A hand holding a smartphone, with the screen displaying a mobile application interface. The background is dark with bokeh light effects. A large blue diagonal shape covers the bottom right portion of the image, serving as a background for the title text.

MOBILE FIRST: HARNESSING THE APP LIFECYCLE FOR TRANSFORMATIVE BUSINESS SUCCESS



C O N T E N T S

The Mobile Opportunity Gap

To close the opportunity gap, mobile strategies (and budgets) need to grow up—fast.

Adopting a Mobile-First Mindset

Driving Success Across the Mobile Application Lifecycle

What makes the mobile lifecycle unique?

A closer look at the mobile application lifecycle

PHASE 1: STRATEGIZE

Define your internal mobile ecosystem

Define the amazing mobile experience you want users to have

Define the support you'll need

Define the timeline and budget

PHASE 2: CREATE

Build in-house

License a pre-built, brandable application

Develop a completely custom app

PHASE 3: LAUNCH

Help people discover your app

Target and acquire high-value users

PHASE 4: ENGAGE AND MONETIZE

Drive user engagement

Monetize your app in brand-appropriate ways

Analyze and optimize

Structuring Your Organization for Mobile-First Digital Transformation

Mobile-First: The Time is Now

APPENDIX: Mobile RFP Requirements Checklists

PHASE 1: STRATEGIZE

PHASE 2: CREATE

PHASE 3: LAUNCH

PHASE 4: ENGAGE AND MONETIZE



WHILE MANY OF US WEREN'T LOOKING, THE WORLD CHANGED.

Mobile devices—how we use them, when and where we use them, even why we use them—have changed both personal lives and business in profound ways. Across industries, brands that can understand this change and adapt to make the most of it will be positioned to take the lead in the coming years.

In this eBook, we'll explore the mobile opportunity gap and how businesses can shift their mindset, operational strategy and even org structure to put mobile first—and win.



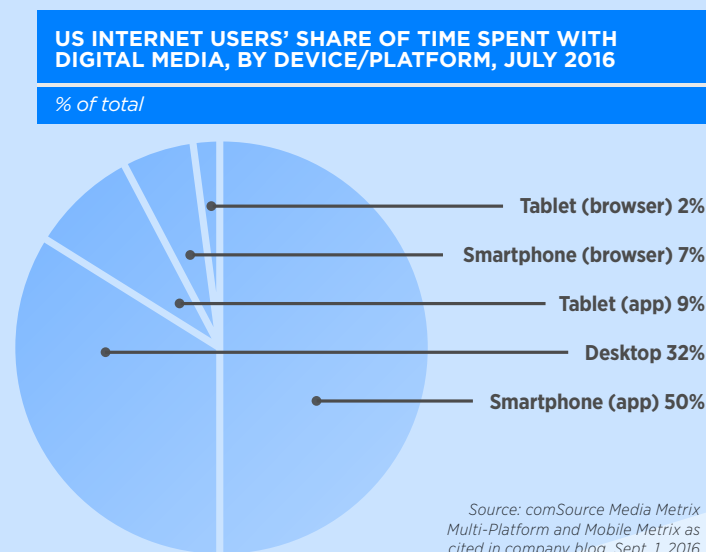
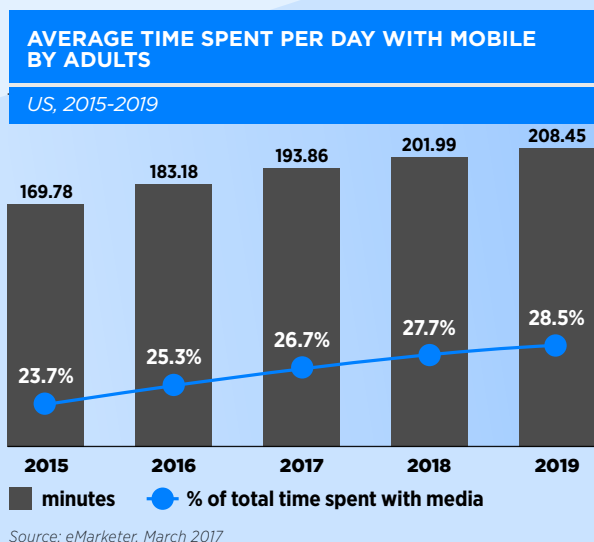


THE MOBILE OPPORTUNITY GAP

Ten years ago when the iPhone was first introduced, less than 10% of the US population had smartphones. Five years ago, we'd reached just over 40%. **But by July of 2016, 80% Americans had smartphones—and the number keeps climbing.**¹ Mobile apps now represent the majority of digital media consumption among US internet users,² and daily mobile users are on their devices for up to six hours per day. Seventy percent or more of those surveyed reported checking their devices as soon as they wake up, right before bed and during work, meals, movies and TV programs.

