

# Guiding map readers' eyes to what matters

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**Keywords:** cartography, map design, design principles, visual hierarchy

## Abstract:

What did you read first? Probably, the title. But did you read my email address and all the keywords, or did you jump straight to the abstract?

Readers do not always read in the expected order. That's also true for maps, which are usually full of different visual elements: title, description, legend, scalebar, north arrow, data sources, author, and, of course, the map itself, which can also be divided into many visual layers. That's a challenge in map design that is sometimes overlooked: How can cartographers suggest an order in which they want people to read?

Map composition, layout, balance, and visual hierarchy are well-documented concepts. Here, I propose an accessible, step-by-step design workflow to help cartographers select and prioritize map elements to guide their map readers to what is important. The suggested workflow has two main parts.

First, once the map elements are ready, cartographers can actively reflect on the importance of each element for understanding the map message. They should ask themselves: What is the *function* of this element? The answer leads to two subsequent questions:

1. Selection: Is this function necessary? Of all the elements that can be shown, cartographers should keep only those that are truly necessary.

If the function is necessary:

2. Ranking: How important is this function? Cartographers should rank the selected elements in order of importance. A binary ranking can be sufficient: some elements are of primary importance, others of secondary importance.

A good yet controversial example is the north arrow. What is its *function*? To indicate the orientation of the map, enabling the reader to pinpoint the location. Is this function necessary? For many thematic maps, the answer is no. Typically, if the map extent is a continent (e.g., Figure 1), locating what is on the map is not a problem, and the north arrow does not serve any purpose. However, in some less common cases, the north arrow is necessary, for example, if the map is not north-facing. This leads to the second question: How important is it to indicate the orientation of the map? The answer depends on the map, but in some cases, it is secondary information.

In the second part of the suggested design workflow, once the map elements have been selected and ranked, cartographers should be aware of the design techniques available to guide the reader's eye. Here are the main options suggested by Kent & Vujakovic (2020).

1. Layout: The location of the elements induces a reading order. For example, in the English language, readers start at the top left-hand corner.
2. Gestalt: The distance between elements affects how readers perceive groups. For example, in Figure 1, the legend is perceived as a group even though it is not surrounded by a frame. This is due to the close distance between the elements and their alignment. Group perception influences reading order.
3. Visual hierarchy: Size, color, and contrast are some of the most important parameters of visual hierarchy, which allows cartographers to visually rank elements and prioritize some of them. For example, in Figure 1, the thematic layer has a strong contrast with the basemap, so that attention is not drawn to the base map, whose purpose is only to locate the elements of the thematic layer. Other aspects may also attract attention, such as

texture and level of detail. For example, a generalized base map reduces attention to country borders, as in Figure 1.

4. Balance: An unbalanced layout can help direct readers to a particular element by making it appear isolated from the rest of the design.

By working on a simple, accessible, and clear design process for drawing attention to what is important on maps, I intend to provide cartographers with a step-by-step workflow that they can use to improve the visual communication of their maps.

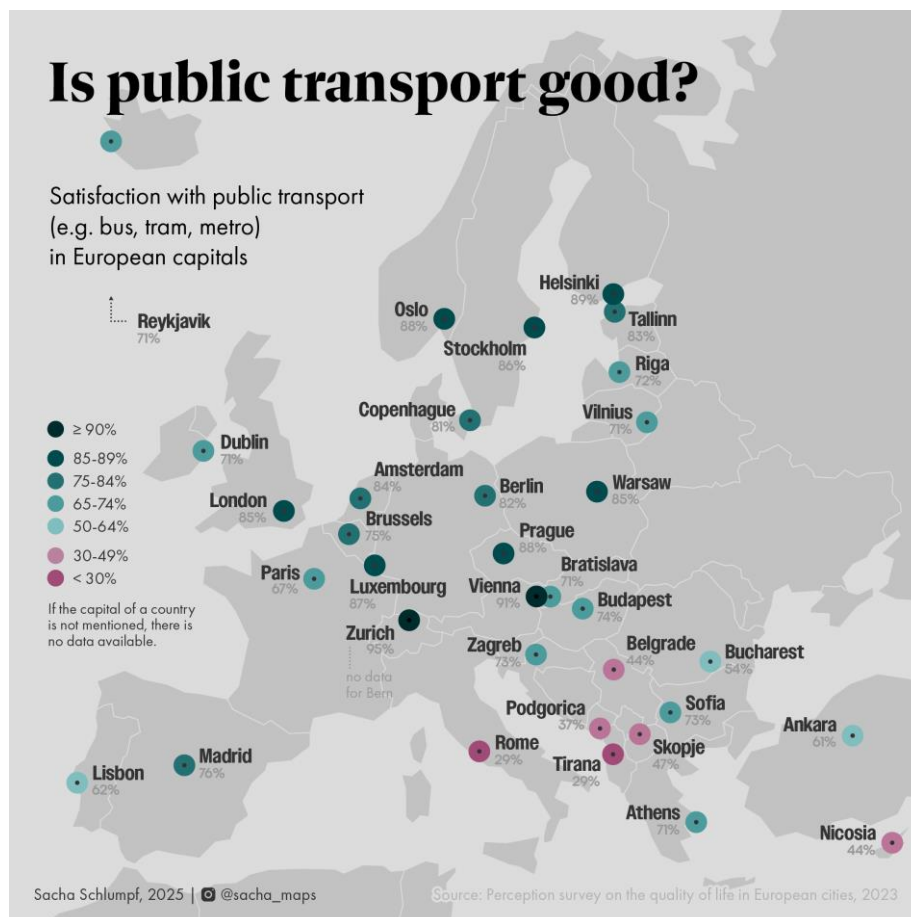


Figure 1. Thematic map designed to guide the reader's attention (Sacha Schlumpf, 2025)

## References:

Kent, A. J., & Vujakovic, P. (2020). *The Routledge handbook of mapping and cartography* (First issued in paperback). Routledge.