



# Design of Impactful Dashboards

Which Mistakes You  
Should Avoid +  
Guide for Practical Use

WHITEPAPER

A large magnifying glass with a blue handle and a purple lens is positioned over a collection of data visualization icons, including a bar chart, a line graph, and a pie chart. The background of the entire page is a dark red color with faint, larger-scale versions of these data visualization icons.

 **Datalytics**

[www.datalytics-consulting.com](http://www.datalytics-consulting.com)

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# Introduction

The sense of sight is the most important and distinctive human sensory system.

**With our eyes we can absorb more information than with all other senses together.**

This illustrates the following impressive fact: during our waking period about a quarter of our entire brain is busy analyzing the visible world!<sup>1</sup>

Graphically prepared information in the form of pictures and patterns can be processed faster and more effectively by our brain than other types of information such as text or sound. This is why the saying goes "a picture says more than 1000 words".

In our digital age this is more important than ever, especially in business context, where large amounts of data are available for decision-making. The challenge is that the information mostly exists in a form that is initially difficult for humans to grasp and process, for example in huge data tables. It is hard to imagine identifying trends or outliers in this way.

**The solution is obvious: transforming the data into a meaningful visual form!**

Thus, we are able to absorb and process information in a matter of seconds with our remarkable sense of sight. This is especially crucial when monitoring critical or important metrics. At this point a so-called dashboard is typically used.

*A dashboard summarizes the information most relevant to monitoring a particular object in selected visual representations.<sup>2</sup>*

What distinguishes a good, effective dashboard from a "bad" one and which advices can we give you as data experts for practical use?



<sup>1</sup> dasgehirn.info (2023)

<sup>2</sup> Few, Stephen (2004) : Dashboard Confusion

# Mistake #1

Each dashboard should be designed in accordance to the specific target group and their needs in order to optimally support their decision-making process.

**So ask yourself at the beginning: who is your target group and what are their needs?**

Exactly which groups of people and which personalities am I dealing with? Is it the Management, the Sales department or all employees of a company?

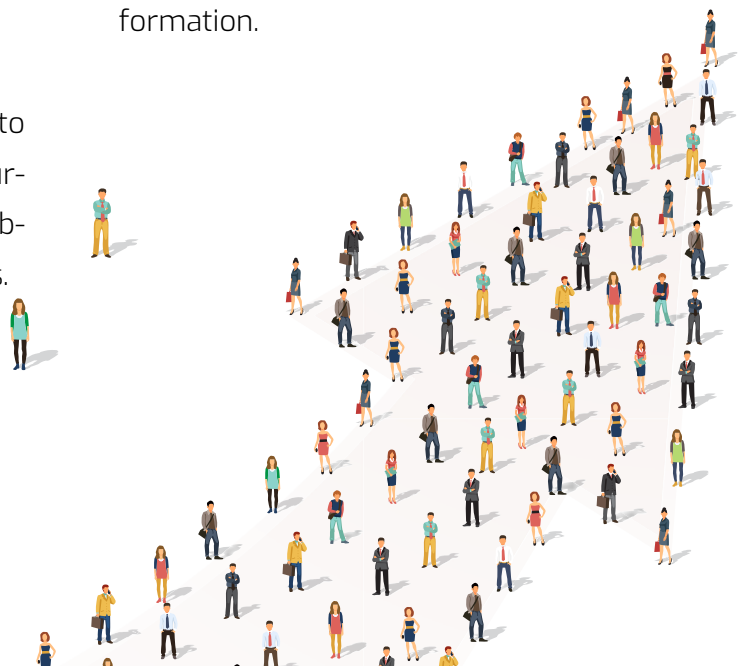
**It is equally important to understand what your target group needs the dashboard for and what they want to achieve with it.**

The information will only be useful to them if it appropriately serves the purpose of the dashboard. So be clear about what the goal of the dashboard is.

