THE SMART APP

A COMPREHENSIVE GUIDE FOR USING MOBILE ANALYTICS TO MAKE YOUR APP A SUCCESS — RIGHT FROM THE START

An ebook from

ARCTOUCH
MOBILE & CONNECTED EXPERIENCES

Contents

Introduction

Many app development teams make the same mistake: not thinking about how to measure the performance of a mobile app until the project is just about complete.

No one wants to be part of a team that launches an app when — after the spilled beer is mopped up, the snacks are vacuumed off the floor, and hands are smarting from all the high-fives — the executive you sold on the app idea pops her head around the door and says, "Great job, my ninjas! Now, how is it doing? Well? Anyone...?"

The dev team members look at each other blankly, the product manager peers pleadingly at the Excel guy from finance who sends a panicked email to the marketing director because no one actually knows just how the app is performing. And no one has really thought about how to improve and grow the app over time.

OK, that may be a bit exaggerated. But with the app economy estimated to reach over $100 billion by 2020, to be successful, app development teams have to think of their app as the solution to a business problem and approach that problem strategically. That starts with defining success at the beginning of a project, not after an app launches.

In this ebook, we'll take you through the process of using mobile app analytics to guide your development process. It begins at the project's origin, when you'll define your expected return on investment (ROI) and set measurable success metrics during an app strategy phase. As the app begins to take shape during design, your team can use that up-front thinking by mapping features back to the KPI you've defined. We also cover the tools you'll need to measure success, which will be implemented and instrumented during development.

Take these steps and your team will be able to launch a truly smart app — one that offers the insight you need for the project to succeed.

CHAPTER 1

Define Your Objectives and Success Metrics

Building a successful app is a process. And whatever methodology you use, you have to spend some time developing a strategy. ArcTouch works with clients to build high-quality, well-designed mobile apps that meet a genuine business need.

That might sound obvious, but you'd be surprised how many app development projects begin with decision makers blinded by a certain technology, or by the sheer brilliance of their app idea. During our strategy phase, we help clients define what their idea truly could — and should — become. We help them break ideas down to the very core, finding the intersection of where a user problem and business opportunity overlap, then start to build the definition for what will become the app MVP (minimum viable product). Everyone on the project team — from the product manager to strategists, designers, and engineers — is expected to ask "Why are we doing it this way? Is there a better way?"

Setting goals and defining key performance indicators (KPIs) must be part of this initial strategy process. When deciding what you want to

achieve, what features you plan to include in the app, as well as your brand strategy, you should also be thinking about your KPIs and how you will determine if you've achieved them. How will any given feature contribute to your success metrics and what will you need to test to see how the feature meets your larger objectives?

Creating an Analytics Plan

An analytics plan can begin simply with you writing a list of your business goals on a sheet of paper. Add one column for the goals, another column for their success metrics, and a third for what is required to constitute a success.

> Each app, and business, is different. When you integrate analytics throughout the dev process, you're very likely to discover one metric that ties closely to your overall objectives and is directly affected by the tactics you use to achieve them.

Break those goals down into tactics — the actions you're going to take, or the features you're going to build to meet those goals — and decide how you're going to measure their success. Set manageable targets and be honest about them: If you set the bar too high, you'll never be successful. Set it too low and you won't learn anything. Use your intuition. Search the web to see who else has solved similar problems and use their baselines as a guide. You don't have to be right on the mark, you just need a line in the sand to work towards so you can learn and improve.

Refine this list as you iterate throughout your app development. Put yourself in the place of your users and create stories to help you model features that solve a key problem for those users. Then think about what metric value will indicate that your app has helped them solve the problem.

Along the way, you will develop hypotheses about what will move the needle on these metrics and modify your app features to test the hypotheses. You'll want to be able to use the data to gain insight so you're not guessing what you have to do next.

As you progress, you may find it useful to expand your measurement plan to include audience segments and cohorts. There is so much to learn from the data you gather — and you can help ensure your app's success by using insights gained from the data to make improvements.

