PowerBI Robots

Best Practices in Power BI Report Design

PowerBI Robots

Introduction

This paper is a collection of cases of best practice amassed by DevScope over the years while designing Power BI reports. From the obvious to the not so obvious advice, we cover the most important design topics that DevScope follows closely during the process of creating a Power BI report.

Power BI is shaping the way many businesses operate, and demand shows no signs of slowing down. Almost since its inception, the implementation, and management of Microsoft's Business Intelligence solution has topped our consultancy services. More importantly, the many challenges we have faced during our implementation and activity with Power BI led us to develop a product suite adding a set of features missing from Microsoft's current release. This suite currently spans three products with a fourth on the way.

In this white paper, we share some of the most important design principles by which DevScope operates and hope to help all those taking their first steps in the design of Power BI reports.
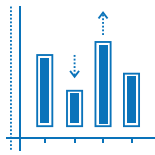
Content

PowerBI Robots

1. Plan with your audience in mind

A Power BI report tells a story whose narrative is determined by its audience and intended purpose. These two elements must always be kept in mind when figuring out the structure and complexity of a report.

Professional data analysis

Power BI is often regarded as an evolution of Microsoft Excel, and its most common use is, indeed, visually analyzing highly detailed business data in a way Excel simply cannot match. Most dashboards we set up are for use in a professional setting, usually packing as much granular information as possible. Conciliating lots of information with an elegant and easy to digest visual presentation is far from an easy task, but one sure way to achieve it is by extensively using data drill-down. Drilling-down allows data to be presented in a clean way and avoids spreading the same type of information through several pages of a report. It may take some time learning and setting up, but it's well worth it.

Public data display

Setting up public dashboards with key performance indicators (KPIs) is also a common use of Power BI, usually encountered in the public sector and regarded as a transparency effort. The target of these reports is not the client itself but the client's clients, an audience that does not need to deeply analyze a complex data set. The goal here is simply to provide a picture of how well a public service or company is doing, so approachability and ease of use take the place of complexity. Drilling-down and other interactive features are strongly discouraged, since there is a high risk of confusing an inexperienced analyst and often user interaction with the report is not available. Since these dashboards are usually embedded in websites or on display in lobbies, screen size must be taken into account when creating them.

2. Distribute things properly

Managing information on the Power BI canvas is always a challenge. Most clients have a lot of material to analyze, but each report canvas often feels too small to display everything. If an entire report does not fit on a single canvas, it should be spread across separate pages keeping the same layout as much as possible. Ensure the pages follow a logical order, each one telling a single, unique story, and don't forget to label them accordingly.

As a rule of thumb, we never place more than four visuals on each report page, save for filters and macro indicator cards. Too much information in one place can be just as bad as too little, and experience has taught us that four visuals is the amount that can be packed into a report before it starts to feel overcrowded. If a report takes up more than one page, be sure to keep the same layout across multiple pages as much as possible. By leaving everything in the same place, your audience will instinctively know how to interpret new information and adapt faster to the newly displayed analysis.

3. Present your data the same way you read

Since data reports tell a story, they should do it as naturally as possible. Just as people read from top to bottom and, depending on their native language, from left to right or right to left, the narrative in a Power BI report should follow the same logic. At DevScope, we always place filters or cards with macro indicators on the top row or the left side of a report. Besides being the first information we want the audience to absorb (before it starts being drilled and divided), this also leaves a good chunk of continuous white space in which to place visuals.

Just like chapter titles in books, the most important piece of information in a report should be highlighted to grab the audience's attention and make sure that is where they start reading. The background color of a visual can also be changed to create a contrast with the rest of the report and highlight an important piece of information. This is especially useful when an entire report works towards a goal, such as total sales, YTD growth rate, etc. If a report leads to a conclusion, highlighting it makes sure the analyst will know what to look for in the graphs.

# 4. Pick visuals according to your narrative and data structure

Visuals in Power BI help tell a story by providing straightforward answers: Is this product selling and if so, how well? Where are our customers coming from? Are average waiting times in the hospital down this year and if so, by how much?

In Power BI, to tell a story in an educated and compelling way visuals must be picked according to the narrative you wish to push and adapted to the data you are presenting:

COMPARISON

If you need to compare values, column, line and bar charts are the most appropriate visuals you can use. While they're all good for volume comparison, you should keep in mind their other purposes: column and line charts display data horizontally and are suitable for comparisons over time; bars display data horizontally and are especially useful when you're comparing a long list of items. Tables and matrixes may not be the most compelling ways to display data, but they are good at comparing values using these visuals intrinsic sort by function;
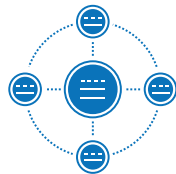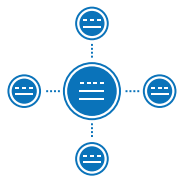
DISTRIBUTION

