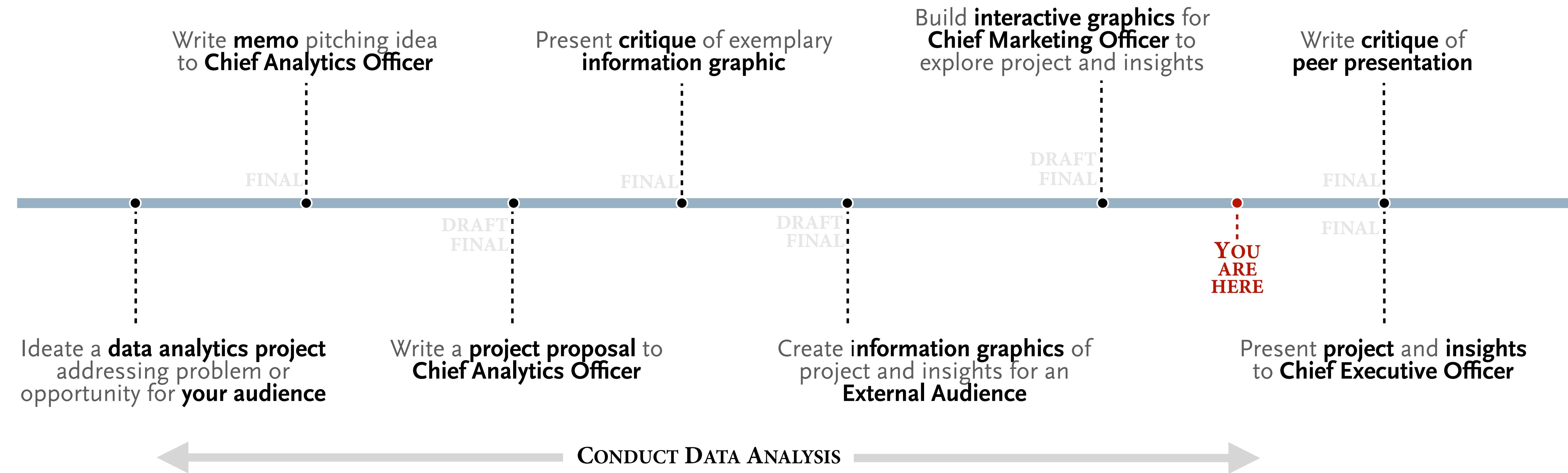


# Storytelling with data

**12 | Verbal with the (data) visual; scrollytelling; user-centered, content design**

# course overview, main course deliverables



**verbal with the visual — *limitations and advantages***

# verbal with the visual, limitations of presentations

PowerPoint, compared to other common presentation tools, **reduces the analytical quality** of serious presentations of evidence.

This is especially the case for the PowerPoint **ready-made templates**, which **corrupt statistical reasoning**, and often **weaken verbal and spatial thinking**.

— Tufte, 2006

# verbal with the visual, limitations of presentations



# verbal with the visual, limitations of presentations

**Powerpoint can have low resolution and it**

# verbal with the visual, limitations of presentations

**Powerpoint can have low resolution and it encourages**

# verbal with the visual, limitations of presentations

Powerpoint can have low resolution and it encourages sequenced  
1 ↗  
2 ↗  
3 ↗

# verbal with the visual, limitations of presentations

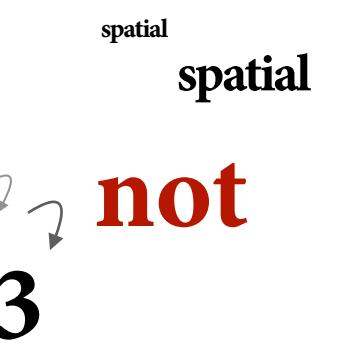
Powerpoint can have low resolution and it encourages sequenced  
1 ↗  
2 ↗  
3 ↗ **not**

# verbal with the visual, limitations of presentations

Powerpoint can have low resolution and it encourages sequenced  
1 2 3 **not**

spatial  
spatial  
spatial  
spatial

# verbal with the visual, limitations of presentations

Powerpoint can have low resolution and it encourages sequenced  **not** 

## verbal with the visual, limitations of presentations

Information stacked. in. time. makes it difficult to understand context and evaluate relationships.

