



USER MANUAL

0.1

October 2019

©Value Xd Ltd, 2015-2019. All Rights Reserved





YOUR ANALYTICAL IMAGINATION, UNCHAINED, UNINTERRUPTED

Value Xd™ is a cloud-based analytical universe, a harness for collective intelligence.

“Concern for man himself and his fate must always form the chief interest of all technical endeavours... in order that the creations of our minds shall be a blessing and not a curse to mankind. Never forget this in the midst of your diagrams and equations.”

Albert Einstein



Forward

Welcome to our very first manual!

It is a pleasure to introduce you to a platform that will change the way you do analytics for the better, forever.

In this document you can browse and understand the functionalities available to you through our platform. Naturally, given that this is still a very new process, this manual will be a continuous work in progress for the foreseeable future.

As we add new modules and features over the next months, we will make sure to update this document for your convenience and use. Furthermore, we will soon provide video tutorials and help for the platform and each of the main tools.

We are always ready to support our new users, please do not hesitate to contact us for further help or support if needed (support@valuexd.com).

We are certain that you will enjoy adopting a transformed analytical value chain.

Value Xd Team





TABLE OF CONTENTS

FORWARD	3
0. INTRODUCTION	14
0.1. Key Architectural Differences	15
0.1.1. Equations in Front of Data, Not in Cells or Behind Data	15
0.1.2. Equations and Models as Tools in the Cloud, Not files.....	15
0.1.3. Equations are Engines, not Images	15
0.1.4. All Models are Shareable Tools.....	16
0.1.5. Controller and Projector for Scenario Simulation.....	16
0.1.6. Manipulate your Outputs during live Presentations.....	17
1. HOW TO LOGIN	18
2. USER DESKTOP AND MAIN SCREEN	20
3. TOOLBAR TABS	21
3.1. Top Toolbar	21
3.2. Left Vertical Toolbar	22
3.2.1. Cases Tab	22
3.2.2. Dashboards Tab.....	24
3.2.3. Models Tab.....	25
3.2.4. Charts Tab.....	26
3.2.5. Tables Tab.....	27
3.2.6. Maps Tab.....	28
3.2.7. Help Tab.....	29
4. FOLDERS ON USER HOME SCREEN	30
4.1. Cases Folder	30
4.2. Dashboards Folder	31
4.3. Models Folder	32
4.4. Charts Folder	33
4.5. Maps Folder	34
4.6. Tables Folder	35
4.7. Presentations Folder	36



5. CREATE A NEW CASE	37
Supported File Formats	37
Unsupported formats	38
5.1. Singular Analytics.....	39
5.1.1. Adding Dashboards to a new project/case	40
5.1.2. Sector	42
5.1.3. Country.....	43
5.1.4. Exchange.....	44
5.1.5. Currency	45
5.1.6. Asset Class.....	46
5.1.7. Fund Class.....	47
5.1.8. Outcome.....	48
5.1.9. Global Goals and Targets.....	49
6. SPREADSHEET EDITOR AND CASE SCENARIO DATA.....	50
6.1. Selected Dashboards.....	51
6.2. Modify Workstation.....	52
6.3. Editing Scenario Name	53
6.4. Spreadsheet Editor Tools.....	54
6.4.1. Set Axes and Constants.....	55
6.4.2. Undo – Redo	56
6.4.3. Import Data.....	57
6.4.3.1 International Monetary Fund.....	58
6.4.3.1.1. Countries / Regions	59
6.4.3.1.2. Analytical Groups.....	60
6.4.3.1.3. From – To Date	61
6.4.3.1.4. Data Sets – Data Fields.....	62
6.4.3.1.5. Add Query	64
6.4.3.2. Bloomberg Data License.....	66
6.4.3.2.1. Selecting Security Identifiers	67
6.4.3.2.2. Filtering Data Fields.....	71
6.4.3.2.3. Time Frame and Request Interface.....	75
6.4.4. Add Data	78
6.4.5. Find / Search	79
6.4.6. Transpose Sheet	80
6.4.7. Add Rows and columns.....	81
6.4.8. Sorting.....	82
6.4.9. Increase / Decrease Decimal Places.....	83
6.4.10. Percentage / Thousand Separator	84
6.4.11. Font Style and Size	85
6.4.12. Cell and Text Color.....	86
6.4.13. Bold / <i>Italic</i> / Underline Formats.....	87



6.4.14. Align Tools	88
6.5. Sheet Toolbar Options	89
6.6. Row and Column Editing	91
6.7. Activating and Linking Dashboards to Data Source.....	92
6.7.1. Activating Dashboards or selected Panels	93
6.7.2. Data Validation by Drag and Link.....	96
6.7.3. Linking Activated Panel's Variables to Main Sheet.....	99
7. RESULTS.....	103
7.1. Dashboards Sidebar	104
7.2. Save as new Scenario.....	106
7.3. Panels.....	107
7.4. Controller	110
7.4.1. Link Additional Panels.....	112
7.4.2. Time Horizon	114
7.4.3. Simulating Properties and Constants	115
7.4.4. Projector	117
7.4.5. Recalculate / Revert / Revert All	120
8. DASHBOARDS.....	121
8.1. Create Dashboard.....	122
8.2. Selecting Panels.....	123
8.3. Expanded Model Panels.....	125
8.4. Expanded Chart Panels.....	128
8.5. Expanded Map Panels.....	131
8.6. Expanded Table Panels	133
8.7. Dashboards' Catalogue.....	134
8.7.1. Dashboard Sidebar List	135
8.7.2. Top Toolbar Buttons.....	136
9. MODELS	138
9.1. Create Model	139
9.2. Left Sidebar Menu.....	140
9.2.1. Visualization Type.....	141
9.2.2. Number of Periods.....	142
9.2.3. Link to Main Sheet – Activated.....	143



9.3. Top Toolbar	145
9.4. Controller	146
9.5. New Panels' Bar	147
9.6. User Data Variables	148
9.6.1. Variable's Name	149
9.6.2. Symbol	150
9.6.3. Chart	151
9.6.4. Controller	152
9.6.5. Table	153
9.6.6. Color	154
9.6.7. Periods	155
9.7. Constants	157
9.7.1. Constant's Name	158
9.7.2. Symbol	159
9.7.3. Chart	160
9.7.4. Controller	161
9.7.5. Table	162
9.7.6. Color	163
9.7.7. Value	164
9.8. Formula	166
9.8.1. Formula Name	167
9.8.2. Symbol	168
9.8.3. Series	169
9.8.4. Chart	170
9.8.5. Table	171
9.8.6. Color	172
9.8.7. Formula / Equation Editor	173
9.8.7.1. Main Functions	177
9.8.7.2. Statistical Functions	180
9.8.7.3. Trigonometric Functions	182
9.8.7.4. Hyperbolic Functions	184
9.8.7.5. Constants Functions	186
9.8.7.6. Greek Letters	188
9.8.7.7. User Defined	190
9.9. Chart	192
9.9.1. Flip Axes	193
9.9.2. Line Chart Visualization	194
9.9.3. Column Chart Visualization	195
9.9.4. Column 3D Visualization	196
9.9.5. Bar Chart Visualization	197
9.9.6. Area Chart Visualization	198
9.9.7. Bar Style Visualization	199
9.9.8. Horizontal Column Visualization	200
9.9.9. Surface Visualization	201



9.9.10. Surface V10 Style	202
9.9.11. Surface V11 Style	203
9.9.12. Pie Visualization	204
9.9.13. Diamond Style Visualization	205
9.10. Diamond.....	206
9.11. Save Draft / Preview.....	208
9.11.1. Save Draft	209
9.11.2. Preview	211
9.12. Models' Catalogue.....	213
9.12.1. Model Sidebar List.....	214
9.12.2. Expand / Controller / Edit / Delete Model	217
9.12.3. Top Toolbar.....	220
10. CHARTS.....	221
10.1. Create Chart.....	222
10.2. Left Sidebar Menu.....	223
10.2.1. Number of Periods.....	224
10.2.2. Link to Main Sheet – Activated.....	225
10.3. Top Toolbar	227
10.4. Controller	228
10.5. New Panels' Bar.....	229
10.6. Variables to Use or Display.....	230
10.6.1. Variable's Name.....	231
10.6.2. Symbol.....	232
10.6.3. Chart	233
10.6.4. Controller	234
10.6.5. Color	235
10.6.6. Periods	236
10.7. Constants to Use or Display.....	238
10.7.1. Constant's Name	239
10.7.2. Symbol.....	240
10.7.3. Chart.....	241
10.7.4. Controller	242
10.7.5. Color	243
10.7.6. Value	244
10.8. Composites to Use or Display.....	246
10.8.1. Composite's Name.....	247
10.8.2. Symbol	248
10.8.3. Series	249
10.8.4. Chart.....	250
10.8.5. Color	251
10.8.6. Formula / Equation Editor	252



10.8.6.1. Main Functions	256
10.8.6.2. Statistical Functions	259
10.8.6.3. Trigonometric Functions	261
10.8.6.4. Hyperbolic Functions	263
10.8.6.5. Constants Functions	265
10.8.6.6. Greek Functions	267
10.8.6.7. User Defined	269
10.9. Chart	271
10.9.1. Flip Axes	272
10.9.2. Line Chart Visualization	273
10.9.3. Column Chart Visualization	274
10.9.4. Column 3D Visualization	275
10.9.5. Bar Chart Visualization	276
10.9.6. Area Chart Visualization	277
10.9.7. Bar Style Visualization	278
10.9.8. Horizontal Column Visualization	279
10.9.9. Surface Visualization	280
10.9.10. Surface V10 Style	281
10.9.11. Surface V11 Style	282
10.9.12. Pie Visualization	283
10.9.13. Diamond Style Visualization	284
10.10. Save Draft / Preview	285
10.10.1. Save Draft	286
10.10.2. Preview	288
10.11. Charts' Catalogue	290
10.11.1. Chart Sidebar List	291
10.11.2. Expand / Controller / Edit / Delete Chart	294
10.11.3. Top Toolbar	297
11. TABLES	298
11.1. Create Table	299
11.2. Left Sidebar Menu	300
11.2.1. Number of Periods	301
11.2.2. Link to Main Sheet – Activated	302
11.3. Top Toolbar	304
11.4. Controller	305
11.5. New Panels' Bar	306
11.6. Variables to Use or Display	307
11.6.1. Variable's Name	308
11.6.2. Symbol	309
11.6.3. Controller	310



11.6.4. Table	311
11.6.5. Periods	312
11.7. Constants to Use or Display.....	314
11.7.1. Constant's Name	315
11.7.2. Symbol	316
11.7.3. Controller	317
11.7.4. Table	318
11.7.5 Value	319
11.8. Composites to Use or Display	321
11.8.1. Composite's Name	322
11.8.2. Symbol	323
11.8.3. Series	324
11.8.4. Table	325
11.8.5. Formula / Equation Editor	326
11.8.5.1. Main Functions	329
11.8.5.2. Statistical Functions	333
11.8.5.3. Trigonometric Functions	335
11.8.5.4. Hyperbolic Functions	337
11.8.5.5. Constants Functions	339
11.8.5.6. Greek Alphabet	341
11.8.5.7. User Defined	343
11.9. Row Order and Table Structure	345
11.10. Tables.....	346
11.11. Save Draft / Preview.....	347
11.11.1. Save Draft	348
11.11.2. Preview	350
11.12. Tables' Catalogue	352
11.12.1. Table Sidebar List	353
11.12.2. Expand / Controller / Edit / Delete table	356
11.12.3. Top Toolbar	359
12. MAPS.....	360
12.1. Create Map.....	361
12.2. Left Sidebar Menu.....	362
12.2.1. Number of Geographic Regions	363
12.2.2. Link to Main Sheet – Activated	364
12.3. Top Toolbar	366
12.4. Controller.....	367
12.5. New Panels' Bar	368



12.6. Variables to Use or Display	369
12.6.1. Variable's Name	370
12.6.2. Symbol	371
12.6.3. Controller	372
12.6.4. Regions	373
12.7. Constants to Use or Display	374
12.7.1. Constant's Name	375
12.7.2. Symbol	376
12.7.3. Controller	377
11.7.4 Value	378
12.8. Composites to Use or Display	380
12.8.1. Composite's Name	381
12.8.2. Symbol	382
12.8.3. Series	383
12.8.4. Formula / Equation Editor	384
12.8.4.1. Main Functions	388
12.8.4.2. Statistical Functions	391
12.8.4.3. Trigonometric Functions	393
12.8.4.4. Hyperbolic Functions	395
12.8.4.5. Constants Functions	397
12.8.4.6. Greek Functions	399
12.8.4.7. User Defined	401
12.9. Map Visualization Options	403
12.10. Maps	404
12.11. Save Draft / Preview	407
12.11.1. Save Draft	408
12.11.2. Preview	409
12.12. Maps' Catalogue	413
12.12.1. Map Sidebar List	414
12.12.2. Expand / Controller / Edit / Delete Map	417
12.12.3. Top Toolbar	420
13. PRESENTATION	421
13.1 Top Toolbar	422
13.2 Editor Bar	423
13.2.1. Text Box Button	423
13.2.2. Insert Image	424
13.2.3. Insert Shapes	425
13.2.4. Undo / Redo Buttons	427
13.3. Slides' Right Section	428



13.4. Preview Section Editor.....	430
13.4.1. Textbox Tools	431
13.4.2. Panel's Tools.....	434
13.5. Presentation Mode	435
14. APPENDIX A: EQUATION EDITOR SYNTAX.....	446
14.1. Multiplication.....	446
14.2. Sum and Product.....	447
14.3. Log and Ln.....	448
14.4. Limit.....	449
14.5. Definite Integral.....	450
14.7. Trigonometric functions.....	452
14.8. Functions' General Syntax	453
14.9. Modulo	455
14.11. [and].....	455
14.12. [and].....	456
14.13. Mean	456
14.14. Standard Deviation	457
14.15. Variance.....	457
14.16. Covariance.....	458
14.17. Correlation.....	458
14.18. Mode.....	459
14.19. Mid-Range.....	459
14.20. Minimum	460
14.21. Maximum.....	460
14.22. Median.....	461

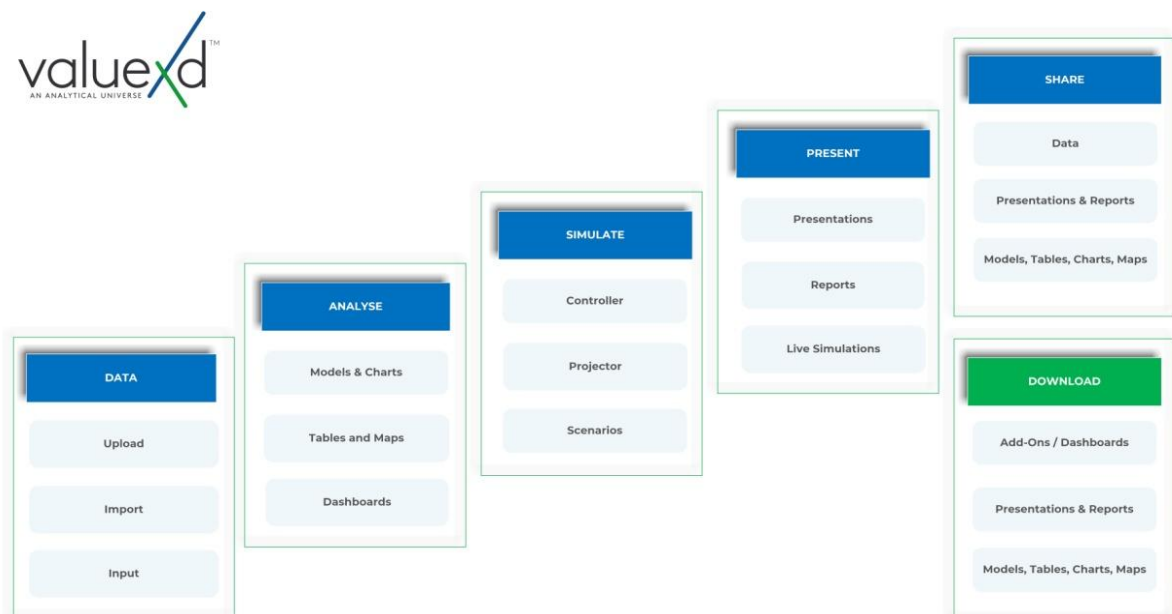




0. Introduction

Value Xd is conceived as an analytical universe where you can aggregate your data, model and analyse it, simulate alternative scenarios, publish and present your output, and then share it with colleagues. In the near future, with our Planet Edition, users will also be able to share their analytical models and output with the global public.

While giving your analytical imagination the reigns and providing you with the tools to create your own blueprints, Value Xd is also an effective and useful source of analytical knowledge, easily accessible and applicable by users through the download of thematically focused Add-Ons.



This manual is a detailed description of our software. We cover all buttons and tabs, and describe their role and functionality.

There are 14 main sections as of now, and each of them looks at a specific aspect of the software, the last one being Appendix A, which describes the syntax to be used when creating equations in our equation editor.



0.1. Key Architectural Differences

Before diving into this transformative platform that will change the way you do analytics, we introduce you to some of the key architectural differences of Value Xd.

0.1.1. Equations in Front of Data, Not in Cells or Behind Data

On our platform, you do not have to write your equations inside cells, or behind the data you intend to analyze.

Value Xd offers you a whole new architecture where your equations sit in front of the data sheets, not inside, or behind the data sheets you are working on. This shifts the user's perspective, as it allows the user to take a step back from the raw material (data).

Equations, whatever their visualization mode, i.e., models, charts, tables, or maps, are created inside panels that sit above the data sheets they analyze.

0.1.2. Equations and Models as Tools in the Cloud, Not files

The equations and models you create in Value Xd are also unique because they are not files.

Unlike other software where equations are saved within sheets, which are saved as files, on our platform, equations and models, charts and tables, and maps, are all cloud based generic tools that can be applied to any case, and reapplied to new cases at any moment with a click of a mouse.

Users do not need to 'save as' old files to apply them to new projects. Your panels (equations and models) are always ready to be applied to any new project or case.

0.1.3. Equations are Engines, not Images

Unlike other platforms, wherever and whenever you see an equation on value Xd, it is always married to the engine that calculates it.

This is an unprecedented feature, as it allows users to publish their analytical models not as static images of models, which readers have to recreate on their own to be able to apply, but as visual engines, ready to be downloaded if the sharer has set the relevant permissions.



Value Xd brings equations to life, and makes published analytics more transparent, as the analytical output is not presented on its own as a static image, but as a dynamic tool, along with the engine that calculates it.

This feature brings transparency and authenticity to the process of sharing analytical output across fields and languages.

Furthermore, this feature will also make shared analytical outputs more useful and immediately applicable by readers upon download into their own interface.

0.1.4. All Models are Shareable Tools

Value Xd also offers its users the opportunity to share their analytical output like models, charts, tables, maps, and or finished presentations and reports, as a simple social media post.

As an analytical universe that covers and transforms the entire analytical value chain, our platform allows the seamless sharing of actual tools between users, across the planet.

This feature will be available for Box edition users initially; it will also be available to single users across the globe when we launch the Planet Edition.

0.1.5. Controller and Projector for Scenario Simulation

We introduce two very useful tools that make the analytical process more fun, more effective, and infinitely less tedious.

With just a click of a button, you can open your Controller, which gives you fine tuning tools for specific variables from the front end of the model. These variables, the ones that end up in the controller of a model are chosen by the user.

The Projector sits within the Controller, and allows users to project their models, charts, tables, and maps into the future, while giving them the opportunity to factor in specific future events that affect different variables at different periods in the future.

All of the above is done with a few clicks, without ever having to revisit your data sheet!



0.1.6. Manipulate your Outputs during live Presentations

This is one of our most special features that transforms the entire experience and effectiveness of business and investment presentations. Indeed, business, executive or investment presentations become more informed thanks to this tool that links the boardroom to the data behind the slides in a dynamic way.

Imagine being able to adjust the output chart in your slide during your Live presentation, without opening any other software, or going back to your data sheet.

Our software allows you to do this by opening the controller of the model in the slide, and simulating the relevant changes. This feature is being enabled in the next few weeks.



“Value Xd™ is an interface between dream and reality. Not just because it was a dream not a long time ago, but also, because it has been conceived as a toolkit for the grateful, responsible, and creative human, for you, keen to draw, plan, and execute the blueprints of your dreams.”

Armen Papazian, *Founder and CEO*



valueXd™
AN ANALYTICAL UNIVERSE

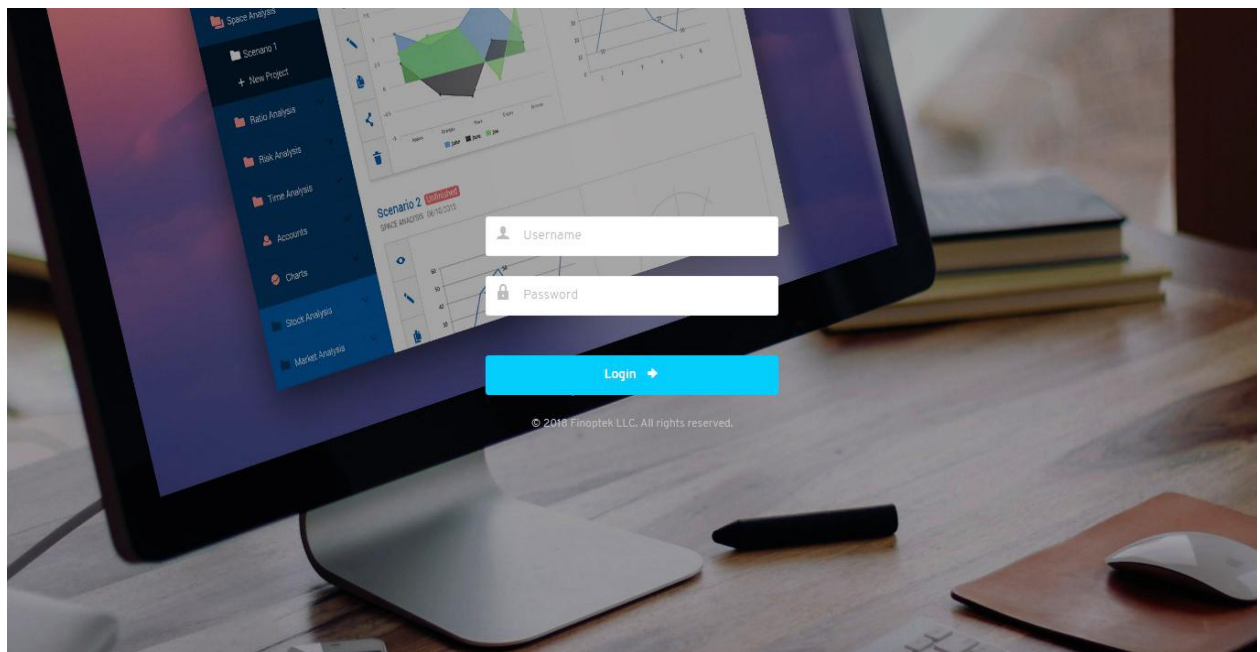


1. How to Login

Go to: <https://app.valuexd.com>

Enter your Username and Password

Click [Login](#)





2. User Desktop and Main Screen

After login you will be directed to the user's Home/Main screen that contains the analytical environment created and populated by the user over time. It provides a full overview and access to the user's analytical cases and tools.

CASES + Create			DASHBOARDS + Create			MODELS + Create		
Date	Items	Rename / Delete	Date	Items	Edit / View	Date	Items	Edit / View
10 May 2019 07:12	BOE Notes and C...	Rename Delete	07 May 2019 06:41	Value XD Sample	Edit View	05 May 2019 09:06	VXD Sample/ Earni...	Edit View
21 Apr 2019 06:52	Crypto Currency ...	Rename Delete	22 Apr 2019 04:12	Daily Summary	Edit View	09 May 2019 12:37	General/ Profit Ma...	Edit View
21 Apr 2019 05:45	European Union/ ...	Rename Delete	21 Apr 2019 11:06	UK Employment & ...	Edit View	09 May 2019 12:37	General/ New Money	Edit View
21 Apr 2019 05:15	Climate Change/ ...	Rename Delete	21 Apr 2019 08:39	UK International R...	Edit View	09 May 2019 06:38	General/ Book Val...	Edit View
21 Apr 2019	NASA Environme...	Rename Delete	21 Apr 2019	CRYPTO CURREN...	Edit View	09 May 2019	General/ Return O...	Edit View

CHARTS + Create			MAPS + Create			TABLES + Create		
Date	Items	Edit / View	Date	Items	Edit / View	Date	Items	Edit / View
13 May 2019 08:50	General Cont/ Unti...	Edit View	19 Apr 2019 09:00	VXD Maps/ CO2 e...	Edit View	20 Apr 2019 09:35	VXD Table S/ Gros...	Edit View
22 Apr 2019 04:29	General Cont/ EU...	Edit View	01 May 2019 12:57	General/ Untitled ...	Edit View	21 Apr 2019 11:05	General/ Internatio...	Edit View
21 Apr 2019	General Cont/ Ster...	Edit View	20 Apr 2019	General/ Energy u...	Edit View	21 Apr 2019	General/ Bank of E...	Edit View

It contains 9 main folders:

- 1) Cases
- 2) Dashboards
- 3) Models
- 4) Charts
- 5) Tables
- 6) Maps
- 7) Presentations
- 8) Reports (TBA)
- 9) Add-Ons (TBA)



3. Toolbar Tabs

There are two main toolbars that are always fixed. We describe each symbol and icon

3.1. Top Toolbar

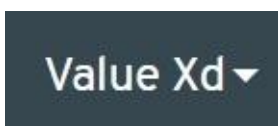


Main screen Tab

Go to Home Page



Create a Case



Profile Tab

Click on the down arrow next to profile name:



? Support

[Support](#): Go to support features

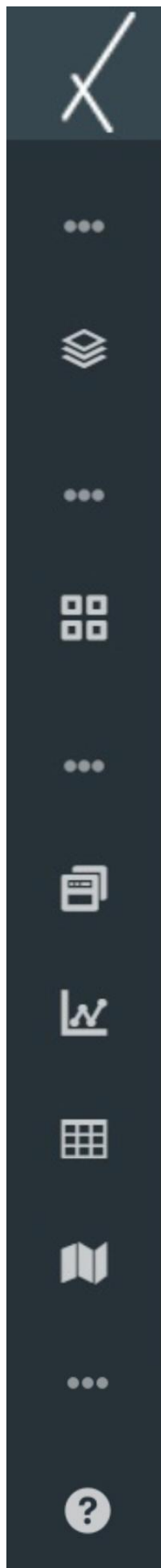
⏻ Logout

[Logout](#): Logout

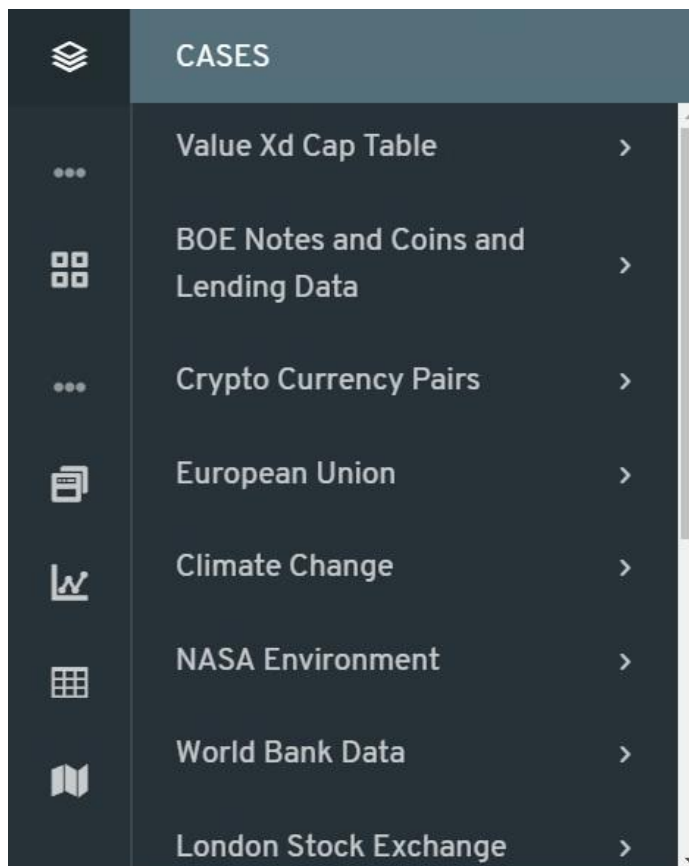


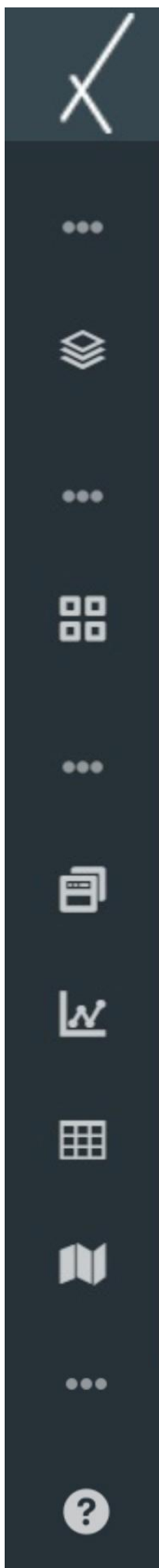
3.2. Left Vertical Toolbar


3.2.1. Cases Tab









When you hover over the Cases symbol a list of the latest cases used or created by the user will appear.





Click on  to expand the scenario(s) available inside each case.

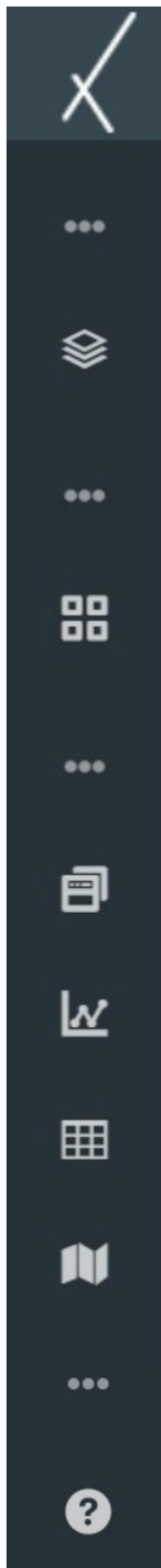
	CASES
	Value Xd Cap Table 
	One
	BOE Notes and Coins and Lending Data 

Click on the scenario name to go to the scenario edit page.

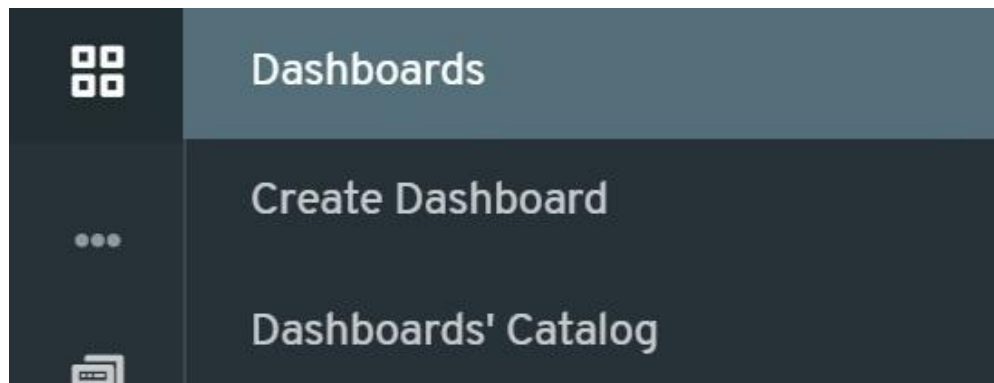
You can click on  to hide again.



3.2.2. Dashboards Tab



When you hover over the Dashboards symbol, 2 options will appear, to go to **Create Dashboard** or **Dashboards' Catalog** page.

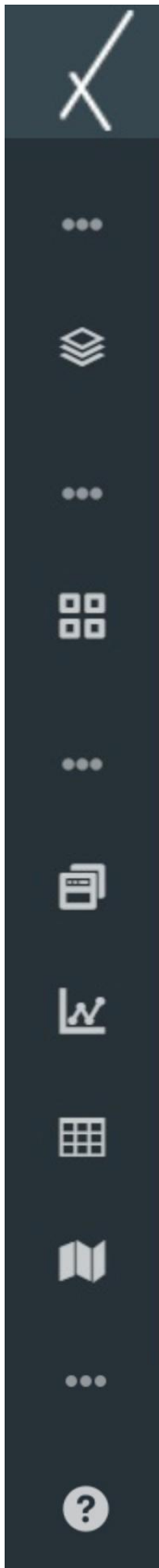


Each of these tab options are further described in detail in their respective sections.

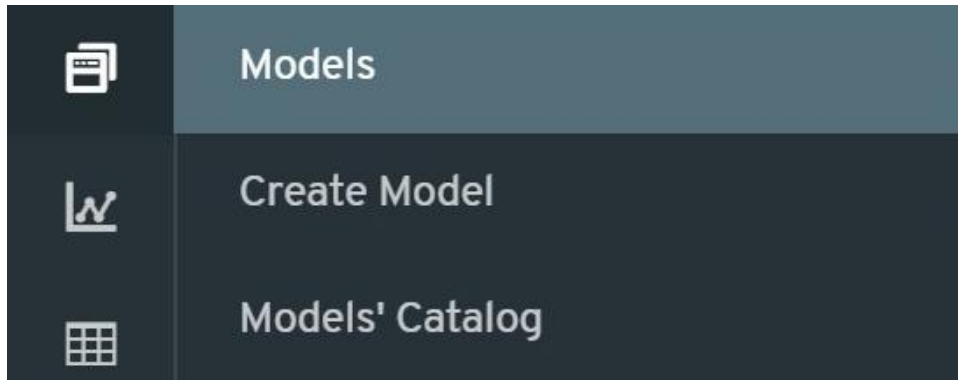
[Link to Dashboards](#)



3.2.3. Models Tab



When you hover over the Models symbol, 2 options will appear to go to **Create Model** or **Models' Catalog**.

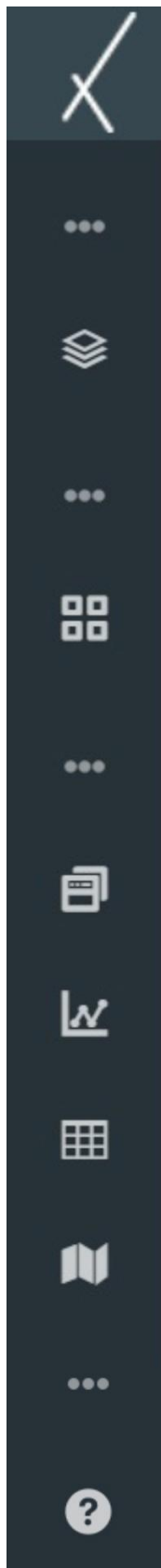


Each of these tab options are further described in detail in their respective sections.

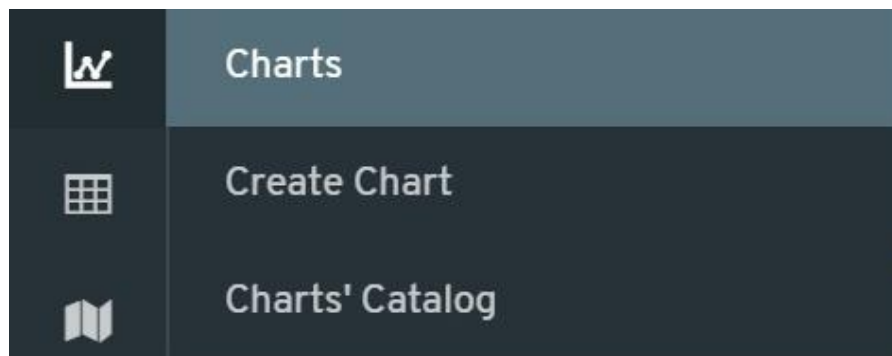
[Link to Models](#)



3.2.4. Charts Tab



When you hover over the Charts symbol, 2 options will appear to go to **Create Chart** or **Charts' Catalog**.

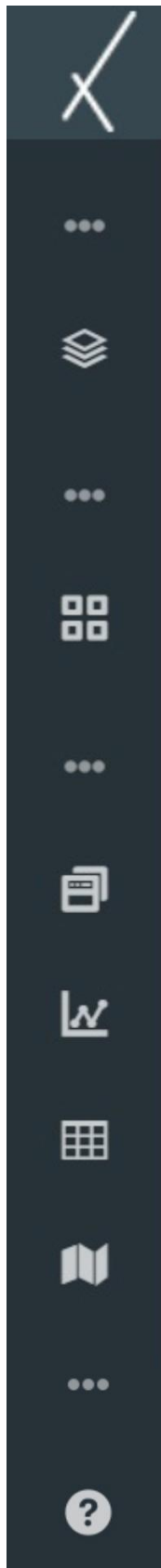


Each of these tab options are further described in detail in their respective sections.

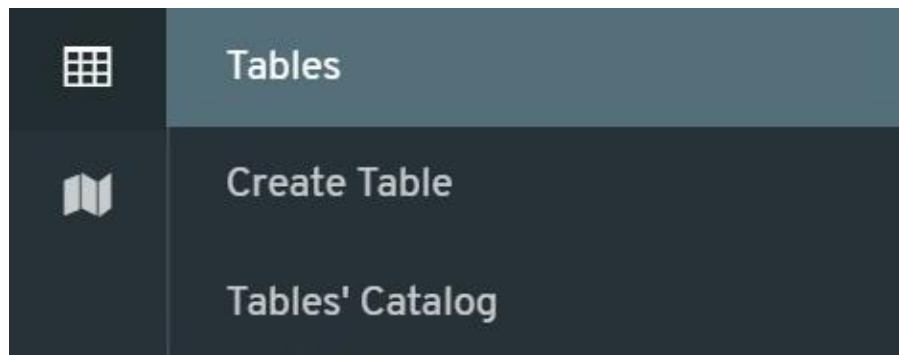
[Link to Charts](#)



3.2.5. Tables Tab



When you hover over the Tables symbol, 2 options will appear to go to **Create Table** or **Tables' Catalog**.

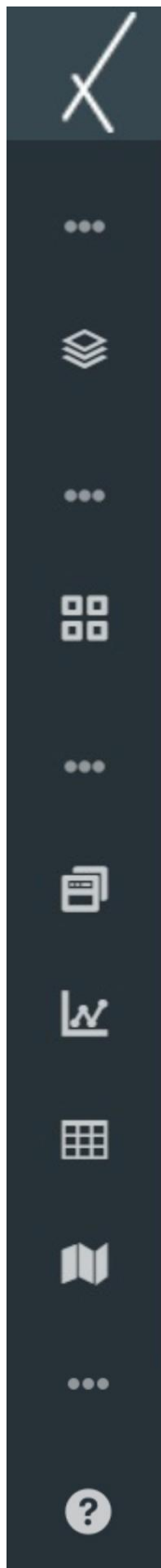


Each of these tab options are further described in detail in their respective sections.

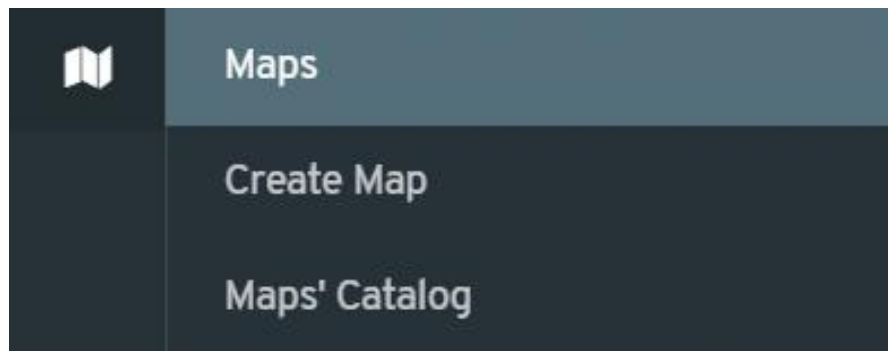
[Link to Tables](#)



3.2.6. Maps Tab



When you hover over the Maps symbol, 2 options will appear to go to **Create Map** or **Maps' Catalog**.

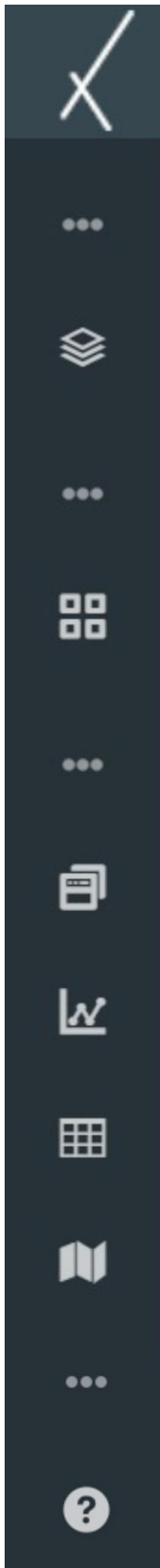


Each of these tab options are further described in detail in their respective sections.

[Link to Maps](#)



3.2.7. Help Tab



You can click on the help button to go to the **Value XD Manual 0.0**

An interactive and searchable Help tool will be ready once all remaining modules have been completed and integrated.



4. Folders on User Home Screen

The nine folders showing on the user desktop are described one by one here.

4.1. Cases Folder

This folder contains all the analytical cases created by the user.

Users can **Rename / Delete** a case or create a new one by clicking “+ Create”.

CASES + Create		
Date	Items	Rename / Delete
10 May 2019 07:12	BOE Notes and Coins and Len...	Rename Delete
27 Oct 2019 06:37	Crypto Currency Pairs/ One	Rename Delete
24 May 2019 03:56	European Union/ ONE	Rename Delete
21 Apr 2019 05:15	Climate Change/ ONE	Rename Delete
21 Apr 2019	NASA Environment/ ONE	Rename Delete



4.2. Dashboards Folder

This folder contains all the Dashboards created by the user.

Users can [Edit / View](#) a dashboard or create a new one by clicking “+ Create”.

DASHBOARDS + Create		
Date	Items	Edit / View
28 Oct 2019 07:52	Return on Invested Capital	Edit View
27 Oct 2019 06:37	US MARKET INDICES	Edit View
11 Sep 2019 11:04	Value XD Sample	Edit View
05 Sep 2019 04:17	NIKOS888	Edit View
05 Sep 2019 03:49	CO2 EMISSIONS	Edit View



4.3. Models Folder

This folder contains all the Models created by the user.

Users can [Edit / View](#) create a model or create a new one by clicking “+ Create”.

MODELS + Create		
Date	Items	Edit / View
28 Oct 2019 07:55	VXD Sample/ Earnings Per Share	Edit View
28 Oct 2019 07:55	VXD Sample/ Return on Equity	Edit View
15 Jun 2019 08:51	VXD Sample/ Profit Margin_new	Edit View
28 Oct 2019 07:54	General/ Population Growth Gl...	Edit View
28 Oct 2019	General/ Total Revenues and C...	Edit View



4.4. Charts Folder

This folder contains all the Charts created by the user.

Users can [Edit / View](#) a chart, or create a new one by clicking “+ Create”.

CHARTS + Create		
Date	Items	Edit / View
28 Oct 2019 07:57	General C/ CAGR Revenues	Edit View
22 Apr 2019 04:29	General C/ EU,UK, Euro Area: ...	Edit View
21 Apr 2019 09:54	General C/ Sterling and all fore...	Edit View
21 Apr 2019 09:53	General C/ Sterling and all fore...	Edit View
28 Oct 2019	General/ NASDAQ Composite ...	Edit View



4.5. Maps Folder

This folder contains all the Maps created by the user.

Users can [Edit / View](#) a map, or create a new one by clicking “+ Create”.

MAPS + Create		
Date	Items	Edit / View
19 Apr 2019 09:00	VXD Maps/ CO2 emissions (me...	Edit View
28 Oct 2019 07:59	General/ Ecological Impact	Edit View
28 Oct 2019 07:59	General/ GDP Per Capita	Edit View
28 Oct 2019 07:59	General/ Human Development ...	Edit View
28 Oct 2019	General/ Regional Topography	Edit View



4.6. Tables Folder

This folder contains all the Tables created by the user.

Users can [Edit / View](#) a table, or create a new one by clicking “+ Create”.

TABLES + Create		
Date	Items	Edit / View
20 Apr 2019 09:35	VXD Table S/ Gross and Net Pr...	Edit View
21 Apr 2019 11:05	General/ International Product...	Edit View
21 Apr 2019 08:37	General/ Bank of England, A & ...	Edit View
21 Apr 2019 08:35	General/ UK GOV A & L, Net As...	Edit View
21 Apr 2019 07:20	General/ UK Employment Types	Edit View



4.7. Presentations Folder

This folder contains all the Presentations created by the user.

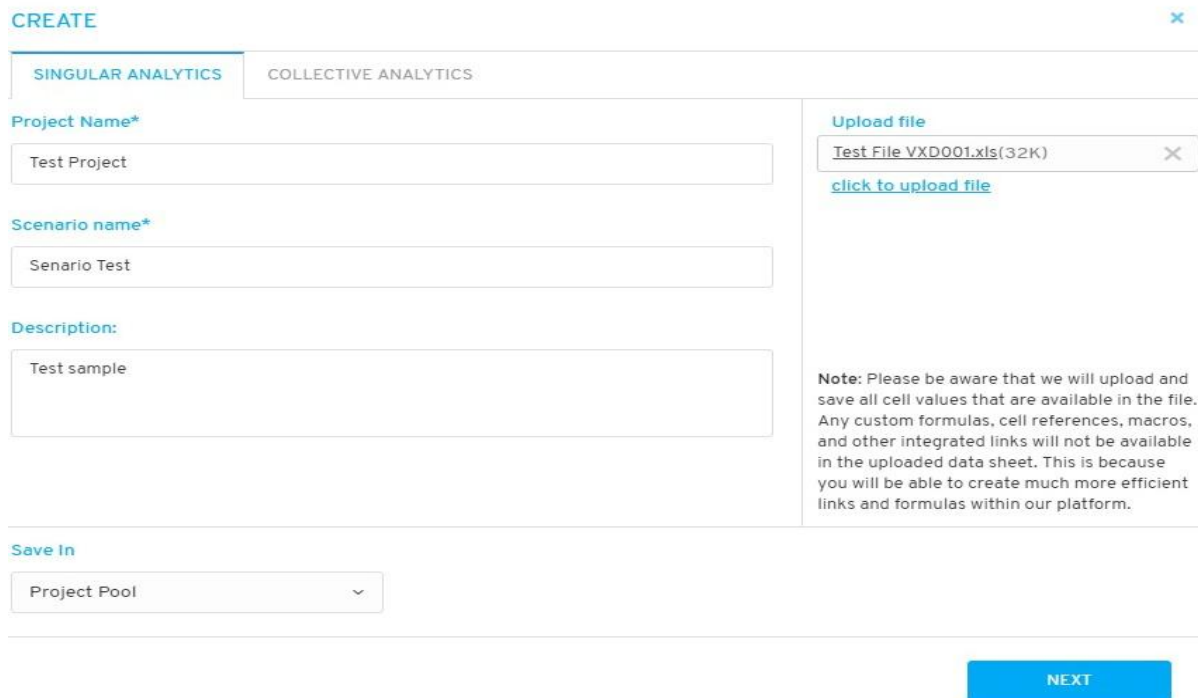
Users can [Edit](#) / [Delete](#) their presentations.

PRESENTATIONS		
Date	Items	Edit/Delete
27 Oct 2019 18:26	General/ Profitability and Value	Edit Delete
05 Sep 2019 15:23	General/ Impact Investing	Edit Delete
30 May 2019 14:08	General/ ESG Factor Integration	Edit Delete
19 May 2019 15:18	General/ VXD Sample	Edit Delete
01 May 2019 13:04	General/ Human Development	Edit Delete



5. Create a New Case

When you click on Create a **New Case** icon  in the top toolbar, a new window will open.



CREATE

SINGULAR ANALYTICS COLLECTIVE ANALYTICS

Project Name*
Test Project

Scenario name*
Senario Test

Description:
Test sample

Upload file
Test File VXD001.xls(32K)
[click to upload file](#)

Note: Please be aware that we will upload and save all cell values that are available in the file. Any custom formulas, cell references, macros, and other integrated links will not be available in the uploaded data sheet. This is because you will be able to create much more efficient links and formulas within our platform.

Save In
Project Pool

NEXT

Here you can input all necessary details about your case, and upload all relevant data files. At the moment, we support xls, xlsx, and csv files of below formats:

Supported File Formats

CSV

- Regular CSV - Comma delimited
- UTF-8 CSV - Comma delimited
- DOS CSV - Comma delimited
- MAC CSV - Comma delimited

XLS

- XLS 97-2003 Format

XLSX

- Microsoft XLSX Format



Unsupported formats

CSV

- CSV - Semicolon delimited
- CSV - Tab delimited
- CSV - Pipe (|) delimited
- CSV - Caret (^) delimited

XLS

- XLS 5.0-95 Format

XLSX

- Open Standard XLSX Format

You can create two types of analytical cases: Singular and Collective.

Important Note: Collective Analytics will be available at a later stage release, and will allow users to analyse and treat singular cases as a group.



5.1. Singular Analytics

Project Name* Add a name to the project

Scenario Name* Add a name to the Scenario

Description Fill in Description of the Project

Save In Choose where to save the Project

Upload file Upload one or more sheets.

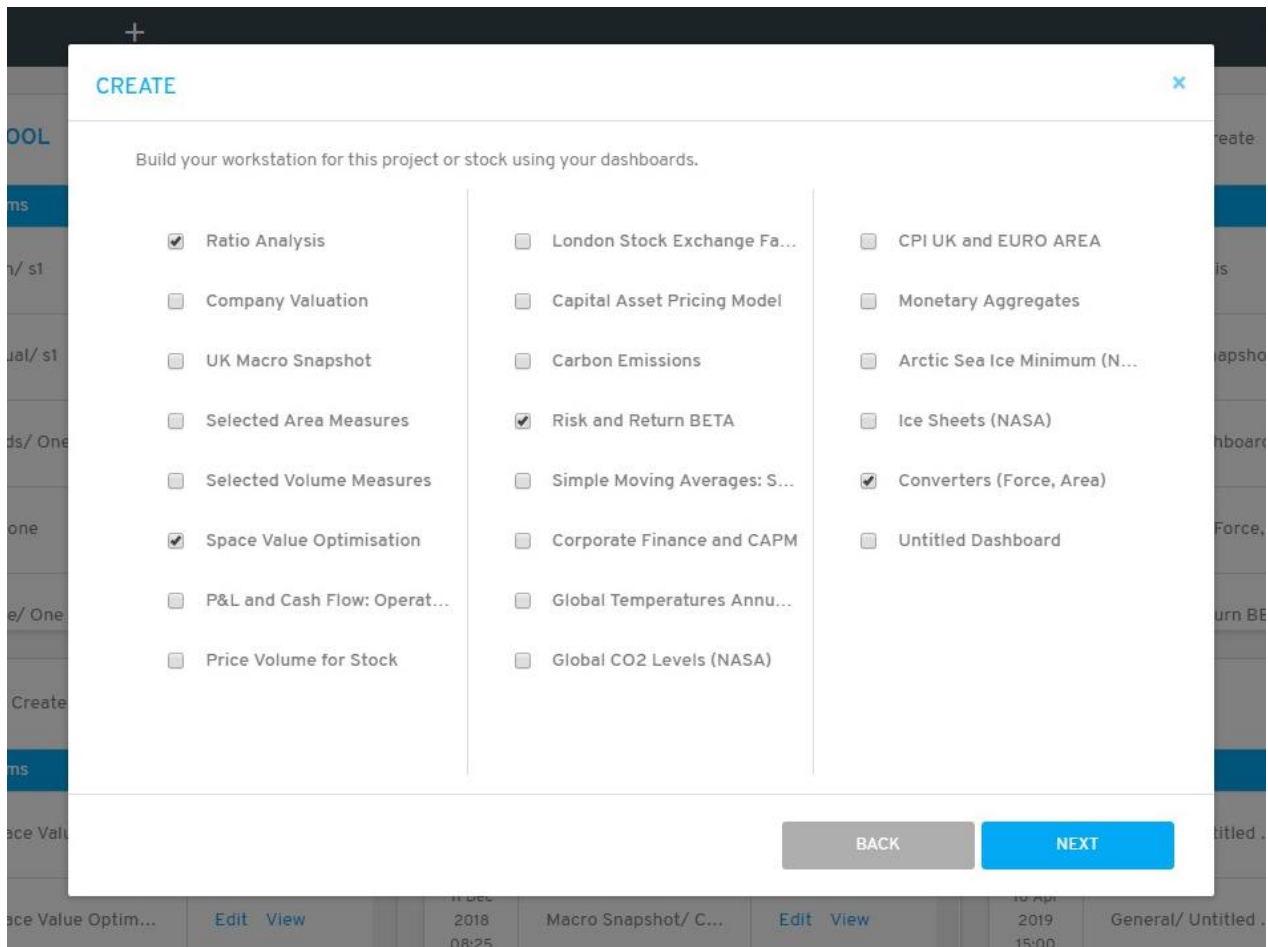
After filling all the necessary fields required, the **NEXT** tab will be available to press in order to continue to the next form, where you can define your workstation for the case/project, by selecting all the relevant analytical dashboards that will be available for the created case.

This box will have only the default ones initially, and will be filled over time with dashboards created by the user.

You do not need to 'save as' files anymore, as your analytical tools are available to you as universal models that can be applied to any project and they sit in the cloud ready to be applied to any new data sheet that matches the data requirements and axes of the models in the dashboards.



5.1.1. Adding Dashboards to a new project/case



This is the workstation building window where users can select one or many dashboards to be applied or used in the new project/case.

Users can go back by clicking **BACK** tab or Click **NEXT** to continue.

The content of the workstation can be changed and expanded at any time once the case has been created.



Users are then given the option to provide additional descriptive data about the new case they are creating. These are optional but will allow the user to smart scan their cases at a later stage.

The image shows a 'CREATE' dialog box for 'Singular analytics'. The dialog has a title bar with a '+' icon on the left and an 'x' icon on the right. Below the title bar, the text 'Singular analytics' is displayed. The main content area contains several sections of dropdown menus:

- Sector**: A dropdown menu with 'Select' and a downward arrow.
- Country**: A dropdown menu with 'Select' and a downward arrow.
- Exchange**: A dropdown menu with 'Select' and a downward arrow.
- Currency**: A dropdown menu with 'Select' and a downward arrow.
- Asset Class**: A dropdown menu with 'Select' and a downward arrow.
- Fund Class**: A dropdown menu with 'Select' and a downward arrow.
- Outcome**: A dropdown menu with 'Select' and a downward arrow.

Below these dropdowns is a section titled **Global Goals and Targets** with a dropdown menu containing 'Select' and a downward arrow. Underneath this is a large, empty rectangular text area. At the bottom right of the dialog, there are two buttons: a grey 'BACK' button and a blue 'CREATE' button.



5.1.2. Sector

Users can select the sectoral focus of their project or case. The drop down menu and list is built based on the London Stock Exchange and FTSE sectoral categories (File [Link](#)).

Sector

The image shows a dropdown menu titled "Sector". The menu is open, displaying a list of options. The top option is "Select", which is highlighted in blue. Below it are "Aerospace & Defense", "Alternative Energy", "Automobiles & Parts", "Banks", "Beverages", and "Chemicals". The menu has a scroll bar on the right side, indicating that there are more options available. The background of the menu is white, and the text is in a dark grey font.



5.1.3. Country

Users can identify the country relevant to the case from the country drop down menu. The list is based on IMF Country lists and codes (File [Link](#)).

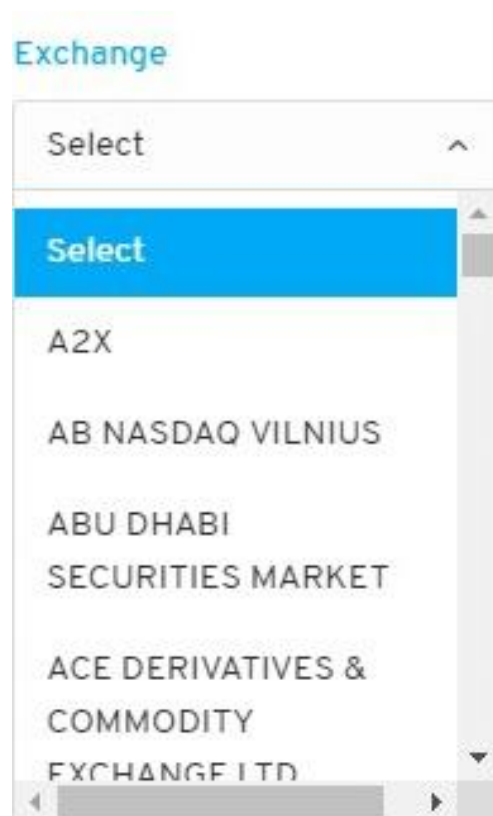
Country

The image shows a dropdown menu for selecting a country. The menu is titled "Country" and has a "Select" option at the top. The dropdown list is open, showing a scrollable list of countries. The "Select" option is highlighted in blue. The countries listed are: Afghanistan, Albania, Algeria, Angola, Antigua and Barbuda, and Argentina. The menu has a small upward arrow on the right side of the "Select" option and a small downward arrow on the right side of the "Argentina" option.



5.1.4. Exchange

Users can select the relevant exchange for the case through the drop down menu of the exchange section. Here you have a list of Equity, Derivatives, and Commodities markets put together based on the lists provided by Bloomberg's OPEN FIGI platform (File [Link](#)).

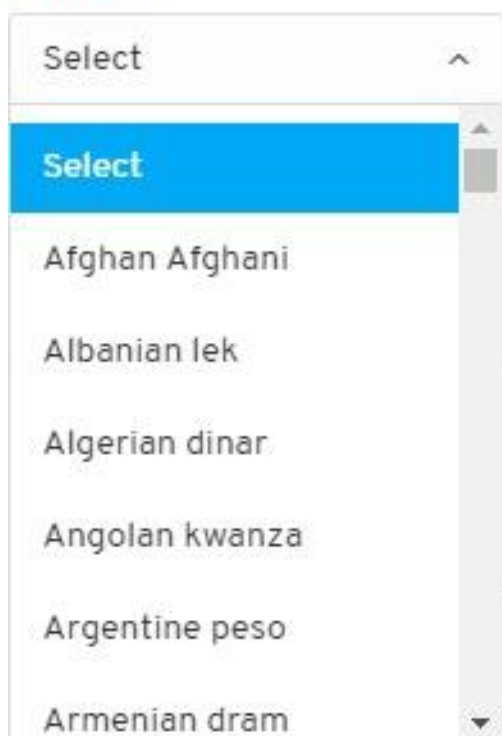




5.1.5. Currency

Users can select the currency relevant to their new case from the drop down menu. The list is based on IMF lists and codes (File [Link](#)).

Currency





5.1.6. Asset Class

Users can select the relevant asset class of the case from the drop down menu. This is relevant when the case is an investment fund.

Asset Class

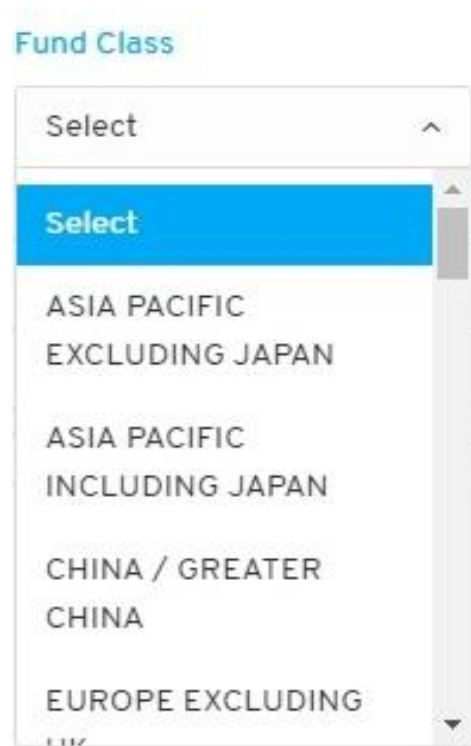
The image shows a dropdown menu titled "Asset Class". The menu is open, displaying a list of options. The first option, "Select", is highlighted in blue. Below it are "Cash/Liquidity", "Commodity", "Equity", "Fixed Income", "Mixed/Multi Asset", and "Other". The menu has a scroll bar on the right side, indicating that there are more options available.

