



Product Growth: Acquisition and Retention

Mini 4 / Spring 2024

THE INTELLIGENT FUTURE

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WHERE WE ARE



- “Problem Space” - Pre-Launch of Product Feature
 - Customer Needs Identification
 - Customer Needs Downselection to Primary Needs
 - Quantitative “Importance” of Primary Needs and Needs Prioritization
 - Market Segmentation and Total Addressable Market (TAM) estimation
 - Competitive Analysis, Opportunity Sizing, and Targeting
 - Feature Prioritization
 - Working with Designers and Engineers
 - Getting “Technical Enough” as a Product Manager
 - Product Requirements Document (PRD) and User Stories
- Post-Launch of Product Feature + Product Strategy
 - A/B Testing
 - Demand Forecasting
 - Market Simulation
 - Product Growth Strategy
 - Acquisition, Product-Channel Fit, and Channel Optimization
 - Acquisition, Retention, and Monetization

TODAY'S LEARNING OBJECTIVES



- Traditional vs. Modern View of Product Growth: Product + Marketing
- Acquisition: Product-Channel Fit
- Example: Online car sales
- Channel attribution (measurement, spillover)

- Retention:
- Steps to calculate retention rate
- Blue Apron case

TRADITIONAL VIEW OF PRODUCT GROWTH



Product

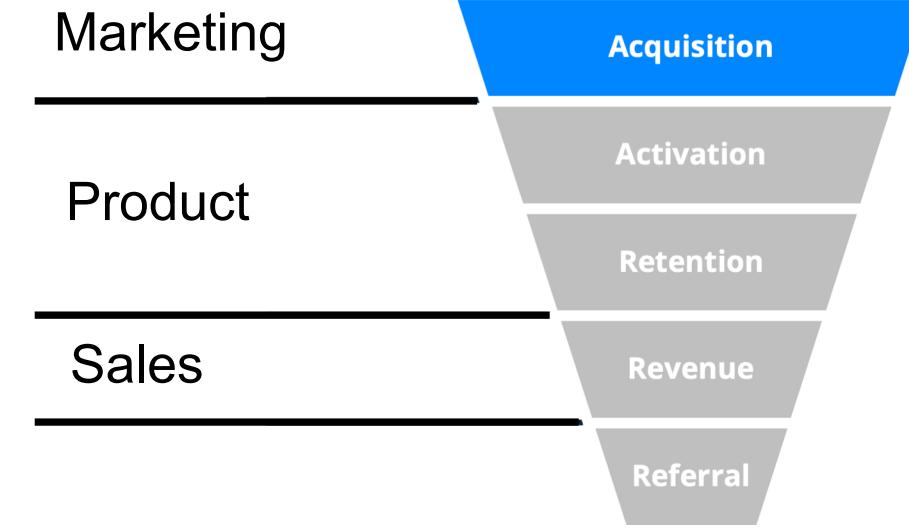
- Understand consumer needs
- Build a product with product features that satisfies needs

Marketing

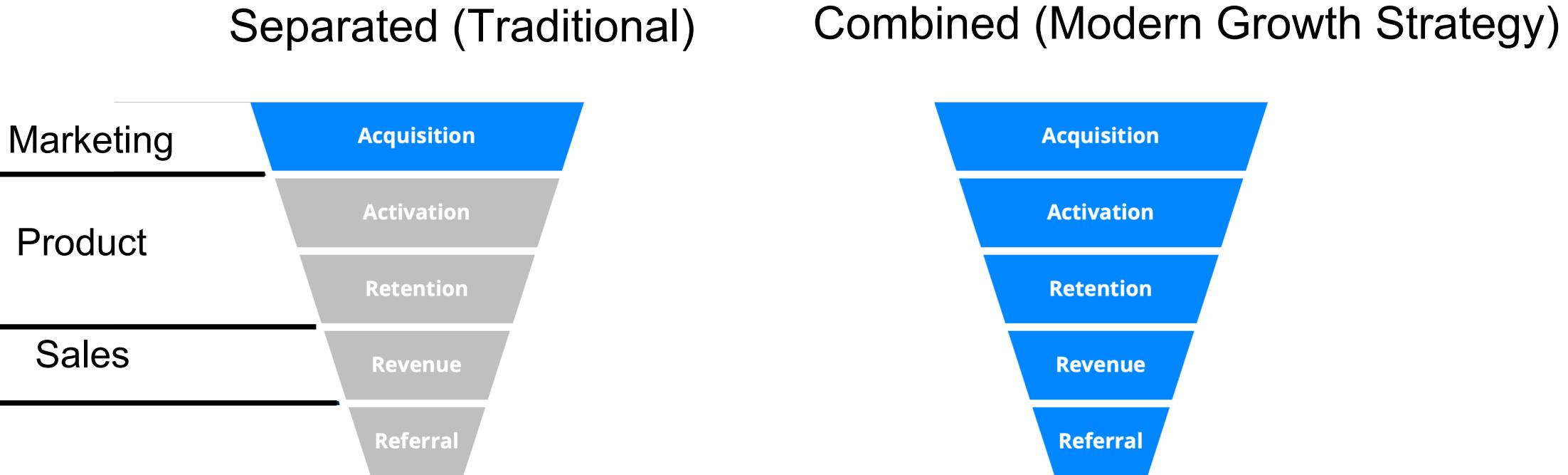
- Create awareness of product
- Position the product's messaging

Sales

- Convert qualified leads
- Upsell existing consumers



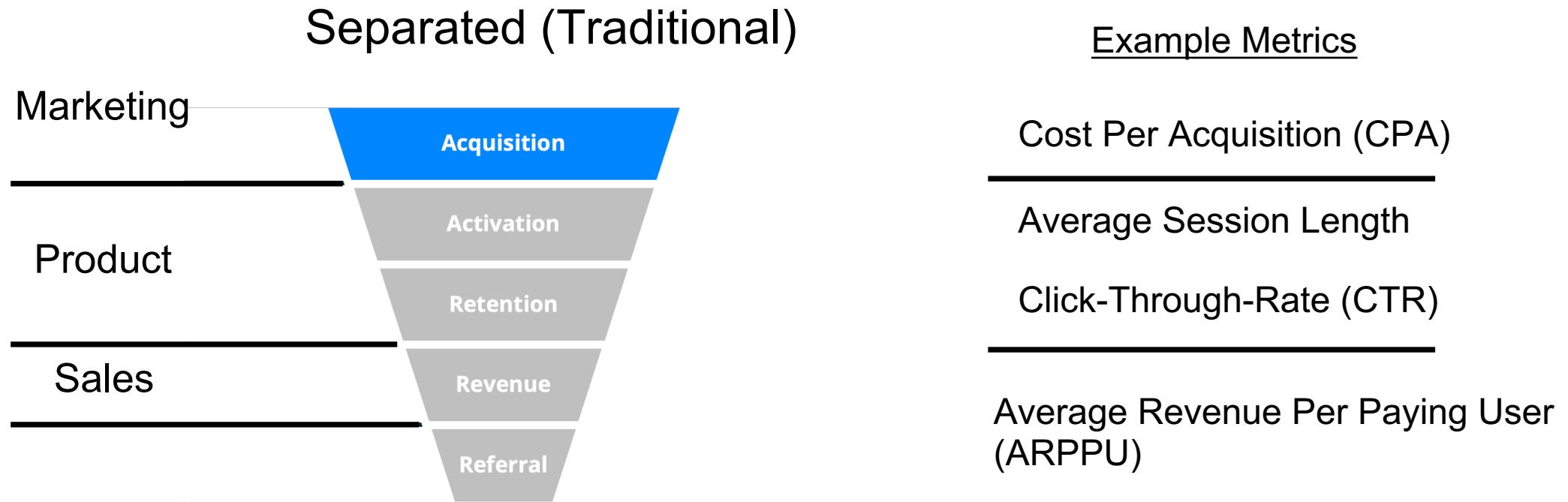
MODERN GROWTH STRATEGY COMBINES MARKETING, PRODUCT, SALES



Takeaway: Modern growth strategy for digital products combines elements from traditional marketing, product, engineering, and sales

Q: Why? What are potential problems with the traditional approach?

QUESTION (1/2): WHAT ARE POSSIBLE PROBLEMS WITH TRADITIONAL STRATEGY?

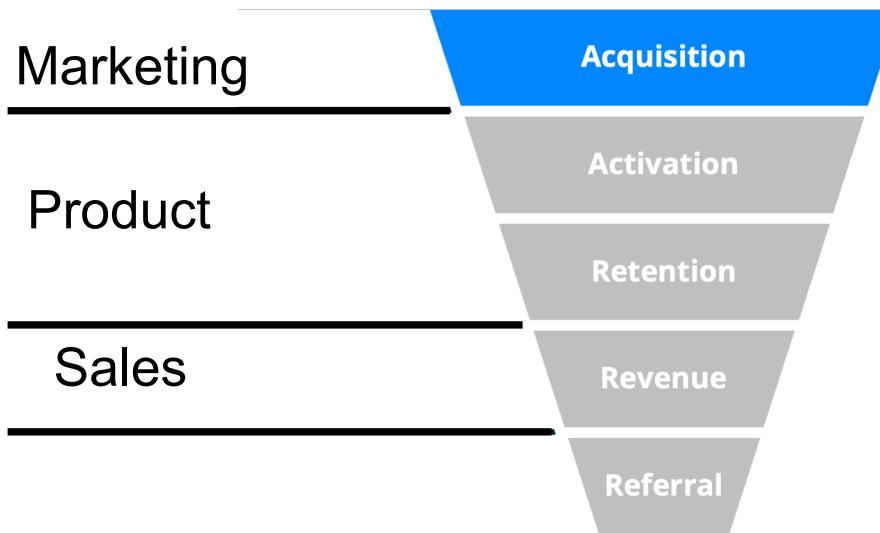


Problem 1/2: Different functional teams optimizing for different metrics
“Acquisition is job of marketers, Activation/Retention is job of Product...”

