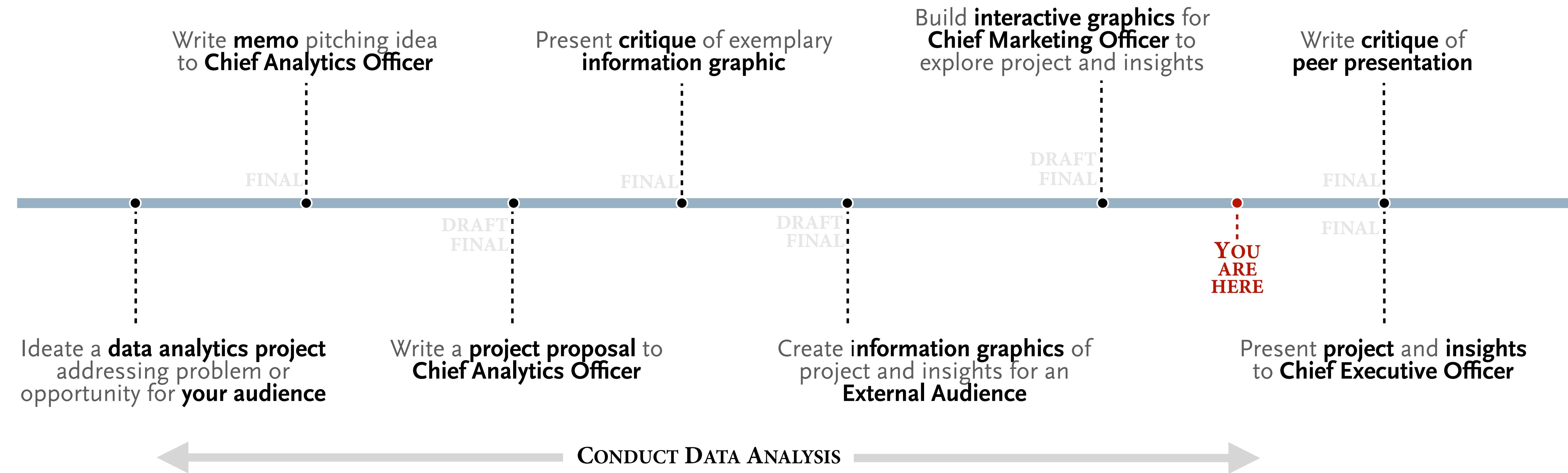


Storytelling with data

12 | interactive and multimodal communication

course overview, main course deliverables



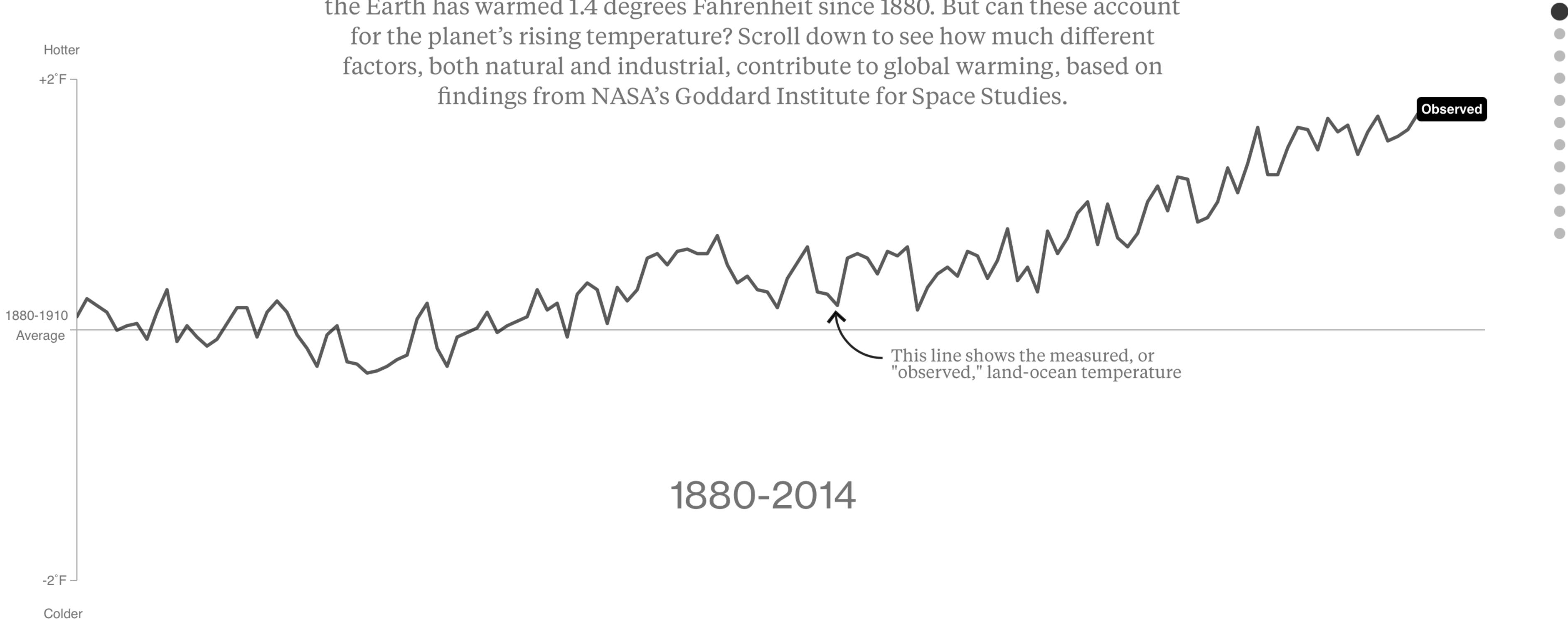
interactive communication, a “scrollytelling” layout

