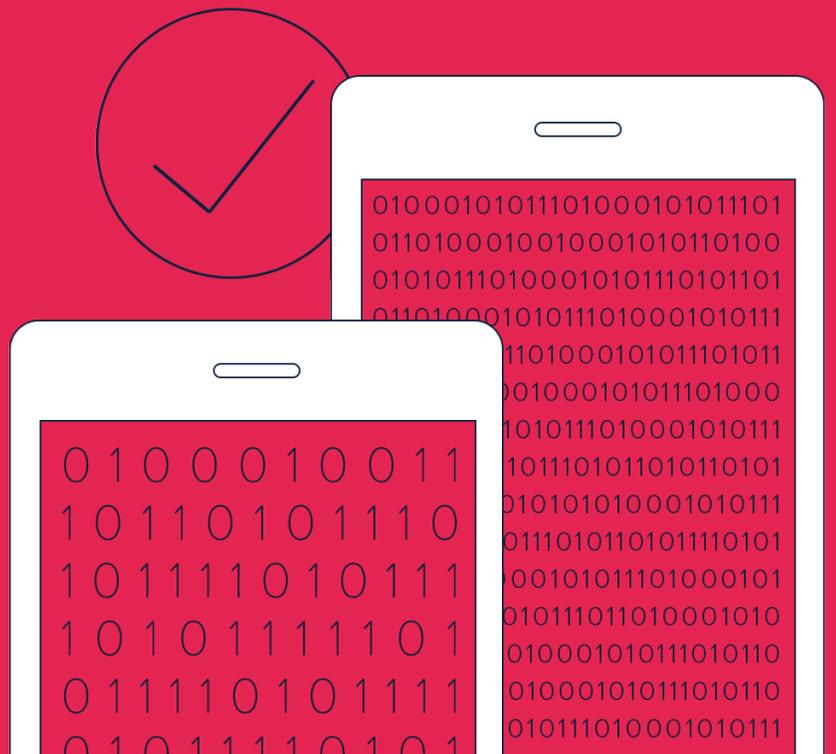

How To Build a Mobile Data Strategy. The Right Way.

Aligning product, marketing, and engineering to minimize wastage and maximize value.



Contents

Mobile Marketing's Hidden Challenges	1
How to Create a Mobile Data Strategy	3
Business Objectives	5
Data Mapping	9
Naming Conventions	10
User Identity	12
Use Cases	14
Tech Alignment	16
Privacy Controls	19
Conclusions + Next Steps	22

Mobile Marketing's Hidden Challenges

Perhaps the two most significant trends in marketing in recent years have been the shift to mobile, and the need to harness data and technology in deeper, more sophisticated ways. These two trends correlate with one another, but not always in a positive way.

As turnkey as they may first sound, getting the most out of SaaS marketing and analytics tools requires a solid technical integration and ongoing maintenance as platforms change. From an engineering perspective, this is not always as “fast and easy” as marketers would like.

While the growth of marketing SaaS tools has certainly made many once-complex marketing tasks faster and easier to execute by non-technical end users, when things go awry it's not uncommon for an initiative that begins as a quick growth “hack” to become a four letter word of a different sort around an organization.

In mobile apps, in particular, SaaS integrations can be quite complex. To collect native app data a developer must instrument an SDK to capture specific interactions within specific

parts of the app. Someone must then push that app update out to users through the app store (often, multiple different app stores), which taxes the user experience. This is quite different from the copy-and-paste simplicity of JavaScript tags on web pages and ability to push updates in minutes.

Even more problematic, mobile developers need to worry about a host of issues related to overcrowding their app environment with third-party SDKs. Issues include speed and performance, as well as instability resulting in frequent crashes. Fixing such problems in a “messy code” environment is never clear-cut, as any number of SDKs could be at fault. Unfortunately, the end user doesn't care about which app service is to blame. In her eyes it's you, the app owner, who's solely to blame when something goes wrong.

“It’s like the old adage of the boiling frog. When the heat is turned up slowly the frog doesn’t realize it’s being boiled alive until it’s too late,” says David Spitz, CMO of mParticle. “That’s what happens with one-off SDK integrations. Everything seems fine at first, until one day the organization wakes up and realizes they have too many SDKs collecting data in their app, causing all sorts of problems. There’s not much they can do about it without dedicating significant mobile engineering time to unraveling the mess.”

