

1. Diagnosing Metric Declines: A Systematic Approach

This presentation outlines a structured method for investigating and addressing unexpected drops in key metrics.



2. Metrics Decline Overview

1 Diagnostic Analysis

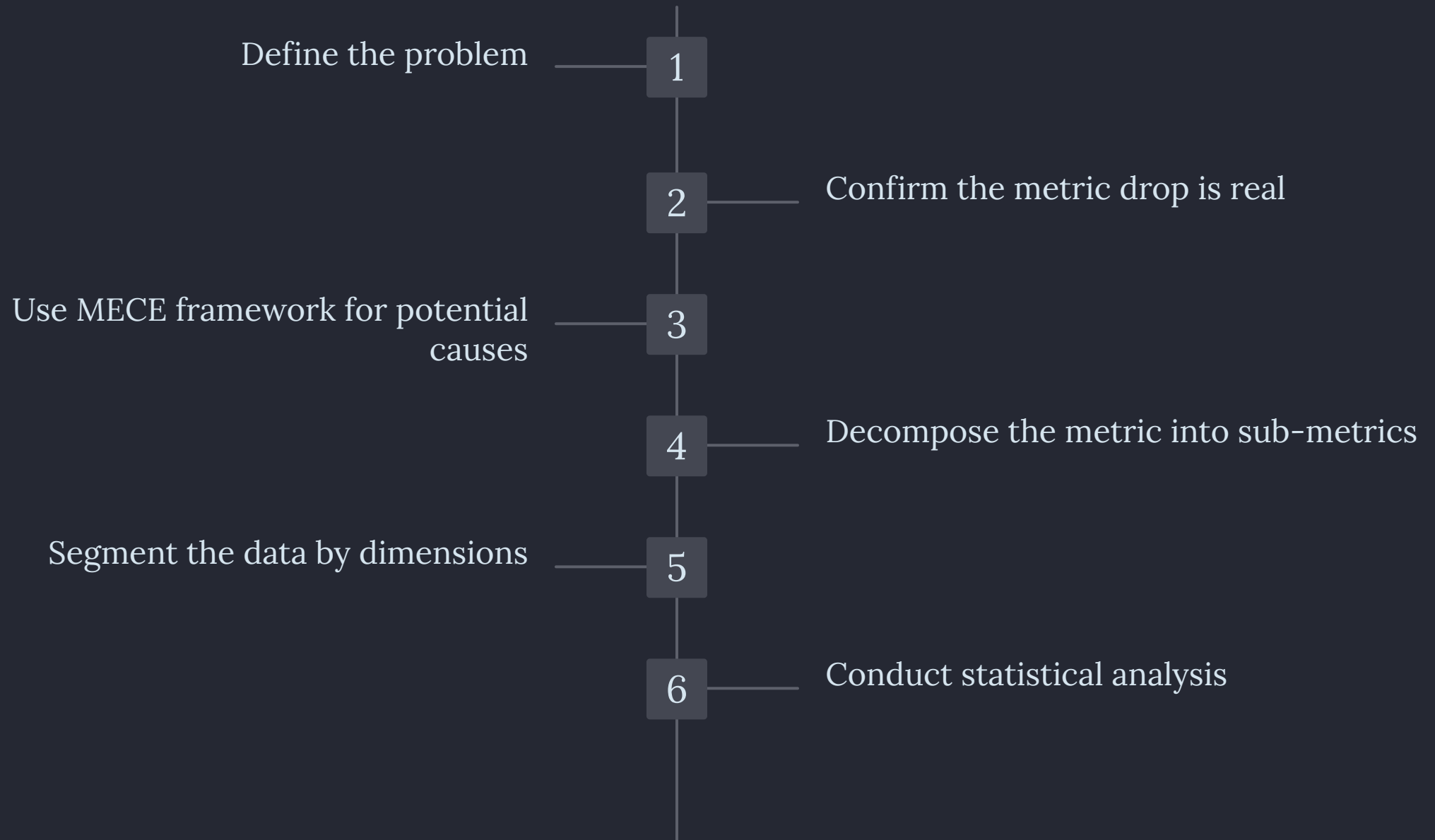
When key metrics like conversion rates show sudden changes, it's crucial to investigate thoroughly.

2 How to analyze

A methodical approach helps separate real issues from data anomalies. By following systematic steps to form and test hypotheses, we can identify true drivers of change and develop effective solutions based on evidence rather than assumptions.



3. Structured Approach to Analyzing Metric Declines



4. Step 1 – Clearly Define the Problem



Identify the Metric

Determine which key metric has dropped.
Quantify the change.

Example: "Facebook Friend Requests Sent per Day dropped by 10% overnight."



Document the Context

Note the time frame, affected user segments,
and recent changes.

5. Step 2 – Confirm That the Drop Is Real

1

Check Historical Data & Seasonality

Compare with previous periods and known seasonal patterns.

2

Verify Data Integrity

Ensure tracking systems and analytics pipelines are working. Look for recent changes.

