



intellectsoft

MOBILEROADIE

Step-by-Step Guide

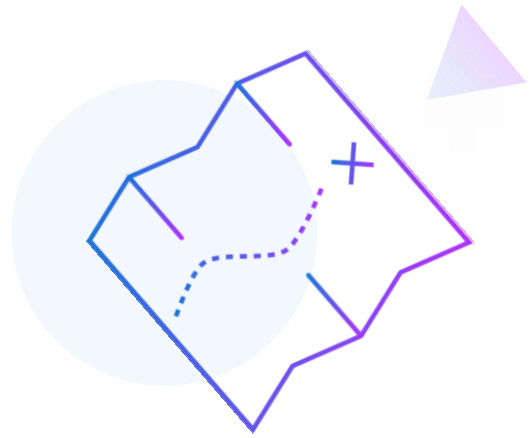
# How to Create a Mobile App



# After Reading This Book You Will Be Able To...

- Diagnose whether or not you need a mobile app
- Develop a business case that wins a buy-in
- Understand your audience at a deeper level
- Match app features to user needs
- Prioritize production processes
- Pick the development approach that's best for you
- Identify necessary tools and talent
- Evaluate potential production partners
- Discuss your mobile app ambitions with confidence

# Table of Contents



Introduction .....	4
Chapter 1: The Right Reasons .....	5
Worksheet 1 .....	9
Chapter 2: The Right Features .....	10
Worksheet 2a .....	13
Worksheet 2b .....	16
Chapter 3: The Right Approach .....	20
Worksheet 3 .....	26
Chapter 4: The Right Team .....	27
Worksheet 4 .....	35
Conclusion .....	37
Glossary .....	38

# Introduction



If you are considering investing into mobile app development for your business, you have to know the essentials to make the right decision. Still, this prospect may seem daunting. You already may have a feeling that you are standing at the foot of a high mountain, and the peak is shrouded in clouds. After all, mobile is a separate field, and learning something new requires time and effort.

We at Intellectsoft think that it should not be that way.

Opening the door to mobile app development is equally exciting and easy regardless of what you are building — a e-commerce app, a mobile app for a startup, or several apps for your enterprise suite.

After completing more than 450 mobile projects for clients across industries, we know there is a common blueprint behind the vast majority of successful mobile apps. In the interest of all involved, we decided to share the knowledge of how to create an impactful mobile app.

In this book, you will find practical advice about the decision points that will define your mobile app development journey – from building a business case to assembling the appropriate team

Let's get to work.



# The Right Reasons

Chapter 1

# Ch 1: The Right Reasons

**“Why do you  
want a mobile  
app in the first  
place?”**



You need a mobile app yesterday.  
Wait any longer and your competitors will be far  
ahead of you.

By now you have probably seen these scary sentiments in headlines all across the web dozens of times. Read enough of them, and you will quickly start feeling you need to start developing as soon as possible. Producing anything has to be better than producing nothing, right?

The honest answer is that what you build will never be more important than why you build. So perhaps the better question is: Why do you want a mobile app in the first place?

We listed a few of the most common mobile app development motives to get the conversation started, but remember that relevance is the most important criteria. Selecting one objective that perfectly aligns with your company's priorities will be more powerful than focusing on a few generic targets you felt obligated to include.

Chart 1: Mobile App Cases To Consider

External Audience (B2B/B2C)	Internal Audience (B2E)
<ul style="list-style-type: none"> <li>• Encourage repeat purchases</li> <li>• Reduce customer support costs</li> <li>• Expand customer insights</li> <li>• Promote continuous engagement</li> <li>• Add an eCommerce storefront</li> <li>• Boost brand recognition</li> </ul>	<ul style="list-style-type: none"> <li>• Improve workflow efficiency</li> <li>• Increase employee satisfaction</li> <li>• Access real-time data</li> <li>• Simplify reporting</li> <li>• Encourage smarter collaboration</li> <li>• Extend value of existing infrastructure</li> </ul>

## Open Minds, Realistic Expectations

Chances are you opened this book with a pet project already in mind. (If that is the case, you will find plenty of ways to test the viability of your big idea in the pages that follow.) But before putting all your eggs in one basket, take the time to examine a few options you may not have initially considered. You might just surprise yourself and discover an alternative plan that deserves higher priority or promises stronger returns.

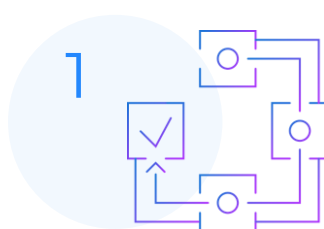
Most importantly, make sure you are investigating ideas on both sides of the audience divide. B2C and B2B concepts usually enjoy an unfair advantage over their B2E counterparts when it comes time to brainstorm. Given, it is easier to get more excited about revenue than efficiency. Strategizing a new social media strategy also sounds more interesting than configuring an API for your ERP platform. Still, B2E apps enjoy an easier road to ROI in many cases.