All fund descriptive data points have been based on the main descriptions provided by The Investment Association. The Investment Association is the trade body that represents UK investment managers ([Link](#)).



5.1.7. Fund Class

Users can identify the fund class relevant to their case from the drop down menu.



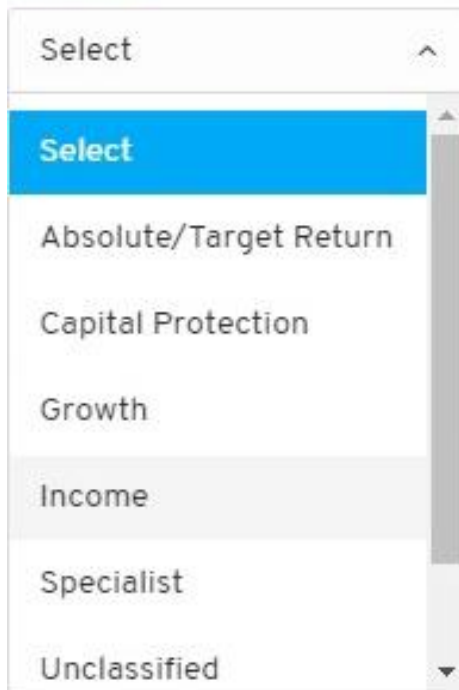
All fund descriptive data points have been based on the main descriptions provided by The Investment Association. The Investment Association is the trade body that represents UK investment managers ([Link](#)).



5.1.8. Outcome

Users can identify the relevant target outcome from the drop down menu of the outcome's section. This is relevant when the case is an investment fund.

Outcome



All fund descriptive data points have been based on the main descriptions provided by The Investment Association. The Investment Association is the trade body that represents UK investment managers ([Link](#))



5.1.9. Global Goals and Targets

Users can identify one or many of the 17 Global Development Goals and Targets as defined by the United Nations ([Link](#)).

Global Goals and Targets

Select

Select

Goal 1. End poverty in all its forms everywhere / 1.1 Eradicate extreme poverty

Goal 1. End poverty in all its forms everywhere / 1.2 Reduce poverty by at least 50%

Goal 1. End poverty in all its forms everywhere / 1.3 Implement social protection systems

Goal 1. End poverty in all its forms everywhere / 1.4 Equal rights ownership, basic services, technology and economic resources

Goal 1. End poverty in all its forms everywhere / 1.5 Build resilience to environmental, economic and social disasters

When a goal is selected, it will appear automatically underneath the select tab.

Users can click the **X** to remove a goal at any time.

Goal 1. End poverty in all its forms everywhere / 1.1 Eradicate extreme poverty X

Goal 1. End poverty in all its forms everywhere / 1.5 Build resilience to environmental, economic and social disasters X

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development / 14.1 Reduce mari... X

After selecting the relevant descriptive parameters and Global Goals, click on the **Create** tab to create the new case.

You can also skip the selection and click on **Create** tab to create the new case.



6. Spreadsheet Editor and Case Scenario Data

After creating the case, users will be directed to the scenario data sheet inside the spreadsheet editor.

All the data in the uploaded files will be imported into new sheets in the editor following the same sheet structure used in the files.

SCENARIO DATA <

Project Pool > Project VXD001 > S001

IMPORT ADD DATA FIND

	A	B	C	D	E
1		2015	2016	2017	2018
2	Total Revenues	0	320000	780000	3000000
3		850000	900000	820000	820000
4	Employment Expenses	400000	400000	400000	400000
5	Technology Expenditure	300000	300000	300000	300000
6	Real Estate Expenditure	100000	100000	100000	100000
7	IP and other Rights Expenditure	50000	100000	20000	20000
8	Gross Profit, EBITDA	-850000	-580000	-40000	2180000
9	Depreciation and Amortization	0	100000	100000	100000
10	Earnings Before Interest and Tax, EBIT	-850000	-680000	-140000	2080000
11	Interest Expense, Interest Costs, Interest	0	0	0	0
12	Earnings Before Tax, EBT	-850000	-680000	-140000	2080000
13	Tax, Taxes, Taxation	0	0	0	0.2
14	Net Income	-850000	-680000	-140000	1664000
15	Retained Earnings	0	0	0	670000
16	Net Income Available to Shareholders	-850000	-680000	-140000	994000

PROCEED TO RESULTS

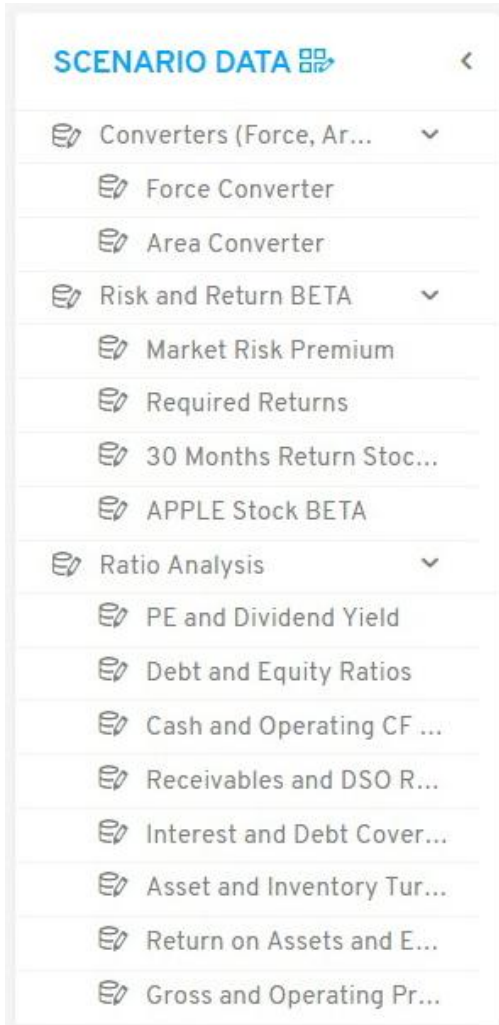
< > + Input 1 Input 2 Input 3

Important Note: The system will import only the values and basic formatting of your data sheets without the equations and macros.



6.1. Selected Dashboards

All selected dashboards with their panels will be located on the left section of the user's screen.



You can hide this section at any time by clicking the left arrow  on top.

Click on the right arrow



to show the dashboards again.

You can expand the panels list of each dashboard by clicking the right arrow located next to each one.



6.2. Modify Workstation

Users can also modify their workstation for the new case by changing the selection of their dashboards by clicking on the button next to Scenario Data



MODIFY WORKSTATION ✕

Modify your workstation for this project or stock, by changing the selection of your dashboards.

Please note that removing a dashboard from a workstation will remove the results you have created with it from this scenario.

<input checked="" type="checkbox"/> Ratio Analysis	<input type="checkbox"/> Capital Asset Pricing M...	<input type="checkbox"/> Arctic Sea Ice Minimum...
<input type="checkbox"/> Company Valuation	<input type="checkbox"/> Carbon Emissions	<input type="checkbox"/> Ice Sheets (NASA)
<input type="checkbox"/> UK Macro Snapshot	<input checked="" type="checkbox"/> Risk and Return BETA	<input checked="" type="checkbox"/> Converters (Force, Area)
<input type="checkbox"/> Selected Area Measures	<input type="checkbox"/> Simple Moving Average...	<input type="checkbox"/> Untitled Dashboard
<input type="checkbox"/> Selected Volume Measu...	<input type="checkbox"/> Corporate Finance and ...	
<input type="checkbox"/> Space Value Optimisation	<input type="checkbox"/> Global Temperatures An...	
<input type="checkbox"/> P&L and Cash Flow: Op...	<input type="checkbox"/> Global CO2 Levels (NAS...	
<input type="checkbox"/> Price Volume for Stock	<input type="checkbox"/> CPI UK and EURO AREA	
<input type="checkbox"/> London Stock Exchang...	<input type="checkbox"/> Monetary Aggregates	

CANCEL SAVE

Users must take into consideration that removing a dashboard from a workstation will remove all the related results that have been created by the scenario.

After selecting all the dashboards needed click **Save** tab to continue or **Cancel** to go back. All the changes will show in the dashboards section.



6.3. Editing Scenario Name

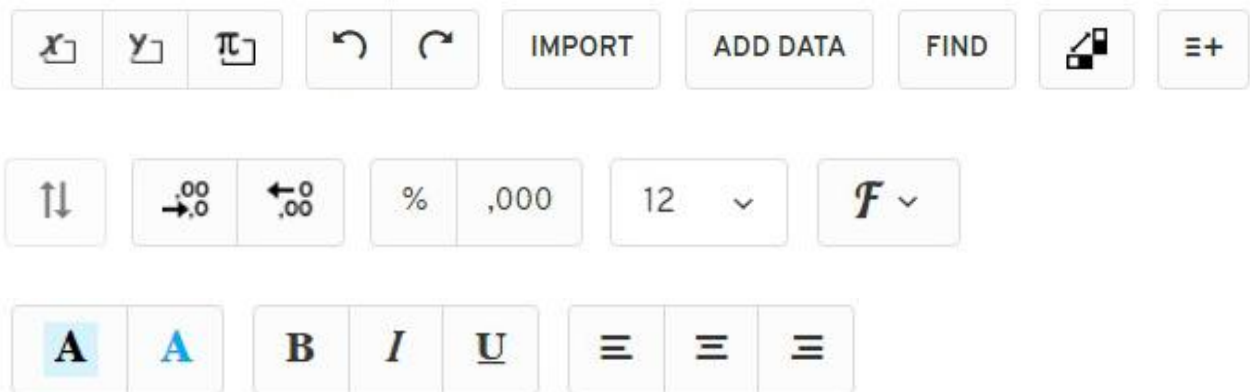
Users can edit the scenario name by clicking the blue pencil icon on top.

CASES > Crypto Currency Pairs > One 



6.4. Spreadsheet Editor Tools

Once you have uploaded, imported, or input data into your case, you are ready to start your new analytical experience. The list of buttons and features available to you is given below



While all sorts of formatting and editing tools are available to you here, the first most important task is to define the Axes of the sheet and the constants.

Important Note: Your data sheets are unusable by the system if they have no defined X and Y axes. Constants are optional but should be identified for future use if relevant.

Furthermore, if time is one of the axes of your data, it must always be set on the X axis.



6.4.1. Set Axes and Constants



Set as Axis X

In order to define the Axis **X**, users must select the relevant row on the sheet and press this button. When the axis has been properly selected, the bottom outline of the cells and the button will automatically turn green.



Set as Axis Y

In order to define the Axis **Y**, users must select the relevant column on the sheet and press this button. The left outline of the cells and the button will automatically turn blue.



Set Constant

In order to define the constants π , users must select the relevant cells on the sheet and press this button. The left outline of the cells and the button will automatically turn purple.





6.4.2. Undo – Redo



You can click the left arrow to undo any changes or use the keyboard shortcut combination: **CTRL + Z**

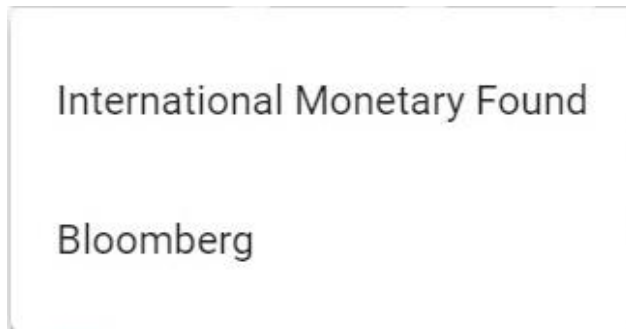
You can click the right arrow to redo any changes or use the keyboard shortcut combination: **CTRL + SHIFT + Z**



6.4.3. Import Data



Users can click on the ▼ to choose the third party data import interface.



Initially, we interface with two key data sources from a macro and micro perspective: 1) International Monetary fund, IMF and 2) Bloomberg Data License.



6.4.3.1 International Monetary Fund

When you click on International Monetary Fund, you will be directed to an interface where the data is directly accessed via IMF's open API, and it is mirrored and regularly updated in our systems ([Link](#)).

Import data: IMF ✕

Countries / Regions: ⓘ
Select Clear Selection

Analytical groups ⓘ
Select Clear Selection

From: 1/1/1990 To: 4/18/2019

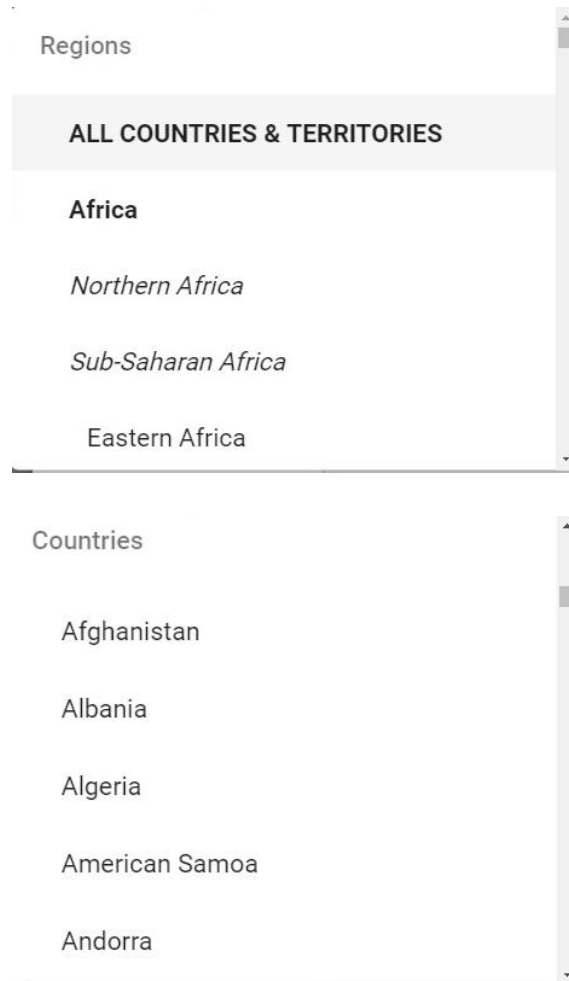
Data Sets	Data Fields	Y	S	Q	M	D
Select Data Set	Select Data Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CANCEL IMPORT



6.4.3.1.1. Countries / Regions

Users can choose to import data for one country or a group of countries, or all countries. The selection menu allows you to select regions with one click, making it easier to find and select your target countries. The categorisation is based on the UN M49 Standard ([Link](#))

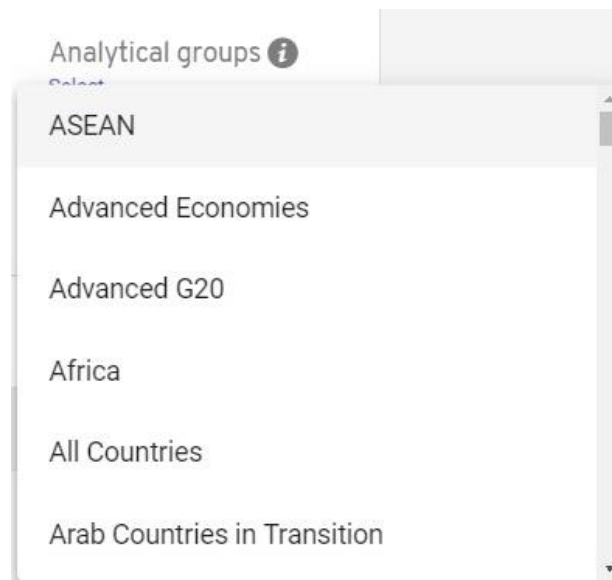


When a specific region is selected the counties included in that region will show in the box next to it, you can remove any one at any time by clicking the **X** in each country box, or click the **Clear Selection** to remove all.



6.4.3.1.2. Analytical Groups

Users can also select one or many of the available analytical groups and or regions for aggregated data search and import. These are IMF provided series, not calculated by our system.



All the selected Analytical groups will show in the box next to it, you can remove any one at any time by clicking the **X** in each box, or click the **Clear Selection** to remove all.



6.4.3.1.3. From – To Date

Users can select an interval of date to specify from – to.

From: To:

From is: 1/1/1990 - by default, to is the current date. Users can specify the date by clicking the down arrow.



6.4.3.1.4. Data Sets – Data Fields

In this section users can select from the available Data sets and the relevant Data fields by clicking on the down arrow. The list of IMF datasets available on our system is not yet comprehensive, but will be in the near future.

Data Sets	Data Fields	Y	S	Q	M	D
Select Data Set ▼	Select Data Field ▼	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+ Add Query						

NOTE: We will import all data that is available for the period and the type of data selected. Empty fields imply no data available for the field/time/type selected. We will import the data as long as there is at least one field with data. Otherwise, your query will have no results.

- Direction of Trade Statistics (DOTS)
- Export Diversification**
- Financial Access Survey (FAS)
- Financial Development Index
- Financial Soundness Indicators (FSIs)
- Financial Soundness Indicators Reporting entities

- Data Fields
- Export Diversification Index
- Extensive Margin**
- Intensive Margin

For each selected dataset/field, the type of data available is indicated in the next selection box.



Y	S	Q	M	D
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Y = Yearly

S = Semi annually

Q = Quarterly

M = Monthly

D = Daily

IMF Data is provided in monthly, quarterly, and yearly format. If any of the boxes are unavailable, it implies that the chosen field/data is only available in the options provided.

The tool will always import all the data available in IMF datasets as per the time window specified by the user, for the field(s), and country(ies).




6.4.3.1.5. Add Query

Users can add one or many queries as desired by clicking the **+ Add Query** button.



When you click add query another row is added with the same options, to select the Data Set with the related Data Field and data periodicity.

Data Sets	Data Fields	Y	S	Q	M	D
Select Data Set Export Diversification ▼	Indicator Name Select Data Field Extensive Margin ▼	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select Data Set ▼	Select Data Field ▼	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+ Add Query						

The new added queries can be deleted by clicking on the red delete button  located at the end of each query.



After selecting all desired options, click on the **IMPORT** button or **CANCEL** to go back.



The data will be imported automatically into a new sheet at the end of your existing sheets.

The type of data is identified by the letter Y, which indicates yearly data in this case.





6.4.3.2. Bloomberg Data License

When you click on Bloomberg tab, you will be directed to the Bloomberg interface where you will be able to identify and select the securities for which you would like to request and import data live.

IMPORT DATA: BLOOMBERG ✕

IDENTIFY AND SELECT THE SECURITIES FOR WHICH YOU WOULD LIKE TO IMPORT DATA

Name *	Market Sector * Comdty	Security Type * ABS Auto
Exchange Code	Currency	Search

Search result:

You haven't looked up anything yet.

Current selection (maximum 60 securities per request):

[Clear All](#)

[Read me: Important data management information](#) [NEXT](#)



6.4.3.2.1. Selecting Security Identifiers

IDENTIFY AND SELECT THE SECURITIES FOR WHICH YOU WOULD LIKE TO IMPORT DATA

Name *	Market Sector * Comdty	Security Type * ABS Auto
Exchange Code	Currency	<input type="button" value="Search"/>

In this section you will be able to select from the following identifiers:

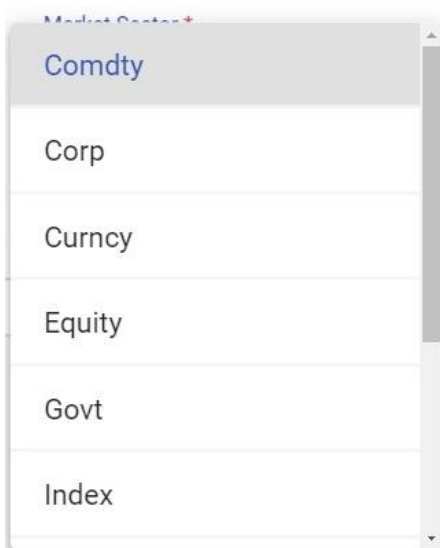
Name *

Type in the name of the company you would like to search for.

* This Name field is required to import data.

Market Sector *
Comdty

Users can click on  to select from the drop down menu of the Market Sector.



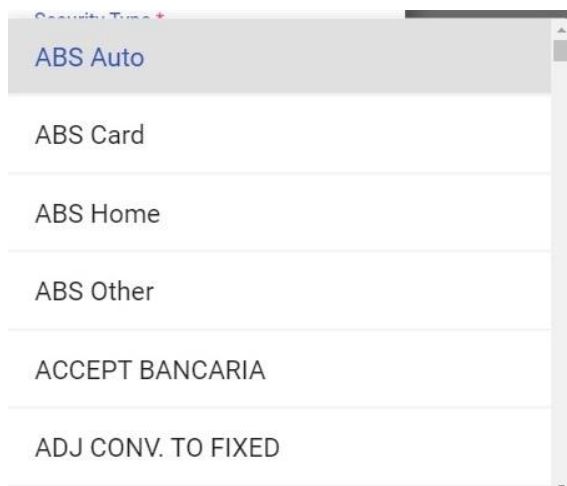
* This Market Sector field is required to import data.



Security Type *

ABS Auto ▼

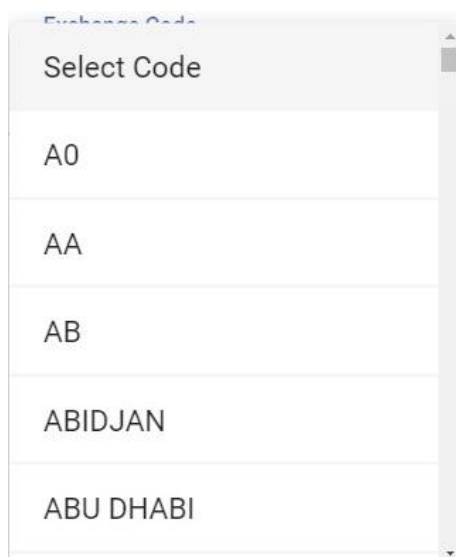
Users can click on ▼ to select from the drop down menu of the Security Type.



* This Security Type field is required to import data.

Exchange Code ▼

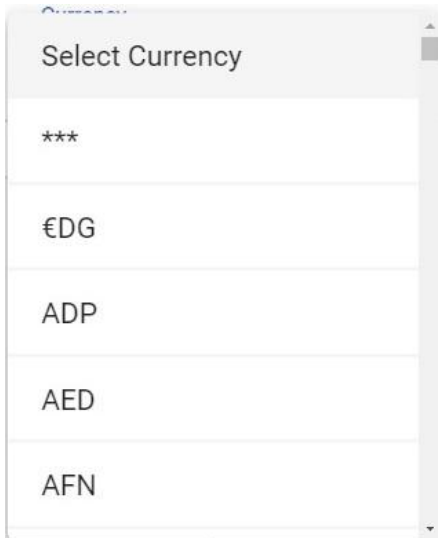
Users can click on ▼ to select from the drop down menu of the Exchange Code.





Currency ▼

Users can click on ▼ to select from the drop down menu of the Exchange Code.



After selecting the desired security details click on





The results will be imported and displayed automatically in the search results table.

Search result:

Name	Ticker	Exchange Code	Security Type	Market Place	FIGI	Actions
FACEBOOK IN...	FB2AD	TQ	Common Stock	Equity	BBG002ZXZ...	Select
FACEBOOK IN...	FBEUR	EO	Common Stock	Equity	BBG005RMX...	Select
FACEBOOK IN...	FBEUR	XL	Common Stock	Equity	BBG005RMX...	Select
FACEBOOK IN...	FBEUR	XG	Common Stock	Equity	BBG005RMX...	Select
FACEBOOK IN...	FBEUR	XN	Common Stock	Equity	BBG005RMX...	Select

Next

You can click on [Next](#) or [Previous](#) to check all the imported data fields.

In the Actions column you can click [Select](#) on the field required for your search.

The selected field(s) will automatically show in the Current Selection section each as an individual tab.

Current selection (maximum 60 securities per request):

APPLE I... FIGI:BBG000... X FACEBO... FIGI:BBG002... X FACTSE... FIGI:BBG009... X INTL BU... FIGI:BBG000... X
TABLEA... FIGI:BBG00J... X

Clear All

You can select up to 60 securities per request.

You can also remove any security by clicking on the **X** located in each tab.

Or simply click on [Clear All](#) to remove everything.

You can click on [Read me](#) to get important data management information.

[Read me: Important data management information](#)

NEXT

Once you are satisfied with your selections click on [NEXT](#) to proceed by filtering the data fields.



6.4.3.2.2. Filtering Data Fields

IMPORT DATA: BLOOMBERG ✕

SELECT THE TYPE OF DATA YOU WOULD LIKE TO IMPORT

Historical Data Fundamental Data Credit Data Descriptive Data

CHOOSE DATA FIELDS

Choose field category * **Filter**

Search result:

🔍

You haven't looked up anything yet.

Current Selection (Max 20 fields per request)

[Clear All](#)

BACK NEXT

You can select from 4 types or categories to filter your selected securities.

Historical Data Fundamental Data Credit Data Descriptive Data



Choose Data Fields Section is related to the category you have chosen.

CHOOSE DATA FIELDS

Choose field category * ▼

Keyword

Filter

Click on ▼ to choose one or many data fields from the drop down menu of Choose field category.

You can select as well from multiple categories.

- Analytics - Risk Measures
- Analytics - Yield/Discount Margin
- Descriptive Info
- Dividends Data
- Dividends Info
- Equity Indices

You can fill in a keyword to identify more accurately your filter.

Once done click on

Filter

button.



Your fields will automatically show in the Search result table.

Search result:

Field Mnemonic	Description	Definition	Actions
EV_TO_T12M_EBIT	Periodic EV to Trailing 12M...	INDUSTRIALS, ... more	Select
EV_TO_MKT_CAP	Periodic EV to Market Cap	INDUSTRIALS, ... more	Select
NON_CUR_LIAB	Non Current Liabilities	Sum of Long-ter... more	Select
INTANGIBLE_AND_OTHER	Intangible/Other	INDUSTRIAL & ... more	Select
NET_ASSETS	Net Assets	INDUSTRIALS, ... more	Select

[Previous](#) [Next](#)

In the definition column you can click on [more](#) to read the definitions in full, a definition box will show up.

Measures the p... more	Select
Measures the av...	
Net interest ma...	
Efficiency Ratio ..	
Measures the p...	

Measures the percentage of Cash from Operations to Sales. Unit: Actual. INDUSTRIALS, BANKS, FINANCIALS, INSURANCE, UTILITIES, REITS, MUNICIPAL REVENUE Calculated as: $(\text{Cash from Operations} / \text{Sales}) * 100$ Where: Cash from Operations is CF015, CF_CASH_FROM_OPER Sales is IS010, SALES_REV_TURN

You can navigate with [Previous](#) or [Next](#) to check all the fields available in your filter.

Select your desired fields by clicking on [Select](#).



All your selected fields will appear automatically in the Current Section box as individual tabs.

Current Selection (Max 20 fields per request)

SALES_REV_TURN	X	IS_INT_INC	X	IS_OPERATING_EXPN	X	IS_OPER_INC	X
NET_INCOME	X	IS_RD_EXPEND	X	PRETAX_INC	X		

Clear All

You can select up to 20 fields per request.

Click on the **X** to remove a specific field or **Clear All** to remove all.

Click on **BACK** to go back to the previous stage.

Or click on **NEXT** to proceed to the Time Frame and Request Interface.



6.4.3.2.3. Time Frame and Request Interface

IMPORT DATA: BLOOMBERG ✕

SELECT THE TYPE OF DATA YOU WOULD LIKE TO IMPORT

1/1/2016 10/25/2019

Choose periodicity *
yearly

Data fields selected:

SALES_REV_TURN	IS_INT_INC	IS_OPERATING_EXPN	IS_OPER_INC
NET_INCOME	IS_RD_EXPEND	PRETAX_INC	

Securities selected:

APPLE INC FIGI:BBG000B9Y...	FACEBOOK...FIGI:BBG002ZXZ...	FACTSET R... FIGI:BBG009LJH...	INTL BUSI... FIGI:BBG000BLN...
TABLEAU ... FIGI:BBG00JQ5H...			

! GIVEN BLOOMBERG DATA LICENSE REQUEST PROCEDURES, YOUR IMPORTED DATA WILL APEAR IN YOUR SHEETS WITHIN 60 SECONDS OF SENDING YOUR REQUEST.

[Read me: Important data management information](#)

[BACK](#) [REQUEST](#)

you can click on next to the date to open the date calendar in order to set the interval time frame of your search.

JAN 2016 < >

S	M	T	W	T	F	S
JAN					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						



Choose periodicity *

yearly ▼

You can choose the periodic type you would like to use by clicking on

Choose periodicity *

- yearly
- semi-annually
- cumulative
- quarterly

You can review the Data Fields and Securities selected that are listed in the below boxes.

Data fields selected:

SALES_REV_TURN	IS_INT_INC	IS_OPERATING_EXPN	IS_OPER_INC
NET_INCOME	IS_RD_EXPEND	PRETAX_INC	

Securities selected:

APPLE INC FIGI:BBG000B...	FACEBO... FIGI:BBG002Z...	FACTSET ... FIGI:BBG009LJ...	INTL BUS... FIGI:BBG000B...
TABLEAU... FIGI:BBG00JO...			



Given Bloomberg Data License request procedures, your imported data will appear in your sheets within 60 seconds of sending your request.

You can click on [Read me](#) to get important data management information.



You can click on **BACK** to go to Filtering Data Fields interface.

Or click on **REQUEST** to proceed by requesting your data.

After clicking proceed you will be directed back to data sheet editor interface and you can notice at the top right a sentence indicating that your data are still in progress.

Data Import In Progress

Once done after 60 seconds, the data will be imported in a new sheet.

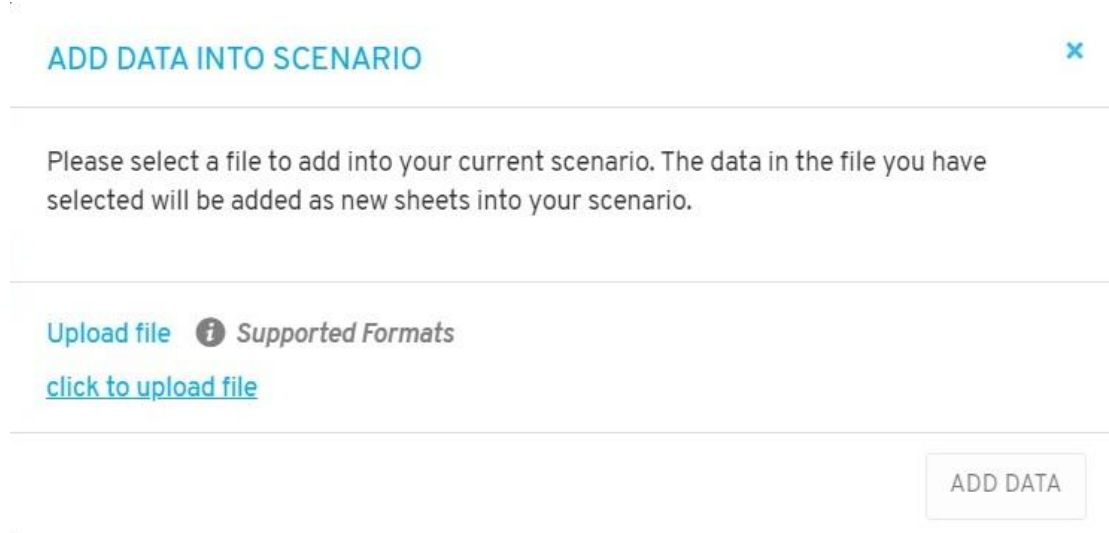
	A	B	C	D	E	F	G	H	I	J	K	L
1	FIGI CODE	Security Name	Field Mnemonic	Field Description	Summarized Property	S1-2016	S2-2016	S1-2017	S2-2017	S1-2018	S2-2018	S1-2019
2	BBG000B9Y2J5	AAPL	SALES_REV_TURN	Revenue	AAP - REV - E2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
3	BBG002ZXZ94	FB2AD	SALES_REV_TURN	Revenue	FB2 - REV - E3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4	BBG009LH3V6	FDS1EUR	SALES_REV_TURN	Revenue	FDS - REV - E4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
5	BBG000BLNR7	IBM	SALES_REV_TURN	Revenue	IBM - REV - E5	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
6	BBG00JQSHRF4	DATA2USD	SALES_REV_TURN	Revenue	DAT - REV - E6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	BBG000B9Y2J5	AAPL	IS_INT_INC	Interest	AAP - INT - E7	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
8	BBG002ZXZ94	FB2AD	IS_INT_INC	Interest	FB2 - INT - E8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
9	BBG009LH3V6	FDS1EUR	IS_INT_INC	Interest	FDS - INT - E9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
10	BBG000BLNR7	IBM	IS_INT_INC	Interest	IBM - INT - E10	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
11	BBG00JQSHRF4	DATA2USD	IS_INT_INC	Interest	DAT - INT - E11	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
12	BBG000B9Y2J5	AAPL	IS_OPERATING_EX	Operating	AAP - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
13	BBG002ZXZ94	FB2AD	IS_OPERATING_EX	Operating	FB2 - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
14	BBG009LH3V6	FDS1EUR	IS_OPERATING_EX	Operating	FDS - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
15	BBG000BLNR7	IBM	IS_OPERATING_EX	Operating	IBM - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
16	BBG00JQSHRF4	DATA2USD	IS_OPERATING_EX	Operating	DAT - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
17	BBG000B9Y2J5	AAPL	IS_OPER_INC	Operating	AAP - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
18	BBG002ZXZ94	FB2AD	IS_OPER_INC	Operating	FB2 - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
19	BBG009LH3V6	FDS1EUR	IS_OPER_INC	Operating	FDS - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
20	BBG000BLNR7	IBM	IS_OPER_INC	Operating	IBM - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
21	BBG00JQSHRF4	DATA2USD	IS_OPER_INC	Operating	DAT - OPE -	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.



6.4.4. Add Data



Users can use this tool to add more data files to an already existing case they are working on.



Click on the [click to upload file](#) and select the spreadsheets you want to add.

If you hover your mouse over  **Supported Formats** a list of the supported formats will appear.

Supported File Formats

CSV

- Regular CSV - Comma delimited
- UTF-8 CSV - Comma delimited
- DOS CSV - Comma delimited
- MAC CSV - Comma delimited

XLS

- XLS 97-2003 Format

XLSX

- Microsoft XLSX Format

Unsupported formats

CSV

- CSV - Semicolon delimited
- CSV - Tab delimited
- CSV - Pipe (|) delimited
- CSV - Caret (^) delimited

XLS

- XLS 5.0-95 Format

XLSX

- Open Standard XLSX Format

Click on **ADD DATA** button to import the new sheets.



6.4.5. Find / Search



You can click on the Find / Search button to find anything from letter, word, sentence or number in the sheet you are on.

Type anything you are searching for and click on the find button, and the software will display the results related to your search in the sheet.



You can navigate through your results by clicking the Up and Down arrows.



6.4.6. Transpose Sheet



This tool allows users to transpose their data sheets from Columns to Rows and from Rows to Columns.

This is an important tool for map creation, and is very helpful when adjusting axes from horizontal to vertical.

TRANSPOSE SHEET DATA



This action will create a new sheet with the transposed data of your whole current sheet.

Would you like to transpose the sheet data?

CANCEL

TRANSPOSE

Automatically a new transposed sheet will be created at the end of your sheets, the name will be Transposed /TR- "Sheet name".

Important Note: On our platform *time* must always be set on the X axis. This tool is also very useful for adjusting existing data tables with time on the vertical axis.



6.4.7. Add Rows and columns



You can add Rows and Columns by clicking on this icon.

The dialog box is titled "Add:" and contains a text input field with the number "5". Below the input field are two radio button options: "Rows" (unselected) and "Columns" (selected). At the bottom of the dialog is an "Add" button.

The maximum amount of rows allowed to add is set at 5 and columns at 50.

Click the Add button after setting the number of columns or rows you require.



6.4.8. Sorting



You can click this tool to sort the data.



6.4.9. Increase / Decrease Decimal Places

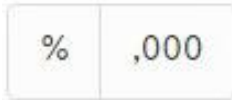


You can use these tools to increase or decrease the place of the decimal of a numbered cell.

The right arrow button is to increase the decimal places and the left arrow button is to decrease the decimal places.



6.4.10. Percentage / Thousand Separator



You can activate the Percentage tool **%** and or the Thousand separator **,000** on any numbered cell.

When activated on a specific cell the tool will be turned on with dark grey color background.





6.4.11. Font Style and Size



You can change the size and style of the font used in a specific sell by clicking on the down arrow of each tool.

The smallest allowed font size is 6 and the biggest size allowed is 60.

You can choose from the list of font styles included in the platform.



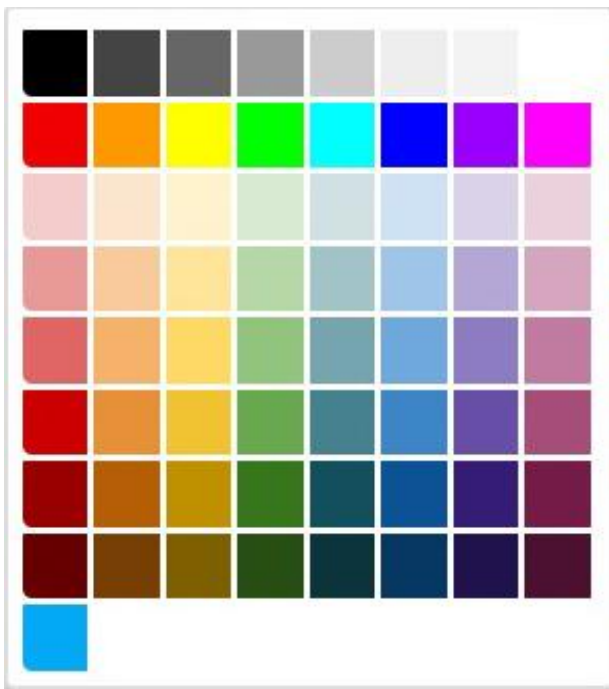


6.4.12. Cell and Text Color



You can change the cell and or the text color by clicking on these two tools.

When u click on it a panel of different colors will open to choose from.





6.4.13. **Bold** / *Italic* / Underline Formats



You can implement the traditional **Bold** / *Italic* / Underline formats to any of the cells in the sheets.



6.4.14. Align Tools



You can align the text in the cells of their sheets with the commonly used options:

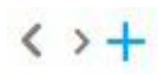
Left, Center and Right Align.



6.5. Sheet Toolbar Options



The left and right arrow can be used to move between the sheets.



You can click on the blue cross to add a new empty sheet; it will be added at the end of your sheets.

You can right-click on any of the available sheets to Remove, Duplicate or Rename a sheet.



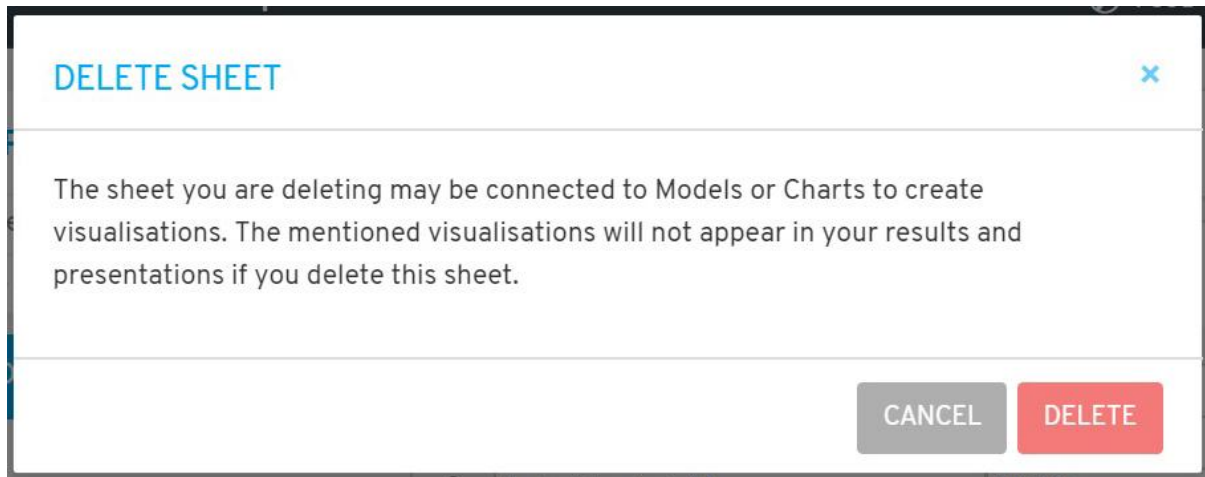
Rename sheet: Change or edit sheet name.

Duplicate sheet: Create a duplicate sheet next to the selected one.



Remove sheet: Delete a sheet.

Users must be aware that the deleted sheet may be connected to Models or Charts to create visualisations, and that those will no longer appear in results and presentations. A warning to this effect appears before final confirmation of delete.





6.6. Row and Column Editing

You can edit columns and rows by right-clicking on them.

When you right-click on a column letter, a set of options will appear:

Add Column Before
Add Column After
Remove Column
Copy Column
Cut Column

When you right-click on a row number, a set of options will appear:

Add Row Before
Add Row After
Remove Row
Copy Row
Cut Row




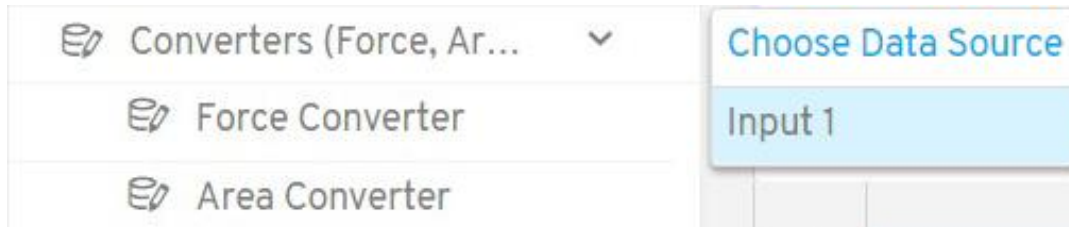
6.7. Activating and Linking Dashboards to Data Source

After setting up your X and Y axes, and your Constants, it is time to activate the dashboards and link them to your validated sheets.



6.7.1. Activating Dashboards or selected Panels

Click on the  located next to each dashboard and panels of the dashboard.




You will be prompted to choose the main sheet to be used as Data Source for the selected dashboard. If all the Axes are set on all the sheets in the case, then all sheets will be listed in the choose Data Source Tab.












Once a Data Source sheet is selected the dashboards or panels will be activated in Blue.



You can activate an entire dashboard or a selection of panels in the dashboard.



SCENARIO DATA  <

-  Converters (Force, Ar... ▼
 -  Force Converter
 -  Area Converter
-  Ratio Analysis ▼
 -  PE and Dividend Yield
 -  Debt and Equity Ratios
 -  Cash and Operating CF ...
 -  Receivables and DSO R...
 -  Interest and Debt Cover...
 -  Asset and Inventory Tur...
 -  Return on Assets and E...

PROCEED TO RESULTS

If the Axes are not set on any of the sheets in your case, you will receive a notice message to set your properties and timeline in at least one of your sheets before proceeding.

VALIDATED SHEETS NOT FOUND ×

Please set Properties and Timeline in at least one of your sheets before proceeding.

OK



If you click on a dashboard that is not activated by any data source, you will receive a notice message to select a data source for at least one of the panels of the dashboard to proceed.

No data source selected



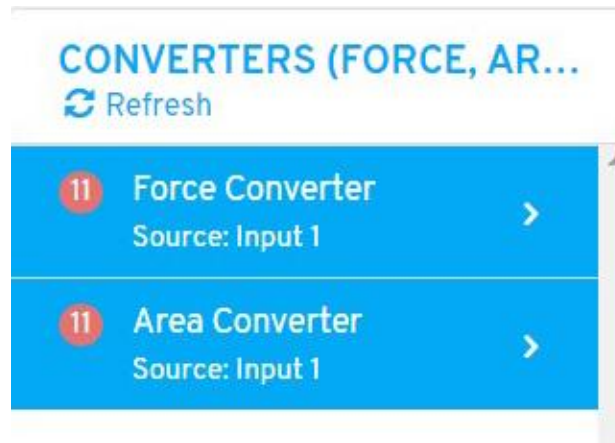
Please select a data source for at least one of the panels in this folder to proceed.

OK




6.7.2. Data Validation by Drag and Link

When users click on an activated dashboard, a window will appear on the right. This is the data validation module checking the availability of the required variables to run the dashboard or panel.




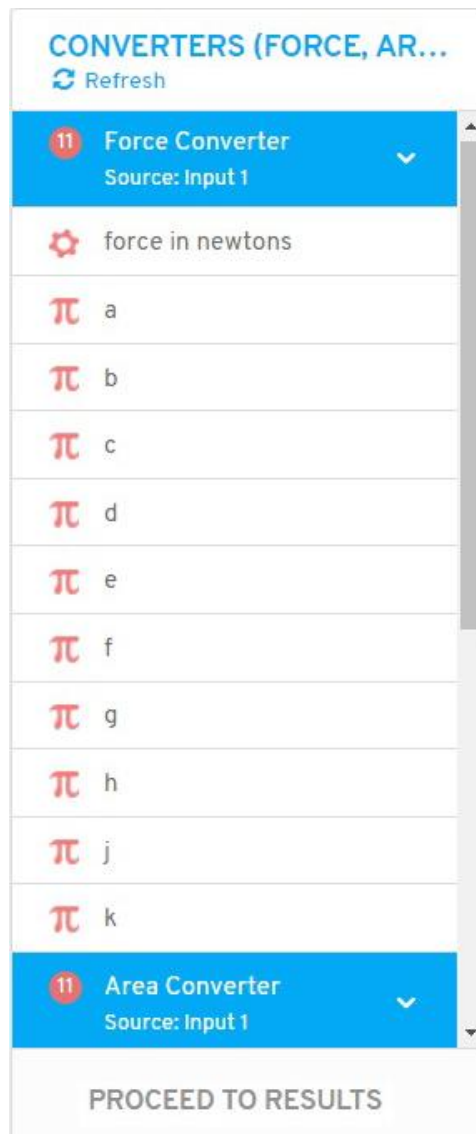
The window contains the properties of the selected dashboard named on top in blue. All the activated panels of the selected dashboard will be listed with a blue background box.

The number  indicates the number of non-linked variables and constants of the panel that need to be linked to the variables of the data source sheet.

You can refresh your list at any time by clicking the  Refresh tab.



You can expand the list of variables inside a panel by clicking the right arrow  next to each panel, you can click the down arrow to hide the list.




You can see the list of properties and constants of the panel with the corresponding symbol in red.

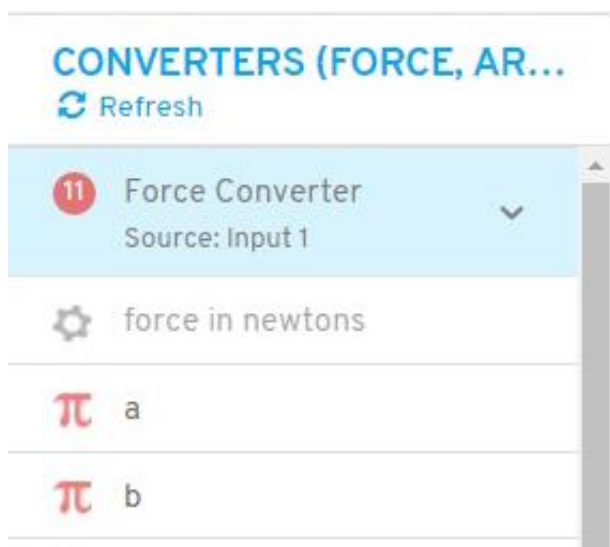
 This symbol represents a variable property.

 This symbol represents a constant.



The property variable  can be linked only to the main data source sheet that the dashboard is linked to.

While the constant variable  can be linked to any sheet that has its constants set.




The main data sheet name that the panel it is linked to will be written under the panel's name.



6.7.3. Linking Activated Panel's Variables to Main Sheet

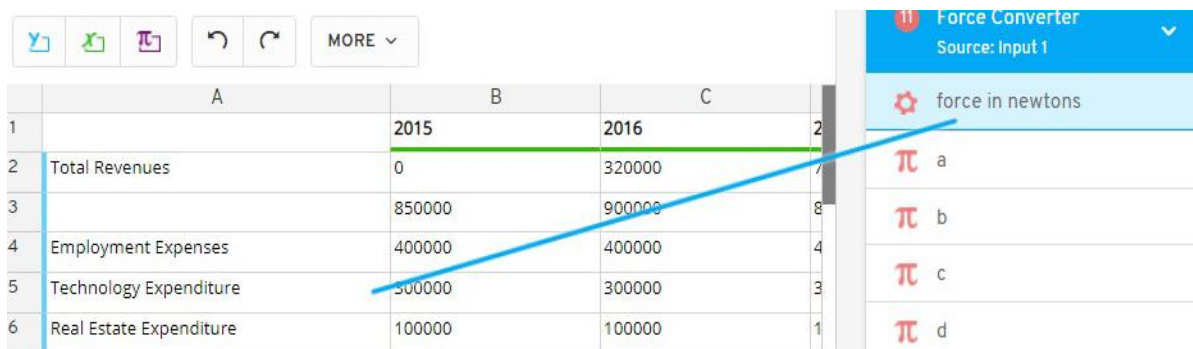
To link data in your sheets to properties and constants of panels in dashboards, all you need to do is Drag and Link as described below.

If you move your mouse cursor over any of the cells that are set as Axis Y, that are marked with a left blue edge, or constant's set cells that are marked with left purple outline, a 9 dots  square will appear on the top right of the cell.

3		850000
4	Employment Expenses	 400000
5	Technology Expenditure	300000

If you move the mouse cursor over the square, the cursor will turn into a small hand.

When you click and hold the hand on top of the 9 dot square, a blue line will appear that you can drag freely to link the row/cell in your sheet to the properties and constants required by the models on the right side.



The screenshot shows a dashboard with a spreadsheet on the left and a panel on the right. The spreadsheet has columns A, B, and C, and rows 1 through 6. The data is as follows:

	A	B	C
1		2015	2016
2	Total Revenues	0	320000
3		850000	900000
4	Employment Expenses	400000	400000
5	Technology Expenditure	300000	300000
6	Real Estate Expenditure	100000	100000

The panel on the right is titled "Force Converter" and has a source of "Input 1". It contains a list of properties: "force in newtons", "a", "b", "c", and "d". A blue line is being dragged from the "Technology Expenditure" cell in the spreadsheet to the "force in newtons" property in the panel.

Drag the blue line with the mouse over to the corresponding property variable of the panels. You can notice that the property variables of the panels will change the background colour into light blue when you drag the line over, this will identify which variables are the right one to drag to.

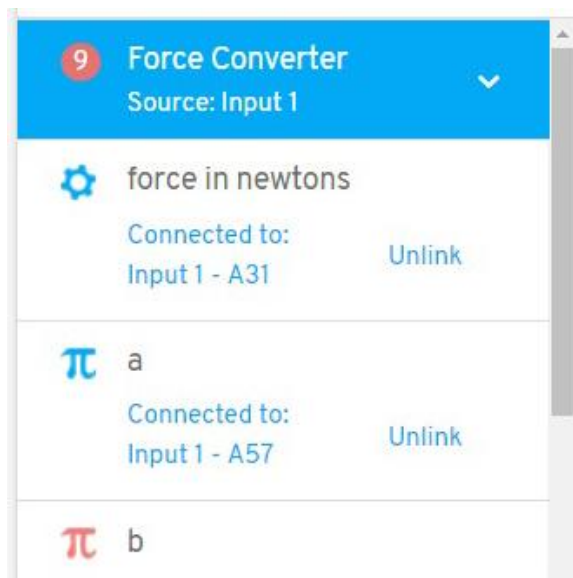


You can only link a constant with a constant, and a Y axis property with a property variable in the models.

52	Money Multiplier	1.2	π b
53			
54			π c
55	a (Inventory coefficient)	1	π d
56	b (Real Estate Coefficient)	1	π e
57	c (Technology Coefficient)	1	

An activated cell can be linked to one or many variables in a panel.


After dragging and releasing your mouse over a property or constant variable, the link will be activated and the variable colour turns to blue.



The variable will be connected to:

Data source main sheet name - Cell location (column/row)

You can click on the **Unlink** to remove the link.

The number inside the red circle  next to the panel's name indicates how many variables in a panel are still unlinked.



When a cell is connected, a right arrow appears that indicates that the cell is connected to a variable. The property cell will turn to blue.

29	Carbon Emissions (in Tonnes of CO2 equivalent)	30
30	Direct Emissions (in Tonnes of Equivalent CO2)	15
31	Indirect Emissions (in Tonnes of Equivalent CO2)	15

Constants' cell will turn to purple.

56	b (Real Estate Coefficient)
57	c (Technology Coefficient)
58	d (Intellectual Property Coefficient)

You can click on the right arrow in a connected cell to see more details about the specific model link.

> c (Technology Coefficient) 1

c (Technology Coefficient)


Force Converter → a Unlink

The details show the panel and variable's name.

You can click the **Unlink** to disconnect the link.

A specific cell can be connected to one or many variables of a panel.



When all the variables in a panel are linked and successfully connected, a check will appear next to the panel's name. 

SPACE VALUE OPTIMISATI...
Refresh

<input checked="" type="checkbox"/>	New Assets Source: Input 1	>
<input checked="" type="checkbox"/>	New Money Source: Input 1	>
<input checked="" type="checkbox"/>	Carbon Footprint Source: Input 1	>
<input type="checkbox"/>	3 Waste Footprint Source: Input 1	>

You can click the right arrow next to each panel to expand the panel's variables list.

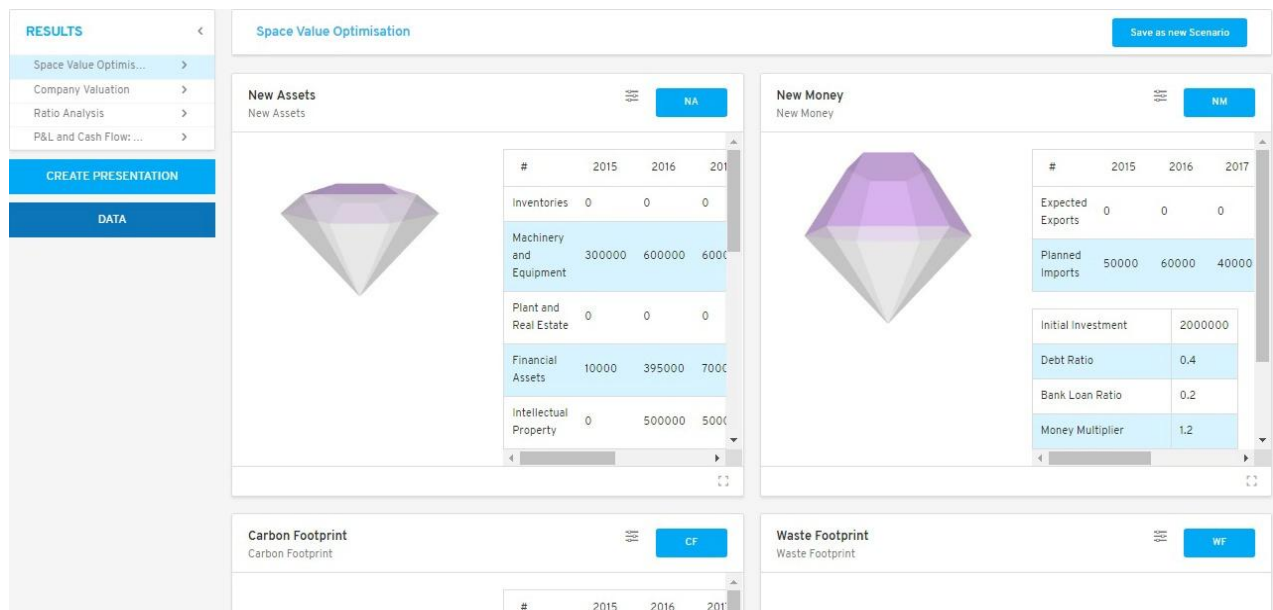
Once everything is set, you click the **PROCEED TO RESULTS** button.

PROCEED TO RESULTS



7. Results

After clicking on the **PROCEED TO RESULTS** button, users will be directed to the results page of their analytics project/case.

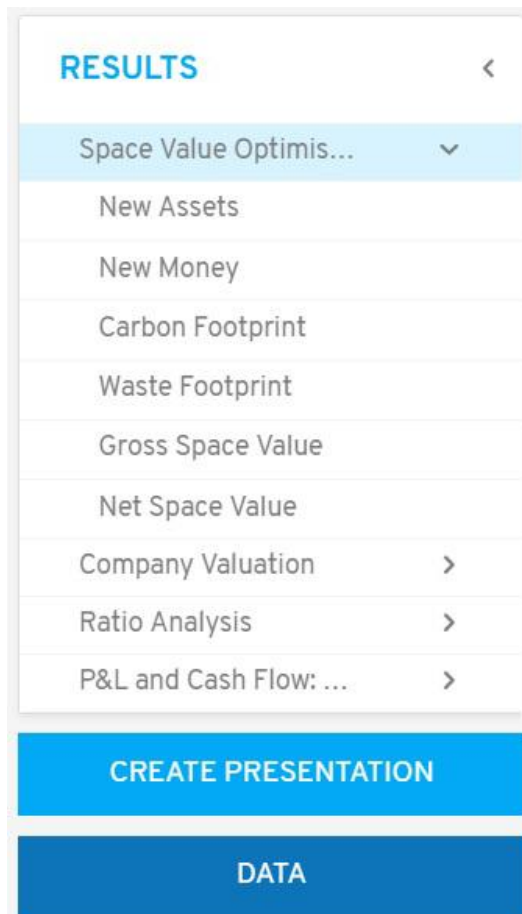



The results page will show all the panels of a successfully connected dashboard with its variables calculated and displayed as per user defined charts and tables, maps and models.




7.1. Dashboards Sidebar

All the dashboards used or available in the case and scenario will be displayed in the left sidebar. This is the workstation defined by the user upon creating the case, or amended later on through the workstation edit button on the spreadsheet editor page.



You can click on  to hide the results sidebar.



You can click on  to view the panels of a dashboard.



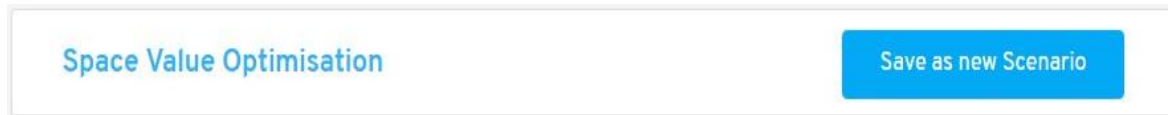
If you click on create presentation button, you will be directed to the presentation page that will be explained in chapter 13.



Click on Data button to go back to spreadsheet editor and scenario data page.



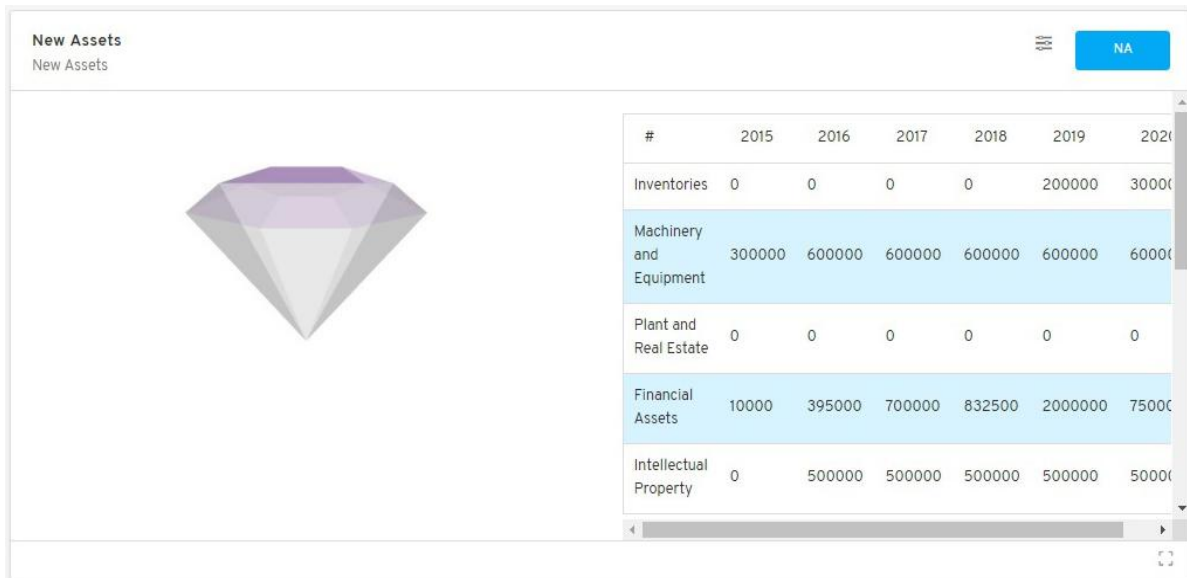
7.2. Save as new Scenario



The top toolbar will display the name of the dashboard that you can save as new scenario data in a new sheet if you click on **Save as new Scenario**. You will be directed to the new scenario data page saved as recalculated with scenario name.




