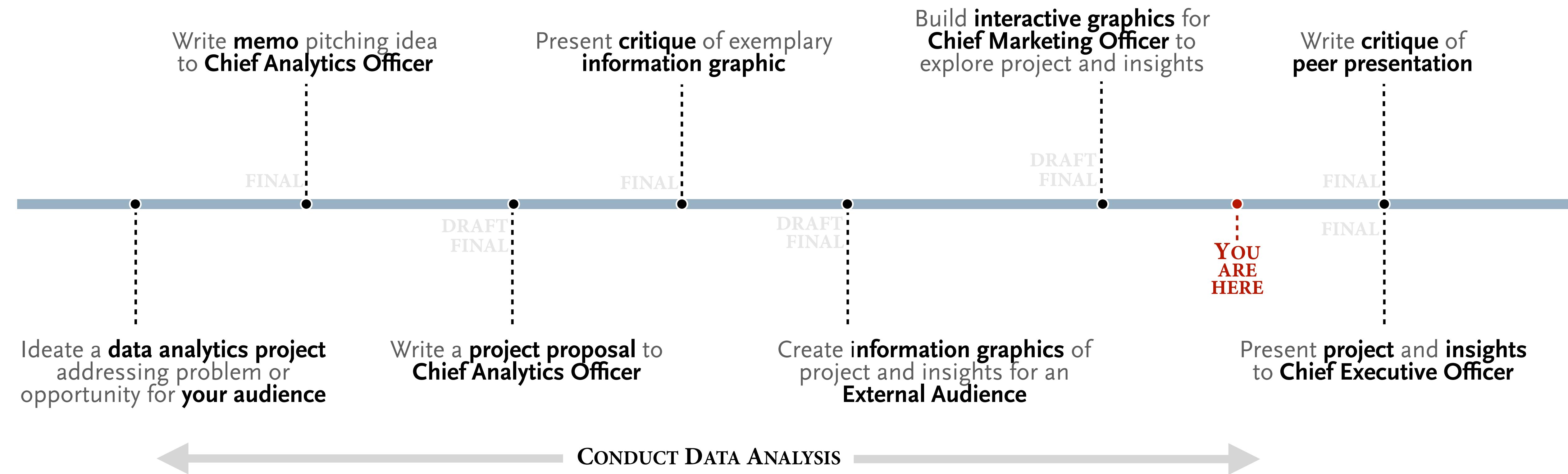


# Storytelling with data

**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

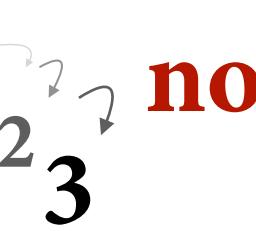
Powerpoint can have low resolution and it encourages sequenced  
1 ↗  
2 ↗  
3 ↗ **not**

# 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  


spatial  
spatial  
spatial  
not  
spatial  
review.

## 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

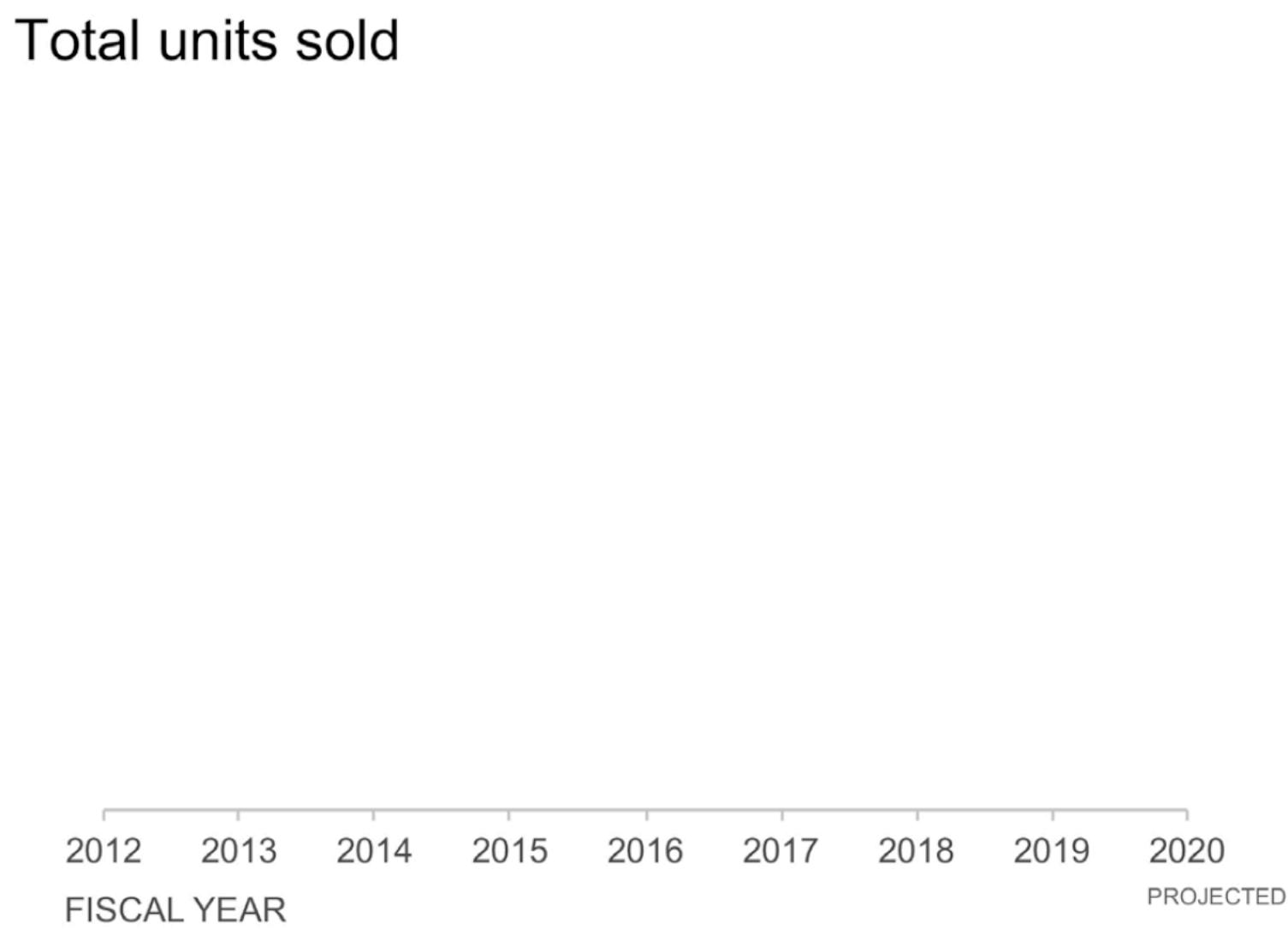
GRAPHIC DESIGN  
IS THE USE OF SPACE  
<sup>TO</sup> CONTROL TIME

