



User Manual

Comarch BI Point

Version: 6.1.0.0

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1. Starting work with BI Point

Comarch BI Point operates entirely in Internet browser and therefore, it is only required to have a device with browser and access to the Internet to fully use the service. In order to start working with Comarch BI Point, you must register at website <https://bipoint.comarch.pl/> and download Data Extractor application upon logging in, which is used for synchronization of data between your own source system and Comarch BI Point service. To analyze the data, the application must be appropriately configured and the data synchronized. Before that, you can become familiar with Comarch BI Point service by using test data.



Note: Test data is available for users in Open model only.

1.1 Registration in BI Point service

To register in Comarch BI Point service, select **[Registration]** from menu available in the upper right corner of page: <https://bipoint.comarch.pl/>.

Account registration for
Comarch BI Point
service

1 Administrator Data 2 Summary

Step 1 - Administrator Data

Enter e-mail address which will be used as login to Comarch BI Point

[Check Availability](#)

Figure 1 Going to registration view

The first stage of registration consists in specifying administrator's data. In the form, enter e-mail address which will be used as a login to Comarch BI Point service. Next step consists in specifying first and last name of a user as well as selecting service model: Comarch BI Point Open or Comarch BI Point Manager.

The screenshot shows the registration interface for Comarch BI Point. At the top, it says "Account registration for Comarch BI Point service". Below this is a progress indicator with two steps: "1 Administrator Data" (active) and "2 Summary". The main heading is "Step 1 - Administrator Data".

The form includes the following fields and elements:

- An email input field containing "jan@com.pl" with a green "Available" status indicator.
- Two input fields for "First Name" and "Last Name".
- Two radio button options for service models: "Comarch BI Point Open" (selected) and "Comarch BI Point Menadżer".
- A blue "Next" button at the bottom right.

Figure 2 Registration in the service

Upon clicking [**Next**], registration summary is displayed.

Account registration for
Comarch BI Point
service

1 Administrator Data 2 Summary

Step 2 - Summary

john john
BI Point Open
jan@com.pl

Comarch BI Point Terms & Conditions

I accept Terms & Conditions
 I hereby agree for my personal data to be processed in accordance with the Law on Personal Data Protection of 29 August 1997 (Dz.U. No. 133, item 883) and I agree to receive commercial information by means of electronic communication from the company Comarch SA, al. Jana Pawła II 39a, 31-864 Kraków.

Back Create Account

Figure 3 Registration summary

The registration is completed upon clicking [**Create Account**]. Then, a message including activation link is sent to e-mail address provided during registration. After clicking on the link, Comarch BI Point service logon page is displayed:

COMARCH CLOUD

All your services in one place

You are logging in to

BIPoint

Comarch Employee

or

E-mail 

Password 

Remember me

Log In

[Don't remember password?](#)

Do not have an account? [Register now](#)

Comarch Cloud • Privacy Policy • English  ▲

Figure 4 Logon screen

In the form, it is necessary to enter password which will be used for logging on to the service and then click



After logging in, a user is automatically redirected to the home screen – visible in the upper bar as *Home*. By default, a predefined demo dashboard is presented there (that dashboard is displayed in Open model). During work with the application, it is possible to define your own home screen. The upper bar of the application contains shortcuts which redirect to selected components of the service:

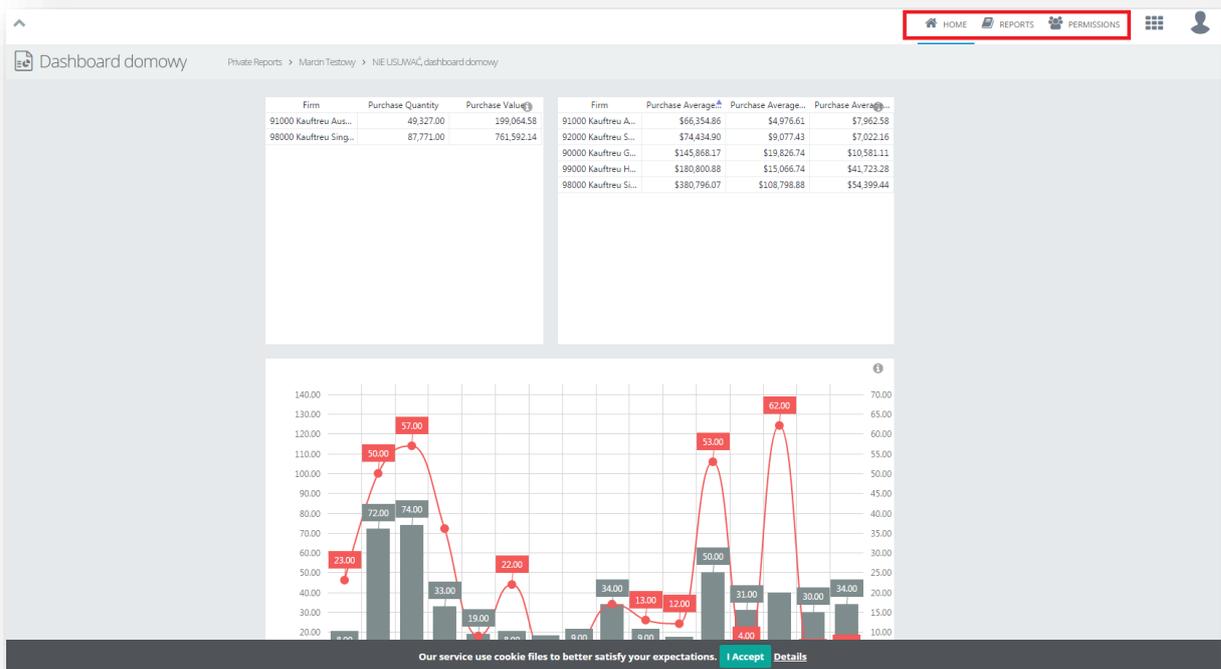


Figure 5 Bar with shortcuts

1.2 Data Extractor application configuration

Environment requirements

The table below presents environment requirements for working with Data Extractor application:

Server Requirements	
Operating System	Windows XP Windows XP 64-bit Edition Windows Server 2003 Windows XP Professional x64 Edition Windows Vista Windows Server 2008 Windows Server 2008 R2 Windows 7 Windows Server 2012 Windows 8 Windows 10
Additional Requirements	1) .NET Framework 4.0 2) Providers of supported database systems 3) Enabled communication on port 443 and 31001 in both ways 4) Postgres in version 9.3.11 5) SQL Server 2008 R2, 2012, 2014, 2016

Moreover, as of version 5.3, monetDB system has been installed, which optimizes queries in larger databases.

Installation of the application

In order to download Data Extractor application, select **[Data Synchronization]** from Rubik's cube-like menu available in the upper bar and then click on the button **[Download Comarch Data Extractor]**:

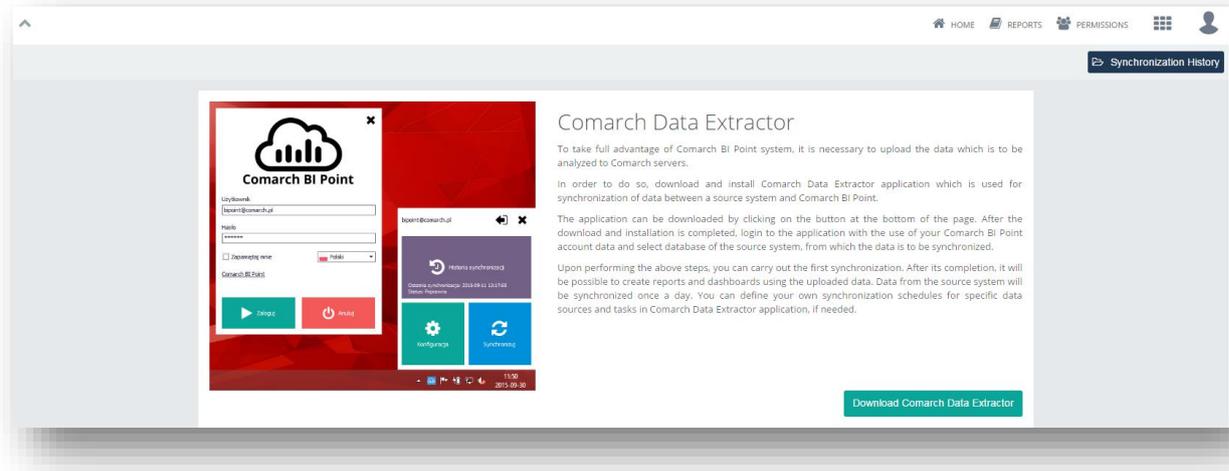


Figure 6 Downloading Comarch Data Extractor application

Upon clicking **[Download Comarch Data Extractor]**, the application is saved on a user disk. After running execution file of the application, welcome window appears which provides information about the product and includes the list of installation steps. Click **[Next]** to continue:

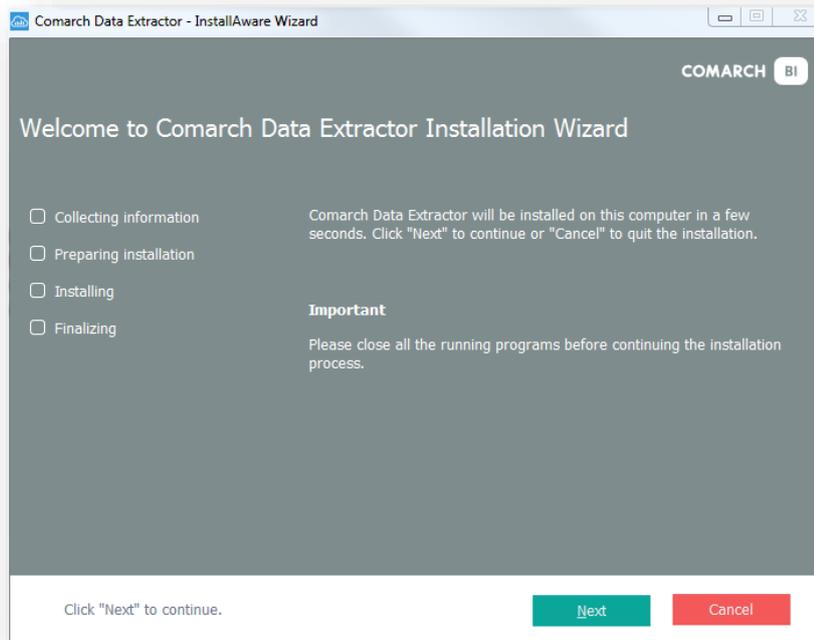


Figure 7 Set up wizard welcome window

Next, a window is displayed which contains license agreement a user should become familiar with. To proceed, accept the license terms and conditions by checking *I accept the license agreement* followed by clicking [Next]:

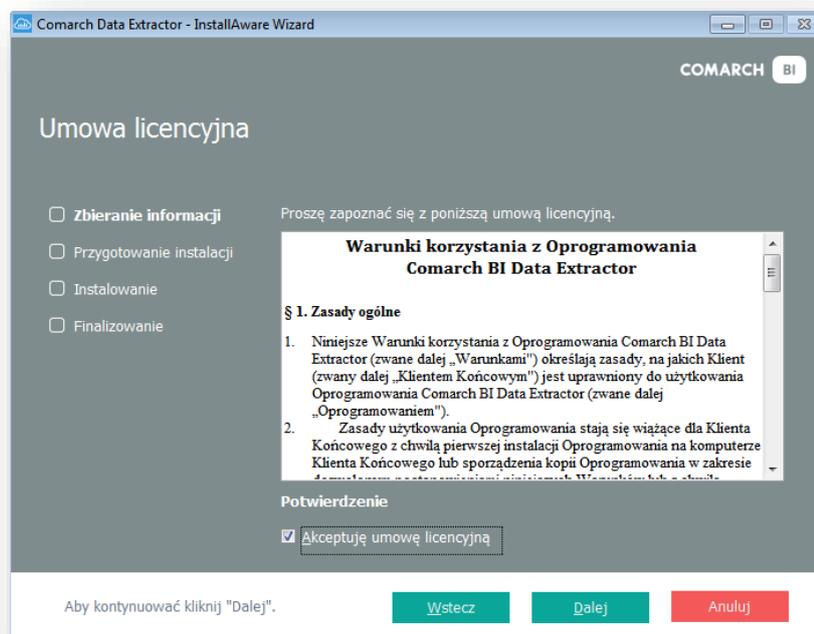


Figure 8 License agreement

In subsequent step, select setup target folder and click **[Next]**:

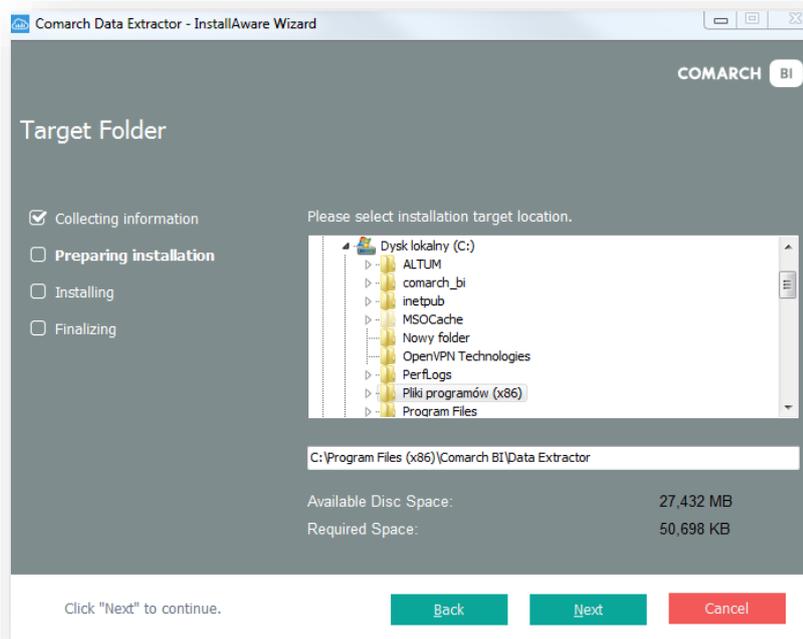


Figure 9 Selecting setup folder

Upon clicking **[Next]**, a summary window appears. Click **[Install]** in order to start installation of the application:

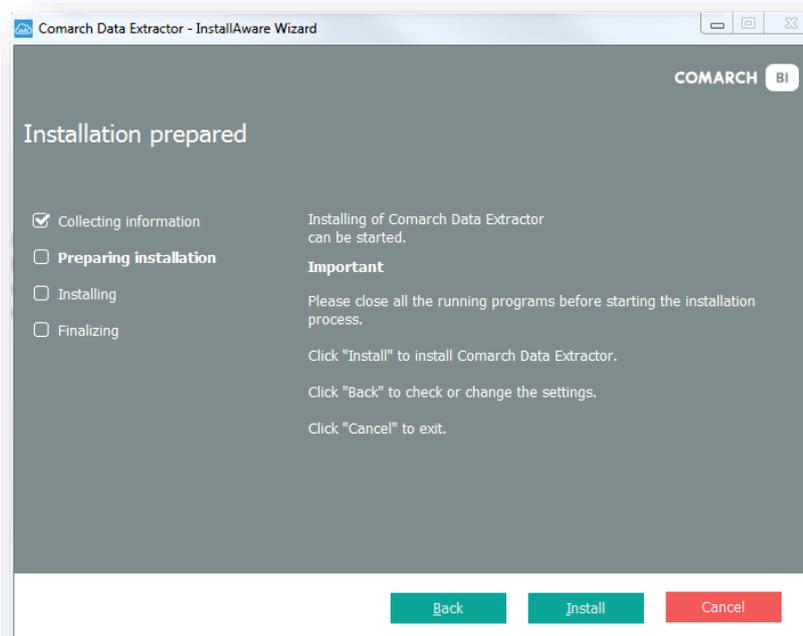


Figure 10 Setup preparation summary

After the installation is completed, a window is displayed informing that the setup has been completed successfully. To exit the window, click **[Finish]**.

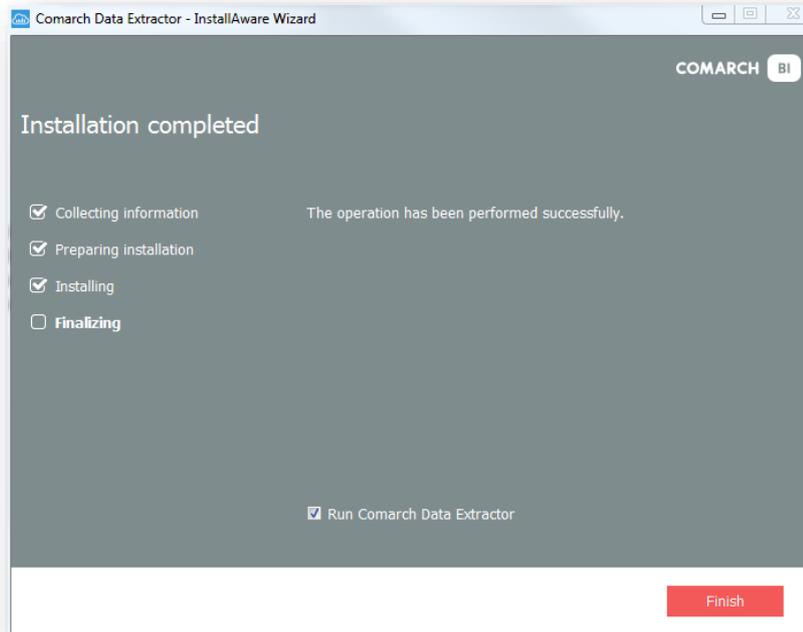


Figure 11 Completing setup

Once the installation is completed, Data Extractor application is started automatically.

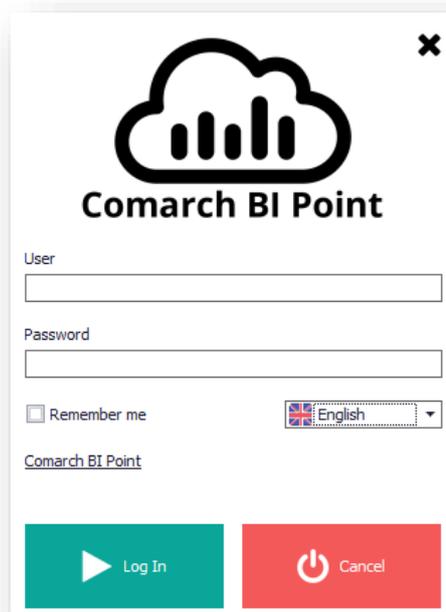


Figure 12 Logon to Data Extractor application

In fields *User* and *Password* enter the data provided during registration in Comarch BI Point service. It is also possible to remember the logon data and change language. Upon clicking [**Log In**], the application is started.



Note: Information about configuration of Optima and Data Extractor for Accounting Offices can be found in a separate manual.

During the first startup, it is necessary to configure the application. Select the first data source from which data will be synchronized. Depending on the source system, there will be different types of data sources available, e.g. MS SQL, MySQL, MS Excel. Also the actions which must be performed in subsequent steps will be different and they are described in separate paragraphs. In case of the source system supported by default (Subiekt GT, as in the image), company database must be selected in this step.

Figure 13 Configuration of Data Extractor application

Once the application is configured, a window is displayed with question whether to perform the synchronization. In case of selecting standard source system, full synchronization is carried out upon clicking [**Yes**]. In case of other source system, empty synchronization (without data) is performed, because it is yet necessary to define tasks for that system. In the synchronization history, a user can check if files were correctly uploaded to the server. From this level, it is also possible to get information about status of data upload to the warehouse. DE provides also option of synchronizing PDF files saved in a source database. Defining of tasks has been described in subsequent steps.

Synchronization of data from system supported by default

In case of synchronizing data from source system supported by default, configuration of data source is the only step to perform. Once completed, data can be synchronized manually. It is also synchronized automatically, depending on frequency setting (once a day for daily synchronization, once a week for weekly synchronization, etc.) if the application or Data Extractor service remains enabled. It must be remembered that if the account has expired, the ETL process will not upload packages sent by such the account user.

Synchronization from other data sources

In case of synchronization from other data sources, it is necessary to prepare queries for source system database, which will fill the generic model with data. Queries are added in form of tasks.

In order to add a new task:

1. Click on *Configuration* tile:

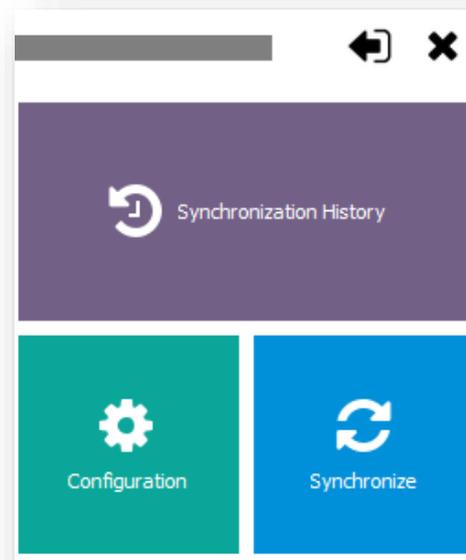
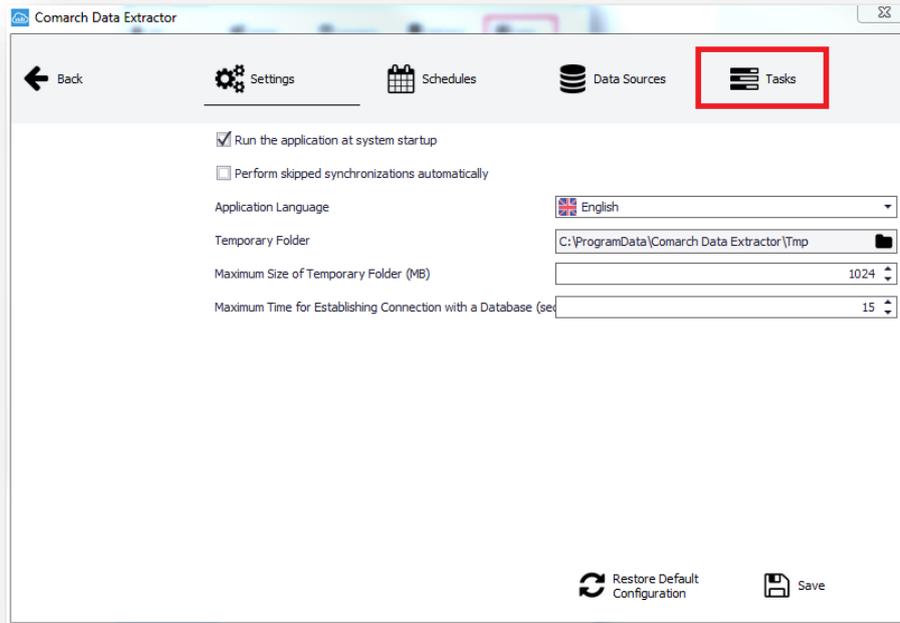


Figure 14 Going to configuration

2. Go to tab *Tasks*:

Figure 15 Selecting tab *Tasks*

3. Click on button **[Add]**:

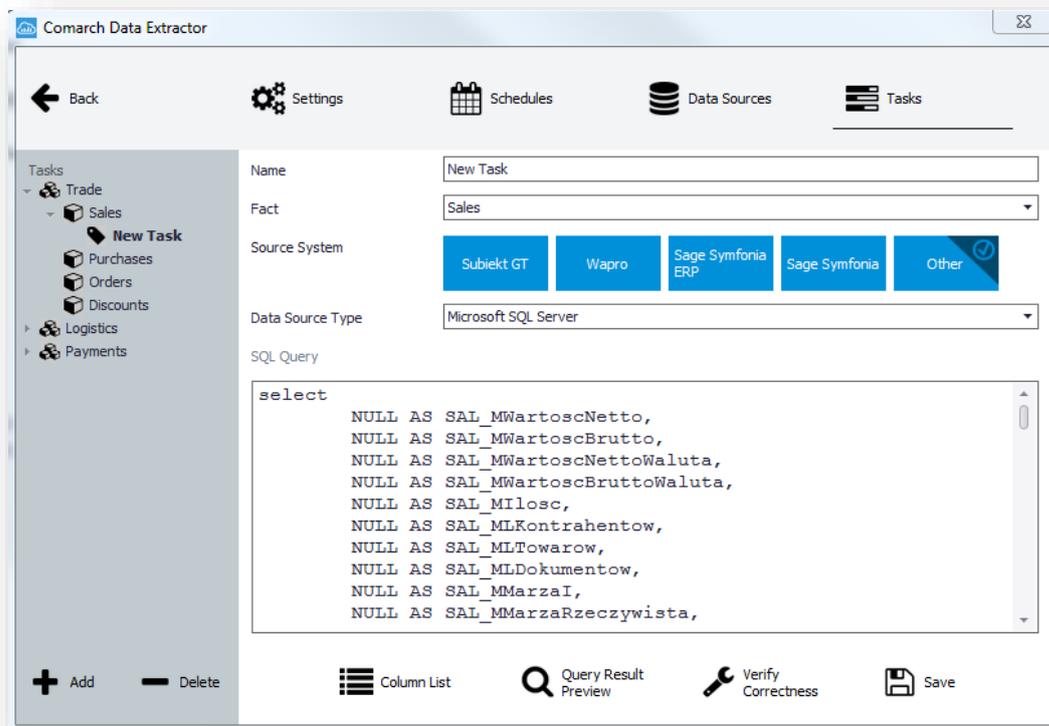


Figure 16 Adding a new task

To define a new task, enter its name in *Name* field and select appropriate area in the generic model in field *Fact*. Next, specify *Source System* and *Data Source Type*, for which the task is being created. **The task will be executed only on resources which have compatible source system and data source type.**

In field *SQL QUERY*, enter a query prepared in appropriate way. It must return information relevant to the fact to which it is assigned in a clearly specified form. The query must return all columns assigned to the fact, however, not all of them must contain values. Non-mandatory columns may contain NULLs.

When creating a new task, a template with all columns is generated, facilitating creation of queries. Additionally, the following options are available:

- *Column List* – displays a list of all required columns and also informs which of them must return value and of what type
- *Query Result Preview* – allows for previewing a sample of data being the query result
- *Verify Correctness* – it verifies by specific source if the query is correct and returns all required columns. It does not verify if the returned data is of appropriate type and format

In order to fully replenish the generic model, queries must be prepared for all facts. For sales and orders only one query must be prepared. Its results will be saved in both models.

BI Point application has been made resistant to most of errors concerning date formats – by default, it clears unnecessary blank characters out from data (spaces, tabulators, etc.), deletes characters other than digits and analyses a string in reference to different orders. However, to be sure that the data is correctly included, the best solution is to use one of the following formats:

XXX_DateAttribute – a string with date in format YYYY-MM-DD e.g. CONVERT(VARCHAR(10), TrN_DataOpe, 20)

XXX_MonthAttribute – a number from 1 to 12, e.g. MONTH(TrN_DataOpe)

XXX_QuarterAttribute – a number from 1 to 4, e.g. DATEPART(QUARTER, TrN_DataOpe)

XXX_Date – a number from 1 to 31, e.g. DAY(TrN_DataOpe)

XXX_Month – a number from 1 to 12, e.g. MONTH(TrN_DataOpe)

XXX_Quarter – a number from 1 to 4, e.g. DATEPART(QUARTER, TrN_DataOpe)

XXX_Year – a number, e.g. YEAR(TrN_DataOpe)

XXX_Week – a number from 1 to 53, e.g. (DATEPART(DY, DATEDIFF(D, 0, TrN_DataOpe)/7*7+3)+6)/7

After tasks are prepared, they must be assigned to a selected schedule (as described in the following paragraphs). Once that step is performed, data can be synchronized manually or from the schedule.

Adding subsequent data sources

Data Extractor application enables synchronization from several data sources at the same time. The first source is added during the first startup. Subsequent sources can be added in the configuration window in tab *Data Sources* upon clicking on the button **[Add]**:

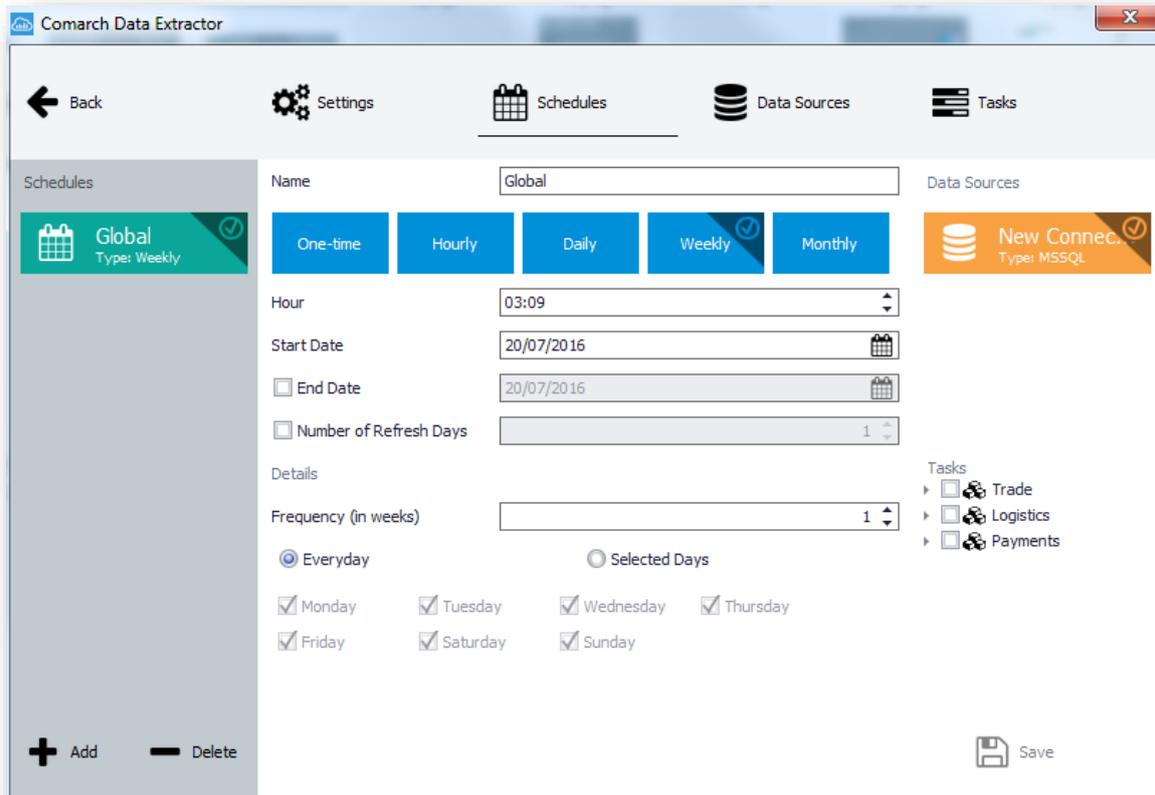


Figure 17 Adding data sources

In field *Name* enter name of the data source, select appropriate *Source System* and *Data Source Type*. Depending on the selected type, connection with it must be appropriately configured. Correctness of the configuration can be verified by clicking on button [Test Connection].