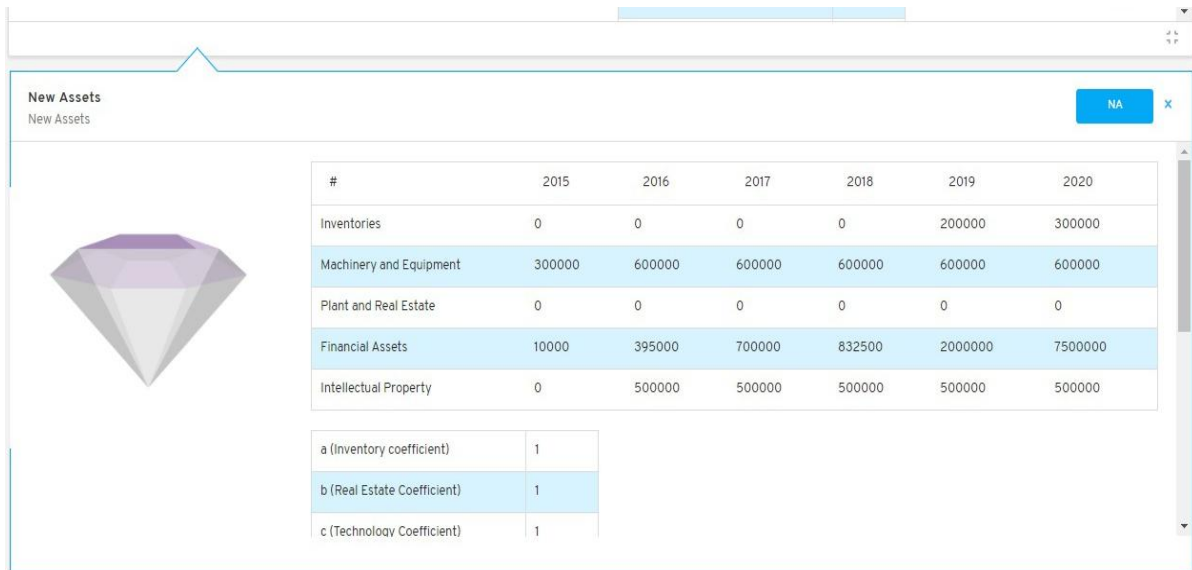
7.3. Panels



The linked and calculated dashboard's panels will be displayed with your chosen visualization and the calculated properties and constants of your data.

You can navigate easily through your table by clicking the Up and Down or Left and Right arrow keys.

You can click on  located at the bottom right of each charted panel to expand the whole chart and table.

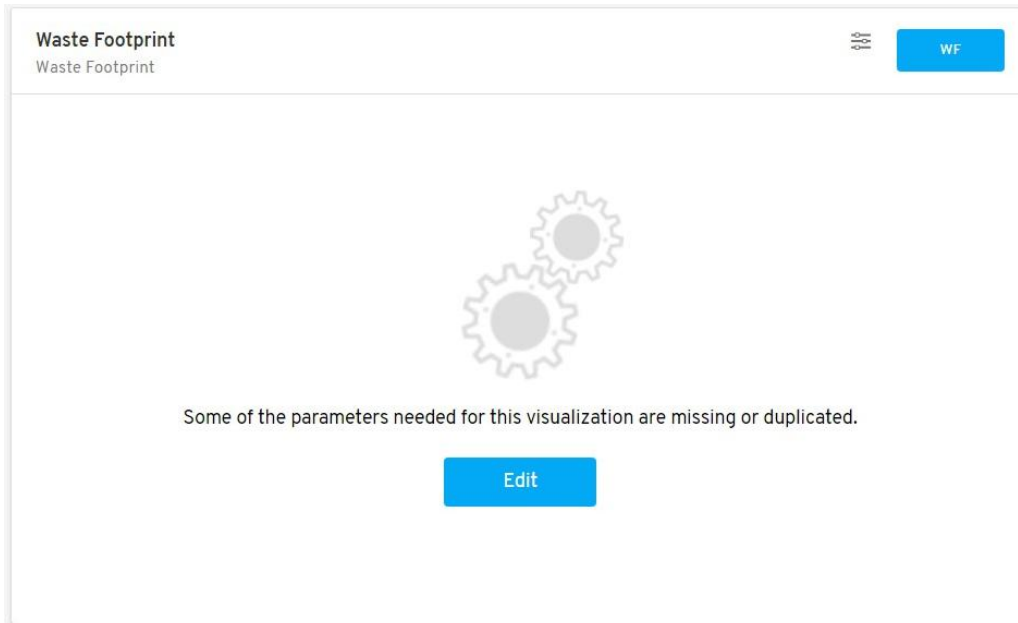


When in expanded mode, you can click on the diamond and adjust the view freely:

- Mouse left-click on the diamond to turn right or left and view from the top or bottom.
- Mouse right-click to move the whole diamond freely in any direction you desire.
- Use the wheel on the mouse to zoom in or zoom out on the diamond.

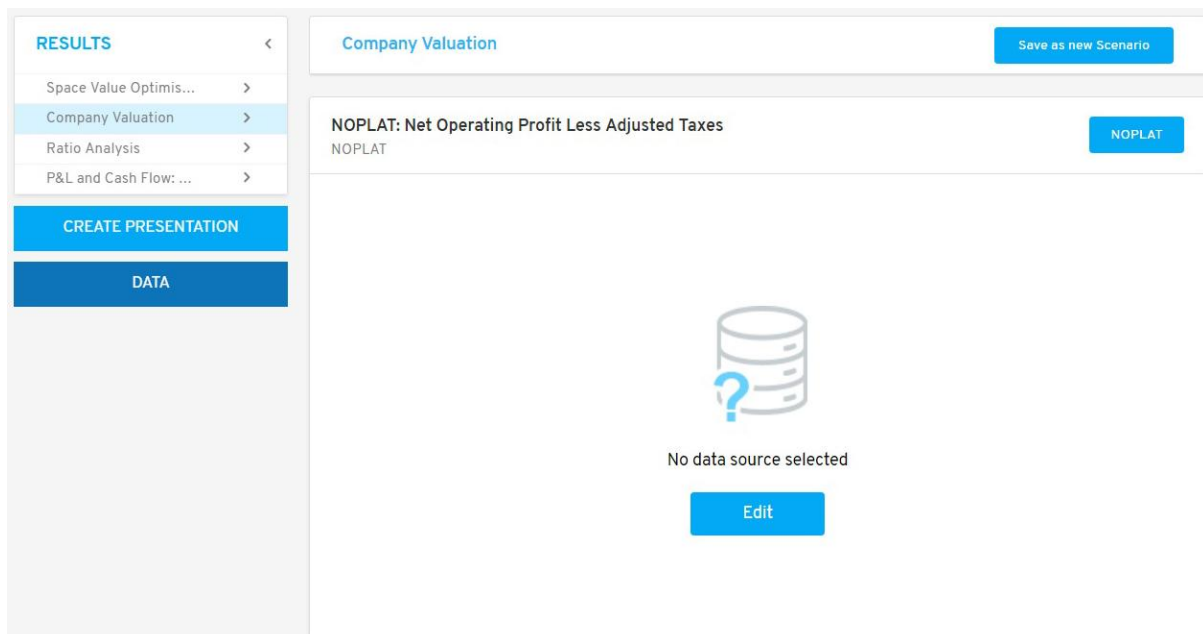
If you click anywhere outside this box, the expanded view will disappear automatically.

If a panel is not linked to any variable, no visualization will be displayed. Instead, users will see a message informing that some of the parameters needed for the panel are missing or duplicated.



You can click on the Edit button to go to scenario data page to link your panel's missing parameters.


When you click on a dashboard that is not activated by or linked to any data source sheet, the panels of this dashboard will be empty.

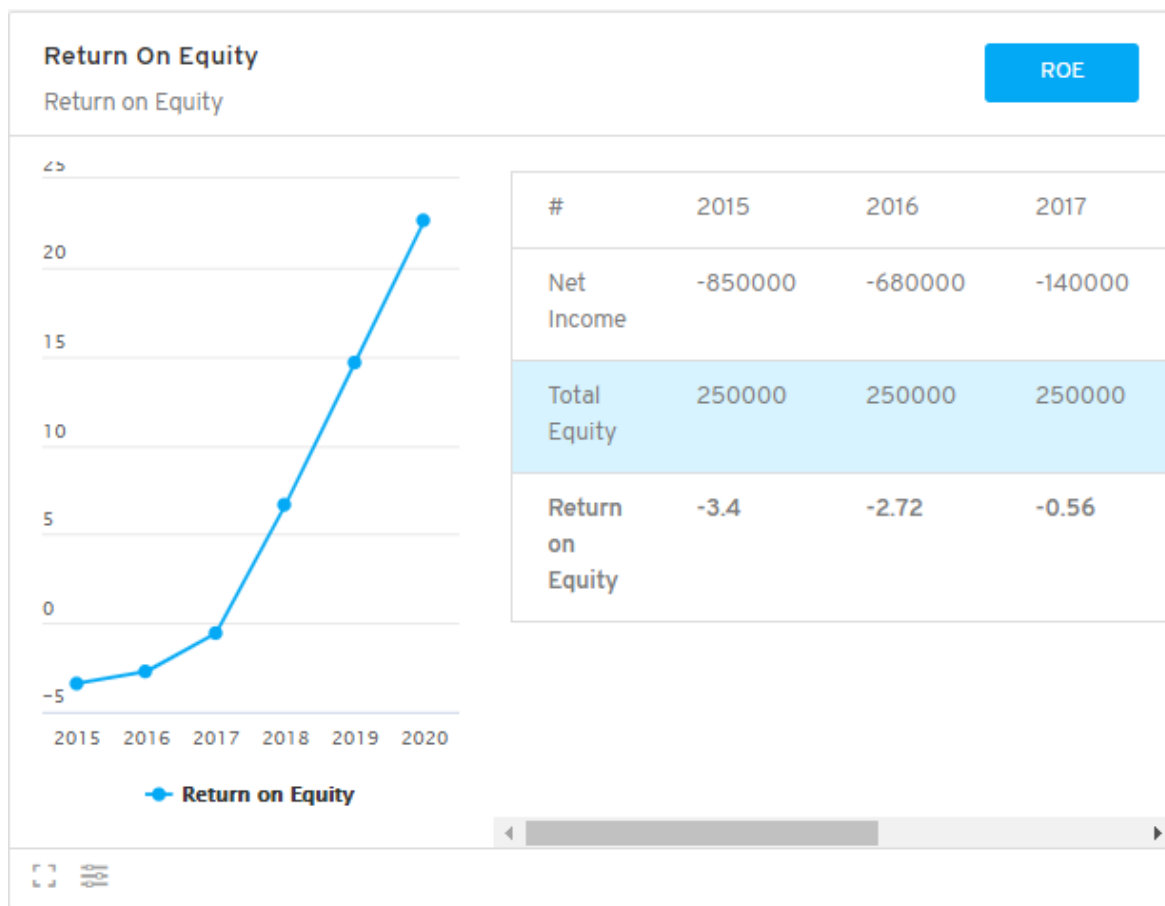


You can click on Edit button to go back to Scenario data page to activate your dashboards or panels by a source data sheet.



7.4. Controller

On the results page you can see the controller button  on the bottom left of every panel.



If you click on it, the controller button, a sidebar on the right of your screen will slide open.



CONTROLLER
New Assets

Link Additional Panels to this

Time Horizon

Inventories

2015	2016	2017	2018
0	0	0	0

Machinery and Equipment

2015	2016	2017	2018
300000	600000	600000	600000

Intellectual Property

2015	2016	2017	2018
0	500000	500000	500000

a (Inventory coefficient)

RECALCULATE **REVERT** REVERT ALL

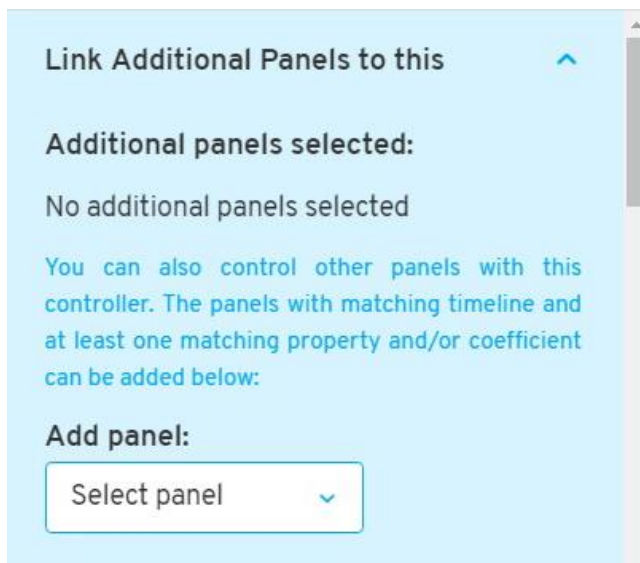
You can notice on top of the sidebar the controller button in blue and the name of the panel you are in.



7.4.1. Link Additional Panels

The first option in the controller sidebar is to [Link Additional Panels](#), by default this section is hidden.

Click on the blue down arrow to expand the option.

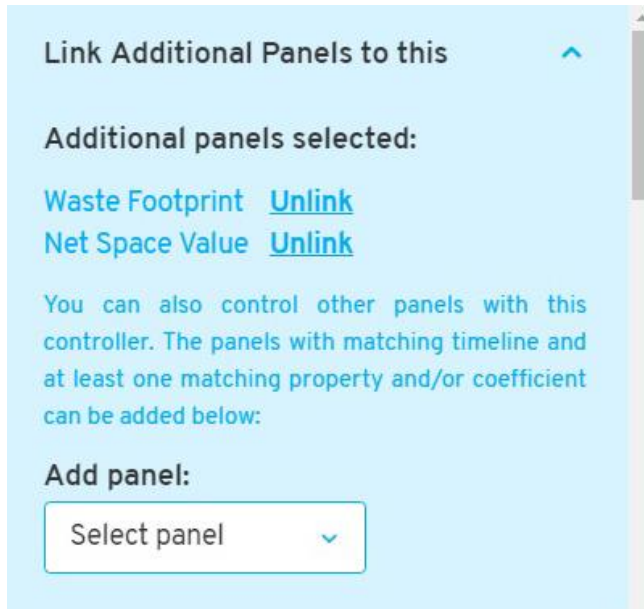


With this option you will have the opportunity to link other panels, thus making the controller your front end interface allowing you to fine tune, simulate, and manipulate results as per your strategic and tactical needs.

When you click on the drop down menu of the select panel, only the panels with matching timeline and at least one matching property and/or constant will be available to select from.



You can add one or many panels as desired.



You can notice that the selected panels will be listed under additional panels selected.

You can click on the [Unlink](#) to remove the link with the panel.

You can click on the up blue arrow on the top right at any time to hide this section.



7.4.2. Time Horizon

The image shows a user interface element for setting a time horizon. It consists of a light blue rectangular container. Inside the container, the text "Time Horizon" is displayed in a bold, dark font. Below this text is a dropdown menu with a white background and a thin blue border. The number "6" is selected and displayed in the menu, and a small blue downward-pointing arrow is visible on the right side of the menu box.

Time horizon section relates to how many periods you would like to control.

The numbers in the time horizon tab is dependent on the time periods in your axis.



7.4.3. Simulating Properties and Constants

You can control and simulate your properties and constants, along with the time horizon.

The screenshot shows a simulation control panel with the following sections and values:

Expected Exports			
2015	2016	2017	2018
0	0	0	50000

Planned Imports			
2015	2016	2017	2018
50000	60000	40000	30000

Initial Investment: 2000000



Debt Ratio: 0.4

Bank Loan Ratio: 0.2

Money Multiplier: 1.2

Buttons: RECALCULATE, REVERT, REVERT ALL

You can double-click inside the white text boxes to edit any number at any time.

You can use the down blue arrow  to expand the list of periods in the properties section. Or you can use the right blue arrow  to go to the next period.



Whenever you connect a panel to the controller of another panel, all the common properties and/or constants will show '[linked](#)' next to the name.

Expected Exports [Linked](#)

▼ Gross Space Value

2015	2016	2017	2018
0	0	0	50000

Planned Imports [Linked](#)

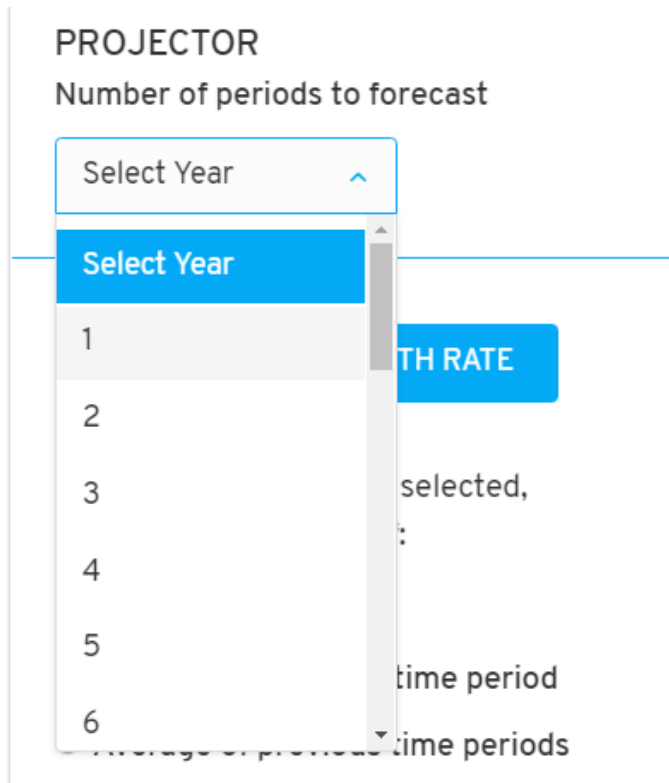
▼

2015	2016	2017	2018
50000	60000	40000	30000

You can click on the [Linked](#) word to display the list of panels that this property or constant is connected to.



7.4.4. Projector



The projector is an important component that you can use to project your existing panels into the future, allowing you to factor in specific events related to specific variables or elements of the panel.

You can select up to 25 periods maximum.



When you select the number of periods, period boxes will automatically pop up depending on the number of periods you selected.

PROJECTOR

Number of periods to forecast

4

Name your time periods

Period 1 Period 2

Period 1 Period 2

Period 3 Period 4

Period 3 Period 4

Period	Property Name	%
Peri...	Expected Ex...	%

+ DEFINE GROWTH RATE

For Variables/Years not selected, assume a growth rate of:

- Zero=0
- Rate of the previous time period
- Average of previous time periods

RECALCULATE **REVERT** REVERT ALL

In this example we selected 4 periods to forecast. By default, name will be “Period x”.

You can change the name of course as desired, double-click inside any text field to rename or change the value.



The projector also allows the users to factor in specific events related to specific variables or elements of the panel, at specific periods in the future.

You can define the percentage growth rate of a variable in a specific period in the future. You can define as many specific events or growth rates as needed by clicking on the **+ DEFINE GROWTH RATE** button, another field will automatically open.



As for the Variables/Years not selected, you can define what growth rate formula will be implemented when projecting them into the future.

For Variables/Years not selected,
assume a growth rate of:

- Zero=0
- Rate of the previous time period
- Average of previous time periods

- Zero = 0
- Rate of the previous time period
- Average of previous time periods



7.4.5. Recalculate / Revert / Revert All

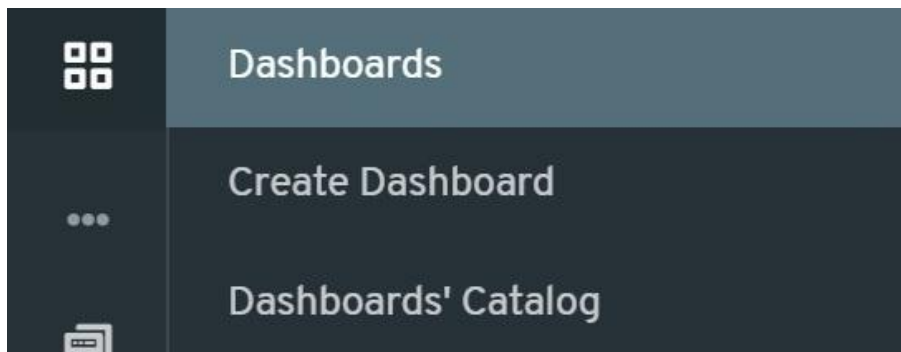
At any point in time, and after making changes in the settings of the controller, you can click on **RECALCULATE / REVERT / REVERT ALL** buttons at the bottom of the controller sidebar.



- **Recalculate:** To calculate the panels given the changes in the controller settings - results are shown instantly in the panels.
- **Revert:** To revert the last change
- **Revert All:** To revert all the changes made up to that point.



8. Dashboards



When you hover your mouse over the Dashboards symbol



on the main

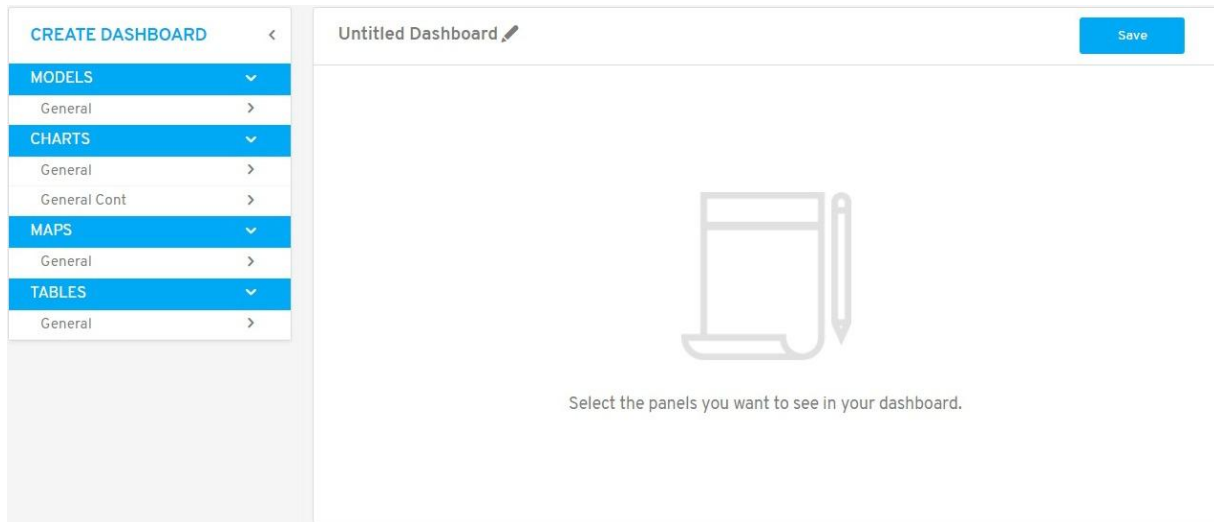
left toolbar, two tabs will pop up:

- [Create Dashboard](#)
- [Dashboards' Catalog](#)



8.1. Create Dashboard

When you click on Create Dashboard, you will be directed to a new page that helps you to put together the analytical dashboards you require.



A new Untitled Dashboard will open, and you can edit the name by clicking on the grey pencil.

Untitled Dashboard 

After setting the name the title will light up in blue.

Value XD Sample 

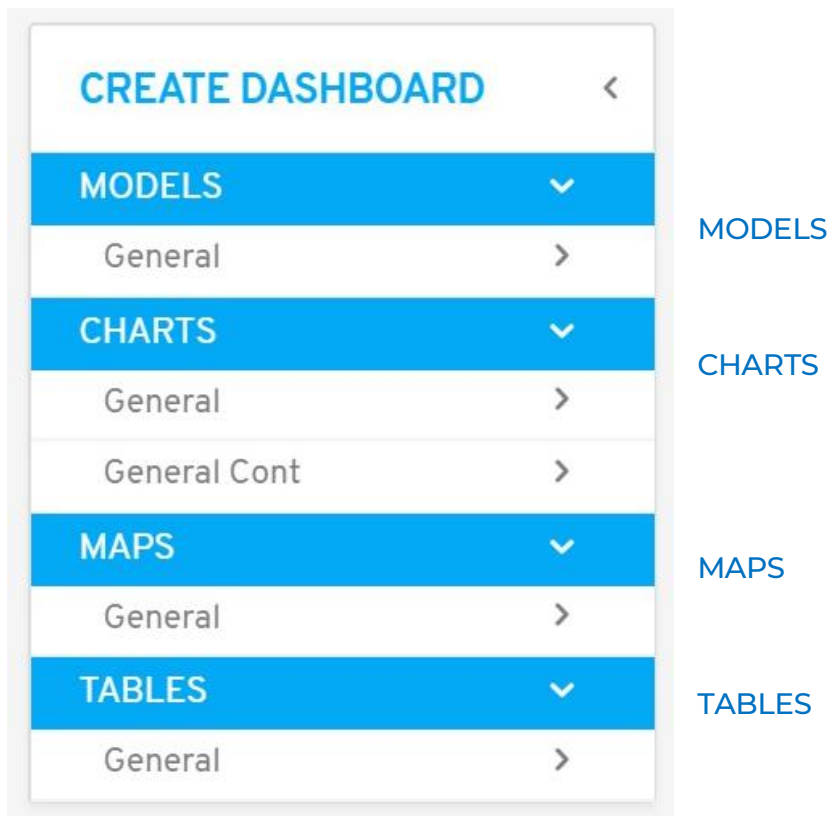
You can click save at any time after selecting the panels desired to save your new dashboard.





8.2. Selecting Panels

You can populate your dashboard with Models, Charts, Tables, and Maps that you have already created by simply ticking their corresponding box. You can reorder them as you please by drag and drop.



You can click on the right arrows > next to each subcategory to expand the list of panels available inside it.

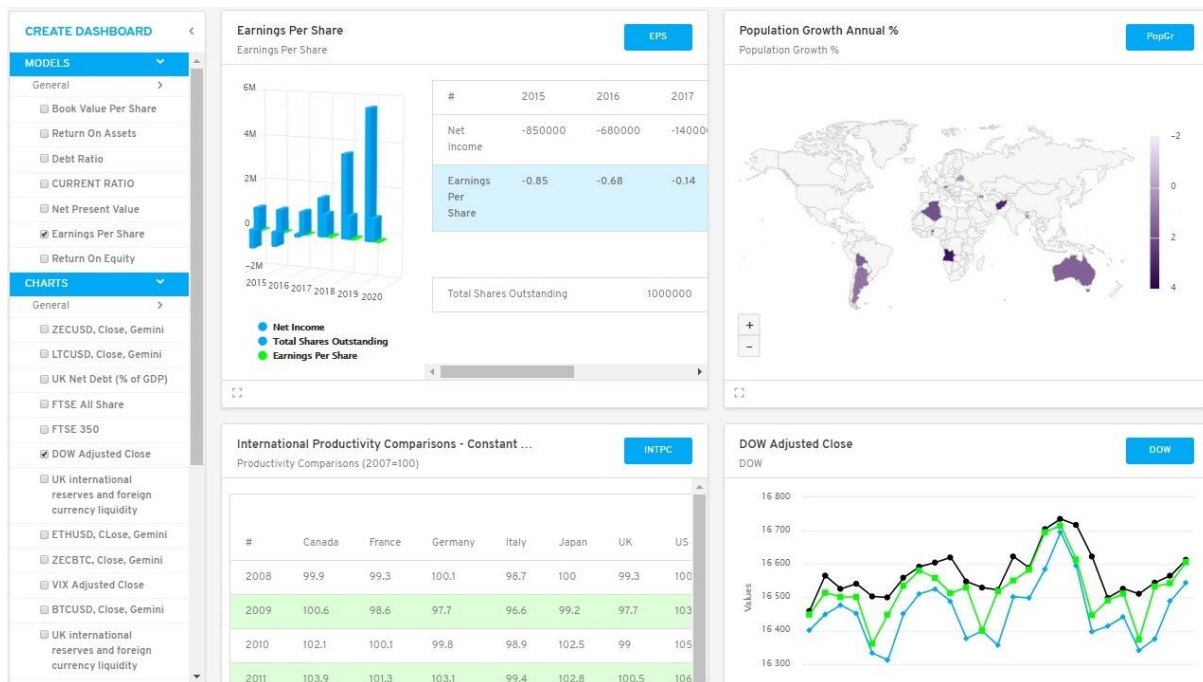
You can click on the down arrows ▼ to hide everything inside a category.

You can click on left arrow < next to **CREATE DASHBOARD** to hide the whole sidebar.



When you select a panel it will open on the right side, you can mix and match panels as needed.


The maximum panels per Dashboard is 12.



In this example we selected 4 panels, one from each category: [Models](#), [Charts](#), [Maps](#) and [Tables](#).



8.3. Expanded Model Panels

On the left bottom of each model panel you can see this button  click on it to expand the view of a panel.

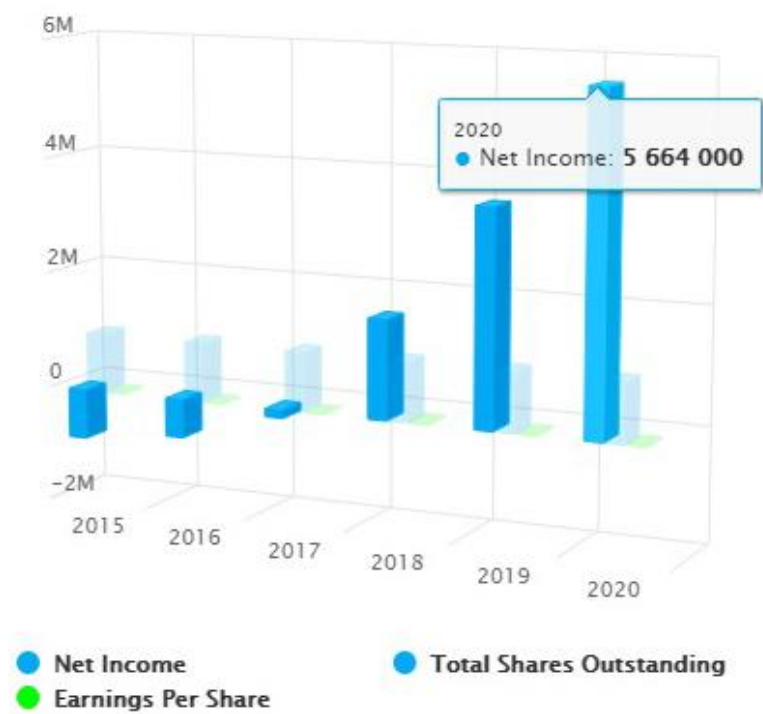


You can notice the 3D modelling of the values related to the variables inside the table.

You will enjoy the interactive 3d modelling by hovering over your mouse pointer or hiding variables.



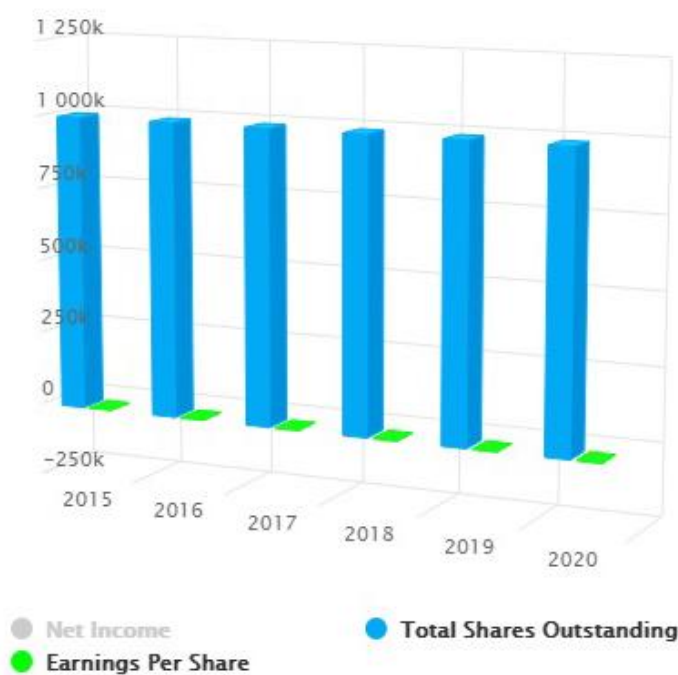
When you hover over a data point a description tab will pop up that indicates the value and name of the variable that the mouse is on.



The outline colour of the pop up description will be according to the variable's colour.




You can turn off one or many variables in a chart by clicking on the variable names located under it.

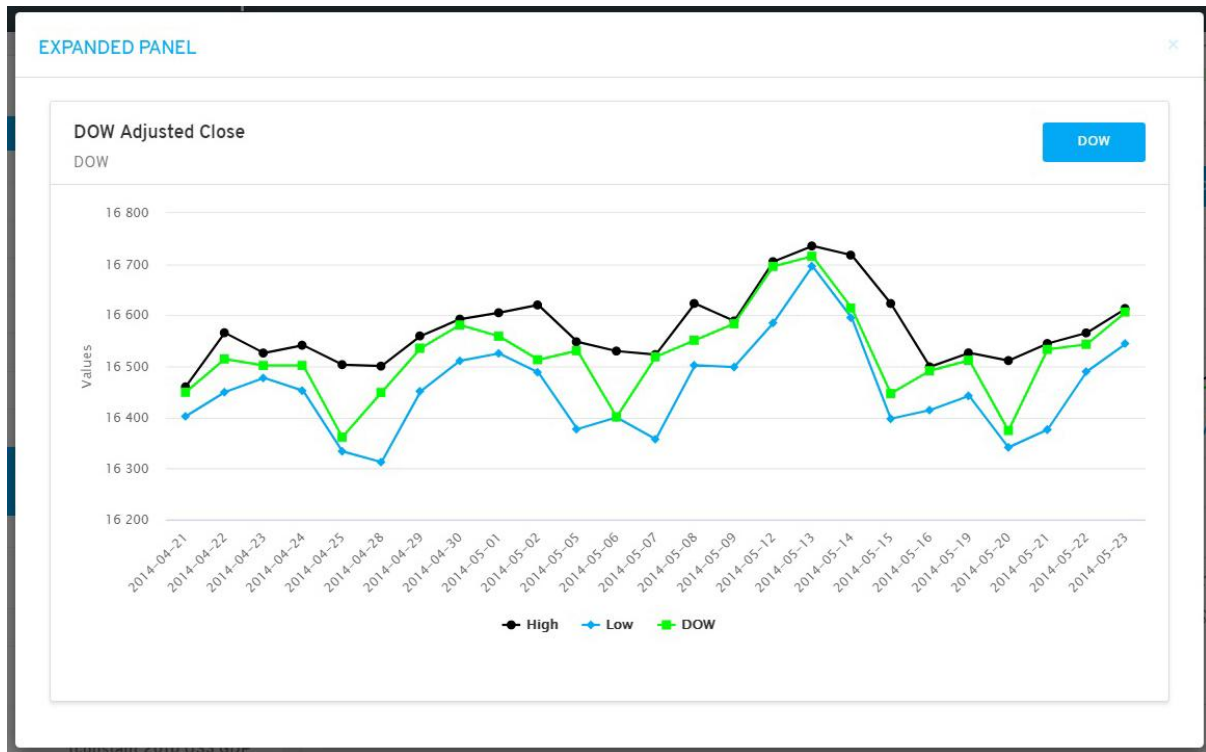


You can notice anytime you turn off a variable, its values will disappear from the chart, and axes will adjust accordingly. The name will turn off to shaded grey.



8.4. Expanded Chart Panels

On the left bottom of each Chart panel you can see this button  click on it to expand the view of a panel.



You will enjoy the interactive Chart by hovering your mouse pointer over the chart, or by hiding variables when necessary.



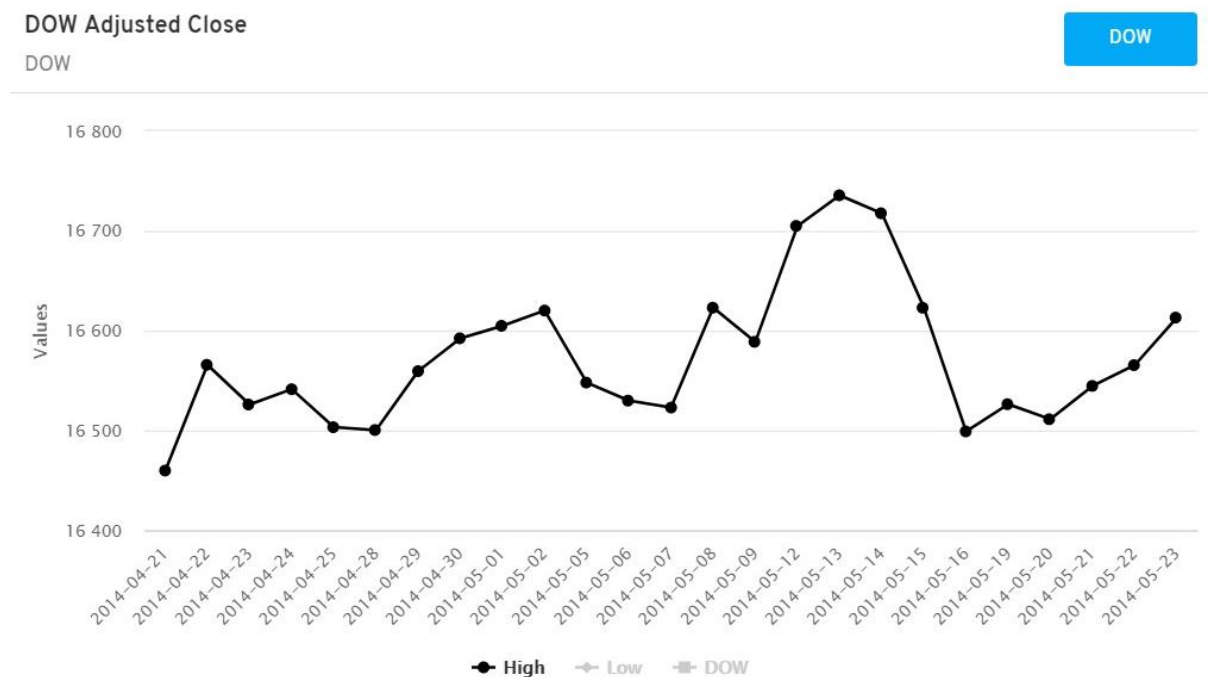
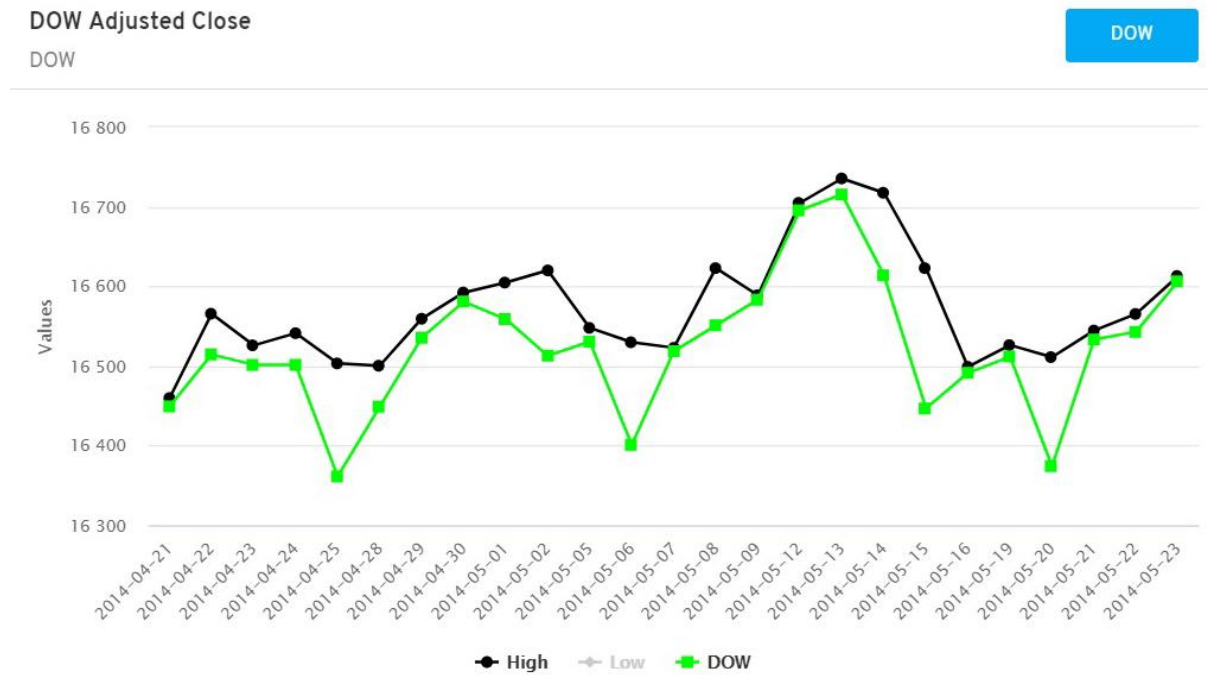
When you hover over any point in the Chart a description box will pop up that indicates the date, value and name of the variable data point. The other variables will be shaded from the view.



The colour of the pop up description will be according to the variable's colour.




You can turn off one or many variables in a 3D modelling by clicking on the variable names located under it.




You can notice that anytime you turn off a variable, its values will disappear from the chart and the axis will adjust accordingly. The name will turn off to shaded grey.



8.5. Expanded Map Panels

On the left bottom of each Map panel you can see this symbol  click on it to expand the view of a panel.

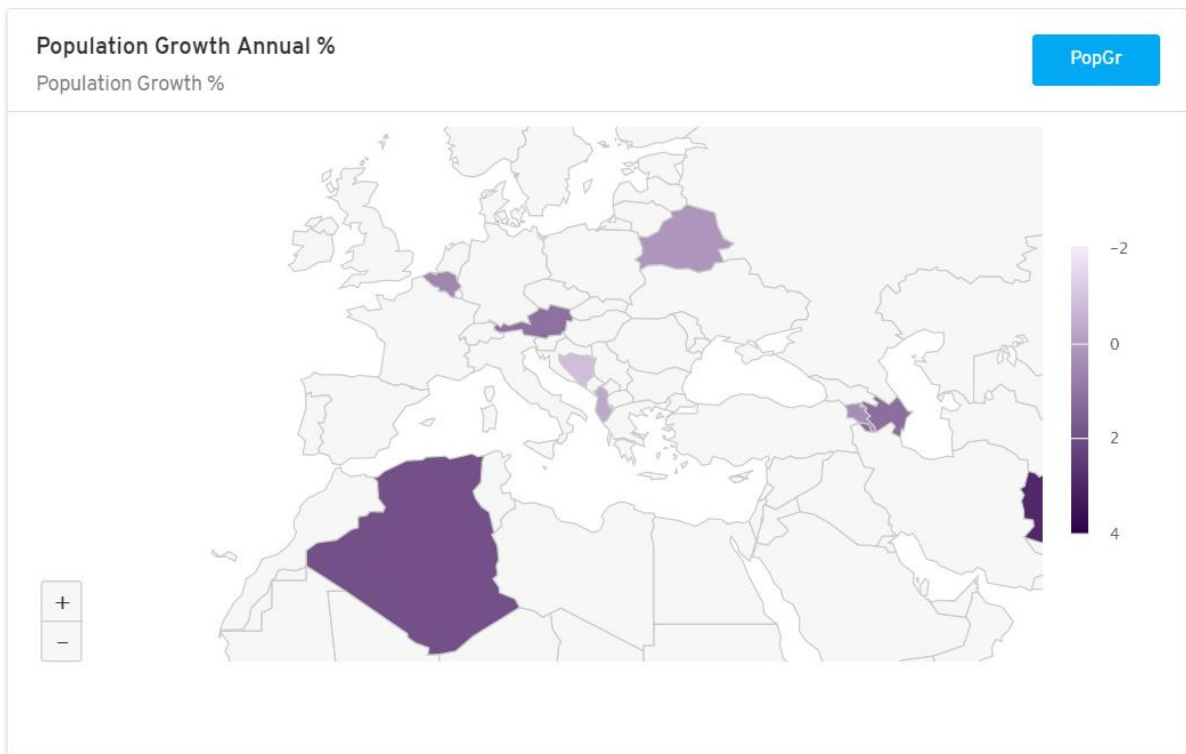


You can adjust the zoom view of the map by clicking on the  buttons at the left side of the panel.


Or you can simply use the wheel of your mouse, forward to zoom in and backward to zoom out.



When the map is in a zoomed in view, you can click anywhere inside the map and drag to move the map in any direction desired.




When you hover over a country on the map, a description will pop up containing the name and the value, and the country color will light up as well.

A grey arrow  will pop up on the legend bar when you hover over a country, indicating its position or level of value.





8.6. Expanded Table Panels

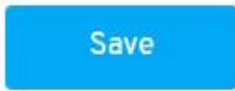
On the left bottom of each Table panel you can see this symbol  click on it to expand the view of a panel.

International Productivity Comparisons - Constant price GDP per hour worked									
Productivity Comparisons (2007=100)									
#	Canada	France	Germany	Italy	Japan	UK	US	G7	G7 exc. UK
2008	99.9	99.3	100.1	98.7	100	99.3	100.6	100.1	100.2
2009	100.6	98.6	97.7	96.6	99.2	97.7	103	100.6	100.9
2010	102.1	100.1	99.8	98.9	102.5	99	105.6	102.9	103.3
2011	103.9	101.3	103.1	99.4	102.8	100.5	106.2	104	104.3
2012	103.6	101.6	104.1	98.9	103.6	100	106.4	104.3	104.7
2013	105	103.1	104.5	99.6	105.7	100.4	107.2	105.3	105.8
2014	107.6	101.7	105.1	99.5	105.7	100.3	108	105.8	106.4
2015	107.6	102.1	106.1	99.3	107.3	101.1	109.2	106.9	107.5

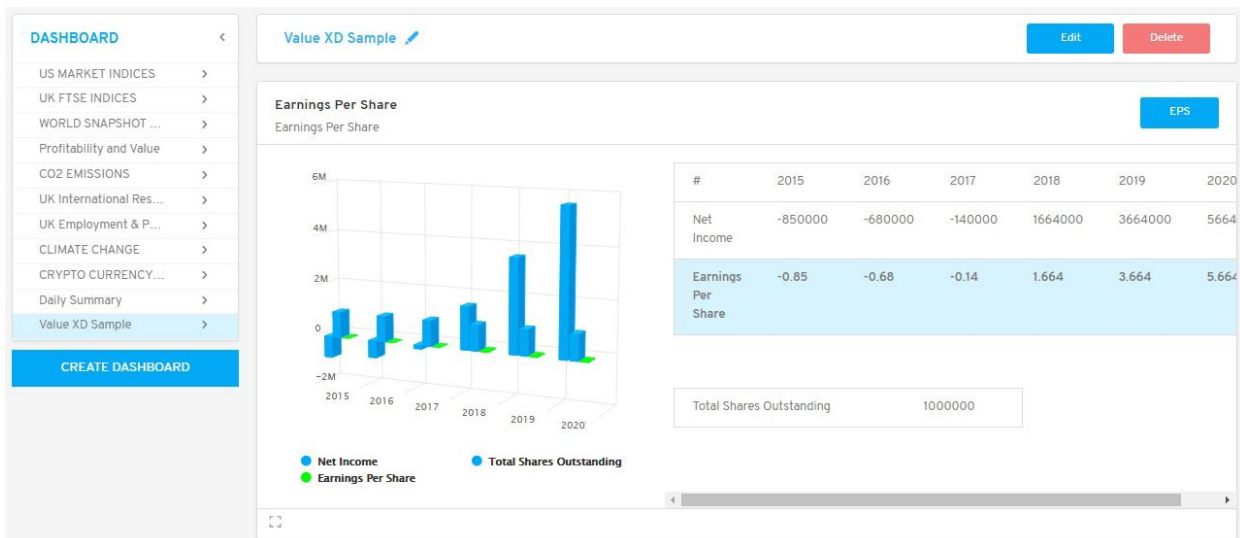


8.7. Dashboards' Catalogue

After selecting and checking your panels, you can click to save your new dashboard.



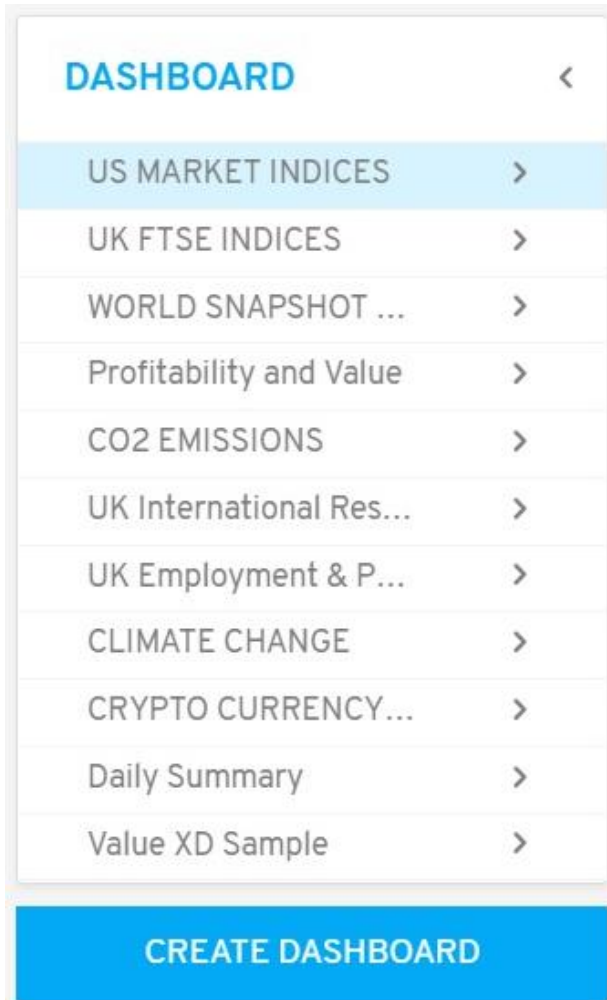
You will be directed to the Dashboards' Catalogue page where you can see your new dashboard listed at the end of the list.






8.7.1. Dashboard Sidebar List

The Dashboard List is located in the left sidebar.



You can click on the  arrow next to each dashboard to expand the list of its panels.

You can click on the  arrow next the **DASHBOARD** to hide the whole sidebar.

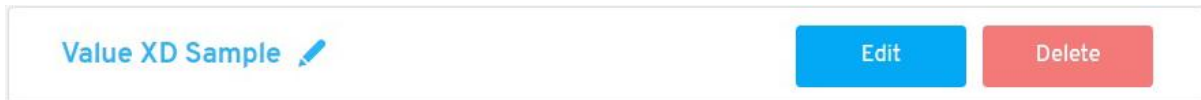
You can click on

CREATE DASHBOARD

to go to [Create Dashboard](#)

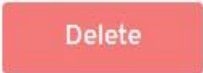


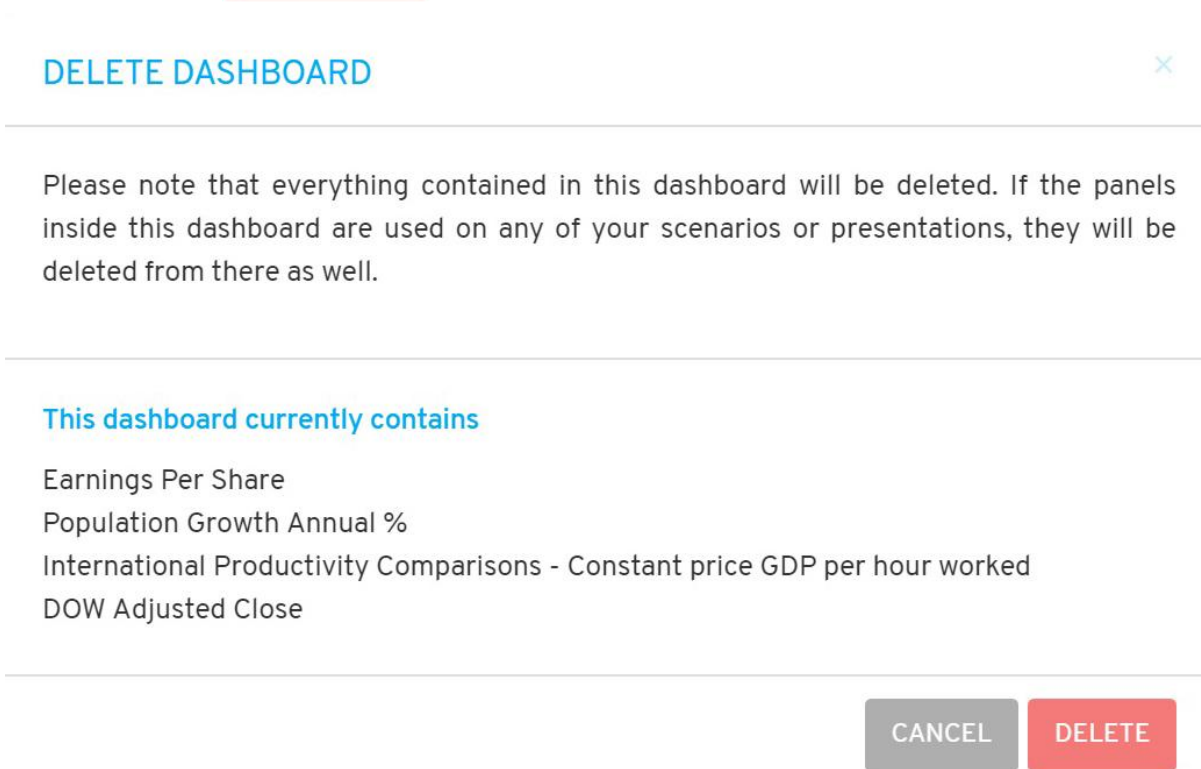
8.7.2. Top Toolbar Buttons



You can rename the dashboard by clicking on the blue pencil located after the name.



You can click  to remove the whole Dashboard.

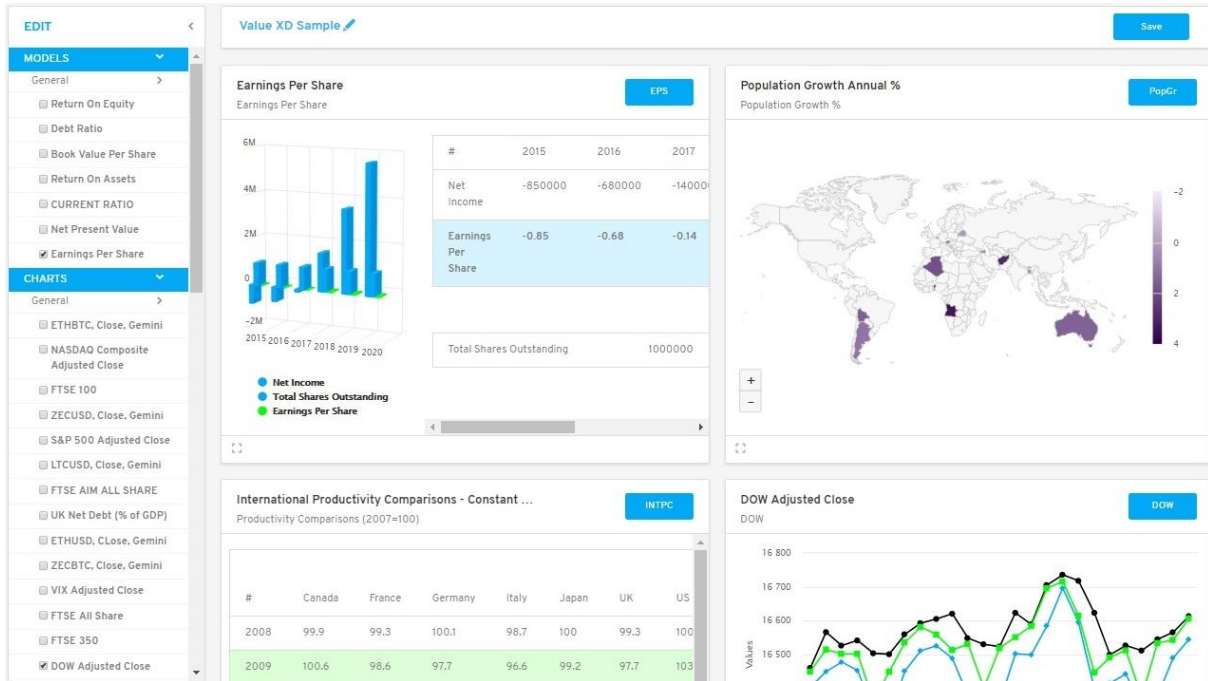


You will receive a message note that everything contained in the dashboard will be deleted. If the panels inside the dashboard are used on any of your scenarios or presentations, they will be deleted from there as well. It will list for you the panels that this dashboard contains.

Click on **DELETE** to proceed by removing the dashboard, or **CANCEL**.



You can click **Edit** to edit your dashboard; you will be directed to the Edit page that has all the selected panels to remove or re-select other panels.



You can check [Create Dashboard](#) chapter for more details about how to select your panels.

Once done re-organizing your panels click

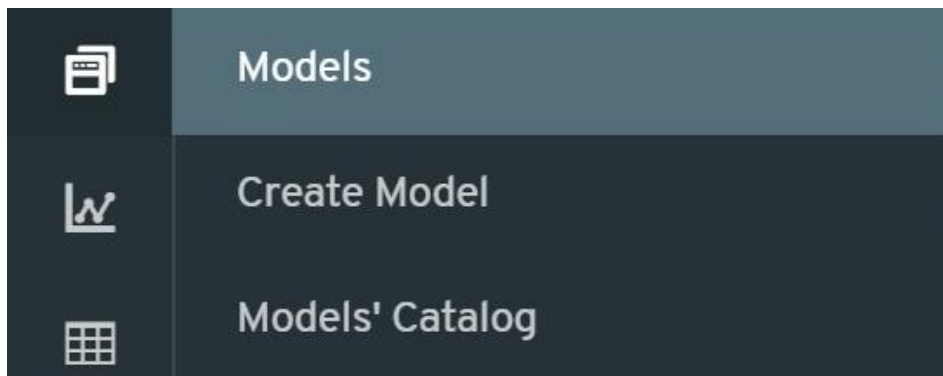


button on the top right to save your dashboard.

You will be directed back to [Dashboards' Catalogue](#) page.



9. Models



When you hover your mouse over the Models symbol



on the main left toolbar, two tabs will show up:

- [Create Model](#)
- [Models' Catalog](#)



9.1. Create Model

When you click on create model tab you will be directed to create a new model page.

The screenshot displays the 'CREATE MODEL' interface. On the left, a sidebar contains a 'Link to Main Sheet' checkbox, a 'Visualization Type' dropdown set to 'Chart', and a 'Number of periods' dropdown set to '5'. The main area is titled 'UNTITLED MODEL' and includes 'Save Draft' and 'Preview' buttons. Below the title, the 'CONTROLLER' section is currently 'Empty'. A 'New1' button with a plus sign is visible. The 'USER DATA VARIABLES' section features a table with columns for Name, Symbol, Chart, Controller, Table, Color, and five Periods. The 'CONSTANTS' section has a table with columns for Name, Symbol, Chart, Controller, Table, Color, and Value. The 'FORMULAS' section includes a table with columns for Name, Symbol, Series, Chart, Table, Color, and Formula, with one row for 'Main1' containing 'New1', a chart icon, checked boxes for Chart, Table, and Color, and the formula 's(x) = f(x)'. At the bottom, a 'CHART' section with 'Flip Axes' options shows a preview of four different chart types: a line chart, a bar chart, a 3D bar chart, and a horizontal bar chart.



9.2. Left Sidebar Menu

CREATE MODEL

Link to Main Sheet

Visualization Type
Chart ▼

Number of periods
5 ▼

By default, the **Link to Main Sheet** option is not selected.

This is to allow the user a free hand in creating and experimenting with the model creation process.

You can define the periods or axis elements of your model, and input the variable directly into the form.



9.2.1. Visualization Type

You can select one of two types of visualizations for models, and by default it is always on chart.