While even the best B2C and B2B apps can take months or years to find a loyal tribe of users, B2E apps are purpose-built to please an audience you already know thoroughly. Considering how many of today's tech-savvy employees are still handcuffed by lackluster enterprise tools, more engaging mobile solutions can quickly transform collaboration, transparency, and productivity.

In addition to facilitating revenue-generating activities, creating a mobile app becomes a cost-saving option in a number of scenarios. More often than not, the budget and scale of mobile initiatives is relatively modest compared to wide-ranging enterprise IT projects. For example, creating a mobile app accompaniment that revives your aging CRM platform is much more economical than procuring and implementing an entirely new suite.

In the end, a number of attractive app proposals could emerge from this exercise. Nevertheless, any idea you decide to move forward with needs to be backed by realistic expectations of what that app can achieve. You will also want to document that rationale for at least three reasons:



#### A Clear Purpose

makes it easier to secure stakeholder support



#### A Clear Vision

makes it easier to define project requirements



#### A Clear Goal

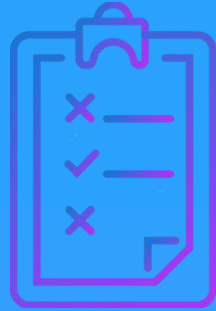
makes it easier to measure success

Now, let the following worksheet guide your team through these critical conversations.



## WORKSHEET 1: Building Your Business Case


Question	Sample Answer	Your Answer(s)
What business objective(s) will a mobile app address?	Customer loyalty; employee productivity	
Who will be its primary users?	Existing customers; field staff	
What impact do you expect it to achieve?	Increased order frequency; simplified reporting	
How will you measure its success?	% of sales by channel; reporting accuracy rates	



# The Right Features

Chapter 2

# Ch 2: The Right Features



**“The app you want  
and the app your  
users need are  
likely two very  
different things”**

Choosing the right features is paramount in any mobile project. Keep in mind that the app you want and the app your users need are likely two very different things. We know this because, historically, only 55% of all software features are ever used<sup>1</sup>.

To avoid wasting 45% of your time, money, and attention on elements that are never accessed, let's keep the focus on the people who will be tapping, scrolling, and swiping through the finished product.

## Know Your User

If you are planning an app that targets an external audience, you need to know those users well to build an impactful mobile product. How?

1 — The Standish Group, Chaos Report

Creating user personas is a reliable option. These semi-fictional narratives help summarize a segment of users and what they value most. You also do not need to be an award-winning author, data analyst, or psychologist to write one.

Worksheet 2A provides a practical framework, and you can fill it in using whatever combination of CRM data, market research, and professional intuition makes sense for your business. Just be sure to give each separate segment its own dedicated worksheet. We also recommend to start with three personas for an effective outcome.

This exercise can be as valuable when you build an app for an internal audience, but there should be less guesswork involved. You can add depth and improve the accuracy of each persona by conducting employee surveys and interviews. Better yet, you can invite a small group of colleagues to supply continuous feedback.

## WORKSHEET 2A: Picturing Your Users Case

Question	Sample Criteria	Your Answer(s)
Demographics	Age, location, job, role, tech literacy	
Daily Life	Work tasks, leisure activities, tech habits	
Attitudes	Personal mantras, group affiliations, tech preferences	
Frustrations	Pain points, time thieves, pet peeves	
App Goals	Access data, purchase products, share experiences	
End Goals	Look smart, save time, stay focused	

## Sample Persona

Anna is a 32-year old project manager living and working in Chicago. She does not consider herself a tech expert, but she does enjoy listening to podcasts and scrolling through her Twitter timeline during her morning commute. Anna has always placed a premium on solid organizational skills, making her a natural fit for her job. Unfortunately, her colleagues at the marketing firm do not share her talents. She would love it if her company invested in a true collaboration app, instead of handling everything through email and instant messaging. That way, the creative staff members she oversees could have a visual perspective of project timelines and keep all their files in a single place. Feedback would be exchanged in minutes instead of days, ensuring smooth productions and happy clients.

## Translate Into Tasks

Now that you have a clearer perspective of what your users want, it is time to turn personas into stories by mapping ideas to actions. This technique is known as story mapping.

To begin, write down one of your persona's app goals on a sticky note and place it toward the top of a bulletin board. Now, brainstorm all the key actions a user would need to complete before accomplishing that goal within the app. Write each of those tasks on separate sticky notes and arrange them horizontally below the goal note.