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: sticky;
}

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

</style>
```

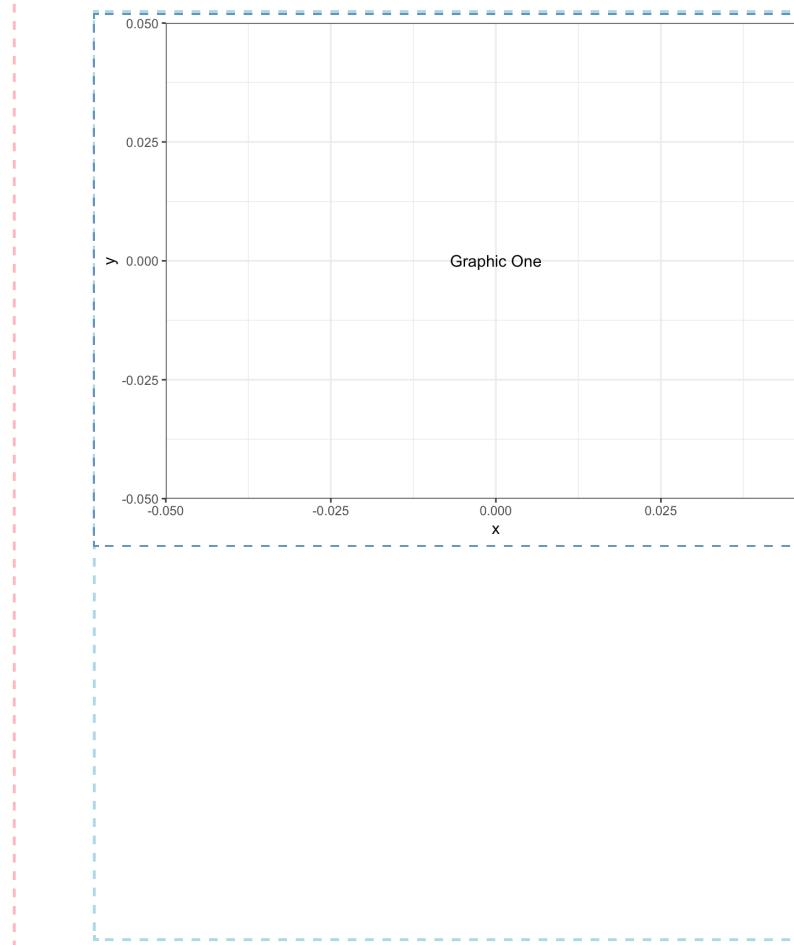
```
html
<h1>...</h1>

<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 nibh nec, maximus orci. Nulla facilisi.

# 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;
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 section > * {
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 article {
 padding: 0 1rem;
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 article p {
 font-size: 0.8rem;
 line-height: 1.4;
 }

 article p:not(:last-of-type) {
 min-height: 20vh;
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 article p:last-of-type {
 min-height: 50vh;
 }

 figure {
 display: flex;
 align-items: start;
 justify-content: center;
 height: 30rem;
 top: 5rem;
 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** — its **top at 5rem** (near the top of the viewfinder, adjust where you like). It will stay there until pushed up or down by its outer scrolling `<section>` element. Unlike the `figure`, the **article paragraphs** keep scrolling.

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

<p>...</p>

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

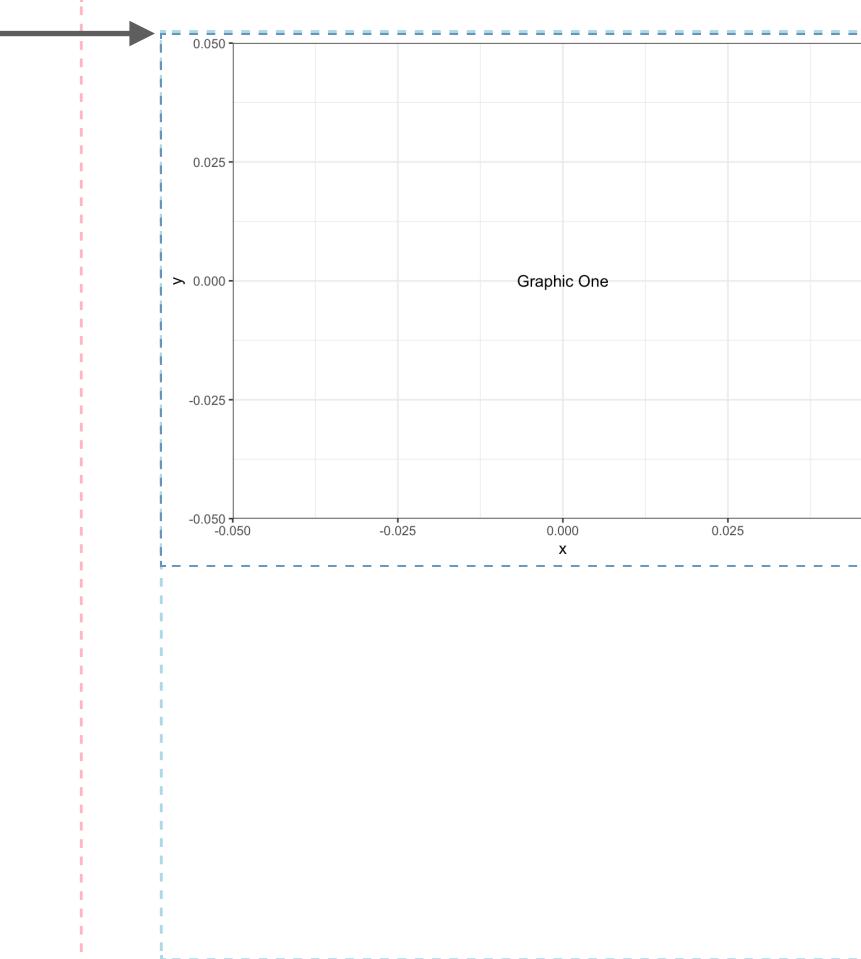
Sticky location of `<figure>`

Empty space inside `<section>` allows `<figure>` to stay put until its bottom contacts scrolling `<section>` bottom.

The `<article>` vertically fills entire `<section>`, so it always scrolls with `<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 nibh nec, maximus orci. Nulla facilisi.