Defining schedules

In tab *Schedules*, it is possible to configure any number of schedules which will be performed **if the application is running during a planned synchronization**.

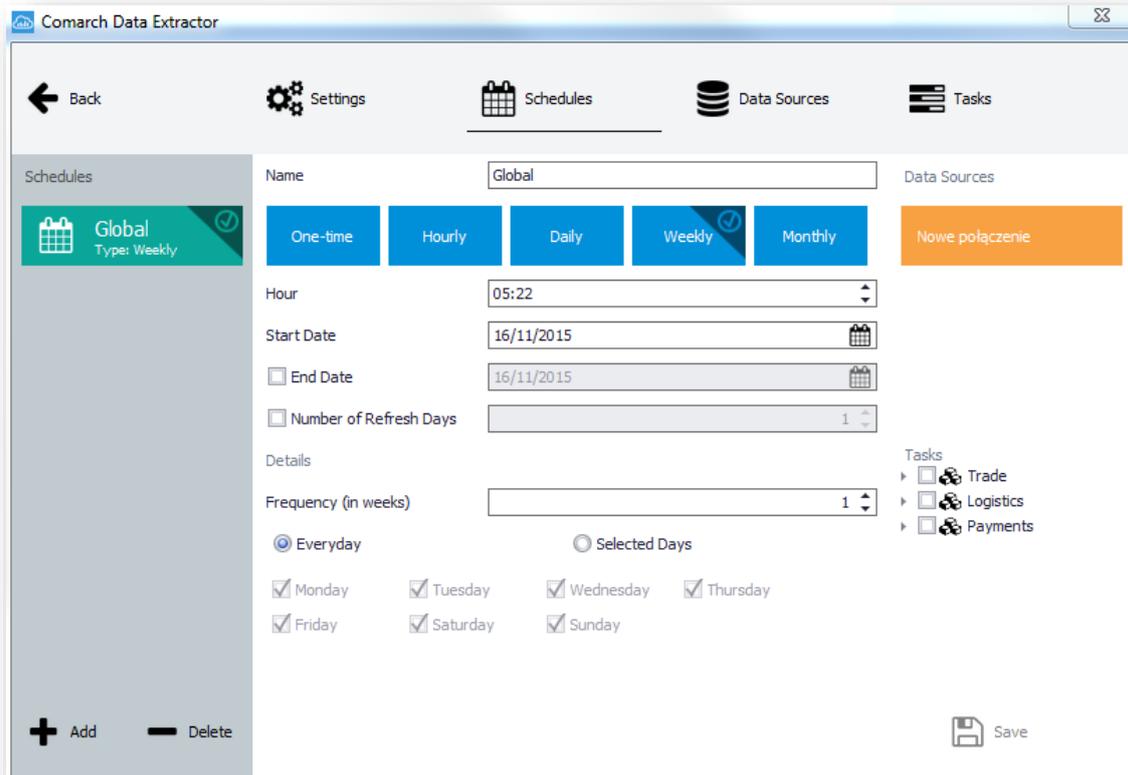


Figure 18 Configuring schedules

It must be determined in a schedule when synchronization of data is to be performed, on which source databases, for which tasks and from which period the data is to be refreshed.

Tasks will be associated with data sources according to assigned source system and data source type. Only those of them will be performed which have the same source system and data source type.

Parameter *Number of Refresh Days* allows for incremental upload of data. If unchecked, the entire source database content is uploaded. If checked, data from the following period is refreshed:

$$\text{Period} = \text{Today} - \text{Number of Refresh Days}$$

For the data refresh parameter to be working for your own queries, they should include parameter called #REFRESHDAYSCOUNT#.

Data Extractor, when executing a query from task, replaces the above parameter with value specified for *Number of Refresh Days* parameter. If that parameter is not checked, that is entire content is to be refreshed, value 0 is entered. This requires appropriate handling in a query. For queries to system supported by default, it is carried out in the following way:

```
IF #REFRESHDAYSCOUNT# <> 0 SET @select = @select + ' AND TrN_DataOpe >= (GETDATE() - #REFRESHDAYSCOUNT#)'
```

Variable *select* contains entire exact query. If the option is not checked and value 0 is inserted for the query, the condition is not attached. If the value is other than 0, only documents with date later than: today –

parameter are taken into account. It is important to compare dates which are inserted to element DAT_DateAttribute, because by that element the data uploaded in result of previous synchronizations is deleted.

1.3 Analytical areas in BI Point Open model

One of the most important needs of a management are business analyses of actions taken in a company. To be able to draw conclusions on their basis and take accurate and quick decisions, reports should include data which is:

- As up-to-date as possible, provided on an ongoing basis
- Presented in various arrangements and intersections (multidimensional approach)
- Covering all fields of company's activity (multi-area approach)
- Easy to access and interpret

Controlling is normally connoted with financial analysis. However, in practice, there is often a need for broader analysis of data, also that data which is not directly associated with finances. Each area in Business Intelligence module is represented by a multidimensional analytical cube. Data in each cube can be analyzed according to any arrangement of several of analytical dimensions and their combinations. It is also possible to add dimensions and measures to favorites, which facilitates searching them. Analytical dimensions and measures are divided into 3 models:

- Trade
- Logistics
- Payments

Below are analytical dimensions and measures contained in particular models:

Trade

Measures

Name	Description	Calculation/Aggregation Method
Granted Discount %	Percentage value of granted discount	IF([Sales Subtotal Value] = 0, 1, [Granted Discount Value]/([Sales Subtotal Value] + [Granted Discount Value]))
Granted Discount Value	Value of granted discount in system currency	Total
Granted Discount Value Currency	Value of granted discount in document currency	Total
Obtained Discount %	Percentage value of obtained discount	IF([Purchase Subtotal Value] = 0, 1, [Obtained Discount Value]/([Purchase Subtotal Value] + [Obtained Discount Value]))
Obtained Discount Value	Value of obtained discount in	Total

	system currency	
Obtained Discount Value Currency	Value of obtained discount in document currency	Total
Sales Quantity	Quantity of items released on sales documents	Total
Sales Purchase Cost	Prime purchase cost of sold items being the difference of sales value and actual margin	[Sales Subtotal Value]-[Sales Actual Margin]
Sales Number of Documents	Number of sales documents	Number of unique occurrences of document ID
Sales Number of Customers	Number of different customers defined on sales documents in analyzed period of time	Number of unique occurrences of customer ID
Sales Number of Items	Number of different sold items in analyzed period of time	Number of unique occurrences of item ID
Sales Margin % on Purchase Price	Percentage margin of the first level, obtained on sales calculated on purchase price	IF([Sales Subtotal Value] - [Sales Margin I Level] = 0, 0,[Sales Margin I Level]/([Sales Subtotal Value] - [Sales Margin I Level]))
Sales Margin % on Sales Price	Percentage margin of the first level, obtained on sales calculated on sales price	IF([Sales Subtotal Value] = 0, 0,[Sales Margin I Level]/[Sales Subtotal Value])
Sales Margin I Level	Basic margin obtained on sales	Total
Sales Actual Margin	Margin including additional sales costs and corrections	Total
Sales Average Price	Average sales prices on the basis of value and quantity of sold items	IF([Sales Quantity] = 0, [Sales Subtotal Value], [Sales Subtotal Value]/[Sales Quantity])
Sales Total Value	Total revenue on sales in system currency	Total
Sales Total Value Currency	Total revenue on sales in document currency	Total
Sales Subtotal Value	Subtotal revenue on sales in system currency	Total
Sales Subtotal Value Currency	Subtotal revenue on sales in document currency	Total
Increase of Sales Year by Year	Difference between sales value in previous and current year. The measure presents correct data in intersection with time dimensions, with Year attribute.	IF(IsEmpty([Sales Subtotal Value]), 0 - PriorYear([Sales Subtotal Value]), [Sales Subtotal Value] - PriorYear([Sales Subtotal Value]))
Purchase Quantity	Quantity of items on purchase documents resulting from purchase document item	Total
Purchase Number of Documents	Number of purchase documents	Number of unique occurrences of document ID
Purchase Number of Vendors	Number of different vendors defined on purchase documents in analyzed period of time	Number of unique occurrences of vendor ID
Purchase Number of Items	Number of different purchased items in analyzed period of time	Number of unique occurrences of item ID

Purchase Average Price	Average purchase price on the basis of value and quantity of purchased items	$IF([Purchase\ Quantity] = 0, [Purchase\ Subtotal\ Value], [Purchase\ Subtotal\ Value]/[Purchase\ Quantity])$
Purchase Total Value	Total value of purchase item in system currency	Total
Purchase Total Value Currency	Total value of purchase item in document currency	Total
Purchase Subtotal Value	Subtotal value of purchase item in system currency	Total
Purchase Subtotal Value Currency	Subtotal value of purchase item in document currency	Total
Sales Orders Quantity	Quantity of ordered items resulting from sales order document item. The quantity is presented in basic unit assigned to an item.	Total
Sales Orders Average Processing Time	Weighted average of sales order processing time weighed with sales order value. Time from sales order issuing to its complete processing.	$SUM([Sales\ Orders\ Value]*[Sales\ Orders\ Processing\ Time])/SUM([Sales\ Orders\ Value])$
Sales Orders Average Delay	Weighted average of sales order processing delay weighed with sales order value. Time from order planned processing date to its actual complete processing.	$SUM([Sales\ Orders\ Value]*[Sales\ Orders\ Delay])/SUM([Sales\ Orders\ Value])$
Sales Orders Value	Subtotal value of sales order item in system currency	Total
Sales Orders Value Currency	Subtotal value of sales order item in document currency	Total
Purchase Orders Quantity	Quantity of ordered items resulting from purchase order document item. The quantity is presented in basic unit assigned to an item.	Total
Purchase Orders Average Processing Time	Weighted average of purchase order processing time weighed with purchase order value. Time from purchase order issuing to its complete processing.	$SUM([Purchase\ Orders\ Value]*[Purchase\ Orders\ Processing\ Time])/SUM([Purchase\ Orders\ Value])$
Purchase Orders Average Delay	Weighted average of purchase order processing delay weighed with purchase order value. Time from order planned processing date to its actual complete processing.	$SUM([Purchase\ Orders\ Value]*[Purchase\ Orders\ Delay])/SUM([Purchase\ Orders\ Value])$
Purchase Orders Value	Subtotal value of purchase order item in system currency	Total
Purchase Orders Value Currency	Subtotal value of purchase order item in document currency	Total

Dimensions

Name	Attributes	Description
Date	Date Calendar Day Date Calendar Quarter Date Calendar Month Date Number of Week Time Calendar	Standard time dimension, it presents transaction date from documents
Date of Issue	Date of Issue Day Date of Issue Quarter Date of Issue Month Date of Issue Number of Week Date of Issue Calendar	Dimension presenting document date of issue
Document	Document Number Document Status	Standard document dimension
Company	Company Structure	Company structure, it presents hierarchy of company organization
Payment Form	Payment Form Name	Payment form retrieved from document
Hour	Hour Name	Trade transaction hour
Unit	Unit Name	Dimension presenting unit in which items are sold/purchased, retrieved from document
Customer/Vendor	Customer/Vendor Address Customer/Vendor Code Customer/Vendor Name Customer/Vendor Kind Customer/Vendor Status Customer/Vendor Type Customer/Vendor Geography Customer/Vendor Group	Information about customer/vendor defined on a trade, order document
Target Customer/Vendor	Target Customer/Vendor Address Target Customer/Vendor Code Target Customer/Vendor Name Target Customer/Vendor Kind Target Customer/Vendor Status Target Customer/Vendor Type Target Customer/Vendor Geography Target Customer/Vendor Group	Information about target customer/vendor defined on a trade, order document
Employee	Employee Name	Employee issuing documents
Product	Product Basic Unit Product Code Product Name Product Manufacturer Product Type Product Status Product Group	Standard dimension presenting data about products offered by a company
Region	Region Name Region Supervisor	Region in which documents are issued
Organizational Structure	Organizational Structure	Hierarchy presenting organizational structure
Currency	Currency Name Currency Symbol	Document currency

Intersection Table

Measure \ Dimension	Region	Organizational Structure	Product	Document	Customer/Vendor	Target Customer/Vendor	Company	Date of Issue	Date	Unit	Hour	Employee	Payment Form	Currency
	Sales Subtotal Value	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Total Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Subtotal Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Total Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Quantity	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Number of Customers	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Number of Documents	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Number of Items	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Margin I Level	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Actual Margin	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Margin % on Purchase Price	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Margin % on Sales Price	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Purchase Cost	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Average Price	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Increase of Sales Year by Year	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Total Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Subtotal Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Total Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Subtotal Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Quantity	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Number of Vendors	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Number of Documents	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Number of Items	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Average Price	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Orders Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Orders Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Orders Quantity	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Orders Average Processing Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sales Orders Average Delay	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Orders Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Orders Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Orders Quantity	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Orders Average Processing Time	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Purchase Orders Average Delay	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Granted Discount Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Granted Discount Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Obtained Discount Value	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Obtained Discount Value Currency	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Granted Discount %	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Logistics

Measures

Name	Description	Calculation/Aggregation Method
W – Rotation in Days by Quantity	It indicates after how many days stock level of a given item is exchanged, on the basis of quantity of sold items	$([W - \text{Historical Stock Levels Accounting Value}] * 30) / [\text{Sales Quantity}]$
W – Rotation in Days by Value	It indicates after how many days stock level of a given item is exchanged, on the basis of value of sold items	$([W - \text{Historical Stock Levels Accounting Value}] * 30) / [\text{Sales Subtotal Value}]$
W – Rotation in Times by Quantity	It indicates how many times in a given period stock levels of an item have been exchanged, on the basis of quantity of sold items	$[\text{Sales Quantity}] / [W - \text{Historical Stock Levels Quantity}]$
W – Rotation in Times by Value	It indicates how many times in a given period stock levels of an item have been exchanged, on the basis of value of sold items	$[\text{Sales Subtotal Value}] / [W - \text{Historical Stock Levels Accounting Value}]$
W – Movements Quantity	Quantity of items included in warehouse documents	Total
W – Movements Quantity Accounting Value	Accounting value of an item resulting from purchase cost on trade document	Total
W – Movements Quantity Acquisition Value	Value of an item resulting from warehouse document	Total
W – Current Stock Levels Quantity	Current quantity of an item stored in warehouse, expressed in basic unit	Total
W – Current Stock Levels Auxiliary Unit	Current quantity of an item stored in warehouse, expressed in auxiliary unit	Total
W – Current Stock Levels Accounting Value	Current value of an item stored in warehouse, expressed in basic unit	Total
W – Historical Stock Levels Quantity	Historical quantity of an item in warehouse, the measure shows aggregates at the end of a month and should be analyzed in intersection with time dimension	Total
W – Historical Stock Levels Auxiliary Unit	Historical quantity of an item in warehouse, expressed in auxiliary unit, the measure shows aggregates at the end of a month and should be analyzed in intersection with time dimension	Total
W – Historical Stock Levels Accounting Value	Historical value of an item in warehouse, the measure shows aggregates at the end of a month and should be analyzed in intersection with time dimension	Total
W – Average Overstock in Days	Weighted average of item overstock in warehouse, measured in days, weighed with item accounting value	$\text{SUM}([W - \text{Current Stock Levels Accounting Value}] * [\text{Average Overstock}]) / \text{SUM}([W - \text{Current Stock Levels Accounting Value}])$

Sales Quantity	Quantity of items released on sales documents	Total
Sales Purchase Cost	Prime purchase cost of sold items being the difference of sales value and actual margin	[Sales Subtotal Value]-[Sales Actual Margin]
Sales Number of Documents	Number of sales documents	Number of unique occurrences of document ID
Sales Number of Customers	Number of different customers defined on sales documents in analyzed period of time	Number of unique occurrences of customer ID
Sales Number of Items	Number of different sold items in analyzed period of time	Number of unique occurrences of item ID
Sales Margin % on Purchase Price	Percentage margin of the first level, obtained on sales calculated on purchase price	IF([Sales Subtotal Value] - [Sales Margin I Level] = 0, 0,[Sales Margin I Level]/([Sales Subtotal Value] - [Sales Margin I Level]))
Sales Margin % on Sales Price	Percentage margin of the first level, obtained on sales calculated on sales price	IF([Sales Subtotal Value] = 0, 0,[Sales Margin I Level]/[Sales Subtotal Value])
Sales Margin I Level	Basic margin obtained on sales	Total
Sales Actual Margin	Margin including additional sales costs and corrections	Total
Sales Average Price	Average sales prices on the basis of value and quantity of sold items	IF([Sales Quantity] = 0, [Sales Subtotal Value], [Sales Subtotal Value]/[Sales Quantity])
Sales Total Value	Total revenue on sales in system currency	Total
Sales Total Value Currency	Total revenue on sales in document currency	Total
Sales Subtotal Value	Subtotal revenue on sales in system currency	Total
Sales Subtotal Value Currency	Subtotal revenue on sales in document currency	Total
Increase of Sales Year by Year	Difference between sales value in previous and current year. The measure presents correct data in intersection with time dimensions, with Year attribute.	IF(IsEmpty([Sales Subtotal Value]), 0 - PriorYear([Sales Subtotal Value]), [Sales Subtotal Value] - PriorYear([Sales Subtotal Value]))
Sales Orders Quantity	Quantity of ordered items resulting from sales order document item. The quantity is presented in basic unit assigned to an item.	Total
Sales Orders Average Processing Time	Weighted average of sales order processing time weighed with sales order value. Time from sales order issuing to its complete processing.	SUM([Sales Orders Value]*[Sales Orders Processing Time])/SUM([Sales Orders Value])
Sales Orders Average Delay	Weighted average of sales order processing delay weighed with sales order value. Time from order planned processing date to its actual complete processing.	SUM([Sales Orders Value]*[Sales Orders Delay])/SUM([Sales Orders Value])
Sales Orders Value	Subtotal value of sales order item in system currency	Total
Sales Orders Value Currency	Subtotal value of sales order item	Total

	in document currency	
Purchase Orders Quantity	Quantity of ordered items resulting from purchase order document item. The quantity is presented in basic unit assigned to an item.	Total
Purchase Orders Average Processing Time	Weighted average of purchase order processing time weighed with purchase order value. Time from purchase order issuing to its complete processing.	$SUM([Purchase\ Orders\ Value]*[Purchase\ Orders\ Processing\ Time])/SUM([Purchase\ Orders\ Value])$
Purchase Orders Average Delay	Weighted average of purchase order processing delay weighed with purchase order value. Time from order planned processing date to its actual complete processing.	$SUM([Purchase\ Orders\ Value]*[Purchase\ Orders\ Delay])/SUM([Purchase\ Orders\ Value])$
Purchase Orders Value	Subtotal value of purchase order item in system currency	Total
Purchase Orders Value Currency	Subtotal value of purchase order item in document currency	Total

Dimensions

Name	Attributes	Description
Date	Date Calendar Day Date Calendar Quarter Date Calendar Month Date Number of Week Time Calendar	Standard time dimension, it presents transaction date from documents
Date of Issue	Date of Issue Day Date of Issue Quarter Date of Issue Month Date of Issue Number of Week Date of Issue Calendar	Dimension presenting document date of issue
Document	Document Number Document Status	Standard document dimension
Company	Company Structure	Company structure, it presents hierarchy of company organization
Payment Form	Payment Form Name	Payment form retrieved from document
Hour	Hour Name	Trade transaction hour
Unit	Unit Name	Dimension presenting unit in which items are sold/purchased, retrieved from document
Customer/Vendor	Customer/Vendor Address Customer/Vendor Code Customer/Vendor Name Customer/Vendor Kind Customer/Vendor Status Customer/Vendor Type Customer/Vendor Geography Customer/Vendor Group	Information about customer/vendor defined on a warehouse document

Target Customer/Vendor	Target Customer/Vendor Address Target Customer/Vendor Code Target Customer/Vendor Name Target Customer/Vendor Kind Target Customer/Vendor Status Target Customer/Vendor Type Target Customer/Vendor Geography Target Customer/Vendor Group	Information about target customer/vendor defined on a warehouse document
Warehouse	Warehouse Code Warehouse Name Warehouse Type	Dimension presenting information about warehouse in which merchandise is stored
Target Warehouse	Target Warehouse Code Target Warehouse Name Target Warehouse Type	Dimension presenting information about warehouse to which merchandise is moved through WM document
Employee	Employee Name	Employee issuing documents
Product	Product Basic Unit Product Code Product Name Product Manufacturer Product Type Product Status Product Group	Standard dimension presenting data about products offered by a company
Region	Region Name Region Supervisor	Region in which documents are issued
Organizational Structure	Organizational Structure	Hierarchy presenting organizational structure
Currency	Currency Name Currency Symbol	Document currency
Overstock	Overstock Range	Dimension presenting item overstock ranges

Intersection Table

Measure \ Dimension	Dimension																
	Region	Organizational Structure	Product	Document	Customer/Vendor	Target Customer/Vendor	Company	Date of Issue	Date	Unit	Hour	Employee	Payment Form	Currency	Warehouse	Target Warehouse	Overstock
Sales Subtotal Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Total Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Subtotal Value Currency	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Total Value Currency	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Quantity	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Number of Customers	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Number of Documents	x	x	x	x	x	x	x	x	x	x	x	x	x	x			

Sales Number of Items	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Margin I Level	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Actual Margin	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Margin % on Sales Price	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Margin % on Purchase Price	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Purchase Cost	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Average Price	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Increase of Sales Year by Year	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Orders Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Orders Value Currency	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Orders Quantity	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Orders Average Processing Time	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Sales Orders Average Delay	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Purchase Orders Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Purchase Orders Value Currency	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Purchase Orders Quantity	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Purchase Orders Average Processing Time	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
Purchase Orders Average Delay	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
W – Historical Stock Levels Accounting Value	x	x	x				x		x	x						x	
W – Historical Stock Levels Quantity	x	x	x				x		x	x						x	
W – Historical Stock Levels Quantity Auxiliary Unit	x	x	x				x		x	x						x	
W – Rotation in Times by Value	x	x	x				x		x	x						x	
W – Rotation in Days by Value	x	x	x				x		x	x						x	
W – Rotation in Times by Quantity	x	x	x				x		x	x						x	
W – Rotation in Days by Quantity	x	x	x				x		x	x						x	
W – Current Stock Levels Accounting Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
W – Current Stock Levels Quantity	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
W – Current Stock Levels Quantity Auxiliary Unit	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
W – Average Delay in Days	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
W – Movements Accounting Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
W – Movements Acquisition Value	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
W – Movements Quantity	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x

Payments

Measures

Name	Description	Calculation/Aggregation Method
Current Average Number of Days of Delay	Average number of days of delay in payment in relation to planned due date for current payments	SUM([Current Receivables Remaining to Be Paid])*[Current Delay])+SUM([Current Payables Remaining to Be

		$\text{Paid} * [\text{Current Delay}] / \text{SUM}([\text{Current Receivables Remaining to Be Paid}] + [\text{Current Payables Remaining to Be Paid}])$
Historical Average Number of Days of Delay	Average number of days of delay in payment in relation to planned due date for historical payments	$\text{SUM}([\text{Historical Receivables Remaining to Be Paid}] * [\text{Historical Delay}] + \text{SUM}([\text{Historical Payables Remaining to Be Paid}] * [\text{Historical Delay}]) / \text{SUM}([\text{Historical Receivables Remaining to Be Paid}] + [\text{Historical Payables Remaining to Be Paid}])$
Current Receivables Remaining to Be Paid	Current value of uncompleted amount of receivables, expressed in system currency	Total
Current Receivables Remaining to Be Paid Currency	Current value of uncompleted amount of receivables, expressed in document currency	Total
Receivables Document	Total value of receivables resulting from trade document, expressed in system currency	Total
Receivables Document Currency	Total value of receivables resulting from trade document, expressed in document currency	Total
Historical Receivables Remaining to Be Paid	Historical value of uncompleted amount of receivables, expressed in system currency. The measure shows aggregates at the end of month and should be analyzed in intersection with time dimension.	Total
Historical Receivables Remaining to Be Paid Currency	Historical value of uncompleted amount of receivables, expressed in document currency. The measure shows aggregates at the end of month and should be analyzed in intersection with time dimension.	Total
Historical Receivables Rotation in Days	It indicates how long lasted an average cycle of receivable turnover	$([\text{Historical Receivables Remaining to Be Paid}] * 30) / [\text{Receivables Document}]$
Historical Receivables Rotation in Times	It informs how many times within a month the cycle of receivable turnover has	$[\text{Receivables Document}] / [\text{Historical Receivables Remaining to Be}]$

	been performed	Paid]
Overdue Current Receivables Percent	The measure presents what percentage of total amount of current uncompleted receivables are overdue receivables	IF([Current Delay] > 0,[Current Receivables Remaining to Be Paid],0)/[Current Receivables Remaining to Be Paid]
Overdue Historical Receivables Percent	The measure presents what percentage of total amount of historical uncompleted receivables are overdue receivables. The measure shows aggregates at the end of month and should be analyzed in intersection with time dimension.	IF([Historical Delay] > 0,[Historical Receivables Remaining to Be Paid],0)/[Historical Receivables Remaining to Be Paid]
Historical Receivables Remaining to Be Paid Share	The measure presents relation of historical receivables remaining to be paid to total amount of receivables in a given period. The measure presents aggregates at the end of month and should be analyzed in intersection with time dimension.	[Historical Receivables Remaining to Be Paid]/[Receivables Document]
Deposit	Amount of completed receivables in system currency	Total
Deposit Currency	Amount of completed receivables in document currency	Total
Withdrawal	Amount of completed payables in system currency	Total
Withdrawal Currency	Amount of completed payables in document currency	Total
Current Payables Remaining to Be Paid	Current value of uncompleted amount of payables, expressed in system currency	Total
Current Payables Remaining to Be Paid Currency	Current value of uncompleted amount of payables, expressed in document currency	Total
Payables Document	Total value of payables resulting from trade document, expressed in system currency	Total
Payables Document Currency	Total value of payables resulting from trade document, expressed in document currency	Total
Historical Payables Remaining to Be Paid	Historical value of uncompleted amount of	Total

	payables, expressed in system currency. The measure shows aggregates at the end of month and should be analyzed in intersection with time dimension	
Historical Payables Remaining to Be Paid Currency	Historical value of uncompleted amount of payables, expressed in document currency. The measure shoes aggregates at the end of month and should be analyzed in intersection with time dimension.	Total
Historical Payables Rotation in Days	It indicates how long lasted an average cycle of payable turnover	$\frac{([\text{Historical Payables Remaining to Be Paid}] * 30)}{[\text{Payables Document}]}$
Historical Payables Rotation in Times	It informs how many times within a month the cycle of payable turnover has been performed	$\frac{[\text{Payables Document}]}{[\text{Historical Payables Remaining to Be Paid}]}$

Dimensions

Name	Attributes	Description
Date	Date Calendar Day Date Calendar Quarter Date Calendar Month Date Number of Week Time Calendar	Standard time dimension, it presents transaction date from documents
Payment Date	Payment Date Day Payment Date Quarter Payment Date Month Payment Date Number of Week Payment Date	Dimension presenting payment date
Document	Document Number Document Status	Standard document dimension
Payment Document	Payment Document Number Payment Document Status	Dimension presenting document completing a payment
Company	Company Structure	Company structure, it presents hierarchy of company organization
Customer/Vendor	Customer/Vendor Address Customer/Vendor Code Customer/Vendor Name Customer/Vendor Kind Customer/Vendor Status Customer/Vendor Type Customer/Vendor Geography Customer/Vendor Group	Information about customer/vendor defined on a payment document
Payer	Payer Address Payer Code	Information about payer making payment for a document

	Payer Name Payer Kind Payer Status Payer Type Payer Geography Payer Group	
Employee	Employee Name	Employee issuing documents
Organizational Structure	Organizational Structure	Hierarchy presenting organizational structure
Due Date	Due Date Day Due Date Quarter Due Date Month Due Date Number of Week Due Date	Measure presenting planned due date
Currency	Currency Name Currency Symbol	Document currency
Maturity	Maturity Period Maturity Name	Dimension presenting ranges of payment expiration

Intersection Table

Measure \ Dimension	Dimension											
	Organizational Structure	Document	Payment Document	Customer/Vendor	Payer	Company	Date	Payment Date	Due Date	Employee	Currency	Maturity
Historical Payables Remaining to Be Paid	x	x		x	x	x	x	x	x	x	x	x
Historical Payables Remaining to Be Paid Currency	x	x		x	x	x	x	x	x	x	x	x
Historical Receivables Remaining to Be Paid	x	x		x	x	x	x	x	x	x	x	x
Historical Receivables Remaining to Be Paid Currency	x	x		x	x	x	x	x	x	x	x	x
Historical Average Number of Days of Delay	x	x		x	x	x	x	x	x	x	x	x
Historical Receivables Remaining to Be Paid Share	x	x		x	x	x	x	x	x	x	x	x
Overdue Historical Receivables Percent	x	x		x	x	x	x	x	x	x	x	x
Historical Receivables Rotation in Times	x	x		x	x	x	x	x	x	x	x	x
Historical Receivables Rotation in Days	x	x		x	x	x	x	x	x	x	x	x
Historical Payables Rotation in Times	x	x		x	x	x	x	x	x	x	x	x
Historical Payables Rotation in Days	x	x		x	x	x	x	x	x	x	x	x
Current Payables Remaining to Be Paid	x	x		x	x	x	x	x	x	x	x	x
Current Payables Remaining to Be Paid Currency	x	x		x	x	x	x	x	x	x	x	x
Current Receivables Remaining to Be Paid	x	x		x	x	x	x	x	x	x	x	x
Current Receivables Remaining to be Paid Currency	x	x		x	x	x	x	x	x	x	x	x
Current Average Number of Days of Delay	x	x		x	x	x	x	x	x	x	x	x
Overdue Current Receivables Percent	x	x		x	x	x	x	x	x	x	x	x
Payables Document	x	x		x	x	x	x		x	x	x	x
Receivables Document	x	x		x	x	x	x		x	x	x	x
Payables Document Currency	x	x		x	x	x	x		x	x	x	x

Receivables Document Currency	X	X		X	X	X	X		X	X	X	X
Deposit	X	X	X	X	X	X	X	X	X	X		
Deposit Currency	X	X	X	X	X	X	X	X	X	X		
Withdrawal	X	X	X	X	X	X	X	X	X	X		
Withdrawal Currency	X	X	X	X	X	X	X	X	X	X		

2. Working with Comarch BI Point

In order to create a presentation of data with the use of Comarch BI Point service, click on **[Reports]** button in the upper bar upon logging in. Then, a user is redirected to report repository in which it is possible to preview the structure of folders, reports and dashboards as well as create own reports. After registration, folder with demo reports, standard reports and *Private Reports* folder, where a folder is automatically generated for each registered user, are available. *DEMO Reports* folder contains exemplary reports and dashboards which can be used without the need to synchronize data, whereas *Standard Reports* folder includes the same reports and dashboards as the folder with demo reports but with synchronized data.



