

# PRODUCT ANALYTICS PLAYBOOK

## Volume 2 MASTERING ENGAGEMENT

How to build engaging products that  
your customers value

# PRODUCT ANALYTICS PLAYBOOK VOLUME 1: LOVE FOR MASTERING RETENTION

"Really excited to see this book come out from the folks at Amplitude. They've developed a repeatable framework for analyzing retention that can be adapted to any web or mobile product. Highly recommend for product and growth teams working on retention and engagement."



**NIR EYAL** – *The Wall Street Journal* best-selling author of *Hooked: How to Build Habit-Forming Products*

"This book distills the industry's best proven methods into a clear, practical framework on which companies at any stage can take immediate action—it's a must read for product and growth teams."

**JULIE ZHOU** – Director of Product at Adroll,  
formerly Lead PM of Growth at Yik Yak

"Thanks for the amazing playbook—it's the most practical treatment towards analysis that I've ever seen."

**SHIRLEY ZHOU** – Product Manager at Rocketrip

"Mastering Retention brought product analytics to life for me. I'm a very detail-oriented, hands-on PM, so making the connection between what I'm trying to achieve, what story the analytics tells, and how to turn that story into so-what, actionable next steps is critical. There has been no other resource I've found that does that in a deep, meaningful way."

**KAYLA ARMSTRONG** – Senior Product Manager at SoFi

"...The quality of Mastering Retention is really high. Well done! I've been in growth and analytics for a while and I'm also learning quite a few tips along the way. I'm having my team read it also—the book does a great job at getting into some of the details."

**LOREN APPIN** – Co-founder at Fishbowl

## Special Thanks

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And finally, thanks to all of the teams who use Amplitude: you inspire us with your stories and provide invaluable feedback. This book (and Amplitude) wouldn't exist without you!

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## About Amplitude

Amplitude is the world's first product intelligence platform that combines customer data and growth best practices to help digital teams scale their business faster.

Download Mastering Retention at [productanalyticsplaybook.com](http://productanalyticsplaybook.com)

Read Mastering Engagement online at [amplitude.com/user-engagement](http://amplitude.com/user-engagement)

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### A note on examples:

Although this playbook draws on real-life examples from companies that we work with, we have altered examples to prevent disclosing specific companies and their real data. We've tried to preserve the lessons and principles behind the examples as much as possible.

“

*I think of user engagement as the fuel powering products. The best products take that fuel and propel the product and with it, the company forward.*

SARAH TAVEL – General Partner at Benchmark,  
formerly Product Manager of Search & Recommendations at Pinterest

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# CHAPTER 01

## THE THREE GAMES OF ENGAGEMENT

Most products disappear into obscurity almost as soon as they're out of the press spotlight. Research shows that the average app loses almost its entire user base in just three months<sup>⑪</sup>. Even if the latest media buzz or marketing campaign brings in a wave of new signups, most products miss the mark on delivering actual value to their new users—and if those users don't find meaningful value early on, they're gone before you have a chance to show them anything more. That's why having a strategy for user engagement is so critical.

<sup>⑪</sup> <http://andrewchen.co/new-data-shows-why-losing-80-of-your-mobile-users-is-normal-and-that-the-best-apps-do-much-better/>



## TERMS TO KNOW

**Retention** is a measure of how many users return to your product over time after some initial event (usually first use).

**Engagement** is a measure of how much or how often users interact with your product.

**Onboarding** is a series of steps within your product designed to show new users how they can use the product to obtain value.

**Activation** is a point or phase at the end of Onboarding during which a new user obtains enough value from the product such that they become a current active user of the product.

## Topics covered in this chapter:

- 1.1 - Why user engagement matters
- 1.2 - Which engagement game are you playing?
- 1.3 - Defining a north star that drives engagement
- 1.4 - Defining customer value exchange for your game
- 1.5 - Introducing the engagement loop
- 1.6 - Measuring your engagement game
- 1.7 - Taking action

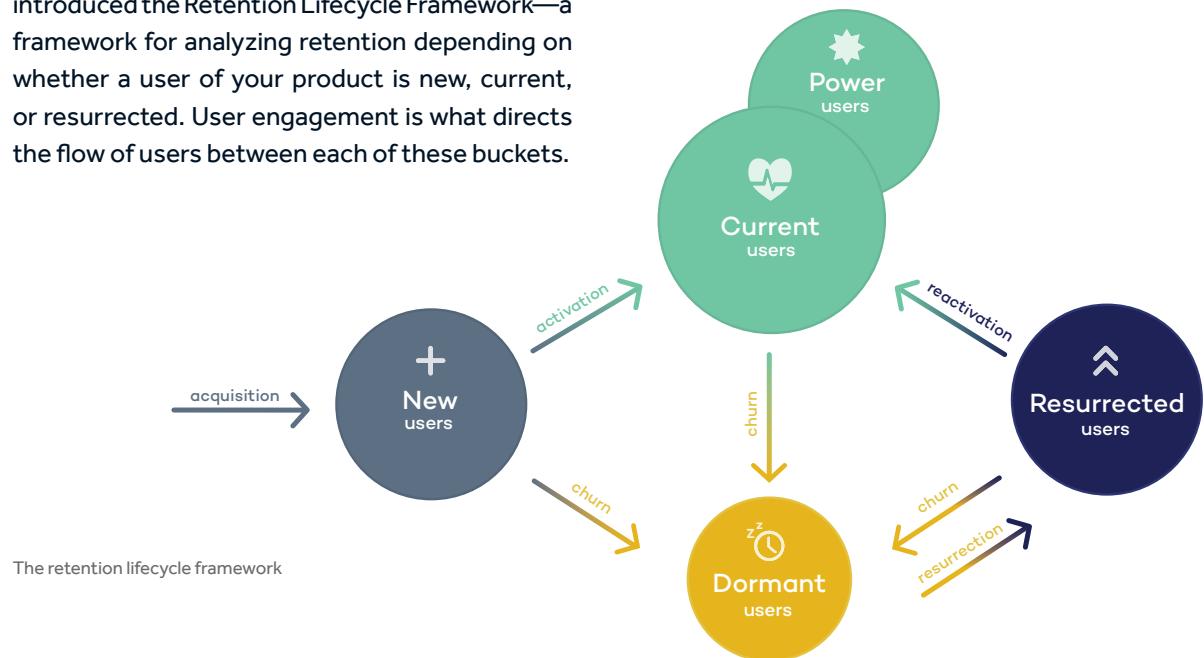
## The retention lifecycle framework

After a new user is onboarded (or a churned user is resurrected), that user must engage with the product through a number of value-adding interactions before being activated into a regular current user. A current user who then becomes more and more engaged with different dimensions of your product can then become a power user.

Engagement matters because, ultimately, it drives revenue. If you consistently deliver value to your users and help them discover that value, they'll stay engaged with the product, keep coming back, and keep wanting to invest their time and money into your product.

### 1.1 | Why user engagement matters

In the **Product Analytics Playbook Volume I**, we introduced the Retention Lifecycle Framework—a framework for analyzing retention depending on whether a user of your product is new, current, or resurrected. User engagement is what directs the flow of users between each of these buckets.



## 1.2 | Which engagement game are you playing?

Based on our research of products at over 12,000 companies and 5 trillion user actions, we have learned that all digital products play one of three possible games of user engagement. They're either playing to win attention, transaction, or productivity:

- The Attention Game:** Products playing this game are trying to maximize the amount of time users spend in-product. Industries that typically play this game today are media, gaming and any company displaying advertisements to you.
- The Transaction Game:** Products playing this game help customers make purchase decisions with confidence. Companies you will often find playing this game are e-commerce platforms.
- The Productivity Game:** Products playing this game create an easy and reliable way to complete an existing task or workflow for the user. This game is predominant in business-to-business software.

At product-led companies, the product team isn't simply a cost center of the business whose success is measured by the number of things shipped<sup>(2)</sup>. By solving customer pain and building things that deliver value, product teams have a very real impact on the business—that's why building a great product should be treated like a game of chess.

Just as chess grand masters have to analyze the board to map out their strategy, (sometimes up to eight moves in advance!), so must product managers proactively analyze the set up of their customer engagement game.

Once you know your game, with the right tactics in place, PMs can get users to their aha moment faster, start them on their journey up the engagement ladder, and set them up in successful engagement loops—but more on this in Chapter 2 and 3.

The first order of business is to ask yourself which engagement game you are playing and then define the right metrics of success for your game.

### PRO TIP

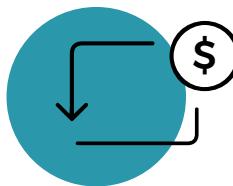
At Amplitude, we have now run workshops with dozens of large digital businesses to help them refine their product strategy.

When we share the Three Games of Engagement framework with product managers and executives, their first reaction is to say that all three engagement games are important to them. While this is true, making a clear choice about which game matters most is what strategy is all about. Strategy is what you say no to. Product teams need to make a clear choice about whether they are playing the attention, transaction, or productivity game so they can focus on winning it.

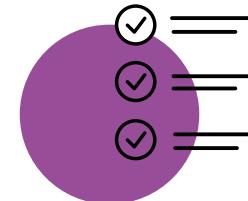
#### Attention Game



#### Transaction Game



#### Productivity Game



<sup>(2)</sup> <https://amplitude.com/blog/2017/10/04/thrive-product-led-era>



## TERMS TO KNOW

A **north star metric** defines the relationship between the customer problems the product team is trying to solve and the revenue the business aims to generate by doing so.

A **KPI**, also known as a Key Performance Indicator, is a measurable value that demonstrates how well an organization is achieving its current objective.

An **OKR**, also known as Objectives and Key Results, is a framework for defining and tracking company, team, or personal objectives.

A **leading indicator** is a value or measurement that can be used to indicate future business outcomes. Good north star metrics are leading indicators of success. On the other hand, metrics like ARPU and monthly revenue are lagging indicators.

### 1.3 | Defining a north star that drives engagement

A north star metric is the key measure of success for the product team in a company. It defines the relationship between the customer problems that the product team is trying to solve and the revenue that the business aims to generate by doing so.

The product north star serves three critical purposes in any company:

1. **It gives your organization clarity and alignment on what the product team is optimizing for and what can be traded off.**
2. **It communicates the product organization's impact and progress to the rest of the company, resulting in more support and acceleration of strategic product initiatives.**
3. **Most importantly, it holds product teams accountable to an outcome.**

Purpose #3 is where aligning your north star metric with your engagement game becomes crucial. If you measure product success on a north star that doesn't represent customers using your product in a way that they get value, you risk optimizing for the wrong metric and ultimately the wrong outcome.

For instance, suppose you're on the product team at an e-commerce company and you should be playing the transaction game—when a customer

## PRO TIP

Beware of vanity metrics, especially for your north star. “**Daily Active Users**” or “**Registered Users**” are not good core KPIs because they say nothing about what engages your customers. When teams fail to connect engaged customer value directly to their north star metric, they risk leading their business down the wrong path.

completes a transaction, you win. But let's say you and your team don't clearly define the game you're playing. Instead of shipping features that get customers to make purchases, you end up shipping features that increase the time customers spend browsing for goods. This might not do your business much good. In fact, it might do harm if you inadvertently decrease the number of purchases being completed.

Knowing which engagement game you're playing is the first step towards defining a north star metric and set of KPIs that focuses your team's efforts on shipping features that create value for customers, and ultimately helps you win.

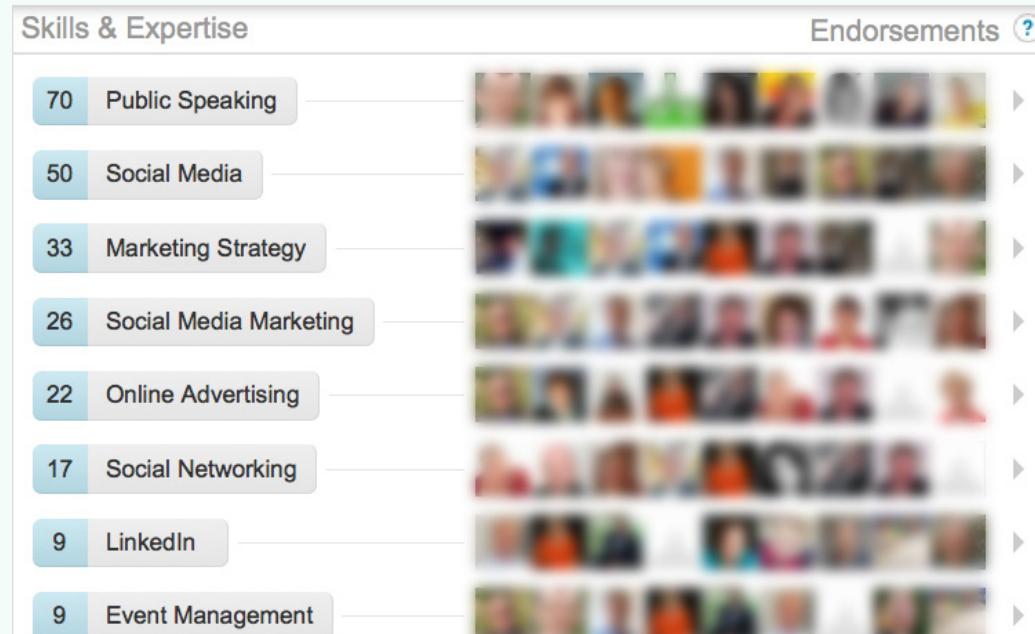
## EXAMPLE

### When LinkedIn Endorsement's past north star metric drove the wrong engagement game

In 2012, LinkedIn introduced their 'Endorsements' feature. Endorsements allowed LinkedIn users to vouch for the expertise of other users. It served as validation of a user's skills and expertise as well as a way for recruiters to find candidates with specific skills.

Initially, the north star metric for Endorsements was total endorsements given. In order to increase this metric, LinkedIn suggested endorsements for users to give their connections.

What the team discovered, however, was that although the suggestions did prompt more users to endorse their connections (and thus boosted their north star), this didn't actually result in increased product value. In fact, because endorsing in bulk became so easy, the meaning of a LinkedIn Endorsement became devalued. Users expressed not trusting Endorsements—the complete opposite of what LinkedIn had intended with the feature<sup>(3)</sup>.



LinkedIn's old Endorsements feature<sup>(4)</sup>

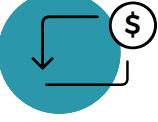
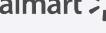
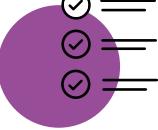
<sup>(3)</sup> <http://papers-www2017.com.au.s3-website-ap-southeast-2.amazonaws.com/companion/p617.pdf>

<sup>(4)</sup> <https://www.socialmediaexaminer.com/linkedin-endorsements/>



Here are some hypothetical north stars from companies playing each of the three engagement games. One important thing to keep in

mind: companies playing the same game can have radically different north stars because it reflects their unique product strategy.

	Companies	Hypothetical North Stars
<b>Attention</b> 	<b>facebook</b> <b>NETFLIX</b>	<ul style="list-style-type: none"><li>• Time spent actively engaging with feed</li><li>• Number of subscribers watching &gt; X hrs of content per month</li></ul>
<b>Transaction</b> 	<b>Walmart</b>  <b>amazon</b>	<ul style="list-style-type: none"><li>• Purchases per prime subscriber</li><li>• Purchases per customer visit/session</li></ul>
<b>Productivity</b> 	<b>Adobe</b> 	<ul style="list-style-type: none"><li>• Avg records created per account</li><li>• Number of engaged cloud subscribers</li></ul>

Potential examples of north star metrics for each type game

## Players of the attention game:

### Facebook vs. Netflix

While Facebook and Netflix both play the attention game, their business models are radically different. Facebook's revenue is proportional to the amount of feed engagement and hence ad revenue generated. Netflix, on the other hand, follows a subscription model with a fixed (but growing) amount of content. Let's say Netflix read our Mastering Retention playbook and found out that subscribers watching greater than X hours of content per month were more likely to be retained the next month. Instead of focusing on total time spent watching content, Netflix's north star should be about getting more subscribers to watch that amount of content.

## Players of the transaction game:

### Amazon vs. Walmart

Similarly, Amazon Retail and Walmart might have very different north stars despite being players in the same transaction game. Amazon is likely optimizing for the number of Amazon Prime subscribers and the value that it generates for them, especially since the Prime subscription gives Amazon visibility into customer loyalty and lifetime value. Walmart, on the other hand, is a cost leader—a company that has competitive advantage by having the lowest cost of production in the industry—and is probably focusing on increasing the percentage of their customers' spend over time.

## Players of the productivity game:

### Salesforce vs. Adobe

Salesforce aims to be the central source of truth for customer records at B2B companies. Their latest strategy revolves around AI for decision making in sales. This means that their north star would be less about user adoption and more about the amount of customer data they store for their accounts. On the other hand, Adobe Creative Cloud likely focuses on individual subscribers and driving enough engagement to ensure continued subscription.

Product teams need to start their strategic planning by defining the engagement game they are playing. This, along with their business strategy, informs their product north star metric. Getting your engagement game and north star metric right is the core of product strategy and organization. At the end of this chapter you will find a helpful template that will allow you to have this discussion in your own organization.

The engagement game defines much more than the core KPIs a product should track. The specific game you're playing also dictates fundamental concepts around the product-customer value exchange that you should be designing into your application workflows.



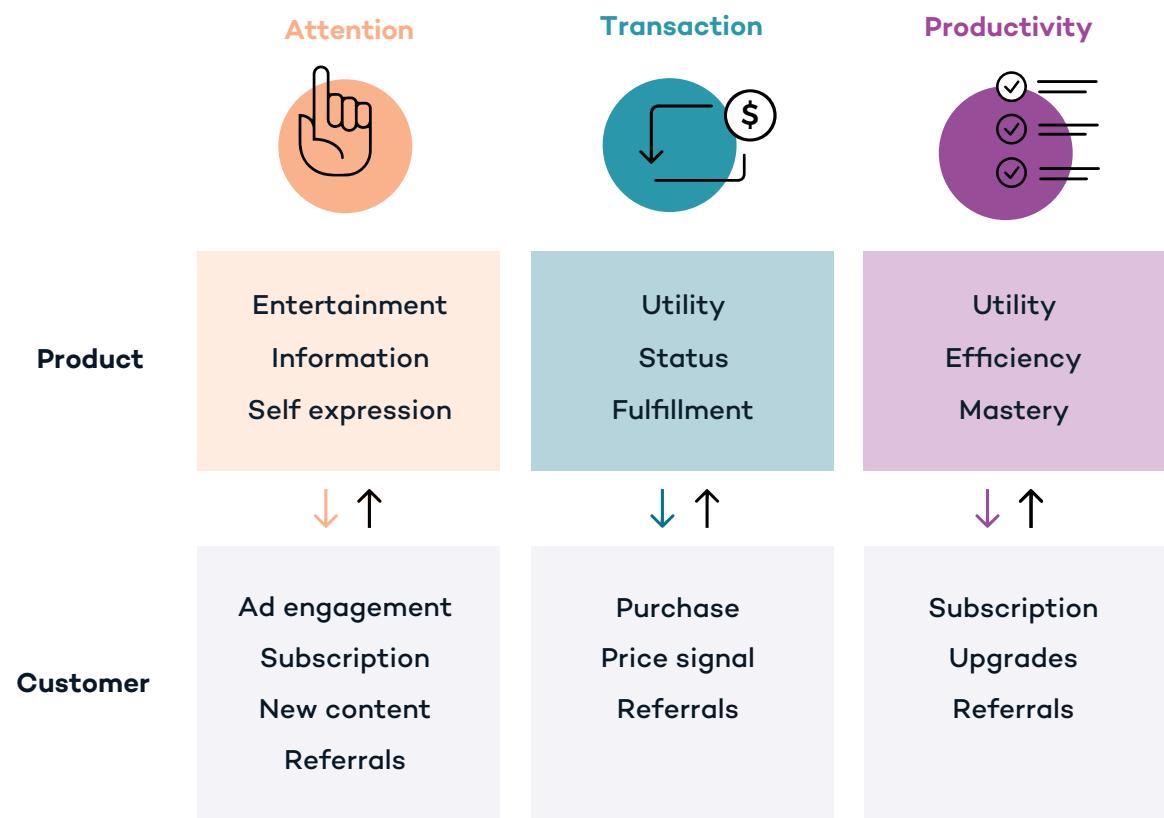
## 1.4 | Defining customer value exchange for your game

Modern management theory defines a product as a medium of value exchange between a user and a business.

The product offers value to a customer—entertainment, efficiency, status, etc.—and the customer in return offers compensation to the business. At the core of building a product that engages users is having a true understanding of the actions within your product that provide realized value to the customer.

These moments of value exchange look different depending on the kind of product you're building and thus the engagement game you're playing. These days, business model innovation and digital transformation have broadened the number of ways in which customers can offer this compensation. Apart from one-time or recurring payments, customers can now offer their time by engaging with ads, offer referrals, or simply offer information about their preferences.

Let's take a look at how to create customer value in each of the three types of engagement games.



The product-customer value exchange summarized for all three of the engagement games

### 1.4.1 | Creating customer value in the attention game

When your product is playing the attention game, you are vying for your users' time. In return, you offer them entertainment, information, stimulation and/or emotional relief. The easier and better you offer this value, the more time customers spend using your product. Industries that typically play this game today are digital media, social media, gaming and other types of products showing you advertisements.

Entertainment, information and self expression are the three core values that an attention product can offer a customer. Great products playing the attention game paint a picture of endless content choice and use customer engagement data to personalize the user experience (more on this in Chapter 4).

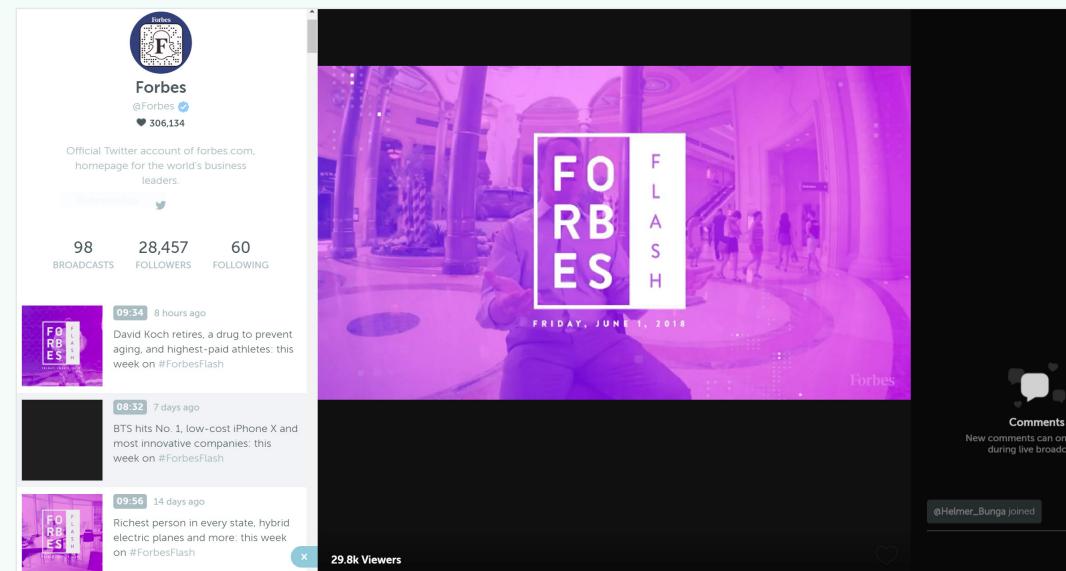
For products playing the attention game, your success in creating value for your users can be measured by asking yourself how much of your their time you are capturing. Examples of metrics you might care about are: time spent within the product, number of sessions over a period of time, or how many times users performed a critical event over a period of time.

#### EXAMPLE

##### Twitter video plays the attention game

Twitter's video and live-streaming platform is a prime example of a product playing the attention game. Twitter's number of daily video views nearly doubled in the past year and contributed to more than half of their ad revenue for two consecutive quarters.

A clear exchange of value had taken place: customers were receiving entertainment and information and the business was receiving ad engagement in exchange. This prompted the social media giant to sign up with companies like NBCUniversal and Walt Disney to offer more news and entertainment in video format<sup>15</sup>.



A Periscope (Twitter video) livestream from Forbes

<sup>15</sup> <https://www.bloomberg.com/news/articles/2018-06-04/twitter-dissolves-live-video-team-in-broader-content-shakeup>

## 1.4.2 | Creating customer value in the transaction game

Products playing the transaction game generate value via commercial transactions taking place online. Companies you will most often find playing this game are e-commerce platforms—from

### EXAMPLE

#### Bonobos plays the transaction game

Men's clothing brand Bonobos seeks to solve a pain they believe most men seem to have: shopping. They've created a guided, hassle-free

shopping experience to help men find their right fit, make purchases online, and have their orders shipped directly to their home. In this value exchange, customers make a purchase in order to fulfill a desire for clothes and for the utility of having those clothes delivered.

The screenshot shows the Bonobos website homepage. On the left is a vertical navigation menu with categories like New, Featured Shops, Bottoms, Denim, etc. The main content area features a black and white photograph of a man in a suit and a person playing a guitar. Overlaid on the image is the text: "Shopping for clothes is a pain. We're here to make it painless, and maybe even fun." At the bottom of the page, a caption reads: "Bonobos highlights the pain that their product solves".

retail giants to smaller marketplaces and subscription services.

Products playing the transaction game offer a few different types of value to a customer. Some businesses, like Walmart.com and Amazon, chiefly offer the customer utility. These companies are extremely focused on price points and shipping. In fact Eugene Wei, an early product manager at Amazon, said that customers cared about shipping costs to an irrational extent<sup>[6]</sup>. Customers who shop with these brands feel assured they are getting the best deals on their purchases without ever leaving the comfort of their home.

Transaction-focused companies that take a more curated approach in their product offer status and fulfillment to their customers. In this value exchange, the price of the purchase matters less than the satisfaction it provides, or the pain it relieves. For example, a customer may find value in a luxury brand's e-commerce platform because of the social status that the product offers them. On the other hand, something like a weekly meal delivery kit fulfills a need they have to eat healthy, home-cooked meals without worrying about groceries.

In this game, endless browsing or comparison shopping might boost your vanity metrics but they don't add value. At the end of the day, you should care about getting users to add things to a cart, enter in their credit card number, and complete their transaction.

<sup>[6]</sup> <http://www.eugenewei.com/blog/2018/5/21/invisible-asymptotes>

### 1.4.3 | Creating customer value in the productivity game

Products playing the productivity game are focused on creating an easy and reliable way for a customer to complete an existing task or workflow. These products provide value by solving a problem customers have, helping customers increase efficiency, or giving them mastery over a particular task. B2B software companies are the predominant players of the productivity game—think products like Evernote or Asana—but can be played by others as well.

More than any other game, those playing to win productivity probably have the hardest time getting customers to realize the full value of their product. Software, no matter how useful or easy you say it is, can be daunting and time-consuming for new users to learn. That's why being good at the productivity game in today's era of digital innovation means being laser-focused on product usability. Unlike in the attention game, time spent can sometimes correlate negatively to this value of efficiency.

As a product person, you need help customers overcome the adoption barrier by creating a desire for your product, making your interface easy to learn, and worth their investment in time and money.

Now you know not only how to identify your engagement game, but also how it should inform your north star and the types of customer value exchanges that it should take into consideration.

#### EXAMPLE

#### HubSpot plays the productivity game

Boston-based enterprise HubSpot offers a full suite of marketing and sales software that helps teams grow and scale their inbound marketing strategy. Each paid 'hub' of HubSpot offers its respective user base efficiency and utility in the form of an all-in-one software. HubSpot's paid

marketing hub, for example, offers everything from blogging and landing page creation to marketing automation and SEO. Instead of using several different, disparate tools to accomplish the same task, an all-in-one platform allows users to create a single, integrated workflow. By easing the pain of learning and managing different marketing tools and workstreams, HubSpot promises marketers mastery of their inbound marketing strategies.

The screenshot shows the HubSpot homepage. At the top, there's a section for the "Free HubSpot CRM" which includes an illustration of an open book with charts, a "Learn More" button, and a description: "Everything you need to organize, track, and build better relationships with leads and customers. Yes, it's 100% free. Forever." Below this are three main product hubs: "Marketing Hub", "Sales Hub", and "Service Hub". Each hub has its own illustration, a brief description, and a "Learn More" button. The "Marketing Hub" is described as "Marketing software to help you grow traffic, convert more visitors, and run complete inbound marketing campaigns at scale." It lists "POPULAR FEATURES" like Lead Generation, Marketing Automation, and Analytics. The "Sales Hub" is described as "Time-saving sales software that helps you get deeper insights into prospects, automate the tasks you hate, and close more deals faster." It lists "POPULAR FEATURES" like Email Tracking, Meeting Scheduling, and Email Automation. The "Service Hub" is described as "Customer service software to help you connect with customers, exceed expectations, and turn them into promoters that grow your business." It lists "POPULAR FEATURES" like Tickets, Customer Feedback, and Knowledge Base. A "NEW" badge is visible next to the Service Hub.

HubSpot's homepage describes their free and paid product offerings for sales, marketing, and customer service teams



## TERMS TO KNOW

**An engagement loop** is an interaction framework describing the actions and triggers that current engaged users cycle through when they use your product regularly.

**A customer-value exchange** describes the potential value that products deliver to customers in exchange for the customer's investment of time and money.

An **aha moment** is the moment or set of actions within your product that leads users to first discovering value.

A **trigger** is a stimulus that brings users back to a product. This can be an external trigger, such as an email or push notification, or an internal behavioral trigger, such as a pre-existing habit.

**Social proof** is the phenomenon wherein a large group of people conform to each others' behaviors and actions. If users of your product get their friends and acquaintances to also become users, this can be a point of social proof for you.

In the next section, we introduce the concept of the engagement loop, which will help you apply the game framework to your customer growth strategy.

### 1.5 | Introducing the engagement loop

The engagement loop is an interaction framework that describes the actions and triggers your customers experience when they use your product regularly.

#### What the engagement loop does

This framework helps product teams describe your product's complete interaction model from the customer's perspective. This in turn helps the team make better decisions about where in the customer experience a particular feature area fits in and whether it is serving the right purpose.

#### Why the engagement loop matters

In order to grow, every "engaging" product needs an interaction loop that maximizes the value created in your user's first session and brings

them back regularly. Maximizing value in the first session requires streamlining your product to create value early. With decreasing consumer attention spans, you can longer afford to have an onboarding flow that doesn't also create value for the customer. The type of value created might be different from your product's main workflow, but it's important to give the user an experience that they want more of.

#### How to use the engagement loop

Product teams should use the loop to frame their interaction model and lay out a clear hypothesis of how their customers go through each step of the loop. Comparing this to the reality of what customers are experiencing helps clarify where your UX needs to be streamlined and where your product is simply not performing. Keep in mind that companies which don't have repeat use models (mortgage platforms, for instance) don't typically need or have loops.