It's clear that mobile is both pervasive and personal, and that represents a huge opportunity for brands. **Unfortunately, it's an opportunity most are missing.**

Although 73% of U.S. marketers surveyed in August 2016 said they planned to increase their spending on mobile within the next 12 months,³ investment in mobile still fails to match consumer interest. This gap represents **a \$16 billion missed opportunity.**⁴ Just as consumer mobile usage (via apps in particular) approaches maturity, many brands are still taking baby steps.



¹ Adam Lella, U.S. Smartphone Penetration Surpassed 80 Percent in 2016, comScore, Inc., February 3, 2017

² The 2016 US Mobile App Report, comScore, Inc., September 13, 2016

³ The State of PPC 2016 Edition, Hanapin Marketing

⁴ Mary Meeker, Internet Trends 2017, KPCB.com



To close the opportunity gap, mobile strategies (and budgets) need to grow up—fast.

In the early days of mobile applications, it was possible to treat mobile as an isolated tactic and channel. Before mobile use was ubiquitous and brands really understood how to make mobile data actionable, you could get away with treating mobile as another marketing avenue like PPC or direct mail.

Now, however, mobile touches everything in the enterprise, just like it does in the lives of consumers. It's a sweeping societal and business transformation all at once. And it requires three big changes from businesses that want to succeed:

1

They must shift their mindset to put mobile first, rather than seeing it as an afterthought or a bolt-on to other platforms and strategies.

2

They must adopt a lifecycle approach to mobile to ensure maximum impact and return on investment.

3

They must adapt their organizational structures to take full advantage of mobile's transformative business power.



ADOPTING A MOBILE-FIRST MINDSET

Mobile internet traffic surpassed desktop traffic in 2016,⁵ and mobile apps now account for 60% of all digital time spent in the U.S.⁶

Mobile comes first in consumers' minds today—it is no longer the second, third or companion screen. The mobile experience comes before desktop, TV or any other device. And on mobile, apps are where it's at—not browsers.

Consumers already have a mobile-first mindset, but most brands are a bit behind. (After all, it's not an easy task to shift an entire organization.)

When you recognize and adopt the mobile-first mindset, your strategies must shift in three ways:

1

Mobile apps can no longer be thought of an extension or copy of your website. Any app initiatives must be developed for mobile as a unique platform with unique capabilities. If user engagement is your goal, your focus should be on mobile applications first, mobile web second and traditional web last.

2

All mobile app strategies should be native-first—built with code native to the device they're intended to run on (iOS, Android, etc.). Consumers now expect “authentically mobile” experiences. They want the kinds of unique features and capabilities that are only possible with native code. So-called “write once, run anywhere” code sounds promising, but only native code can consistently deliver the kinds of rich experiences that consumers expect.

3

Your brand strategy should be fully integrated around your mobile app. With your app as the digital hub of your brand, you can seamlessly incorporate all of the systems you use to engage, manage and monetize your customers. Using standalone point solutions for each of these customer connections can create a bad user experience and, in the long run, will eventually fail to address the full range of your mobile needs.

⁵ Mobile and tablet internet usage exceeds desktop for first time worldwide, StatCounter Global Stats, November 1, 2016

⁶ 2017 US Cross-Platform Future in Focus, comScore.com, March 22, 2017



DRIVING SUCCESS ACROSS THE MOBILE APPLICATION LIFECYCLE

Every mobile initiative has a four-stage lifecycle. When you understand this lifecycle and plan to address each stage, you position yourself to make the most of your mobile investment.

The four phases of the mobile app lifecycle are:

1 STRATEGIZE

Define the amazing mobile experience you want to deliver to users and what it will take in terms of teams, infrastructure, time and budget to get there.

2 CREATE

Bring your app to life by building it in-house, licensing a pre-built, brandable application or working with a custom app development provider.