— Barbara de Wilde

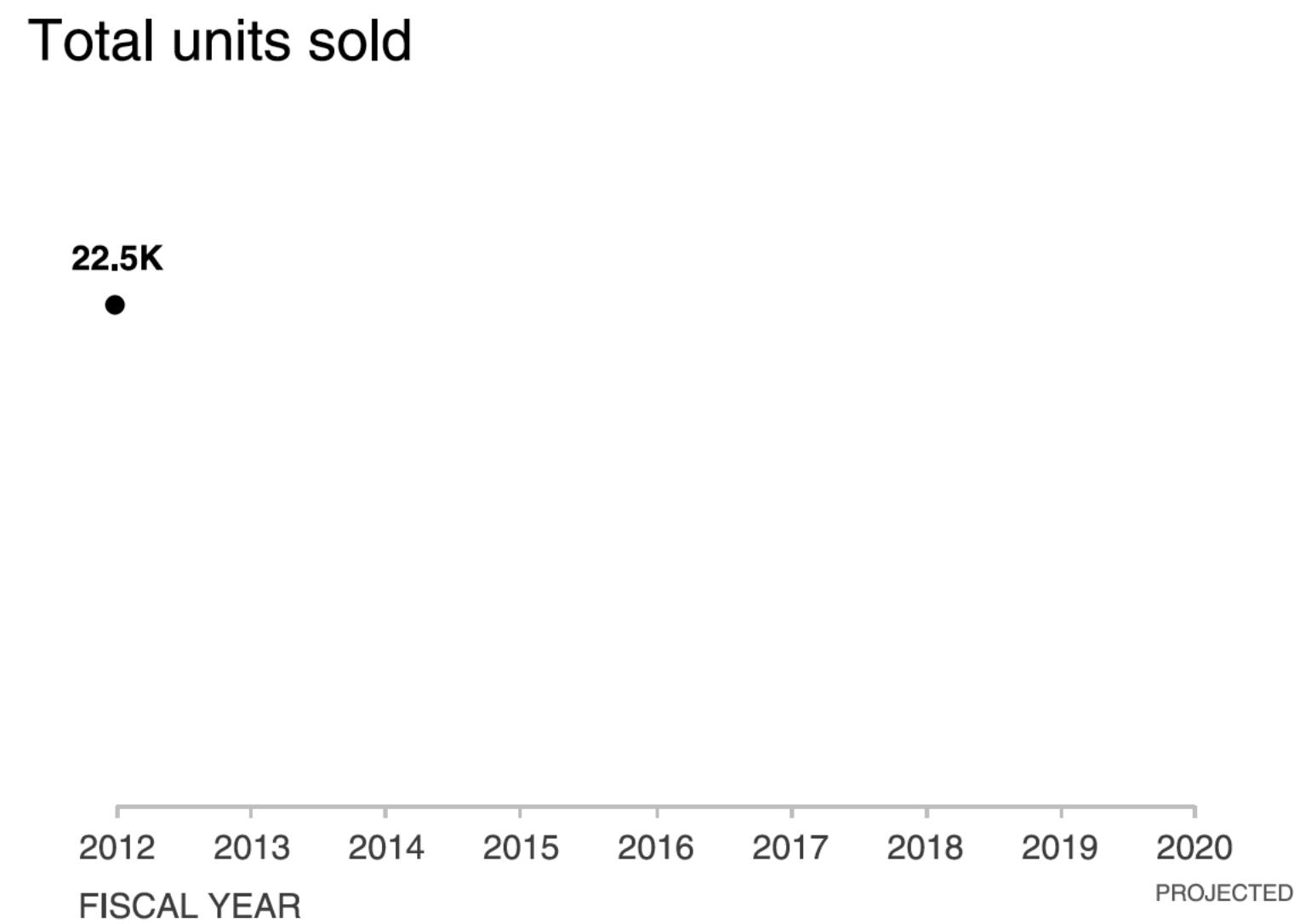
**data**  
**verbal with the  visual**

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

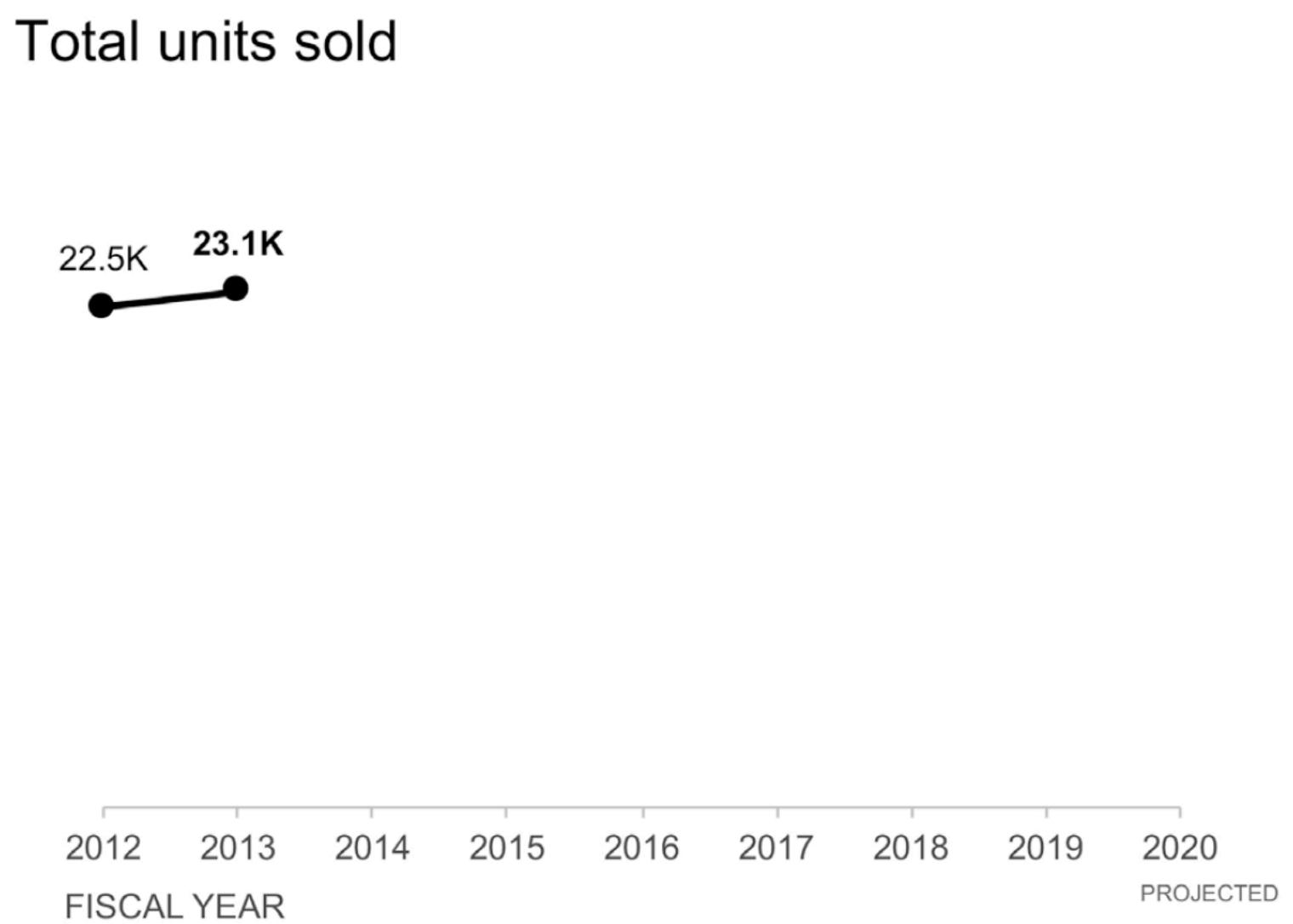
# verbal with the (data) visual, temporal layering of spatial comparisons



