

Analytics - Terminology & Concepts

1. **Business models** (*How do we plan to make money? Are we making money?*)
 2. **Growth** = Distribution = Marketing (*How do we attract new users to our product/business?*)
 3. **Engagement** = retention (*How do we keep existing users coming back?*)
 4. **Optimization** = Testing (*How do we know what to change?*)
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Business Models

- **Freemium** (Dropbox, Spotify): base service free (gains userbase), value for pay (gains money)
- **SaaS** (RelateIQ, Yammer): Software as a Service paid as a monthly subscription
- **Ads** (Facebook): Advertisers pay per click (PPC)
- **Revenue Share** (iTunes): %cut for content-served
- **eCommerce** (Amazon, One Kings Lane)
- **Marketplace** (AirBnB, TaskRabbit)
- **Payments** (Square): Enable payments and take a very small percentage of each transaction

Metrics / KPIs (Key Performance Indicators) to measure whether your business model is working:

- **Recurring Revenue (RR) = run-rate**
 - revenue (\$) / time
 - can be specified on Monthly/Annual scale (**MRR / ARR**)
- **Average Selling Price (ASP)**
 - related to annual recurring revenue (ARR): $ASP = ARR / (\# \text{ customers})$
- **Customer Acquisition Cost (CAC)**
 - average money spent to sign up each customer/user
 - Examples: sales, marketing, PR, adwords

- Average Cost of Service (ACS)
 - total costs / (# of customers)
- Churn
 - Percent of users/subscribers/customer who cancel/stop service in a given time period.
- Customer Lifetime Value (CLTV = LTV):
 - How much money the customer is expected to bring to you over their (or your) lifetime.
- Profit
 - Profit is (# customers) * (value - cost_to_get_value)
 - (# customers) * (LTV - CAC - ACS*time)
 - (This equation is incorrect in “Analytics Slides - Dave Fowler.pdf” that Jake sent)

Random lingo (please add to the list):

- “Moving the Needle”
- “Frictionless”
- “Analytics”
- “Cannibalization”

Growth

- **Marketing** = Distribution = “Growth” team = *How do we get new customers/users?*
- Types of Marketing:
 - SEO (Search Engine Optimization) → improving organic search results (google algorithm pulls out results)
 - SEM (Search Engine Marketing) → PPC (Pay-Per-Click) ad campaigns (buying ads in order to get into the search)
 - Email Marketing
 - Likes/shares - social marketing

- **Viral Coefficient**

- How many users each new user brings.
- viral coefficient = $(\# \text{ invites sent/user}) * (\# \text{ invites accepted} / \# \text{ invites sent})$
- $= \# \text{ invites accepted/user}$

- **Viral Cycle Time**

- Time it takes for a user to invite other users to the service.

Viral Coefficient:

Imagine you are starting a new company that plans to acquire customers through viral growth. You have several friends that you use to become your first customers, and they in turn start inviting friends to join, and those friends start inviting friends, etc.

Lets assume the following:

- Initial set of customers $C_0 = 100$
- Invites sent out by each customer $i = 10$
- Conversion rate $r = 20\%$

Then, Viral Coefficient (K) is defined as:

$$K = i * r$$

So in above example, $K = 10 * 0.2 = 2$

Rules of Thumb

- Churn Kills Growth:
 - growth = customer acquisition rate - churn rate
- Customer Acquisition Growth Must Outpace Churn
 - to continue rate of growth the acquisition rate must increase
- Viral Growth Trumps Churn
 - viral growth -> growth scales with number of users
 - this allows acquisition rate to outpace churn
 - obviously has upper limit
- Profitability Follows Customer Break-Even

- example: SaaS (Software as a Service)
- make money if providing net positive benefit to customers
- Best Case Time-to-Profit is Simple Break-Even
 - example: SaaS
 - time to single customer break-even point gives time to overall profitability
- Growth Creates Pressure to Reduce Total Cost of Service
 - customer acquisition costs come from current revenue (from current customers)
- Churn Creates Pressure to Reduce Total Cost of Service
 - customers cancel before break-even point -> lose money
- Upgrades and Upselling Accelerate Profitability
 - increase profit margin
 - decrease time to break-even (help offset churn and other acquisition costs)
- Customer Lifetime Value Drives Company Value
 - company value = <CLTV> * #customers (discounted for future customers)

Other industry lingo:

- Growth hacking / Growth Hacker
- Conversion rate “Lift”

Engagement

- Engagement
(<http://www.salesforcemarketingcloud.com/blog/2010/03/10-key-engagement-metrics-to-track/>)
- Retention
- Conversion Funnel
<http://www.webics.com.au/blog/conversion-tracking/conversion-funnel/>
- Shopping cart “abandonment”

Cohort Analysis:

A cohort is a group of people who share a common characteristic over a certain period of

time. Cohort analysis is often used to measure user engagement over time. Most cohort analysis plots the churn rate versus sign up month, giving insight into the stability of churn rate over time.

Online Resources:

<http://52weeksofux.com/post/646711369/cohort-analysis-measuring-engagement-over-time>

<http://techcrunch.com/2009/10/05/twitter-data-analysis-an-investors-perspective-2/> (scroll down for Cohort Analysis of Twitter users)

<http://blog.rjmetrics.com/cohort-analysis-in-rjmetrics/> (walks through a cohort analysis with sample data)

<http://www.keplarllp.com/blog/2012/a04/cohort-analyses-for-digital-businesses-an-overview>

en.wikipedia.org/wiki/Customer_engagement (has lists of root and action metrics)

Power Law

- Many things are power laws, *not* normal distributions.
- A few have a lot, many have very little (eg. a few people have many friends, many people have few friends)

Conversion Optimization

- **A/B Testing** -- Primary method for improving growth or engagement metrics. (see 'A/B Testing Resources' Google Doc).
- Personalization