## verbal with the visual, addressing limitations

show comparisons  
adjacent in space



# verbal with the visual, addressing limitations

show comparisons  
adjacent in space

increase data-ink on  
slides too, within reason

# verbal with the visual, addressing limitations

show comparisons  
adjacent in space

one alternate approach,  
document & discussion

increase data-ink on  
slides too, within reason

# **verbal with the visual, advantages of presentations**

show comparisons  
adjacent in space

one alternate approach,  
document & discussion

increase data-ink on  
slides too, within reason

consider advantages of  
sequential presentation

## verbal with the visual, advantages of presentations

show comparisons  
adjacent in space

one alternate approach,  
document & discussion

increase data-ink on  
slides too, within reason

consider advantages of  
sequential presentation

*We control when our audience receives information!*

# verbal with the visual, advantages of presentations



VISION



MEMORY

verbal with the visual, advantages of presentations

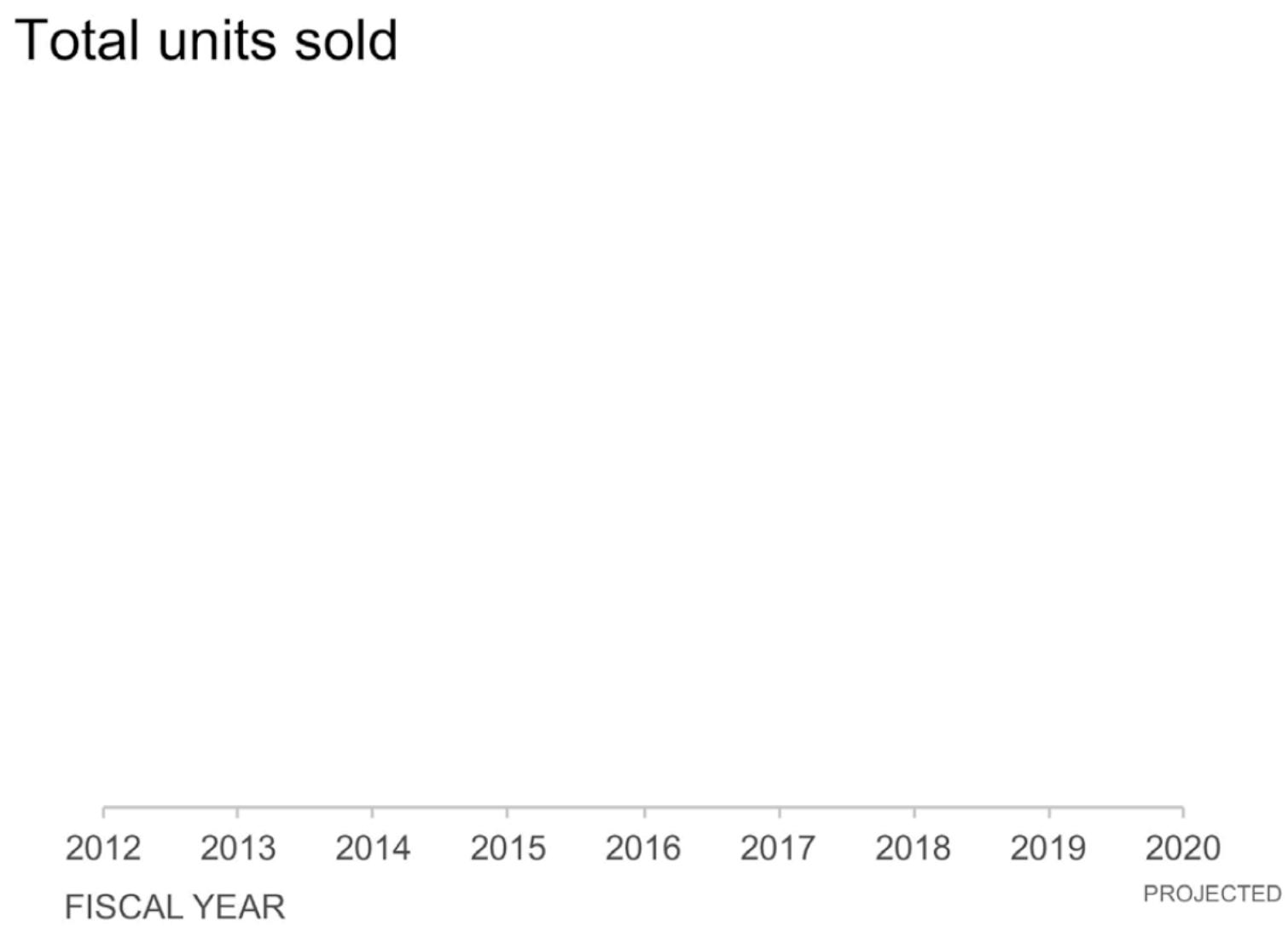
GRAPHIC DESIGN  
IS THE USE OF SPACE  
<sup>TO</sup> CONTROL TIME

