
36         });
37         columnsFields.sort(compareValues('order'));
38         var values = rsp.UIResult.Data.values;
39
40         columnsFields.unshift({ name: 'DueDate',
display: 'Due Date', cap: false });
41         columnsFields.unshift({ name: 'InstallmentNo',
display: 'No.', cap: false, decimal: false });
42
43         paymentDetail(columnsFields, values,
hasButton);
44     }
45     function paymentDetail(fields, values, hasButton) {
46         var dataSource = [];
47
48         values.forEach(function (v) {
49             var obj = JSON.parse(v.json);

```

```

50     var dateToFormat = new Date
    (obj.DueDate.invariantDate);
51     obj.DueDate = (dateToFormat.getDate() < 10 ?
    '0' + dateToFormat.getDate() : dateToFormat.getDate())
    + '-' + ((dateToFormat.getMonth() + 1) < 10 ? '0' +
    (dateToFormat.getMonth() + 1) : (dateToFormat.getMonth
    () + 1)) + '-' + dateToFormat.getFullYear()
52     obj.InstallmentTypeId = v.sd_installmentTypeId_
    displayname;
53     obj.id = v.id;
54     obj.payed = v.payed;
55     obj.notification = v.notificationId;
56     dataSource.push(obj);
57     });
58
59     var columns = [];
60
61     fields.forEach(function (o) {
62         var object = {
63             dataField: typeof o.cap === 'undefined' ?
    unCapitalize(o.name) : o.name,
64             caption: o.display,
65             format: typeof o.decimal !== 'undefined' ?
    {} : { type: "fixedPoint", precision: 2 }
66         };
67         columns.push(object);
68     });
69
70     if (hasButton) {
71         columns.push({
72             type: "buttons",
73             width: 110,
74             buttons: [{
75                 hint: "Pay Installssment",
76                 icon: "money",
77                 visible: function (e) {
78                     return e.row.data.notification ===
    null;
79                 },
80                 onClick: function (e) {
81                     //custom code on pay installment
82                 });
83             }
84         }]
85     });

```

```

86     }
87     $("#payment-details").dxDataGrid({
88         rowAlternationEnabled: true,
89         showColumnHeaders: true,
90         alignment: "left",
91         repaintChangesOnly: true,
92         paging: {
93             pageSize: 10000
94         },
95         onCellPrepared: function (e) {
96             //console.log(e)
97             if (e.rowType === 'data' &&
e.row.data.payed === true) {
98                 //console.log(e.row.data.payed)
99                 e.cellElement[0].className += " payed";
100             }
101         },
102         columnAutoWidth: false,
103         columns: columns,
104         dataSource: {
105             store: dataSource,
106             reshapeOnPush: true
107         }
108     });
109 }

```

## Credit Card Schedule

Name: 
 Payment schedule code:

Product Type: 
 Schedule Interest Calculation Type:

☐ Is With Equal Installments
 ☐ Adjust First Installment
 ☐ Installment Value Custom
 ☐ Use Fix Maturity Date

**PAYMENT SCHEDULE TYPE DETAILS**

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Insurance class	Source	Display	Calculator
<input type="checkbox"/>	CapitalPercent	ProductLevelFixedValue				(All)	1
<input type="checkbox"/>	ManagementFee	FixedValue	Management Fee Fix 5		SourceValue		2
<input type="checkbox"/>	RemainingValue	RemainingFormula				<input checked="" type="checkbox"/>	3
<input type="checkbox"/>	Interest	Effective Rate				<input checked="" type="checkbox"/>	4
<input type="checkbox"/>	Principal	ColumnFormula				<input checked="" type="checkbox"/>	5
<input type="checkbox"/>	TotalInstallment	ColumnFormula				<input checked="" type="checkbox"/>	6

**Call example:**

```

1 var jp = {
2   "ScheduleType": "Credit Card Installments",
3   "InterestPercent": 32.000000,
4   "Amount": 3770.00,
5   "HolidayShift": true,
6   "InstallmentsNo": 60,
7   "PeriodicityType": "Monthly",
8   "LastDueDate": "2021-02-01",
9   "ActivationDate": "2021-02-01",
10  "InstallmentDay": 1,
11  "InstallmentMethod": "ActualMonth",
12  "MaturityDate": "2026-02-01",
13  "Commission": [
14    {
15      "SourceValue": 5.00,
16      "SourcePercent": null,
17      "FeePeriodicityType": "Monthly",
18      "FeeDate": "2021-02-01",
19      "FeeId": "365221CE-9F6D-4B4C-A8CE-2A2D62A38353",
20      "IsUpfront": null
21    },
22    {
23      "CalculateDAE": 2,
24      "CapitalPercent": 5.000000
25    }
26  ];
27  ebs.callActionByName("FTOS_BP_CalculateRepaymentSchedule", {jsonParam: jp},
28  function(s){ if(s.UIResult){console.log
29    (s.UIResult.Data);}}});

```

**Part of the returned data:**

[illegible]

## FTOS\_BP\_GetBankingProductByCode

Returns the banking product information based on its product code. If more versions are available, only the approved one is taken into consideration.

### Input:

**Mandatory** input parameters:

- **BankingProductCode** - string, from FTOS\_BP\_BankingProduct (attribute: BankingProductCode).

**Optional** input parameters:

- **displayBPDDetails** - boolean, specifies whether to show the details of the banking product, such as general data, calendars, associated products or payment schedule types, product guarantees or destination types. Possible values: true, false. The Details section of the output is only displayed for true value.
- **displayBPAvailability** - boolean, specifies whether to show the availability information of the banking product, such as currency, period, minimum and maximum amounts and advances, or covenants. Possible values: true, false. The Availability section of the output is only displayed for true value.
- **displayBPDimensions** - boolean, specifies whether to show the dimensions information of the banking product, such as interests and commissions, insurances, discounts or questions. Possible values: true, false. The Dimensions section of the output is only displayed for true value.

### Output:

Object with details about a specific banking product from the FTOS\_BP\_BankingProduct entity. The data enclosed in Banking Product is returned by default. Data within Details, Availability and Dimensions is returned only if their corresponding flags are set to true.

### Call example:

