Introduction

How do you turn your passion for app development into a serious business? The App Developer Business Kit by AdMob is here to help.

You've got a brilliant idea for an app that strikes when you least expect it! Fast forward two months and your app is built, it works and all your friends have tested it (but you've told only a handful of work colleagues about it). You release it but you're not quite sure what to do next.

The Business Kit is a guide for entrepreneurial developers to turn their app into a successful business. It has four sections packed with tips and advice from developers and industry leaders.

From an idea to an app
Understand the principles for success, and hear advice from some of the world's top app developers.

Growth
Attract more users, expand into more markets and use analytics to improve your app.

Think big
How to go from one great app to a portfolio of great apps and important considerations for expanding your business.

Nine takeaways
Nine tips to help you become a more successful developer.

Why apps, why now?
Annual global revenue for apps reached $27BN in 2013[1], and is forecast to climb to $75BN by 2017[2], with sophisticated developers opting for freemium revenue models rather than paid. What's driving this enormous growth? Three important trends:

The appetite for smartphones is immense. Sales of smartphones surpassed sales of feature phones in the middle of 2013[3] for the first time, and in major economies such as the US, smartphone penetration exceeds 50%.[4]

People are spending more time on mobile devices. Mobile is becoming the most popular way to get online, exceeding time spent using desktop computers.[5]

Users love apps. Smartphone users spend up to 5 times more minutes per month on apps than they do using the mobile web.[6]

With the right approach you can build a sustainable app business with plenty of rewards. We wish you every success with your venture.

How to use the Business Kit
Content in The App Developer Business Kit mirrors the growth of an app developer's business. Read the chapter that reflects the challenges you face today, then come back to the Business Kit for more advice as your business moves forward.

What are the ingredients for a successful app?

There's no magic formula for creating an app that will gain millions of users. But you can certainly improve your chances of success by following the right principles. Here we explain what those are, and share valuable advice from some of the world's top app developers.

Who's your audience?

Before building your app consider who your ideal user would be. Are you building a game for a certain demographic? Is it for people in a particular country or region, or do you want your app to have global appeal? Knowing your user before you build your app will help you make strategic decisions from the beginning. And it will make the design process easier because you'll be building the app to a narrower criteria.

We spoke to Polish app developer Szymon Klimaszewski whose Blood Pressure app has become one of the most downloaded health apps from the Google Play Store. He set out to build a blood pressure monitoring app that was quick and easy to use. He expected the app to be popular with older users and this influenced his approach to design.

"When I thought about building it I knew I wanted an app that can be used quickly, in five seconds. I considered who the users would be and this led me to create a simple design that doesn't have a lot of hidden features or buttons. For most people the app is very intuitive and quick to use." Before building your app consider who your ideal user would be. Are you building a game for a certain demographic? Is it for people in a particular country or region, or do you want your app to have global appeal? Knowing your user before you build your app will help you make strategic decisions from the beginning. And it will make the design process easier because you'll be building the app to a narrower criteria.

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Do you know the market trends?

Knowing what's popular in the app stores is an important part of coming up with a winning concept. Of course, the idea here isn't to mimic successful apps, but rather understand the overall direction of the market and consumers' tastes. You don't want to spend months building a gaming app with a style of play that users grew tired of a year ago. Free services such as App Annie provide insights into what's trending in the app stores, with info on many app subcategories, and also top download charts by country. You'll be able to tell the relative popularity of puzzle games vs. shoot 'em ups, for example. At the end of the day, it's easy to get seduced by your own ideas and build apps based on your likes and dislikes, but make sure it's grounded in what people want.

Tuyen Nguyen, Mobile Developer Advocate at Google, stresses the importance of knowing the market:

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Developers should identify what makes their idea unique, and ask themselves what problem they're trying to solve. By focusing on these two things, they'll be able to concentrate on delivering a quality app that provides value to their users.

TUYEN NGUYEN
Mobile Developer Advocate, Google

Does your app offer something new?

With millions of apps available it's important to differentiate your app from the rest. That's something you'll think about a lot before building your app, and careful analysis of the market can help you find a niche.

Artavazd Mehrabyan is the founder of PicsArt, an app development company with a passion for photography. Their wildly successful PicsArt Photo Studio app is the most popular photo-editing app on Android with over a million ratings. He set out to build a feature-rich photo app unlike any other - and with that came risks. "Our team was having a discussion about the lack of a good photo-editing app on mobile. There was the perception of mobile as a limited platform with limited capabilities. At the time, photo apps were fairly simple and were being created to solve one or two tasks. But we believed they would become more powerful in a short amount of time, and we started development on our photo app in 2011. By combining multiple tools into one single photo studio it was risky, because we were developing a bigger application that takes a longer time to download, and we never knew if users would accept it or not. But it offered users something new, and eventually led to tens of millions of downloads." With millions of apps available it's important to differentiate your app from the rest. That's something you'll think about a lot before building your app, and careful analysis of the market can help you find a niche.

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Does your app have a great user experience?

Many of the successful app developers we've spoken to over the last year have an incredibly strong focus on creating the very best experience for their users.

Toni Fingerroos is the founder and CEO of Fingersoft, the company behind Hill Climb Racing, the globally popular racing game with more than 100 million downloads across all platforms. When he set out to create a racing game it was extremely important to him to build a brilliant user experience; he concentrated on refining the physics engine which controls how the vehicles move and respond.

"When we build apps our main focus is on gameplay. I realized something important as I went through the process of building Hill Climb Racing, I realized that everything should be kept simple. Everything started working much better from that point on. Keep it simple. To me, the fact that users like what you've made is key to the definition of a successful app."

Aside from gameplay, making sure your app works flawlessly is important too. Untested and buggy apps just won't cut it when users can uninstall apps and download an alternative in seconds. A well-honed user experience can be the difference between failure and success. AdMob research shows that 72% of US smartphone users believe an important characteristic of a good quality app is one which opens quickly, and 70% thought that ease of navigation was important to the overall app experience.[7] Many of the successful app developers we've spoken to over the last year have an incredibly strong focus on creating the very best experience for their users.

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Funding your app

There are many different options for funding an app, some of which may surprise you. In this chapter we explore the established methods and those which are more unconventional.

Does your app need funding?

Whether or not you need funding for your app depends on the type of app you're building and your personal situation. You don't want the potential build costs to be a barrier to development, so it's worthwhile anticipating what they could be from an early stage. Some examples:

> Productivity, social or gaming apps which require retrieving a user's work, communications, or level may require a cloud storage solution.

> Location-based apps that provide directions or proximity information (e.g. a user's distance from a local store) may require maps licensing fees.

> Apps accessing proprietary software, such as APIs or development engines (for games), may incur licensing fees, and you may need to purchase more than one package if your app is cross-platform. If you're building a very rich app that needs ongoing development work, you may need to contract or hire developers long term.

> Consider hardware costs too; you'll probably want to equip yourself with devices for the platforms you're building for, to enable testing.

What types of funding are available?

Here we consider established and emerging methods of funding. Established methods of funding are the traditional sources of investment such as self-funding and business loans. Newer, non-traditional methods include crowdfunding. Our rundown examines the merits of each one.

Self-funding

If your app has minimal costs then self-funding can be a preferable option. If you're developing the app full time, project manage your development time effectively so it doesn't exceed the budget you've set aside to support yourself day to day.

Many developers have success with no outside investment. Park Young Ok, creator of Bouncy Ball, a game with more than 10 million downloads on the Play Store, is an example. Park was working in a regular job after graduating from college, but wasn't fulfilling his dream of building a video game. One day, a senior executive where he worked told him, "You need to do what you love in order to become successful." Park quit his job and focused on making games, "I received no investment. You may say that the impulsive decision to give up my job security was a sort of 'investment'." Explaining his decision to self-fund, he said "Any investment from a third party carries a risk. An investment of that kind can make developers or development teams stressed out. This is why I have never seriously considered seeking funding."

Another option is to partner with other app developers, perhaps those with skills complementary to your own (e.g. graphic design, ability to code on different platforms), to form a company, work on the same project and split the costs.

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PARK YOUNG OK
Founder of Raon Games, Bouncy Ball

Bank loans
The traditional route for a regular small business is perhaps a less well-trodden path for app developers. This can be attributed to the infancy of the app economy and perhaps the lack of familiarity that banks have with the various business models. But that doesn't mean this method is off limits. Banks will back businesses with a good strategy and you'll need to provide a business plan with forecasts of your expected return on investment.

Friends and family
What better way to measure the worthiness of your concept than by asking close ones to invest? True, these should be the very people whom have faith in you regardless, but their willingness to match that confidence with cold, hard cash will say a lot for your idea. Traditional models involve offering a percentage share of profits to your investors, or simply repaying their investment at a rate more favorable than you'd obtain from a financial institution.

Angel investors
Angel investors should be able to offer something valuable in addition to financing: market expertise. When seeking an investor look for those that specialize in app development. Their experience and connections may help you further down the line, with aspects like marketing your app, and you'll be able to use them as a sounding board on a regular basis. In this relationship the investor will likely own a share of the business and may take an active role in important decisions. Bank loans
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Venture capitalists
Newer app developers may not immediately think of venture capitalist funding as an option, but VC funds have seen app developers as serious investments for a while now. Investment bank Digi-Capital reported that funding for mobile gaming apps reached $876M in the year up to Q3 2013.[14]

For the developer, tapping into the right networks to set up meetings takes more effort, and there's the perception that a product has to be on the verge of going 'prime time' before an investor will be interested, yet there are opportunities.

Marvin Paul

We spoke with Marvin Paul, co-founder of the shopping list app, Out of Milk, about his path to venture capitalist funding. Marvin started Out of Milk with fellow developers in 2010.

At what point did you decide your app required funding? *"We started the app in August 2010, and by September 2011 we were looking for funding. At the time, things were working because we had our day jobs so we could pay for the servers. Then we'd be working from home at night. But we had problems juggling our jobs and working on the app. We didn't have enough revenue from the app to support all of us, so we couldn't quit our jobs unless we were prepared to live off credit cards. We wanted to take a safer approach so we considered other options."*

When did venture capitalist funding become a realistic option? *"I flew to San Francisco to meet with some people I knew who also had a start-up. Their start-up was part of an incubator and they encouraged me to join an incubator program and also seek funding. Previously I thought VC funding would be only for really big things, but after that trip I realized that all kinds of apps can get funding. As we were going through the incubator process someone got in touch with us who's an expert in acquisitions, and he knew a lot of investors. He introduced us to venture capitalists and we struck up relationships with people who went on to become our investors."*

What are the benefits of venture capitalist funding? *"Investors are generally well connected, so they put you in touch with start-ups you may not otherwise have known. This can lead to partnerships and give you conversations with lots of experienced, smart people who can provide you with sound business advice. Also, aside from the security, once you have funding you can move faster and plan ahead with more confidence."*

Crowdfunding

Crowdfunding is increasingly popular; it's a way to raise funds from members of the public looking to invest in, or back, a great idea. Typically it works like this: you promote your app on a crowdfunding website and specify the amount you're looking to raise. You explain your app, showcase a demo if you have one, and outline how you'll spend the funds. You may need to outline the terms of investment as well; in some cases this amounts to offering investors a percentage share in your profits but this isn't always so.

Crowdfunding Benefits

Viable way to raise a significant amount of funds in a short period of time.

Crowdfunding can give you the opportunity to be creative and flexible in the terms you set between you and your investors/backers. It depends on what you can bring to the table, but some options include offering a lifetime subscription to the app instead of profit sharing, or even schwag like T-shirts for lower funding goals. No doubt, a more attractive deal will yield more market backing.

Listings on crowdfunding sites are usually free, or have success-based models, and you can translate this experience into early promotion (and perhaps validation) for your app and an opportunity to recruit beta testers.