- Chart
- Diamond





9.2.2. Number of Periods

You can select the number of periods to use for the model.



The image shows a light blue rectangular box containing a dropdown menu. The text 'Number of periods' is at the top. Below it, the number '5' is displayed, followed by a small downward-pointing triangle icon. A horizontal line is positioned below the number '5'.

You can select up to 25 periods. By default, 5 periods will be selected.



9.2.3. Link to Main Sheet – Activated

If you click on the **Link to Main Sheet** option, the **Number of periods** section will disappear and instead you will be prompted to identify the **Data Source to be used**.

CREATE MODEL

Link to Main Sheet

Visualization Type
Chart ▼

Data Source ▼

- **Data source**

Another section will appear to select the data source click on the ▼ icon to select the Data source type from **CASES** folder.

Data Source
CASES ▼



- **Name**

When you select the **CASES** folder another section will appear, to identify the name of the case.

Click on the ▼ icon to expand the list of available project names.



- **Scenario**

When you select a project name from the list, another section will appear, the **Scenario** section.

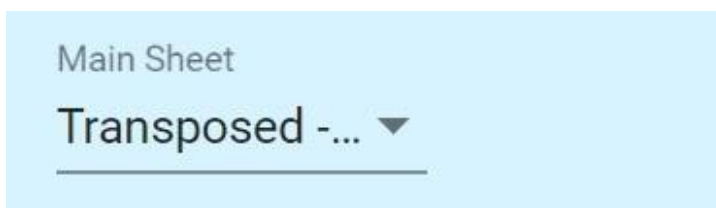
Click on the ▼ icon to expand the list of available scenario names.



- **Main Sheet**

When you select a scenario name from the list, another section will appear, the **Main Sheet** section.

Click on the ▼ icon to expand the main sheets list.



Once you select your main data sheet, the axes of the model will be defined.

All the constants in the scenario, as well as all the variables you have in your main sheet will now be available for use within the model.

If you have other sheets in the scenario with matching axes, the variables on those sheets will also be available and accessible to you in the creation box on the right side.



9.3. Top Toolbar




On the left of the top toolbar you can choose a name for the model, click on the grey pencil next to the name to edit it.

UNTITLED MODEL 

When you select the desired name, click anywhere outside the text box and the name will light up blue. You can re-edit the name anytime.

VALUE XD MODEL 

On the right side of the toolbar, you can click on the  button to save the new model as a draft you can come back to.

You can click on the  button to preview your model's output panel.



9.4. Controller

The controller bar is initially empty by default.

CONTROLLER

Empty

The user defines which variables and constants are included in the controller by clicking the relevant box in front of each variable and constant.

CONTROLLER

Current Assets ×

Current Liabilities ×

You can define one or many variables and/or constants as needed.

You can remove any or all of the variables or constants by clicking on the X next to each one.

The controller will allow you access to these variables from the front end, allowing for later fine tuning and further simulations of possible outcomes.

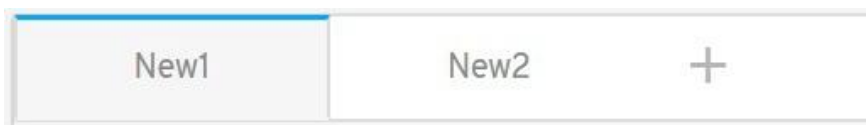


9.5. New Panels' Bar

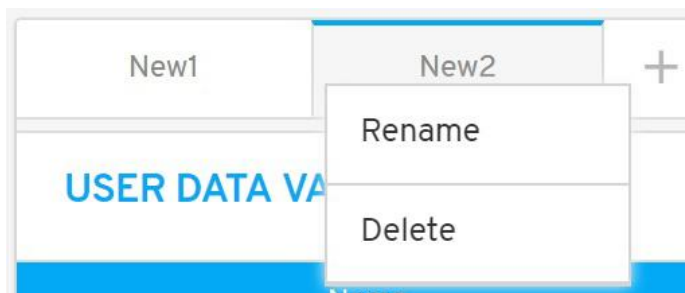


By default, one panel called “New1” will open when you create a new model.

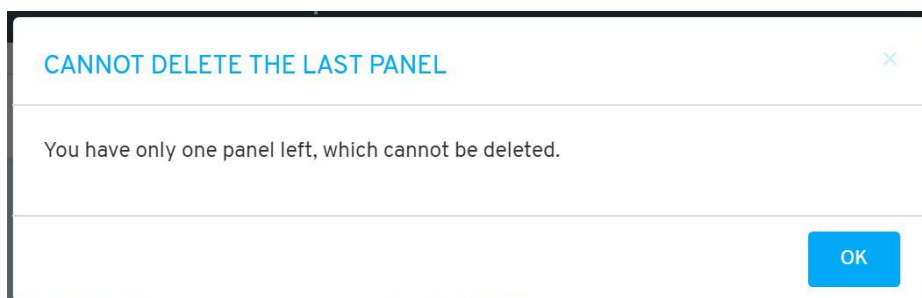
You can click on the **+** icon to add one or two models within one panel.



Whenever you click on a panel you will notice the top outline of the panel you clicked on will turn to blue. This will easily let you know which panel you are editing.



You can right-click on any panel; two options will pop up to **Rename** or **Delete** the panel. If you have only one panel, this panel cannot be deleted.





9.6. User Data Variables

USER DATA VARIABLES + Add

Name	Symbol	Chart	Controller	Table	Color	Period 1	Period 2
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	■		

In this section, you choose and define the variables of your new model.

You can click on **+ Add** to add more rows or variables as desired.

Another line will appear under the main one, you can add as many as needed.

Name	Symbol	Chart	Controller	Table	Color	Period 1	Period 2
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	■		
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■		

Delete

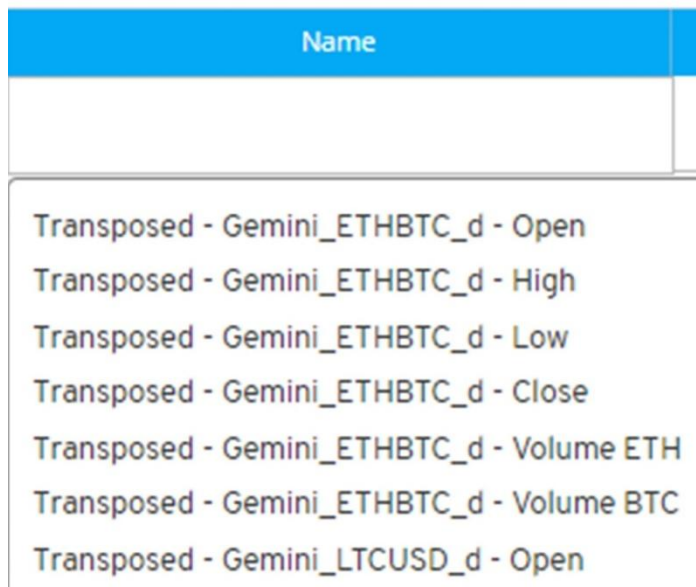
You can right-click on any line, a Delete option will pop up, click on it to proceed by deletion.



9.6.1. Variable's Name



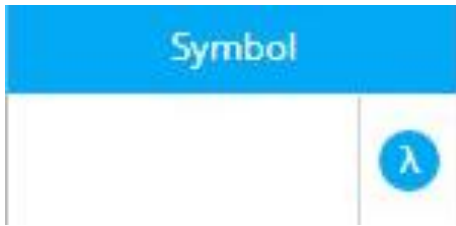
If you have linked the model to a main sheet, when you double-click inside the name cell, you will see a list of variables you can select. This list of variables is made up of all the variables on your main sheet, as well as those on other sheets in the same case/scenario that have, or include, the same axis.




If you do not link the model to a main sheet, then you will be able to double-click and input the name of the property or variable directly into the name box.



9.6.2. Symbol



You can double-click in the symbol box to insert your desired symbols for the model variables. You can attach a 5 letter symbol to your variables and constants, and you cannot use i and n as one letter symbols. Those are reserved for the system.

If you would like to attach a Greek alphabet letter as a symbol, you can click on the blue  icon.

It will expand and provide you with a window to choose your Greek letter.

			<input checked="" type="checkbox"/>	[
α	β	Δ	δ	
ε	ζ	η	θ	
κ	λ	λ	ξ	
ψ	Ω	ω		



9.6.3. Chart

You can select to include the variable in the chart by clicking the checkbox.



It is selected by default.



9.6.4. Controller

You can select to include the variable in the controller by clicking the checkbox.



By default, it is not selected.



9.6.5. Table

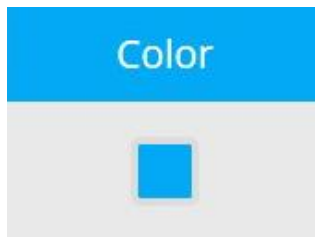
You can select to include the variable in the table by clicking the checkbox.



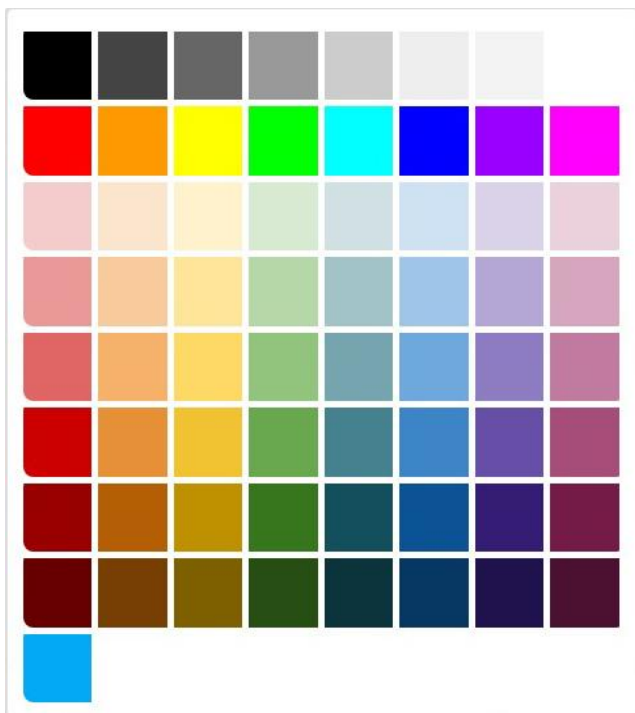
It is selected by default.



9.6.6. Color

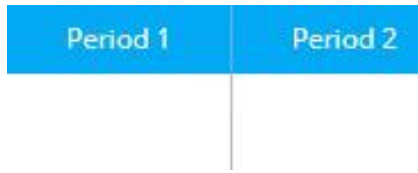


You can select a color for the variable by clicking inside the box that will expand the color palette for you to set your desired color.



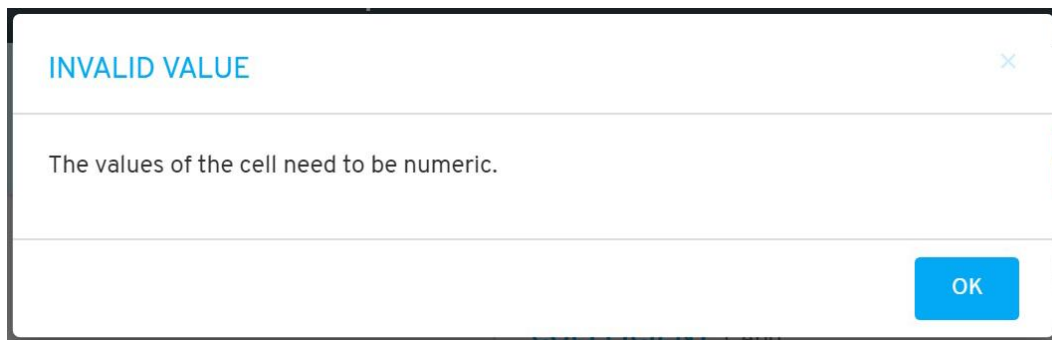


9.6.7. Periods




The periods section is dependent on how many periods you set in the number of periods tab.

You can double-click inside each period to set the value; it should only be a numeric value.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ✕

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, if you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



9.7. Constants

CONSTANTS + Add

Name	Symbol	Chart	Controller	Table	Color	Value
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	■	

In this section, you have all set of tools to define the constants of your new model.

You can click on **+ Add** to add more set of constants as desired.

Another line will appear and you can add as many as needed.

CONSTANTS + Add

Name	Symbol	Chart	Controller	Table	Color	Value
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	■	
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	■	

You can right-click on any line, a Delete option will pop up, click on it to proceed by deletion.



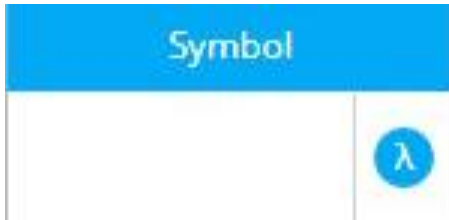
9.7.1. Constant's Name

Name

If you have not linked the model to a main sheet, you can double-click inside the name field to set the name of the constant. If you have linked the model to a sheet, then a list of all available constants in the case scenario will display automatically.



9.7.2. Symbol



You can set the symbol of the constant as a Greek letter by clicking on that will expand all the letter options to choose from.



			<input checked="" type="checkbox"/>	
α	β	Δ	δ	
ε	ζ	η	θ	
κ	λ	λ	ξ	
ψ	Ω	ω		

You can also double-click inside the symbol box to type in your desired symbol character.



9.7.3. Chart

You can select if this constant will be included in the chart by clicking the checkbox.



It is selected by default.



9.7.4. Controller

You can select to include the constant in the controller by clicking the checkbox.

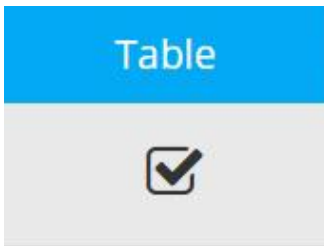


By default, it is not selected.



9.7.5. Table

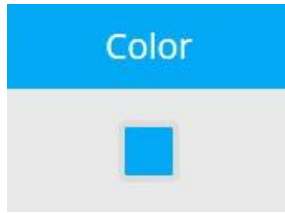
You can select to include the constant in the Table by clicking the checkbox.



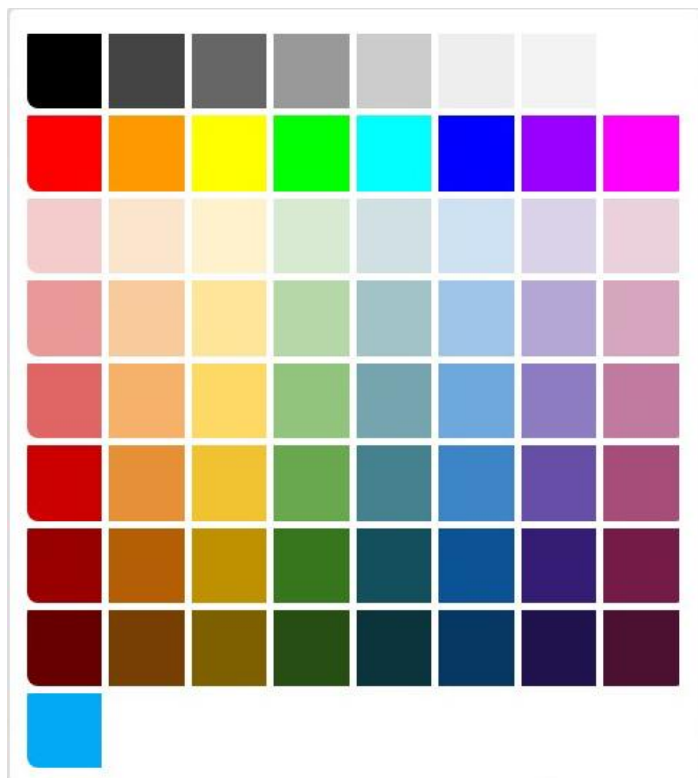
It is selected by default.



9.7.6. Color



You can select a color for the constant by clicking inside the box that will expand the color palette for you to set your desired color.



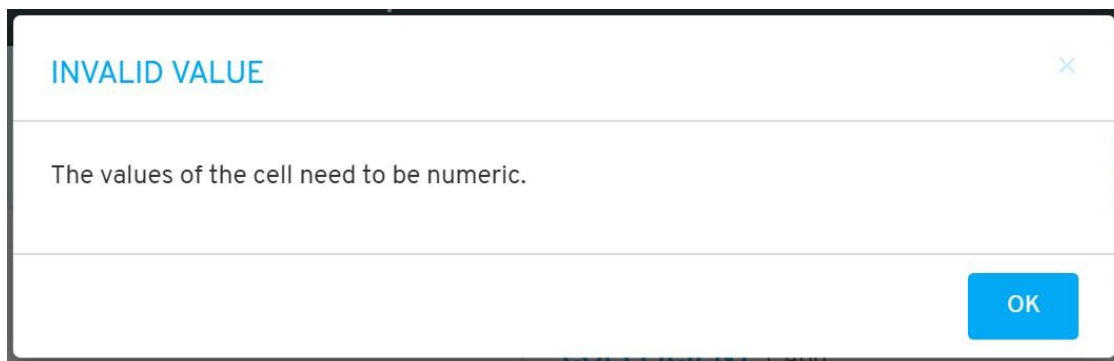


9.7.7. Value




You can set the value(s) of the constant(s) by double clicking inside the text box.

Be aware that this cell only accepts numeric values.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ✕

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, If you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



9.8. Formula

FORMULAS + Add Sub-Formula

Name	Symbol	Series	Chart	Table	Color	Formula
Main1	New1 λ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		$s(x)$ = $f(x)$

In this section, you have the tool to define the Main formula of your new model.

You can click on **+ Add Sub-Formula** to add more Sub formulas as desired.

Another line will appear under the main one, you can add as many as needed.

FORMULAS + Add Sub-Formula

Name	Symbol	Series	Chart	Table	Color	Formula
Main1	New1 λ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		$s(x)$ = $f(x)$
Sub1	 λ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		$s(x)$ = $f(x)$

You can right-click on any line, a Delete option will pop up, click on it to proceed by deletion.



9.8.1. Formula Name

Name
Main1


You can double-click inside the name field to set the name of the formula.

By default, the main formula's name is "Main1", and the sub formula is "Sub1"



9.8.2. Symbol



You can set the symbol of the formula as a Greek letter by clicking on  that will expand all the letters available to choose from.

New1			
α	β	Δ	δ
ε	ζ	η	θ
κ	λ	λ	ξ
ψ	Ω	ω	

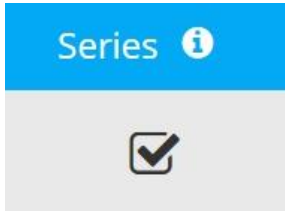
You can also double-click inside the symbol box to type in your desired symbol character.

By default, the symbol's name is "New1"



9.8.3. Series

This checkbox determines if your formula is a series.



If you move your mouse over the info icon  details will pop up about the series box.

For all series data, time or other type, where the output will be a series of values, the subscript 'i' must be used with all variables and subformulas.



9.8.4. Chart

You can select to show the main output series in the chart by clicking the checkbox.



It is selected by default.



9.8.5. Table

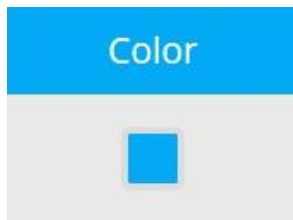
You can select to show the main output series in the table by clicking the checkbox.



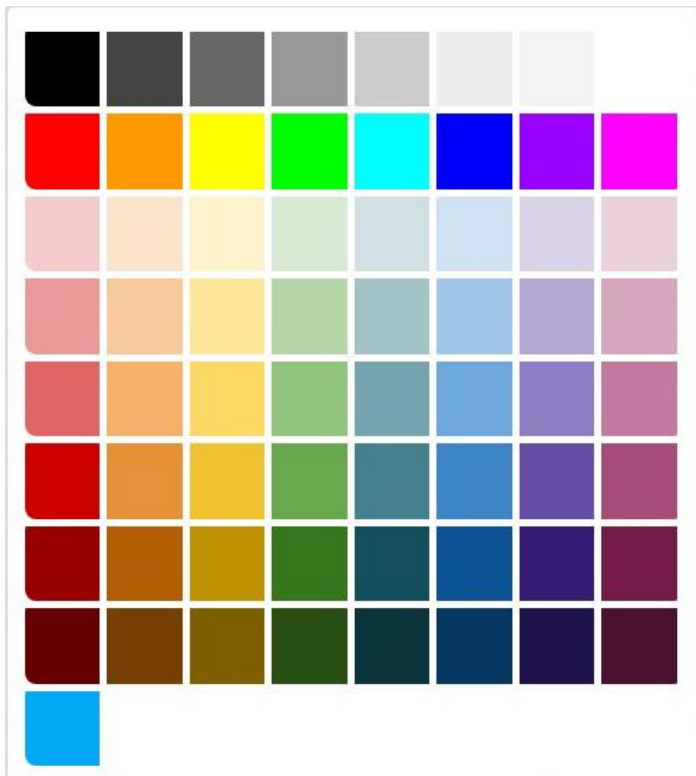
It is selected by default.



9.8.6. Color

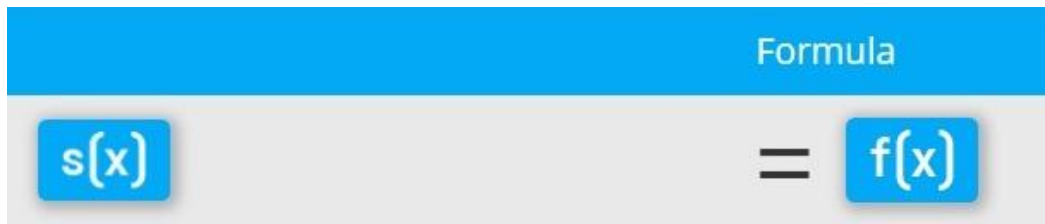


You can select a color for the main output series by clicking inside the box that will expand the color palette for you to set your desired color.





9.8.7. Formula / Equation Editor



You can create your own equations in the formula section that has two main parts:



$f(x)$ is the equation editor where you can input and create your formulas and subformulas.



$s(x)$ is the symbol editor, where you can input a left side symbol for your main formula or subformulas.

The symbol editor looks just like the equation editor, but it is purely to design your descriptive formula symbol when necessary.



Click on the $f(x)$ button in the box to expand the Equation editor that contains a variety of functions to help you create your own formulas.

$f(x)$

Equation Editor/MAIN FORMULA
✕

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined	
Main		Statistical		Trigonometric		Hyperbolic		Constants		Greek						
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo									
$\sqrt[\square]{\square}$	%	∞	┌	┐	└	┘	x!									
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e [□]										

Hover over function buttons to see what they do.

User Defined

Variables
No properties yet

Constants
No coefficients yet

Subformulas
No subformulas yet

The **User Defined variables, constants, and subformulas** appear in the $f(x)$ equation editor, and not in the symbol editor, which is a descriptive tool to help you define a specific right side to the equation.

$s(x)$

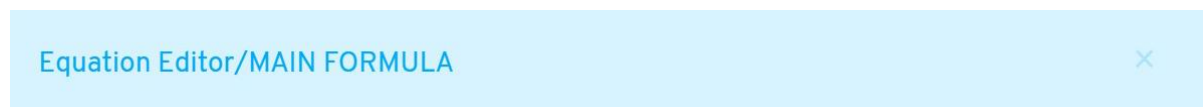
Equation Editor/MAIN FORMULA
✕

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.		
Main		Statistical		Trigonometric		Hyperbolic		Constants		Greek						
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo									
$\sqrt[\square]{\square}$	%	∞	┌	┐	└	┘	x!									
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e [□]										

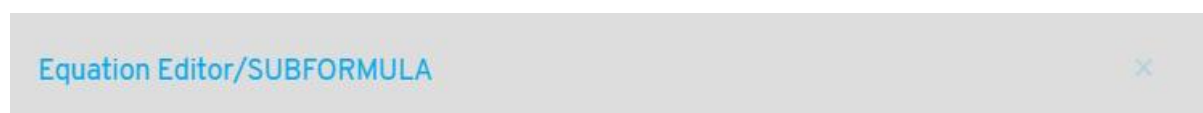
Hover over function buttons to see what they do.



If you clicked on the main formula, the top of the equation editor will be colored light blue.



The sub formula top will be colored light grey.

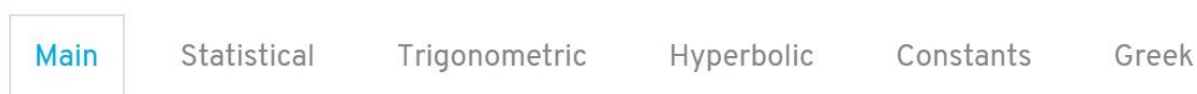


You can check Appendix A, [Equation Editor Syntax](#), to learn more about how to properly use the editor to input your equations.

You can use the standard numpad keys from 0 to 9 and the commonly used function of add, minus, multiply, divide and point. These will be located on the first fixed line.



You can choose from 6 categories of functions that will help you create your own formulas.





In all of the 6 categories, the first 7 functions are fixed and you can notice that they are available in all of the categories. This is to make common functions or syntax relevant functions always available to the user.

You can hover your mouse over any function and a details line will appear at the bottom of the functions that describe it.



$()$

Identifies the expression that will be calculated first.

$\frac{\square}{\square}$

Fraction of any two elements or functions.

X_{\square}

Subscript to identify time or other series.

X^{\square}

Identifies the exponent of the variable or expression.

$\sqrt{\square}$

The square root of the expression.

$\sum_{\square}^{\square} \square$

Sums all values in range of series.

$\prod_{\square}^{\square} \square$

Multiplies all values in range of series.



9.8.7.1. Main Functions

The first Main category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek	
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	Modulo
$\sqrt[n]{\square}$	%	∞	$\lfloor \square \rfloor$	$\lceil \square \rceil$	$\lceil \square \rceil$	$x!$
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	\ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}

Hover over function buttons to see what they do.

Modulo

Calculates the remainder after the division of one variable by another.



The nth square root of the expression.



1% = 1/100



Symbol of infinity, an infinitely large number.



Rounds number to the lower integer, used with $\lceil \square \rceil$

 \lfloor

Rounds number to the lower integer, used first with \lceil

 \lceil

Rounds number to the upper integer, used with \lfloor

 \lceil

Rounds number to the upper integer, used first with \lfloor

 $x!$

Calculates the factorial of the variable.

 $|x|$

Calculates the absolute value of the variable or expression.

 $\lim_{\square \rightarrow \square}$

Calculates the limit of the expression.

 \log_{\square}

Calculates the log based on a defined base.

 \ln

Calculates the natural logarithm of the expression.

 \int_{\square}^{\square}

Calculates the finite integral of a function.



$$\int_a^b \int_c^d$$

Calculates the double finite integral of a function.

$$e^x$$

Calculates the constant e to the desired exponent X



9.8.7.2. Statistical Functions

The statistical category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}	\prod_{\square}	μ
var(x)	σ^2	std(X)	σ	med(X)	cov(X,Y)	corr(X,Y)	ρ
mo(X)	mr(X)	min(X)	max(X)				

Hover over function buttons to see what they do.

μ

Mu, calculates mean of population values.

var(x)

Calculates the sample variance of a variable.

σ^2

Sigma Squared, Calculates the population variance of a variable.

std(X)

Calculates the sample standard deviation of a variable.



σ

Sigma, the population standard deviation of a variable.

$\text{med}(X)$

The median value of the data.

$\text{cov}(X,Y)$

Calculates the covariance of variables X and Y.

$\text{corr}(X,Y)$

Calculates the correlation of variables X and Y.

ρ

Rho, the correlation of variables X and Y.

$\text{mo}(X)$

The value that occurs most frequently in the data.

$\text{mr}(X)$

The arithmetic mean of the maximum and minimum values in the sample.

$\text{min}(X)$

The smallest value in the data.

$\text{max}(X)$

The largest value in the data.



9.8.7.3. Trigonometric Functions

The Trigonometric category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic		Constants	Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sin
cos	tan	cot	sec	csc	arcsin	arccos	arctan
arccot	arcsec	arccsc					

Hover over function buttons to see what they do.

sin

The sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse.

cos

The cosine of an angle is the ratio of the length of the adjacent side to the length of the hypotenuse.

tan

The Tangent of an angle is the ratio of the length of the side that is opposite to the angle divided by the length of the side that is adjacent to the angle.

cot

Cotangent is defined as the reciprocal function of Tangent.

sec

The Secant is defined as the reciprocal function of Cosine.



csc

Cosecant is defined as the reciprocal function of Sine.

arcsin

Arcsine is a partial inverse function of Sine.

arccos

Arccosine is a partial inverse function of Cosine.

arctan

Arctangent is a partial inverse function of Tangent.

arccot

Arccotangent is a partial inverse function of Cotangent.

arcsec

Arcsecant is a partial inverse function of Secant.

arccsc

Arccosecant is a partial inverse function of Cosecant.



9.8.7.4. Hyperbolic Functions

The Hyperbolic category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sinh
cosh	tanh	coth	sech	csch	arcsinh	arccosh	arctanh
arcoth	arcsech	arccsch					

Hover over function buttons to see what they do.

sinh

Hyperbolic sine.

cosh

Hyperbolic cosine.

tanh

Hyperbolic tangent.

coth

Hyperbolic cotangent.

sech

Hyperbolic secant.



csch

Hyperbolic cosecant.

arcsinh

Inverse Hyperbolic sine.

arccosh

Inverse Hyperbolic cosine.

arctanh

Inverse Hyperbolic tangent.

arcoth

Inverse Hyperbolic cotangent.

arcsech

Inverse Hyperbolic secant.

arccsch

Inverse Hyperbolic cosecant.



9.8.7.5. Constants Functions

The Constants category contains the following constants:

Main	Statistical	Trigonometric		Hyperbolic	Constants		Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}	\prod_{\square}	e
γ	φ	π	τ	ln 2	ln 10	$\log_2 e$	$\log_{10} e$
$\sqrt{2}$	$\sqrt{1/2}$						

Hover over function buttons to see what they do.

e

The number e that is the base of the natural logarithm, whose natural logarithm is equal to one, at 10 decimal places, $V = 2.7182818285$

γ

Gamma, the numerical value of the Euler–Mascheroni constant, to 10 decimal places, $V = 0.5772156649$

φ

Phi, the golden ratio constant, at 10 decimal places, $V = 1.6180339887$

 π

Pi, the ratio of a circle's circumference to its diameter, at 10 decimal places, Value = 3.1415926535

 τ

Tau, the ratio of a circle's circumference to the radius, at 10 decimal places, equal to $2 * \pi$, $V = 6.2831853071$

 $\ln 2$

The natural logarithm of 2, at 10 decimal places, Value = 0.69314718056

 $\ln 10$

The natural logarithm of 10, at 10 decimal places, Value = 2.302585093

 $\log_2 e$

The base-2 logarithm of e, at 10 decimal places, Value = 1.4426950409

 $\log_{10} e$

The base-10 logarithm of e, at 10 decimal places, Value = 0.4342944819

 $\sqrt{2}$

The square root of 2, at 10 decimal places, Value = 1.4142135624

 $\sqrt{1/2}$

The square root of 1/2, at 10 decimal places, Value = 0.7071067812



9.8.7.6. Greek Letters

The Greek Category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	α
β	Δ	δ	ε	ζ	η	θ	κ
Λ	λ	ξ	ψ	Ω	ω		

Hover over function buttons to see what they do.

α

Greek letter alpha

β

Greek letter beta

Δ

Greek letter delta, Capital

δ

Greek letter delta

ε

Greek letter epsilon



ζ

Greek letter zeta

η

Greek letter eta

θ

Greek letter theta

κ

Greek letter kappa

Λ

Greek letter lambda, capital

λ

Greek letter lambda

ξ

Greek letter Xi

ψ

Greek letter psi

Ω

Greek letter omega, capital

ω

Greek letter omega



9.8.7.7. User Defined

On the right section inside the $f(X)$ equation editor window, there is a user defined section where the Properties, Constants and Sub formulas defined by the user will be listed. They can be one or many.

This section is automatically filled by the symbols you ascribe to your variables and constants and subformulas. They are automatically brought into the editor for you to use and include in your formulas.

User Defined

Variables

No properties yet

Constants

No coefficients yet

Subformulas

No subformulas yet



You can click on the X sign on the top right of the equation editor to close it.

You can click on the top of the equation editor window and drag it freely around the create model's page.

Equation Editor/MAIN FORMULA
✕

$$-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$$

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined
Main	Statistical	Trigonometric		Hyperbolic		Constants		Greek							Variables
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo								FCF (Series)
\forall_{\square}	%	∞			[x!								Constants
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}									
Hover over function buttons to see what they do.														r	
														Subformulas	
														No subformulas yet	

After you finish writing/creating your formula(s) or subformula(s), you can click on the confirm button at the bottom of the equation editor window.

CONFIRM

Formula

s(x)

 NPV_{FCF}

=

f(x)

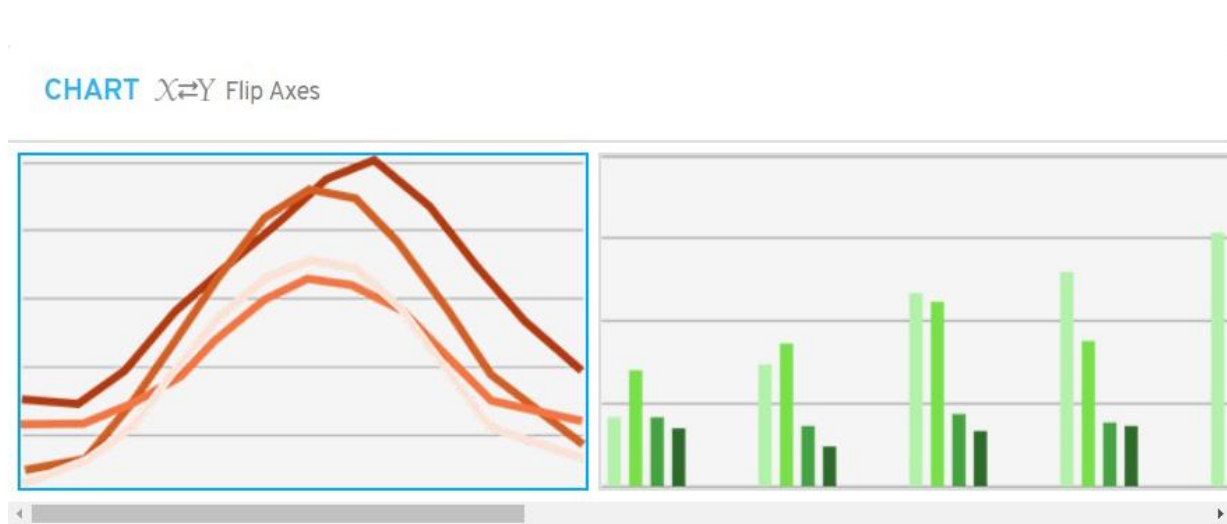
 $-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$

Your formulas and/or subformulas will be placed inside the corresponding boxes, and you can click on them at any time to edit/ re-write.



9.9. Chart

In the Chart section, you can select the style of your chart visualizations.



You can select from any of the available kinds of visualization for your chart. We will add more charts and different kinds of visualisations as we continue to expand the platform.



9.9.1. Flip Axes

On the top of this section, next to the **CHART** title, you can notice the flip axes sign.

CHART $X \rightleftharpoons Y$ Flip Axes

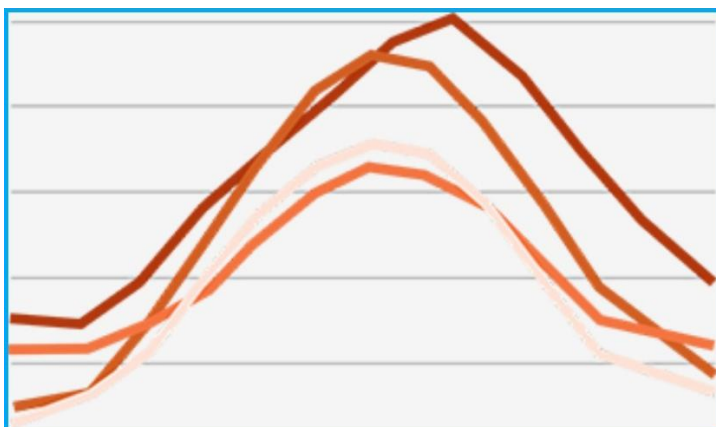
This will be activated if you click on it and the whole icon will light blue to indicate that it is activated.

CHART $X \rightleftharpoons Y$ Flip Axes

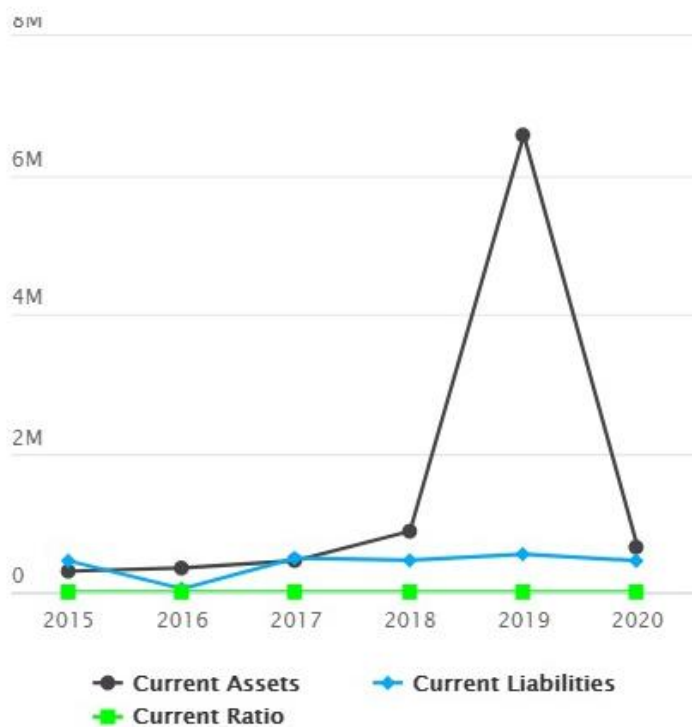


9.9.2. Line Chart Visualization

The first chart style is the Line chart that you can select to define the visualization of your chart.



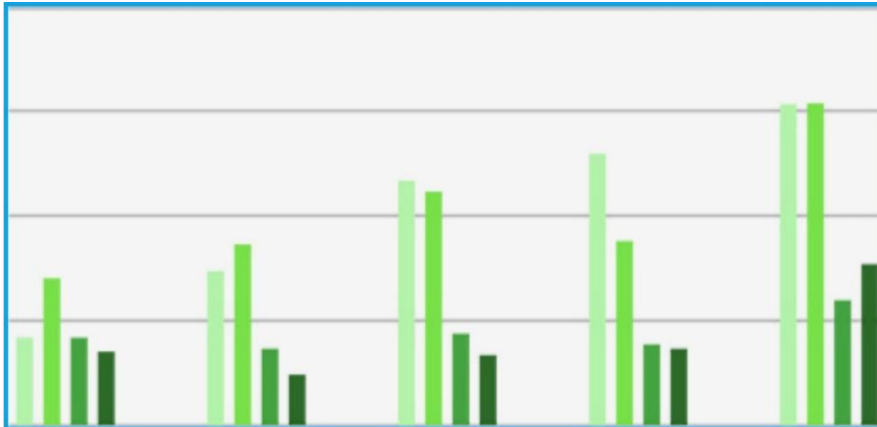
The outcome of this visualization style will be like below sample.



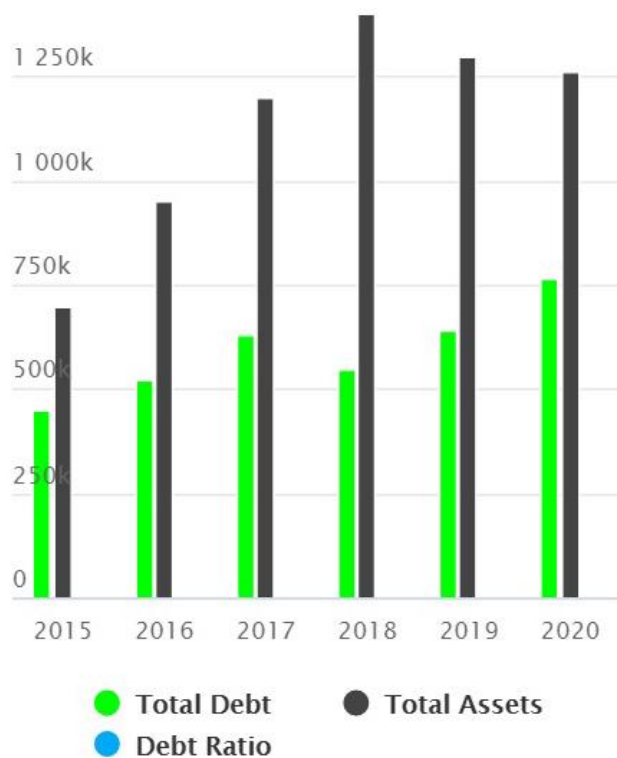


9.9.3. Column Chart Visualization

You can select the Column chart for the visualization style



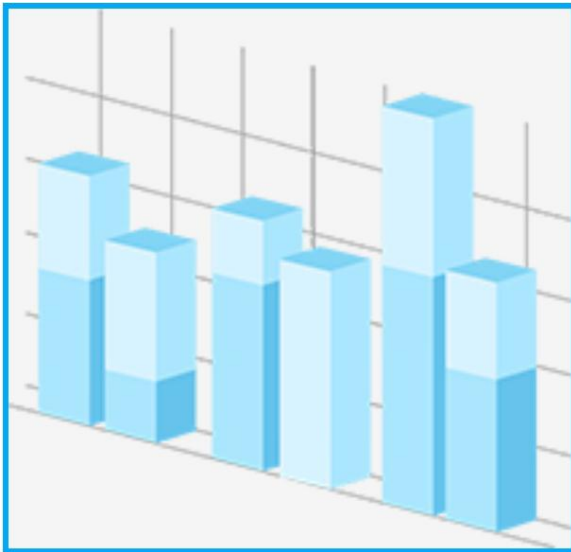
The outcome of this visualization style will be like below sample.



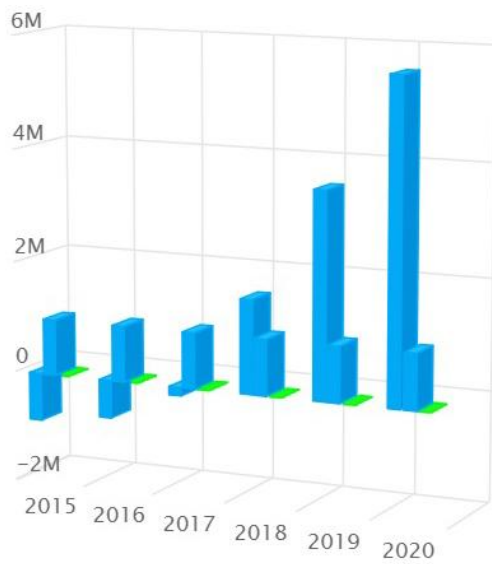


9.9.4. Column 3D Visualization

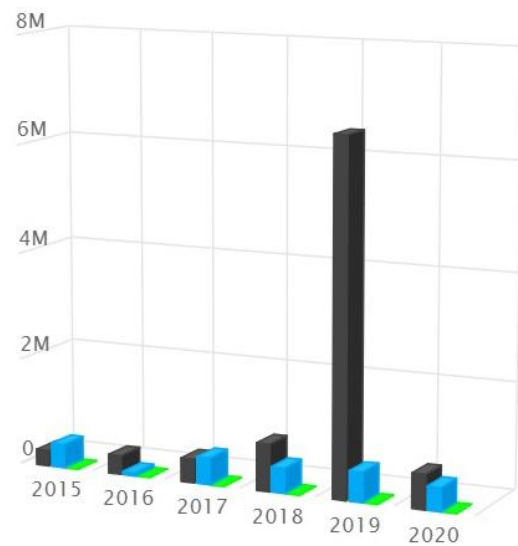
You can select the Column 3D chart for the visualization style.



The outcome of this visualization style will be like below samples.



- Net Income
- Total Shares Outstanding
- Earnings Per Share

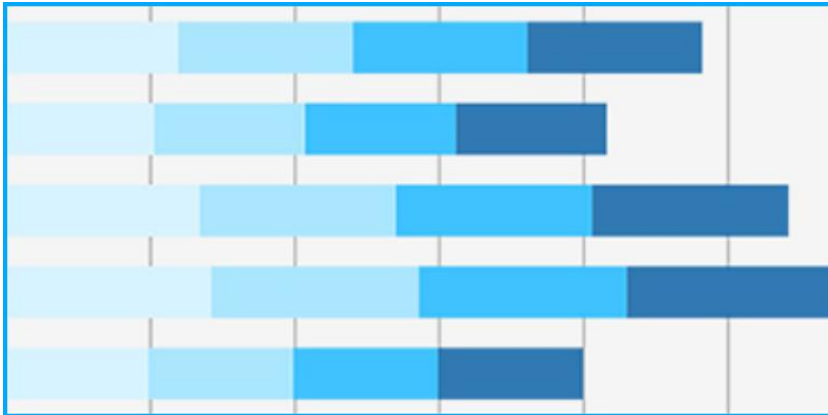


- Current Assets
- Current Liabilities
- Current Ratio

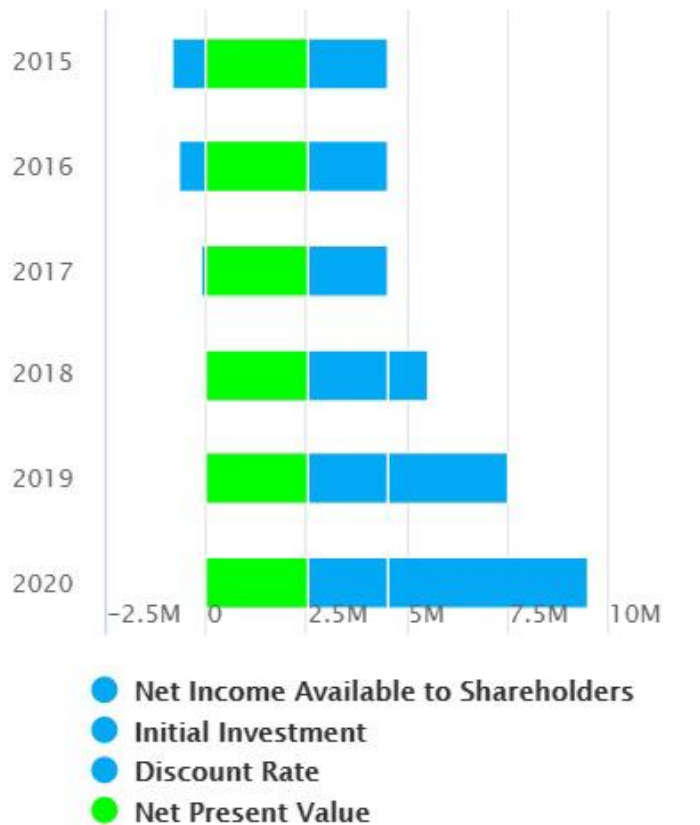


9.9.5. Bar Chart Visualization

You can select the Bar chart for the visualization style.



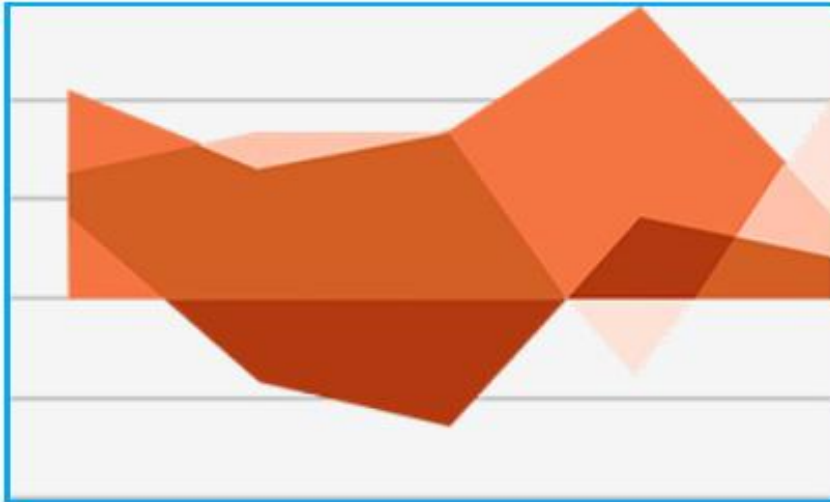
The outcome of this visualization style will be like below sample.





9.9.6. Area Chart Visualization

You can select the Area chart for the visualization style.



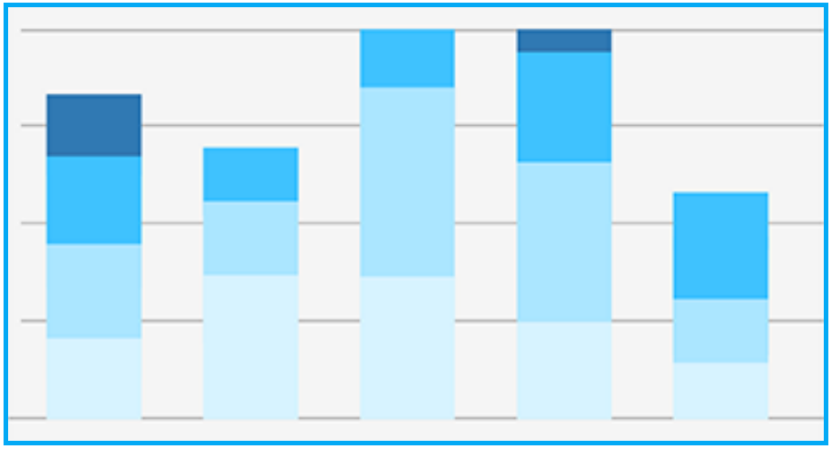
The outcome of this visualization style will be like below sample.



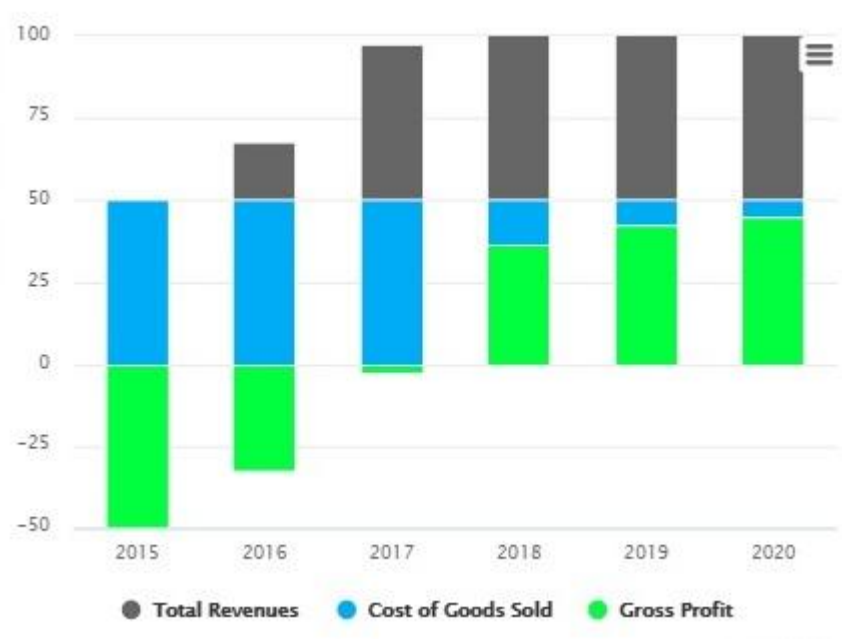


9.9.7. Bar Style Visualization

You can select the bar chart for the visualization style.



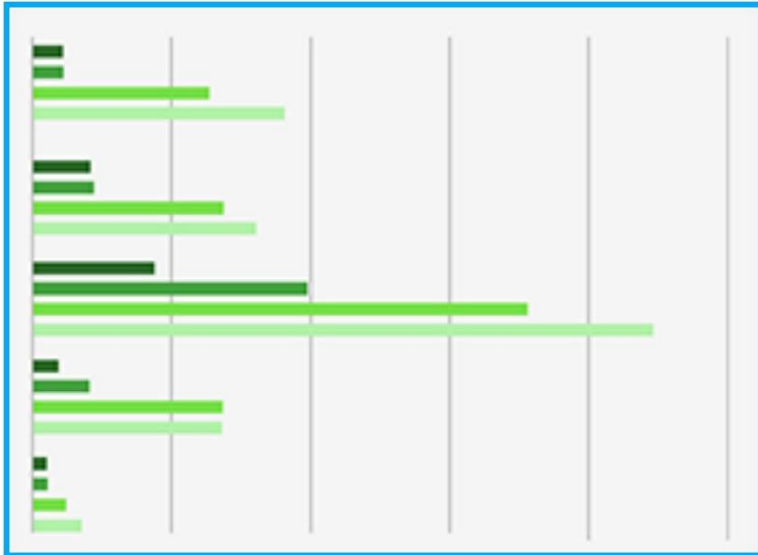
The outcome of this visualization style will be like below sample.



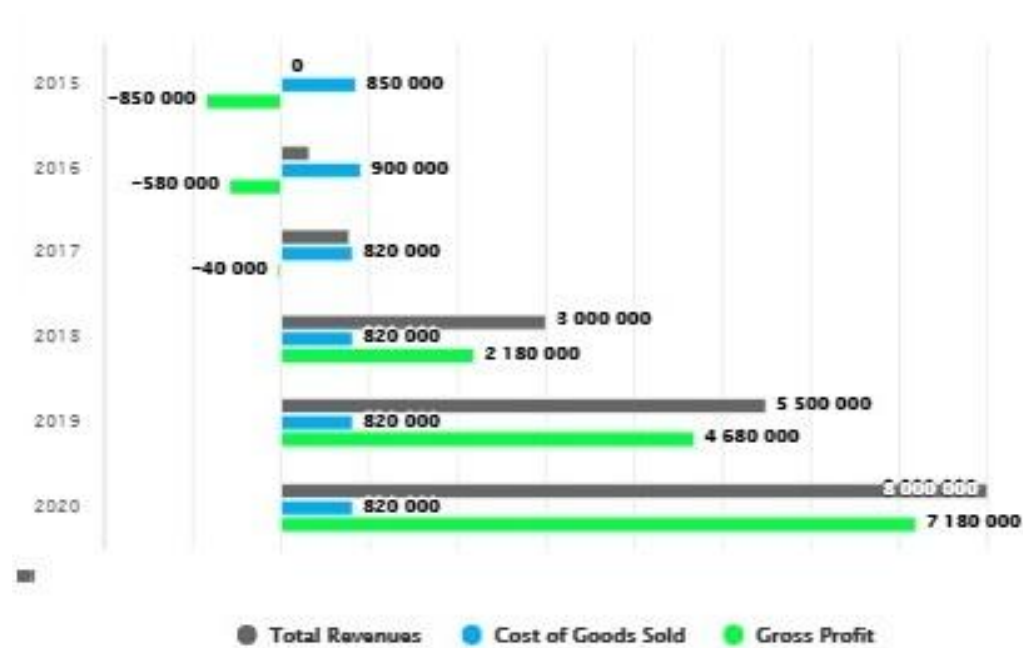


9.9.8. Horizontal Column Visualization

You can select the Horizontal column for the visualization style.



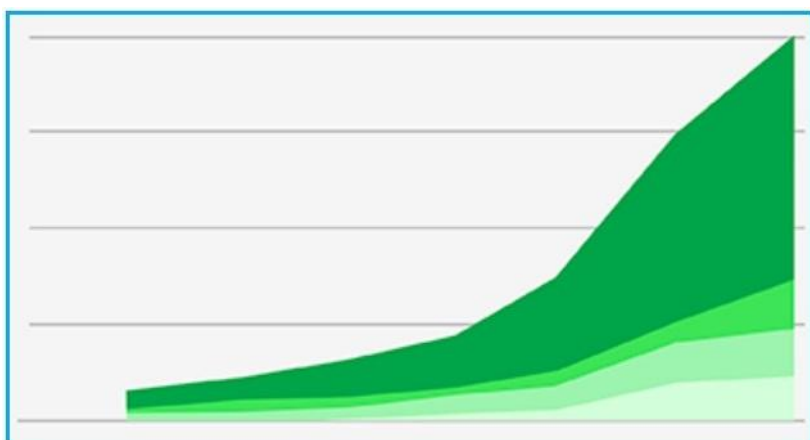
The outcome of this visualization style will be like below sample.





9.9.9. Surface Visualization

You can select the Surface to demonstrate your visualization style.



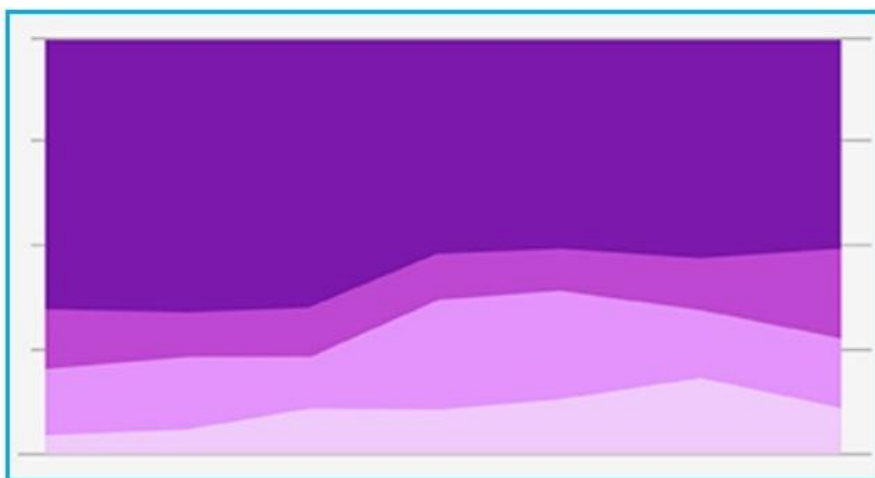
The outcome of this visualization style will be like below sample.



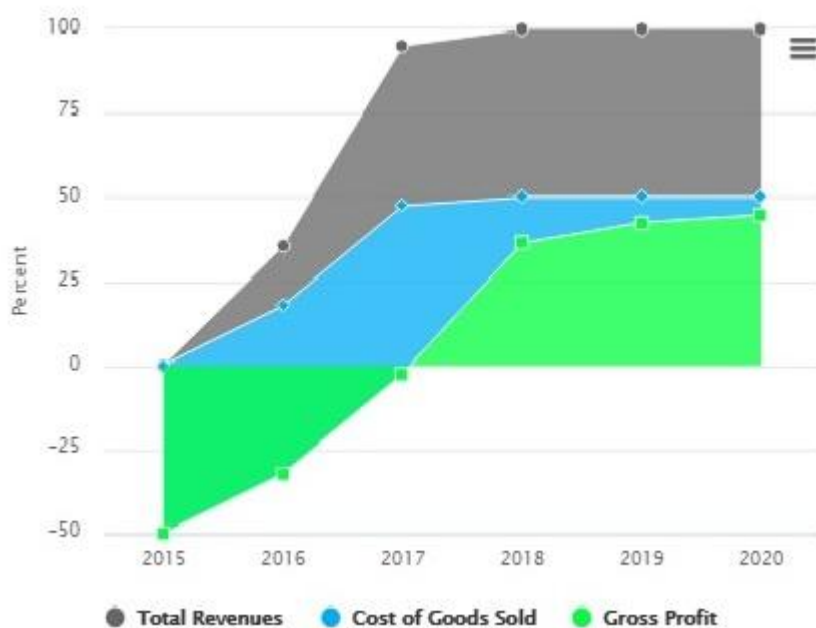


9.9.10. Surface V10 Style

You can select the Surface V10 to demonstrate your visualization style.



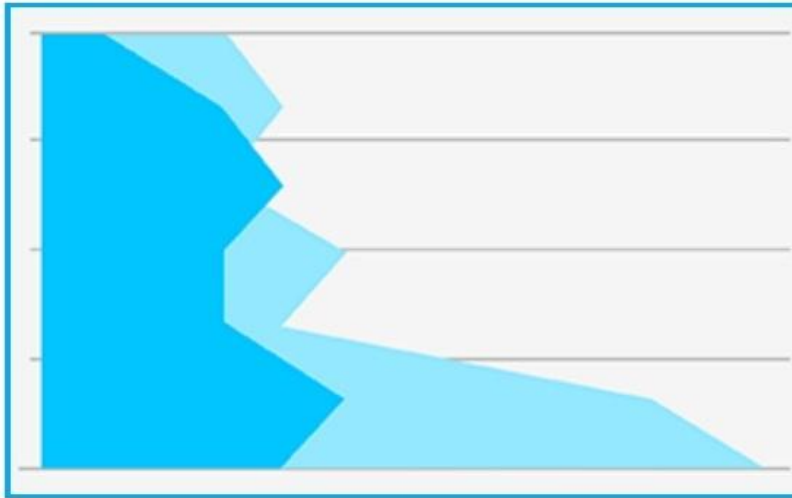
The outcome of this visualization style will be like below sample.