— Barbara de Wilde

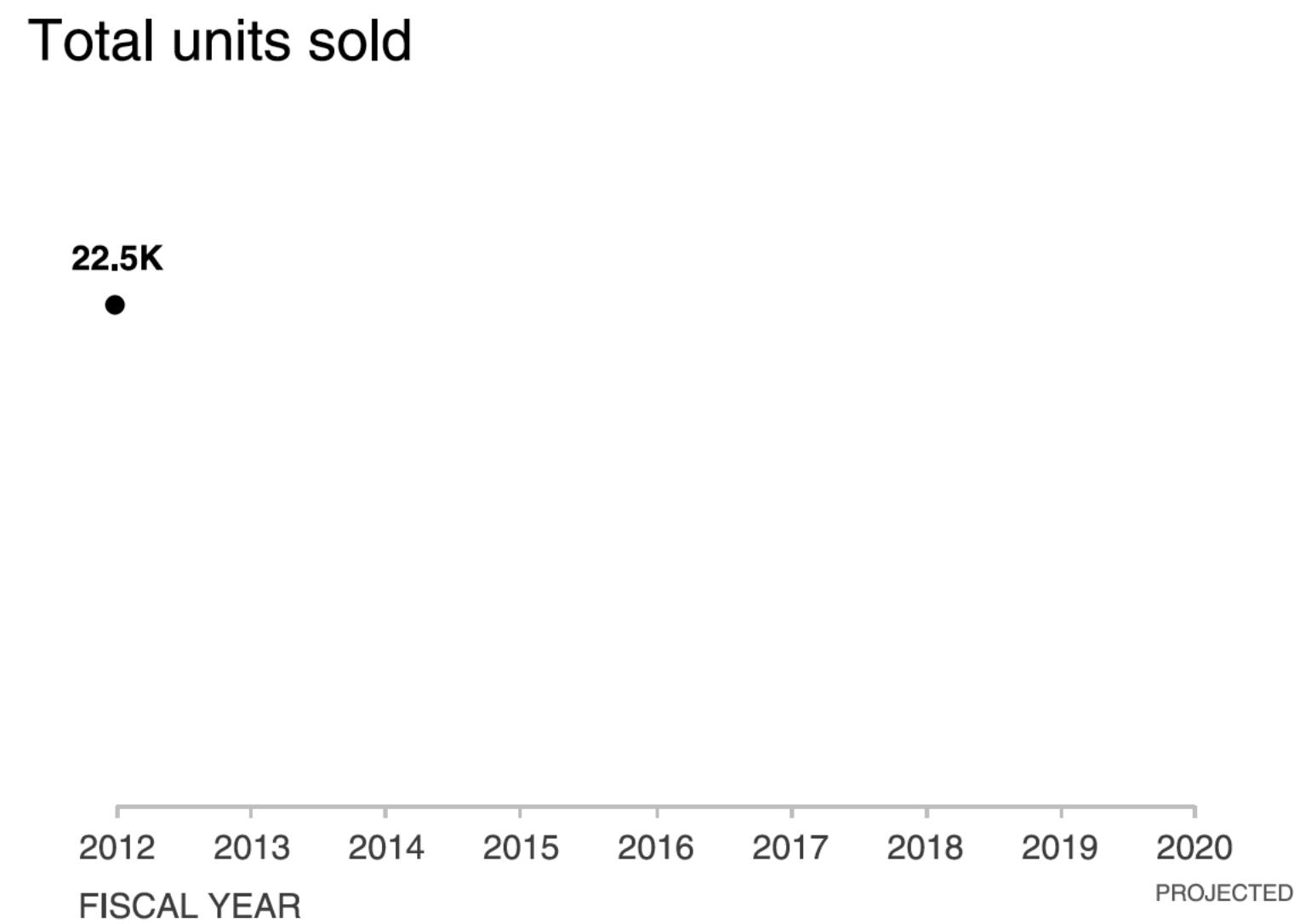
**data**  
**verbal with the  visual**

**verbal with the (data) visual, temporal layering of spatial comparisons**

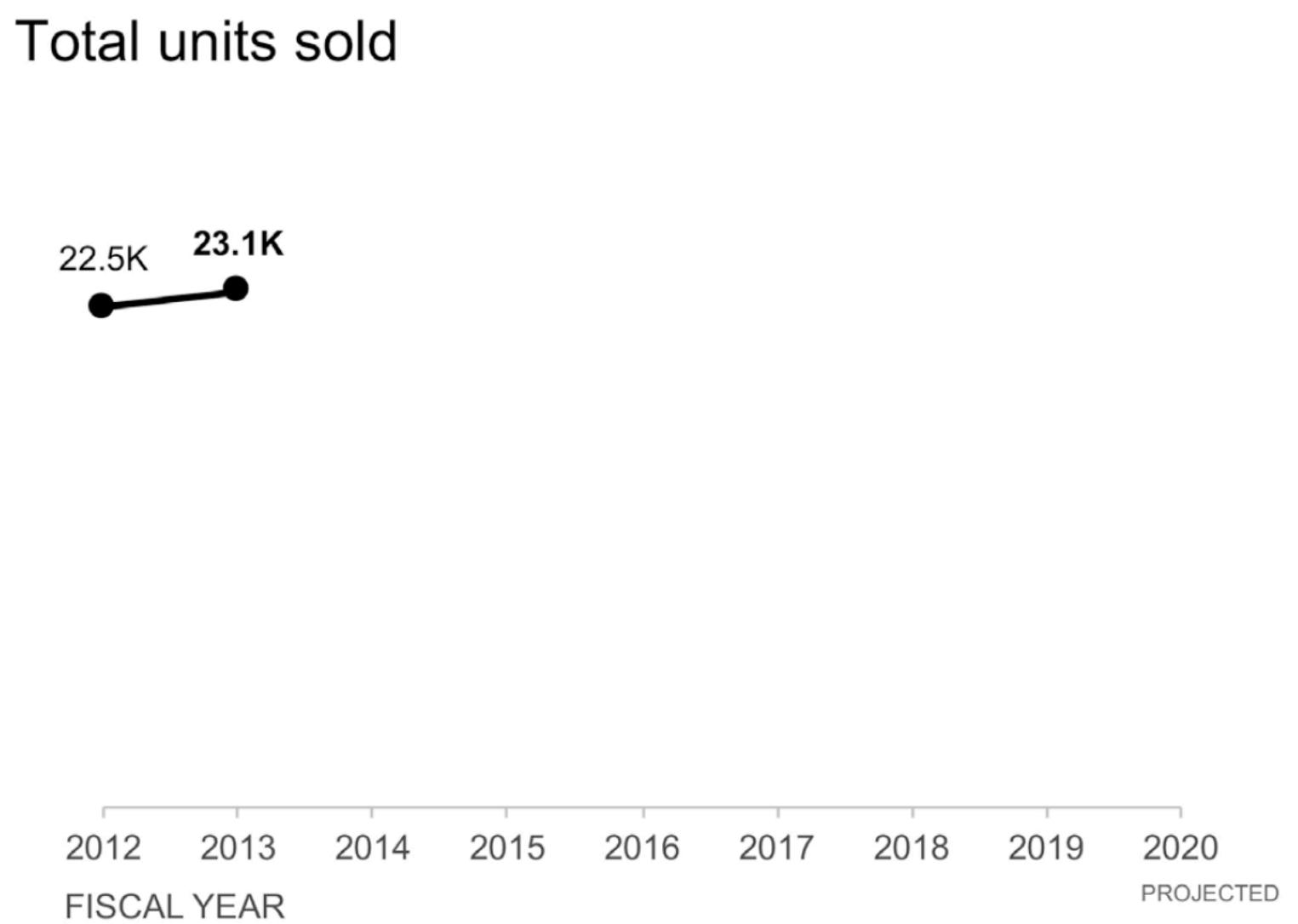
# verbal with the (data) visual, temporal layering of spatial comparisons



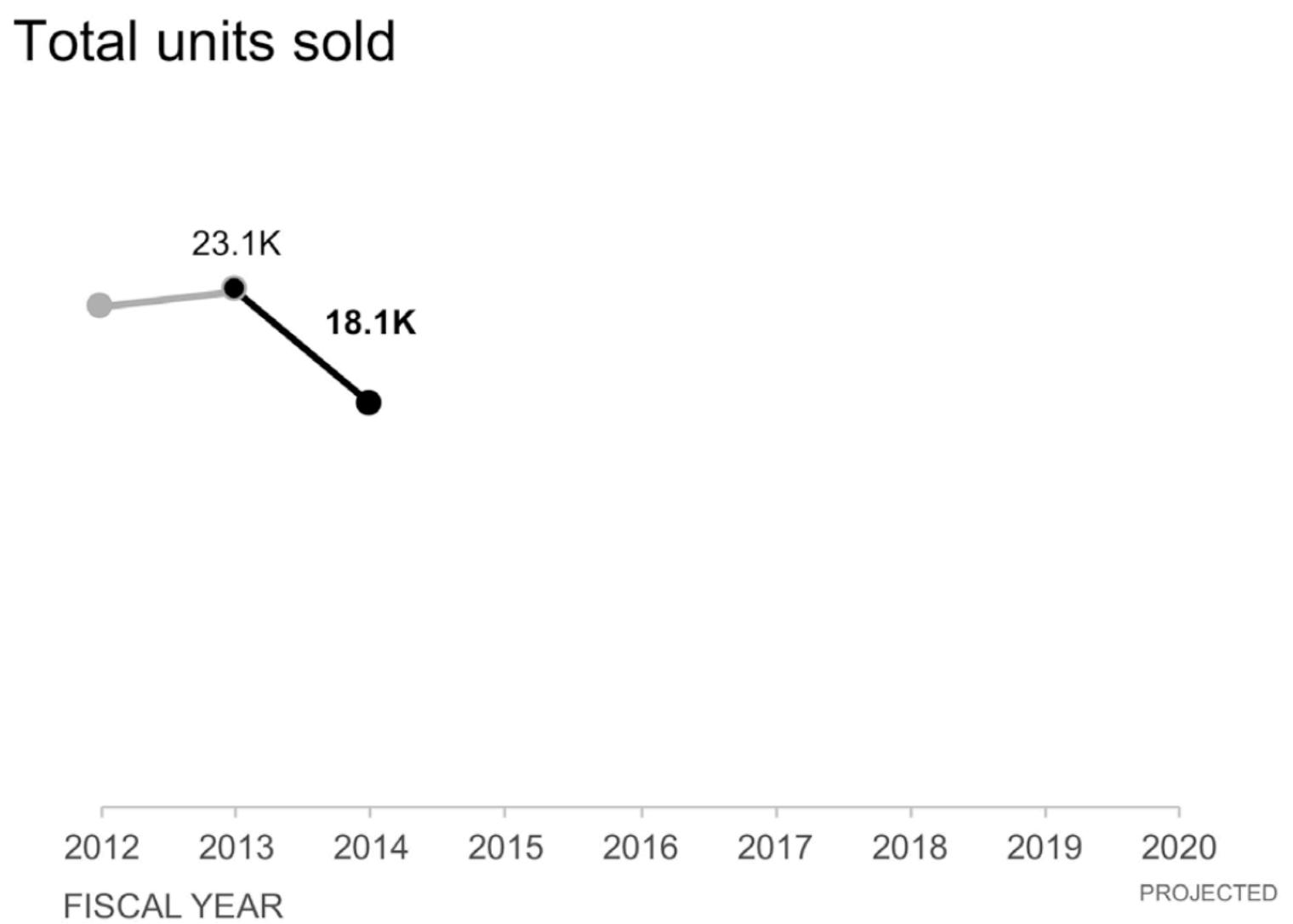
# verbal with the (data) visual, temporal layering of spatial comparisons