## You haven't clearly defined the target group and goals of the dashboard

For example, is it for monitoring critical metrics, workforce planning, or is it to be used as a daily sales report? In this context, you should define the KPIs (Key Performance Indicators) in your dashboard and the variables they should be compared with. Numbers such as target and/or previous year's numbers will help users contextualize and evaluate the current status. And how do you find all this out? Ask your target group directly! For example, in the framework of an interview or questionnaire.

Asking yourself these questions in advance will make it easier to identify key information and sort out irrelevant information.



# Mistake #2

## You try to answer too many questions at once

A dashboard is used to convey key information relevant to the target audience. However, not all findings of the data analysis should be presented. This would lead to information overload and filtering out the most important information will be much more difficult for the dashboard users.

Thus, summarize the information in a way that only the most relevant questions are answered. In this way you avoid inefficiencies while using the dashboard and ensure that the most important information is actually perceived by the user.

**A good rule of thumb is that each element in the dashboard should only answers one question at a time.**

Also the placement of the visualizations is crucial:

**Ask yourself which 1-2 graphics have the most added value for your target group: Are they easy to find in your dashboard?**

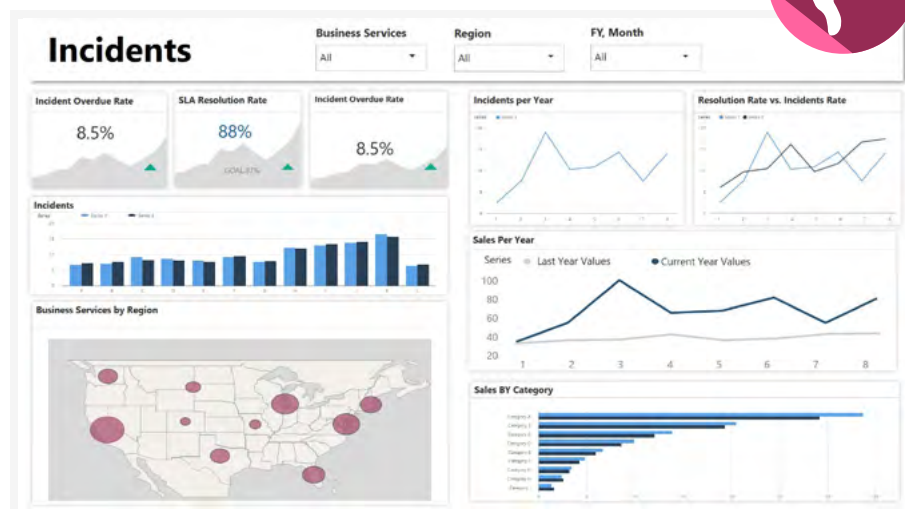
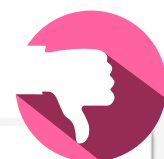
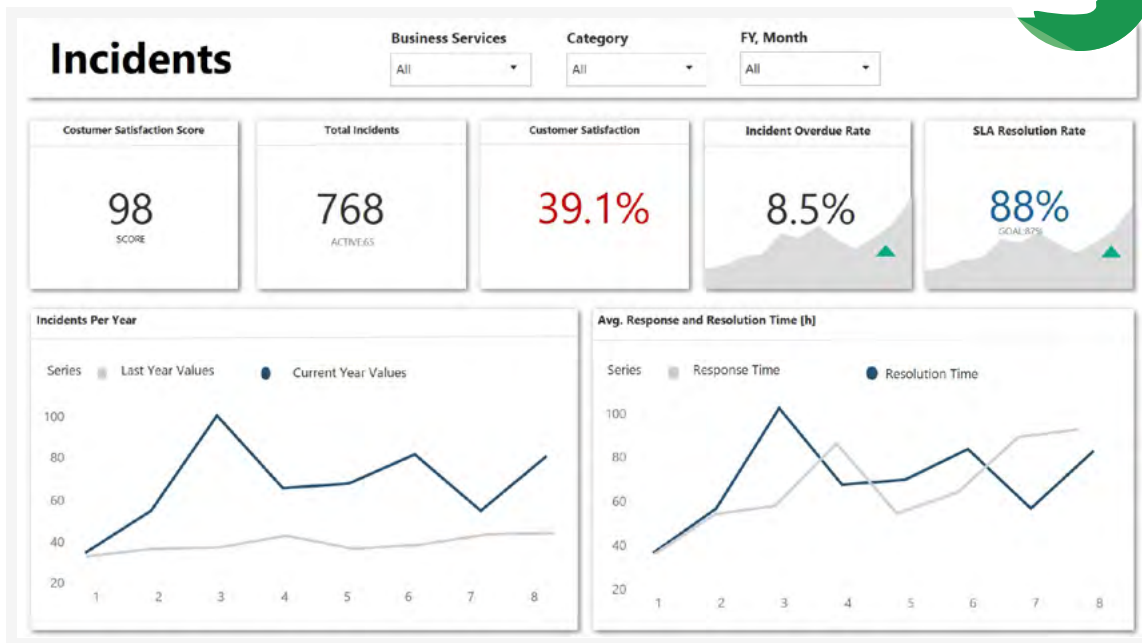
You may now be concerned that your dashboard will lack detail if you focus only on a few key pieces of information.