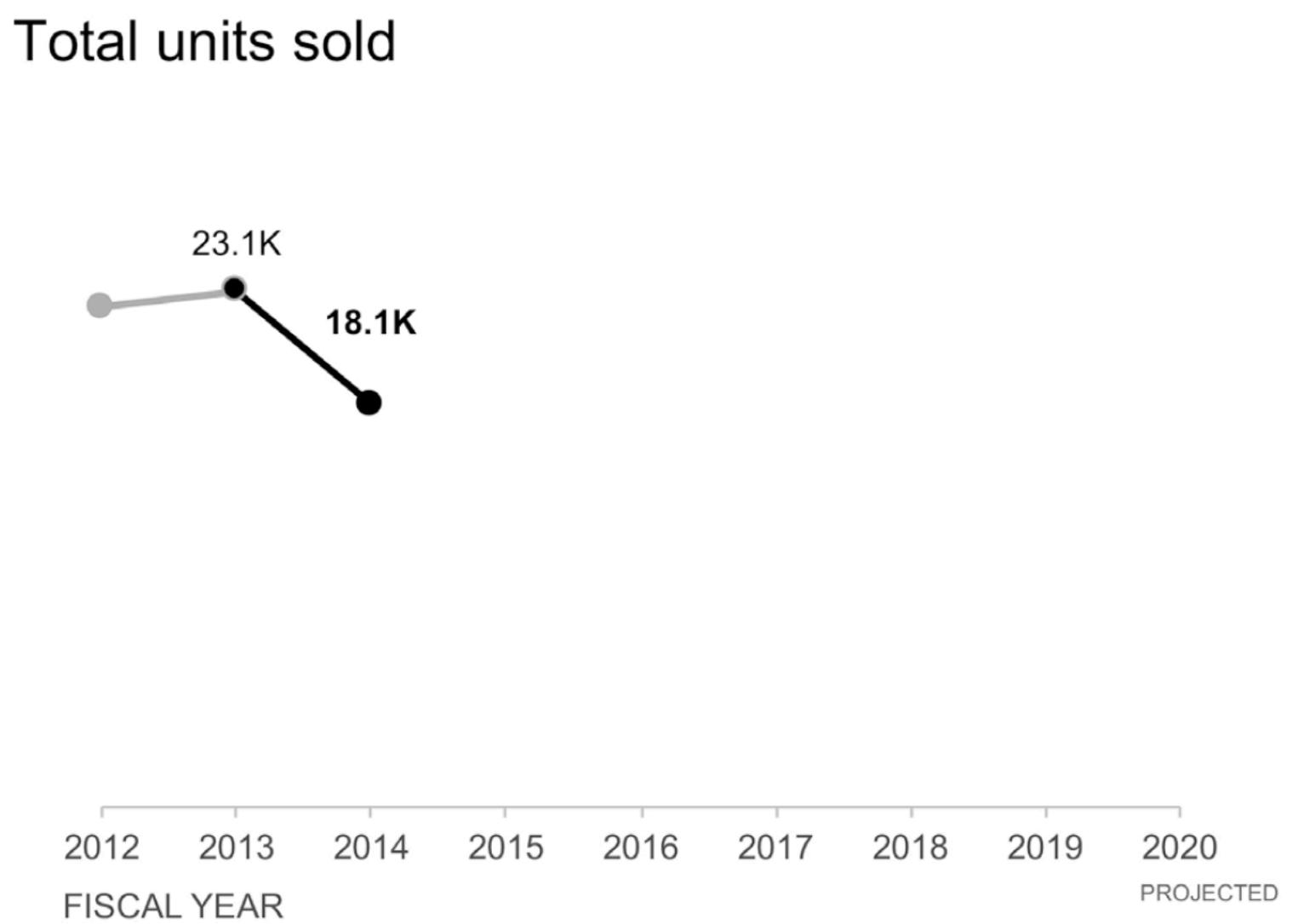
# verbal with the (data) visual, temporal layering of spatial comparisons



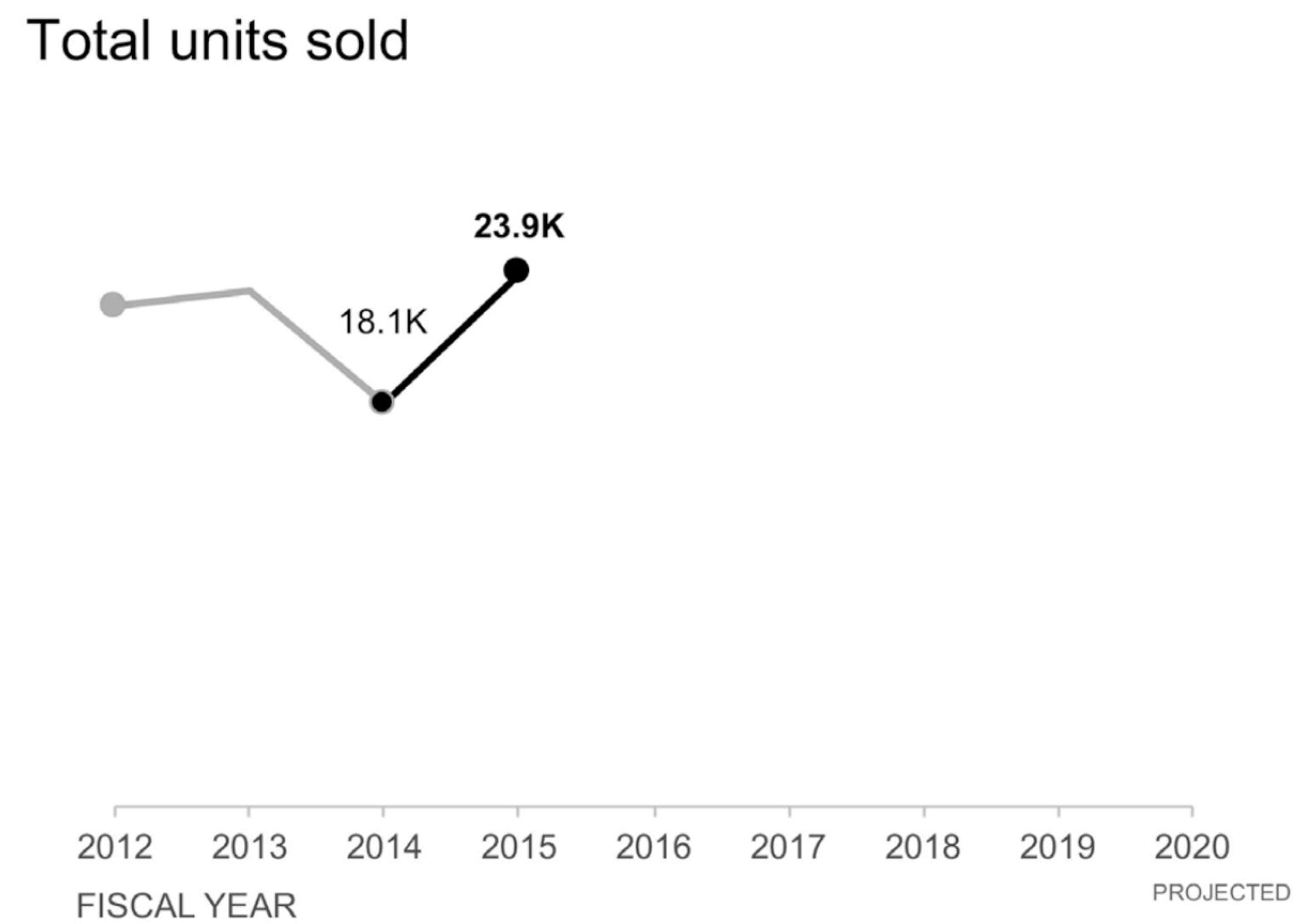
# verbal with the (data) visual, temporal layering of spatial comparisons