## Let's break down the steps in the engagement loop

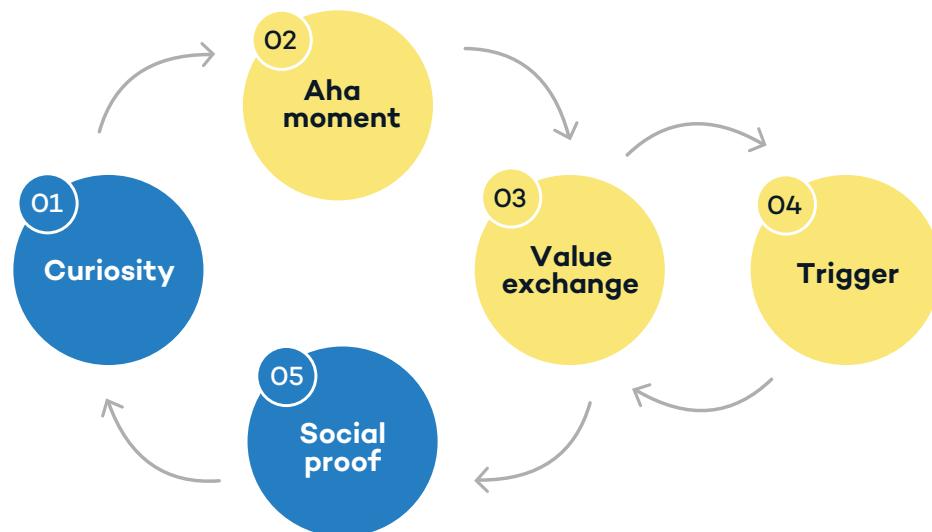
The loop starts with curiosity. New potential customers of your product arrive at it because they are curious. They either saw an ad, were referred by a friend or found you through search and decided to find out more about your product. Maybe they think your product will solve a specific need they have or perhaps they are just browsing.

At this point, your product's only job is to get them to an aha moment—i.e. show them the best possible value you have to offer in a first session that correlates to them returning. Once they reach their aha moment, your new users are

considered activated. The most successful products drive new users to an aha moment during or after their first session.

Next you need engage users in a cycle of recurring value exchange, which we talked about in the section titled, "Defining customer value exchange for your game." With every interaction, you further the value that the customer received.

Once people have sufficiently invested in your product, you can incentivize them to become a point of frequent, repeated social proof. Through incentivized referrals or social media shares, your existing customers can help make multiple future customers curious about your product.



The engagement loop



### 1.5.1 | Building in the right engagement elements

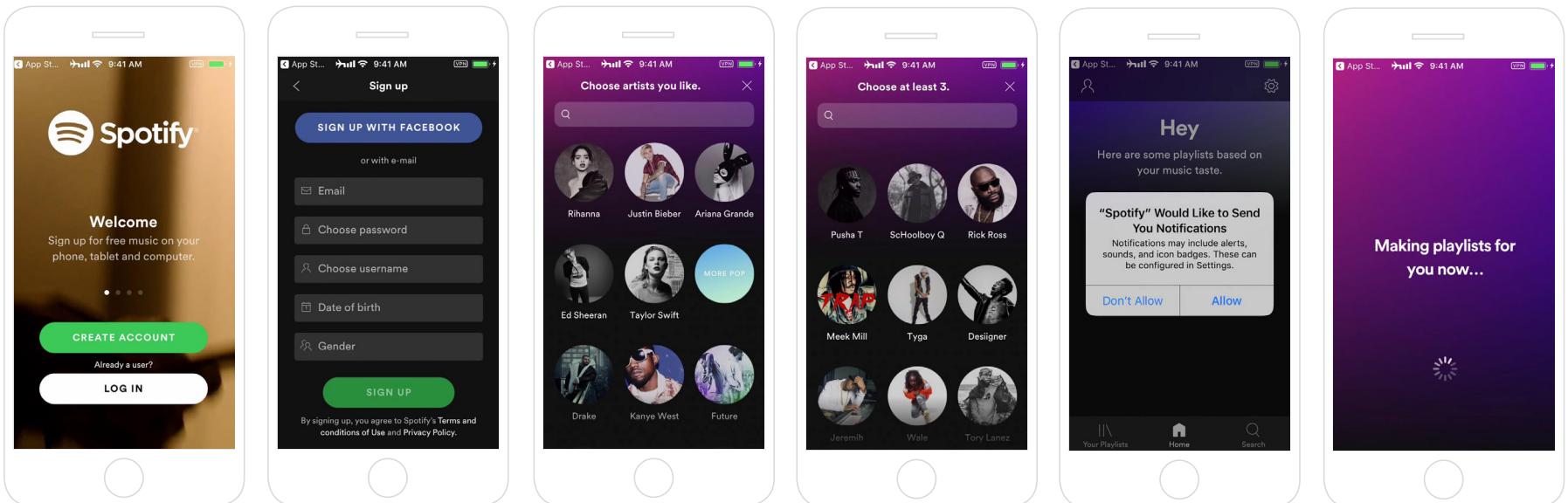
Below are some questions you can ask to map your product to this engagement model. This will help you better understand whether your current product workflow has the right engagement elements built into it:

- **What am I doing to drive a curious customer to their aha moment?**
- **What is my recurring unit of value exchange?**
- **What is the customer investing in that I can leverage to make each subsequent exchange of value more valuable?**
- **How am I timing my ask for reviews and referrals from customers?**

Once you have defined the actions that fuel your engagement loop, product and growth managers need to design their UI/UX to accomplish the following:

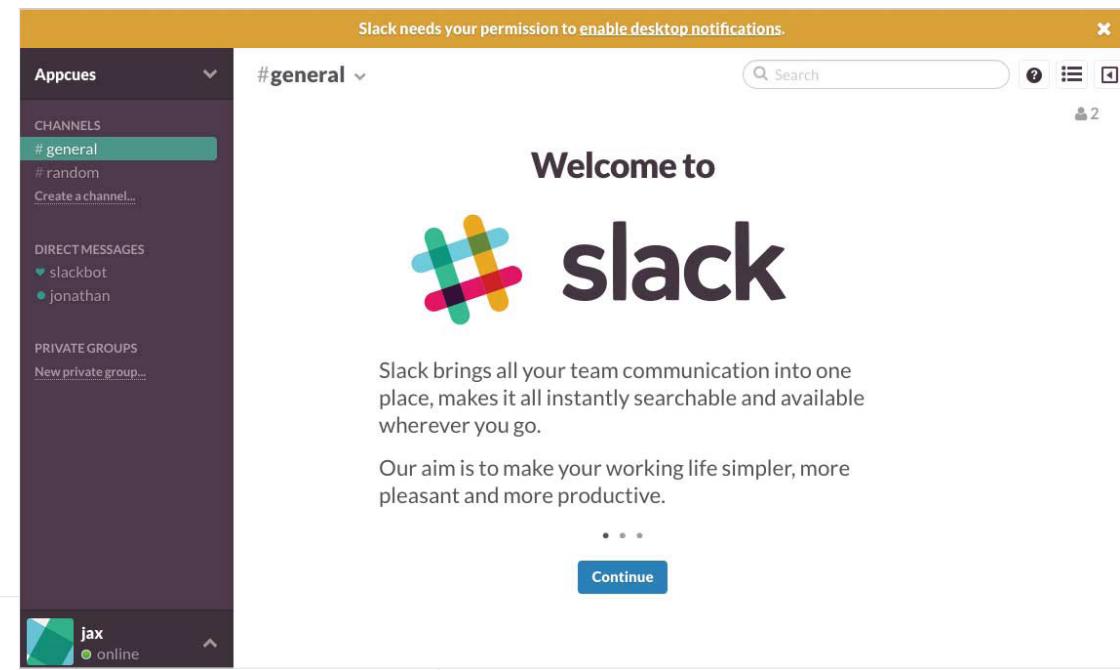
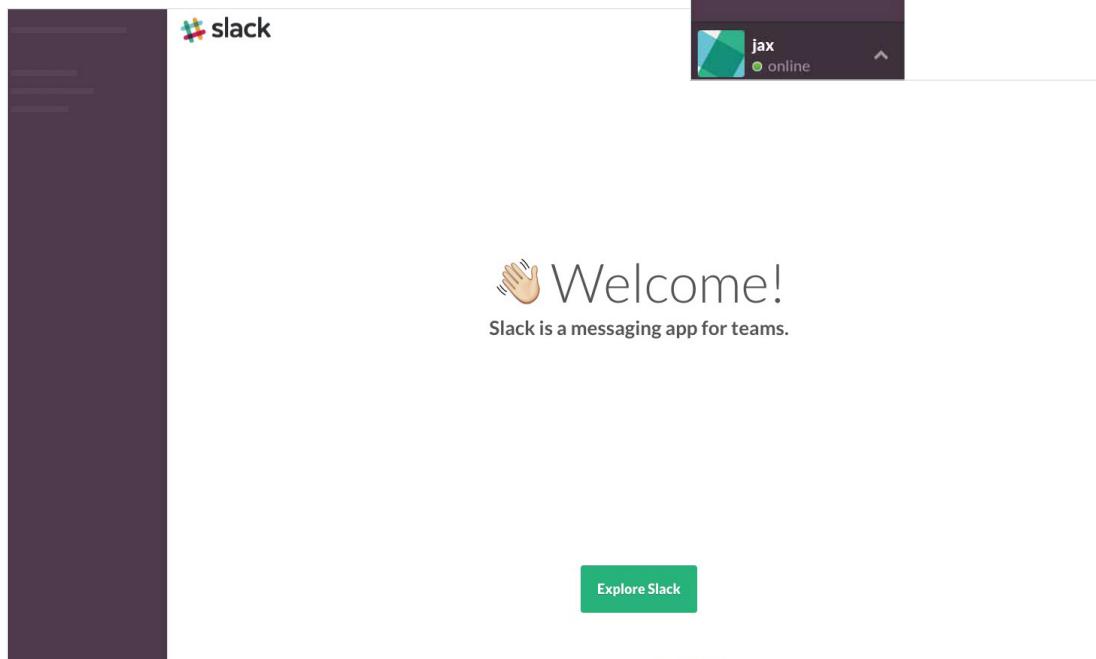
1. **Remove any possible barrier to accessing your main value proposition.** Streamline your UI to make the aha moment idiot proof. No distractions, no wandering, just the minimum steps needed for users to realize that moment of magic. Spotify's onboarding is a great example of a simple flow that gets users to experience product value as soon as possible. Instead of prompting new users to enter their credit card information and sign up for a Premium trial, it lets them start listening to their favorite songs right away<sup>[7]</sup>.

Spotify's onboarding flow



↗ <https://www.pageflows.com/post/onboarding/spotify/>

- Give the customer instant feedback on their actions to affirm the value exchange.** Use subtle UX cues to affirm the value exchange so that the customer can clearly follow what happened and take a moment to internalize it, but don't overwhelm them with copy. Friendly communication and positive reinforcement have always been hallmarks of Slack's product. The example below shows how Slack changed the last step of their onboarding flow; they replaced their old, copy-heavy welcome and reiterated their value prop in the simplest words possible<sup>(8)</sup>.



<sup>(8)</sup> <https://www.appcues.com/blog/slack-user-onboarding-experience>

**3. Create benefits for customers to increase their investment in your product.** Offer rewards to encourage investment behavior. Gamification of your product—by offering login rewards or a weekly ranking against other users, for example—is one way of doing this, but even small, random indicators of achievement can boost how someone feels about using your product. For example, Asana encourages productivity and collaboration with the “celebration creature” that majestically zooms across the screen when you complete a task<sup>(9)</sup>.

**4. Prompt for referrals and reviews after the customer has already started investing.** Every smartphone user has at some point received a popup asking them for feedback or to leave an app store review. The key here is timing. Timing your asks makes a huge difference not just in conversion rate for reviews and referrals but the quality of response you will get. Make sure your customers have been receiving value from your product and are satisfied before asking for a review.

Now you've learned at a high level how engagement loops can help inform your growth strategy. We will dive deeper into the different parts of this loop in Chapters 2 and 3 of this playbook but, first, let's look at how to put numbers and metrics to your engagement game.

In the next section, we'll do a brief overview of how you can use Amplitude or other product analytics tools to measure your engagement.

## 1.6 | Measuring your engagement game

”

*What gets measured, gets done.*

– Everybody, at this point

Every game needs a scoring system and engagement is no exception. In Section 1.3 on defining north star metrics that drive engagement, we discussed the important of defining measures that were specific to your product strategy and signified value to the customer as well as the business. Metrics that can meet all these needs are often not trivial to measure. You might not be able to track them easily with traditional web marketing tools designed to track passive web page consumption.

### 1.6.1 | Amplitude's approach to measuring engagement

Amplitude is a product analytics platform. We help product teams analyze user behavior—like engagement—in digital properties. We built this platform for product teams worldwide because the old ways and tools no longer worked. The first generation of the internet was largely formed around passive consumption of media. The analytics platforms that grew around this behavior, like Omniture Sitecatalyst (now Adobe Analytics) and Google Analytics, were optimized to measure page views, bounce rates and sessions to reflect that passive consumption.

With the advent of web 2.0 and mobile applications, the world of digital products has changed dramatically. Users now interact with content and with each other online, performing thousands of actions to engage with products.

Amplitude uses the concept of “events” to capture this user engagement with “properties” to capture the context of the engagement. This framework has become the de facto standard for modern product analytics today.

#### An introduction to how events and properties capture engagement

An event is a description for an action taken either by a user engaging with a product or taken by the product in response to a user action. Some simple examples of actions for user engaging with a mobile gaming app might be:

- Downloaded app
- Completed registration
- Completed onboarding step 3
- Started game
- Earned 70 XP
- Reward displayed (inactive event)
- Started level 2

In Amplitude, properties provide more context for both events and users. These properties are sometimes called “attributes” or “dimensions” in other analytics tools. Properties can range from standard values like device type and location to custom values like the user’s current cumulative spend to date in the product.

## TERMS TO KNOW

In event-based analytics, an event is some action performed by the user or taken by the product. **Events** and users also have **properties**, which are attributes that provide context. The process of recording events and attributes as they happen in your product is called **instrumentation**.

For best practices on instrumenting your analytics, check out our [Data Taxonomy Playbook](#).



## Defining custom events for complex user engagement patterns

Amplitude helps users create their own custom definitions in real-time using events that have already been instrumented. This can be particularly useful when trying to measure complex engagement patterns that need, "AND" or "OR" conditions to combine different actions together.

For instance, consider our fictional demo product "AmpliTunes." In this product, you can:

1. Play and buy songs and videos
2. Buy tickets to concerts

If you're a product manager at AmpliTunes and your product north star metric is number of purchases within the U.S., you can create a composite event by combining the 'Purchase Song or Video' event with the 'Purchase Ticket' event and then filter by the 'Country' user property.

### Custom Event Details

Project  
AmpliTunes

Custom Event Name  
 All US Purchases

---

When ANY of the events below are performed, it will count as user activity for this custom event.

A Purchase Song or Video  
where Country = United States

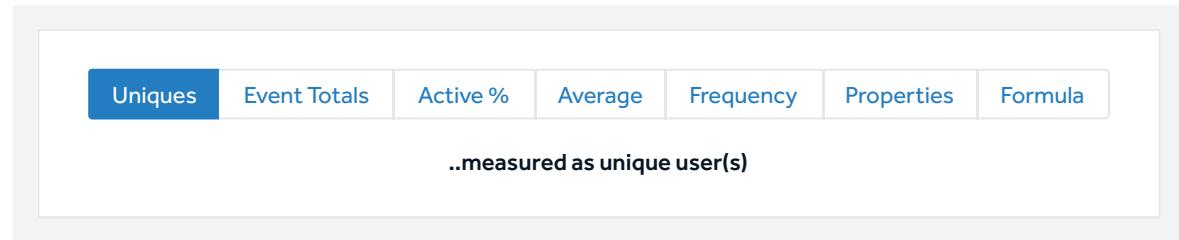
B Purchase Ticket  
where Country = United States

Close

The setup in Amplitude

## Key measures of user engagement

Using **Event Segmentation in Amplitude**, you can segment events and the users who perform them by user or event properties. In the Metrics Module of this chart, you can choose which metric you want to query by over a selected time frame or in real-time. In the next couple sections, we'll talk about how to use this module specifically to measure north star metrics in each game.



The Measure Module in Amplitude's Event Segmentation chart

External trigger example	Purpose it serves
An invite from a coworker to a new Slack workspace	Acquire new users through referral
A mailer to a meal prep company's current subscriber with five coupons to offer to friends	Acquire new users through referral
A well-designed home page with a prominent login button	Acquire new users
An email prompt from Dropbox encouraging you to set up syncing with one or more devices—doing so gets you more storage space	Drive new user activation
A push notification from DoorDash offering a code for free delivery on Halloween	Re-engage user
An email from an online shopping site reminding you about the items still in your cart	Re-engage user
A tool-tip in your favorite B2B analytics product alerting you of a new feature to opt into	Drive adoption of a new feature; move user up the ladder of engagement
A product webinar	Drive adoption of a new feature; move user up the ladder of engagement

Definitions of metrics found in Amplitude's Event Segmentation chart type



## Measuring the attention game

Recall if you're playing The Attention Game, you care about capturing your customers' time. In exchange for entertainment, information, and/or self-expression, your users might provide you with ad revenue, subscription fees, or referrals. Well-known products that are winning at this game are Netflix, Spotify, and Twitter, for example.

## Do it with Amplitude

Suppose you are a product manager at AmpliTunes focused on delivering value to your customers through the music and video platform. You are playing the attention game, and your team's north star is the **monthly total time US AmpliTunes customers have spent playing songs or videos**. Here's how you would find your north star in Amplitude:

**Step 1** Create a new Event Segmentation chart and choose the user action 'Play Song or Video' in Events Module on the left.

**Step 2** Group this action by the event property 'Duration.' This property contains the duration of the content played measured in seconds.

**Step 3** To only look at the segment of your users in the U.S., choose to view users who have their 'Country' property as the United States. You can

The screenshot shows the Amplitude Events module interface. At the top, it says "AmpliTunes" and "Monthly Total Hours of Content Played". The "Events" section on the left lists "A Play Song or Video" grouped by "Duration" and "B Select event...". The "Where" section on the right specifies "performed by Any Users", "United States" (selected), and "Cohort = United States". It also includes "Select event..." for "where" and "and who performed". Below this is a "Select property..." button. The "Formula" tab is selected in the bottom navigation bar. The formula input field contains "PROPSUM(A)/(60\*60)" with a green checkmark and the word "Applied". The "Y-Axis Title" is set to "Hours of Content Played".

The setup in Amplitude

also compare this segment to all of your users by adding an All Users segment right below.

**Step 4** Now it's time to do the analysis. Move to the Measure Module at the bottom and choose to measure by the formula PROPSUM, or property sum. PROPSUM(A) will add up all the values in the 'Duration' property for the action you specified in Step 1 at every data point. To convert this into hours, divide by 60\*60 (1 hour = 60\*60\* seconds). Then, make sure the date picker is set to Monthly, so you're seeing monthly totals.

**OR**

Instead of using the Formula measure, you can directly choose the "Properties" measure and in the dropdown, "Sum of Property Value." Note that if you do this, the resulting value will be in the whatever unit the property value is in; in this case, the total monthly duration will be in seconds, not hours.

#### Takeaway

*If you're playing the attention game, you probably have a north star related to measuring how much of a user's time you are capturing. This means you'll need to make sure you've instrumented an event property related to the duration of some user action; you can then perform operations on this metric either with custom Formulas or using the Properties measure. Alternatively, if you care about session time, you can create a User Sessions chart type.*



What the graph could look like



## Measuring the transaction game

Remember if you're playing the transaction game, you care about the number of transactions your users make. In exchange for the ability to acquire something they need or desire, your users provide you with purchases, price signals, and sometimes ad engagement. E-commerce businesses are typically the main players of this game—including giants like Amazon, as well as monthly subscription boxes, and on-demand delivery services.

## Do it with Amplitude

Now suppose you are a product manager on the other major product at AmpliTunes focused on delivering value to your customers through concert ticket sales. Now you are playing the transaction game, and your team's north star is monthly total purchases of rock music tickets customers have made globally. Here's how you would find this North Star in Amplitude:

**Step 1** Create a new Event Segmentation chart and choose the user action 'Purchase Ticket' in Events Module on the left.

**Step 2** Filter the user action by setting 'Genre Type' to Rock. This allows you to only look at ticket purchases for the rock genre.

The screenshot shows the Amplitude Events Segmentation interface. At the top, it says "AmpliTunes" and "Monthly Total Purchases of Rock Music". The left panel is titled "Events" and contains two sections: "A Purchase Ticket" (selected) and "B Select event...". Under "A Purchase Ticket", there is a filter "where Genre\_Type = Rock". The right panel shows filtering options: "...performed by Any Users", "...performed by 1 United States", and "...grouped by Select property...". Below these is an "Add Segment" button. At the bottom, there is a row of buttons: Uniques (selected), Event Totals, Active %, Average, Frequency, Properties, and Formula. To the right of the buttons, it says "...measured as total events".

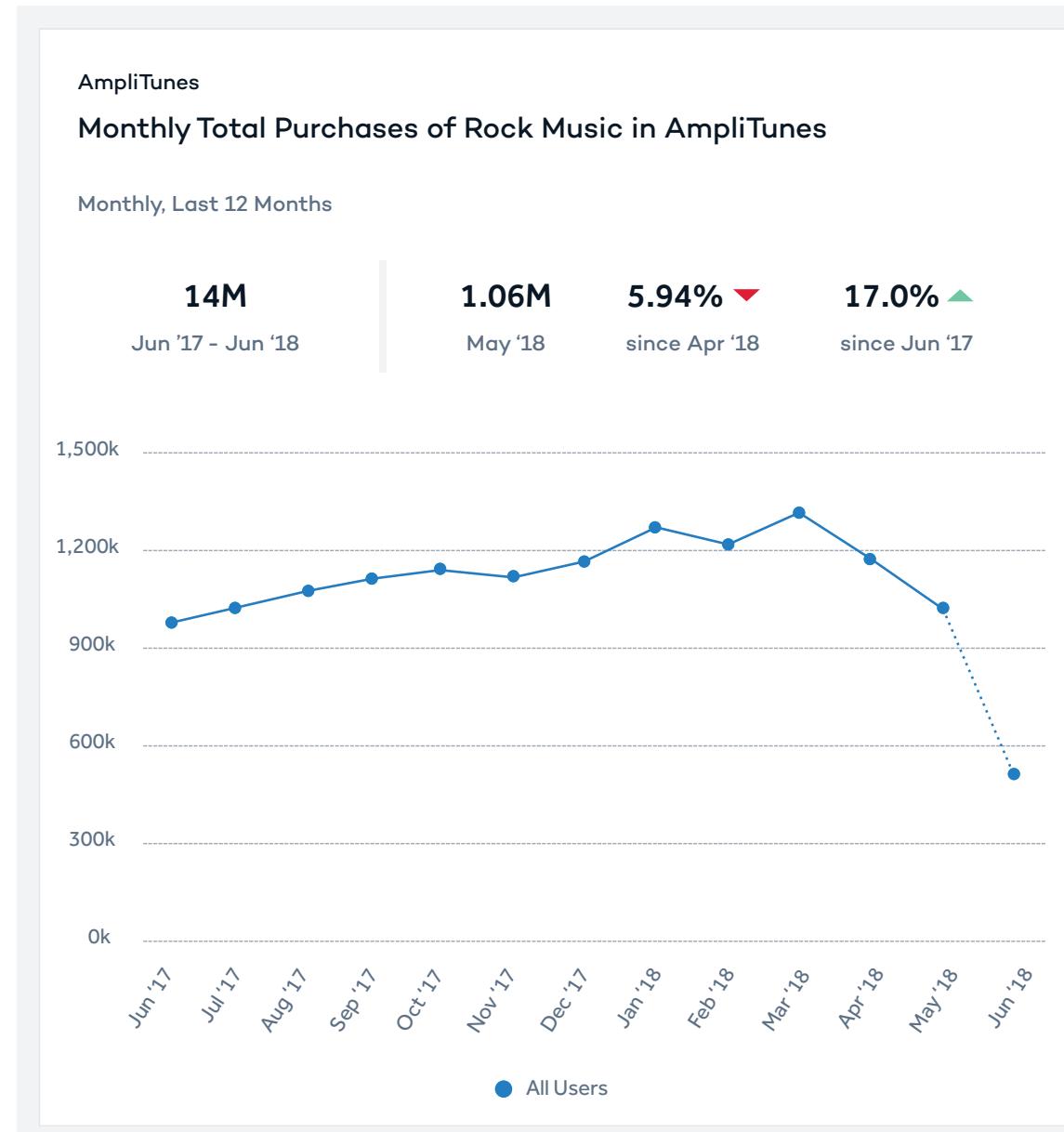
The setup in Amplitude

**Step 3** Since you want to look at rock music ticket purchases made by all of your customers worldwide, make sure the Segmentation Module on the right is set to Any Users.

**Step 4** Now it's time to do the analysis. Move to the Measure Module at the bottom and choose to measure by Event Totals. This will show total number of times the action 'Purchase Ticket' with the 'Genre\_Type' Rock was performed at each data point. Then, make sure the date picker is set to Monthly, so you're seeing monthly totals.

#### Takeaway

*One of the north star metrics that most players of the transaction game care about is the number of transactions happening over some period of time, across various user segments. Use **Event Totals** when you want a count of how many times a purchase action was performed in a specific time frame.*



What the graph could look like



## Measuring the productivity game

Players of the productivity game care about users performing high-value digital tasks. In exchange for the ability to complete tasks with efficiency and mastery, customers often pay for a subscription or license for the software. Players of the productivity game are often (but not limited to) B2B companies, like Slack, Asana, Salesforce, and others.

## Do it with Amplitude

Let's consider a demo product called TeamChat, a B2B communication software like Slack. Now you are playing the productivity game. This team's north star is the **percent of monthly active paid subscribers who have sent a message**. Here's how you would find this north star:

**Step 1** Create a new Event Segmentation chart and choose the user action 'Send Message' in Events Module on the left.

**Step 2** To only look at paying customers, create a segment of all users who have their user property 'Paying' set to the value true using the Segmentation Module on the right.

**Step 3** Now it's time to do the analysis. Move to the Measure Module at the bottom and choose to measure by Active %. This will show the percentage of active paying users who did the action 'Send Message' at each data point.

The screenshot shows the Amplitude interface for creating a new Event Segmentation chart. The title is "% Monthly Paying Users Sending a Message".

**Events:** A dropdown menu is open, showing option A "Send Message" and option B "Select event...".

**Segmentation:** A query is defined: ".performed by Any Users" followed by a condition "1 Paying customers where Paying = True". There is also an option to "+ Add Segment".

**Measurements:** A tab bar at the bottom includes "Uniques", "Event Totals", "Active %", "Average", "Frequency", "Properties", and "Formula". The "Active %" tab is selected.

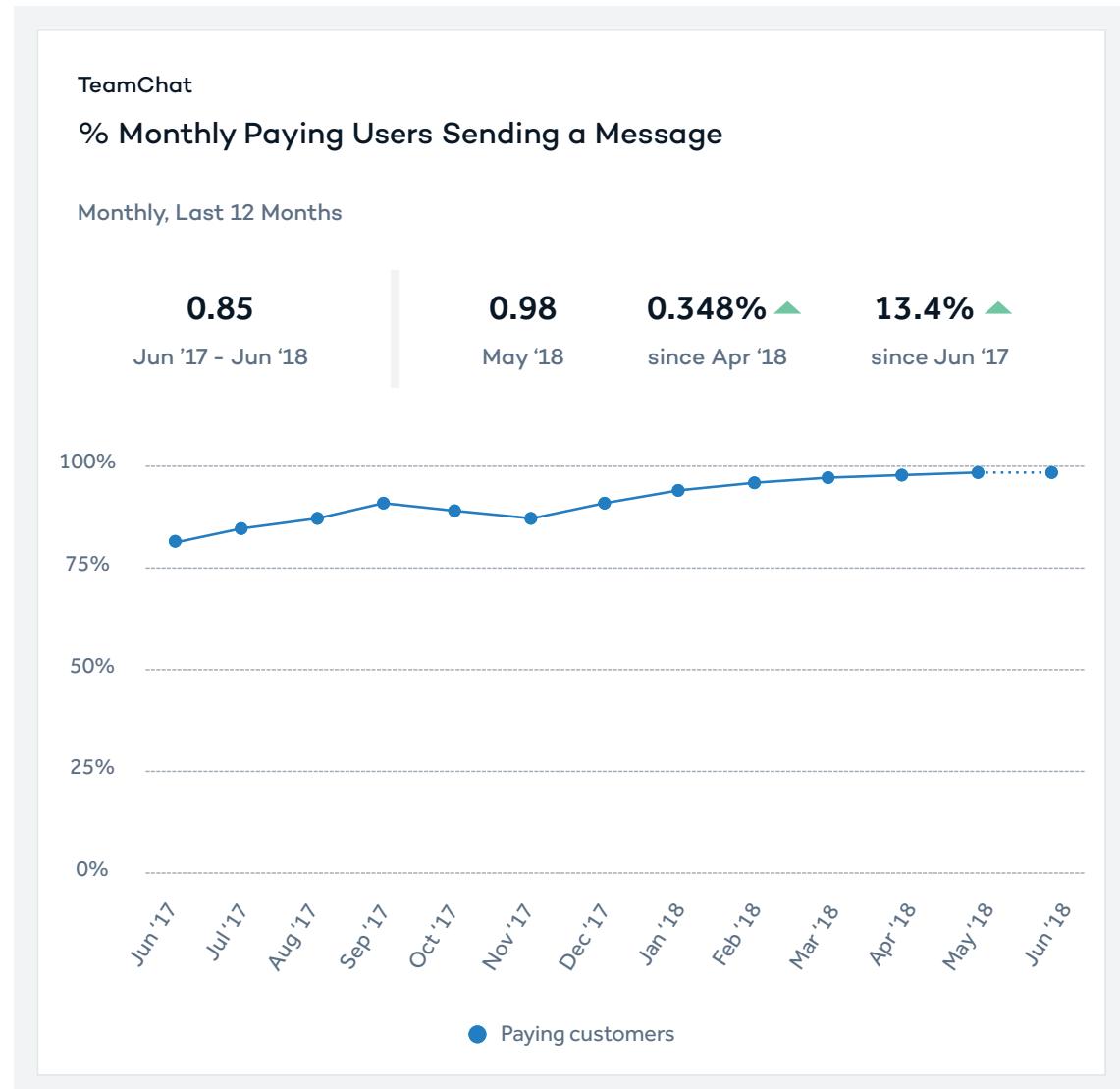
**Note:** ..measured as percent of user(s) active

The setup in Amplitude

Note that by default, Amplitude defines an active user is a user who has performed at least one action on a particular day. Then, make sure the date picker is set to Monthly, so you're seeing monthly percentages.

### Takeaway

The core metric for products playing the productivity game is number of active users performing high-value tasks on a regular basis. One way to assess how well certain features of your product resonate with your users and how much value it delivers is to use Active % to see exactly what proportion of your active paying users use that feature to complete an intended task.



What the graph could look like



## FURTHER READING

If you'd like to dive deeper into some of the topics we covered in this chapter, we suggest starting with these articles:

### **The Hierarchy of Engagement, expanded**

*Sarah Tavel, General Partner at Benchmark, formerly Product at Pinterest*  
[https://medium.com/@sarah\\_tavel/the-hierarchy-of-engagement-expanded-648329d60804](https://medium.com/@sarah_tavel/the-hierarchy-of-engagement-expanded-648329d60804)

### **Don't Let Your North Star Metric Deceive You**

Brian Balfour, CEO of Reforge; Shaun Clowes, formerly Head of Growth at Atlassian; Casey Winters, formerly Product at Pinterest  
<https://www.reforge.com/blog/north-star-metric-growth/>

### **Hooked: How to Build Habit-Forming Products**

Nir Eyal

## 1.7 | Taking action

This chapter introduced the Three Games of Engagement model: the attention game, the transaction game, and the productivity game. Deciding which game your product is playing is critical because it forms the crux of your engagement strategy. With the right game in place, you can then:

- **Define a good product north star**
- **Determine what value your product offers to your customers and the value they offer to the business in exchange**
- **Understand how to build an engagement loop that keeps the value exchange going**

Before moving on to Chapter 2: New User Activation, take a moment now to reflect on your learnings from Chapter 1 and consider the following:

- Which of the three engagement games is your product is playing?
- Describe the customer value exchange that happens within your product.
- How does your product north star relate to the game you are playing? How does it reflect the value you want customers to get from your product?
- Name some key engagement elements in your product that will move a new user through the engagement loop. -
- Complete the following worksheet on your north star metric.