**Our advice: Use interactive elements like filters or drilldowns to create depth of detail!**

If needed, this allows users to go deeper into individual issues by mouse click, without overwhelming them with additional visualizations.



# Mistake #2



# Mistake #3

## You use inappropriate visualization types

Choosing the right chart type is crucial for meaningful data visualization.

**It is important to first understand what types of information are involved.**

Is it qualitative or quantitative? Is it textual information? Is it information that is to be presented in relation to time? Depending on this, this allows you to choose the right type of diagram. There are various types available such as line charts, bar charts, pie charts, bubble charts, sparklines, etc.

If the type of information does not give you enough information on which dia-

gram type is the most suitable, the following will help:

**Assign the information to be presented to one of the four visualization categories:<sup>3</sup>**

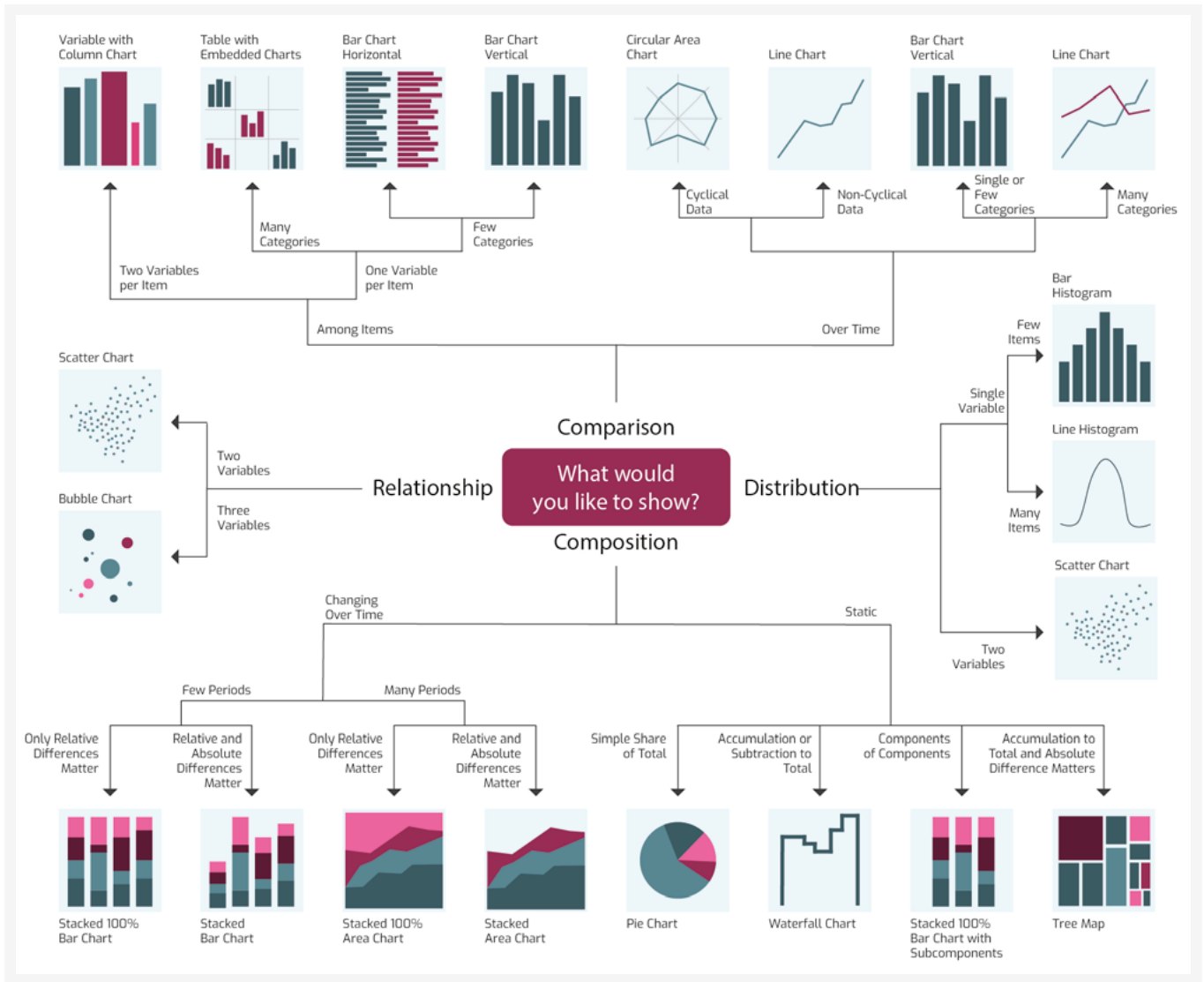
- 1. Relationship**
- 2. Distribution**
- 3. Composition**
- 4. Comparison**

This supports you in choosing the appropriate visualization. You will find a helpful overview of all diagram types on the next page.