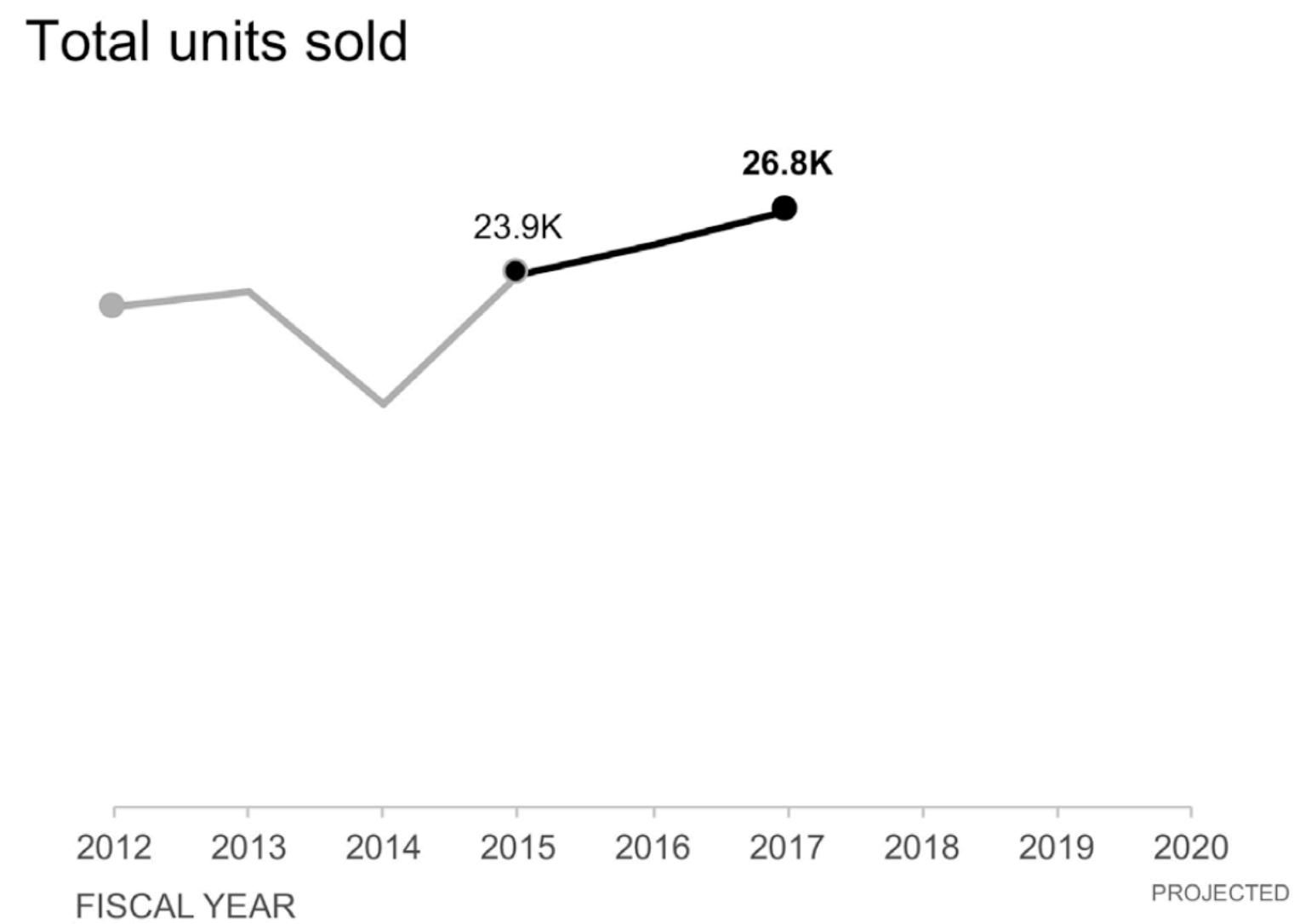
# verbal with the (data) visual, temporal layering of spatial comparisons



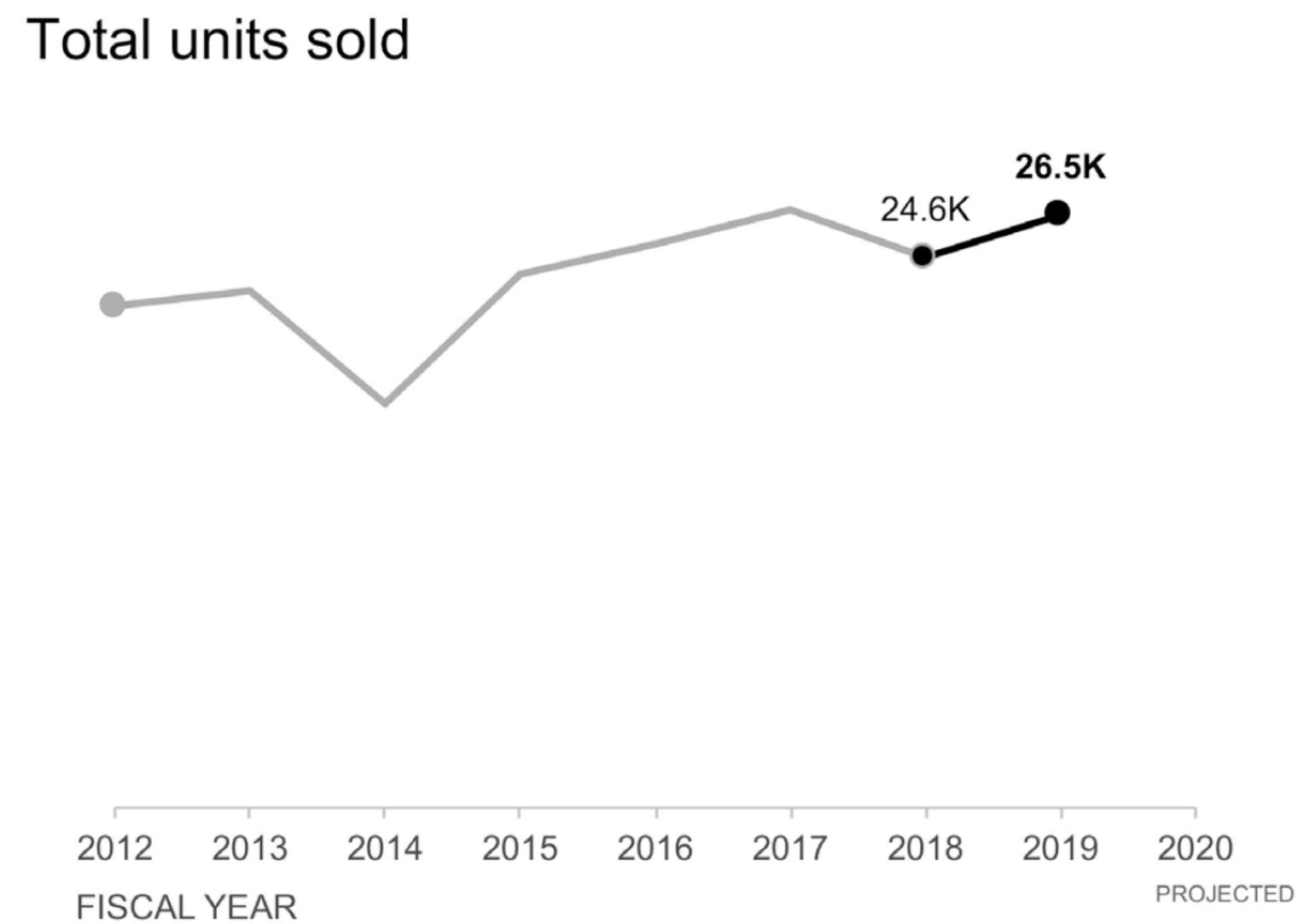
# verbal with the (data) visual, temporal layering of spatial comparisons