If the goal is to purchase a product, for example, some of the notes just below it might include discovering products, adding items to a cart, and confirming payment information.

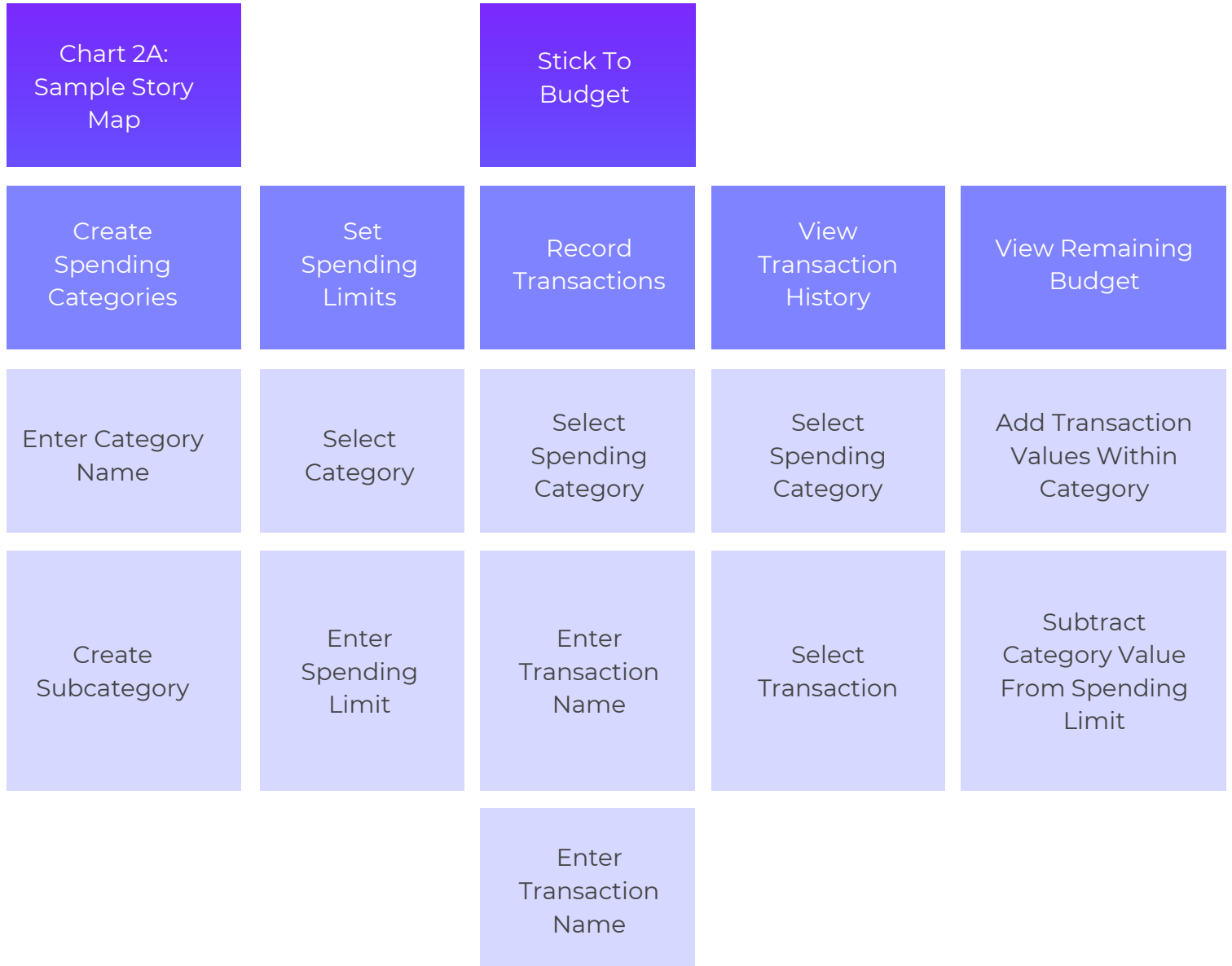
Next, start narrating the story of how a user would proceed from opening the app to accomplishing each task. Every action becomes a unique feature, with its own sticky note arranged vertically below the corresponding task note.

As you might imagine, completing this sequence for every goal, task, and feature can be an exhausting process. You can avoid that by turning story mapping into a collaborative activity and inviting a small subgroup of colleagues to participate.

Strength in numbers will help you finish faster, but even more importantly, the variety of opinions should improve the final product (more on this in a moment.)