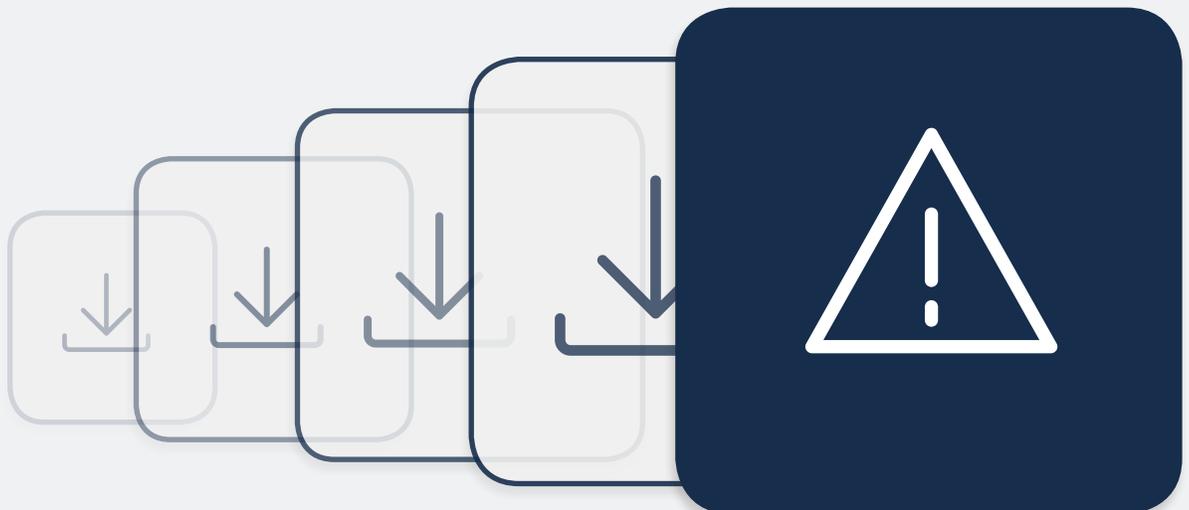
“The solution, somewhat paradoxically, is that mobile marketers need to slow down—at least momentarily—before they can run fast,” says Michael Katz, mParticle’s Co-Founder and CEO. “Since mobile is such a personal medium, they need to build a really solid customer data strategy to take full advantage of the opportunities mobile represents.”

“

The solution, somewhat paradoxically, is that mobile marketers need to slow down, at least momentarily, before they can run fast.

— MICHAEL KATZ, CO-FOUNDER & CEO, MPARTICLE

”



How to Create a Mobile Data Strategy

To navigate past mobile marketing's hidden challenges—and thrive not just survive—you need a mobile data strategy that's aligned across the organization.

The exercise is use-case agnostic and ideally precedes any sort of software vendor or tool selection. The goal is to identify and organize your key data assets in a streamlined way, regardless of how they'll ultimately be used.

For example, marketing may wish to drive engagement and need to send data to their marketing automation tool of choice for the purpose of sending tailored messages to different groups of users. Meanwhile, product managers may wish to send data to an analytics tool or crash reporting system, while your business intelligence group may want to stream the raw data into a data warehouse such as RedShift.

These are all potential applications of the data that will be classified during your data planning exercise. The goal is to create a unified approach that will serve current and future needs, maximizing business value while minimizing engineering cycles.



7

The seven essential ingredients to mobile data strategy:





BUSINESS OBJECTIVES

Define Your Business Objective and Customer Journey

Leading the way in your data strategy process is honing in on a clear idea of your business objectives as well as the customer journey. Establish what your business goals are, in a specific way, as well as the critical metrics corresponding to these objectives.

While it's a simple step, it's often one that gets overlooked or undervalued. Ask yourself the following questions:

- What are you trying to accomplish with your app?
- What key metrics will determine your success?
- Should users be segmented? If so, what will the criteria be for that segmentation?
- What events should trigger user engagement opportunities?

The important thing, when answering these questions, is taking a comprehensive, end-to-end view of your business. To help with this, we recommend a customer journey framework. Options include a three-step framework like Acquisition, Behavior, Outcome, or the more involved option, which is Dave McClure's often-cited Pirate Metrics framework, or another one of your choosing.