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

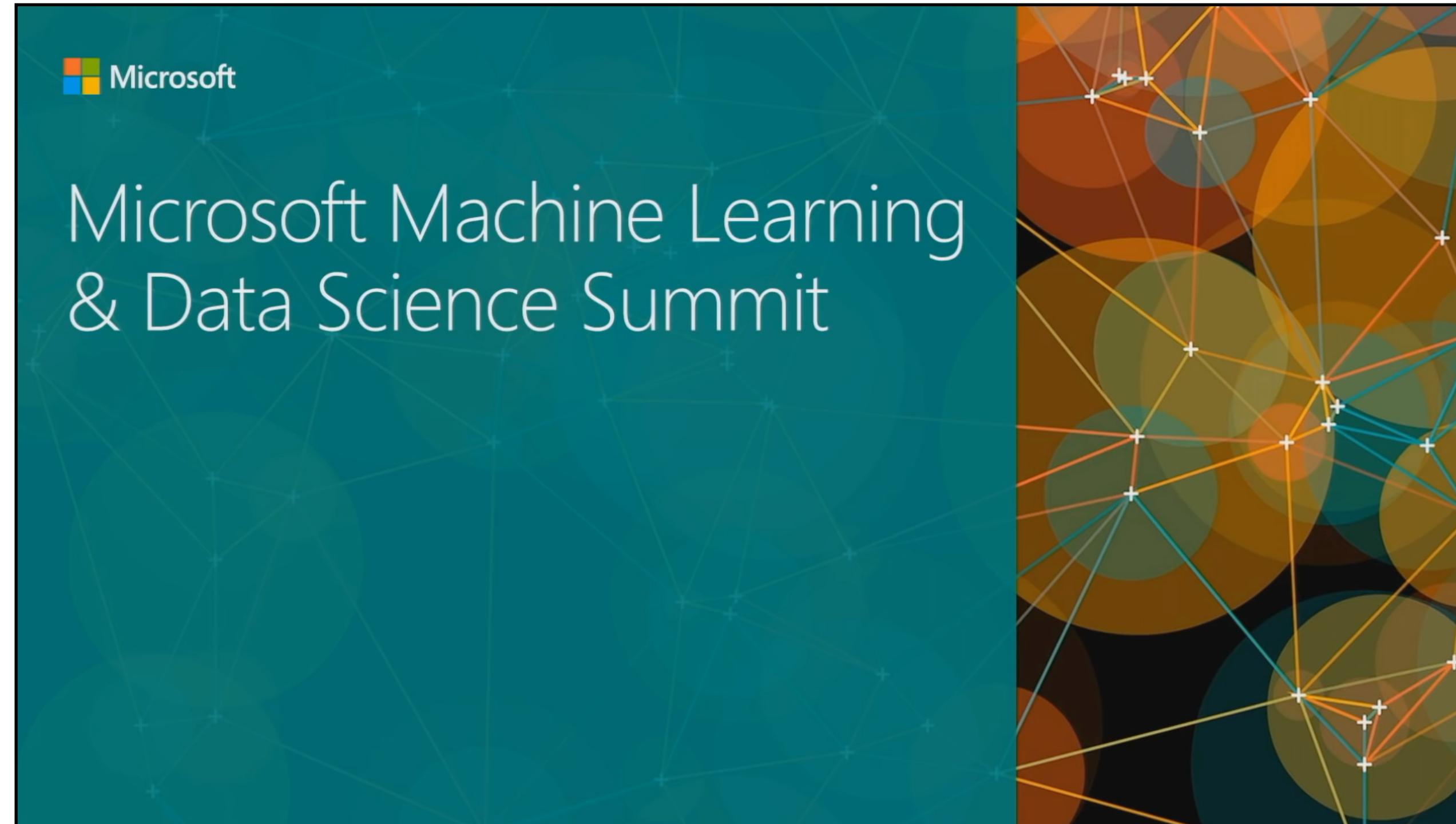
# verbal with the visual, limitations of presentations

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**

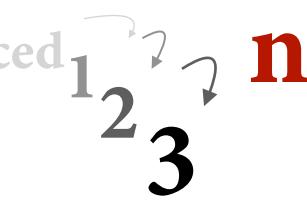
# verbal with the visual, limitations of presentations

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  
 **not**

spatial  
spatial      spatial  
                  spatial

# verbal with the visual, limitations of presentations

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

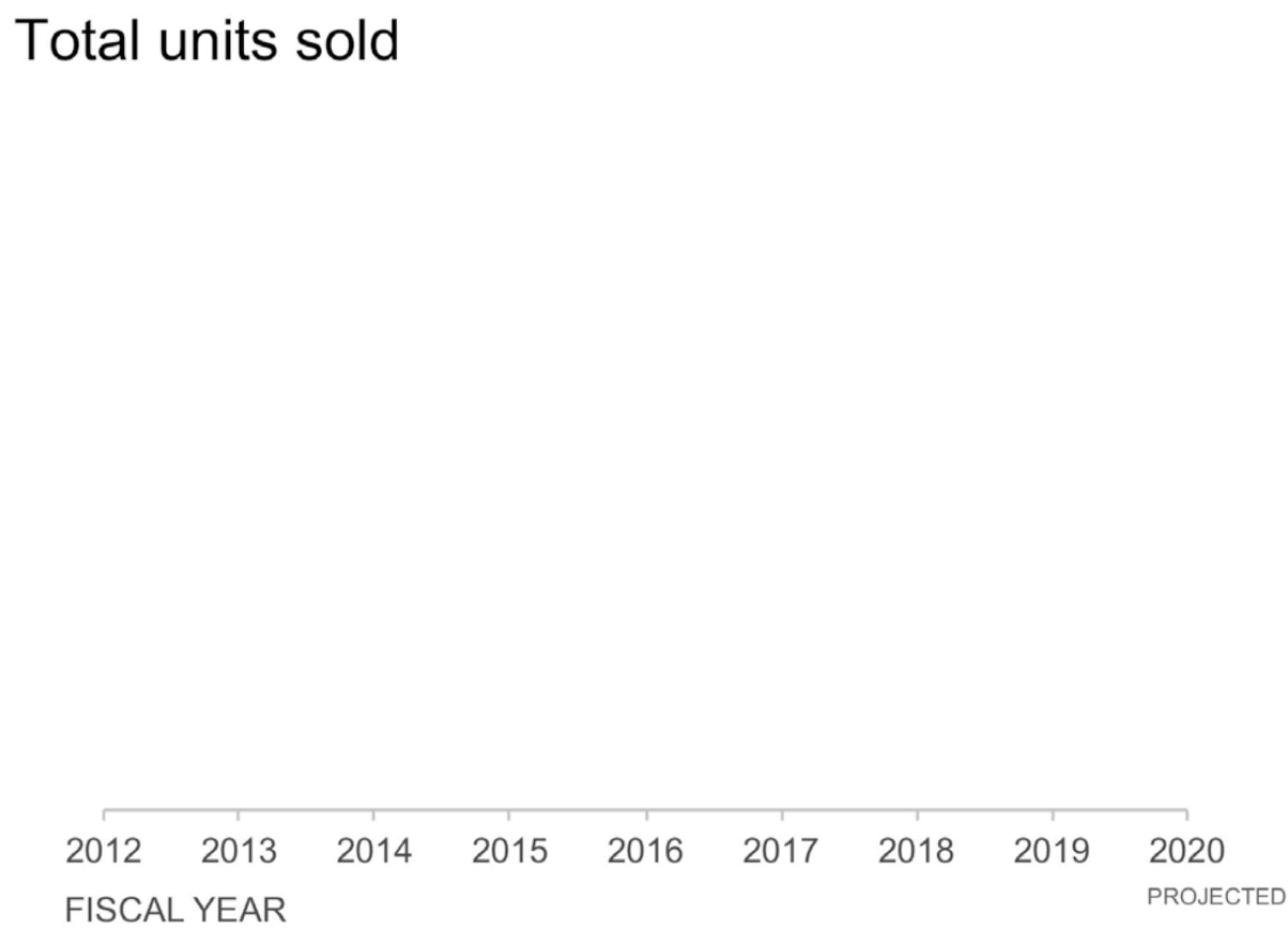
GRAPHIC DESIGN  
IS THE USE OF SPACE  
<sup>TO</sup> CONTROL TIME