The One Metric That Matters

You'll find that some of your KPIs are more important to achieving your goals than others. For instance, if you push hard on a particular metric,

you may see faster growth than you do by focusing on something else. Perhaps your business goal is to get more users onboarded, or prevent them from uninstalling. Each app, and business, is different. When you integrate analytics throughout the design and development process, you're very likely to discover one metric that ties closely to your overall objectives and is directly affected by the tactics you use to achieve them. This is your One Metric That Matters (OMTM). It's not that you should discount other KPIs. But recognizing your OMTM helps you focus your team on one well-defined target.

A good OMTM is simple, easily compared to other time periods, often a rate or ratio, and has meaning. If you design an experiment to affect your OMTM, the answer you get should have significant impact on the business and drive real improvements. If your app has an ecommerce feature, for example, it could be as simple as units sold per day. If you are a media company, it might be the number of videos consumed per user per day.

Make the current status of your OMTM the topic of conversation at the water cooler. Create a dashboard with the one metric and place it where everyone can see it. Knowing the target value of your OMTM helps you plan hypotheses and experiment. And you can use it to quickly decide whether an experiment is worth executing. If you go forward with an experiment and your OMTM drops, you can still recover quickly.

Finally, don't be afraid to change your OMTM. It can evolve depending on where you are in the app's lifecycle, the larger business environment, or even your function on the team.

CHAPTER 2

Understanding Analytics Approaches

There's no point in implementing analytics and measurement as part of your app strategy if the data gathered won't be used to improve the app and your larger business. If you're going to spend your company's time and resources instrumenting and measuring user behavior, your analytics process should include mechanisms that will provide actionable insight.

The first step is understanding the different ways you can use data. Although there are many different methodologies analysts use to gain insight from their data (and there seem to be more types appearing every day), the three main types of analytics are descriptive, predictive, and prescriptive. Choosing the right approach depends on your immediate objectives and how you aim to use data to improve the app and benefit the business.

Descriptive Analytics

Descriptive analytics is generally backwards looking, describing what actually happened versus what you expected to happen. Descriptive analytics measures facts and summarizes data to see if you achieved what you set out to do. Did you meet the targets you set in your measurement plan?

Old-Fashioned Reporting

A typical descriptive analysis starts with what we've always known as reporting. An analyst pulls data from a data repository — whether that's an app store, a third-party analytics tool, or maybe even a dashboard created for the purpose — summarizes it, and compares it against targets and previous date ranges. The analyst not only uses subject area expertise to make judgments about the data, but should also have clear targets in mind that indicate whether the app is achieving its goals. For example, the dashboard could show that the app is trending at around 500 users per day, and adding about 10 new users to that total each day. The analyst knows to concentrate on that trend because new users per day is the OMTM. Any decline in that value is a red flag that should spur you to dig deeper into the data to find out what could be causing the fall, and identify actions to take that can reverse the decline.

It's tempting to only look for successes in your analysis and gloss over problems indicated in the metrics. But you can derive real value from identifying what *didn't happen*.

It's tempting to only look for successes in your analysis and gloss over problems indicated in the metrics. But you can derive real value from identifying what didn't happen, where you didn't meet the targets you were hoping to achieve, then trying to understand what went wrong. If you see a fall in the new users per day metric, your analysts could look for the cause using segmentation and cohort analysis.

Segmentation

A first step in any deeper dive is segmenting your audience into groups based on shared variables. Segmentation takes into account the fact that although each individual is different, they may share certain characteristics with others. Identifying those shared characteristics allows you to make decisions about what is happening with your app.

For example, is a fall in new sessions affecting segments equally? Did you see consistent sessions on iOS, but Android sessions dropped off a cliff? Or was it a particular demographic group, or sessions from a specific campaign or channel that saw a big dip?

When you know who — or more accurately, what group — is affecting the change in metrics, it is much easier to see why the change is taking place. What is particular to that group of users that they are no longer using the app? What do you need to fix to get back on track to meeting your targets?

Cohort Analysis

Cohort analysis is closely related to segmentation. Rather than simply looking at a shared characteristic to create a segment, a cohort also features the shared dimension of time. For example, one cohort could be defined as every user who onboarded the app in January. The next cohort is users who onboarded in February, and so on. The time period of any cohort depends on your objectives, but you can track these users over time to see how often they return, their daily usage, or their average spend — whatever is important to your business.

The benefit of cohort analysis is that you have an apples-to-apples comparison of users over time. This will reveal whether the "quality" of your user base is improving (in the context of your goals).