WORKSHEET (Download this online at <http://bit.ly/northstarwksht>)

# YOUR PRODUCT TEAM'S NORTH STAR METRIC

## State your long-term product vision:

Example (Amplitude):

Amplitude empowers companies to turn their product vision into reality by helping them answer questions about user behavior and power a better customer experience.

## Which engagement game are you playing?

ATTENTION     TRANSACTION     PRODUCTIVITY

Example (Amplitude): PRODUCTIVITY

## What kind(s) of value do(es) your product provide customers?

ENTERTAINMENT     INFORMATION     UTILITY  
 SELF-EXPRESSION     STATUS     MASTERY  
 FULFILLMENT     EFFICIENCY

Example (Amplitude): UTILITY, EFFICIENCY, MASTERY

## Describe the customer value exchange in your product:

### PRODUCT VALUE

Example (Amplitude):

help customers easily answer questions about what drives user behavior



### CUSTOMER VALUE

Example (Amplitude):

Customers purchase Amplitude and add revenue

## Describe the customer value exchange in your product:

### What is your product team's north star metric? How does this relate to your product strategy and the customer value you deliver?

Example (Amplitude): Amplitude's current north star metric is "weekly querying users" -- the number of weekly users who use Amplitude to answer at least one question. This metric is a direct measure of the product value Amplitude promises.



## CHAPTER 02

# ACTIVATING NEW USERS

Now you have two mental frameworks in your pocket: The Three Games of Engagement as a way to think about what value your product offers users and vice versa and the engagement loop as a way to describe the actions and triggers an engaged customer experience. In this chapter on new user activation, we'll begin to put those models into practice. At the end of this chapter, we also share a special case study on how Blue Apron uses product analytics and experimentation to better activate their new users.



## Why activation matters

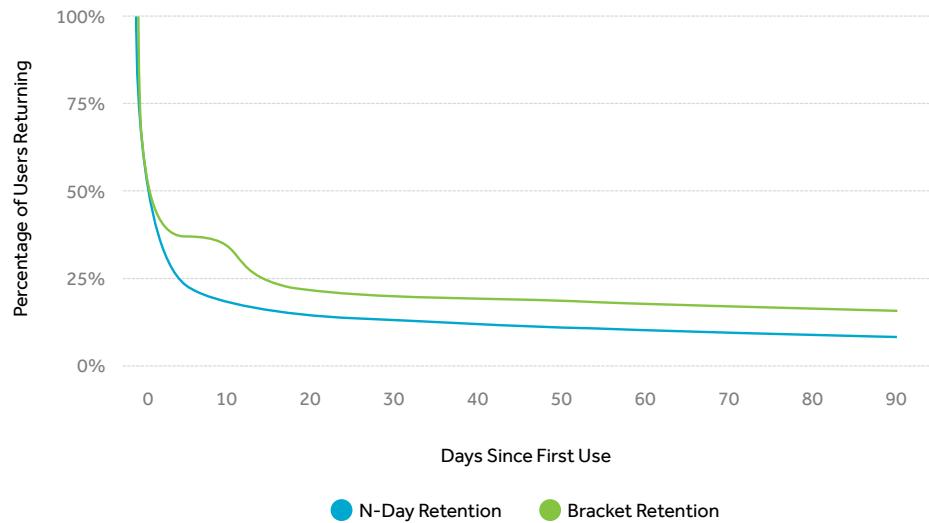
Whether you're at a job interview or on a coffee date, first impressions matter—and the same goes for your product. Remember when we mentioned that the average app loses almost their entire user base within a month? Turns out that in a bracket retention analysis we did of 500 million Android and iOS mobile devices, we found that **66% of new users abandon apps within the first week of install.**

If you're great at acquiring new users but unsuccessful at showing them value, you can expect that new user retention curve to dip straight to

zero. It doesn't matter if your product is great otherwise; a poor first-time experience could mean you've lost them forever.

No matter which game you're playing—attention, transaction, or productivity—engaging new users is all about offering them a small but unforgettable taste of your product's value early, so that they come back for the second time, then the third, fourth, and more. In Chapter 1, we defined the moment when a user first derives value from your product as the **aha moment**. The process of getting new users to the aha moment, and then to the point where you get business value back from them is called **activation**.

Average Retention Curves for Mobile Apps

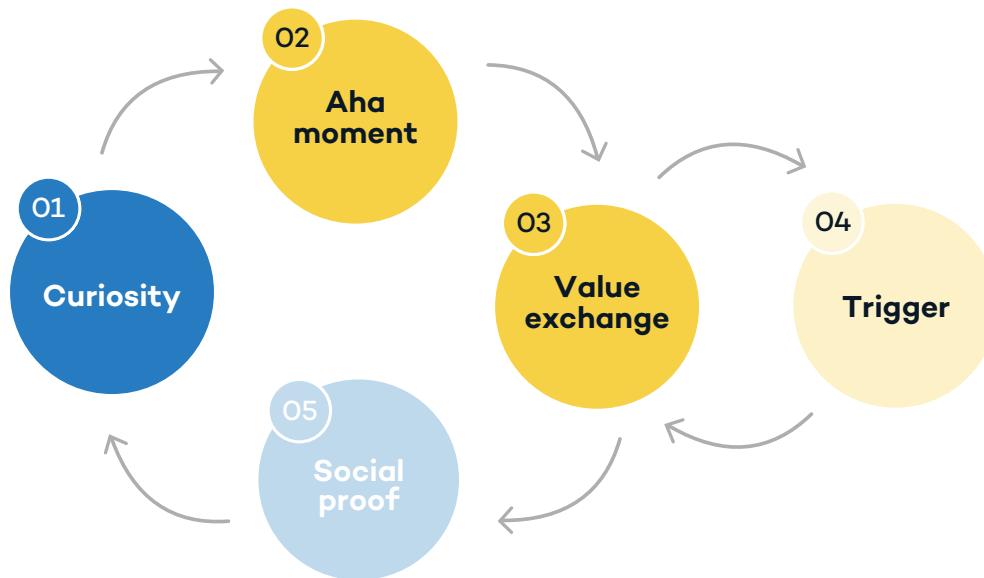


This graph shows average retention for the first 90 days of use on mobile apps—both Android and iOS. Bracket retention analysis: measured percentage of users returning on Day 0, Days 1–7, 8–14, 15–30, 31–60, 61–90

Activation matters because users who find value and invest within your product early on will likely stick around longer. In the best case scenario, you'll find that increasing activation rate improves new user retention, and contributes to the **real growth** of your business.

In this chapter, we will discuss the three phases of activation in detail and explain why new user activation doesn't just stop at the aha moment, but continues up something called the **ladder of engagement**. Then, we share a step-by-step

guide on how to quantitatively measure growth in the different phases of activation. Finally, we round out the chapter by sharing a case study on how Blue Apron used Amplitude and A/B testing software Optimizely to better activate their new users.



In the engagement loop model, activation is the flow of new users from curiosity → aha moment → value exchange

## Topics covered in this chapter:

- 2.1 - Defining growth in new users
- 2.2 - Breaking down new user activation
- 2.3 - The ladder of engagement
- 2.4 - Measuring new user activation
- 2.5 - Taking action

**Case study:** How Blue Apron uses A/B testing and product analytics to activate more new customers

We calculate real growth in new users by measuring activation.

Most of the existing content out there about activation define a new user as activated when they have a good user experience and derive value for the first time. 500 Startups' founder Dave McClure describes activation as "users enjoying their first visit"<sup>[11]</sup>.

**Throughout this chapter, you'll see that we define activation more strictly than others.** Activation isn't only about bringing users to the aha moment. We define activation as the point at which a user finds value in the product and goes on to provide value to the business. This value can take the form of viewing an ad, making a purchase, or converting from a free trial to paid subscription. What matters is that the user make a tangible contribution to your business—and, thus, contributes to the **real growth** of the business.

With that, let's explore the subphases of new user activation.

### 2.1 | Defining growth in new users

First, we have to talk a little bit about how we're defining activation in this playbook and why this matters for measuring new user growth.

According to Tanner McGrath, Head of Analytics at Amplitude, and formerly PM of Growth Engineering at Postmates, **real growth** is about driving scalable and repeatable business outcomes. This means metrics like total number of app downloads, new account sign-ups, and Daily Active Users are poor measures of new user growth. They're vanity metrics that fail to measure real usage or engagement in your product and the real ROI of your marketing spend<sup>[10]</sup>.

<sup>[10]</sup> <https://amplitude.com/blog/2016/02/25/actionable-pirate-metrics>

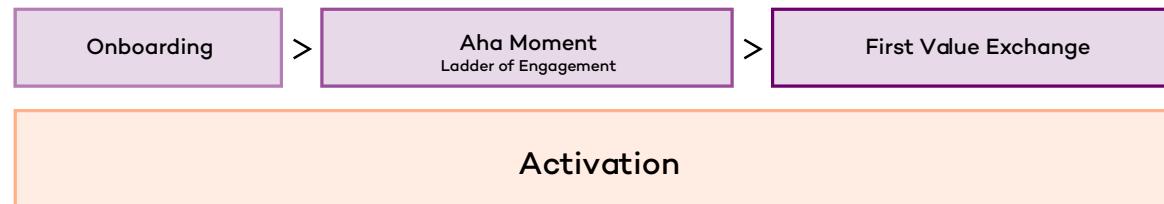
<sup>[11]</sup> [https://www.slideshare.net/dmc500hats/startup-metrics-for-pirates-long-version/2-Customer\\_Lifecycle\\_5\\_Steps\\_to](https://www.slideshare.net/dmc500hats/startup-metrics-for-pirates-long-version/2-Customer_Lifecycle_5_Steps_to)

## 2.2 | Breaking down new user activation

You're probably familiar with a typical growth funnel. Let's look at it through the lens of new user activation.

Marketing teams typically own the awareness stage, getting people to notice and learn about your product and brand. Growth teams tend to own the acquisition stage, using both marketing and engineering efforts to increase the number of registered users. The product team touches all phases of the growth funnel, playing a major role in the activation, retention, and revenue phases.

We can unpack the activation phase specifically into three critical steps: onboarding, the aha moment and the ladder of engagement, and the first value exchange.



PMs rightly obsess over the journey a user takes from registering for a new account, performing a core action, and then coming back to the product for the first time after account creation. Let's dig



An example growth funnel based off Dave McClure's pirate metrics

### TERMS TO KNOW

**Activation** is the point at which a user finds value in the product and also provides value back to the business.

**Onboarding** is your product's first date with a new user. The process by which new users get acquainted with your product and first discover value.

**An aha moment** is the moment or set of actions within your product that leads users to first discovering value.

**Ladder of engagement** is the “ongoing learning journey a new user embarks on to become an expert.”

**First value exchange** is the first exchange of value between a new user and the business.



into each subphase of activation in order to see how each one can make or break the early success of a product.

## 2.2.1 | Activation Stage 1: **Onboarding**

Whether you're talking about a B2B product playing the productivity game or a B2C app playing the attention game, how you onboard your new users is mission critical to keeping them around. **Onboarding, the first phase of new user activation, is the process by which new users get acquainted with your product and first discover value.** In other words, onboarding is your product's first date with a new user. The type of experience you provide your new users here will determine whether those users come back for a second time.

When you think about improving activation, you'd be wise to dig into the onboarding process first. This means **starting with the sign-up page** and understanding the first several steps a new user needs to take in order to realize value. How can you make those steps easier? Faster? More enjoyable?

ConversionXL, a leading source of education on conversion optimization, categorizes onboarding flows into three types<sup>[12]</sup>.

- **Doing-focused onboarding** is an experience that gets users to do meaningful actions within the product.
- **Benefit-focused onboarding** is an experience that walks users through a specific product function that would be beneficial to the user.
- **Account-focused onboarding** is an experience that walks users through an account or profile creation process.

Let's dive into each one and see how it relates to your customer engagement game.

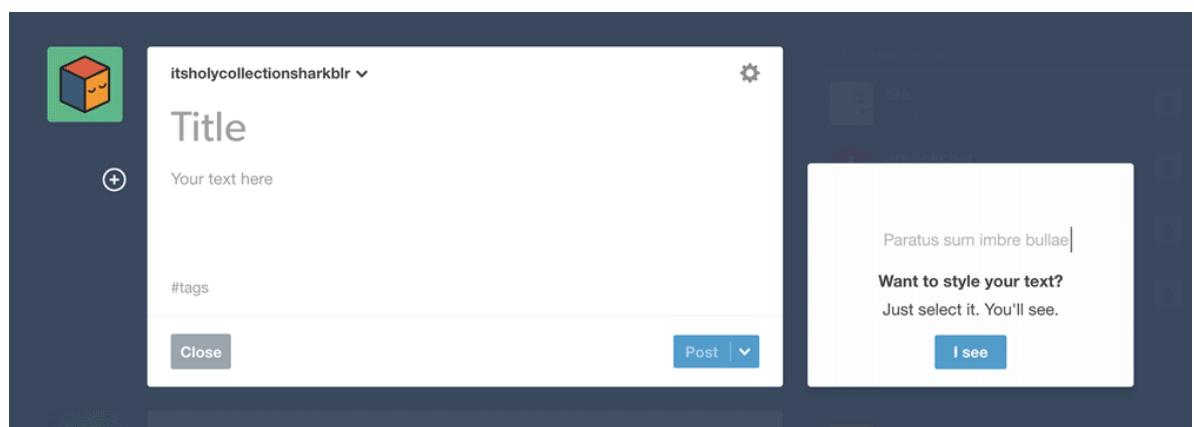
### **Doing-focused onboarding**

In a doing-focused onboarding flow, your goal is to get users to test-drive the actions that make your product useful or interesting. Building a doing-focused onboarding flow makes sense if your product is built around a unique form of behavior or around taking repetitive action—a mobile game is a good example.

In this onboarding style, you need to quickly and effectively demonstrate how to use your product not necessarily why to use it. A product like Tumblr, for example, needs to quickly instruct its new users on how to create a new post.

Tumblr uses a large tool-tip next to the new post window to offer advice while you compose your first post. They offer guidance first on styling your text, and then on managing your blog after your first published post.

Doing-centric onboarding need only be as complicated as your product. In fact, it should definitely not be more complicated than your product—the ideal onboarding experience for a mobile game, for example, is the minimum instruction necessary to make sense of the mechanics of the game.

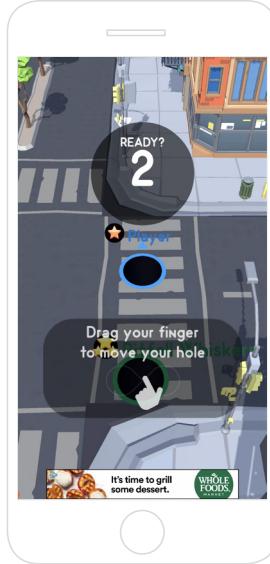


Tumblr's onboarding tooltips encourage new users to create a post

<sup>[12]</sup> <https://conversionxl.com/blog/6-user-onboarding-flows/>

In Hole.io, for example—the #1 free game on the App Store at the time of writing—the entirety of onboarding is a 3-second message that flashes across the screen before the game starts: “Drag your finger to move your hole.”

While doing-focused onboarding is great for products playing the attention game, it can equally benefit transaction and productivity players as well. For example, the online marketplace, Etsy, encourages brand new users to begin browsing and favorite items they find interesting. Etsy’s onboarding flow is centered around doing this particular action. The flow makes it clear to the user that favoriting items is linked to better recommendations and personalization of their feed<sup>[13]</sup>.

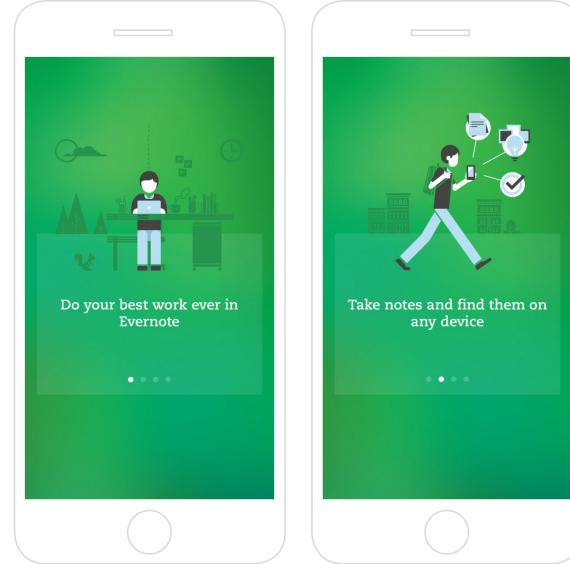


Mobile game Hole.io’s simple onboarding message

### Benefit-focused onboarding

Benefit-focused onboarding is similar to doing-focused onboarding, but you’re not just getting your users to go through the motions of using the product. It’s all about making sure that the 2-3 core benefits of your product are extremely clear to your end-user, and that they know—once onboarding is said and done—how to achieve those benefits through your app or product.

This style of onboarding, which focuses specifically on showing off a product’s core benefit or function, is characteristic of products playing the **productivity game**. This makes sense, since the



Evernote’s first few onboarding screens<sup>[14]</sup>

core value of productivity-focused products is improving efficiency for users.

Benefit-focused onboarding can be as easy and simple as literally stating your product’s benefits, as Evernote did.

But in most cases, saying what you’re good at is not enough. Most B2B software is complex enough that unless the onboarding walks through doing specific actions that offer value, you risk your new users not understanding the point of your product.<sup>[14]</sup>

<sup>[13]</sup> <https://www.appcues.com/blog/mobile-onboarding-ecommerce>

<sup>[14]</sup> <https://conversionxl.com/blog/6-user-onboarding-flows/>

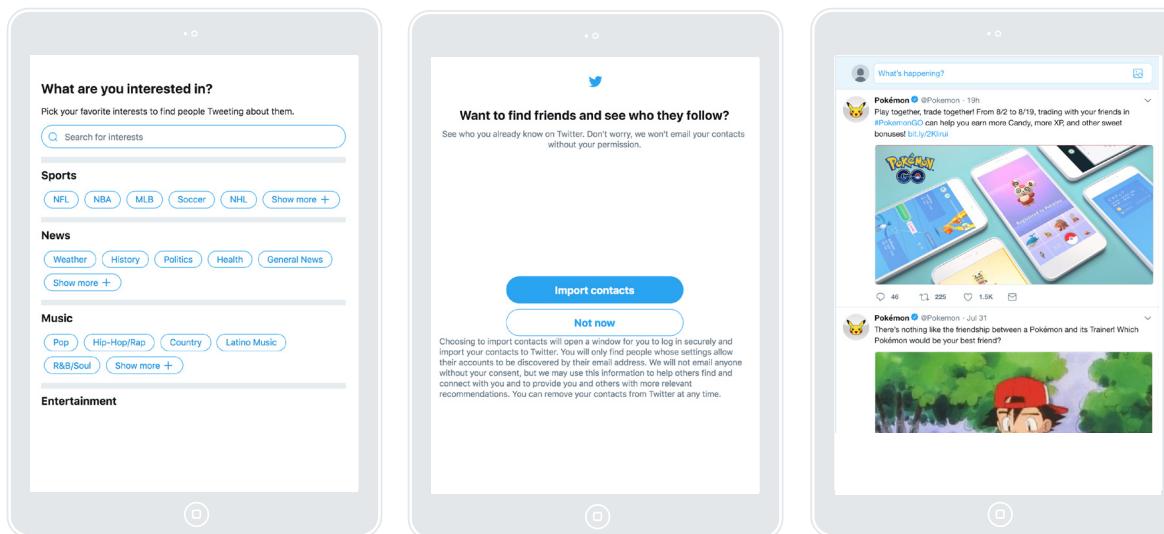


Typeform, for example, walks new users through creating their first new form, their core product offering. By the time the user is finished, they've hopefully gotten a good introduction to the the product while also creating something beneficial for themselves.

### Account-focused onboarding

Social media applications, common attention game players, are prime examples of products that follow account-focused onboarding. A core part of onboarding in Twitter, LinkedIn, and Pinterest, for example, is having new users complete a profile and connect with other users. The goal is to make sure the new user has their account populated with interesting content when they first arrive, as well as a network of people to interact with.

Typeform's onboarding flow walks new users through building their first form<sup>[15]</sup>



Twitter's latest onboarding flow captures this to a tee. When a new user first signs up, Twitter asks them to create a username and then immediately asks what type of content the user would be interested in. The next screen prompts the user to find friends who are already on Twitter.

Twitter's account-focused onboarding

If these styles of onboarding are blurring together, don't worry! Most products use a blend of doing, benefit, and account-focused elements along with a number of other strategies outside of the product itself (like emails and tutorials) to get new users started on the right foot.

## BEST PRACTICES

### General onboarding best practices

#### DO

- Be strategic: think about how to best get to the core value of the product at the end of the onboarding flow.
- Complement in-app onboarding with other things, such as docs, emails, phone calls.
- Use analytics to see what power users are doing differently from everyone else.
- Look at your new user retention to gauge how well you're keeping users around.
- Run A/B tests regularly to see how changes to parts of your onboarding flow affect conversion.
- Collect enough information about your users that you can follow up with them after their first experience.
- Lay off the mandatory tutorials and let your users get a chance to try your product out.

#### DON'T

- Try to optimize every square inch of your onboarding flow to create an increase in a top-level metric like revenue or growth.
- Spam and pester your new users with multiple emails immediately after they first start using your product.
- Build a product only for your power users.
- Make a snap judgment based off only a week's worth of retention data from your app.
- A/B test something because you can't decide what it should be from a design or product perspective.
- Make your users input a ton of data manually before they can start playing around with your product.
- Toss your users "into the deep end" with no assistance right at the beginning of the onboarding process.

Regardless of what engagement game you're playing or how you design your onboarding, keep in mind that the goal of onboarding isn't to show off every single amazing feature of your product in one session. It's to tantalize them just enough that they experience an aha moment and know just enough about the product's value they see a reason to use it again.

#### PRO TIP

##### ACTIVATION IS NOT JUST ABOUT ONBOARDING

Activation is about building trust with your users. Onboarding is about logistics. A 10x improvement to your north star metric doesn't come from endless, minute optimizations of your onboarding flow or sending yet another email. It comes from providing a core value of your product early on in the new user experience.



## 2.2.2 | Activation Stage 2: *The aha moment*

Onboarding is the series of actions that drives a curious new user to an aha moment. Experiencing an aha moment is what separates users who find value in your product (and will hopefully continue to find value) from those who do not.

There's a ton of content out there on why the aha moment matters and how to determine what it is for your product (this article<sup>[16]</sup> by Apptimize and Amplitude is a good place to start). The most important thing to know is that the **aha moment helps companies connect their higher-level goals to actions that users take within their product**. The aha moment lets you think more upstream of that goal. Instead of just asking, "How do I increase activation or conversion," you can ask yourself, "What early core actions best correlate with long-term success?"

This is exactly what Facebook did.

Whenever people think about the aha moment, the infamous story about Facebook's path to 1 billion users always comes to mind. Chamath Palihapitiya, who was Facebook's VP of User Growth at the time, said the entire Facebook team doubled down on one metric: getting new users to add 7 friends in 10 days. This single action—their

aha moment—contributed to better activation and growth to 1 billion users. When reflecting about this aha moment, Palihapitiya said:

“  
We were able to reframe the entire experience around that one simple premise, a very simple elegant statement of what it was to both capture core product value, to define what it meant to be able to onboard into a product that allowed you to communicate, to get into a network, to find density, and then to basically iterate around that.”<sup>[17]</sup>

The aha moment concept has its merits: it can serve as a north star for product teams working on activation and it can be used to unite the entire company around a single elegant insight. But take this with a grain of salt—discovering an aha moment for your product might be great for kick-starting your growth. But a long-lasting engagement strategy isn't built off one magical moment. In Section 2.3, we'll take the aha moment to a level deeper.

Before that, let's cover the third stage of activation: getting to the first value exchange between customer and business.

<sup>[16]</sup> <https://apptimize.com/blog/2016/02/this-is-how-you-find-your-apps-aha-moment/>

<sup>[17]</sup> <https://genius.com/Chamath-palihapitiya-how-we-put-facebook-on-the-path-to-1-billion-users-annotated>

## 2.2.3 | Activation Stage 3: *The first value exchange*

The third and final stage of activation describes the first exchange of value between a new user and the business.

Again, keep in mind that most existing content talks about activation from the perspective of the new user finding value in your product; in this playbook, we describe activation as a mutual exchange of value.

As we described in Section 1.4, customer value exchange takes different forms depending on the type of engagement game you're playing, whether that's ad engagement, upgrades, subscriptions, referrals, or something else.

For free attention products and games, the first value exchange often happens passively, with little to no added effort from the user. For example, as soon as new users of Pinterest and Instagram finish onboarding and begin engaging with the product, they become targets of sponsored content and ads. The exchange of value is in motion—the user gives value by liking and engaging with content, the business receives value in ad impressions.

On the other hand, for products with a subscription model—productivity products like Evernote, for example—the first value exchange happens when users convert from a free trial into a paying user.

Products paying the transaction game have the most straightforward first value exchange. It happens with the first transaction. Keep in mind that for two-sided marketplaces, like Airbnb, the first value exchange for buyers versus sellers might be different.

Product	Engagement Game	First value exchange	Other value exchanges
Pinterest	Attention	User views "promoted pins"	N/A
Pinterest	Attention	User passively provides geolocation data	Player purchases "PokeCoins"; Player goes to a sponsored location
Spotify	Attention	Listeners hear an ad	Listener subscribes to Spotify Premium
Washington Post	Transaction	Readers view ads on the homepage	Reader subscribes
Airbnb	Transaction	Guests book first stay (Airbnb receives a transaction fee) Property owners book first guest (Airbnb receives commission)	Users purchase airbnbmag
Slack	Productivity	Team upgrades from free to paid plan	N/A



An important thing to keep in mind is that the first value exchange doesn't necessarily have to be the *most frequent* or *most valuable* type of exchange that happens within your product. It's simply the first instance at which a new user, who

has found value in your product, provides your business with value. A core objective of your business might then be to nudge these activated users towards a higher-value value exchange over time and ultimately increase their LTV.

## EXAMPLE

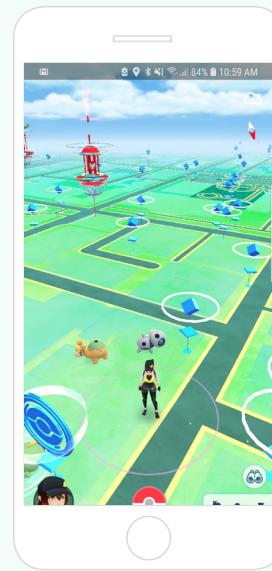
### How Pokemon Go (and other free games) make money

Many free-to-play mobile games make money through ads, sometimes even offering an ad-free experience for a small price. But what about games that don't seem to serve their users ads?

Games like Pokemon Go have a wealth of user data that they can share (in aggregate) to advertisers and other third-parties to make money. This is probably the first way Niantic, the developers behind Pokemon Go, derived value from their new users, but it's certainly not the main source of revenue.

It's more likely that the highest-value value exchange for Pokemon Go and other free-to-play games is the thousands of in-game microtransactions that happen over a relatively small subset of users everyday. Mobile game developers often track and

analyze the behaviors of their biggest spenders, "whales", in order to optimize their experience (and maximize revenue), while also balancing the experience of their free users.



Pokemon Go's  
"ad-free" experience.

## 2.3 | The ladder of engagement: going beyond the aha moment

We've talked about the stages of new user activation at a high level, but let's go back for a moment to our discussion about the aha moment.

The weakness of the aha moment concept is that it treats activation like a straightforward path from A to B. In Facebook's case, the aha moment seems to imply that "friending" leads directly and obviously to retention. This type of direct correlation is simple, elegant, and easy to rally around and, as such, the aha moment can be a highly useful internal motivator. But as an entire framework for product strategy, it is insufficient on its own.

Retaining customers for the long term requires the product 1) provide continuous value to users and 2) users develop new habits that include using the product. Users don't just snap into habits because they added a certain number of friends within a certain number of days. They acquire habits over time. They make decisions over the course of many moments—not just one "magical" one. And if a product can keep giving them value across those many moments, then users will stick around.

Rather than a direct path from A to B, it's more realistic to think about activation like a ladder: a series of increasingly sophisticated steps that eventually lead the new user to the top, aka the point of long-term retention.

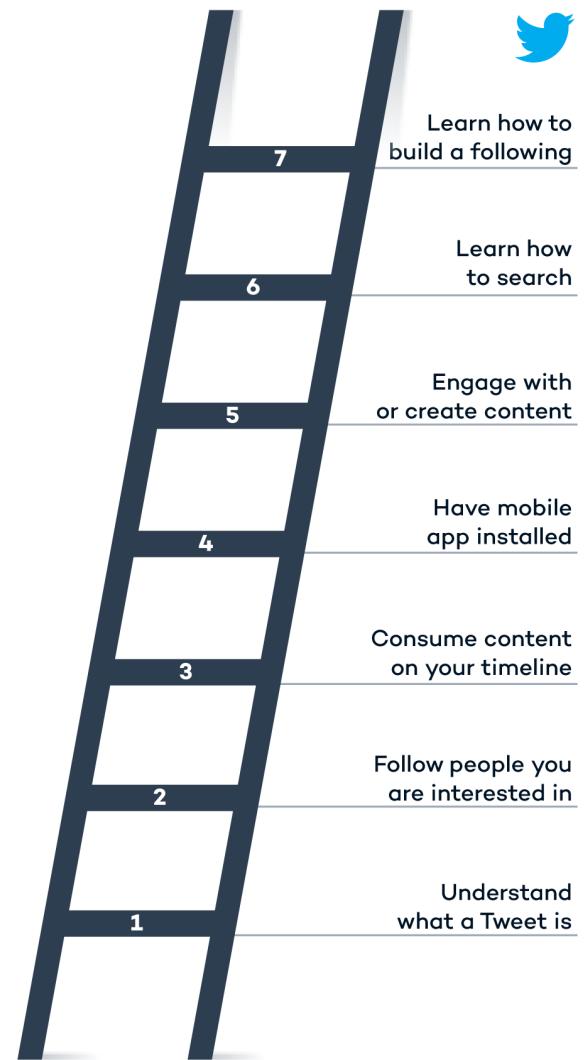
### 2.3.1 | Defining the ladder of engagement

According to Josh Elman, Partner at Greylock and former product leader at Twitter and LinkedIn, the **ladder of engagement** is the "ongoing learning journey a new user embarks on to become an expert."

The ladder of engagement is useful because it breaks down your product into tasks that your users either need to do or understand in order to see value<sup>[18]</sup>. The first few rungs of your product's ladder should set the stage for deeper engagement. Here at the bottom of the ladder, you are onboarding new users, showing them the ropes, nudging them to perform critical actions, facilitating learning, and so on.

As users delve deeper into your product, and ascend the ladder, you need to bring them more value and deepen their engagement. The higher they go, the better they should feel. The topmost rung of the ladder is usually where you'll find your power users—the people who are highly engaged and have usually achieved the highest degree of sophistication in your product.

In Elman's original blog post on the ladder of engagement, he lays out what it looked like for Twitter circa 2010.



A ladder visualization for Twitter's example

<sup>[18]</sup> <https://medium.com/@joshelman/building-your-growth-model-and-ladder-of-engagement-3b3a18f2d1a8>



## PRO TIP

### THE TOP OF THE LADDER

The topmost rungs of your ladder of engagement might be behaviors or actions that only your most savvy power users do. And that's okay! Users don't have to make it to the top of your ladder to get value out of your product or to be retained (and, in fact, most of users probably won't make it here). Value exchange can occur at different rungs of the ladder.

