High Stakes Visualizations

2 min

Okay, we've walked through recognizing data quality and bias in healthcare and using statistics to answer big legal questions. Where else does data literacy come into play?

Data visualization is one of the most visible and obvious places we interact with data. It helps us to explore and understand data-driven arguments and is a powerful tool for communication.

While most data viz we see is of the "everyday" variety, in this case study we'll look at a highly consequential visualization: one of the charts that NASA-contracted engineers used to make the argument that the Challenger space shuttle should not take off on January 28, 1986.

The Challenger space shuttle carried seven US astronauts who were supposed to deploy a satellite and study Halley's Comet while they were in orbit. Less than two minutes after takeoff, however, the shuttle exploded, killing all seven crew members.

The explosion was caused by a failure of two O-rings: small rubber rings that helped create an airtight seal between the space shuttle and its launch fuel supply. Before the launch, engineers were concerned about how the low-temperature forecast would affect the O-rings' ability to make a proper seal.

The engineers made their arguments in favor of postponing the launch using, in part, a series of data visualizations that showed launch success rates at various temperatures. Tragically, their arguments did not prevent the launch from proceeding.