— Barbara de Wilde

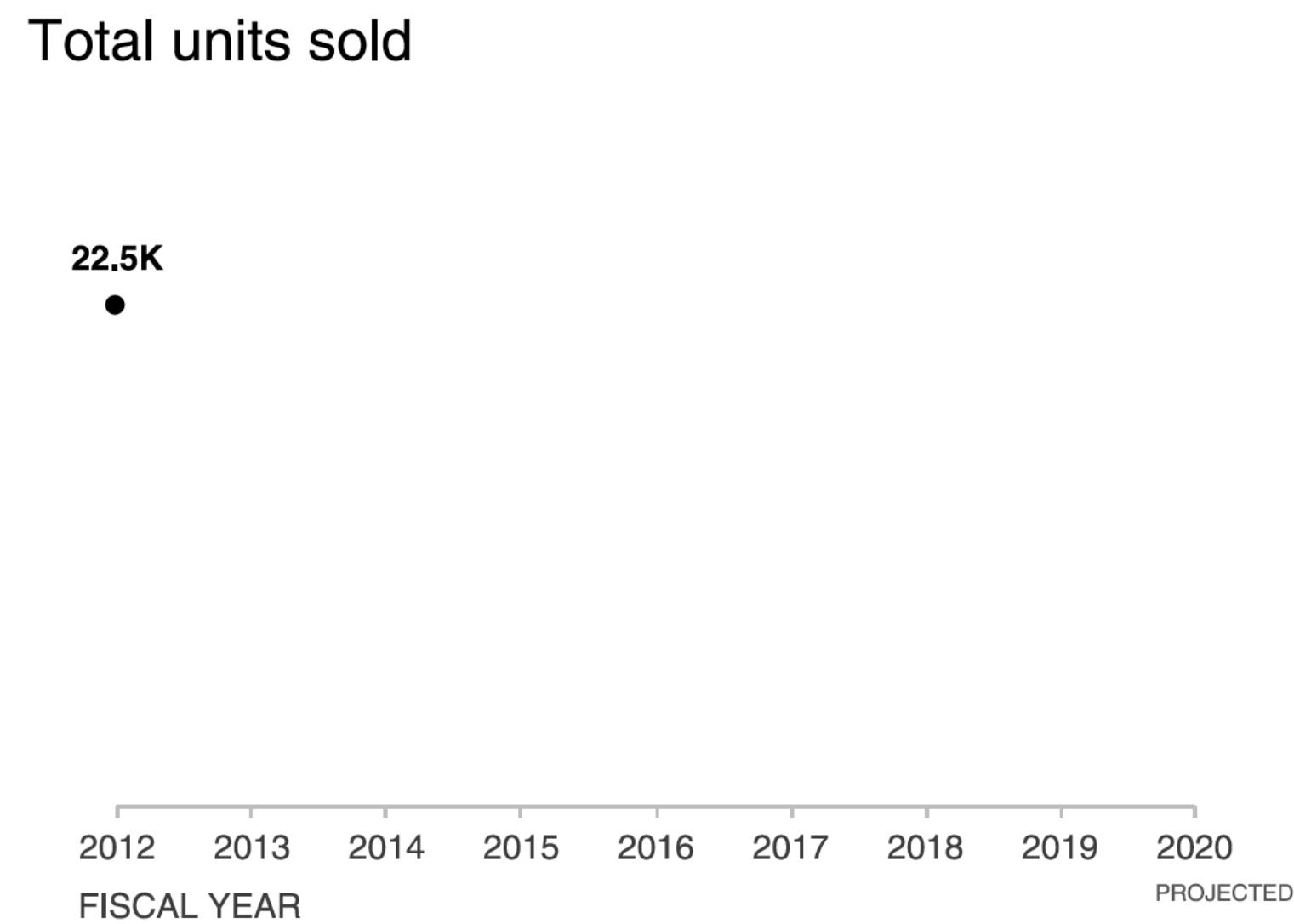
**data**  
**verbal with the  visual**

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

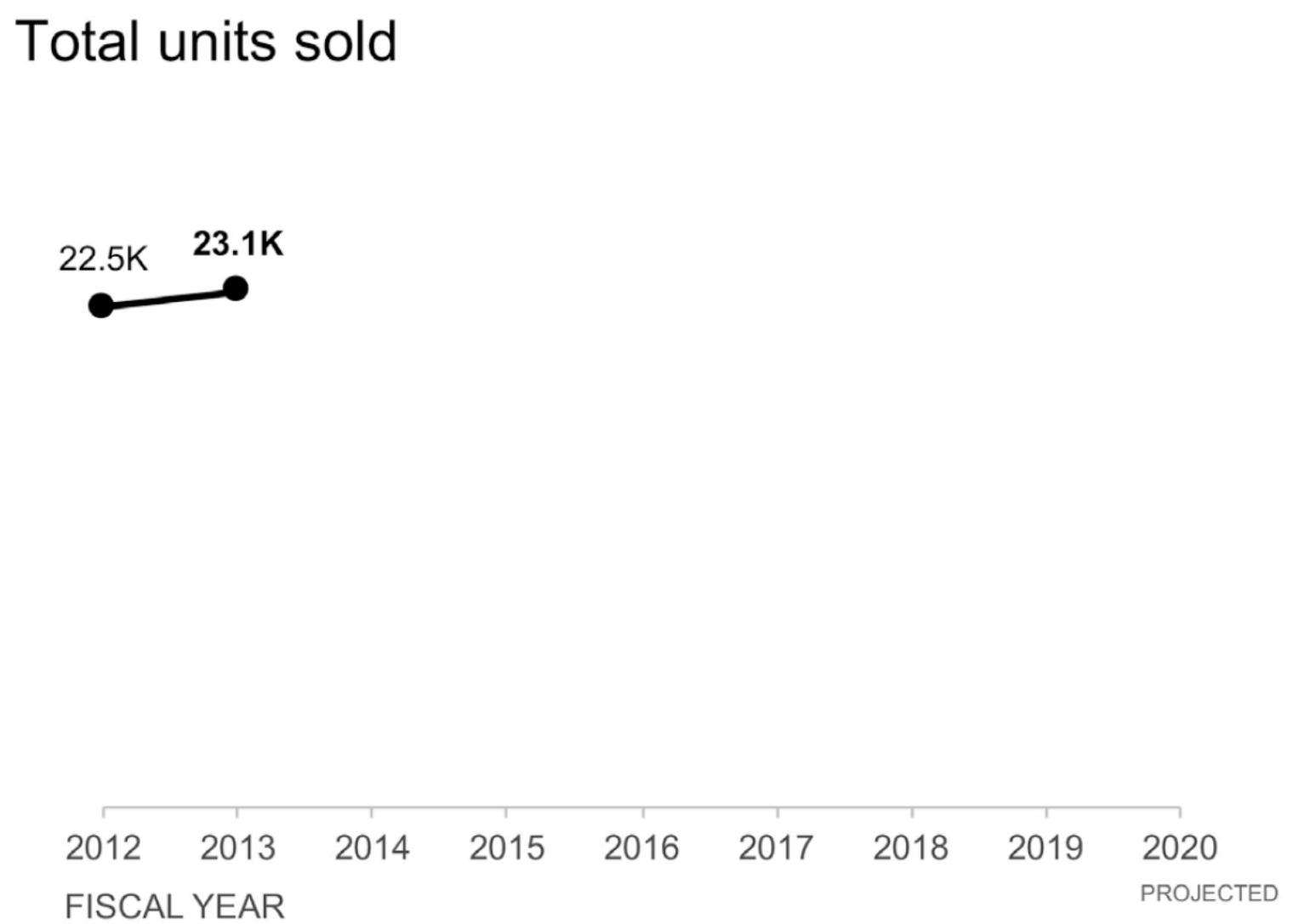