> Your data must be clear, meaningful, and targeted. Everyone who looks at the data should know exactly what they are looking at and why it matters.

Empower Your Whole Team

Descriptive analytics is not only the domain of analysts and the finance team. If done well, standard reports and dashboards can be powerful self-service tools for your whole team. Your OMTM can be part of a shared dashboard — or even a widget that can be shared on individual dashboards that relate to specific team member's goals.

Your data must be clear, meaningful, and targeted. Everyone who looks at the data should know exactly what they are looking at and why it matters. Whether you're having a conversation with your CFO, a sales director or a customer service rep, you should all speak the same language.

Predictive Analytics

Predictive analytics is the opposite of descriptive analytics, as it provides a way of looking into the future. Where can we expect the business to go given the situation today? Of course, no one has a crystal ball. However, predictive analytics isn't just about looking forward. It is the process of predicting data you don't have based on data you do have — and can be applied to help you make decisions based on what's happening today. It involves identifying trends in the data (modeling) and extrapolating them, allowing you to plan and forecast.

For example, analysts could look at the growth of new users of the app and extrapolate that trend to help plan next month's ad spend. Or they could look at recent user behavior and identify what might make it

more likely for users to make in-app purchases. Perhaps the top revenue generators are in a particular demographic group, or are heavy users of the app, or open the app only on weekends, or share any other variable you can identify. Often, these characteristics are given a weighted score in a model that analysts can then use to decide the level of resources to apply to improve results.

Analysts can also use predictive analytics to explore different tactics that will grow the business or increase the app's success. Developing hypotheses this way and testing them in the real world is an element of the third approach, prescriptive analytics.

Prescriptive Analytics

> The point is you don't need to guess. You'll gather information that will help tell you whether your hypothesis is correct or not.

Prescriptive analytics is sometimes thought of as a subset of predictive analytics, mainly because it's also forward looking. Insight gained from prescriptive analytics can help inform decisions and answer questions like, "What should we do next? How can we improve? What actions does the data indicate that will help us achieve higher KPI targets — or perhaps that we should switch tactics?"

Prescriptive analytics should be an essential part of your strategic decision making. Essentially, it helps you answer the "how do we get there?" question that follows the predictive analytics "where do we want to go?" question.

You want to identify the particular metric to improve (descriptive), model how it could change (predictive), then create scenarios that will improve it from the expected values you obtain from the model (prescriptive). Doing this gives you metrics-based, testable hypotheses that will inform changes you need to make to improve your app.

Derive and test hypotheses

Testing your hypotheses can be as simple or complex as you choose, and may include:

- Standard A/B tests
- More complicated multivariate tests
- Longitudinal tests where you compare time periods

Longitudinal tests can be tricky because you can't control for all variables. The point is you don't need to guess. You'll gather information to tell you whether your hypothesis is correct or not.

To be successful, you'll need three elements:

1. A testable hypothesis that the data is able to disprove (for example, "the green button will be clicked at a greater rate than the red button," not "people like green better than red")
2. Actionable data (of course)
3. A feedback mechanism that lets you analyze the results of your test and take further action

The feedback mechanism is crucial because your results should allow you to refine the objectives and tactics in your measurement plan. Even if your hypothesis was incorrect, you now have data that will help you change your tactic, set an objective, model it, and test a new hypothesis.

CHAPTER 3

Creating an Analytics Culture

This section could easily be about how to add tags, install an analytics SDK, or set up goals in your analytics platform. But that's something your analytics expert, whether part of an internal team or an external agency like ArcTouch, should be able to handle.

Instead, we'll focus on how to guide your team and your development process to best take advantage of the insight your app's data can provide.

Create a Culture Where It's OK to Fail — and Fail Quickly

To err is human. When you implement an analytics-driven app development strategy, one of the first things you'll discover is that you're not going to make the correct decision every time you try something new. But if you don't go down the wrong road sometimes, you're probably not trying hard enough. When measurement and analysis drive your development process, you will quickly learn which hypotheses are true. Even if your hypothesis turns out to be wrong, you will know what not to do. All information is valuable; it's driving blind that can hurt you.

So, if you create a culture where people aren't penalized for failing, you'll be able to treat these experiences as opportunities to gather information and learn. Analytics aside, you'll also get the added benefits of removing blame and potential passive-aggressive behavior from your team communication.

