Retention Revealed
The Need-to-Know Facts Behind App Retention & ROI
What You’ll Learn in This Report

- By day one, apps have a 21 percent retention rate; by day 90, it dwindles to 1.89 percent.

- Yet, 68 percent of users are simply dormant in the first week, which means you have opportunities to win them back.

- If you can improve the day 10 numbers, you can positively impact the retention of a user throughout their first month.

- Sending a push notification can improve retention by 20 percent.

- Apps that send push notifications with Optimal Time see retention rates 7x higher.

- This kind of personalized push results in millions more potential revenue — for one app, an extra $229MM.
The Methodology

Retention is defined as the number of users who return to your app after the first use. In this report, you’ll see D0, or day zero, which is the number of first-time users in the app on a given day. After that, there’s D1, D2, etc. — all the way up to D90. Each of these represents the number of days after the first use.

In this report, we analyzed over 200 apps, each with at least 100 first-time users. We collected the data from users who first opened the app between March 1st through March 7th, 2016.
Why Is Retention Important?

In the US, the average cost per install (CPI) ranges per app vertical and platform. The average is around $2, but goes up to $3.34, according to Fiksu. The same report shows that the cost per loyal user is well over $4. When apps spend so much money on acquisition costs, factoring in App Store Optimization (ASO) strategies, advertisements, and much more, allotting budget for retention can sometimes fall by the wayside.

What’s more, you need a ton of downloads to be considered mainstream successful. Analyzing the top 100 apps in the App Store, the top-ranked apps have at least 5MM downloads. That’s almost $17MM spent in acquisition.

However, as you’ll learn in the following pages, the majority of users abandon your app after the first day of use. Andrew Chen, a leading growth expert, reports that the average app loses 77 percent of its DAUs within the first 3 days after the install. That’s why it’s increasingly important to protect your acquisition investment and retain users throughout their lifetime. Without a retention strategy, your app is bleeding money.
Fiksu CPI Index

Android

iOS

$0.00
$0.50
$1.00
$1.50
$2.00
$2.50
$3.00
$3.50
$4.00
"Without a retention strategy, your app is bleeding money."

– An ancient mobile philosopher
Table of Contents

Chapter 1 (p.8-12)
Newest Retention Data

Chapter 2 (p.13-24)
The Impact of Push Notifications

Chapter 3 (p.25-28)
Analyzing Opportunities from Uninstalls & Dormant Users

Chapter 4 (p.29-36)
Solutions to Drive More ROI
Chapter 1

The Current State of Retention
Let's start by looking at retention split a few different ways. As you can see in this chart, apps lose the majority of their users after the first app open.

**Some highlights:**

- By day one, apps only have a 21 percent retention rate.
- By day 10, this number reduces to 7.5 percent and stays steady through the first month.
- By day 90, the number drops to 1.89 percent.
Opportunities for Better Retention

The chart on the previous page shows an interesting opportunity for app managers. The day 10 through 30 retention rates are consistent. By focusing on improving the day 10 numbers, you can positively impact the retention of a user throughout their first month. And since the majority of abandonment has already occurred within the first month, you may be able to increase retention for all your users in the long-term.
To put the average retention rates in perspective, there’s a scene in the TV show, Silicon Valley, where the characters discuss the number of downloads their app has versus the number of daily active users (DAU). In the show, the app has 500,000 downloads, but only 19,000 DAU. Drawing from the previously mentioned CPI data, this means that the characters spent around $1MM on user acquisition, but only retained about 3.8 percent of users. Judging by these numbers, their retention rate is on the higher side of average, but they lost a significant sum of money — $962,000 — with users who never returned to the app.

Apps should focus as much on retaining users as they do on acquiring. A strong marketing strategy involves spending half as much money — in this hypothetical case, $500,000 — on acquiring the right kinds of users. Then, spend the remaining half-million on retaining those users throughout their lifetime.
"A smarter marketing strategy invests in both acquisition and retention."

–Your revenue manager
The Impact of Push Notifications
Push Notifications: A Solution to Improve Retention

We could continue to divide the data in more ways, looking at app platform, vertical, geography, user demographic, and more. However, no matter how we sliced the numbers, the average retention rate hovered under five percent.