# verbal with the (data) visual, temporal layering of spatial comparisons



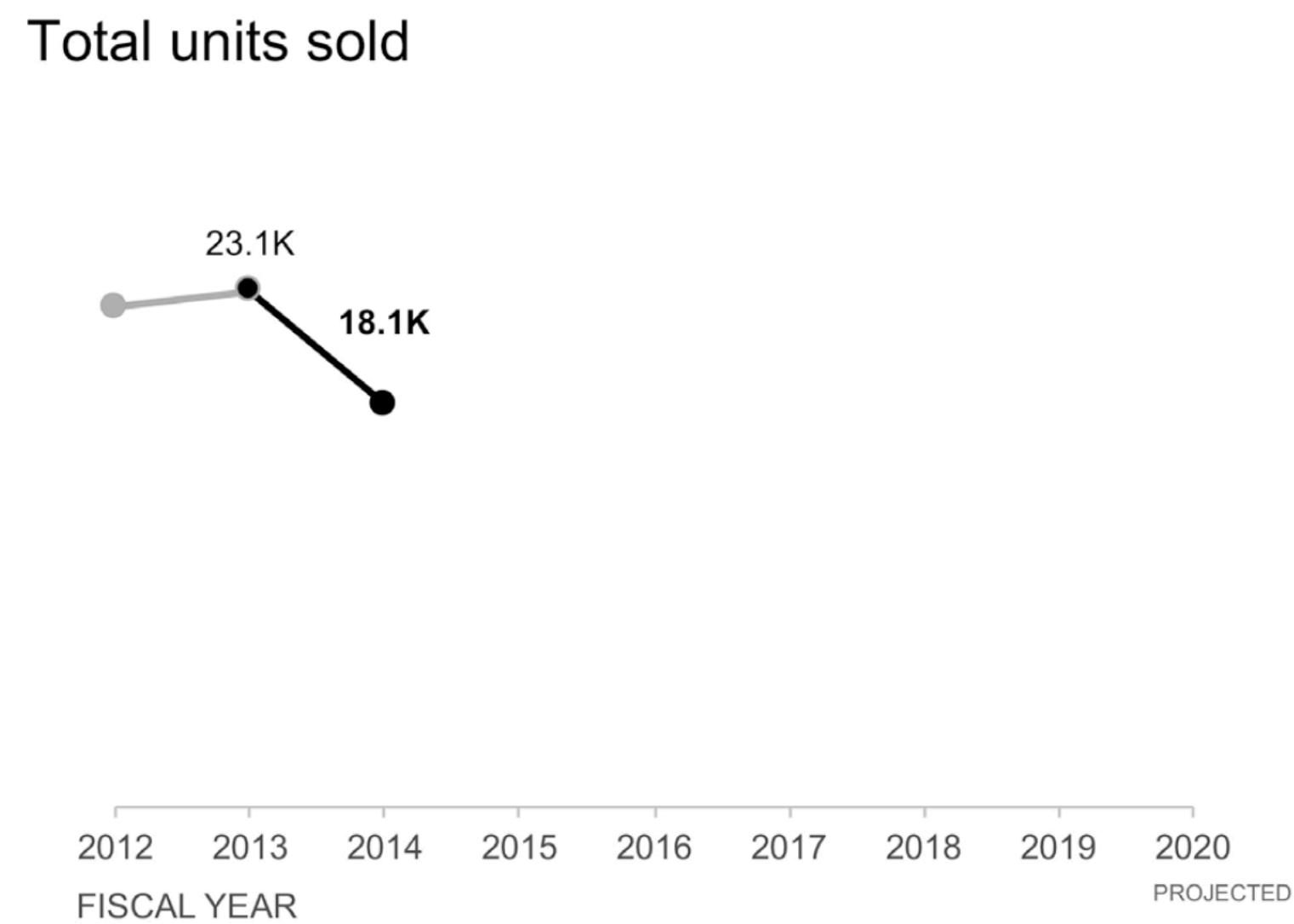
# verbal with the (data) visual, temporal layering of spatial comparisons