```

1  var data = {
2      "BankingProductCode": "APICodeTst",
3      "displayBPDDetails": true,
4      "displayBPAvailability": true,
5      "displayBPDDimensions": true
6  };
7
8  ebs.callActionByName("FTOS_BP_GetBankingProductByCode",
9      data, function(response) {
10      if (response.UIResult) {
11          console.log(response.UIResult.Data);
12      }
13  });

```

**Returned data:**

```

1  // API Response example below:
2  {
3      "BankingProduct": {
4          "BankingProductCode": "APICodeTst",
5          "Name": "APIName",
6          "StartDate": "2021-10-07T21:00:00Z",
7          "EndDate": "2022-03-30T21:00:00Z"
8      },
9      "Details": {
10         "GeneralData": {
11             "BankAccountType": "LoanTermAccount",
12             "IsRevolving": true,
13             "AutoDisbursement": false,
14             "MaxNoDisbursements": 12,
15             "ActivationTranchesOnDocumentSubmission":
16         false,
17             "IsGuaranteed": true,
18             "AllowCollateralPartialRelease": true,
19             "AllowCoDebtor": false,
20             "AllowRefinancing": true,
21             "MaxNoOfCodebtors": 5,
22             "PeriodicityType": "Monthly",
23             "RepaymentAllocationMethod": "CostOrder",
24             "HolidayShiftForRepaymentInstallments":
25         true,
26             "HolidayShiftMethod": "Forward",
27             "DeferDueDate": true,
28             "GraceType": "Interest",

```



```

27         "ProductGrace": "FiveDaysGrace",
28         "GraceDaysForRepayment": 123,
29         "PenaltyForGracePeriod": false
30     },
31     "CountryCalendars": [
32         {
33             "CountryName": "Belgium"
34         },
35         {
36             "CountryName": "Thailand"
37         }
38     ],
39     "AssociatedPaymentScheduleTypes": [
40         {
41             "PaymentScheduleTypeName": "Credit Card
Installments"
42         }
43     ],
44     "ProductGuarantees": [
45         {
46             "ProductGuaranteeName":
"APITestProductGuarantee"
47         }
48     ],
49     "ProductDestinationTypes": [],
50     "DisbursementMatrix": [
51         {
52             "Name": "DisbMatrixAPITest"
53         }
54     ],
55     "AssociatedProducts": [
56         {
57             "AssociatedProductName": "TLVlad"
58         },
59         {
60             "AssociatedProductName":
"TLVladAutoCommLoad"
61         }
62     ]
63 },
64 "Availability": {
65     "Currency": "RON",
66     "PeriodType": "Months",
67     "MaxPeriodForDisbursement": 1,
68     "MinimumPeriod": 2,
69     "MaximumPeriod": 3,

```

```

70         "MinimumEarlyRepaymentValue": 4,
71         "MinimumAmount": 500,
72         "MaximumAmount": 50000,
73         "UnusageStartPeriod": 5,
74         "MinimumAdvance": 10,
75         "MaximumAdvance": 90,
76         "AvailabilityItemFilters": [
77             {
78                 "Description": "Account Filter API
TEST"
79             }
80         ],
81         "ProductCovenants": [
82             {
83                 "Name": "Lender can monitor borrower's
current ratio"
84             }
85         ]
86     },
87     "Dimensions": {
88         "InterestsAndCommissions": [
89             {
90                 "InterestCommissionItemName":
"InterestCommAPITest",
91                 "CommissionListName": "Current Account
RON commission ",
92                 "InterestListName": "eMag CA Interest
List",
93                 "Commissions": [
94                     "CA Administration Fee",
95                     "Administration Fee ODV MAGDA"
96                 ],
97                 "Interests": [
98                     "Zero Interest Rate",
99                     "Banded Test"
100             ]
101             }
102         ],
103         "Insurance": [
104             {
105                 "Name": "InsuranceAPITest"
106             }
107         ],
108         "Discounts": [
109             {

```

```
110         "Name": "DiscountAPITest"
111     }
112 ],
113     "Questions": [
114         {
115             "Name": "Question1"
116         },
117         {
118             "Name": "Question2"
119         }
120     ]
121 }
122 }
```