QUESTION (2/2): WHAT ARE POSSIBLE PROBLEMS WITH TRADITIONAL STRATEGY?



Separated (Traditional)



Example Growth Tactics

SF bay area craigslist > san francisco > housing > vacation rentals

\$59 Stay at 'Queen Airbed in Central, Modern Apt' by the night (Castro)

Date: 2011-07-18, 8:37PM PDT
You have chosen not to show an email address. Be sure you include contact information in your ad, or nobody will be able to answer it!
Reply to: see below

Interested? Got a question? [Contact me here](#)

Airbed in shared room

\$59
per night

Includes:

- No Smoking
- TV
- Cable TV
- Internet
- Wireless Internet
- Heating
- Kitchen
- Washer / Dryer
- Buzzer/Wireless Intercom

Problem 2/2: Unable to implement many powerful growth features

- AirBnB example: “Re-posting your listing from AirBnB to Craigslist increases your earnings by \$500/month on average”

RELATED: STRATEGY BY AIRBNB



Airbnb

- Housing and accommodation booking product
- 500 similar "gig" economy for housing websites at same time

Airbnb posted fake listings on Craigslist
Growth wins

- Did Airbnb's product deliver the most "value" to customers relative to competition?
- Probably not the "best" product!

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10 million

Quick Links

- [View/Edit Listings](#)
- [Reservations](#)
- [Post to Craigslist](#)
- [Standbys](#)
- [Reviews & Recommendations](#)
- [Starred Items \(7\)](#)

Post "A couch in the mission" to Craigslist

Airbnb © to me show details 9:07 AM (3 hours ago) Reply

Hi Rishi,

Re-posting your listing from Airbnb to Craigslist increases your earnings by \$500/month on average.

[Click here to re-post "A couch in the mission" in 1 click.](#)

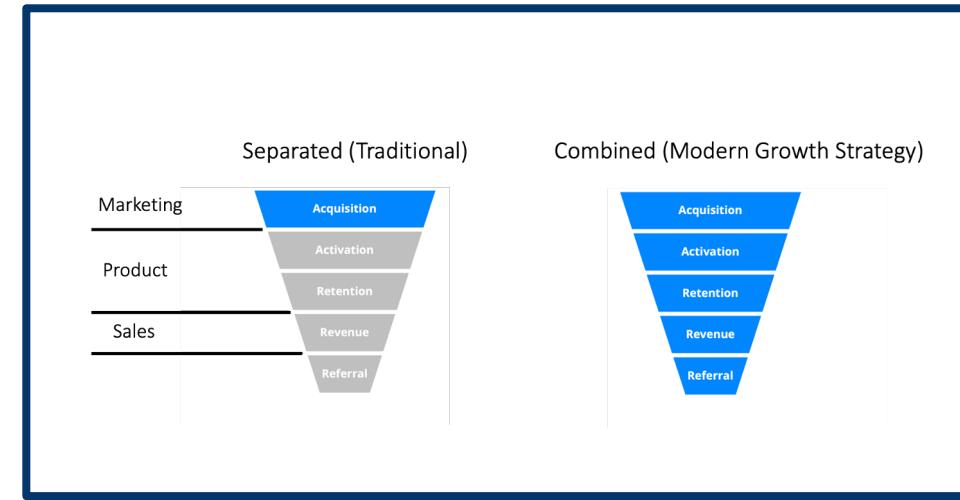
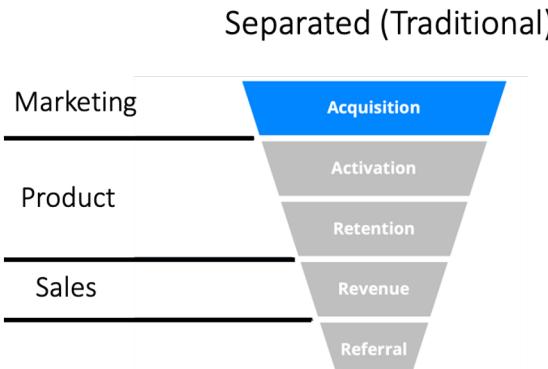
By re-posting your listing to Craigslist you'll get the benefit of more demand, while still being able to use Airbnb to manage and moderate your inquiries.

Best,
Airbnb Support Team

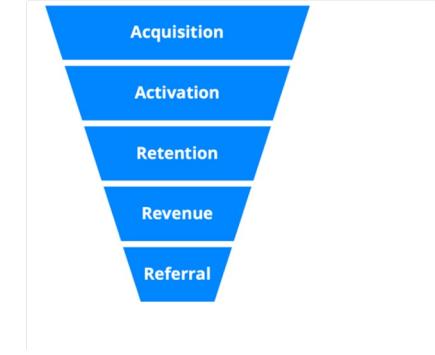
Growth Product Feature

2008 2009 2010 2011 2012

MOST COMPANIES ON SPECTRUM FROM SEPARATED TO COMBINED

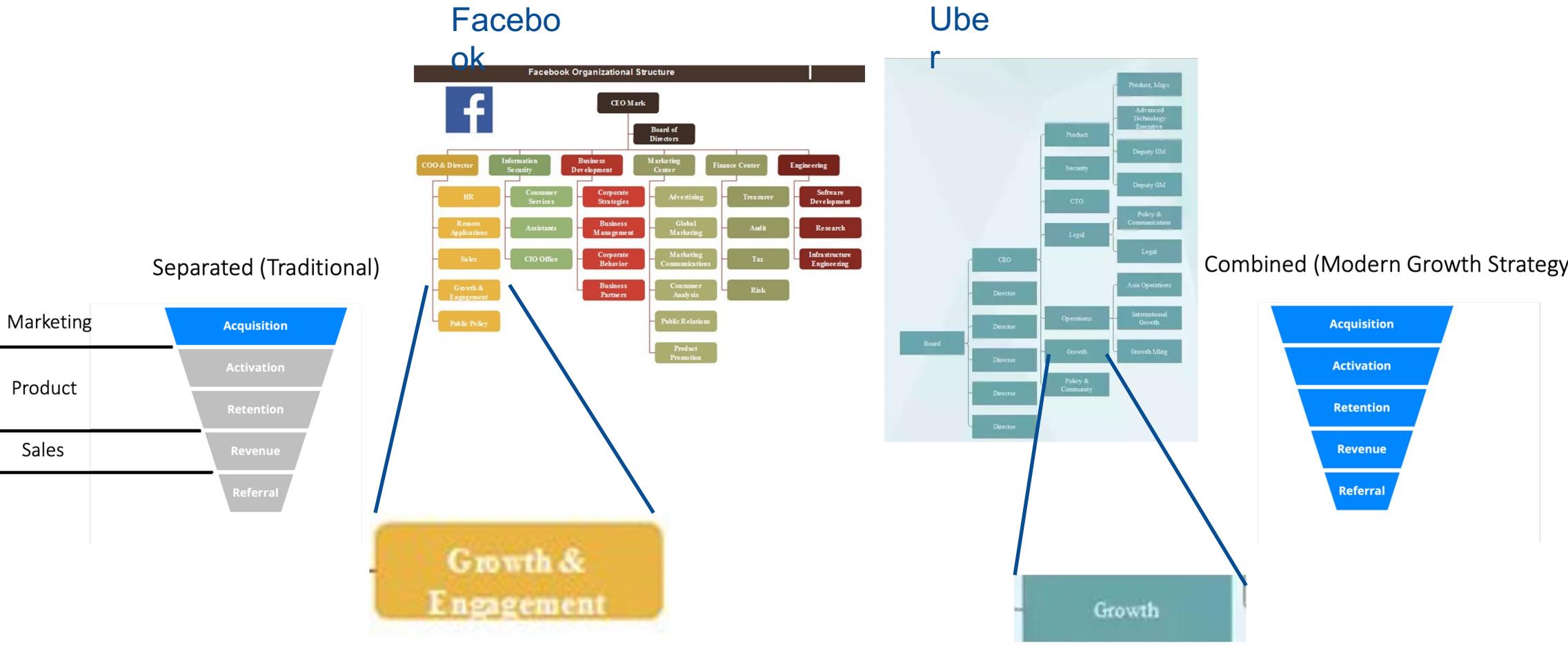


Combined (Modern Growth Strategy)



Spectrum from Fully Separated to Fully Combined

MOST COMPANIES ON SPECTRUM FROM SEPARATED TO COMBINED



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10

GOAL OF PRODUCT GROWTH STRATEGY



Goal of Product Growth Strategy

- Get our product's existing value to *as many customers as possible, as frequently as possible.*