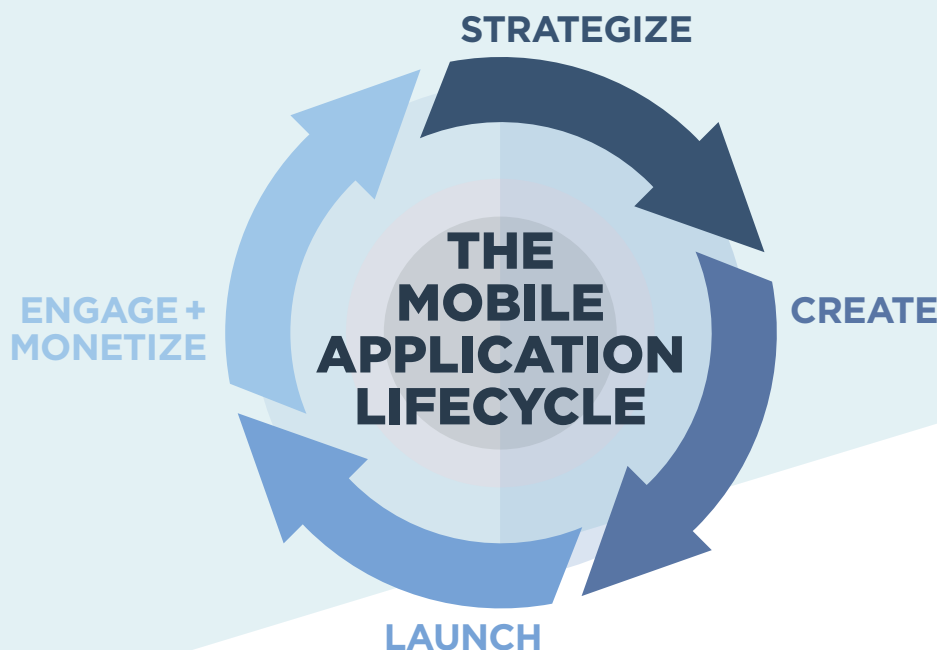
3 LAUNCH

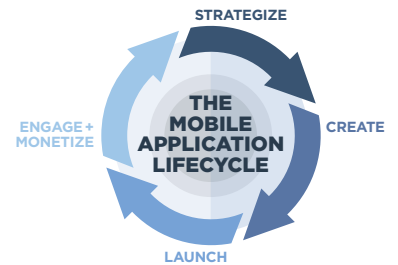
Facilitate application discovery via the App Store and Google Play. Drive user acquisition with performance marketing.

4 ENGAGE AND MONETIZE

Keep users actively engaged with your app and generate revenue from your mobile efforts.

Then use data to optimize, rinse and repeat.





What Makes the Mobile Lifecycle Unique?

The idea of a technology lifecycle is not new—it comes to us from the software development world. What makes the mobile lifecycle different is the hybrid context in which mobile operates and something we like to call the daily digital trail.

Mobile is a hybrid: both physical and digital, both customer experience and business solution.

A smartphone is a digital device, but it moves through the physical world and includes highly specific geographic location technologies that mobile apps can leverage. At the same time, an app can serve both users and the business. While your app is providing entertainment, wayfinding, shopping and other functionality to users, it can also deliver business value such as third-party monetization, process optimization, user data collection and even real-world outcomes like increased store foot traffic or doctor appointment compliance.

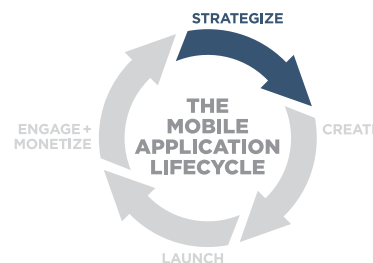
The daily digital trail: What brands can learn about their users and how they can leverage these insights.

It's no secret that mobile use is immersed in the very personal context of the user's daily life. People carry their phones wherever they go and interact with apps throughout the day. Each of these interactions results in a data point—complete with location—brands can use to improve and tailor the mobile experience. (For example, the Phunware platform grows by 40 billion events per month, thanks to the 800+ million unique devices touching it through more than 5000+ application portfolios.)

What's significant is how these mobile data points can be leveraged far beyond the mobile channel. In addition to shaping the mobile experience, the insights to be gained via the daily digital trail can (and should) shape your overall marketing strategy, media investments, operations planning, even real estate decisions.

For example:

- Operations can leverage data from beacons or other mobile location-based technologies to streamline inventory control in a retail environment, monitor and manage patient traffic patterns in a hospital or speed the flow of passengers through an airport or cruise terminal.
- Marketing teams can harness data from your mobile campaigns and app engagement to understand the offers your users care about, which app features they value and where they live, work and play. You can optimize your entire marketing approach based on these deep insights.
- On top of any e-commerce opportunities, additional revenue can be generated through in-app advertising and mobile marketing automation campaigns that drive real-world purchase conversions.



