

1. Introduction to Product Analytics

Product analytics is the science / art of using data to understand and improve the user experience of a product. By analyzing user behavior patterns, companies can uncover valuable insights that drive better decision-making and enhance customer satisfaction.

Real-World Examples

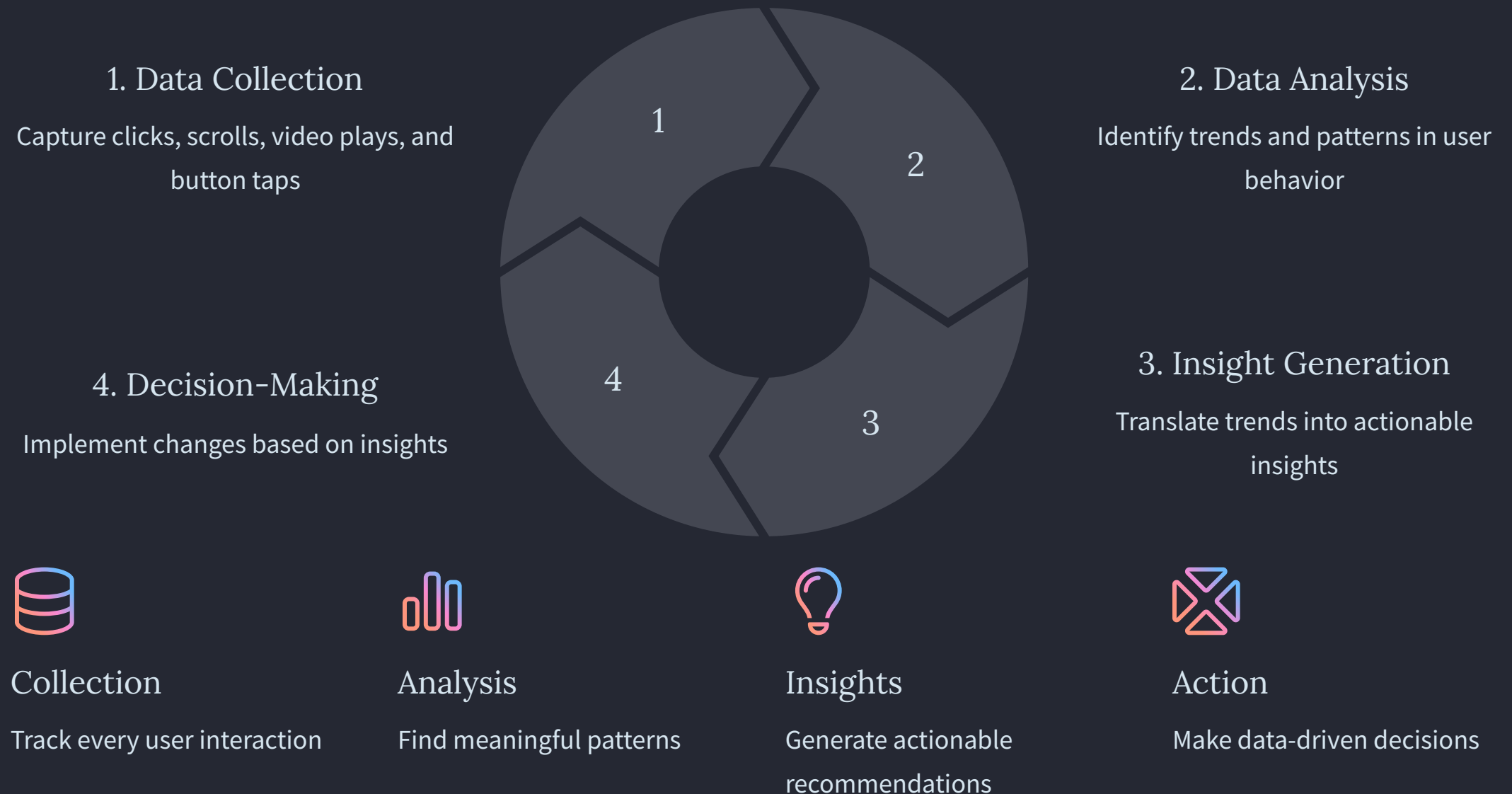
- **Netflix:** Tracks viewing patterns, completion rates, and personalized recommendations
- **Spotify:** Monitors song skips, listening times, and playlist engagement
- **Food delivery apps:** Analyze menu browsing, order patterns, and user preferences