Here is an example of the Pirate Metrics framework for an app marketer:

GOAL	KEY METRIC (EXAMPLE)	EVENT DESCRIPTION
Acquisition	Unique App Visit	Users arriving to the app from various off-app channels
Activation	In-app Search	User conducts a search
	App Login	User confirms their email by registering within the app
Retention	Weekly Usage	User logs in X times this week
	Monthly Usage	User logs in Y times a week & Z weeks in a row
Referral	Shares	User shares content with a friend on a social channel
Revenue	Booking	Value of bookings through the app

While the example above focuses on in-app behaviors, you can also follow a similar approach for cross-channel digital journeys (including web and email interactions, for example), as well as omni-channel marketers (including in-store and call center interactions, for example).

The key metrics initially listed are more for definition purposes than comprehensiveness (that comes next). What's important is the organization is looking to the customer journey, while beginning to develop a common framework for talking about its data aligned with key objectives.



DATA MAPPING

Account for All Mobile Data Types

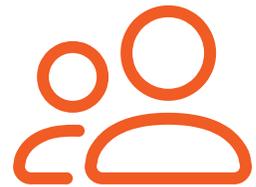
Most digital marketing data can be broken down into a pretty simple paradigm: Who, What, and Where. Who are the users, what are they doing, and where are they doing it? But mobile requires something more.

While the same overarching Who/What /Where paradigm applies to other customer data types (such as web and offline), mobile has some subtle but important differences.

For example, mobile data strategy needs to take into account data points that fall outside the web paradigm—e.g., mobile-specific device types, or device telemetry data—and capture Exceptions and Push Tokens specific to mobile apps.

WHO

The primary user ID used in mobile marketing is the anonymous advertising ID; IDFA for iOS, GAID for Android. Other types of User data that may be collected include email address as well as social login information.



There are also User Attributes which may be collected during the registration process or throughout the app experience. One example would be an upgrade to a Premium Account, which may define the user as a Premium User.

WHAT

Any user interaction within the app is referred to as a Custom Event. These “Custom Events” also have a number of associated dimensions, referred to as “Attributes”. Attributes can have a range of different values.



Events types can include behaviors such as Transactions, Search, Navigation, Social, Location, UserPreference etc. More specifically, events names may be ViewProduct, AddtoCart, ShareToFacebook, etc.

Event Attributes are name-value pairs representative of event details. For example, an event could be AddToCart and have attributes could be {SKU:09995, Color:Blue, Price:75.35}. This corresponds to the user adding an item to the shopping cart that has a stock keeping unit (SKU) of 09995, a color of blue, and a price of \$75.35.



WHERE

On web there is typically a proxy for website, or more specifically, the context of the web page. In Mobile, context extends into the physical world.

Where (physically) a user does something can say as much about them as what they're doing, or even more. Generally, in mobile, there are three types of location data:

- **Registration-** this location data is usually static and a point of origin but typically not the most. It can include Street Address, City, State, Country, and Zip.
- **IP address-** Whether you are on Wi-Fi or using your cell data, your IP address can be mapped to a geo-location.
- **Lat/Long-** By far the most accurate, it's the most dynamic but apps require explicit user acceptance to allow this data to be captured. Only then can it be determined whether or not the user wants to send data to partners.



NATIVE MOBILE DATA

Capturing Crashes, Push Tokens, and Device Telemetry data will provide greater breadth and depth across integrations, not only allowing you to enable an extensive range of integrations but also activate greater functionality across the ecosystem of mobile partners.

- **Unhandled Exceptions** happen when the user performs a behavior that forces the app to unexpectedly quit (crash). Crashes represent an incredibly valuable opportunity for marketers to proactively repair a potentially damaged relationship with the consumer in real-time.
- **Capturing Push Tokens** allows you to seamlessly activate push notifications through the Mobile Marketing Automation solution you select. It also allows you to maintain a list of users who have once opted in to push, so that if you do switch providers you're not required to rebuild your audience.
- **Accessing device telemetry data** is what distinguishes some app experiences. Capturing beacons, accelerometer data, barometer data and other forms of data can not only amplify your analytics capabilities but also provide engagement opportunities not possible on any other device except your mobile phone.



NAMING CONVENTIONS

Optimize your Naming Schema

In Romeo & Juliet, Juliet asks innocently “What’s in a name? That which we call a rose / by any other name would smell as sweet.” The tragedy, of course, is that a name can signify quite a lot.

This is certainly the case in mobile measurement. Sometimes HOW you implement your tagging is just as important as WHAT you actually tag.