A Closer Look at the Mobile Application Lifecycle

PHASE 1 STRATEGIZE

DEFINE YOUR INTERNAL MOBILE ECOSYSTEM.

First things first, you have to define the internal ecosystem of people who will be working on your mobile initiative. The core team might come from Marketing or Customer Experience, or it might be called the Digital or Virtual group at your organization. For the sake of this eBook, let's call them the Mobile Team.

The Mobile Team's job is to define the value your brand will deliver to users through its mobile portfolio—entertainment, utility, information, etc.—and how that value will be brought to life in a mobile application experience. They will be deeply involved in every stage of the mobile app lifecycle.

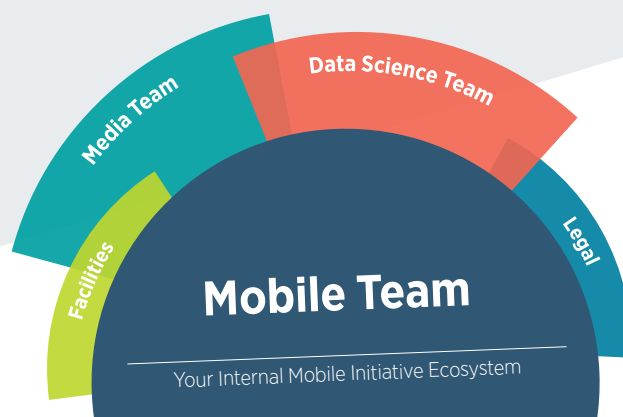
Even the simplest mobile application lifecycle now involves a complex interplay of mobile technology, media strategy and data science, and it can affect areas of the business from marketing to operations to facilities planning alike. That's why we call it an ecosystem.

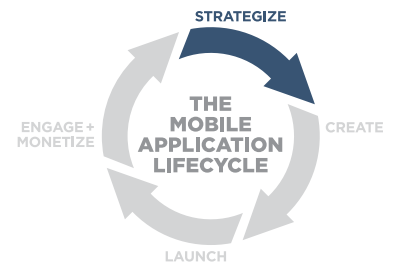
The next group is your **Media Team**. You need smart marketing and advertising professionals involved from day one to make sure you have appropriately strategized how you will build, engage and monetize your application audience.

Just as important is your **Data Science Team**. It's their job to plan out the data to be collected through your application and how you will use it. You can use mobile data to optimize not only future versions of the application but also business processes, marketing strategy and a host of other initiatives not traditionally thought of as "mobile."

Data is key to preserving and expanding the mobile revenue streams associated with your application audiences over time. Your ultimate goal should be to deliver the right action at the right time to the right user—based on data insights into their usage behavior and value to your brand.

Other stakeholders in your mobile ecosystem include **Legal and Facilities**. Your Legal team plays a role in brand protection, privacy and intellectual property enforcement. Your Facilities team should be involved in physical infrastructure investments needed to support authentically mobile user experiences—such as high and low density Wi-Fi, virtual and physical beacons and bandwidth.





PHASE 1 STRATEGIZE (CONTINUED)

DEFINE THE AMAZING MOBILE EXPERIENCE YOU WANT USERS TO HAVE.

Start with a business goal. Are you looking to generate revenue or increase brand awareness? Do you just need to drive foot traffic to your brick-and-mortars? Engage Millennials? Each app will likely have a primary business goals and a few secondary goals. Be clear about each one, and which one matters most.

Next, define the use cases for your app that will enable the business goals you stated above. What feature sets are needed for those uses? Which devices do you need to target with your app—smartphones? Smart watches? TV? All of the above? And on those devices—which operating systems? Do you need to create both an Android and an iOS version of your app? tvOS? Something else? Establishing all of these parameters at the outset will make your journey far more efficient.

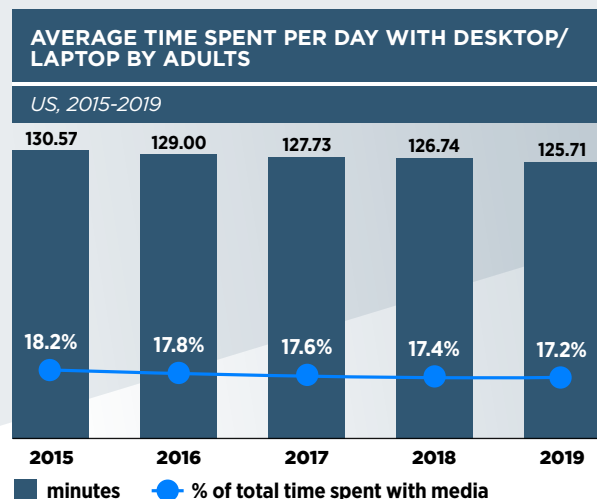
DEFINE THE INFRASTRUCTURE YOU'LL NEED.

