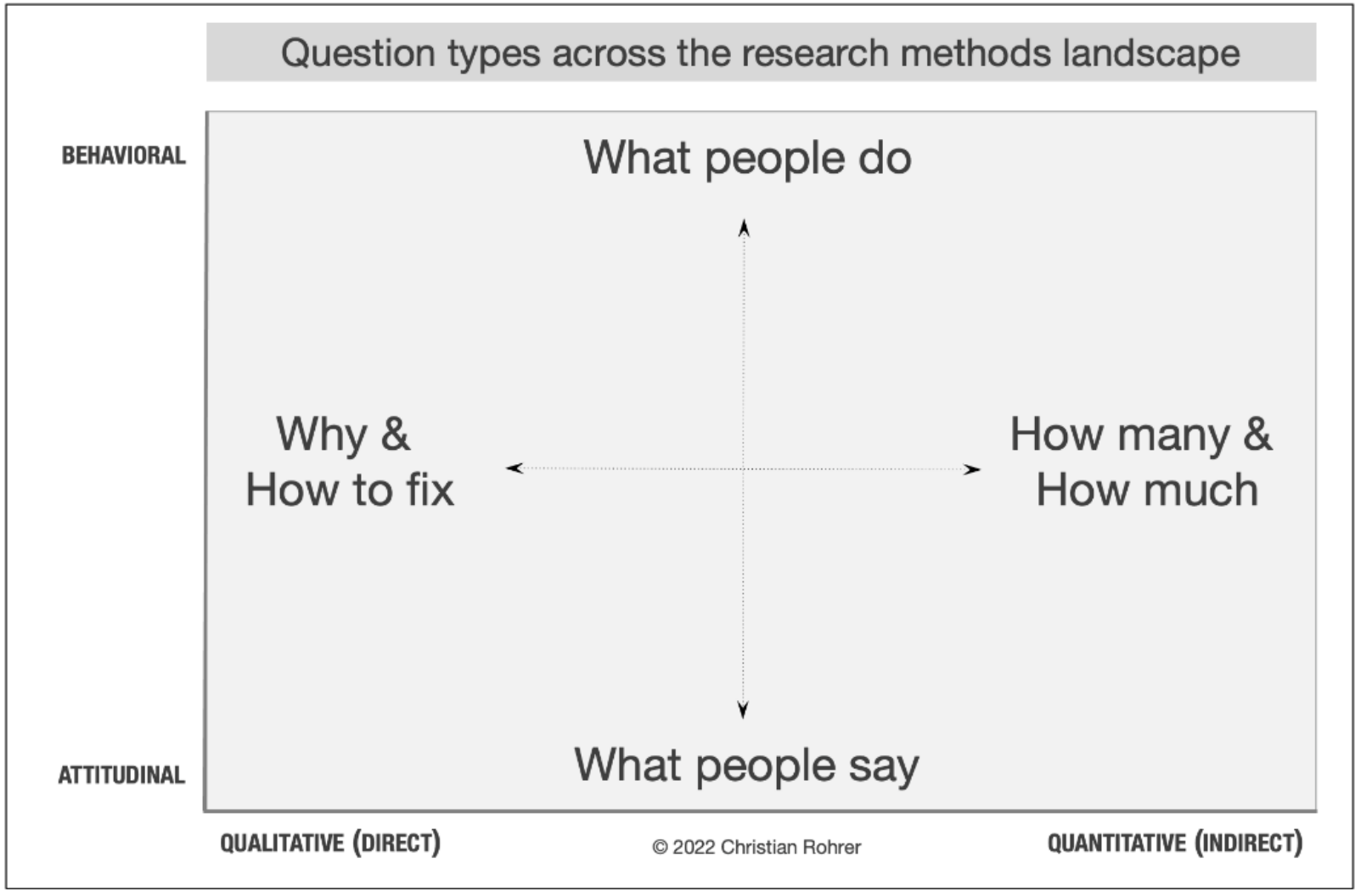
DIGITAL PRODUCT MANAGEMENT

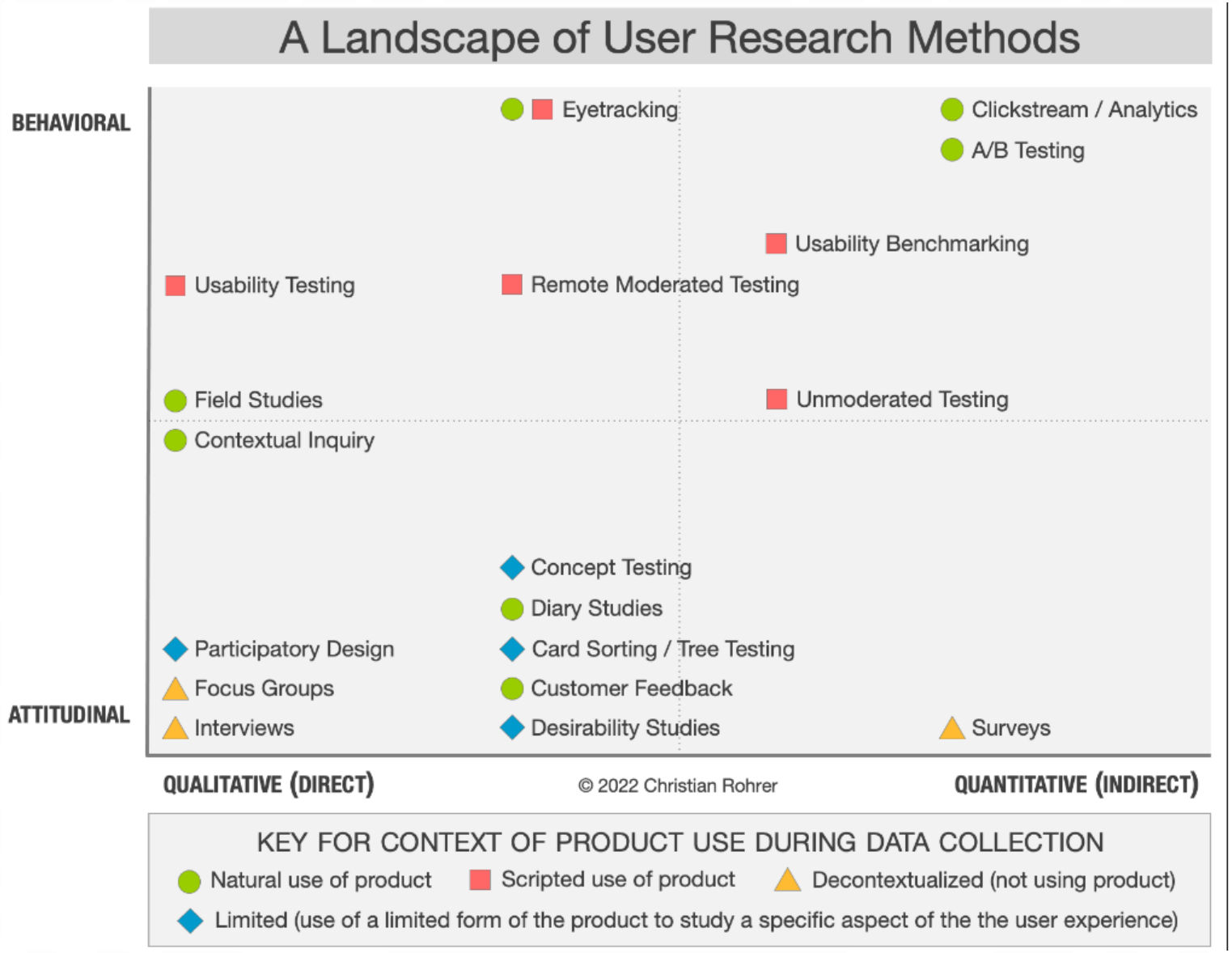
PRODUCT METRICS

MODULE 7 CLASS: PMDE

THE PRODUCT RESEARCH METHODS LANDSCAPE



ROHRER'S RESEARCH METHODS FRAMEWORK



WHY MEASURE?