Instead, we decided to study how retention is affected by one key action: push notifications. In our last report, we learned that personalizing push lead to 9x more engagement. For this report, we wanted to understand if sending a push notification to a user specifically improves your retention rate.

Our hypothesis was yes. After all, if an app sends you a valuable message, it enables the app to be top of mind and keep users coming back.

To analyze the impact of push on retention, we queried hundreds of apps that send push notifications, and compared to apps that do not send push.
"No matter how we sliced the numbers, the average retention rate hovered under five percent."

– A frustrated growth team
The Effect of Push Notifications on Retention

Here, we can see that retention rates are higher for apps that adopt push messaging, versus apps that do not. In the first month, the average difference between retention is 1.5 percent — substantial, considering the average retention rate is 7.5 percent by day 30. That means that apps can increase retention by 20 percent simply by sending push notifications.
"Apps can increase retention by 20% simply by sending push notifications."

– A stoked mobile team
What does a 20 percent increase in retention mean for different apps? Let’s look at the immensely popular Pokémon GO.

The game saw 75MM downloads in a number of days. We can pull from the day seven retention rate — 8.07 percent — and assume that Pokémon GO includes push notifications as part of its engagement strategy. As a result, Pokémon GO is capable of retaining an extra 1,210,500 players at day 15. Capturing these additional users by day 15 means you have a good opportunity to retain them for the remainder of their app lifetime.

Adding push notifications in your mobile marketing arsenal can impact how users interact with your app over the course of their lifetime. You increase retention and preserve your financial investment in app installs.

If Pokémon GO sent push notifications, it could retain an extra 1,210,500 potential players by day 15.
Now, let’s dive deeper into personalizing push notifications. You can personalize the time at which you send push to users in two ways:

1. **Triggering behavior-based push notifications.** For example, if someone adds an item to their shopping cart but forgets to check out, you can automate a push notification to send the next day, reminding them to complete the purchase.

2. **Delivering push notifications with Optimal Time.** This machine learning algorithm analyzes individual app usage patterns to automatically send a push at a time when the user is most likely to open. For example, if Erica listens to a music app on her commute to work, the music app can send her notifications to check out new artists in the morning. But if Max listens to music while winding down at night, the app will automatically send him the notification in the evening.

An example of Optimal Time push notifications.
How Behavior-Based Push Notifications Affect Retention

This chart shows the difference in retention rates between apps that trigger push notifications in response to user behaviors versus apps that do not. You can see there’s a difference of 0.55 percent in retention. That’s slightly more than sending push notifications without taking into account behaviors, but not by a sizable amount.
How Optimal Time Push Notifications Affect Retention

This chart shows the difference in retention rates between apps that send push notifications with Optimal Time versus apps that send push notifications at their default time. The average difference in retention between apps that use Optimal Time and apps that do not is 6.97 percent over the first 30 days. That number barely drops by day 90 to a still-steady 6.17 percent.
Diving into the Data Around Personalized Push

Sending push notifications clearly impacts your retention rates. If you can send push notifications in response to unique behaviors, you will increase retention by half of a percent. This is a positive increase, yet you can do even better. Mobile teams that use tools to understand and predict individual engagement patterns can garner big wins.

Sending push notifications with Optimal Time is the clear winner, resulting in retention rates almost 7x better by day 30.
"Sending push notifications with Optimal Time improves retention rates 7x."

– The news you deliver to your CEO, right before receiving a raise.
According to Mobile Commerce Daily, Target’s Cartwheel app had more than 25MM downloads and earned over $3B in revenue. Drawing from the aforementioned numbers, we estimate that Target could retain an extra 1.74MM users if it used Optimal Time.

If Target used Optimal Time push notifications as part of its messaging strategy, it would have the potential to retain 1.74MM more users and earn an extra $209MM in revenue over the app’s lifetime. This is a substantial gain for such an easy tactic.

It’s clear that personalization is a key element to driving higher engagement with app users, but of course there are many factors to consider, including platform, content, and delivery type. A/B testing to experiment with the right combination of message and content will ensure greater app engagement and ROI.
Chapter 3

Analyzing Opportunities from Uninstalls & Dormant Users
Dormant Users vs. App Uninstalls

Of course, if a user uninstalls your app after the first use, it’s impossible to send them a push notification encouraging re-engagement. We studied how many users uninstall and found that 23 percent of first-time users uninstall the app within the first week of use.

