FORECASTING DEMAND

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How To Forecast Demand: Overview

- Mitigating "devastating risk"
  - Overcoming projection bias
  - ACCORD model
  - Qualitative research (testing the process)

- Key principles and examples
  - Demand decomposition
  - Forecasting rules and methods
  - What if Eisenhower is "wrong"?

Forecasting Wisdom

"Things are more like they are now than they ever were before."
— *Dwight Eisenhower*

Projection Bias

Projection Bias

The ACCORD Model

- Relative **A**dvantage of the product or service over the status quo
- Built in **C**ompatibility with what customers already do (behavioral change required)?
- Reduced **C**omplexity of communicating benefits (easy to understand)?
- High **O**bservability of benefits (can customers observe others)?
- Low **R**isk of failure (functional, social, financial risk)
- Ease of **D**ivisibility for trial (small units)
  - EVC / WTP is the **monetary value** placed on benefits www.dollarshaveclub.com

Qualitative Research

Demand Decomposition

- "Golden Rule" is to **be conservative**
- Decomposition is conservative because errors cancel and it improves your accuracy **when uncertainty is high**
  - **Additive decomposition**
  - **Multiplicative decomposition**
- Example: Demand for car sharing in Philadelphia
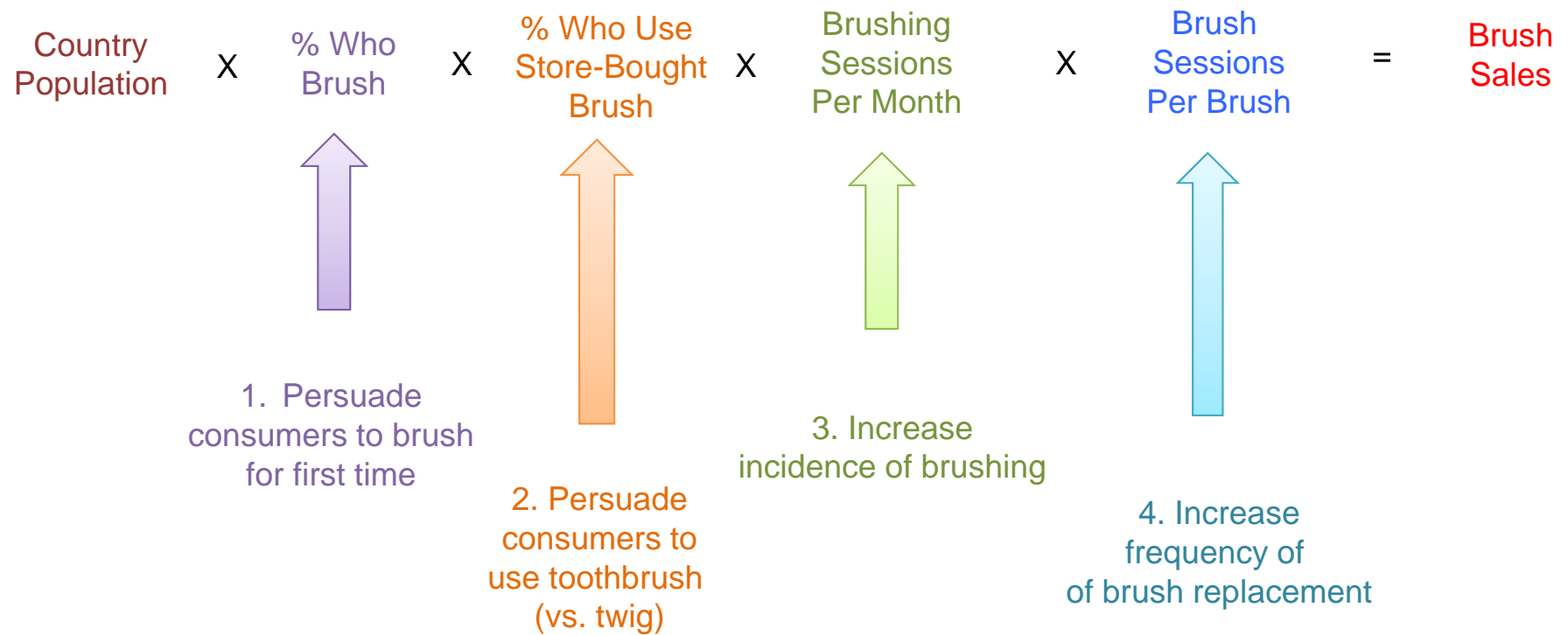- Example: Toothbrushes in India

Car Sharing

a) __ Philadelphia residents (population)

b) __ % of (a) who need transport each day

c) __ % of (b) who have a driver's license

d) __ % of (c) who do not have their own car

e) __ % of (d) who would choose the Philadelphia car share?

   – Note also that answering these questions might also give **implications** into what actions to take (see tooth brushing from India)

Toothbrushes in India

- International brand is trying to sell toothbrushes in India
- 78% of the population is rural, 22% urban
  - Greater than 50% of rural don't use toothbrushes
  - Among brushers, most **did not** follow prescribed usage patterns
    - 7% brush once a week
    - 9% brush twice
    - 22% three times
    - 39% once a day
    - 23% twice a day

Entrepreneurship

Toothbrushes in India

Country Population **X** % Who Brush **X** % Who Use Store-Bought Brush **X** Brushing Sessions Per Month **X** Brush Sessions Per Brush **=** Brush Sales

1. Persuade consumers to brush for first time

2. Persuade consumers to use toothbrush (vs. twig)

3. Increase incidence of brushing

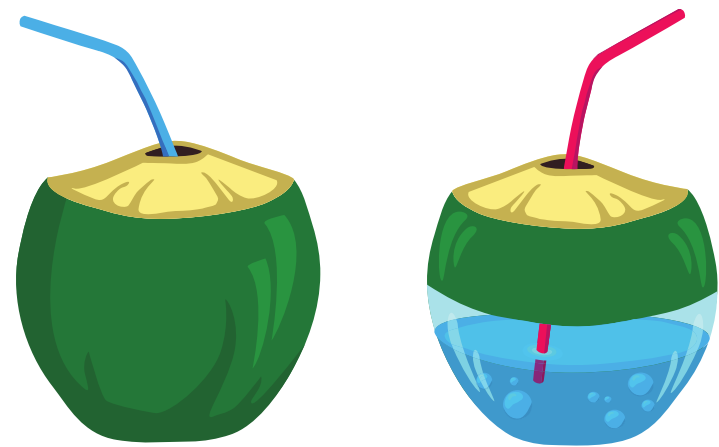4. Increase frequency of of brush replacement

Demand Forecasting Rules and Methods

- Setting up
  - Find and consult as many as domain experts as possible
  - Decompose the customer behaviors that lead to demand and identify the levers
- Judgmental Methods
  - Ask experts to write **reasons** for and against their forecasts
  - Use **structured analogies** (remember Eisenhower!)
  - **Combine** independent forecasts
- Causal Methods
  - **Regression based** are the most common

Demand Forecasting Under Uncertainty

- Total Market Demand
  - Attempt to identify all potential end users **and** uses (primary demand focus)
- Identify Components
  - Focus on **constituent parts** and segments
- Forecast Drivers
  - Develop a **point of view** on end use
- Conduct Sensitivity
  - Identify discontinuities that could cause **dramatic** change

Last Word

COCONUT WATER