If you place your project with a crowdfunding platform just focused on apps, such as AppStori or AppBackr, the community will have a good understanding of apps and you're more likely to receive insightful feedback.

Crowdfunding Challenges

It's difficult to predict if your app will be funded at all, or how long it will take to reach your desired amount. In some cases you need to secure the full amount you're requesting before you get the funds, so it's all or nothing.

If you're successful, it's usual for the crowdfunding service to charge a fee. That could be on top of other fees for processing the funds.

Not all apps are accepted into these programs but this can also be a good thing, serving to keep the quality of apps high.

INTERVIEW

Arie Abecassis

We spoke with Arie Abecassis, co-founder of AppStori, to explain why crowdfunding is a viable option for developers.

"I was being regularly approached by app entrepreneurs who wanted to find out if a) their app was a good idea, and b) if I could somehow help them fund it? This scenario happened again and again and got me thinking whether there could be an online platform that takes "the crowd" and empowers them to help these ideas come to market.

So, from there, I started AppStori with a co-founder, and we officially soft-launched in mid-2012 with a pilot group of developers on our curated platform. We made a decision not to accept every app that submitted to the platform, and vet them the same way that an accelerator would by looking at filters like the team, product idea and commitment."

"

If you have a free game and choose to limit some features, you won't get as many downloads because users might think they have to buy everything. If they can't play without buying things they will get demotivated and will no longer play with the app.

TONI FINGERROOS
Founder & CEO, Fingersoft

After we launched, the feedback we received was that a lot of the value that app devs were realizing from AppStori was in how it helped them with the marketing (and beta testing) prior to launch, a problem which is becoming acute as more apps flood the market. There is a real and growing challenge of how you get discovered and validate what you're working on.

It became clear that funding was only one of the pain points for app developers, which is why we like to think of AppStori as not just crowdfunding, but as crowdsourcing. Really, you're developing a brand, your market position and you're getting real market feedback. I think that app developers, in this era where there is so much clutter, need to expose their idea much earlier to a wider market and develop marketing strategies, all of which we help support.

When you build a product you need to think about marketing from the get go, so we force developers to work on that

early on by asking them to put a promo video together. They need to think about how they will represent themselves to the broad market, say what they are building, and what value it represents.

For AppStori users - those backing the projects - it's a way to empower them in the app creation process. They can support friends on the platform, and also discover other apps that are coming through the pipeline. It's a combination of discovery, participation and rewards. Awards tend to be items like T-shirts or other kind of goodies that may be relevant to the app. When we set out to build the platform we wanted to lower the barriers to bringing developers and consumers together. This is why we decided to adopt a success-based model instead of profit sharing, which would mean revenue sacrifices for developers and the addition of several degrees of complexity. Instead, we wanted to keep the proposition clean and build a higher quality base of projects for people to support.

We've had quite a few successes where apps have been fully funded for the amount they were seeking. For instance, we have an app called Sooligan (based in Arkansas, US) which is a local discovery app for folks in new cities looking for things to do. They were part of an offline accelerator and were going through that process when they joined AppStori. They raised more than $2500 to help refine and launch their mobile app. A lot of people think of innovation occurring in the usual places like New York or the Bay Area, but there are a lot of interesting ideas all over, and our platform breaks down those geographic barriers.

Tech Tips For Building Your App

So you have your great idea and you're sitting down to start writing your app. Where do you begin?

The Android training guides are a great resource for beginners and experts alike. These guides range from building your first app to supporting different devices, as well as best practices for improving user experience and optimizing for performance.

For iOS, there are also design resources available to help you optimize your applications to conform to the latest version's design best practices.

A great supplement to these guides are live presentations that discuss various coding designs and tips for building quality apps. In particular, the DevBytes series provides easy to consume bytes of information on important concepts in Android and iOS. The Android Design in Action series highlights user interface best practices from real applications, and links to samples that show how you can implement these best practices in your own application.

User Interface Best Practices
Here are some things to think about when developing your application's user interface.

> **Make the app open quickly.** When a user opens your app, they want to interact with it right away. Ad Mob research shows that 72% of users in the US, and 78% of users in China believe a good app is one which opens quickly, and ranked this as more important than other characteristics of an app.[15] To accelerate loading, only load resources that you need for your main screen, and load other resources on a background thread.

If you plan on showing a full screen interstitial ad when the app opens, only wait for a couple of seconds. If the interstitial doesn't run fast enough, just move on without showing one.

> **Use high quality graphics.** Users value applications with high-quality graphics. In five major markets we surveyed, daily app users ranked 'quality of graphics' as the most important feature of game design.[16] One simple improvement is to include higher resolution images for higher density devices, so the resources look sharp on every device.

> **Build for Multiple Devices.** Think about what your app should look like on a phone versus a tablet. Consider including different XML layout files for different screen sizes on Android, or separate xib layout files for iPhone and iPad.

> **Build for Multiple Versions.** Your app should be consistent with the design of the platform. For example, iOS6 relied on skeuomorphism (design imitation of real-world objects) whereas iOS7 adopted a flat design. Apps previously built for iOS6 should be updated to follow iOS7 design guidelines for users running iOS7, to provide a consistent experience across all apps. On Android, you'll want to maintain compatibility with some older versions in order to reach a broader audience, but also take advantage of new design patterns to cater to newer devices.

> **Use Density-Independent Units.** On Android, different devices have different densities. Use density-independent pixels (dips) instead of raw pixels when defining the size of your view, so that the view is the same physical size on each device.

Storing Application Data

When designing your backend to store your application's data, think about what type of data you're looking to store and which storage mechanism best handles that data. Is the data structured? Should it be readable by other apps? Are you only looking to store a few settings across user sessions? Answering these questions will help you choose the best native storage mechanism(s) for your app, like these for Android and these for iOS.

An alternative to storing data on the user's device is to store it on servers outside of the application. Moving data to an external server allows you to build a single backend for multiple platforms, as well as track the user's status across different devices if you have a signed-in user.

You can choose to run your own server, or integrate with an Infrastructure as a Service (IaaS) solution to help you reliably scale your application. Once such service is Google Compute Engine, and there are other solutions in the market. If you want to take advantage of this scalability without having to worry about managing the implementation details of IaaS, you could use a Platform as a Service (PaaS) solution such as Google App Engine. These services make it easy to set up a common data storage solution for all versions of your app.

Permissions

Imagine you're about to download a note-taking application when you're asked to enable location access. Or how about access all of your contacts? Would you download it? Probably not. Some permissions are more sensitive that others, so only request permissions that are absolutely necessary to run your application. You can ask your friends to download your app and tell you if the permissions you're requesting are reasonable.

Location - Applications should NOT ask for location access for the sole purpose of providing better ad targeting, as it may discourage users from downloading your app. Of course, an app that lets you search for restaurants in your area may already need access to location, and can then also pass this information to request more targeted ads.

Contacts - Many users are afraid to give apps permission to their contacts because they're afraid that the app could spam all of their friends. Make sure to have a convincing use case before asking for this information.

Device IMEI - Not only are device-specific identifiers sensitive, but they also aren't great at identifying a single user. If the user has a phone and a tablet, representing a user by their device ID means you treat this user as two different users depending on the device they're operating. A better implementation would be using Google+ or similar sign-in mechanism to log in a user, or use the Advertising ID if you're just using this identifier for advertising.

> "
> App Engine enabled us to focus on developing the application. We wouldn't have gotten here without the ease of development that App Engine gave us.
>
> **BOBBY MURPHY**
> *CTO and co-Founder,Snapchat*

Testing

Before you release your app, you should test on array of devices and OS versions and sizes. On Android, there are some OS differences in Samsung's Galaxy devices compared to the stock Android Nexus devices. And devices like the Kindle Fire have a very different Android experience. Even on iOS, the newer iPhones are a different size. You'll want to make sure your app looks and runs good on all devices.

You may also consider having a beta program for a subset of users to try out a new version before it's publicly released. This way you could address any reported bugs before launching worldwide.

Once your app is out in the wild, you may be stuck on what to work on for the next version. The comments left on your app can be a good place to start. If users are reporting bugs or crashes, address those issues to satisfy your users before working new features. Even if you're getting conflicting feedback, determine what aspect of the app has the most volume of comments, and spend more time thinking about how to best

RECOMMENDATION

If you are planning to go alpha- and beta-testing route, it's best to start with a small group of alpha testers (perhaps employees of your company, or a few fellow developers) and then move on to a larger group of beta testers.

Through alpha- and beta-testing functionality, Google Play Developer Console lets you test two different versions of your app at the same time in addition to your production version.

App Development Tips

Abide by design best practices
Follow the Android training guides and iOS design resources to conform to the platform's latest design best practices.

Build your app for multiple devices. Use different layout files for phones and tablets and take advantage of the additional screen real estate.

Storing Application Data
Figure out what your data storage needs are, and select the appropriate data storage mechanism.

Consider using an external server so you can build a single backend.

For scalability, use an IaaS or PaaS solution.

Snapchat uploads hundreds of millions of photos daily using Google App Engine.

Minimize permissions usage
Only ask for permissions that are necessary for your app

Don't use Device IMEI to define a unique user - use the Advertising ID if you're only using this ID for advertising.

Perform extensive testing
Test on array of devices and OS versions

Consider having a beta program prior to a full launch

Check your app's comments to help guide future development

Increase app engagement and installs with Google+

Over-the-air installs
If you have a website, when users sign in with Google, they can be prompted to download your app directly to their Android device. Set up is easy: you simply register your project and app clients via the Google APIs Console to link your mobile app to your web application.

Over-the-Air Installs provides an effective growth vector on Android. When a user signs in with Google, we detect eligibility (own an Android device + don't yet have your app), and then bring up the Google Play screen. On average, 40% of users download the app during registration.

Google+ Sign-In
Are you seeking an easier way to grow users with hassle-free, one-click sign-in? Google+ Sign-In is a simple, trusted way to let people sign in with their Google credentials.

With minimal effort, you can add a trusted registration system that's familiar to users and consistent across devices. Google+ Sign-In lets users skip high drop-off registration forms and avoid having to remember yet another username and password. This makes registration faster and more secure, and reduces support costs for forgotten usernames and passwords, and you don't need to build your own authentication system.

Learn how music app Songza grew their user base with Google+ Sign-In in this case study.

CASE STUDY

Songza and Google+ Sign-In

A trusted sign-in option lets Songza users discover the right music

Songza is a music app that streams just the right music at just the right time. Whether working, relaxing, or at the gym, Songza users hear an expertly-curated playlist that fits the moment. By enabling Google+ Sign-In, Songza increased their registered users across all platforms.

Increased registrations across all platforms
Since launching Google+ Sign-In, daily registrations have increased across all platforms and sign in options. Google has quickly become the most popular sign-in option for Songza users on Android, with 40% of users choosing Google. Google+ Sign-In also helps increase Android distribution. 37% of web users opt-in to instantly over-the-air install the app on their devices, leading to an improved, consistent experience across mobile and desktop.

Listening to the right music at the right time is now easier
Google offers people a simple and secure way to register with Songza by authenticating with their Google credentials. Songza has added app activities into Google Search results, so people can see the most popular playlists being listened to by Google users on Songza. Surfacing interesting, popular content from Songza in Google Search provides more opportunities for new users to discover the service.

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Implementing Google+ Sign-In has significantly grown Songza's user base and has enabled easy discovery of popular app activity in Google Search.

ELIAS ROMAN
Co-Founder & CEO, Songza

Making money from your app

What are the different ways to make money from your app? Here we explore different business models and new ways that app developers are solving the problem.

Evolving trends in monetization

The Google Play Store amassed 50 billion downloads by mid 2013, a mere five years after the first Android app was downloaded.[18] That's been driven by the wide choice of useful and entertaining apps, but also the diversity in how apps are priced. How apps earn money now versus only a year ago has changed considerably, and these trends should influence your monetization strategy.