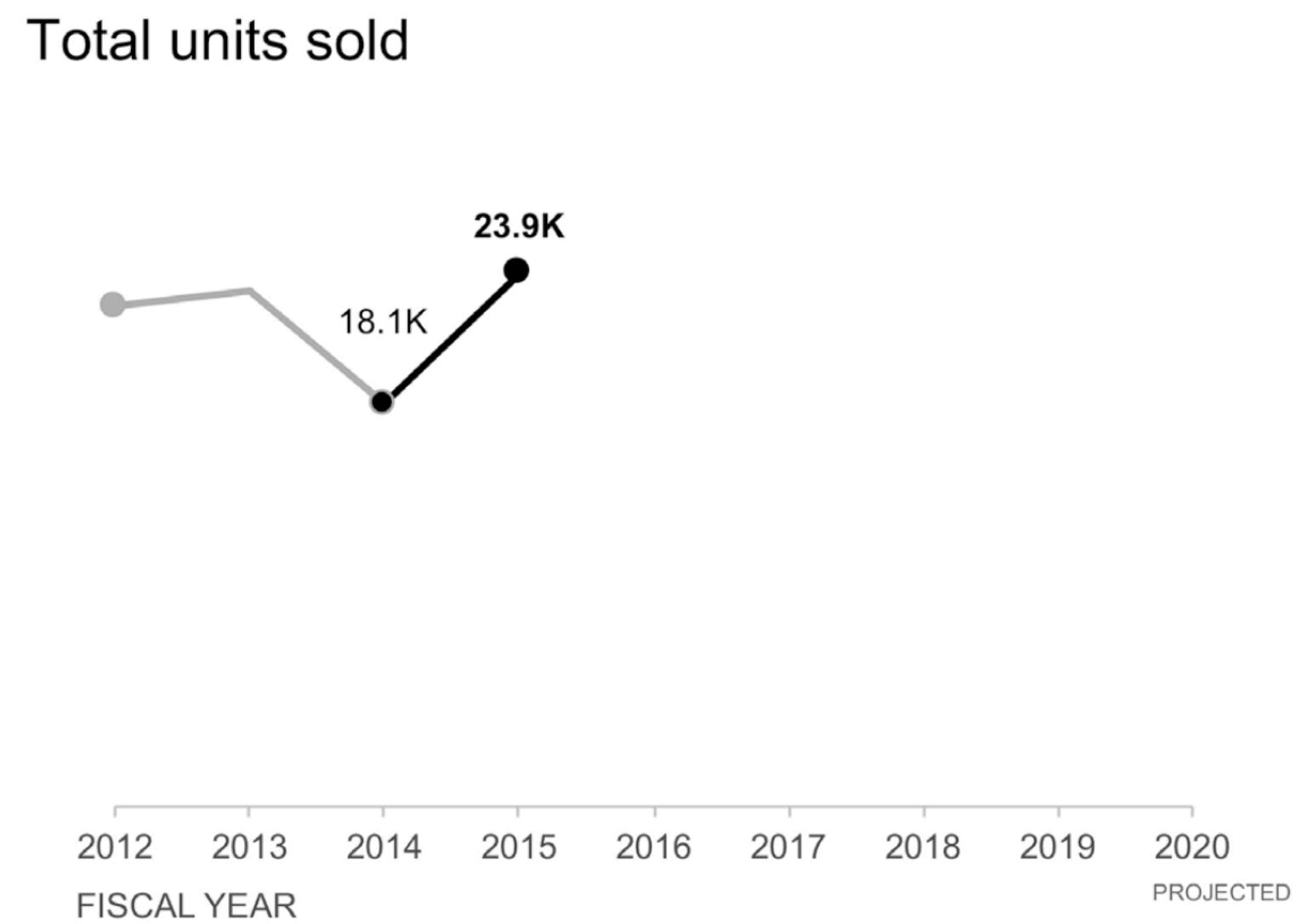
# verbal with the (data) visual, temporal layering of spatial comparisons



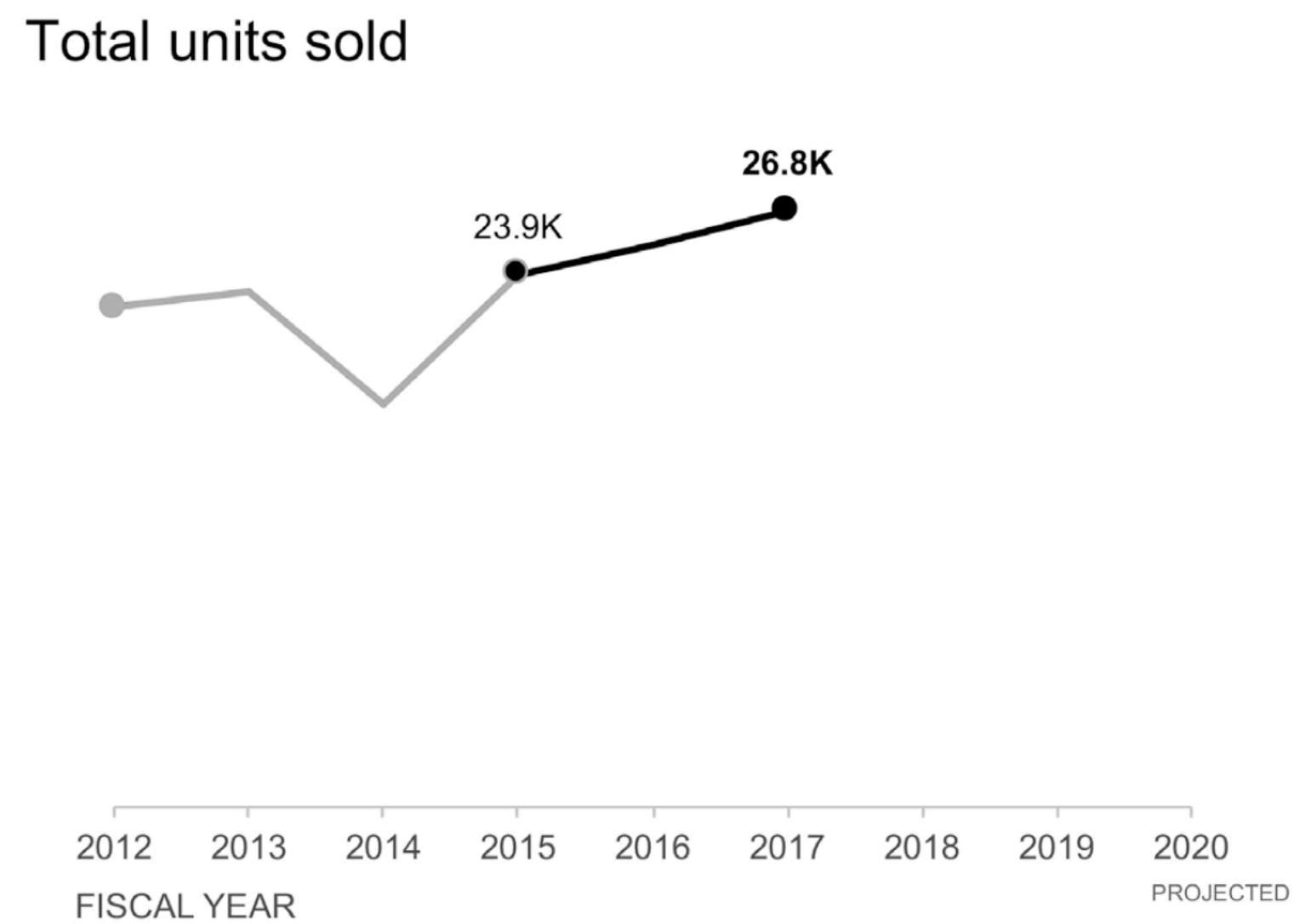
# verbal with the (data) visual, temporal layering of spatial comparisons



