

So you need a mobile analytics strategy? Six key areas to cover for new developers

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Abstract When it comes to analytics for mobile apps, there are several differing categories that need to be addressed in order to gain full visibility about user behaviour. This paper is written for small to medium-sized app developers looking for guidance as to where to start or how to improve their analytics strategy. Drawing upon ten years' experience of analysing online consumer behaviour, the author shares tips and best practices for setting up effective systems. Developers who address these key areas of analytics will see improvements that will: (a) prioritise product roadmaps; (b) improve marketing campaign effectiveness; and (c) optimise user experiences through A/B testing.

KEYWORDS: app analytics, mobile app analytics, analytics strategy, mobile app development, best practice, independent developers

INTRODUCTION

Creating a mobile app requires a lot of time and resources and completing development just brings you to the starting line. When you finally launch, you will need a short- and long-term marketing plan as well as a product roadmap. You will also need to track and evaluate your app's performance in order to plan for future iterations. Your gut instincts need to be supported — or contradicted — by facts. With the right analytics, your app's future can be determined through data-driven mobile development. This guide will give tips to small and medium-sized mobile studios looking to develop an intelligent live operations strategy.

Do not make your mobile analytics plan an afterthought

Not very long ago, having a data-driven process meant using Flurry's SDK (a popular free analytics provider purchased by Yahoo) to send as many custom events as you could possibly think of. From there great data insights would inevitably follow — right? Well, sort of.

Using a 'spray and pray' Flurry approach is far from being data driven. In fact, it is a huge missed opportunity for your app development and business growth. With the pace of technology ramping up, you need a new system for collecting insights. It needs to address all of your questions in one simple, elegant package and it should not crush your engineers or require hiring a

team of analysts to understand it. This article covers six areas of mobile analytics that are necessary to give you the deep, accurate data insights needed to drive your app development. Your analytics strategy should cover these important use cases:

1. evaluate user behaviour and demographics;
2. provide financial insights;
3. analyse by segment and cohort;
4. measure user acquisition performance;
5. include A/B testing and optimisation;
6. support personalised user experiences.

EVALUATE USER BEHAVIOUR AND DEMOGRAPHICS

The 'create events in Flurry' approach does answer many high-level questions without getting into custom events. In many cases simply including the SDK of third-party analytics platforms can tell you:

- installs by country;
- user retention;
- session frequency;
- time spent in the app;
- active users by app version;
- top device/carrier/firmware.

Custom events allow you to track specific actions and important moments in the user experience. Failure to capture these events will inevitably lead you to some painful, head-smacking, 'how are we not capturing that?!' moments. For example: 'For users that have never returned, what's the last screen they viewed?' When this question — or something like it — inevitably gets asked, how will you find the answer?

If you have not pre-built the right data-capturing events into your app, 'surprise' questions like this will take a great deal of wasted time to reveal the answers.

Why? Because, updating your analytics after launch requires you to go through planning, implementation, store resubmission, new data collection and finally analysis. This data lag can kill momentum and delay

the process of making important decisions about how to improve your product. It can also have a significant snowball effect as data requests start piling up.

Custom events are just the tip of the iceberg compared to the tools available to developers today. Build your data to answer as many questions, and offer as many insights, as possible.

Sample questions

- a. What percentage of users come back tomorrow?
- b. How much do US users spend in our app per week compared to UK users?
- c. Should I keep supporting iOS6?

PROVIDE FINANCIAL INSIGHTS

Financial performance analytics are often the most central requirement to the data needs of an organisation (how much money are we making?). They are not, however, always addressed by traditional analytics platforms in a way that will satisfy your accountant or finance team.

Why? It is not their traditional specialty because the data is incredibly sensitive, and it is difficult to ensure that the numbers are accurate. But financial analysis is necessary to run a business, please your investors and optimise your product for revenue. As a result, transactional data tends to be pulled the hard way (manually and frequently) by data analytics. In most cases, this is directly from accounts like iTunes or Google Play which give the correct totals but do not allow for analysis or segmenting against your other data sources.

In an ideal world, you want to create a simple process for financial reporting that does not require a full-time analyst. But every company has different data needs, and the level of detail your reporting requires may vary. In Figure 1 we have outlined some simple financial formulas, and the sources to get the numbers you will need to crunch.