On the bottommost rung, a user understands what a tweet is. At the topmost rung, a user learns to build their following. Twitter considered onboarding and first value exchange as Rungs 1–4. They determined that those were the most important steps to getting new users successfully onboarded, activated, and retained.

Why does all of this matter? Understanding the steps involved in a user mastering your product helps you think holistically of multiple ways to tackle activation and adoption, beyond creating a single, perfect aha moment. Breaking the process of activation into many ladder rungs gives your product strategy specific areas of focus.

And from the perspective of the user, the further they go up the ladder, the more effort it takes to come down. If they're investing more time and energy and realizing more value from the product, then switching to something else becomes more and more costly.

It's easy to look at an example of an already successful product and work backwards to build out their engagement ladder in your mind. But, building your own engagement ladder isn't always so straightforward, so we've included some tips below.

#### General tips on building your ladder of engagement:

- Before you start, know which engagement game you're playing and what customer value exchange looks like for your product.

- If defining the first rung of the ladder is tough, start at the topmost rung and work down. What do you want your power users doing and why? How should users arrive at this point?
- Understand the proportion of users who live at each rung of the ladder. If there's a huge gap between users who reach the aha moment and users who make it beyond that point, you might have to "add" a new rung of two between steps and nudge the users to climb.
- Keep in mind that you will have to rethink and iterate on your ladder of engagement as your product evolves and/or as you uncover new insights about your users' behavior.

For activation PMs, product strategy is all about figuring out the bottom rung of their engagement ladder. The bottom part of the ladder is actually one of the most critical and challenging aspects of building an engaging product. Here, PMs in charge of activation should be asking themselves what action is simple enough to get users to see enough of the product's that they would want to continue to engage with the product. In some cases, it might be what's thought of as the traditional aha moment—the first time a user discovers value. In Facebook's case, this would be the "new users add friends" action. In Twitter's case, the bottom rung is not necessarily the aha moment—it's about educating new users what a Tweet is. Without this as the bottom rung new users won't be able to perform any other actions within the product.

A key success metric for activation PMs is the conversion rate between signup and the bottom rung of the product. We'll discuss this in more detail in Section 2.4.

Now, let's look at the ladders of engagement for companies playing either the attention, transaction, or productivity game.

### 2.3.2 | Attention Game: Facebook's ladder of engagement

Remember that products playing the attention game seek to capture their users' time by offering them entertainment, information, stimulation, or relief. Facebook is an obvious example of a product playing the attention game.

Before the world knew what Facebook was, Mark Zuckerberg and his team faced a challenge when it came to getting new users to engage with the product: they needed to convince people to leave the social networks they knew, give their information to a new one, and start using it, even if their friends weren't all there yet.

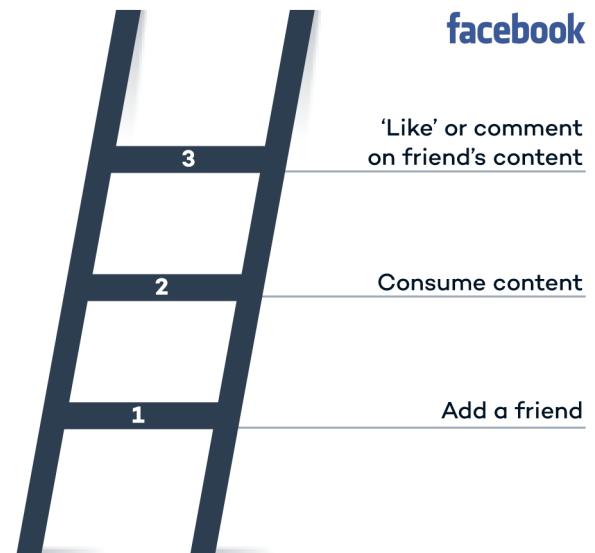
Let's look at what a hypothetical ladder of engagement for Facebook would look like circa 2011–2012—right around the time it began skyrocketing to 1 billion users.

The first rung of the ladder reflects the aha moment that the team rallied around—the seven friends in ten days insight. If users failed to get on this rung, they were far less likely to stick around. At Rung 2, users arrive at the first value exchange—in the beginning of 2012, the content they consumed here included sponsored content and ads.

Rungs 3–6 reflect actions that typical, engaged users performed and Rung 6 reflects the behavior of their power users.

You'll notice that there are two types of engagement within Facebook. Users can engage with the content that their friends have created by liking, tagging, commenting, etc. Or, users can create their own original content by making a status update or uploading an album, etc.

According to a report by Pew Research Center, at the time, engaging with other people's content was the most frequent type of engagement on Facebook in 2011. Therefore, these actions are closer to the bottom of their engagement ladder—it's easier to engage with others than create yourself. On the other hand, creating original content was an activity mainly performed by power users in 2011 so it follows that this action makes up the topmost rung<sup>[19]</sup>.



Hypothetical example of Facebook's ladder of engagement

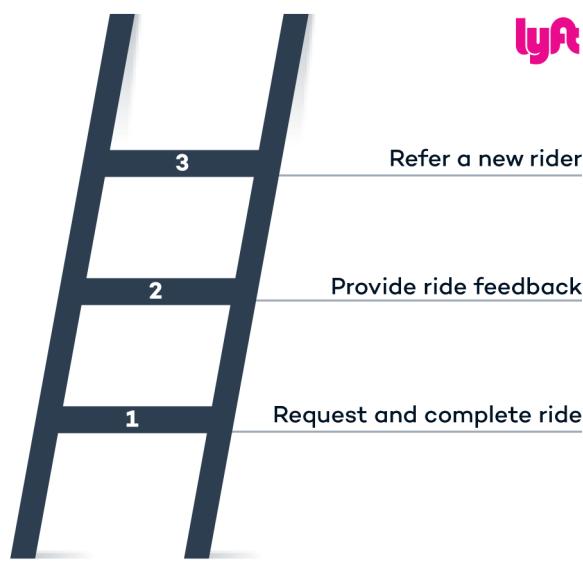
<sup>[19]</sup> <http://www.pewinternet.org/2012/02/03/why-most-facebook-users-get-more-than-they-give/>



### 2.3.3 | Transaction Game: Lyft's ladder of engagement

Remember that products playing the transaction game generate value via commercial transactions taking place online. These products are typically trying to maximize how much and/or how often users spend. E-commerce platforms, two-sided marketplaces, ride hailing services like Lyft are among some of the types of companies that play this type of game.

Let's take a look at what Lyft's ladder of engagement might look like for their riders.



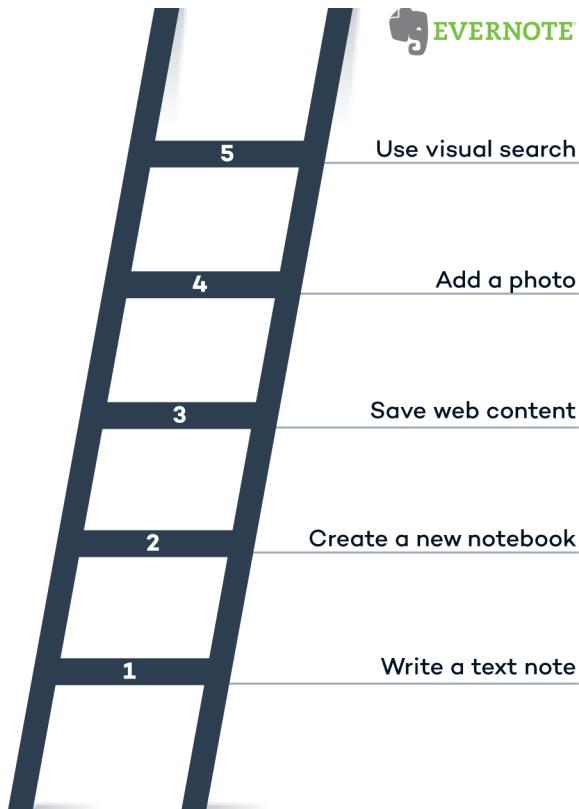
The bottommost rung of Lyft's ladder of engagement—completing a ride—might be the simplest way a new user can engage with the product, but it's probably also the most common way users exchange value with the company. That is, if every Lyft user just stayed on this rung and just regularly requested a ride, the company would stay in good shape. Higher rungs may reflect additional ways that riders can engage with the product, but the core of this transaction game stays near the bottom of the ladder.

As a transactional company, it's unlikely your ladder is going to have as many rungs as that of an attention- or productivity-driven product. It's in the nature of the game that you're generally more interested in customers getting on and off the ladder at regular intervals rather than getting on and climbing further up and up at a constant rate.

### 2.3.3 | Productivity Game: Evernote's ladder of engagement

Companies playing the productivity game care about whether their users are efficiently and successfully completing tasks. When you're running a product based on productivity, your goal as a product manager is to bring people to the place where they're the most successful. Note-taking app Evernote is an excellent example of a productivity player.

Here's a hypothetical ladder of engagement for Evernote.



Notice the topmost rung is use visual search. The feature is a powerful one for Evernote since one of their differentiators is the ability to transcribe uploaded images and handwritten notes, then allow you to search them.

Let's say this feature is one of the stickiest features of the product, but it's something only power users do regularly. Evernote's ladder of

The screenshot shows the Evernote desktop application interface. At the top, there's a navigation bar with options like '+ New Note in Notes', 'New Chat', and 'Search notes'. Below the navigation bar, the main area displays a search result for 'Liberal Arts Tradition'. The results include several notes and links, such as '1/24/12 Keeping House: The Utility of Everyday Life Margaret Kim Peterson' and 'Kirk, Russell | Roots...'. A large, handwritten note is overlaid on the right side of the screen, reading: 'The Liberal Arts Tradition, Kevin Clarke Pavel Janm ① Piety piety signifies the duty, love, and respect owed to God, parents, & communal authorities past + present Calvin, piety: "that reverence joined with love of God which the knowledge of his benefits induces greatest commandment inevitably, the culture of the school educates as much as its curriculum. both the classical & Christian cultures recognized that virtue & piety played a role in this pursuit of wisdom.' The note is written in black ink on a white background.

An example of Evernote's visual search

engagement could be built to point towards that feature, with every rung of the ladder designed to accumulate value for the user.

The first rung might be the very basic act of content creation—writing a note. Rungs 2–4 can then familiarize the user with the product and nudge them towards adding more multimedia content to their notebook. As users add more visual content, the chances that they use the visual search feature increases. Pretty soon, they're taking advantage of this and other features that make switching to another note-taking app costly. They're locked into the product.

At this point, you might be wondering how exactly you should help nudge users between rungs of your ladder and where this all fits in with the engagement loop that your product needs to have. Never fear: this is what we'll be discussing in Chapter 3.

We've covered a lot of models and frameworks so far in this chapter—now let's look at how to put numbers to each phase of activation.



## 2.4 | Measuring activation

In the last section of this chapter, we will cover the analyses you can perform to diagnose and improve new user activation in your product. Remember that we've divided up activation into three phases: **onboarding, aha moment (or ladder of engagement), and the first value exchange.**

Measuring new user activation is really all about two metrics:

- **Conversion** between the different steps of your onboarding funnel, and especially to the aha moment and the first value exchange.
- **Retention** of newly activated users who repeatedly perform the value exchange event.

And finally, to measure real growth in these metrics after product changes have been made, we'll look at how new user acquisition cohorts track for these metrics over time.

Since these analyses are best illustrated by an example, let's go back to the AmpliTunes example product we introduced in Chapter 1.

First, we'll set the scenario using some of the models and frameworks that we've discussed so far. AmpliTunes is an iTunes-like music platform that lets users play and buy songs and videos. As an AmpliTunes product manager, you already know the following:

- **engagement game:** attention
- **aha moment:** new user plays a song or video
- **first value exchange:** new user buys a song or video

Keep these points in mind; we'll come back to them in the sections that follow. Now let's get into the analyses.

### 2.4.1 | Analyzing onboarding

We can break down our onboarding analysis into three questions.

#### 1) WHAT IS THE CONVERSION RATE TO THE AHA MOMENT?

The first stage of activation is getting users to complete onboarding and onto the first rung of the engagement ladder—the aha moment. To understand how many new users are getting from the sign-up page to this moment, you first need to define an onboarding funnel.

Some digital products have a well-defined sequence that users move through during their first-time experience. If that's the case for you, defining your onboarding funnel is simple: just track an event for each step, and that's your funnel.

## Do it with Amplitude

Let's say our new user onboarding flow in AmpliTunes has 5 steps: User lands on welcome page → User signs up for a trial account → User lands on the main page → User searches for content → User selects content → User plays content (the aha moment). And we want to see how many new users complete their onboarding to aha moment flow within 30 days of signing up.

**Step 1** Create a new Funnel Analysis chart and build your onboarding flow. In the Events module, choose the events that make up funnel.

Note that you can choose **Events in this order** if you want to analyze users who went through your funnel exactly in this sequence. If the exact order of events doesn't matter to you and you're just interested in if users performed these onboarding steps, you can choose to analyze **Events in any order**.

**Step 2** In Segmentation module, choose to analyze the **New Users** segment. By default in Amplitude, New Users are users who perform any action for the first time. Users are considered new at the time of their earliest action.

**Step 3** Now it's time to do the analysis. Choose to measure by how many users **completed the funnel within 30 days from their first day**. This is known as the conversion window—the amount

The screenshot shows the Amplitude interface for setting up a funnel analysis. On the left, under 'Events performed in this order', a numbered list of seven events is shown: 1. Welcome, 2. User Sign Up, 3. Main Landing Screen, 4. Search Song or Video, 5. Select Song or Video, 6. Play Song or Video, and 7. Select event... (disabled). On the right, under '..performed by New Users', there is a section for filtering: '1 All Users' with dropdowns for 'where Select property...' and 'and who performed Select event...', and a '+ Add Segment' button. Below this is a section for grouping: '..grouped by Select property...'. At the bottom, a navigation bar includes tabs for 'Conversion' (which is selected), 'Conversion/Time', 'Time to Convert', 'Frequency', 'AB Test-Improve', and 'AB Test-Sig'. A note below the tabs says '..completed within 30 days from their first day grouped by Select Step/Property'.

The setup in Amplitude



of time a user has to complete all the steps in the funnel in order to be considered “converted.” Keep in mind that you can set your conversion window to be anywhere from seconds to days, depending on how you expect your product to be used.

The **from their first day** selection restricts the analysis to only include new users who are new on the day they performed the first step of the funnel—in this case, landing on the welcome page.

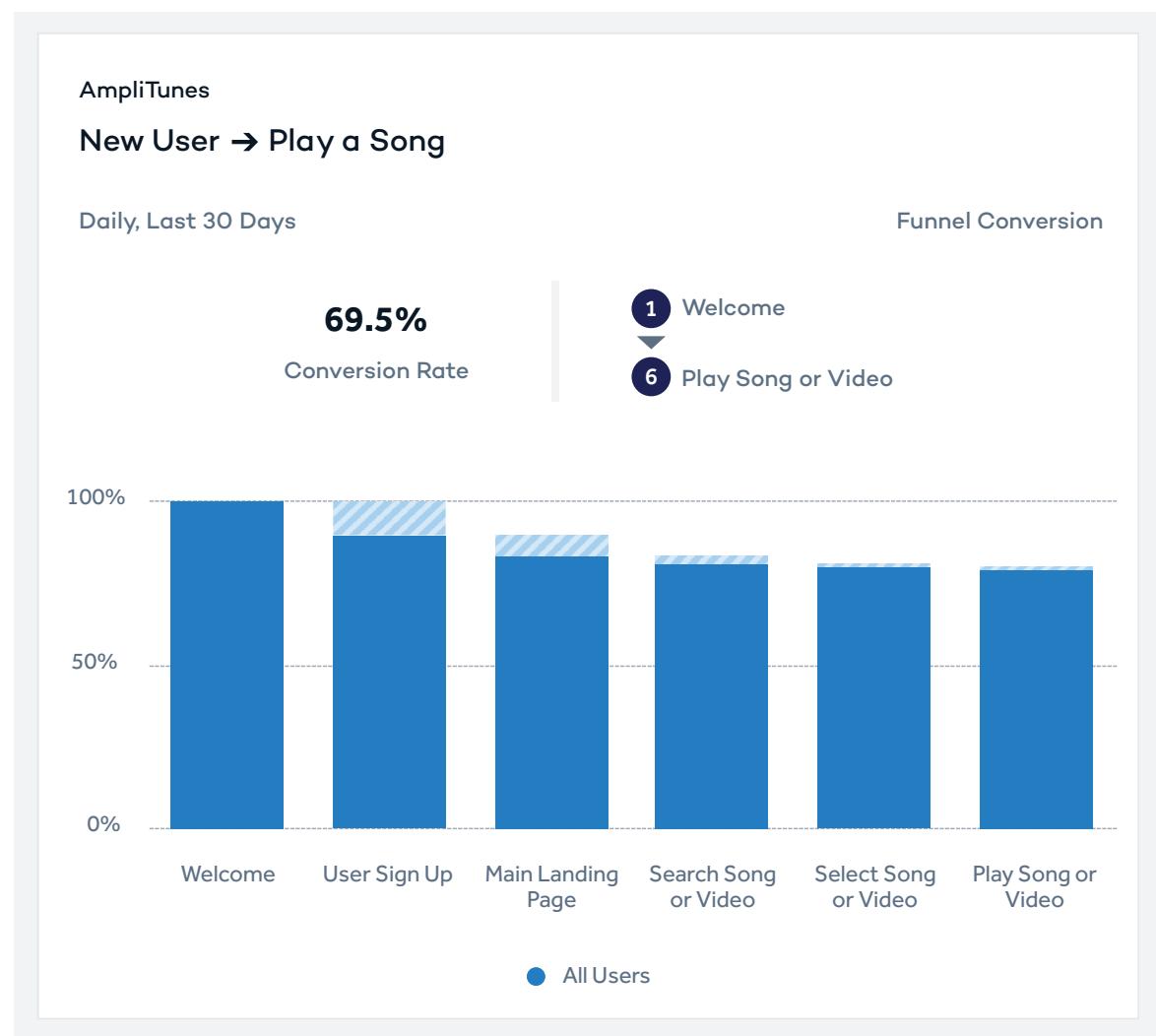
Keep in mind, that these settings counts unique users who pass through the funnel across a number of different sessions—i.e., they can exit AmpliTunes in the middle of the funnel and come back on another day and still be counted. If it’s important for your new users to complete onboarding and reach their aha moment in one session, you can change the subsequent dropdowns to read **holding constant Session ID**. This will count users who complete every step of the funnel in the same session.

#### Takeaway

From this funnel analysis, you can see that the conversion rate for users who were new on any day in the last 30 days, is 69.2%. That is, 69.2% of new users in this time frame completed every step of the onboarding funnel, in this order, and arrived at the aha moment—the Play Song or Video action. They’ve arrived at the bottom rung of the AmpliTunes engagement ladder.

#### Help!

**What if I don’t know my onboarding funnel?**



AmpliTunes onboarding funnel analysis chart

If your first-time user experience is open-ended or flexible, think about the key actions they need to perform before they can start getting value out of your product—you may even want to con-

sider conducting some user research. Or, you can make a hypothesis about your onboarding funnel by doing path analysis.

## Do it with Amplitude

Let's suppose that we don't know our AmpliTunes onboarding flow. **Pathfinder** is a great way to get a sense of the most common paths your new users are taking in your product.

The report lets you specify a starting point and then see the top sequence of actions and that users performed after it. Or, you can specify an ending point and then see the top actions that users performed leading up to it. You can use this information as a starting place to design an onboarding flow or to test different ones.

Let's say we want to know the most common sequence of actions new users in the last 30 days took after landing on the main landing screen AmpliTunes. Here's how you would build that report for AmpliTunes:

**Step 1** First, begin a new Pathfinder report. In the Events module, choose to look at the paths taken **starting with Main Landing Screen** for the new users.

**OR**

Let's say we care more about knowing how new users get to the aha moment. In this case, in the left module, you'd choose to look at the paths taken **ending with Play Song or Video**.

The screenshot shows the Amplitude Pathfinder setup interface. It has two main sections: "EventPaths taken starting with" and ".performed by".

**EventPaths taken starting with:**

- 1 Main Landing Screen
- 2 A Top Paths
- 3 A Top Paths
- 4 A Top Paths
- 5 A Top Paths

**.performed by:**

- 1 [Amplitude] New User >= 1
- who performed A New User >= 1 time
- any time during Last 30 days
- and where Select property...
- and who performed Select event...

**..representing at least 5 % of total paths grouped by Select Event/Property**

The setup in Amplitude



**Step 2** For each subsequent step in the path, choose the event **Top Paths**. These are the top events (counting by event totals) at the time of the query.

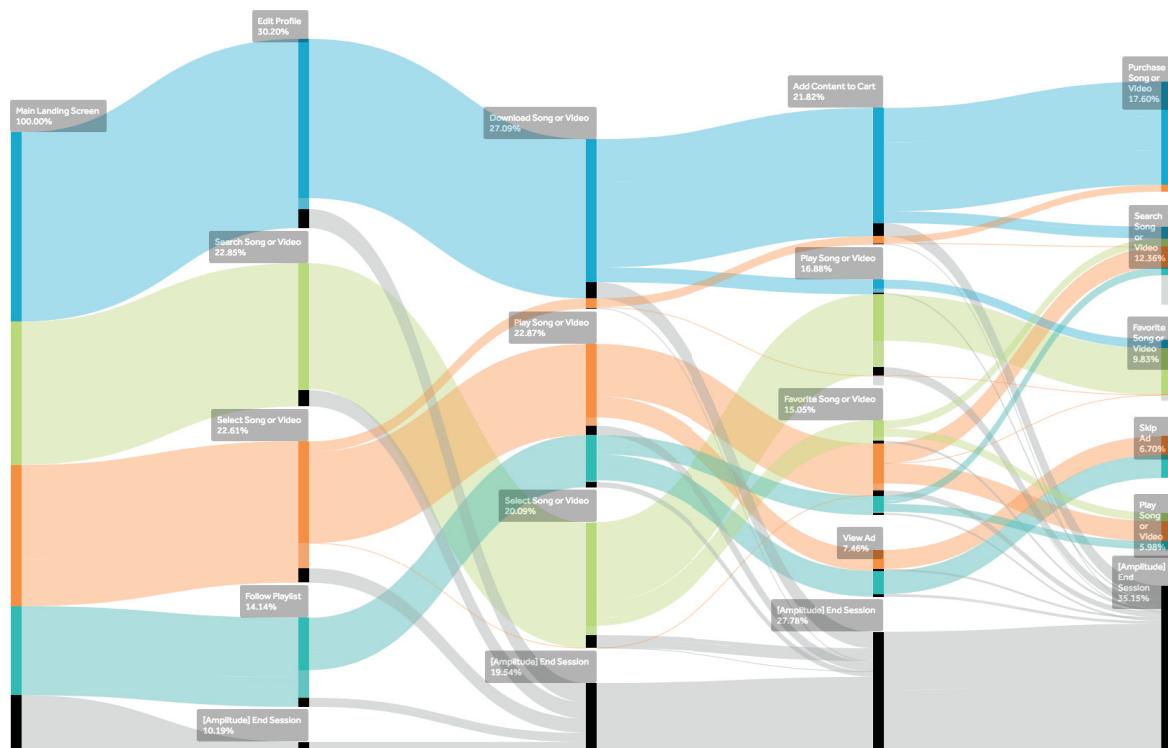
**Step 3** Set up the Segmentation module so you're only looking at new users in this report. To do this, choose to analyze **Users who performed the [Amplitude] New User event 1 time, any time during Last 30 days**. This setup analyzes only the segment of users who performed their very first action in the last 30 days (i.e. users who were new in the last 30 days).

**Step 4** Now it's time to do the analysis. In the date picker on the report, you can choose to look at the most common paths in the last 30 days.

#### Takeaway

Interestingly, Pathfinder highlights other common paths that new users take that are different from the onboarding flow we had defined before.

Some users go on to edit their profiles and then download content, while others immediately select and play a song, and still others begin following a playlist. At this point, it might also be worth looking at an incoming path analysis of users who end up playing content. Then you can think about whether to redesign a completely new onboarding flow or whether to make UI/UX improvements to your existing flow in order to redirect new users down a specific path.



AmpliTunes Pathfinder report showing the top outgoing paths after the new user lands on the Main Landing Screen

## 2) WHERE ARE YOUR BIGGEST ONBOARDING FUNNEL DROP-OFFS?

To be fair, AmpliTunes' onboarding flow is unusually impressive. Over half of the new users signing up eventually end up getting to the aha moment.

Whether your goal is to diagnose problem areas in your onboarding flow or to optimize something that appears to be working, the first place to investigate is where most of your users are dropping off. Once you have this identified, you can then begin to hypothesize why those users are dropping off and identify what they are doing instead.

### Do it with Amplitude

If you've already built your onboarding funnel, identifying your biggest drop-offs won't be difficult. Going back to AmpliTunes's onboarding funnel at the beginning of this session, you can see that the biggest drop-off in the funnel happens between the user signing up for an account and arriving at the main landing page—once new users get here, nearly all of them complete the flow. In Amplitude, it's easy to get a snapshot of how many users are dropping off in your funnel: Just mouse over the striped section of the bar you care about and a new window pops up.



AmpliTunes onboarding flow showing the step with the most dropped-off users

#### Takeaway

*For AmpliTunes, you can see that 16% of all new users in the past 30 days abandoned the onboarding funnel after signing up.*



### 3) WHAT ARE NEW USERS DOING INSTEAD OF ONBOARDING?

Path analysis can be really useful for seeing what users are doing once they drop out of a funnel, like the onboarding flow we looked at earlier. Are these users leaving the app for good, or are they doing something else instead?

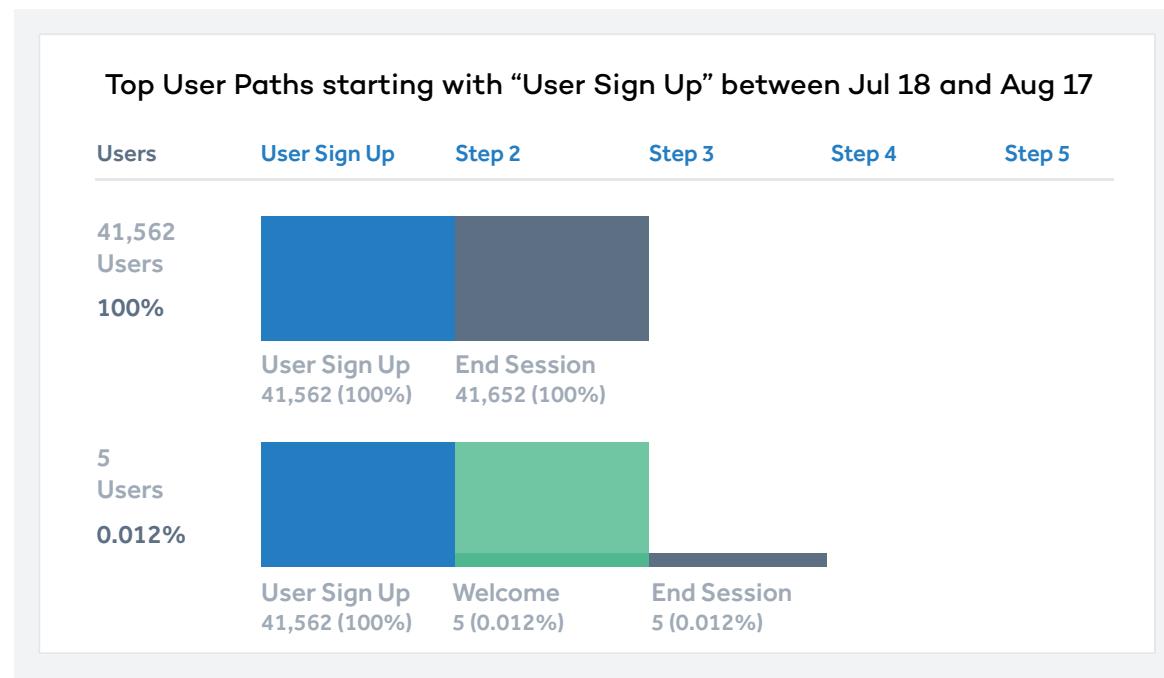
#### Do it with Amplitude

Again, in Amplitude, it's very simple to get a quick sense of what's happening to your dropped off users. Once you've identified where your biggest drop-off is, you can just click on that region to inspect it further—you have the option to view or download individual users, create a cohort, and see the paths these dropped-off users took without ever leaving your chart.

User path analysis shows that of 16% of users who dropped-off after signing up for AmpliTunes, almost all of them left the app and never came back.

#### Takeaway

*User path analysis can help you begin to diagnose problem areas and/or opportunities for optimizing your conversion rate. In this example, you could dig into the individual users who left the app to see if they share any commonalities—perhaps a certain browser or device type is resulting in a bad*



*experience for some users? Or, this could prompt you to explore ways to bring new users back to the app, through email reminders or push notifications, for example, so users who do exit AmpliTunes after signing up will more likely complete onboarding within the conversion window.*

## 2.4.2 | Analyzing the first value exchange

Next in our analysis of new user activation, is looking at the conversion rate of users who perform the first value exchange. Remember that at this rung of the ladder of engagement, not only does the product provide value to the user, the user also provides value (usually money) to the business. There are two important analyses we can look at with respect to this stage of activation.

### 1) WHAT IS YOUR ACTIVATION RATE?

The name of the game for this analysis is, again, conversion rate. We're defining activation rate as the conversion rate to the first value exchange event.

### Do it with Amplitude

If you have your onboarding funnel already set up, it's not difficult to find out what your conversion rate to the first value exchange is: just add that step to your funnel. In AmpliTunes, we already know that our first value exchange moment is when a user purchases a song or video.

Since we care about the purchase event and not necessarily the exact sequence it took to get there, one thing to consider this time around is to set your analysis for **Events performed in any order**.

The screenshot shows the Amplitude interface for setting up an analysis. It consists of two main sections:

- Events performed in this order:** A list of numbered steps representing user events:
  - 1 Welcome
  - 2 User Sign Up
  - 3 Main Landing Screen
  - 4 Search Song or Video
  - 5 Select Song or Video
  - 6 Play Song or Video
  - 7 Purchase Song or Video
  - 8 Select event...
- ..by New Users:** A configuration section for grouping users:
  - 1 All Users**: A dropdown menu with placeholder text "Select property..." and "Select event...".
  - Add Segment**: A button with a plus sign.
  - ..grouped by**: A dropdown menu with placeholder text "Select property...".

Below these sections is a row of buttons for filtering results:

- Conversion
- Conversion/Time
- Time to Convert
- Frequency
- AB Test-Improve
- AB Test-Sig

At the bottom, there is a text input field with placeholder text "...completed within 30 days from their first day grouped by Select Step/Property".