Note: Structure of folders and reports for BI Point manager is provided in chapter 3.

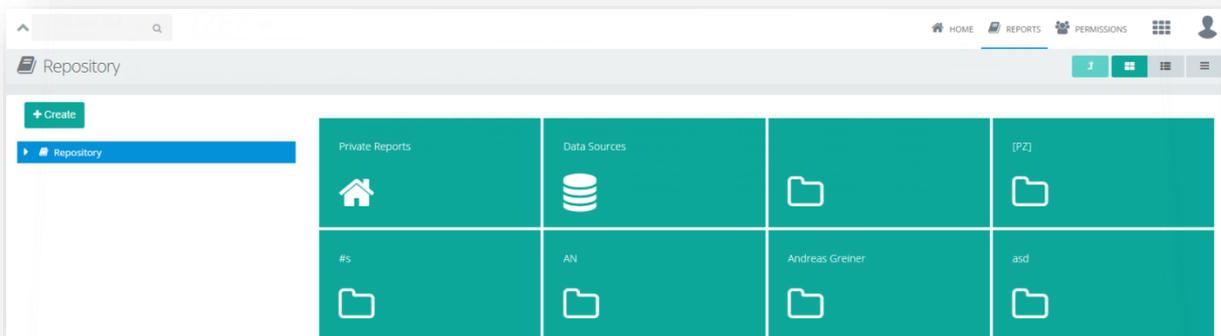


Figure 19 Report repository view

On the left side, there is a tree of folders and their content on the right, displayed in form of tiles, by default. The button  allows going one level up in the repository tree structure. Buttons   allow for changing the view to list or files.

Upon clicking on button  located on the right side of the bar, a list is dropped down, including different options in dependence of repository element which is currently selected.

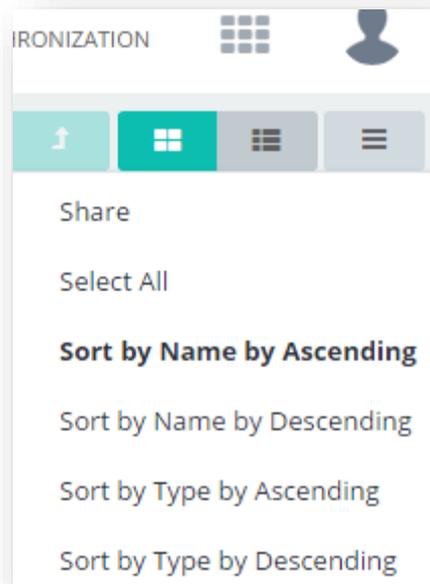


Figure 20 List with options in the repository

The list contains options of sorting elements in the repository both by name and type, by ascending and descending. Since the sorting is applied in the engine itself, it is far more efficient than in previous versions. Sorting by type by ascending displays folders first, then dashboards, and reports at the end. Option *Share* allows for sharing a selected element to other users. It can be performed for entire repository, individual folders, reports as well as dashboards. Upon selecting it, configuration tool window opens:

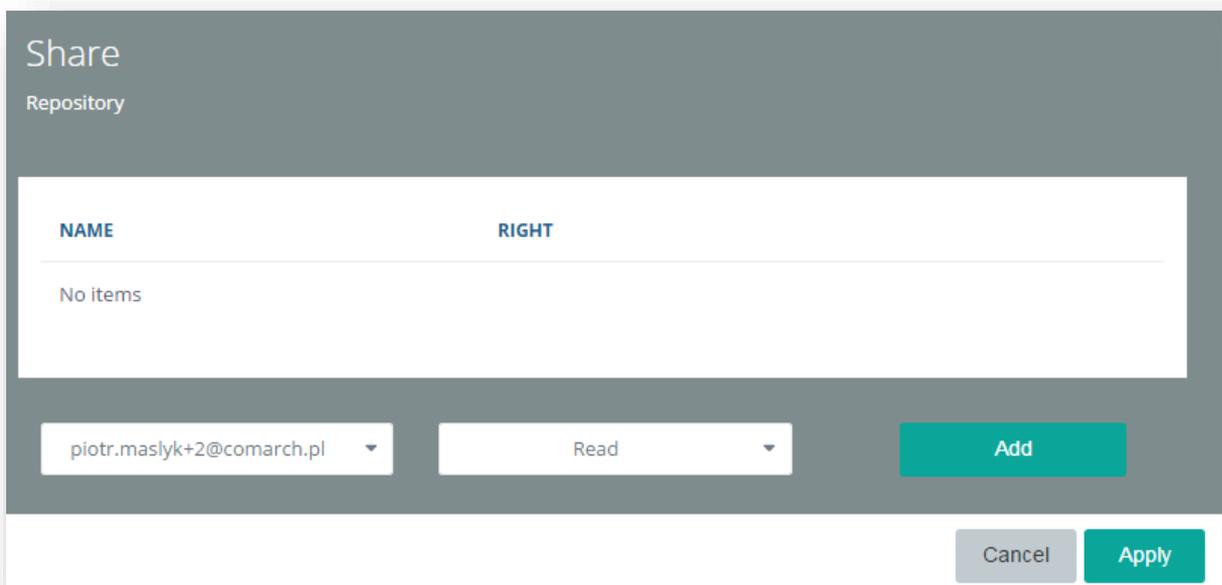


Figure 21 Sharing an element

In the drop-down list in the bottom left part of the window, it is possible to select individual users or its groups and from the list on the right a selected access level can be assigned. Available permissions are: *None*, *Read* and *Save*. Clicking on button **[Add]** adds defined users and permissions assigned to them to the list above. Clicking **[Apply]** shares the element according to the defined properties.

Clicking **[Select All]** results in marking all elements in a given location. Upon selection, the following options appear in the list:

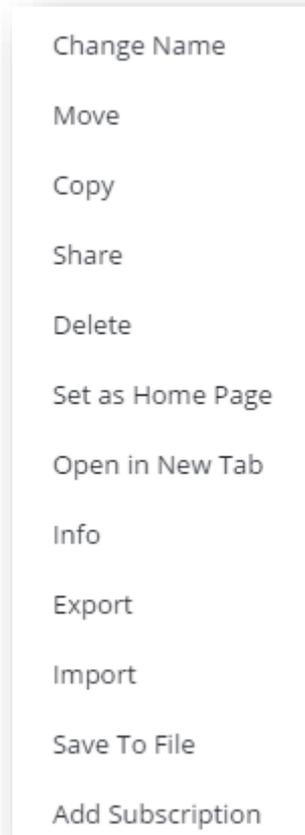


Figure 22 Options available upon selecting elements

Option *Move* allows for moving elements to a selected location. *Copy* option copies a selected element and locates it in the specified folder. An element can also be deleted upon clicking *Delete*. Selecting *Info* option results in displaying the following information about an element in the right panel: its type, date of modification and creation, owner and permissions of other users to it. Clicking *Deselect All* deselects all previously marked elements. Choosing option *Export* results in exporting an element to xml file and saving it on a user disk. Upon selecting *Add Subscription* option, a user is redirected to the new menu for adding a subscription:

Figure 23 Subscription menu

In field *Subscription Name*, name of a subscription is specified, by which it is later possible to search the subscription, and in field *E-mail Subject*, it is possible to define message subject. Field *Path* contains preview of report location of in the repository, which allows for verifying if the subscription is being properly generated. There are also various types of formats available for sending the subscription. It must be noted that appropriate software is necessary to open some types of files and without it, it will not be possible to correctly display the subscription. Below, there is *Schedule* field which enables determining how often the subscription will be sent. The following options are available for selection:

Figure 24 Selecting subscription frequency

It must be remembered that after selecting option *Once*, the subscription will be saved and will be available despite its one-time sending. Depending on the selected schedule, specific options appear, allowing for

complete configuration of a subscription sending time. Exemplary daily subscription is presented in the below figure:

Add Subscription

Basic Recipients Advanced Options

Subscription Name
Subscription [1.01 Trend sprzedaży miesięcznie]

Path
Repository > Raporty DEMO > 01. Handel

Formats
 PDF Table XLSX Table XLS Table PNG Table HTML Table PDF Chart PNG Chart

Schedule
Daily

Start Date
7/25/2016

Send Time
15:35

Send Everyday

Select Weekdays
 Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Active

Cancel Ok

Figure 25 Subscription menu upon displaying days of the week

After configuring option *Basic*, go to tab *Recipients* available in the upper bar menu.

Add Subscription

Basic Recipients Advanced Options

Subscription

Search/Add

USERS ▾

zu ()

ziomus (ziomus)

ziom@o2.pl (ziom@o2.pl)

z@o2.pl (z@o2.pl)

xz ()

x11 ()

wk ()

WJTest ()

wj3 ()

WJ2dlugiloginktorysienigdzieniezmiesci (asd@wp.pl)

WJ2 (WJ2@wp.pl)

wj (marcin.przybylo@comarch.pl)

Active

Cancel Ok

Figure 26 Subscription recipient menu

In section *Users*, users within your company are displayed, along with their login and e-mail.

Section *Groups* includes appropriately grouped users who can be configured in section *Permissions*.

External Users section contains e-mail addresses added manually by a user who is defining a given subscription.

Field *Search* is used for searching users/groups. Clicking on the plus icon adds an e-mail to *External Users* section.

The screenshot shows a dialog box titled "Add Subscription" with three tabs: "Basic", "Recipients", and "Advanced Options". The "Advanced Options" tab is selected. Inside the dialog, there is a "Description" text input field and an "End Date" toggle switch. At the bottom of the dialog, there is an "Active" toggle switch, a "Cancel" button, and an "OK" button.

Figure 27 Subscription advanced options

In tab *Advanced Options*, it is possible to define a description which will describe what is included in the enclosed report.

Upon clicking [OK], the subscription is created.

Clicking on button  expands a list from which it is possible to select folder, report or dashboard. New folders, reports and dashboards are created in a place currently selected in the repository. If no folder is selected in the repository, a new element will be created in user's private folder.

On the upper bar, there is a search engine available, allowing for searching of objects by entered phrase and displaying folders first, then reports and dashboards. It searches in *ad hoc* mode – by searching objects dynamically upon entering of each character.

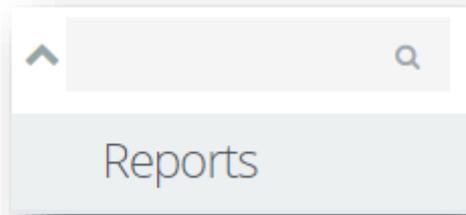


Figure 28 Object search engine

Tiles of folders, reports and dashboards have context menus available in the bar, displayed upon hovering the cursor over a tile:

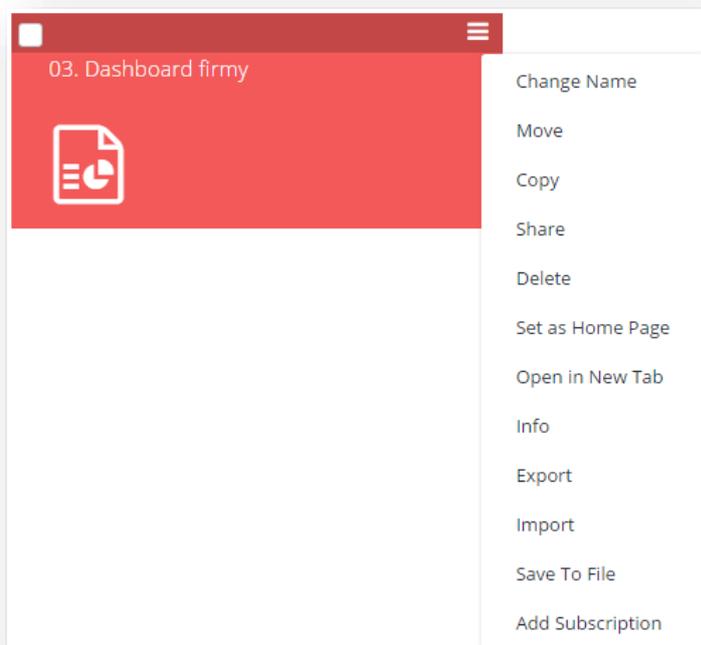


Figure 29 Options in a tile

The following options are available for folders: *Change Name, Move, Copy, Share, Delete, Info, Export, Import*. Selecting option *Change Name* redirects to the configuration tool in which it is possible to enter name for the folder and confirm it by clicking **[Apply]**. Option *Import* allows for importing files in xml format from disk. Other options operate the same way as described above.

Options available for reports are: *Change Name, Move, Copy, Share, Delete, Open in New Tab, Info, Export, Import, Save To File, Add Subscription*. Selecting option *Open in New Tab* results in opening a report in a new tab in the browser. Other options operate the same way as described above.

Options for dashboards are: *Change Name, Move, Copy, Share, Delete, Set as Home Page, Open in New Tab, Info, Export, Import, Save To File, Add Subscription*. Option *Set as Home Page* allows for setting a dashboard in

the service main view which is available upon logging in. Other options operate the same way as described above.

2.1 Creating reports

In order to create a new report, click on **[Create]** button available in the repository and select element *Report*:

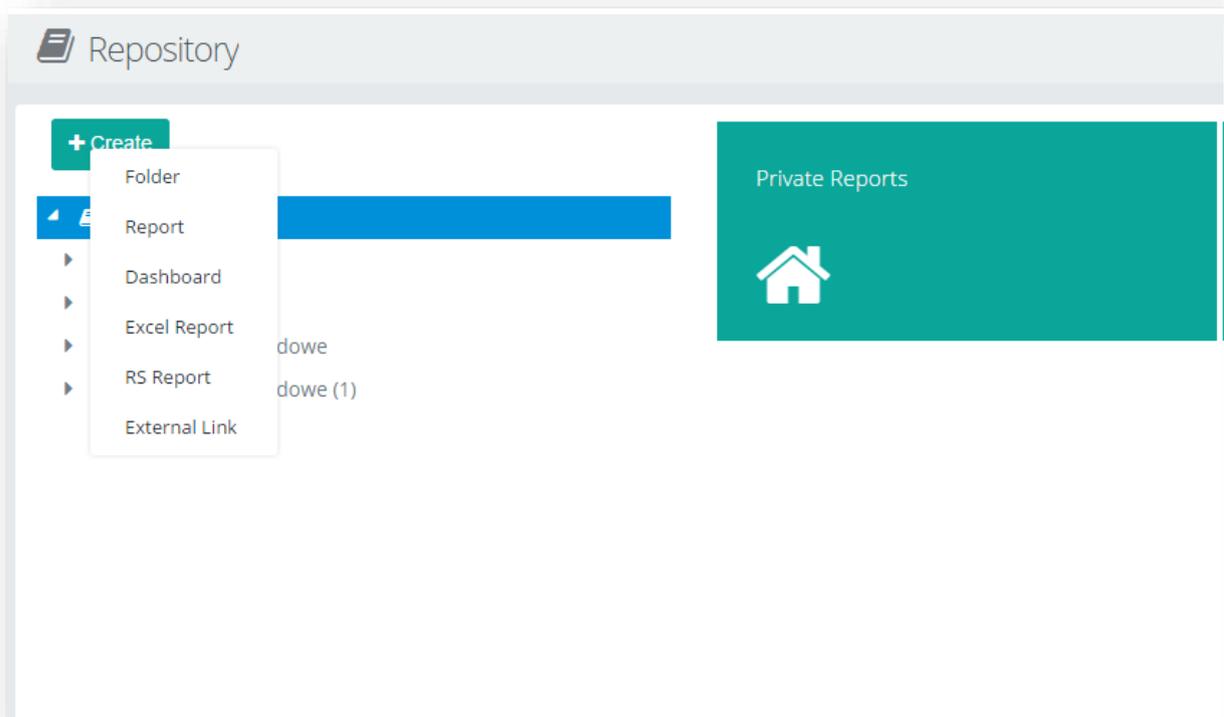


Figure 30 Creating a new report

In the next step, select data source. The service in BI Point Open model provides three standard areas: *Trade*, *Logistics* and *Payments* and areas with presentation data: *Demo Trade*, *Demo Logistics* and *Demo Payments*. In BI Point Manager model, there are five analytical areas available: *Trade*, *Logistics*, *Payments*, *Accounting* as well as *HR* and *Payroll*. Data is transferred to the areas during synchronization. Confirm your selection by clicking **[OK]**:

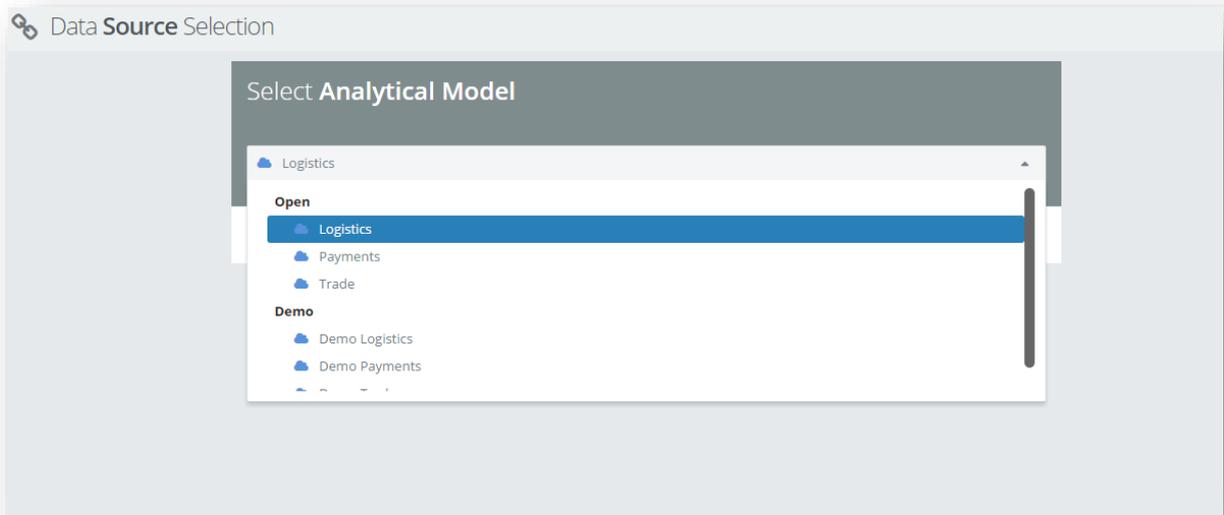


Figure 31 Selecting analytical model

A report is opened, by default, as a pivot table onto which it is possible to drag measures and dimensions from the left panel as well as edit its elements with the use of options available in the right panel:

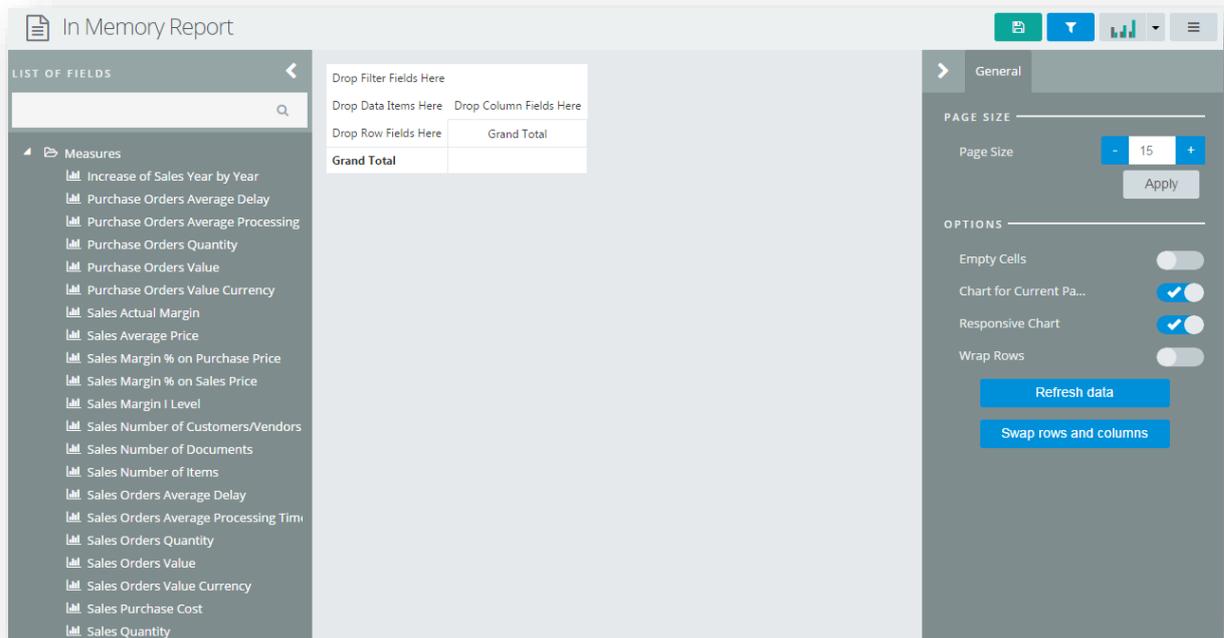


Figure 32 A created report view

Panels can be hidden and unhidden upon clicking on arrow icon . After minimizing or expanding panels, work space adjusts to the new size.

Measures and dimensions are included in the list of fields in the left panel and are arranged as a tree. They can be dragged and searched by expanding a branch or by entering appropriate phrase in the search engine above the list. Measures include numeric values describing available dimensions. A selected measure must always be located in the data section – there are labels available in the table which describe where elements of data and other elements should be dragged. Dimensions can be located on rows, columns or in table filter field. To locate a given element, use 'drag&drop' method. Then, arrows are displayed in appropriate areas and they indicate sections where the element can be dragged. To remove an element from report, drag it beyond the work space.

Elements of measures and dimensions can also be moved onto the table by dragging and dropping them onto appropriate fields of the configuration tool. To proceed to the configuration tool, click on the following button in the bar:



Figure 33 Proceeding to configuration tool

In the configuration tool window (similarly as in all windows for adding elements), it is possible to enter report elements manually. Typing of a given phrase enables faster selection of the searched element:

Report Configuration Tool

Values

Sales Quantity x

Rows

Payment Form Name x

Columns

Product Name x

Filters

Company Level 1 x

Cancel Ok

Figure 34 Configuration tool view

To facilitate the process of creating report, it is possible to add own descriptions for measures and dimensions in a report.

Data Headers		Drop Column Fields Here		
Product Name ▲ ▼	Employee Name ▲ ▼	Grand Total		
		Sales Quantity	Sales Actual Margin	Sales Number of Items
▶ Ampułki odżywcze		792.00	\$16,545.29	1
▶ Baleriny		326.00	\$13,039.87	1
▶ Balsam do włosów		2,023.00	\$16,812.83	1
▶ Balsam prostujący włosy		1,974.00	\$11,112.87	1
▶ Bluza		486.00	\$26,812.16	1
▶ Bluza rozpinana		631.00	\$35,533.61	1
▶ Bluzka		1,290.00	\$83,696.01	1
▶ Bluzka z długim rękawem		633.00	\$24,487.45	1
▶ Botki		1,058.00	\$76,513.29	1
▶ Czołenka		1,383.00	\$98,620.64	1
▶ Eliksir pod oczy		944.00	\$42,249.58	1
▶ Emulsja do paznokci		1,907.00	\$8,819.07	1
▶ Emulsja opalająca		1,243.00	\$28,501.50	1
▶ Henna		917.00	\$8,447.25	1
▶ Kardigan		1,325.00	\$98,415.61	1
Grand Total		93,529.00	\$4,211,667.93	88

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Figure 35 Exemplary report after configuration

In the right panel, there are tools for editing the work space, table elements and charts. Tab *General* includes *Page Size* section in which it is possible to change default size of the work space, as well as section *Options* in which it can be determined which elements should be included in the report content.

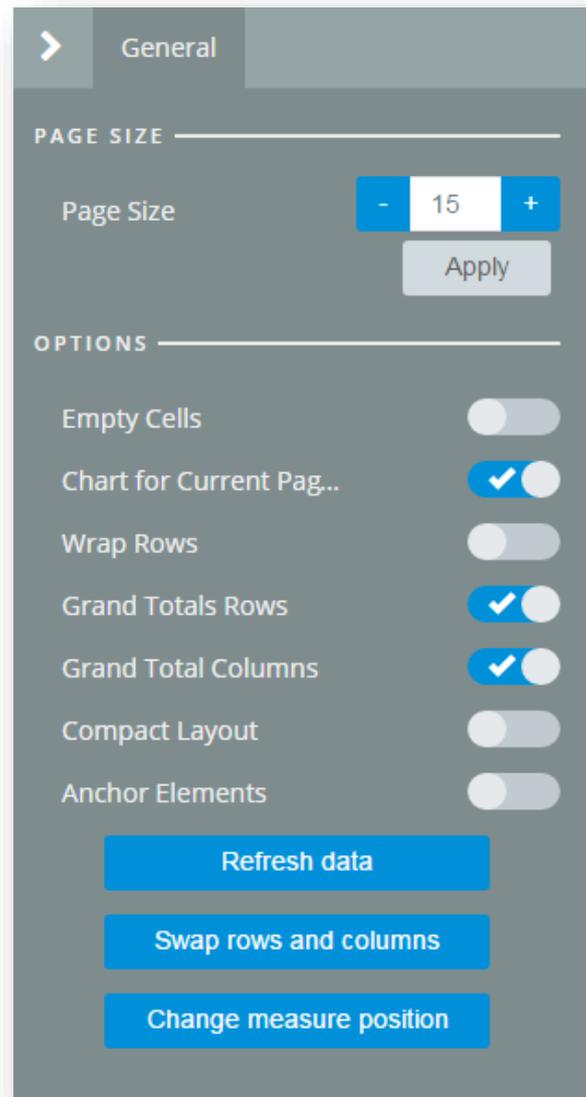


Figure 36 Tab *General*

Owing to *Compact Layout* option, it is possible to hide the key, which may be particularly useful for very expanded reports including many dimensions and measures.

Date Calendar Day All ▼

Data Headers

Drop Column Fields Here

Product Name ▲ ▼	Employee Name ▲ ▼	Grand Total		
		Sales Quantity	Sales Actual Margin	Sales Number of Items
▶ Ampułki odżywcze		792.00	\$16,545.29	1
▶ Baleriny		326.00	\$13,039.87	1
▶ Balsam do włosów		2,023.00	\$16,812.83	1
▶ Balsam prostujący włosy		1,974.00	\$11,112.87	1
▶ Bluza		486.00	\$26,812.16	1
▶ Bluza rozpinana		631.00	\$35,533.61	1
▶ Bluzka		1,290.00	\$83,696.01	1
▶ Bluzka z długim rękawem		633.00	\$24,487.45	1
▶ Botki		1,058.00	\$76,513.29	1
▶ Czołenka		1,383.00	\$98,620.64	1
▶ Elixir pod oczy		944.00	\$42,249.58	1
▶ Emulsja do paznokci		1,907.00	\$8,819.07	1
▶ Emulsja opalająca		1,243.00	\$28,501.50	1
▶ Henna		917.00	\$8,447.25	1
▶ Kardigan		1,325.00	\$98,415.61	1
Grand Total		93,529.00	\$4,211,667.93	88

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Figure 37 Report in compact layout

The tool panel changes its content in dependence of selecting its particular element in the work space. It is possible to set parameters for a given element apart from their default values, as well as other specific options.

The screenshot displays a BI report interface. On the left, a data table is shown with columns for Product Name, Employee Name, Sales Quantity, Sales Actual Margin, and Sales Number of Items. The 'ADMIN' employee is selected. On the right, a panel with tabs for 'General', 'Actions', and 'Properties' is visible. The 'Actions' tab is active, showing a menu for the selected element 'ADMIN' with three options: 'Show Only Selected Elements', 'Hide selected elements', and 'Clear Filter'.