The rise of free apps

It's telling that the top ten grossing apps across both major app stores are free. Users have embraced free apps, and Gartner reported that 89% of all apps downloaded in 2012 were free.[19] AppBrain's analysis of the Play Store indicates that 82% of apps are free out of the 860,000 apps available.[20]

Growth of in-app purchases

This type of monetization is forecast to account for 64% of app revenue by 2015.[21] AdMob surveyed game-playing smartphone users, to ask them what percentage of their recent spend on gaming apps could be attributed to in-app purchases. Respondents in the US indicated that up to 89% of their gaming spend was on in-app purchases, and the other markets surveyed were at a comparable level.

Ways to monetize

How you monetize depends on the type of content you're offering and how users engage with it. We recommend that you think about monetization as you're creating your app, not as something you plan to figure out later on. You'll want to come up with a solution that's right for you and makes sense to your users. We've outlined the different monetization options below; you don't need to settle on one, consider mixing and matching business models to meet the needs of different users of your app.

Tuyen Nguyen, Mobile Developer Advocate at Google, believes developers need to be flexible in their approach to monetization: "Developers should evaluate frequency of use and potential download volume. For example, if they build a utility app that users open once a week, then ads may not provide the highest monetization opportunity. However, if your app experiences high usage frequency, then ads can provide great revenue potential, since revenue tends to grow as impressions increase. Developers will have to weigh the opportunity cost of an upfront payment (paid downloads) against future revenue opportunity that comes with monetization models such as in-app purchase, freemium or ads. It's important to remember that monetization models can be complementary, rather than competing, if employed correctly."

Paid apps

One of the first apps available on the Apple App Store was offered for sale for $999.99 and[22] unsurprisingly, there were not many takers. Today, even really good apps priced at $0.99 can meet resistance from consumers; as evidenced by the rise of free apps.

AdMob surveyed mobile apps users in the US, UK, Japan, South Korea and China, asking if they would be willing to pay for an app. In all markets except China, the majority of respondents said they only download free apps.

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It's important to remember that monetization models can be complementary, rather than competing, if employed correctly.

TUYEN NGUYEN
Mobile Developer Advocate, Google

But that's not to say paid apps are dead as a business model. In fact, downloads of paid apps are forecast to grow to 21.6BN by 2017, from 8.1BN today,[23] as more people switch to smartphones and quench their thirst for all types of apps. Users will pay for quality apps that solve a problem or provide their device with enhanced features. For example, the utility app, SwiftKey, is an easy-to-use keyboard for Android phones and has earned over a million downloads while priced at $3.99. While it's possible to find a niche and paying users, don't bet against a competitor offering a similar app at a lower cost, or the cheapest price point possible.

Free to Paid (Freemium)
With this model you offer your app for free, then charge users for advanced features. Users will pay to upgrade their app if the extra features truly add value. For example, the free version of the TuneIn Radio app allows listeners to tune into any radio station in the world, and has garnered more than 50 million downloads. TuneIn Radio Pro is a paid version, and has all the features of the free version as you'd expect, but comes with the added ability to record any of the 70,000 radio stations. The record feature addresses the painpoint of listeners, who no longer have to miss their favorite content. Even when priced above $6, it's proved compelling enough to earn more than one million downloads.

But a word of caution: when it comes to paying for apps, users don't like surprises. If you're offering a freemium app, make it clear in your app store listing that users who download it will have to pay to access more features or progress through the game. If you don't you'll swiftly receive bad reviews from users complaining they've been hoodwinked, even though the original app download was free.

In-App Purchases
If people don't like paying up front for apps, some don't mind paying for items within apps once they've started to use them. The rise of in-app purchases over the past two years has happened quickly, and it's set to account for more than 40% of app store revenues by 2017, versus the 17.3% it contributes today.[24]

The rise of in-app purchases has gone hand-in-hand with the popularity of gaming apps. Selling virtual currency or items like extra power-ups to enable faster progression through games has been a big hook for users. Toni Fingerroos, developer of the massively successful Hill Climb Racing game, derives a portion of his revenue from in-app purchases: gamers can unlock levels or enhance their racing vehicles either by playing the game and collecting coins, or by purchasing coins.

He considered his approach to monetization carefully. "I thought about it from the very beginning. I thought about adding enhancements that users would have to purchase to advance through the game, but then I thought it'd be better if everything could be free for the user just by being good at the game. Coins for in-app purchases make sense for my users if they want to finish the game quicker."

But Toni warns that you have to strike the right balance between free features and in-app purchases:

"

If you have a free game and choose to limit some features, you won't get as many downloads because users might think they have to buy everything. If they can't play without buying things they will get demotivated and will no longer play with the app.

TONI FINGERROOS
Founder & CEO, Fingersoft

Other challenges include increasing the number of users of your app who are prepared to make in-app purchases. AdMob research shows that it's a minority of users who make those kinds of purchases (see the chart below), so it's likely you'll earn no revenue from most of your user base if you're dependent on this as a single monetization strategy.

Advertising
Ad revenue has been a cornerstone of the app economy for several years, and continues to be both a reliable source of income and an innovative solution for hundreds of thousands of apps. According to Marvin Paul, co-founder of shopping list app Out of Milk, ads are a tried and tested way to earn revenue: "The benefit of banner ads is that it's a mature model and it's understood by developers, advertisers and users. Newer monetization methods can be unproven and sometimes you don't want to be the guinea pig to try someone else's business model."

How you earn from ads
To place ads in your app, you sign up with an ad network, such as AdMob, install the SDK and choose where you want to place your ads. All ad networks have policies about what types of apps are allowed to show ads and where ads can be placed in order to maintain the quality of the network. You earn revenue when users click or view your ads, and developers are compensated on a cost-per-click (CPC), cost-per-thousand impressions basis (CPM) or other variations such as cost-per-install (CPI). You earn a cut of the revenue based on how much the advertiser is prepared to pay for the click, impression or install, and the ad network earns commission.

To be successful with advertising, your app should have a significant number of users and high engagement, to increase the chances of clicks on the ads.

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The benefit of banner ads is that it's a mature model and it's understood by developers, advertisers and users. Newer monetization methods can be unproven and sometimes you don't want to be the guinea pig to try someone else's business model.

MARVIN PAUL
Co-Founder Capigami,Out Of Milk

Ads help maximize your revenue

A distinct advantage of advertising is that it can be used in conjunction with other business models. For example, it can be complementary to in-app purchases where only a small percentage of users actually make a purchase. You can earn money from the rest of your users by showing them ads. Many developers want to 'protect' their loyal in-app purchase users by not showing them ads. This can be achieved by segmenting users into groups of those who you want to see ads and those who you don't. Your ad network can then serve ads to the first group to help you maximize your app's revenue.

New ad formats push boundaries

Another benefit is that ad networks tend to innovate quickly, driven in part by the need to fast improve the experience of in-app advertising. The app ecosystem exploded so quickly that in the early days of app monetization ad brokers simply took ad formats available on desktop and shoehorned them into apps. Typically this meant squeezing a larger banner ad into a 320x50 ad slot and hoping for the best (chiefly that the user didn't have to squint too much to read it). When users rotated their devices, the apps would flip from horizontal to vertical or vice versa, but the ads stayed the same size. AdMob launched a new format to solve this called Smart Banners which automatically resize to fit the width of the screen no matter the size of the device or orientation.

Aside from this, it took several attempts before ad formats appeared which were better tailored to mobile apps. It's not all that different from say, the migration of print ads to television in the 1940s, as brands simply transferred ad creative from the established medium to the new one, without building a format to suit the medium.[25]

Nowadays, ad networks are creating formats which benefit each part of the ecosystem. One example is AdMob's recent introduction of skippable video ad formats on apps, known as TrueView. With this format, a developer chooses a point in their app where the user is shown a video ad. This can be at a natural break in the game, such as between levels. Users watch the first 5 seconds of the ad, then a button appears giving them the chance to skip the ad and go back to whatever they were doing in the app. The format works well: users only watch what they want; advertisers get the satisfaction that a user watched the ad because they were engaged; and, developers earn significant revenue while offering users a less obtrusive experience.

Another example is how ad networks are moving beyond the traditional small banner. Interstitial formats create full-screen, immersive experiences during breaks in the app. They provide a larger canvas for advertisers to convey their message to users, and often yield good returns. Because of that, CPMs for interstitials tend to be higher than regular banner ads. In South Korea, the founder of Raon Games, Park Young Ok, added cost-per-click interstitials from AdMob to his Bouncy Ball app.

> After some consideration, I implemented cost-per-click full screen ads, which has significantly increased my revenue. To protect the user experience, the full screen ads only display after a user has cleared 10 stages of the game. Despite the limited implementation, revenue increased around 30%, which has allowed me to continue to update the app and develop new content.

PARK YOUNG
Founder of Raon Games, Bouncy Ball

How to choose an ad network

When evaluating ad networks, consider the value they provide beyond eCPM; an equally important key metric to focus on is fill rate. An essential metric to use when comparing ad networks is to multiply eCPM by the fill rate, to give you the actual revenue earned per thousand ad requests. For example, let's say you are comparing two ad networks, A and B.

	eCPM	Fill rate	Revenue per thousand ad request
Network A	$1.00	90%	$1.00 x 90% = $0.90
Network B	$3.00	25%	$3.00 x 25% = $0.75

Notice that eCPMs of Network B are three times higher than Network A. However, because Network A has a higher fill rate, you would actually earn more revenue from this network despite it having a lower eCPM.

Ad mediation

Mediation is a technology which helps an app developer to maximize the number of ads showing in their app, and thereby earn more revenue. One of the most important metrics an app developer should track in their app is fill rate, which is the percentage of ad requests that are filled with ads. In an ideal world, an app developer's fill rate is 100%, meaning that an ad is displayed to a user every time they generate an impression. The more ads users see the more likely they are to click and earn you money.

So how does this relate to ad mediation? Simply put, there aren't many ad networks capable of providing app developers with a 100% fill rate. That's because they don't have enough supply to meet the demand. In other words they may not have enough advertisers running ad campaigns (or spending in large enough amounts) to show an ad for each impression your app serves. Enter ad mediation which enables you to show ads from multiple ad networks in your app, to immediately increase supply. There are several ad mediation services available, including AdMob's which is free, and plugs into many networks. To make it work you set up ad mediation for your app, add the relevant ad network SDKs, then sort them by order of priority to serve ads to your app. You'd start perhaps with the network offering the highest CPM, then the next highest and so on.

RECOMMENDATION

Aiming to sell your ad space directly to advertisers? If you want to sell your ad inventory directly to advertisers, an ad server, such as DFP Small Business, can help. An ad server will allow you to sell, schedule, deliver, and measure all of your advertising from a single dashboard. You can manage multiple ad networks using DFP too.

An ad server will also be able to forecast how many ad impressions you can sell based on the projected traffic to your application so you can accurately project and reserve your sales.

Choose an ad mediation tool that offers yield management

The most useful ad mediation tools provide yield management, which is a way to show the highest paying ad for each impression you get in your app.

AdMob's Ad Network Optimization evaluates the CPM of each network in your mediation stack, and dynam-

ically reorders them so the network with the highest CPM serves an ad to your app. Once set up, AdMob continually obtains the freshest possible CPM value from each ad network and compares them. In addition, you can enable the AdMob network to bid alongside other networks on a per-impression basis.

Subscriptions
Subscriptions are another form of app revenue that can be appealing to developers, but again this model is highly dependent on the type of app you have and the value users see in it. Users subscribe to pay a regular amount (usually monthly) for new features, content, or just to keep using the app. There tend to be three different types of subscription-based apps:

Apps offering truly original content that can't be found anywhere else (think comedy, art).