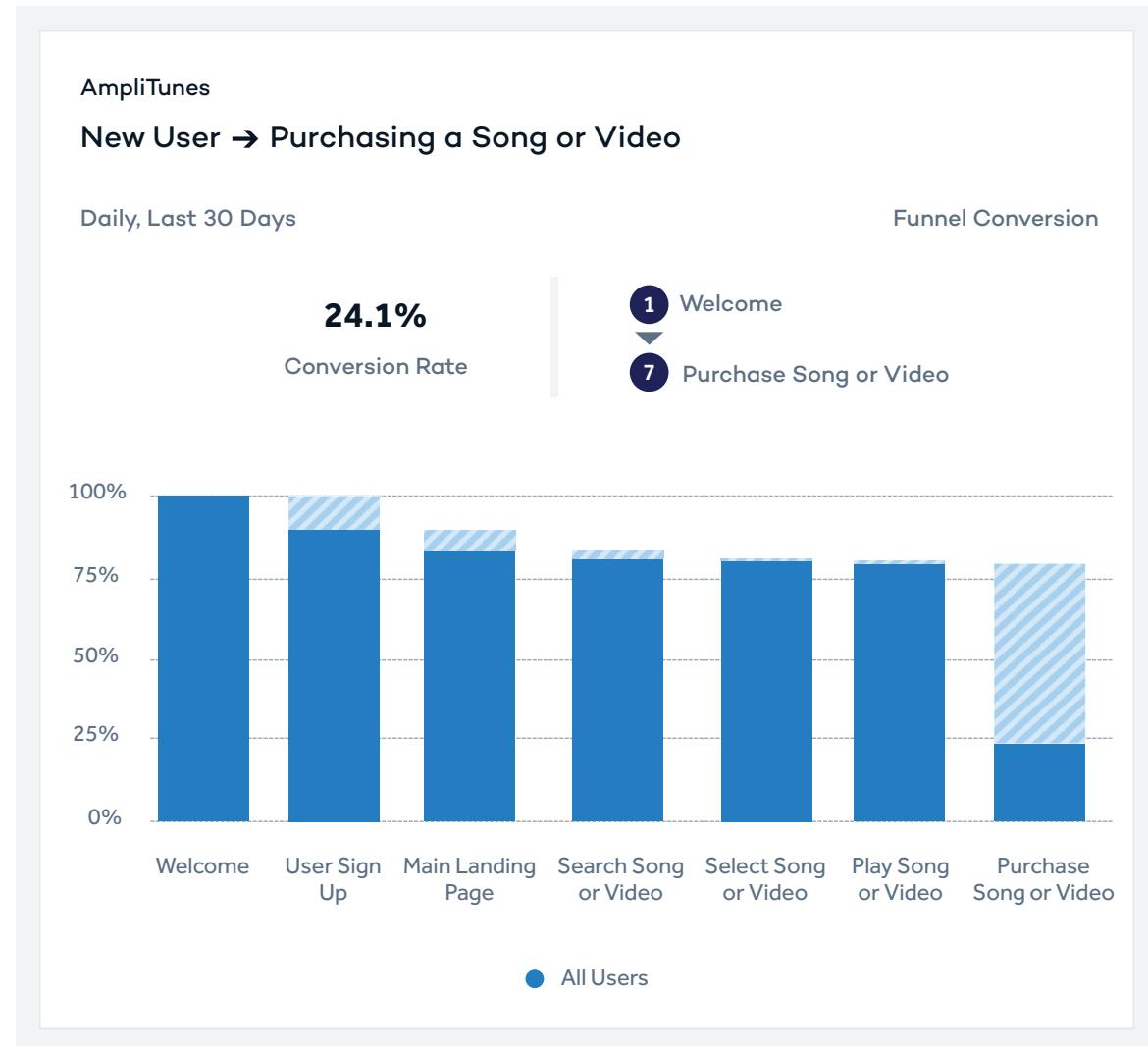
The setup in Amplitude



### Takeaway

The funnel analysis shows that the conversion rate between a new user first landing on the welcome page to purchasing a song or video is 24.1%.

If you want to find ways to improve this conversion rate, path analysis is a great place to start. For example, you could find out the most common inward flowing paths that users took to get to the purchase event, and then build in hooks and triggers in those places to nudge them in the direction (more on that in the next chapter).



AmpliTunes funnel analysis chart for conversion to the first value exchange

## 2) WHAT ARE NEW USERS DOING INSTEAD OF ACTIVATING?

We saw in the previous analysis that there's a significant dropoff between users who play content and users who purchase content. Path analysis is useful for seeing what users are doing instead of activating.

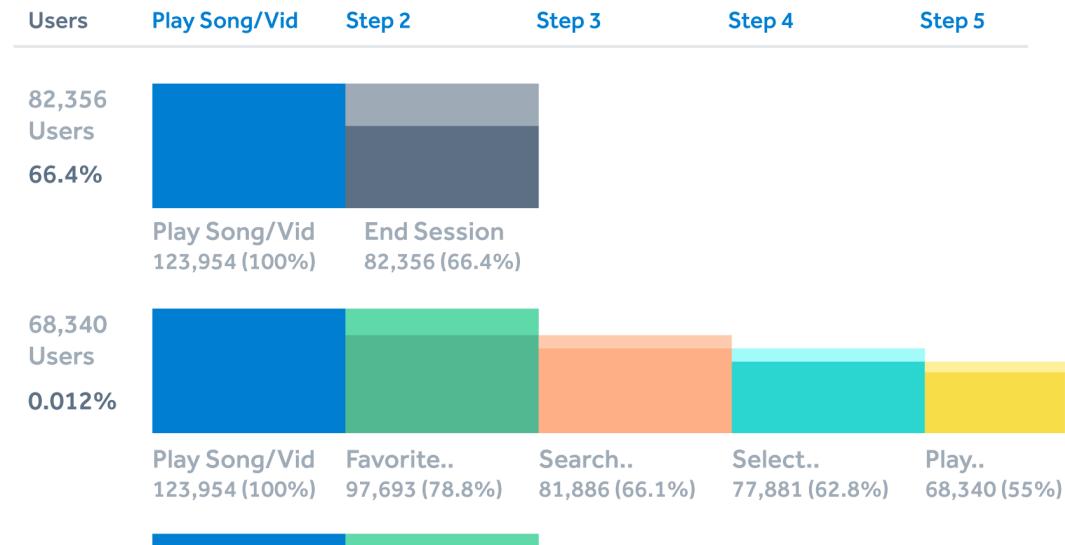
Using the same funnel you used to look at conversion to the first value exchange event, you can use Pathfinder to see what dropped off users do instead of purchasing a song.

### Takeaway

The funnel analysis shows that the conversion rate between a new user first landing on the welcome page to purchasing a song or video is 24.1%.

If you want to find ways to improve this conversion rate, path analysis is a great place to start. For example, you could find out the most common inward flowing paths that users took to get to the purchase event, and then build in hooks and triggers in those places to nudge them in the direction (more on that in the next chapter).

Top User Paths starting with “Play Song or Video” between Jul 28 and Aug 27



After clicking ‘Click To Inspect’ on the dropped-off region of this AmpliTunes activation funnel analysis, you can then choose to view user paths for this group of users



### 3) HOW FAST DO NEW USERS ACTIVATE?

Put another way, this analysis is to understand how long new users take to convert into a paying (and, by our definition, activated) customer.

#### Do it with Amplitude

You can look at the time it took new AmpliTunes users to convert as a distribution of the time it took to complete the entire funnel—from the new user Welcome page to purchasing a song or video, in this case.

To see this view, you simply have to build out your funnel to the value exchange moment, as we did in the previous section. Then choose to analyze **time to convert**.

The screenshot shows the Amplitude interface for setting up a funnel analysis. The top section is titled "Events performed in this order" and lists the following steps:

- 1 Welcome
- \* User Sign Up
- \* Main Landing Screen
- \* Search Song or Video
- \* Select Song or Video
- \* Play Song or Video
- \* Purchase Song or Video
- \* Select event...

To the right of this list, there is a section titled "..by New Users" which includes:

- 1 All Users
- where *Select property...*
- and who performed *Select event...*
- + Add Segment

Below these sections is a horizontal bar with several tabs: Conversion, Conversion/Time, Time to Convert, Frequency, AB Test-Improve, and AB Test-Sig. The "Time to Convert" tab is highlighted in blue, indicating it is the active view. At the bottom of the interface, there is a condition: ..completed within 30 days from their first day grouped by *Select Step/Property*.

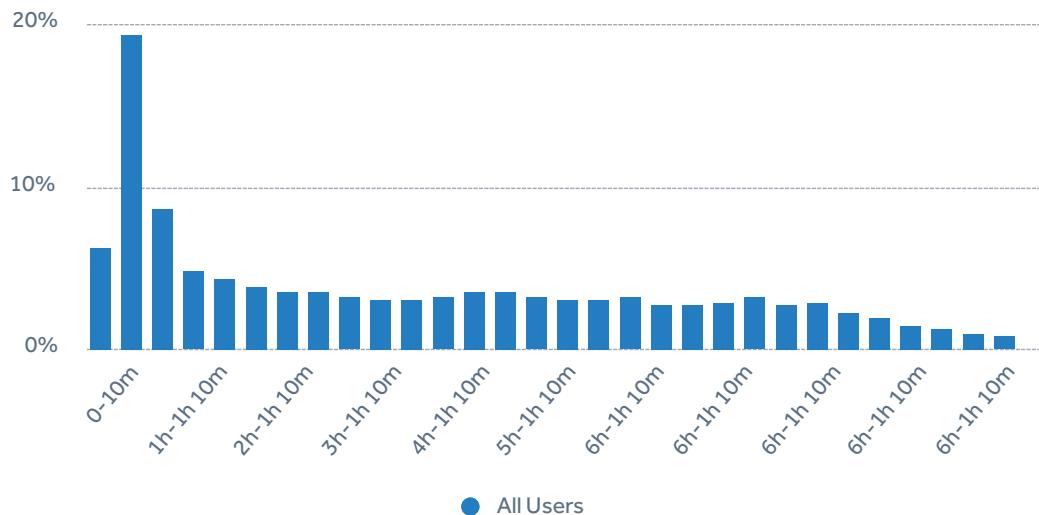
The setup in Amplitude

AmpliTunes

## New User → Purchasing Song or Video Time to Convert

Daily, Last 30 Days

Funnel Conversion



### Takeaway

According to the time-to-convert view of this funnel, over 20% of new AmpliTunes users complete the entire activation funnel within 1 hour.

AmpliTunes time to convert



## PRO TIP

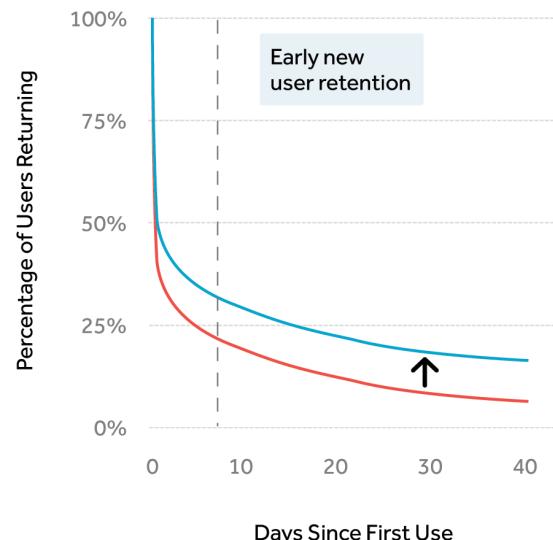
For a review on retention curves, product usage intervals, and different methods of measuring user retention, check out Chapter 2 of the Product Analytics Playbook Volume 1: Mastering Retention<sup>[20]</sup>.

### 2.4.3 | Activated new user retention

The proportion of activated new users who come back for the first time within a certain time frame should be a key measure of activation success; this metric directly reflects not only how many new users found value in their early exploration of your product, but how many users then decided to invest in your product themselves.

Improvements in your activated new user retention can shift your product's entire retention curve upward, by decreasing the initial dropdown that happens during a user's early experience. This means, better overall retention of your users, a greater number of value exchanges, and, ultimately, better customer lifetime value.

#### Shift the Curve Up



## Do it with Amplitude

In the previous section, we said that the first value exchange event for AmpliTunes is purchasing content. New users who complete onboarding, play content, and then purchase content will be considered activated. Here's how you would build the retention curve of activated new users:

**Step 1** Create a new Retention Analysis chart. In the Events module, set the first event to Pur-

chase Song or Video and the return event also to Purchase Song or Video. This setup indicates that we will count users as retained if they purchase content, and then come back and purchase content another time.

**Step 2** Set up the Segmentation module so you're only looking at new users in this report. To do this, choose to analyze Users who performed

**the [Amplitude] New User event 1 time, any time during Last 30 days.** This setup analyzes only the segment of users who performed their very first action in the last 30 days (i.e. users who were new in the last 30 days).

**Step 3** Now it's time to do the analysis. In the Measure module, you can choose to measure retention by N-Day Retention, Unbounded Retention or Custom Bracket Retention. If you need a refresher on how these differ, check out our help desk article<sup>[12]</sup> or our first playbook, *Mastering Retention*.

For AmpliTunes, we will measure N-week retention, because we've already determined that the product has a *weekly* usage interval—that is, we expect users to come back on a weekly basis.

The screenshot shows the Amplitude setup interface for creating a retention metric. It consists of two main sections:

- First event:** Set to "Purchase Song or Video".
- ..then the return event:** A dropdown menu with two options:
  - A Purchase Song or Video** (selected)
  - B Select event...**
- ..performed by:** Set to "Users".
- 1 [Amplitude] New User >= 1** (highlighted in blue)
- who performed:** Set to "New User" (highlighted in blue) with a value of "1" (highlighted in blue).
- any time during:** Set to "Last 30 days".
- and where:** Set to "Select property...".
- and who performed:** Set to "Select event...".
- Add Segment** (button with a plus sign).
- ..grouped by:** Set to "Select property...".
- ..measured by:** Set to "N-Day Retention" (highlighted in blue) shown as "Retention".

The setup in Amplitude

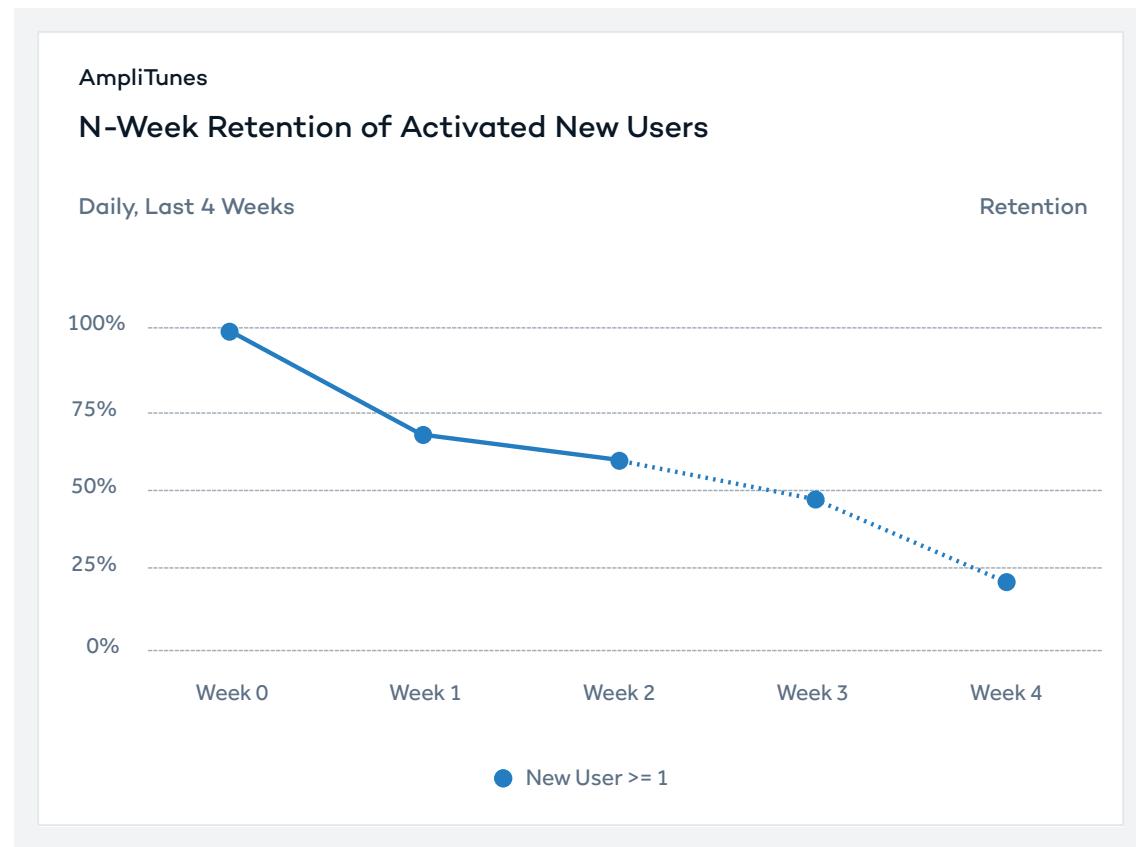
## TERMS TO KNOW

The **product usage interval** is the frequency (daily, weekly, monthly, etc.) with which you expect people to use your product.



### Takeaway

The resulting retention curve shows the proportion of new, activated users within the past 30 days who have returned to AmpliTunes and purchased content sometime during the week. According to the curve, Week 1 retention is around 60%. This means, about 60% of new users who made a purchase, came back and made another purchase during the same week. Once again, this analysis gives you a sense of the proportion of new users that provide continued value to your business.



## 2.4.4 | Measuring real growth

Now that you've established baseline measurements of activation, the last type of analysis is understanding whether your new user activation is actually growing or not. You can measure the effects of product changes or targeted campaigns on new users by tracking conversion and retention of acquisition cohorts of new users over time.

At Amplitude, we often talk about *behavioral cohorts*—groups of users who behave in a certain way. An acquisition cohort is, instead, a group of users who start off being new during the same period of time.

### TERMS TO KNOW

An **acquisition cohort** is a group of users who started using your product (i.e., were new) during the same time period.

### Do it with Amplitude

Analyzing growth in terms of a change in activation is similar to the funnel analysis that we did in Section 2.4.2. The only difference is that first you'll have to create cohorts of new users who began in the period of time that you care about. For AmpliTunes, we'll look at real growth of users who were new in May, June, and July 2018.

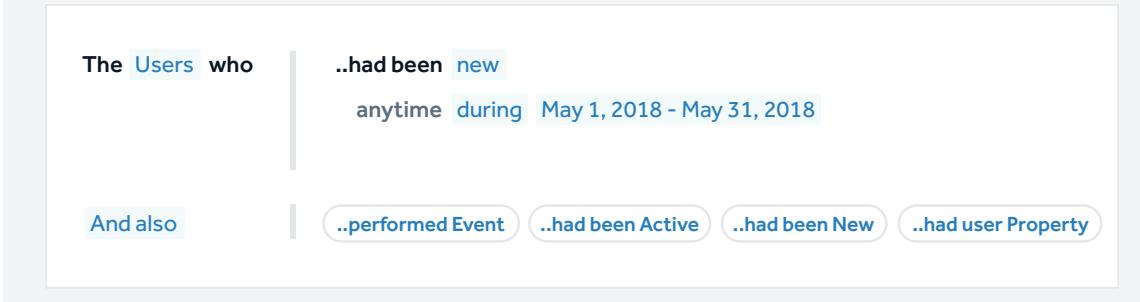
#### 1) ANALYZING THE CHANGE IN ACTIVATION RATE

**Step 1** Create the May acquisition cohort by choosing **Users who had been new any time during May 1, 2018 - May 31, 2018**. Save this cohort. Create the June and July cohorts the same way, changing only the time component, and save these cohorts as well.

New Users May 2018

The **Users** who ..had been **new**  
anytime during **May 1, 2018 - May 31, 2018**

And also ..performed Event ..had been Active ..had been New ..had user Property



Acquisition cohort definition for users who were new in May



**Step 2** Create a funnel analysis. In the Events module on the left, choose the first step of the funnel as new users landing on the **Welcome** page and the final step is **Purchase Song or Video**.

**Step 3** In the Segmentation module on the right, choose to view the acquisition cohorts you define in **Step 1**.

**Step 4** Now it's time to do the analysis. In the Measure module, make sure **Conversion** is selected and the **conversion window** is set.

The screenshot shows the Amplitude interface with three main panels:

- Events performed in this order:** A list of events in the funnel:
  - 1 Welcome
  - 2 Purchase Song or Video
  - 3 Select event...
- ..by Any Users:** A list of acquisition cohorts:
  - 1 New Users May 2018
    - where ⌂ Cohort = New Users May 2018
    - and where Select property...
    - and who performed Select event...
  - 2 New Users June 2018
    - where ⌂ Cohort = New Users June 2018
    - and where Select property...
    - and who performed Select event...
  - 3 New Users July 2018
    - where ⌂ Cohort = New Users July 2018
    - and where Select property...
    - and who performed Select event...
- Add Segment:** A button to add more segments.

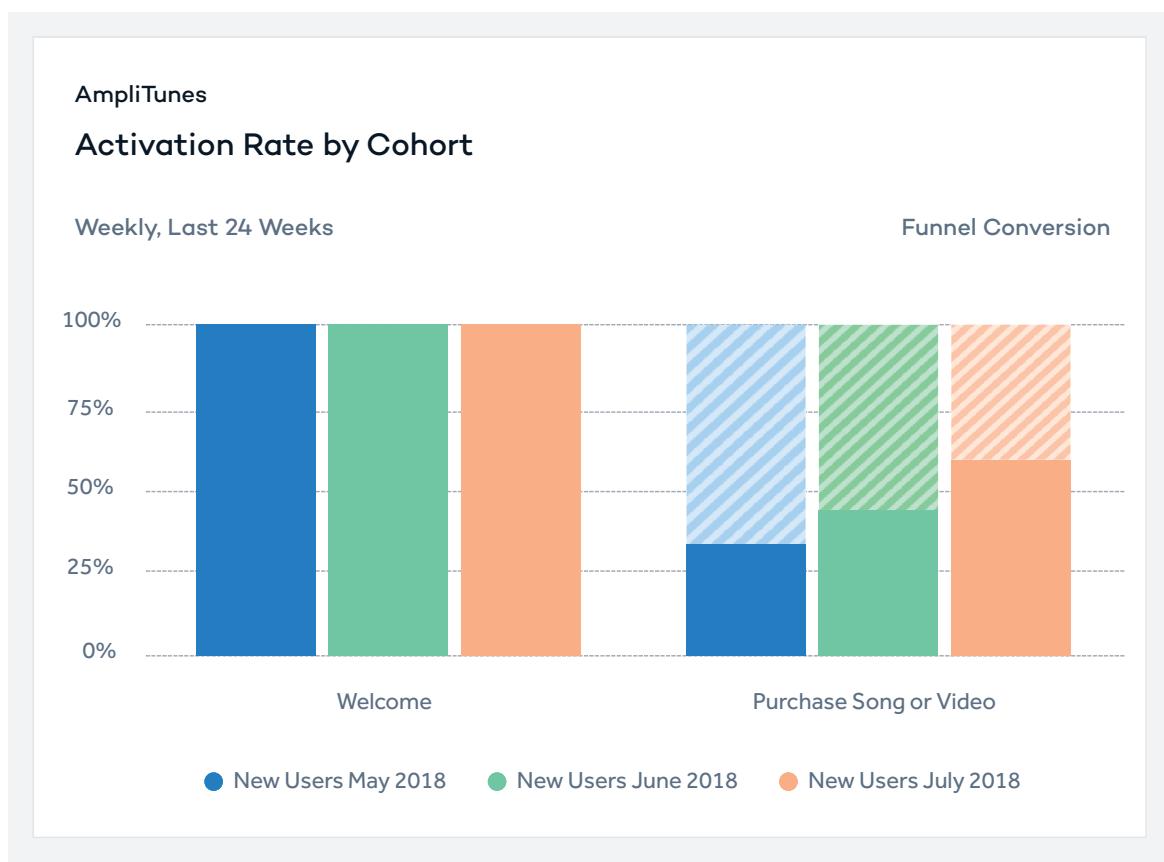
**Conversion:** A tab bar with the following options: Conversion, Conversion/Time, Time to Convert, Frequency, AB Test-Improve, AB Test-Sig. The **Conversion** tab is selected.

**..completed within 30 days from their first day grouped by Select Step/Property:** Configuration for the conversion window.

The setup in Amplitude

### Takeaway

If you pushed a product update or ran an effective campaign between May and July, you might see a satisfying jump in activation rate between cohorts of users. The sample chart, for example, shows that the July 2018 cohort of new users had higher activation rate than the May 2018. This is one way to measure the impact and effectiveness of your product and growth marketing changes.



## 2) ANALYZING THE CHANGE IN ACTIVATED USER RETENTION RATE

Analyzing growth in terms of a change in activated user retention is similar to the retention analysis that we did in Section 2.4.3, the only difference being the addition of multiple acquisition cohorts.

**Step 1** Create your acquisition cohorts.

**Step 2** Create a new Retention Analysis. In the Eventsmodule on the left, set the first event to **Purchase Song or Video** and the return event also to **Purchase Song or Video**. This setup indicates that we will count users as retained if they purchase content, and then come back and purchase content another time. In other words, this is looking at retention of activated users.

**Step 3** Set up the Segmentation module on the right so you're only looking at new users in this report. To do this, choose to analyze **Users who performed the [Amplitude] New User event 1 time, any time during Last 30 days**.

**Step 4** Now it's time to do the analysis. In the Measure module, choose to measure N-week retention.

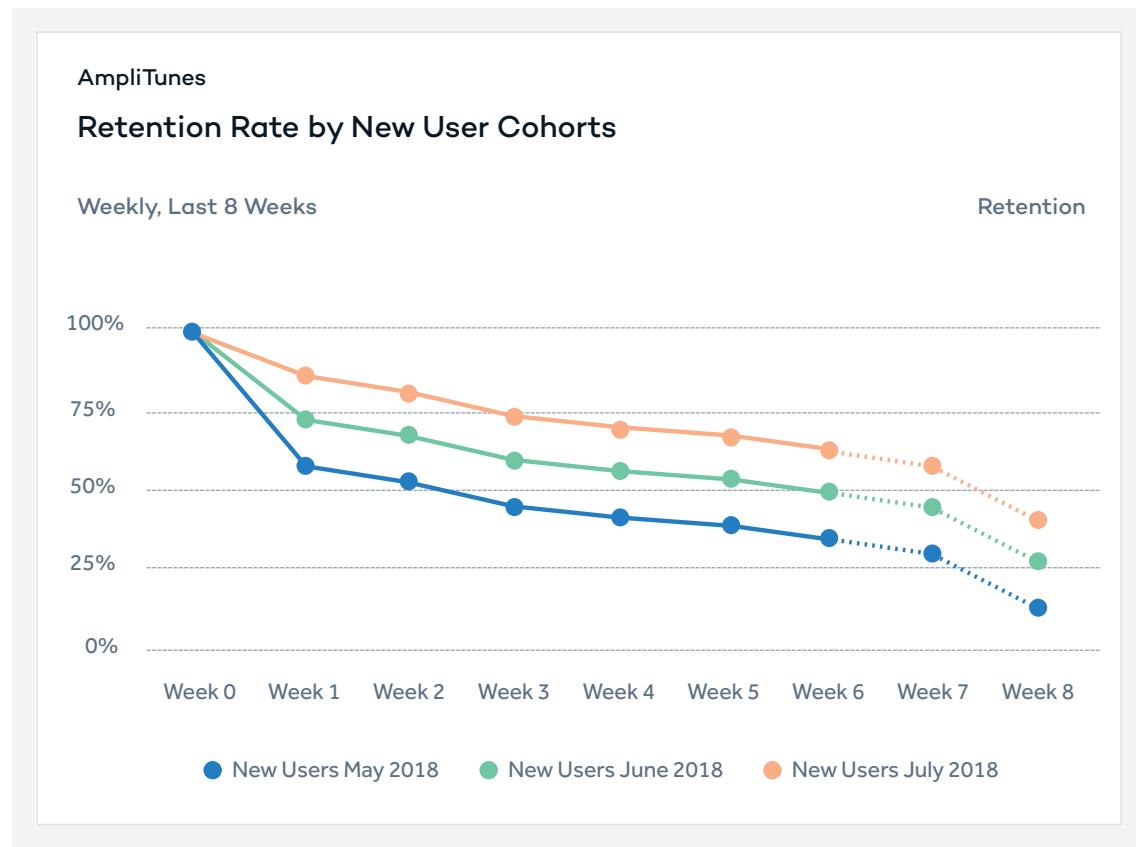
The screenshot shows the Amplitude interface with the following configuration:

- First event:** Purchase Song or Video
- ..then the return event:** A. Purchasing Song or Video (selected), B. Select event...
- ..performed by:** Users
- 1 New Users May 2018**
  - where ⚡ Cohort = New Users May 2018
  - and where Select property...
  - and who performed Select event...
- 2 New Users June 2018**
  - where ⚡ Cohort = New Users June 2018
  - and where Select property...
  - and who performed Select event...
- 3 New Users July 2018**
  - where ⚡ Cohort = New Users July 2018
  - and where Select property...
  - and who performed Select event...
- Add Segment** button
- ..measured by:** N-Day Retention shown as Retention

The setup in Amplitude

### Takeaway

In the example chart, the July cohort has higher activated user retention compared to May or June, indicating that a timely product change or campaign has positively impacted user growth. In addition to tracking changes in activation rate, this is another way to measure the impact and effectiveness of your product and growth marketing changes.



Example retention rates for different acquisition cohorts



## 2.5 | Taking action

This chapter discussed the three phases of new user activation: onboarding, the aha moment, and the first value exchange. We expanded the concept of the aha moment into the ladder of engagement and shared examples of how companies playing each of the three engagement games might build out their ladder. We then shared several types of analyses that can help you measure new user activation.

Before wrapping up this chapter, take a moment now to reflect on your learnings. Consider the following:

- What does onboarding look like for your product? What percentage of new users complete onboarding?
- What does your ladder of engagement look like? What is the topmost rung? The bottommost rung? How many new users make it past the bottom rung?
- What is the first exchange of value that occurs in your product and how does that relate to yours business model? At what rungs of your ladder of engagement do you also have an exchange of value?
- What does retention look like for your activated users?

### See it in action

In the last part of this chapter, we share a case study from our customer and transaction-game player Blue Apron. The Blue Apron Growth Team significantly improved conversion rates by figuring out where a significant proportion of new users were coming from and redesigning the first time experience for those users.

If you're wondering what actions you can take to improve engagement and stickiness of your product like Blue Apron, that's coming up next in Chapter 3.

### FURTHER READING

#### Three Defining Components of Authentic Growth

Brian Balfour, Founder & CEO of Reforge  
<https://brianbalfour.com/growth-machine/authentic-growth/>

#### 6 User Onboarding Flow Examples

Shanelle Mullin, ConversionXL  
<https://conversionxl.com/blog/6-user-onboarding-flows/>

#### Building Your Growth Model and Ladder of Engagement

Josh Elman, Partner at Greylock and former product leader at Twitter and LinkedIn

<https://medium.com/@joshelman/building-your-growth-model-and-ladder-of-engagement-3b3a18f2d1a8>

#### How AdRoll Drives 97% Customer Retention By Helping Customers Outside the App

Trevor Sookraj, Clearbit  
<https://blog.clearbit.com/how-adroll-drives-97-customer-retention-by-helping-customers-outside-the-app/>

#### 5 Habits to Building Better Products Faster

Hiten Shah, Founder of KISSMetrics  
<https://hitensem.com/5-habits-better-products/>

#### A User's Manual for Quantifying Qualitative Research

Airtable  
<https://blog.airtable.com/a-users-manual-for-quantifying-qualitative-research/>

#### 5 of The Best User Onboarding Examples

Jackson Noel, Co-Founder/COO of Appcues  
<https://www.appcues.com/blog/the-5-best-user-onboarding-experiences>

## Case Study

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# Blue Apron Uses Optimizely and Amplitude For Rapid Experiments That Activate More New Customers.



## The Company

Blue Apron creates incredible experiences. Founded in 2012, Blue Apron is a consumer lifestyle brand that symbolizes a love of home cooking, excitement and discovery, and deep, meaningful human connections.

Blue Apron's core product is a meal experience that customers create using the original recipes and fresh, seasonal ingredients that are included in every box. All recipes are accompanied by printed and digital content, including how-to instructions and stories of suppliers and specialty ingredients. Blue Apron also sells wine, which can be paired with its meals, as well as a curated selection of cooking

tools, utensils, and pantry items, which are tested and recommended by Blue Apron's culinary team.

Blue Apron has developed an integrated ecosystem that employs technology and expertise across many disciplines. The company's supply-demand coordination activities—demand planning, recipe creation, recipe merchandising, fulfillment operations, and marketing—drive its end-to-end value chain.