## Chart 2A: Sample Story Map



## MVP

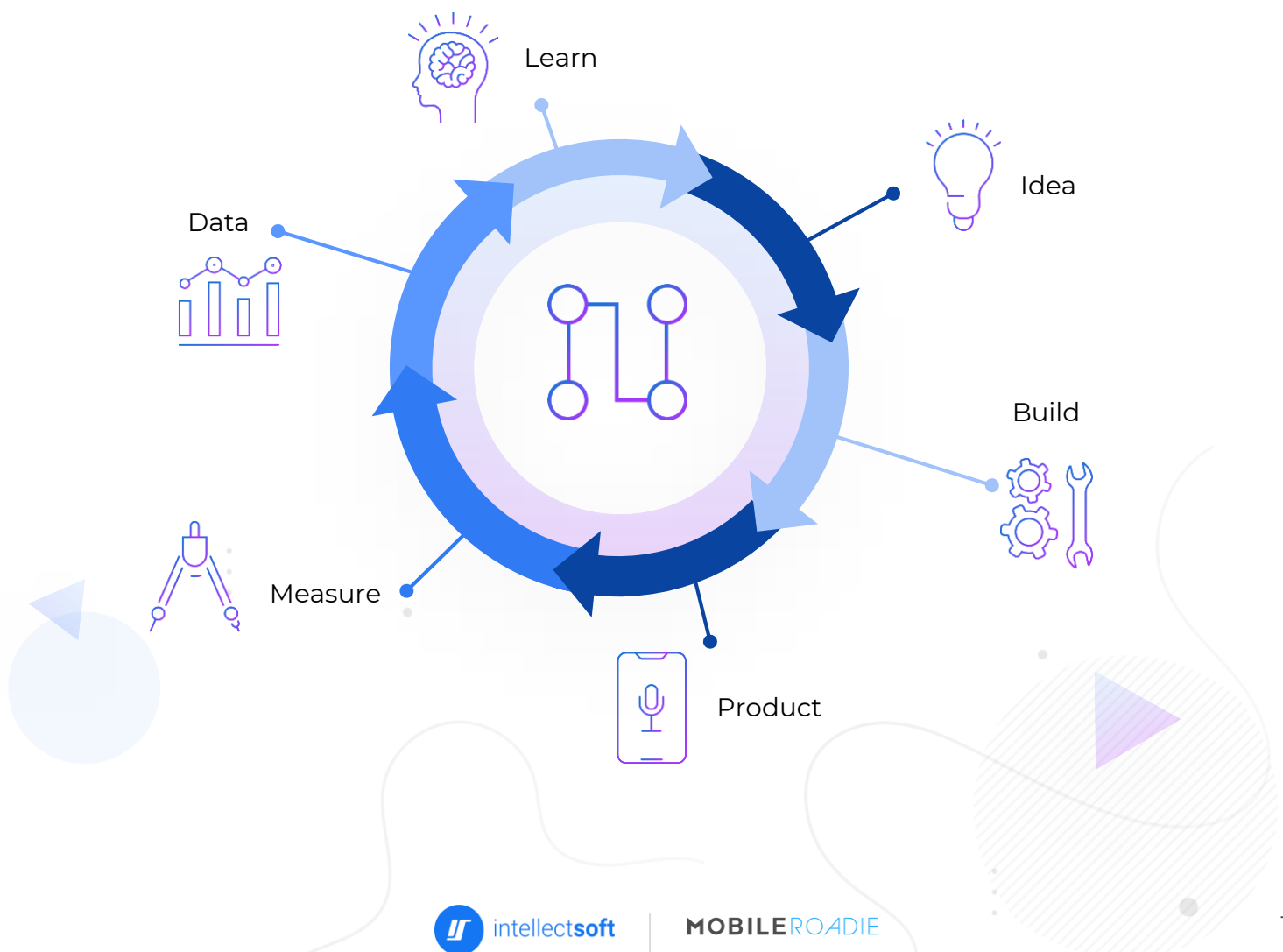


## AIM FOR MVPS

“Modern software development is not about launching a perfect product”

Modern software development is not about launching a perfect product. Tech trends, business realities, and user habits evolve too quickly for that to be a realistic goal. Focusing on a minimum viable product (MVP) that can be continuously improved by stakeholder feedback and data-driven analytics is a more reliable option.

Chart 2B: Lean Product Development



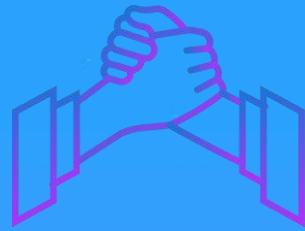
This concept should make sense to anyone familiar with the Pareto Principle (the 80/20 Rule). If 80% of your results come from 20% of your effort, that means 80% of your app's value will come from 20% of its features. As a result, the MVP should be designed to capture the majority of features from that top 20% tier.