Product Name	Employee Name	Grand Total		
		Sales Quantity	Sales Actual Margin	Sales Number of Items
▶ Ampulki odżywcze		792.00	\$16,545.29	1
▶ Baleriny		326.00	\$13,039.87	1
▶ Balsam do włosów		2,023.00	\$16,812.83	1
▶ Balsam prostujący włosy		1,974.00	\$11,112.87	1
▶ Bluza		486.00	\$26,812.16	1
▶ Bluza rozpinana		631.00	\$35,533.61	1
▶ Bluzka		1,290.00	\$83,696.01	1
▶ Bluzka z długim rękawem		633.00	\$24,487.45	1
▶ Botki		1,058.00	\$76,513.29	1
▲ Czołotka	ADMIN	1,383.00	\$98,620.64	1
▶ Elikzir pod oczy		944.00	\$42,249.58	1
▶ Emulsja do paznokci		1,907.00	\$8,819.07	1
▶ Emulsja opalająca		1,243.00	\$28,501.50	1
▶ Henna		917.00	\$8,447.25	1
▶ Kardigan		1,325.00	\$98,415.61	1
Grand Total		93,529.00	\$4,211,667.93	88

Figure 38 Menu of actions for a single element

Thanks to such options as *Show Only Selected Elements* or *Hide Selected Elements*, it is possible to quickly filter data in a report. Option *Clear Filter* displays all hidden elements. Options *Expand Level* and *Collapse Level* allow for faster displaying of the entire hierarchy in a report.

Unlike options included in *Properties* tab, actions are performed immediately, without the need to click on **[Apply]** button.

Selecting lower level of hierarchy supplements tool panel with options available for the selected level. It is possible to view/hide only selected elements in a level. Option *Expand All* expands a report to the lowest available level in all the areas.

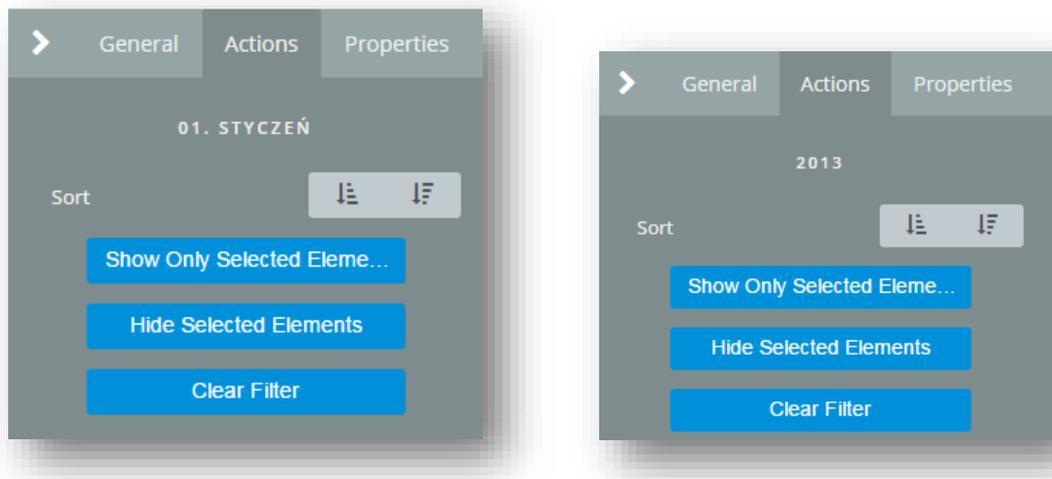


Figure 39 Tab *Actions* for different dimensions

Options for sorting and viewing/hiding elements are available also in form of buttons in the bar:

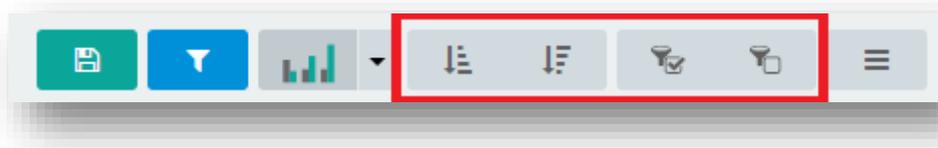


Figure 40 Sorting and viewing/hiding buttons

Tab *Properties* is available for all elements of the table, but it includes different options depending on element type. It allows for, e.g. changing fonts, names, number precision, column width, using conditional formatting, enabling *TOP N* filter indicating top/bottom values from a range, as well as managing visibility of subtotals.

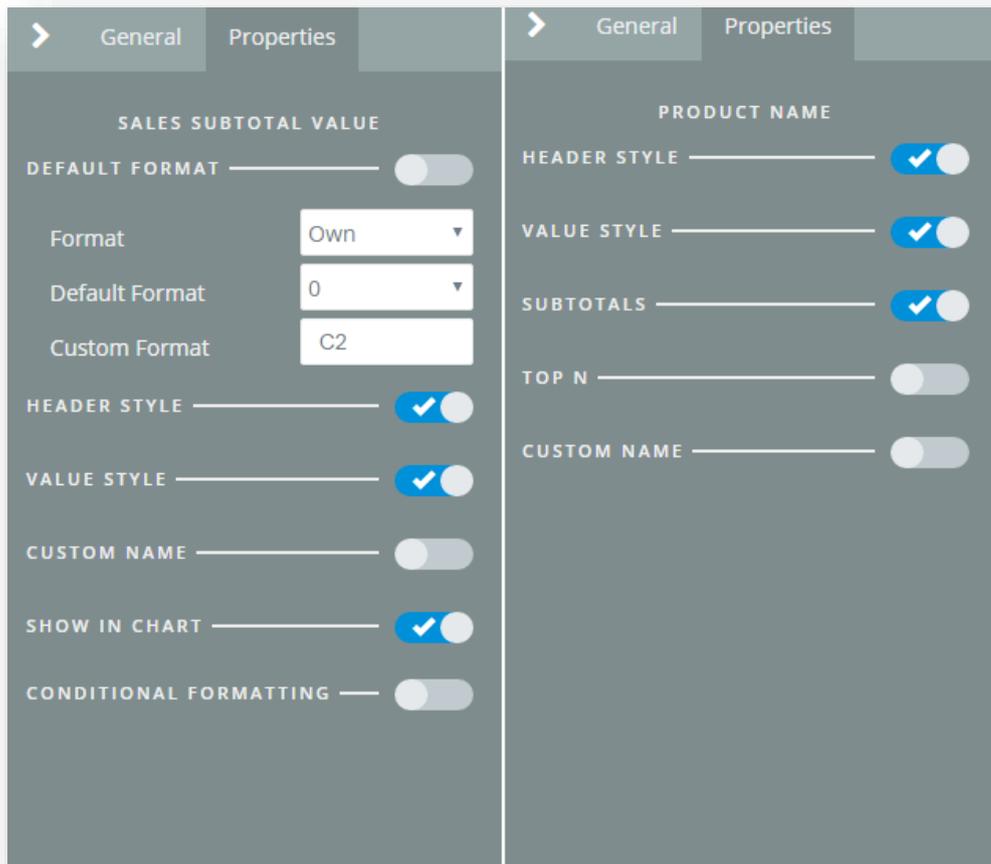


Figure 41 Tab *Properties* for different elements

Conditional formatting option enables formatting a report layout in dependence of values of measures. It is possible to change type, style and color of font and background. Cell content can also be aligned horizontally and vertically.

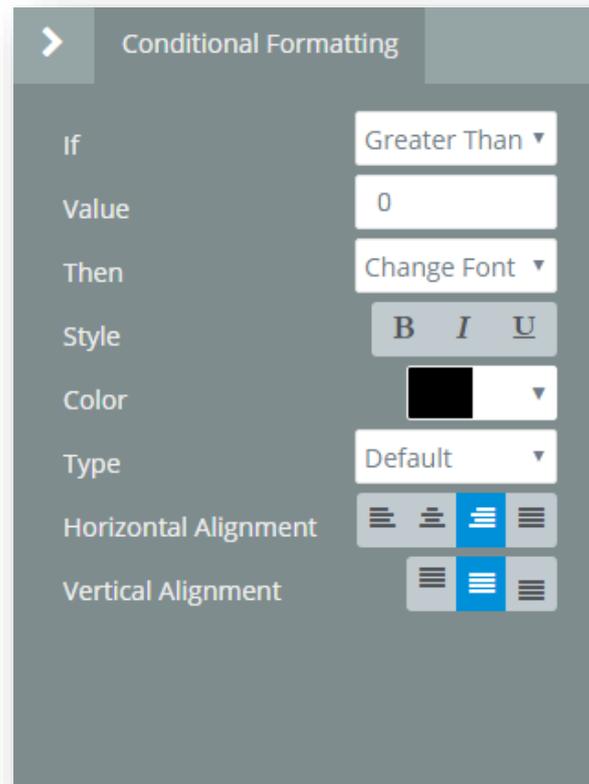


Figure 42 Conditional formatting of report

Dimension elements can be filtered upon clicking on the icon  available by name of a dimension used in the report (dragged to columns/rows of the pivot table). Upon clicking on that icon, the user is transferred to filtering window.

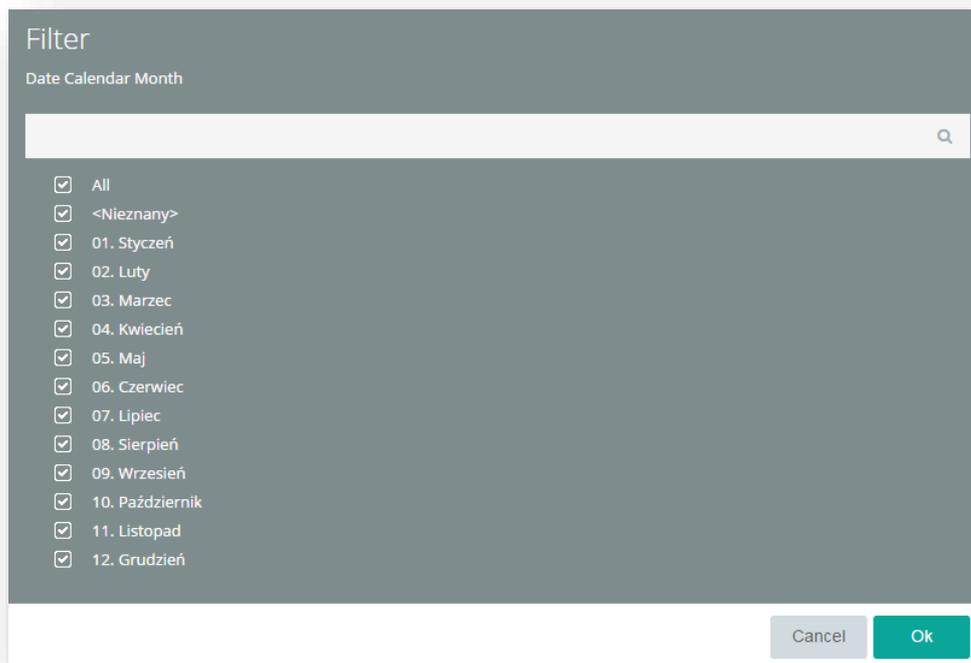


Figure 43 Window of dimension elements filtering

To facilitate searching of required elements, filtering windows have been equipped with a search bar located in the upper part of the screen. The search engine works in *ad hoc* mode, thus filters on ongoing basis by the entered phrase. On mobile devices, the searching is carried out upon clicking Enter. Searching by phrase adjusts elements including the entered string in any place, regardless of special characters.

The created pivot table can be shown as a chart by using the following button located on a strip located below the main bar with shortcuts:

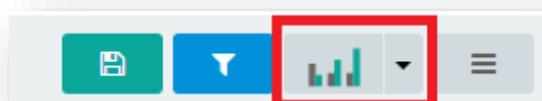


Figure 44 Creating a chart

Chart editing options for reports are the same as for charts on dashboards and are described in paragraphs dedicated to dashboards.

Upon selecting option *Table and Chart*:

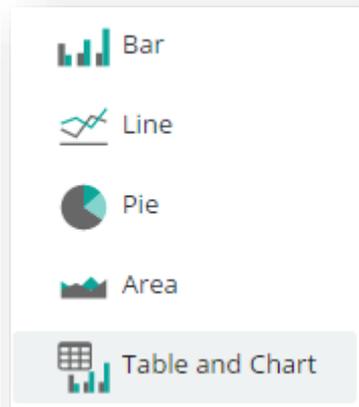


Figure 45 Table and Chart option in the menu

Data will be presented both in numbers and in graphic form.

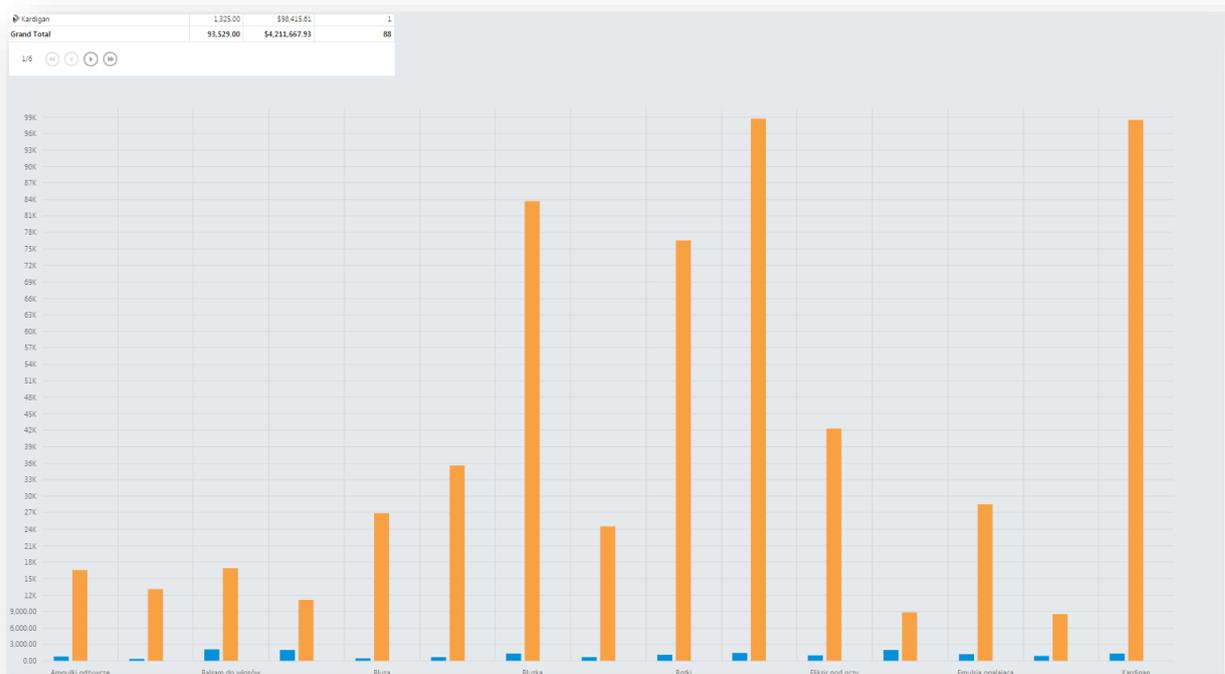


Figure 46 Report of Table and Chart type

The created report can be saved in default location upon clicking on button  available in the bar. Next, it is necessary to specify its name or use the default one and confirm by clicking **[OK]**:



Figure 47 Saving a report

In order to copy name of other report, use path from the header:

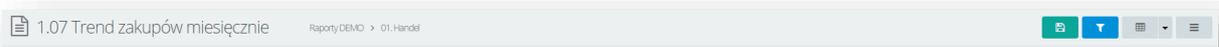


Figure 48 Path from the header

Upon selecting in the bar a button with list icon, a list with the following options is expanded: *Save To File*, *Save As*, *Add Subscription* and *Custom Measure*:

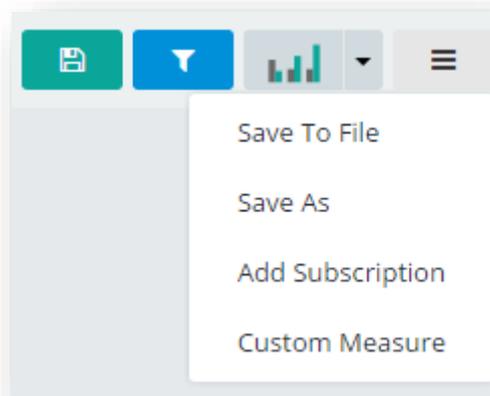


Figure 49 List with options

Option *Save To File* allows for saving a report on disk in selected format. To do so, select appropriate format and confirm by clicking **[OK]**:

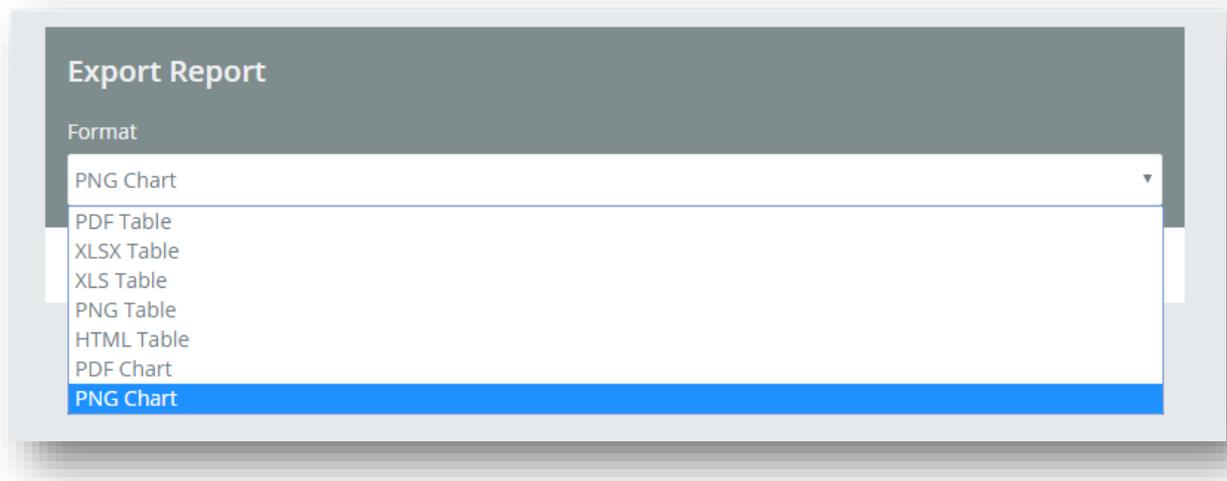


Figure 50 Exporting a report

Owing to that option, it is not necessary to change report definition, because after new fields are added onto a report, it can be exported to file in a form currently visible to the user, without saving it.

Saving the layout of columns and rows during export to Excel (.xls) allows for easy transferring of the analysis to tables. Upon checking parameter *Expand Report*, all hierarchical dimensions will be displayed and if the parameter remains unchecked, the report will be shown in a layout in which it was saved. Parameter *Attach Filters* allows for transferring filters used when creating a report to the exported file.

Date Calendar Day All		Drop Column Fields Here		
Data Headers		Grand Total		
Product Name	Employee Name	Sales Quantity	Sales Actual Margin	Sales Number of Items
▶ Ampułki odżywcze		792.00	\$16,545.29	1
▶ Baleriny		326.00	\$13,039.87	1
▶ Balsam do włosów		2,023.00	\$16,812.83	1
▶ Balsam prostujący włosy		1,974.00	\$11,112.87	1
▶ Bluza		486.00	\$26,812.16	1
▶ Bluza rozpinana		631.00	\$35,533.61	1
▶ Bluzka		1,290.00	\$83,696.01	1
▶ Bluzka z długim rękawem		633.00	\$24,487.45	1
▶ Botki		1,058.00	\$76,513.29	1
▶ Czółenka		1,383.00	\$98,620.64	1
▶ Elixir pod oczy		944.00	\$42,249.58	1
▶ Emulsja do paznokci		1,907.00	\$8,819.07	1
▶ Emulsja opalająca		1,243.00	\$28,501.50	1
▶ Henna		917.00	\$8,447.25	1
▶ Kardigan		1,325.00	\$98,415.61	1
Grand Total		93,529.00	\$4,211,667.93	88

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Figure 51 Report before export to Excel

The entire report is compatible with all Excel functions, which enables performing full analysis in that program. In case of using option *Open*, date is added to the name in order not to duplicate it.

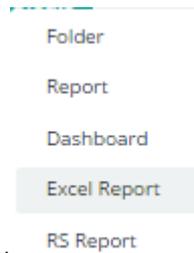
Data generowania: 7/20/2016 11:24:57 AM Uzytkownik: piotr.maslyk+9988@comarch.pl				
Grand Total				
Product Name	Employee Name	Sales Quantity	Sales Actual Margin	Sales Number of Items
Ampulki odzywczce	ADMIN	792,00	16 545,29 zł	1
Baleriny	ADMIN	326,00	13 039,87 zł	1
Balsam do włosów	ADMIN	2 023,00	16 812,83 zł	1
Balsam prostujący włosy	ADMIN	1 974,00	11 112,87 zł	1
Bluza	ADMIN	486,00	26 812,16 zł	1
Bluza rozpinana	ADMIN	631,00	35 533,61 zł	1
Bluzka	ADMIN	1 290,00	83 696,01 zł	1
Bluzka z długim rękawem	ADMIN	633,00	24 487,45 zł	1
Botki	ADMIN	1 058,00	76 513,29 zł	1
Czółenka	ADMIN	1 383,00	98 620,64 zł	1
Elksir pod oczy	ADMIN	944,00	42 249,58 zł	1
Emulsja do paznokci	ADMIN	1 907,00	8 819,07 zł	1
Emulsja opalająca	ADMIN	1 243,00	28 501,50 zł	1
Henna	ADMIN	917,00	8 447,25 zł	1
Kardigan	ADMIN	1 325,00	98 415,61 zł	1
Kłapki basenowe	ADMIN	1 642,00	18 072,20 zł	1
Kombinezon zimowy	ADMIN	659,00	41 258,98 zł	1
Koszula	ADMIN	978,00	69 777,76 zł	1
Koszula polo	ADMIN	519,00	25 682,33 zł	1
Kozaki	ADMIN	749,00	52 385,15 zł	1
Krem do cery	ADMIN	1 839,00	23 078,68 zł	1
Krem do rąk	ADMIN	1 589,00	23 555,51 zł	1
Krem odżywczy pod oczy	ADMIN	1 092,00	23 965,77 zł	1
Krem pod oczy	ADMIN	552,00	11 734,62 zł	1
Krem pod oczy na noc	ADMIN	1 293,00	44 241,74 zł	1
Kurtka letnia	ADMIN	1 703,00	121 776,73 zł	1
Kurtka wiosenna	ADMIN	1 378,00	147 840,83 zł	1
Łakier do paznokci	ADMIN	1 111,00	7 887,01 zł	1
Legginsy	ADMIN	1 811,00	47 185,97 zł	1
Maseczka na oczy	ADMIN	1 839,00	36 310,54 zł	1
Maseczka oczyszczająca	ADMIN	530,00	3 908,13 zł	1
Mgiełka ochronna do włosów	ADMIN	1 302,00	17 852,27 zł	1
Odżywka do włosów	ADMIN	914,00	7 914,59 zł	1
Odżywka do paznokci	ADMIN	1 439,00	8 516,86 zł	1

Figure 52 Report after export to Excel

Option *Save As* allows for saving a report in selected location:



Figure 53 Save As option



Upon selecting option *Excel Report* from the main menu, a wizard will be created with possibility to “export” an Excel file.

from the main menu, a wizard will be created with

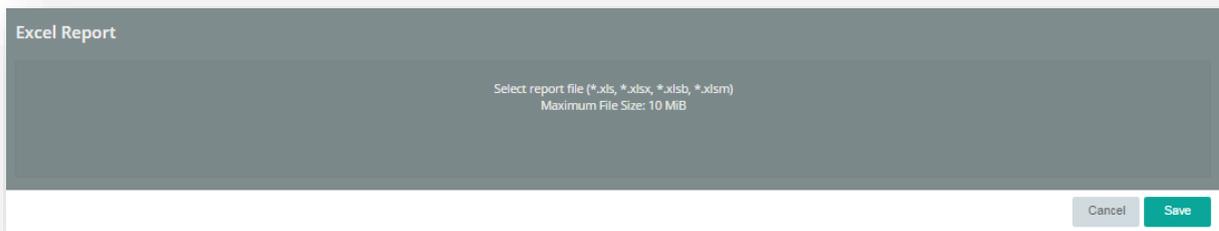


Figure 54 Excel report wizard

After the operation is completed, the file is available in the repository as any other report.

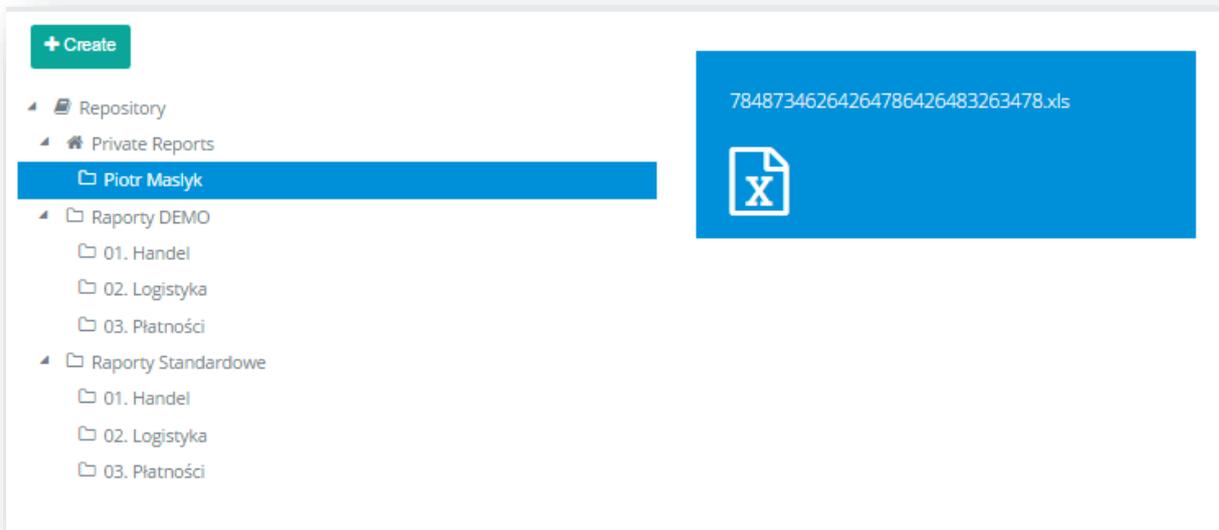


Figure 55 Excel report in the repository

When building reports, it is possible to use standard shortcuts which facilitate work in the application:

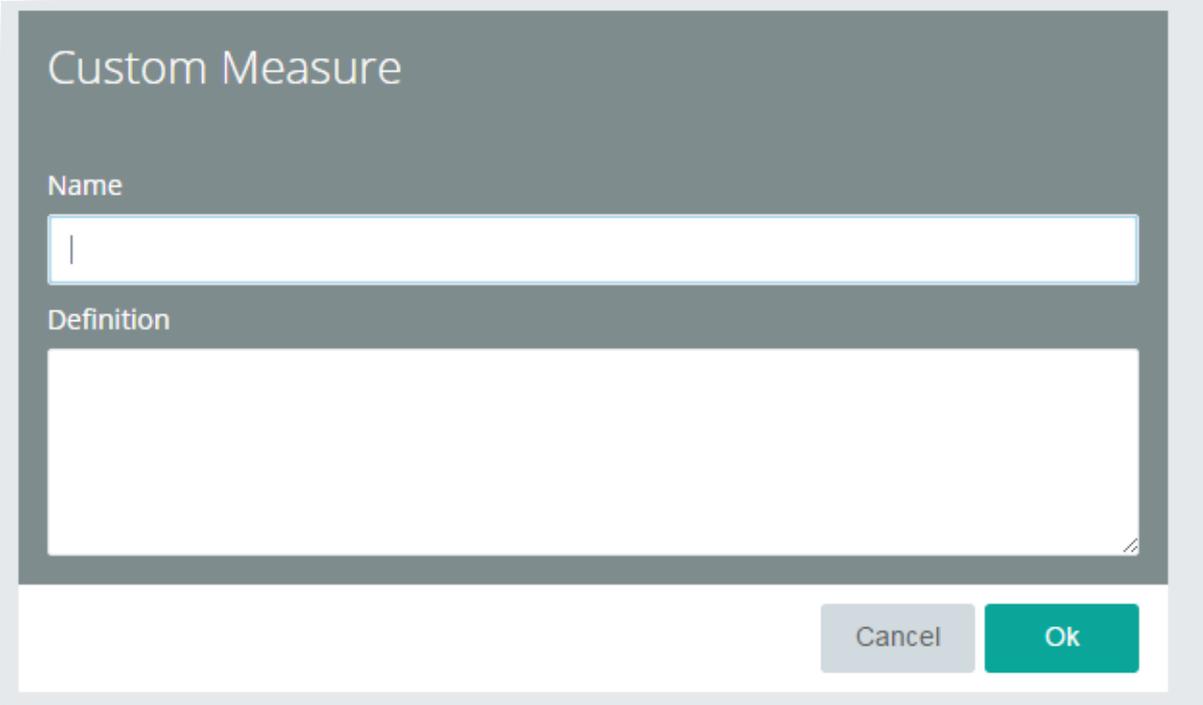
[Enter] – confirmation of sending a given form

[Esc] – canceling of an open form/aborting progress (with a question)

[Ctrl + s] – saving a form

Custom measure

Custom Measure is an option allowing for making your own calculations of measure values. After selecting this option, a window appears in the tool panel for defining a new custom measure. A specially prepared language can be used in definition of a custom measure. Custom measure supports combining standard measures with basic arithmetic and logic operations. After approving the change, measure is automatically added to the report.