Apps with a unique voice that users identify with - such as a magazine or newspaper - that fosters a great affinity with the brand.

Apps that provide an ongoing service that represents good value and becomes integral to the user's lifestyle (think music streaming apps).

Either way, it's common for subscription-based apps to offer a free trial, or at minimum a reduced introductory rate. People need to fall in love with your app in order to make an ongoing commitment! As soon as users feel they can find similar content elsewhere at a lower cost, or they lose reason to engage with the app on a regular basis, then the subscription model can fail. AdMob research shows that 41% of smartphone users in China and South Korea stopped using an app because they found a better one.[26]

Reward-based advertising
Reward-based monetization has emerged recently as an attractive option for app developers, because it creates benefits for all stakeholders in the app ecosystem. The basics of this model entails a developer setting goals within their app for a user to complete (for example, reach level 10 of a game or amass 1000 points). When the goal is achieved the user can earn some form of reward provided by a sponsor, for example $1 off coupon for a grocery item.

It compliments the ecosystem because developers can integrate a form of advertising which encourages the user to progress through the game to earn more rewards; advertisers provide something of value to the user and the offers can be tracked when redeemed; and finally users earn rewards for doing something they enjoy. Companies such as Lootsie and Kiip are proponents of reward-based advertising in apps.

CASE STUDY

Samurai Defender

How app developer Link Kit combined in-app purchases and ad delivery in their Samurai Defender game.

An important decision for any app developer is 'Which monetization method should I use?'. There are several methods, including paid apps, in-app purchases and ads,but they don't need to be mutually exclusive. We spoke with Keiji Takeuchi,representative director of Link Kit in Japan, about their Samurai Defender appwhich contains both in-app payments and ad delivery in a single app.

Worldwide distribution
Keiji Takeuchi, Link Kit
"I founded Link Kit in February 2011. We mainly develop software for smartphones. Samurai Defender is a genre game in the style of Tower Defence, where you defend a tower against an enemy attack using bows and arrows. The

iOS version was released in March 2013, with the Android version following in May. As of September 2013 we've reached a total of 600,000 downloads."

Tatsuo Sakamoto, AdMob
"Although it's a samurai theme, is Samurai Defenderbeing distributed outside of Japan? "

Takeuchi
"Yes, worldwide distribution started in June 2013. The highest downloads outside Japan are in Vietnam and Taiwan, and we're currently focusing on China. Although there's a high Android platform share in China, there's no Google Play, so instead there are hundreds of local app stores, which makes it difficult to penetrate."

Sakamoto
"Hundreds, really? That's a challenge."

Takeuchi
"In practice, if we could cover 10 app stores that would get us access to over 70% of users. But it changes rapidly so it's difficult to keep up. Naturally there's a risk associated with doing business without knowing the local situation. That's why we have local partners, who we rely on primarily to provide user support. We don't actually meet with these local partners; everything is done via email. We'll get to this later, but we initially managed to meet up at the recent Tokyo Game Show."

"

Casual game developers who monetize using ads might be anxious about billing development. You have to incorporate a system into the game which makes users want to make a purchase, and that can seem challenging.

KEIJI TAKEUCHI
Founder, Link kit

Sakamoto
"So you're working with partners you haven't met! It must take somecourage to work with partners from another country just using email and withoutmeeting. What do you look for in a partner other than the size of the organization?"

Takeuchi
"We don't work with large organizations but with those that are still small. We like to find partners who have the same enthusiasm as we do. We work to instill high motivation in our partners by setting up a scheme where success benefits both sides. App Monetization"

Sakamoto
"Samurai Defender uses both in-app purchases and ads as monetizationmethods. Do you feel that in-app purchases are something of an obstacle for manycasual game developers?"

Takeuchi
"They can be. In-app purchases can provide great returns if implemented well, but if the game isn't designed correctly nobody will be buying."

Sakamoto

"What proportion of Samurai Defender users make in-app purchases?"

Takeuchi

"Almost 10% of users make in-app purchases in Japan, and almost 5% overseas. But in terms of income, ads bring in much more than in-app purchases; in-app purchases are only around 15% to 30% of income. If we had to choose between in-app purchases or ads, we'd have a pretty big lost opportunity."

Sakamoto

"If combining in-app purchases and ads becomes the norm, it looks like that would help app developers to improve monetization. But of course many developers feel they have to choose between in-app purchases or ads. What do you think is the biggest hurdle?"

Takeuchi

"Casual game developers who monetize using ads might be anxious about billing development. You have to incorporate a system into the game which makes users want to make a purchase, and that can seem challenging."

Sakamoto

"To what extent do you think users are annoyed by ads? Do ads have a negative effect on income from in-app purchases, for example, by reducing the number of users willing to make an in-app purchase?"

Takeuchi

"I honestly don't think there is any negative effect. We show ads to all users and see no negative impact on in-app purchase revenue. Firstly, we don't display banner ads while a game is in play. Also, click-through rates (CTR) are not that high, so I don't think we're experiencing many accidental clicks. In the end, we have to ensure that the game is the main element and the ads are secondary, and ensure the user experience isn't affected. As a company we work for genuine positive income. As well as banner ads, we incorporate offer wall ads.* Of course these add to our income stream, but they also widen the options available to users. They provide a way for those users who won't pay under any circumstances to get access to items. We're always looking for new ways such as this to monetize without being reliant on users making lots of payments."

Best practice

AdMob research shows the majority of mobile app users prefer banner ads to be placed at the top of the screen, or between activities.

Marketing your app

In this chapter we cover the major ways you can attract more users and when to use a particular tactic.

The life cycle of an app
Let's get the ego thing out of the way: you built your app to be used. You built your app for thousands - no - millions of users, and it won't improve the world, or your bank balance, if you're the only one using it. But your chances of going from tens of downloads to millions can be improved by having a marketing plan. Thinking about the life cycle of an app can be an effective way to create a plan because you can match certain tactics to phases of the app. As an example, we've outlined six different phases of an app's lifecycle and tactics relevant to those stages.

Phase 1: Concepting
At this stage your app is conceptual and you haven't written a single line of code or even have a name for your app, so how can you market it? In the concept stage you're marketing yourself and your ability, not necessarily your app.

Crowdfunding: If your app needs funding then a crowdfunding platform (see Chapter 2) is a good way to validate your idea and source income. When you post your app on a crowdfunding site, you're in effect posting your first ad. You're announcing to the world what it is you want to build and why it's a good idea, but really you're promoting yourself. View websites like AppStori and Appbackr for crowdfunding examples.

Building a website and social network presence: Even without a working app, you can still begin to establish your brand through a simple website and build your community on social networks, like Google+. Whether your crowdfunding appeal is successful or not, you've still exposed your idea to interested people who may become testers or paying users later on. So set up a way for these people to follow your story and begin to build a community. Grand Cru is a development company based in Finland that focuses on mobile and social games. Prior to the launch of their debut game, Supernauts, they created an online presence with their website and also created a social network page to build excitement.

Phase 2: Testing
By now, the alpha version of your app is in the hands of a few trusted testers. You're ironing out the kinks and adapting your app to early user feedback. At this point, focus on getting the basics right.

Name your app. You might not consider your app's name to be a part of your marketing strategy, but get it wrong at your peril. If you choose a name that doesn't resonate with users, is too hard to pronounce or is misleading then your app may flounder. Check out Dan Rose's article, 'Top 10 Tips for Naming Your App', on the Creative Bloq website for some excellent advice.

Marvin Paul, co-founder of Out of Milk, knew that a good name was important to their overall strategy. *"For me, the name is very important. I feel lucky that we came up with the name 'Out of Milk'. Before I start any project I need a name for it. So for this app I posted a message to my friends asking for name suggestions for a shopping list app, and people gave me some ideas. The final name didn't come about through that, but it was a good process and helped us eliminate some ideas. Eventually, we chose a well-known expression."*

Design your app icon. Your app icon may be small, but it does so much. It serves as a key visual element on your app store listing page to draw users in; it captures what your app is about in a single image, and it serves as the button that will get tapped countless number of times each day by users to open up your app. A good

designer can help you realize what you want to communicate with your icon. Or, you can do it yourself, which is what Szymon Klimaszewski, creator of the Blood Pressure app did. The logo for his app looks good and conveys the purpose of the app. *"Having a good app icon is very important. Fortunately I'm familiar with Maya, a 3D software design package, Photoshop and Gimp because of my interest in graphics. That gave me a knowledge base to create a logo myself. I had the idea of a heart icon, and I wanted to connect this idea with blood pressure, and the idea of an ECG graph. So the icon was designed and became my logo."*

AdMob research shows that 54% of smartphone users in China think an attractive app icon and logo is an important part of the overall app experience, and users in other markets agreed.

Tell friends and family. During this phase you can establish beta testing groups among friends and family. Consider them to be your inner circle of testers, but keep them engaged and empowered by listening to their feedback. Create simple surveys using tools like Google Spreadsheets to collect their thoughts in a structured way. You may want to cast a wider net and solicit testers via social networks.

Phase 3: Launching
The day has come, your app has launched and it's available for download by users other than your friends. You await eagerly the world's reckoning.

Create an excellent app store listing. By now, you'll have an app store listing, and getting this page right will be critical to your success because it's your global shop window. Here are some pointers:

Invest in high-quality screenshots. Many users view screenshots before downloading an app to see what they're getting. Make sure the screenshots in your listing give the user a good overview of the major app screens, or have them 'tell the story' of your app. And be authentic; make sure they're accurate and up to date. PicsArt has great visuals on their listings page.

Invest in a video. As users browse through an app store deciding which app to download, it's useful to have as much information about the app as possible. Videos are an excellent way to show a user the app's functionality, especially for paid apps.

INTERVIEW

Sylvain Gauchet

Is a co-founder of Apptamin, which specializes in creating videos for apps.

"Video is one part of the marketing puzzle but it's an important one because next to trying an app, it's the best way for a user to know what an app is about and explain its value."

"Different apps require different types of video. For instance, videos for games should show the gameplay. For other apps it's good to explain the use case and show how the user will be using it in situ. Ideally videos should be between 30 to 60 seconds long."

"

"Videos can have multiple uses. Once you have a video you can put it on the Play Store of course, but you can also add it to your website. You can also create a shorter version for use in mobile video ads."

SYLVAIN GAUCHET
Co-Founder, Apptamin

"Also, a video is a good way to engage journalists and bloggers. These people receive many press releases for apps but won't be able to download each app to try. Including a video link gives them a taste of the app and encourages them to download it so they can review it in full."

But remember, *"Having a good video won't fix a bad app, so make sure your product is good."*

We like Vyclone's clever video, which serves to promote the app but also doubles up as a demonstration of what the app does!

Write good copy and choose good keywords. Browsing the app stores is the most common way that users discover new apps, according to AdMob research. In our survey, on average 25% of users found new apps in that way, followed by recommendations from friends and family, at slightly over 18%.[27]

So writing a good title and description in your listing, and choosing relevant keywords, can be essential to help drive discovery of your app.

There are many app listing pages which are poorly written, so keep in mind these tips when writing your listing:

Write for your audience. For example, if your app is an educational tool for kids (such as Splash Math), call out the benefits to the parents.

Don't make it hard for users to understand what the app does. State its purpose up front and include 2-3 of the app's killer features.

Highlight great reviews and testimonials, from either users or the press if you have them. Vyclone does a good job of this.

Be clear about its limitations. The description for the Blood Pressure app, for instance, makes it clear that users still need a blood pressure monitor to use the app.

Use house ads and cross promotion. If you have a portfolio of apps with existing users already, why not give your app a shot in the arm at launch by using house ads? These are ad units which help you cross-promote your new app to users of your other established apps. When it comes to set-up, manually placing these ads in your apps would be time consuming, so many developers choose an ad network to handle the ad serving. Ad-Mob offers a free house ad service, and has a simple process for creating house ad campaigns. You can refine the targeting settings of the campaign to reach the right audience (such as showing ads to users in certain countries, or even targeting ads based on demographic criteria). When you choose an ad network look for those options as they'll help you achieve better results.