John Cline

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John Cline is a senior engineering manager for the Growth and Member Experience teams at Blue Apron, where he leads engineering efforts around customer acquisition, merchandising, and personalization. Prior to Blue Apron, he led the web homepage team at eBay. He graduated from Seattle University with his BS in Computer Science in 2008, and completed an MBA from the W.P. Carey School at Arizona State University in 2011.



## The Product Challenge

The primary focus of Blue Apron's Growth team is to build and consistently refine a digital experience that attracts new consumers and deepens engagement with current customers.

## The Solution

The Blue Apron Growth team needed a tool to quickly generate hypotheses about how consumers were behaving on the digital platform and run experiments on those hypotheses.

### Discovering where new customers are coming from using Amplitude

When John Cline, Senior Engineering Manager of Growth/Member Experience, used a combination

of user pathing and funnel analysis in Amplitude to investigate the pages consumers were visiting before they entered the sign-up flow, he discovered that a significant proportion of people who visited the Blue Apron Recipes page continued on to begin the sign-up process.

*"We have a page that lists all of our upcoming recipes. We did not think many people visited this page prior to signing up, but we realized the Recipes page actually had a higher percentage of traffic than we expected,"* John said.

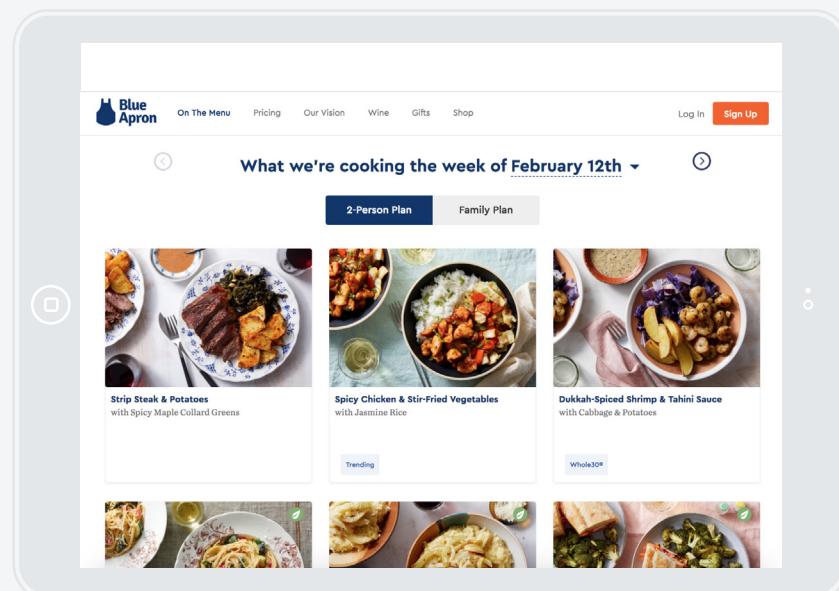
In order to take advantage of this insight, the team conducted a full refresh of the Recipes page to include sign-up CTAs and display even more recipes for consumers to peruse and gain a better

understanding of the Blue Apron meal experience. Using Amplitude, the team learned that its Recipe page was an important component of the digital experience that could help attract new consumers to its product. Making the upcoming recipes more prominent on the page has helped improve conversion by 5.5%.

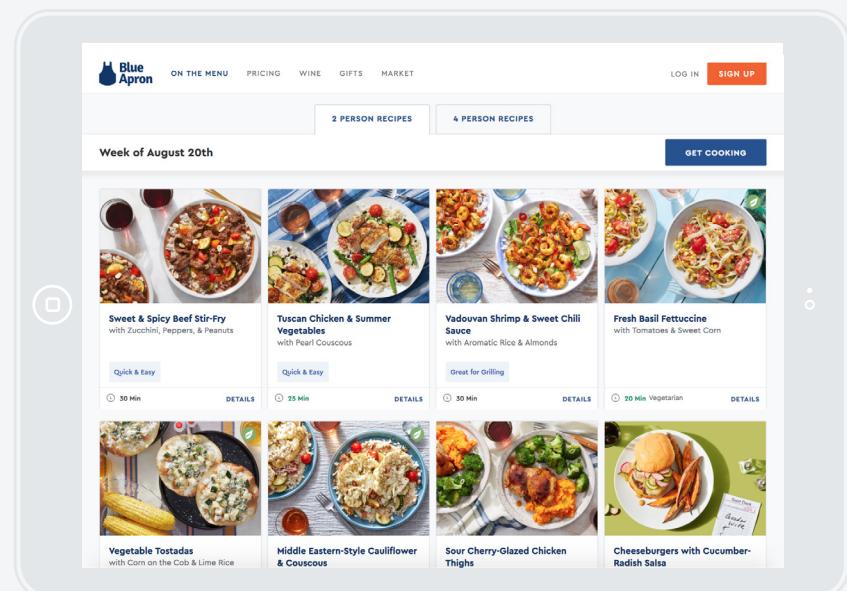
*"We've found that Amplitude is very user-friendly. Even someone who is not particularly technical can use Amplitude to dive into, study, and interpret complex product data. Amplitude helps the Blue Apron Growth team own and drive results for customers."*

**WALKER FULLERTON**

*Product Manager, Growth, Blue Apron*



Blue Apron's old page design



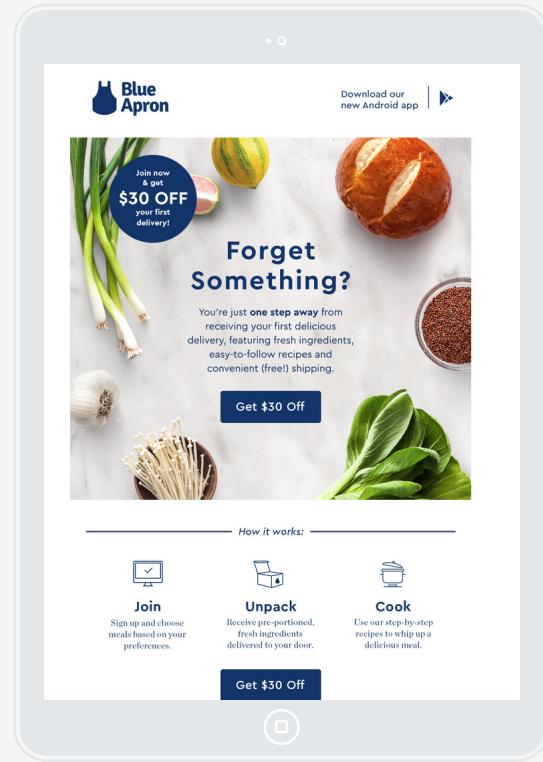
New page design

## Using Optimizely to test personalized emails to consumers who expressed intent to purchase

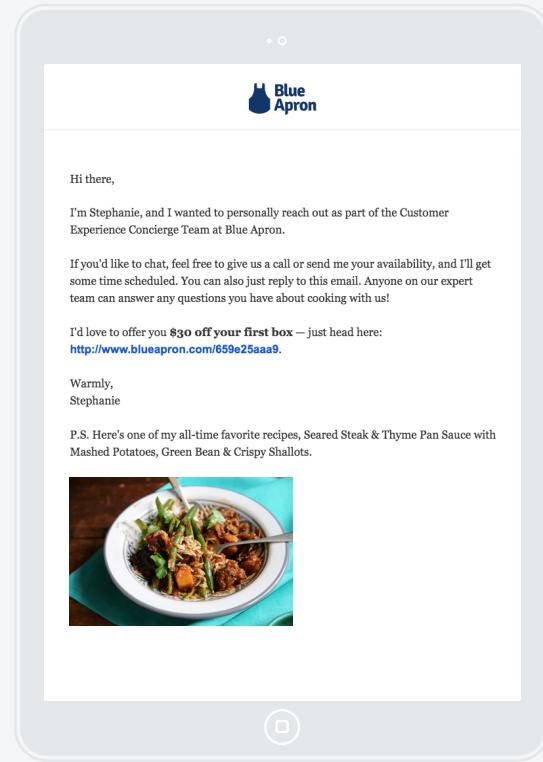
During a review of the abandoned cart experience, the team saw an opportunity to improve how Blue Apron contacted consumers who expressed intent to purchase a meal (i.e. left the product in their online shopping cart), with a more personalized approach.

As part of updating the design, the team hypothesized that customers who received a personal email, sent on behalf of a member of the Customer Experience team, would be more likely to try the product.

The team conducted an experiment to study whether sending these customers a personalized email—one that introduced the Customer Experience team, offered several options to speak directly to an expert on the team, and highlighted a favorite recipe—would help improve conversion. After testing the personalized email using Optimizely Full Stack, the team saw a 7% increase in conversion.



Old email design



New personalized email design

## The Results

- Using Amplitude, Blue Apron learned that their recipe pages were a great way to acquire new users. **Making these more prominent has helped improve conversion by 5.5%.**
- Using Optimizely, Blue Apron was able to test a personalized email to consumers who expressed intent to purchase Blue Apron that **improved conversion by 7%**.

*"We can now get an early signal from the Optimizely Results Dashboard within a few days, which helps empower product and engineering managers to make decisions on their own."*

JOHN CLINE  
*Senior Engineering Manager of Growth/Member Experience, Blue Apron*

**5.5%**  
Conversion increase using Amplitude

**7%**  
Conversion increase using Optimizely



## CHAPTER 03

# MAKING USERS STICK

You've activated your new users and introduced them to your product's engagement ladder. How do you now make sure they continue to see value over time? In this chapter, we talk more about the engagement loop and the triggers you can use to engage and re-engage your current users. We also introduce stickiness as a way to measure your loop. We round out the chapter with a special case study on how Postmates uses product analytics and timely email campaigns with Braze to re-engage their customers.



“

*The fastest growing products are better represented as a system of loops, not funnels. Loops are closed systems where the inputs through some process generates more of an output that can be reinvested in the input. There are growth loops that serve different value creation including new users, returning users, defensibility, or efficiency.*



BRIAN BALFOUR

“Growth Loops are the New Funnels”

“

*Virtuous loops are the flywheels that convert your users' engagement into fuel to power your company forward.*



SARAH TAVEL

“The Hierarchy of Engagement, expanded”

## Why loops matter

An important part of the engagement loop is the journey that new users take from signup to the first exchange of value between themselves and the product. But the journey can't stop there. Users have to keep finding the product engaging and invest in it for real growth to happen.

But let's take a step back. Why do we talk about engagement and growth as a loop in the first place?

Historically, when we think about moving users from one stage to the next, we talk about funnels. In fact, when we introduced new user activation in Sections 2.1 and 2.2, we alluded to the well-known AARRR funnel framework from Dave McClure.

As a model and learning tool, this funnel is a great starting point for thinking about product growth strategy. There's a wealth of information on how to set strategy and tactics for each stage, what metrics to track, and who should be responsible for each part of the funnel. In reality, however, the product landscape is changing so quickly that growth for most successful products doesn't actually look like this.

To summarize a fantastic article authored by the team at Reforge<sup>[21]</sup>, thinking about growth as a funnel leads to a few major problems:

- **Strategic silos:** Funnels cause us to think about channel distribution, product development, and monetization separately when they should be considered together.
- **Functional silos:** As we mentioned in Chapter 2, often, certain teams “own” certain parts of the funnel and the metrics aligned to it. Problems arise when teams don’t talk to each other and optimize for only their portion of the funnel.
- **One-directional thinking:** Funnels don’t provide a good picture of where outputs can be reinvested back into the product.

This is why our interaction framework for engagement is based on a loop, not a funnel. As we’ll see in the next couple sections, the most powerful way to grow your user base and re-engage your current users is to **create self-perpetuating loops**.

## Topics covered in this chapter:

- 3.1 - The engagement loop revisited
- 3.2 - An intro to stickiness
- 3.3 - Build triggers into your loop
- 3.4 - Set your stickiness strategy
- 3.5 - Measuring stickiness
- 3.6 - Take Action

**Case study:** Postmates uses Amplitude and Braze to build an engagement strategy that gets users to stick

## 3.1 | The engagement loop revisited

In Chapter 1, we gave an overview of the steps of the engagement loop and why the framework is useful. Recall that the steps of the engagement loop are:

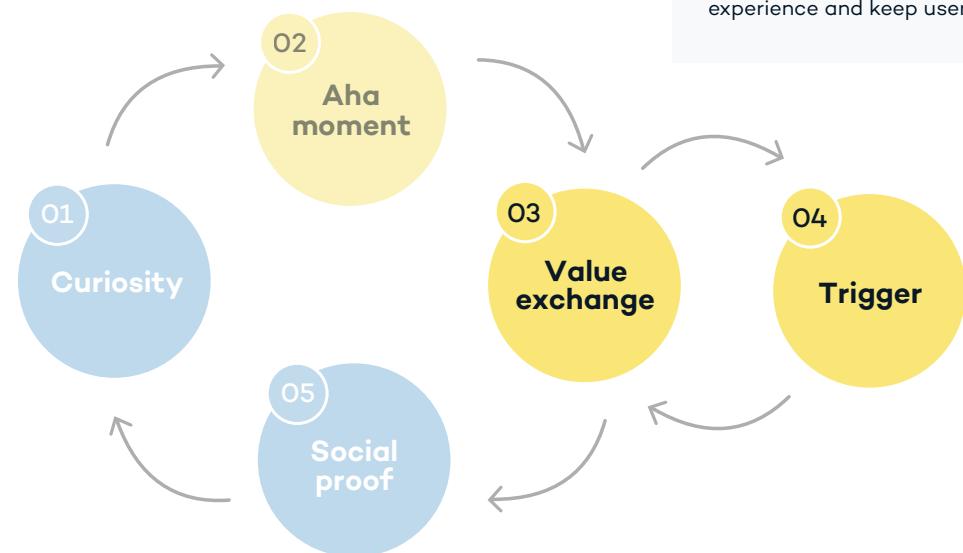
**01 | Curiosity:** A user finds out about your product through some means, becomes curious, and signs up. This is the **acquisition phase** of your product.

**02 | Aha Moment:** The new user finds value in your product, usually after or during the process of onboarding in the first few sessions. Usually this 'aha moment' is the first rung of your product's **ladder of engagement**. In Chapter 2, we explain onboarding and the aha moment as the first two phases of new user activation.

**03 | Value Exchange:** The new user makes their first investment into your product and becomes activated. In Chapter 2, we name this as the last phase of new user activation.

**04 | Trigger:** Different kinds of triggers prompt users to come back to the product and to keep using it. Current users then become engaged in recurring value exchange—i.e., they get more value with every product use and, in turn, invest more time and money back into the product.

**05 | Social Proof:** Once users are invested sufficiently in your product, they can help promote to future customers through incentivized referrals or social media shares.



## REMINDER

### THE ENGAGEMENT LOOP

**What it is:** An interaction framework that describes the actions and triggers your customers experience when they use your product regularly. See Section 1.5.

**When to use it:** When you're testing how users move through your product and identifying the steps at which they derive value.

**Why you should use it:** To understand whether your product has the right elements to drive growth and re-engagement. To make smarter product decisions that enhance the customer experience and keep users coming back.



## EXAMPLE

### Growth loops and re-engagement loops

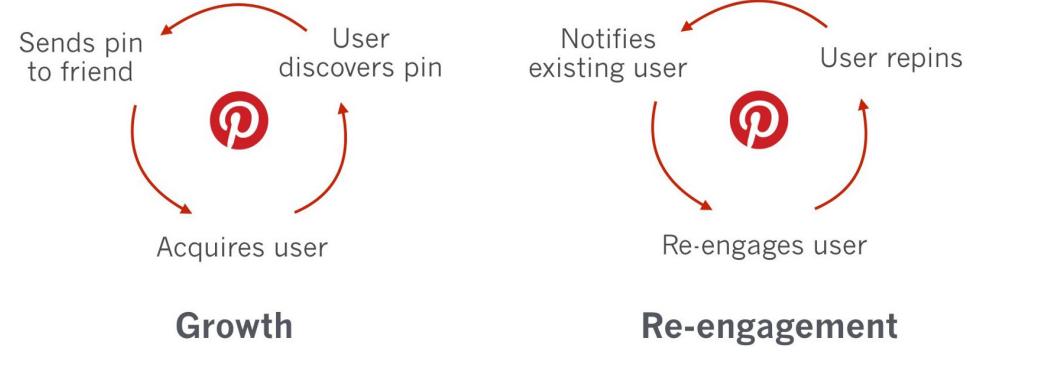
According to Sarah Tavel, currently a General Partner at Benchmark and formerly a product manager at Pinterest, sticky products create a

Essentially, the engagement loop illustrates two interrelated concepts. The loop as a whole illustrates what needs to happen to drive real growth in new users, as we defined it in Chapter 2. And the mini feedback loop between value exchange and Trigger describes re-engagement of your current users.

Depending on what engagement game you're playing, your engagement loop might look different. But the most important characteristic of this Loop is that there's an input that leads to value being created which results in some output that can be fed back into the loop. **Thinking about your product engagement as a loop—an interconnected system of inputs and outputs—is the foundation for building a highly engaging, sticky product.**

In the next several sections we will dive into why stickiness matters for your engagement loop, best practices to measure product stickiness, and strategies on how to make your product sticky no matter what engagement game you're playing.

First, here are some examples of what hypothetical engagement loops might look like some of the most engaging digital products to date.



## EXAMPLE

### Attention game: Instagram's engagement loop

#### 01 | Curiosity: View a friend's Instagram photo on Facebook

Let's say a potential user's curiosity is piqued by a friend's Instagram photo that showed up on her Facebook feed. She signs up for a new account and undergoes standard onboarding.

#### 02 | Aha moment: Share a photo

The new user then lands on the first rungs of Instagram's ladder of engagement where she follows her friends and consumes and likes content on her feed. She finds her aha moment when she first shares her own photo.

#### 03 | Value exchange

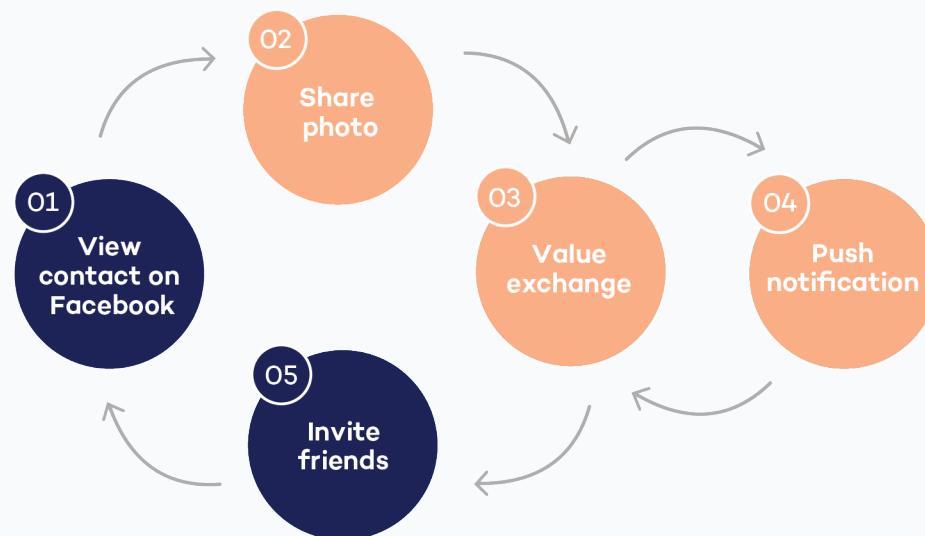
The new user becomes activated when the first value exchange occurs: in exchange for entertainment and relevant content, the new user provides value to the business through ad engagement.

#### 04 | Trigger: Push notification

Instagram's stickiness is a result of consistent, repeated value exchanges between the user and product, until the new user becomes a habitual user. These value exchanges can be triggered through external cues like a timely push notification or email.

#### 05 | Social proof: Invite friends

Finally, once the user has invested time and energy into engaging with Instagram content—possibly rising through the rungs of the engagement ladder by leaving more comments, sharing stories, and initiating live videos—she may invite more people with her network to join Instagram. The loop then begins again.



## EXAMPLE

### Productivity game: Dropbox's engagement loop

Dropbox is a workspace designed for creative collaboration. It brings a user's files together in one central location and allows them to sync those files across devices. Features like Dropbox Paper, document scanner, comments, and version history are designed to increase team productivity and decrease busy work.

#### 01 | Curiosity: Receive a Dropbox invitation

An engagement loop for Dropbox might begin with a potential user receiving an invitation from a friend or a team they need to collaborate with.

#### 02 | Aha moment: Upload a file

This new user signs up for a new free account, undergoes onboarding, and then lands on the first rung of Dropbox's ladder of engagement—uploading a file—which also happens to be the product's aha moment<sup>[22]</sup>.

#### 03 | Value exchange

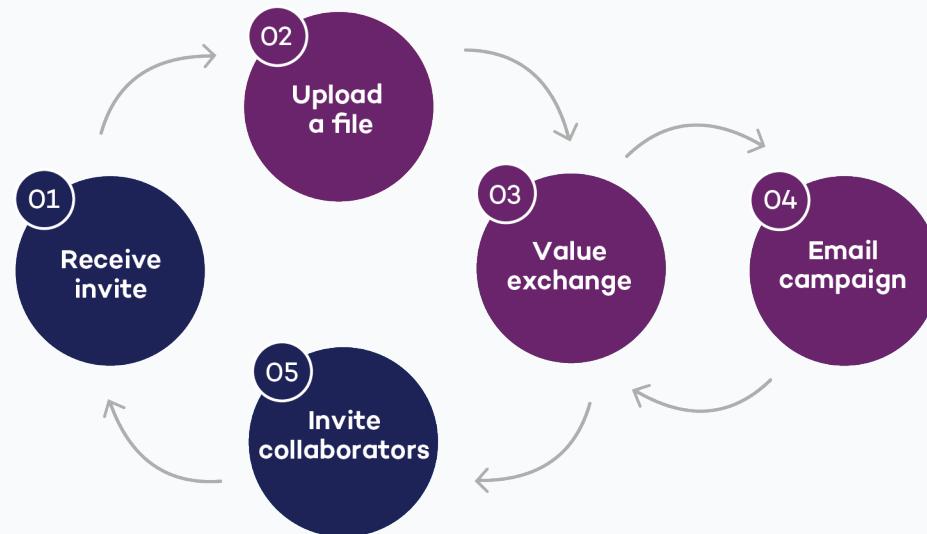
Since Dropbox follows a freemium model, this new user may need to see value several more times and climb more rungs of the ladder before he's activated to a paying customer. It's important to make these free features sticky and show value as frequently as possible so that conversion happens.

#### 04 | Triggers: Email campaigns

The new, free user may have to be nudged through email campaigns or other external triggers to set up his devices with the Dropbox app.

#### 05 | Social proof: Invite collaborators

Finally satisfied, a regular user of Dropbox may be incentivized to invite friends and colleagues, thus setting the whole loop in motion again.



[22] <http://www.growthhack.com/2012/12/discovering-your-aha-moment/>

## EXAMPLE

### Transaction game: Postmates' engagement loop

Some transaction players monetize entirely on habit-formation rather than infrequent purchases. Ride hailing apps, meal subscription kits, and on-demand delivery services, for example, are products that serve to fulfill a users' regular needs—e.g., getting from point A to point B, ordering food, buying groceries. Since these transactional apps depend on frequent purchases, it makes sense for them to think about their product in terms of stickiness and engagement loops.

Postmates is an on-demand delivery service for food, groceries, and alcohol. Let's look at the engagement loop for their product.

#### 01 | Curiosity: Receive a promo code

An engagement loop for Postmates might begin with a potential user receiving a promo code and signing up for a new account.

#### 02 | Aha moment: Receive first order

This user has an aha moment after placing and receiving her first order.

#### 03 | Value exchange

The new user becomes activated when the first value exchange occurs: in exchange for the convenience of on-demand delivery, etc., the customer

pays a fee. Through repeated value exchanges, some customers might climb the ladder of engagement and sign up for a Postmates Unlimited subscription.

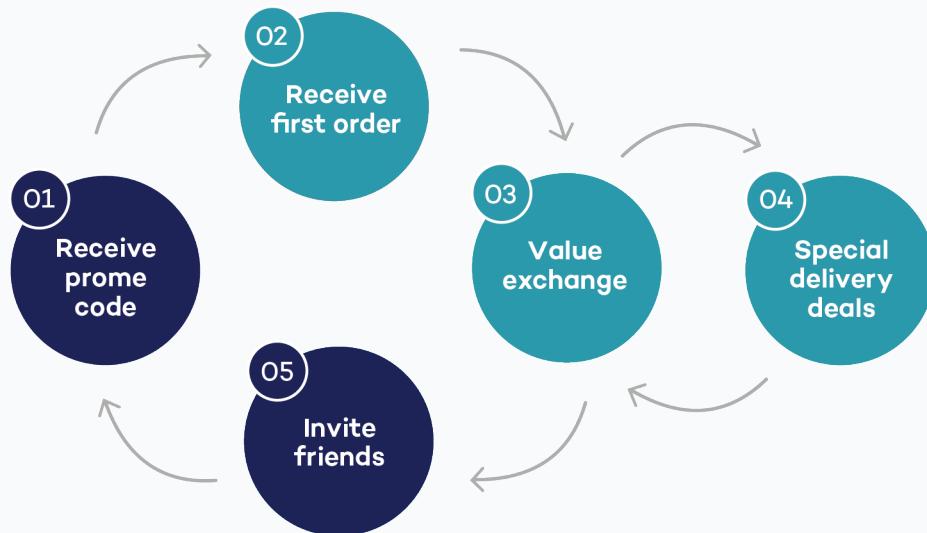
#### 04 | Triggers: Special delivery deals

Postmates users probably don't come back on a daily basis—the natural cadence of ordering groceries online is more likely to be weekly than daily. Postmates may send promotional emails

or push notifications with special deals on a weekly cadence to trigger a new user to place another order, thus continuing the cycle of value exchange

#### 05 | Social proof: Invite friends

After repeated use, the new user may be incentivized through free delivery credits to reach out to her network and invite their family and friends to use Postmates. The whole loop begins again.



## TERMS TO KNOW

**Stickiness** is the frequency with which a user engages with your product. Specifically, it measures the number of days out of a given time period that a user was active or completed a specific action.

### 3.2 | An intro to stickiness

If you're in the world of product development, you've probably heard the phrase "sticky product". And you probably know that in this context, "sticky" doesn't refer to the uncomfortable physical sensation on your hands. In a product setting, "stickiness" has evolved to be synonymous with engaging or addicting. And the prevailing assumption is that stickiness in products is the goal—that anyone building products is designing them so that the customers stick around.

Well we're here to deconstruct stickiness as a metric and a concept and correct the assumption that all products should strive to achieve maximum stickiness.

#### 3.2.1 | The history of stickiness as a metric

As a metric, stickiness is usually defined as the ratio of daily active users to monthly active users DAU/MAU and interpreted as on average, "people use the app X out of 30 days in a month". This definition of stickiness first rose to prominence in social gaming, alongside the exponential growth of Facebook. Facebook itself has incredibly high stickiness—historically over 50%. By the DAU/MAU definition of stickiness, this means that the average Facebook user is using the product more than 15 out of 30 days that month<sup>[23]</sup>.

As Facebook began to tout the DAU/MAU metric, more and more consumer apps also began measuring it as a core KPI.

Certainly, building a product around which users can develop a habit is important to businesses in every vertical, regardless of the engagement game they're playing. But measuring stickiness as # of days used per month (DAU/MAU) does not work for every product. As we'll see in the next section, the stickiness metric is only useful if it's defined in a way that makes sense for your business.

#### 3.2.2 | Stickiness depends on your product usage interval

Before you go measure your product's worth on monthly active users, remember that stickiness is product-specific. It relates to your product's natural usage cadence.

Some products like Twitter and Netflix—typically attention-game players—are naturally daily-use products. It makes sense that highly engaged users come back every single day.

Other products are naturally used on a weekly, biweekly, monthly, or even quarterly basis. These are typically transactional or productivity-driven products whose usage is tightly coupled to external cycles. Think e-commerce sites, tax software,

<sup>[23]</sup> <https://andrewchen.co/dau-mau-is-an-important-metric-but-heres-where-it-fails/>

enterprise resource planning software, expense reporting software.

The first step to measure what healthy stickiness looks like for your product—and how it compares to other similar products—you need to understand how customers naturally use your product. You need to calculate your **product usage interval**.

Your own intuition about your product will help you figure out your product's usage interval, but if you're unsure, we share a framework for how you can better calculate it with data in Section 3.5.

## PRO TIP

### Is stickiness the right metric for you?

Sometimes stickiness isn't the right measure of user engagement or delivery of product value. Make sure you know what customer pain you're solving and the business model in place before setting your KPIs.

Here are 2 examples where tracking stickiness isn't useful:

**E-commerce:** You might not always think about stickiness in terms of frequency of visit in e-commerce; wallet share is what matters more. If customers visit your site only three times a year but make high value purchases, your "stickiness" number might be low, but the value exchange is still happening. Transactional companies like Airbnb fit into this bucket as well.

**Productivity software:** If users are engaging repeatedly with your product they find it valuable, right? Not always. Users of B2B accounting software, for example, desire ease and efficiency; if these customers used the product less, that would be a win.

## TERMS TO KNOW

Your **product usage interval**<sup>(24)</sup> is the frequency (daily, weekly, monthly, etc.) with which you expect people to use your product.

<sup>(24)</sup> <https://amplitude.com/blog/2016/10/11/product-usage-interval>



## TERMS TO KNOW

The **power user curve** or **non-cumulative stickiness** depicts the proportion of users who were active in your product for exactly X number of days.

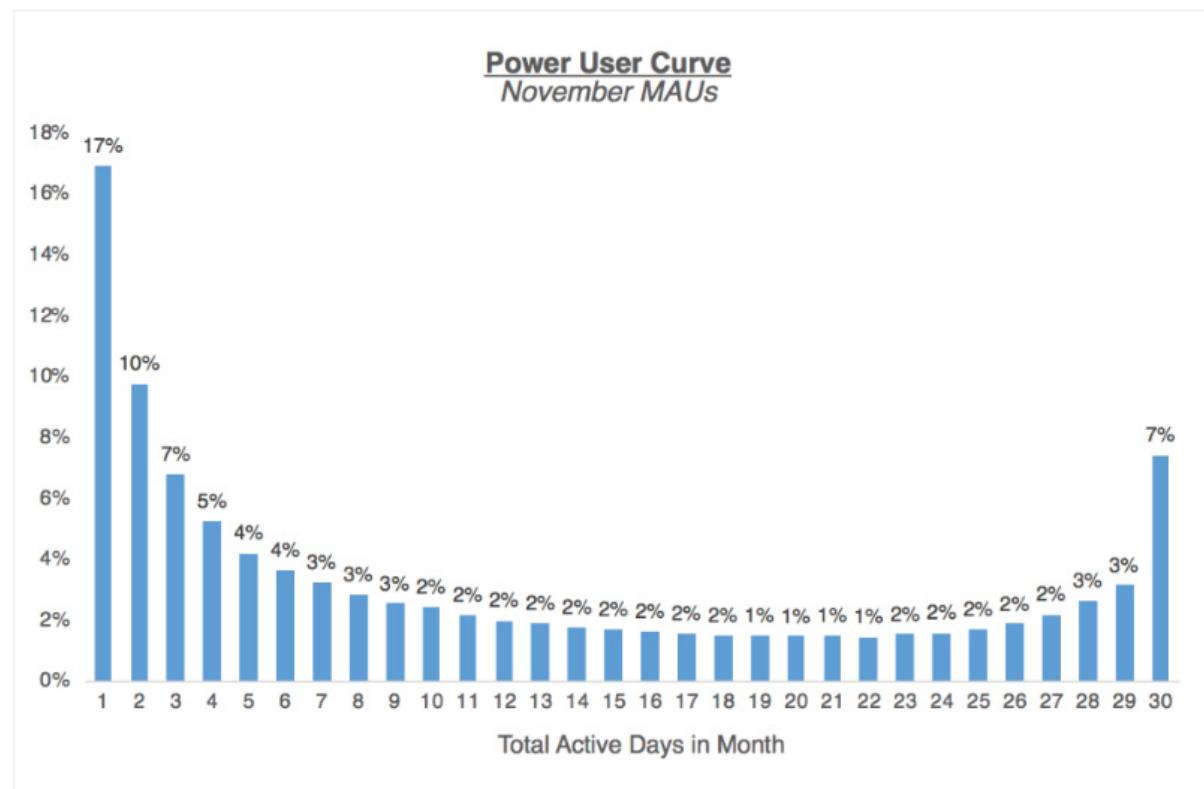
### 3.2.3 | Understanding stickiness through your power users

The DAU/MAU ratio is a useful measure of engagement if your monetization depends on users seeing value on regular basis with tight engagement loops.