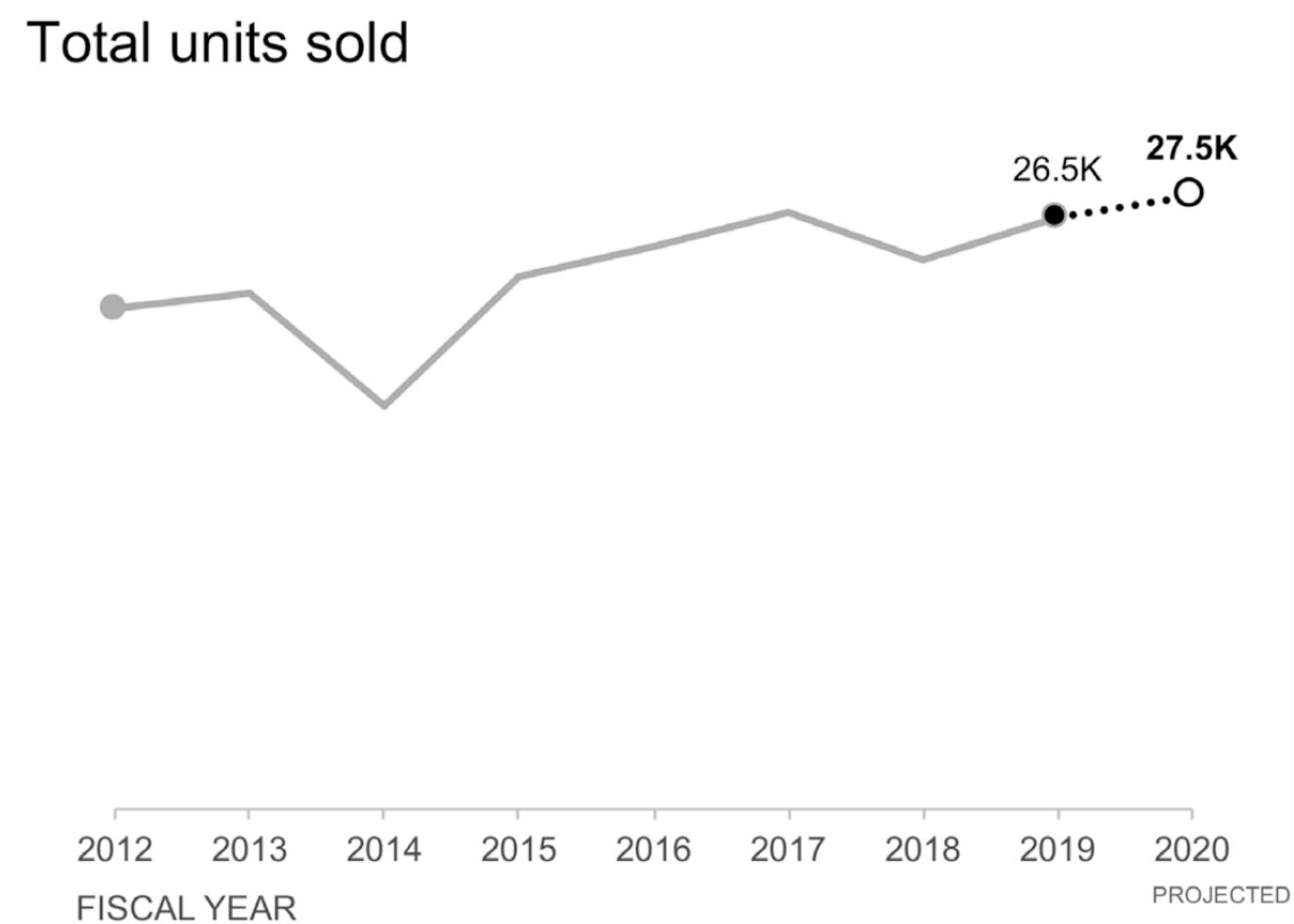
# verbal with the (data) visual, temporal layering of spatial comparisons



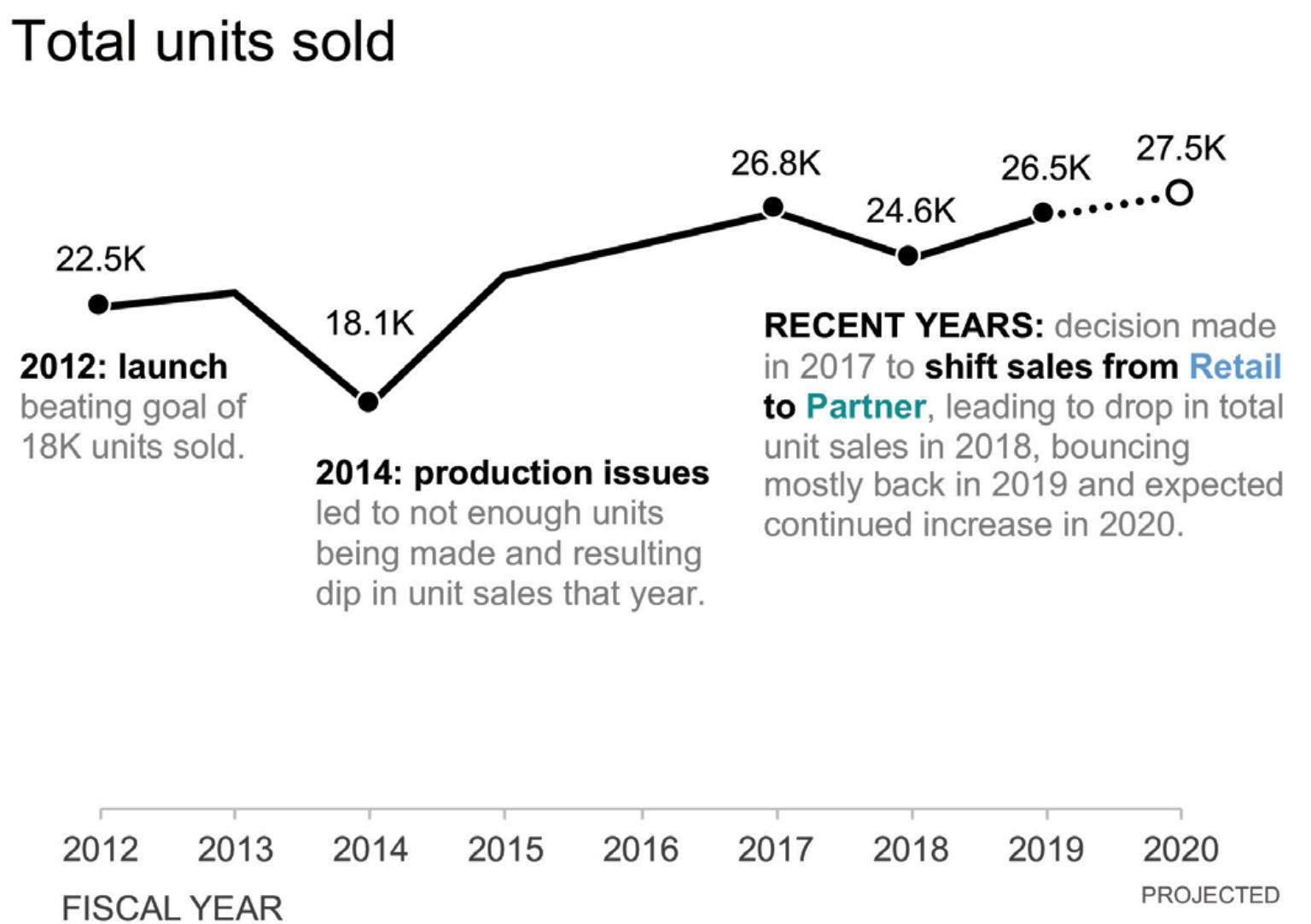
# verbal with the (data) visual, temporal layering of spatial comparisons