Key Objectives for Data Collection

- Understand user behavior and patterns
- Enhance engagement and retention
- Drive meaningful business outcomes



2. Key Components of Product Analytics



3. Why Product Analytics Matters

1. Predicts Future Performance

Spots trends before they impact revenue (e.g., declining user engagement, rising churn signals)

4. Provides Competitive Advantage

Accelerates innovation by replacing assumptions with actionable insights



2. Drives Product Improvements

Reveals exactly which features drive success and which need optimization based on real user behavior

3. Aligns Teams

Creates a single source of truth that empowers all teams to make data-backed decisions

Product Analytics transforms gut-feel decisions into strategic moves—just as a car's dashboard helps you navigate with confidence rather than driving blindfolded.

4. Use Cases of Product Analytics

1. Customer Retention

Identify why users stay or leave (e.g., personalized recommendations on Netflix)

2. Feature Usage Analysis

Determine which features are popular or ignored (e.g., Instagram filters)

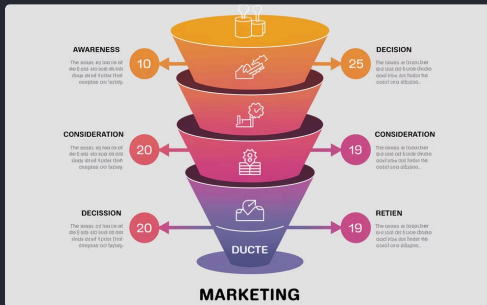
3. Identifying "Aha" Moments

Pinpoint moments of product value realization (e.g., Spotify personalized playlists)

4. Driving Revenue Growth

Assess impact of changes (e.g., checkout process tweaks on e-commerce sites)

5. Product Analytics in the Broader Analytics Ecosystem



1. Marketing Analytics

Understand user acquisition through various channels, analyzing ad performance and customer acquisition costs.



2. Customer Analytics

Measure overall engagement patterns, customer lifetime value, churn rates, and support interactions.



3. Product Analytics

Focus on in-product behavior, tracking how users navigate and which features they use most frequently.



4. Business Analytics

Tie all insights together, providing a comprehensive view of total revenue, ROI, and resource allocation decisions.

Each type of analytics provides unique insights that contribute to the overall understanding of business performance and user behavior.

6. Key Skills for Product Analysts

Great product analysts combine technical prowess with essential soft skills. These five core competencies define excellence in the field:



1. Curiosity

Ask probing questions to uncover the "why" behind user behavior and metric changes



2. Data Storytelling

Convert complex data into clear, compelling narratives that drive decisions



3. Technical Skills

Master SQL, Python/R, and visualization tools like Tableau for effective analysis



4. Business Acumen

Understand key metrics and translate data insights into strategic business value



5. Collaboration

Partner across teams and communicate effectively with all stakeholders

7. Product Analytics vs. Metrics

Product Analytics: The Detective

- Analyzes trends and patterns
- Provides context and explanations
- Guides decision-making

Metrics: The Clues

- Specific numbers (e.g., DAU, average listening time)
- Show what's happening
- Provide data points for analysis