- Learn continuously about the product and the customer
- Customer feedback
- Product performance and quality
- Impact of changes
- Formative evaluations
  - Used in an iterative process to make improvements
- Summative evaluations
  - Used to evaluate a shipped product in comparison with an earlier product version or a competitor's product

METHODS TO USE & WHEN?

Product development stage		
Early	**Design**	**Launch and Assess**
Research goal • Finding product opportunities	**Research Goal** • Improve usability of the design/ user interface	**Research goal** • Measuring the product performance, including comparing with competitors
Example Methods: • Field studies • Interviews • Surveys • Participatory design • Concept testing	**Example Methods:** • Card sorting • Tree testing • Usability testing • Remote testing (moderated and unmoderated)	**Example Methods:** • Usability benchmarking • Unmoderated UX testing • A/B testing • Clickstream/analytics • Surveys

EARLY STAGE

MAIN STEPS FOR EARLY-STAGE PRODUCTS

- Assessing market size – an estimate of the total potential market for the product
- Customer value – different from price! Quantifying the economic value of your product to the customer
- Demand generation and customer acquisition!

ESTIMATING THE MARKET SIZE

- How big is the market? Total addressable market – industry-level estimate
- Best target market segment for your product? Total available market
- Market share expected – a share of the total available market
- Revenue potential – estimated using expected market share and per-user spend

APPROACHES TO ESTIMATE THE MARKET SIZE

- **Top-down approach**
  - Use industry estimates of comparable products (competing)
  - **Airbnb**
    - Decision to compete only in budget and online market;
    - Total addressable was 1.9 billion trips (global); but available market size (budget & online) was – 532 million trips; expected share – 2% of this market – 10.6 million trips

APPROACHES TO ESTIMATE THE MARKET SIZE (CONTD.)

- **Bottom-up approach**
  - From individual users/ components build up the market size
  - **e.g.: selling enterprise software on a per month per user (in a firm) basis**
    - Market size = (no of firms in the target market) * (avg. no. of users per firm) * (avg revenue per user)

TERMS YOU WILL HEAR…

Credits: Hubspot
TAM SAM SOM: What Do They Mean & How Do You Calculate Them? (hubspot.com)

CUSTOMER VALUE

- Market size – an estimated potential market
- ***Market share captured by a product*** depends on how customers view the product
  - The benefits to the customer may be quantified as **economic value to the customer** (ECV)
  - E.g., in the form of **'total cost of ownership' (TCO)** for the customers (product price+ usage & maintenance cost)
    - **ECV = difference in the TCO between old & new products**
    - TCO mainly used in B2B settings

DEMAND GENERATION & CUSTOMER ACQUISITION

Communicating the value of a product to the customers by:

- **Price promotion**
  - The *breakeven volume* of transactions/orders determined from fixed & variable costs for promotion
- **Digital marketing**
  - Cost per thousand impressions (CPM) (of ads)
  - Clickthrough rate (CTR) - % of customers clicking on an ad or other target
  - Conversion rate - % of customer who click and performed an action (e.g., buy)
  - Ad effectiveness measured using 3 metrics
    - Customer acquisition cost
    - Return on ad spend
    - Return on investment

SURVEYS

SURVEYS

- Smoke test or survey ?
- Surveys when to use
  - Measuring importance and satisfaction; how people feel about your product and brand
  - How customers perceive your product relative to your competitors' products
  - 'Tracking' surveys - identify trends - customers asked the same questions periodically
  - Net-promoter score (NPS) – attitudinal measure

SURVEYS

Sean Ellis' Product-market fit question:

- How would you feel if you could no longer use [product x] ?
  - Very disappointed
  - Somewhat disappointed
  - Not disappointed (it isn't really that useful)
  - N/A – I no longer use [product x]
- This can be followed by an open-ended Q to understand why the user chose an answer
- Products for which atleast 40% users answer 'very disappointed' tend to have a product-market fit

COMMON METRICS

COMMON UX METRICS

- PULSE –low-level metrics for user experiences
  - Page views
  - Uptime
  - Latency
  - Seven-day active users (i.e., the number of unique users who used the product at least once in the last week – the time period for tracking can be different too)
  - Earnings

HEART FRAMEWORK – UX METRICS

- Useful for large scale measuring of UX metrics – focus only on a handful of UX metrics
- **HEART:** *Happiness*, Engagement, Adoption, Retention, and *Task success*
  - Happiness & Task success known user metrics
  - Engagement, Adoption, and Retention – from large-scale behavioural data
  - Use HEART with goals-signals-metrics framework

More on HEART : How to Use the HEART Framework to Make Product Decisions (productplan.com)

HEART

#1 Happiness

How satisfied and happy are your customers?