If you wish to measure the distribution of several variables within a common category (such as the evolution of an item's sales over time), columns, lines, scatter charts or area graphs are the best visuals to use. By default, area charts have the highlight feature enabled so be sure to hit 'filter' in the 'Edit Interactions' menu if you need them to interact with other visuals (the highlighted section can sometimes be way too residual to analyze them);
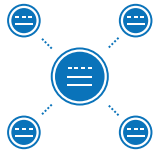
COMPOSITION (OVER TIME)

If you wish to compare a variation over time, such as the market share of a list of items, stacked columns, bars charts or a stacked area chart set at 100% will give a great picture. Our favorite is the ribbon chart, which adjusts according to variations;

COMPOSITION (STATIC)

When you need a picture of the absolute total distribution, pie charts or the most aesthetically pleasing ring variation are good candidates. However, keep in mind that they only work when there are few categories without much variation between them. If you try to create a pie chart with a large number of elements, some of them will be near invisible. Waterfall charts provide a more in-depth analysis, but their complexity means they are for advanced analysis only. Column or bar charts remain a viable option;
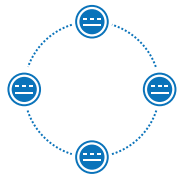
RELATIONSHIP

If you wish to measure the relationship between three dimensions, such as the distribution of sales in a year in a specific country, bubble charts and scatter charts are quite useful. The bubble chart comes with an axis function that allows evolution to be checked over time.

Resist any urges to manipulate data in your favor and always make sure the x and y-axis visuals start at 0 to provide a visual impact of the amount shown. Since they interact with each other, also turn off all unexpected relations between them.

Keep in mind that the Power BI store and Microsoft AppSource have hundreds of tailor-made visuals to help you tell your story. Be sure to browse both if you are looking for something other than the default visuals.

5. Space, grids and alignment

Balancing space between visuals is vital to give your report a tight look and feel. Enough space between visuals ensures your data is presented in a non-cluttered way, but too much space will make your visuals feel disconnected from each other. If you feel as if there is too much white space in your report, try making the visuals larger. Also make sure that your visuals keep the same spacing between them, regardless of their importance.

To help align and organize the visuals in your report, enable the built-in gridlines tool. In order to do this, go to the 'View' tab and select 'Show Gridlines'. You can check how aligned your visuals are by clicking them and selecting several at once by holding down 'Ctrl'. You can also distribute both vertically and horizontally and align them with each other.

On the same tab, by selecting 'Snap Objects to Grid', your visuals will also fall perfectly into place. When selected, all visuals that you move or resize will automatically align with the nearest grid axis, allowing for a more organized space. You must take into account that this option confines you to the grid, which may result in some loss of flexibility.

Nevertheless, there is an option to change the values of the starting x and y positions of each visual as well as its height and width, measured in pixels. Adjustments can also be made to the visuals so they are of the same size and/or alignment.
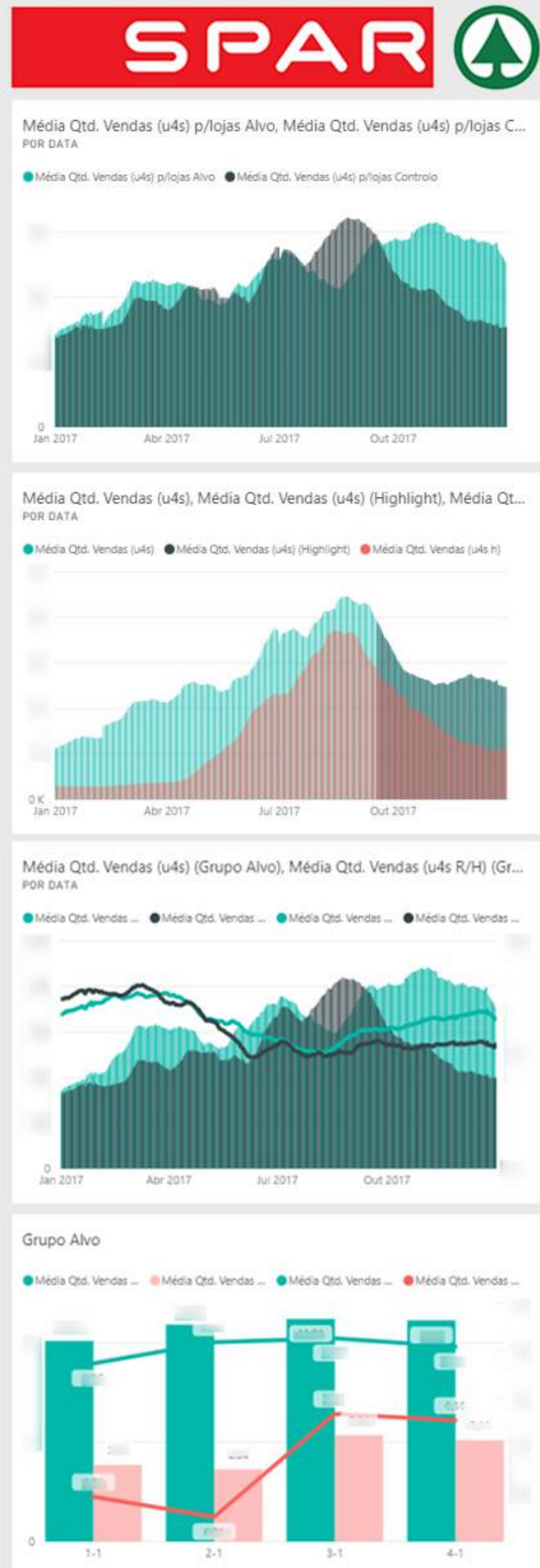
6. Take your client's branding into account