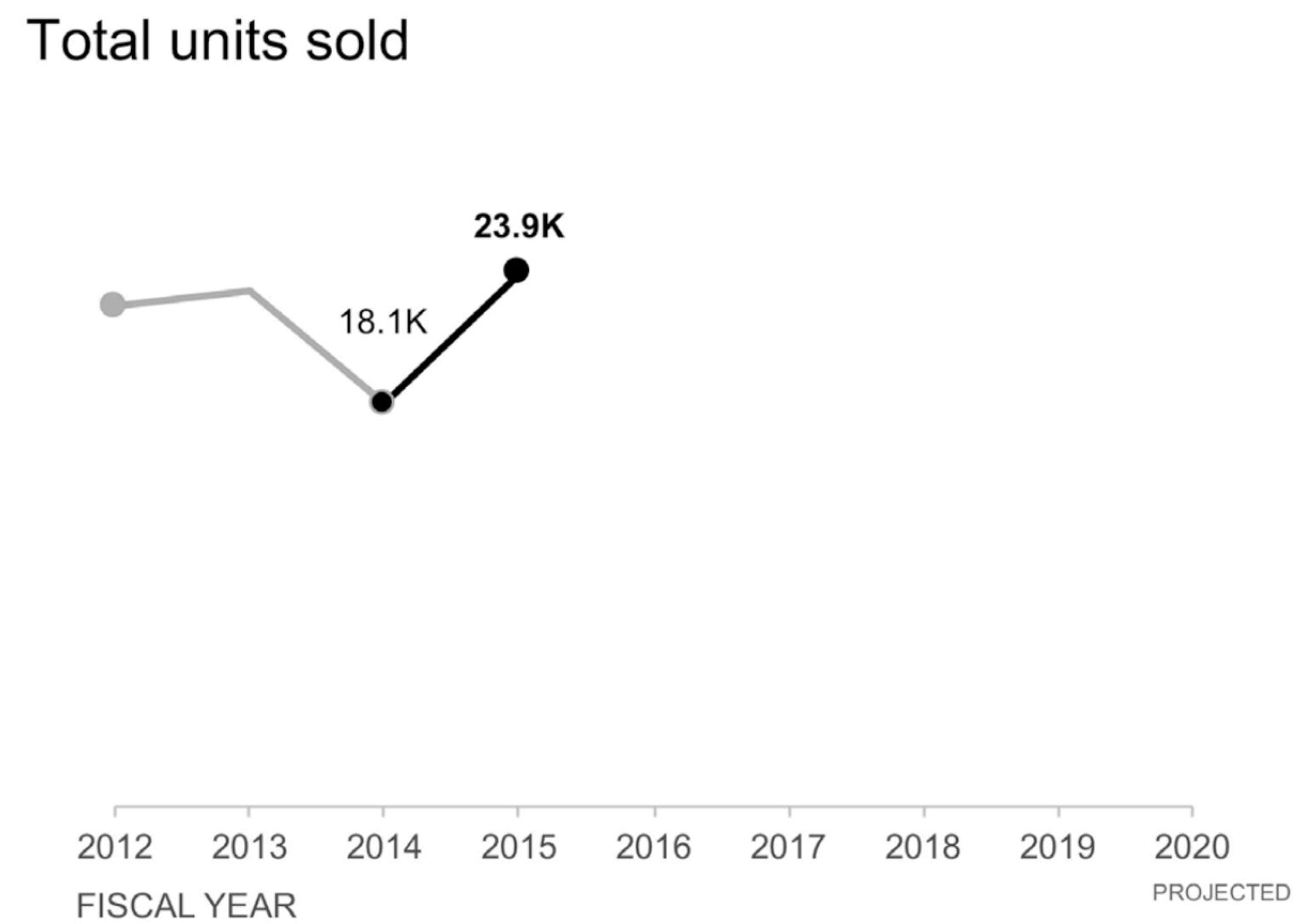
# verbal with the (data) visual, temporal layering of spatial comparisons