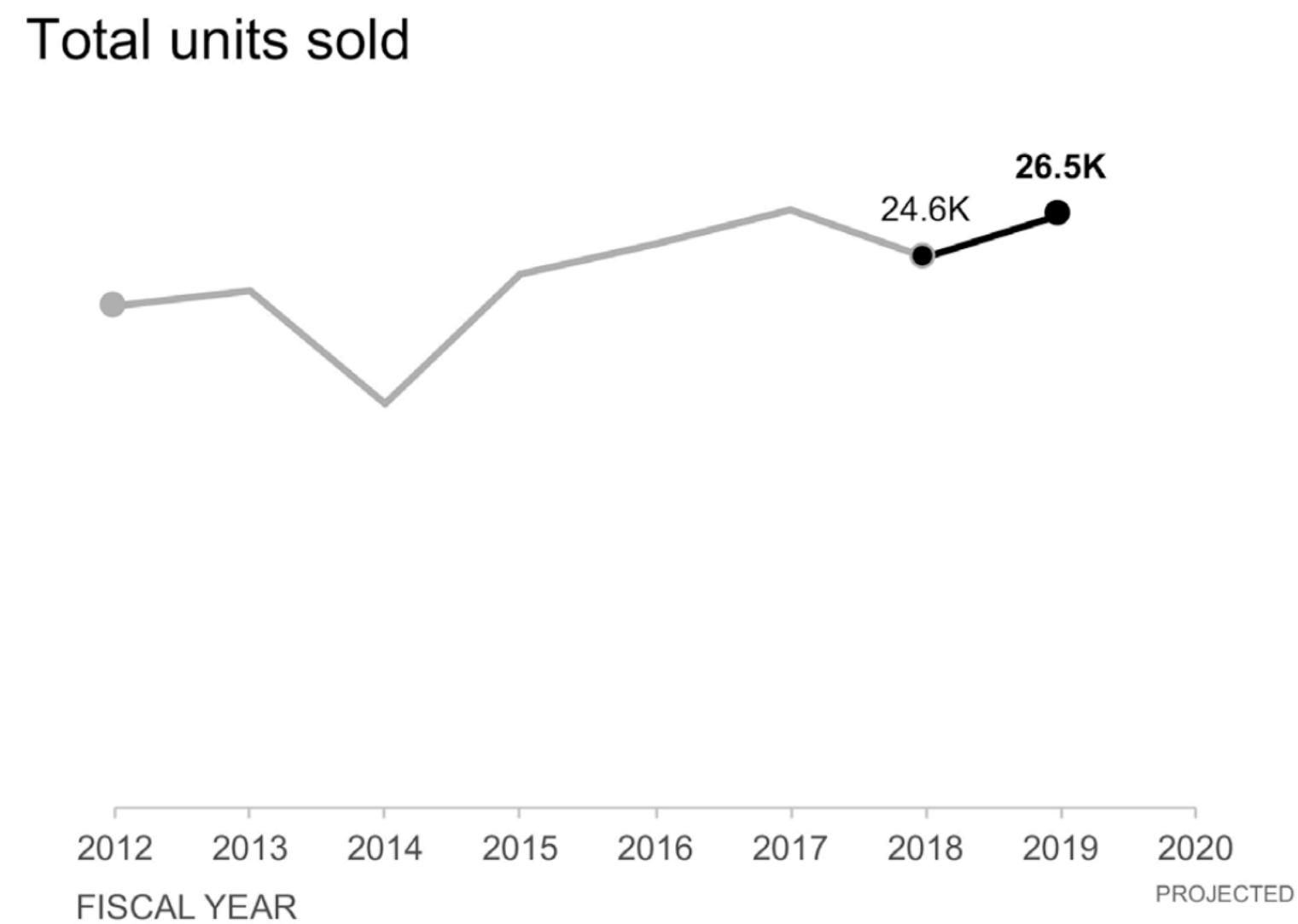
# verbal with the (data) visual, temporal layering of spatial comparisons