The ability to test hypotheses is great — as long as you monitor the results of the test and respond before a wrong turn can harm the business. Make sure you know what results a new feature should bring about before you deploy it. Model the results you expect, and if the change doesn't meet your target, quickly reverse and try something else.

> In our connected world — and especially for the new world of mobile and connected experiences — data is the oxygen that feeds success.

Don't run an experiment where you won't be able to look at the data before it's too late. And don't run an experiment you can't reverse quickly. This is where app development platforms can help. In particular, they allow you to quickly push out an update without waiting for app store approval.

Develop a Common Language

Teams work well when they share a common purpose. One way to foster this within your team is to ensure that everyone understands the goals and objectives, and that they are aligned around the OMTM. Telling your team, "Our app is going to change the world by disrupting worldwide jiggerwidget distribution" is less helpful than saying, "We make a profit when 500 new people a week buy a jiggerwidget through our app." If the total is 499 at 3:30 p.m. on a Friday afternoon, you know everyone will be doing everything they can to push it to 500 by end of day.

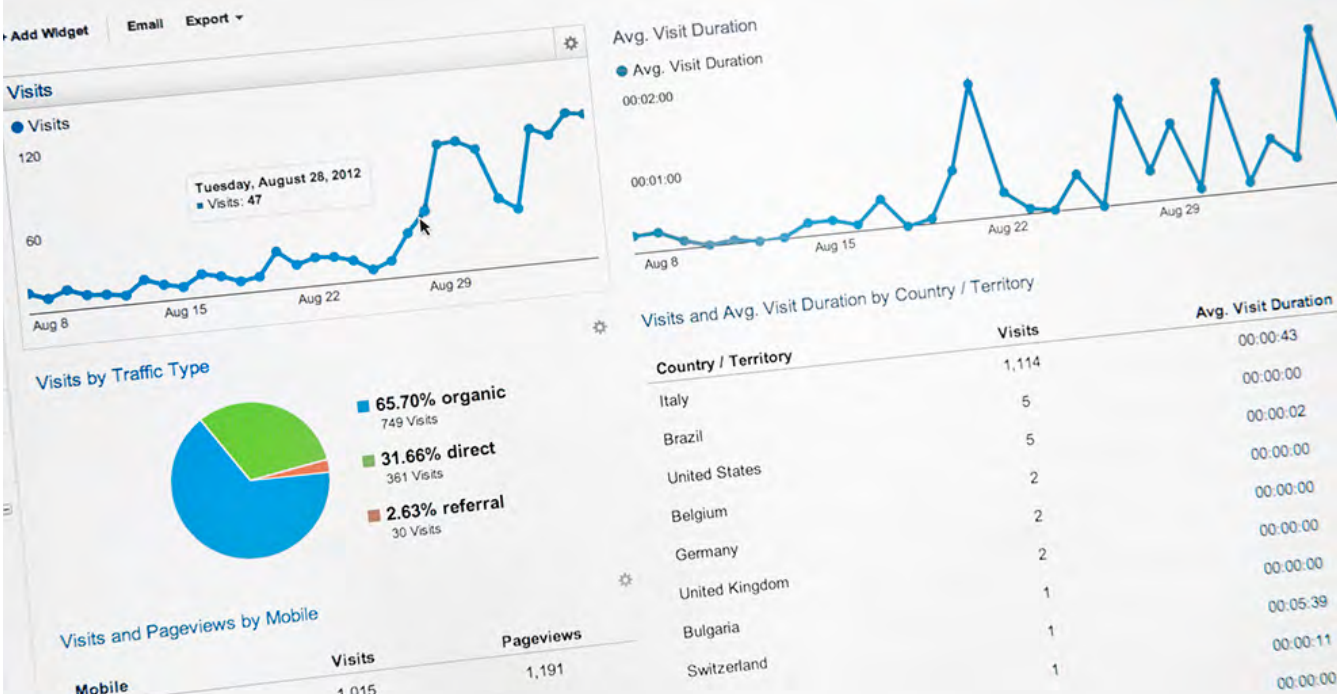
You can reinforce your common purpose with the language your team uses to talk about the app objectives and the metrics that support them. Create a data dictionary that defines exactly what your most important metrics represent to the business and how they are captured, derived, and calculated. Update it regularly as your objectives and metrics change throughout the app lifecycle.