Metrics show what's happening; analytics explain why and what to do next

1

Choose key metrics

Select meaningful data points to track

2

Collect data consistently

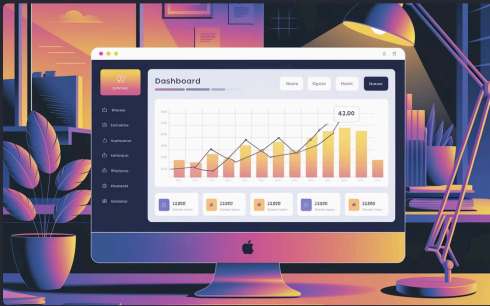
Maintain reliable measurement systems

3

Analyze to uncover trends

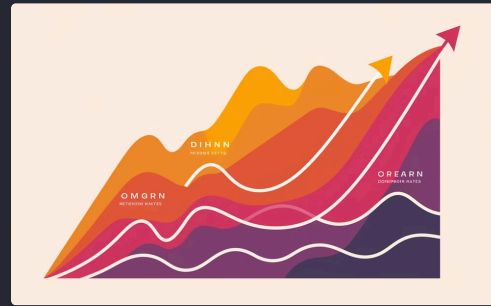
Transform data into actionable insights

8. Why Metrics Matter



Clear, Actionable Data

Provides clear, actionable data about performance through easy-to-read dashboards



Key Performance Indicators

Track crucial metrics like retention rate, conversion rate, and revenue per user



Transform Gut Feelings

Convert instincts and assumptions into measurable, concrete facts



Enable Quick Action

Spot issues and opportunities instantly to take corrective action

Metrics are like using a GPS when driving—they guide your decisions.

9. Defining Metrics



Single Numbers

Basic measurements that stand alone, like counting total sales (100 units sold). Doesn't tell the whole story sometimes.



Ratios

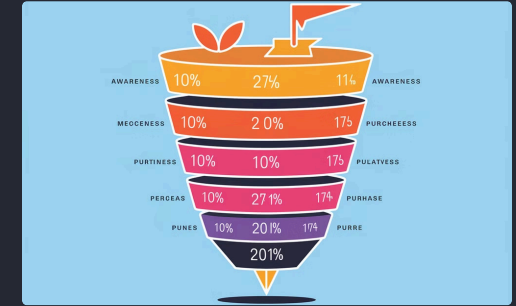
Metrics that provide context by combining numbers, like \$10,000 in ad spend resulting in \$100 cost per acquisition



Ratios: Key Benefits

Ratios help in three ways:

- 1) Account for size differences.
- 2) Provide context
- 3) Enable fair comparisons across scales.



Common Business Ratios

- Conversion Rate: 5% from 50/1,000
- Cost per Acquisition: \$50 per customer
- Revenue per User: \$10 per user

10. Setting Up Ratios

When you set up a ratio, you're really measuring the relationship between effort (input) and impact (output). By tracking these relationships, we can better understand and optimize our business performance.



The goal is to reduce inputs while maintaining or increasing outputs. For cost-efficiency ratios (like cost per acquisition), lower values indicate better performance. For success rates (like conversion rate), higher percentages show stronger results.

11. Beyond Ratios – The Importance of Absolute Metrics

Understanding Absolute Numbers

While ratios help us understand relationships and efficiency in our business, they're not the only important measures. Absolute numbers provide crucial context that ratios alone can't show.

When Absolute Numbers Matter

Sometimes seeing the raw numbers tells a clearer story:

- Total revenue gives better context than growth rates
- Actual customer count matters more than conversion rates
- Real profit numbers guide better than percentages

Finding Balance

The key is knowing when to use each type of metric. Ratios excel at showing efficiency and relationships, while absolute numbers show scale and concrete impact. Using both gives you the complete picture.

12. Hallmarks of a Good Metric

Comparability

Should be compared over time, across groups, or against competitors

Simplicity & Understandability

Everyone on your team should get it immediately

Reflects Trade-offs

Captures balancing factors (e.g., customer acquisition vs. cost)

Actionability

Drives clear, timely actions when it changes

Analogy: A good metric is like a game score that shows your progress and tells you what to do next.

13. Pairing Metrics for a Holistic View

Good metrics don't work alone.



Speed & Conversion

⚡ Purchase Time + Rate

Track both how quickly customers complete purchases and what percentage actually buy. A fast checkout means nothing if conversion rates are low.



Cost & Quality

💰 CAC + Returns

Balance customer acquisition costs with quality metrics like return rates. Low CAC is great, but not if customers aren't satisfied with their purchases.