A major shortcoming of the DAU/MAU ratio, however, is that it masks the variability among

your users. Some of your users might be slightly engaged, while others are power users, but there's no way to tell these groups apart from a single number.

Instead of moving your DAU/MAU number through haphazard growth hacks, identifying your power users and exploring their behavior is a great place to start thinking through a stickiness strategy. Luckily, the power user curve can help you do just that.



The power user curve as depicted in Andrew Chen and Li Jin's blog post "The Power User Curve: The best way to understand your most engaged users" (source: <https://andrewchen.co/power-user-curve/>)

The **power user curve**—also called ‘non-cumulative stickiness’—depicts the proportion of users who were active in your product for exactly X number of days. In the example power user curve below, 17% of users were active for exactly one day out of the month; 10% of users were active for exactly 2 days; 7% of users were active for exactly 3 days, etc.

The power user curve is a useful way to identify segments of users with different engagement levels and understand the overall health of your product.

For products that drive value through repeat engagement, getting your curve to take the shape of a smile is a sign of healthy growth. This means that over time, you have a proportion of power users who are engaging with your product almost every single day (or whatever your ideal usage cadence is).

On the other hand, if you see your power user curve tapering off to the right, you might have to rethink your strategy. In Section 3.4, we will discuss a few fundamental questions you can ask yourself to set your engagement strategy.

But first, we’ll explore a key part of the engagement loop that drives product stickiness: triggers.

### 3.3 | Build triggers into your engagement loop

Triggers are a key way to re-engage users and nudge them to behave more like your power users. Put simply, they stimulate users to come back to your product and do something.

They play an important role in driving the cycles of value exchange for the example engagement loops we reference in Section 3.1. The more effectively you can use triggers to help users see product value on a regular basis, the more value exchange cycles, and the stickier your product will be.

If you’ve read our Mastering Retention playbook, you might recall us talking about using triggers to “resurrect” inactive users (Mastering Retention, Section 7.3). This is the same deal.

In his book *Hooked*, behavioral designer and author Nir Eyal describes two flavors of triggers that habit-forming technologies use: external triggers and internal triggers.

- **External triggers** are specific sensory stimuli that companies/products use to nudge users into taking action.
- **Internal triggers** are feelings and emotions that manifest in the mind and cue users to take action on their own.





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- Be accessible on connected devices, even if you're offline
- Be easy to share with family and friends

[Get the desktop app](#)

External trigger for new user activation: Email prompting a new Dropbox user to download the desktop app

### 3.3.1 | External triggers

External triggers are things like push notifications, emails, ads, and referral incentives that contain a specific call-to-action. A good external trigger tells a user what they should do next—this is the stuff that marketing campaigns are made of.

Used in the right way and in the right place, external triggers can drive new user acquisition

as well as re-engagement in a number of different ways. Here are a few examples of triggers and the purpose they serve.

You'll notice that there are a number of different kinds of external triggers you can employ in your product. In the Section 3.4 we'll go a little bit into how you can set up a strategy for using the right external triggers to improve your product's stickiness and drive that cycle of value exchange.

External trigger example	Purpose it serves
An invite from a coworker to a new Slack workspace	Acquire new users through referral
A mailer to a meal prep company's current subscriber with five coupons to offer to friends	Acquire new users through referral
A well-designed home page with a prominent login button	Acquire new users
An email prompt from Dropbox encouraging you to set up syncing with one or more devices — doing so gets you more storage space	Drive new user activation
A push notification from DoorDash offering a code for free delivery on Halloween	Re-engage user
An email from an online shopping site reminding you about the items still in your cart	Re-engage user
A tool-tip in your favorite B2B analytics product alerting you of a new feature to opt into	Drive adoption of a new feature; move user up the ladder of engagement
A product webinar	Drive adoption of a new feature; move user up the ladder of engagement



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External trigger for new user activation: Email prompting a current Old Navy online shopper user to complete checkout

External trigger for new user acquisition: New Amplitude user receives an invite to collaborate with an existing user



You've been invited!



Welcome to analytics for modern product teams.

Sandhya Hegde ([sandhya@amplitude.com](mailto:sandhya@amplitude.com)) has invited you to join Amplitude Website (Portfolio) on Amplitude. Click below to get on your way to data crunching insights!

[Open Amplitude](#)



### 3.3.2 | Internal triggers

**Internal triggers** happen in the mind without external prompting. According to Eyal, an internal trigger occurs “when a product becomes tightly coupled with a thought, an emotion, or a pre-existing routine”<sup>[25]</sup>.

The stickiness of attention-grabbing social media products like Facebook, Twitter, Instagram now run almost entirely on internal triggers.

Users don’t need prompting to open up these apps—we’re cued by our emotions or thoughts, to the point that using these apps feels like a part of our natural routine. Our brains have come to crave the feeling of fulfillment and reward that accompany using these products.

Some examples of how products use internal triggers are:

- Browsing Facebook when you feel lonely
- Checking Twitter first thing in the morning after waking up
- Checking your email when you feel anxious
- Posting on Instagram when you want to capture memories
- Playing Spotify while working

Products start out with external triggers to initially attract and educate the user. Over time, as users invest more time and energy engaging with the product, it becomes a part of their lifestyle

and they become a regular, committed user. Eventually, the product might become so habit-forming that users won’t need external triggers to keep them coming back.

Products that successfully develop internal triggers are ones that create value for the user continuously; with every value exchange, it becomes more stressful for users to leave because of that loss of value they would experience. Company-wide B2B software like G Suite and Jira are great examples of this. When an entire company invests time and resources into learning the software, it becomes incredibly difficult to leave the product, even if there seems to be a better alternative. The product has successfully achieved stickiness.

### 3.4 | Set your product stickiness strategy

As we’ve seen in the previous section, there are different types of triggers you can build at different points in your product’s engagement loop. Perhaps even more importantly, there are ways to build your product as a whole for better value delivery and, ultimately, better engagement and/or stickiness.

How do you know where to invest your time and money so that you get the most return on your investment while also continuing to delight your users?

<sup>[25]</sup> <https://www.nirandfar.com/2012/04/billion-dollar-mind-trick.html>

“

*Simply, sticky products use the data a user creates while engaging with the product as fuel to make the experience even more engaging for that user (accruing benefits), and at the same time harder to leave (mounting loss).*

SARAH TAVEL

"How to create a sticky product like Facebook and Evernote" <sup>[26]</sup>

As we've seen in the previous section, there are different types of triggers you can build at different points in your product's engagement loop. Perhaps even more importantly, there are ways to build your product as a whole for better value delivery and, ultimately, better engagement and/or stickiness.

How do you know where to invest your time and money so that you get the most return on your investment while also continuing to delight your users?

Here are the questions you should ask yourself before setting your product's stickiness or engagement strategy:

#### **How frequently do people use your product?**

Ask yourself how often users should come back to see consistent value in your product. Can you justify why your product is a daily (or weekly, monthly, etc.) use product? Are you making any assumptions about your product usage? Calculate your product usage interval.

**How sticky is your product now?** Measure your baseline stickiness according to your product's usage interval. If you can, benchmark your product's stickiness against others' in your industry or against yourself.

**What does your power user curve look like?** Plot the proportion of users who are active in your product every day or week over a select period of time. Does your curve 'smile'? Does it taper off to the right? What hypotheses can you make about the shape of your curve?

**Are there any early gaps in engagement?** Check your signup, onboarding, and activation conversion rates for major drop-offs.

**How can I make my current users behave like my power users?** Dig into the behaviors and personas of your power users (more on this in Section 3.5). Do your power users take certain actions or paths, or some from certain marketing channels?

**Where do your users come from?** If you have a website or web app, look at session UTM parameters and referrer data to look for common sources, like an email campaign or ad. Are you getting a ton of engagement from an Instagram ad or a promoted tweet? If so, it makes sense to go to where your users are and double down on paid social efforts.

<sup>[26]</sup> <https://medium.com/@sarahtavel/how-to-create-a-sticky-product-like-facebook-and-evernote-2b47627fce3a>



## TERMS TO KNOW

A product's **critical event** is an action that users take in your product that aligns closely with the value you want your product to deliver. When measuring engagement metrics like retention and stickiness, it is more valuable to look at the users who perform this critical event as your pool of "active users," as opposed to users who do any arbitrary action.

The critical event is also usually closely tied to the value exchange in your product.

**What devices do your users use?** Are you seeing higher engagement on mobile versus web? On iOS or Android? These differences can give you a clue as to what kinds of external triggers to test first—mobile push notifications and versus something else, for example.

**Who are your users?** This is the broadest but also the most important question you can ask before and during product development. Who exactly are your users? What do they care about? What pain are you solving for them? How well do you know your users today? You can begin to uncover user personas through interviews, surveys, and other qualitative means. You can also use a clustering algorithm on your existing user base to identify behavioral personas—groups of users who use your product and get value from it in distinctly different ways. For example, Instagram users might fall into two behavioral personas: "content creators" who upload photos and use hashtags, and "content viewers" who spend most of their time viewing others' photos and Stories and "liking" content.

Once you've identified personas in your product, you can analyze which personas retain better and use the product more frequently. From there, you can begin to think about which external triggers you can use to engage each persona or whether it might be worthwhile to try to nudge users of one persona to behave more like another.

In Section 3.5, we will outline how to find your user personas and analyze their stickiness in more detail.

**What habits can you tap into?** Think about where your product fits into your user's life. Can you leverage routines or internal triggers they may already have to nudge them into re-engaging with your product? For example, if you're a meal delivery service, sending a timely push notification about a new restaurant might bring a user to open up your app during lunchtime. We will see an example of this in our case study with Postmates and Braze at the end of this chapter.

## 3.5 | Measuring stickiness in Amplitude

Here in the last section of this chapter, we will cover the analyses you can perform to understand your product's stickiness.

As you do these analyses, keep in mind that **stickiness, retention, and conversion are different dimensions of understanding user engagement**. Stickiness should not be examined in a vacuum; it's part of a broader tapestry of metrics you should measure and monitor. Otherwise, it becomes too tempting to try to "game" stickiness with a ton of push notifications or clickbait emails. Also, remember that healthy stickiness depends on how often your product realistically should be used: e.g. a tax product that is used once per year vs. a meditation app that might be used daily or weekly.

Measuring stickiness involves knowing two things: who your users are and how often they do something.

To illustrate how to do the analyses, let's go back to AmpliTunes, the example product we worked with in Chapter 1 and 2. AmpliTunes is an iTunes-like music platform that lets users play and buy songs and videos. Let's add the following to what we know about AmpliTunes:

- **product usage interval:** daily
- **critical event:** playing a song or video

This means that we want AmpliTunes users to come the product every day and perform the 'critical event' they derive product value from.

Now let's get into the analyses.

### 3.5.1 | Finding your product's usage interval

How often do people naturally engage with product? It's important to know this so that you can benchmark and analyze your stickiness and retention metrics appropriately. Keep in mind that not all products are daily-use.

If your product has a daily or weekly usage interval, you should measure weekly stickiness metrics. If your product has a biweekly or monthly usage interval, you should measure monthly stickiness metrics.

## Do it with Amplitude

Here is a simple way to determine your product usage interval in Amplitude. Here's how you would do it for AmpliTunes.

**Step 1** Create a new Retention Analysis Chart and set the return event to AmpliTunes' critical event **Play Song or Video**. This ensures that only users who came back and performed this critical event will be counted as active and retained.

**Step 2** Switch to Usage Interval View. This view shows the percentage of users who performed the Play Song or Video event with a median frequency of 'n' days.

**Step 3** Identify the inflection point of the curve. This is the usage interval.

The screenshot shows the Amplitude Retention Analysis interface. At the top, there are two sections: 'Return event' and '..performed by'. In the 'Return event' section, option A 'Play Song or Video' is selected. In the '..performed by' section, 'All Users' is selected. Below these are filters for 'where' and 'and who performed'. A 'Add Segment' button is also present. In the bottom section, there are tabs for 'Retention View' and 'Usage Interval View', with 'Usage Interval View' being the active tab. Below the tabs, it says '..shown as Usage Interval'. The entire interface is contained within a light gray box.

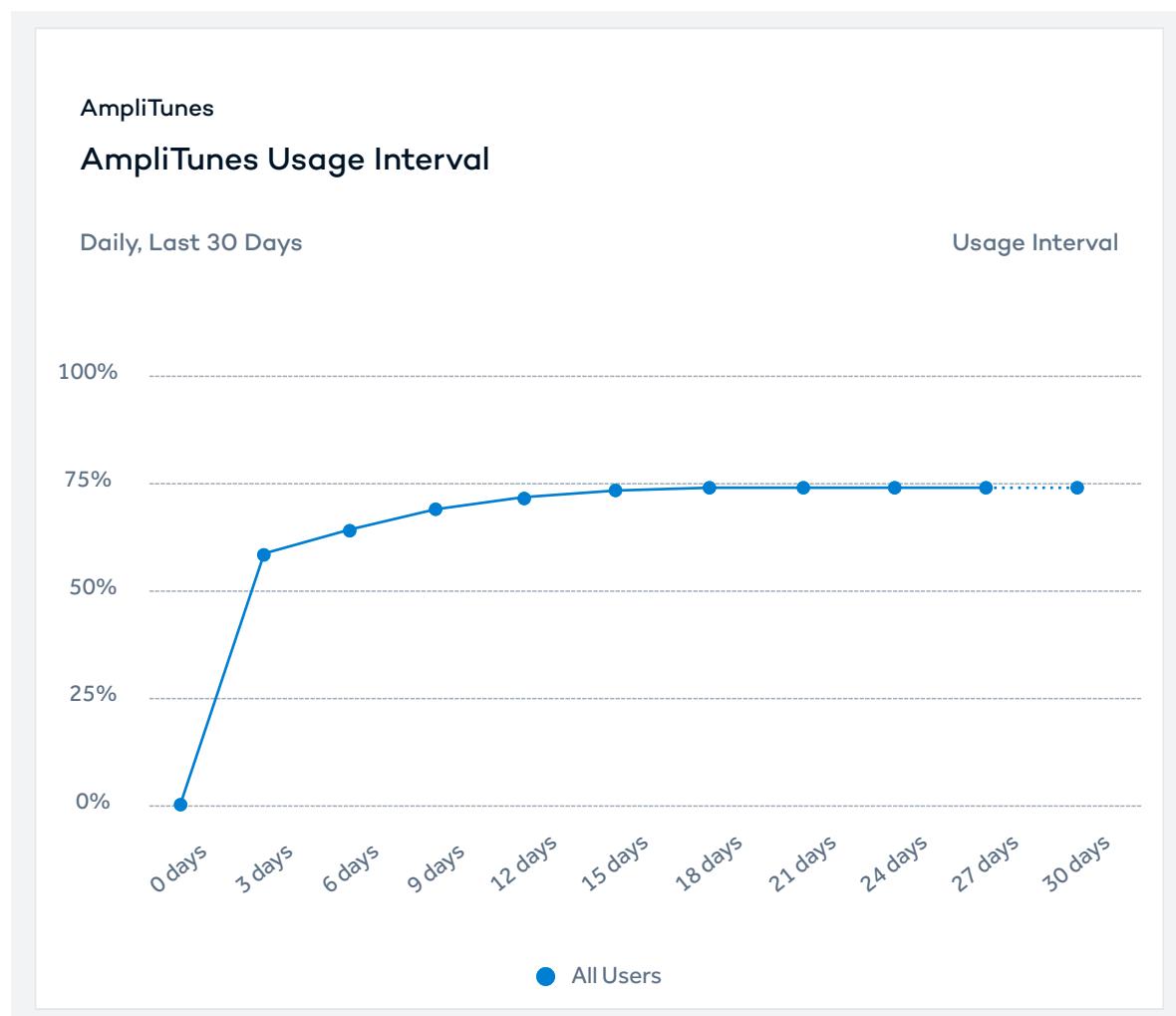
The setup in Amplitude



### Takeaway

The usage interval curve shows that roughly 50% of users play content with a median frequency of 1 day; about 70% with a median frequency of 4 days. The usage interval of AmpliTunes is most likely around 1-4 days.

For an in-depth look at calculating the product usage interval, see Chapter 2 of our first product analytics playbook, *Mastering Retention*.



### 3.5.2 | Stickiness of user personas

After you've figured out your product usage interval, you can begin slicing the stickiness of your product or feature.

You should think about measuring stickiness in terms of:

- **general usage stickiness:** How many days out of a week or month did users do anything in your product?
- **critical event stickiness:** How many days out of a week or month did users do an action that gets to the core value of your product?

The first type of stickiness looks at the metric in terms of any kind of activity while the second type of stickiness looks at a specific, important action that you'd want highly engaged users performing in your product.

#### Do it with Amplitude

Let's say we want to compare the stickiness of our product's critical event across two different personas—users who engage by favoriting content and users who engage by creating new content. Let's say we define our two personas as:

- **content favoriters:** users who favorite 10 or more pieces of content per month
- **content creators:** users who post content to the community 5 or more times per month

The screenshot shows the Amplitude setup interface for defining three segments based on user activity:

- Event A: Play Song or Video**
  - .. performed by **Users**
  - 1 All Users**
  - where **Select property...**
  - and who performed **Select event...**
- 2 Favorite Song or Video >= 10**
  - who performed **Favorite Song or Video** **>= 10** times
  - anytime **during Last 30 days**
  - and where **Select property...**
  - and who performed **Select event...**
- 3 Post Community Content**
  - who performed **Post Community Content** **>= 5** times
  - anytime **during Last 30 days**
  - and where **Select property...**
  - and who performed **Select event...**

**Add Segment**

---

..grouped by **Select property...**

..shown as **Stickiness**

..computed as **Cumulative**

The setup in Amplitude

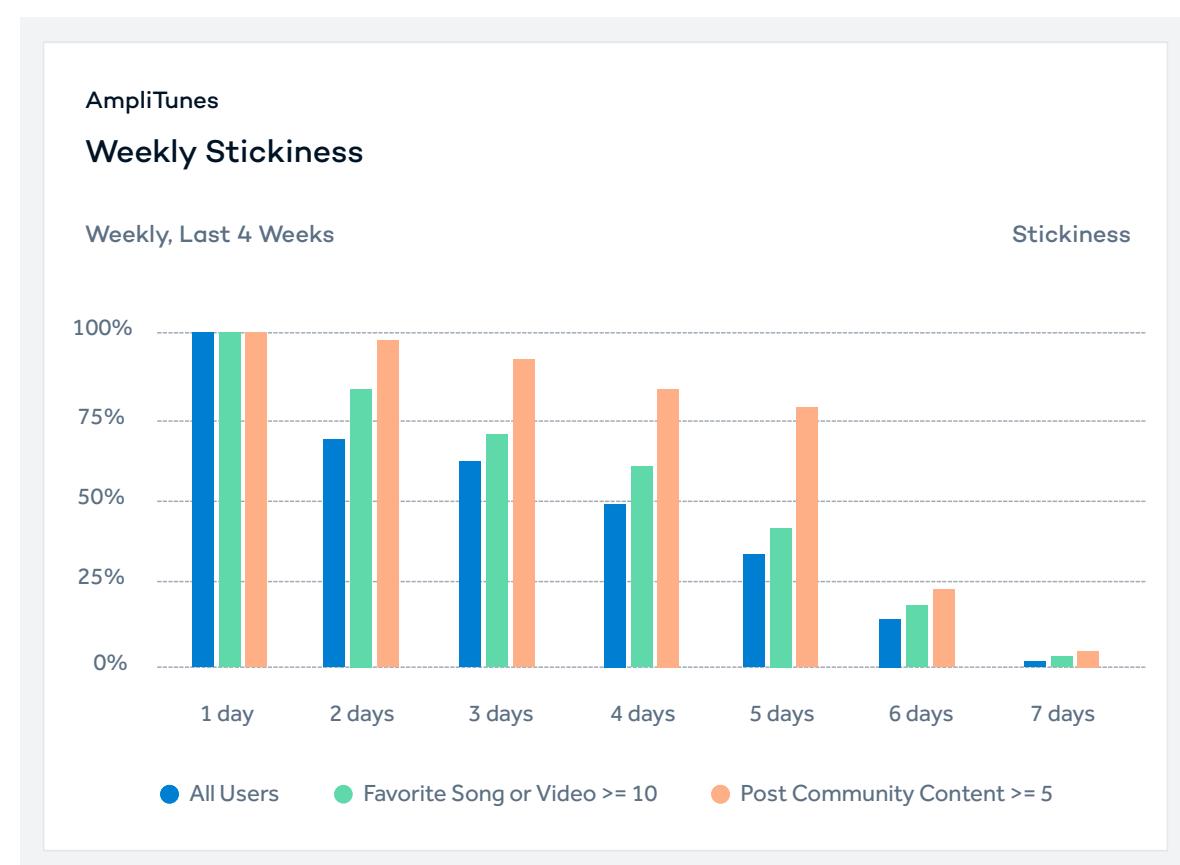


## PRO TIP

### How do you figure out user personas?

Figuring out your user personas is an entire playbook of its own! If you are just getting started with this important task, we recommend you read section 4.2 of our first product analytics playbook, *Mastering Retention*.

Here are some tips to get started: Start with a qualitative approach and do some user research and user testing. Then, follow up with a quantitative approach and segmenting your user base by different user and event properties as we did in the example in Section 3.5.2; you can then bucket users based on the frequency at which they perform key events. Alternatively, you can use a clustering algorithm like Amplitude's Personas feature<sup>[27]</sup>.



AmpliTunes weekly stickiness chart for two different user personas

**Step 1** In Amplitude, create a new stickiness chart and choose to view the stickiness of the critical event (Play Song or Video).

**STEP 2** In addition to looking at all of your users, segment your users by those who favorited a song or video multiple times and those who posted community content multiple times within the last month.

**STEP 3** Calculate weekly cumulative stickiness. This will show the proportion of users who did the critical event—Play Song or Video—on 'n' or more days per week.

#### Takeaway

Comparing our two personas, we see that a greater proportion of content creators play a song or video on any given number of days per week.

For example, over 75% of content creators played a song or video for four or more days per week, compared to only about 60% of content favoriters. If playing content is critical to driving the value exchange cycle in your product, then a potential next step would be to think about what triggers you can use to get more users to post community content.

### 3.5.3 | Stickiness of power users

Looking at the stickiness of different personas is useful if your product has multiple distinct ways of delivering value. You can also look at stickiness of certain user cohorts:

**behavioral cohorts:** Are certain behaviors correlated with higher stickiness?

**acquisition date cohorts:** Did a feature launch or marketing campaign affect general or critical event stickiness?

In Section 3.2, we talked about how your cohort of power users can help you better understand and set stickiness strategy. In Amplitude, you can build power user curve by viewing non-cumulative stickiness.

#### Do it with Amplitude

Let's say we want to understand the behaviors that are characteristic of AmpliTunes power users. We'll define power users as people who play a song or video almost every single day of the month.

**Step 1** Create a new Stickiness chart and choose to view the stickiness of the critical event.

**STEP 2** Calculate weekly non-cumulative stickiness. This will show the proportion of users who played a song or video on exactly 'n' days of the month.

The screenshot shows the Amplitude setup interface for creating a Stickiness chart. It consists of two main sections: a top section for defining the event and a bottom section for specifying the visualization type.

**Event:** A button labeled 'A' followed by the text 'Play Song or Video'.

**..performed by:** 'Users' (highlighted in blue). Below this are options: '1 All Users' (selected), 'where Select property...', and 'and who performed Select event...'.

**Add Segment:** A button with a plus sign and the text 'Add Segment'.

**..grouped by:** 'Select property...' (highlighted in blue).

**..shown as:** 'Stickiness' (highlighted in blue).

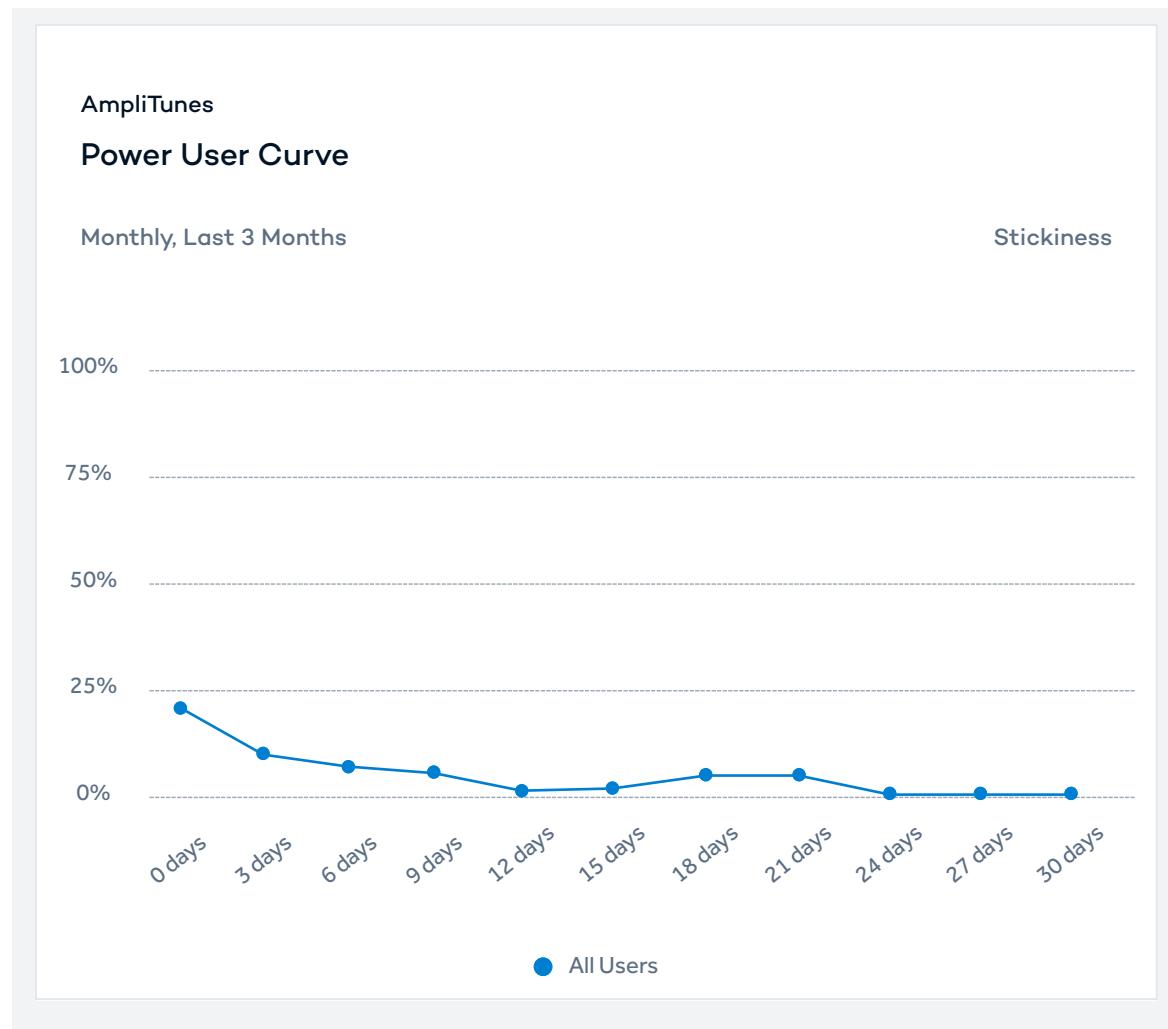
**..computed as:** 'Non-cumulative' (highlighted in blue).

The setup in Amplitude



## Takeaway

Note that there's a slight "smile" to this curve because of the uptick at around 20 days. This means there is a small, but highly engaged proportion of users who are coming back everyday for roughly 20 days to play content in AmpliTunes. The next step would be to figure out what these power users are doing differently from other users, so you can drive more users to act like them.



To contrast cumulative and non-cumulative stickiness analysis:

Cumulative stickiness	Non-cumulative stickiness
AKA “Nth-day stickiness”	AKA “power user curve”
Shows you the proportion of users who were active for ‘n’ or more days.	Shows you the proportion of users who were active for exactly ‘n’ days.
Example: For a daily-use product Day 3 weekly stickiness shows you the proportion of users who were active on three or more days per week.	Example: For a daily-use product, Day 3 weekly stickiness shows you the proportion of users who were active on exactly three days per week.

### 3.5.4 | Figuring out what your power users are doing differently

One way to develop stickiness strategy is to hypothesize what your power users do differently than other users. You can do this through qualitative research and path analysis of specific user groups. (We mentioned these analyses in Chapter 2 in the context of new user onboarding and activation; they can also be applied here.)

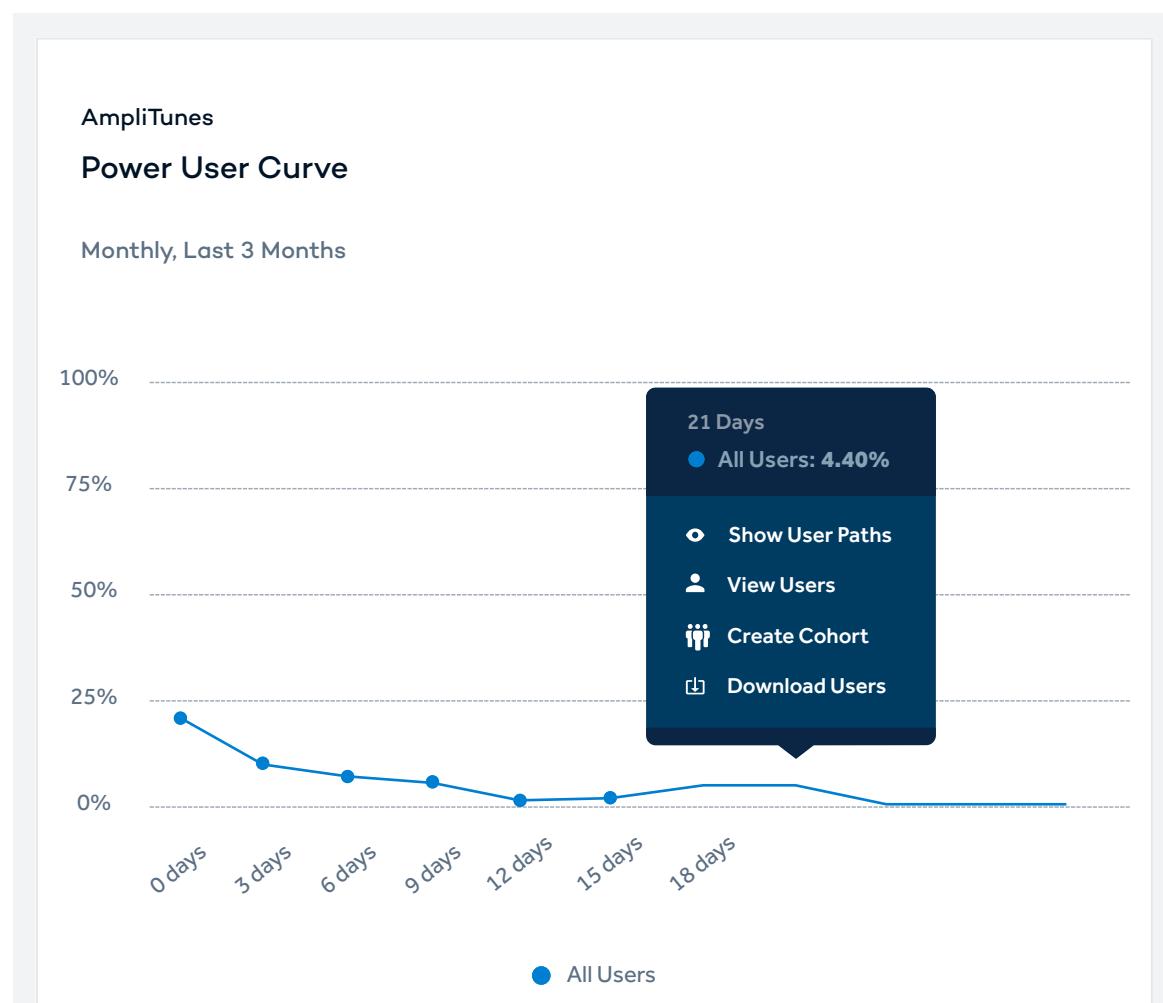
#### Do it with Amplitude

---

Once you've created a power user curve in Amplitude, you can build a cohort of users straight from the stickiness chart. Use Amplitude's Cohort Comparison tool quickly see what the differences are between your "Power Users" cohort and your "Active Users" cohort.