This suggests that we have 68 percent dormant users in that period, who have not uninstalled the app and are not included in the retention numbers. You have the opportunity to reactivate over two-thirds of your user base with push. There’s still hope that you can gain them back through personalized messages.
If you have concerns that sending push notifications drives users to uninstall, you can put that fear to rest. This data validates that sending a push on any given day does not lead to a decrease in retention in the subsequent days. There is no evidence to suggest that push causes app uninstalls. In fact, push increases retention and can save mobile teams significant spend.

While sending push notifications actually helps you retain more users, sending personalized push seals the deal. Here are some common ways to personalize messaging:

- Include the user’s name in the push notification
- Customize with a specific event, like a shopping cart item or relevant content
- Respond to individual behaviors, such as sending during times of day when users are likely to engage

There are so many ways you can personalize your messages. Something as basic as understanding platform differences on Android vs. iOS can impact how a user interacts with your app. By starting valuable conversations with users, rather than putting them on the receiving end of a generic blast, you create a relationship that encourages both parties to engage.
Unfortunately, if 68 percent of your users are dormant, and you’re not taking actions to reactivate them, you’re losing revenue every day. According to Fueled, apps as a whole are expected to reach an estimated total global revenue of $46 billion by the end of 2016.

Let’s look at a well-known gaming app. In its first year, Candy Crush had 500MM downloads. According to Fueled, Candy Crush earns $884,676 per day through in-app purchases. If Candy Crush could retain even 15 percent more of those 500MM users, we would estimate that Candy Crush would earn roughly $199,051 more revenue per day or over $72,653,615 more per year.

The same theory can be applied to ride-sharing apps. According to one source, Uber has around 8MM users and 1MM trips per day. While we don’t know the average cost of each ride, let’s imagine that the average ride is five dollars — roughly the cost of one Uber Pool ride in the US. If Uber engaged an additional 15 percent of dormant passengers, that result would be $1.125MM more revenue per day.

If Uber engaged 15% more dormant passengers, it would potentially earn $1.125MM more in revenue per day.

Lost Monetization Opportunities from Dormant Users
Chapter 4

Solutions to Drive More ROI
In This Report, You Learned:

- By day one, apps have a **21 percent** retention rate; by day 90, it dwindles to **1.89 percent**.

- Yet, **68 percent of users are simply dormant** in the first week, which means you have opportunities to win them back.

- If you can **improve the day 10 numbers**, you can positively impact the retention of a user throughout their first month.

- Sending a push notification can improve retention by **20 percent**.

- Apps that send push notifications with Optimal Time see retention rates **7x higher**.

- This kind of personalized push results in millions more potential revenue — **for one app, an extra $229MM**.
More Retention Means More ROI

It’s clear that the key to more revenue with less investment lies in retention. While so many app managers focus on “growth hacking” their app to success, the data proves it’s time for the spotlight to shift to retention hacking.

If you’re not convinced, Forbes analyzed the effect of retention on revenue in a report. It noted, “According to Bain and Co., a five percent increase in customer retention can increase a company’s profitability by 75 percent. And if those numbers don’t impress you, Gartner Group statistics tell us that 80 percent of your company’s future revenue will come from just 20 percent of your existing customers.”

But successful retention hacking requires an integrated effort. That’s why we offer the solutions you need to improve your retention rates and drive more ROI with a single solution.
**Strategies to Power Your Messaging**

In order to take your app marketing to the next level, here are three strategies you need to drive more engagement and ROI.

---

**Use Push Pre-Permissions**

First, maximize your push notification opt-ins by using a pre-permissions message that suppresses the default iOS prompt and instead explains the benefits of push at a time when the user is more engaged.

---

**Use Optimal Time**

Second, use a machine learning algorithm like Optimal Time to personalize message delivery to individual engagement patterns.

---

**A/B Test Your Mobile Strategies**

Continually experiment with messaging strategies via A/B testing. Optimize the frequency with which you send messages, test the segments who receive messages, discover which channels garner the most engagement, and more.
Coordinate & Automate Messaging Campaigns

In this report, we learned that push notifications have a huge effect on retention. Orchestrating push with other channels gives your messaging campaigns more reach. Leverage a multi-channel approach, coordinating messages across push notifications, in-app messages, email, and App Inbox.