3

Key Questions

Has this drop happened before? Is this within normal variance?



6. Step 3 – Use the MECE Framework to Identify Causes

The MECE (Mutually Exclusive, Collectively Exhaustive) framework ensures a comprehensive analysis by breaking down problems into categories that:

- Don't overlap with each other (Mutually Exclusive)
- Cover all possibilities (Collectively Exhaustive)



Goal: Cover all bases without overlap

7. Step 4 – Identify Other Metrics That Affect the Main Metric

Metric Decomposition

Break down the main metric into its components. Example: $DAU = \text{New Users} + \text{Returning Users}$, or $\text{Revenue} = \text{Number of Orders} \times \text{Average Order Value}$

1

Investigate Influencing Metrics

For conversion rate drop: check add-to-cart rate, checkout completion, payment success

2

Example Analysis

E-commerce Conversion Rate: Add-to-Cart Rate dropped from 20% to 12%

3

8. Step 5 – Segment the Data Using Dimensions and Measures

To pinpoint the source of metric changes, segment your data across key dimensions and measures.

Dimensions (Qualitative)

- User attributes (age, gender, device type)
- Geography (country, region, urban/rural)
- Traffic source (organic, paid, referral)
- Time periods (day of week, time of day)

Measures (Quantitative)

- Engagement metrics (time spent, actions taken)
- Conversion metrics (completion rates, abandonment)
- Financial metrics (revenue, cost per action)
- Performance metrics (load time, error rates)

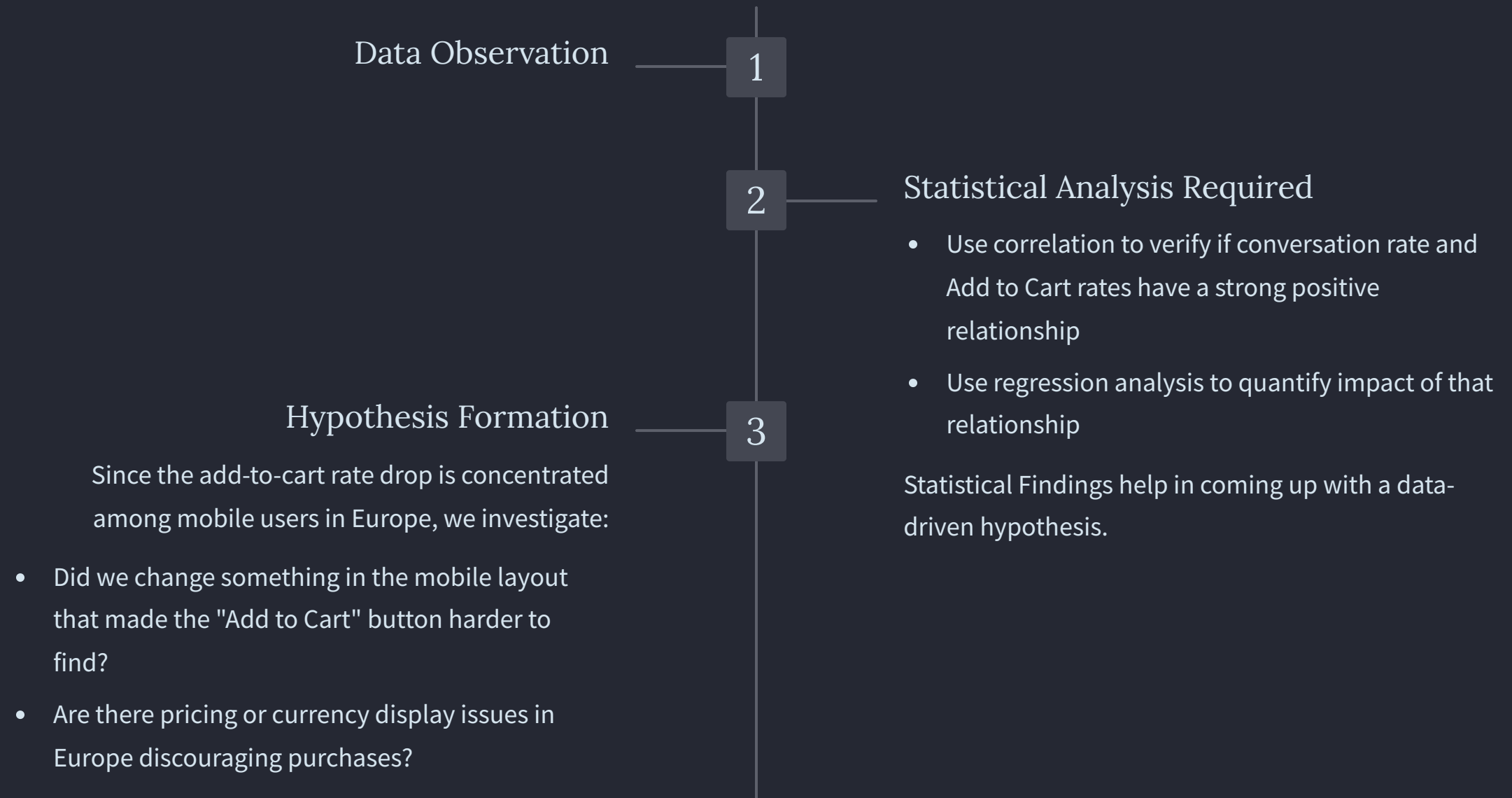
Look for patterns within and across segments to identify specific groups or conditions driving the decline.