Make Everyone a Business Analyst

Analytics are no longer the purview of the math jocks in finance running to meetings in a wake of printed spreadsheets. In our connected world — and especially for the new world of mobile and connected

experiences — data is the oxygen that feeds success. Understanding and creating insight from the data that businesses thrive on should be a fundamental skill of any team member.

Further, the people are on your team because they have the expertise you need. They know their part of the business best, so empower them to dig into the data and ask questions. Help them use their domain expertise to improve your hypotheses, or quickly determine where an experiment may be failing. Sharing objectives, targets, and experiment results with the whole team will increase your collective knowledge and insight.



CHAPTER 4

Which App Analytics Tools Should I Use?

The world of mobile app analytics is changing fast, and we're far ahead of where we were even a few years ago, when your only choice for tracking your app was repurposing one of the major web analytics products. These days it seems like there are too many choices. App analytics is a hot market with lots of smaller players chasing your business. That means each vendor tries to sell you what's special and unique about their product — while at the same time telling you they can do it all.

What Do You Want to Do?

As it is, you'll probably find that you'll want to use different vendors for measuring different activities. There's often crossover between products' features, but some tools are better at measuring the acquisition cycle, others are better at tracking usage, some will help you with testing, and still others are designed to monitor your app's performance.

You may well end up using tools from multiple providers. The key is not to let the tool drive your strategy. The most important thing is setting clear, measurable objectives up front that help you gain insight into how people discover and use your app. It doesn't really matter which tool collects that data as long as it is accurate, reliable, and timely.

We've grouped the following analytics tools according to their focus. This isn't an exhaustive list, and each app is different. Your mileage with each may vary. Most vendors offer some sort of trial period, so it's worth spending some time with each product to find out if it's right for your app.

Acquisition & Marketing

These tools help you in the growth stage of your app lifecycle. They're best at tracking where your users come from and guiding you in finding the right market fit for your app.

App Annie

App Annie pulls data from the App Store and Google Play and can also connect to your app's Google Analytics data to pull usage information. It can track downloads, in-app revenue, and ad spend. App Annie also gathers data about other apps from the various stores, so it's really good if you have a portfolio of apps that you need data about collectively. On the other hand, you're not going to get much from App Annie in terms of in-app objectives and hypothesis testing. This is definitely a product that would complement your in-app analytics, not replace them.

> Despite what the marketing materials about any analytics tool will tell you, you will still have to do some work to make sure that your implementation meets your specific needs.

Tune

Tune is a one-stop shop for app marketers. Like App Annie, it's best for tracking the early stages of your users' interactions with your app, particularly discovery and installs. It can help you manage in-app campaigns, get data about your app store performance and dig down into what is driving your users to become customers. Tune is also useful in managing your users' initial experience with the app and increasing the quality of your app traffic.

Localytics

Localytics seems to sit halfway between App Annie, Tune, and the more analytics-only products listed below. The company bills itself as a "mobile engagement platform," which means that it uses the data it collects to power marketing automation features. So you can use the same tool to track your key metrics as you can to send push notifications or create audiences to remarket to users on external ad or social networks. With built-in cohort segmentation and lifetime value analysis, Localytics is a good option if you're looking for a one-stop shop.

Pure Analytics

Mobile app analytics are a natural progression from web analytics. In fact, many app producers still use the same tools for collecting data from their apps that they were using on the web back in the mid-2000s. While web packages like Google Analytics or Adobe SiteCatalyst don't translate directly to mobile, these products have provided our industry some insights, and in the case of Google Analytics, have adapted to address the changing mobile ecosystem.

Google Analytics

Google Analytics (GA) is the granddaddy of digital analytics. It's been free for the majority of users for its whole life, has a well-understood and simple data collection framework, and you can dive right in without much training and start deriving insights immediately. That said, it was built for e-commerce on the desktop and that is where its strengths lie. Its mobile web and app analytics seem to be almost bolted on to the core product and, while you can still track your apps very successfully with GA, it doesn't have some of the bells and whistles that some of the other products do. If you have a multiplatform product where your app is just part of a desktop and mobile web experience you can be very well served by GA. But if your product is mobile app only — and you can afford it — it may be worth looking elsewhere or using Firebase, Google's mobile-focused product, described below.