> "

Paid user acquisition is an important pillar for any consumer business looking to win in mobile. Depending on your strategy and goals, using in-app campaigns to drive the first wave of downloads can be a good place to start.

ZUBAIR JANDALI
Head of App Developer Ad Sales,Google

With AdMob, you can combine house ads with mediation (see Chapter 4) to take advantage of every impression in your app. This is useful when the networks in your mediation stack can't fill an ad request. Instead of an empty ad slot, you can show ads from your house ad campaign instead to promote your other apps. This can help you attain new users at no cost.

App development company Fingersoft had a lot of success promoting their Hill Climb Racing game with house ads. It wasn't their first app: other apps, created in 2011 and 2012, such as 'Cartoon Camera,' and 'Night Vision Camera' already had users, so it made sense to cross-promote and leverage that user base.[28]

Try peer-to-peer distribution. There are two major ways that peer-to-peer distribution can help you acquire many new users. First, it's a method of marketing where you partner with other developers to advertise your app on their apps. Developers you seek out for this purpose may have a good-sized portfolio of apps, or maybe a handful of really popular ones, but the point is they have a much larger volume of users than you that they can leverage. So why not seek out friendly developers open to doing a deal with you? As you reach out, be prepared to bargain because these types of deals are unlikely to be free. In many cases the distributing developer will want a share of your app's revenue.

Second, a more formal version of peer-to-peer distribution is when the larger party publishes the app on behalf of the smaller party. It's a chance for you to piggyback on others' success and it's been proven to work well. Some large developers, Rovio for example, launched their Stars program recently which is designed to help app developers with distribution (Rovio has a user base numbering more than 100 million across their games). Kalle Kaivola, Senior Vice President of Product & Publishing at Rovio Entertainment, explains some of the benefits: "We have a lot to offer to the developers in terms of helping them put the finishing touches to the project. Under Rovio Stars we do a bit more than a traditional publisher does in helping with the game project, things such as lending our expertise in QA and marketing."[29]

Leverage social media and blogs. If you maintain a blog, or are active across several social media channels, then time your launch announcements in a coordinated way to maximize the impact. And don't desert your followers. If you start using social networks then post regular updates; it's the only way you'll maintain a following.

Granted, not everyone has time to manage a social network. So another tactic is to let your users do your social marketing for you. If you have a great app then users will tell their friends about it. You can enable these conversations by adding social features to your app. We like how social sharing has been integrated into the Hill Climb Racing game. After you crash your car, the app generates a screenshot which you can post to your social networks along with your score.

Phase 4: Accelerating

The stage where your app gains traction and acquires many more users, i.e. the tipping point, is likely to be one of the most critical. If you reach this point you may find many new marketing opportunities coming your way.

Featuring on the app stores. To many developers this is the holy grail of free app marketing; a prominent position on an app store's front page, or at least on a category page, can significantly boost your number of users in a short space of time. For example, the messenger app Cubie was featured on the Google Play Store's frontpage for nine days, and according to their business development manager, James Hill, it had a huge effect, "Before we got on Google Play, our total downloads across iOS and Android were averaging between 15,000 to 20,000 per day. After being featured on Google Play, we were getting over 50,000 downloads per day on Android alone."[30]

So what's the catch? You can't choose to be featured on Google Play, the Play Store's editorial team picks you. However, you can improve your chances by building a great app which adheres to Android design best practices and also has a great rating from users. To learn more about featuring, read this overview on the Android Developer website.

Respond to user feedback and fix bugs quickly. While fixing bugs may not sound like a classic marketing tactic, it can directly impact your rating and hence downloads. During this phase of acceleration your users will surprise you by discovering new bugs, and frustrated users can be unforgiving in their reviews and give your app a low rating. But users are equally vocal and delighted when you fix the problem and you can end up with five-star reviews like this one for the Splash Math app: "Yay! The latest update has apparently resolved the issue with 4.3. The developer does care, and is listening."

License your app to a publishing house. As your app takes off you may suddenly have more work than you bargained for. You might have support issues to contend with (emails from users), as well as thinking about new ways to improve your app. That can leave you with little time to build an app for another platform, so licensing your app to a publishing house is an option. In this scenario you negotiate a deal with a publisher, whereby they pay you a licensing fee for a period of time to build, publish and promote your app. They earn a share of the profits from your app until the agreement expires.

Phase 5: Leveling

You've achieved a steady number of users but growth has plateaued.

Run paid in-app ad campaigns. You can pay to advertise your app inside other apps, which is known as in-app advertising. It can be a very effective way to grow your user base because you're addressing a highly engaged audience. In other words, app users who are exposed to ads in apps are often willing to try new apps, and gratification is instant (courtesy of the app download). AdMob research shows that more than a quarter of smartphone users in the US and UK feel comfortable with in-app ads which promote games or apps similar to ones they already use.[31]

Costs for paid ad campaigns can be easier to manage once you have a reasonably-sized user base, and you understand more about how users are engaging with your app. One of the first mistakes an app developer makes when running a paid ad campaign is paying too much or too little for users. Once you have users, and you're collecting data on how much money you're making from your app, you can calculate your average revenue per user (ARPU) or even daily average revenue per user (DARPU) if you need it. This gives you a good guide for what a user is worth to you and can help you with your ads bidding strategy.

> Each of your users earns you $10.

> The average cost per click of your campaign is $0.10 and your number of clicks is 5000, so the cost of your campaign is $500.

> Your campaign has driven 100 installs.

Your cost per install (the cost of your campaign / number of installs) is $5.

You know that each conversion, although costing you $5, gives you a great chance of earning $10 from each user!

Remember, downloads don't always equal customers and revenue. You'll want to track the effectiveness of each marketing channel where your ads are placed, since some may provide better users (more loyal ones, or higher spenders) than others.

How to Optimize Paid Ad Campaigns

Experiment with multiple ads. Most ad networks give you the option of running multiple ads for free. So when you create your campaign don't settle for one text ad, try two or three, each with a different message and let the one that generates the most downloads be the one you use most frequently. With AdMob it's easy to edit your ads on the fly to keep your ad copy competitive and current.

Try the Conversion Optimizer. The Conversion Optimizer is a free tool in AdMob that helps you maximize the return on your investment. You set a target cost per acquisition (e.g. say you're willing to pay $1 for each install), and the Conversion Optimizer will automatically adjust your campaign to serve ads to users who are most likely to click on the ad and install your app. Games developer GREE saw a 150% improvement in their app download rate when they used the tool.

Know the value of different channels. If you chose to run ads across different networks, you're likely to see a range of results with some performing better than others. Actively manage each channel so you know which are costing more than others.

Track conversions. Install conversion tracking into your app so you know which ads are driving installs. You can learn more about this topic with this article from the AdMob Help Center and can track conversions across Android and iOS.

Use remarketing to boost engagement and revenue. Let's say you've got fifty thousand users of your gaming app. Half are 7-day active users who spend a lot in your app, the rest are 30-day active users who don't spend much at all. If you could get the 30-day actives to play the game more often they'd become more engrossed in the narrative and would increase their spending. But how do you bring users back to your app? Remarketing lets you target users of your app with ad messages as they engage with other apps. This prompts them to return to your app, and you can incentivize their return with special offers or promotions.

Phase 6: Declining

In this stage, your users are engaging with the app less frequently and the number of downloads is dropping. AdMob research shows that the number one reason for someone to stop using an app is simply because they lose interest, as the chart below illustrates.

Use this time to migrate your users to your new apps using the methods from the other phases we mention in this chapter, such as house ads, remarketing and social media.

Going global: unlocking the secrets of app localization

Localizing your app can unlock lucrative opportunities to reach more users: here we explain why you should do it and how. Insights from AdMob's survey of app consumers in major markets help you make informed decisions about building, monetizing and promoting your app.

Why localize?
The global opportunity created by the app economy is amazing. As a developer you create your app, make it available in an app store, and within one day it's possible to have customers from every corner of the world.

With smartphone penetration growing globally, it's no longer sufficient to provide your app in only one language if you hope to retain users.[32]

"

Don't underestimate the importance of localization. You can lose over a third of users in all markets if you neglect cultural and language differences.

MICHAEL SCHIPPER
Product Marketing Manager, AdMob

Localizing your app means more than adapting the user-interface language, it's about being culturally sensitive too. App developer, RV App Studios, created the popular Zombie Ragdoll game in twenty languages. They immediately began seeing significant usage in countries where they hadn't seen much traction before. Part of their success comes not only from localizing text within a game, but also localizing game features to specific countries and cultures. Vivek Dave, founder of RV App Studios emphasizes this point, "Users want a personalized experience, and by offering a localized game with translation of text and graphic assets, we believe users will connect at a much deeper level with the game."[33]

In an effort to better understand consumer app behavior, perceptions, and preferences, AdMob conducted a new survey across five major markets: China; South Korea; Japan; the United States, and the United Kingdom. The study provides you with data and analysis to help you optimize your design, marketing, and monetization of your app. Key insights from cross-country comparisons can help you understand adjustments you could make for consumers in different markets.

Though users in all surveyed markets have experienced poor localization, app users in Asian markets are much more likely to feel the pain. A staggering 53% of Chinese respondents and over a third of Japanese and South Korean users have felt the app they were using was poorly adapted to their needs. Approximately 25-30% of users discontinued app usage as a result. Even for an app that was good quality, over 10% of users in China and Japan responded that they would stop using the app due to poor localization. If your goal is to distribute to a worldwide audience, we strongly encourage you to localize.

"

Don't underestimate the importance of localization.
You can lose over a third of users in all markets if you neglect cultural and language differences.

MICHAEL SCHIPPER
Product Marketing Manager, AdMob

Tools Help localizing

Google Translate. For simple words or phrases, Google Translate is a quick and free option. It's ideal for apps that contain a small amount of text and covers many languages.

Google App Translation Service. Purchase professional translations through Google Play's Developer Console.

This new service has a list of pre-selected vendors who've been vetted by Google to provide high-quality translation services at competitive prices.

Founder Pieter Olivier of G4A Indian Rummy says, "When we heard that the App Translation Service was available in the Developer Console, we jumped at the opportunity. We've now been using the App Translation Service for several months and found that the cost per translation is much lower than with local companies and the process is much easier." G4A Indian Rummy saw a 300% increase in user engagement after localizing apps in specific countries where the game was popular, but not in the country's native language.

Find the App Translation Service in the Google Play Developer Console. You can start a new translation or manage an existing translation here.

ICanLocalize. Toni Fingerroos, founder and CEO of Fingersoft, uses this paid service when translating his games. "Most of our game interface is simple enough that you can understand the controls and gameplay without needing instructions. For things that we do need translations for, we use a service called ICanLocalize."

CrowdIn. One low-cost option is CrowdIn, which users crowdsourcing to translate app files. When you create a project you can either make it public so anyone can contribute, or it can be private and you invite selected translators. There are more than over 100 languages to choose from, and thanks to CrowdIn, Minecraft is almost fully translated into Klingon.

Build better apps with these essential insights into mobile app consumer behavior

AdMob surveyed a thousand daily mobile app consumers in markets with high app downloads. Click on a country to view the insights.

Build better apps with these essential insights into mobile app consumer behavior
AdMob partnered recently with research company Parks Associates to survey smartphone consumers in the US, UK, China, Japan and South Korea. We had 1000 responses in each market from people who are daily users of mobile apps.

We've divided the survey data by country and key learnings. Each market has five categories for which we've pulled significant statistics from the study and provided recommendations on how to best use these statistics to your advantage.

