Telling compelling data-driven stories:

How to make numbers **meaningful**, **accessible** and **actionable**

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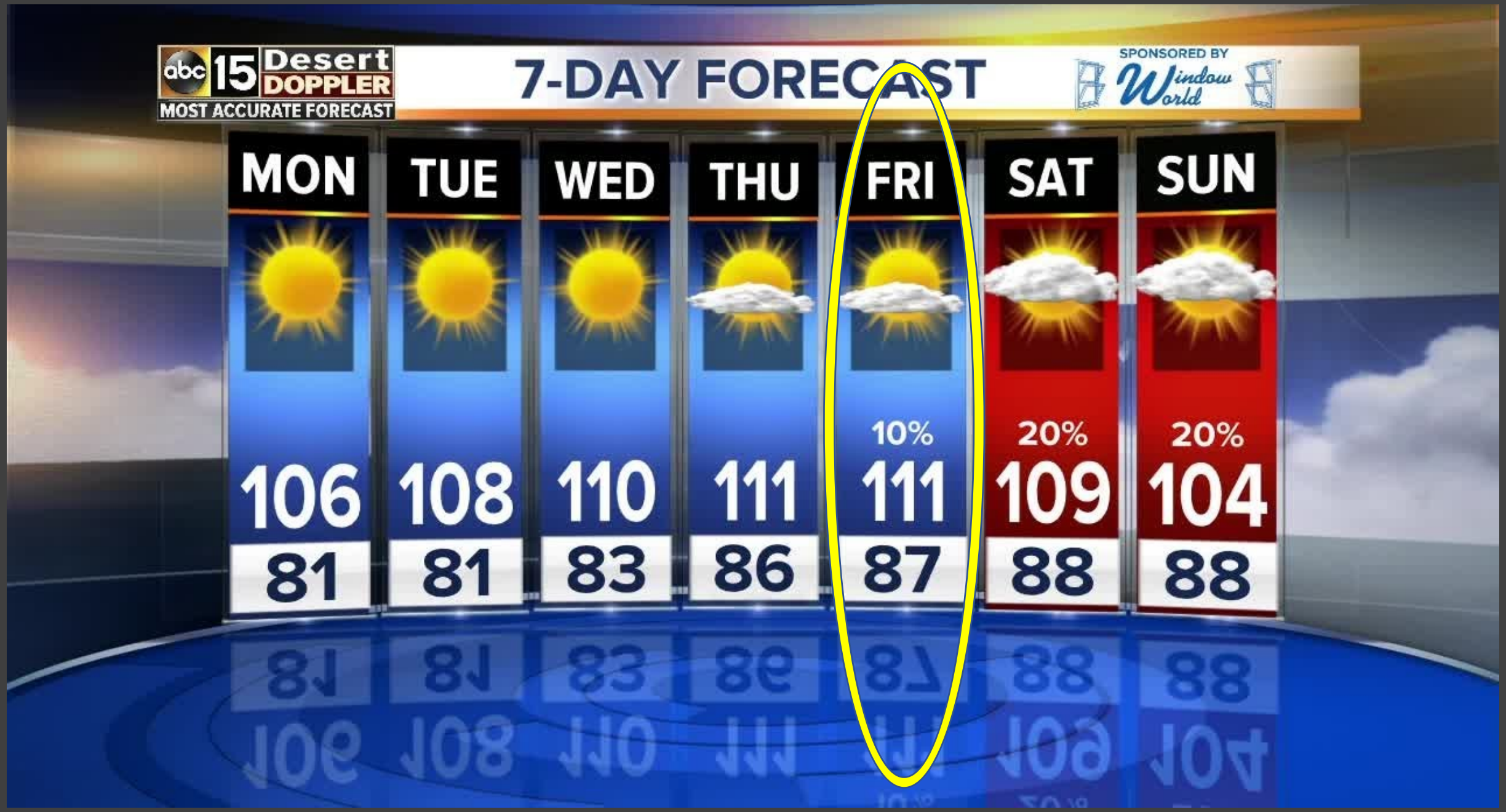
“One death is a tragedy; a million deaths is a statistic.”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Two critical insights