A word of caution about the accuracy of financial data: fake purchases (also known as

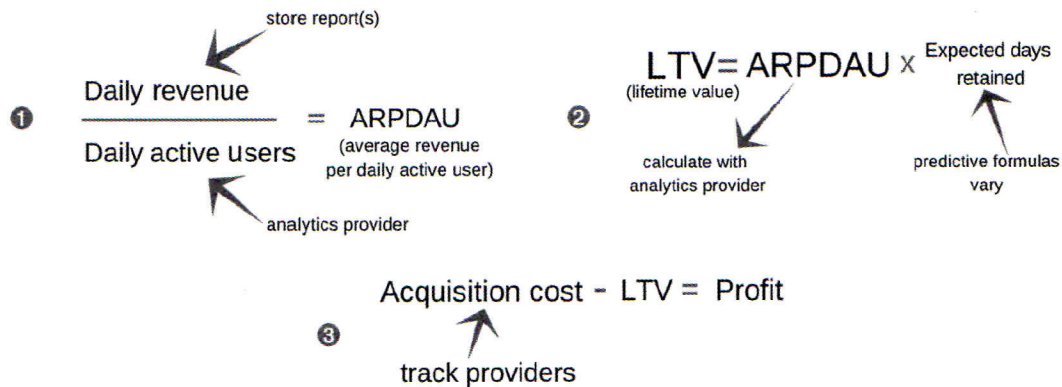


Figure 1: Three financial formulas to run

jailbreaking) can make it difficult to accurately report revenue if not appropriately addressed and removed. For example, we have seen cases where a report showed over US\$25,000 in revenue, but in reality less than US\$2,000 was real.

Some analytics partners can now identify these bad transactions and remove them from the data so they do not show up in your reports (which we highly recommend). They do not, however, actually prevent the fake transactions from occurring. Preventing the transactions altogether can be more difficult and may require security or other additional development work.

Inaccurate financial reporting can lead you to make incorrect decisions about product iterations. It can affect the user experience, and it also distorts the economy of your app. This is especially dangerous in competitive games where false transactions could ruin an event and your reputation as a developer. Make sure you have confidence in the credibility of your transactions before you make business decisions.

Sample questions

- How many transactions did we have in Turkey last August?
- What was our average revenue per user on Android versus iOS last weekend?
- What is the lifetime value (LTV) of a user we obtained through a Facebook ad?

ANALYSE BY SEGMENT AND COHORT

Events need context in order to give you insights that have value and become actionable.

The importance of comparing user segments (based on actions) and cohorts (users during a period of time) becomes rapidly apparent after you launch. To address this need in the past, many mobile developers went down the hard and expensive road of building their own internal intelligence systems. This created a market for services such as Mix Panel, Apsalar and Kontagent (paid analytics platforms). They promise (and deliver) faster, more accurate and dynamic ways to slice your data. Companies like Swrve have taken it a step further and built A/B testing directly into their product, allowing you to try variations at the same time and compare results. There are several analytics platforms today that offer A/B testing out of the box.

Set up your analytics system to allow you (or your analyst) to slice and dice your data in various ways. You will have specific pre-existing questions that need answers. But the feeling of data serendipity comes when you run reports 'for fun' and discover actionable insights. Let your curiosity guide you and begin exploring; you may be surprised at what you find!

Whenever possible, do not leave the data just to your analyst. Allow your entire team to review the findings and ask questions. You

might be struck one evening by a question like: ‘How do women last week in NY versus last week in CA interact with this feature?’ The answers often lead to more questions. But, as the information is revealed, you may discover an insight that helps your marketing become more efficient, or leads to a new feature. In summary, bulk data observation may open your eyes, but comparing segments by user actions or cohorts can surprise you (and help you make informed product changes).

Sample questions

- a. Did retention of new users improve between version 1.1 and version 1.0?
- b. How did our new ‘sale’ messaging perform this weekend compared to last?
- c. What do women who post do next, versus men who post?

MEASURE USER ACQUISITION PERFORMANCE

If you spend money on acquiring users (and many developers do), then the right data can help you avoid wasting your marketing dollars. How? In the past, a developer might run an ad campaign on Facebook and others across several networks. If the same user clicked on two different ads you might be charged by each provider for the same install. Avoid ad

publisher ‘double-dipping’ by implementing a click attribution network (CAN).

CANs can pinpoint the origin of each install, solving the black-box mystery of app store installs and where your new users come from. They can also analyse information about the user’s cost for acquisition, their app engagement benchmarks and/or the amount of revenue generated. This allows you to identify the marketing channels which have been most effective at meeting your business goals.

Companies like HasOffers (MobileAppTracking) and Kochava have dominated this space and forced many major ad networks to go fully transparent, a major win for the industry. This makes it possible to calculate the precise return on investment (ROI) for media spend on a per-user level (Figure 2). Want to know the value of Twitter versus Facebook users? No problem! Was spending twice as much per install for videos worth it? You can answer that in two clicks.

Sample questions

- a. How much revenue did we earn per user from paid acquisition compared to organic installs?
- b. What percentage of my users installed from my social media marketing efforts?
- c. Should I remove the spending cap on this campaign that is killing it?