Naming Best Practices

The following are some best practices for {Event, Attribute} naming:

1

Structure

Use a simple {event, attribute} structure where dynamic values are passed in as **attributes** while event **names** are static. For example, use high-level event names (such as “ViewProduct”) while keeping details about which product a user viewed in the event attributes.

2

Syntax

Employ a common syntax such as <Verb><Noun> or <Object><Action>. Something that is intuitive, flexible, sortable, and searchable. For example, if a user is using a filter to view product results and you want to capture that event, use something “FilterListings” as the event name.

3

Usability

Remember mobile tagging tends to be WYSIWYG (what you see is what you get). What you write in your code is generally how your data will appear in your marketing and analytics tools. Keep your naming convention under 25 characters, and make it something that non-technical users can intuitively understand. Keeping the names short and easy to understand will ensure that your data is easily readable when it arrives at the downstream integration partners.



USER IDENTITY

Develop your Hierarchy of User Identities

There are a few different ways of thinking about mobile identity. Somewhat counterintuitively, a person's identity—in a data mapping sense—is not their first and last names. Name is an attribute of a user, not the unique defining characteristic of that person. As it relates to your data plan, “identity” must be a primary characteristic not a secondary one.

Identity characteristics can be grouped into two primary categories: implicit and explicit. Implicit identity collection includes mobile identifiers (IDFA/IDFV, Google Ad ID), IP address, and web cookies. Explicit identity collection includes email address, Facebook ID, and Google Account ID.

(Note: A typical challenge is tying together anonymous web usage from non-registered or non-logged in users and appending it to the rest of the customer data to be able to map the full customer journey; however, this can be accomplished with high degrees of accuracy through third party vendors such as Tapad or Drawbridge.)

Similar to event attributes, user attributes give you a more detailed view of who's using your app and what demographic features and characteristics make them unique or similar to others also using it. It's important to think about the user attributes most relevant to you. Examples of these attributes could include gender, referral source, reward-program status (gold, silver, bronze).

A special type of user attributes is user preferences. Their settings, favorites, communications preferences, etc. Here, we would note factors like how and when they prefer to receive app notifications. At the same time, there are likely to be preferences, such as whether they prefer a blue background or black, that may be relevant for system usage but not consumer insight and engagement. We can flag these as more fine-grained, should future prioritization be required (mParticle does not require this, but some systems do).

User attributes give your app a more detailed view of who's using your apps and what demographic features and characteristics make them unique or similar to others also using it.

The grouping or combination of user and/or event attributes is what enables you to construct complex segments ("give me all X who did Y"). You can segment users based on any variety of criteria, from how often they use coupons or discount codes, to their geographic location, to products they may have viewed but not purchased.

Segments will vary widely by business need and can change over time. Our data plan need not presuppose a certain segmentation, rather it should collect and organize the raw data that will be useful for creating such segmentations when and as needed.



USE CASES

Create an Activation “Wish List”

Once you have mapped your event and identity data, and defined your organization’s privacy and control preferences, it’s time to grab a whiteboard and some colleagues and brainstorm all the objectives you’d like to achieve with the data.

What do you want to use data to accomplish? Are there specific services that you currently use, or would like to use, for analytics, push notification, data warehousing, or other purposes?

The important part of this step is incorporating feedback across functions and the respective stakeholders within your organization to get a holistic, and cross-disciplinary view. Even if you don't have specific vendors in mind, you can frame out functional questions and needs. See example below.

Inevitably, this process will generate lots of ideas - not all of which your organization may be ready to execute

immediately. Note them anyway, as it will help with the next step.

Conversely, you may also overlook some opportunities that will not become evident until later, when business needs change or new platform opportunities arise. That is to be expected. The important thing is that you are inclusive of the full range of opportunities that exist today.



ACQUISITION MARKETER

“

I'd like to help our media teams understand the quality of the traffic they're bringing us.

Currently, they are buying app installs on a 'cost per download' basis but not accounting for downstream profitability and LTV, which results in our acquiring lots of customers but not the type we want.

”

”



ENGAGEMENT MARKETER

“

I'd like to cultivate our app install basis to do more with the app and buy more from us. In particular, I'd like to send special invitations to our valuable customers who have downloaded our app but we've not heard from in a while in the app or otherwise. I want to reach them with a compelling offer before they start building a relationship with our competitors.