Consider combinations of factors – for example, a drop might only affect mobile users during peak hours with high load times.

Dimension	Main Metric (Conversion Rate)	Influencing Metric (Add-to-Cart Rate)
Device Type	 Mobile: -18%	 Mobile: -12%
Traffic Source	 Paid Ads: -22%	 Paid Ads: -10%
Geography	 Europe: -15%	 Europe: -8%

9. Step 6 - Statistical Analysis and Hypothesis Formulation

Our dimensions and measure analysis could show mobile users in Europe have lower add-to-cart rates, which may be causing our overall conversion decline. Let's examine this statistically.





10. Final Steps: Validate and Act

Step 7: Validate Hypotheses

Use A/B testing, before/after analysis, and user feedback.

Step 8: Prioritize & Act

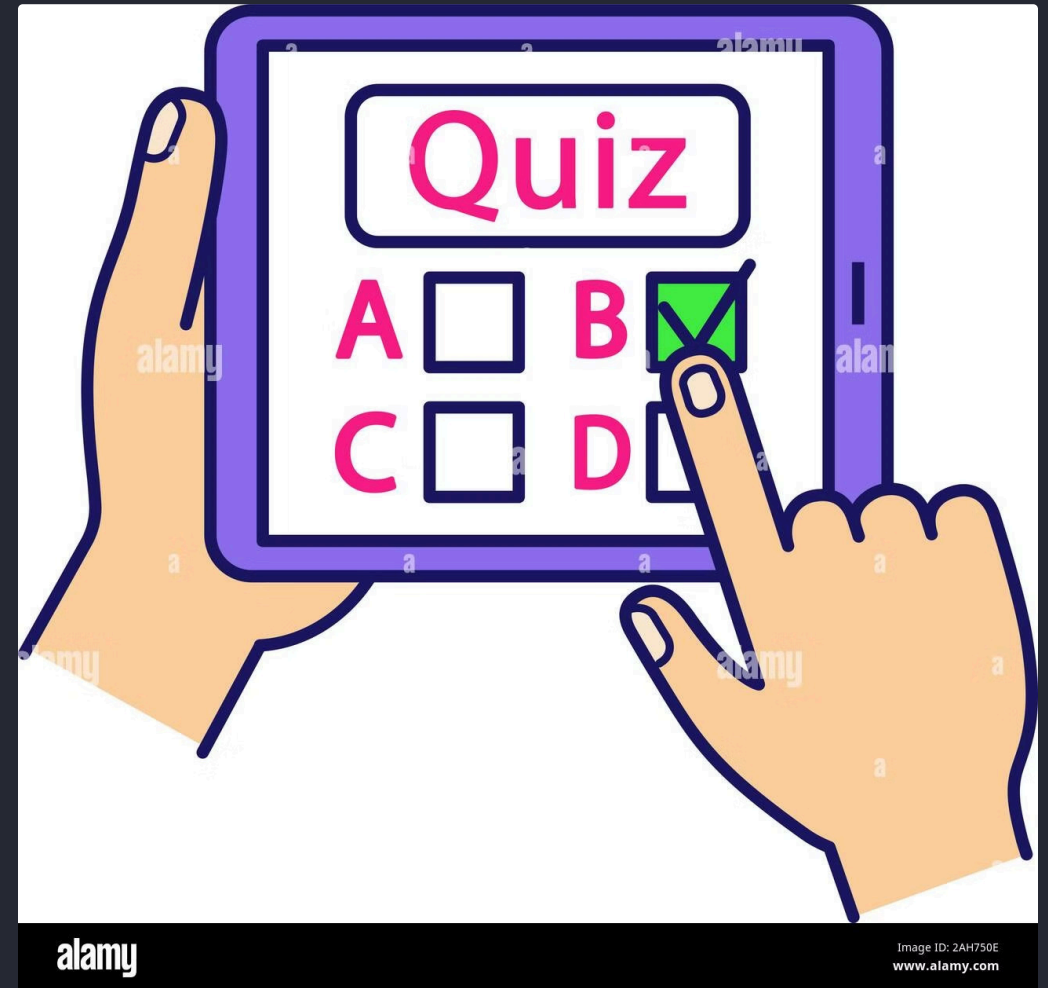
Focus on high-impact, easy-to-fix issues. Implement changes and monitor metrics.

Summary & Knowledge Check

Key Takeaways

- Start with the Basics
 - Define the problem and verify the metric decline first
- Use Structured Investigation
- Statistical analysis and hypothesis formation

Quiz



Remember: A systematic approach to diagnosing metric declines leads to more accurate solutions and better business outcomes.