When you’re ready, automate drip campaigns in one visual timeline with our Lifecycle Engine. You can use a combination of mobile app automation tactics throughout a user’s journey, to onboard new users, eliminate shopping cart abandonment, reduce app churn, and more.
Maximize Opt-Ins with Push Pre-Permissions

Push Pre-Permissions
On average, only 42 percent of users opt-in to push notifications. Send a personalized in app message to encourage push permissions at a time when the user is most engaged. With this feature, you can suppress the default iOS prompt that asks early in the app experience and instead identify a more optimal time to explain the value of push.

Example Use Cases
Deliver value before asking for push notification opt-ins. After users in a travel app search for a flight deal, ask them to opt in to push to receive information about destination guides. After users in a retail app buy a new item, ask them to opt in to be the first to know about upcoming sales.

Optimal Timing
With Push Pre-Permissions, you can move beyond the default iOS push prompt to engage users during peak times.

Multiple Chances
Display prompts during different moments across the app, to increase the chances of users opting in when they engage with the right content.

Clear Value
Showcase the benefits of push at more compelling times during the app experience.

Last Minute Travel increased push notification opt-ins by 182%. See the case study here.
Perfect Your Delivery Times

Optimal Time
Send push notifications during the moments when users are most likely to engage. This intelligent algorithm draws from each user’s past behavior to predict future engagement. By analyzing when someone interacts with your app, you can send messages when users are most likely to open.

How It Works
One person may prefer to read a news app in the morning hours, during their commute to work. Another person may like to read at night, when winding down from the day. The news app would be able to send the same push notification to both those users during the respective times they interact with the app, ensuring higher open rates.

Behavioral Analysis
Review each user’s activity to determine when someone wants to hear from you.

A/B Testing
Evaluate real-time insights from every message you send to refine future campaigns.

Intelligent Learning
Our algorithm equips you to make data-driven decisions that improve deliveries.

17% increase in overall revenue. See the case study here.
Test Without Limits. Then Act on Data

A/B Testing & Analytics
Run A/B or multivariate tests on both messaging and in-app content changes, without App Store resubmissions. After you deploy, get automated insights that highlight significant changes around engagement, retention, revenue, uninstalls, and more.

Test Examples
A/B test both your messaging channels — like whether to deliver a push notification, email, or both — and what you say. You can test the timing, audience segments, deep links, etc. Once you lure users back to your app, optimize your UI to swap out images, change copy, update app logic, and more.

Complete Freedom
Test any type of content in and out of your app, such as UI content, logic, and messaging channels.

Out-of-the-Box Data Science
See campaign impact in real-time to focus on optimizations, rather than crunching numbers.

Focus on ROI
Create meaningful experiences and optimize app performance, driving revenue and engagement.
A Partnership for Success

Leanplum is the most complete mobile marketing platform, designed for intelligent action. Our integrated solution delivers meaningful engagement across messaging and the in-app experience. We offer Messaging, Automation, App Editing, Personalization, A/B Testing, and Analytics, alongside a dedicated customer success team to help you with all your campaign needs.
This year, we released two other data science reports analyzing the effect of personalization on mobile push notification engagement. Our first report, “Breaking Barriers,” studied the times apps send push notifications versus when users actually open them. We learned that users engage with push at different times around the world. For example, in North America at 8pm, users open four times as many push notifications than are being sent. On the other hand, in APAC, marketers completely miss the mark, failing to send enough push during the six most engaging hours of the day, from 7am-1pm.

Our second report, “Personalize or Bust,” examined the average open rates of push notifications and the median times to open, as broken down by platform, delivery time, content, and geographic region. Key findings revealed that Android has double the push notification open rates of iOS, but iOS users open push notifications seven times faster than Android users. And even more impressive, push notifications triggered by individual user behaviors produce nine times the open rate of blasts sent immediately.

Download the reports from our mobile strategy library.
Additional Resources

Leanplum Blog

Breaking Barriers to Push Notification Engagement

Personalize or Bust: The Impact on App Engagement

Increase your user retention with a personalized demo.

Get in touch with us today.

hello@leanplum.com

www.leanplum.com/demo

SAN FRANCISCO • NEW YORK • BULGARIA • UK
Thank You.