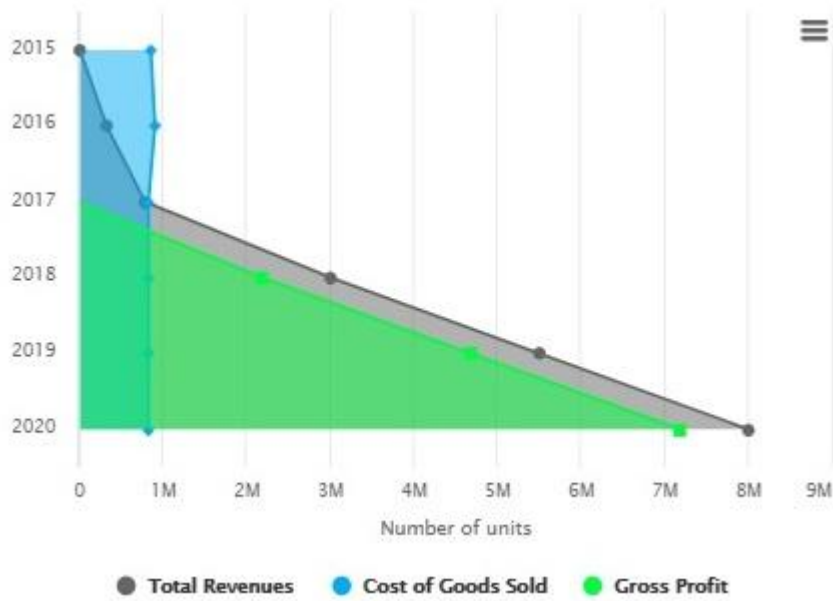


9.9.11. Surface VII Style

You can select the Surface VII to demonstrate your visualization style.



The outcome of this visualization style will be like below sample.



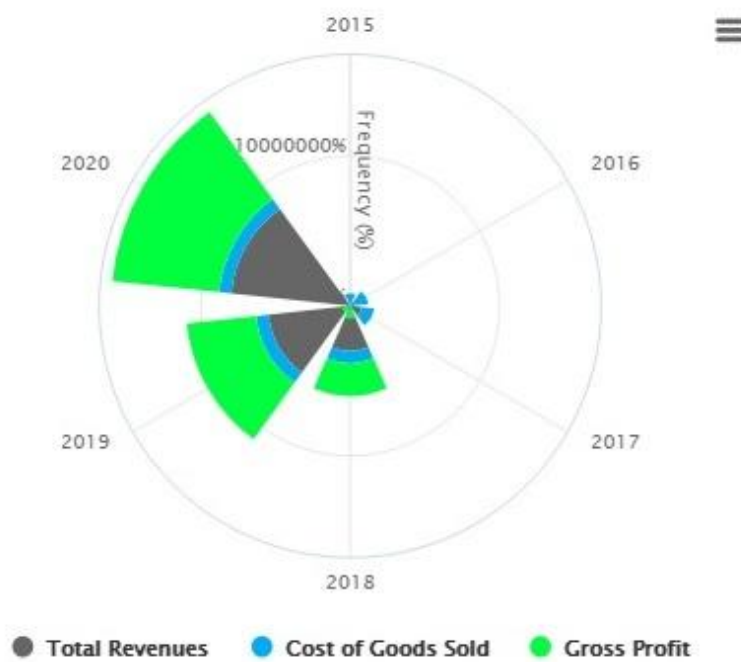


9.9.12. Pie Visualization

You can select the Pie to demonstrate your visualization style.



The outcome of this visualization style will be like below sample.





9.9.13. Diamond Style Visualization

You can select the Diamond to demonstrate your visualization style.



The outcome of this visualization style will be like below sample.



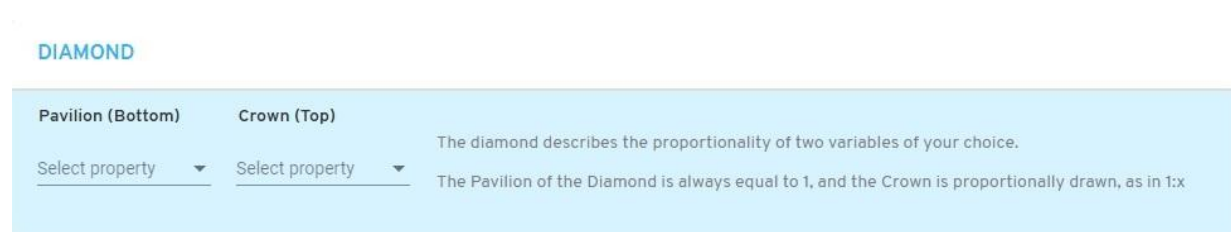


9.10. Diamond

When you select **Diamond** for **Visualization Type**, top of the left panel, some of the right side options change.

The Chart section will be replaced by the Diamond section.

You can notice that the Chart part in the previous sections will disappear as well.



The diamond section has 2 parts:

Pavilion (Bottom)



Select the property you desire by clicking on the down arrow.

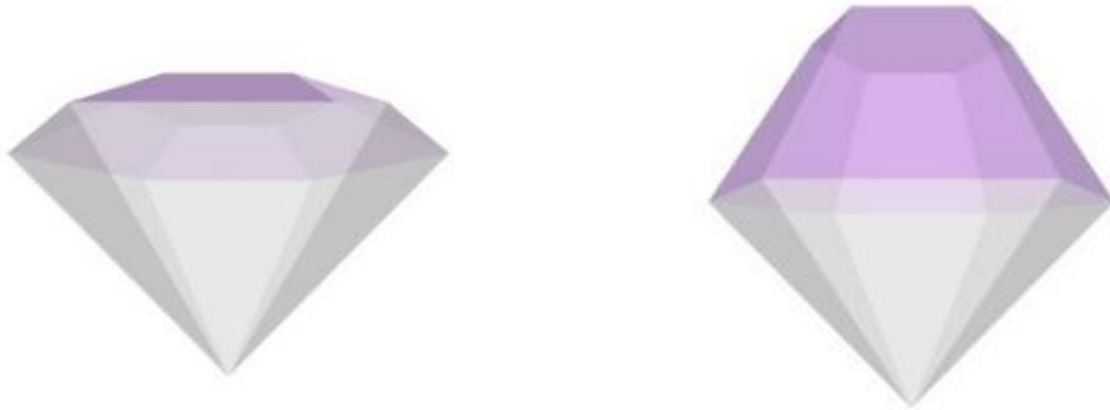
Crown (Top)



Select the property you desire by clicking on the down arrow.



The outcome of the diamond visualization style will be like below samples



The shape of the diamond's Pavilion and Crown will be dependent on the values of the properties you selected, and it is used to depict the proportionality of two variables or factors. The values are relative.

The diamond describes the proportionality of two variables of your choice.

The Pavilion of the Diamond is always equal to 1, and the Crown is proportionally drawn, as in 1:x

When in expanded mode, you can click on the diamond and adjust the view freely:

- Mouse left-click on the diamond to turn right or left and view from the top or bottom.
- Mouse right-click to move the whole diamond freely in any direction you desire.
- Use the wheel on the mouse to zoom in or zoom out on the diamond.



9.11. Save Draft / Preview

After selecting your desired options and writing your formulas, it is time to Preview and Save your model.

In the Top Toolbar you can find the two buttons **Save Draft** and **Preview**.





9.11.1. Save Draft

If you click on



button a panel will pop up to save or save as option.

SAVE AS DRAFT ×

Please select the option

Save Save As

CANCEL SAVE

You can select the **Save** option to save your model directly, or **Save As** option in order make a copy or select where to save it.

SAVE AS DRAFT ×

Please select the option

Save Save As

Model Name Folder [+ Create New Folder](#)

Net Present Value_new General ▼

CANCEL SAVE

Two new fields will appear.

Write the desired name under the **Model Name** field, select the **Folder** where the model will be located.



You can click on the **+ Create New Folder** to create a new folder to save the model inside.

SAVE AS DRAFT ×

Please select the option

Save Save As

Model Name	Folder	+ Create New Folder	
<input type="text" value="Net Present Value_new"/>	<input type="text" value="General"/> ▼	<input type="text" value="Sample Folder "/>	<input type="button" value="Create"/>

A field box will appear to type in the desired new folder name, and click the **CREATE** box. The new folder will automatically be selected in the folder.

Click on the **CANCEL** to cancel or **Save** to proceed by saving your model.




9.11.2. Preview

You can click on  button and the preview panel will appear.

PREVIEW ✕

Net Present Value NPV



#	Number of Shares	Percentage
Net Income Available to Shareholders	-850000	-680000

Initial Investment	2000000
Discount Rate	0.8
Net Present Value	-2377777.77778

Save Save As

CLOSE SAVE

At the bottom of the panel, you can select **Save** option to save your model directly, or **Save As** option to select where to save it.

Save Save As Model Name Folder + Create New Folder

Net Present Value_new Select property General

If you select the **Save As** option, 2 new fields will appear, write the desired name under the **Model Name** field, select the **Folder** where the model will be located.



You can click **+ Create New Folder** on to create a new folder to save the model inside.

Save Save As Model Name Folder + Create New Folder
● ● Net Present Value_new Select property General Sample Folder Create

A field box will appear to type in the desired new folder name, and click the **CREATE** box. The new folder will automatically be selected in the folder section.

Save Save As Model Name Folder + Create New Folder
● ● Net Present Value_new Select property Sample Folder Create

Click on the **Close** to cancel or **Save** to proceed by saving your model.

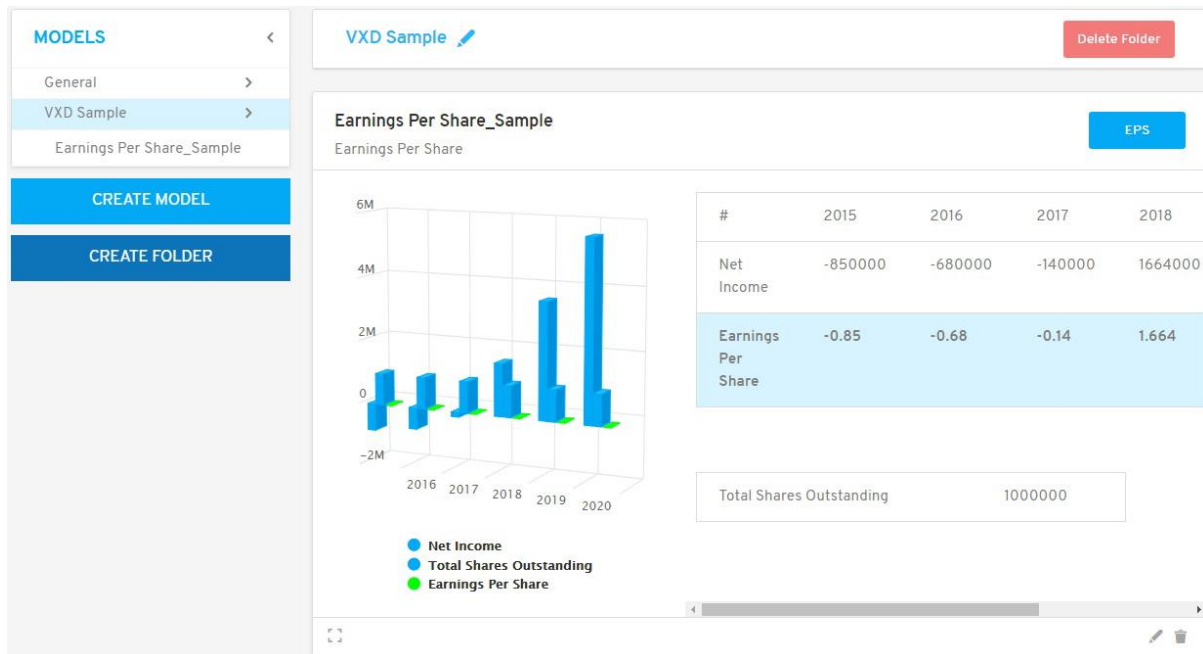
CLOSE SAVE

You will be directed to the Models' Catalogue page.



9.12. Models' Catalogue

When you click on Models' Catalogue in the Model tab or you just saved a new model, you will be directed to your models' catalogue page.



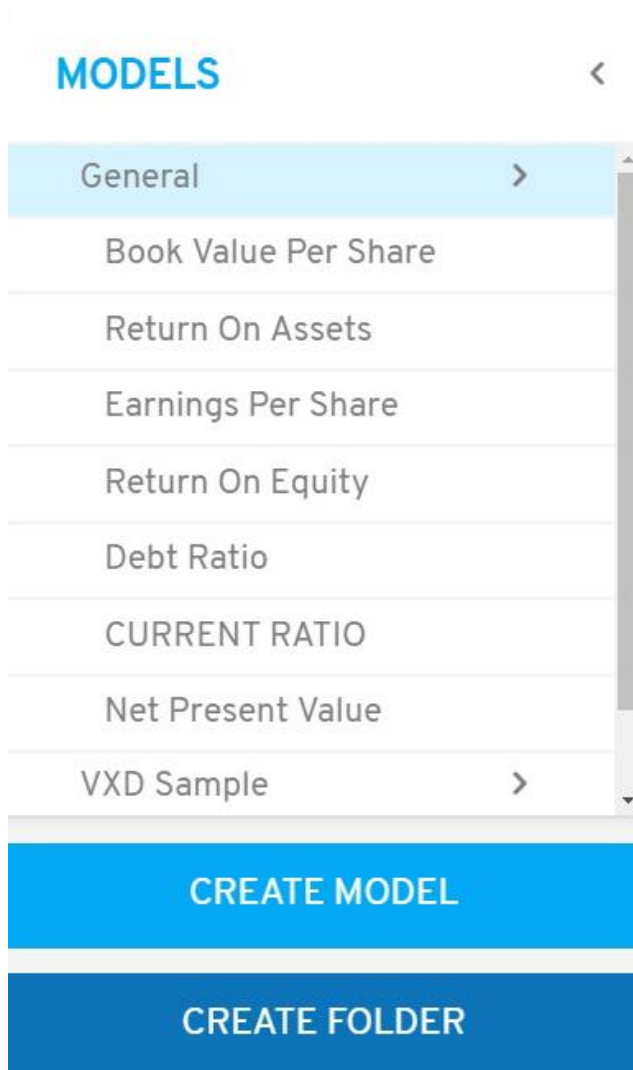
Important Note: When a model is created for the **first time**, it is created as a universal abstract tool in your models' catalogue. Therefore, you will still need to apply it to a case or cases.


Even if you used a sheet in Case A to create a model, you will still have to include the model in a dashboard, and then apply the dashboard to Case A in order to get the desired full results and charts.

In the Catalogue, models show only the last 25 data points as they are your universal abstract tools yet to be applied to cases.



9.12.1. Model Sidebar List



In the left sidebar, you can find the list of all the models created inside the folders. The main samples will be located in the General folder that you can click on the right arrow  next to it to expand the list of models available inside.



You can click on the model you desire to see; an expanded panel of the model will appear.

EXPANDED PANEL



Keep in mind that everywhere around the software, all the charts and maps are dynamic and interactive inside the panels or presentations.

You can click on the blue **X** on the top right of the panel to close it.

You can click on Page.

CREATE MODEL

button to go to [Create Model](#)

You can click on at the end of the model's list.

CREATE FOLDER

button to create a new folder



You can click on the model name inside the sidebar and drag to change the location inside its folder as well as move it to another folder, you can notice a grey copy of the name that will show you where it will be located when you release the mouse click.

MODELS

General	>
Return On Assets	
Book Value Per Share	
Return On Equity	
Debt Ratio	
Earnings Per Share	
CURRENT RATIO	
Net Present Value	

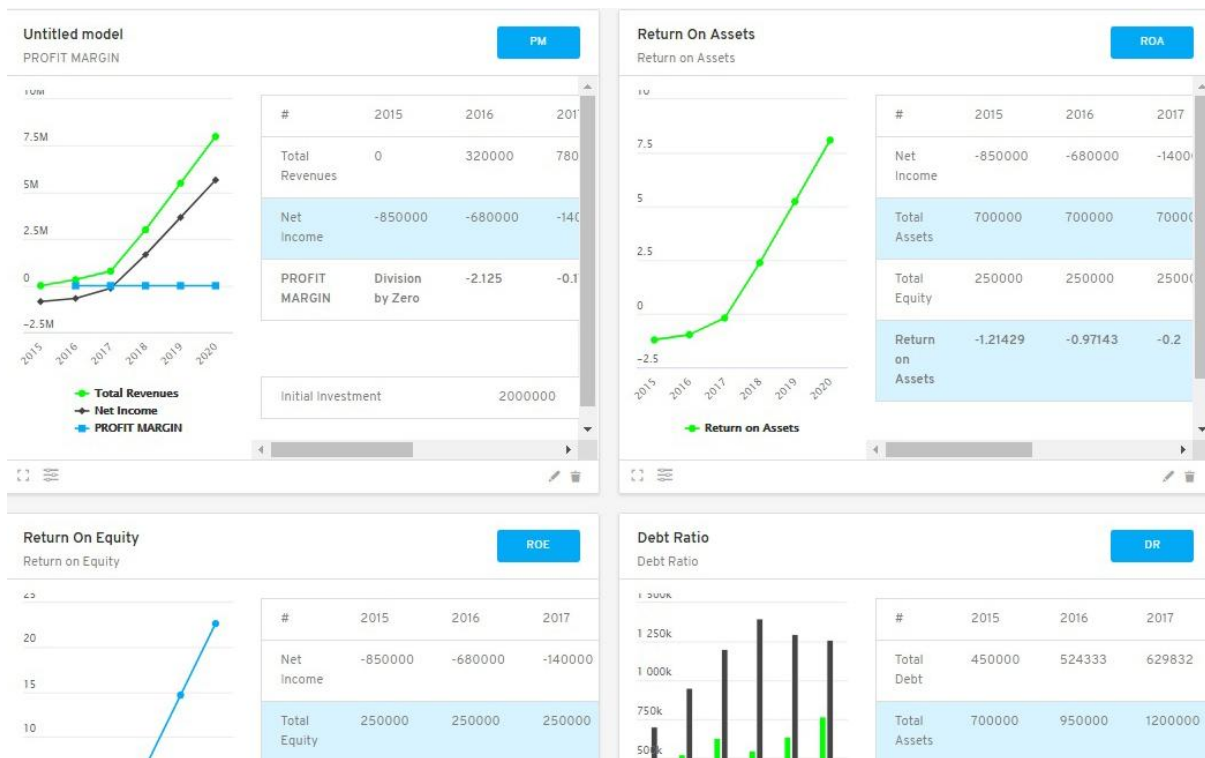
After you move the model, the panels on the right will be re-organized according to the change you made inside the folder.


You can also click on any panel on the right and drag it anywhere before or after to change the location, a grey copy of the panel will appear under your drag and the rest of the panel will re-organize accordingly. The models' name list in the sidebar will be updated accordingly.



9.12.2. Expand / Controller / Edit / Delete Model


All the models available in a folder are listed in details on the right, you can scroll down to check, expand, check the variable's controller, delete or edit a specific model.



At the bottom bar of each model you find this  button on the left to expand the panel.



If a panel has variables that are checked as controller, the controller button will be visible next to the expand button on the panel.

You can click on the controller button  on the bottom left of the panel, a details box will pop up containing the variables that are in controller.

Variables in controller

Properties


Total Revenues

Net Income


Coefficients

Initial Investment

Please check the [Controller](#) section for more details on how to use the controller once a model is applied to a case in the [Results](#) Chapter.

You can click on the  button on the right to edit your model; you will be directed to the Edit model page, which is the same as the [create model](#) page.



You can click on  button to delete a model; you will receive the warning below.

DELETE MODEL



The model you are deleting may be used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

Are you sure you want to delete this model?

CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deletion of the model.



9.12.3. Top Toolbar


The General folder is a fixed folder that cannot be renamed or deleted.

When you click on any created folder, you will notice that a blue pencil to rename the folder, and a delete button will appear.

VXD Sample 

Delete Folder

Click on  to rename the folder.

Click on  button to delete the folder, you will receive a warning below.

DELETE FOLDER

The folder you are trying to delete is not empty. Please note that everything contained in this folder will be deleted. If the models inside this folder are used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

This folder currently contains

Earnings Per Share_Sample

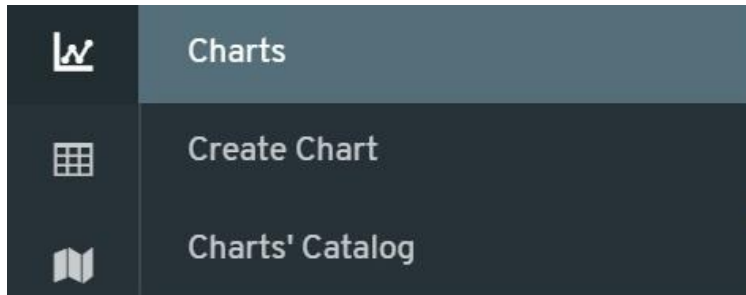
CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deletion.



10. Charts



When you hover your mouse over the Charts symbol



on the main left

- [Create Chart](#)
- [Charts' Catalog](#)



10.1. Create Chart

When you click on create Chart tab you will be directed to create a new Chart page.

CREATE CHART

Link to Main Sheet

Number of periods
5

UNTITLED CHART

Save Draft **Preview**

CONTROLLER

Empty

New1 +

VARIABLES TO USE OR DISPLAY + Add

Name	Symbol	Chart	Controller	Color	Period 1	Period 2	Period 3	Period 4	Period 5
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	■					

CONSTANTS TO USE OR DISPLAY + Add

Name	Symbol	Chart	Controller	Color	Value
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	■	

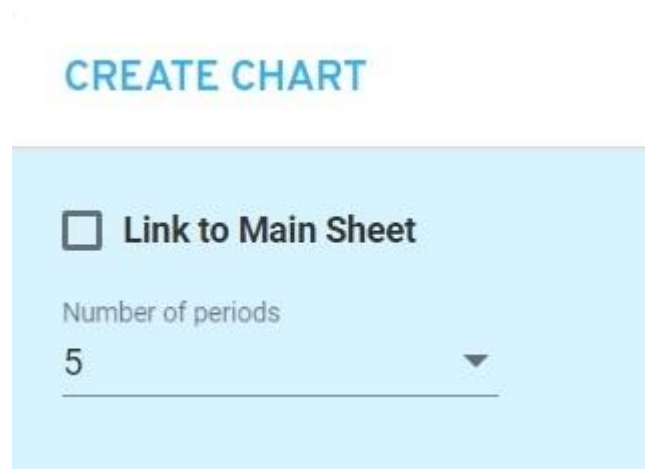
COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol	Series	Chart	Color	Formula
Main1	New1	λ	<input checked="" type="checkbox"/>	■	$= f(x)$

CHART λ z y Flip Axes



10.2. Left Sidebar Menu



By default, the **Link to Main Sheet** option is not selected.



10.2.1. Number of Periods

You can select the number of periods to use for this Chart.

A screenshot of a light blue rectangular box containing a dropdown menu. The text "Number of periods" is displayed at the top left. Below it, the number "5" is shown in a larger font, with a small downward-pointing triangle to its right. A horizontal line is positioned below the number "5".

You can select up to 25 periods. By default, 5 periods will be selected.



10.2.2. Link to Main Sheet – Activated

If you click on the **Link to Main Sheet** option, the **Number of periods** section will disappear and another section will show up, the **Data Source** section.

CREATE CHART

Link to Main Sheet

Data Source ▼

- **Data source**

Another section will appear to select the data source click on the ▼ icon to select the Data source from **CASES** folder.


Data Source

CASES ▼



- **Name**

When you select the **CASES** folder another section will appear, the **Name** section.

Click on the  icon to expand the list of available project names.



A screenshot of a light blue rectangular box representing a dropdown menu. At the top, the word "Name" is written in a light grey font. Below it, the text "World Bank" is displayed in a larger, bold black font. To the right of "World Bank" is a small black downward-pointing triangle icon. A thin horizontal line is positioned below the text "World Bank".

- **Scenario**

When you select a project name from the list, another section will appear, the **Scenario** section.

Click on the  icon to expand the list of available scenario names.

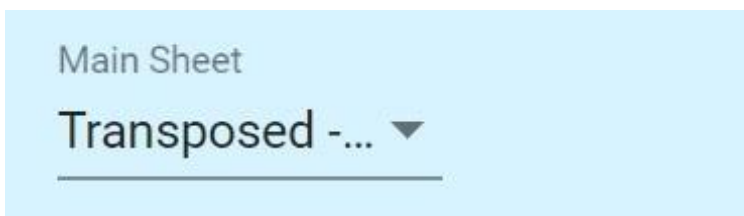


A screenshot of a light blue rectangular box representing a dropdown menu. At the top, the word "Scenario" is written in a light grey font. Below it, the text "ONE" is displayed in a larger, bold black font. To the right of "ONE" is a small black downward-pointing triangle icon. A thin horizontal line is positioned below the text "ONE".

- **Main Sheet**

When you select a scenario name from the list, another section will appear, the **Main Sheet** section.

Click on the  icon to expand the main sheets list.



A screenshot of a light blue rectangular box representing a dropdown menu. At the top, the words "Main Sheet" are written in a light grey font. Below it, the text "Transposed -..." is displayed in a larger, bold black font. To the right of "Transposed -..." is a small black downward-pointing triangle icon. A thin horizontal line is positioned below the text "Transposed -...".

After you select your main data sheet the variables of the sheet will automatically be available to you in the **Variables to Use or Display** section, where you can double-click and select the ones you want to use or display.

The axis of the chart is defined upon selection of the main sheet.



10.3. Top Toolbar

UNTITLED CHART 

Save Draft

Preview

On the left of the top toolbar you can choose a name for the chart, click on the grey pencil next to the name to edit it.

UNTITLED CHART 

When you select the desired name, click anywhere outside the text box and the name will light up blue. You can edit the name anytime.

VALUE XD CHART 

On the right of the toolbar, you can click anytime the

Save Draft

button to save the new chart.

You can click on

Preview

button to go to preview your chart's panel.



10.4. Controller

The controller bar is empty by default;

CONTROLLER

Empty

It may contain the variables that you can define from the [VARIABLES TO USE OR DISPLAY](#) and/or [CONSTANTS TO USE OR DISPLAY](#) sections.

CONTROLLER

Current Assets ×

Current Liabilities ×

You can define one or many variables and/or constants as needed.

You can remove any or all of the variables or constants by clicking on the X next to each one.

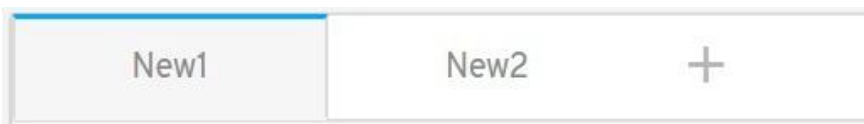


10.5. New Panels' Bar

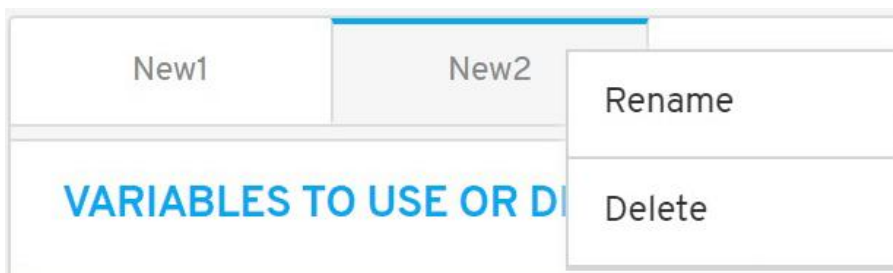


By default, one panel called “New1” will open when you create a new chart.

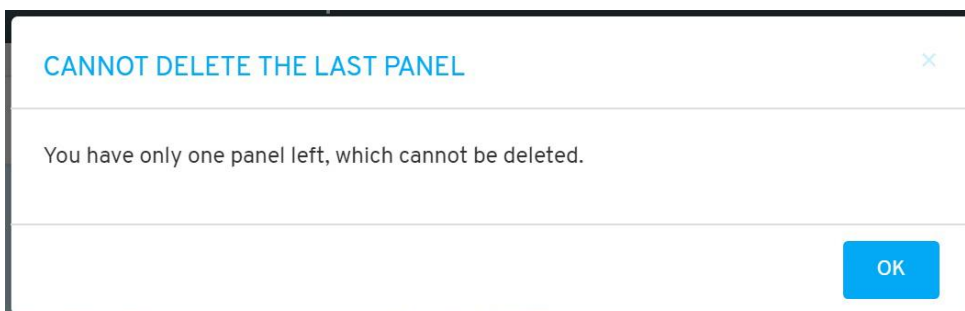
You can click on the **+** icon to add a chart or second panel, you can have two per panel.



Whenever you click on a tab you will notice the top outline of the panel you clicked on will turn to blue. This will easily let you know which panel/chart you are editing.



You can right-click on any tab; two options will pop up to **Rename** or **Delete** the panel. If you have only one panel, this panel cannot be deleted.





10.6. Variables to Use or Display

VARIABLES TO USE OR DISPLAY + Add

Name	Symbol	Chart	Controller	Color	Period 1
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	■	

In this section, you have the tools to define and or select the variables of your new chart.

You can click on **+ Add** to add more variables as desired.

Another line will appear under the main one, you can add as many as needed.

VARIABLES TO USE OR DISPLAY + Add

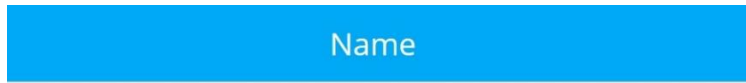
Name	Symbol	Chart
	λ	<input checked="" type="checkbox"/>
	λ	<input checked="" type="checkbox"/>

Delete

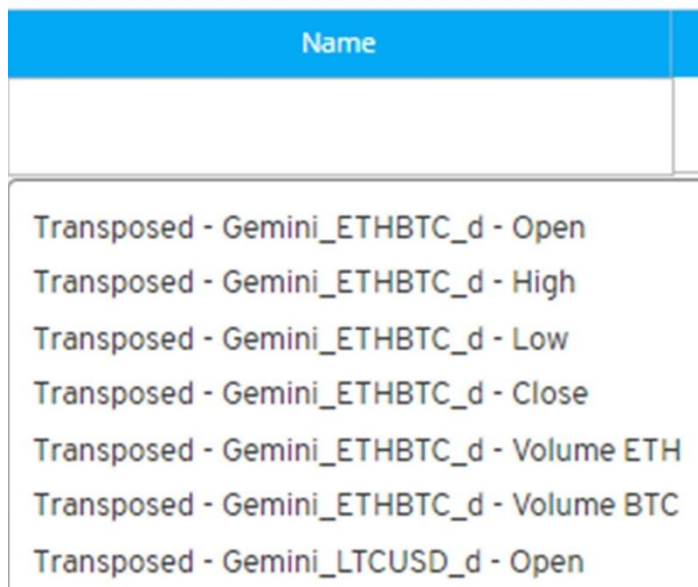
You can right-click anywhere on the added line, a Delete option will pop up, click on it to proceed by deletion.



10.6.1. Variable's Name



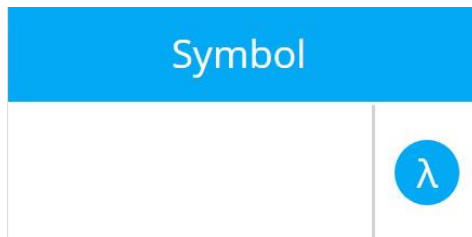
If you have linked the chart to a main sheet, when you double-click inside the name cell, you will see a list of variables you can select from. This list of variables is made up of all the variables on your main sheet, as well as those on other sheets in the same case/scenario that have, or include, the same axis.




If you do not link the chart to a main sheet, then you will be able to double-click and input the name of the property or variable to display directly into the name box.



10.6.2. Symbol



You can double-click in the symbol box to insert your desired symbol for each of the chart variables. You can attach a 5 letter symbol to your variables and constants, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the variable as a Greek letter by clicking on  that will expand all the letters available to choose from.

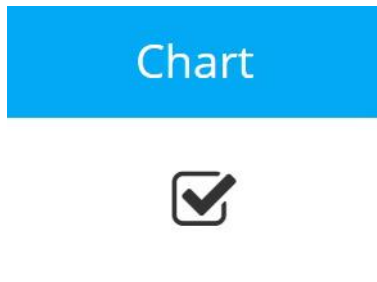
					<input checked="" type="checkbox"/>	
α	β	Δ	δ			
ε	ζ	η	θ			
κ	λ	λ	ξ			
ψ	Ω	ω				

You can also double-click inside the symbol box to type in your desired 5 letter symbol character.



10.6.3. Chart

You can choose to include the variable in the chart by clicking the checkbox.



It is selected by default.



10.6.4. Controller

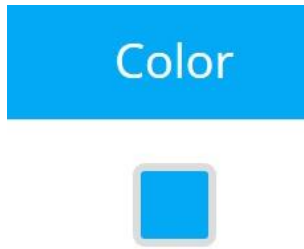
You can choose to include the variable in the controller by clicking the checkbox.

Controller

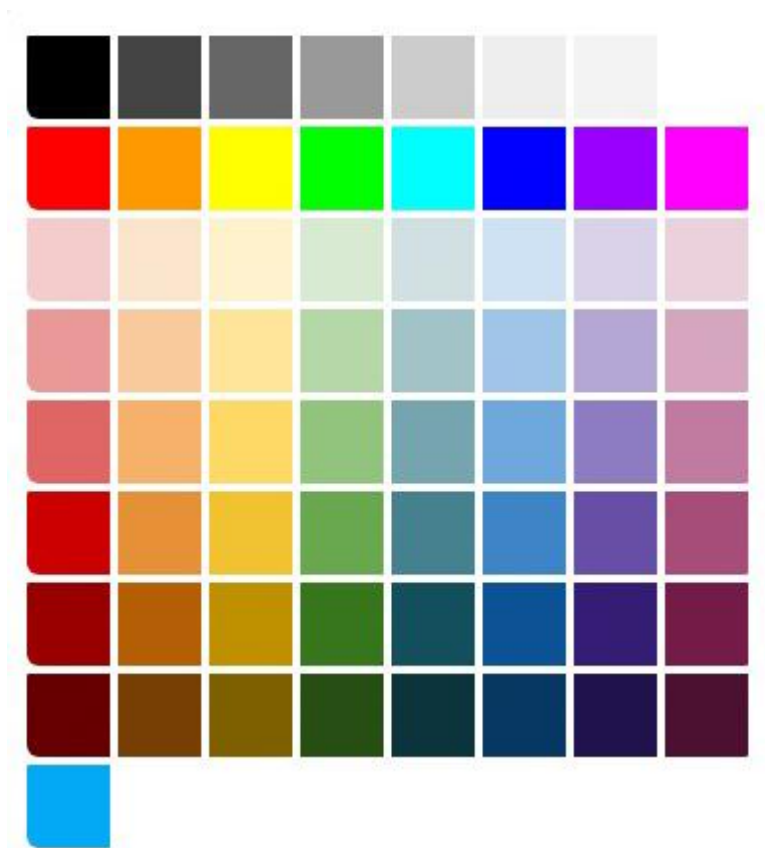
By default, it is not selected.



10.6.5. Color



You can select a color for the variable by clicking inside the box that will expand the color palette for you to set your desired color.



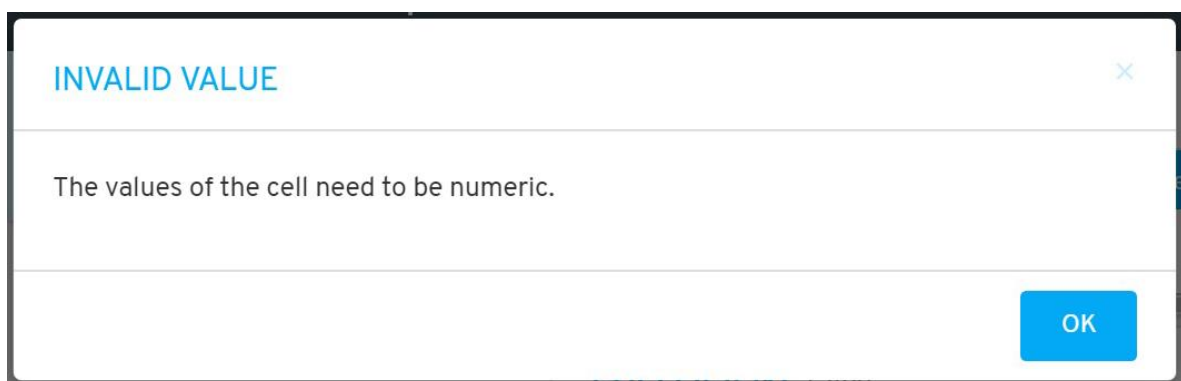


10.6.6. Periods

Period 1	Period 2	Period 3	Period 4	Period 5


The period section is dependent on how many periods you set in the number of periods tab. If the chart is linked to a sheet, then the axis elements of the selected sheet will show instead.

You can double-click inside each period to set the value; it should only be a numeric value.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ✕

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, if you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



10.7. Constants to Use or Display

Name	Symbol	Chart	Controller	Color	Value
	λ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	■	

In this section, you can select the constants to show or use in your new chart.

You can click on **+ Add** to add more set of constants as desired.

Another line will appear under the main one, you can add as many as needed.

CONSTANTS TO USE OR DISPLAY + Add

Name	Symbol	Chart
	λ	<input checked="" type="checkbox"/>
	λ	<input checked="" type="checkbox"/>

Delete

You can right-click anywhere on the added line, a Delete option will pop up, click on it to proceed by deletion.



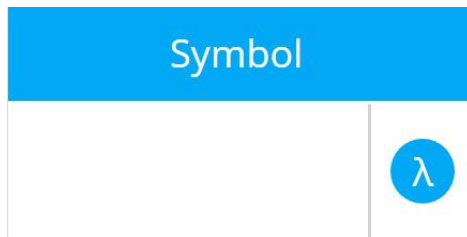
10.7.1. Constant's Name

Name

You can double-click inside the name field to set the constant's name. Or if linked to a sheet, double-click to select from automatic list.



10.7.2. Symbol



You can double-click in the symbol box to insert your desired symbol for each of the constants used in the chart. You can attach a 5 letter symbol to your constants, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the constant as a Greek letter by clicking on that will expand the list of letters available to choose from.



			<input checked="" type="checkbox"/>	
α	β	Δ	δ	
ε	ζ	η	θ	
κ	λ	λ	ξ	
ψ	Ω	ω		

You can also double-click inside the symbol box to type in your desired symbol character.



10.7.3. Chart

You can choose to include the constant in the chart by clicking the checkbox.

Chart

It is selected by default.



10.7.4. Controller

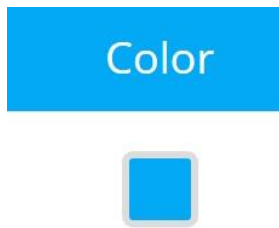
You can choose to include the constant in the controller by clicking the checkbox.

Controller

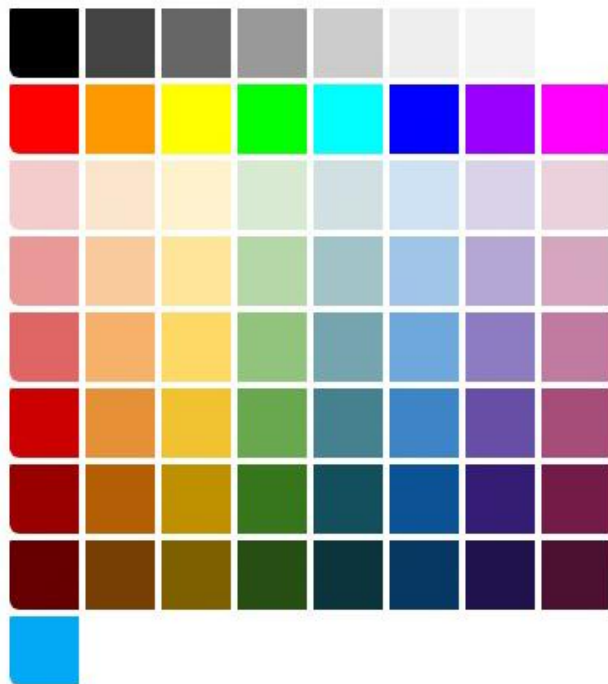
By default, it is not selected.



10.7.5. Color

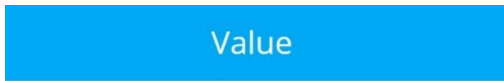


You can select a color for the constant by clicking inside the box that will expand the color palette for you to set your desired color.



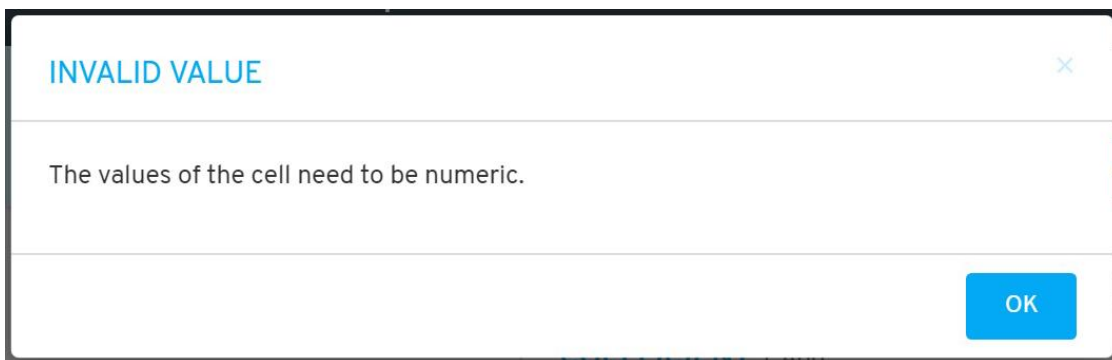


10.7.6. Value




You can input the value(s) of the Constant(s) by double clicking inside the text box. Alternatively, if the chart is linked to a sheet, the values will be imported automatically.

Be aware that this cell only accepts numeric values.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ✕

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, If you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



10.8. Composites to Use or Display

COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol	Series	Chart	Color	Formula
Main1	New1 λ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	■	$s(x)$ = $f(x)$

In this section, you can define the Main Composite of your new Chart. This is to make it easy for the user to show a variable in the chart that is not yet available as a variable or constants, and needs calculation.

This works just like the models' section.

You can click on **+ Add Sub-Elements** to add more sub elements as desired.

Another line will appear under the main one, you can add as many as needed.

COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol	Series
Main1	New1 λ	<input checked="" type="checkbox"/>
Sub1	λ	<input checked="" type="checkbox"/>

Delete

You can right-click on any line, a Delete option will pop up, click on it to proceed by deletion.



10.8.1. Composite's Name

Name
Main1

You can double-click inside the name field to set the name of the composite.


By default, the main composite's name is "**Main1**", and the sub element is "Sub1".



10.8.2. Symbol



You can double-click in the symbol box to insert your desired symbols for the main composite. You can attach a 5 letter symbol to your composites, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the composite as a Greek letter by clicking on  which will expand the list of letters available to choose from.

New1	λ		
α	β	Δ	δ
ε	ζ	η	θ
κ	Λ	λ	ξ
ψ	Ω	ω	

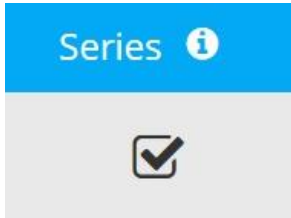
You can also double-click inside the symbol box to type in your desired symbol character.

By default, the symbol's name is "New1"



10.8.3. Series

You can select if the calculated composite is a series by clicking the checkbox.



If you move your mouse over the info icon  details will pop up about the series box.

For all series data, time or other type, where the output will be a series of values, the subscript 'i' must be used with all variables and subformulas.



10.8.4. Chart

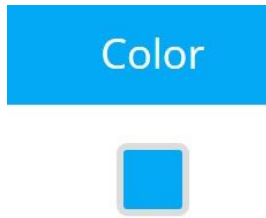
You can select if this composite will be shown in the chart by clicking the checkbox.



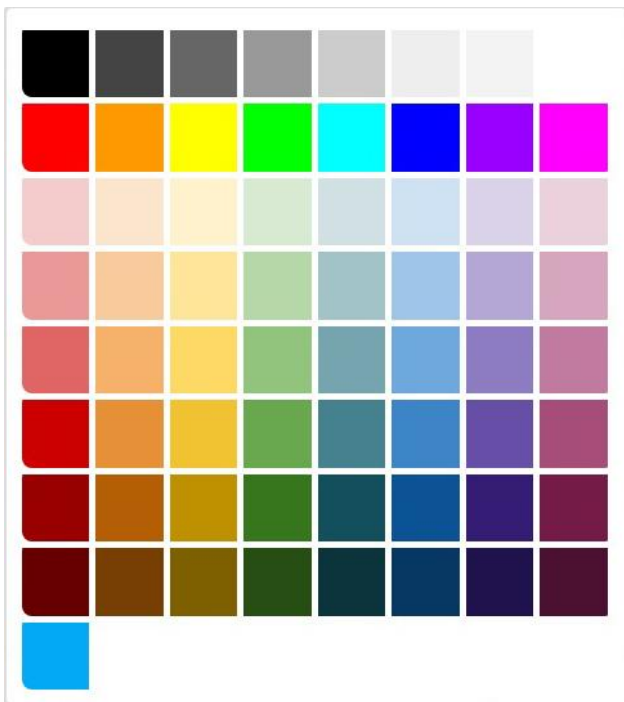
It is selected by default.



10.8.5. Color

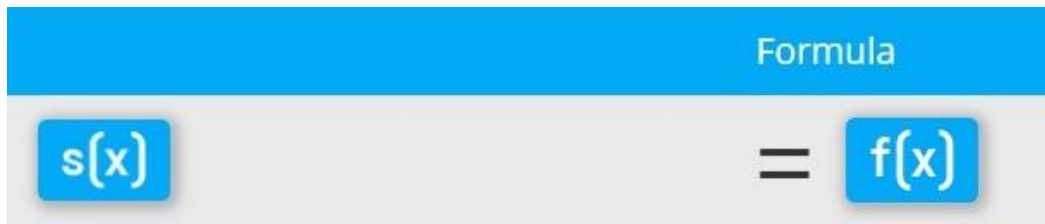


You can select a color for the composite by clicking inside the box that will expand the color palette for you to set your desired color.





10.8.6. Formula / Equation Editor



For your composites, you can create your own equations in the formula section that has two main parts:



$f(x)$ is the equation editor where you can input and create your formulas and subformulas.



$s(x)$ is the symbol editor, where you can input a left side symbol for your main formula or subformulas.

The symbol editor looks just like the equation editor, but it is purely to design your descriptive formula symbol when necessary.



Click on the $f(x)$ button in the box to expand the Equation editor that contains a variety of functions to help you create your own formulas.

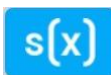


Equation Editor/MAIN FORMULA ×

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined	
Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek											
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo									Variables No properties yet
$\sqrt[\square]{\square}$	%	∞	L	J	[]	x!									Constants No coefficients yet
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}									Subformulas No subformulas yet	

Hover over function buttons to see what they do.

The **User Defined variables, constants, and subformulas** appear in the $f(x)$ equation editor, and not in the symbol editor, which is a descriptive tool to help you define a specific right side to the equation.



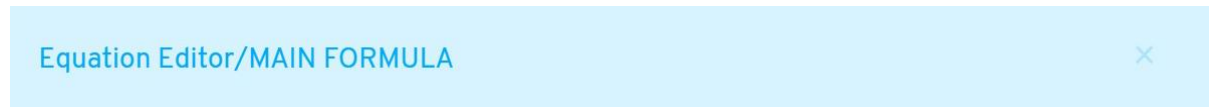
Equation Editor/MAIN FORMULA ×

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.		
Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek											
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo									
$\sqrt[\square]{\square}$	%	∞	L	J	[]	x!									
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}										

Hover over function buttons to see what they do.



If you clicked on the main formula, the top of the equation editor will be colored light blue.



The sub formula top will be colored light grey.

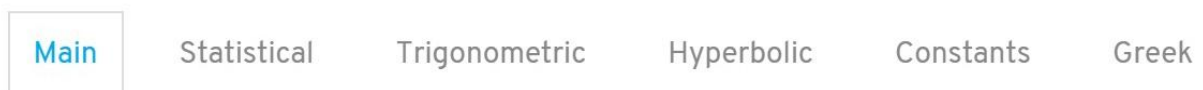


You can check the [Equation Editor Syntax](#) to learn more about how to properly create and input your equations.

You can use the standard numpad keys from 0 to 9 and the commonly used function of add, minus, multiply, divide and point. These will be located on the first fixed line.



You can choose from 6 fixed categories of functions that will help you create your own formulas. artistically.





In all of the 6 categories, the first 7 functions are fixed and you can notice that its available in all of the categories.
You can hover your mouse over any function and a details line will appear at the bottom of the functions that describe what the function do.

$()$ $\frac{\square}{\square}$ x_{\square} x^{\square} $\sqrt{\square}$ \sum_{\square}^{\square} $\prod_{\square}^{\square}$

$()$ Identifies the expression that will be calculated first.

$\frac{\square}{\square}$ Fraction of any two elements or functions.

x_{\square} Subscript to identify time or other series.

x^{\square} Identifies the exponent of the variable or expression.

$\sqrt{\square}$ The square root of the expression.

\sum_{\square}^{\square} Sums all values in range of series.

$\prod_{\square}^{\square}$ Multiplies all values in range of series.



10.8.6.1. Main Functions

The first Main category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo
$\sqrt[n]{\square}$	%	∞	⌊	⌋	⌈	⌉	x!
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}	

Hover over function buttons to see what they do.

Modulo

Calculates the remainder after the division of one variable by another.



The nth square root of the expression.



1% = 1/100



Symbol of infinity, an infinitely large number.



Rounds number to the lower integer, used with ⌋

 \lfloor

Rounds number to the lower integer, used first with \lceil

 \lceil

Rounds number to the upper integer, used with \lfloor

 \lceil

Rounds number to the upper integer, used first with \lfloor

 $x!$

Calculates the factorial of the variable.

 $|x|$

Calculates the absolute value of the variable or expression.

 $\lim_{\square \rightarrow \square}$

Calculates the limit of the expression.

 \log_{\square}

Calculates the log based on a defined base.

 \ln

Calculates the natural logarithm of the expression.

 \int_{\square}^{\square}

Calculates the finite integral of a function.



$$\int_a^b \int_c^d$$

Calculates the double finite integral of a function.

$$e^x$$

Calculates the constant e to the desired exponent X



10.8.6.2. Statistical Functions

The statistical category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	X_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	μ
var(x)	σ^2	std(X)	σ	med(X)	cov(X,Y)	corr(X,Y)	ρ
mo(X)	mr(X)	min(X)	max(X)				

Hover over function buttons to see what they do.

μ

Mu, calculates mean of population values.

var(x)

Calculates the sample variance of a variable.

σ^2

Sigma Squared, Calculates the population variance of a variable.

std(X)

Calculates the sample standard deviation of a variable.



σ

Sigma, the population standard deviation of a variable.

$\text{med}(X)$

The median value of the data.

$\text{cov}(X,Y)$

Calculates the covariance of variables X and Y.

$\text{corr}(X,Y)$

Calculates the correlation of variables X and Y.

ρ

Rho, the correlation of variables X and Y.

$\text{mo}(X)$

The value that occurs most frequently in the data.

$\text{mr}(X)$

The arithmetic mean of the maximum and minimum values in the sample.

$\text{min}(X)$

The smallest value in the data.

$\text{max}(X)$

The largest value in the data.



10.8.6.3. Trigonometric Functions

The Trigonometric category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic		Constants	Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sin
cos	tan	cot	sec	csc	arcsin	arccos	arctan
arccot	arcsec	arccsc					

Hover over function buttons to see what they do.

sin

The sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse.

cos

The cosine of an angle is the ratio of the length of the adjacent side to the length of the hypotenuse.

tan

The Tangent of an angle is the ratio of the length of the side that is opposite to the angle divided by the length of the side that is adjacent to the angle.

cot

Cotangent is defined as the reciprocal function of Tangent.

sec

The Secant is defined as the reciprocal function of Cosine.



csc

Cosecant is defined as the reciprocal function of Sine.

arcsin

Arcsine is a partial inverse function of Sine.

arccos

Arccosine is a partial inverse function of Cosine.

arctan

Arctangent is a partial inverse function of Tangent.

arccot

Arccotangent is a partial inverse function of Cotangent.

arcsec

Arcsecant is a partial inverse function of Secant.

arccsc

Arccosecant is a partial inverse function of Cosecant.



10.8.6.4. Hyperbolic Functions

The Hyperbolic category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sinh
cosh	tanh	coth	sech	csch	arcsinh	arccosh	arctanh
arcoth	arcsech	arccsch					

Hover over function buttons to see what they do.

sinh

Hyperbolic sine.

cosh

Hyperbolic cosine.

tanh

Hyperbolic tangent.

coth

Hyperbolic cotangent.

sech

Hyperbolic secant.



csch

Hyperbolic cosecant.

arcsinh

Inverse Hyperbolic sine.

arccosh

Inverse Hyperbolic cosine.

arctanh

Inverse Hyperbolic tangent.

arcoth

Inverse Hyperbolic cotangent.

arcsech

Inverse Hyperbolic secant.

arccsch

Inverse Hyperbolic cosecant.



10.8.6.5. Constants Functions

The Constants category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic	Constants		Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}	\prod_{\square}	e
γ	φ	π	τ	ln 2	ln 10	$\log_2 e$	$\log_{10} e$
$\sqrt{2}$	$\sqrt{1/2}$						

Hover over function buttons to see what they do.

e

The number e that is the base of the natural logarithm, whose natural logarithm is equal to one, at 10 decimal places, V = 2.7182818285

γ

Gamma, the numerical value of the Euler–Mascheroni constant, to 10 decimal places, V = 0.5772156649

φ

Phi, the golden ratio constant, at 10 decimal places, V = 1.6180339887

 π

Pi, the ratio of a circle's circumference to its diameter, at 10 decimal places, Value = 3.1415926535

 τ

Tau, the ratio of a circle's circumference to the radius, at 10 decimal places, equal to $2 * \pi$, $V = 6.2831853071$

 $\ln 2$

The natural logarithm of 2, at 10 decimal places, Value = 0.69314718056

 $\ln 10$

The natural logarithm of 10, at 10 decimal places, Value = 2.302585093

 $\log_2 e$

The base-2 logarithm of e, at 10 decimal places, Value = 1.4426950409

 $\log_{10} e$

The base-10 logarithm of e, at 10 decimal places, Value = 0.4342944819

 $\sqrt{2}$

The square root of 2, at 10 decimal places, Value = 1.4142135624

 $\sqrt{1/2}$

The square root of 1/2, at 10 decimal places, Value = 0.7071067812



10.8.6.6. Greek Functions

The Greek Category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	α
β	Δ	δ	ε	ζ	η	θ	κ
Λ	λ	ξ	ψ	Ω	ω		

Hover over function buttons to see what they do.

α

Greek letter alpha

β

Greek letter beta

Δ

Greek letter delta, Capital

δ

Greek letter delta

ε

Greek letter epsilon



ζ	Greek letter zeta
η	Greek letter eta
θ	Greek letter theta
κ	Greek letter kappa
Λ	Greek letter lambda, capital
λ	Greek letter lambda
ξ	Greek letter Xi
ψ	Greek letter psi
Ω	Greek letter omega, capital
ω	Greek letter omega



10.8.6.7. User Defined

On the right section inside the equation editor window, there is a user defined section where the Properties, Constants and Sub formulas defined by the user will be listed. It can be one or many.

User Defined

Variables

No properties yet

Constants

No coefficients yet

Subformulas

No subformulas yet



You can click on the X sign on the top right of the equation editor to close it.

You can click on the top of the equation editor window and drag it freely around the create chart's page.

Equation Editor/MAIN FORMULA
✕

$$-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$$

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined						
Main	Statistical	Trigonometric		Hyperbolic			Constants		Greek		Variables										
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo		FCF (Series)												
\forall_{\square}	%	∞			[]	x!		Constants												
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}															
Hover over function buttons to see what they do.															r						
															Subformulas						
															No subformulas yet						

After you finish writing/creating your formula(s) or subformula(s), you can click on the confirm button at the bottom of the equation editor window.

CONFIRM

Your formulas and subformulas will be placed inside the box that you can click on it anytime to edit/ re-write.

Formula

s(x)

 NPV_{FCF}

=

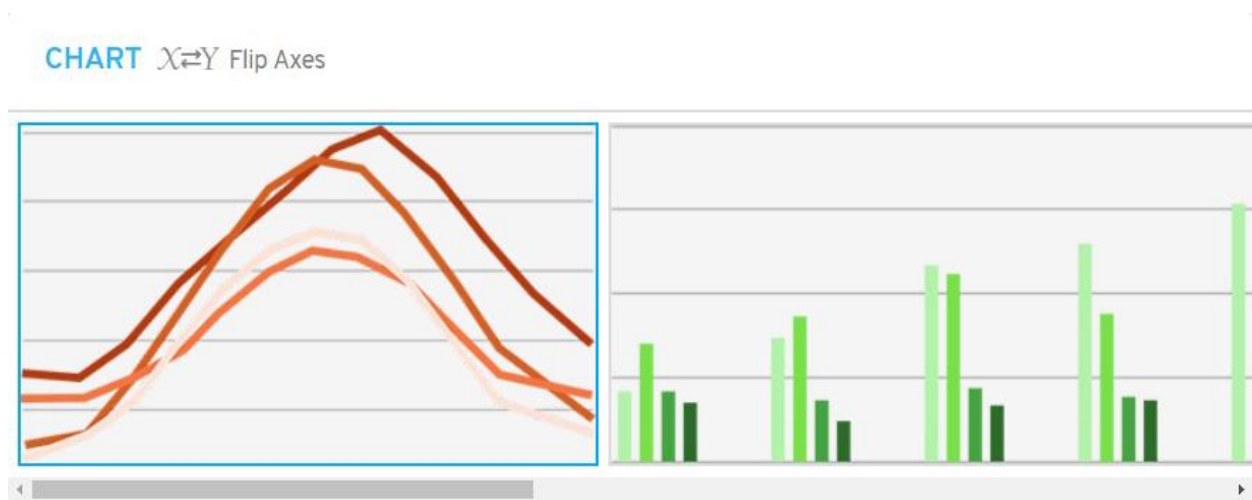
f(x)

 $-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$



10.9. Chart

In the Chart section, you can select the style of your chart visualizations.





10.9.1. Flip Axes

On the top of this section next to the **CHART** title you can notice the flip axes sign.

CHART $X \rightleftharpoons Y$ Flip Axes

This will be activated if you click on it and the whole icon will light blue to indicate that it is activated.

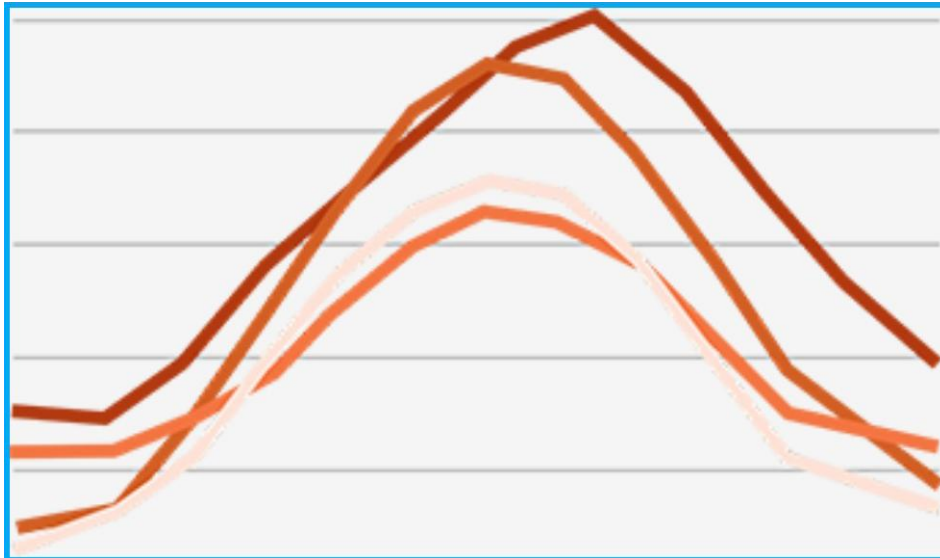
CHART $X \rightleftharpoons Y$ Flip Axes

You can select from 5 kinds of visualization for your chart. These are being expanded as we write this manual. Users will have most chart types available to them once we go live with the platform.