1. Choosing a Business Model
App users' purchasing trends and downloading habits vary widely among the different markets. Use these recommendations to help guide your monetization strategy.

2. Getting Discovered
It's hard to get noticed when you're first starting out. Here are some ideas that we've compiled based on our study of how users explore and choose apps.

3. Keeping Users Happy
What do users look for in a good app? What keeps them engaged and coming back for more? Follow these tips to create the best app experience for your users.

4. Making Great Games
Find out what qualities and features are most important to gamers in your market, as well as what their in-game purchase habits and trends are.

5. Integrating Ads
What drives ad engagement has always been a tricky question to answer. We've compiled some market-specific suggestions of which ad types provide the best ad experience based on user preferences.

China

Choosing a Business Model

Of the markets surveyed, China is the only one in which the majority of users are willing to pay for apps.
Fact 68% of users budget some amount for app purchasing. However, paid apps are also quickly being pirated. The New York Times reports that digital piracy is widespread in China and that alternative app stores often provide unauthorized knockoffs for download.[34]
Recommendation Experiment with different app monetization models, and don't exclude the paid model. An alternative strategy is to use a freemium model and release new versions of your app frequently to avoid being pirated.

Chinese users are more likely to try freemium apps in comparison to other business models.
Fact 46% of users have upgraded from a free to a paid version of an app. In the 30 days prior to the survey, 72% of gaming app spending was on in-app purchases.
Recommendation Since users are likely to pay for an upgrade of a good free app, be sure that your initial free version is high quality.

Getting Discovered

The strength of a brand is very important to Chinese users.
Fact 80% of respondents in China reported downloading their gaming apps from a major brand or company they knew well before downloading the app.
Recommendation If you're a new developer, consider teaming up with a well-known publisher who can release the app on your behalf.

Chinese users rely most upon search engines to find new apps.
Fact 26% of Chinese users use search engines, versus 14% who browse app stores.
Recommendation Users feel more comfortable searching for brands that they're already familiar with and trust, as a filter through the overabundance of apps and app stores. In addition to working with established publishers, research your local market to find the right stores to reach your app's target audience.

"In practice, if we could cover 10 app stores that would get us access to over 70% of users. But China changes rapidly so it's difficult to keep up. Naturally there's a risk associated with doing business without knowing the local situation. That's why we have local partners, who we rely on primarily to provide user support. We don't actually meet with these local partners; everything is done via email. We work to instill high motivation in our partners by setting up a scheme where success benefits both sides." (Keiji Takeuchi, Representative Director of Link Kit, creators of the popular Samurai Defender game app.)

Keeping Users Happy

Chinese users rank loss of interest and lack of fresh content as their main reasons for discontinuing app use.
Fact 49% of users marked a loss of interest while 41% of users stated stale content as their explanation. It's important to note that app users in China are much more sensitive to lack of fresh content than users in other surveyed markets, such as the US at 19% and Japan at 9%.
Recommendation Adding fresh content on a regular basis is essential for retaining users.

Nearly half of users think that good quality apps have frequent app updates.
Fact 44% of users prefer monthly app updates and 33% prefer weekly updates.
Recommendation Update your app at least monthly to keep users happy.

Making Great Games

Gamers in China are much more likely to spend money on buying virtual goods and personalizing characters and avatars.
Fact 32% of Chinese gamers have spent money on personalizing characters, while 43% will pay to stock up on virtual points and coins.
Recommendation When developing games, providing character personalization and virtual gold as in-app purchase options, could be an incremental monetization strategy.

Chinese gamers report they make in-app purchases with much higher frequency than gamers in other markets, but they spend the least on in-game purchases.
Fact 36% of Chinese gamers spend money to advance gameplay or unlock features on a weekly basis, three times greater than other markets surveyed.
Recommendation In your game, have options of in-game purchases with different price points.

Integrating Ads

Chinese smartphone users are much more likely than others to engage with in-app ads.
Fact 92% of users in these markets will click on ads. In the US this figure is 35%.
Recommendation You should strive to create the best possible ad experience inside an app; where an ad is placed and how it affects gameplay and user experience is important.

South Korea

Choosing a Business Model

South Korean users are likely to participate in freemium monetization models.
Fact 29% of users have upgraded from a free to a paid version of an app.
Recommendation Since users are more likely to pay for an upgrade of a good free app, be sure that your initial free version is high quality.

In-app purchases are the top revenue generator for gaming apps.
Fact South Korean users say that 92% of their total gaming app spending is on in-app purchases.
Recommendation Use an in-app purchase monetization model; even a small number of users making regular in-game purchases can generate a high proportion of your revenue.

Getting Discovered

When looking for a new app, the majority of South Korean users spend some time comparing apps before downloading them.
Fact 61% spend some time on research, while 15% do substantial research before downloading an app.
Recommendation Be aware of your app and brand's reputation by maintaining a good app store description and monitoring user reviews.

Cost is the most important factor in choosing an app for South Korean users (according to 67% of users), but reviews and star ratings, plus family and friend recommendations are important too.
Fact 54% of users say user reviews and star ratings are 'very important', while 20% of respondents rank family and friend recommendations as their number one method of discovering new apps.
Recommendation While the cost of an app is an overarching factor in buying apps, it's important to recognize that users rely heavily on recommendations from others when deciding what app to download. Consider building a reminder into your app to ask users to rate it after use.

Keeping Users Happy

South Korean users rank loss of interest as their main reason for discontinuing app use.
Fact 60% of users marked a loss of interest as their number one reason for discontinuing app use. 42% no longer needed the app and 41% found a better app to use.
Recommendation Update your app often to keep users engaged and prevent user turnover.

Ease of navigation and the ability to personalize an app are important factors for users.
Fact In overall app experience, 44% of users marked easy navigation as 'very important,' and 43% said both app instructions and the ability to personalize the app were 'very important'.
Recommendation Keep apps simple and intuitive, and localize well. If adding extra features, personalization options are the way to go.

South Korean users prefer a high frequency of app updates for the best experience.
Fact 40% of South Korean respondents liked weekly updates for their apps, while 47% of South Korean respondents preferred monthly.

Recommendation Users need fresh content to stay engaged and loyal to an app.

Test out new translation services with native-language speakers and push newly localized apps out as 'beta' versions for user feedback.

Making Great Games

Similar to China, South Korean users are more likely to spend money on personalizing characters in games.
Fact 42% of South Korean gamers have spent money on personalizing characters, monthly.
Recommendation Consider offering character personalization as a feature in the South Korean market to boost your revenue.

Gaming apps are consumers' top priority upon buying a new handset in all markets except China.
Fact In the US, UK and South South Korea, more than 60% of respondents from each market said they downloaded games within a week after getting their smartphone, and it was the top priority. Users in China said finance apps were the most important to download first.
Recommendation Developers should market aggessively to new phone owners to stand a better chance of having their app downloaded.

Integrating Ads

South Korean smartphone users are very likely to engage with in-app ads.
Fact 68% of South Korean users have clicked on ads.
Recommendation You should strive to create the best possible ad experience inside an app. Where an ad is placed and how it affects gameplay and user experience is important.

South Korean users prefer full screen video and in-app ads to be displayed when an app opens.
Fact For nearly all types of apps surveyed (shopping, entertainment, gaming, etc.), nearly 50% of users prefer to see full screen ads when they open their app.
Recommendation If you decide to use full screen ads, display them at the point a user opens the app.

Japan

Choosing a Business Model

The majority of Japanese users are not willing to pay for apps.
Fact 56% of surveyed users reported that they only download free apps.
Recommendation Try using freemium or in-app monetization models.

The option of downloading a free trial of an app is an influential factor in deciding between several apps of the same type.
Fact 33% of users prefer to download apps that have a free trial version.
Recommendation Try using a freemium model to encourage users to download your app.

Getting Discovered

Over two-thirds of users conduct background research before downloading an app.
Fact 14% or users do substantial research on apps before downloading, and 58% spend at least a little time

comparing apps before downloading.

Recommendation Capitalize on app users' habits of conducting some app research before downloading an app. In addition to current search, browse, and app curation features, consider adding premium app review content by outside experts or revealing to shoppers which of their friends use or have reviewed particular apps.

User reviews and ratings, free app trials, and app descriptions in app stores are important factors when deciding between apps.

Fact Japanese users ranked these three factors as 'very important.' 40% of users rely on reviews and ratings, 33% on free trials of the app, and 31% on app descriptions in the app store.

Recommendation Be sure that your app store presence is strong. Provide informative app store descriptions and make it easy for users to leave reviews and ratings.

Keeping Users Happy

Japanese users report the worst experience with app technical support.

Fact 91% of users are not willing to download another app from the same developer after contacting customer support and receiving poor service.

Recommendation Be aware that the care and attention you provide to users facing difficulties with your app is a large determinant of your retention rate.

While cost is the most influential factor in app selection, Japanese users also highly value user reviews and free app trials.

Fact 60% of users say cost is an influential factor, and 40% rely on reviews and star ratings to ultimately select between several apps of the same type.

Recommendation Build a feature into your app that reminds users to review it, and be sure to monitor and respond to reviews when they come in.

RECOMMENDATION

Localize your app store listing and device screenshots since app store browsing is the top discovery method for most markets.

Making Great Games

Japanese gamers are least likely to purchase in-game features.

Fact 63% of respondents report they have never spent money to unlock features or advance gameplay.

Recommendation When developing games for the Japanese markets, consider other monetization methods, such as ads.

However, those gamers who do make in-game purchases at least monthly, spend more than gamers in other markets on those purchases.

Fact In a 30-day span, Japanese gamers reported spending $24.06 on smartphone in-game purchases (and $40.27 on tablet in-game purchases), in comparison with US gamers who spent $10.07 and Chinese gamers who spent $7.81.

Recommendation Cater for gamers in Japan who are willing to spend more for in-game purchases.

Gamers in Japan are much more likely to spend money on personalizing characters and avatars.

Fact 38% of Japanese gamers have spent money on personalizing characters, monthly.

Recommendation When developing games, providing this as an in-app purchase option could be an incremental monetization strategy.

Gaming is the most popular app type when smartphone users in all markets have 30 minutes of spare time.
Fact In Japan, 40% of users said they would play games over other types of apps given this amount of spare time.
Recommendation Users are engaging deeply with mobile app content and this challenges the notion that users only want to play games on their phones for a short amount of time. When developing games, foster engagement by creating multiple levels and storylines.

Integrating Ads

Japanese app users are more likely to prefer banner ads shown on the screen (top or bottom) than in-between app activities.
Fact 62% of users prefer banner ads at the top or bottom of screen during main app activity rather than between activities. Specifically, 32% prefer top of the screen and 30% prefer bottom of the screen.
Recommendation Japanese users prefer to see banner ads when using apps.

Search ads and website display ads are most effective at driving app downloads in Japan.
Fact 22% of users downloaded an app after seeing it as the result of an online search. 20% downloaded apps after seeing them displayed on a website.
Recommendation Prioritize ad spend for search ads, website display ads, and ads placed within similar apps.

United States

Choosing a Business Model

Cost is the most influential factor in app selection in the US.
Fact 76% of users marked cost as a 'very important' factor in deciding between several apps of the same type.
Recommendation US users will decide against downloading even a good app if they feel the cost is too high. Don't rely only on a paid monetization model to build your business.

The majority of US smartphone users only download free apps.
Fact 54% of respondents said that they only download free apps, and only 7% of users "commonly" spend on apps that cost $6.99 or more. Over a third of US smartphone gamers and non-gamers have paid to upgrade an app, either for a game whose free trial has ended, or for an app's free to paid version.
Recommendation Use a freemium business model to make the most out of your monetization strategy.

Getting Discovered

Users are most likely to download an app after seeing an ad for it in another app or on a social network.
Fact 24% of users have downloaded apps after seeing ads in social networks and within other apps.
Recommendation Prioritize ad spending on ads within similar apps and leverage social media where appropriate.