> All apps are different, and no analytics tool will give you all the insights you need out of the box.

Mixpanel

Although Mixpanel has a strong focus on mobile apps now, it came from the same world GA did. Starting out on the desktop as a tool to measure engagement and retention, the product has improved so it's now an all-arounder of the analytics world. Mixpanel prides itself on simple implementation and taking the hard work out of analytics — holding your hand to help you measure user actions rather than vanity metrics such as page views. With funnel visualizations and A/B testing, Mixpanel is a great option for a multiplatform product for teams that don't have much experience with analytics.

Flurry

Flurry has long been the market leader for mobile app analytics. One reason may be that, like Google Analytics, it's free, but unlike GA it's designed purely for mobile apps so it doesn't have the legacy web and desktop limitations. Implementation is simple, and so is the interface.

But don't expect the bells, whistles and push notification management you may get from other products. That said, there is everything you need to track and measure your key app metrics on a basic level.

Mobile Development Platforms

While some of the products listed in here so far are more focused, the following two cast their nets over many aspects of app development and measurement. These mobile development platforms include hosting, authentication, messaging, performance, optimization, and analytics. If you're already using these platforms for development of your app, there's probably no reason to use another product simply for analytics. If you're not, you can use the analytics modules separately, but it may be overkill.

> Don't just throw events on every button, link, and form without some understanding of the relationships between your user flows, funnels, and interactions.

Firebase

Firebase, by Google, was originally a backend-as-a service (BaaS) with a central, shared database that apps could use to update and share data. This meant short development times for app developers and the ability to push updates without investing in their own infrastructure. Now, Google hopes the platform will become the only thing you ever need for app development — including analytics. Google sees Firebase Analytics for mobile apps as a replacement for Google Analytics and recommends using Firebase instead of GA if your product is only a mobile app. Like Localytics, Firebase uses the data it collects to power its other features, such as user notifications.

Fabric

Fabric is Twitter's version of Firebase. It's based on a popular app performance product called Crashlytics, and, like Firebase, it now includes everything you may need to develop, optimize and monetize your app. It also includes an analytics module called Answers that can be used as a standalone product. Twitter suggests that Answers will surface insights without any real analysis on users' part. That's fine if you only want to pay lip service to your analytics, but if you've placed analytics and measurement strategy at the heart of your app development process, it may not quite meet your needs.

Testing & Optimization

While most mobile app analytics tools include some form of testing and optimization functionality, depending on your team's skills and

needs, it may be worthwhile to use a pure testing tool. A great benefit of these tools is that you can use them to change your app's features and elements on the fly when you decide on a winner. That means no waiting for app store approvals to push your optimized app live.

Optimizely

Optimizely is the go-to product for A/B testing on the web — and now for mobile apps too. It's been used widely over the years, has a simple interface for creating tests, and is easy to get going. There has been some discussion in the data science community about the statistical significance of some of its results (which the company stands by), but as part of a well-designed analytics strategy, it's a great tool. It remains to be seen if the more general analytics tools that offer testing will make Optimizely redundant.

> Put some thought into how best the analytics tool can work for you — not for the vendor or every other customer they have.

Apptimize

Offering similar functionality to Optimizely, Apptimize is a relative newcomer to the space. One advantage it has over similar products is the ability to set feature flags that allow you to roll out app features to select audiences, so you can soft launch a feature to a small group of users to gather data quickly before rolling it out to your entire user base, or roll it back if your hypothesis is proven incorrect.

Monitoring & Performance

New Relic

New Relic is a bit of an outlier in this list because it is primarily an application performance monitoring tool that has grown and expanded to include analytics. If you have a heavily trafficked app where performance is key, you can't go wrong with New Relic as your monitoring tool. And if you already have New Relic installed, it's probably not much of a leap to use its analytics product, too. However, New Relic Insights reflects its provenance as an outgrowth of monitoring and performance, so you may be better served with an analytics tool built for mobile apps.

Roll Your Own

There is always the option of building your own tools to gather and analyze your data. Between log files, simple event collection, and the availability of cloud storage, if you have the expertise in-house and a strong focus on your analytics needs, it may be worthwhile to push

your data into a NoSQL database and employ visualization or business intelligence tools on top of that. The big benefit here is that you own your data, and you don't lose it if your contractual agreements with vendors change.