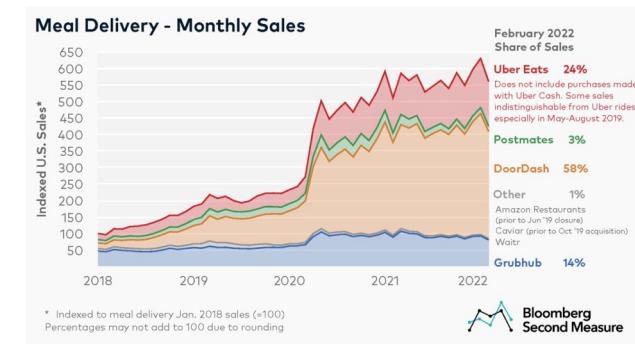
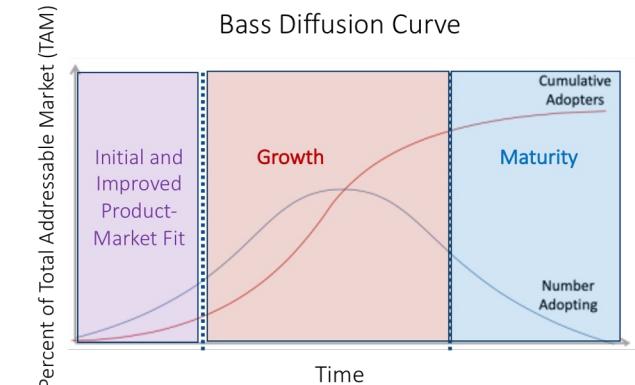
Assumption

- We have sufficient product-market fit. Our existing product gives “enough” value to customers.

How? Focus on our *total new and existing customers*

& How to increase the # of customers or revenue

- Acquisition, Retention, Revenue

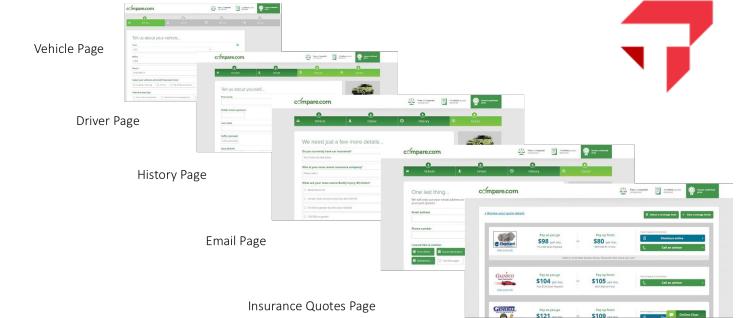


MOTIVATING QUESTION



■ Context: You're a PM at Compare.com

- The team's goal is to grow the product's daily active audience.

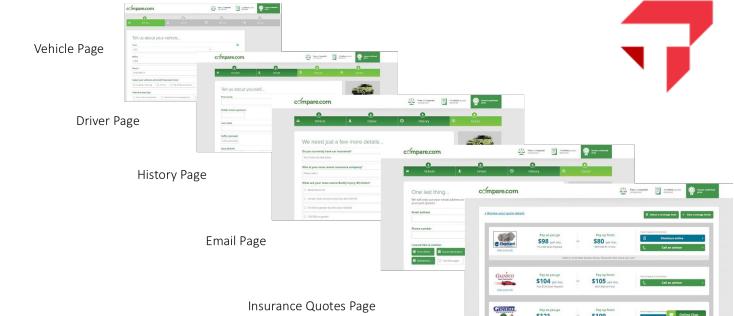


■ Product-Channel Fit: Your team A/B tested a few growth channels with results:

- Channel A: daily retention plateaus at 20%
- Channel B: daily retention plateaus at 2.7%

■ Question: Based on the results they decided to spend all their budget on channel A. Why is this a right or wrong decision?

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■ Answer

- Nothing about Consumer Acquisition Cost CAC
- If the cost per new user is \$100 for Channel A and \$1 for Channel B, then it will make sense to focus on Channel B.
- In this case, the cost per long-term retained user in Channel A will be \$500, while it will only be \$37 for Channel B.

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Source (modified): GoPractice, Growth Class, Exercise 3.2

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WHAT IS PRODUCT-CHANNEL FIT?

■ Product-Channel Fit

- Acquisition Channel – Connection between customers and product
- Customers are acquired through channels
- Example: Customer searches for “where to stay in Amsterdam,” and finds blog post about Amsterdam that links to Booking.com



■ Product-Channel Fit is as critical as Product-Market Fit

- Many products have “enough” value for our customers
- Customers just have not *discovered* our product and its value
- Easier to build digital products than ever before (tech is easy). Good products still hard. Good channel fit still hard.

CATEGORY	PERFORMANCE MARKETING	VIRALITY	CONTENT
Travel	Booking.com	Airbnb	Expedia
Discount shopping	Wish	Pinduoduo	Wayfair
UGC content	TikTok	Instagram	Pinterest
Local services	HomeAdvisor	Craigslist	Thumbtack
Home buying	Redfin	Zillow	Trulia
Finance	Credit Karma	Robinhood	NerdWallet
Food delivery	Blue Apron	Snackpass	Grubhub

■ Research on Product-Channel Fit and Customer Discovery

- Study of 9,000 products reported only 40% still sold after 3 years.¹
- 70%+ acquisition comes from a single channel

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[1] Simester, Duncan. "Why great new products fail." (2016).

KEY CHALLENGE: CUSTOMERS CHOOSE THE CHANNEL, NOT YOU



- Our Problem: Customers do not know about our product and its value proposition
- Key Challenge: Customers choose the channel, we rarely get to choose for them
- Key Tool: Customer Journey
 - What channels align with customer journey and product discovery?
 - Are customers looking up help with a problem they have through a search engine?
 - After they search, are they more likely to click on a website in the search results, or is there a chance for clicking on an advertisement?

WHAT IS PRODUCT-CHANNEL FIT?



- Can Amazon & Hyundai solve Online Car Sales?
- What are pros and cons of car dealerships (from an auto manufacturer's perspective)?
- What makes Tesla possible not to sell through dealerships?
- What are the challenges in online car sales?
- What is important to consider in deciding a car sales channel?



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https://youtu.be/To8Kybl_nLo?si=Mk2JEGOZLNJ5jxtE

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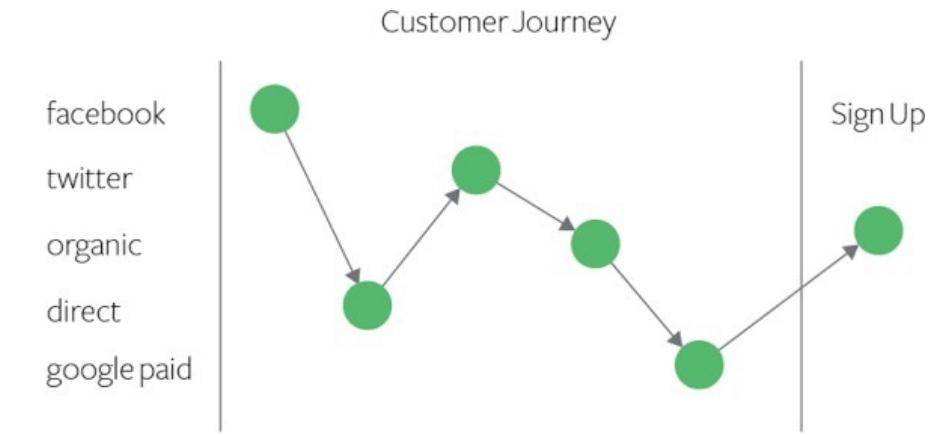
CHANNEL ATTRIBUTION

■ Channel Attribution

- Context: We have multiple acquisition channels for our product
- Problem: How do we know which acquisition strategy and channel is performing “best”

■ 2 Key Considerations

- How do we measure channel attribution?
- How do we account for channel spillover?

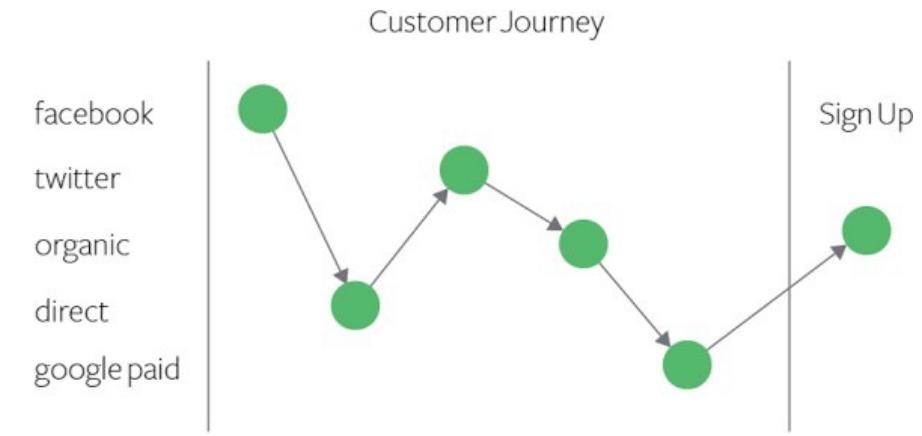


CHANNEL ATTRIBUTION: WAYS TO MEASURE ATTRIBUTION



- Ways of Measuring Attribution

- First-click attribution
- Last-click attribution
- Linear attribution
 - divide equally amongst all channels / sources
- Weighted attribution
 - divide attribution according to weighting scheme



- How?