#2 Engagement

How are customers engaged on your product?

#5 Task Success

How long does it take for a user to complete a task?

#3 Acquisition

How many new visitors are you getting per month?

#4 Retention

What are the daily and monthly active users?

AARRR METRICS – MACRO METRICS

- USED FOR BOTH NEW AND LAUNCHED PRODUCTS

AARRR METRICS FRAMEWORK

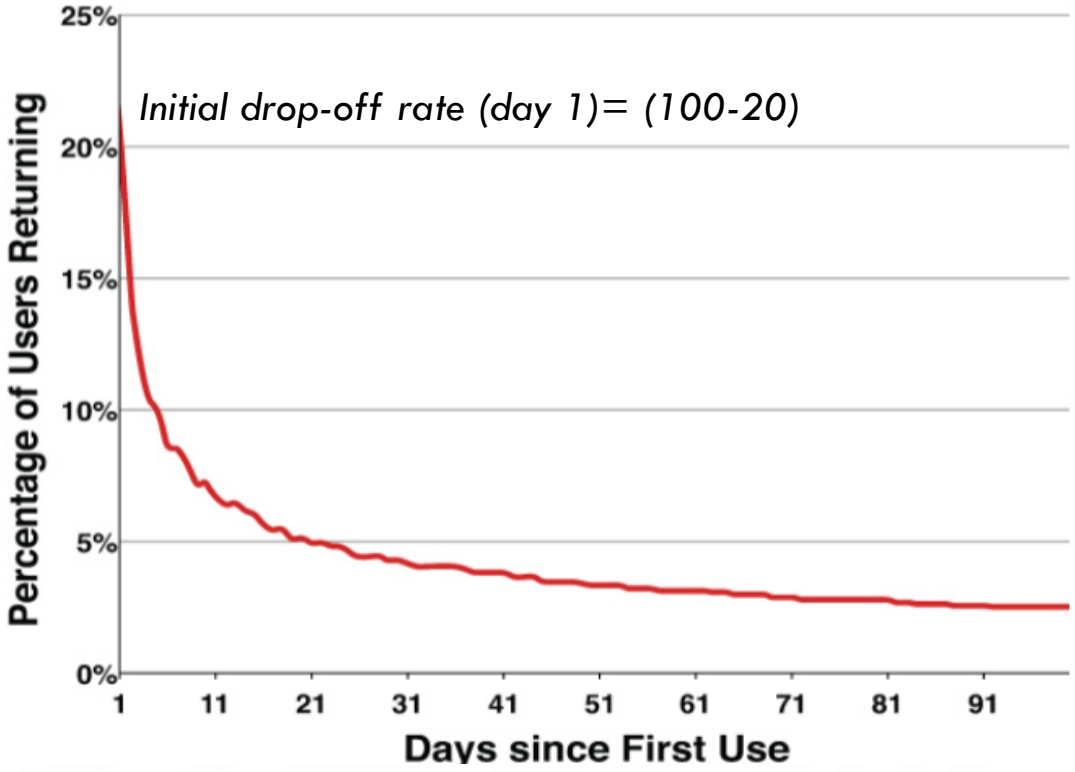
- **At any given point in time, identify the metric that matters the most!**

- **Acquisition** – how many prospects (new visitors) are our marketing programs driving to the website/product?
- **Conversion** rate (or ***Activation***) – the % of prospects that become customers
- **Retention** - the percent of users that remain active over time
- For new products optimize in the order?
  retention – conversion - acquisition
  - Retention - the macro-metric for product-market fit
  - Activation/Conversion - focus on this for much higher ROI
  - Acquisition