US users prefer to download apps via native/OS app stores.
Fact Three out of the four top app discovery methods involve app stores. 29% of users ranked app store browsing as their number one method. App store search bars and app stores' top app lists followed with 16% and 12%, respectively.
Recommendation Improve your app store presence with informative and clear descriptions, attractive screenshots, and user reviews and ratings.

Keeping Users Happy

US app users are particularly concerned about an app's ease of use.
Fact 72% of users felt that ease of navigating an app and making it quick to open were the two most import-

ant factors in overall app experience.
Recommendation Focus strongly on simple navigation and smooth user experience to create a winning app.

Smartphone users, both gamers and non-gamers, expect frequent app updates.
Fact 43% of users prefer monthly updates, while 25% would like weekly updates.
Recommendation Update frequently to avoid stale content and keep users engaged.

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RECOMMENDATION

Support your users. If you are going global, be aware that you may need to provide technical support to international users in a variety of languages and time zones.

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Making Great Games

Gaming is the most popular app when smartphone users in all markets have 30 minutes of spare time.
Fact In the US, 37% of users said they would play games given this amount of spare time. In comparison, the second highest choice came in at only 17%, for reading books and magazines.
Recommendation Lengthy smartphone gameplay is increasing among users and you can accommodate by adding levels and complexity, or by introducing storytelling elements to your games.

Game design & aesthetic, quality of graphics, and limited ads are the most important qualities to US users.
Fact 53% of users rated quality of graphics as 'very important,' with game design & aesthetic and limited following at 50% and 49%, respectively.
Recommendation Graphics, design, and smart ad placement go hand in hand when creating great apps
Integrating Ads

US smartphone users prefer ads for apps or games similar to the ones they use.
Fact 27% of users preferred this type of targeting over ads based on personal information or online and mobile activities.
Recommendation When setting ad filters for US markets, refine based on this statistic.

US app users are most likely to prefer banner ads between app and game tasks, or activities.
Fact 46% of respondents prefer in-app banner ads between activities over ads at the top or bottom of the screen during gameplay.
Recommendation When choosing placement of ads, keep in mind that US users prefer their ads between activities or levels, which is actually the preference in all markets we surveyed.

United Kingdom

Choosing a Business Model

Gaming is the most popular entertainment app type among UK smartphone users.
Fact 62% of respondents play games at least once a month, more than any other entertainment activity.
Recommendation Games is a lucrative space to consider developing apps for the UK market.

In-game purchases generate the most revenue in total gaming app spending.
Fact 94% of spending in gaming apps have been on in-app purchases.
Recommendation Develop games with in-app purchase options such as unlocking new levels and upgrading from free to premium games.

Getting Discovered

UK smartphone users are most likely to discover new apps by browsing app stores.
Fact 35% of users rank browsing an app store as their number one discovery method. Family and friend recommendations, and specific search queries in the app store search bar come second and third, with 18% and 13%, respectively.
Recommendation Be sure to have attractive screenshots, good descriptions and strong reviews for your app store listing.

When deciding between similar apps, users highly value reviews and ratings, and app store descriptions.
Fact When evaluating apps, 50% of users consider reviews and rating to be 'very important,' while 45% highly value an app's description in the app store in their app selection process.
Recommendation Write app store descriptions in a clear, concise, and compelling way. Be sure to monitor and respond to app reviews in a timely fashion to demonstrate to users that you care about their input.

RECOMMENDATION

Check reviews often and respond if you can! Engagement with users is key to building a strong and loyal fan base.

Keeping Users Happy

UK app users are particularly concerned about an app's ease of use.
Fact UK users prioritized quick to open, easy to navigate, and battery saving as their top three characteristics of a good app.
Recommendation Focus strongly on simple navigation and smooth user experience to create a winning app.

Two-thirds of UK users feel that their customer support experiences have been inadequate.
Fact Only 33% of respondents felt that their app experience was improved as a result of contacting customer support, and only 33% said that they would be more likely to download another app from the same developer as a result of contacting customer service.
Recommendation Invest resources into providing fast and reliable channels for customer support to prevent users who are experiencing issues from submitting low ratings and poor app reviews in app stores.

Making Great Games

Game design & aesthetic, quality of graphics, and limited ads are the most important qualities to UK users
Fact 46% of users rated quality of graphics as 'very important,' with game design & aesthetic and limited ads following at 41% and 48%, respectively.
Recommendation Graphics design and wise ad placement go hand in hand when creating great apps.

UK users engage with multiple types of in-game purchases.
Fact The most popular types of in-game purchases for UK users were unlocking new chapters, upgrading after free trials, buying special bundles of items, and paying to clear difficult levels.
Recommendation When developing your monetization strategy, be sure to include a few of these in-app purchase models for your game.

US gamers spend the least amount of money, in total, on smartphone gaming apps.
Fact Average spending on gaming apps over a 30-day period was $4.53 for US users, compared to $14.03 for South Korean users. This statistic includes paying to download games, in-game purchases, and gaming subscriptions.
Recommendation Since US users spend the least on gaming apps, consider emphasizing ads as your monetization model, keeping in mind that smart ad placement is key.

Integrating Ads

UK smartphone users prefer ads for apps or games similar to the ones they use.
Fact 28% of users preferred this over ads based on personal information or online and mobile activities.
Recommendation For higher ad engagement, avoid the use of demographic information and prioritize ad spending for ads placed within similar apps.

Ads within other apps and social networks, are effective at driving app downloads.
Fact 19% of users have downloaded an app after seeing an ad for it within another app, and 18% after seeing an ad while on a social network.
Recommendation Smart ad placement is key in gaining exposure and downloads. Consider buying ad space within similar apps, advertising on social media, and offering your users the option to display game scores or app reviews in their social network streams.

RECOMMENDATION

Tap into your user base: Small developers that have built strong followings can recruit loyal users to help translate for the app.

Optimizing for Success

Successful apps use data to optimize on their designs after launch. In this chapter, we explore how to optimize your app to reach your goals.

Now that you've built and launched your app to the world, how do you know whether or not it's successful? It can be tempting to focus on the total number of downloads as the sole metric of success, but in doing so you may be missing most of the story. Having a lot of users is great, but if your goal is to monetize via in-app purchases, or to promote the adoption of a specific set of new features, focusing on total downloads won't give you much insight into whether you're achieving those goals, and what you can do next to improve your app.

In this chapter, we'll discuss how to design and implement an analytics and optimization strategy that can give you deeper insight into how your users are engaging with your app, and how you can use that data to optimize your user experience over the long term.

CASE STUDY

Certain Affinity

The Google Mobile App Analytics was pivotal in identifying and influencing pre- and post-release design decisions for Certain Affinity's first mobile title, Age of Booty: Tactics

Background
Certain Affinity is one of the most experienced independent game developers in the industry. Based in Austin, Texas, with more than 80 full-time employees, they have shipped more than a dozen products with combined sales of more than 75 million units. The most notable among those are co-development on the Left 4 Dead, Call of Duty, and Halo franchises. Most recently, Certain Affinity has been working on their first mobile Title, Age of Booty: Tactics. Age of Booty: Tactics is an asynchronous turn based tactics game hybridized with a collectable card game. Certain Affinity wanted a solution enabling them to measure and analyze specific metrics to influence both the pre-release and post-release designs of the game. They researched a number of analytics solutions, but were frequently frustrated by the cost, size, and limited flexibility offered.

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Google Analytics was a vital component of our overall development process. It enabled us to quickly identify areas of needed improvement which would have otherwise limited our potential success once in the market that would not provide the trusted consistency and global reach of AdMob.

PATRICK BERGMAN
Business Development Manager, Certain Affinity

Ramping Up Reporting

Certain Affinity has used Google Analytics for website analytics since 2005, and began talking to mobile partners after becoming aware of Google Analytics' (GA's) application in mobile gaming. Given their existing experience, the relative cost of the platform, and the extensive feature set, Certain Affinity quickly and easily integrated GA into the game. The early inclusion of GA into the design process resulted in easy access to analytics to assist in influencing direction across design, art, and ultimately production.

UI Optimization

Google Analytics provides an intuitive way to understand engagement across multiple screens and events. By leveraging engagement flow and average screen time analytics, Certain Affinity understood when specific areas within the UI were either too complex or buried to drive the desired behavior. They identified that the store-front was overly complex and required significant streamlining to become easily accessible. Additionally, they found that a number of options withinthe menus were too complex and lead to users looping within the UI prior to engaging in an actual game.

Gameplay Duration

Certain Affinity wanted to better understand the average duration of play to optimize the experience on mobile. Given that users tend to spend less time gaming on their mobile devices than in the console space, it was vital to ensure the game was consumable and enjoyable in the "bite sized" engagement window. Certain Affinity leveraged session durations to understand the existing top-level behavior. In analyzing the data, they found that the typical session was over 25% longer in length than was ideal. They tracked events such as turn submission, undo, and return to main menu to identify any behavior that was artificially extending the average duration of play. Certain Affinity then specifically targeted optimization to the areas requiring the most work.

Custom Dimensions

By leveraging Google Analytics Custom Dimensions, Certain Affinity could measure analytics across a number of key metrics in the mobile gaming space including retention, virality, and monetization. While this data was not widely used until launch, the ability to verify collection was instrumental in ensuring a successful soft launch. "The flexibility GA provides is quite amazing. While no analytics provider will ever have everything you need out of the box, it is great to have a solution that allows us to implement our own requirements [through custom variables], so easily!" explains Certain Affinity's Lead Server Engineer.

The Power of Data

Since Certain Affinity began leveraging Google Analytics, there was a shift in how they develop and implement within their studio. Development is no longer a strictly qualitative process, but is supported and elevated through the use of analytics and data on a daily basis. Reporting is streamlined due to the increased simplicity, fidelity, and accessibility that Google Analytics provides.

About Google Analytics

Google Analytics is the enterprise-class analytics solution that gives companies rich insights into their digital audiences and marketing effectiveness. With features that are powerful, flexible, and easy-to-use, companies large and small can measure engagement to create more effective marketing initiatives, improve user experience, and optimize their digital strategies. Sophisticated conversion attribution and experimentation tools help savvy marketers determine the best allocation of media and resources to drive results. For more information, visit google.com/analytics.

Certain Affinity At a glance

Goals:
Leverage analytics to help inform games design and optimize monetization

Quantify and improve overall retention, monetization, and virality of Age of Booty: Tactics

Provide timely cadence of analytics driven feedback to influence development and live team

Approach:
Establish data driven decisions as a key pillar of the design process starting in pre-production

Integrate Google Analytics to understand and optimize UI flow, customer behavior, and accessibility

Leverage GA for A/B testing to better understand estimated price elasticity and impact of marketing campaigns

Results:
Moved the total time spent in games. Other screens from #4 to #1

Optimized average turn durationfrom 3.08 minutes to 2.10 minutes

Reduced screens per session from 15.5 to 8 (cleaner UI/less back and forth)

Reduced time per screen from 2 minutes to 1:33

Setting up for Success

Before collecting any data or running any reports, it's critical to spend some time determining what business or user experience questions you'd like to be able to answer. For example:

Are you increasing the rate which users complete an in-app purchase or non-monetary goal (like a sign-up or level completion)?

If the length of each engagement with your app is important, are you improving the average length of a session with your app? Or the average time spent on a particular screen? View Figure 1

If you're running marketing campaigns to acquire more users, which are performing at or under your target cost-per-acquisition (CPA), and which aren't? View Figure 2

List out all the data points you'll need to answers those questions. For example, which screens do you need to measure impressions for? Which user interactions, like button presses, form submits, in-app purchase completions etc. would you need to measure?