Which sticky notes rise to the top of the bulletin board is up to your team. And chances are there will be some disagreements before the prioritization is set. Still, it is important to remember that backlog is not a bad word in the software development world.

Valid features that do not quite make it into the MVP will still find their way into the sprints that follow. (Likely, they will be joined by new features that weren't even on the bulletin board at the beginning.) It is all part of the continuous improvement process that leads to the publication of high-quality apps.

## WORKSHEET 2B: Figuring Out Your Features

Question	Sample Answer	Your Answer(s)
Who are your users?	Parents with young children; traveling sales personnel	
What do they want to achieve with your app?	Buy children's toys; file expense reports	
What tasks are required to reach the user goals?	Product discovery; expense tracking	
What features are essential to those tasks? (MVP)	Product inventory; expense forms	
What features help users complete those tasks faster, smarter or better? (Backlog)	Recommended products; receipt scanning	



# The Right Approach

Chapter 3

# Ch 3: The Right Approach

**“More than 95% of U.S. smartphone owners are holding an Android or iOS device”**



We have come a long way from your initial idea. You weighed the business case, pinpointed potential users, and started sketching out the features. Now comes the question of how to build your product.

In order to arm yourself with the appropriate tools, we'll need to get you up to speed on the two main approaches to app development. Once you have a better understanding of native and hybrid strategies, you will be better positioned to choose the right path.

## Native Development

Native apps are built to run on a single platform with a specific set of requirements. A native iOS app will only work on iPhones and iPads.

The primary advantages of this approach traditionally include:

- Superior processing reliability and speed
- Access to all native features (i.e. Device Buttons, Camera, Contacts, SMS)
- Enhanced UX and UI design details
- Efficient battery utilization
- Easy to upgrade in line with new OS version releases

As you might expect, these benefits do not come cheap. The specialized skills required to unlock the full potential of a single platform naturally command a higher price. As a result, not every business may have the budget to assign native developers to every platform.

Chart 3A: Tools of the Trade

Platform	Programming Languages	Common Tools
<ul style="list-style-type: none"> <li>• Android</li> <li>• iOS</li> <li>• Windows Phone</li> <li>• BlackBerry</li> <li>• Hybrid</li> </ul>	<ul style="list-style-type: none"> <li>• Java, C, C++</li> <li>• Objective-C, Swift</li> <li>• C++, C#, Visual Basic</li> <li>• Java</li> <li>• HTML5, CSS, JavaScript</li> </ul>	<ul style="list-style-type: none"> <li>• Eclipse, Android Studio</li> <li>• IntelliJ IDEA</li> <li>• XCode, AppCode</li> <li>• Visual Studio</li> <li>• Eclipse, Momentics</li> <li>• Cordova, Xamarin, WebStorm</li> </ul>



## Hybrid Development

The defining trait of hybrid apps is their ability to simultaneously run across multiple platforms. This is possible because they are technically web apps created by versatile HTML5, CSS, and JavaScript coding. As a result, the same version of a hybrid app could be used by both iPad owners and Android smartphone owners.

The primary advantages of this approach traditionally include:

- Faster and more cost-effective development of simpler apps
- Significantly faster and more cost-effective cross-platform development
- Greater availability of qualified developers
- Reduced maintenance requirements
- Easier to make cross-platform updates frequently

However, what is gained in efficiency may be lost in performance. Hybrid apps are launched through the device's web browser, as opposed to native apps, which have a deeper connection to the device. This can increase the load time of certain elements and cause a noticeable drop in application speed.

Additionally, the somewhat generic nature of hybrid apps often fails to take advantage of the platform-specific design elements that users are familiar with and attracted to. When developing for the iPad, for example, there may be glaring differences in the aesthetic appeal of native and hybrid apps.

## Consider Your Context

While you may have been hoping for a definitive answer to the native vs. hybrid debate, the inconvenient truth is that the optimal solution will vary based on a host of unique factors.

First, think about whether you really need to target every mobile platform. In consumer circles, more than 95% of U.S. smartphone owners are holding an Android or iOS device<sup>2</sup>. In corporate settings, it is not uncommon for companies to supply devices tied to a single platform (i.e. BlackBerry in the early 2000's) or dictate a limited list of personal mobile devices they will support.

You should also try to picture the environment(s) in which the app will be used. Are consumers expecting a captivating experience to enjoy at home on their tablet, or are they focused on a functional app that delivers location-based alerts? Are employees going to need elaborate security controls to protect the sensitive information they are sharing through the app, or a casual way to keep their day organized? (Detailed user personas will come in handy here.)