- A/B Testing and Experimentation!

HOW CHANNEL ATTRIBUTION WORKS ON THE TECHNICAL SIDE

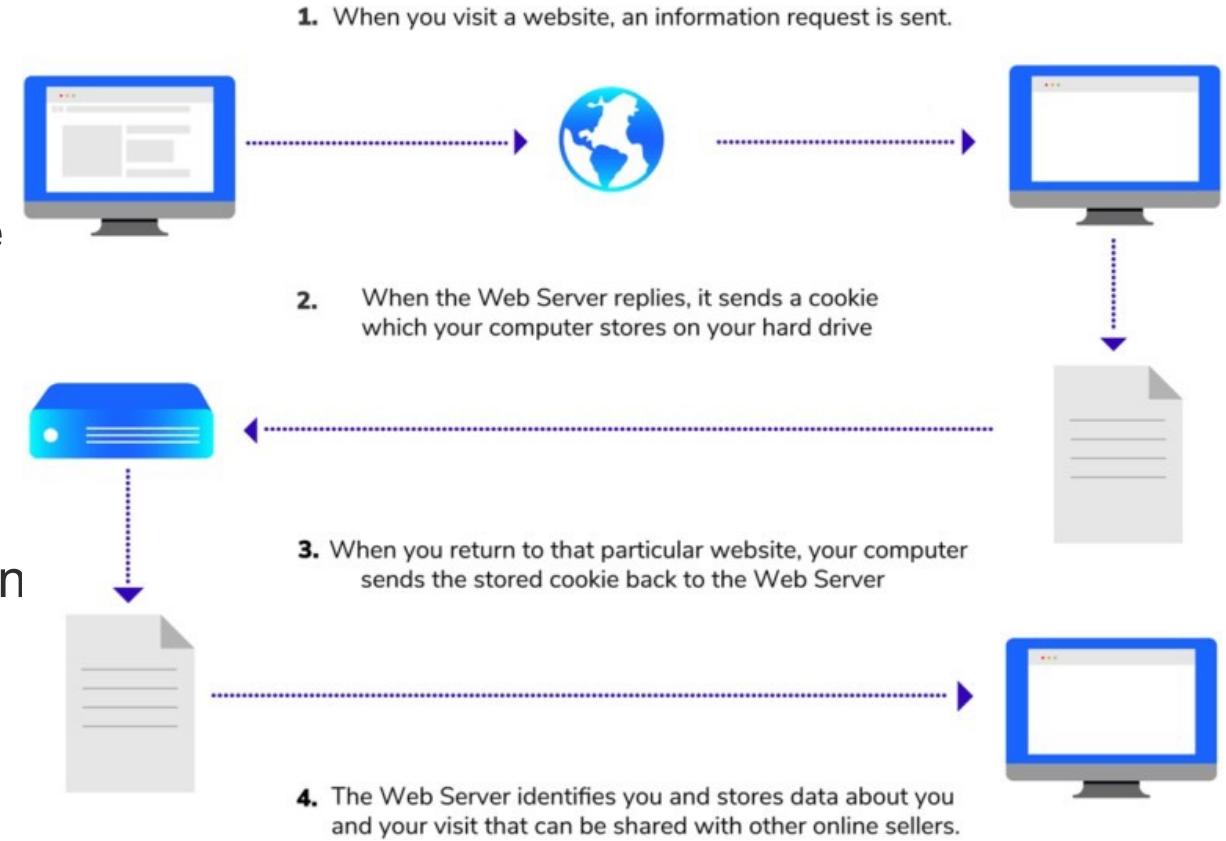


■ Cookie

- small file on your computer in a folder dedicated to cookies
- contains information about you as simple ID number or many other points of data.

■ Used for

- remembering who you are when you login to a website (e.g., email, Facebook)
- product analytics
- advertising





THE FUTURE OF ATTRIBUTION

■ 1st-Party and 3rd-Party Cookies

- Pervasive across the internet
- Uniquely tying your online history / behavior to the events of interest to advertisers or products.

■ Recent movement to block tracking

- Apple cracking down on advertisers' use of cookies with Safari's Intelligent Tracking Prevention (ITP)
- Firefox's Enhanced Tracking Protection

■ Read and learn more: Tracking on the Internet

- Try for yourself here: <https://coveryourtracks.eff.org/>
- Fast moving, keep up here:
<https://github.com/w3c/web-advertising>



THE FUTURE OF ATTRIBUTION

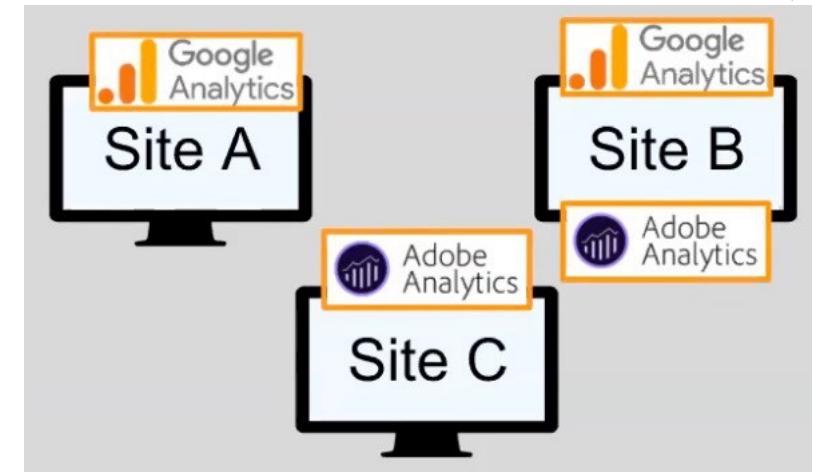
■ What are the effects of blocking cookies?

■ Recent Academic Research after GDPR

- GDPR = “General Data Protection Regulation”
- 100,000's of websites and products
- 1000's of cookie-based products (Ads, Design Opt)

■ Pie gets smaller, but portion of pie gets bigger.

- “Big Players” gain more monopoly power. i.e., Google, Facebook
- Before they only had 10-20% market share



Category	Vendor Share (Pre)	HHI		Diff. (%)
		Pre	Post	
All vendors	146	171		17.3%
All categorized vendors	308	363		17.8%
Advertising	50.2%	348	436	25.3%
Hosting	20.5%	1,892	1,936	2.3%
Audience measurement	14.4%	4,116	4,355	5.8%
Social media	9.2%	4,251	4,412	3.8%
Design optimization	2.6%	2,874	2,861	-0.5%
Security	1.8%	8,926	9,722	8.9%
Native ads	0.9%	4,229	4,024	-4.8%
CRM	0.2%	6,408	6,119	-4.5%
Privacy compliance	0.2%	3,925	4,116	4.9%

Johnson, G., Shriver, S., & Goldberg, S. (2019). Privacy & market concentration: Intended & unintended consequences of the GDPR. Available at SSRN.
https://ssrn.com/abstract=3360000

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<https://www.eff.org/deeplinks/2019/08/dont-play-googles-privacy-sandbox-1>



CHANNEL SPILLOVER

■ Channel Spillover

- When one channel affects another, thereby affecting a measurement of A/B effect
- Example: showing ad to user on Youtube (Channel A) affects how likely user searches on Bing (Channel B)

■ Why is this a problem?

- Same reason we need to be careful with A/B testing. We might not be measuring what we think we are.

■ Analogy: Marketplace A/B testing

- We need to randomize our "control" and "treatment" across entire cities for A/B Test



RECALL: RETENTION IS KEY METRIC OF PRODUCT-MARKET FIT



■ Retention

- What? Customer keeps "choosing" our product over competition to satisfy customer needs
- Recall: "Retention rate" is opposite of "churn rate"

■ Retention is key metric of Product-Market Fit (PMF)

- Needs Satisfied → "Value" to Customer → Customer Retention (not churn)
- Why important? General and objective metric across *product categories*



■ Retention is a "Product Metric" not a "Growth Metric"

- High product growth does not equal "success" (2x2 Matrix)
- But, *retention is critical to product growth* – "Growth Ceiling"



RECALL: RETENTION RATE IS OPPOSITE OF “CHURN” RATE



- Churn Rate (CR) is the percentage of users who end relationship with firm during a given period.

- Churn of users
- Churn of revenue

- Opposite of Retention

- Churn Rate = $100\% - \text{Retention Rate}$

MONTH OF SIGN-UP	% OF RETAINED CUSTOMERS IN LIFETIME MONTH				
	0	1	2	3	4
Jan'18	90.50%	87.78%	80.99%	78.87%	75.00%
Feb'18	91.00%	88.45%	83.40%	77.54%	
Mar'18	95.80%	92.50%	91.40%		
Apr'18	96.10%	93.80%			
May'18	95.45%				

Examples

- User Churn Rate = $(\text{Users beginning of month/day/week} - \text{Users end of month/day/week}) / \text{Users beginning of month/day/week}$
- Revenue Churn Rate for a subscription-based business model with monthly recurring revenue (MRR): $[(\text{MRR beginning of month} - \text{MRR end of month}) - \text{MRR in upgrades/upsells during month}] / \text{MRR beginning of month}$.