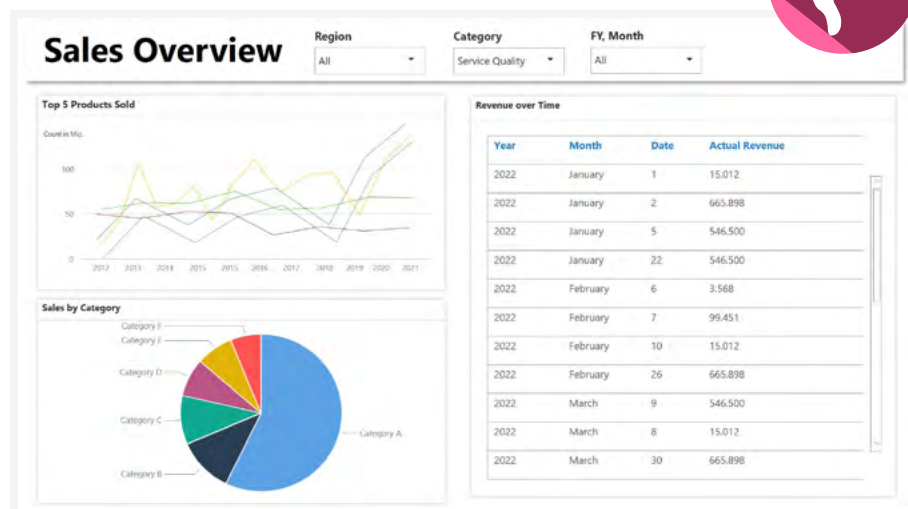
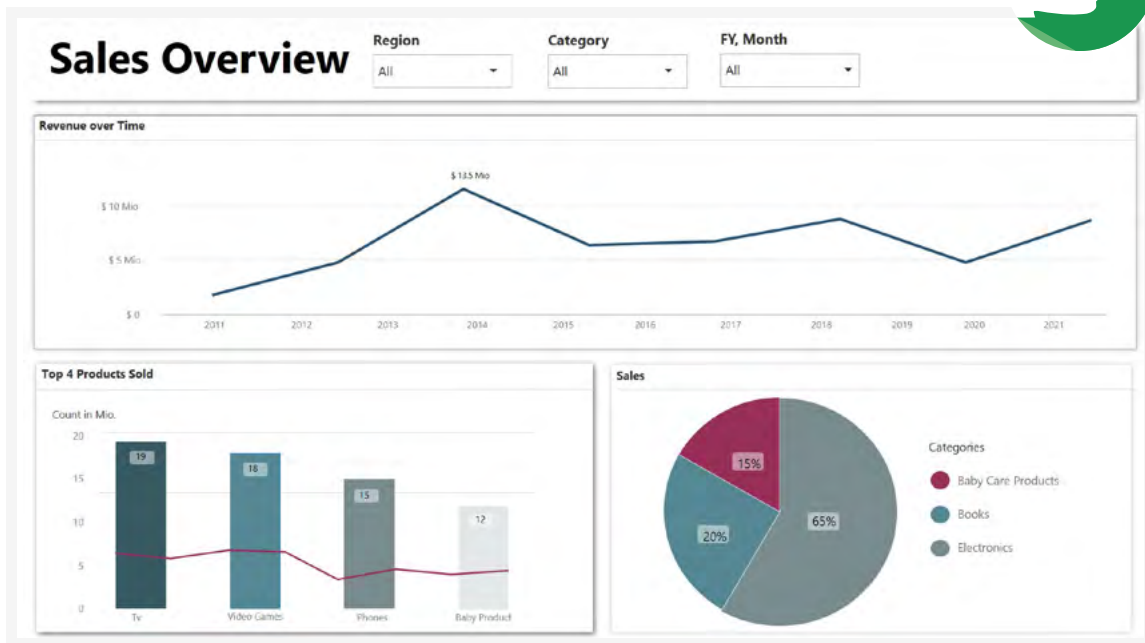


# Mistake #3

Visualization categories and their diagram types:



# Mistake #3





# Mistake #4

The most common mistake in dashboard design is the use of too many "informationless" elements and too many colors.

**Therefore, one of the most important principles is: keep the design as simple as possible!**

Otherwise, your dashboard will look too complex to the user and he will spend too much time trying to visually comprehend the information. Check whether design elements such as backgrounds, shading or borders in your dashboard really means added value to the content and/or help to structure it.

**Rule of thumb: The viewer should find the information relevant to him within five seconds.<sup>4</sup>**

The important key figures must be immediately recognizable and the essential questions answered at first glance. For example, consider whether axis/

**You use "informationless" design elements and too many colors**

data labels or legends are absolutely necessary for the user to understand the graphic, or whether this additional information can be forewent to reduce the complexity.

Colored elements always attract focus, as they can be perceived faster and with less cognitive effort compared to other types of information. However, you should use them sparingly, as too many different colors tend to quickly overwhelm the viewer. —————>

# Mistake #4



**Therefore, do not use more than two or three different colors. Instead, work with different shades of your main colors.**