Depending on the features you want for your app, there may be additional technology requirements in terms of hardware. For example, a hospital patient wayfinding app needs a robust Wi-Fi infrastructure, while a retail store's proximity-triggered messages require physical or virtual beacons.

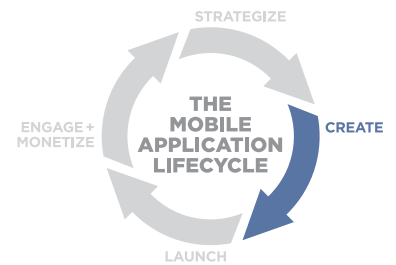
DEFINE THE TIMELINE AND BUDGET.

How quickly do you need to go to market with your app? What is your budget? For a relatively simple mobile solution built on licensed SDKs, you can expect anywhere from 6-16 weeks from start to deployment. Timelines for fully customized app development vary widely, but 4-6 months is not unusual. Keep in mind that projects continue to iterate throughout the lifecycle and may evolve through subsequent releases. As for budget, depending on your unique timeline and goals, you can expect a mobile solution to cost anywhere from \$100K to \$500K (if you're licensing software), or \$1M to \$5M (if you're building a completely custom application).

If these numbers seem high, think about how much you allocate to other channels (email marketing, field marketing, etc.). Now think about how much time your target customers spend in those channels relative to how much time they spend on mobile. This simple exercise in perspective will help you see how worthy of an investment you're making.



Source: eMarketer, March 2017



PHASE 2

CREATE

In this phase of the mobile application lifecycle, you bring your app to life in the way that makes the most sense for your budget, timeline, inclinations and capabilities. At a high level, these are your options:

BUILD IN-HOUSE.

If you have the capability to build your app in-house, you will likely want to license app components (usually in the form of SDKs, APIs and portals) and use your own engineering or IT team to incorporate them into your application. This is the most budget-friendly option.

LICENSE A PRE-BUILT, BRANDABLE APPLICATION.

Customizable app solutions are relatively inexpensive and quick to market, with a low total cost of ownership. Plus, if you choose the right partner, they don't look pre-built at all.

DEVELOP A COMPLETELY CUSTOM APP.

If you have the budget to do it, you can work with a partner to build a custom app from the ground up, with all of the bells and whistles you desire. At this point, it's only a matter of picking a partner with proven expertise, stability and scale. You may want to publish a request for proposals (RFP) to build your app (more on that below), or you may want to research and select vendors using a less formal process.

Structuring a Mobile RFP with Lifecycle Principles

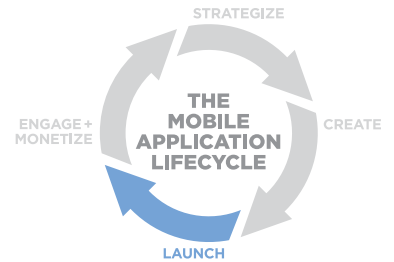
Requests for proposal (RFPs) are an important part of any major custom mobile initiative. It's common for large or complex businesses to use RFPs to solicit mobile solution ideas and strategies, particularly if they

have a physical venue with which the application is supposed to interact (stadium, hospital, port, mixed-use city center, etc.).

If you're structuring an RFP, do it thoughtfully and carefully. The requirements you put forth can significantly impact the quality of

the mobile solution (and partner) you end up with—they can also help (or hinder) enterprise-wide digital transformation.

To learn how to structure your RFP to support the full mobile app lifecycle, see the helpful guidelines in the appendix.



PHASE 3

LAUNCH

This phase of the mobile application lifecycle is where you facilitate application discovery and user acquisition to build the audience that will consume your mobile application. With a thoughtful, data-backed strategy, you can focus your efforts on acquiring high-value users for your app.