Traffic & Sales

👥 Visitors + Revenue

Monitor both site traffic and actual sales. High traffic with low sales indicates conversion issues, while low traffic with high sales suggests marketing opportunities.



Engagement & Retention

🔄 Browse Time + Repeat Purchases

Compare browsing time with repeat purchase rates. Engaged customers who don't return might indicate pricing or product issues.

Real-World Applications

- Fast checkout (2 minutes average) paired with conversion rate (3.2%) shows if speed translates to sales
- Customer acquisition cost (\$50) matched against lifetime value (\$300) reveals sustainability
- Cart abandonment rate (65%) compared to site speed (3s load time) highlights technical barriers

Key takeaway: Like a car's dashboard shows speed, fuel, and temperature together, an online business needs multiple metrics working in harmony to reveal the complete picture of customer behavior and business health.

14. The Five Dimensions for Choosing the Right Metrics



Qualitative or Quantitative?

Hard numbers vs. customer insights



Vanity or Actionable?

Impressive numbers vs. numbers that drive change



Exploratory or Reporting?

Discover new insights vs. track known factors



Leading or Lagging?

Predictive indicators vs. confirmed results



Correlated vs. Causal

Related patterns vs. direct cause-effect

Use this checklist to filter and balance your metrics

Practical Example: Speed-Quality-Cost triangle for an online store

Goal: Choose a mix that tells the full story and drives smart decisions

15. Qualitative vs. Quantitative Metrics



Quantitative Metrics

All about the numbers. Clear, measurable data (e.g., "1,000 website visitors")



Qualitative Metrics

Story behind the numbers. Insights on why or how (e.g., "Customers say the website is confusing")

Combined Approach: Use both to understand what's happening *and* why

1

Restaurant Example

Visitor counts vs. customer feedback on service

2

Mobile App Example

Download numbers vs. user comments about the app

16. Vanity vs. Actionable Metrics



Vanity Metrics

Look good on paper (e.g., "100,000 app downloads") but lack depth

Real World Example

Mobile game: 500,000 downloads vs. 50% drop-off on day one



Actionable Metrics

Provide clear direction (e.g., "30% of users retain after 1 week")

Key Question

"If this number changes, do I know what action to take?"

17. Exploratory vs. Reporting Metrics

1

Reporting Metrics

Regular, known metrics (your business's vital signs)

2

Exploratory Metrics

Dig deep to uncover unexpected insights (like detective work)

3

Implementation

- Set up regular dashboards & schedule monthly deep dives
- Act on new findings with further research and testing

Success Story: Facebook's "Circle of Moms" pivot after uncovering hidden engagement patterns

18. Leading vs. Lagging Metrics

1

Leading Metrics

Act as early warning signs

- Number of future reservations
- Add-to-cart rate
- Tutorial completion rate

2

Enables Action

Allows proactive adjustments and strategic changes before problems occur

3

Lagging Metrics

Reflect past performance

- Monthly revenue
- Final sales numbers
- Customer churn rate

For example, in e-commerce, monitoring the "add-to-cart" rate (leading metric) helps predict and influence actual sales numbers (lagging metric). The key is using both metrics together: leading metrics to predict trends and take action, lagging metrics to validate outcomes.