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



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



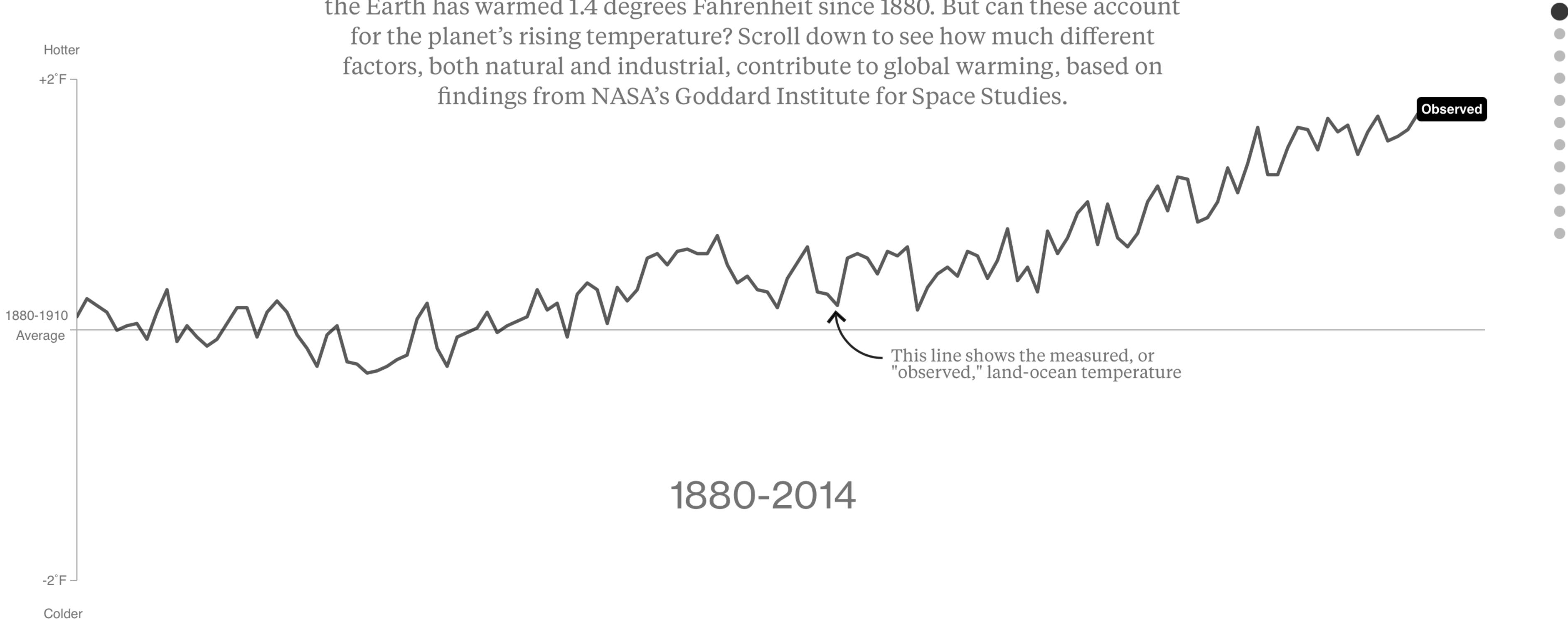
**scrollytelling**

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.