Last but certainly not least, you need to confirm your own business priorities. When faced with the possibilities of producing something good, fast, and cheap, we are often told we can only choose two of those three qualities. While mobile app development is not black and white, certain outcomes will be sacrificed when deciding between native and hybrid app development. Chart 3B is designed to help you make that decision by focusing on the outcomes you want to retain.

---

2 — comScore, MobiLens

Chart 3B: Development Decisions

Business Scenario	Development Approach
"I need to control costs as much as possible."	Hybrid
"My app only needs to work on one platform, and I have sufficient budget."	Native
"My app needs to work on several platforms ASAP, but I don't want to break the bank."	Hybrid
"My app needs to work on several platforms ASAP, whatever the cost."	Native
"I'd like my app to work on several platforms eventually, but nailing one platform now is the priority."	Native
"I'd like my app to work on several platforms eventually, but it needs to take advantage of all the latest device features."	Native
"I'd like my app to work on several platforms eventually, but I can't afford to waste all my time making individual updates."	Hybrid
"My app has a complex set of features, and my users have no tolerance for performance issues."	Native

## WORKSHEET 3: Picking Your Path

Question	Sample Answer	Your Answer(s)
Which platform(s) would you like your app to run on?	iOS only; All major platforms	
If you are developing for multiple platforms, in what order will each be addressed?	iOS first; All platforms simultaneously	
Which development approach best aligns with your business priorities?	Native; Hybrid	
Which basic skills will your developers need experience with?	Objective-C; Java; HTML5	



# The Right Team

Chapter 4

# Ch 4: The Right Team

**“When most businesses say they need an app developer, they probably do not realize they are actually talking about an entire team of people”**



You answered the tough questions, confirmed a clear vision, and can confidently say you have set the stage for success.

Now comes the hard part: handing off your idea to expert developers that will help bring your app to life. Before you start creating job postings, you need to know exactly who you are looking for.

When most businesses say they need an app developer, not every single one of them expects hiring an entire team of people, each of whom has their own specific goal. It is true that there are a handful of gurus or small teams out there who might be able to do it all on their own. But behind every world-class app you will find a group of professionals that has at least the following roles:

- **Project Leader:** Manages resources, eliminates obstacles, facilitates team success
- **Product Owner:** Aligns technical tasks to user needs and stakeholder feedback
- **Developer:** Writes the code that creates functional software
- **Designer:** Ensures user experience is pleasant and productive
- **Tester:** Confirms software quality and recommends necessary improvements

Depending on the size and skill of your team, you may have one person covering multiple roles or multiple people assigned to a single role. Either way, these positions need to be filled before you can consider yourself prepared to develop an outstanding app.

## In-House Talent

Maybe you already have a team of developers, designers, and testers who boast experience across every platform in mind. In this case, you should pause on this page and go thank your recruitment team for a job well done.

Otherwise, you might be facing the same problem as the majority of other companies seeking skilled software development professionals: talent is always hard to find and retain, more so if your company is located beyond the boundaries of a high tech urban hub.

Assuming you are confident in your ability to navigate the local talent pool, there is still the matter of allocating enough time and money for recruitment and onboarding. For those with tight budgets and even tighter schedules, that is often enough to halt hiring efforts before they begin.



Chart 4A: Mobile App Pros Average Salaries<sup>3</sup>

Job Title	Salary Range
Product Manager	\$101,750 - \$171,750
Project Manager	\$93,000 - \$157,500
Mobile App Developer	\$119,500 - \$204,250
Business Systems Analyst	\$78,750 - \$136,000
QA/Testing Manager	\$81,250 - \$139,000

Another alternative is to help your current staff cultivate the required mobile skills through dedicated training. This approach may be best applied toward hybrid apps, where traditional web development skills are most transferrable.

As with a direct hire strategy, time and budget are still top variables to consider. Still, even under ideal scenarios, companies must acknowledge that internal training takes time to bear fruit. You will want experienced hands working on your mobile app, and employees will need months (at a minimum) of trial and error before new techniques start to feel like second nature.

---

3 — Robert Half Technology, 2019 Salary Guide (U.S.)

## Outsourcing Options

Third-party service providers have become common across the IT industry. The mobile app development space is no exception. With technology trends evolve and change quickly, many companies find value in focusing on their core business while entrusting outside experts to help them deliver digital innovations.

The primary advantage of outsourced app development is speed. Instead of gradually growing the necessary talent and infrastructure in-house, outsourcing clients can access all their required technological needs from Day 1 of the partnership. Some providers are also positioned to offer end-to-end business planning and project management resources. This approach is especially attractive if you believe that you are sitting on a disruptive idea and need to bring it to market as soon as possible.