Whenever possible, take your client's branding into account when elaborating their Power BI reports. This allows for a more organic experience on the client's side and shows that you care about personalization. The three 4 elements you should adopt from your client's branding are fonts, background, logos and, of course, the color palette.

The correct use of color in visuals is extremely important to tie everything together and deliver the best experience possible. When determining the report's color palette, DevScope always sticks to just two or three colors. We find that using more than three colors can be distracting and make the report harder to read. While such a low number of colors may sound limited at first, gradients can be very flexible and you should explore them before adding a new color to your report.

Colors are also important pieces of your story and can emphasize the most important data points and visuals in a report. Use a darker shade to make your best month stand out in a bar graph or different shades of the same color to help your audience read a bubble chart. Always use colors with a purpose in mind. Many of Power BI's native visuals have the color saturation feature, so this can be done with a simple drag and drop.

If your client has an extensive iconography, you may want to incorporate it in your report, as both decoration and informative elements. Making infographics in the style of your client's brand is a sure way to grab the reader's attention but be careful not to go overboard: too many infographics in one place can be anything but informative.
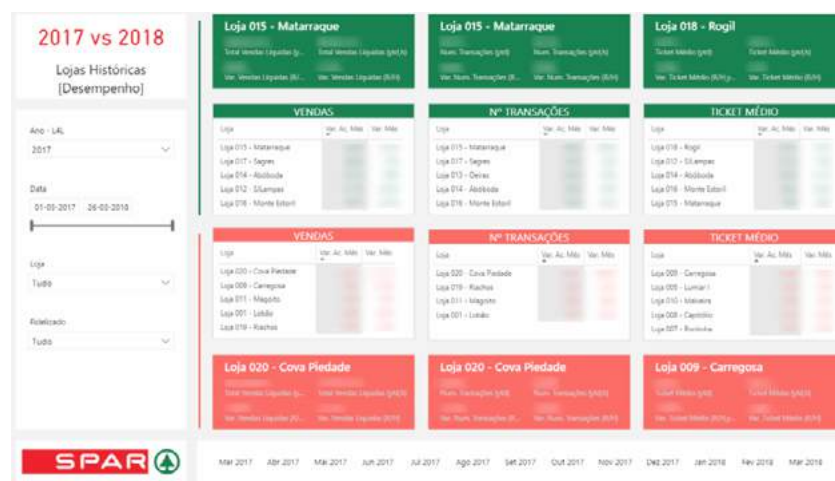
Conclusion

About DevScope

DevScope is a consulting and software development company founded in 2003 in Oporto, Portugal. We specialize in implementing tech solutions that help clients stay competitive and overcome both market and organizational problems. Whenever there isn't a solution on the market for a particular problem, DevScope develops one. Our experience taught us that supplying companies with the right tools can radically change the way they work and free professionals to do work that is more meaningful.

CONTACT

If you need help with one of our products or want to know more, get in touch:

Email: powerbi@devscope.net

Telephone: +351 223 751 350

Address: DevScope S.A., Rua Passos Manuel, 223 – 3º, 4º andar, 4000-385, Porto, Portugal

www.devscope.net

PowerBI Robots

DevScope's PowerBI suite

PowerBI Tiles Pro

A powerful Office 365 add-in that allows you to embed real-time or high-definition images of Power BI reports and dashboards on PowerPoint presentations, Word documents, and Outlook emails.

Try it today

PowerBI ScoreCards

Manage KPIs and scorecards on a single platform and display them using Microsoft Power BI. Define local and global goals, and have different teams working towards the same goals.

Request your trial

PowerBI Robots

Send your Power BI data anywhere, whenever you want. Schedule high-definition screenshots of your reports and dashboards and automatically send them by email, to a SharePoint library or file system, or display them on any device supporting a browser.

Try it today

PowerBI SmartPivot

Unlock your PivotTable potential by connecting Power BI and OLAP cubes to Microsoft Excel. SmartPivot allows you to search for any values within your PivotTables, filter them by a list of values, and create granular reports within seconds.

Try it today