If you're running paid marketing campaigns, consider which channels you'll need to measure, and which downstream user activities, like goal completions or in-app purchases, you'll want to measure to gauge the return on your marketing investment.

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The flexibility GA provides is quite amazing. While no analytics provider will ever have everything you need out of the box, it is great to have a solution that allows us to implement our own requirements [through custom dimensions], so easily!

ENGINEER
Lead Server Engineer, Certain Affinity

Getting the Data you Need

Now that you're ready to implement a solution for your app, how do you know which third-party solution to use, or whether to develop tools in-house? When considering an analytics solution, whether it be third-party or your own, consider these questions to help you decide what's going to be the best fit for your app and your business:

> Will this solution get you the data you need to answer your top acquisition, engagement, and monetization questions?

> What is the cost of implementation and maintenance for this solution?

> Do the benefits of getting answers to your most pressing user experience and business questions outweigh these costs?

As you think about the costs of deploying and maintaining your analytics solution, consider using Google Tag Manager, which enables you to configure your analytics implementation from the cloud and can dramatically reduce maintenance and deployment costs. View Figure 3

Optimizing Mobile Games with Google Analytics

> Measure in-app purchases to understand the value of your users and track progress against monetization goals.

> Create Custom Dimensions and Custom Metrics to measure goals and create segments important to gaming, like level completions, character level advancement.

> Create user segments that show metrics for players who meet certain lifetime criteria, or who have completed a specific sequence of events.

> Use the Engagement Flow report to understand whether and where users are getting lost in your UI.

> Use Google Mobile App Analytics to measure effectiveness of paid acquisition campaigns.

Taking Action

Collecting data and building reports adds no value to your business on its own. The value comes from being able to use that data to answer your most important business and user experience questions, and then being able to take action on those insights to improve your app and grow your business.

In order for this to happen, the data you collect needs to get into the hands of those who can do great analysis, and who can actually affect change on the product. Sometimes these are the same person (and maybe it's

you), but in larger companies and development studios, it's important to identify who can do the analysis you need, and who can actually implement changes based on that analysis, like a product or engineering team.

Google Analytics can make providing access to data to the teams to the right people within your company easy. Google Analytics offers flexible, enterprise-ready user permissions, the ability to generate and share custom reports and dashboards, and a Core Reporting API that allows you to export your data into your own visualizations and other internal systems.

Ultimately the real value of gathering data and performing analysis comes from the actions you are able to take as a result of your insights. Are users not using the new feature you just launched? Try making the button or link more prominent, and compare week-over-week or month-over-month adoption. If a particular marketing campaign is driving downloads under your target cost-per-acquisition (CPA), consider increasing investment in that campaign and measuring whether you can acquire more users within your target CPA.

To make changes to your application more quickly based on your analysis, consider using Google Tag Manager for Mobile, which enables you to push updated configurations to your app on the fly, without needing to resub-mit your app to marketplaces, or waiting for users to choose to update to the latest version. View Figure 5

Expanding your business and sustaining innovation

How do you go from a lone engineer with an idea, to a business employing five or six others, all working towards the same goal? Here we consider why you should expand your business, explain how, and share developers' thoughts on innovation.

Why expand your app business?

Unless you have a compelling urge to socialize with other people, chances are you'll want to hire more people into your business to increase revenue. Only you can decide when's the right time to do that, but here are some of the drivers that may influence your decision.

The network effect

While it's possible to sustain your business with just one app, it's more advantageous to have several apps. Having a network of apps enables you to cross-promote within your user base and transition users to a new app as they tire of the one they're currently using. Nearly half of users surveyed by AdMob say they stop using an app because they lose interest.[35] More apps mean more users, but you'll need more hands on deck to help develop and maintain them.

Going cross-platform

To increase your market reach, you need to make your app available across multiple platforms. If you don't possess the skills or have the time to learn, you'll need dedicated developers for Android, iOS and other platforms.

Better customer support

It's important to build an efficient support system to keep your users happy. Even the most simple, non-transactional app can yield support questions, and your ability to respond can impact how users rate your app. In our five-market survey, we found that on average, 42.5% of respondents contacted an app's customer support team for help. The top reasons for doing so included app crashes or certain features failing to function as intended.[36] Inevitably, these enquiries will increase as your user base grows.

Manage and improve an existing app

As we've mentioned here, losing interest is the number one reason why users discontinue using an app. Developers need to keep their apps fresh to keep users interested and engaged. You should continually update your apps to make them more user friendly, intuitive, and to keep up with platform-specific design principles. In our research, we found that most users expect an app to be updated monthly.[37]

Consider too that if you have a global user base, you should localize your apps to give them the best experience. See chapter six on app localization for tips and best practices.

Challenges you'll face as you expand, and how to tackle them.

Hiring good developer talent

Recruiting the best talent is the first step towards success. Ilkka Paananen, the CEO of successful games app developer, Supercell, attributes the success of his company to the caliber of his team, all of whom had at least a decade of experience in the gaming industry. "When you set up a company, the only thing - the only thing - you should care about is getting the best people" he says, "From that, good things will happen."[38].

Family and friends.
Recruiting friends and family is a great way to find people you know and trust. Due to their familiarity, they may make a better cultural fit, but you may not be recruiting the best employees.

Staffing agencies.
A staffing agency can help you recruit from a wider pool. The advantage is they do the work for you: posting job descriptions; screening applicants; and, setting up interviews with candidates deemed most qualified. However, as with any external service provider, hiring a staffing agency will incur fees.

Professional networks.
Another way is to recruit through your professional networks. Present and former co-workers make good candidates because you already know what they have to offer and what their weaknesses may be. You may also want to consider networking sites like LinkedIn, Quora, and Github to find talent.

Building a sales team
If your passion is app development, and you want to continue focusing on that as the business grows, hire people who can put energy into other areas of the business, such as sales.

A business development manager can help you identify new revenue opportunities. If your revenue model is based on advertising, you should expect your business development manager to create a core value proposition which is compelling to advertisers, and build up a portfolio of clients.

As your client list grows, you'll have a more difficult task balancing the needs of your users versus the needs of your advertisers. For example, advertisers may want a larger ad unit to showcase their products, which you don't yet support. Do you assign development time to that or to building a highly-requested feature from users? A business development manager can help define and prioritize these requests.

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When you set up a company, the only thing - the only thing - you should care about is getting the best people.

ILKKA PAANANEN
CEO and Founder, Supercell

Investing in user acquisition
User acquisition should be treated as a science if you want to get the best results. Finding new users at the right price point, retaining them, and maximizing your income from each one, can take an enormous amount of effort.

An external marketing agency can help define the key metrics that will make your business successful and build a customer acquisition model. They can do this through in-app advertising campaigns, cross-promotions, social media, and many other channels. If you don't have expertise in this area, outside help can generate a positive return on investment for your marketing spend. A good agency will continually seek to improve marketing campaigns to make them work as efficiently as possible through optimization, and apply learnings on an ongoing basis.

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We base updates and games on user feedback. It doesn't matter where the user is from, it's about what they tell us.

TONI FINGERROOS
CEO and Founder, Fingersoft

Innovating
One of the the hardest aspects of app development is improving an existing app, or following one successful app with another. We spoke with top app developers to understand how they approach this challenge.

Add new features
One way is to improve your existing app is by adding new features. Finnish developer, Fingersoft, did this by improving on its Hill Climb Racing game. They asked users what they'd like to see in the game and implemented the most popular requests, such as adding a tractor that users could race. "We base updates and games on user feedback. It doesn't matter where the user is from, it's about what they tell us," says Toni Fingerroos, Fingersoft's CEO.[39]

Build similar apps
It's better to build an app that appeals to your current user base than to build an app that requires generating a different user base. Japheth Dillman is the co-founder and Chief Creative Officer of Yetizen, a start-up accelerator focused on gaming apps. He explains, "If you already have a successful app, creating an app that is contrary to the user base you've already built is a waste of time because you can't cross-promote in the network you've built." Instead, Dillman encourages developers to figure out what they're passionate about and build up a suite of apps based around that demographic.

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If you already have a successful app, creating an app that is contrary to the user base you've already built is a waste of time because you can't cross-promote in the network you've built.

JAPHETH DILLMAN
Chief Creative Officer & co-Founder, Yetizen

Identify trends
When building a new app, look at popular apps, identify their strengths, and consider how to iterate on those to make something new. In fact, many innovative apps result from small tweaks in existing apps, says Japheth Dillman.

"If you look at some of the most innovative products that redefine a genre, they didn't innovate the entire experience, they worked on a small part of it. For example they've combined two different experiences so their understanding was the combination of the two."

Consider combining the best elements of two or three apps and tailor them to a certain kind of demographic.

If people love to do one thing on one app and another thing on another app, an app that enables users to do both can have a unique advantage.

One example is Pheed, a popular social-media app that lets users share videos, photos, audio, and more in one convenient place. The app not only combines elements of other social media - Twitter, SoundCloud, Tumblr, Ustream, Instagram - but also expands on their capabilities. Pheed users can send longer messages, filter content, rate their own channels and copyright content.

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If you look at some of the most innovative products that redefine a genre, they didn't innovate the entire experience, they worked on a small part of it. For example they've combined two different experiences so their understanding was the combination of the two.

JAPHETH DILLMAN
Chief Creative Officer & co-Founder, Yetizen

Best Practices

It's more advantageous to have several apps. Having a network of apps enables you to cross-promote within your user base and transition users to a new app as they tire of the one they're currently using.

It's important to build an efficient support system to keep your users happy. Even the most simple, non-transactional app can yield support questions, and your ability to respond can impact how users rate your app.

It's better to build an app that appeals to your current user base than to build an app that requires generating a different user base.

Solve for practical needs.
Sometimes the best innovation comes from thinking about how an app could solve your own, everyday problems.

We spoke with Edward Kim, the developer of Car Locator, an app that helps users find their parked cars. "I came up with the Car Locator idea because I had a poor memory. I would park my car in the parking lot and not be able to find my way back to it after shopping. I thought that it would be cool to write an app to find where you parked your car." Car Locator became a huge success, winning third place in the travel category of the Android Developer Challenge 2 contest.

"My advice is to just build something that you yourself want because its likely other people will want it as well. As long as you focus on that, the rest will fall into place. You don't really have to push it onto others or convince others," says Kim.

Takeaways from
The App Developer Business Kit

Quick tips to help you shape your app project.

Nine Takeaways

Ingredients for a successful app. Know who you're building your app for. Understand trends in app stores to get a sense of what's popular with users.

App funding. Before building your app, consider all existing costs and anticipate as many future ones as possible. This will steer you towards the type of funding you'll need.

Building your app. Users love quick-to-open apps with high quality graphics. But regardless of polish, beta test your app with a small group of people willing to give honest feedback.

Choose the right business model. Choosing the right business model is one of the most important aspects of creating an app. It should be fully considered before you begin development work, and it should be complementary to the design. Changing business models after your app is released can mean significant extra development work and ultimately lead to a poor user experience.

Maximize revenue with ad mediation. Ad mediation is an essential tool for many developers. It en ables more than one ad network to show ads in your app, creating competition for your ad space, and increasing revenue in the process.

Marketing your app. Browsing app stores is the most common ways users discover new apps. So invest time in your app store listing with a crisp description, great images and a video. Then focus on driving viral downloads of your app by getting great reviews and ratings.

Design for global users. Many users choose to uninstall an app they like because it's not well localized.

Don't skimp on localizing an app because you won't retain users. Do a great job and your app can have far broader appeal and earn you more income.

Optimize for success. Analytics data for your app is useless unless it helps you to take action and improve what you're doing. Start out by knowing what data is most valuable for you then choose an analytics package that can give you the insights you need.

Innovate. There's no easy way to ensure each of your ideas is a hit. But thinking logically about capitalizing on your user base can help; if your users like your current set of apps it would be a gamble to offer them something that's radically different.