Outsourced development can also help cut costs in several areas. Scaling teams up and down as of project needs tends to be more budget-friendly and fast than recruiting and supporting salaried staff. Additionally, tapping into the technical infrastructure supporting those specialists is often significantly cheaper than implementing and maintaining such systems yourself. Some vendors may even distinguish themselves by committing to a clear range of expected costs before work is underway.

While these broad benefits are worth noting, outsourcing itself is actually comprised of three distinct strategies with their own nuanced advantages. Let's take a look at each.

- **Local Outsourcing.** You partner with a mobile app development company based in your city, region, or country. Everyone from your account manager to Java programmer operates in the same geography and culture as you, which makes collaboration smooth. Their pricing rates are relatively high, and your choice of partners may be limited, but it is a sound short-term solution for getting your app off the ground.
- **Offshoring.** You partner with a mobile app development agency based overseas. You have access to the global talent pool and the cost of technical talent is lower. However, collaboration could prove difficult: geography, culture, and language serve potential barriers. Nevertheless, the cost advantages may be too big to refuse.
- **Hybrid Outsourcing.** You partner with a mobile app development company based locally, but their frontline technical talent is actually based overseas. This partial outsourcing allows the agency to offer affordable price rates while local business analysts, technical experts, and account managers ease any geographic or cultural frustrations you may have. When executed correctly, this option is often regarded as the “best of both worlds.”

## Picking A Partner

“Successful outsourcing arrangements require continuous participation from clients.”

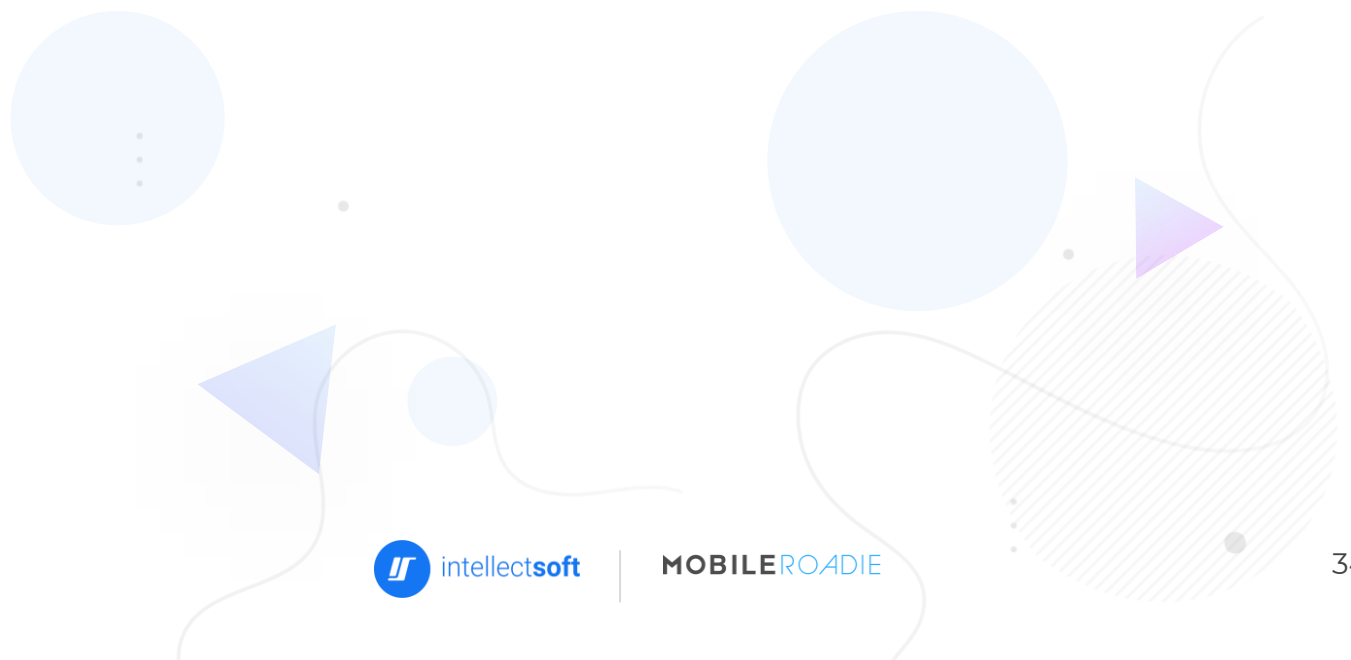
Assessing price point, location, and collaboration styles can give you a good idea of what approach you might take when recruiting third-party partners. Still, there are a few more factors to consider before signing a contract.

First and foremost, any qualified provider should be able to offer you a preview of their past work. Aside from the quality of app production and prestige of their clientele, you should seek a partner who has specialized experience in your industry. This consideration is especially important in highly-regulated areas like the finance, energy, and healthcare sectors.