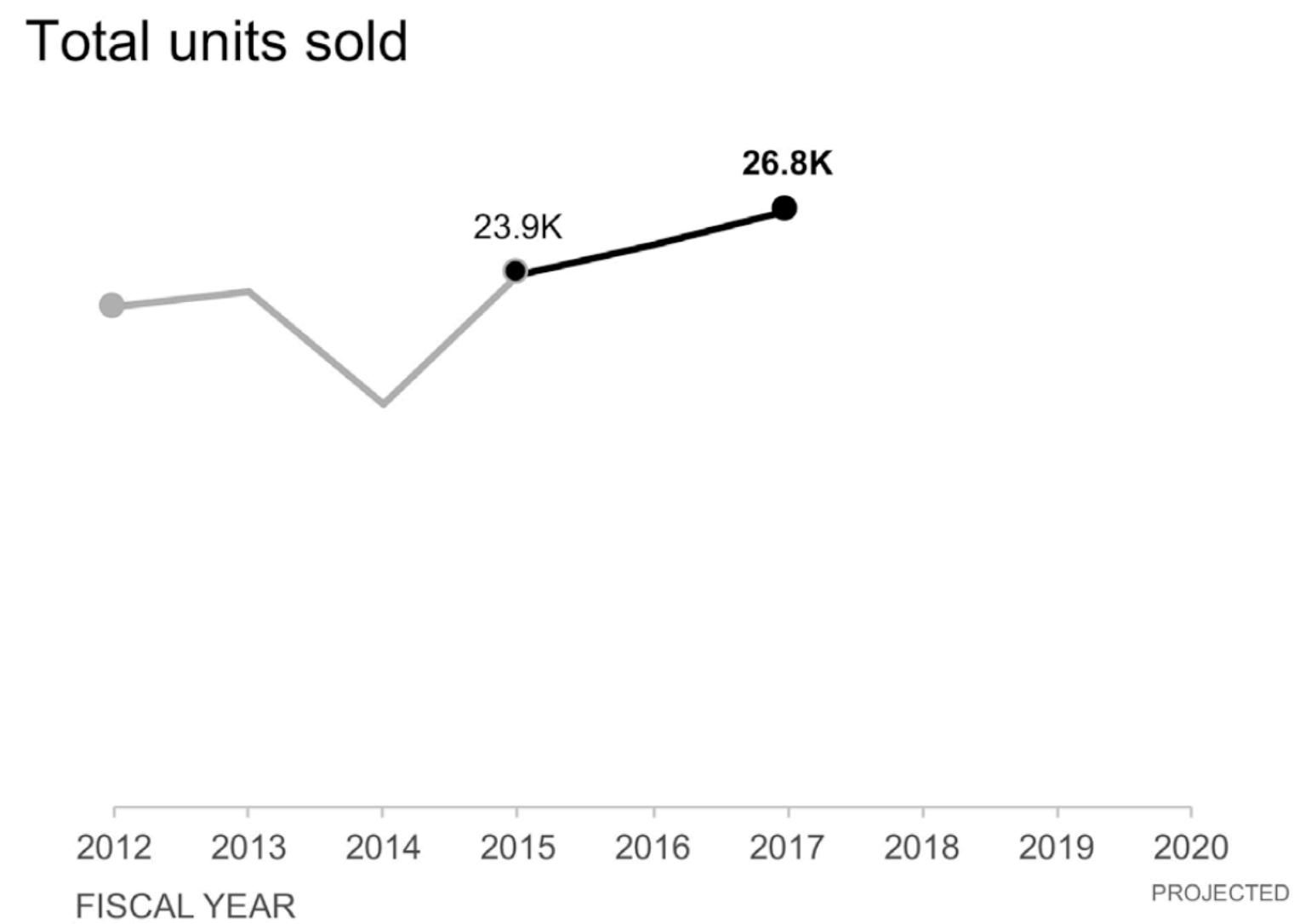
# verbal with the (data) visual, temporal layering of spatial comparisons



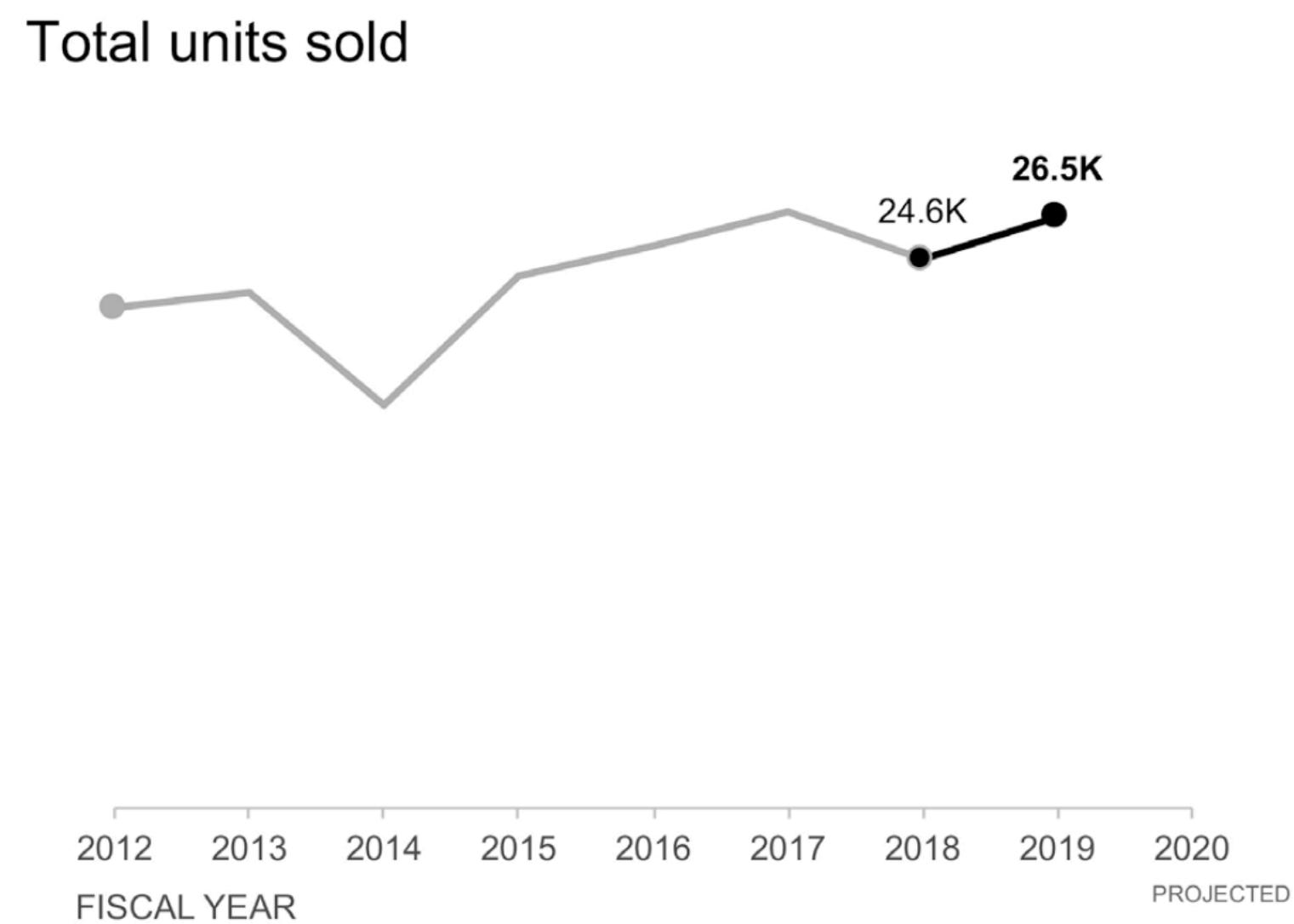
# verbal with the (data) visual, temporal layering of spatial comparisons