Some Fine-Tuning Required

Despite what the marketing materials about any analytics tool will tell you, you will still have to do some work to make sure that your implementation meets your specific needs. All apps are different, and no analytics tool will give you all the insights you need out of the box.

Some advice:

- Use your measurement plan to track audiences and user interactions that are important to your objectives.
- Design your analytics data collection with precision.
- Don't just throw events on every button, link, and form without some understanding of the relationships between your user flows, funnels, and interactions.
- Create structured relationships between events that are meaningful and organized.
- Use hierarchies of events to tighten your organization.
- Plan your funnels.
- Make sure every step in your app is unique so you know what you're measuring.
- Put some thought into how best the analytics tool can work for you — not for the vendor or every other customer they have.

CHAPTER 5

Put Theory Into Practice — How to Define ROI for Your Mobile App

This is a framework for creating a measurement plan that is part of — and derived from — your overall mobile strategy. You know what you want your app to achieve, you have tactics in place to meet those objectives, and now you should be able to measure their success.

Google recommends following these steps:

1. Document your business objectives.
2. Identify the strategies and tactics to support the objectives.
3. Choose the metrics that will be the KPIs.
4. Decide how you'll need to segment your data.
5. Choose your targets for your KPIs.

At least some of your KPIs should be measured in dollars, even if they're not necessarily ecommerce transactions or subscription payments. Whatever your business, you have customers who use your app and at some point they're going to be a source of revenue. If your app has no obvious revenue source, think about the customer touchpoints where you derive revenue and outline how your app contributes to them.

This is where the intangibles come in. If, for example, a customer has

watched three videos using your content-based app and then goes to your website to buy a T-shirt, how much of the sale should you attribute to the app, and how much to the website? All to the app? All to the site? Or somewhere in between? Measuring clear KPIs for your tactics can help make these decisions easier to resolve.

Calculate Your Customer Lifetime Value

The customer lifetime value (CLV, sometimes LTV, even CTLV) shows what you should expect to earn from each user until they stop using your app. There are various ways to calculate CLV depending on your business model and your need for precision, but in general it is a function of how much money you can expect to earn from a given customer and how long you can retain them.

> It costs a lot less to onboard a user who came to your app through word-of-mouth than it does to onboard one who installed as a result of an expensive marketing campaign.

Measuring at least some of your KPIs in dollars makes the task of calculating CLV easier. By itself it's a very handy metric to track; a subscription business could use it for long term forecasting, or you can focus the efficiency of the business by getting more value per user.

More importantly, it is key to understanding the profitability of your users.

Know Your Costs

So you've spent some time calculating how much revenue you earn on a customer level. The next step is to quantify how much you spent and will continue to spend to earn that revenue. What you count here depends on your individual business needs, but examples include:

- App development
- Infrastructure
- Marketing
- Retention, including customer service
- Maintenance, including analytical insight and the improvements you can implement

Of course, what percentage of these costs you apportion to your app is up to you and your particular business model. In some cases, development could be considered a sunk cost and you may only want to include money spent to obtain and retain new customers. In other cases you may want to include everything. Just be transparent about how you calculate these metrics and take that into account when you report them out.

Recognize that Not All Customers are the Same

The simple thing to do now would be to take the cost per user and compare it with the CLV, but that approach naively assumes that all users cost the same amount to attract and retain.

The truth is more complicated. It costs less to on-board a user who came to your app through word-of-mouth than it does to on-board one who installed as a result of an expensive marketing campaign. That doesn't mean that some installs are free. There are always costs associated with attracting new customers, but it does mean that you need to account for the differences. Some users have a greater CLV than others; it may be that your customers acquired through social media are more loyal than traffic you paid for. It may be the other way round.

> ROI isn't a one-time, set-it-and-forget-it kind of metric. You wouldn't create an app, onboard some users, earn some revenue and then turn the app off, saying, "We earned 53 percent ROI. Our work here is done."

It's up to you how deeply you want to dive into this, but at least segment your acquisition channels and derive a cost per install (CPI) for each channel. You could also derive a value on a campaign or ad set level, or even for individual users and do the same for CLV. Don't forget cross-channel and cross-platform acquisition sources. It may be that it takes multiple touches to persuade a user to install your app. How you attribute costs to those channels matters too. Is it the last touch you're interested in, the first, or somewhere in between? Choose a model that can help you decide what your CPI is for each touch point.