3 STEPS FOR CALCULATING RETENTION RATE AND RETENTION CURVES



3 Steps for Calculating Retention

1. Define “events” of active users

2. Define engagement timescale and frequency
 - How often do active users engage?
 - Quantitatively measuring frequency

3. Define retention cohorts
 - Temporal cohorts
 - Needs cohorts

Choose a Metric

Search list

Users

Engagement

Retention

Monetization

Funnels

Stacks

Custom metrics

Filtered metrics

Events (3) [Edit](#)

searchTravel

New!

+ 1-day retention

N/A

+ 3-day retention

N/A

+ 7-day retention

N/A

+ 14-day retention

N/A

+ 30-day retention

N/A

STEP 1) DEFINING “EVENTS” OF “ACTIVE USERS”

■ Which “events” captures the value proposition?

- Look at feature usage data.
- Are there “events” that predict retention in the future?

■ Do

- Define more than one “events” if necessary, but limit.
- Define different “events” for different cohorts – cohort on needs, feature usage, temporal cohorts

■ Don’t:

- define too narrowly, or you will later optimize product for non-value “event”
- define as output / lagging metric
- accidentally double count if using more than one metric

The screenshot shows a user interface for choosing a metric. On the left, a sidebar lists categories: Users, Engagement, Retention, Monetization, Funnels, Stacks, Custom metrics, Filtered metrics, Events (3) Edit, and searchTravel. The 'Retention' category is highlighted with a dark grey bar. To the right, a list of retention metrics is displayed in boxes, each with a plus sign icon and a 'N/A' status. A green 'New!' label is visible next to the 'Events' section.

Metric Type	Value
1-day retention	N/A
3-day retention	N/A
7-day retention	N/A
14-day retention	N/A
30-day retention	N/A

STEP 2) DEFINE RETENTION FREQUENCY



■ Qualitatively

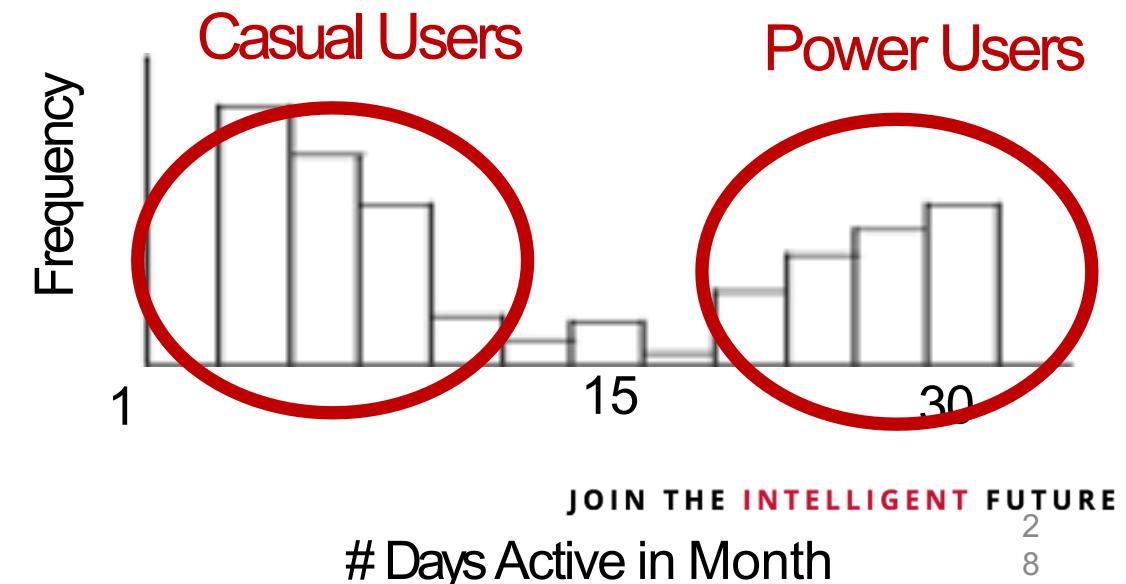
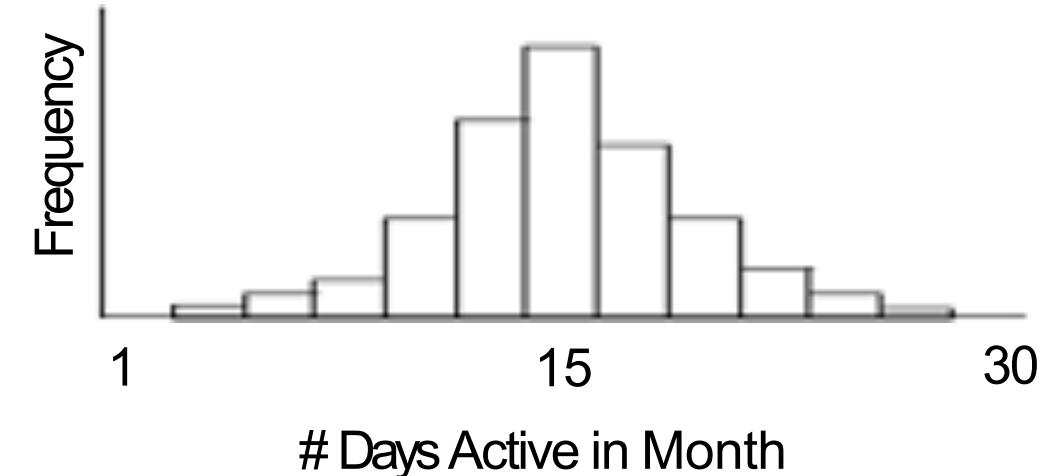
- How often user engages in value proposition?

■ Quantitatively

- Plot histogram of “active” users over timescale
- Check pattern to find “modes”

■ Segment/Cohort for engagement frequency

- “Power User Curve”



STEP 3) DEFINE RETENTION COHORTS

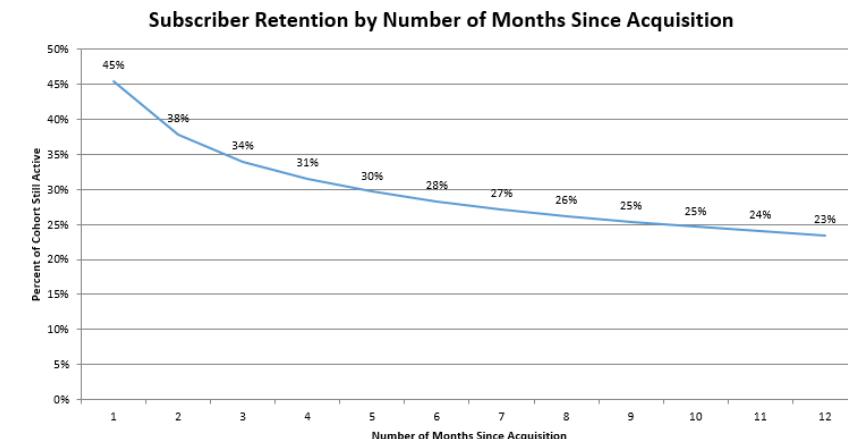


■ Cohorts

- Temporal Cohorts
- Needs Cohorts
- Revenue Cohorts

■ Different cohorts might have

- different active user “events”
- different expected engagement frequency



$$\text{Cohort Retention Rate} = \frac{\text{Cohort Active Users at End of Period} - \text{New Cohort Users}}{\text{Cohort Active Users at Beginning of Period}}$$

WHY COHORT? KEY POINT: AVERAGE RETENTION RATE “HIDES” COHORT RETENTION RATES



- Retention is critical to calculate correctly. Averages “hide” patterns.
 - Averages hide things → we need to cohort correctly.
 - Example: multiple retention rates for CLV calculation (Blue Apron & A/B Assignment)

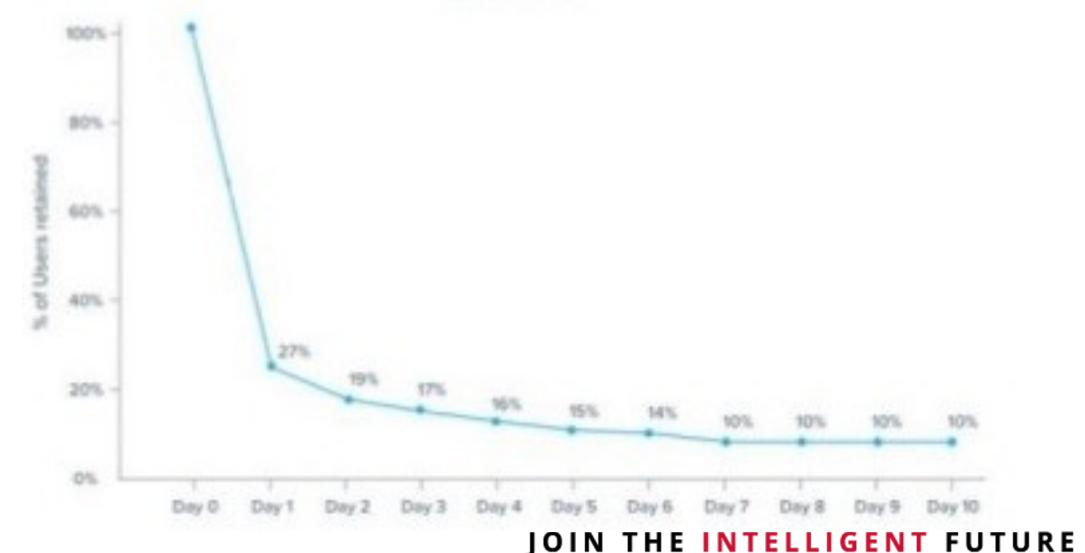
■ Cohorts

- Temporal cohorts
- Needs cohorts (i.e., customer segments)
- Monetization cohorts