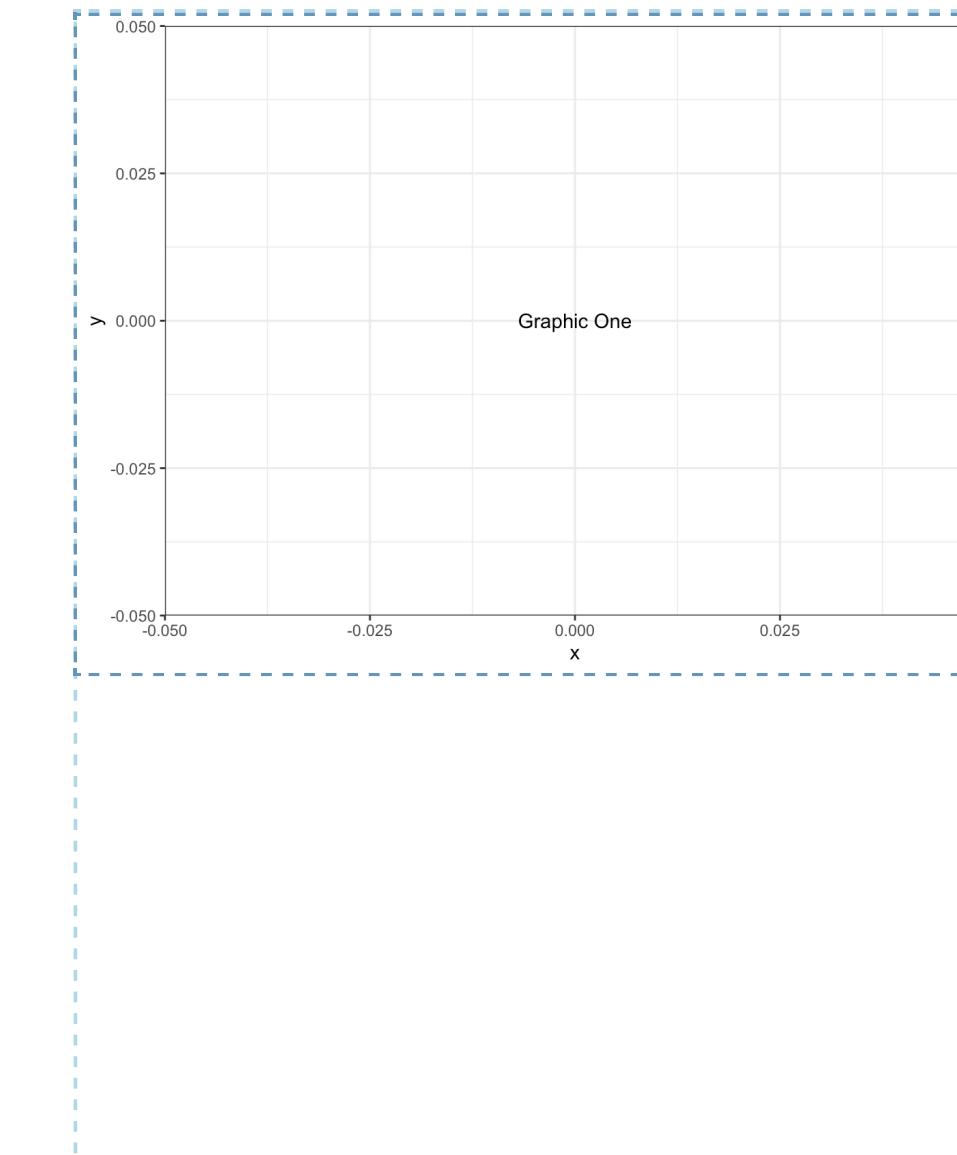
```
html
<h1>...</h1>

<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**

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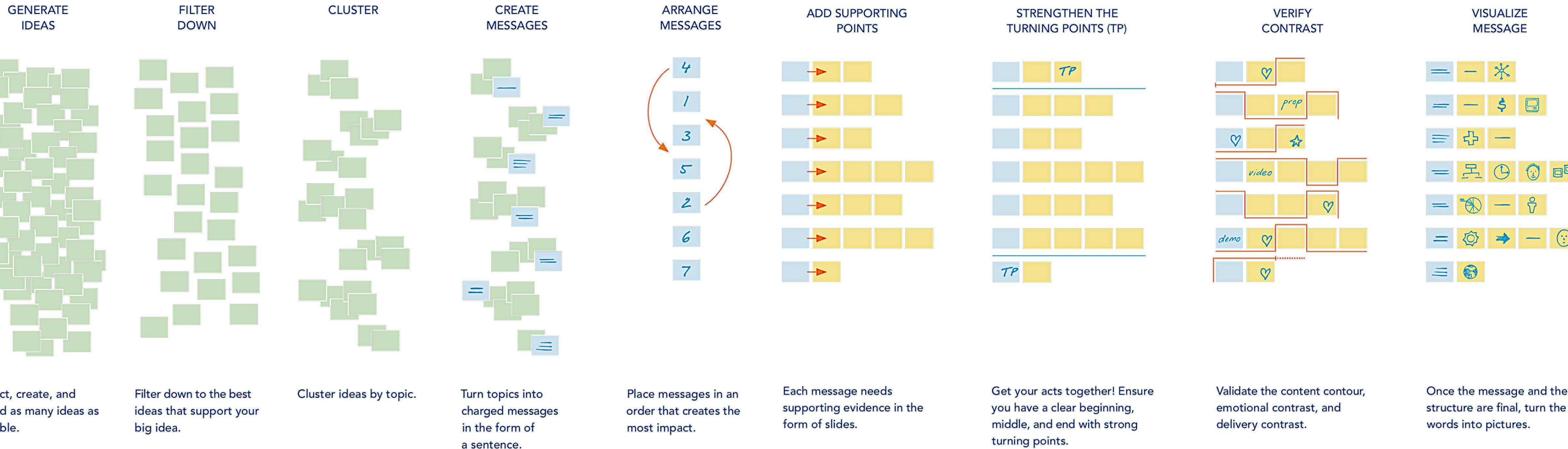
**supplemental**

# verbal with the (data) visual, on presentations — *designing your presentation*

Start by posing, and answering, questions

- What type of presentation are you giving?
- Who is your audience?
- What is the headline message?
- What do you want your audience to do with your conclusions?
- What is your opening statement? Focus on conclusions
- What is your closing statement (call to action)?
- What are the sections of your presentation?
- What stories can you tell?
- What graphs and images can you use?

# verbal with the (data) visual, on presentations — *designing your presentation*



# verbal with the (data) visual, on presentations — *designing your presentation*

## Purpose of design: unify elements, focus attention

Employing good design techniques is about unifying the various elements on the screen and focusing your audience's attention on your important points so that they can decide whether or not to buy into your ideas.

## Use color and type to unify and focus

Use **color** just as we've discussed—purposefully—for **linking** together text and graphics.

Size of minimum **type** for main content (c.f., footnotes, etc.) for readability from the back of the presentation room. Choose differences in size to reflect hierarchy of information. Use **white space** to organize and focus ideas.

### Comprehension of text depends on amount *and* clarity

The difficulty for an audience to get the intended message depends on both amount of text and clarity of the words, phrases, and sentences chosen.

### Best practices in graphs hold true in presentations, too

Consider what specific message you want your graph to show. This will let you choose each attribute (gridline, tick mark, data maker, data label, color, and other objects) to help the audience understand your message.

# verbal with the (data) visual, on presentations — *building your presentation*

## Slides as guides and transitions:

Title  
Agenda  
Header  
Breaker  
Ending

The purpose of scaffolding slides is to guide and focus your audience's attention as you transition from one section to another, and to drive home important points.

They act as scaffolding because they ... support the delivery of your messages.

# verbal with the (data) visual, on presentations — *giving your presentation*

**Preparing means  
practicing,  
and  
practicing means  
speaking aloud**