## Takeaway

Cohort Comparison shows you the proportion of users in each cohort who perform certain actions in your product. It's a good way to easily spot differences between cohorts and begin to develop hypotheses about their behavior. In this example, you can see that 4x as many power users added friends or posted community content than other active users. You might then begin digging into whether it's worth revamping AmpliTunes' social features—making them more visible might make more users behave like power users.



## Cohort Comparison

Daily Last 45 days

This cohort Power Users **50,606 users**  
Compares to Active Users ---

Select another cohort to  
find users in common...

Looking at Event Distributions

Adoption  
% of users did event

Engagement  
Avg event count per user

! Search Results

Event Name

Ratio ▾

This Cohort ▾

Other Cohort ▾

Showing 29 events

Add Friends ↗

**4.13**

97.2%

23.5%

Post Community Content ↗

**3.78**

99.1%

26.2%

Join Community ↗

**3.75**

99.2%

26.5%

Error Screen ↗

**3.51**

17.6%

5.00%

ViewSongOrVideo ↗

**3.49**

0.146%

0.0417%

Share SongOrVideo ↗

**3.25**

64.5%

19.9%

Purchase Ticket ↗

**3.18**

0.128%

0.0404%

Comparing 'power user' and 'active user' cohorts

## FURTHER READING

**DAU/MAU is an important metric to measure engagement, but here's where it fails**

Andrew Chen, General Partner at Andreessen Horowitz

<https://andrewchen.co/dau-mau-is-an-important-metric-but-heres-where-it-fails/>

**The Power User Curve: The best way to understand your most engaged users**

Andrew Chen, General Partner at Andreessen Horowitz

<https://andrewchen.co/power-user-curve/>

**The Hierarchy of Engagement, expanded**

Sarah Tavel, General Partner at Benchmark

<https://medium.com/@sarahtavel/the-hierarchy-of-engagement-expanded-648329d60804>

**Growth loops are the new funnels**

Brian Balfour, Founder/CEO at Reforge

<https://www.reforge.com/blog/growth-loops>

**Engagement drives stickiness drives retention drives growth**

Data Science Team at Sequoia Capital

<https://medium.com/swlh/engagement-drives-stickiness-drives-retention-drives-growth-3a6ac53a7a00>

**Two-sided marketplaces and engagement**

Data Science Team at Sequoia Capital

<https://medium.com/swlh/two-sided-marketplaces-and-engagement-ded7d5dcfe71>

## 3.6 | Take Action

To review, we began this chapter by revisiting the engagement loop framework in the context of each of the three engagement games—attention, transaction, and productivity. We then zoomed into the value exchange <> trigger steps of the loop and specifically discussed engagement in terms of stickiness.

Next, we discussed external and internal triggers that help propel users through the engagement loop and put them in context of a larger strategy to increase product stickiness. Finally, we ended the chapter with analyses you can do to measure stickiness in Amplitude.

Before wrapping up this chapter, take a moment now to reflect on your learnings. Consider the following:

- **Draw out an example engagement loop for your product. What is the value exchange?**
- **What external triggers do you use? What internal triggers might exist?**
- **How frequently do people use your product?**
- **How sticky is your product overall? How sticky is your product's critical event?**
- **Review the questions in Section 3.4.**

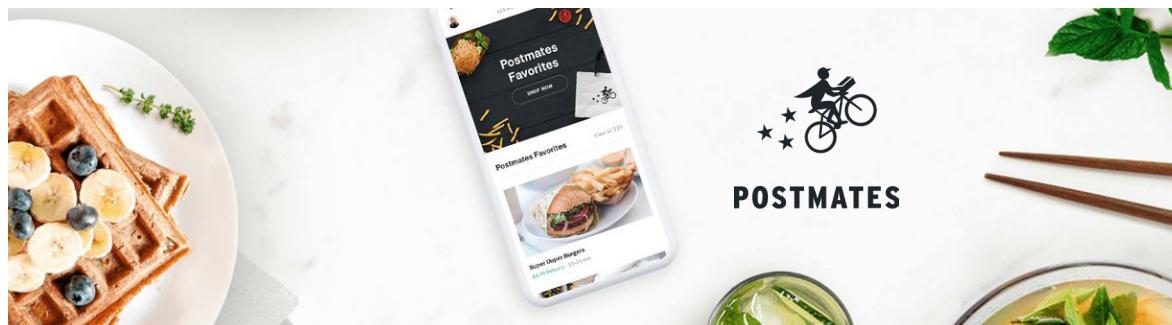
### See it in action

In the last part of this chapter, we share a case study from our customer Postmates and integration partner, Braze. The Postmates team was able to build an effective stickiness strategy with a unique external trigger using Amplitude and Braze. If you want to know what tools you should have in your engagement stack to improve engagement like Postmates, that's coming up in our final chapter.

## Case Study

---

# Postmates uses Amplitude and Braze to build an engagement strategy that gets users to stick



### The Company

Postmates is transforming the way goods move around cities. Their core product offering is a web and mobile platform that connects customers with couriers who offer delivery from local businesses in just minutes.

### The Product Challenge

Postmates' product North Stars are centered around making local inventory easily accessible to everyone. One way the Growth Marketing team supports these metrics is by making Postmates more sticky. The team has to figure out how to develop the right kind of triggers to help users repeatedly see the value of

their platform, while also maintaining an impeccable customer experience.

### The Solution

According to data from Braze, users who receive messages from brands using a single channel (either email, push, or in-app messages only) saw average engagement levels that were 179% higher than users who received no messages at all. That means an email, push, or in-app message could be the difference between a lapsing user and an actively engaged customer. Knowing this, Postmates sought a versatile engagement platform that could help

**Andrew  
Touchstone**



Andrew Touchstone was formerly Director of Growth Marketing and Growth Lead at Postmates where he was focused on acquisition, expansion, onboarding, engagement, and retention for the Postmates consumer marketplace. He is currently the Director of Growth Marketing at Credit Karma.



them increase customer stickiness, build loyalty, and increase LTV through omnichannel messaging. And, just as importantly, they needed a way to measure how their customers were behaving in response to those messaging campaigns.

## Tying together marketing- and product-based experiments with Braze and Amplitude

*"You can make small incremental changes in messaging but the more transformative result comes from better understanding your customer experience, and augmenting your product and marketing to work together, as opposed to doing both of those independently. With Braze and Amplitude, we were able to bring marketing and product a lot closer together,"* said Andrew Touchstone, Director of Growth Marketing at Postmates.

A stand-out example of product and marketing at Postmates working hand-in-hand to drive customer engagement was their campaign with ABC's The Bachelorette. During this campaign, Postmates used Braze to deliver different types of "Bachelorette experiences" to their customers.

Postmates partnered with The Bachelorette to bring viewers free delivery for one night only. They launched the promotion via emails and social media posts that said:

*"Before the drama unfolds, open the Postmates app at 5 PM and look for your code. Then order in an epic*

*viewing party and enjoy free delivery."*

*"Then, share your order with us on social with #TheBachelorette and @Postmates for a chance to win 1 year of free Postmates! (Rules)."*

The Postmates team used Amplitude to analyze resulting customer behavior, and Braze to make real-time campaign optimizations on the fly.

Touchstone, Director of Growth at Postmates, described the Bachelorette campaign as a *"product-based experiment to a marketing experiment."*

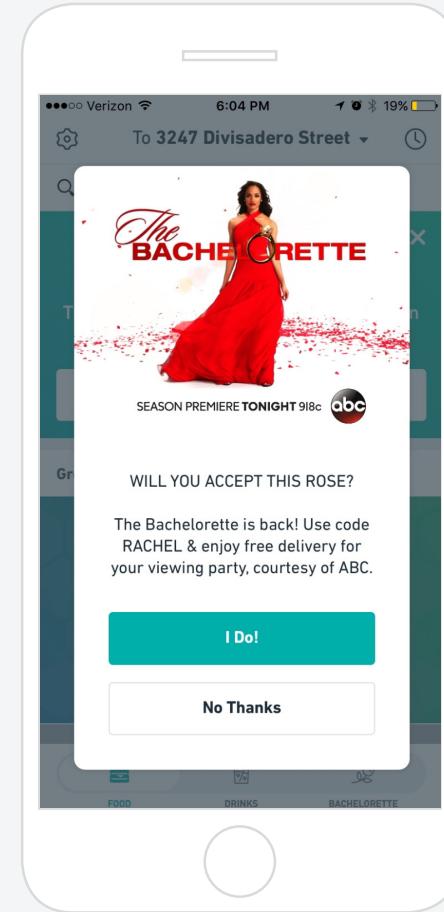
*"We were able to improve marketing spend efficiency by 3x, as measured through A/B tests and LTV improvements."*

ANDREW TOUCHSTONE

Director of Growth Marketing at Postmates

*"We were testing how this messaging and this new product experience worked together," he said. "In Amplitude, we could view which experiment a customer was in, which marketing message they received, and how that changed their behavior downstream."*

Monitoring their campaign in real-time helped Postmates use their marketing budget for this campaign far more effectively. Their behavioral insights from Amplitude helped them answer where in the campaign they needed more communication and which variants were resulting in the highest conversions. Braze then allowed them to iterate on their messaging in real-time, driving more effective customer engagement.



*"Braze's commitment to open access and their investments in near instantaneous event updating with Currents allows our team to access, analyze and act off of this customer data in real-time."*

ANDREW TOUCHSTONE  
Director of Growth Marketing at Postmates

## CHAPTER 04

# SETTING UP YOUR ENGAGEMENT STACK

We've introduced a new model and frameworks for building engaging products. In this final chapter of Mastering Engagement, we introduce the tools you need in order to do so.

## Topics covered in this chapter:

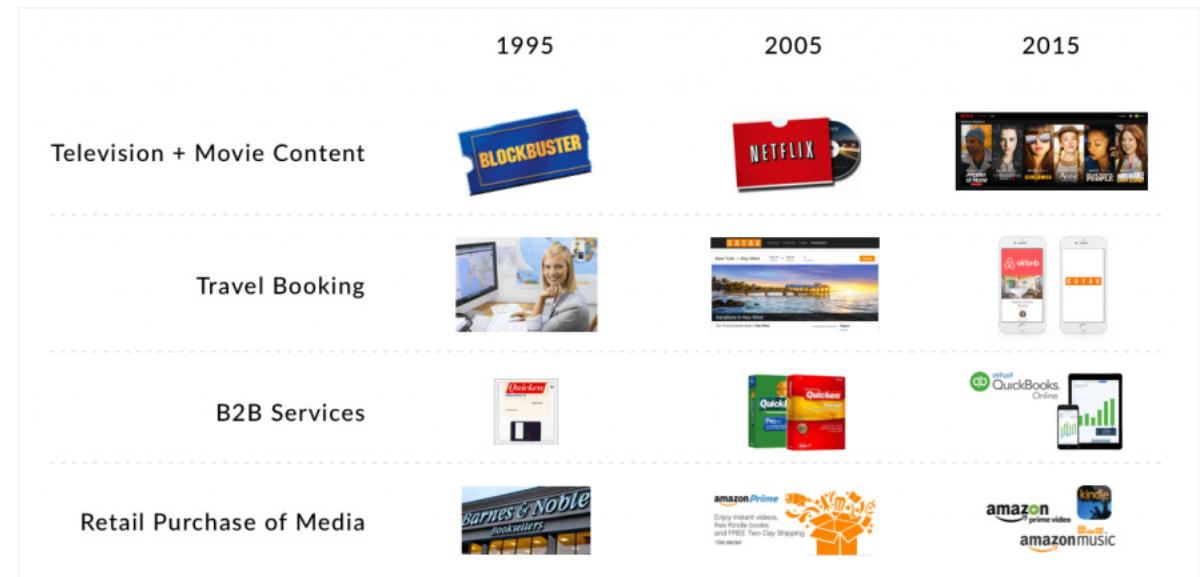
- 4.1 - Why you need an engagement stack
- 4.2 - Choosing your stack
- 4.3 - Understanding the layers
- 4.4 - Spreading adoption
- 4.5 - Maintaining the stack
- 4.6 - Taking action

### 4.1 | Why you need an engagement stack

In order to win, businesses need a modern engagement stack because product development has fundamentally changed.

In the past, software companies could ask customers to pay an up-front fee for a product, then roll out updates every once in a while, and ask those customers to buy the new version on a yearly basis (sometimes even longer!).

Now, in the digital age, both the nature and the speed at which we build products—and, consequently, the way we grow and monetize businesses—has fundamentally changed. With the exploding number of product offerings in every market, the companies that make it big are the ones that know how to grow by meeting the changing demands of their customers and continuously delivering value<sup>[28]</sup>.



In 2005, “online” was a new acquisition channel, now it’s the product<sup>\*</sup>

<sup>[28]</sup> <https://amplitude.com/blog/2017/05/18/analytics-stack>

“

*One thing I love about customers is that they are divinely discontent. Their expectations are never static—they go up. It's human nature.*

JEFF BEZOS

in his 2018 letter to shareholders<sup>[29]</sup>

### But engaging customers is hard to do.

Product analytics, which we've highlighted in every chapter of this playbook, is powerful for analyzing in-product engagement and deciding what to build next.

But to really drive your North Star metric and execute on a full engagement strategy that aligns across product and marketing, you need an engagement stack: best-in-class software to help you get data into your analytics solution, test hypotheses, assign attribution, do marketing automation, and more.

Why do we support the best-in-breed software approach versus other alternatives like building in-house or an all-in-one solution? Well, it is impossible to find a third-party all-in-one solution for engagement that is truly excellent. And in-house tools are often hacked together and/or complicated to use, making them only usable for the most technical teams within a company. Moreover, they're usually slow, difficult to maintain, and generally inflexible.

Instead, we believe every business should build an engagement stack suited to their needs using the best-in-breed tools that are available for each layer.

To develop the next several sections of this chapter, we had the pleasure of speaking with Austin Hay. In his role as VP of Consulting at The Growth Practice, a subsidiary of mParticle, and GM of HBE Ventures, he helps Fortune 500 businesses and enterprises like Walmart, Turner, and Sam's Club evaluate, implement, and maintain their growth stack.

## 4.2 | Choosing your engagement stack

When you're figuring out exactly which combination of tools should make up your engagement stack, you need to consider two things:

- What you want to accomplish from a business perspective
- How you want to prioritize the different initiatives you want to take on

Says Hay, "The number one thing to do is just be very objective and straightforward in outlining your business criteria upfront. Go through and document, 'I want to be able to achieve X. I want to be able to create an audience. I want the capacity to have a UI that sends data as an output to Y.'"

<sup>[29]</sup> <https://www.sec.gov/Archives/edgar/data/1018724/000119312518121161/d456916dex991.htm>



Knowing exactly what your business objectives are will then help you prioritize your initiatives. This, in turn, will help you understand the tools and systems you need in place to be successful.

## BEST PRACTICES

### Setting Up Your Engagement Stack

#### DO

- Choose tools that do one or a couple of things really really well.
- Choose tools that allow you to move data in and out easily, thus enabling interoperation with other engagement software.
- Choose tools that democratize data for all teams.
- Consider choosing tools that are known to be reliable and built by experienced teams
- Think through the order of implementation for your stack.
- Have a serious conversation about business objectives and priorities.
- Document your stack, including why you implemented certain tools and when/why you make changes to the stack.

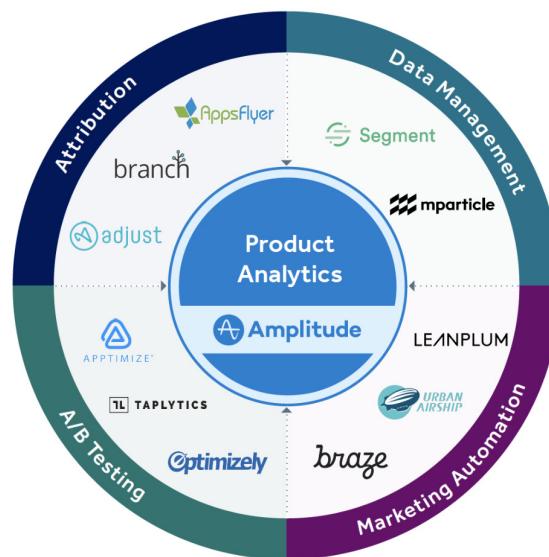
Here are some general best practices for setting up an engagement stack. We'll be referring to some of these in more detail later in the chapter.

#### DON'T

- Go for solutions that promise to do a hundred things mediocrely.
- Choose tools that are closed off and can't work in an ecosystem with other tools.
- Choose tools that require endless configuration and hacking to get work done.
- Jump to using the coolest new technology without proper vetting—you don't want to risk an integral layer of your engagement stack suddenly going out of business.
- Drink a seller's Kool-Aid and jump to implementing the most interesting tool.

## 4.3 | The layers of your engagement stack

Every company's needs are different, so are the tools they'll need to measure and drive engagement. Here are the main layers we believe any product-led business should consider when building their engagement stack. There are many tools for each of these categories; we've included some of the best in the industry that work well with Amplitude.



### Customer Data Platform (CDP)

Web and mobile applications generate immense volumes of customer data. For this data to have any value, teams should be able to better understand their customers and then act on those insights with both product and marketing efforts.

Customer data platforms make this easy to do by pulling data from multiple sources, then cleaning and consolidating it into a single database. Using a CDP is the simplest way to connect all the tools in your engagement stack—you can easily send customer data to your analytics platform for analysis, and also to the experimentation and marketing layers of your stack when it's time to act on the insights.

Customer data platforms let teams focus on building better experiences for their customers, instead of worrying about how to get data from tool-to-tool.

#### Our recommended CDPs:

- mParticle
- Segment

### Product Analytics

If you're reading this playbook, then you probably already have some idea of the value of product analytics. Building an engagement stack requires that you have not just data, but the means to get the insights that help you build an engaging product.

As we covered in great depth in the previous chapters, product analytics allows teams to ask deep questions of their customers' behavior. Questions like:

- How long does it take a new user to become a habitual user?



- What kind of user personas do I have in my product and how do they behave differently?
- What actions do users who convert do differently compared to users who do not?
- How can I reactivate lapsed users and get them to see the value in the product?
- How has our new marketing campaign or product launch changed user growth in the last 3 months?

Answers to questions like these lead to ideas for product improvements, new experiences, or campaigns that are backed by data. Dashboards with vanity metrics like page views or app downloads are not enough. Product analytics give product managers, growth marketers, analytics teams, and leaders the insight to build systematically for product growth and deeper engagement<sup>[30]</sup>.

Another key value proposition of a product analytics platform like Amplitude is unifying different data streams into a single source of truth. Not only do businesses care about bringing user data into their systems, but also sending data out to marketing vendors.

When we asked Austin Hay about why analytics should be a core part of anyone's engagement stack, he said, "It's a two-fold thing. It's [the ability to understand] one, what marketing-based behaviors and actions can we take off this funnel, and two, what qualities about the product

experience can we understand and then make better so that we can have a better experience that requires less activation energy."

### **Attribution**

The attribution layer fills in the context of a user when they first get into your product. The reason this is more complicated than it sounds is simply because the user journey is more complicated than it used to be. People can come into your product through a variety of ways—referrals, ads, App Store searches, and so on.

Attribution is particularly important if you plan to run and measure the impact of paid campaigns. If you don't have a proper linking infrastructure in place before you start measuring engagement, you can't be confident that the data you're looking at is sound and complete.

Attribution tools that can also do deep linking are useful for actually leveraging that data to point users to specific content on the web or in a mobile app<sup>[31]</sup>.

An attribution layer lets you immediately assess how a user arrived in your product, where they came from, and all of the other information that can help you distinguish them, even when the path into your product is a complex, multi-channel journey.

<sup>[30]</sup> <https://amplitude.com/blog/introducing-the-amplitude-growth-engine>

<sup>[31]</sup> <https://branch.io/what-is-deep-linking/>

#### **Our recommended Attribution tools:**

- Adjust
- AppsFlyer
- Branch

#### **A/B Testing**

Experimentation starts with building conviction around an idea before spending significant resources to roll it out to all of your users. The most reliable way to execute on your ideas for improvement is to A/B test them.

In an A/B test, you deliver two experiences to users. One features your product in its original state; the other features a version of your product with some change. After a certain period of time elapses, you can examine the results of the experiment to see if there was a significant difference between the two groups.

#### **Our recommended A/B Testing tools:**

- Apptimize
- Optimizely
- Taplytics

#### **Marketing Automation**

In the previous chapters, we talked about how to measure and build for in-product engagement. A good engagement stack also includes a marketing layer to engage users outside of the product.

Whether through email or in-app messaging, push notification or SMS, marketing helps you ask users for feedback, provide them with relevant content and nudge them in the right direction.

The information you gather from all of your product's digital touchpoints is crucial to understanding how you should be re-engaging customers. For example, if you figure out that some segment of users aren't activating in your product, you can send them a personalized message to ask for more information. Given what you learn from that request, you might decide on any number of ways to grow awareness and understanding of the new feature among your wider user base—from a customized transactional email campaign to a well-timed push notification.

Many of the "external triggers" that we mentioned in Chapter 3 as tactics for re-engagement can be delivered through marketing automation tools.

#### **Our recommended Marketing Automation tools:**

- Braze
- Leanplum
- Urban Airship

#### **PRO TIP**

##### **Implementing your stack in the right order**

One of the big mistakes that teams make in building their growth stack, according to Hay, is not prioritizing which layers of your stack to implement first.

Hay suggests starting with a customer data platform first, which will make integration with product analytics (we recommend Amplitude) easy. Once you have your customer data platform and your analytics layer, then focus on what tools you'll need to carry out your next most important business objectives.



## 4.4 | Spreading adoption

Once you decide on the layers of your engagement stack and finish implementing them, the next step is to gain adoption within your organization.

Adoption is critical. The quicker you can implement and understand a tool, the quicker you and others in your org can get value. Getting repeat value from the tool ensures that it becomes a true fixture in your daily work. “If not, you typically end up churning, looking for other tools, repeating, and before you know it, you’ve gone through three or four tools in the course of a couple years,” says Hay. According to David Reyneke, Director of Growth at Prolific Interactive, a mobile-focused product development agency: **Repetition is the key to getting value out of your engagement stack.**

Reyneke suggests a simple framework for getting adoption:

- Start by performing a sprint-like runthrough of all the tools in your stack.
- Allow people to play around with the more intuitive tools to spark curiosity.
- Set parameters and goals around usage of the tools for the first few weeks.

Reyneke describes one example workflow, *“For Braze and Amplitude, we would recommend every week sitting in Amplitude, looking for insights, and setting a KPI that you want to try to move the needle on for the week. Then,*

*you execute that on that in Braze over the course of the week with experiments. Then you evaluate your progress in Amplitude.”*

Having at least one team member work in multiple tools regularly will quickly demonstrate how each part of the stack works.

## 4.5 | Maintaining your engagement stack

Once you have the right tools in your stack and all the right people in your organization using them (easier said than done, we know), the third thing you’ll need to keep in mind is maintenance.

As your business scales, it’s important to periodically go through and audit your stack. More often than not, as people leave, find other tools, and time passes, maintenance winds up being a thankless task that falls through the cracks.

It is best to start documenting early and make sure there’s a process in place to keep your docs updated. Some tips:

- Keep nomenclature consistent by creating a spec sheet for all the data points you want to capture at the very beginning.
- Include in your spec sheet: what tools you’re using; how and why they were implemented; which tools are sending data where.
- Assign someone to maintain the spec sheet.
- Update the spec sheet every time a change is made to the stack.

*"How you implemented things, why you implemented things, when you make changes, why you make changes: all of that should live in a document that lives with the company,"* says Hay.

## 4.6 | Taking action

In the final chapter of this playbook, we discussed why you need an engagement stack and our recommendations for the specific tools to choose for your business: a customer data platform, product analytics, attribution and deep linking, A/B testing software, and marking automation. We went over some best practices for setting up your stack, gaining internal adoption, and maintaining your stack as your business scales.

Take a moment now to reflect on your learnings. Consider the following:

- What does your engagement stack look like today? Is there up-to-date documentation on it?
- What does each tool in your stack do? What data flows in/out?
- How many people on your team or organization have adopted these tools?
- Are able to get a full picture of your customer journey and act on those insights using your engagement stack?
- Is your stack meeting the needs of your business?

## FURTHER READING

**How great product companies are transforming their product analytics stack**  
Justin Bauer, VP Product at Amplitude  
<https://amplitude.com/blog/2017/05/18/analytics-stack>

**Growth Instrumentation**  
Austin Hay, VP Consulting Services at The Growth Practice  
<https://www.slideshare.net/amplitudemobile/growth-instrumentation>

**Building Apps for Mobile Growth: Tech Layer Choices**  
Andy Carvell, Co-founder at Phiture Mobile Growth Consultancy  
<https://mobilegrowthstack.com/building-apps-for-mobile-growth-tech-layer-choices-986849df053e>



# GLOSSARY

## A

**Activation** is a point or phase at the end of Onboarding during which a new user obtains enough value from the product such that they become a current active user of the product.

An **acquisition cohort** is a group users who started using your product (in other words, were new) during the same time period.

An **aha moment** is the moment or set of actions within your product that leads users to first discovering value.

**attention game:** In the three games of engagement framework, products playing the attention game try to maximize the amount of time users spend in-product. Industries that typically play this game today are media, gaming and any company displaying advertisements to you.

## B

**bracket retention:** A flexible version of N-day retention where you can look at the proportion of users who return during custom time frames that you define.

## C

A product's **critical event** is an action that users take in your product that aligns closely with the

value you want your product to deliver. When measuring engagement metrics like retention and stickiness, it is more valuable to look at the users who perform this critical event as your pool of "active users," as opposed to users who do any arbitrary action. The critical event is also usually closely tied to the value exchange in your product.

A **customer-value exchange** describes the potential value that products deliver to customers in exchange for the customer's investment of time and money.

## E

**Engagement** is a measure of how much or how often users interact with your product or with a feature.

An **engagement loop** is an interaction framework describing the actions and triggers that current engaged users cycle through when they use your product regularly.

**event:** In event-based analytics, an event is an action performed by the user or taken by the product.

**Event Segmentation (Amplitude chart):** In Amplitude, the Event Segmentation chart lets

you accomplish deeper segmentation on your events and the users who perform them.

**external trigger:** Specific sensory stimuli that companies/products use to nudge users into taking action.

## F

**First value exchange** is the first exchange of value between a new user and the business.

## I

**internal trigger:** Feelings and emotions that manifest in the mind and cue users to take action on their own.

**instrumentation:** The process of recording events and attributes as they happen in your product.

## K

A **KPI**, also known as a Key Performance Indicator, is a measurable value that demonstrates how well an organization is achieving its current objective.

## L

The **ladder of engagement** is the ongoing learning journey a new user embarks on to become an expert.

A **leading indicator** is a value or measurement that can be used to indicate future business outcomes. Good north star metrics are leading indicators of success. On the other hand, metrics like ARPU and monthly revenue are lagging indicators.

## N

**N-day retention:** Retention method that measures the proportion of users who are active in your product on a specific Nth day after an initial event.

A **north star metric** defines the relationship between the customer problems the product team is trying to solve and the revenue the business aims to generate by doing so.

## O

An **OKR**, also known as Objectives and Key Results, is a framework for defining and tracking company, team, or personal objectives.

**Onboarding** is a series of steps within your product designed to show new users how they can use the product to obtain value.

## P

The **power user curve** or **non-cumulative stickiness** depicts the proportion of users who were active in your product for exactly X number of days.

**product analytics:** The application of data and analytics to detect patterns of usage and identify opportunities for product improvement in order to improve business outcomes and solve customer pain points.

Your **product usage interval** is the frequency (daily, weekly, monthly, etc.) with which you expect people to use your product.

**productivity game:** In the three games of engagement framework, products playing the productivity game create an easy and reliable way to complete an existing task or workflow for the user. This game is predominant in business-to-business software.

**properties:** User properties and event properties can give you a deeper analysis into how users are engaging with your app. User properties are attached to users and reflect the current state of the user at the time of the event while event properties are attached to events and reflect the state of the event that was triggered.

## R

**Retention** is a measure of how many users return to your product over time after some initial event (usually first use).

**retention curve:** A line graph depicting user retention over time. It shows the percentage of users who return to the product during a specified time period after acquisition.

**retention lifecycle framework:** a framework for analyzing retention depending on whether a user of your product is new, current, or resurrected.

## S

**Social proof** is the phenomenon wherein a large group of people conform to each others' behaviors and actions. If users of your product get their friends and acquaintances to also become users, this can be a point of social proof for you.

**Stickiness** is a measure of the frequency with which people use your product; specifically, a measure of the number of days out of a week or a month that a user was active, or did a specific action.

**Stickiness (Amplitude chart):** In Amplitude, the Stickiness chart lets users plot cumulative stickiness, non-cumulative stickiness, and stickiness over time.

## T

**three games of engagement:** A framework for thinking about your product's engagement



strategy, which includes the attention game, transaction game, and productivity game.

**transaction game:** In the three games of engagement framework, products playing the transaction game help customers make purchase decisions with confidence. Companies you will often find playing this game are e-commerce platforms.

A **trigger** is a stimulus that brings users back to a product. This can be an external trigger, such as an email or push notification, or an internal behavioral trigger, such as a pre-existing habit.

**value exchange:** Modern management theory defines a product as a medium of value exchange between a user and a business. The product offers value to a customer—entertainment, efficiency, status etc.—and the customer in return offers compensation to the business.

# THANK YOU FOR READING MASTERING ENGAGEMENT!

We hope this installment of the Product Analytics Playbook series gave you a good foundation for building products that engage and deliver value to your users. We wrote this to help you measure and improve product engagement through best practices, frameworks, and models that we believe in and use ourselves, here at Amplitude.

How are you using this content to build better products in your own team or organization? We'd love to hear from you with questions, comments, epiphanies, or just a 'hello'. Email us at [playbook@amplitude.com](mailto:playbook@amplitude.com).

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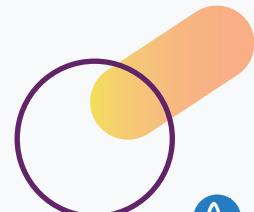
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