10.9.2. Line Chart Visualization

The first chart style is the Line chart that you can select to define the visualization of your chart.



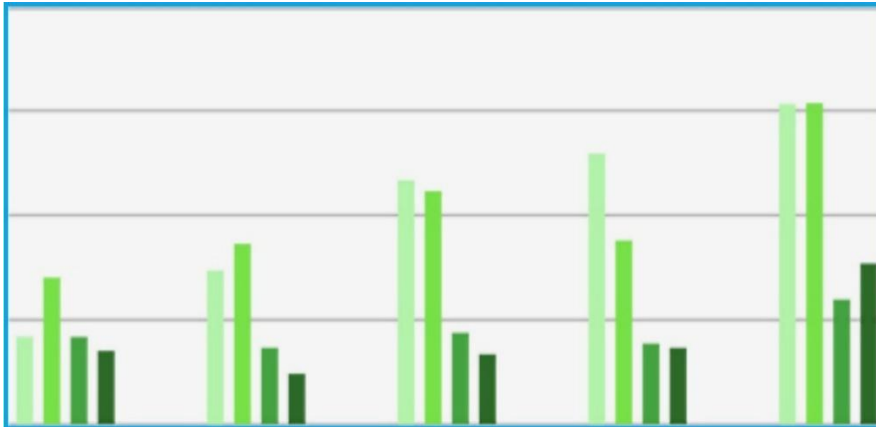
The outcome of this visualization style will be like below sample.



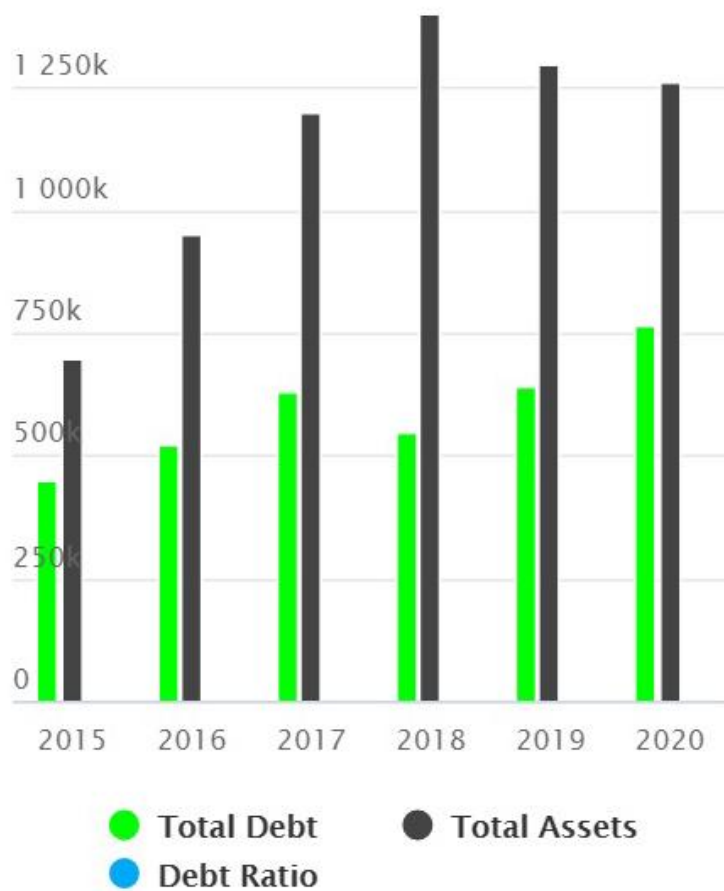


10.9.3. Column Chart Visualization

You can select the Column chart for the visualization style



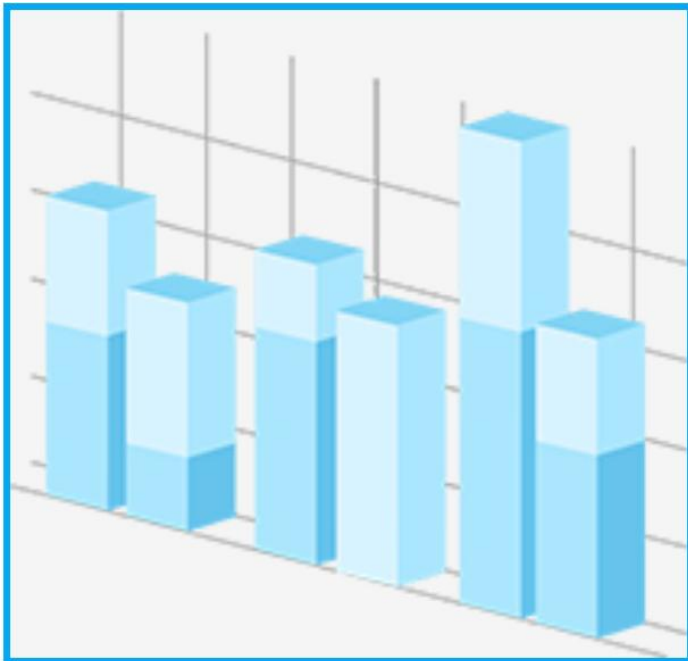
The outcome of this visualization style will be like below sample.



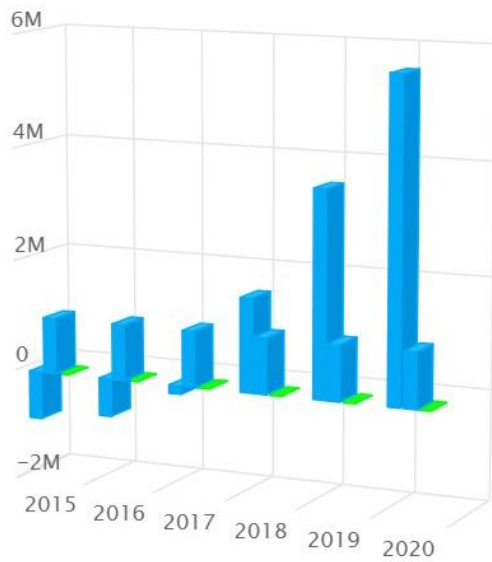


10.9.4. Column 3D Visualization

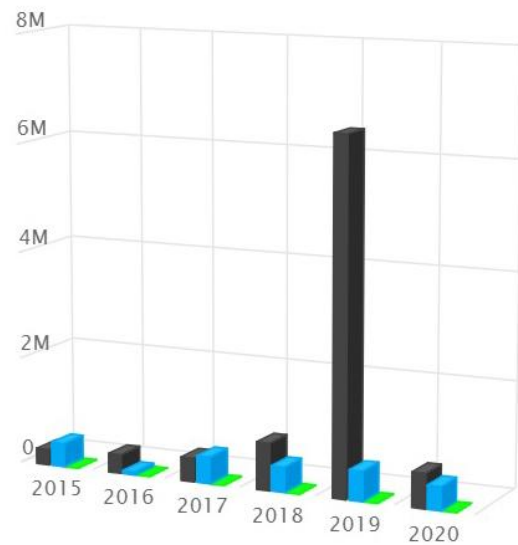
You can select the Column 3D chart for the visualization style.



The outcome of this visualization style will be like below samples.



- Net Income
- Total Shares Outstanding
- Earnings Per Share

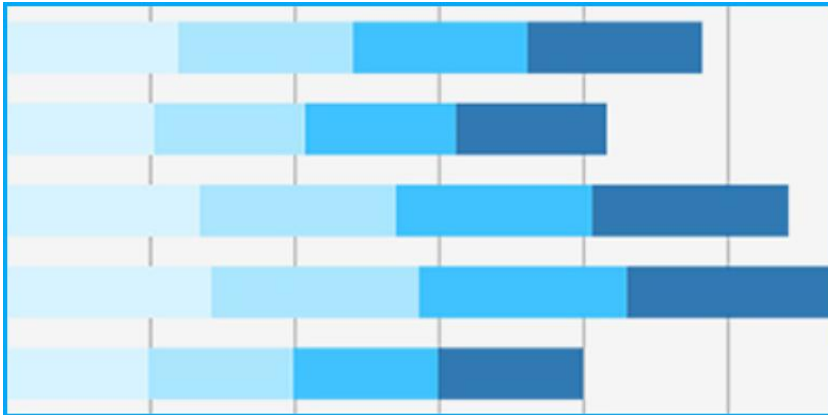


- Current Assets
- Current Liabilities
- Current Ratio



10.9.5. Bar Chart Visualization

You can select the Bar chart for the visualization style.



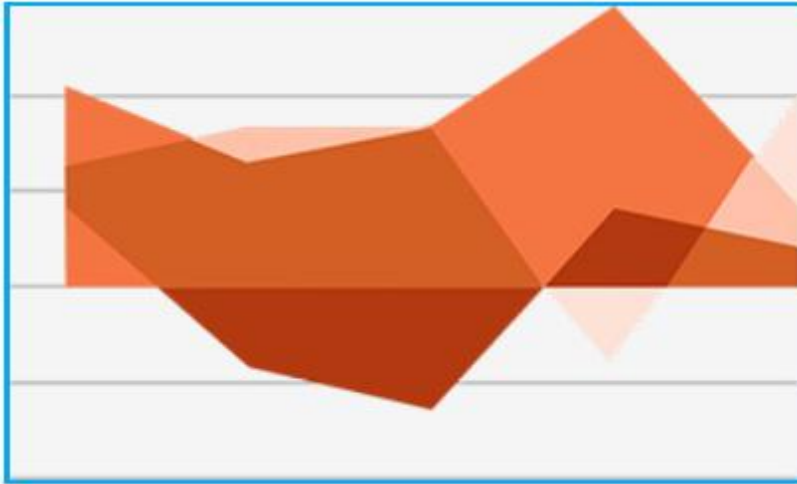
The outcome of this visualization style will be like the below sample.





10.9.6. Area Chart Visualization

You can select the Area chart for the visualization style.



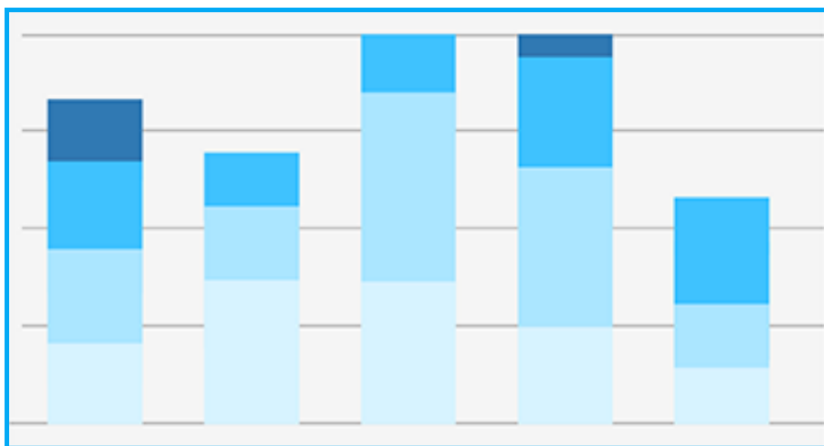
The outcome of this visualization style will be like below sample.





10.9.7. Bar Style Visualization

You can select the bar chart for the visualization style.



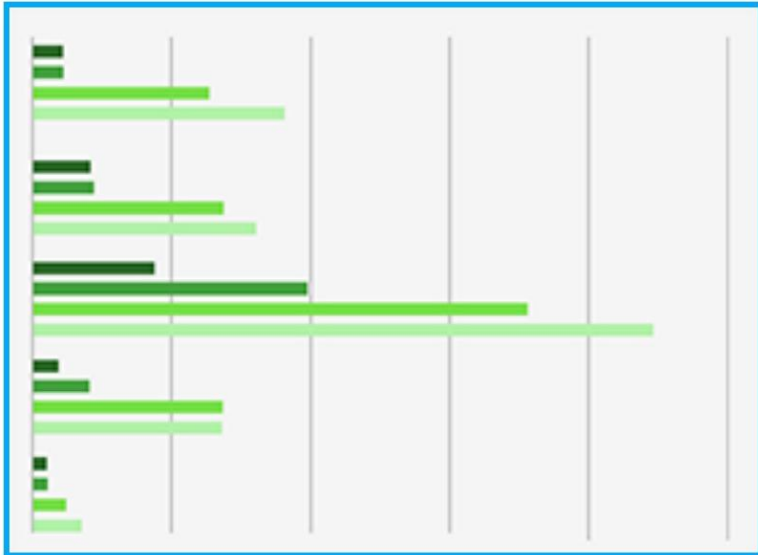
The outcome of this visualization style will be like below sample.



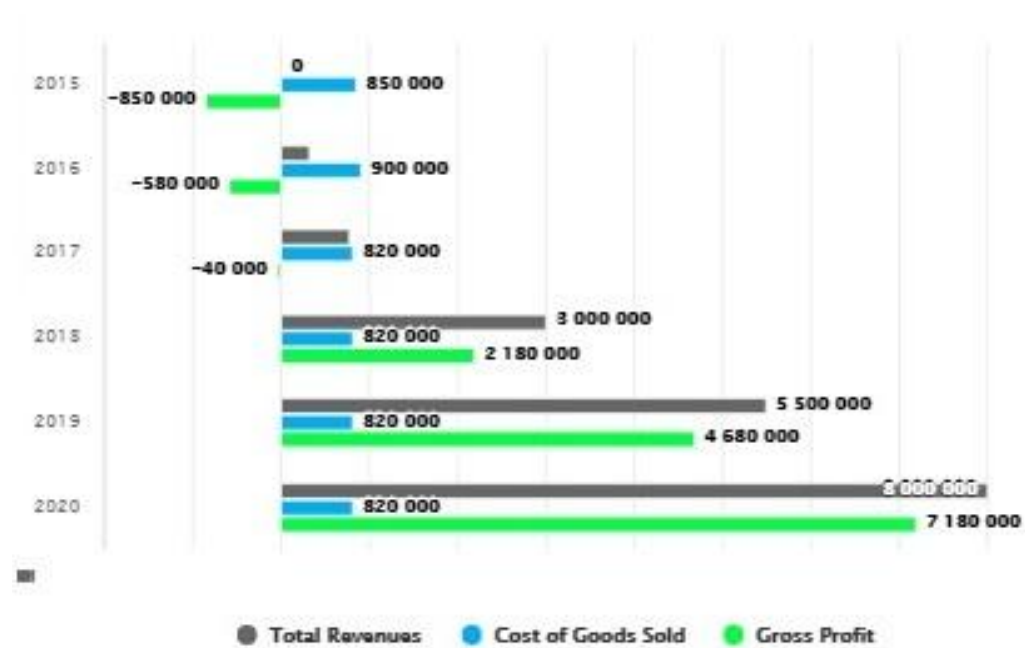


10.9.8. Horizontal Column Visualization

You can select the Horizontal column for the visualization style.



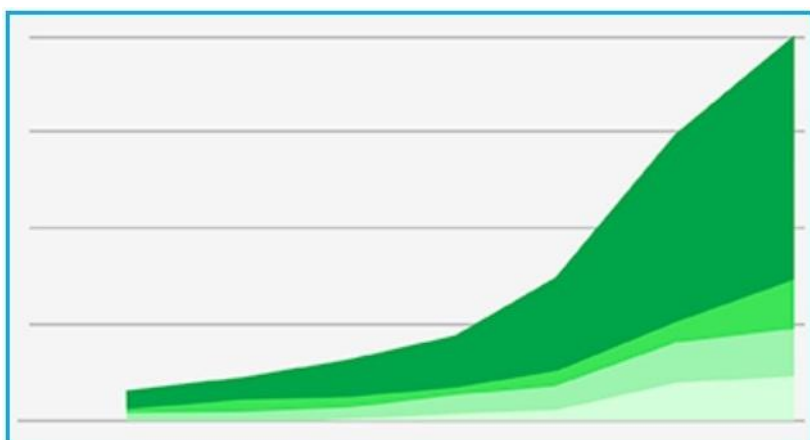
The outcome of this visualization style will be like below sample.





10.9.9. Surface Visualization

You can select the Surface to demonstrate your visualization style.



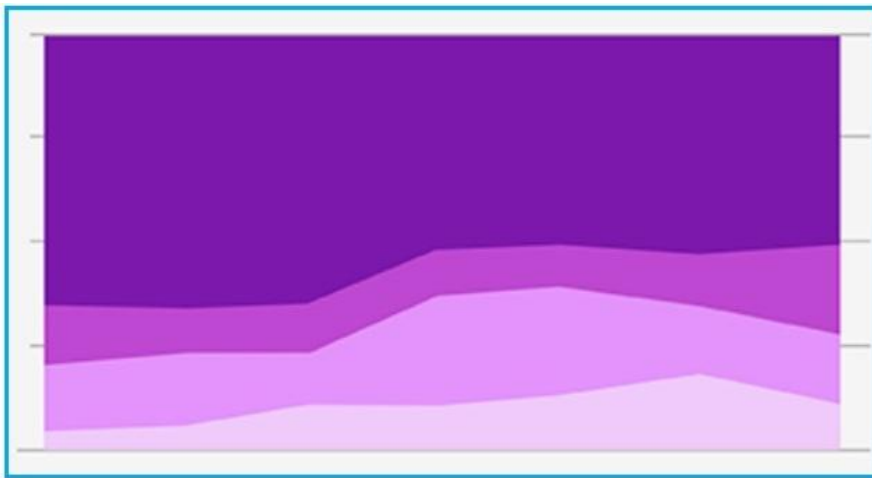
The outcome of this visualization style will be like below sample.



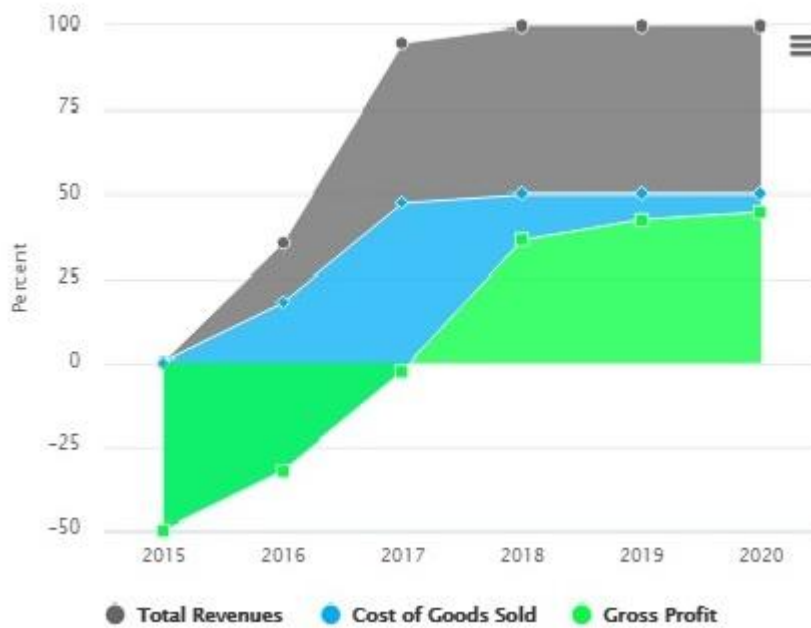


10.9.10. Surface V10 Style

You can select the Surface V10 to demonstrate your visualization style.



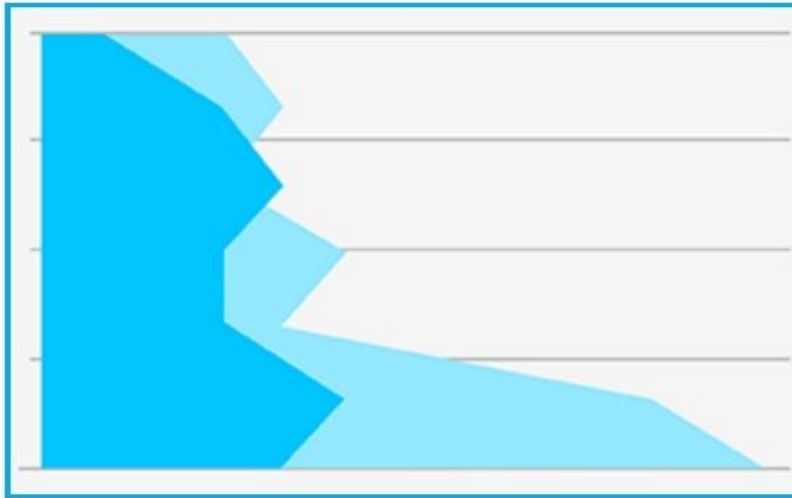
The outcome of this visualization style will be like below sample.



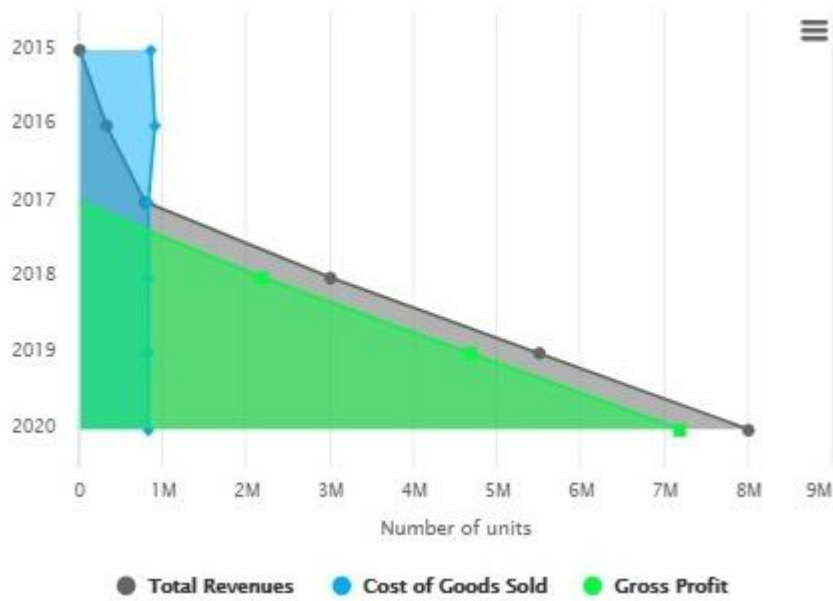


10.9.11. Surface VII Style

You can select the Surface VII to demonstrate your visualization style.



The outcome of this visualization style will be like below sample.



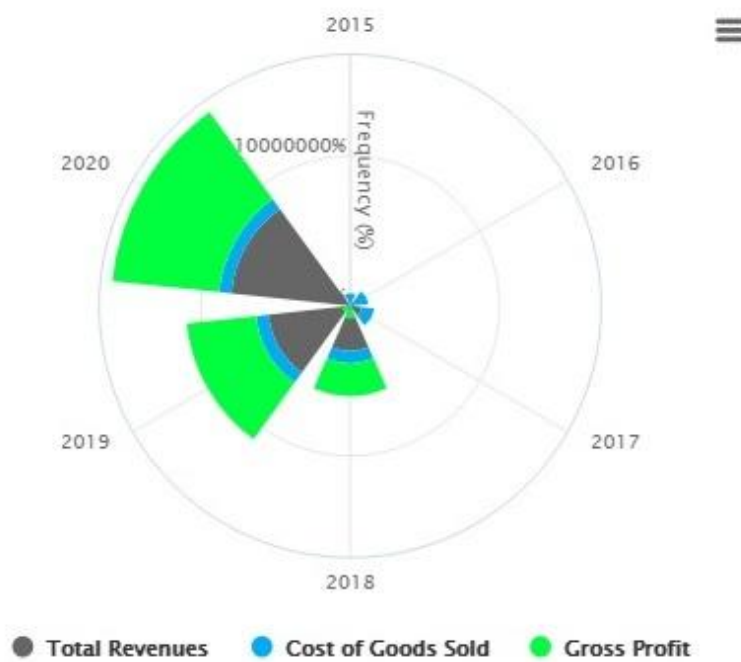


10.9.12. Pie Visualization

You can select the Pie to demonstrate your visualization style.



The outcome of this visualization style will be like below sample.





10.9.13. Diamond Style Visualization

You can select the Diamond to demonstrate your visualization style.



The outcome of this visualization style will be like below sample.





10.10. Save Draft / Preview

After selecting your desired options and writing your composites / formulas, it is time to Preview and Save your Chart.

In the Top Toolbar you can find the two buttons **Save Draft** and **Preview**.



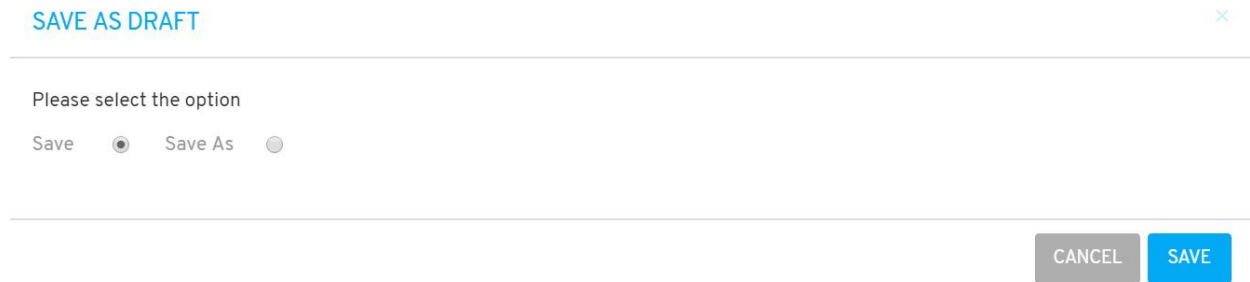


10.10.1. Save Draft

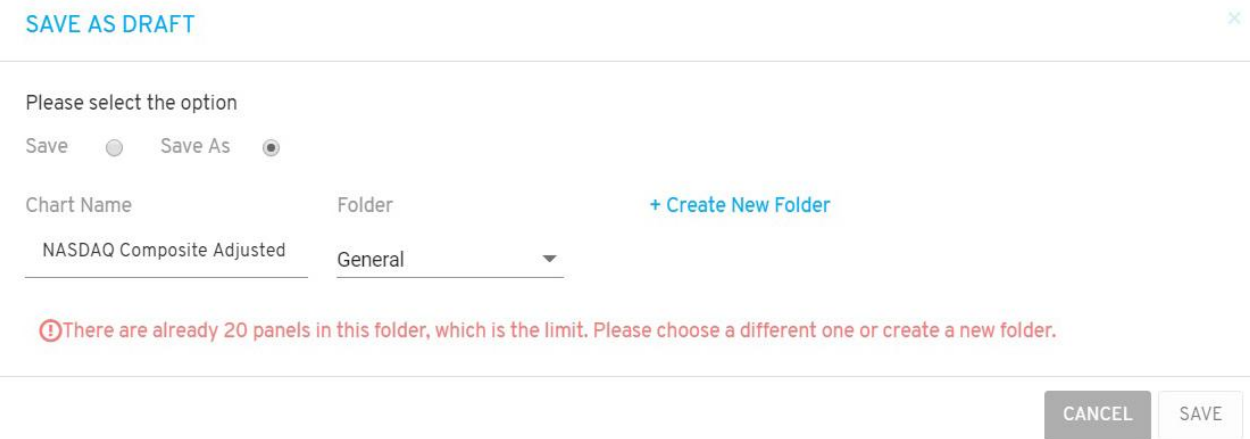
If you click on the



button a panel will pop up with save or save as options.



You can select the **Save** option to save your chart directly, or **Save As** option to make a copy or to select where to save it.



Two new fields will appear.

Write the desired name under the **Chart Name** field, select the **Folder** where the Chart will be located.

Important Note: A folder can contain a maximum of 20 panels, choose a different folder or create a new folder if your folder is full. This allows a smoother performance and enhances manageability.



You can click on the **+ Create New Folder** to create a new folder to save the Chart inside.

SAVE AS DRAFT ×

Please select the option

Save Save As

Chart Name	Folder	+ Create New Folder	
<input type="text" value="NASDAQ Composite Adjusted"/>	<input type="text" value="VXD-F"/> ▼	<input type="text"/>	<input type="button" value="Create"/>

A field box will appear to type in the desired new folder name, and click the **CREATE** box.

The new folder will automatically be selected in the folder section.

Click on the **CANCEL** to cancel or **Save** to proceed by saving your Chart.



10.10.2. Preview


You can click on the  button and the preview panel will appear.



At the bottom of the panel, you can select the **Save** option to save your Chart directly, or the **Save As** option to copy or select where to save it.

If you select the **Save As** option, 2 new fields will appear, write the desired name under the **Chart Name** field, select the **Folder** where the chart will be located.

You can click on  to create a new folder to save the chart inside.

Save Save As Chart Name Folder 



A field box will appear to type in the desired new folder name, and click the **CREATE** box.

The new folder will automatically be selected in the folder section.

Click on the **Close** to cancel or **Save** to proceed by saving your chart.



You will be directed to the Charts' Catalogue page.

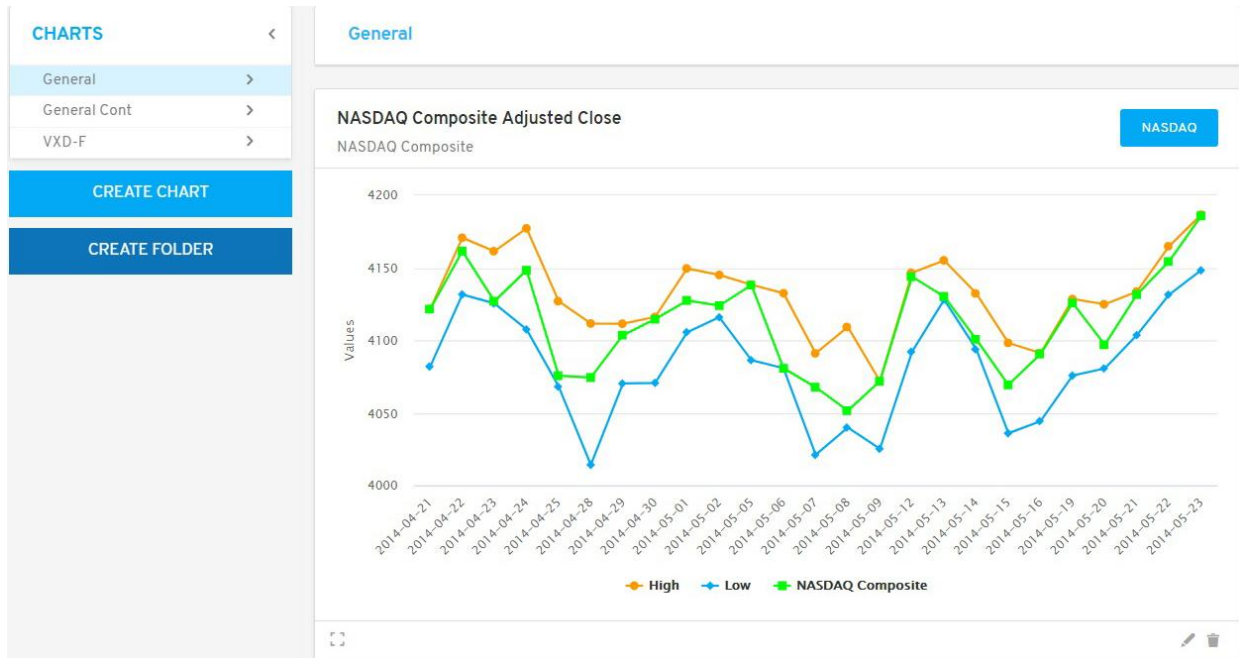
Important Note: In the Chart creation tool you do not need to have a main equation or composite defined to see the visualisation of the variables or constants selected.

In the Model creation tool a main formula or equation must be defined for the preview panel to open.



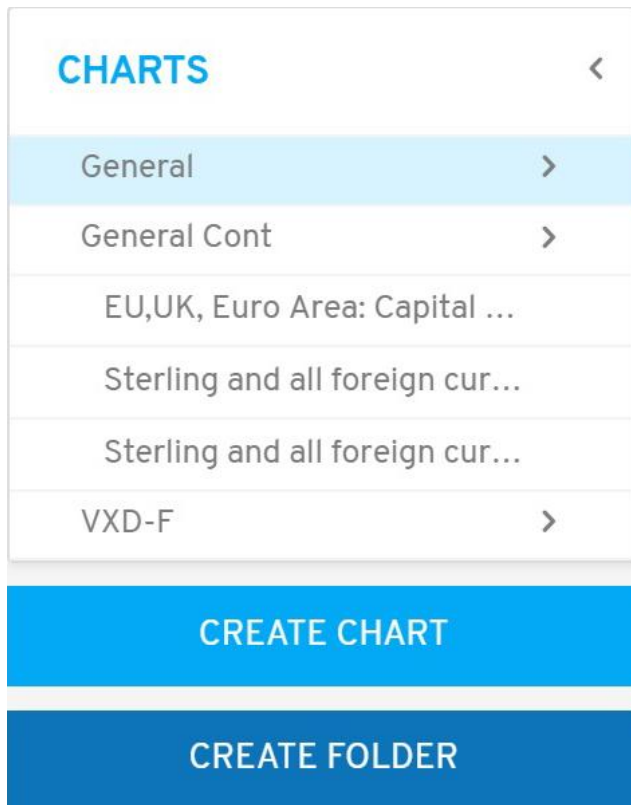
10.11. Charts' Catalogue


When you click on Charts' Catalogue, or just after saving a new chart, you will be directed to your Charts' catalogue page.





10.11.1. Chart Sidebar List

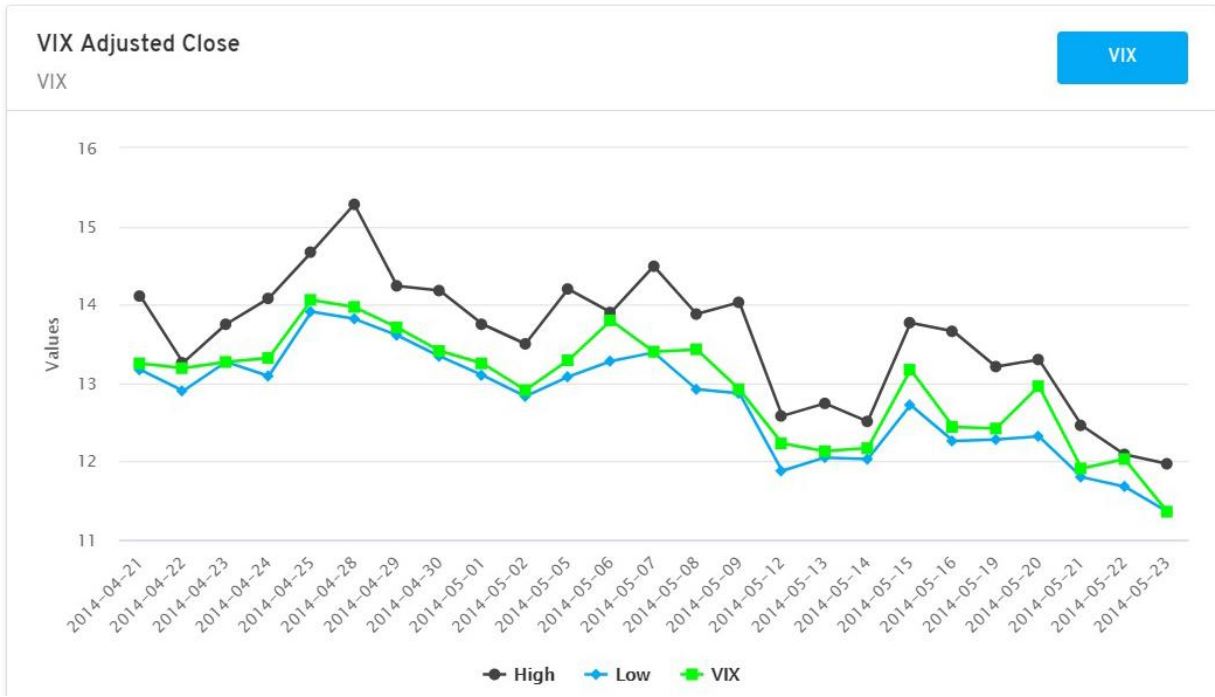


In the left sidebar, you can find the list of all the charts created inside the folders. The main samples will be located in the General folder and you can click on the right arrow  next to it to expand the list of charts available inside.



You can click on the chart you desire to see; an expanded panel of the chart will appear.


EXPANDED PANEL



Keep in mind that everywhere around the software, all the charts, models and maps are interactive inside the panels or presentations.

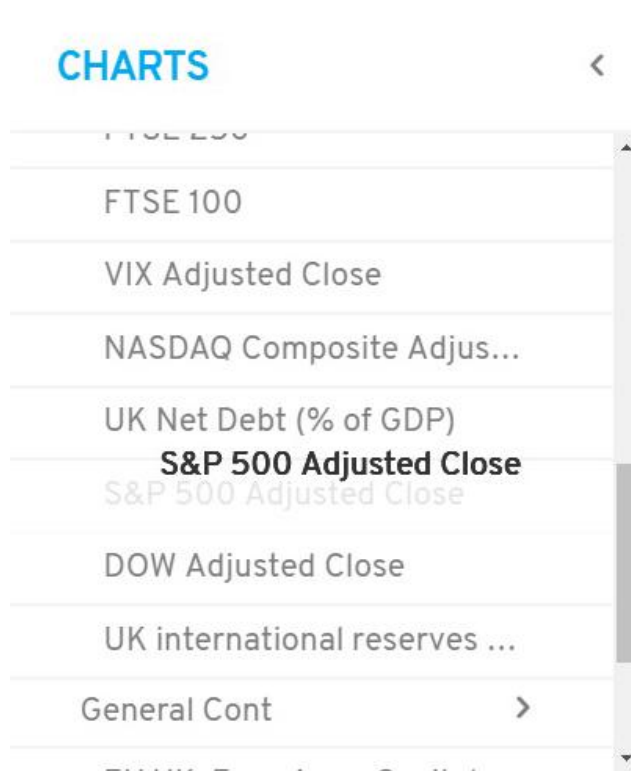
You can click on the blue **X** on the top right of the panel to close it.

You can click on  to go to [Create Chart](#) Page.

You can click on  to create a new folder at the end of the Chart's list.



You can click on the chart name inside the sidebar and drag to change the location inside its folder as well as move it to another folder, you can notice a grey copy of the name that will show you where it will be located when you release the mouse click.



After you move the chart, the panels on the right will be re-organized according to the change you made inside the folder.


You can also click on any panel on the right and drag it anywhere before or after to change the location, a grey copy of the panel will appear under your drag and the rest of the panel will re-organize accordingly. The Charts' name list in the sidebar will be updated accordingly.



10.11.2. Expand / Controller / Edit / Delete Chart

All the Charts available in a folder are listed in details on the right, you can scroll down to check, expand, delete or edit a specific chart.



At the bottom bar of each chart you find the  button on the left to expand the panel.



If a panel has variables that are checked as controller, the controller button will be visible next to the expand button on the panel.

You can click on the controller button  on the bottom left of the panel, a details box will pop up containing the variables that are in controller.

Variables in controller

Properties


Total Revenues

Net Income


Coefficients

Initial Investment

Please check the [Controller](#) section for more details on how to use the controller inside the [Results](#) Chapter.

You can click on the  button to edit your chart; you will be directed to Edit chart page same as [create chart](#) page.



You can click on  button to delete a chart; you will receive the warning below.

DELETE CHART ✕

The chart you are deleting may be used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

Are you sure you want to delete this chart?

CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deleting the chart.

Important Note: All charts created for the first time are abstract universal tools and need to be applied to a specific case or cases to deliver the end results required.

Even if you have created a new chart based on a sheet in Case A, for example, you still have to put the new chart in a dashboard, and then include the dashboard in your workstation for case A, and then apply it to Case A to get the actual chart output for the case.

This is done only once, as from that point onward you can apply your chart to any future case or project.



10.11.3. Top Toolbar


The General folder is a fixed folder that cannot be renamed or deleted.

When you click on any created folder, you will notice that a blue pencil to rename the folder and a delete button will appear.

VXD Sample 

Delete Folder

Click on  to rename the folder.

Click on  button to delete the folder, you will receive the warning below.

DELETE FOLDER

The folder you are trying to delete is not empty. Please note that everything contained in this folder will be deleted. If the charts inside this folder are used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

This folder currently contains

EU,UK, Euro Area: Capital Account, Total, Net, US Dollars
Sterling and all foreign currency gross lending to large businesses (in sterling millions) not seasonally adjusted, monthly_new
Sterling and all foreign currency gross lending to small and medium sized enterprises (in sterling millions) not seasonally adjusted, monthly

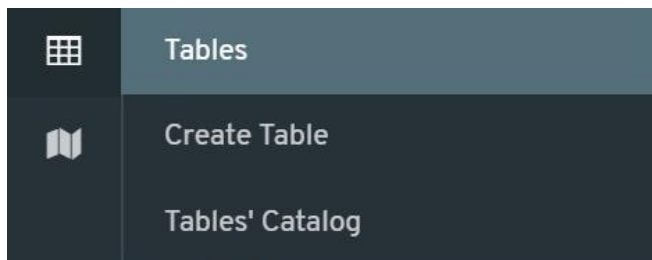
CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deletion.



11. Tables



When you hover your mouse over the Tables symbol  on the main left toolbar, two tabs will show:

- [Create Table](#)
- [Tables' Catalog](#)




11.2. Left Sidebar Menu

CREATE TABLE

Link to Main Sheet

Number of periods

5 

By default, the Link to Main Sheet option is not selected.



11.2.1. Number of Periods

You can select the number of periods to use for this Table.

A screenshot of a light blue dropdown menu. The text 'Number of periods' is at the top. Below it, the number '5' is displayed, followed by a downward-pointing triangle icon. A horizontal line is positioned below the number '5'.

You can select up to 25 periods. By default, 5 periods will be selected.



11.2.2. Link to Main Sheet – Activated

If you click on the **Link to Main Sheet** option, the **Number of periods** section will disappear and another section will show up, the **Data Source** section.

CREATE TABLE

Link to Main Sheet

Data Source ▼

- **Data source**

Another section will appear to select the data source click on the ▼ icon to select the Data source type from **CASES** folder.


Data Source

CASES ▼



- **Name**

When you select the **CASES** folder another section will appear, the **Name** section.

Click on the  icon to expand the list of available project names.



A light blue rectangular box containing the text 'Name' at the top left. Below it, the text 'World Bank' is displayed in a larger font, followed by a small downward-pointing triangle icon. A horizontal line is positioned below the text.

- **Scenario**

When you select a project name from the list, another section will appear, the **Scenario** section.

Click on the  icon to expand the list of available scenario names.

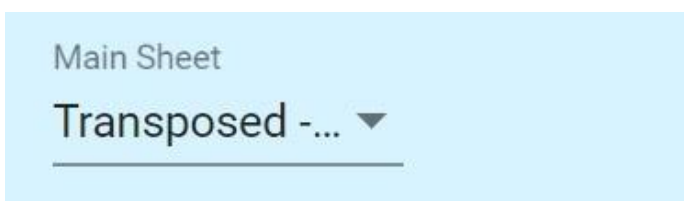


A light blue rectangular box containing the text 'Scenario' at the top left. Below it, the text 'ONE' is displayed in a larger font, followed by a small downward-pointing triangle icon. A horizontal line is positioned below the text.

- **Main Sheet**

When you select a scenario name from the list, another section will appear, the **Main Sheet** section.

Click on the  icon to expand the main sheets list.



A light blue rectangular box containing the text 'Main Sheet' at the top left. Below it, the text 'Transposed -...' is displayed in a larger font, followed by a small downward-pointing triangle icon. A horizontal line is positioned below the text.

After you select your main data sheet the variables of the sheet will automatically be inserted in the **Variables to Use or Display** section instead of the Periods.



11.3. Top Toolbar

UNTITLED TABLE 

Save Draft

Preview

On the left of the top toolbar you can choose a name for the table, click on the grey pencil next to the name to edit it.

UNTITLED TABLE 

When you select the desired name, click anywhere outside the text box and the name will light up blue. You edit anytime the name.

VXD TABLE 

On the right of the toolbar, you can click anytime the

Save Draft

button to save the new table.

You can click on

Preview

to go to preview your table's panel.



11.4. Controller

The controller bar is empty by default;

CONTROLLER

Empty

It will contain the variables that you will select from the **VARIABLES TO USE OR DISPLAY** and/or **CONSTANTS TO USE OR DISPLAY** sections.

CONTROLLER

Current Assets ×

Current Liabilities ×

You can define one or many variables and/or constants as needed.

You can remove any or all of the variables or constants by clicking on the X next to each one.

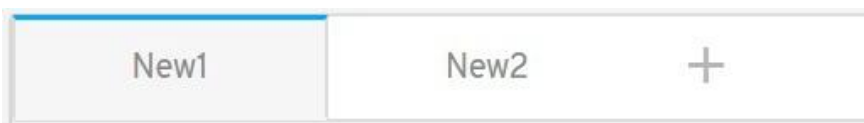


11.5. New Panels' Bar



By default, one panel called “New1” will open when you create a new table.

You can click on the **+** symbol to add one more table or panel.

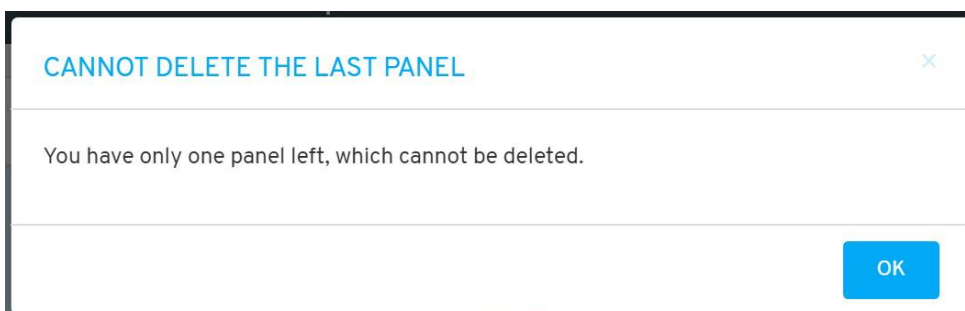


Whenever you click on a panel you will notice the top outline of the panel you clicked on will turn to blue. This will easily let you know which panel you are editing.



You can right-click on any panel; two options will pop up to **Rename** or **Delete** the panel.

If you have only one panel, this panel cannot be deleted.





11.6. Variables to Use or Display

VARIABLES TO USE OR DISPLAY + Add

Name	Symbol	Controller	Table	Period 1
	λ	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

In this section, you have all set of tools to define the variables of your new table.

You can click on **+ Add** to add more set of variables as desired.

Another line will appear under the main one, you can add as many as needed.

VARIABLES TO USE OR DISPLAY + Add

Name	Symbol	Controller	
	λ	<input type="checkbox"/>	
	λ	<input type="checkbox"/>	

Delete

You can right-click anywhere on the added line, a Delete option will pop up, click on it to proceed by deletion.



11.6.1. Variable's Name

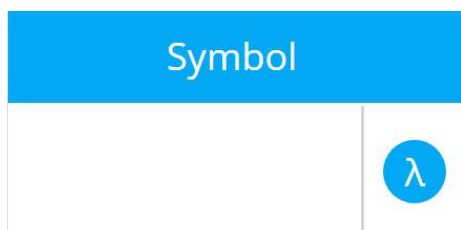
Name

You can double-click inside the name field to set the variable's name.

When the table is linked to a sheet, the variables and constants can be accessed automatically by double-clicking in the box where the full list of available variables will appear.



11.6.2. Symbol



You can double-click in the symbol box to insert your desired symbol for each of the table variables. You can attach a 5 letter symbol to your variables and constants, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the variable as a Greek letter by clicking on which will expand the list of letters available to choose from.



			<input checked="" type="checkbox"/>	
α	β		Δ	δ
ε	ζ		η	θ
κ	λ		λ	ξ
ψ	Ω		ω	

You can also double-click inside the symbol box to type in your desired symbol of 5 characters.



11.6.3. Controller

You can choose to include the variable in the controller by clicking the checkbox.

Controller

By default, it is not selected.



11.6.4. Table

You can choose to include the variable in the table by clicking the checkbox.

Table



By default, it is selected.

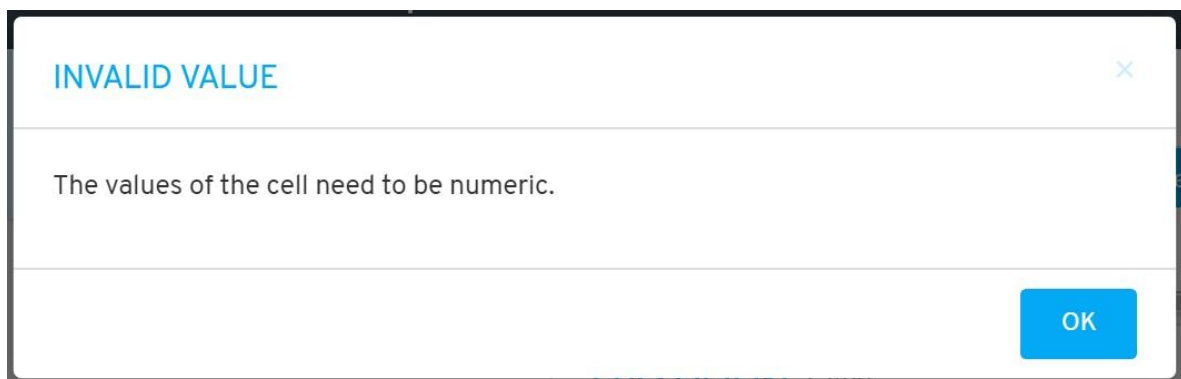


11.6.5. Periods

Period 1	Period 2	Period 3	Period 4	Period 5


The periods section is dependent on how many periods you set in the number of periods tab. Alternatively, when the table is linked to a main data sheet, the elements of the axis of that sheet will appear automatically.

You can double-click inside the corresponding cells for each period to set the values. Only numeric values are supported.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ×

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, If you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



11.7. Constants to Use or Display

CONSTANTS TO USE OR DISPLAY + Add

Name	Symbol	Controller	Table	Value
	λ	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

In this section, you have the tools to define the constants of your new table.

You can click on **+ Add** to add more set of constants as desired.

Another line will appear under the main one, you can add as many as needed.

CONSTANTS TO USE OR DISPLAY + Add

Name	Symbol
	λ
	λ

Delete

You can right-click anywhere on the added line, a Delete option will pop up, click on it to proceed by deletion.



11.7.1. Constant's Name

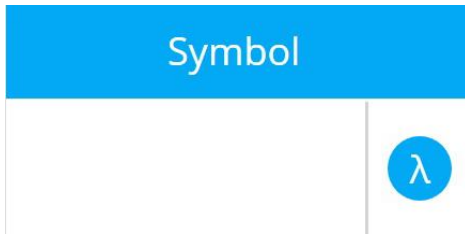
Name

You can double-click inside the name field to set the constant's name. Alternatively, when the table is linked to a sheet, all the constants will be available in a list to choose from when you double click.

Please note that even when you have linked a table to a sheet, you can still add new constants directly into the cells on the table creation page.



11.7.2. Symbol



You can double-click in the symbol box to insert your desired symbol for each of the table constants used. You can attach a 5 letter symbol to your variables and constants, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the constant as a Greek letter by clicking on which will expand the list of letters available to choose from.



		<input checked="" type="checkbox"/>	
α	β	Δ	δ
ε	ζ	η	θ
κ	λ	λ	ξ
ψ	Ω	ω	

You can also double-click inside the symbol box to type in your desired symbol of 5 characters.



11.7.3. Controller

You can choose to include the constant in the controller by clicking the checkbox.

Controller

By default, it is not selected.



11.7.4. Table

You can choose to include the constant in the table by clicking the checkbox.

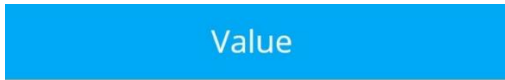
Table



By default, it is selected.



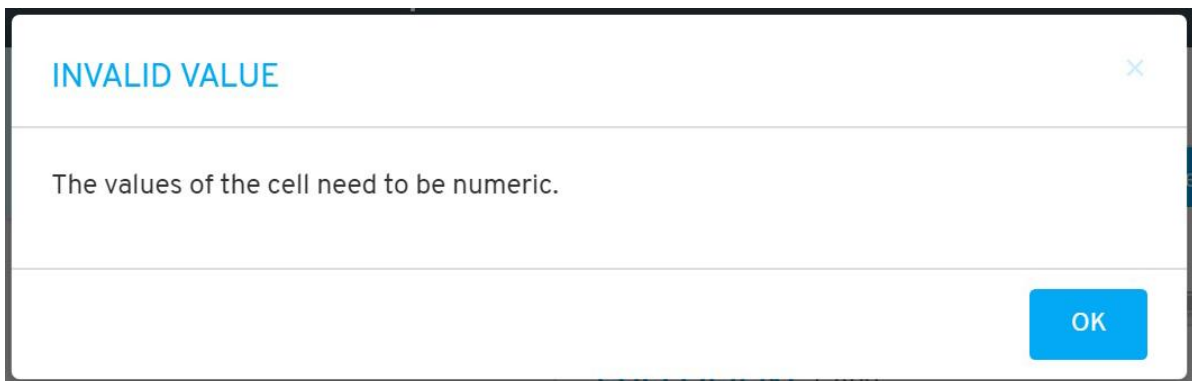
11.7.5 Value



You can set the value(s) of the Constant(s) by double clicking inside the test box.


If the linked sheet and constants selected from available list, the values are imported automatically.

Be aware that this cell only accepts numeric values.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ✕

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, If you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



11.8. Composites to Use or Display

COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol	Series	Table	Formula
Main1	New1 λ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	$s(x)$ = $f(x)$

In this section, you can define the Main Composite of your new Table by clicking on $f(x)$.

You can click on **+ Add Sub-Elements** to add more sub elements as desired.

Another line will appear under the main one, you can add as many as needed.

COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol
Main1	New1 λ
Sub1	λ

Delete

You can right-click on any line, a Delete option will pop up, click on it to proceed by deletion.



11.8.1. Composite's Name

Name
Main1

You can double-click inside the name field to set the name of the composite.

By default, the main composite's name is "**Main1**", and the sub element is "Sub1".



11.8.2. Symbol



You can double-click in the symbol box to insert your desired symbol for the table composites. You can attach a 5 letter symbol to your variables, constants, composites, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the composite as a Greek letter by clicking on which will expand the list of letter available to choose from.



New1	λ		
α	β	Δ	δ
ϵ	ζ	η	θ
κ	Λ	λ	ξ
ψ	Ω	ω	

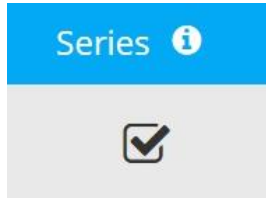
You can also double-click inside the symbol box to type in your desired symbol of 5 characters.


By default, the symbol's name is "New1"



11.8.3. Series

You can define the composite as a series by clicking the checkbox.



If you move your mouse over the info symbol  details will pop up about the series box.

For all series data, time or other type, where the output will be a series of values, the subscript 'i' must be used with all variables and subformulas.



11.8.4. Table

You can select to include the main formula output in the table by clicking the checkbox.

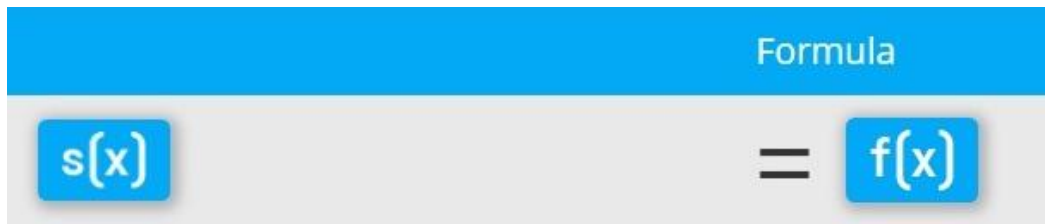
Table



By default, it is selected.



11.8.5. Formula / Equation Editor



For your composites, you can create your own equations in the formula section that has two main parts:



$f(x)$ is the equation editor where you can input and create your formulas and subformulas.



$s(x)$ is the symbol editor, where you can input a left side symbol for your main formula or subformulas.

The symbol editor looks just like the equation editor, but it is purely to design your descriptive formula symbol when necessary.



Click on the $f(x)$ button in the box to expand the Equation editor that contains a variety of functions to help you create your own formulas.



Equation Editor/MAIN FORMULA
✕

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined								
Main														Statistical		Trigonometric		Hyperbolic		Constants		Greek	
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo								Variables No properties yet								
$\sqrt[\square]{\square}$	%	∞	$\lfloor \square \rfloor$	$\lceil \square \rceil$	$\lceil \square \rceil$	$\lfloor \square \rfloor$	x!								Constants No coefficients yet								
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	\ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e [□]								Subformulas No subformulas yet									

Hover over function buttons to see what they do.

The **User Defined variables, constants, and subformulas** appear in the $f(x)$ equation editor, and not in the symbol editor, which is a descriptive tool to help you define a specific right side to the equation.



Equation Editor/MAIN FORMULA
✕

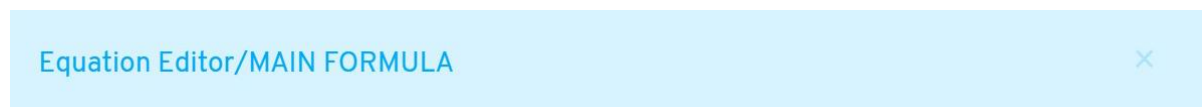
|

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.									
Main														Statistical		Trigonometric		Hyperbolic		Constants		Greek	
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo																
$\sqrt[\square]{\square}$	%	∞	$\lfloor \square \rfloor$	$\lceil \square \rceil$	$\lceil \square \rceil$	$\lfloor \square \rfloor$	x!																
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	\ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e [□]																	

Hover over function buttons to see what they do.



If you clicked on the main formula, the top of the equation editor will be colored light blue.



The sub formula top will be colored light grey.

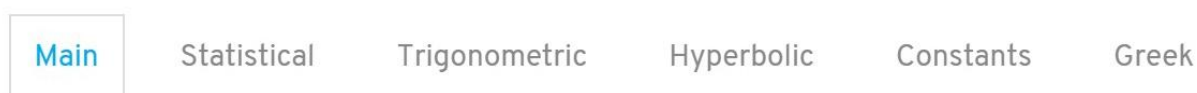


You can check the [Equation Editor Syntax](#) section to learn more about how to properly create your equations.

You can use the standard numpad keys from 0 to 9 and the commonly used function of add, minus, multiply, divide and point. These will be located on the first fixed line.



You can choose from 6 fixed categories of functions that will help you create your own formulas.



In all of the 6 categories, the first 7 functions are fixed and you can notice that they are available in all of the categories.



You can hover your mouse over any function and a details line will appear at the bottom of the functions that describe what the function do.

$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	
$()$						Identifies the expression that will be calculated first.	
	$\frac{\square}{\square}$					Fraction of any two elements or functions.	
		x_{\square}				Subscript to identify time or other series.	
			x^{\square}			Identifies the exponent of the variable or expression.	
				$\sqrt{\square}$		The square root of the expression.	
					\sum_{\square}^{\square}	Sums all values in range of series.	
						$\prod_{\square}^{\square}$	Multiplies all values in range of series.

11.8.5.1. Main Functions



The first Main category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo
$\sqrt[n]{\square}$	%	∞	⌊	⌋	⌈	⌉	x!
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e^{\square}	

Hover over function buttons to see what they do.

Modulo

Calculates the remainder after the division of one variable by another.



The nth square root of the expression.



1% = 1/100



Symbol of infinity, an infinitely large number.



Rounds number to the lower integer, used with ⌋



Rounds number to the lower integer, used first with ⌊

 \lceil

Rounds number to the upper integer, used with \lfloor

 \lfloor

Rounds number to the upper integer, used first with \lceil

 $x!$

Calculates the factorial of the variable.

 $|x|$

Calculates the absolute value of the variable or expression.

 $\lim_{\square \rightarrow \square}$

Calculates the limit of the expression.

 \log_{\square}

Calculates the log based on a defined base.

 \ln

Calculates the natural logarithm of the expression.