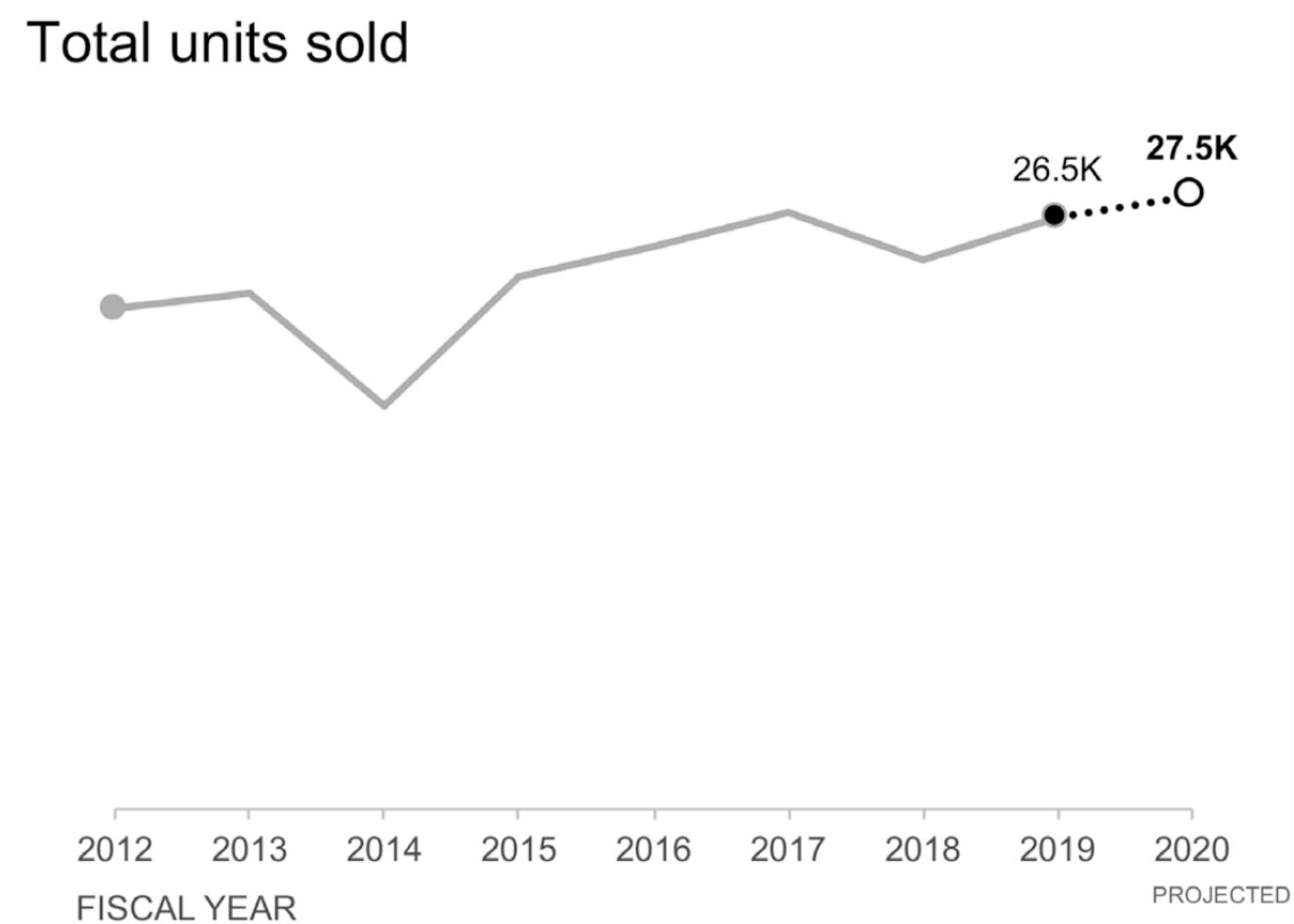
# verbal with the (data) visual, temporal layering of spatial comparisons



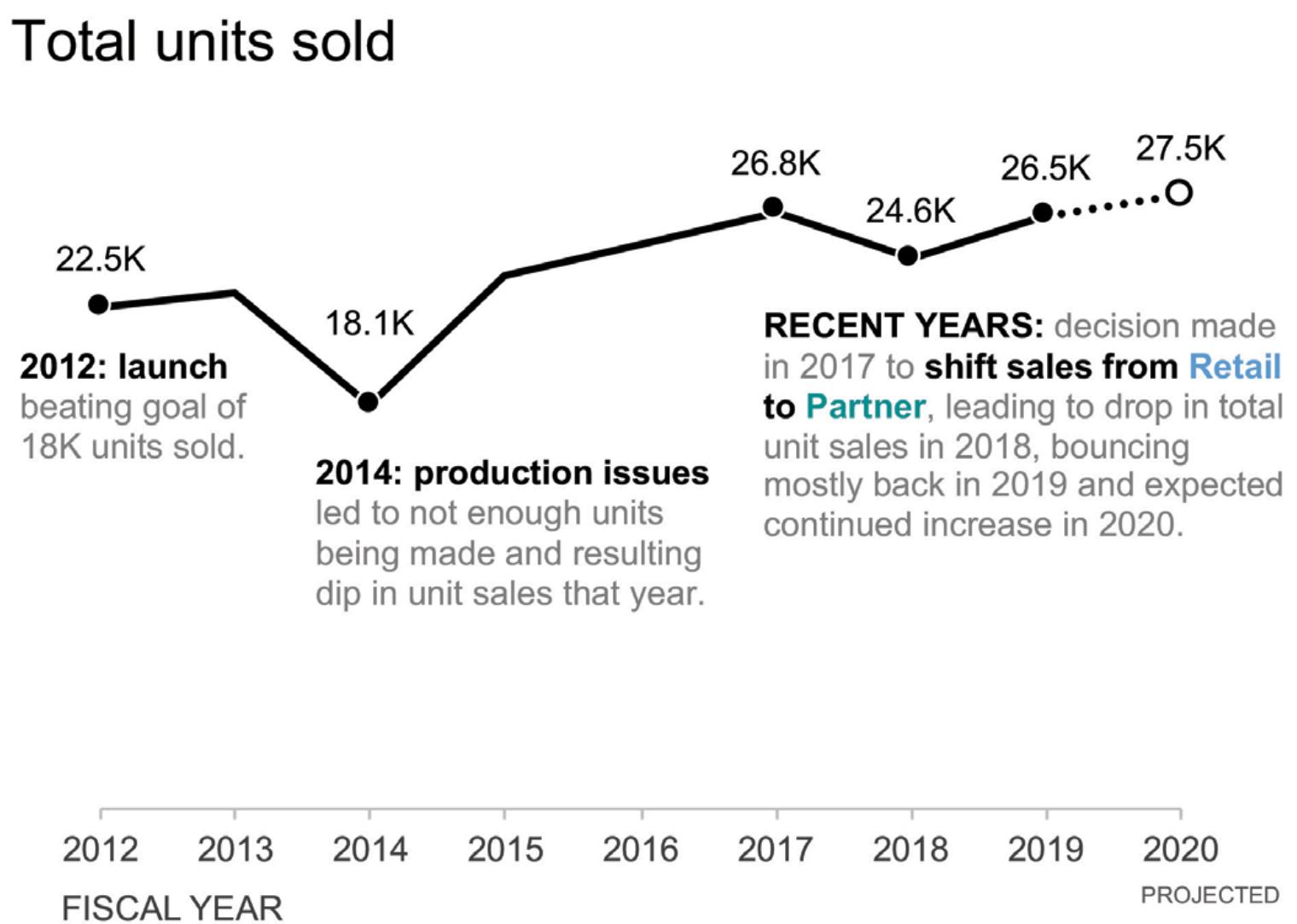
# verbal with the (data) visual, temporal layering of spatial comparisons