■ Tools:

- Retention Curves
- Retention Triangle Plots/Heatmap

$$\text{Customer Retention Rate} = \frac{\text{Customers at the end of the period} - \text{New customers}}{\text{Customers at the beginning of the period}} \times 100$$



TOOL: TRIANGLE RETENTION PLOT (TEMPORAL COHORTS)



■ Triangle Plot

- Each row is temporal cohort
- Each column is % retained after number of time period
- Time period should be near expected frequency of use

■ Answers:

- How is retention doing over time?
- Splits users by temporal cohort

Time	People	User signed up							User signed in by Months									
		1	2	3	4	5	6	7	8	9	10	11	12	>12				
August 2010	1,021	25.6%	6.0%	5.4%	5.8%	3.3%	2.9%	3.8%							1.9%	0.6%		
September 2010	1,016	28.0%	6.1%	5.5%	5.7%	4.9%	3.7%								0.8%	-		
October 2010	973	26.5%	6.7%	4.5%	5.4%	4.6%	3.3%	3.1%							-	-		
November 2010	1,386	28.5%	5.0%	5.3%	4.7%	4.4%	3.0%	3.0%	2.5%	1.7%	0.8%	-	-	-	-	-	-	-
December 2010	1,652	23.5%	6.6%	3.9%	3.5%	3.0%	2.1%	2.0%	2.0%	0.7%	-	-	-	-	-	-	-	-
January 2011	1,523	26.5%	6.6%	4.3%	3.9%	3.4%	2.2%	2.4%	0.3%	-	-	-	-	-	-	-	-	-
February 2011	1,405	25.5%	7.9%	6.5%	5.9%	3.6%	2.9%	0.9%	-	-	-	-	-	-	-	-	-	-
March 2011						7.2%	5.7%	4.7%	1.5%	-	-	-	-	-	-	-	-	-
April 2011						6.3%	5.1%	1.5%	-	-	-	-	-	-	-	-	-	-
May 2011						5.6%	2.5%	-	-	-	-	-	-	-	-	-	-	-
June 2011	1,155	28.2%	6.8%	2.2%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2011	1,003	26.5%	2.2%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

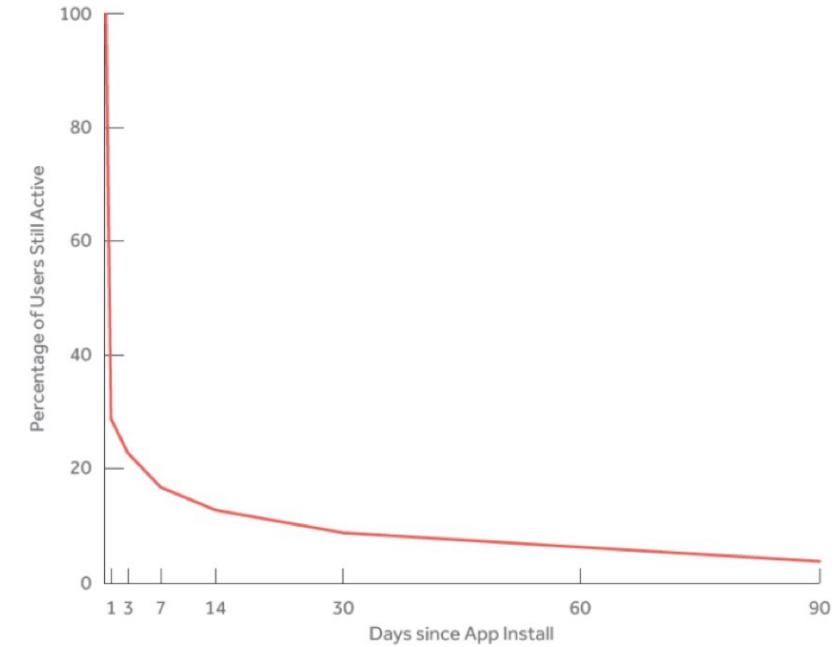
Retention over user lifetime

Change in retention over product lifetime

MOBILE APPS IN GENERAL HAVE VERY POOR RETENTION



- Average app loses 70% of DAU in first 3 days
- But “top” apps in Mobile Store are much better → “winner takes all”



CASE STUDY: BLUE APRON



- Blue Apron
 - Subscription-based meal kit for cooking at home
 - Launched in 2012
 - Founded in NYC



MEAL KIT INDUSTRY BACKDROP IN 2016



■ Growing industry

- \$1.5B in 2016, \$4.7B in 2017
- Expected 20% CAGR through 2022
- Very small market versus groceries and restaurants
- Consumers moving from ingredients to meals

■ New revenue opportunities

- Breakfast and lunch
- Premium ingredients
- Supplementary products

■ Concentrated market structure

- 73% of market controlled by just two companies



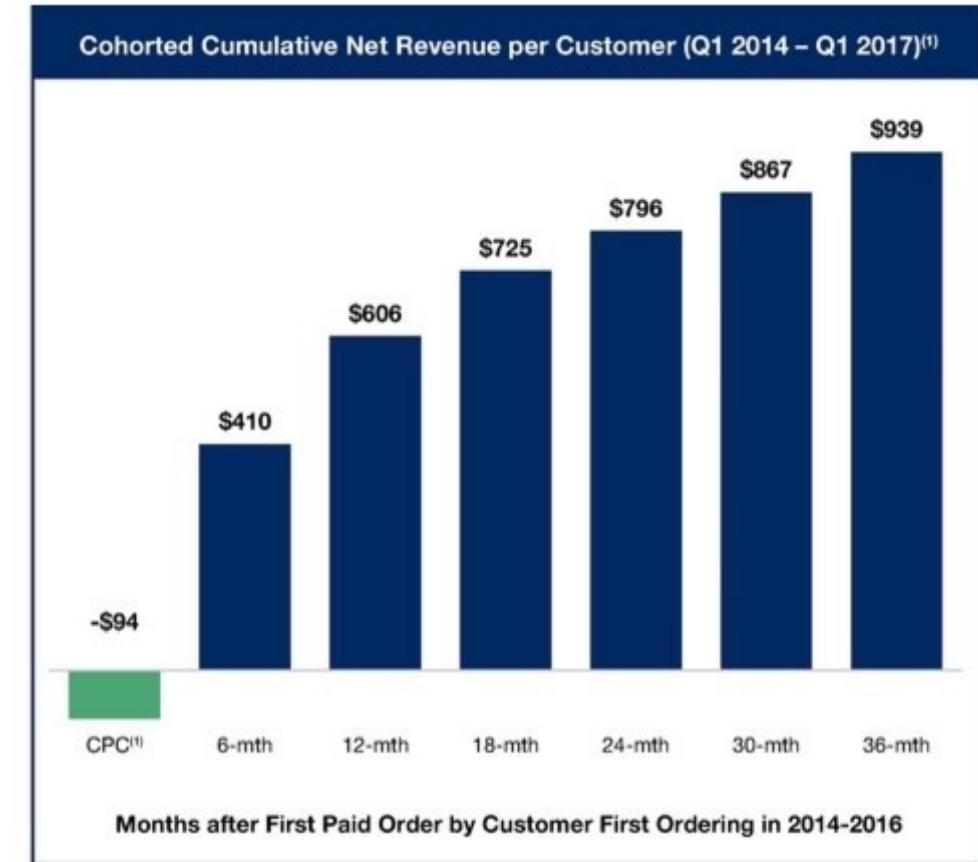
BLUE APRON IN 2016

■ Meal Kit Market Leader

- Revenue growing rapidly
- 53% market share
- Premium brand image
- Relatively low customer acquisition cost
but higher than 2015

■ Heavy promotion / paid acquisition

- Similar to Headspace
- 200 million in funding by 2017



Source: Blue Apron S-1 Filing



BLUE APRON MASSIVELY RAMPED UP ACQUISITION

■ Paid In-App Acquisition

- New users get up to \$50 off first box or \$30 credit if they don't complete the checkout process.

■ Paid Marketing Campaigns

- Google / FB search
- Email campaigns

■ Promoted Referral

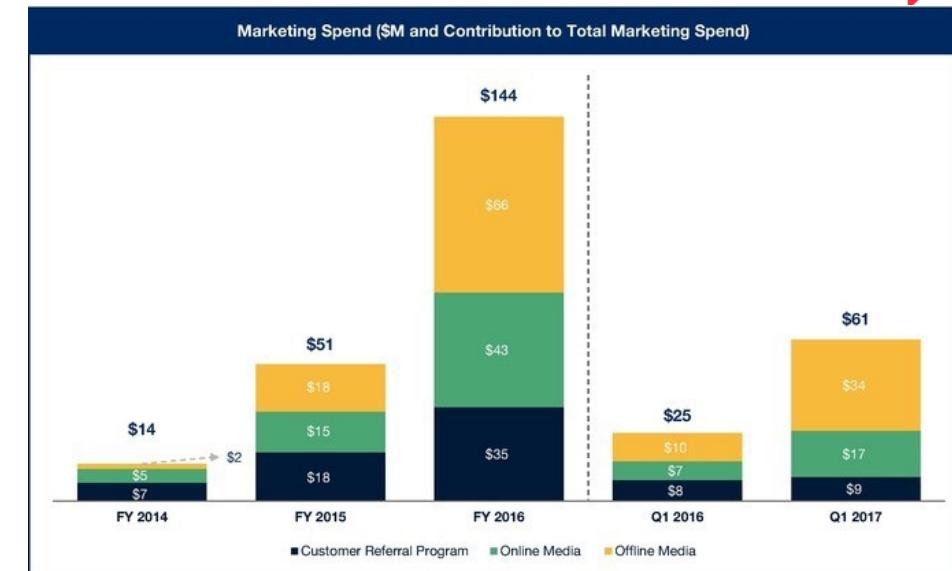
- Activated Blue Apron users can refer other users with free meals.
- Blue Apron affiliates can earn \$15 for new subscription sales from affiliate links.