”



BUSINESS INTELLIGENCE

“

I want an efficient way to access all of the app data and to stream it into our data warehousing platform, where we've already connected our payment system and loyalty program data. That way I can mine the data for additional engagement opportunities and provide closed-loop effectiveness reporting back to our teams deciding what to invest in next.

”

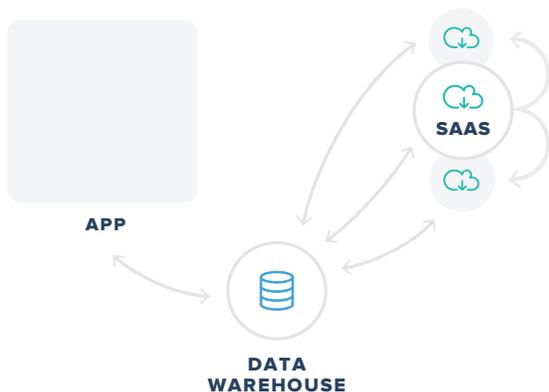


TECH ALIGNMENT

Align your Technology Strategy

The next step of the process is defining what you want your marketing stack to look like. Here you'll need to take into consideration all the inputs above, as well as account for the inevitability your needs and technical environment will change and evolve over time. Without that consideration for change, your data won't be able to keep pace with your business.

When it comes to the data management/architecture, you have a range of options.



WALLED GARDEN

One option is to not send any data to partners directly from the app. In this scenario, app data is sent directly to a data warehouse and then a series of server-to-server integrations can be enabled by various API's.

This is an approach usually employed by the biggest companies such as Facebook, Twitter, Google. The downside is the amount of engineering work required to configure and maintain a "Walled Garden" approach can be significant. In particular, without robust API's, this setup can limit the speed in which data can be sent to partners.

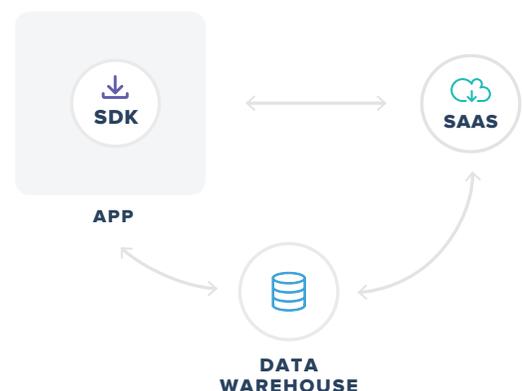
ONE SIZE FITS ALL

An alternate approach involves standardizing around a single point solution through the installation of that partner's software development kit (SDK). The rationale is similar to that of the Walled Garden approach: avoid "bloating" the app with multiple SDK's that can degrade performance and hurt customer experience.

The problem is that, in practice, it's rarely the case that a single solution can solve all business needs.

Additionally, from a data control perspective, there is a high degree of data lock-in risk associated with this approach; given that your historical data resides in a single, third-party system, getting that data translated and

transmitted to another system could become a significant undertaking.



DATA DECENTRALIZATION

Since most people find that no single point solution can do it all – particularly as the business needs mature beyond the initial requirements of app launch – many companies end up taking a decentralized approach. In this scenario, you have multiple SDK's creating significant overhead within the app, which can degrade user experience, create an enormous operational burden, and leads to missed opportunities, as engineering focuses on installing and maintaining third-party code rather than growing the business. As a result, this strategy is usually arrived at accidentally as opposed to by design.

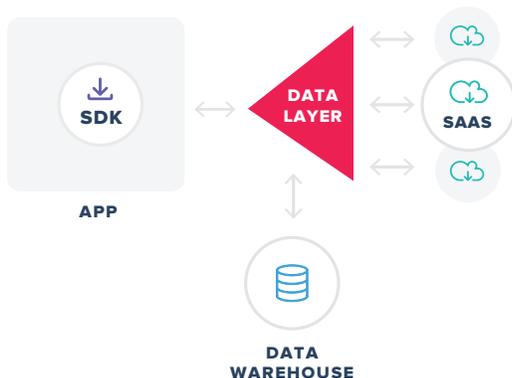


DATA ORCHESTRATION

The approach many companies are turning towards is assembling a best-in-breed stack, built around a central data layer. This allows you to collect customer data once and then connect it to all of the leading solutions through server-to-server integrations.