The image shows a dialog box titled "Custom Measure". It has a dark grey header with the title in white. Below the header, there are two main sections: "Name" and "Definition". The "Name" section has a text input field with a vertical cursor. The "Definition" section has a larger text area. At the bottom right of the dialog, there are two buttons: "Cancel" (grey) and "Ok" (green).

Figure 56 Custom measure

Custom measures are constructed according to a specially prepared language; defining them may significantly streamline work with reports, however, basic knowledge about that language is required. Description of its syntax is presented below:

Names of measures, dimensions and hierarchies must be unique. Measures, attributes and hierarchies can be distinguished. In case of a single dimension, a name will be the name of that dimension, whereas in case of hierarchies, the name will be a combination of individual level names, separated by a dot. If name of a measure, dimension or level includes a space, the entire name must be put in square brackets. In other cases, using square bracket is optional.

Syntax: Measure, [Measure], [Measure with a space], Dimension, [Dimension], [Dimension].[Level], [Dimension].[Hierarchy].[Level]

Example of use: Cost, [Sales Value], [Sales Purchase Cost], [State], [Customer/Vendor Code], [Time].[Calendar].[Year]

The language supports standard operators: + - * / (). Round brackets () have the same role as in SQL language for instance – they separate and group mathematical operations.

Syntax: + - * / ()

Example of use: [Sales Value] + [Sales Purchase Cost] [Sales Discount] \ ([Sales Discount] + [Sales Value])

Many basic functions, e.g. of filter type, require using a specific attribute element.

Syntax:

[Attribute].[Element] [Dimension].[Hierarchy].[Level].[Element]

Example of use: [Customer/Vendor Code].[ABC], [Time].[Calendar].[Year].[2014]

A set of elements can be used when filtering by many elements, e.g. for creating a measure presenting data narrowed down to invoices and their corrections. Function SET is used for creating sets, in which individual elements are entered after a comma.

Syntax: SET([Attribute].[Element1], [Attribute].[Element2], ...)

Example of use: SET([Document Type].[Sales Invoice], [Document Type].[Sales Invoice Correction])

Range of a given attribute elements on the basis of a key. There are additional functions supported, retrieving the range from beginning or end of a dimension.

Syntax: RANGE([Attribute].[Element1],[Attribute].[Element2]), RangeFrom([Attribute].[Element])

RangeTo([Attribute].[Element])

It is possible to filter a set by condition. Filter function, the same as range and set functions, return a set of elements. In case of the filter function, it is a set of elements fulfilling the filtering condition. Filter function verifies each element of a given set in the first argument for logic condition specified in the second argument.

Syntax: FILTER([Attribute], [Condition])

Example of use: FILTER ([Date of Issue], [Sales Value] > 5000)

Function *filterby* is used for filtering measures. It returns value of a measure/expression upon filtering a given set.

Syntax: FILTERBY([Measure], [Set])

Example of use: FILTERBY ([Sales Value], SET([Year].[2010]))

It is possible to change default aggregation function for a measure by using the following functions:

Syntax:

Avg([Measure])

Count([Measure])

DistinctCount([Measure])

Max([Measure])

Min([Measure])

Sum([Measure])

Example of use:

Avg([Sales Margin])

DistinctCount([Discount])

Sum([Purchase Quantity])

Aggregating functions return an aggregation (e.g. a total) of numerical expression (measure) calculated by specific set determined in additional arguments. The following aggregation functions are supported: Sum, Max, Avg, Min

Syntax: Function (Measure [, Set1, Set2, ..., SetN])

Example of use: SUM([Sales Value] , SET([Document Type].[Sales Invoice], [Document Type].[Sales Invoice Correction]))

It is possible to operate on sets. This concerns operations of addition or subtraction type.

Syntax:

Union([Set1], ..., [SetN])

Except([Set1], [Set2])

Intersect([Set1], [Set2])

Example of use: Except([State], set([State].[Mazowieckie]))

There are functions which aggregate incrementally:

Syntax: RunningSum([Measure], [Dimension]) RunningAvg, RunningMin, RunningMax, RunningCount

Example of use: RunningSum([Sales Value], [State]) – aggregates the measure incrementally according to dimension given.

Logic conditions can be used, for example, in IF functions. The most popular logic conditions are comparisons of a measure to a mathematical constant or NULL and comparisons to text values.

Supported logical operators: = , > , < , <= , >= , <>

Supported logic functions: NOT, AND , OR

All of the operators mentioned above operate on numeric values. Additionally, operators = and <> can be used to compare elements by text, e.g. [Product Code] = '22345'

Any name or pattern known from SQL (% - any string of characters and ? – exactly one character) can be used as text.

Example of use:

[Sales Value] = 0

[State] = 'M%'

AND([Sales Quantity] >= 0 , [Sales Quantity] < 10)

Another important condition is the verification if a given value does not equal NULL.

Syntax: IsEmpty([Expression])

Example of use: IsEmpty ([Sales Value])

Names: IsEmpty() , IfEmpty()

Function IF:

Syntax: IF (Condition, True, False)

Example of use: IF ([Sales Value] = 0, 0 , [Sales Discount] / [Sales Value])

Time dimension is a built-in hierarchy. Functions in time take on hierarchy level as a parameter.

Name	Call	How it works
Previous month	PriorMonth([measure], [time attribute])	Filter_By([Measure], Prev(CurrentOrNow([Month])))
Previous day	PriorDay([Measure], [Hierarchy], offset)	As above
Previous quarter	PriorQuarter	As above
Month previous year	MonthPriorYear	Filter_By([Measure], Lag(CurrentOrNow([Month],12))
Quarter previous year	QuarterPriorYear	As above
Day previous year	DayPriorYear	As above
Previous Year	PriorYear	As above

In version 6.0, PriorPeriod([measure]) function is also supported, which displays value of a given measure in a previous period, as well as function PeriodPriorYear([measure]) displaying value of a measure in a given period in a previous year.

It is possible to filter by top/bottom elements of a dimension.

Syntax: TOP (Set, quantity, measure)

Example of use: TOP ([Customer/Vendor Code], 10, [Sales Value])
 Function BOTTOM operates the same way.

2.2 Creating dashboards

An exemplary dashboard, being a diversified form of analysis, is run already at the first opening of BI Point.

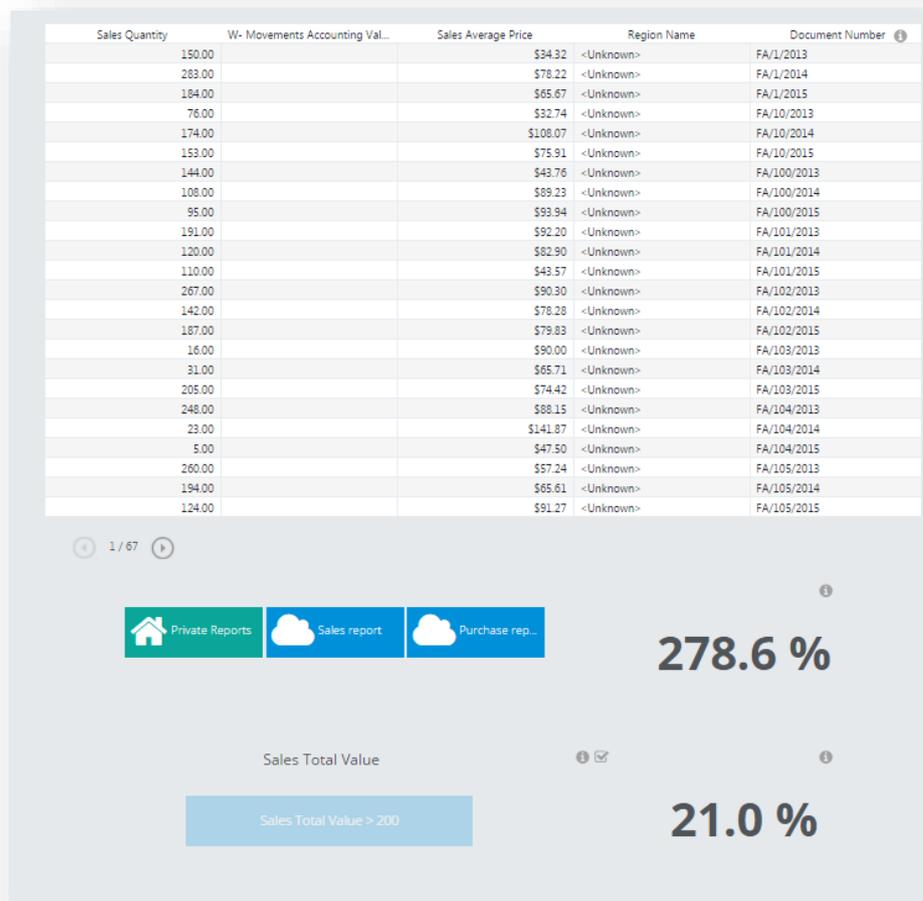


Figure 57 Exemplary start dashboard

Due to differentiation of data, to be able to easily preview the used measures and dimensions as well as the applied global filters, it is possible to use tooltips  , which are available in the upper right corner of a dashboard.

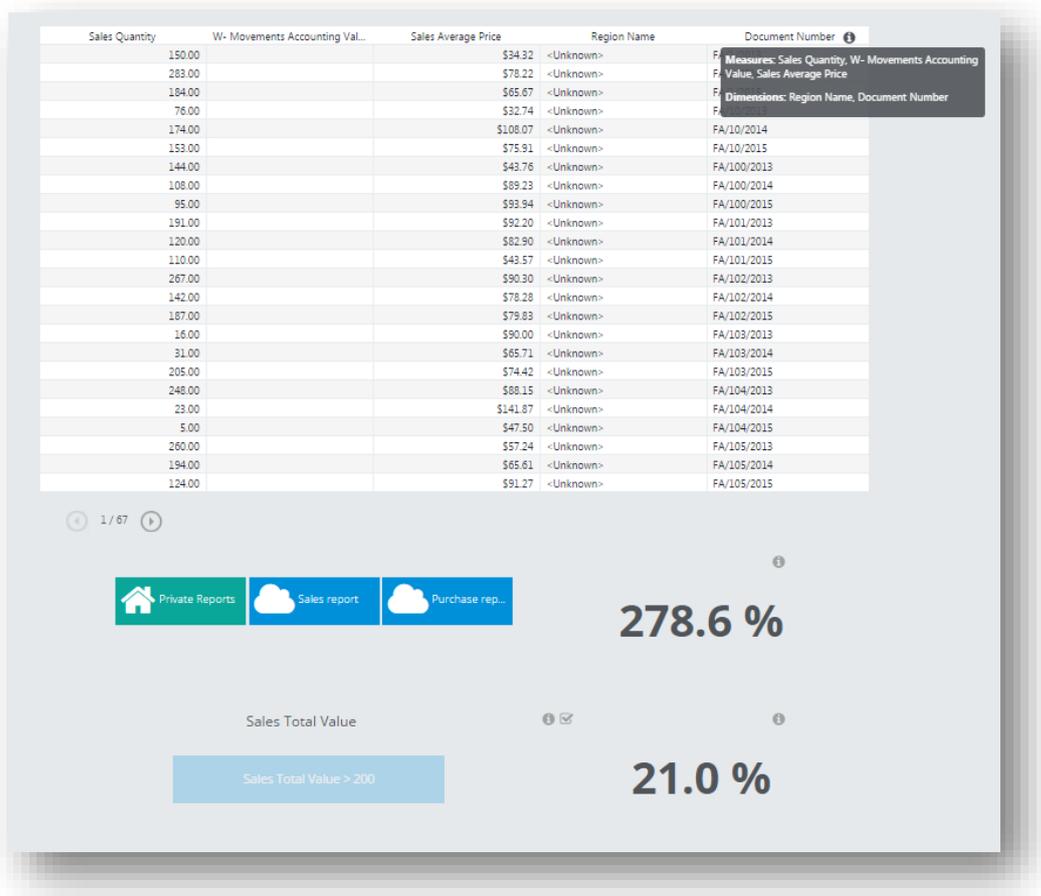


Figure 58 Tooltips

A new dashboard can be created the same way as a report. Upon clicking **[Create]** in the report depository, select option *Dashboard* from the list:

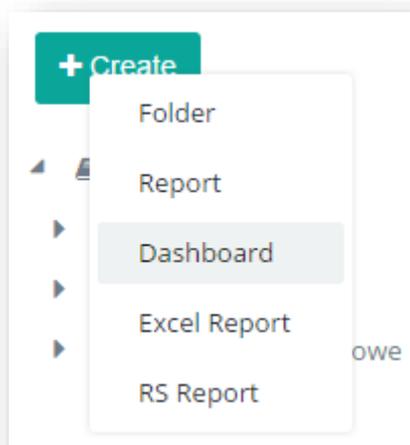


Figure 59 Creating a new dashboard

Then, a dashboard in edit mode opens with a work space, left panel with available elements and right tool panel:

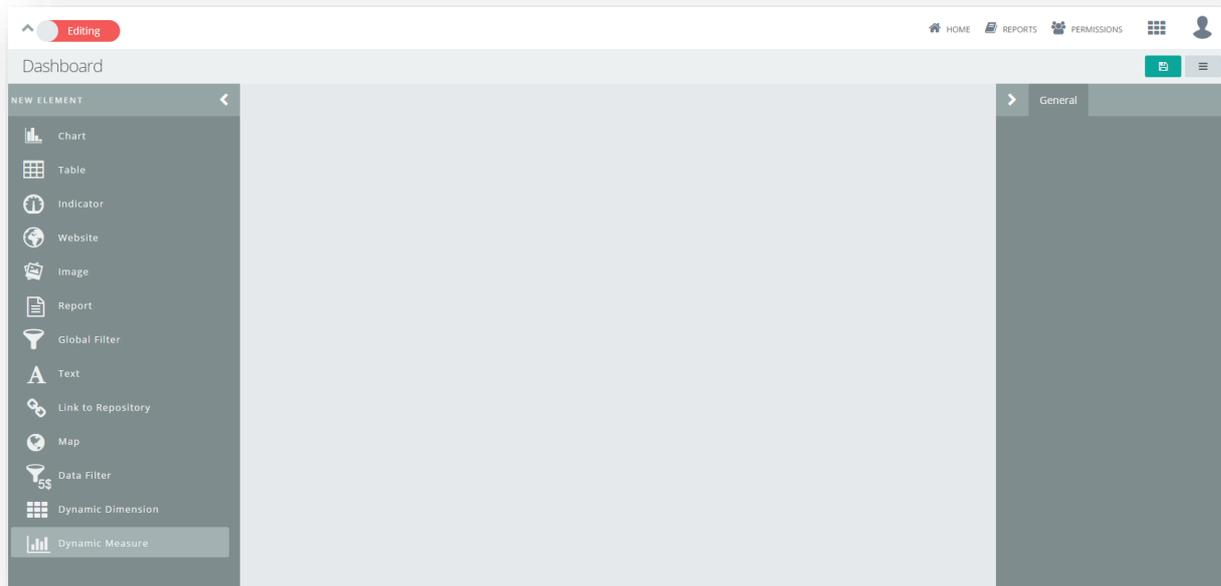


Figure 60 A created dashboard

Work mode can be changed by clicking on the switch available in the upper left corner:

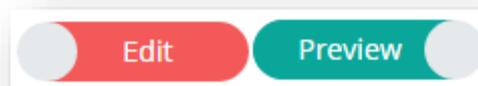


Figure 61 Modes for working with dashboards

- Preview – this mode is used for presenting an already defined dashboard; ready for presentation data is displayed in form of charts, tables, etc.; interaction functionality is active in this mode
- Edit – this mode is available, by default; if enabled, it allows for creating and modifying a given dashboard, locating, configuring and editing elements from the left panel

The right panel with *General* tab allows for changing background color, number of columns and enabling or disabling the responsivity. Responsivity of view on a dashboard is a functionality adjusting layout of used elements of a dashboard to size of screen on which it is started. Enabling this option provides automatic optimization of the layout so that tiles are visible on the work space not only during creation (arranging of elements), but also after changing the size of browser window, refreshing a page, starting the dashboard itself on different screens and upon modifying size of used tiles. On smaller screens, to maintain clear view of a dashboard, tiles wider than screen width are located in columns one under another.

To create a new element, click on its name in the left panel. Available elements are as follows:

- Chart
- Table
- Indicator
- Website
- Image
- Report
- Global Filter
- Text
- Link to Repository
- Map
- Data Filter
- Dynamic Dimensions
- Dynamic Measure

Once a tile appears on the dashboard, click on it and then configuration tool is opened for a given element, in which appropriate data must be specified. An element is re-edited by clicking on  icon available in the upper right corner of a tile. For chart, table and indicator, icon  allows changing type of the displayed element. Clicking on  icon expands a list with options *Copy* and *Delete*. Deletion must be additionally confirmed. In case of currency fields, it is possible to define their values in tab *Currency*, which results in automatic recalculation of current values.

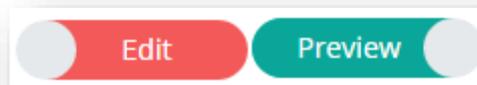


Figure 62 Currency

All tiles can be freely enlarged and reduced in size by dragging the bottom right corner, as well as relocated by dragging the upper left corner. There is field *Description* available in advanced options for each dashboard element, in which it is possible to add custom text descriptions facilitating identification of dashboard elements.

Controls downloading data in the edit mode provide option of delaying data upload. This enables faster creation of dashboards, because once this parameter is checked, data is refreshed only when switching the dashboard mode to preview mode.

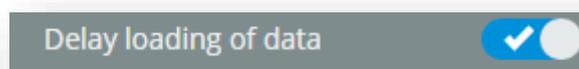


Figure 63 Delay upload of data option

In order to analyze data included in a control, it is possible to select option *Open Data in Report* from the level of dashboard preview mode. Then, a new report opens with all measures and dimensions used when creating a given control. Such option streamlines data analysis.

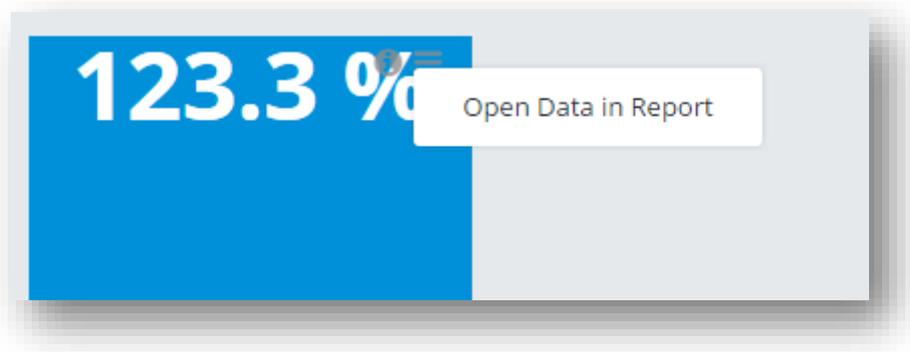


Figure 64 *Open Data in Report* option

Chart

In order to create a new chart, appropriate data must be specified in the configuration tool fields:

Figure 65 Chart configuration tool

From *Data Source* field in the left panel, select area from which data is to be retrieved. It is required to drag at least one measure selected from the list of fields available in the left panel onto field *Y-Axis* of the configuration tool. On the X-axis, splitter and in filter field a user can locate dimensions which will appropriately group or cut the range of measures presented on a chart. It is possible to add any number of measures and dimensions; not needed elements are removed by clicking on the cross displayed on a dragged element: Sales Value ×. Icon ▼ Customer City × on the left side allows for additional filtering of dimension elements. In case of hierarchical dimensions, icon + allows for expanding a lower level, whereas icon - - for collapsing it. At the bottom of the window, there is **[Advanced Options]** button available which expands additional fields. These fields allow using TOP N filter and enable displaying of empty elements. Changes are confirmed by clicking **[OK]**.

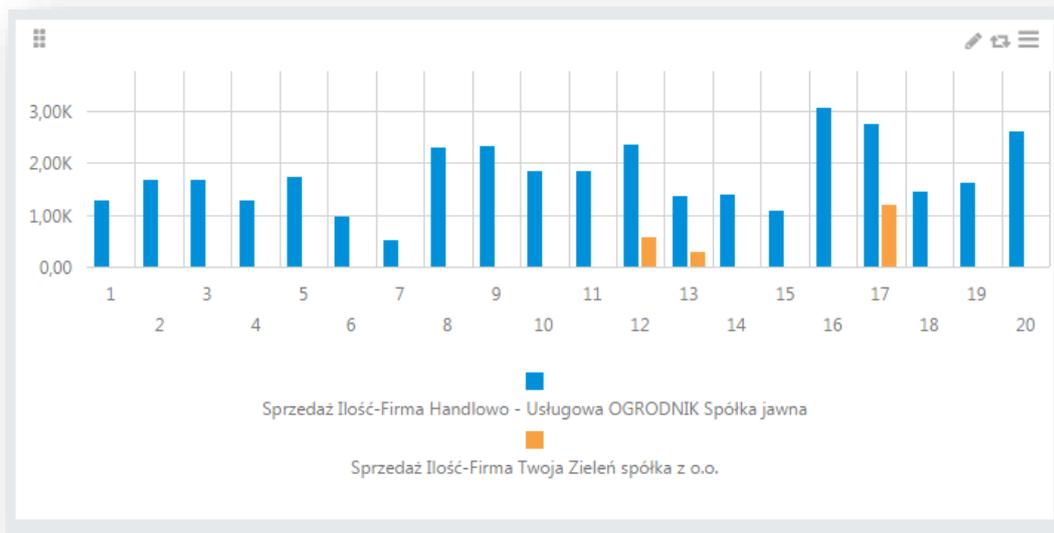


Figure 66 Exemplary chart

Depending on the presented data, formatting can be changed for a single “bar” by selecting it and unchecking option *Default Format* in the menu on the right side.



Figure 67 Changing column format

In the edit mode, the right panel contains all modification options. By default, the panel is displayed in basic view. Upon clicking on **[Advanced]** button at the bottom of the panel, additional options appear. Tab *General* refers to entire chart and tab *Element* includes edit options for a marked series or key.

It is possible to enable/disable labels for charts. This can be done for entire control at once or separately for a given series, by checking option *Data Labels*.



Figure 68 Enabling labels in a chart

From the options located in the tool panel in *General* tab, it is possible to select type of chart which is to be displayed on a tile. Available types of charts are:



Figure 69 Types of charts

Column chart is the default type. Types can be determined for entire control at once or separately for each series. It is also possible to edit type of a displayed chart and its location. Other options include possibility of displaying or hiding labels and tooltips with values, changing format of numbers and their precision, hiding key, hiding background, empty series and color palette. Section *Behavior* allows for determining if a chart should react to global filter operation as well as attaching a dashboard. Additionally, in the advanced mode, it is possible to specify additional options concerning labels, such as location, format and precision as well as display crosshair on the chart. In *Element* tab for an active series, a user can change chart type, displaying of axes and color as well as display points. For a key, the options include possibility of displaying or hiding it, specifying its location and alignment. All the changes are confirmed by clicking on **[OK]** button available at the bottom of the panel.

Attaching a dashboard is an operation aimed at applying filters defined in a selected dashboard to the attached dashboard. A dashboard can be attached to a selected element (chart, indicator or table). Upon activating *Attach Dashboard* switch, button **[Configure]** appears, which must be selected.

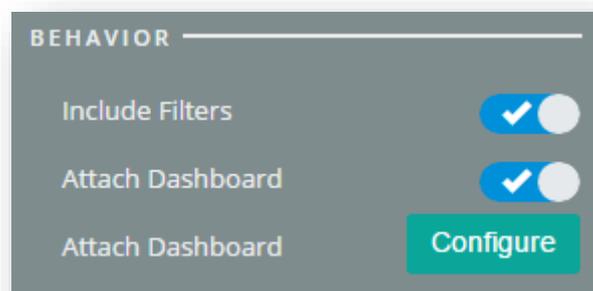


Figure 70 Attaching a dashboard

In the next step, configuration tool is displayed in which it is possible to specify elements whose filters will be used for a dashboard being attached and select that dashboard.

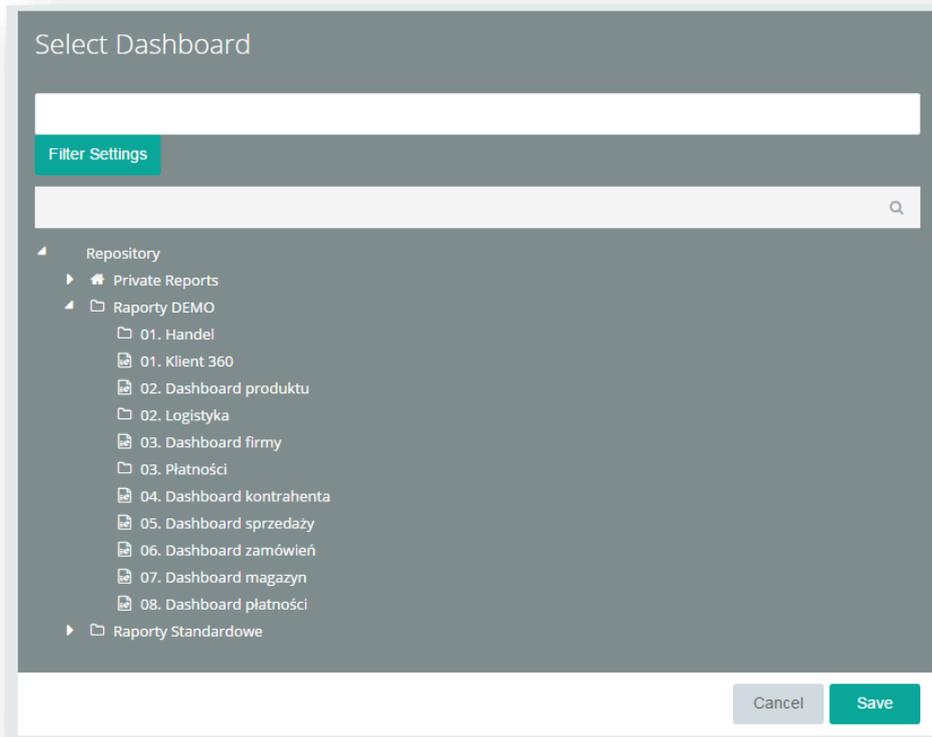


Figure 71 Configuration tool of dashboard attaching

Upon clicking on **[Filter Settings]** button, a window appears with selection of dashboard elements from which filters are to be retrieved. By default, there are all elements marked and a user may exclude any elements by switching the button under the name. Click **[Save]** to confirm the selection.

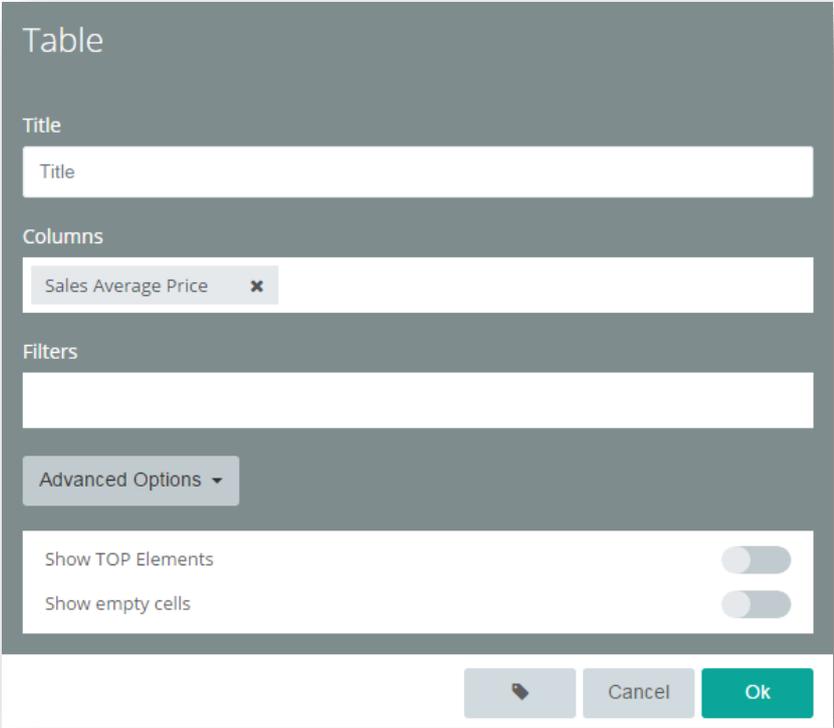


Figure 72 Selecting filters

Also a dashboard which should be attached must be selected from the repository. Upon clicking **[Save]** in the configuration tool, the entire operation is confirmed. In the preview mode on a selected element, icon ⚡ is displayed in the upper right corner. Upon clicking on it, the selected dashboard is recreated in a separate tab along with applied filters for the given element.

Table

Table is an element organizing data on desktop in form of a classic table.



The screenshot shows a configuration window titled "Table". It contains several sections: "Title" with a text input field containing "Title"; "Columns" with a list box containing "Sales Average Price" and a close button (x); "Filters" with an empty text input field; "Advanced Options" with a dropdown arrow; and two toggle switches for "Show TOP Elements" and "Show empty cells". At the bottom, there are three buttons: a trash icon, "Cancel", and "Ok".

Figure 73 Table configuration tool

To create a table, drag any elements, including at least one measure, onto *Columns* field. The rest of work with the configuration tool is the same as in case of chart.