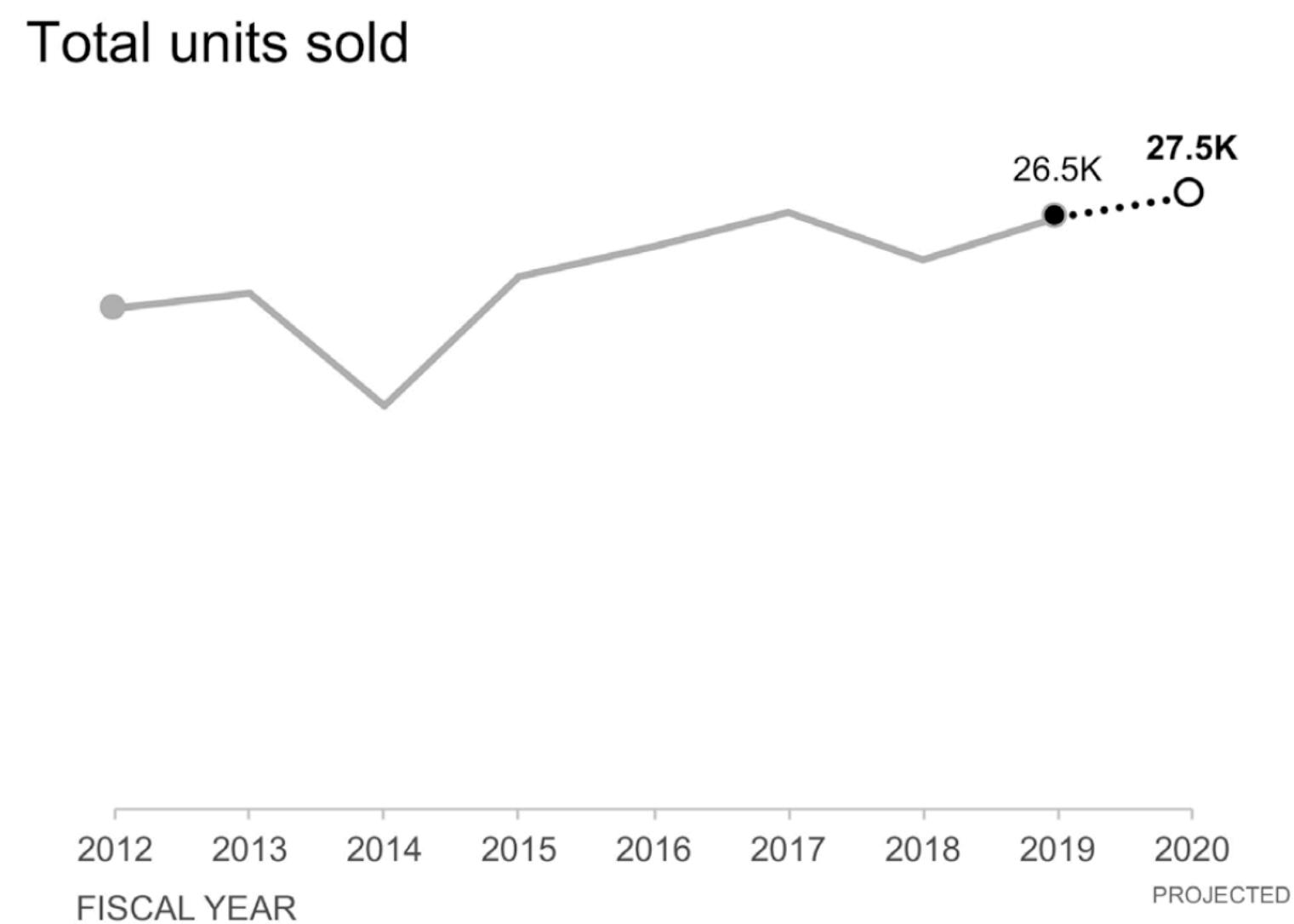
# verbal with the (data) visual, temporal layering of spatial comparisons



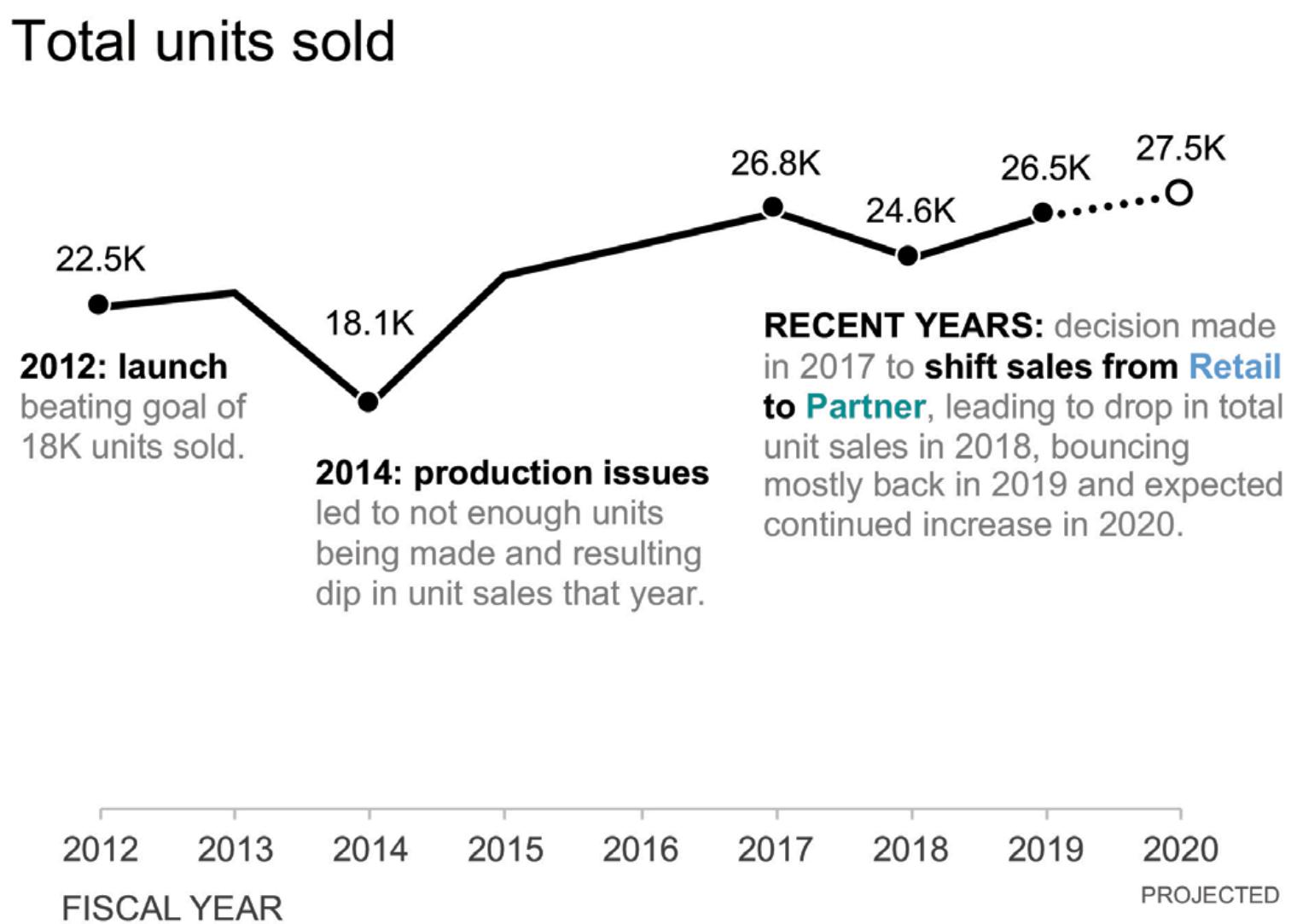
# verbal with the (data) visual, temporal layering of spatial comparisons



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



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



**group work**

**resources**

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