How we communicate (data and numerical information) has to be **driven by our audience**:

needs, lived experiences, values, affordances, concerns, objectives

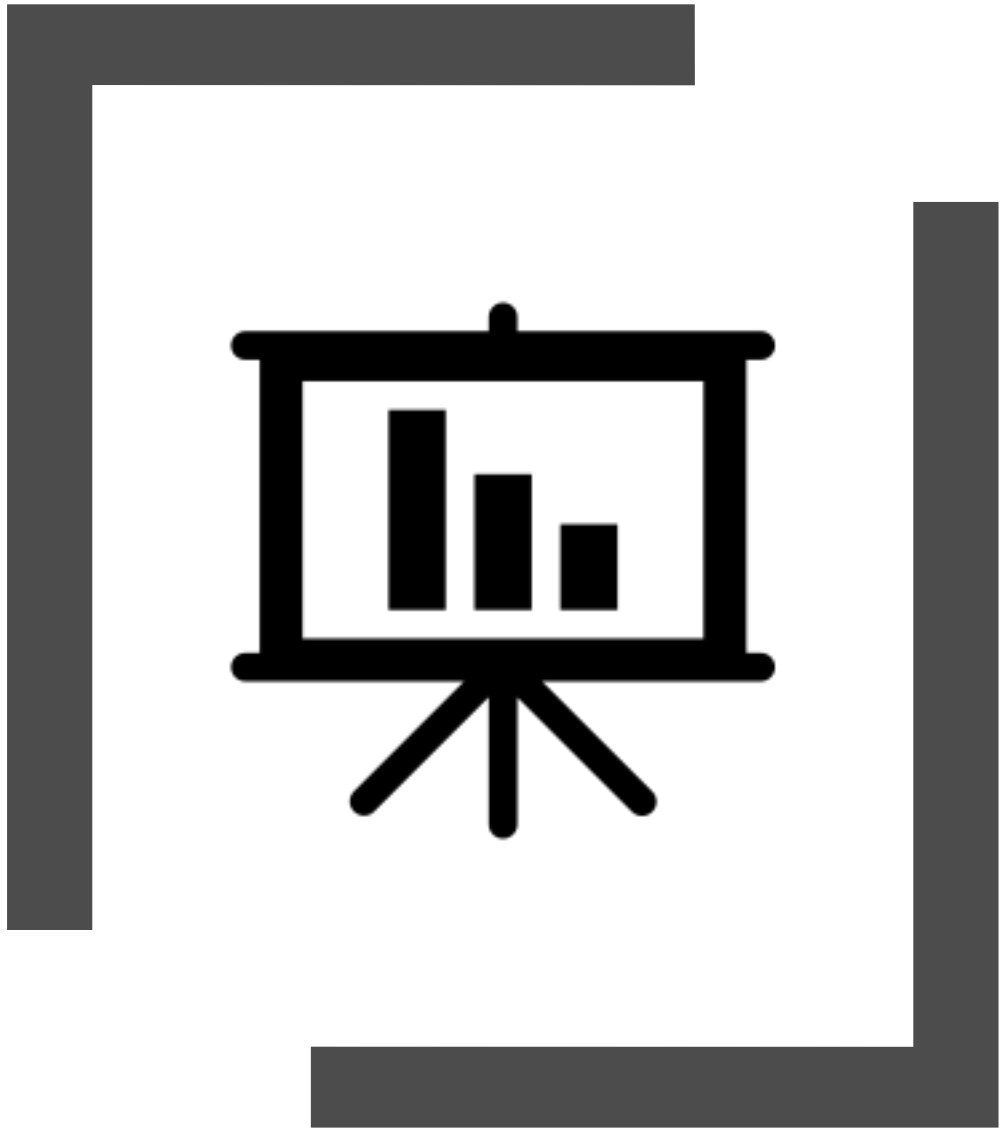
Numbers **never speak for themselves**: they gain meaning via experience, knowledge, values, goals and context

Some things are (mostly) out of our control

- Goals
- Needs
- Values
- Past experiences
- Preexisting knowledge
- Numeracy skills

But there are some things we can work with

- Numerical formats we use (e.g., frequencies, ratios)
- Density and complexity of information
- Whether and how we use visualizations
- **Providing meaningful context and comparison**



Giving numbers meaning and feeling through use of **strategic comparisons (aka “useful context”)**

The Earth’s temperature has warmed 1.6 degrees

Humans emitted 43.1 billion tons of CO_2 last year

That doesn’t seem so bad

Is that a lot or a little?