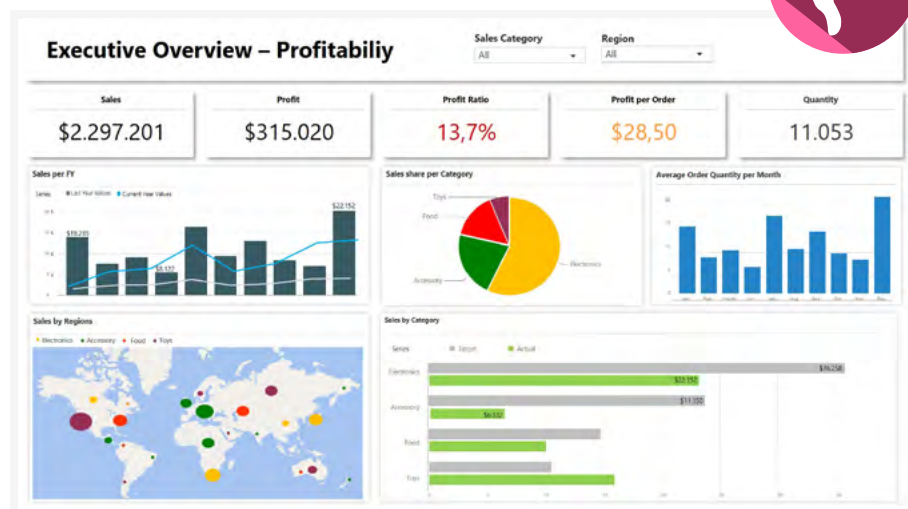
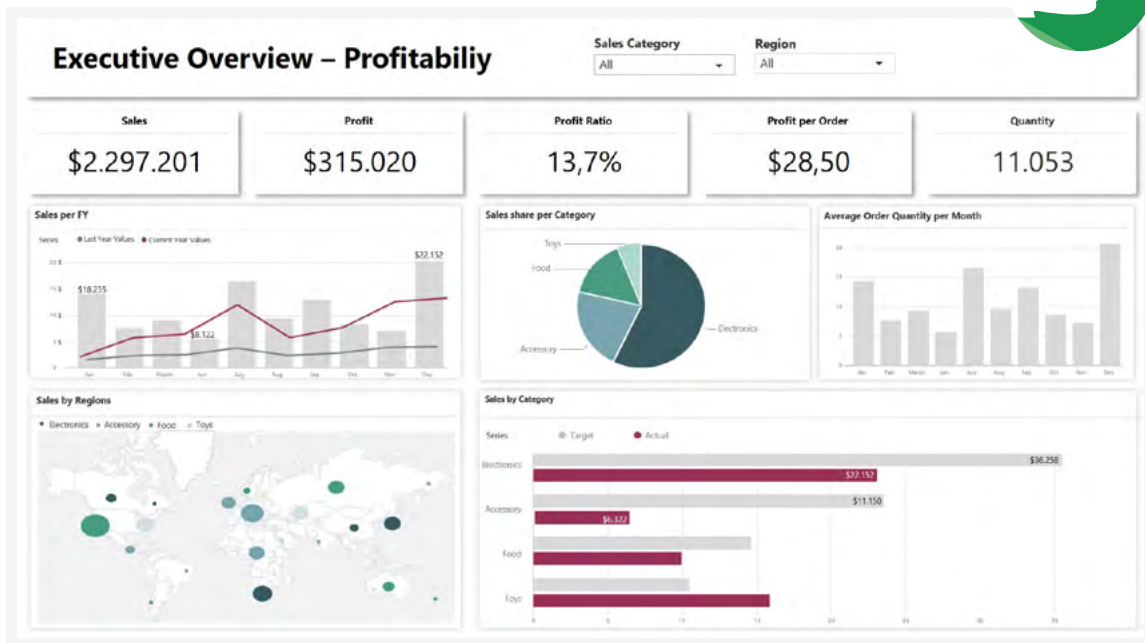
Particularly be careful when using traffic light colors, as red or green are often associated with "good" or "bad", especially when they are shown together. The so-called "signal colors" should therefore only be used in the context of traffic light logic, i.e. when they actually contain content-related information. Otherwise, this can lead to misunderstandings.

In general, you should work with colors mainly for the purpose of delimitation within a graphic. Sufficient space also helps to visually separate the different visualizations within your dashboard.