Make the Metrics Actionable

Now you have a more sophisticated analysis of your revenue and costs, you can just subtract one from the other and you've got your ROI, right?

Well, not exactly. ROI isn't a one-time, set-it-and-forget-it kind of metric. You wouldn't create an app, on-board some users, earn some revenue and then turn the app off, saying, "We earned 53 percent ROI. Our work here is done."

Ultimately, measuring your ROI is a question of knowing where you are and what you need to do to take you to where you want to go. Customer needs, trends, and technologies change, so your mobile app development should be an iterative process, too.

With a clear measurement strategy in place, you can use the framework to drill into your KPIs to determine what — and how — to improve. For example, you can use ROI as a guide to see which acquisition channels are best for attracting your customers, or identifying an onboarding

funnel that needs some work.

ROI is, ultimately, the compass for your mobile strategy. If you track it with an awareness of context, granularity, and meaning, it can help you decide when you are doing things right, or when you need to alter your course.

IN CLOSING

Building the Smart App

Having an analytics strategy at the core of your app development project isn't just a recommendation — it's a requirement in today's competitive app market. No matter how big the problem you think you are solving, the reality is your app will likely sit alongside the more than 2 million apps available on Google Play and Apple's App Store. It's more than just a marketing challenge — you are competing for time even after a user decides to make the commitment to download your app. If you're app doesn't meet expectations, if it doesn't evolve to satisfy the changing needs of your users, if it doesn't continually delight your target customers, it will die.

The only way to know what's working, to build upon the app you launched to start, and to ultimately grow your user base, is to be smart about app development from day one. The very day you conceive an idea is the same day you need to think about how you will define success. The very day you start an app development project is the same day you should be planning how to measure success. The very day you define your feature set for your version 1 release is the same day you need to plan for how you'll capture the insight you need to build version 2 and beyond.

Building a smart app starts with being smart about analytics.

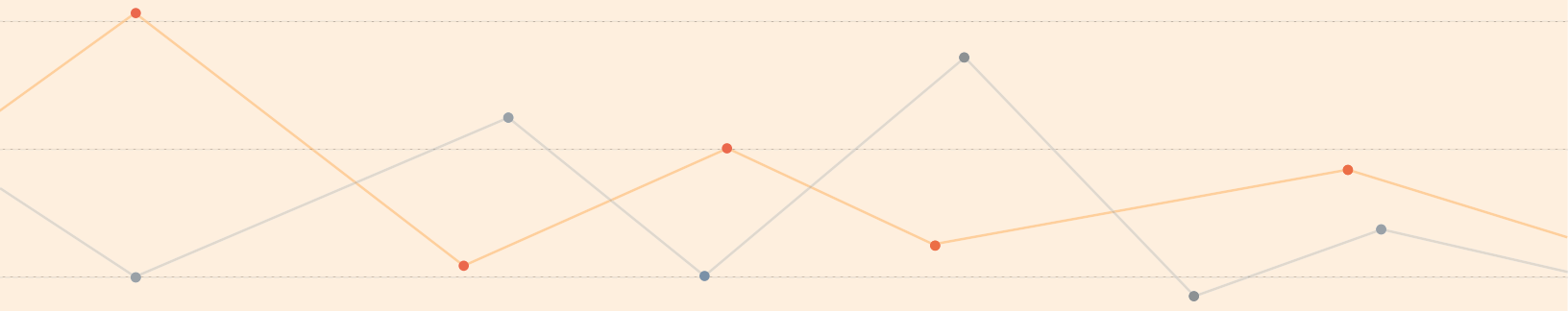
ARCTOUCH

MOBILE & CONNECTED EXPERIENCES

READY TO BUILD A SMARTER APP?

ArcTouch helps brands and businesses connect with users through custom app experiences for phones, tablets and smart things. Our world-class clients range from Fortune 500 businesses to well-known brands and influential startups, including NBC, Honeywell, Yahoo, CBS, Guess, Salesforce, Skyjet, Audi, and many more. ArcTouch is part of Grey, a WPP company.

LET'S CHAT



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