RETENTION RATE

- Percentage of customers actively using your product
- Tracking retention - aggregate data using 'relative days' – the number of days since each user signed up
  - **Initial drop-off rates** different for different product categories
  - **Rate of descent** the rate at which retention decreases
  - **Terminal value** – the value at which the curve flattens (if at all)

Retention curve sample for a mobile app



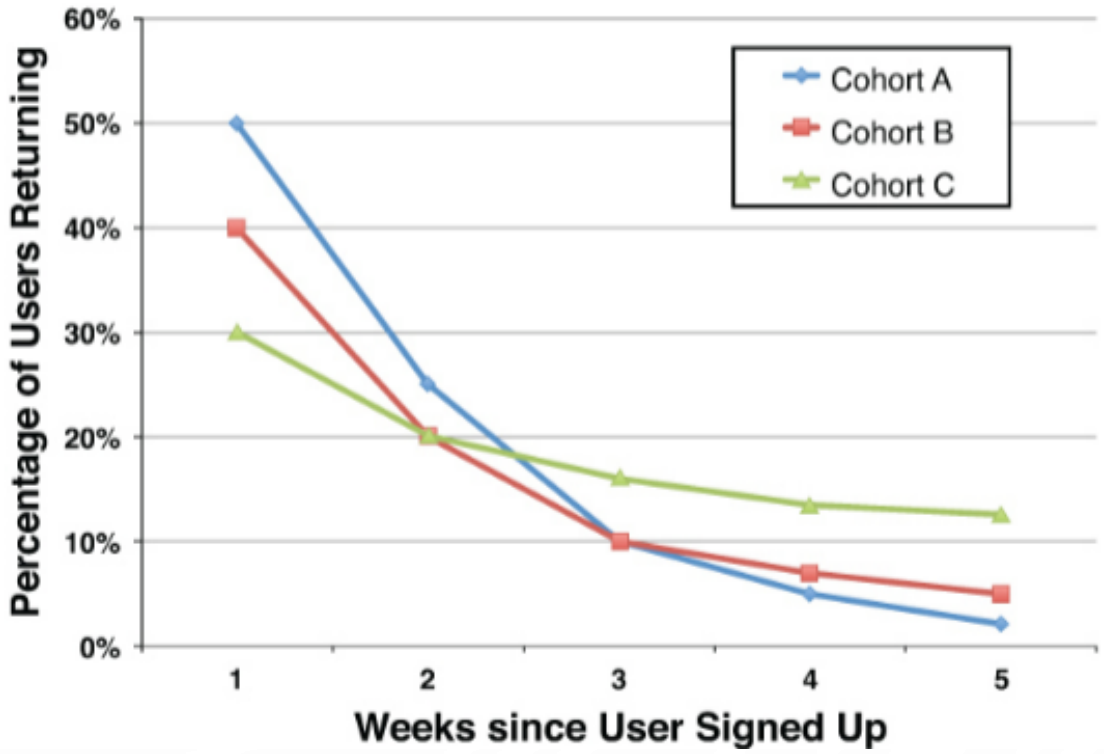
Retention rate is 100% on day zero and then it drops off

RETENTION RATE (CONTD.)

- The three metrics for product-market fit
  - Initial drop-off rates, Rate of descent, Terminal value
  - Stronger product market fit? Lower-lower-higher
  - Weaker product-market fit? Higher –higher -lower
  - Which of the three metrics is enough to say about the product-market fit?
- Why not track active users alone?
  - High active users indicative of product-market fit?
- Why not track returning users alone?
  - Conflated with acquisition and conversion

RETENTION RATE (CONTD.)

- Which cohort retention curve will you choose to have?