19. Correlated vs. Causal Metrics

1

Correlation

Two things occurring together without one causing the other

Example: Ice cream sales and pool accidents rising in summer

2

Causation

A direct cause-and-effect relationship

Example: Enlarging the "Buy Now" button boosts sales

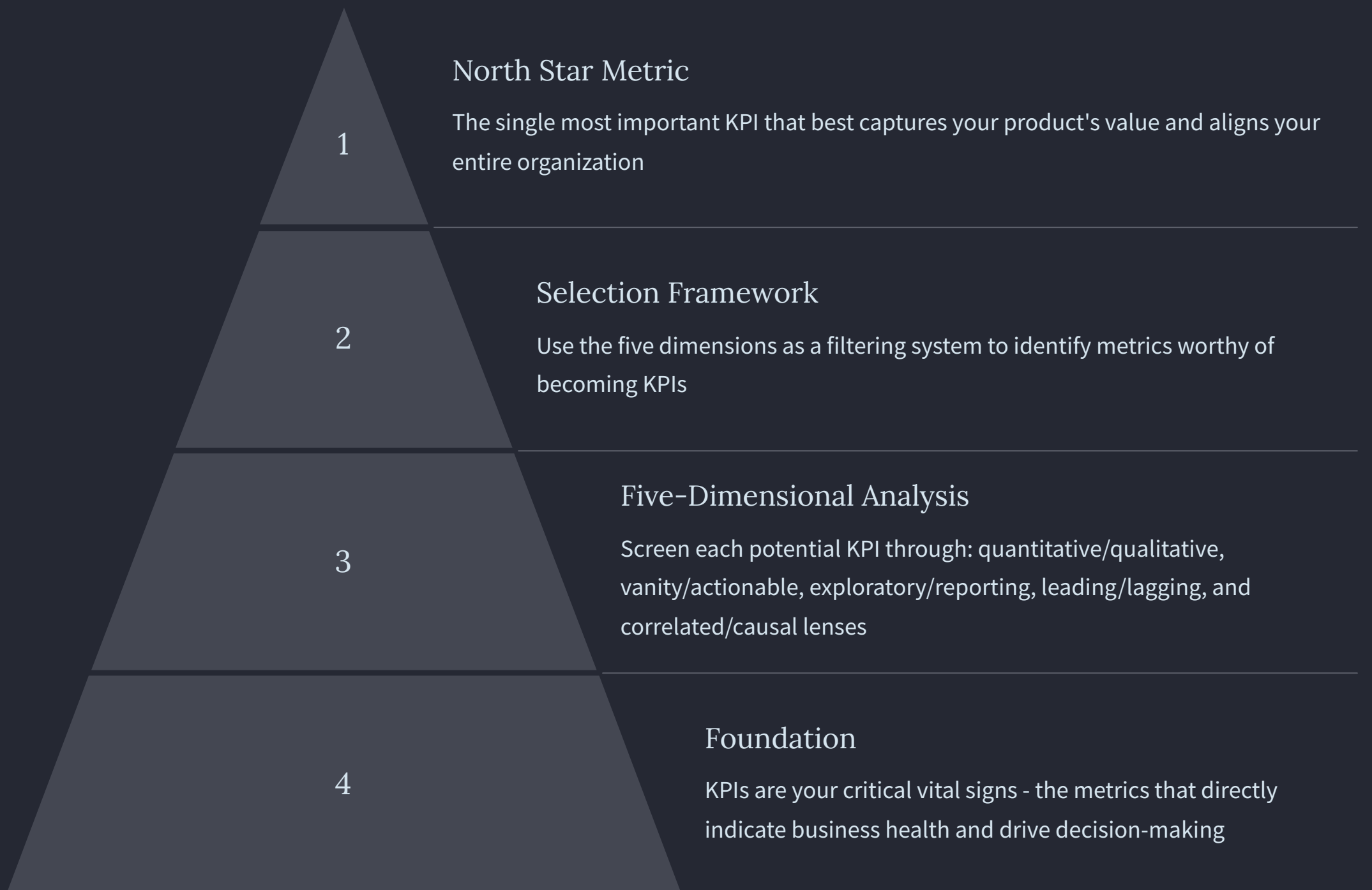
3

Taking Action

Practical Tip: Use A/B testing to determine causation

Integration: Combine quantitative data and qualitative feedback for full insight

20. KPIs – Your Business's Vital Signs



Real-World Applications

- Restaurant: Daily covers (tables served) revealing operational efficiency
- Subscription App: MRR + churn rate + engagement forming a complete health picture

Selection Principle

Choose KPIs that pass through all five dimensions and lead to clear, specific actions for improvement

Quiz Time!

Test your knowledge of product analytics.

Let's take a short break and do a quick quiz!