# verbal with the (data) visual, temporal layering of spatial comparisons



# verbal with the (data) visual, possible stand-alone version



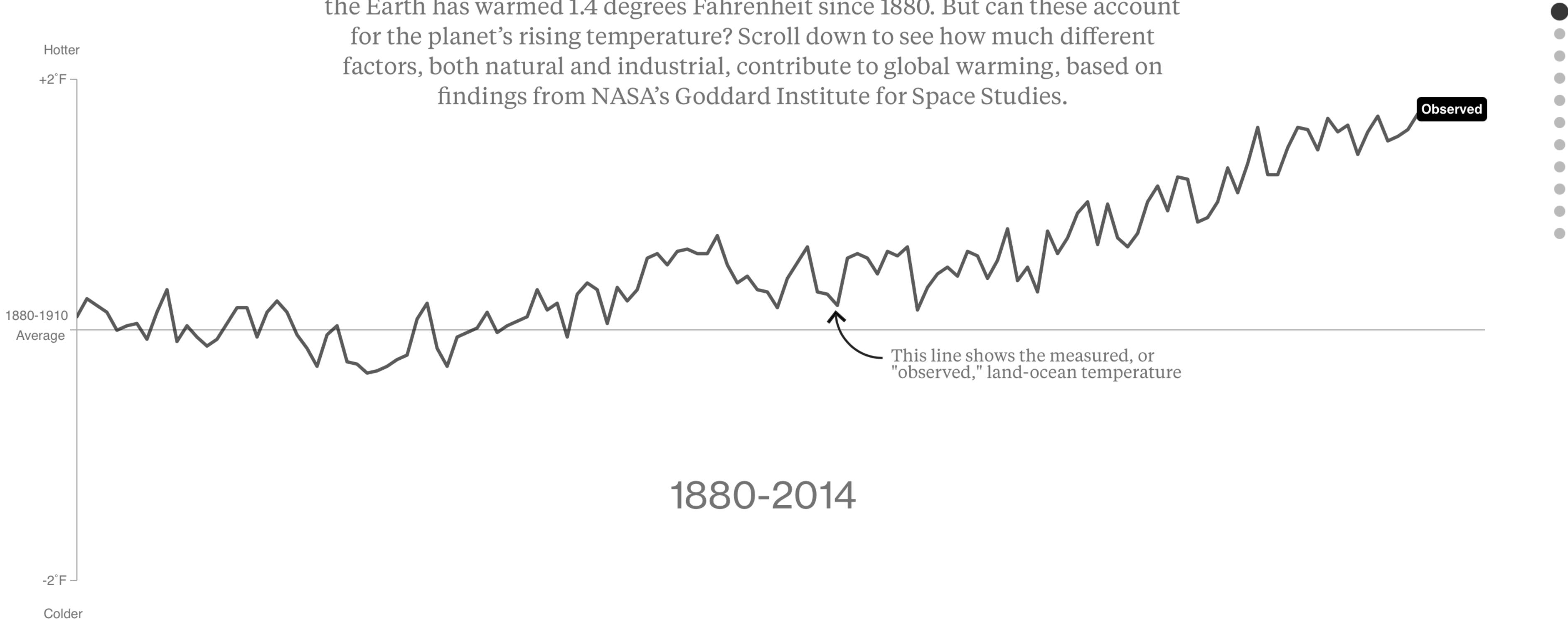
**scrollytelling**

scrollytelling, an example — notice *when* and *how* information is presented to the audience

## What's Really Warming the World?

By Eric Roston  and Blacki Migliozzi  | June 24, 2015

Skeptics of manmade climate change offer various natural causes to explain why the Earth has warmed 1.4 degrees Fahrenheit since 1880. But can these account for the planet's rising temperature? Scroll down to see how much different factors, both natural and industrial, contribute to global warming, based on findings from NASA's Goddard Institute for Space Studies.



# scrollytelling, minimal code in an r markdown to scroll **explainers** past *stay-in-place* data graphics

```
css
<style>

section {
  display: flex;
  flex-direction: row;
  margin-top: 1rem;
  margin-bottom: 5rem;
}

section > * {
  flex: 1;
}

article {
  padding: 0 1rem;
}

article p {
  font-size: 0.8rem;
  line-height: 1.4;
}

article p:not(:last-of-type) {
  min-height: 20vh;
}

article p:last-of-type {
  min-height: 50vh;
}

figure {
  display: flex;
  align-items: start;
  justify-content: center;
  height: 30rem;
  top: 5rem;
  position: -webkit-sticky;
  position: sticky;
}

figure * {
  max-width: 100%;
  object-fit: contain;
}

</style>
```

Of note: Apply any text formatting you want to `<h1>`, `<p>`, and `<article><p>`

Place code chunks for **interactive graphics** here.

Write your **explainers** that scroll past the **figures** here.

Specify white space for *between article paragraphs*, and for *after the last article paragraph* here. **20vh** means 20 percent of the viewfinder height. Experiment.

When **scrolling**, the `<figure>` element stops — **sticks** — when its **top** is at **5rem** (that's near the top of the viewfinder, adjust where you like). And it will stay in place while the **article paragraphs** scroll up until pushed up by the bottom of its `<section>` element.