The data hub model introduces speed and agility back into the organization. It also eliminates the overhead associated with client-side (SDK) integrations, and enables marketers to get economies of scale from a single, focused engineering initiative. Investing in the data layer provides apps with greater control over their data and the vendors that require access to it.

Ancillary benefits include creating a single source of truth over the data and the ability to “replay” or send historical data to any partner at any point.





PRIVACY CONTROLS

Instrument Privacy Safegaurds

Since each business's needs will be different, privacy and data control need to be considered early on, as part of the initial planning phase before the implementation of case-specific tools.

This step requires a balance between the marketer's desire for a highly personalized app experience and the privacy of the user—one simply can't dominate the other.

So too there must be a balance between the amount of data an organization shares with third-party services and software partners and the data it keeps only within its own walls.

Users are likely aware that their data is being used in some way to provide a personalized app experience, but they're generally less familiar with how their information may be passed on to a variety of third-parties in the process. This exercise should result in governance that balances the needs of the business without sacrificing user privacy.

Without the proper privacy protocols in place, you may find yourself in non-compliance with company policies and local governing law. Non-compliance may create significant liability and exposure for the company, not to mention a potential PR nightmare.

When solving for Privacy, the keys are the 3C's:
Consistency, Compliance, and Control.

1

Consistency

Are your data collection and retention practices consistent with your privacy policy?

Is your current approach enforced consistently across your organization?

2

Compliance

Are your partners compliant with the terms of the agreement you set forth?

Are those agreements in compliance with your governing policies around privacy and data retention?

3

Control

Are you able to filter certain data types to protect privacy and sensitive user data?

Are you able to hash and encrypt data before transmission to third-party partners?

With a coordinated data strategy and platform, company employees can make informed decisions about what types of data to send or not send to third-party services.

The screenshot displays the 'MASTER FILTERS' interface in a web browser. The interface is titled 'Filters' and includes a 'Service Provider' dropdown menu. A 'View By:' dropdown is set to 'Events'. The interface features a table of settings for six service providers: Apsalar, Google Analytics, Mixpanel, ActionX, Kissmetrics, and Bugsense. The table includes columns for 'SEND NEW DATA POINTS BY DEFAULT', 'USER SAMPLING', and 'A/B TESTING' (only for Apsalar and Google Analytics). Below these are rows of toggle switches for various data categories: Navigation/Content View, UI Button, Page View, Location, and Promotion, each with sub-rows for specific events like Homepage, Destinations, and Promotion.

View By:	Apsalar	Google Analytics	Mixpanel	ActionX	Kissmetrics	Bugsense
Events						
SEND NEW DATA POINTS BY DEFAULT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
USER SAMPLING	- %	- %	100 %	100 %	100 %	100 %
A/B TESTING	50-100 %	0-50 %				
Navigation/Content View	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
UI Button	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Homepage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Page View	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Destinations	<input type="checkbox"/>					
Promotion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
UI Button	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Homepage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Page View	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Destinations	<input type="checkbox"/>					
Promotion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Conclusions + Next Steps

As you contemplate this mobile marketer guide to data strategy, consider the following:

1

How do you create alignment between growth initiatives & engineering resources?

2

How do you automate data flow to internal & external platforms?

3

How do you maintain data ownership & prevent vendor lock in?

4

How do you minimize app bloat and the “tax” to the consumer?

5

How do you control for user privacy & security?

With a solid data strategy in place, companies can move forward quickly with a wide range of data initiatives with the alignment across the organization and confidence that there will not be a significant amount of rework.

For example, with a Data Hub, business users can take an iterative “Test, Deploy, Measure, Improve” approach without burdening engineering.

On the other extreme, even if an organization has decided to adopt the Walled Garden approach, the business can still realize efficiencies from proper mobile-first data planning, mapping and structures in accordance with the business goals and privacy objectives.

Once you’ve answered the questions above, you should have a more informed conversation with your mobile engineering team about the appropriate implementation strategy and approach. Apps provide for better customer experiences and data is what drives those experiences. So, start with a strong data foundation, and you’ll not only be creating better user experience, with higher engagement, but also creating significant enterprise value for your entire organization.

Get in Touch!

mparticle.com

[@mparticles](https://twitter.com/mparticles)

mparticle@mparticle.com

NEW YORK

381 Park Avenue South
Suite 815
New York, NY 10016

SAN FRANCISCO

604 Mission Street
10th Floor
San Francisco, CA 94105