Figure 2: How click attribution works

INCLUDE A/B TESTING AND OPTIMISATION

While A/B testing and optimisation of websites (particularly e-commerce) have been happening since Yahoo started classifying URLs, it has not been easy to bring this discipline to mobile apps. This can be partially attributed to the inherent difficulties of app engineering, combined with delays in app store approval and an overall longer release cycle than websites. But now there are solutions such as Artisan (UseArtisan) which allow developers to run A/B tests on the placement of UI elements in their app on the fly through a website GUI and without additional engineering resources required.

Some app elements you might A/B test are:

- price points for purchasing;
- in-app messaging;
- value propositions;
- colour options for buttons;
- placement of advertising units;
- Facebook Connect integration points.

A word of caution: just say no to 'multi-variant testing'. People who use this term for app testing either have millions of users, or they are overreaching. Testing multiple variables means more users, more time in the field and more chances to get false positives. Stick to the basics, and do not get too fancy with your tests.

Some A/B tests will generate incremental improvements, whereas others are integral to your product success. Be patient, and keep testing in a prioritised but more or less linear fashion. Just ... keep it simple Superman (KISS)!

The most important A/B testing is often around determining your price point

When evaluating this element, total revenue will be a key indicator. But do not forget to examine the changes in user behaviours. Does a user that pays more for a feature come back more often, or less? Do they

need to spend ten minutes in-app before they make a purchase, or 100 minutes? Look at the whole app picture, not just the bottom line when considering test results.

Sample questions

- a. Share your score! A: red button; B: blue button.
- b. Lose weight fast! A: bacon; B: fruit smoothie.
- c. Which price point works best? A: \$1.99; B: \$0.99; C: \$4.99.

SUPPORT DIRECT, CUSTOMISED USER MESSAGING

Mobile apps used to be incredibly, frustratingly static for customising marketing within the app (with the exception of advertising displays). But it is finally within your grasp to deliver an evolving, personalised user experience with messaging tailored to individual users based on their habits.

Messaging personalisation is built upon comprehensive analytics (so it requires the previous elements discussed in this guide). Since the analytics system knows so much about a user, it can now contribute to personalising the user experience more easily than actually building new product features. The key to success is by sending the right messages, to the right people, at the right times.

Personalised messaging can be accomplished by using three tools — e-mail, in-app and push notifications — to directly communicate with users. These messages can be targeted based on any number of triggers, segments or conditions. They can also be fully prioritised and limited per session or per day as part of an individualised plan to keep each user engaged.

For example, if you got your candy crushed badly at level 23, the game might send these targeted user messages:

1. Immediately: an in-game message, using A/B testing, offering tips to win versus showing you the friends that beat your score.

2. 30 minutes later: a notification saying 'Vote "No" on 23!' versus 'Your hearts are refilled'.
3. 24 hours after last attempt: an e-mail with a free boost, saying 'I'll give you 23 good reasons to come back right now!'

These custom experiences can be measured and optimised to increase engagement, retention and revenue. But to be successful, you need to build and test your custom messages based on a solid analytics foundation.

Sample questions

- a. 'Hey, we haven't seen you in a week, here's \$10!'
- b. Paying users: 'VIP sale on top items!'
- c. Pre-converters: '3X sale is on!'

EIGHT IMPORTANT PRINCIPLES TO REMEMBER

1. Always start with questions. Work backwards to determine what needs to be tracked — and how to track the data to give actionable insights later.
2. Collect smart data. Every data point should go towards answering a question today or in the future.
3. Measure success against benchmarks. Focus on company-wide key performance indicators (KPIs) and constantly ask how your work contributes to them.
4. Provide actionable data to all. Instead of restricting access to 'sensitive' data, put it out there in your company — you never know who will ask an insightful question or have the next great idea.
5. Avoid manually pulled reports. Reports should be set up once and refreshed as necessary, with analysis time focused instead on answering questions.
6. Leave room for serendipity. Allow your analyst 20 per cent of his/her time (pick one day/week) to explore the data without expectation. The new insights will surprise you.

7. Quantify customer sentiment. Monitor your reviews and incoming e-mails for clues about data to analyse for usability improvements.
8. Measure a relevant sample size. Make sure you are looking at a statistically significant dataset — both the number of users and the length of time. This will vary by app and feature tested.

CONCLUSIONS

The six data elements outlined in this paper in combination with the eight key principles give you a starting point for the information your analytics programme should include. To become truly 'data driven', an organisation needs to incorporate the gathered insights and analysis into real-time decision making. Your company's development strategy should be built around metrics. The features you design and build are determined by the outcomes of testing. The marketing campaigns you run should be carefully measured and optimised — with the winners replicated and the losing campaigns terminated. Being 'data driven' means real data in real time and building your company around it. Nothing more, nothing less, no compromise and nothing personal. If done correctly, analytics can add freedom to your organisation, because determining the product roadmap based on user data is as close to letting your customers make decisions as it gets.

Every day in your app, users vote about how it should be improved through their intentions, interactions and, of course, their wallets. One must ensure one's organisation is set up to listen to your app users.

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