Practicing—or perhaps, better put, rehearsing—involves standing up, holding your presentation clicker, and speaking aloud.

It is not sitting at your desk and silently thinking about what you plan to say for each slide.

Speaking also allows you clarify your messages. Use your practice to adjust what reads awkward and remove or revise what doesn't make sense.

# verbal with the (data) visual, on presentations — *giving your presentation*

## First, develop interest and need

Attention getter — strives to draw everyone's attention to the topic as rapidly as possible by **relating the topic to audience concerns**.

Need — motivates the audience by telling (or by reminding) them **why something had to be done**; closes in on a specific problem.

Task — identifies “who did what” in an effort to address the need; **situates the speaker with respect to the audience and to the topic**.

Main message — **states the main conclusion upfront**; also known as thesis or take-home message.

Preview — **announces the body’s content**, suggesting how it helps support or develop the message just stated; also known as outline.

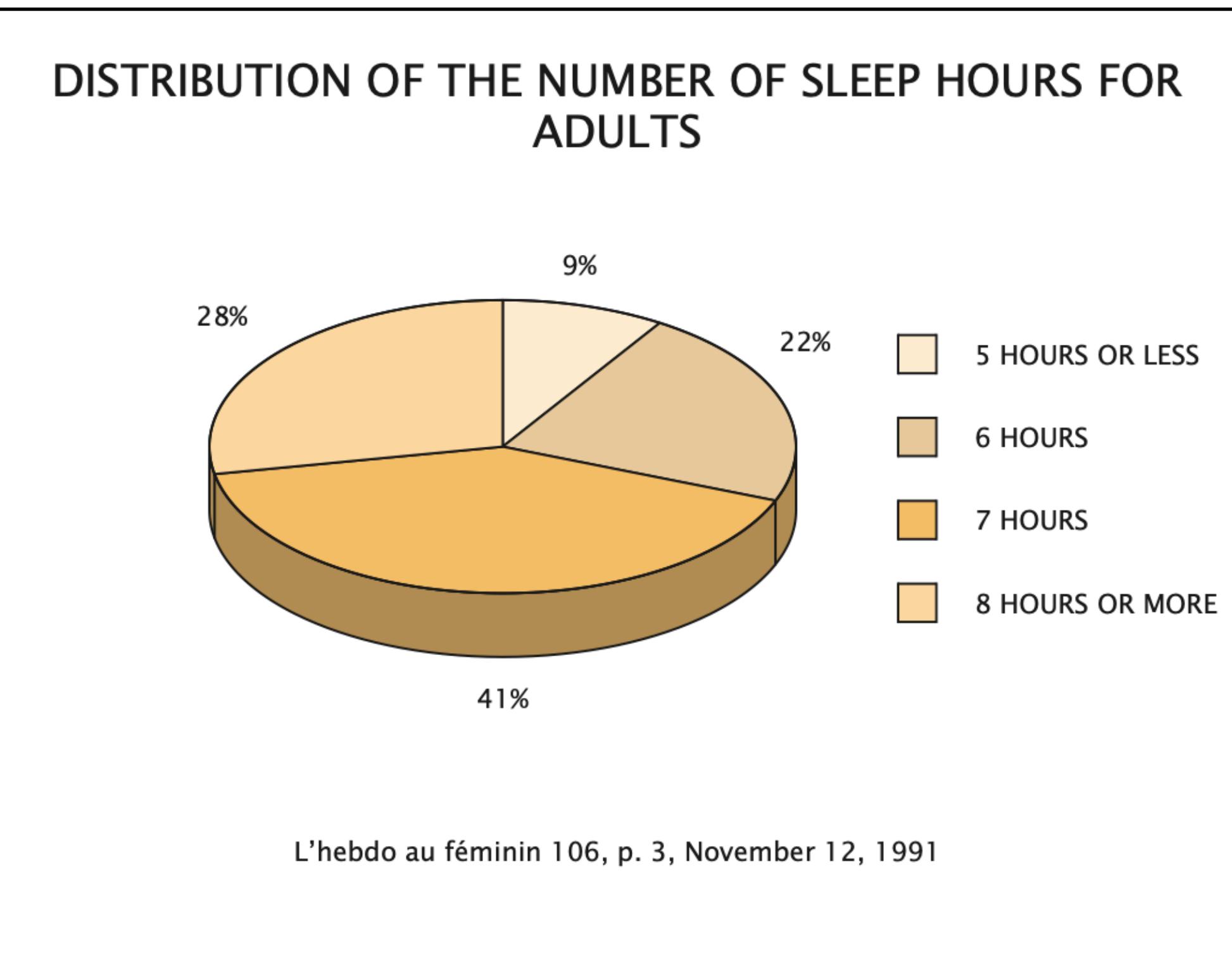
**Reveal your  
structure upfront,  
after getting  
interest**

A presentation must do more than simply be well structured: it must make the structure and the underlying logic of this structure readily apparent to the audience.

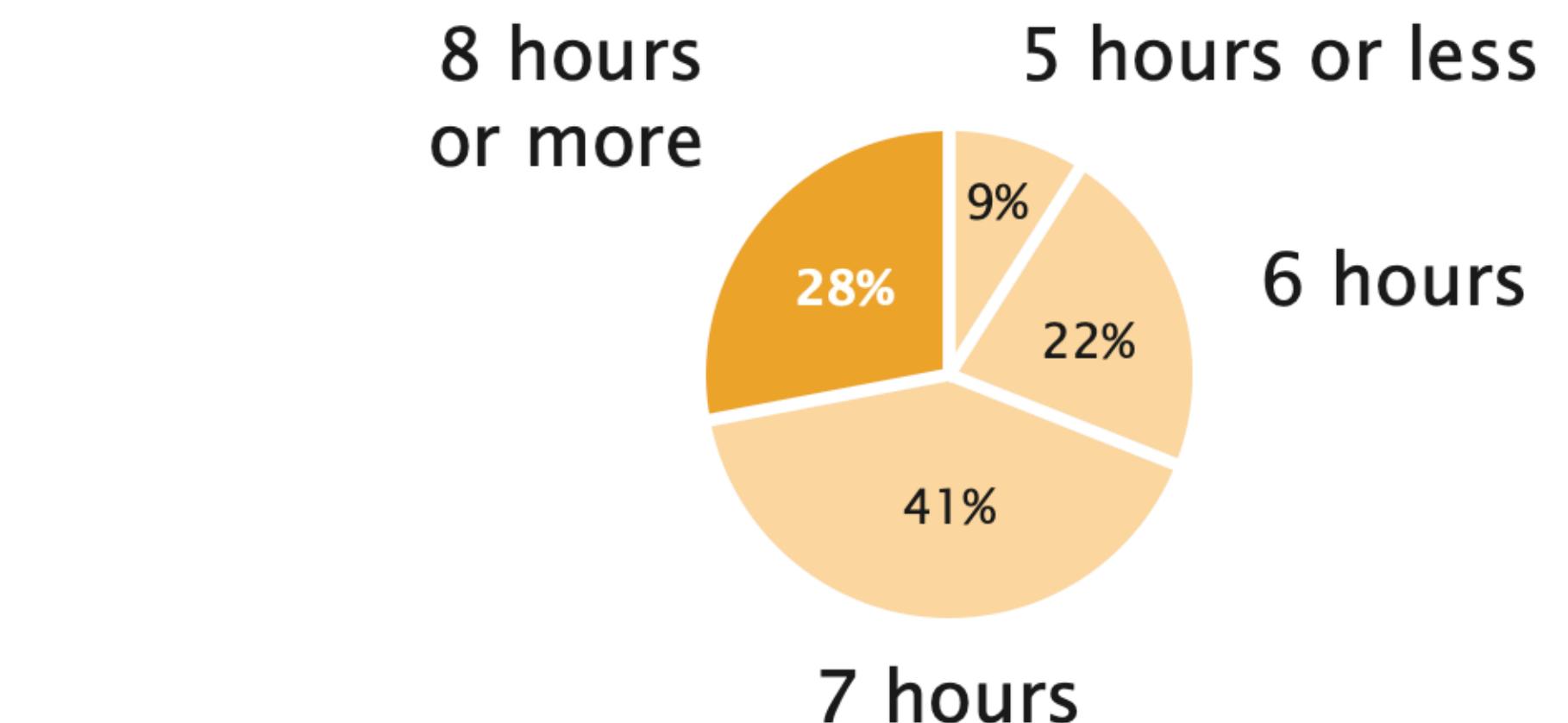
**Slides are for  
conveying **messages**,  
generally need text**

Visual codings being in essence ambiguous, effective slides almost always include some text: the message itself, stated as a short but complete sentence. Besides the text statement, this message should be developed as visually as possible: this development should include only whatever words are necessary for the slide to stand on its own.

# verbal with the (data) visual, on presentations — *giving your presentation*



Only 28% of adults sleep the recommended 8 hours



Audience?



Structure?

Purpose?

In your review, consider the interplay between what he says and what he shows — *and what he does not show* — on his visuals. How does his approach compare with our discussions about the interplay of words, images and data graphics in narrative, and with storyboards?

Design?

## Audience and purpose of our persuasive presentation

verbal with the (data) visual, *audience and purpose of our persuasive presentation*

**Audience | chief executive officer**

**Purpose | persuade CEO to further invest in analytics**

**Constraints | 4 to 5 minutes; 5 to 10 substantive visuals**