Next, you will want to assess the business acumen of your prospective partners. While working with a company that can faithfully follow your orders is good, having one that can strategically advise you on potential improvements is even better. This trait is particularly valuable in the early stages of development, when business cases are being built and app features are being prioritized.

Once those criteria are met and the conversation continues, it is best to request a blueprint of the company's development process and clarify the division of responsibilities. Successful outsourcing arrangements require continuous participation from clients, so you will want to know when and where your feedback is expected along the way. By the same token, you should not dig for details into your own project progress. You will want to come to an agreement on which collaboration and communication methods make the most sense for all involved.

Finally, you need to verify that you will be working with a trusted ally. Sharing your time, knowledge, and business data with a third-party company is no small thing, and your partner should respect each with the proper protections. Security protocols, privacy agreements and exit terms should all be openly discussed long before you sign on the dotted line.



## WORKSHEET 4: Building Your Team

Question	Sample Answer	Your Answer(s)
What are the mobile app development capabilities of your current staff?	None; hybrid development; iOS only	
What required skills, if any, cannot be satisfied by your current staff?	Healthcare IT; game development	
How quickly do these skills need to be developed?	Less than 1 month; less than 6 months	
What is your expected budget for IT talent development?	\$25,000 per quarter; \$750,000 annually	
Will you pursue additional hiring, training or outsourcing?	Hire and train; offshoring	

## Mobile App Platforms & How They Compare to Custom Development



### Custom Mobile App Development

- Fits startups, SMBs, and enterprises alike
- You can create an app of any complexity, with any features and technologies you need, and custom design
- Your mobile app will be integrated into your existing systems, and built with them and scalability in mind
- A full software development team will work on your project
- Includes workshops that will help make your ideas definitive and clear
- You can work in an engagement models that fits your business

#### Clients



LEARN MORE



### Mobile App Platform

- For startups and small businesses
- Comprehensive and user-friendly platform with drag-and-drop editor
- Readymade essential features for business across industries
- You can create the app yourself and new features when the need arises
- No team required from your side
- Low-cost option
- Fast time-to-market
- Subscription-based options
- The platform is continuously supported and updated by the in-house team

#### Clients



LEARN MORE



# Conclusion

As you can see, mobile app development does not have to be a towering challenge. Just like any other business process, it can be broken down into manageable components arranged in a logical sequence.

In this instance, it all begins with reaffirming why you want to build a mobile app.

From there, it becomes clear which features the app should include. Prioritizing those requirements then informs what development tools and tactics should be applied. Finally, an assessment of how to best access those technical resources ultimately reveals which people should participate in the project.

With this blueprint in your pocket, there is no reason to treat mobile app development as a potentially exhausting process. You now have the knowledge you need to create something great!

## Glossary

**API (Application Programming Interface)** — Code that governs how two distinct software programs can communicate and request services from each other; helps AN app tap into powerful pre-existing resources (i.e. Database spreadsheets, Google Maps).

**B2B (Business-to-Business)** — Product strategy in which a company develops an app for use among another company's employees.

**B2C (Business-to-Consumer)** — Product strategy in which a company develops an app for use among mass market consumers.

**B2E (Business-to-Employee)** — Product strategy in which a company develops an app for use among its own employees.

**Backlog** — Master list of technical tasks and app features to be completed by a development team.

**Cross-platform development** — Building one hybrid app, or multiple native versions, for use across multiple platforms.

**Hybrid development** — Building an app that combines web and native mobile capabilities that can be used across multiple platforms.

**MVP (Minimum viable product)** — Earliest version of an app; contains only the core features required for functional use.

**Native development** — Building an app for exclusive use on a single platform.

**Offshoring** — Basing production resources overseas, primarily to leverage economic advantages.

**Operating system (OS)** — The software that supports a mobile device's basic functions (i.e. iOS 7, Android Lollipop).

**Outsourcing** — Purchasing the development services of an outside contractor to help build an app; contractor can be based locally or abroad.

**Pareto Principle** — Theory suggesting that 80% of a system's output is determined by 20% of its inputs; commonly applied to prioritization of app features.

**Platform** — Combined hardware/software environment that an app operates within; often used interchangeable with "OS version."

**Sprint** — Development micro-cycle during which a specific portion of app features must be completed and presented for review.

**Story mapping** — Exercise designed to define and prioritize the actions and features required to satisfy app users' goals.

**User experience (UX)** — The combination of practical and emotional perceptions surrounding an app's appearance and functionality.

**User interface (UI)** — The space in which inputs and feedback are exchanged between the user and the computing device.

**User persona** — A semi-fictional representation of the demographics, attitudes, and goals expressed by a segment of app users.