■ Influencers

- YouTubers and podcast promote Blue Apron.

Carnegie Mellon University

Source: Prof. Dan McCarthy, saasquatch.com



Source: Blue Apron S-1 Filing

“On marketing efficiency and retention, the challenge for us, we believe is more on the acquisition side of the business, not on the retention side of the business. If we can acquire customers in an efficient manner, the retention side of the business shouldn’t be a challenge for us as much.”

- Brad Dickerson, Fmr. CEO, Blue Apron

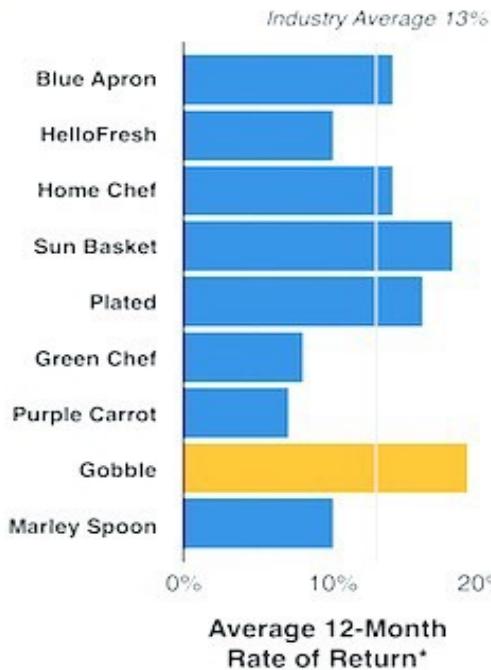
JOIN THE INTELLIGENT FUTURE

RETENTION VERSUS LEADING SUBSCRIPTION BUSINESSES AND VS OTHER MEAL KIT PROVIDERS



Meal Kits - Customer Retention

companies sorted by U.S. market share



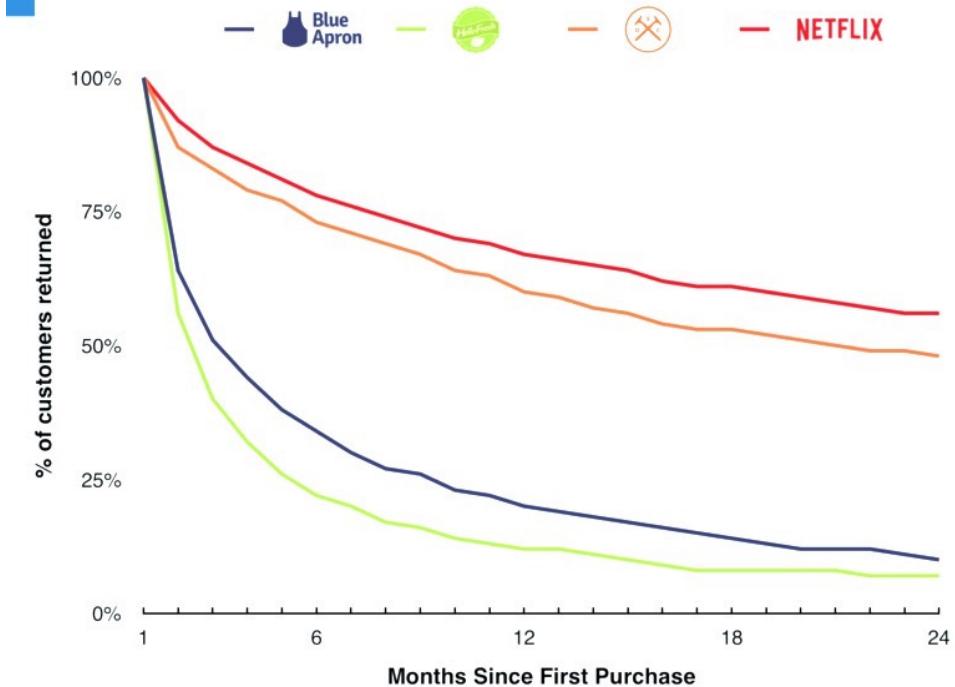
SECOND MEASURE

Blue Apron is better than industry average

Carnegie Mellon University

Tepper School of Business

Customer Retention *



Source: Second Measure

* Median customer retention for all cohorts from March 2015 - March 2017. A customer is retained for the period if they transacted in that period or the period prior.

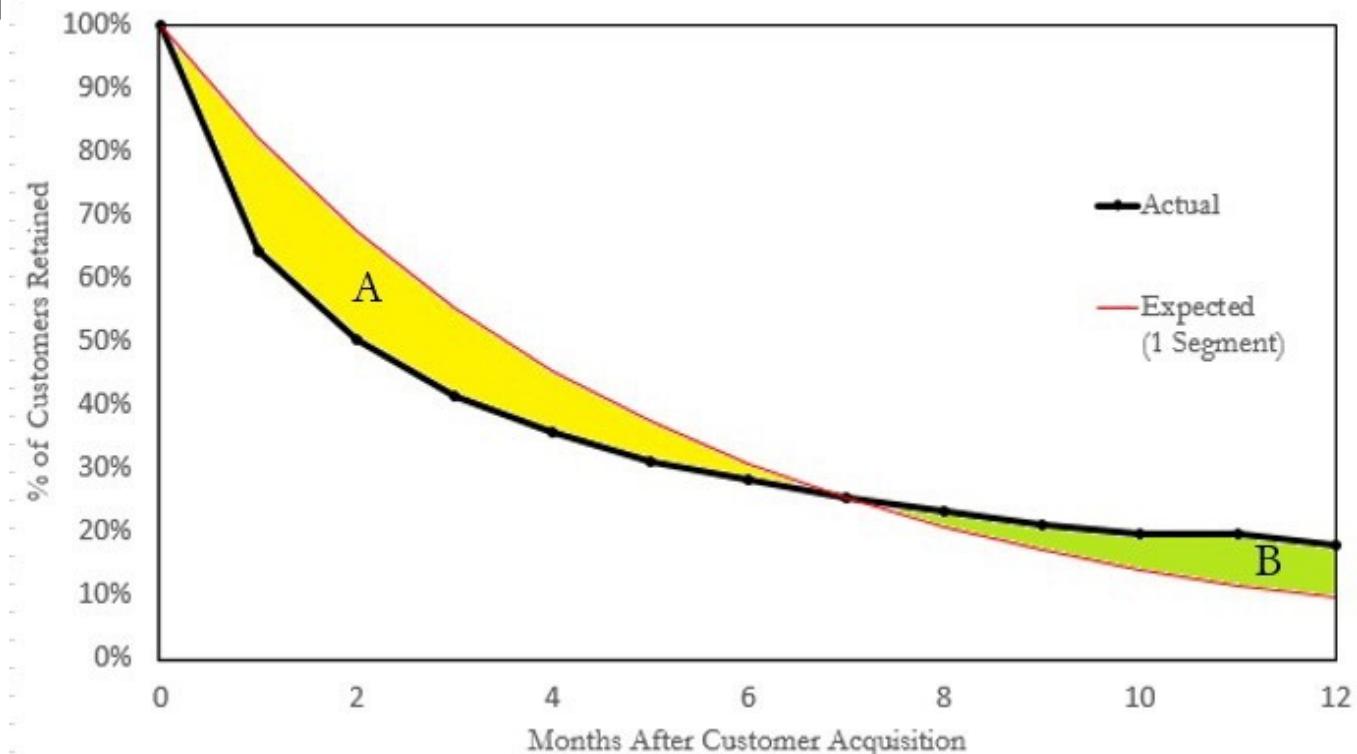
Meal kit industry poor retention relative to other industries

JOIN THE INTELLIGENT FUTURE

RETENTION CURVE DOES NOT FALL OFF AS EXPECTED?