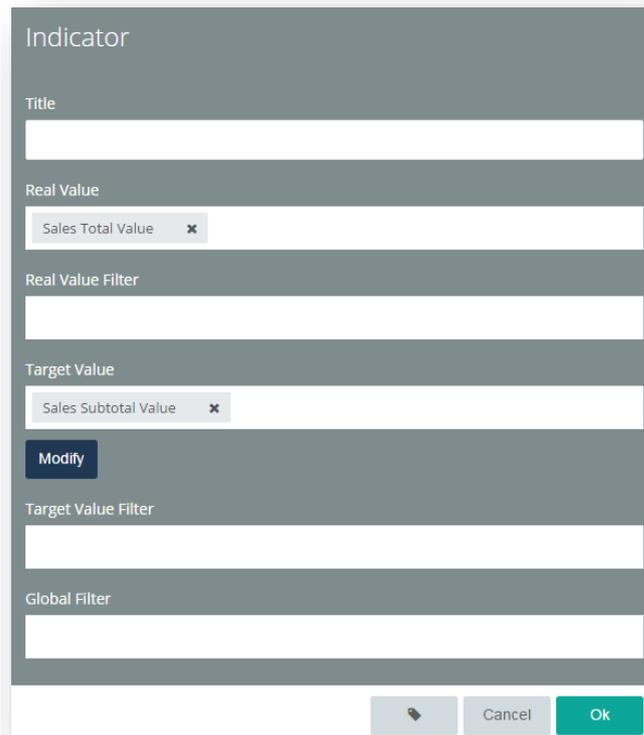
Rabat Uzyskany %	Forma Płatności Nazwa	Rabat Udzielony %	Firma Poziom 1
0,00%	gotówka	-0,85%	Firma Handlowo - Usługowa OGRODNIK Spółka jawna
0,00%	gotówka	100,00%	Firma Twoja Zielen spółka z o.o.
0,00%	kredyt	0,00%	Firma Handlowo - Usługowa OGRODNIK Spółka jawna
0,00%	kredyt	0,00%	Firma Twoja Zielen spółka z o.o.
0,24%	przelew	-3,68%	Firma Handlowo - Usługowa OGRODNIK Spółka jawna
0,24%	przelew	-11,90%	Firma Twoja Zielen spółka z o.o.

Figure 74 Exemplary table

In tab *General* in the tool panel, it is possible to specify number of displayed rows and their color. Section *General* and *Behavior* contain the same options as in case of chart. Upon checking individual elements of a table, additional tab appears which includes specific options. For headers of dimensions, it becomes possible to edit options concerning fonts, both of a header itself as well as of values in columns. Additionally, upon checking header of a measure, option for changing format of displayed values and number precision appears. Selecting a cell in the table results in displaying section *Values* in the panel, which provides options referring to fonts.

Indicator

Indicator is a control aimed at presenting specific values which can be controlled by a user. An indicator can display data from analytical database in comparison with expected value specified by a defining person, as a value resulting from calculations based on standard measures or as a value determined manually. An indicator is created the same way as other elements.



The image shows a dialog box titled "Indicator" with the following fields and controls:

- Title:** An empty text input field.
- Real Value:** A dropdown menu showing "Sales Total Value" with a close button (x).
- Real Value Filter:** An empty text input field.
- Target Value:** A dropdown menu showing "Sales Subtotal Value" with a close button (x).
- Modify:** A dark blue button.
- Target Value Filter:** An empty text input field.
- Global Filter:** An empty text input field.
- Buttons:** A grey button with a mouse cursor icon, a "Cancel" button, and an "Ok" button.

Figure 75 Indicator configuration tool

Indicators allow for uploading of data from any OLAP cube, using it for calculating the expected value and presenting the comparison of real and expected values on selected graphic type of indicator. The configuration tool allows for entering a measure in *Real Value* field, which determines the real value and in field *Target Value* – a target measure determining the expected value. These measures can be edited upon clicking on button **[Modify]**, followed by selecting recalculation option and providing a value. Data in the indicator can also be filtered upon entering selected dimensions into fields responsible for filters.

In the right tool panel, it is possible to select from among three types of indicator: basic, line or pie:



Figure 76 Available indicator types

Moreover, it is possible to hide a value or change its format and appearance, determine type and look of an indicator, define a scale and its range. It is also possible to determine what ranges are critical for an indicator. By default, these ranges are generated automatically and divide values into ranges: 0%-50%, 50%-75% and

75%-100%. A description can also be added and its color, size and position set. Sections *General* and *Behavior* contain the same options as in case of other elements. Advanced options allow for defining scale points, additional unit, adding labels and provide greater possibilities of modifying the appearance.

The image shows a 'General' settings panel for an indicator. At the top, there is a 'General' tab. Below it, the 'INDICATOR TYPE' section features four icons: '64%' (selected), a bar chart, a gauge, and a photo icon. The 'VALUE' section includes a 'Display as' dropdown set to 'Percent', 'Horizontal Position' and 'Vertical Position' controls with three icons each, a 'Precision' spinner set to '1', a 'Color' selector, and a 'Size' spinner set to '50'. The 'DEFAULT RANGES' section has a checked toggle. The 'BACKGROUND' section has 'Fixed' and 'According to range' toggles, both unchecked. The 'DESCRIPTION' section has an unchecked toggle. The 'BEHAVIOR' section has 'Include Filters' checked and 'Attach Dashboard' unchecked. At the bottom, there are 'Advanced' and 'Ok' buttons.

Figure 77 Indicator settings

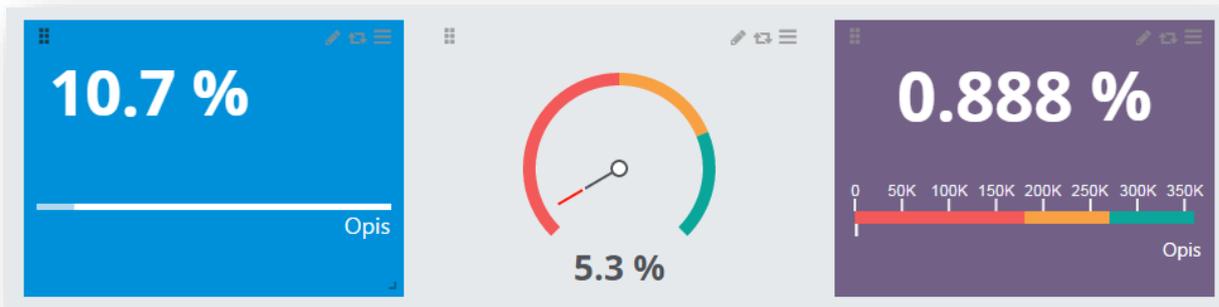


Figure 78 Appearance of exemplary indicators

It is also possible to use conditional formatting which adopts appropriate color in dependence of value. Configuration menu is available upon setting the cursor on the right side of indicator, upon checking parameter *Conditional Formatting*.

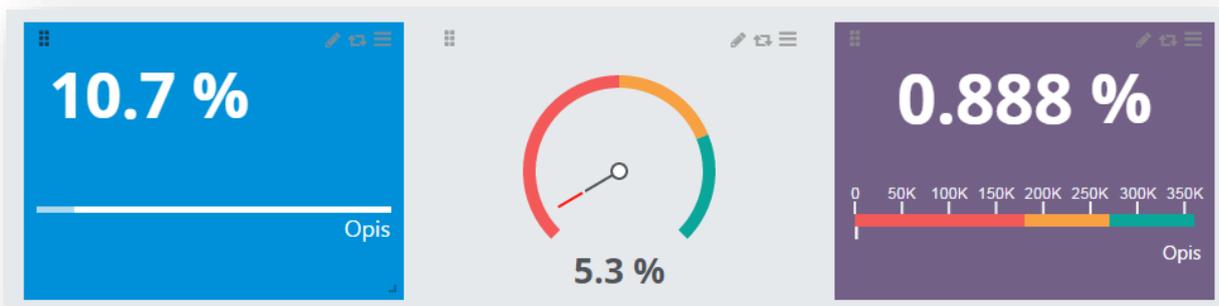


Figure 79 Conditional formatting

Configuring an indicator in such a way causes that:

- Values below 80% are marked in red
- Values above 80% and below 120% are marked in orange
- Values above 120% and below 200% are marked in blue
- Values above 200% will be marked in green

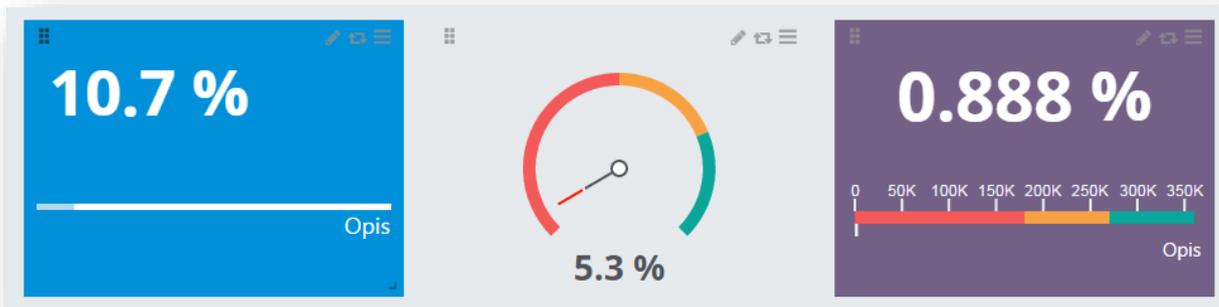


Figure 80 Example of conditionally formatted indicators

Website

This element is aimed at anchoring on a dashboard the links to external sources of data which are websites. The control allows for entering any Internet address which is uploaded as a website with size limited by a tile. Configuration of the control consists in defining its title and providing the site address. A website must be encrypted.

Figure 81 Website configuration tool

Website content can only be displayed in the preview mode. Options in the tool panel allow for displaying a title, changing color and editing background.

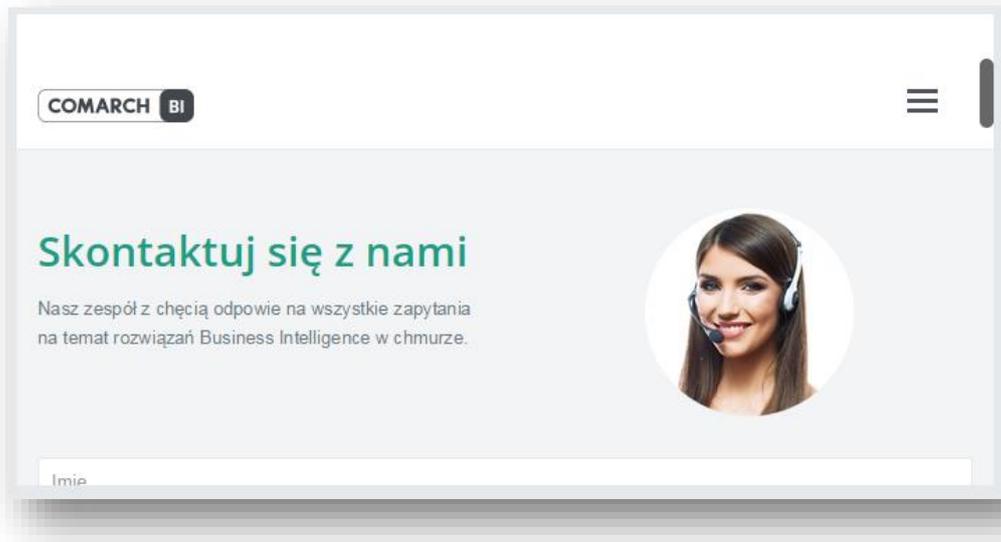


Figure 82 Exemplary tile with website

In the application, it is also possible to add parameters to a website. In the below example, parameter @Country is added along with possibility to select a country. The link refers to Wikipedia website with the applied parameter:

 A screenshot of a 'Website' configuration dialog box. The title 'Website' is at the top left. Below it are two input fields: 'Title' with the value 'Wiki' and 'URL Address' with the value 'http://ang.wikipedia.org/wiki/@RegionName'. Below these is a 'Parameters' section with a table:

Name	Parameter	Actions
@RegionName	Region Name x	

 At the bottom right of the dialog are three buttons: 'Add Parameter' (dark blue), 'Cancel' (gray), and 'Ok' (teal).

Figure 83 Adding parameter to a website

In order to take advantage of the parameter, attribute used in the above figure must be selected in other control, e.g. in a table.

Table

Title

Columns

▼ Date Calendar Month × Sales Total Value ×

Filters

Advanced Options ▾

Cancel Ok

Figure 84 Adding parameter to a website

Then, depending on selected element (country name), the website is appropriately refreshed in the preview window:



Figure 85 Refreshing the website upon selecting parameter

Image

This element allows for placing images which are uploaded from external website source or from a file. Owing to that, a dashboard can be supplemented with company logo, address from website or any other image. In order to set an image from website source, paste address of a selected image to field *File or URL Address*. To

add an image from file, click on button [Select...], and find appropriate image on disk. Image size cannot exceed 3 MB.



Figure 86 Image configuration tool

In order to improve presentation of images, it is possible for this element in the tool panel to disable displaying of title, edit background and color.



Figure 87 Exemplary image

Report

This element supplements a dashboard in an easy and quick manner by a previously defined report saved in the reports repository. Configuration of the control requires providing report title and selecting it. For the purpose of easier searching for a report in the repository, configuration window contains the list of folders and reports as well as a search engine.

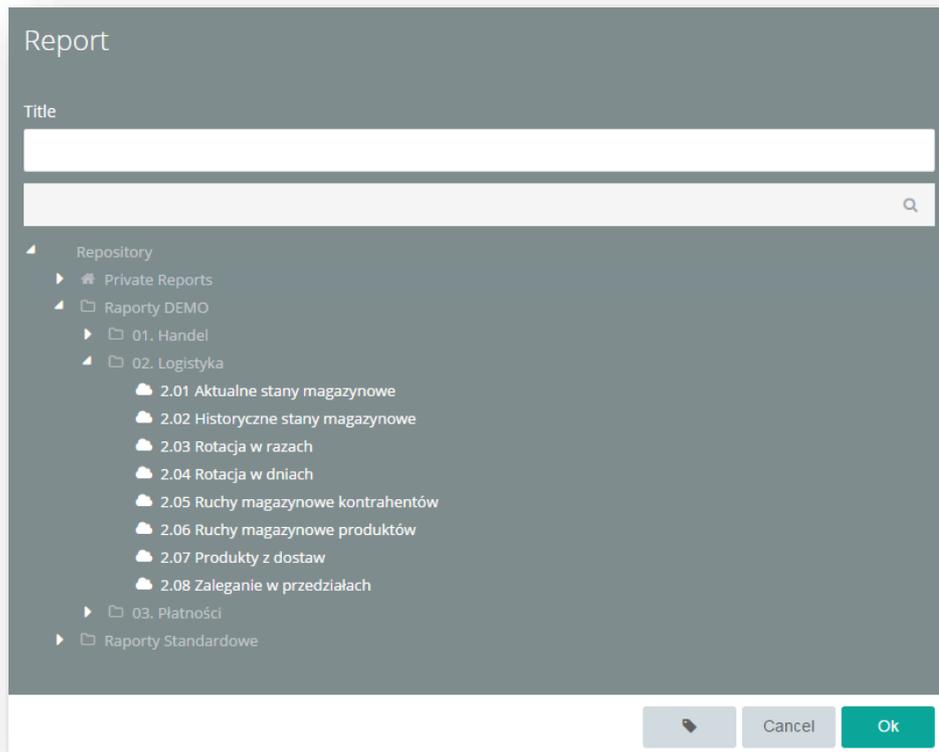


Figure 88 Report configuration tool

After appropriate report is found, it is necessary to select it from the list and confirm the changes by clicking **[OK]**. The report will be rendered with adjustment to physical size of a tile and will be visible only in preview mode.

Data Kalendarzowy Rok Wszystko ▼

Nagłówki danych Przeciągnij tutaj pola kolumny

Produkt Kod	Produkt Nazwa	Wszystko	
		Sprzedaz Średnia Cena	Sprzedaz Wartość Netto
USŁUGA SERWISOWA	usługa serwisowa	38,14 zł	102 671,66 zł
PIELĘGNACJA	Pielęgnacja ogrodu	6,23 zł	28 362,02 zł
IGLAKI_CYPRYYS	Iglaki: cyprysik	4,50 zł	108 537,99 zł
SADZONKI	sadzonki kwiatów	28,74 zł	91 205,96 zł
ZIEMIA_5	Ziemia do kwiatów 5 l	1,91 zł	9 190,46 zł
STOJAK	Stojak na worki o poj. 120 l	17,88 zł	53 311,38 zł
SZPADEL	Szpadel ogrodniczy	17,77 zł	55 752,53 zł
KORA_S80	Kora sosnowa poj. 80 l	13,45 zł	168 527,42 zł
PALETA	paleta	96,06 zł	122 092,28 zł
PIŁA_SPALINOWA	Piła spalinowa	124,46 zł	121 719,86 zł
PIŁA_ELEKTR	Elektryczna pilarka łańcuchowa	100,92 zł	81 742,57 zł
NOŻYCE_EL.	Nożyce elektryczne do żywopłotu	97,69 zł	108 146,26 zł
SEKATOR	Sekator	99,55 zł	73 168,51 zł
GRABIE_OGR	Grabie ogrodnicze	120,30 zł	80 362,10 zł
SKRZYNKA	Skrzynka na rośliny doniczkowe	56,11 zł	92 016,99 zł
ŁAŃCUCH DO PIŁY	Łańcuch do piły	10,07 zł	71 780,00 zł

Figure 89 Exemplary report located on a dashboard

Global filter

Global filter element is responsible for narrowing down the analyzed data in all elements which have the same dimension applied in *Filter* field in their definition as the one defined for the global filter element. Therefore, using the global filter means filtering of data within the entire dashboard in places where it was planned. Indicator, however, constitutes an exception in this case – filtering of that element requires filling in *Global Filter* field with a dimension which will be narrowed down. Configuration of the element consists in providing its title and indicating a dimension it will work with. The filter supports both flat and hierarchical dimensions. The data can be filtered only in the preview mode.

Global Filter

Title

Filter

▼
Company Structure > Company Level 1
⊕
✕

✖
Cancel
Ok

Figure 90 Global filter configuration tool

There are 3 types of filters available: simple filter, range selection and filter with buttons which can be graphically adjusted by a user by changing the background, font and inserting images. Range selection filter is reduced to 10 elements maximum.

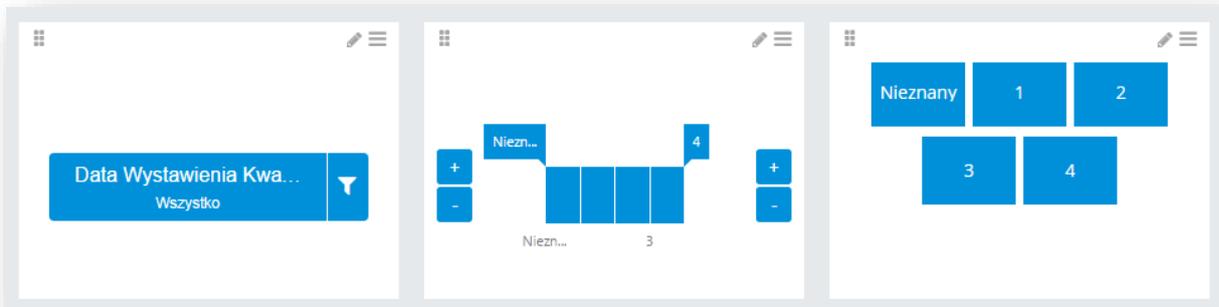


Figure 91 Different types of global filter

Upon checking the check box *Select All*, all elements are displayed.

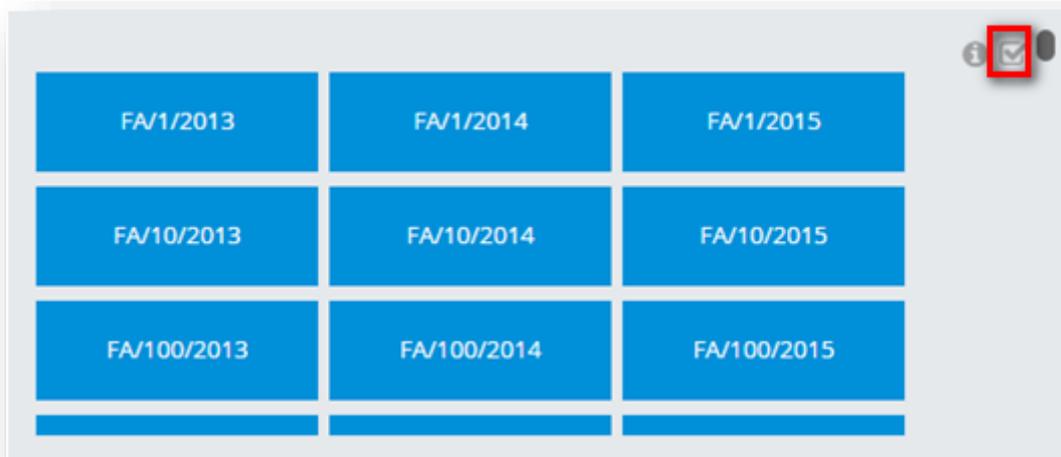


Figure 92 *Select All* option in the global filter

Global filter allows also for using a hierarchy – filtered elements show result compliant with conditions defined in both elements.



Figure 93 Sorting with hierarchy elements

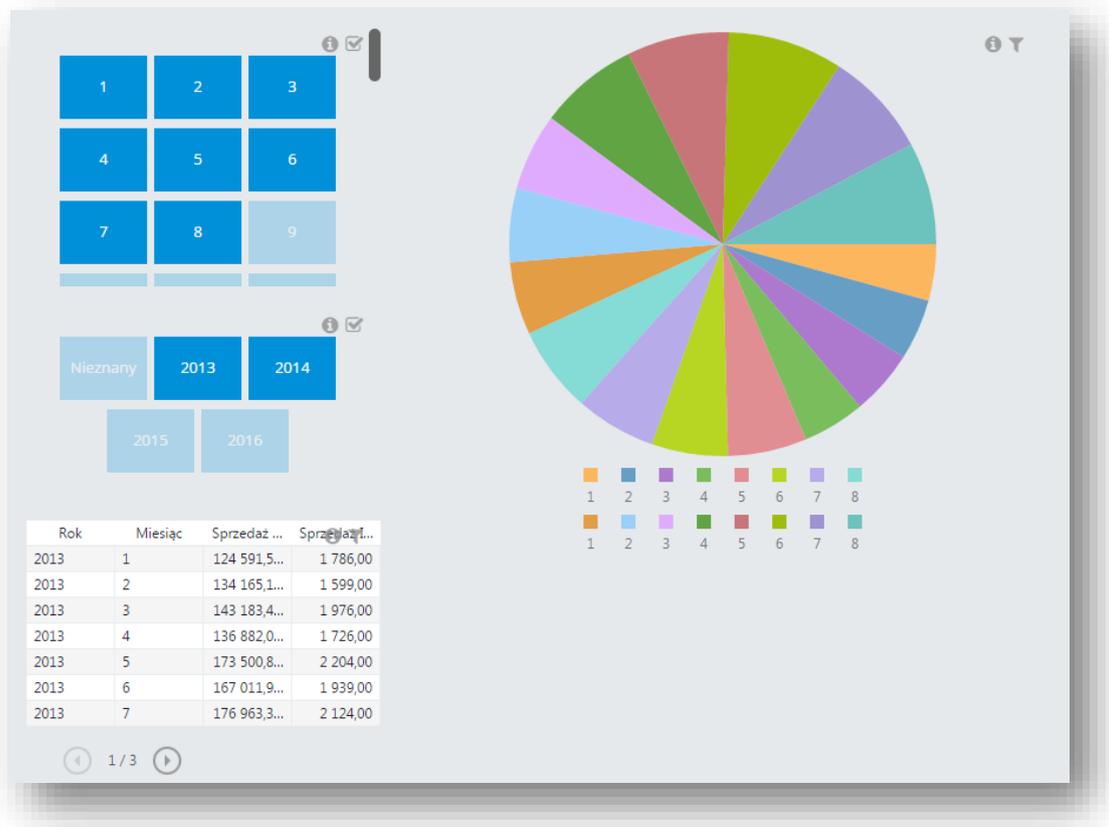


Figure 94 Expanded sorting with hierarchy elements

Text

Control *Text* is provided to create all types of titles, headers and text fields. The following formatting is allowed in it:

- **Bold**
- *Italics*
- Underline

Moreover, it is possible to adjust color of font and background, as well as background size and alignment (both horizontal and vertical).

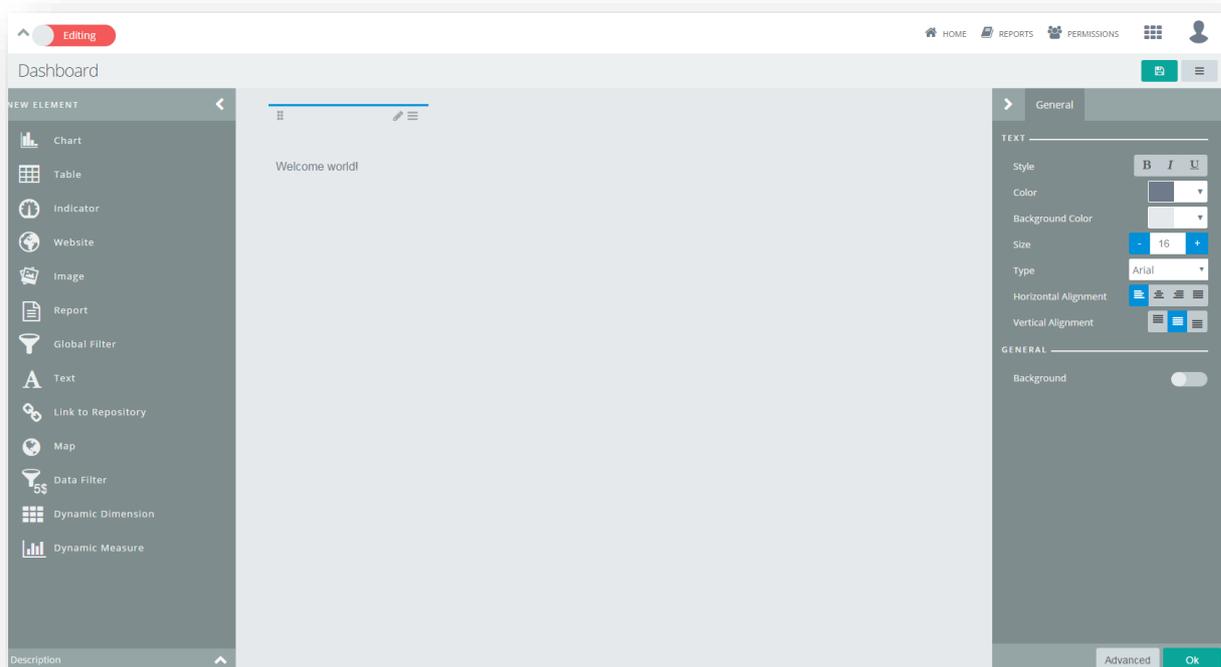


Figure 95 Text field

Map

Control *Map* is provided to create an element showing measures in a map. It is available in menu on the left side upon creating a dashboard.