In 2016, annual downloads reaching over 90 billion, an increase of more than 13 billion across the iOS App Store and Google Play.⁷

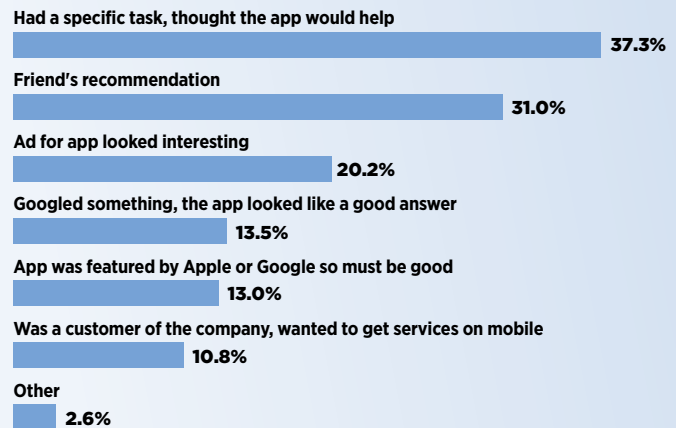
HELP PEOPLE DISCOVER YOUR APP.

With literally millions of other applications to catch their eye, you can't depend on your users to randomly discover your app on their own. Organic, viral application discovery tends to happen by accident.

That said, app store optimization has turned into a sophisticated discipline, involving both keyword and asset strategies for boosting an app's visibility. You'll also want to have a strong strategy for spreading the word to your existing audiences via your website, social media handles, brick-and-mortar stores, etc.

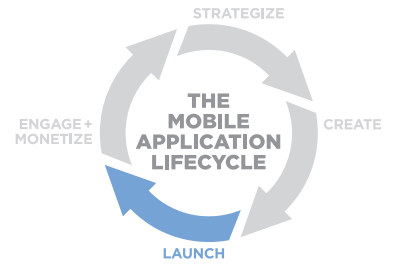
REASONS THAT US SMARTPHONE OWNERS INSTALL APPS, SUMMER 2016

% of respondents



Source: Tune, "App Store Optimization: How to Win App Store and Google Play Search," Aug. 25, 2016

⁷ App Annie 2016 Retrospective — Mobile's Continued Momentum



PHASE 3

LAUNCH (*CONTINUED*)

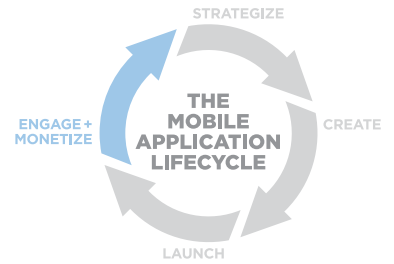
TARGET AND ACQUIRE HIGH-VALUE USERS.

There are dozens of different methods to spread the word about your app and build up your audience. Many of these methods can have a place in your Launch phase strategies. That said, you should assume that mobile audiences are overwhelmingly built through paid performance marketing.

Performance marketing is a cost-effective digital advertising model under which you pay only when your ads “perform”—i.e., deliver a desired action. On mobile, performance marketing usually refers to campaigns that focus on delivering installs for an app (some call it app-install advertising or simply user acquisition).

User acquisition campaigns run only on mobile apps and websites to provide a quicker path to conversion. The idea is that users are already in a mobile environment, so they’re more likely to download an app after seeing a mobile ad than they would be after seeing an ad on desktop or TV. For maximum effectiveness, performance campaigns should target apps and mobile websites where your desired users are most likely to be.

The goal of any performance campaign should be to convert the highest lifetime-value (LTV) targets—people who not only install your app but continue to use it and spend money through it over time. Work with a partner who can help you zoom in on those high-LTV users and find more of them. Post launch, it will be up to your Media team to monitor which of your user acquisition campaigns is performing best so that you can then optimize your ongoing spend accordingly.



PHASE 4

ENGAGE AND MONETIZE

You can't rest on your laurels after your app is in the app marketplace and downloads are coming in. This line of thinking is akin to devoting significant time and resources to design and build a car and get it to the dealership, then neglecting to service or maintain the relationship after the buyer drives it off the lot. How do you plan to keep users active with your app? And how will you generate revenue from your mobile efforts?

DRIVE USER ENGAGEMENT.

Make sure your app includes compelling content, and keep it fresh and interesting. Special offers are also a good way to keep users coming back. Push notifications and in-app messaging give you opportunities for two-way engagement. These mobile marketing efforts can be enhanced through the insights you gain from the daily digital trail as well as location-based technologies—learn as much as you can about each user, and target them with messages that are relevant to who they are, where they are, and what they are likely to be doing.

MONETIZE YOUR APP IN BRAND-APPROPRIATE WAYS.