- The average monthly retention rate of 82% implies
 - After 1 mo., 82% remain.
After 12 mo., 9% remain.
- Actual:
 - After 1 mo., 64% remain.
 - After 12 mo., 18% remain.
- Takeaway: Averaging often “hides” product problems



RETENTION CURVE BY NEEDS COHORTS



■ Needs Cohorts

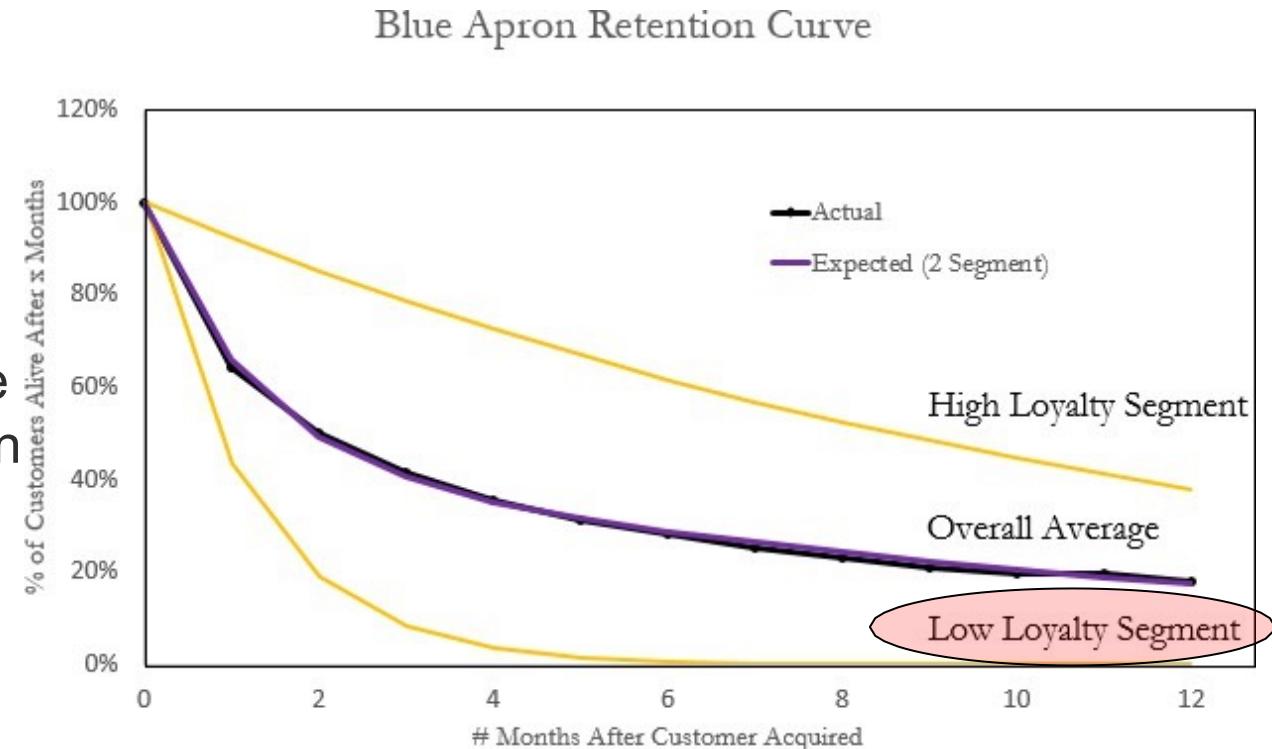
- Low Loyalty
- High Loyalty

■ Low Loyalty Cohort

- 54% of customers highly unprofitable
- Only there for discounted / promotion meals

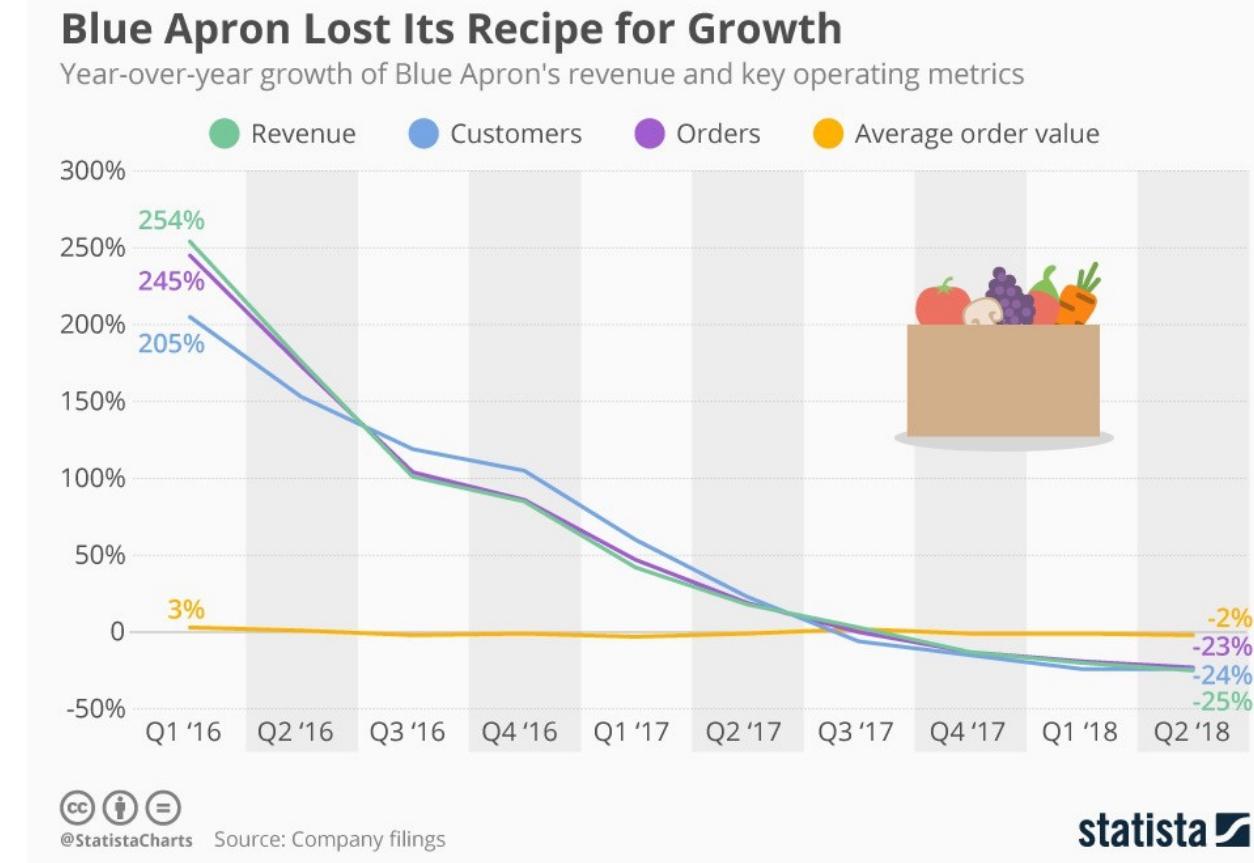
■ High Loyalty Cohort

- What are their needs?
- Is this “needs cohort” profitable?





RECALL: RETENTION IS CRITICAL FOR REVENUE



WHAT WOULD YOU DO IF YOU WORKED FOR BLUE APRON?

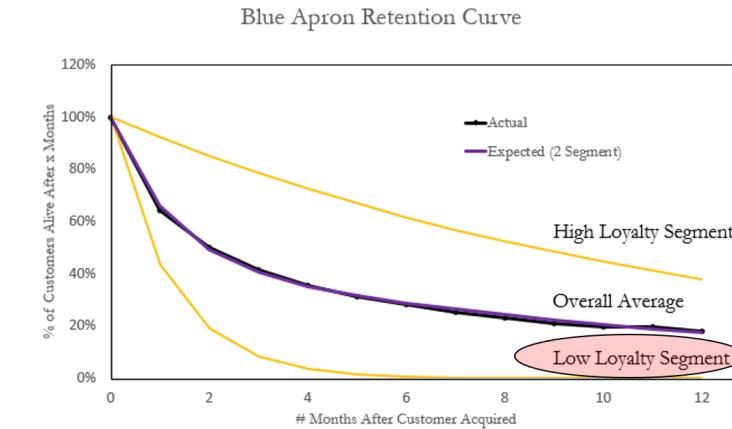


- Only target the high loyalty segment?

- Try to “resurrect” churned users?

- Continue doing what they are doing?

- Question: What can they do to increase customer profitability?





WHAT BLUE APRON DID

- Targeted high-loyalty customers
- Further segmented high-loyalty customers according to their needs

The screenshot shows the Blue Apron website's "PLANS & PRICING" section. It features three meal plan options:

- Vegetarian Plan** (Serves 2 People): \$9.99 Per Serving, FREE Shipping, \$44.94 Weekly Total. Options: 2, 3 Recipes Per Week. [SELECT THIS PLAN](#)
- Classic Plan** (Serves 2 People): \$9.99 Per Serving, FREE Shipping, \$44.94 Weekly Total. Options: 2, 3 Recipes Per Week. [SELECT THIS PLAN](#)
- Family Plan** (Serves 4 People): \$8.99 Per Serving, FREE Shipping, \$56.92 Weekly Total. Options: 2, 3, 4 Recipes Per Week. [SELECT THIS PLAN](#)

A \$30 DISCOUNT is applied over two weeks.

WHAT WOULD YOU DO IF YOU WORKED FOR BLUE APRON?



■ Which metrics would you use to improve customer value and overall performance?

- Events: What is an “active user”?
- Frequency: What is the expected engagement per unit time?
- Cohorts: What cohorts should be defined for retention?



■ How do Blue Apron and other meal kit providers fit with other grocery suppliers?

NEXT WEEK



- First half
 - Guest speaker: **Michael Degnan (Senior VP, Head of Enterprise Innovation @ PNC)**
 - 1 hour lecture on New Product Development & Innovation
 - 30 min Q&A about Innovation & Product management
- Second half
 - Team presentations
 - **Attendance and questions are expected throughout all presentations!**