 \int_{\square}^{\square}

Calculates the finite integral of a function.

 $\int_{\square}^{\square} \int_{\square}^{\square}$

Calculates the double finite integral of a function.



e^x

Calculates the constant e to the desired exponent X



11.8.5.2. Statistical Functions

The statistical category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}	\prod_{\square}	μ
var(x)	σ^2	std(X)	σ	med(X)	cov(X,Y)	corr(X,Y)	ρ
mo(X)	mr(X)	min(X)	max(X)				

Hover over function buttons to see what they do.

μ

Mu, calculates mean of population values.

var(x)

Calculates the sample variance of a variable.

σ^2

Sigma Squared, Calculates the population variance of a variable.

std(X)

Calculates the sample standard deviation of a variable.



σ

Sigma, the population standard deviation of a variable.

$\text{med}(X)$

The median value of the data.

$\text{cov}(X,Y)$

Calculates the covariance of variables X and Y.

$\text{corr}(X,Y)$

Calculates the correlation of variables X and Y.

ρ

Rho, the correlation of variables X and Y.

$\text{mo}(X)$

The value that occurs most frequently in the data.

$\text{mr}(X)$

The arithmetic mean of the maximum and minimum values in the sample.

$\text{min}(X)$

The smallest value in the data.

$\text{max}(X)$

The largest value in the data.



11.8.5.3. Trigonometric Functions

The Trigonometric category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic		Constants	Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sin
cos	tan	cot	sec	csc	arcsin	arccos	arctan
arccot	arcsec	arccsc					

Hover over function buttons to see what they do.

sin

The sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse.

cos

The cosine of an angle is the ratio of the length of the adjacent side to the length of the hypotenuse.

tan

The Tangent of an angle is the ratio of the length of the side that is opposite to the angle divided by the length of the side that is adjacent to the angle.

cot

Cotangent is defined as the reciprocal function of Tangent.

sec

The Secant is defined as the reciprocal function of Cosine.



csc

Cosecant is defined as the reciprocal function of Sine.

arcsin

Arcsine is a partial inverse function of Sine.

arccos

Arccosine is a partial inverse function of Cosine.

arctan

Arctangent is a partial inverse function of Tangent.

arccot

Arccotangent is a partial inverse function of Cotangent.

arcsec

Arcsecant is a partial inverse function of Secant.

arccsc

Arccosecant is a partial inverse function of Cosecant.



11.8.5.4. Hyperbolic Functions

The Hyperbolic category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sinh
cosh	tanh	coth	sech	csch	arcsinh	arccosh	arctanh
arcoth	arcsech	arccsch					

Hover over function buttons to see what they do.

sinh

Hyperbolic sine.

cosh

Hyperbolic cosine.

tanh

Hyperbolic tangent.

coth

Hyperbolic cotangent.

sech

Hyperbolic secant.



csch

Hyperbolic cosecant.

arcsinh

Inverse Hyperbolic sine.

arccosh

Inverse Hyperbolic cosine.

arctanh

Inverse Hyperbolic tangent.

arcoth

Inverse Hyperbolic cotangent.

arcsech

Inverse Hyperbolic secant.

arccsch

Inverse Hyperbolic cosecant.



11.8.5.5. Constants Functions

The Constants category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic	Constants		Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	e
γ	φ	π	τ	ln 2	ln 10	$\log_2 e$	$\log_{10} e$
$\sqrt{2}$	$\sqrt{1/2}$						

Hover over function buttons to see what they do.

e

The number e that is the base of the natural logarithm, whose natural logarithm is equal to one, at 10 decimal places, $V = 2.7182818285$

γ

Gamma, the numerical value of the Euler–Mascheroni constant, to 10 decimal places, $V = 0.5772156649$

φ

Phi, the golden ratio constant, at 10 decimal places, $V = 1.6180339887$

 π

Pi, the ratio of a circle's circumference to its diameter, at 10 decimal places, Value = 3.1415926535

 τ

Tau, the ratio of a circle's circumference to the radius, at 10 decimal places, equal to $2 * \pi$, $V = 6.2831853071$

 $\ln 2$

The natural logarithm of 2, at 10 decimal places, Value = 0.69314718056

 $\ln 10$

The natural logarithm of 10, at 10 decimal places, Value = 2.302585093

 $\log_2 e$

The base-2 logarithm of e, at 10 decimal places, Value = 1.4426950409

 $\log_{10} e$

The base-10 logarithm of e, at 10 decimal places, Value = 0.4342944819

 $\sqrt{2}$

The square root of 2, at 10 decimal places, Value = 1.4142135624

 $\sqrt{1/2}$

The square root of 1/2, at 10 decimal places, Value = 0.7071067812



11.8.5.6. Greek Alphabet

The Greek alphabet section contains the following letters:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	α
β	Δ	δ	ε	ζ	η	θ	κ
Λ	λ	ξ	ψ	Ω	ω		

Hover over function buttons to see what they do.

α

Greek letter alpha

β

Greek letter beta

Δ

Greek letter delta, Capital

δ

Greek letter delta

ε

Greek letter epsilon



ζ

Greek letter zeta

η

Greek letter eta

θ

Greek letter theta

κ

Greek letter kappa

Λ

Greek letter lambda, capital

λ

Greek letter lambda

ξ

Greek letter Xi

ψ

Greek letter psi

Ω

Greek letter omega, capital

ω

Greek letter omega



11.8.5.7. User Defined

On the right section inside the equation editor window, there is a user defined section where the Properties, Constants and Sub formulas defined by the user will be listed. It can be one or many.

User Defined

Variables

No properties yet

Constants

No coefficients yet

Subformulas

No subformulas yet

These appear automatically for those variables, constants, and subformulas that have been given a symbol in the creation page.



You can click on the X sign on the top right of the equation editor to close it.

You can click on the top of the equation editor window and drag it freely around the create table's page.

Equation Editor/MAIN FORMULA
✕

$$-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$$

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined	
Main	Statistical	Trigonometric			Hyperbolic			Constants		Greek		Variables				
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo		FCF (Series)							
\forall_{\square}	%	∞			[x!		Constants							
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}	Subformulas									
Hover over function buttons to see what they do.															No subformulas yet	

After you finish writing/creating your formula(s) or subformula(s), you can click on the confirm button at the bottom of the equation editor window.

CONFIRM

Your formulas and subformulas will be placed inside their corresponding boxes that you can click on at any time to edit/ re-write.

Formula

s(x)

 NPV_{FCF}

=

f(x)




 $-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$



11.9. Row Order and Table Structure

In the row order section all the variables, constants and subformulas checked to be included in the table are listed.

ROW ORDER

Assets	
Liabilities	
Bank of England Net Assets	

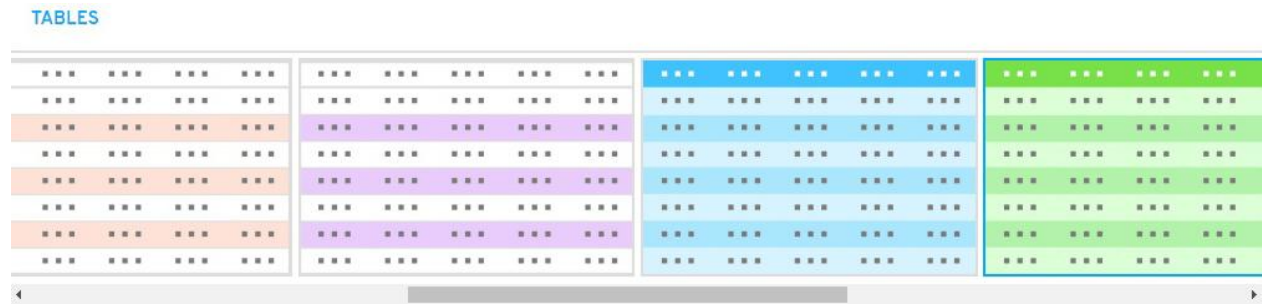
You can rearrange the rows by clicking on one row and dragging it up or down to change location.

You can thus create the ideal analytical design and flow for your table



11.10. Tables

In the table section you can select from the templates available in different colours.



Click on the template that you desire to define your table design.

We are and will be expanding the types and list of available formats over time.



11.11. Save Draft / Preview

After selecting your desired options and writing your composites / formulas, it is time to Preview and Save your Table.

In the Top Toolbar you can find the two buttons **Save Draft** and **Preview**.





11.11.1. Save Draft

If you click on the



button a panel will pop up with save or save as options.

SAVE AS DRAFT ×

Please select the option

Save Save As

CANCEL SAVE

You can select the **Save** option to save your table directly, or **Save As** option to make a copy or select where to save it.

SAVE AS DRAFT ×

Please select the option

Save Save As

Table Name	Folder	+ Create New Folder
<input type="text" value="UK Employment Types"/>	<input type="text" value="General"/> ▼	

CANCEL SAVE

Two new fields will appear.

Write the desired name under the **Table Name** field, select the **Folder** where the Table will be located.

You can click on the [+ Create New Folder](#) to create a new folder to save the Table inside.



SAVE AS DRAFT



Please select the option

Save Save As

Table Name

Folder

[+ Create New Folder](#)

UK Employment Types

VXD Table S



Create

CANCEL

SAVE


A field box will appear to type in the desired new folder name, and click the **CREATE** box.

The new folder will automatically be selected in the folder section.

Click on the **CANCEL** to cancel or **Save** to proceed by saving your Table.



11.11.2. Preview

You can click on  and the preview of your table panel will appear.

PREVIEW x

UK Employment Total **UKEMP**

Employees	25545978.69496	25556785.92566	25581876.7181	25623264.59835	25657005.14661	25641157.97167
Self employed	3847473.79548	3892386.77217	3877575.43784	3850771.83446	3856301.41097	3858687.57492
Unpaid family workers	108929.79992	109662.28566	109042.98423	114606.67568	116394.28859	111364.06301
Government supported training & employment programmes2	111634.79098	117074.76593	115066.25198	117169.45102	118913.98885	110487.70066
UK Employment Total	29614017.08135	29675909.74943	29683561.39215	29705812.55952	29748614.83501	29721697.31026

Save Save As

CLOSE **SAVE**

At the bottom of the panel, you can select **Save** option to save your Table directly, or **Save As** option to select where to save it.

If you select the **Save As** option, 2 new fields will appear, write the desired name under the **Table Name** field, select the **Folder** where the Table will be located.

You can click on  to create a new folder to save the table inside.

Save Save As

Table Name

Folder **+ Create New Folder**

Select property
VXD Table S ▼



A field box will appear to type in the desired new folder name, and click the **CREATE** box.

The new folder will automatically be selected in the folder section.

Click on the **Close** to cancel or **Save** to proceed by saving your table.



You will be directed to the Tables' Catalogue page.



11.12. Tables' Catalogue

When you click on Tables' Catalogue in the Table tab or you just saved a new Table, you will be directed to your Tables' catalogue page.

TABLES <

General >

VXD Table S >

CREATE TABLE

CREATE FOLDER

General

International Productivity Comparisons - Constant ... INTPC

Productivity Comparisons (2007=100)

#	Canada	France	Germany	Italy	Japan	UK	US
2008	99.9	99.3	100.1	98.7	100	99.3	100
2009	100.6	98.6	97.7	96.6	99.2	97.7	103
2010	102.1	100.1	99.8	98.9	102.5	99	105
2011	103.9	101.3	103.1	99.4	102.8	100.5	106
2012	103.6	101.6	104.1	98.9	103.6	100	106
2013	105	103.1	104.5	99.6	105.7	100.4	107

Bank of England, A & L, Net Assets USD 000 BOEMA

Bank of England Net Assets

#	Jan 15	Feb 15	Mar 15	Apr 15
Assets	108997.9523	0	0	123228.12549
Liabilities	-69899.75943	-75810.66594	-85258.74846	-85778.45801
Bank of England Net Assets	39098.19287	38048.91003	37124.44818	37449.66748

UK GOV A & L, Net Assets NA

UK GOV NET ASSETS

#	Jan 15	Feb 15	Mar 15	Apr 15
Assets	24567.41997	25450.64826	25496.70798	28256.55773
Liabilities	0	0	0	-28257.67893
UK GOV NET	0.24299	1.04079	-1.28391	-1.12119

UK Employment Types UKEMP

UK Employment Total

#	Nov-Jan 2008	Dec-Feb 2008	Jan-Mar 2008	F
Employees	25545978.69496	25556785.92566	25581876.7181	2
Self employed	3847473.79548	3892386.77217	3877575.43784	3

352




11.12.1. Table Sidebar List

TABLES <

- General >
 - Gross and Net Profits & Ot...
 - Free Cash Flow to Firm & ...
 - Return On Invested Capital
 - Export Diversification Inde...
 - UK GOV A & L, Net Assets
 - Bank of England, A & L, Ne...
 - UK Employment Types
 - International Productivity ...
- VXD Table S >

CREATE TABLE

CREATE FOLDER

In the left sidebar, you can find the list of all the tables created inside the folders. The main samples will be located in the General folder that you can click on the right arrow  next to it to expand the list of tables available inside.



You can click on the table you desire to see; an expanded panel of the table will appear.

EXPANDED PANEL

#	2010	2011	2012	2013	2014	2015	2016
Invested Capital	100000	0	200000	0	400000	0	600000
Investment Rate (IR)	0.04257	2.64716	0.29632	14.07229	10.71431	1.49631	2.52618
Growth (g)	0	0.44741	-0.00739	0.68455	0.14923	0.02907	0.17404
Net Investment	100000	0	100000	0	200000	0	200000
Net Operating Profit Less Adjusted	234894	339987	337474	568493	653332	672322	789333

You can click on the blue X on the top right of the panel to close it.

You can click on

CREATE TABLE

button to go to Create Table Page.

You can click on

CREATE FOLDER

button to create a new folder at the end of the table's list.



You can click on the table name inside the sidebar and drag to change the location inside its folder as well as move it to another folder, you can notice a grey copy of the name that will show you where it will be located when you release the mouse click.

TABLES		<
General	>	
Free Cash Flow to Firm & ...		
Return On Invested Capital		
Export Diversification Inde...		
UK GOV A & L, Net Assets		
Gross and Net Profits & Ot...		
<u>Gross and Net Profits & Ot...</u>		
Bank of England, A & L, Ne...		
UK Employment Types		
International Productivity ...		
VXD Table S	>	

After you move the table, the panels on the right will be re-organized according to the change you made inside the folder.

You can also click on any panel on the right and drag it anywhere before or after to change the location, a grey copy of the panel will appear under your drag and the rest of the panel will re-organize accordingly. The table's name list in the sidebar will be updated accordingly.



11.12.2. Expand / Controller / Edit / Delete table

All the tables available in a folder are listed in detail on the right, you can scroll down to check, expand, delete or edit a specific table.

Free Cash Flow to Firm & WACC New!

Free Cash Flow

Weighted Average Cost of Capital (WACC)

#	2018	2019	2020	2021
Total Revenues	276764.6276	2871853.80472	8135632.72525	17753672
EBIT	-720935.3724	-857424.27528	2682431.30125	9486955
Discounted Free Cash Flow to Firm	-518765.52279	-440699.45146	787112.74332	1988415.3

Return on Invested Capital ROIC

Return on Invested Capital

#	2010	2011	2012	2013	2014
Invested Capital	100000	0	200000	0	400000
Investment Rate (IR)	0.04257	2.64716	0.29632	14.07229	10.71431
Growth (g)	0	0.44741	-0.00739	0.68455	0.14923
Net Investment	100000	0	100000	0	200000
Net Operating Profit Less Adjusted	234894	339987	337474	568493	653332

Export Diversification Index EU 27 (IMF) New!


EU27

#	2004	2005	2006	2007	2008
Austria	1.56922	1.48973	1.54867	1.59933	1.51488
Finland	2.2631	2.43531	2.3511	2.1145	2.09203
Greece	1.86238	1.83315	1.84385	1.76796	1.72596
Ireland	3.17958	3.2028	3.13971	3.1491	3.16941
Malta	4.20536	3.92039	3.95849	3.8867	3.9941

UK GOV A & L, Net Assets NA


UK GOV NET ASSETS

#	Jan 15	Feb 15	Mar 15	Apr 15
Assets	24567.41997	25450.64826	25496.70798	28256.55773
Liabilities	0	0	0	-28257.67893
UK GOV NET ASSETS	0.24299	1.04079	-1.28391	-1.12119

At the bottom bar of each table you find this  button on the left to expand the panel.



If a panel has variables that are checked as controller, the controller button will be visible next to the expand button on the panel.

You can click on the controller button  on the bottom left of the panel, a details box will pop up containing the variables that are in controller.

Variables in controller

Properties


Total Revenues

Net Income


Coefficients

Initial Investment

Please check the [Controller](#) section for more details on how to use the controller inside the [Results](#) Chapter.

You can click on the  symbol to edit your table; you will be directed to Edit table page same as Create Table page.



You can click on  symbol to delete a table; you will receive the warning below.

DELETE TABLE



The table you are deleting may be used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

Are you sure you want to delete this table?

CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deleting the table.



11.12.3. Top Toolbar

The General folder is a fixed folder that cannot be renamed or deleted.


When you click on any created folder, you will notice that a blue pencil to rename the folder and a delete button will appear.

VXD Sample 

Delete Folder

Click on  to rename the folder.

Delete Folder

Click on  button to delete the folder, you will receive the warning below.

DELETE FOLDER

The folder you are trying to delete is not empty. Please note that everything contained in this folder will be deleted. If the tables inside this folder are used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

This folder currently contains

Gross and Net Profits & Other Key Figures

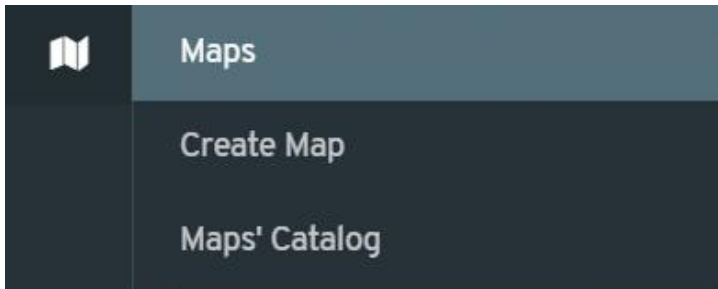
CANCEL


DELETE

Click on **CANCEL** or **DELETE** to proceed by deletion.



12. Maps



When you hover your mouse over the Maps Symbol  in the main left toolbar, two tabs will show:

- [Create Map](#)
- [Maps' Catalog](#)



12.1. Create Map

When you click on the create Map tab you will be directed to create a new Map page.

The screenshot shows the 'CREATE MAP' interface. On the left, there is a sidebar with a 'Link to Main Sheet' checkbox and a dropdown menu showing '3' geographic regions. The main area is titled 'UNTITLED MAP' and contains several sections:

- CONTROLLER:** A section labeled 'Empty' with a 'New1' button and a plus sign.
- VARIABLES TO USE OR DISPLAY:** A table with columns: Name, Symbol, Controller, Afghanistan, Albania, Algeria, American Samoa, and Andorra. The 'Controller' column has a checkbox and a plus sign.
- CONSTANTS TO USE OR DISPLAY:** A table with columns: Name, Symbol, Controller, and Value. The 'Controller' column has a checkbox and a plus sign.
- COMPOSITES TO USE OR DISPLAY:** A table with columns: Name, Symbol, Series, and Formula. The 'Series' column has a checkbox and a plus sign. The 'Formula' column contains the text $f(x)$.
- MAP VISUALISATION OPTIONS:** A section with a dropdown menu for 'Geographic Region will be colored based on:' and a 'Color Palette' section with a color bar.
- MAPS:** A section showing four preview thumbnails of world maps.

Important Note: Currently there is only one map available on our platform, the world country map. However, very soon, we will be adding new and different types of maps, like regional and individual country maps at different levels of granularity.



12.2. Left Sidebar Menu

CREATE MAP

Link to Main Sheet

Number of geographic regions

5

By default, the Link to Main Sheet option is not selected.



12.2.1. Number of Geographic Regions

You can select the number of Geographic Regions to use in this Map.

A screenshot of a light blue rectangular box containing a dropdown menu. The text 'Number of geographic regions' is displayed at the top in a light gray font. Below it, the number '5' is shown in a larger, bold black font. A horizontal line is positioned below the number, and a small black downward-pointing triangle is located to the right of the line, indicating the dropdown functionality.

You can select up to 25 geographic regions. By default, 5 regions will be selected.



12.2.2. Link to Main Sheet – Activated

If you click on the **Link to Main Sheet** option, the **Number of geographic regions** section will disappear and another section will show up, the **Data Source** section.

CREATE MAP

Link to Main Sheet

Data Source ▼

- **Data source**

Another section will appear to select the data source, click on the ▼ icon to select the Data source from **CASES** folder.


Data Source

CASES ▼



- **Name**

When you select the **CASES** folder another section will appear, the **Name** section.

Click on the  icon to expand the list of available project names.



- **Scenario**

When you select a project name from the list, another section will appear, the **Scenario** section.

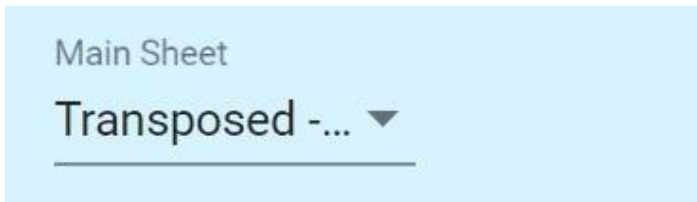
Click on the  icon to expand the list of available scenario names.



- **Main Sheet**

When you select a scenario name from the list, another section will appear, the **Main Sheet** section.

Click on the  icon to expand the main sheets list.



After you select your main data sheet the variables of the sheet will automatically be inserted in the **Variables to Use or Display** section instead of the regions.



12.3. Top Toolbar

UNTITLED MAP 

Save Draft

Preview

On the left of the top toolbar you can choose a name for the map, click on the grey pencil next to the name to edit it.

UNTITLED MAP 

When you select the desired name, click anywhere outside the text box and the name will light up blue. You edit anytime the name.

VXD MAP 

On the right of the toolbar, you can click anytime the to save the new map.

Save Draft

button

You can click on

Preview

button to go to preview your map's panel.



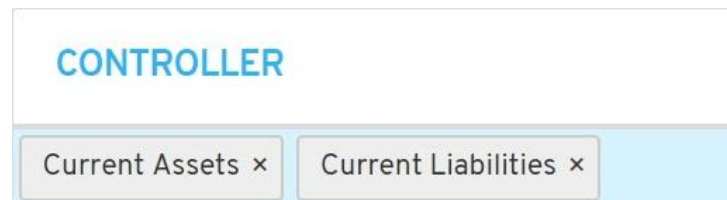
12.4. Controller

The controller bar is empty by default;

CONTROLLER



It will contain the variables that you select from the **VARIABLES TO USE OR DISPLAY** and/or **CONSTANTS TO USE OR DISPLAY** sections.



You can define one or many variables and/or constants as needed.

You can remove any or all of the variables or constants by clicking on the **X** next to each one.

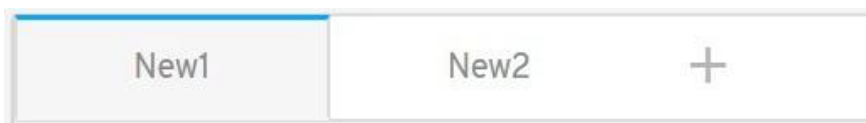


12.5. New Panels' Bar

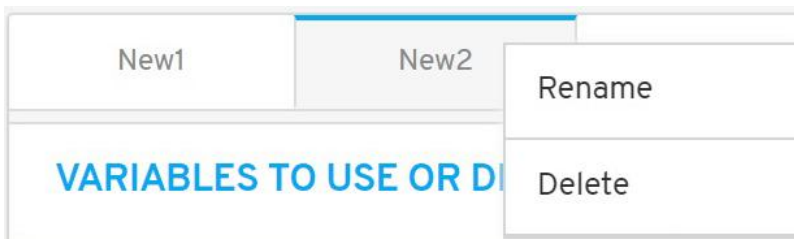


By default, one panel called “New1” will open when you create a new map.

You can click on the **+** symbol to add one more map/panel. A maximum of two maps per panel.

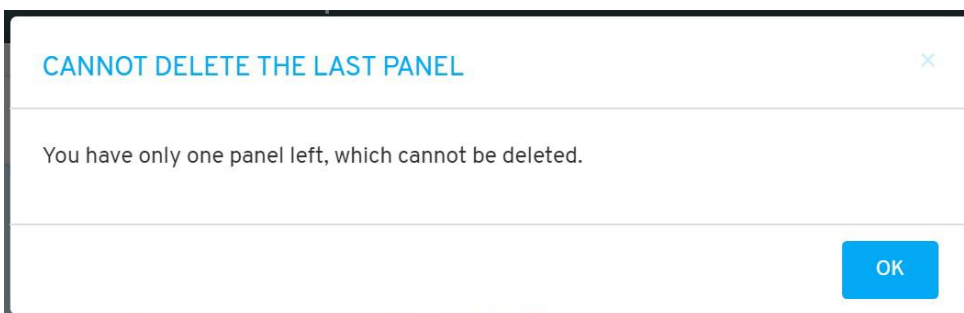


Whenever you click on a panel you will notice the top outline of the panel you clicked on will turn to blue. This will easily let you know which panel you are editing.



You can right-click on any panel; two options will pop up to **Rename** or **Delete** the panel.

If you have only one panel, this panel cannot be deleted.





12.6. Variables to Use or Display

VARIABLES TO USE OR DISPLAY + Add

Name	Symbol	Controller	Afghanistan	Albania
	λ	<input type="checkbox"/>		

In this section, you have the tools to define the variables of your new map.

You can click on **+ Add** to add more set of variables as desired.

Another line will appear under the main one, you can add as many as needed.

VARIABLES TO USE OR DISPLAY + Add

Name	Symbol	Controller	
	λ	<input type="checkbox"/>	
	λ	<input type="checkbox"/>	

Delete

You can right-click anywhere on the added line, a Delete option will pop up, click on it to proceed by deletion.



12.6.1. Variable's Name

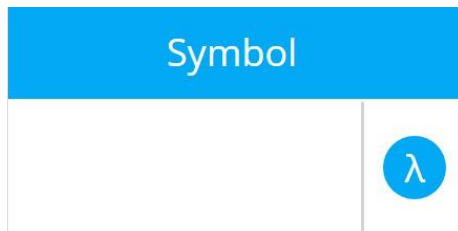
Name

You can double-click inside the name field to set the variable's name.

Alternatively, if you have linked the map to a sheet, all the relevant variables will be available to you as a list to choose from.



12.6.2. Symbol



You can double-click in the symbol box to insert your desired symbol for each of the map variables. You can attach a 5 letter symbol to your variables, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the variable as a Greek letter by clicking on which will expand the list of letters available to choose from.



Symbol			
α	β	Δ	δ
ε	ζ	η	θ
κ	λ	λ	ξ
ψ	Ω	ω	

You can also double-click inside the symbol box to type in your desired symbol of 5 characters.



12.6.3. Controller

You can select to include the variable in the controller by clicking the checkbox.

Controller

By default, it is not selected.




12.6.4. Regions

Afghanistan	Albania	Algeria	American Samoa	Andorra

By default, the regions section is dependent on the number of geographic regions selected.

When you Link to a main sheet, the Variables and their values will be displayed in this section.

United States	United Kingdom	Austria	Belgium	Denmark	France	Germany
77.881787280...	77.650889042...	48.919235830...	86.908626308...	15.346787469...	87.193086120...	38.31023

The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION ×

Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, If you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



12.7. Constants to Use or Display

CONSTANTS TO USE OR DISPLAY + Add

Name	Symbol	Controller	Value
	λ	<input type="checkbox"/>	

In this section, you have all set of tools to define the constants of your new map.

You can click on **+ Add** to add more set of constants as desired.

Another line will appear under the main one, you can add as many as needed.

CONSTANTS TO USE OR DISPLAY + Add

Name	Symbol
	λ
	λ

Delete

You can right-click anywhere on the added line, a Delete option will pop up, click on it to proceed by deletion.



12.7.1. Constant's Name

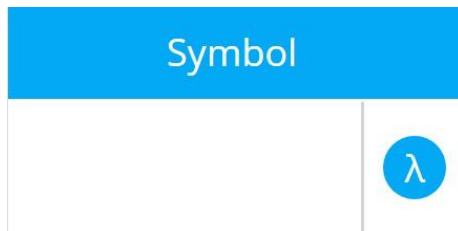
Name

You can double-click inside the name field to set the constant's name.

Alternatively, if linked to a sheet, you can double-click to see the list of constants available.



12.7.2. Symbol



You can double-click in the symbol box to insert your desired symbol for each of the map constants. You can attach a 5 letter symbol to your constants, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the constant as a Greek letter by clicking on which will expand the list of letters available to choose from.



					<input checked="" type="checkbox"/>		
α	β	Δ	δ				
ε	ζ	η	θ				
κ	λ	λ	ξ				
ψ	Ω	ω					

You can also double-click inside the symbol box to type in your desired symbol character.



12.7.3. Controller

You can select to include the constant in the controller by clicking the checkbox.

Controller

By default, it is not selected.



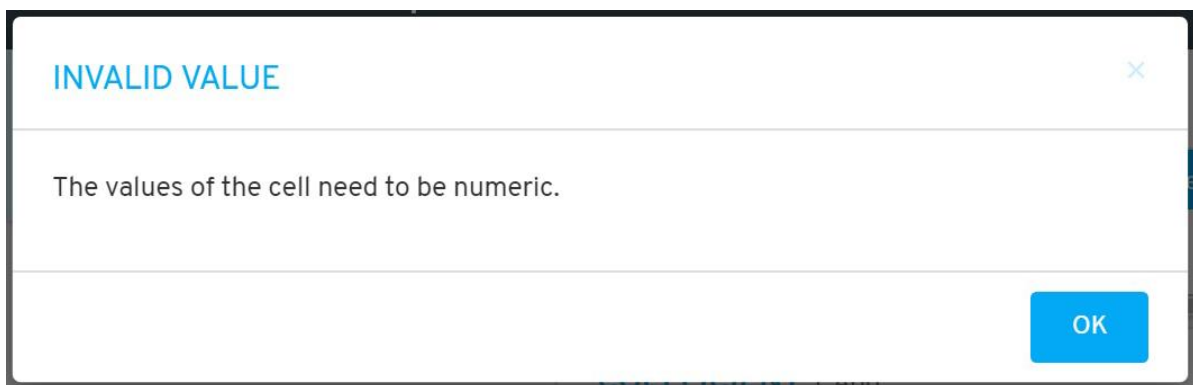
11.7.4 Value

Value

You can set the value(s) of the Constant(s) by double clicking inside the text box.


With linked sheets, constant values are imported automatically.

Please note that this cell only accepts numeric values.



If it is linked to main sheet, the variables and constants of the sheet will be available instead.



The button  **Update Scenario** will be available in the panel's bar only in case you linked it to a main sheet. Whenever you change any value you can then update your main sheet. Click on the button and a caution message box will appear.

CAUTION



Please note that updating the scenario data might affect the output of other models, charts, maps, etc. that are using this scenario as their data source. Moreover, If you have any value cells left blank in your model, they will be treated as zeroes when overwriting the properties and constants of your scenario.

CANCEL

UPDATE

Click **UPDATE** to proceed by updating the values directly in your sheet, or click **CANCEL**.



12.8. Composites to Use or Display

COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol	Series	Formula
Main1	New1 λ	<input checked="" type="checkbox"/>	$s(x) = f(x)$

In this section, you can define the Main Composite of your new Map.

You can click on **+ Add Sub-Elements** to add more sub elements as desired.

Another line will appear under the main one, you can add as many as needed.

COMPOSITES TO USE OR DISPLAY + Add Sub-Elements

Name	Symbol
Main1	New1 λ
Sub1	λ

Delete

You can right-click on any line, a Delete option will pop up, click on it to proceed by deletion.



12.8.1. Composite's Name

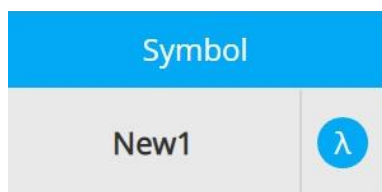
Name
Main1

You can double-click inside the name field to set the name of the composite.

By default, the main composite's name is "Main1", and the sub element is "Sub1".



12.8.2. Symbol



You can double-click in the symbol box to insert your desired symbol for all of the map composites. You can attach a 5 letter symbol to your composites, and you cannot use i and n as one letter symbols. Those are reserved for the system.

You can set the symbol of the composite as a Greek letter by clicking on which will expand the list of letters available to choose from.



New1	λ		
α	β	Δ	δ
ε	ζ	η	θ
κ	Λ	λ	ξ
ψ	Ω	ω	

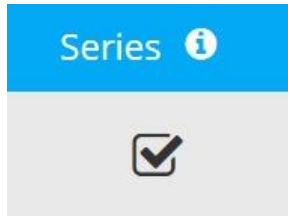
You can also double-click inside the symbol box to type in your desired symbol character.


By default, the symbol's name is "New1"



12.8.3. Series

You can define the composite as a series by clicking the checkbox.

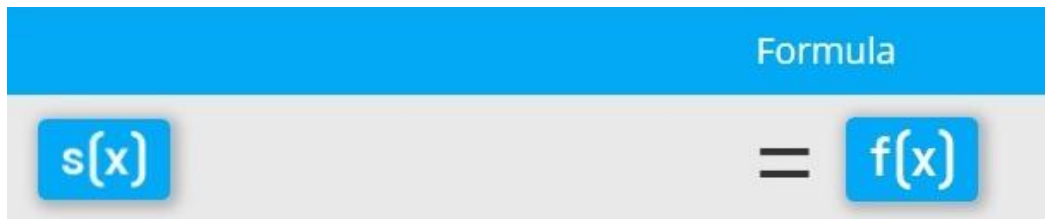


If you move your mouse over the info icon  details will pop up about the series box.

For all series data, time or other type, where the output will be a series of values, the subscript 'i' must be used with all variables and subformulas.



12.8.4. Formula / Equation Editor



For the composites, you can create your own equations in the formula section that has two main parts:



$f(x)$ is the equation editor where you can input and create your formulas and subformulas.



$s(x)$ is the symbol editor, where you can input a left side symbol for your main formula or subformulas.

The symbol editor looks just like the equation editor, but it is purely to design your descriptive formula symbol when necessary.



Click on the $f(x)$ button in the box to expand the Equation editor that contains a variety of functions to help you create your own formulas.

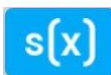


Equation Editor/MAIN FORMULA
✕

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined								
Main														Statistical		Trigonometric		Hyperbolic		Constants		Greek	
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo								Variables No properties yet								
$\sqrt[\square]{\square}$	%	∞	$\lfloor \square \rfloor$	$\lceil \square \rceil$	$\lceil \square \rceil$	$\lfloor \square \rfloor$	x!								Constants No coefficients yet								
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	\ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e [□]								Subformulas No subformulas yet									

Hover over function buttons to see what they do.

The **User Defined variables, constants, and subformulas** appear in the $f(x)$ equation editor, and not in the symbol editor, which is a descriptive tool to help you define a specific right side to the equation.



Equation Editor/MAIN FORMULA
✕

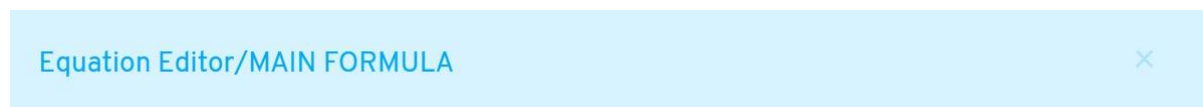
|

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.									
Main														Statistical		Trigonometric		Hyperbolic		Constants		Greek	
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo																
$\sqrt[\square]{\square}$	%	∞	$\lfloor \square \rfloor$	$\lceil \square \rceil$	$\lceil \square \rceil$	$\lfloor \square \rfloor$	x!																
$ x $	$\lim_{\square \rightarrow \square}$	\log_{\square}	\ln	\int_{\square}^{\square}	$\int_{\square}^{\square} \int_{\square}^{\square}$	e [□]																	

Hover over function buttons to see what they do.



When you click on the main formula, the top of the equation editor will be colored light blue.



The sub formula top will be colored light grey.

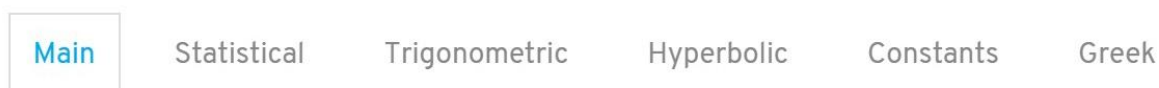


You can check Appendix A, the [Equation Editor Syntax](#) section, to learn more about how to properly create your equations.

You can use the standard numpad keys from 0 to 9 and the commonly used function of add, minus, multiply, divide and point. These will be located on the first fixed line.



You can choose from 6 fixed categories of functions that will help you create your own formulas. Artistically.





In all of the 6 categories, the first 7 functions are fixed and you can notice that they are available in all of the categories.

You can hover your mouse over any function and a details line will appear at the bottom of the functions that describe what the function do.

$()$ $\frac{\square}{\square}$ x_{\square} x^{\square} $\sqrt{\square}$ \sum_{\square}^{\square} $\prod_{\square}^{\square}$

$()$ Identifies the expression that will be calculated first.

$\frac{\square}{\square}$ Fraction of any two elements or functions.

x_{\square} Subscript to identify time or other series.

x^{\square} Identifies the exponent of the variable or expression.

$\sqrt{\square}$ The square root of the expression.

\sum_{\square}^{\square} Sums all values in range of series.

$\prod_{\square}^{\square}$ Multiplies all values in range of series.



12.8.4.1. Main Functions

The first Main category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo
$\sqrt[n]{\square}$	%	∞	⌊	⌋	⌈	⌉	x!
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}	

Hover over function buttons to see what they do.

Modulo

Calculates the remainder after the division of one variable by another.



The nth square root of the expression.



1% = 1/100



Symbol of infinity, an infinitely large number.



Rounds number to the lower integer, used with ⌊

 \lfloor

Rounds number to the lower integer, used first with \lceil

 \lceil

Rounds number to the upper integer, used with \lfloor

 \lceil

Rounds number to the upper integer, used first with \lfloor

 $x!$

Calculates the factorial of the variable.

 $|x|$

Calculates the absolute value of the variable or expression.

 $\lim_{\square \rightarrow \square}$

Calculates the limit of the expression.

 \log_{\square}

Calculates the log based on a defined base.

 \ln

Calculates the natural logarithm of the expression.

 \int_{\square}^{\square}

Calculates the finite integral of a function.



$$\int_a^b \int_c^d$$

Calculates the double finite integral of a function.

$$e^x$$

Calculates the constant e to the desired exponent X



12.8.4.2. Statistical Functions

The statistical category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	μ
var(x)	σ^2	std(X)	σ	med(X)	cov(X,Y)	corr(X,Y)	ρ
mo(X)	mr(X)	min(X)	max(X)				

Hover over function buttons to see what they do.

μ

Mu, calculates mean of population values.

var(x)

Calculates the sample variance of a variable.

σ^2

Sigma Squared, Calculates the population variance of a variable.

std(X)

Calculates the sample standard deviation of a variable.



σ

Sigma, the population standard deviation of a variable.

$\text{med}(X)$

The median value of the data.

$\text{cov}(X,Y)$

Calculates the covariance of variables X and Y.

$\text{corr}(X,Y)$

Calculates the correlation of variables X and Y.

ρ

Rho, the correlation of variables X and Y.

$\text{mo}(X)$

The value that occurs most frequently in the data.

$\text{mr}(X)$

The arithmetic mean of the maximum and minimum values in the sample.

$\text{min}(X)$

The smallest value in the data.

$\text{max}(X)$

The largest value in the data.



12.8.4.3. Trigonometric Functions

The Trigonometric category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic	Constants	Greek	
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sin
cos	tan	cot	sec	csc	arcsin	arccos	arctan
arccot	arcsec	arccsc					

Hover over function buttons to see what they do.

sin

The sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse.

cos

The cosine of an angle is the ratio of the length of the adjacent side to the length of the hypotenuse.

tan

The Tangent of an angle is the ratio of the length of the side that is opposite to the angle divided by the length of the side that is adjacent to the angle.

cot

Cotangent is defined as the reciprocal function of Tangent.

sec

The Secant is defined as the reciprocal function of Cosine.



csc

Cosecant is defined as the reciprocal function of Sine.

arcsin

Arcsine is a partial inverse function of Sine.

arccos

Arccosine is a partial inverse function of Cosine.

arctan

Arctangent is a partial inverse function of Tangent.

arccot

Arccotangent is a partial inverse function of Cotangent.

arcsec

Arcsecant is a partial inverse function of Secant.

arccsc

Arccosecant is a partial inverse function of Cosecant.



12.8.4.4. Hyperbolic Functions

The Hyperbolic category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
$()$	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	sinh
cosh	tanh	coth	sech	csch	arcsinh	arccosh	arctanh
arcoth	arcsech	arccsch					

Hover over function buttons to see what they do.

sinh

Hyperbolic sine.

cosh

Hyperbolic cosine.

tanh

Hyperbolic tangent.

coth

Hyperbolic cotangent.

sech

Hyperbolic secant.



csch

Hyperbolic cosecant.

arcsinh

Inverse Hyperbolic sine.

arccosh

Inverse Hyperbolic cosine.

arctanh

Inverse Hyperbolic tangent.

arcoth

Inverse Hyperbolic cotangent.

arcsech

Inverse Hyperbolic secant.

arccsch

Inverse Hyperbolic cosecant.



12.8.4.5. Constants Functions

The Constants category contains the following functions:

Main	Statistical	Trigonometric		Hyperbolic	Constants		Greek
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}	\prod_{\square}	e
γ	φ	π	τ	ln 2	ln 10	$\log_2 e$	$\log_{10} e$
$\sqrt{2}$	$\sqrt{1/2}$						

Hover over function buttons to see what they do.

e

The number e that is the base of the natural logarithm, whose natural logarithm is equal to one, at 10 decimal places, V = 2.7182818285

γ

Gamma, the numerical value of the Euler–Mascheroni constant, to 10 decimal places, V = 0.5772156649

φ

Phi, the golden ratio constant, at 10 decimal places, V = 1.6180339887

 π

Pi, the ratio of a circle's circumference to its diameter, at 10 decimal places, Value = 3.1415926535

 τ

Tau, the ratio of a circle's circumference to the radius, at 10 decimal places, equal to $2 * \pi$, $V = 6.2831853071$

 $\ln 2$

The natural logarithm of 2, at 10 decimal places, Value = 0.69314718056

 $\ln 10$

The natural logarithm of 10, at 10 decimal places, Value = 2.302585093

 $\log_2 e$

The base-2 logarithm of e, at 10 decimal places, Value = 1.4426950409

 $\log_{10} e$

The base-10 logarithm of e, at 10 decimal places, Value = 0.4342944819

 $\sqrt{2}$

The square root of 2, at 10 decimal places, Value = 1.4142135624

 $\sqrt{1/2}$

The square root of 1/2, at 10 decimal places, Value = 0.7071067812



12.8.4.6. Greek Functions

The Greek Category contains the following functions:

Main	Statistical	Trigonometric	Hyperbolic	Constants	Greek		
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	α
β	Δ	δ	ε	ζ	η	θ	κ
Λ	λ	ξ	ψ	Ω	ω		

Hover over function buttons to see what they do.

α

Greek letter alpha

β

Greek letter beta

Δ

Greek letter delta, Capital

δ

Greek letter delta

ε

Greek letter epsilon



ζ	Greek letter zeta
η	Greek letter eta
θ	Greek letter theta
κ	Greek letter kappa
Λ	Greek letter lambda, capital
λ	Greek letter lambda
ξ	Greek letter Xi
ψ	Greek letter psi
Ω	Greek letter omega, capital
ω	Greek letter omega



12.8.4.7. User Defined

On the right section inside the equation editor window, there is a user defined section where the Properties, Constants and Sub formulas defined by the user will be listed. It can be one or many.

User Defined

Variables

No properties yet

Constants

No coefficients yet

Subformulas

No subformulas yet

These variables, constants, and subformulas and their symbols are the ones defined by the user in the map creation page.



You can click on the X sign on the top right of the equation editor to close it.

You can click on the top of the equation editor window and drag it freely around the create map's page.

Equation Editor/MAIN FORMULA
✕

$$-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$$

0	1	2	3	4	5	6	7	8	9	+	-	×	÷	.	User Defined
Main	Statistical	Trigonometric		Hyperbolic		Constants		Greek							Variables
()	$\frac{\square}{\square}$	x_{\square}	x^{\square}	$\sqrt{\square}$	\sum_{\square}^{\square}	$\prod_{\square}^{\square}$	Modulo								FCF (Series)
\forall_{\square}	%	∞			[x!								Constants
x	$\lim_{\square \rightarrow \square}$	\log_{\square}	ln	\int_{\square}	\int_{\square}^{\square}	e^{\square}									
Hover over function buttons to see what they do.														r	
														Subformulas	
														No subformulas yet	

After you finish writing/creating your formula(s) or subformula(s), you can click on the confirm button at the bottom of the equation editor window.

CONFIRM

Your formulas and subformulas will be placed inside the boxes that you can click on at any time to edit/ re-write.

Formula

s(x)

 NPV_{FCF}
=

f(x)

 $-II + \sum_{i=1}^n \left(\frac{FCF_i}{1+r} \right)$




12.9. Map Visualization Options

In this section, you select the element to display on the map, and choose the color pattern to use for the display.

MAP VISUALISATION OPTIONS

Geographic Region will be colored based on:  Color Palette:

2005      

Geographic Region will be colored based on: 



If you click on the  icon, info description will appear:

You can select Variables, Constants and Formulas here. If you select Constants or Formulas that returns a single value (series checkbox not selected), each country/region on the map will have that value.

Select from the drop down menu, the variable or constant or composite you would like to display on the map.

You can select the color pattern of the regions from the color palette section.

Color Palette:





12.10. Maps

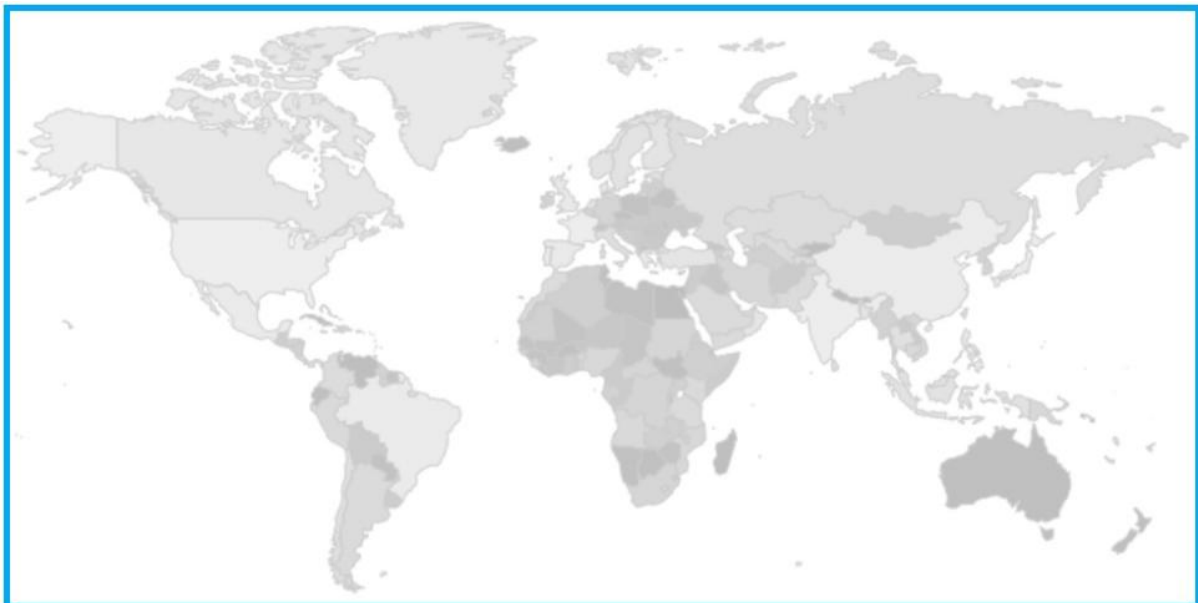
You can choose your map style visualization in this section.

MAPS



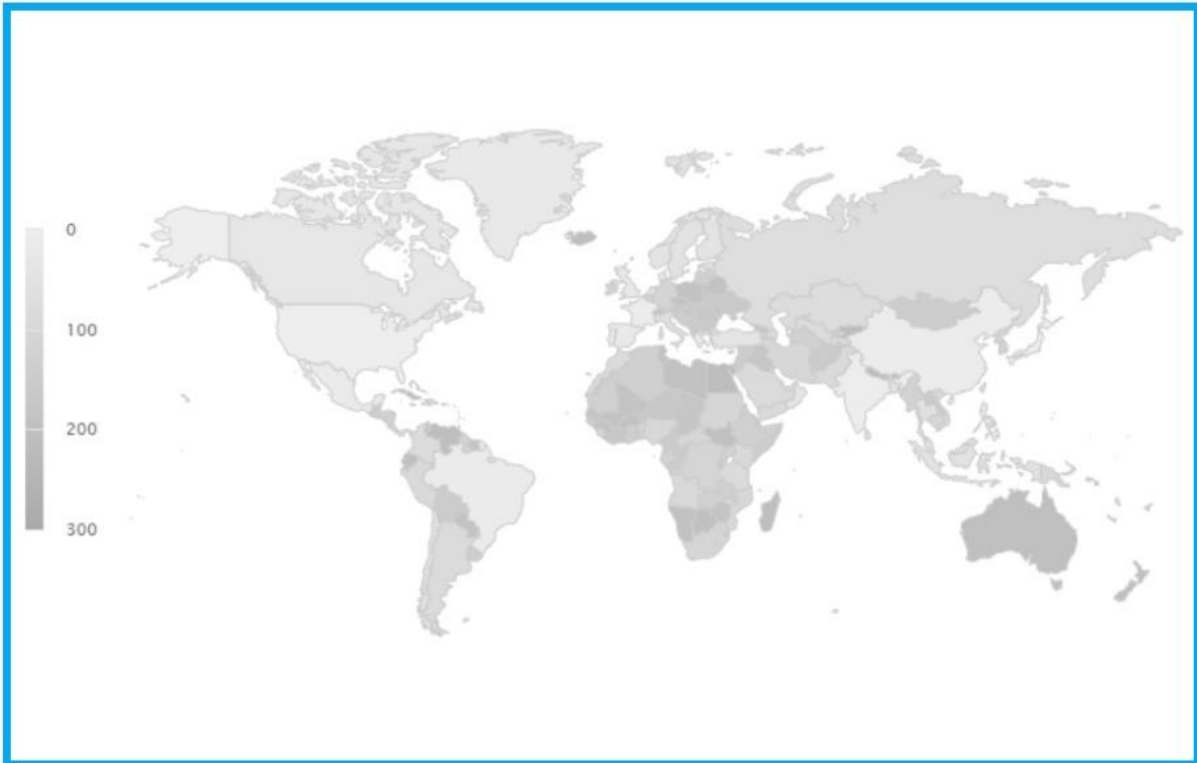
You can find 4 samples of map's style.

Style 1: No Legend

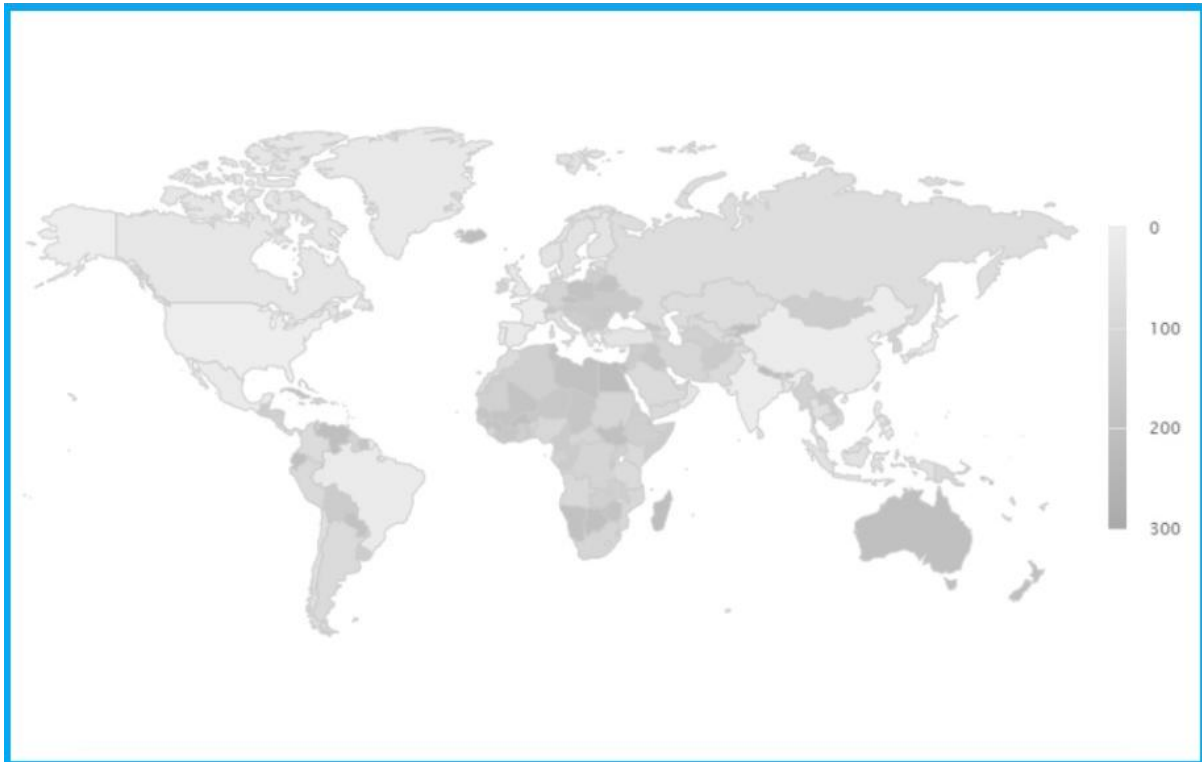




Style 2: Legend on left



Style 3: Legend on right





Style 4: Legend at the bottom





12.11. Save Draft / Preview

After selecting your desired options and writing your composites / formulas, it is time to Preview and Save your Map.

In the Top Toolbar you can find the two buttons **Save Draft** and **Preview**.

VXD MAP SAMPLE 

Save Draft

Preview



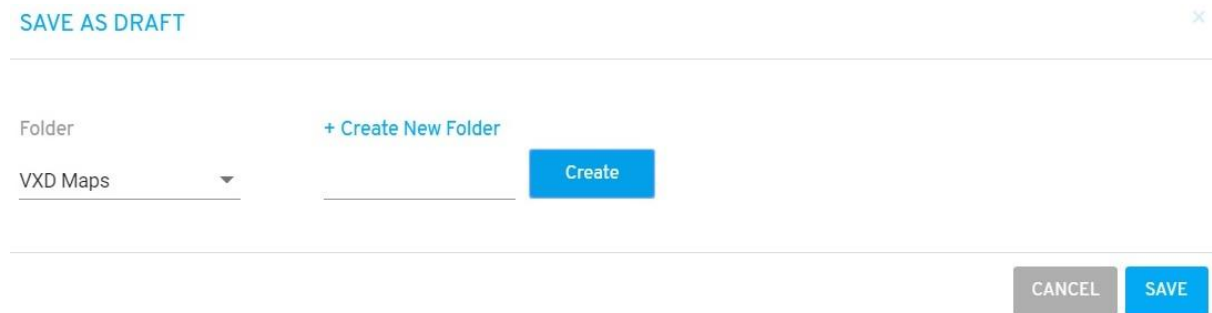
12.11.1. Save Draft

If you click on  button a panel will pop up to save your draft.



Select the **Folder** where the Map will be located. By default, you can save in the General folder.

You can click on the  to create a new folder to save the Map inside.




A field box will appear to type in the desired new folder name, and click the **CREATE** box.

The new folder will automatically be selected in the folder section.

Click on the **CANCEL** to cancel or **Save** to proceed by saving your Map.



12.11.2. Preview

You can click on  to preview and then save your map.

If you forgot to set your variables, Constants or Composites, you will receive the invalid map message below.

INVALID MAP ✕

One or several of your tabs do not have any Variables, Constants or Composites selected to be visualized on the Map. Please return and select one in the Map Visualization Options section of this page.

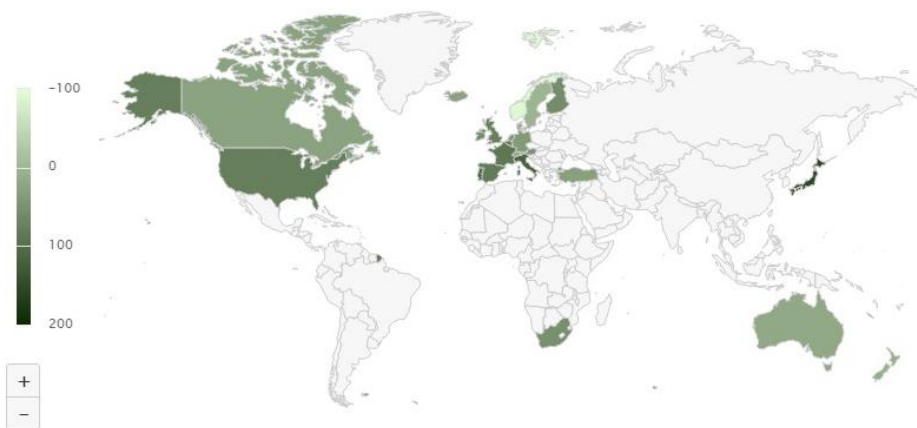


If all is set, the map's preview panel will appear.

PREVIEW ✕

VXD Map





Save Save As









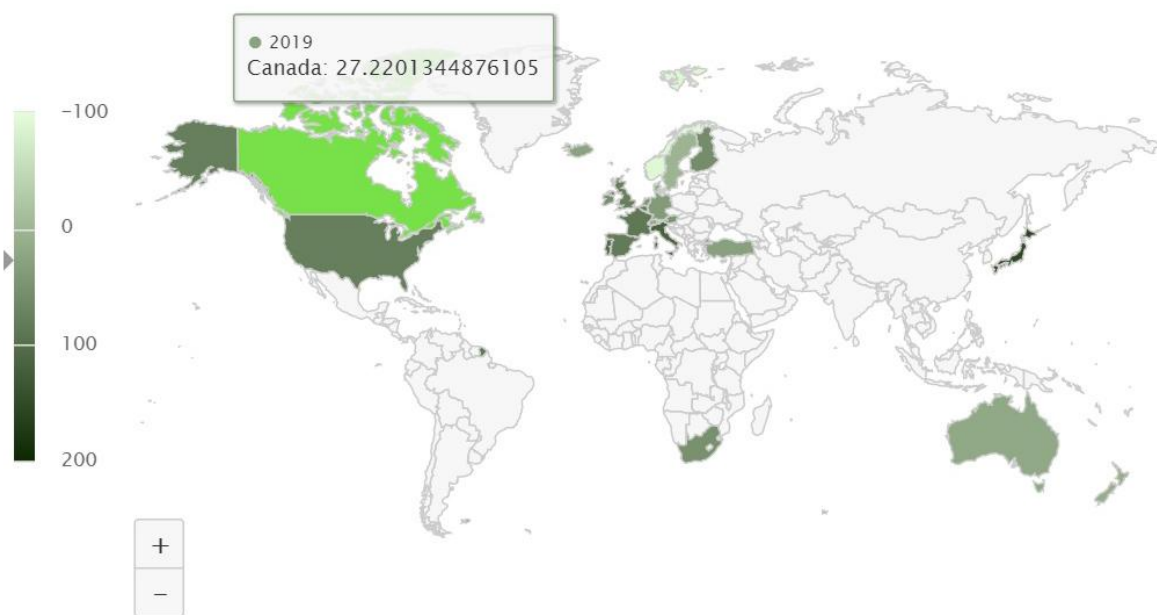
The map visualization is interactive.

You can adjust the zoom view of the map by clicking on the



buttons at the left bottom of the panel.