Multiple retention curves can be generated for each slice of time

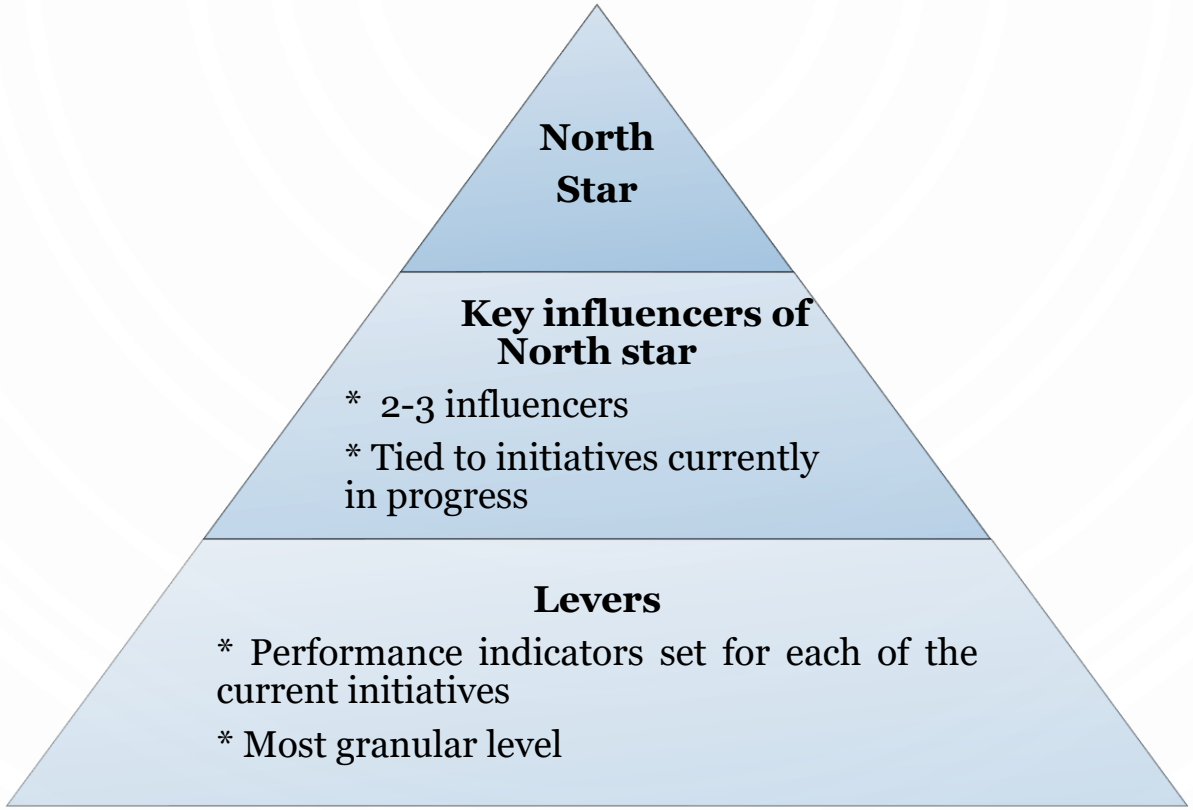
COMMON WEB AND APP METRICS…INFERENCES?

- A low screen time and a high bounce rate
- Long screen time and high bounce rate
- High number of screen views
- Low number of screen views

METRICS AS PER BUSINESS MODELS

- OPTIMIZING BASED ON THE BUSINESS MODEL – AD-BASED, SUBSCRIPTION

THE NORTH STAR METRIC



Company	Core value	North Star metric
Airbnb	Connecting people who need a place to stay with people who can host	No. of nights booked
Quora/ Amplitude	Facilitate knowledge sharing in the world	No of questions answered/ No. of weekly Querying users for whom at least one question is answered
Medium	Where people share ideas and stories	Total time reading
Grocery delivery (generic)	Grocery brought to the door	Monthly groceries delivered on time
Netflix	Entertain people no matter where they are	No of subscribers watching > X hrs of content per month
Salesforce	Customer success – empowering customers to connect with their customers in entirely new ways	Average records created per account

WHAT DO COMPANIES OPTIMIZE?