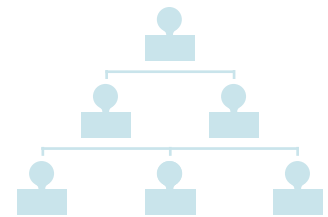
There are lots of different ways to monetize your app. Most of us are familiar with apps that cost a nominal fee for the initial download, as well as “freemium” apps for which the basic download is free but in-app purchases can unlock greater experiences. E-commerce can also be considered a form of monetization.

Going deeper, you can monetize your app's “real estate” through banners, interstitials and other paid media units. Native ads may offer the greatest monetization potential from paid media placements, while avoiding disruption to the user experience.

Mobile marketing automation can also be tuned to monetization by focusing on contextually relevant messaging that drives traffic and purchases, both online and off.

ANALYZE AND OPTIMIZE.

Remember, as users engage with your app content, push notifications, in-app messaging and paid media placements (and even when they don't), they are generating valuable data. Use these insights to get better and better at engagement and monetization, and to help shape future iterations of your app.



STRUCTURING YOUR ORGANIZATION FOR MOBILE-FIRST DIGITAL TRANSFORMATION

Companies don't set out to create silos, but they frequently develop over time. It's quite likely that the primary elements of your internal mobile ecosystem—your Mobile, Media and Data Science teams—are freestanding silos operating under these leaders:

MOBILE	MEDIA	DATA
Chief Digital Officer or VP of Digital	Chief Marketing Officer or VP of Marketing	Chief Revenue Officer or VP of Revenue
OTHER TITLES: Innovation, Mobile, Experience, Strategy, etc.	OTHER TITLES: Media, Advertising, Branding, etc.	OTHER TITLES: Information, Data, Monetization, Insights, etc.

What's wrong with silos? Well, because mobile touches every part of your business, the key departments involved in driving your mobile strategy have to be working in concert at a fundamental, organizational level and all throughout the mobile app lifecycle. Otherwise, you could end up with half-baked mobile strategies and leave significant money on the table.

The companies that are succeeding with mobile on a global enterprise level have these same three teams, but roll them up under one person who oversees and manages them as an integrated unit:

STRATEGIC OVERSIGHT: CEO, EVP/GM OR SVP/GM		
Controls the P&L for digital transformation / mobile application portfolios		
MOBILE	MEDIA	DATA
Chief Digital Officer (CDO)	Chief Marketing Officer (CMO)	Chief Revenue Officer (CRO)
Controls the brand's mobile, digital and virtual representations.	Controls the brand's Marketing, advertising and media buying. May serve as the de facto CDO if there is not one at the company.	Controls the audience data, engagement and monetization of the brand's users. The CFO or GM may serve as the de facto CRO if a separate CRO role does not exist.
OTHER TITLES: Innovation, Mobile, Experience, Strategy, etc.	OTHER TITLES: Media, Advertising, Branding, etc.	OTHER TITLES: Information, Data, Monetization, Insights, etc.

Every company aspires to have a CDO, CMO and CRO, but even without these roles, it's critical to have one executive at the top of your organization with direct or dotted-line oversight of those controlling mobile, media and data. This strategic leadership can work to ensure that everyone is working in synergy throughout the app lifecycle and towards the same goal.



MOBILE FIRST: THE TIME IS NOW

Businesses that embrace and adopt the mobile-first mindset and take on a lifecycle-based approach to achieving their business goals are building in a real competitive advantage. Make no mistake: the mobile transformation is already here, and it's only going to speed up.

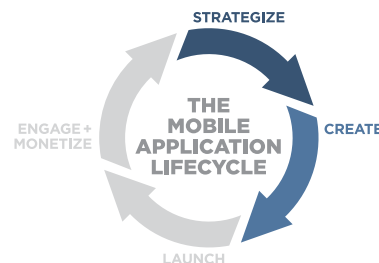
At Phunware, we've been at the forefront of mobile from the beginning. Our pioneering Multiscreen as a Service (MaaS) platform is the only fully integrated platform that enables brands to engage, manage and monetize their anytime/anywhere users worldwide. Our platform sees more than 1 trillion transactions per year, more than 800 million monthly unique devices and hundreds of millions of videos served, and tens of millions of app downloads. We've launched thousands of applications for many Fortune 5000 brands, and we want to help you.

If you're looking for strategic guidance or support at any point in the mobile app lifecycle, contact our team at info@phunware.com.