19 of the HOTTEST YEARS
have occurred since 2000.
Are we going to let this
past summer be the
COOLEST SUMMER of
the rest of our lives?
Scan this to make change
and take action:

- "The U.S. government spent $1.2 billion fighting invasive species in 2006”
  - *Is that a lot? It sounds like a lot, problem solved!?*

- “In the United States, 30% of all food, worth US$48.3 billion, is thrown away each year”
  - *That doesn’t sound good, but so what?*

- “The U.S. is on track to lose over 100,000 Americans to COVID every year at the current rate”
  - *That seems not great but is it really that bad in a country of 350,000,000? Is that really worse than other common diseases we’re used to?*

Five things you can do to give numbers more meaning

- **Provide comparisons to familiar things**
- **Break the number down by time or place**
- **Personalize and localize**
- **Consider using ironic or attention-grabbing comparisons**
- **Use comparisons to highlight solutions to problems**

Provide comparisons to familiar things

- Compare and contrast your numbers with something easily identifiable *for your audience*
  - Foods, football fields, cars, houses, etc.

e.g. Activia ("healthy" yogurt) has 19 grams of sugar per 4-ounce container. *That's as much sugar as a Twinkie or a Snickers bar.*

e.g. Enough alcohol is consumed by college students each year to fill 3500 Olympic-size swimming pools, about one one every college campus in the U.S. *More money was spent on alcohol per student than on books last year.*

Provide comparisons to familiar things

- Compare and contrast your numbers with something easily identifiable *for your audience*
  - Foods, football fields, cars, houses, etc.

e.g. Roughly 1.2 million people ride the MBTA every weekday…

Break the number down by time and/or place

- Find familiar and meaningful temporal and spatial scales to make tangible comparisons

e.g. The food and beverage industry spends $2 billon per year targeting kids. *That's more than $5 million every day, $200,000 every hour*.

e.g. 21.5 million people are displaced due to climate change every year. *That's more than the populations of NYC, LA, Houston, Washington D.C. and the entire state of Massachusetts combined.*

Break the number down by time and/or place

- Find familiar and meaningful temporal and spatial scales to make tangible comparisons

e.g. Massachusetts loses about 7000 acres of forest land per year…

Personalize and localize

- Making comparisons to locally relevant reference points can help highlight personal relevance and salience of an issue
  - When working with population numbers, try calculating state, county, town or legislative district's share of costs, exposure, risks, etc.

e.g. The federal budget recently passed by Congress and signed by the president allocated $750 billion to military spending. That's more than $2,000 spent by every single American—*$75,000,000 by the residents of Amherst alone. Our annual town budget is $88,000,000.*

Personalize and localize

- Making comparisons to locally relevant reference points can help highlight personal relevance and salience of an issue
  - When working with population numbers, try calculating state, county, town or legislative district's share of costs, exposure, risks, etc.

e.g. COVID has killed 21,000 residents of Massachusetts since 2020…

Consider using ironic or attention-grabbing comparisons

- To draw attention to an unmet need, suggest more appropriate use of resources, point out skewed priorities, or make a case for policy change

e.g. The tobacco industry spends $160,000,000 per *week* to promote smoking. *That's more money than the federal government spends on smoking prevention and cessation programs in an entire year.*

e.g. Taking one coal plant offline is like cutting 40% of Washington's vehicle emissions. *That amounts to all the cars and trucks in Seattle, Tacoma, and Spokane plus the 25 next largest cities in the state, combined.*

Consider using ironic or attention-grabbing comparisons

- To draw attention to an unmet need, suggest more appropriate use of resources, point out skewed priorities, or make a case for policy change

e.g. Baltimore spends nearly $40,000 per year to incarcerate one inmate…

Use numbers to highlight solutions to problems

- When relevant, using numbers to highlight possible solutions to problems can help focus decision-makers on positive things they can do

e.g. Half of Americans' carbon footprint comes from the food they eat. *Going vegetarian can reduce your total carbon emissions by as much as 25%.*