Profit = Revenue - Cost

- Companies differ in what they want to optimize to stay profitable
- The key is to come up with a quantitative representation of your business – constructed from a set of metrics that go several levels deeper

ADVERTISING REVENUE MODEL

- Ad-based products generate revenue from displaying advertisements

  Profit = Revenue – Cost

  Revenue = visitors X Average Revenue per Visitor

Breaking down further…

- Display advertising is sold to advertisers on the basis of ‘ad impressions’ – cost per thousand impressions (CPM)

$$\text{Average revenue per visitor} = \text{impressions per visitor X Effective CPM} \div 1000$$

$$\text{Impressions per visitor} = \frac{visits}{visitor} \times \frac{pageviews}{visit} \times \frac{impressions}{pageview}$$

ADVERTISING REVENUE MODEL

Breaking down further…

- Visitors = New visitors + returning visitors
- $$\text{Returning Visitors}_T = \text{Visitors}_{T-1} \times \text{Return Rate}$$

  Return rate (entire life of the visitor) different from the earlier discussed 'retention rate' (period-to-period)

SUBSCRIPTION REVENUE MODEL

Start with :

Profit = Revenue – Cost

Revenue = paying users X Average Revenue per paying user (ARPPU) (for a non-freemium model)

Breaking down further…

- Paying users = New Paying users + Repeat Paying users
- Further…

$$\text{Repeat Paying Users}_T = \text{Paying Users}_{T-1} \times (1 - \text{Cancellation Rate})$$

- New paying users = [free trial users x trial conversion rate] + direct paid signups

OTHERS WAYS OF ACHIEVING PROFITABILITY

- This approach is worth trying after achieving the product-market fit
- Start with per customer basis:

  Profit = Number of customers X profit per customer

Breaking down further…

- Profit per customer =Revenue per customer − Cost per customer

Further…

- Profit per customer =Customer Lifetime Value (CLV or LTV) − Customer Acquisition Cost (CAC)

- **Customer Lifetime Value (CLV or LTV)** – the profit that a customer generates for your product (without taking into account the cost to acquire the customer)
  - This metric attempts to predict the future profit flows associated with an individual customer over the length of time for which the firm can retain the customer
- **Customer Acquisition Cost (CAC)** – amount you pay on an average to acquire a customer
- For profitability, LTV>> CAC

Explaining and Representing LTV:

LTV = ARPU X Average Customer Lifetime X Gross Margin

- E.g., each subscriber paying Rs Y per month (ARPU) and an average customer stays with the business for Z months → average lifetime revenue = Rs(Z x Y)
- Gross margins - % that accounts for the cost of providing the product or service to the customer – sometimes ignored
- Other ways:

1. LTV = m X T ; m is customer's annual contribution margin

   T is expected life of a customer with the firm; T = 1/ (churn rate) = 1 / (1-r) → 2 metrics customer retention rate ; margin per customer

2. LTV =[m / (1-r+i)]= [margin / (churn + discount)]

- Increasing LTV? Various levers available
  - By increasing ARPU by raising prices
  - By increasing average customer lifetime – by decreasing your cancellation rate (the % of paying customers that stop paying you each time period)
  - In models where customers do not pay directly, churn rate is used

$$\text{Average Customer Lifetime} = \frac{1}{\text{Churn Rate}}$$

  - Reduce churn rate by better customer service, support, product reliability and quality

Restated LTV equation:

$$\text{LTV} = \frac{\text{ARPU} \times \text{Gross Margin}}{\text{Churn Rate}}$$

Explaining and Representing CAC :

- Can be calculated if the number of customers added in a given time period is known

$$\text{CAC} = \frac{\text{Cost per Acquisition}}{\text{Prospect Conversion Rate}}$$

  - Cost-per-click is considered the cost per acquisition (CPA) for ad-based context
  - Improve CAC by reducing CPA or improving prospect conversion rate
  - Actions for CPA : By increasing ARPU by raising prices
  - Actions for prospect conversion ratio : improve messaging and UX design

METRICS FOR SAAS PRODUCTS

- SERVICE LEVEL AGREEMENTS

SERVICE LEVEL AGREEMENTS (B2B)

- SLAs stipulate the services that a customer can expect to receive from a provider
- Price and price structure is captured in SLAs
- SLAs also stipulate various service and product related metrics
  - Availability of the system/application – uptime and downtime
  - Quality
    - Absolute errors per time period
    - Degree of severity
    - Maximum time for debugging as per severity level
  - Performance guarantee – response time behaviour or load values for the system