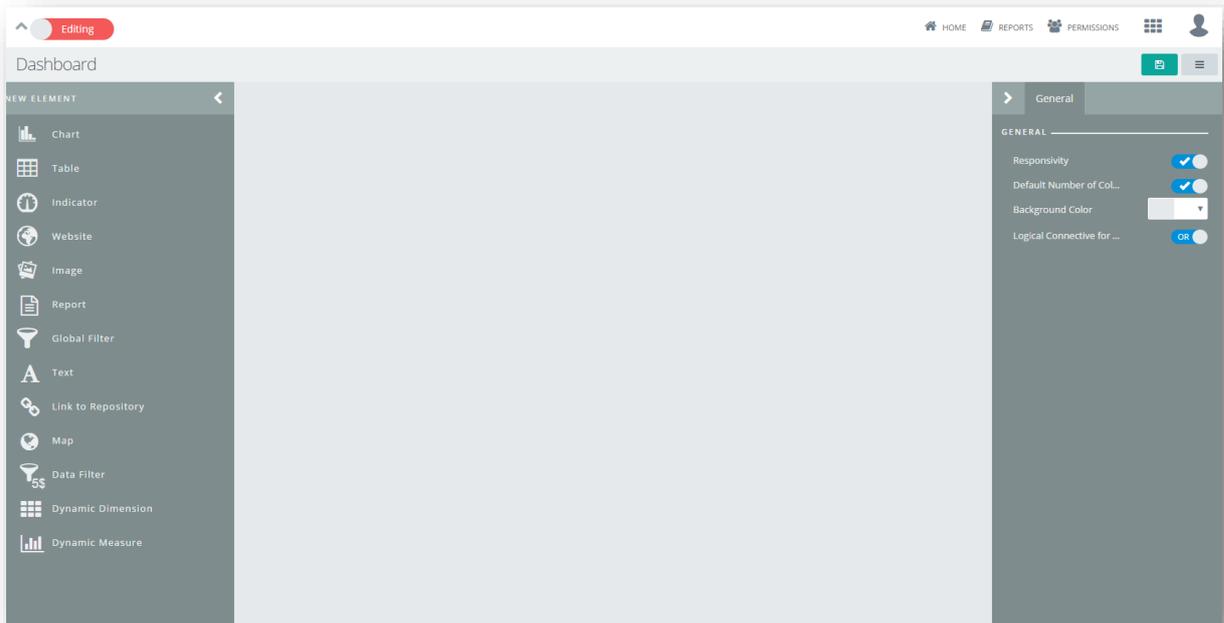


Figure 96 Map option in the repository

Upon selecting the option, a control with the following menu is created:

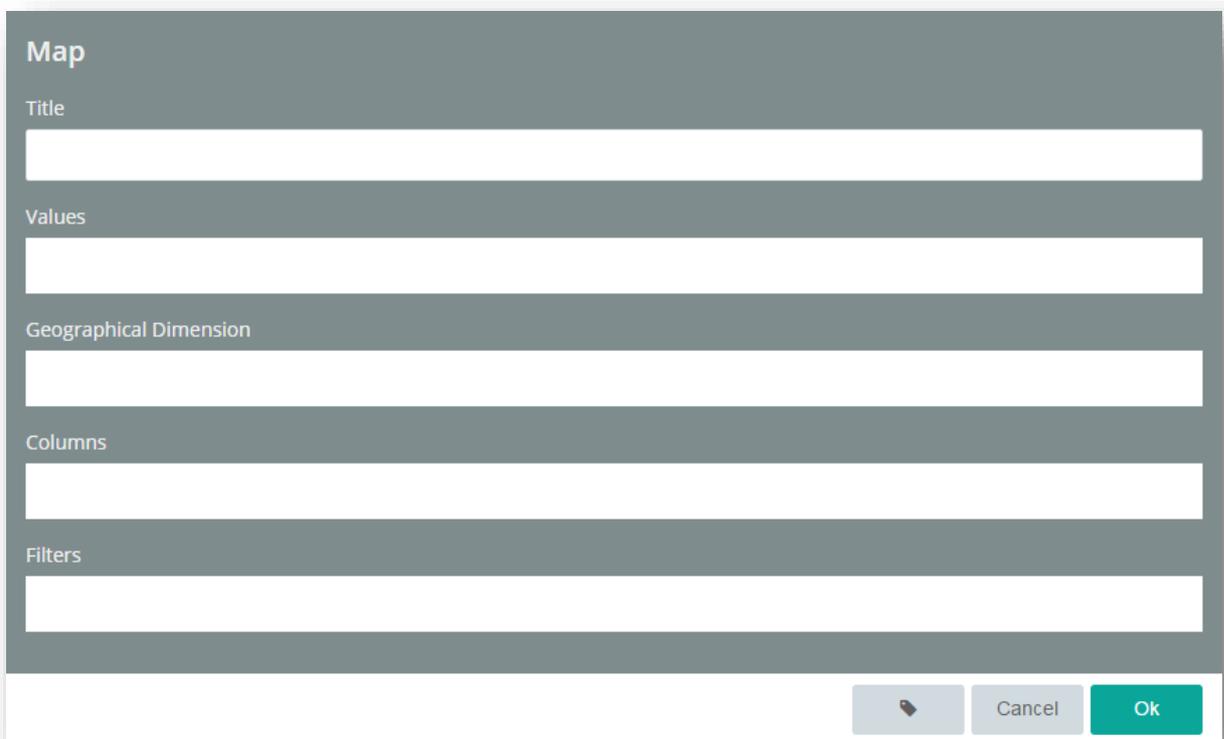


Figure 97 Creating Map control

It must be remembered that, despite possibility to use any dimensions for creating maps, it is recommended to create them on the basis of geographical dimensions – which are appropriately mapped. Upon selecting proper measures, a map is created:

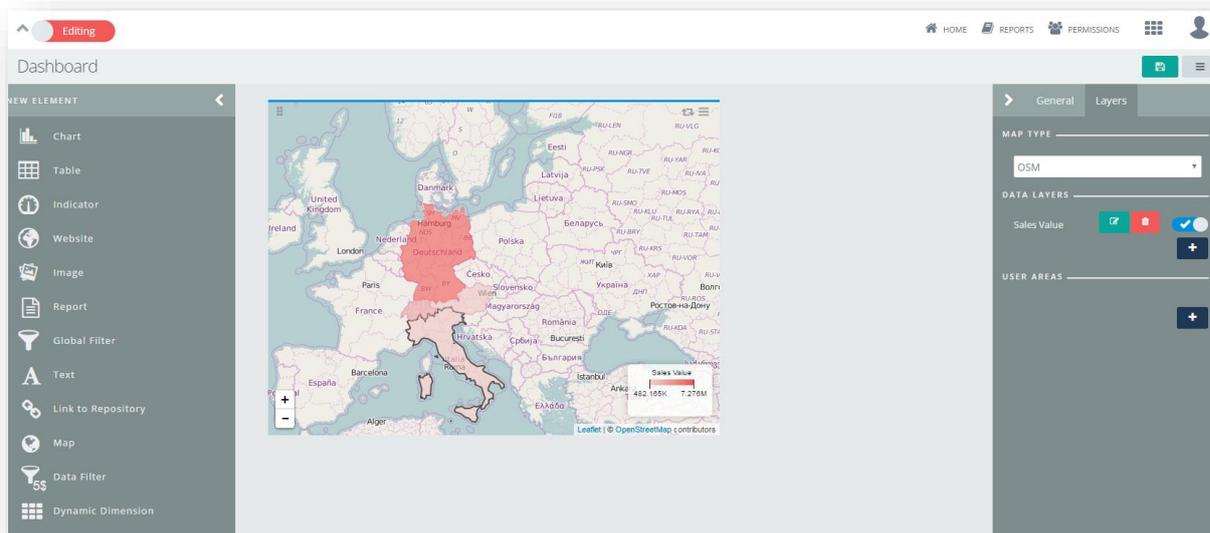


Figure 98 Control of Map type

In a map, it is possible to use more than one layer of data, owing to which *Map* control can be used in more diversified analyses. It was also made possible to perform interaction from map level. Upon selecting areas in this control, they will operate as dashboard filters and, for instance, in *Table* control only those areas will be shown, which were selected in a map (country/county/city, etc.). The interaction operates on the outermost map layer only. In section *User Areas*, it is possible to upload user's own map.



Figure 99 Settings of layers in *Map* control

In section *User Areas* it is possible to upload custom map.

Dynamic measure/dimension

Controls *Dynamic Dimension* and *Dynamic Measure* are provided to create an element which changes without reloading of a dashboard. Select appropriate option from the menu on the left side to create such control:

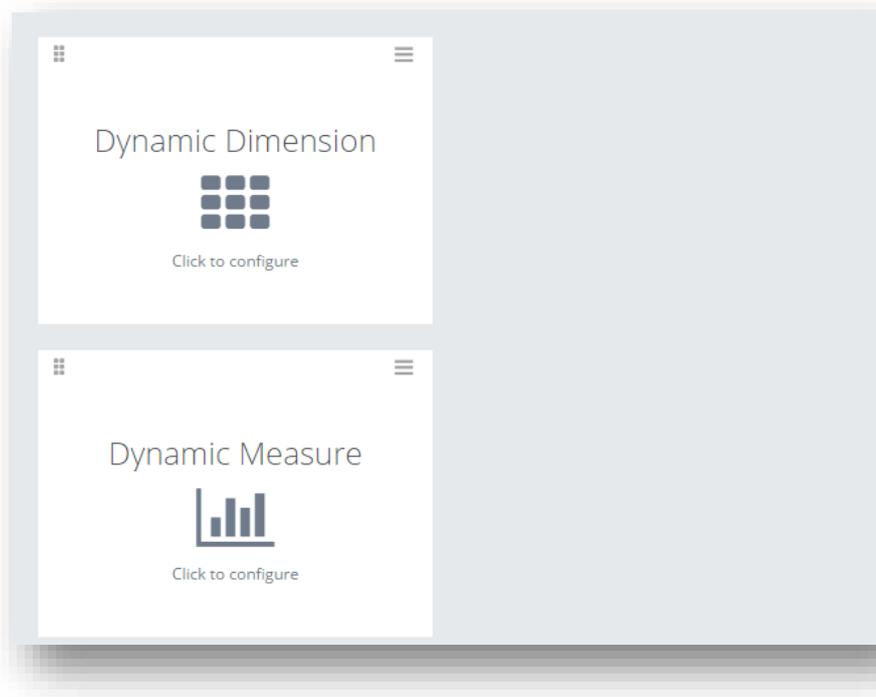


Figure 100 *Dynamic Measure and Dynamic Dimension options*

Next, in the control configuration, select element which should change dynamically:

 The image shows a configuration dialog box titled 'Dynamic Measure'. It has a 'Title' label followed by an empty text input field. Below that is a 'Dynamic Elements' label followed by a text input field containing 'Sales Total Value' and a small 'x' icon to its right. At the bottom right of the dialog, there are three buttons: a gray button with a mouse cursor icon, a 'Cancel' button, and a green 'Ok' button.

Figure 101 *Dynamic measure definition*

After the configuration is completed, select the element which is to change in dependence of specified parameters. An exemplary table is presented below, in which created elements in form of dynamic measure and dynamic dimension have been previously added:

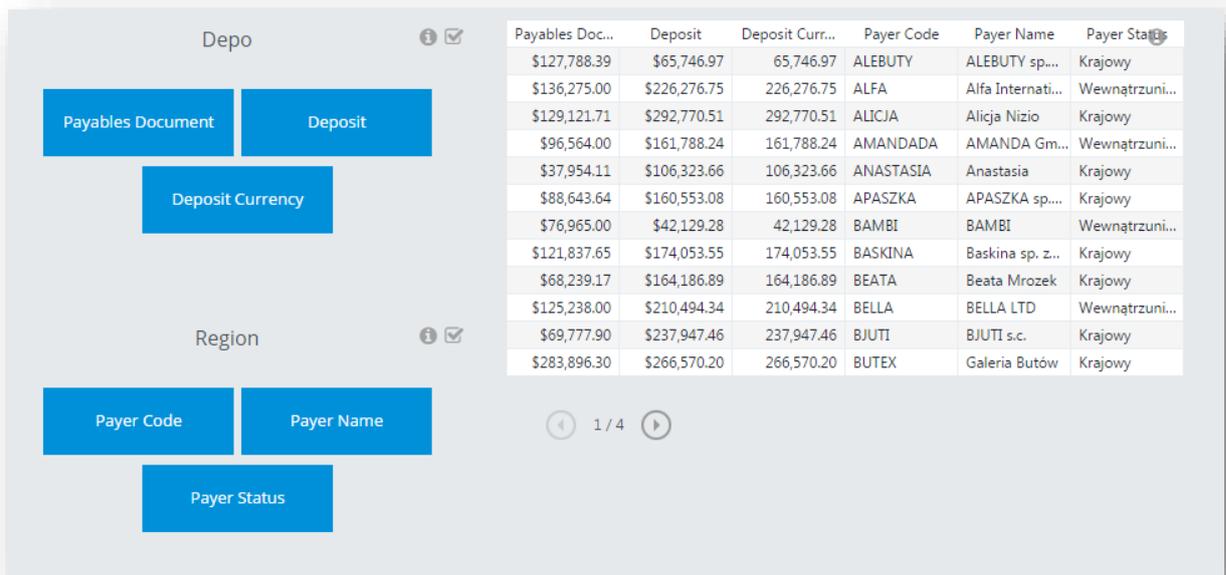


Figure 102 Presenting dynamic elements

Then, in dependence if appropriate elements are selected or deselected, aspects of our interest can be presented accordingly:

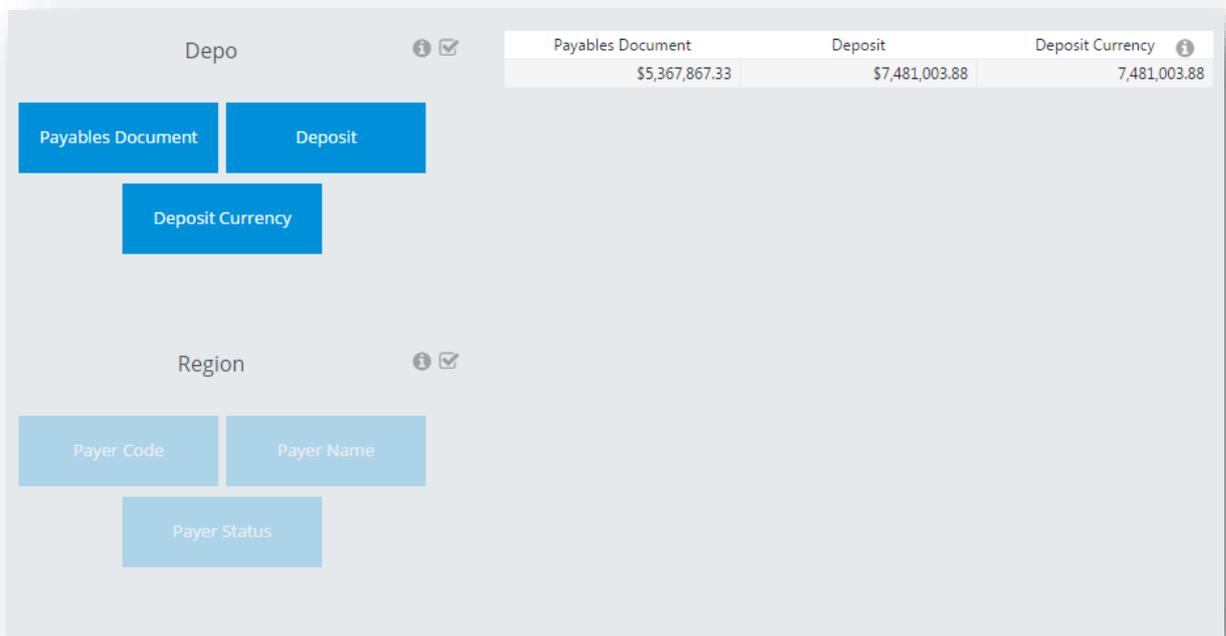


Figure 103 Presenting a dynamic dimension

The screenshot shows a dashboard interface for a 'Depo' (Deposit) measure. On the left, there are filter buttons for 'Payables Document', 'Deposit', 'Deposit Currency', 'Region', 'Payer Code', 'Payer Name', and 'Payer Status'. On the right, a table displays the results of the dynamic measure, showing columns for Payer Code, Payer Name, Payer Status, and Payables Document. The table contains 14 rows of data.

Payer Code	Payer Name	Payer Status	Payables Document
ALEBUTY	ALEBUTY sp.z o.o.Hur...	Krajowy	\$127,788.39
ALFA	Alfa International	Wewnętrzny	\$136,275.00
ALICJA	Alicja Nizio	Krajowy	\$129,121.71
AMANDADA	AMANDA GmbH	Wewnętrzny	\$96,564.00
ANASTASIA	Anastasia	Krajowy	\$37,954.11
APASZKA	APASZKA sp. z o.o.	Krajowy	\$88,643.64
BAMBI	BAMBI	Wewnętrzny	\$76,965.00
BASKINA	Baskina sp. z o.o.	Krajowy	\$121,837.65
BEATA	Beata Mrozek	Krajowy	\$68,239.17
BELLA	BELLA LTD	Wewnętrzny	\$125,238.00
BJUTI	BJUTI s.c.	Krajowy	\$69,777.90
BUTEX	Galeria Butów	Krajowy	\$283,896.30

Figure 104 Presenting a dynamic measure

Link to repository

Often times, when creating a data presentation, there is a need to show other repository including a related analysis – to satisfy this expectation, control *Link to Repository* is provided, which is a cross-reference. Upon selecting it in the left menu for creating dashboards, an intuitive menu is displayed, in which the repository to which a user wants to refer must be selected:

The screenshot shows a dialog box titled 'Link to Repository'. It has a 'Title' field at the top. Below it is a search bar with a magnifying glass icon. Under the search bar, there is a list of repository items, with the first item being 'Repository'. At the bottom left, there is a toggle switch labeled 'Recently Used'. At the bottom right, there are 'Cancel' and 'Ok' buttons.

Figure 105 Creating link to repository

Marking option *Recently Used* shows a link to repositories which have been opened recently. After selecting appropriate elements, they will be available in a dashboard in form of tiles being links.

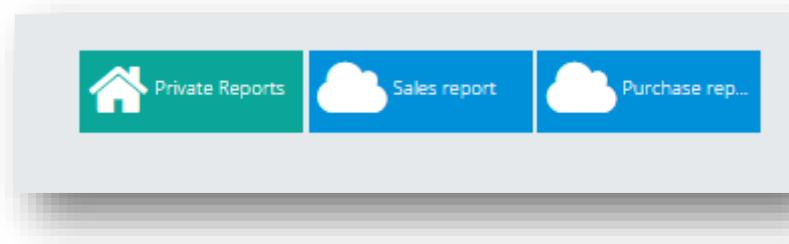


Figure 106 Created link to repository

Data filter

In order to create an element separating data, use control *Data Filter*. To create it, select appropriate tile from menu on the left side in a dashboard. An element will be added then, which opens an intuitive menu once it is expanded:

Name	Measure	Condition	Value	Actions
Sales Total Value > 200	Sales Total Value	>	200	[Delete]

Figure 107 Data filter wizard

The switch located in the bottom part of the screen determines relations between conditions – for , there will be only elements satisfying **all the conditions** displayed and for , each element fulfilling **at least one of the conditions** is shown. Upon filling in the fields, the element is created and it can be edited as any other control by means of selecting appropriate option from menu on the right side.

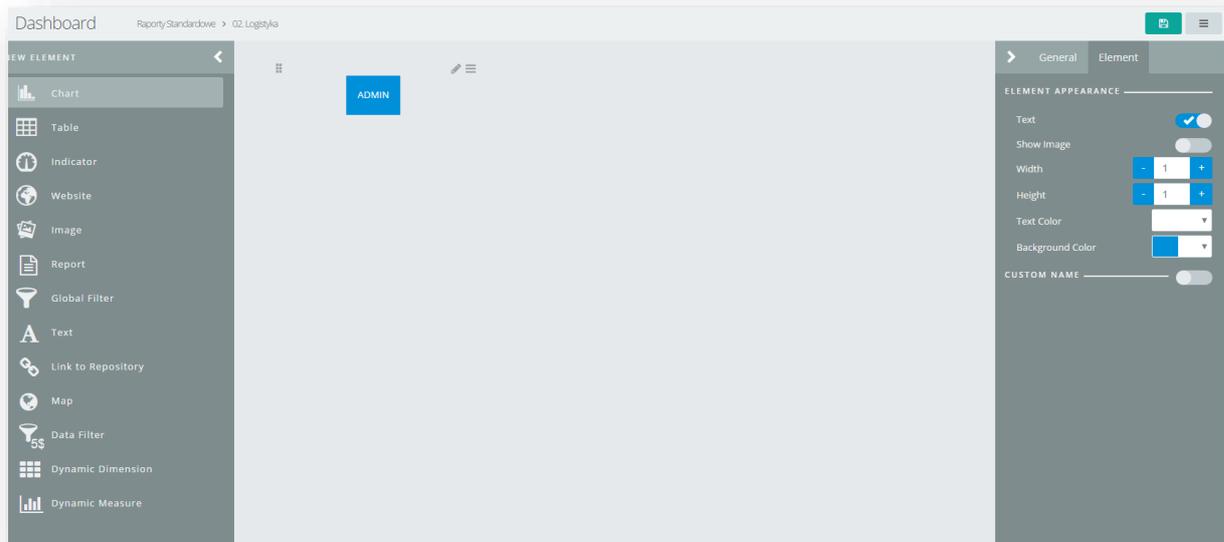


Figure 108 Data filter in dashboard edit mode

To notice separation of elements not fulfilling filter conditions, an element subject to filtering, e.g. a table, must be created:

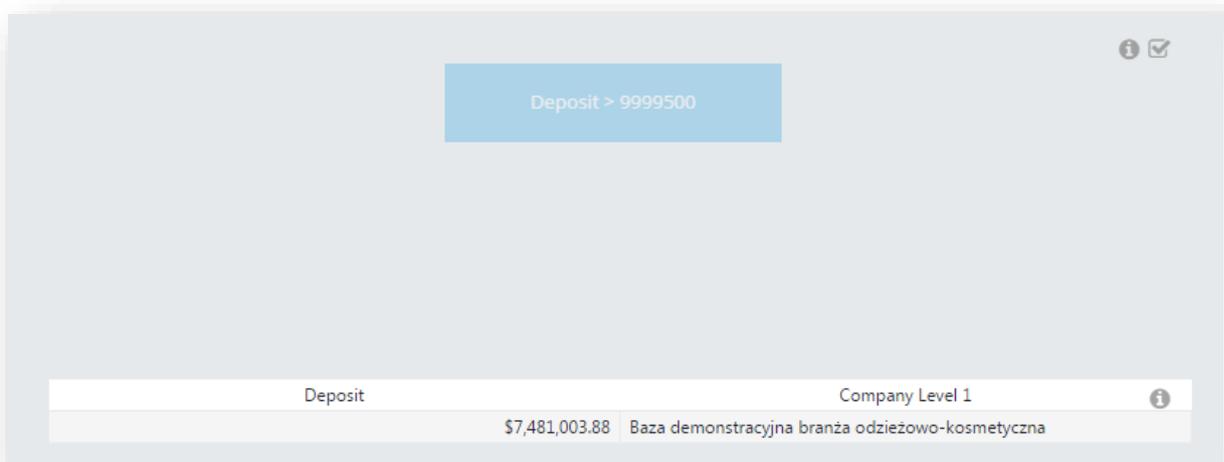


Figure 109 Table with inactive filter

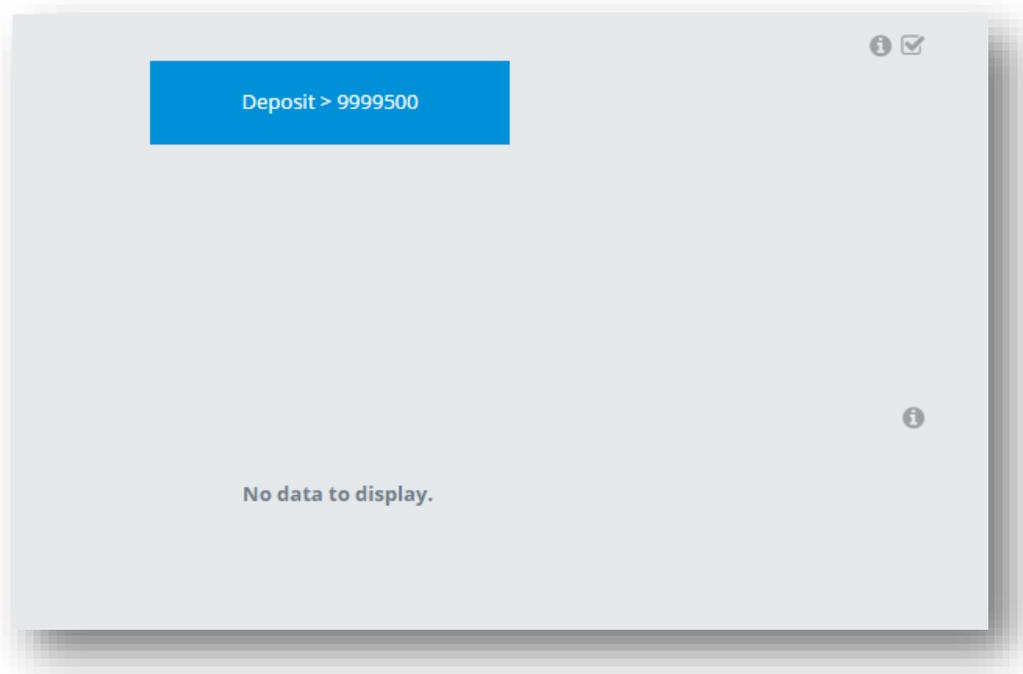


Figure 110 Table with active filter

Interaction

Interaction means that an element is filtered by data coming from global filters or selected in other controls of a dashboard, e.g. by marking series in a chart. This functionality operates on the basis of dimensions located in filter fields of dashboard elements. Selecting individual filter values on several dashboard tiles narrows down the data of these controls to their common part (e.g. selecting year 2011 and 2012 on one element and year 2012 on another reduces them both to the year 2012). If a common part is missing, empty values are displayed. The selection is performed by indicating a piece of element in its graphic presentation on a dashboard preview. Example of such operation can be observed on default dashboard which appears during the first start of BI Point on the application home page.

2.3 RS report

This type of report allows for storing connection with Reporting Service report in a database. Running of a report results in connecting to the Reporting Services server and starting relevant report stored on that server.



RS Report

Report Name

Path

Cancel Save

Figure 111 Creating a report of RS type

2.4 External link

This option allows for adding any external link to the repository, in form of a tile.

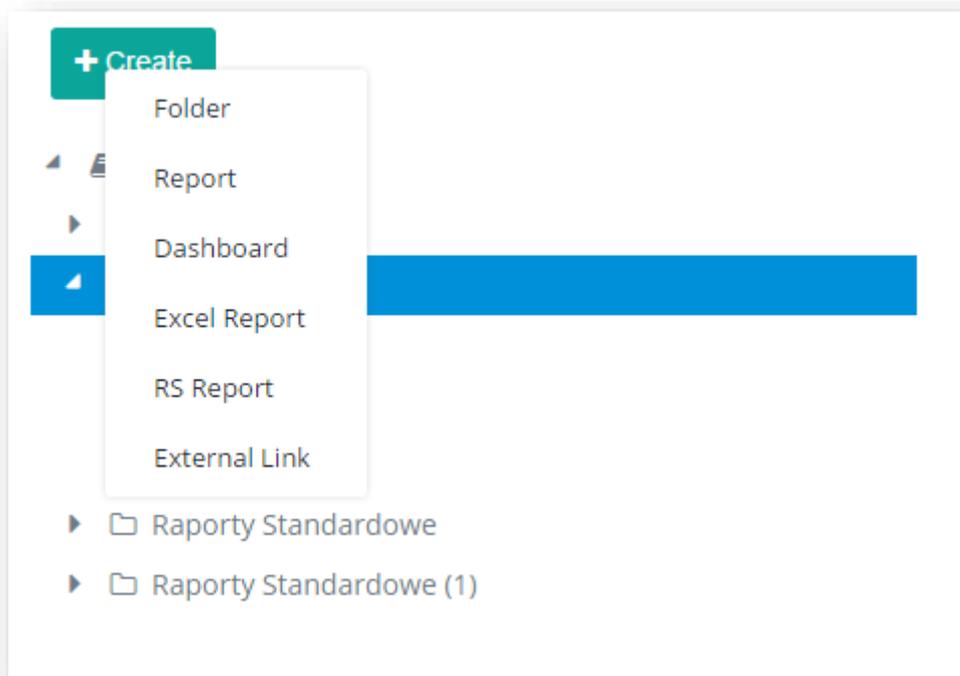


Figure 112 External link

In order to add such link to the repository, its name must be specified, path to that file defined and link type selected.

The image shows a web form titled "External Link". It contains three input fields: "Link Name", "Path", and "File Type". The "File Type" dropdown menu is open, displaying a list of file types: "PDF File" (which is highlighted), "Excel File", "PDF File", "Sound File", "Text File", and "Other".

Figure 113 Creating an external link

After filling in the data and clicking **[Apply]**, tile with assigned link appears in the repository. Upon clicking on it, a new tab is created with link specified in the path.



Figure 114 Tile with link to PDF document

2.5 Managing access to the service

Managing of access is possible upon clicking on **[Permissions]** button. Then, a BI Point Open user is redirected to a module divided into four main parts. The first part is *Users*, which contains a list of currently defined users.

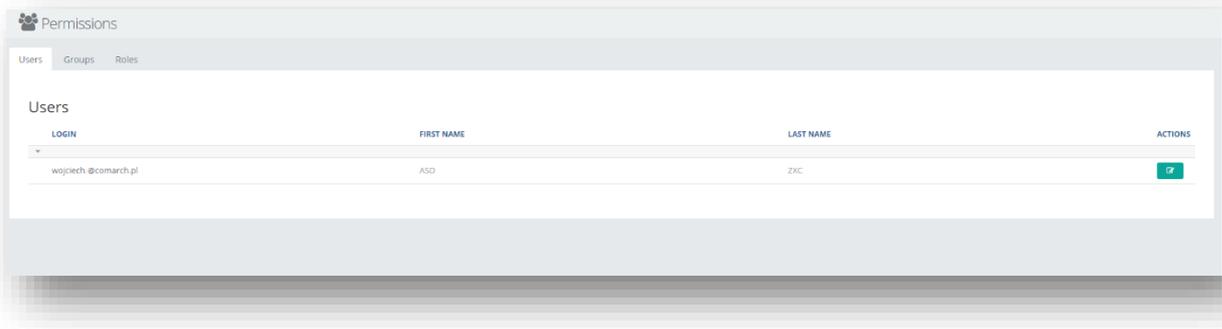


Figure 115 Window for defining permissions in Open model

Next tab is *Groups* where it is possible to create user groups in order to manage access for grouped users. By default, group *All* is available and it contains all current users.

The last tab is *Roles* and it allows for creating separated sets of permissions, ready to be assigned to individual groups/users. By default, *Administrator* role is defined, containing full set of permissions for working with the application. The following permissions can be assigned to a role: *BI Point Administrator*, *Access to BI Point*, *Possibility to add own maps*, *None*.

In each section, objects can be added/deleted with the use of buttons located on the bar assigned to a given

section: . The buttons are responsible for adding and removing an object, respectively, if at least one object is marked on the list. Additionally, it is possible to delete single objects from the list by using the

same icon at the level of a row with object. Button  displayed in *Edit* column is responsible for redirecting a user to edit window of a user profile/group content/role permission list.

In case of editing a user, the same window opens as when editing your own profile. Editing your profile is possible both through the user list in *Permissions* and by selecting that option in the application upper bar, that

is icon , followed by selecting option *Profile*.

Adding a new user consists in clicking on button  in *Permissions* window and calling a window with fields concerning the user. Once the required fields are filled in and a role is assigned to the user (in *Permissions* tab), the application allows for saving changes and it will be possible to return to the list of users. Each time a new user is added, a private user folder is automatically created whose owner he becomes. There can be as many users added as it is allowed by the purchased subscription.