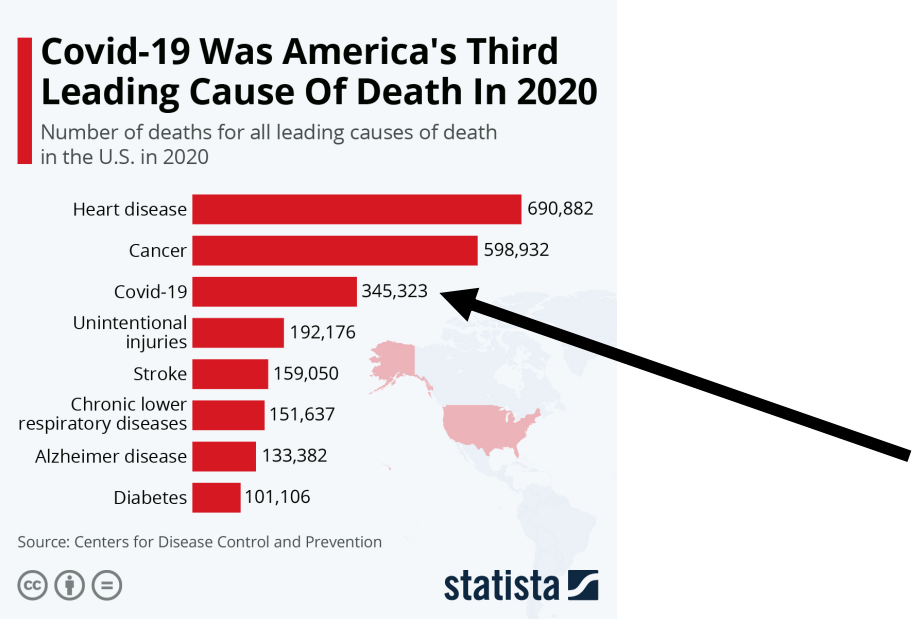
Use numbers to highlight solutions to problems

- When relevant, using numbers to highlight possible solutions to problems can help focus decision-makers on positive things they can do

e.g. Heart disease is the leading cause of death amongst American adults...

Putting the pieces together, more examples

- Over the past 2.5 years of the pandemic, COVID-19 has been the cause of death of over 1.05 million Americans.



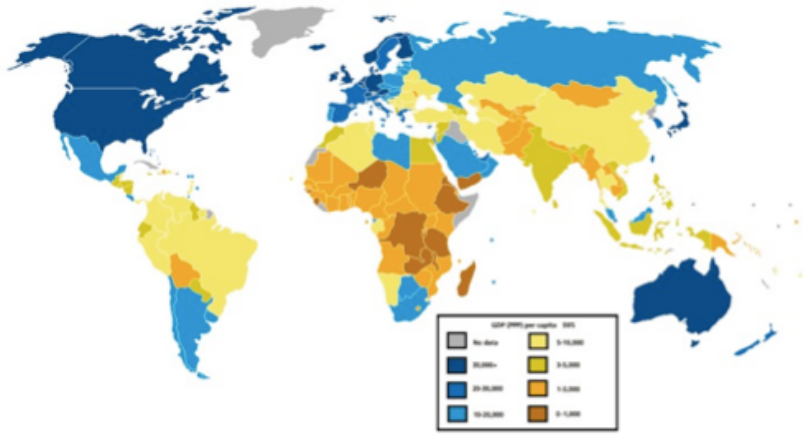
- Over the past 2.5 years of the pandemic, COVID-19 has been the cause of death of over 1.05 million Americans. That makes it more than six times as deadly as the flu and the third leading cause of death in the U.S. after heart disease and cancer.

‘Unframed’ statistic

In 2020, Americans experienced 22 billion-dollar weather and climate disasters. Together, those disasters cost our economy $102 billion.

Two possible reframes

In 2020, Americans experienced 22 billion-dollar weather and climate disasters. Together, those disasters cost our economy $102 billion. **This is more money than the GDP of 60% of the world's countries.**



In 2020, Americans experienced 22 billion-dollar weather and climate disasters. Together, those disasters cost our economy $102 billion. **That is more than twice what our government spent on financing clean energy projects in the same year.**

Questions to keep in mind

- How will you describe or quantify the problem?
- What comparisons to other issues, populations, geographic areas, changes over time, or policy solutions might help you?
- What does each number or comparison show about the way the world works now or about what should be different?
- Will you need fiscal estimates to clarify the cost of the problem or policy solution?
- How critical is it that you use *any* numbers or statistics to communicate your key takeaway? Can you avoid using numbers altogether and still give the audience the information it needs?

Translate the following (together)

Access to quality health insurance is a critical need, yet roughly **30 million Americans had no health insurance** at the beginning of 2022.

Five things you can do to give numbers meaning (recap)

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Questions?

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