EVERYTHING YOU NEED TO SUCCEED ON MOBILE™

phunware.com/platform | info@phunware.com | 855.521.8485 | @phunware



APPENDIX:

MOBILE RFP REQUIREMENTS CHECKLIST

PHASE 1

STRATEGIZE

In the mobile application lifecycle, a large part of the Strategize Phase involves defining the amazing experience you want users to have with your app, then outlining use cases and feature sets. If your project is complex enough to necessitate an RFP, it's important to select a partner with proven success in similar, equally complex projects.

Experience and capabilities:

- ☐ Custom flagship applications / application portfolios for known brands
++ *This demonstrates credibility, along with creative and technical expertise.*
- ☐ Live event applications supporting live-streaming video and other real-time content
++ *This demonstrates that the bidder has robust, stable technology and the ability to integrate with third-party providers.*
- ☐ Successful in-venue mobile experiences at stadiums, hospitals, etc.
++ *This demonstrates the technical capabilities required to integrate with a host of hardware providers to create a seamless, engaging mobile user experience. Bidders should be prepared to support location technologies including high- and low-density Wi-Fi and both physical and virtual beacons.*

Functionality and feature sets (as applicable to your app requirements):

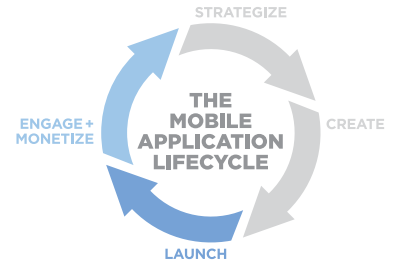
- ☐ Simple app content management
- ☐ Context-triggered user engagement via push notifications and mobile marketing automation
- ☐ Indoor wayfinding and navigation
- ☐ Video streaming
- ☐ Campaign and app analytics
- ☐ The flexibility to integrate with multiple third-party software providers (such as customer relationship management [CRM] platforms, electronic health record [EHR] systems, loyalty, commerce, etc.)
- ☐ Options for user acquisition and monetization

PHASE 2

CREATE

In the Create phase of the mobile app lifecycle, you will be developing your app experience. Your RFP requirements should specify the following in terms of development:

- ☐ Native mobile solution that's platform-specific ++ *Word to the wise: avoid the temptation to go with the cheapest technology option, which may come disguised as a so-called "write once, run anywhere" codebase. Non-native development is a shortsighted non-solution to a very real problem, and bidders who propose an HTML-based or other non-native development will not be equipped to support you through the mobile lifecycle.*
- ☐ Adherence to design standards ++ *Look for Apple Human Interface Guidelines, tvOS Human Interface Guidelines, Google Material Design, and Android TV Guidelines, as applicable to your app.*
- ☐ In-house custom creative department with experience in similar apps
- ☐ In-house dev team with experience in similar apps and expertise developing the features you specify
- ☐ Customizable proprietary SDKs that can save time and money in development
- ☐ Dedicated account management and customer support



APPENDIX:

MOBILE RFP REQUIREMENTS CHECKLIST

PHASE 3

LAUNCH

During the Launch Phase of the mobile app lifecycle, you work to get your app noticed and build the audience that will use it. This requires a partner with robust performance marketing and data science capabilities.

App discovery and user acquisition capabilities

- ☐ App store optimization
- ☐ Performance marketing
 - ++ *Strategy development expertise*
 - ++ *Custom campaign development*
 - ++ *Robust, data-driven media placement*
 - ++ *Top-quality ad network*
- ☐ Contextual data resources and analytics
- ☐ Unique and innovative app integrations
- ☐ Dedicated account management and customer support
 - ++ *The more complex the project, the more support you should expect and request.*

Note: Be sure to request real-world examples of launch and audience building success with other apps.

PHASE 4

ENGAGE AND MONETIZE

In the Engage and Monetize Phase of the mobile app lifecycle, you map out how you intend to keep app users engaged and drive revenue through your mobile efforts. There are many options—from a simple download charge or subscription model for your app to in-app purchases, in-app advertising, driving sales and foot traffic via contextually relevant messaging and more. And all of it generates troves of valuable data that you'd be foolish not to leverage.

Engagement and monetization capabilities

- ☐ In-app monetization via various ad formats and a top-quality network (if relevant)
- ☐ In-app purchases and loyalty program integrations
- ☐ SMS-based marketing campaign planning and execution
- ☐ Contextual marketing tools
- ☐ Leveraging contextual data to impact marketing, operations, and other business-critical initiatives