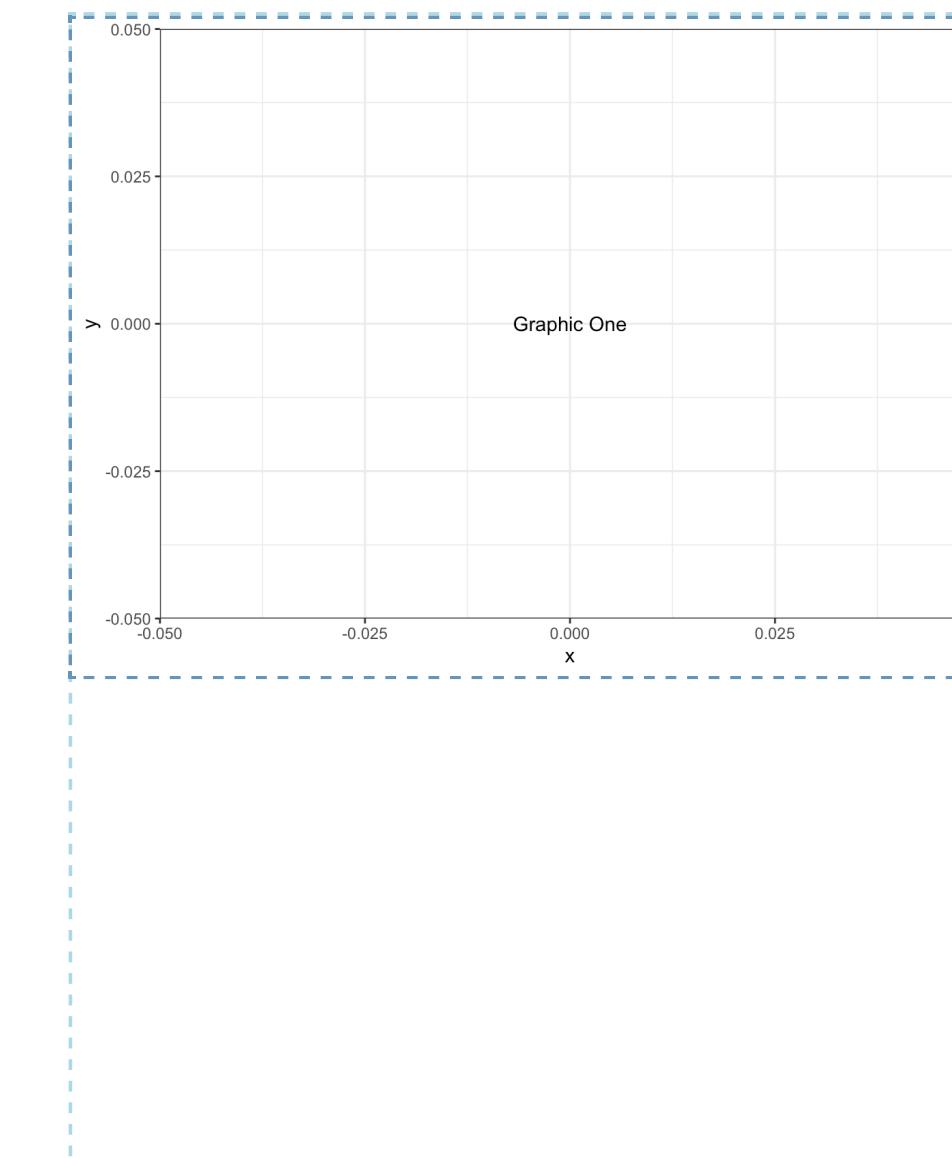
```
html
<h1>...</h1>

<p>...</p>

<section>
  <figure>
    ```{r, echo=FALSE}
# graphics go here
````
  </figure>
  <article>
    <p>...</p>
  </article>
</section>
```

## Minimal Scrollytelling Example

This is a paragraph outside the scrollytelling sections. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec interdum tellus felis, at lobortis orci sollicitudin ac. Donec lobortis sapien ac posuere faucibus. Mauris lectus neque, pretium non volutpat eget, vestibulum at magna. In sollicitudin augue nunc, non bibendum augue ornare quis.



This is a first article paragraph inside the first scrollytelling section. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec interdum tellus felis, at lobortis orci sollicitudin ac. Donec lobortis sapien ac posuere faucibus. Mauris lectus neque, pretium non volutpat eget, vestibulum at magna. In sollicitudin augue nunc, non bibendum augue ornare quis.

This is a second article paragraph inside the first scrollytelling section. Integer accumsan interdum justo eu pretium. Aliquam maximus mi sit amet dapibus efficitur.

This is a third article paragraph inside the first scrollytelling section. Sed condimentum lacus sit amet turpis aliquam varius nec a lacus. In facilisis convallis ante sit amet consequat. Aenean a lorem mollis, bibendum mibh nec, maximus orci. Nulla facilisi.

**user-centered, content design**

**resources**

# References

- Spencer, Scott.** Sec. 4 In *Data in Wonderland*. 2021. [https://ssp3nc3r.github.io/data\\_in\\_wonderland](https://ssp3nc3r.github.io/data_in_wonderland).
- 
- Corum, Jonathan.** “Design for an Audience.” *13pt Information Design*, April 26, 2018. <http://style.org/ku/>.
- . “See, Think, Design, Produce 3.” *13pt Information Design*, March 28, 2016. <http://style.org/stdp3/>.
- Chu, Tony.** “Animation, Pacing, and Exposition.” *OpenVis Conf 2016*, May 13, 2016. <https://www.youtube.com/watch?v=Z4tB6qyxHJA>.
- Doumont, Jean-Luc.** “Effective Oral Presentations.” In *Trees, Maps, and Theorems*, 85–119. Effective Communication for Rational Minds. Principiae, 2009.
- Hartson, H. Rex, and Pardha S. Pyla.** *The UX Book: Agile UX Design for a Quality User Experience*. Second edition. Cambridge, MA: Morgan Kaufmann, 2019.
- Knafllic, Cole Nussbaumer.** *Storytelling with Data: Let's Practice!* Hoboken, New Jersey: John Wiley & Sons, Inc, 2019.

- Natario, Elaina, and Russell Goldenberg.** “Easier Scrollytelling with Position Sticky.” *The Pudding* (blog), June 2018. <https://pudding.cool/process/scrollytelling-sticky/>.
- Richards, Sarah.** *Content Design*. Content Design London., 2017.
- Rost, Lisa-Charlotte.** Complexity for the Experts, simplicity for everyone else? In *Talks*. <https://lisacharlotterost.de/talks>.
- Roston, Eric, and Blacki Migliozzi.** “What's Really Warming the World?” *Bloomberg*, June 24, 2015, Businessweek edition. <https://www.bloomberg.com/graphics/2015-whats-warming-the-world/>.
- Schwabish, Jonathan.** *Better Presentations: A Guide for Scholars, Researchers, and Wonks*. Columbia University Press, 2016.
- Tufte, Edward R.** “The Cognitive Style of PowerPoint: Pitching Out Corrupts Within.” In *Beautiful Evidence*. Graphics Press, 2006.
- . “The Future of Data Science.” Presented at the *Microsoft Machine Learning & Data Science Summit*, Seattle, Washington, 2016. <https://youtu.be/rHUDJ8RyseQ>.
- . “Smarter Presentations and Shorter Meetings.” In *Seeing with Fresh Eyes: Meaning, Space, Data, Truth*, 151–61. Cheshire, Conn.: Graphics Press, 2020.