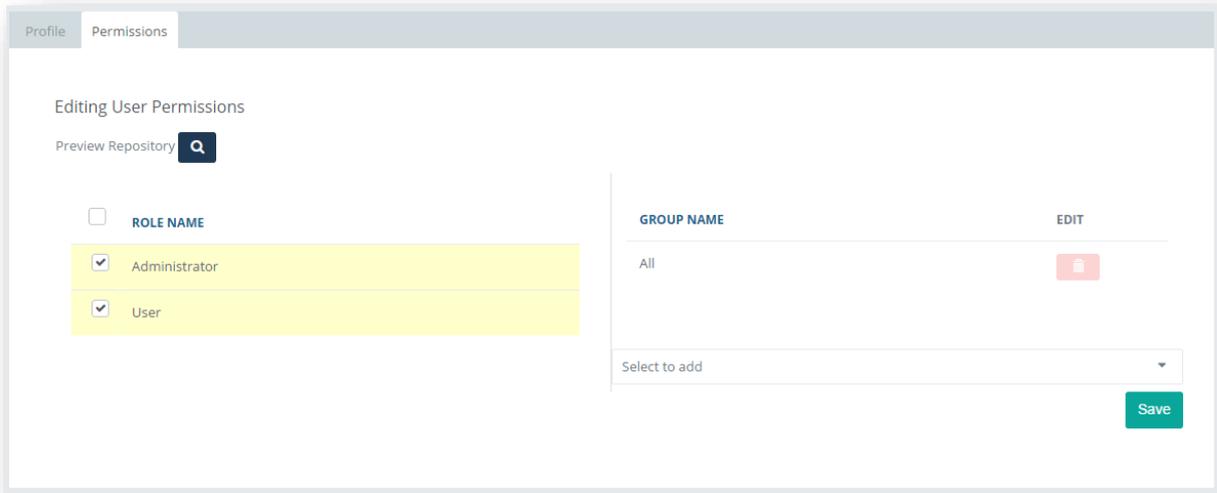


Figure 116 Assigning role to a new user

Editing and creating new groups redirects a user to window where application users must be assigned to a group. Users are selected from a drop-down list available at the bottom of the window. Assigning a user to several groups also sums up permissions granted to him.

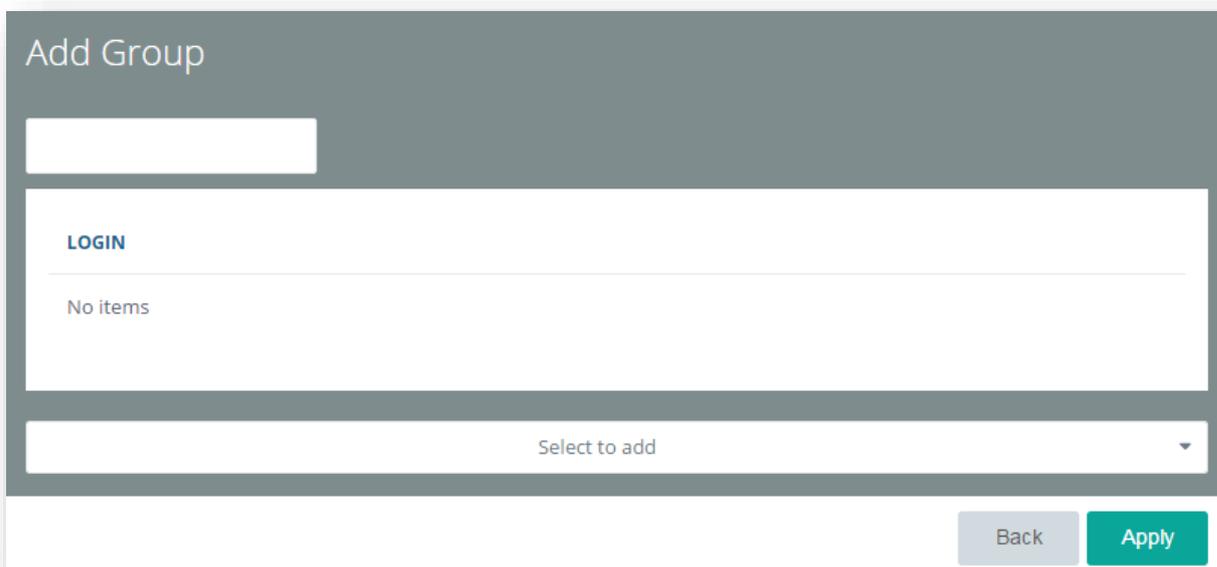


Figure 117 Creating a new user group

The last section contains roles which are templates of sets of permissions, ready to be assigned to particular objects. Comarch BI Point provides the following roles:

- *Administrator* – this permission provides full access to all functionalities as well as full visibility of reports, dashboards and budgets

- *User* – this permission provides access to reporting module along with visibility of folders and reports made available to a given user. It entitles to work with reporting in a user’s folder. To provide wider access, it is necessary to provide availability of additional objects to selected accounts. This can be performed by users with *Administrator* permission and creators of objects (their owners)

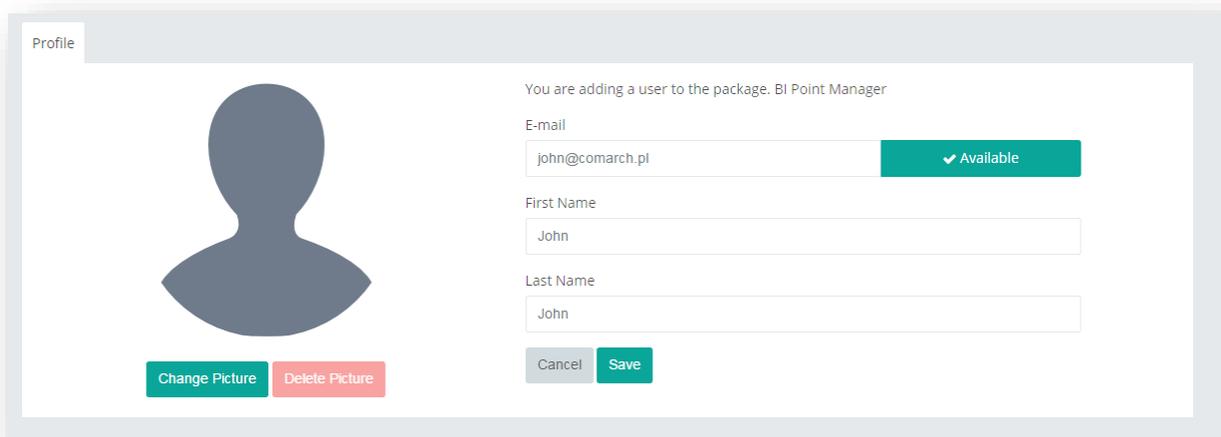
In BI Point Manager model, section *Permissions* provides accounting offices with possibility to create accounts for their clients.



LOGIN	FIRST NAME	LAST NAME	ACTIONS
BI Point Manager (2/6) +			
adrian@comarch.pl	A	Z	🔍
adrian.2@comarch.pl	Ad	Zu	🔍

Figure 118 Permissions in BI Point Manager model

In the DEMO version, it is possible to add up to 5 users apart from the main user, by means of clicking [+]. Upon specifying e-mail, it is verified by BI Point whether given user already has an account in Comarch Cloud. If verification is positive, a message is displayed informing that the given e-mail is already in a database and it is not possible to create new account for it. After account is created for a user who has not had account in Comarch Cloud yet, e-mail is sent to that user, informing about necessity to activate the account by clicking on the provided link. Once password is specified by the user, he or she is able to work with Comarch BI Point Manager.



Profile

You are adding a user to the package. BI Point Manager

E-mail
 Available

First Name

Last Name

Change Picture Delete Picture

Cancel Save

Figure 119 New Comarch Cloud user

2.6 Other options

Upon clicking on icon  located in the upper bar, a list with additional options is expanded:

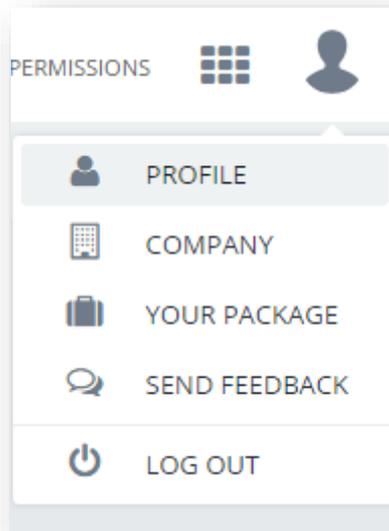


Figure 120 List of options

Each user has access to his profile where it is possible to edit data, set a photo, change language, permissions or password. To go to the profile view, select option *Profile* from the list:

Figure 121 User profile edit window

Selecting *Company* option displays a form in which a given user can specify data about his company. Fields marked with red star are mandatory. They must be filled in in order to make a payment and extend account validity.

Figure 122 Company data form

Upon selecting *Your Package* option, information is displayed about current package, users, used space and it is possible to extend validity of an account.

Your Package

Your company data is incomplete. To order complete the data of your company.

Current Package

BI Point Manager

The package is valid until 3/29/2017 (Trial Period)
You have 2 out of 6 users registered.
You are using 0.74 out of 40 GB of available space.

Payment Hisotry

DATE OF PURCHASE	AMOUNT	STATUS	DETAILS
No items			

Account Extension

BI Point Manager

Number of Months: 1 Annual fee prepayment

Number of Users: 6

Price: 139.00 EUR + VAT Discount: 0.00 EUR + VAT Total: 139.00 EUR + VAT

Payment Summary

Price: 139.00 EUR + VAT Discount: 0.00 EUR + VAT Total: 139.00 EUR + VAT

Promotional Code

Figure 123 Information about package

Upon selecting option *Payment Principles*, a banner showing current prices and promotions is displayed.

Price List

BI Point Open – Access to analytical models: Trade, Payments, Logistics;
Possibility of uploading data from any system, including third party, with the use of extractor software

First User:	Subsequent User:
24.99 EUR + VAT Monthly	11.99 EUR + VAT Monthly
1 User	for each subsequent user
40 GB of space in the cloud	

BI Point for ERP XT – Analytical module for customers using Comarch ERP XT service. It enables analyzing of data from invoices and a warehouse stored in the system.

9EUR + VAT Monthly

BI Point Manager – Possibility to analyze data from Comarch ERP Optima system for accounting offices and their clients.

Basic Package:	Subsequent User:
34.99 EUR + VAT Monthly	4.99 EUR + VAT Monthly
Account for Accounting Office and 5 Client	for each subsequent user
40 GB of space in the cloud	

Ok

Figure 124 Payment principles

In order to extend validity of an account, specify number of users possible to add by moving a circle to selected spot on the line by *Size* label and determine in the same way number of months for which the account is to be extended. It is possible to apply yearly fee in advance by selecting checkbox with such option. Due amount will be recalculated automatically and displayed below. On that page, it is also possible to use a promotional code which will reduce the cost of account validity extension. Next, click [**Order**] in the bottom right corner of the section. Then, payment method window appears. Standard payment option is Dotpay.



Note: Users of Comarch ERP XT are granted a discount in case of applying yearly fee in advance!

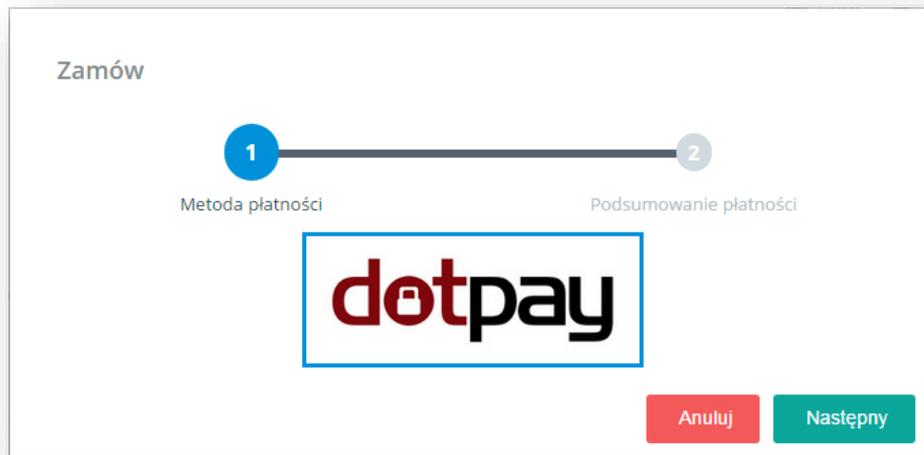


Figure 125 Ordering account validity extension

Verify correctness of selected options and click [**Pay**] to confirm. Then, a user is redirected to Dotpay system. The package becomes active immediately upon making a payment.

Selecting option *Send Feedback* displays a form in which it is possible to type and then send content of your suggestions concerning BI Point service.

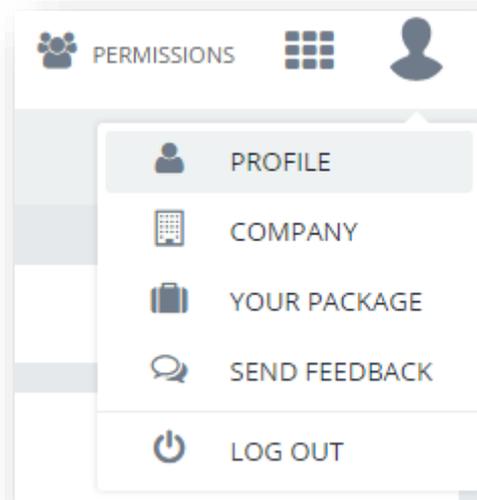


Figure 126 *Send Feedback* option



Send us your feedback

Title

Message Content

Cancel Send

Figure 127 Sending feedback

Option *Log Out* logs a current user out from the service and if invalid address is entered, a customized error page is displayed.

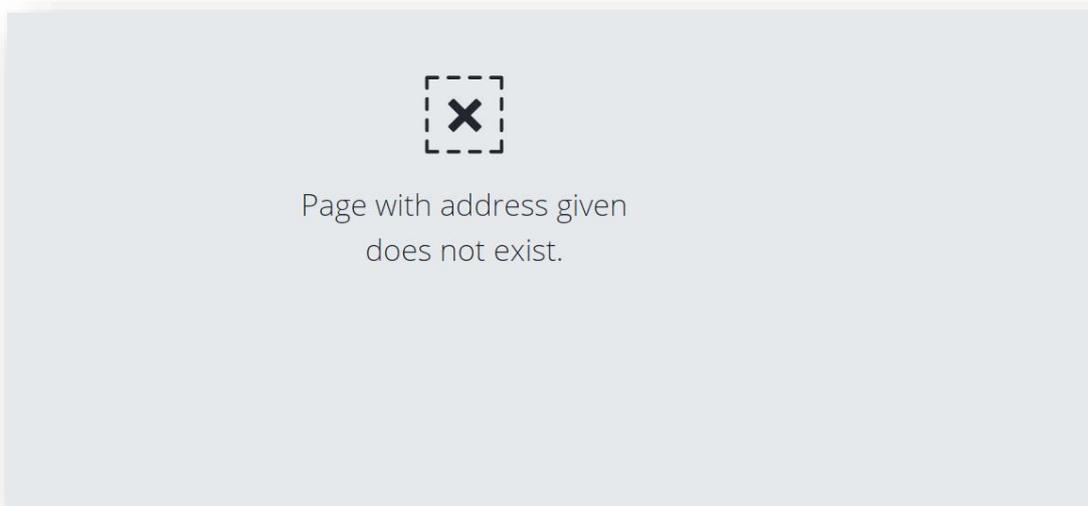


Figure 128 Error 404

3. BI Point Manager

BI Point Manager is a service designed for users of Comarch ERP Optima Accounting Offices and their clients.

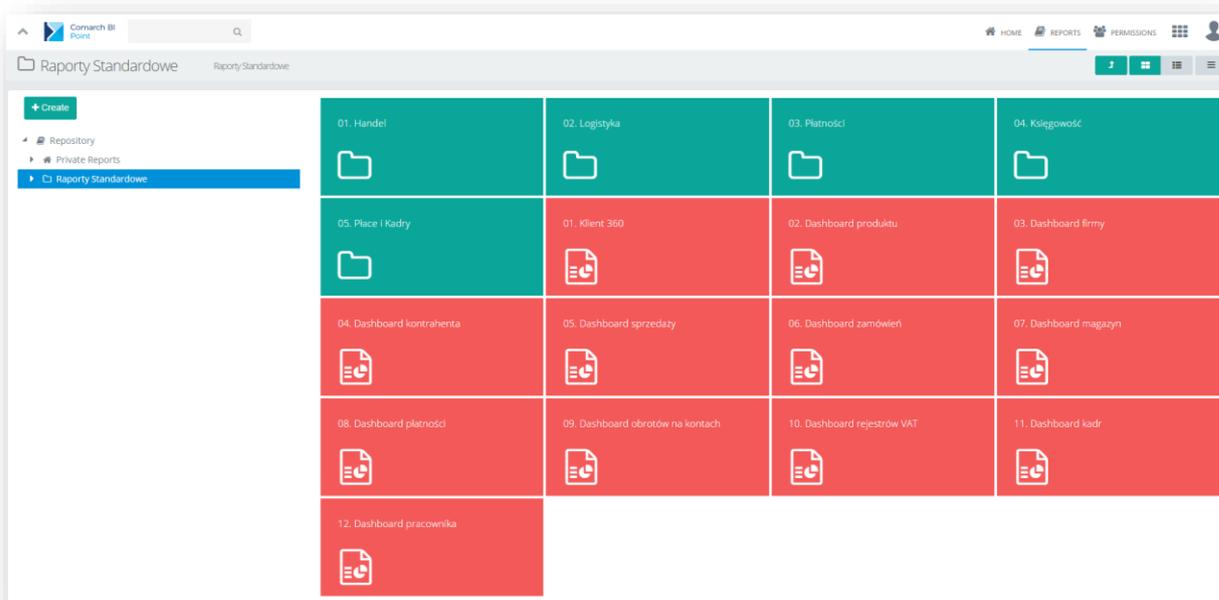


Figure 129 BI Point Manager – standard reports and dashboards

Accounting offices have 5 basic analytical models: *Trade* – which covers, among others, Sales and Purchase; *Logistics* – covering warehouses; *Payments*; *Accounting* as well as *HR and Payroll*. Their scope mostly covers the range of BI Analyses.

Accounting offices using this model have access to all functions and they cover functionalities described in chapter 2. Clients of accounting offices can access only those reports and dashboards which are shared to them by an accounting office. Moreover, they can edit and save them to file without changing their definition. Other permissions, such as defining and sending subscriptions or creating new reports, are only available for accounting office administrator.

The figure below shows the view for accounting office user to whom only reports from *HR and Payroll* model were shared.

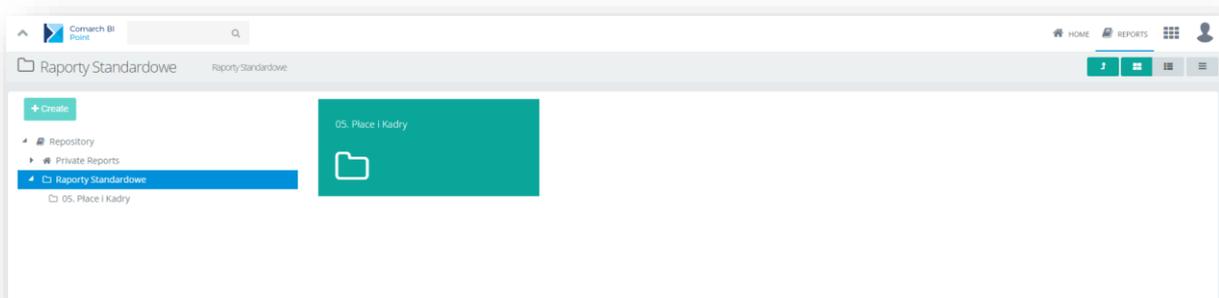


Figure 130 Accounting office client view

4. Synchronization with ERP XT

Owing to synchronization of reports between ERP XT and BI Point, it is possible to transfer data directly between the two applications and be sure about their full conformity (the data is synchronized every 24 hour).

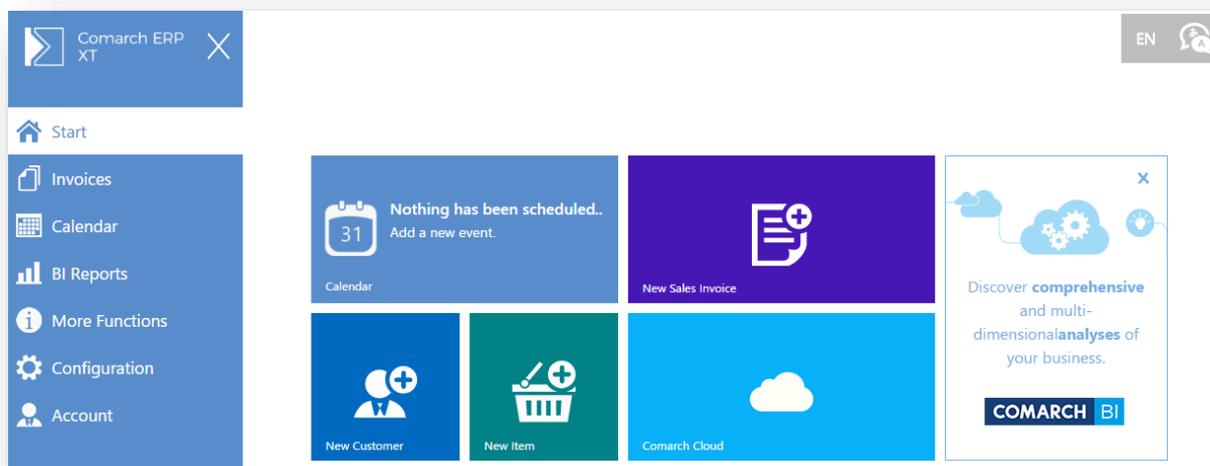


Figure 131 Comarch ERP XT application

5. Differences in the interface on mobile devices

Due to requirements for implementing a touch screen, mobile devices have slightly different layout and operation of the interface, which comply with the standards of supporting such devices. To improve the comfort of working with reports repository, its structure tree is not available on a mobile device screen – in this case a user works with tiles or a list of elements.

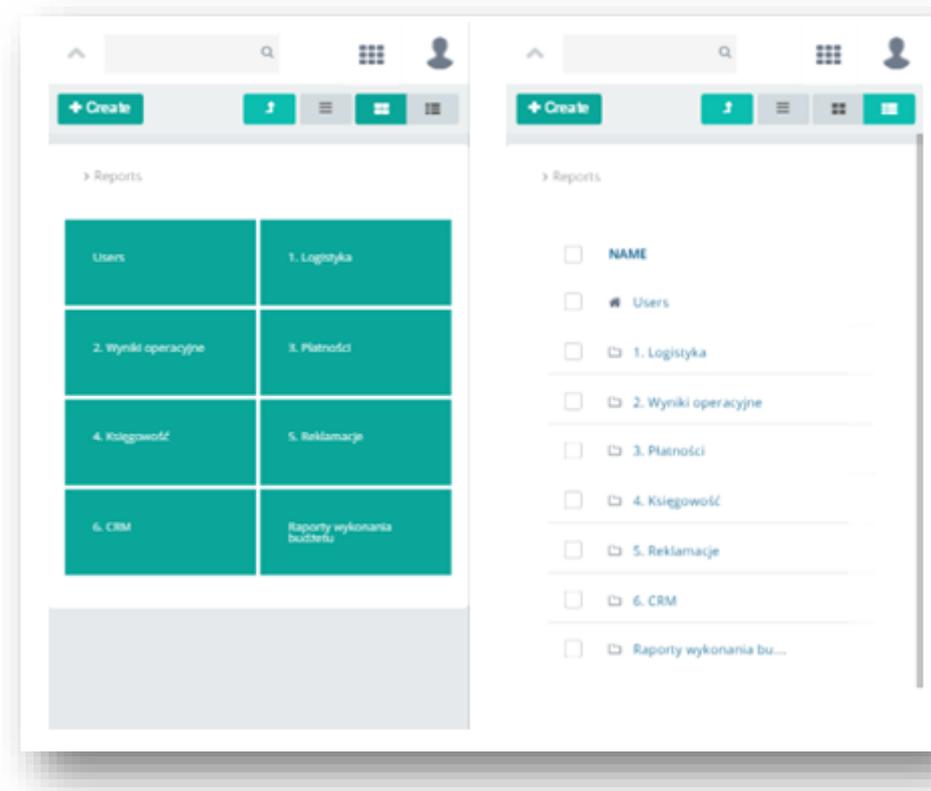


Figure 132 Reports repository in version for mobile devices (tile and list view)

Switching the view mode is performed with the use of icons:   – the left enables tiles, the right one – list view. Button  is used for adding new folders, reports and dashboards in selected folder (missing selection creates a new element in user's private default folder). Folders in tile view are selected by checking a tile in its upper bar, whereas in case of list view – a check box on the left is used for this purpose.

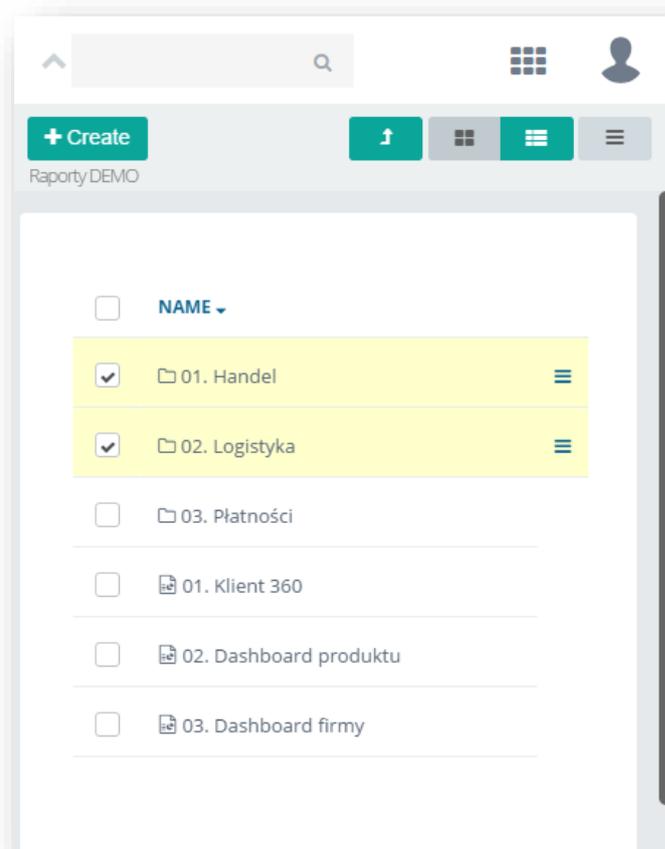


Figure 133 Selecting elements in the repository in mobile version

If elements are not being selected, there is an icon available in the panel which transfers the user one level up

on the repository structure tree: . Using it is one of the three methods of moving back to upper level; another one is selecting level name from path visible below the tool panel, and the last is clicking **[Back]** on a device – here, the button transfers the user back to previous application view, so it is applicable in this case if a user was previously on the upper level.

The interface is also different in case of creating new reports – owing to the screen size limitations, table with headers, used for dragging elements from *List of Fields* to a report, is not visible.

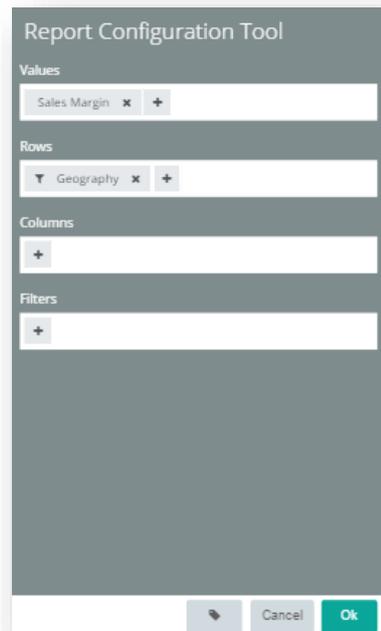


Figure 134 Report configuration tool in mobile version

Elements from the menu can be dragged to rows, columns, filter area and data area – in accordance with their destination. To add a dimension or a measure, select  icon. Then, a user is transferred to the list of fields.

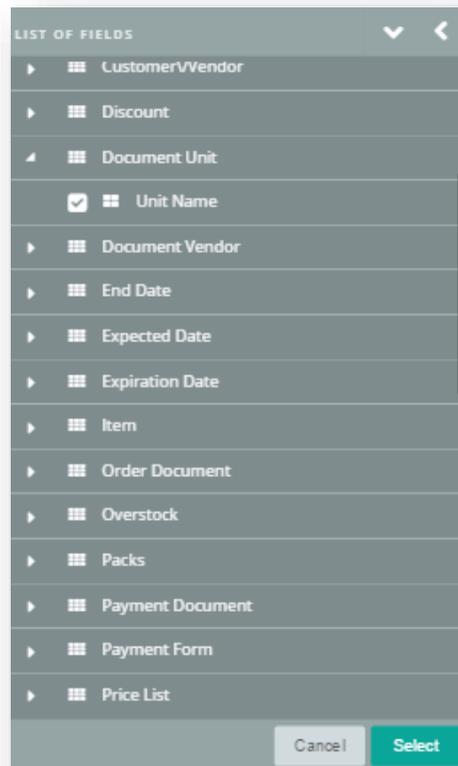


Figure 135 List of fields with selected attribute

In order to add dimension attributes, expand a given dimension and check the check box by an attribute. This action is supported by multiselection feature, so a user can add any number of attributes from the fields list. The selection is confirmed by clicking [**Select**] and canceled by clicking [**Cancel**].

The configuration tool allows for enabling detailed name of displayed attributes, which facilitates searching of proper attributes in case their names are similar. This option is available under icon .

Not needed elements of a report can be removed by using  icon located by given attribute name.

Each dimension can also be filtered. Regular filter is available on report configuration tool element under icon , available in front of dimension attribute name. It is also possible to use *TOP N* filter, which is

distinguished by additional icon  displayed by the filter icon. *TOP N* filter is editable from the level of the tool panel on the right side of the screen, upon selecting a dimension on the pivot table.

In a created report on a mobile device there are no headers for columns. This results from saving space and different displaying of pivot table on such types of devices. Context options in the tool panel available for headers in the desktop version are moved to options for individual elements. This means that in order to change an option for all products, one of them must be marked in the pivot table and appropriate options concerning entire *Product* dimension selected.

When creating a dashboard on a mobile device, list with elements opens in the first step. Upon selecting an element, you can proceed to its configuration which is the same as in case of reports.

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