With these tips, you support your audience in quickly connecting related elements and understanding contextual borders on the dashboard.



# Mistake #4



# Mistake #5

## You haven't gathered feedback from your target group

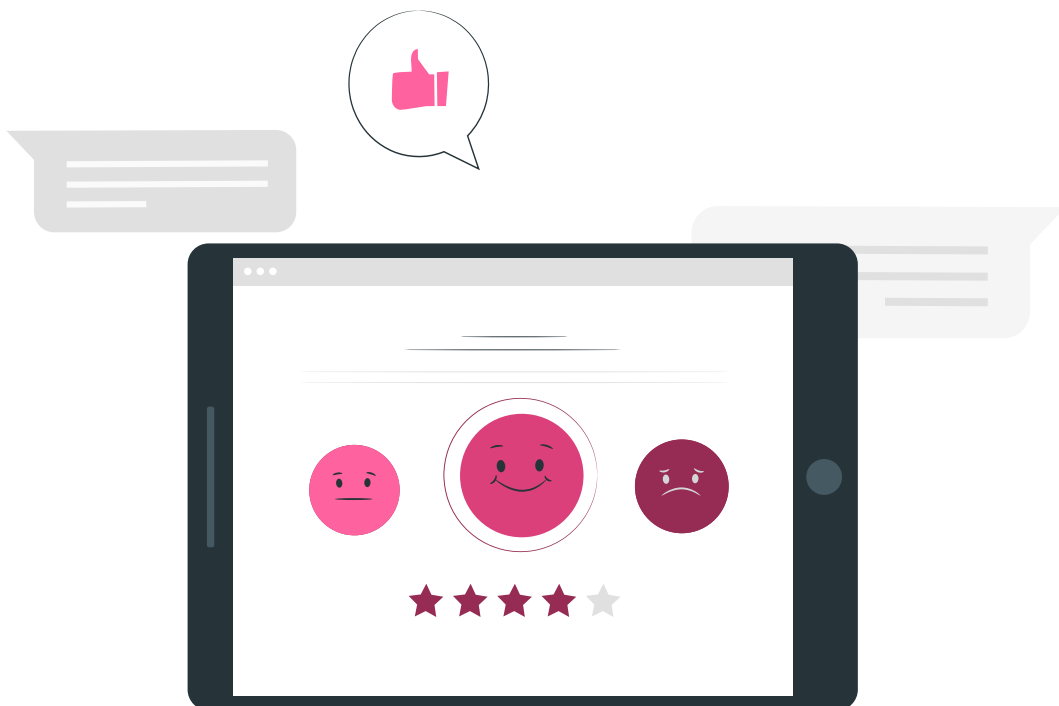
A final, but certainly very important step in creating impactful dashboards:

**Always catch up feedback from your target group and use it to optimize your visualizations.**

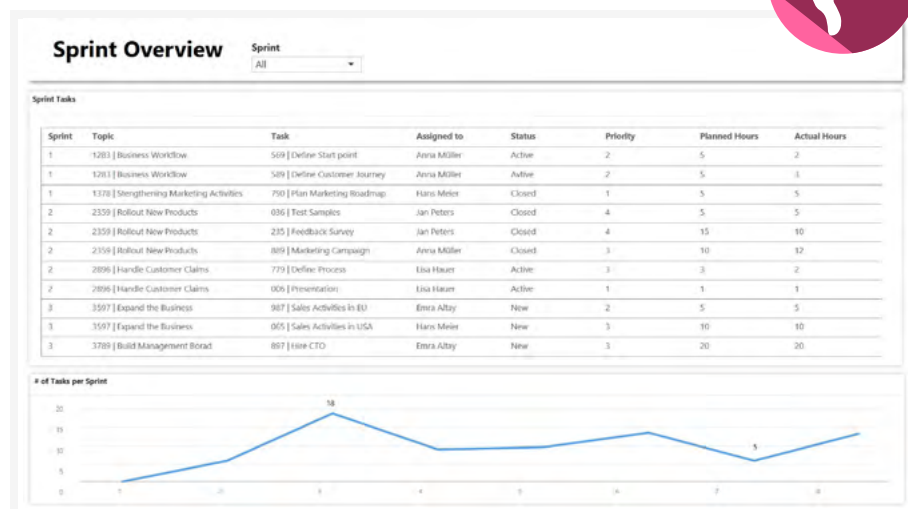
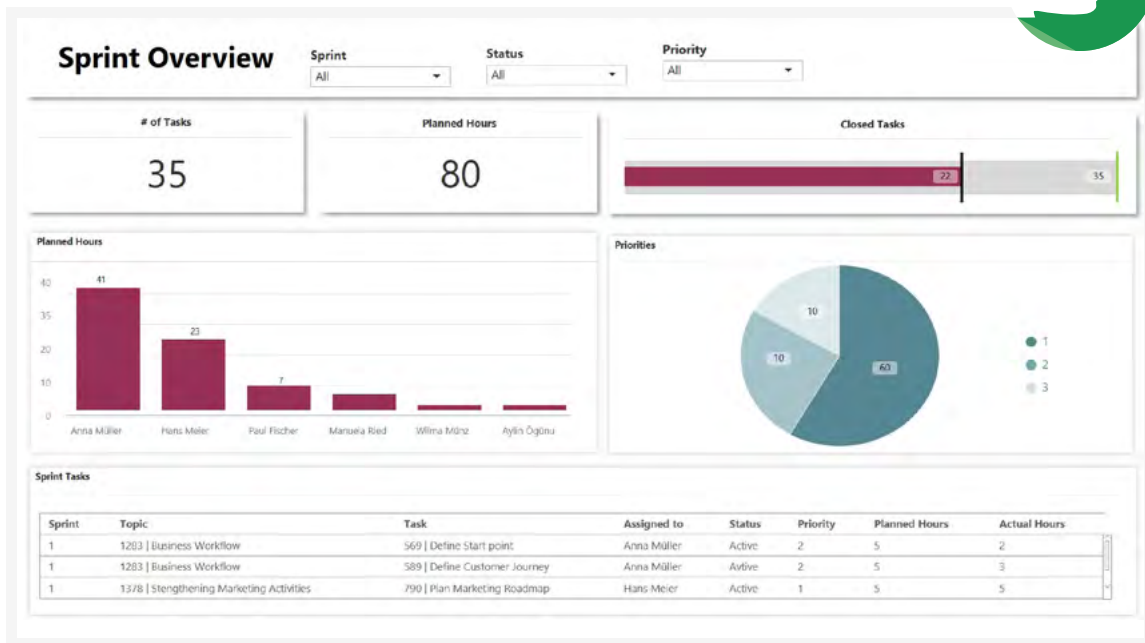
This is the only way to ensure that the goal of the dashboard and the provided information meet the needs of your target audience. There are several methods to get feedback.

For example:

- **A/B tests:** user evaluates two different versions of the dashboard
- **Time measurements:** user solves different tasks in the dashboard; needed time will be measured
- **Observation:** documentation of behavior while user works with dashboard, followed by in-depth interviews
- **Eye movement analysis in the lab:** recording of eye movements of user while working with dashboard



# Mistake #5



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# Guide for practical use

Dashboards are an impactful tool to present large amounts of data and complex relationships in a simple and clear way. Our following guide summarizes the most important tips once again. If you follow them, you will really create added value for your target group!

01

The selection of information is tailored to the target group

02

All relevant information can be captured at a glance and is displayed on one screen page

03

The number of key figures and information is reduced to a minimum

04

The information is set in relation to comparing variables (e.g. target values, previous year's numbers)

05

The visual elements are optimally placed on the screen and appropriately designed

06

The visualization types optimally support the message of the information

07

No "decorative" elements without content are used

08

Important information is sufficiently highlighted

09

Colors are used sparingly