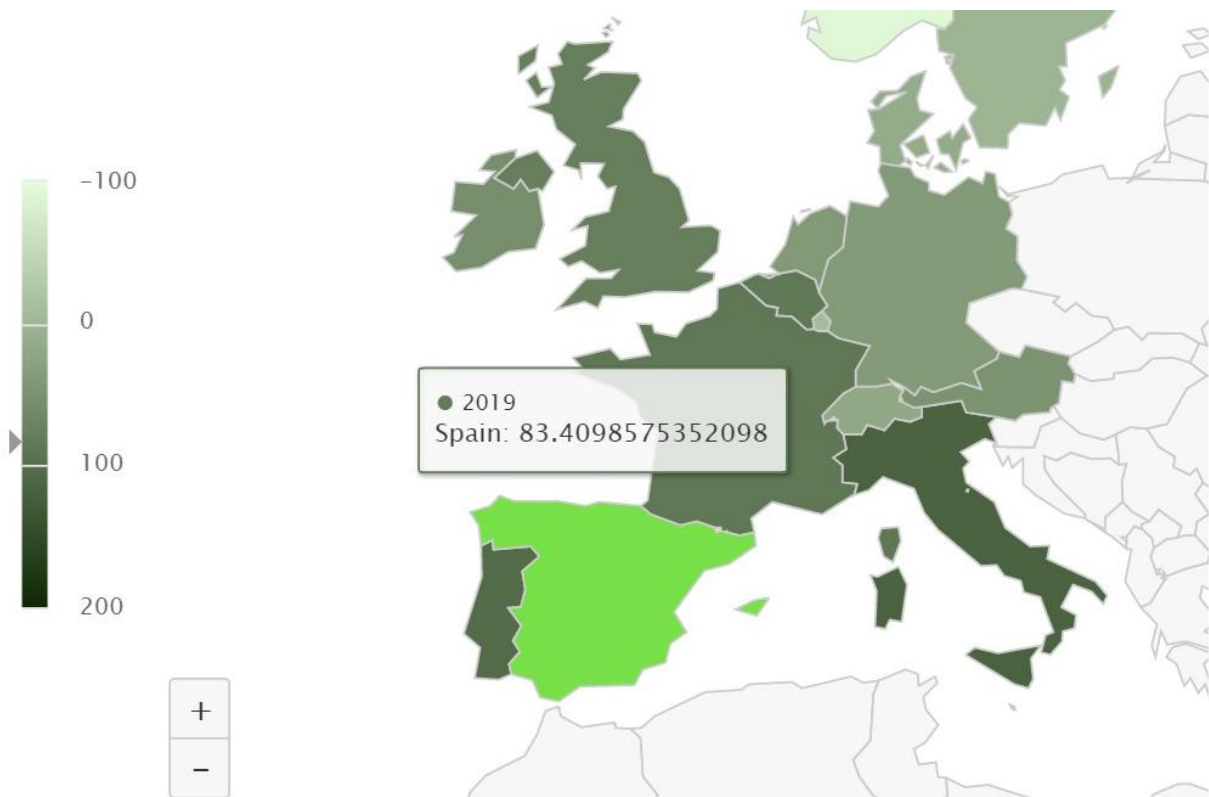
Or you can simply use the wheel of your mouse, forward to zoom in and backward to zoom out.




When you hover over a country on the map, a description will pop up containing the name and the values related to the study. Along with the pop up, the country color will light up as well.



When the map is in a zoomed view, you can click anywhere inside the map and drag to move the map in any direction desired.



A grey arrow  will pop up when you hover over a country on the legend bar located next to the map, it will indicate the level of value.

At the bottom of the panel, you can select the **Save** option to save your Map directly, or **Save As** option to make a copy or select where to save it.



If you select the **Save As** option, 2 new fields will appear, write the desired name under the **Name** field, select the **Folder** where the Map will be located.

You can click on **+ Create New Folder** to create a new folder to save the map inside.

Save Save As Name Folder [+ Create New Folder](#)

A field box will appear to type in the desired new folder name, and click the **CREATE** box.

The new folder will automatically be selected in the folder section.

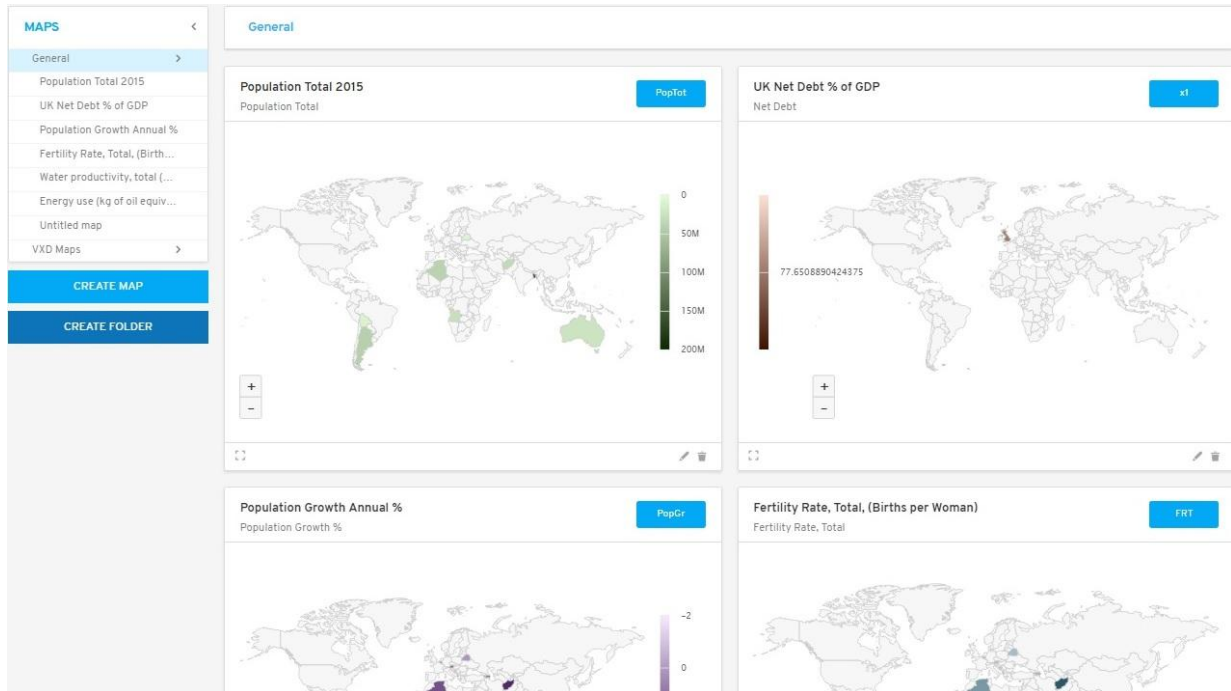
Click on the **Close** to cancel or **Save** to proceed by saving your map.

You will be directed to the Maps' Catalogue page.



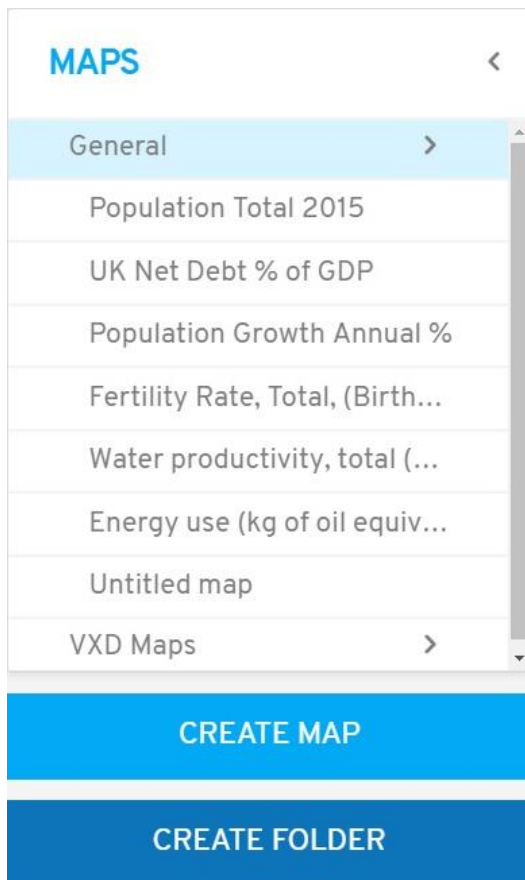
12.12. Maps' Catalogue


When you click on Maps' Catalogue in the Map tab or you just saved a new Map, you will be directed to your Maps' catalogue page.





12.12.1. Map Sidebar List

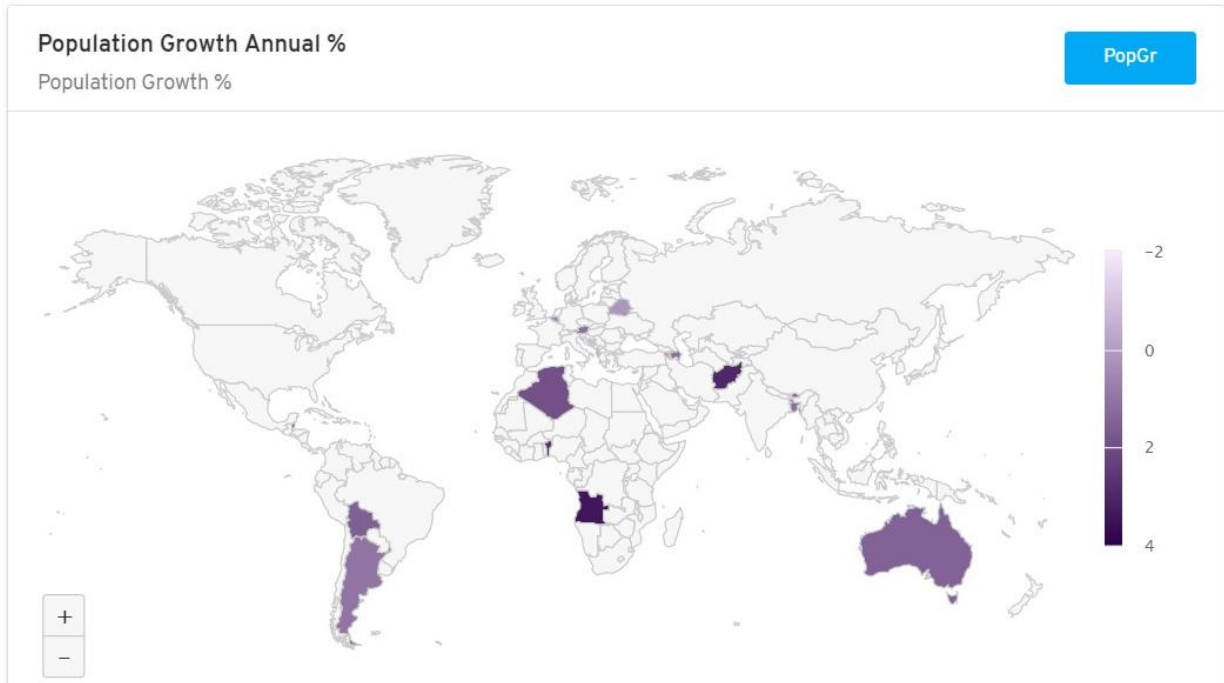


In the left sidebar, you can find the list of all the Maps created inside the folders. The main samples will be located in the General folder that you can click on the right arrow  next to it to expand the list of maps available inside.



You can click on the Map you desire to see; an expanded panel of the map will appear.

EXPANDED PANEL



You can click on the blue X on the top right of the panel to close it.

You can click on



button to go to Create Map Page.

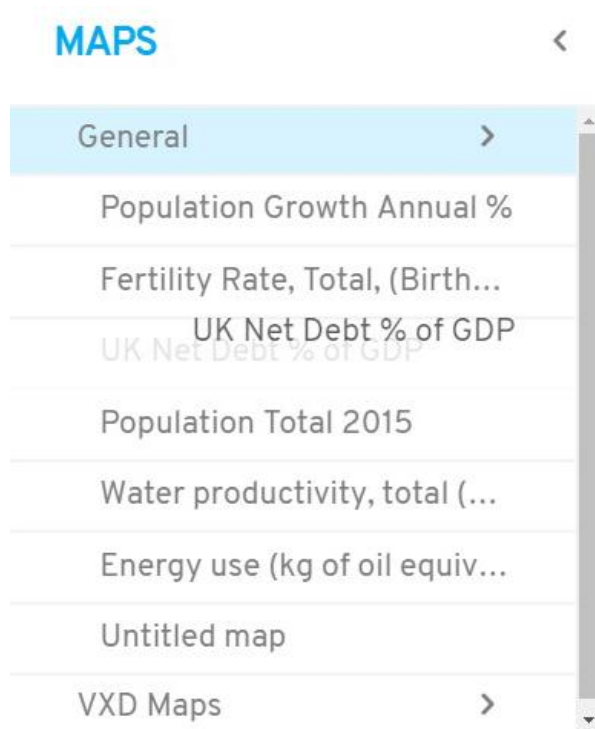
You can click on



button to create a new folder at the end of the Map's list.



You can click on the map's name inside the sidebar and drag to change the location inside its folder as well as move it to another folder, you can notice a grey copy of the name that will show you a preview where it will be located when you release the mouse click.



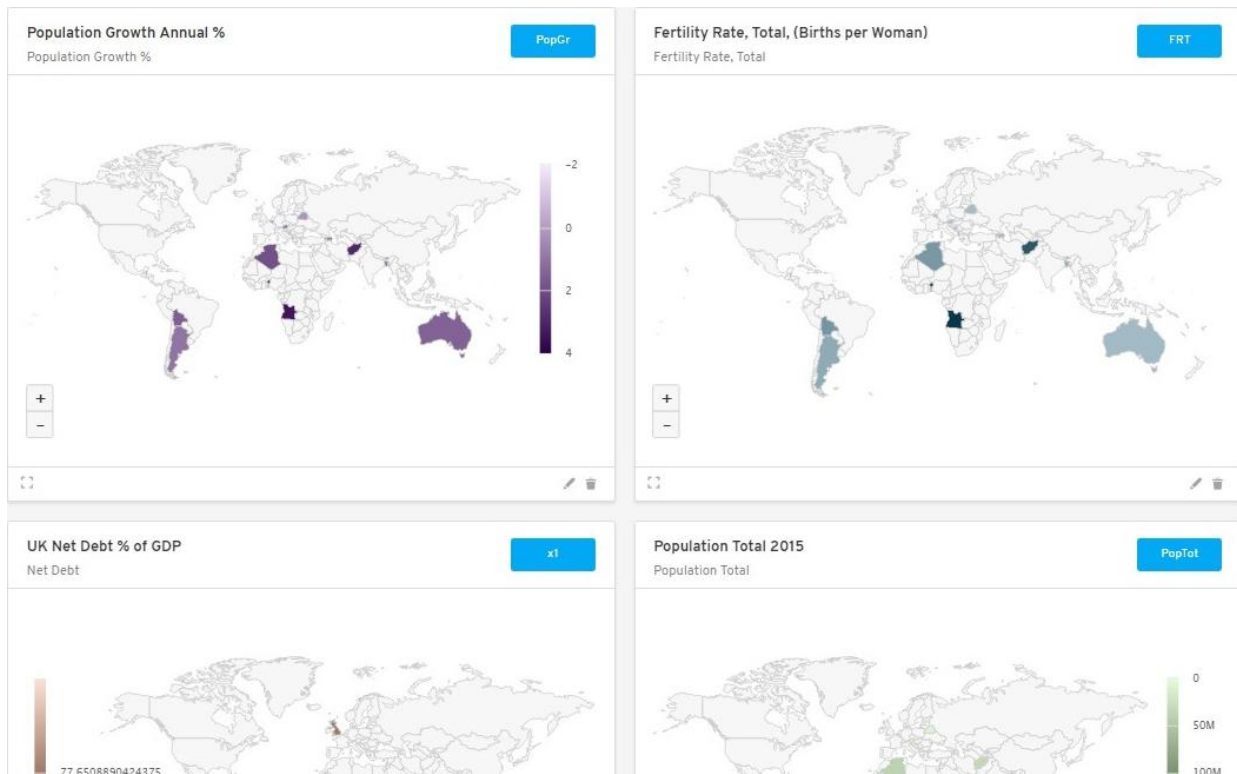
After you move the map, the panels on the right will be re-organized according to the change you made inside the folder.


You can also click on any panel on the right and drag it anywhere to change the location, a grey copy of the panel will appear under your drag and the rest of the panel will re-organize accordingly. The map's name list in the sidebar will be updated accordingly.



12.12.2. Expand / Controller / Edit / Delete Map

All the maps available in a folder are listed in details on the right, you can scroll down to check, expand, delete or edit a specific map.



At the bottom left of each map you can find the  button that expands the panel view.



If a panel has variables that are checked as controller, the controller button will be visible next to the expand button on the panel.

You can click on the controller button  on the bottom left of the panel, a details box will pop up containing the variables that are in controller.

Variables in controller

Properties


Total Revenues

Net Income


Coefficients

Initial Investment

Please check the [Controller](#) section for more details on how to use the controller inside the [Results](#) Chapter.

You can click on the  button to edit your map; you will be directed to Edit map page same as Create Map page.



You can click on the  button to delete a map; you will receive the warning below.

DELETE MAP ✕

The map you are deleting may be used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

Are you sure you want to delete this map?

CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deleting the map.

Important Note: Just like models, charts, and tables, all maps in the catalogue are abstract universal tools to be applied to cases. Thus, they show only the last 25 data points.

Even when you create a new map based on a Case A, for example, the newly created map must be added to a dashboard, and then applied to Case A, in order to get the full result.



12.12.3. Top Toolbar


The General folder is a fixed folder that cannot be renamed or deleted.

When you click on any created folder, you will notice that a blue pencil to rename the folder and a delete button will appear.

VXD Sample 

Delete Folder

Click on  to rename the folder.

Click on  button to delete the folder, you will receive the warning below.

DELETE FOLDER

The folder you are trying to delete is not empty. Please note that everything contained in this folder will be deleted. If the maps inside this folder are used on any of your scenarios, presentations or dashboards, they will be deleted from there as well.

This folder currently contains

CO2 emissions (metric tons per capita)

CANCEL

DELETE

Click on **CANCEL** or **DELETE** to proceed by deletion.

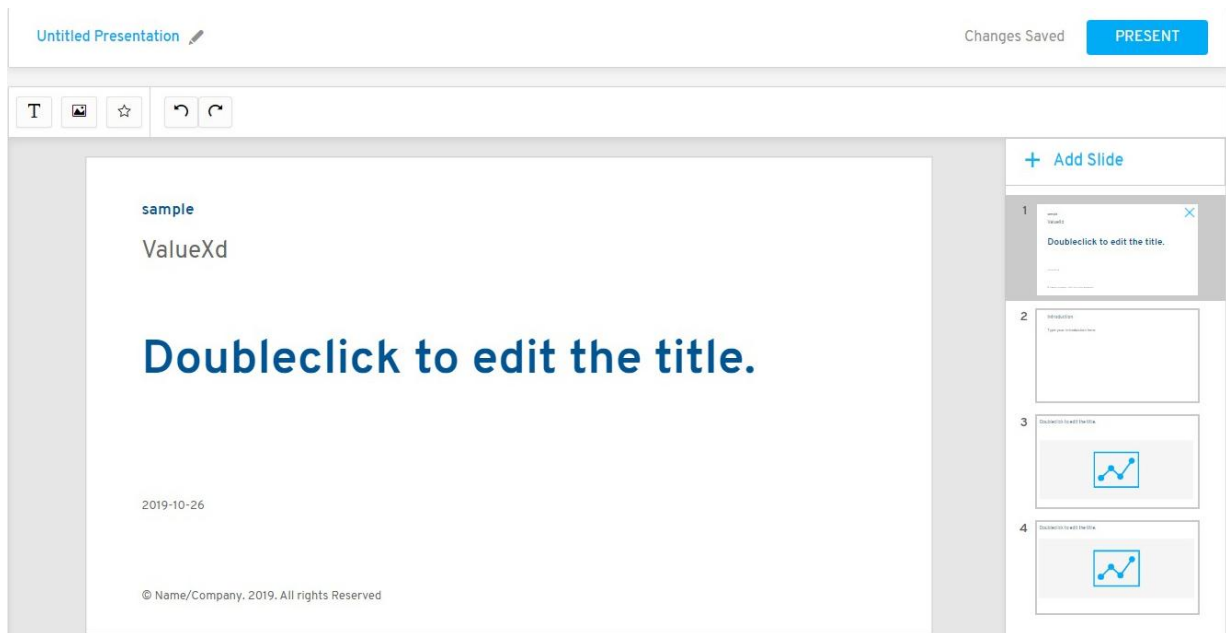


13. Presentation

When you are in the [Results page](#) and you click on the **Create Presentation** button.



You will be directed to the presentation page.



You can notice that the first page of your presentation contains the name of the dashboard on top followed by profile name, date and copyright section at the bottom.

Everything you see is editable in its text box. Double-click inside to edit any text box.

These are automatically fed into the presentation editor through the user profile and Case analysis content, and the dashboards you have applied to the case.



13.1 Top Toolbar

Untitled Presentation 

[Save changes](#)

PRESENT

Untitled Presentation 

To change the title of the presentation, click on  to edit.

VXD Sample 

Click on [Save changes](#) anytime to save your presentation changes.

After you made all the changes desired to your slides and you want to Present your presentation, you can click on the Present button.

PRESENT



13.2 Editor Bar

The editor bar is located under the top toolbar; it contains all the tools needed to edit your slides.



13.2.1. Text Box Button



Click on the text box button to add an empty text box inside the slide you are in.

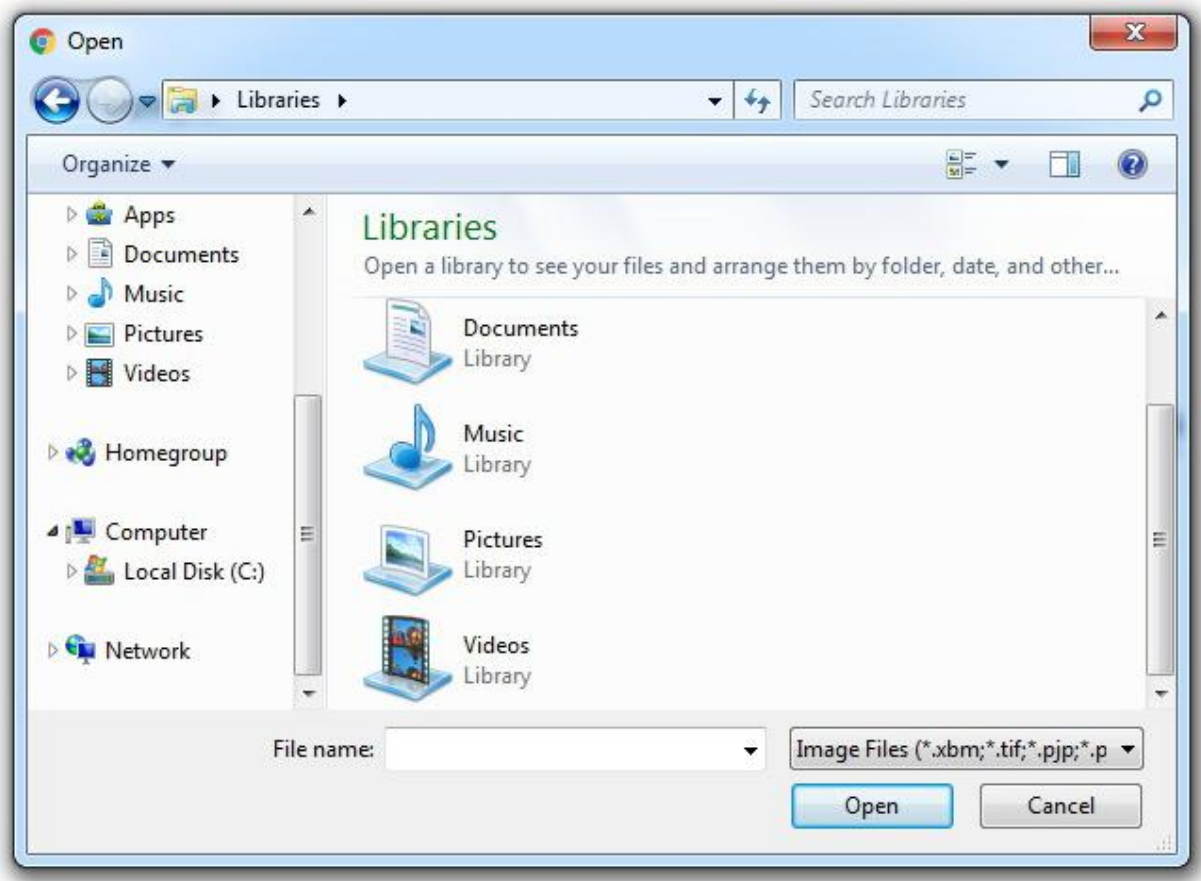




13.2.2. Insert Image



Click on insert image button to import an image file from your local drive. A window of your files will open to locate the image file you would like to insert in your slide.



You can insert any image extension from the list below.



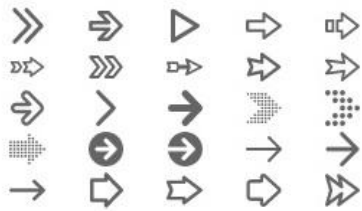


13.2.3. Insert Shapes

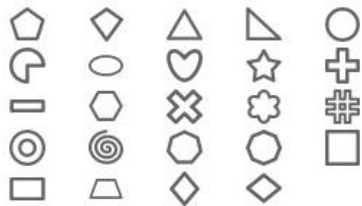


You can click on insert shapes button to select from a variety of shapes that you can use in a specific slide.

Arrows



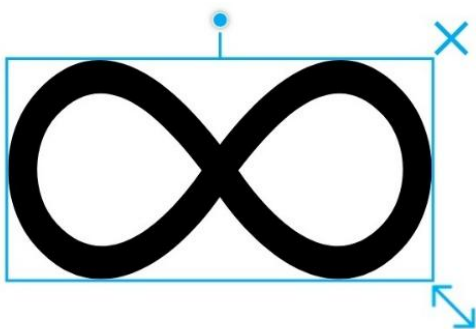
Geometrical



Mathematical

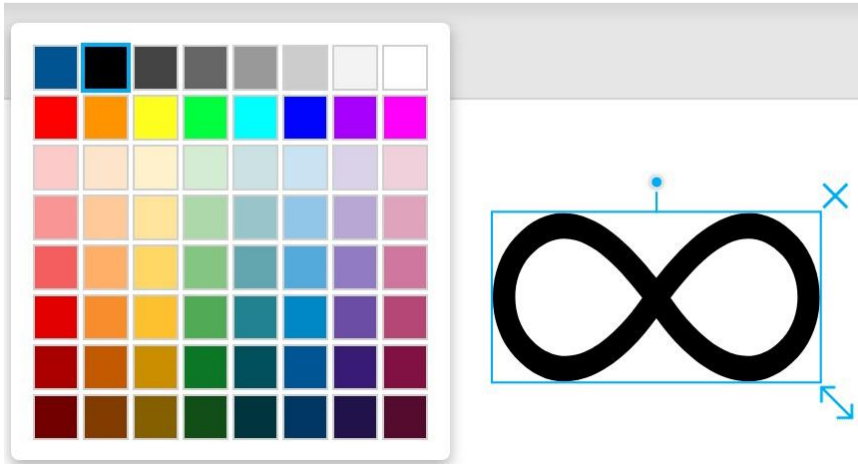


For example, we picked the infinity sign as shown below.

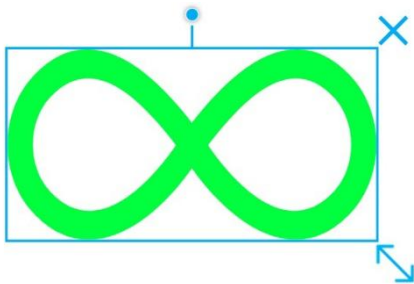






As soon as you insert the shape in the slide, the colour button will appear in the Editor Bar.




Click on the colour button to change the colour of the shape.



The 3 blue buttons is always available for any textbox, image, shape or panel inside a specific slide for you to play around with it.

Click on  and move it right to turn the box clockwise.
Click on  and move it left to turn the box counter clockwise.

Click on  to delete the box.

Click on  and drag to resize the box

Click anywhere inside the box and drag to move it around inside the slide.



13.2.4. Undo / Redo Buttons

You can Undo or Redo changes made inside your slides.



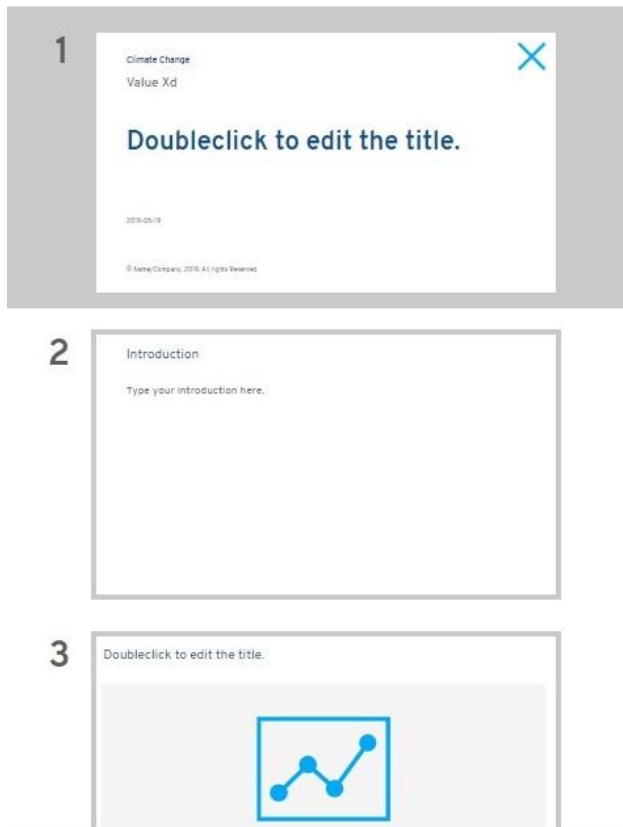
To Undo changes, click on the counter clockwise arrow.

To Redo changes click on clockwise arrow.



13.3. Slides' Right Section

+ Add Slide



Each created panel will be placed on an individual slide with a text box on top as the title. By default, the first two page will be for the titles and introduction.

Depending on the number of panels available in your dashboards, slides will be created to display them all.

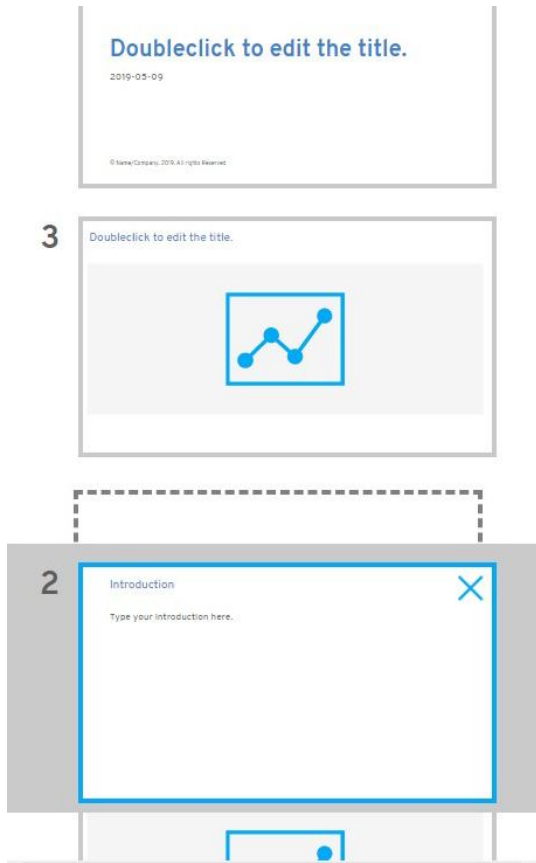
You can click on any slide to edit in the preview section.

You can click on **+ Add Slide** to add a new slide after the one you are in. The new slide will show up in the preview section to add and edit.

When you hover your mouse over any slide, a blue delete **X** will appear on the right top of the slide, click on it to delete the slide.



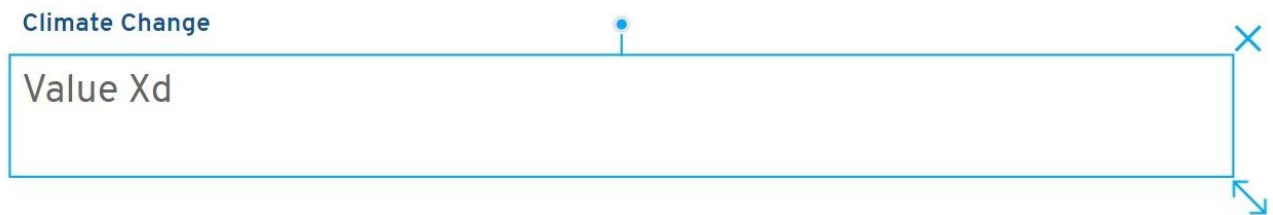
You can re-arrange your slides by clicking on any slide and drag before or after the other slides.



You can notice a dotted black square will appear underneath your dragged slide to give you a preview on where the slide will be relocated. The other slides will re-arrange according to your slide drag.



13.4. Preview Section Editor



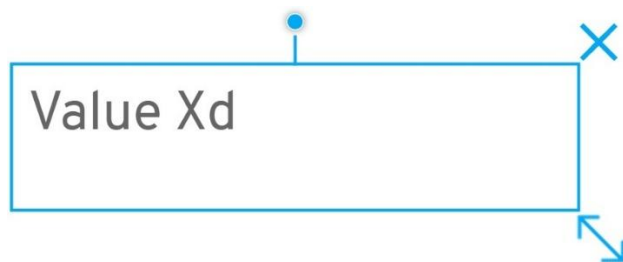
Doubleclick to edit the title.

2019-05-19

© Name/Company. 2019. All rights Reserved

The preview section you can edit, add, remove, move, resize and turn your textboxes and panels inside each slide.

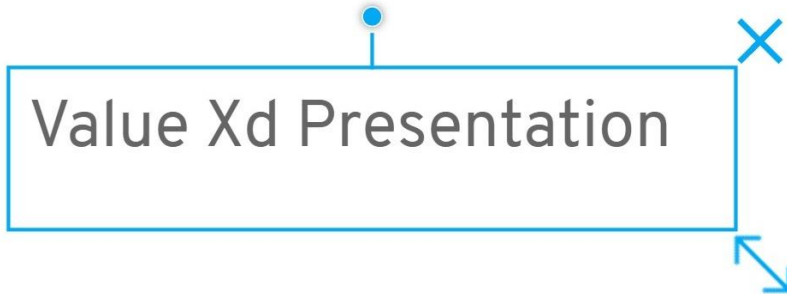
You can click on any textbox; you notice a blue outline with tools around it will appear that you can use.








13.4.1. Textbox Tools

You have 3 tools around the textbox that you can click and use.



Click on  and move it right to turn the textbox clockwise.
Click on  and move it left to turn the textbox counter clockwise.

Click on  to delete the textbox.

Click on  and drag to resize your textbox.

Click anywhere inside the textbox and drag to move it around inside the slide page.



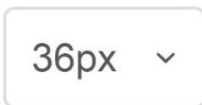
Double-click inside the textbox to edit the text inside. You can notice that new functions will appear in the Editor bar.



[Text Colour](#) button to change the colour of your text. Click on it and the colour palette will appear to select from.



[Font Family](#) tool to choose your font style, click on it and a list of font will appear to choose from.



[Font Sizes](#) tool to choose your font style, click on it and a list will appear to choose from. Minimum size is 6px, and the Maximum size is 96px.



Click on [Align](#) tools to direct your text left, center or right.

Click on the [Justify](#) button to justify your text.

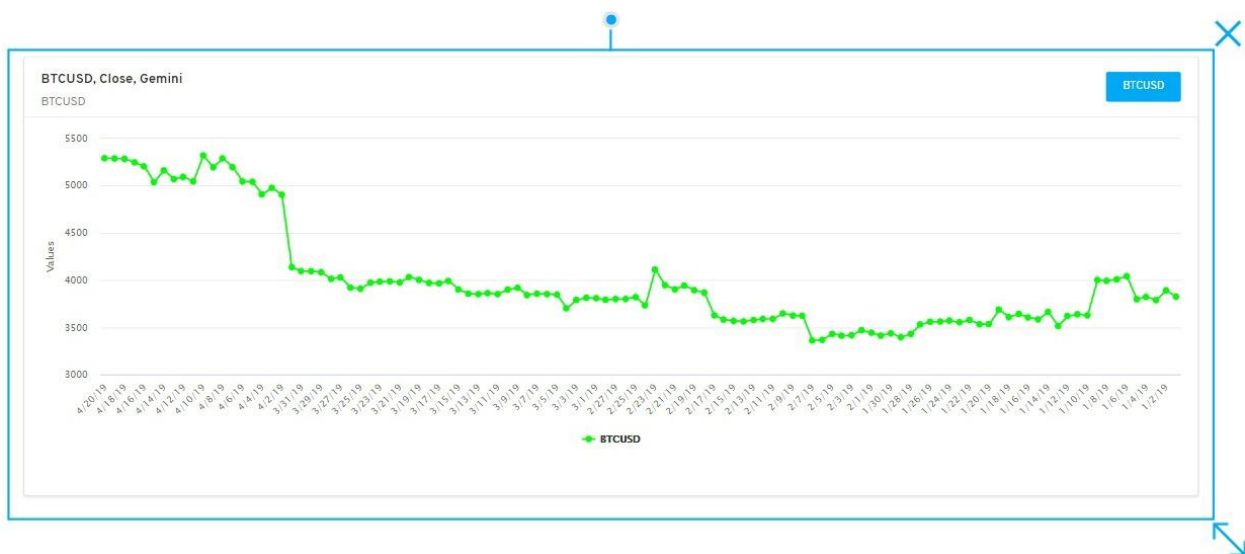


[Bullet / Numbered](#) list tools to use bullet points or numbered lists.



[Bold / Italic / Underline](#) tools to use on your text.

13.4.2. Panel's Tools



The panel tools are the same as the textbox tools.



Turn Delete Resize

When you double-click inside the panel's box, the panel becomes an interactive panel that you can manipulate. Please check the [Expanded Panel](#) section for more details on how to use these interactive features.

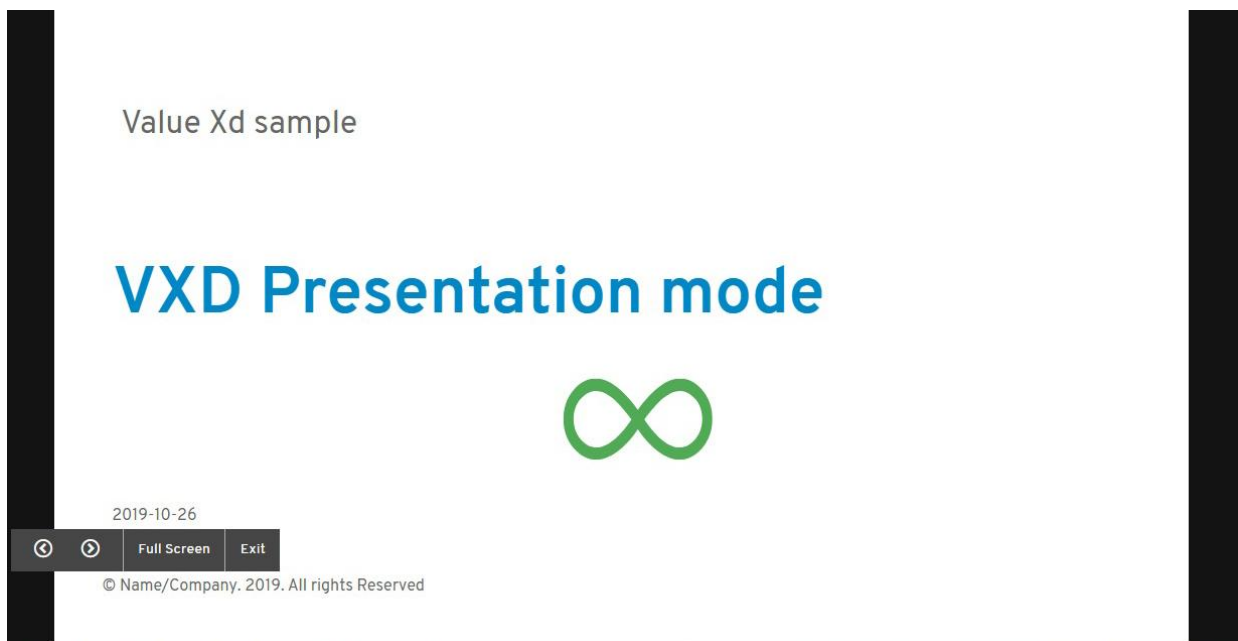


13.5. Presentation Mode

After editing all your slides, and when you feel ready to present, click on the Present button in the top right toolbar.



A presentation mode screen will begin with your first slide.






You can notice the navigation arrows (Next / Previous), Full Screen and the Exit buttons located at the bottom left of your presentation screen.



Click on the  button to move to the next slide.

Click on the  button to go back to the previous slide.

Click on the  button to switch to full screen mode presentation.

Click on the  button to exit Full Screen Mode.

Click on the  button to exit presentation mode and go back to edit presentation page.

This section will disappear after 5 seconds of non-movement of your mouse to give you the full uninterrupted screen for your presentation.

Value Xd sample

VXD Presentation mode



2019-10-26

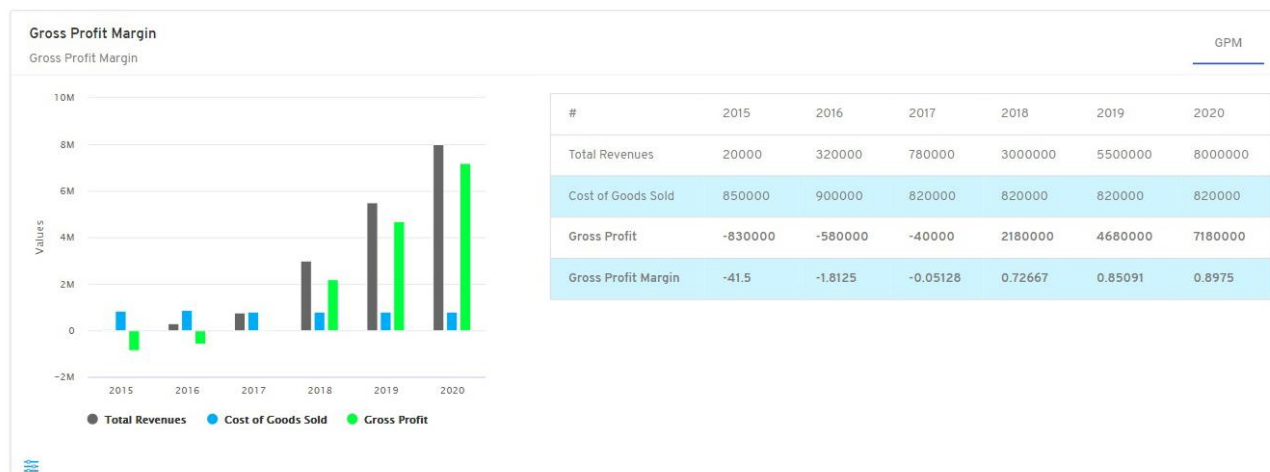


© Name/Company. 2019. All rights Reserved




During your live presentation, just like in edit mode, if your slide contains a panel (whether a model, a chart, a table, or a map), you can notice that the slide is fully interactive and gives you the full functionality of your panel's interaction. Please check [Expanded Panel](#)'s section for more details on how to use these features.


Sample Panel



This unprecedented tool will make your presentations stand out, and your discussions more informed, allowing the simulation of different scenarios while in live presentation mode.

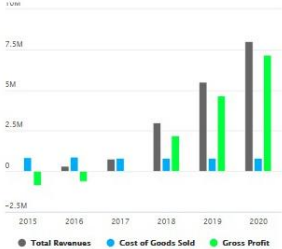


You can notice at the bottom left of each panel the Controller button  is available for you to use during live presentation mode. When you click on it the controller sidebar will appear on the right side of your presentation screen.

Sample Panel 

Gross Profit Margin

Gross Profit Margin GPM



#	2015	2016	2017	2018	2019	2020
Total Revenues	20000	320000	780000	3000000	5500000	8000000
Cost of Goods Sold	850000	900000	820000	820000	820000	820000
Gross Profit	-830000	-580000	-40000	2180000	4680000	7180000
Gross Profit Margin	-41.5	-1.8125	-0.05128	0.72667	0.85091	0.8975

CONTROLLER
Gross Profit Margin

Link Additional Panels to this v

Time Horizon
6 v

Total Revenues v

2015	2016	2017	2018
20000	320000	780000	30000...

Cost of Goods Sold v

2015	2016	2017	2018
850000	900000	820000	820000

PROJECTOR
Number of periods to forecast
Select Year
Select Year v

RECALCULATE
REVERT
REVERT ALL

SAVE AS NEW SCENARIO

The first option in the controller sidebar is to [Link Additional Panels](#), by default this section is hidden.

Click on the blue down arrow to expand the option.

Link Additional Panels to this ^

Additional panels selected:

No additional panels selected

You can also control other panels with this controller. The panels with matching timeline and at least one matching property and/or coefficient can be added below:

Add panel:

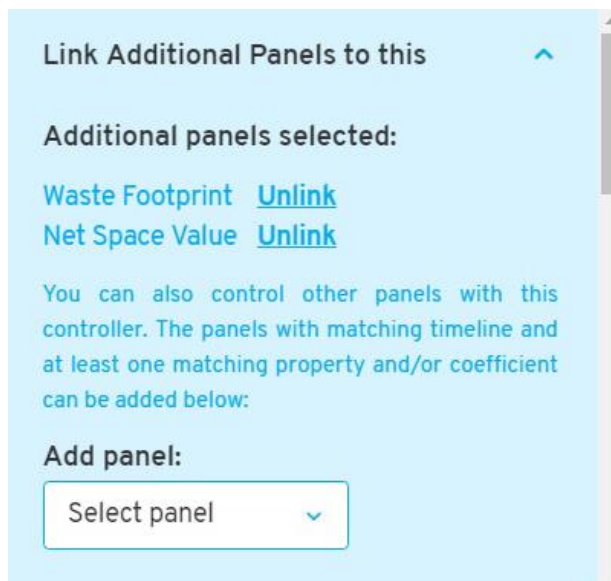
Select panel v



With this option you will have the opportunity to link other panels, thus making the controller your front end interface allowing you to fine tune, simulate, and manipulate results as per your strategic and tactical needs.

When you click on the drop down menu of the select panel, only the panels with matching timeline and at least one matching property and/or constant will be available to select from.

You can add one or many panels as desired.



You can notice that the selected panels will be listed under additional panels selected.

You can click on the [Unlink](#) to remove the link with the panel.

You can click on the up blue arrow on the top right at any time to hide this section.



Time Horizon

6

Time horizon section relates to how many periods you would like to control.

The numbers in the time horizon tab is dependent on the time periods in your axis.

You can control and simulate your properties and constants, along with the time horizon.

Expected Exports			
2015	2016	2017	2018
0	0	0	50000

Planned Imports			
2015	2016	2017	2018
50000	60000	40000	30000

Initial Investment

2000000

Debt Ratio

0.4

Bank Loan Ratio

0.2



Money Multiplier

1.2

RECALCULATE **REVERT** REVERT ALL

You can double-click inside the white text boxes to edit any number at any time.



You can use the down blue arrow  to expand the list of periods in the properties section. Or you can use the right blue arrow  to go to the next period.

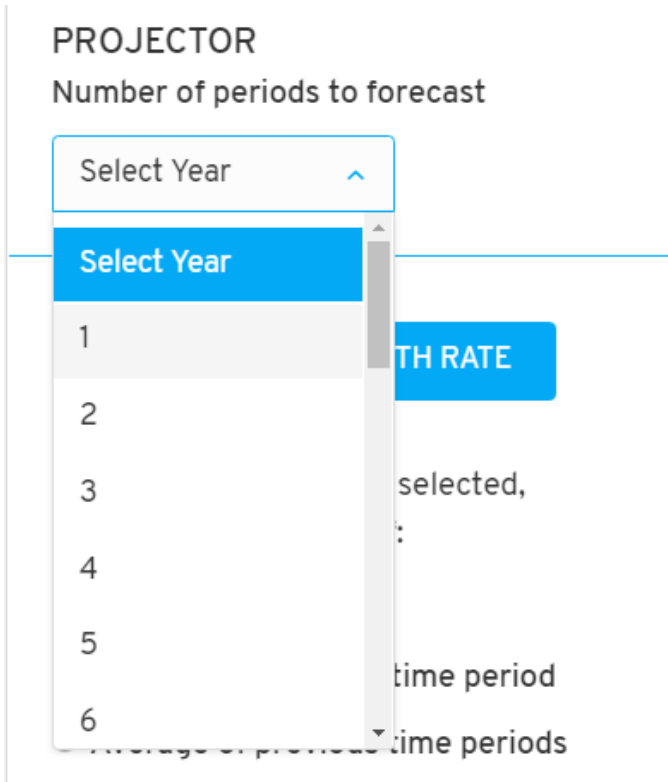
Whenever you connect a panel to the controller of another panel, all the common properties and/or constants will show '[linked](#)' next to the name.



Expected Exports Linked				
▼ Gross Space Value				
2015	2016	2017	2018	
0	0	0	50000	▶

Planned Imports Linked				
2015	2016	2017	2018	
50000	60000	40000	30000	▶

You can click on the [Linked](#) word to display the list of panels that this property or constant is connected to.



The projector is an important component that you can use to project your existing panels into the future, allowing you to factor in specific events related to specific variables or elements of the panel.

You can select up to 25 periods maximum.



When you select the number of periods, period boxes will automatically pop up depending on the number of periods you selected.

PROJECTOR

Number of periods to forecast

4

Name your time periods

Period 1 Period 2

Period 1 Period 2

Period 3 Period 4

Period 3 Period 4

Period	Property Name	%
Peri... ▾	Expected Ex... ▾	%

+ DEFINE GROWTH RATE

For Variables/Years not selected, assume a growth rate of:

- Zero=0
- Rate of the previous time period
- Average of previous time periods

RECALCULATE **REVERT** **REVERT ALL**

In this example we selected 4 periods to forecast. By default, name will be “Period x”.

You can change the name of course as desired, double-click inside any text field to rename or change the value.



The projector also allows the users to factor in specific events related to specific variables or elements of the panel, at specific periods in the future. You can define the percentage growth rate of a variable in a specific period in the future. You can define as many specific events or growth rates as needed by clicking on the **+ DEFINE GROWTH RATE** button, another field will automatically open.

+ DEFINE GROWTH RATE

As for the Variables/Years not selected, you can define what growth rate formula will be implemented when projecting them into the future.

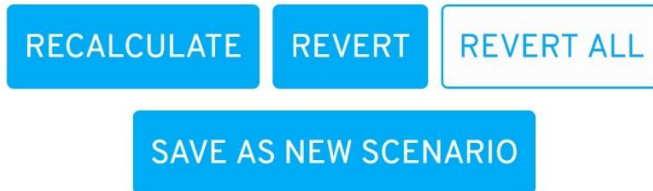
For Variables/Years not selected,
assume a growth rate of:

- Zero=0
- Rate of the previous time period
- Average of previous time periods

- Zero = 0
- Rate of the previous time period
- Average of previous time periods

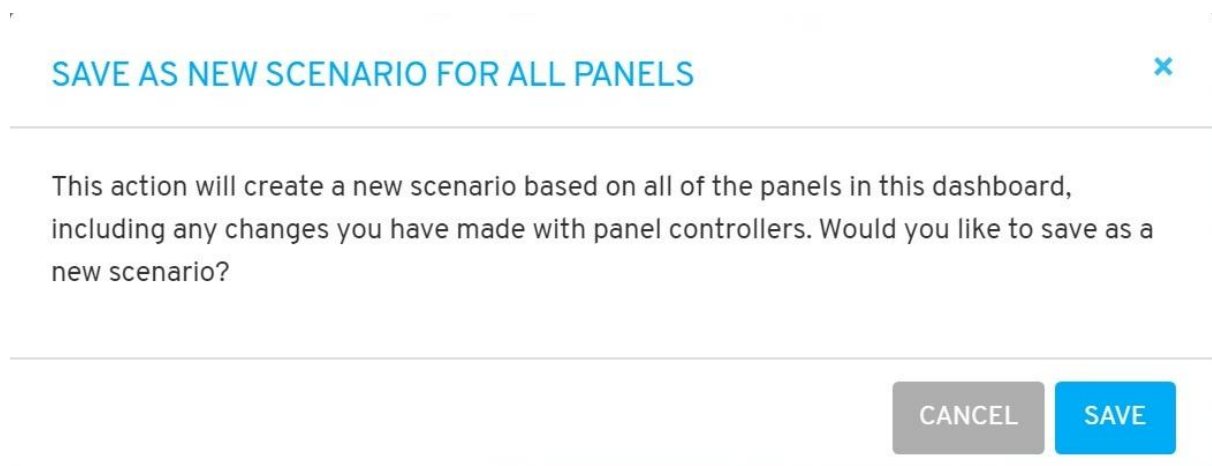


At any point in time, and after making changes in the settings of the controller, you can click on [RECALCULATE / REVERT / REVERT ALL / SAVE AS NEW SCENARIO](#) buttons at the bottom of the controller sidebar.



- **Recalculate:** To calculate the panels given the changes in the controller settings - results are shown instantly in the panels.
- **Revert:** To revert the last change
- **Revert All:** To revert all the changes made up to that point.
- **Save as New Scenario:** To save your changes to a new scenario.

When you click on [Save as New Scenario](#) button, a message box will appear:



You can click [Cancel](#) button, or proceed by clicking [Save](#) button and you will be directed to [Spreadsheet Editor and Case Scenario Data](#) Interface under a new recalculated scenario sheet.



14. Appendix A: Equation Editor Syntax

The following Syntaxes will help create your formulas in the equation editor section:

14.1. Multiplication

$$a \cdot b$$

We use the global latex standard for formulas where multiplication is always denoted with a dot.

Notes:

Using multiplication without the dot (e.g. **a(b+c)**) overly complicates the formula recognition engine logic and it makes it prone to errors.



14.2. Sum and Product

$$\sum_{l=5}^{\frac{n}{2}} (a + b)$$

1. You can use any letter but “**n**” as the local variable in the sum function, including the letter “**i**”.
2. The expression or formula that is included in the **sum/product** function needs to be placed inside round brackets.
3. The starting and ending indices for the sum/product function can be expressions instead of a single variable or integer. However, the result of the expression needs to be an integer.

$$\sum_{l=c \cdot 2}^{n \cdot 2} (a_l)$$

Notes:

1. Although possible, it is generally not recommended to use “**i**” as it may lead to confusion with the global index “**i**”. The letter “**n**” cannot be used as the local index as it is used in the system as the number of timeline items.
2. Not using round brackets will lead to an error as the formula recognition software will not be able to identify which part of the overall formula should be included into the **sum/product** function.



14.3. Log and Ln

$$\log (b + c)$$

or

$$\ln(b + c)$$

The expression or formula that is included in the **log** and **ln** functions needs to be placed inside round brackets.

Notes:

Not using round brackets will lead to an error as the formula recognition software will not be able to identify which part of the overall formula should be included into the **log** or **ln** function.



14.4. Limit

$$\lim_{(x) \rightarrow (5)} (a + b)$$

1. The expression or formula that is included in the **lim** function as well as the index variable and the value it approaches need to be placed inside round brackets
2. The index variable cannot be an expression (**x+2*x**), it can only be a single variable (**x**).

Notes:

1. Not using round brackets will overly complicate the formula recognition engine logic and is make it prone to errors.
2. Using expressions as the index variable is highly computationally expensive.



14.5. Definite Integral

$$\int_{\frac{1}{4}}^{\frac{n}{2}} (x^2) dx$$

1. The differential of the variable (**dx**) needs to be a single variable only. It cannot be a variable already used as property/coefficient.
2. The expression or formula that is included in the **integral** function needs to be placed inside round brackets

Notes:

1. Using expressions as the differential of the variable is highly computationally expensive.
2. Not using round brackets will lead to an error as the formula recognition software will not be able to identify which part of the overall formula should be included into the **integral** function.



14.6. Factorial

$(a + b)!$

1. We generally recommend to use brackets to clarify the calculation priority (e.g. $(a+b^2)!$):
2. In cases, when another function is using brackets, you cannot place the **factorial** right after the brackets that define the scope of the previous function.

• $\sum_{l=0}^n (a + b)!$ IS NOT OK

• $\left(\sum_{l=0}^n (a + b) \right)!$ IS OK

• $\cos(1)!$ IS NOT OK

• $\text{cov}(a,b)!$ IS NOT OK

• $(\text{cov}(a,a))! \%!$ IS OK



14.7. Trigonometric functions

$$\sin(a + b)$$

The expression or formula that is included in the **trigonometric** functions needs to be placed inside round brackets.

Notes:

Not using round brackets will lead to an error as the formula recognition software will not be able to identify which part of the overall formula should be included into the **trigonometric** functions.



14.8. Functions' General Syntax

1. Exponents can be placed between the function and its brackets.

$$\log_8^2(8)$$

$$\cos^2(1)$$

- a. The following functions support this type of syntax
 - i. Log and Ln
 - ii. Trigonometric functions
 - iii. Statistical functions
 - b. The following functions Do NOT support this type of syntax
 - i. Limit
 - ii. Sum and Product
2. Functions can be nested into each other, as long as internal functions return a type of value that is acceptable for the external function

$$\text{MR}\left(\text{median}\left(\mu\left(\sigma\left(\sigma^2(a)\right)\right)\right)\right)$$

3. Functions need to use only round brackets to determine the expression inside them. Other bracket types such as [], [], and | | are not supported.

- $\sum_{l=0}^n |a + b|$ IS NOT OK
- $\sum_{l=0}^n [a + b]$ IS NOT OK
- $\sum_{l=0}^n [a + b]$ IS NOT OK



- $\lfloor \sum_{l=0}^n (a) \rfloor$ IS OK

- $\sum_{l=0}^n (|a|)$ IS OK

Notes:

3. $\lfloor \rfloor$, $\lceil \rceil$, and $||$ are considered separate types of calculations for the calculation engine, thus when a function's brackets are replaced with them, the system is not able to determine the scope of the expression that is included in the function.



14.9. Modulo

*Expression***mod***expression*

Here “expression” can only be a constant or scalar formula. We generally recommend to use brackets to clarify the calculation priority (e.g. **(a+b^2)mod(2+b)**):

14.10. Percentage %

*expression***%**

Here “expression” can be anything. We generally recommend to use brackets to clarify the calculation priority (e.g. **(a+b^2)%**)

14.11. [and]

[*expression*]

Here “expression” can only be a constant or scalar formula.

Notes:

Rounds the result of the expression to its closest smaller integer.



14.12. [and]

[expression]

Here “expression” can only be a constant or scalar formula.

Notes:

Rounds the result of the expression to its closest larger integer.

14.13. Mean

$\mu(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property “**P**”.

The property/subformula does not carry an index.



14.14. Standard Deviation

$\text{std}(P)$ or $\sigma(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have passed property “**P**”.

The property/subformula does not carry an index.

14.15. Variance

$\text{var}(P)$ or $\sigma^2(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property “**P**”.

The property/subformula does not carry an index.



14.16. Covariance

`cov(P1, P2)`

You can use only two properties or subformulas returning a series of numbers to this function. In the example above, we have used properties “**P1**” and “**P2**”.

The property/subformula does not carry an index.

14.17. Correlation

`corr(P1, P2)` or $\rho(P1, P2)$

You can use only two properties or subformulas returning a series of numbers to this function. In the example above, we have used properties “**P1**” and “**P2**”.

The property/subformula does not carry an index.



14.18. Mode

$Mo(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property “**P**”.

The property/subformula does not carry an index.

If there are more than one mode, the system will return the smallest one.

14.19. Mid-Range

$MR(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property “**P**”.

The property/subformula does not carry an index.



14.20. Minimum

$\text{min}(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property **"P"**.

The property/subformula does not carry an index.

14.21. Maximum

$\text{max}(P)$

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property **"P"**.

The property/subformula does not carry an index.



14.22. Median

median(P)

You can use only one property or subformula returning a series of numbers to this function. In the example above, we have used property **"P"**.

The property/subformula does not carry an index.



USER MANUAL 0.0

©Value Xd Ltd, 2015-2019. All Rights Reserved.

Value Xd Ltd

3 Beaufort Place

Thompson's Lane

Cambridge – CB5 8AG

United Kingdom

Michael House

Castle Street

Exeter – EX4 3LQ

United Kingdom

www.valuexd.com

info@valuexd.com

+44 1223 353 131