

# ***Mobile web apps: The best option for business?***

A whitepaper from mrc

# Introduction

Mobile apps have finally reached the point where businesses can no longer afford to ignore them. Recent surveys and studies all point to the same conclusion: This is the year of the mobile business app. This is the year that businesses finally accept that mobile is not only here to stay, it also offers very compelling benefits.

What benefits do mobile apps provide? They let you operate anytime and anywhere, bringing productivity beyond the confines of the office. Salespeople have access to real-time product data. Customers have another way to interact with your business, or even make purchases. The list goes on, but the bottom line is this: More and more companies are finally realizing how important mobile apps could be to their business.

However, businesses trying to build mobile apps are running into a problem: **The mobile platform landscape is extremely fragmented.** Right now, there are 4 major smartphone platforms: Android, iOS, RIM, and Windows Phone 7. The tablet landscape is a bit more complicated. Android and iOS are currently the big players, but RIM has a small presence as well. Amazon's Kindle Fire runs a version of the Android OS, but is so heavily modified that it requires its own App Store. To further complicate matters, Microsoft's Windows 8 OS should find its way onto tablets in the near future.

## The problem: Which platform should your company use?

At this moment in time, the answer seems clear: Android and iOS are the big players. But, 5 years ago, RIM and Palm were the big players. Today, RIM is on the decline and Palm doesn't exist. Who knows what the landscape will look like in another 5 years?

This leaves businesses in somewhat of a "Catch-22": Now is the time for your business to build mobile apps, but how do you know which direction to take? If you sit back and wait, you will fall behind. If you push forward, you might very well be pouring resources into a platform that won't exist in 2 years.

What are your options? As of now, it seems as if businesses have two mobile app options:

1. **Build applications for one platform and hope that platform succeeds.** This takes a risk, but is the cheapest and fastest of the two options.
2. **Build applications for multiple platforms.** This covers all your bases, but is the most expensive and time consuming option.

As a business owner, neither of these options sound appealing. How does a business take advantage of mobile apps without the risk or huge expense?

### What is a mobile web app?

A **mobile web page** is not equal to a **mobile web app**. A mobile web page is static HTML/CSS/Javascript. A mobile web app connects to a back-end database and requires underlying business logic.

The answer lies in a third option: **The web.**

With all the talk of native mobile apps, the web often gets left out of the conversation. But, the web provides an option that is completely insulated from mobile platform fragmentation—it works on every device, regardless of operating system. Building web apps formatted

for use on a mobile browser provides businesses with a safe, inexpensive, and low-risk alternative to building native mobile apps.

How does the web stack up to the other two options? This chart provides an excellent comparison:

	Develop for one platform	Develop for all platforms	Build mobile web apps
Cost	 Moderate Expense	 High Expense	 Moderate Expense
Time Required	 Moderate time requirement	 Large time requirement	 Moderate time requirement
Developers Needed	 One Developer	 Many Developers	 One Developer
Risk Involved	 High Risk	 Low Risk	 Low Risk
Platforms Reached	Just one	All Platforms	All Platforms

Are mobile web apps always best for all businesses? Of course not. There are limitations to mobile web apps that might force a company to develop native apps, but those limitations are typically minor from a business standpoint. To better understand which option is best for your company, let's go over the pros and cons of each method.

## Option 1: Build for one platform

Building for one platform is not a viable option if you want mobile apps that customers/prospects will use. After all, you can't limit customers or prospects to one platform. The only way this option works is if you only want internal mobile apps for your staff. Even so, it's not without risks. Let's take a look at the pros and cons:

### Pros

**Development speed:** Because you're only building for one platform, you'll be up and running quickly. Of course, you will need a developer who is experienced with the platform (and programming language) of your choosing. However, since you're only building for one platform, your developer should be able to churn out some apps relatively quickly.

**Maintenance cost:** Building for one platform leaves you with simple maintenance. Going forward, you'll need a developer to maintain your app(s). Keep in mind that every time the operating system releases an update, you'll have to update your app(s). Additionally, any time a business change affects your apps, they'll need updating.

**Native application look and feel:** Native apps still offer a smoother interface than mobile web apps. While the difference between the two is fading, native apps still offer a slightly better user experience.

## **Cons**

**Limitations:** What if you decide to switch platforms down the road? What if you pick Blackberry today and then switch over to Apple a couple years down the road? Unfortunately, since you can't port apps from one platform to another, you'll have to make all new apps. The biggest problem with creating apps for only one platform is this: It limits your flexibility in the future.

**What if you pick wrong?** What if the platform you choose goes under in a year or two? You're putting your whole mobile application strategy in the hands of the mobile platform vendor. What if their user base dwindles and they shut down the platform? Do you really want the success of your mobile app strategy to depend so heavily on another company?

**You're confined to internal apps:** As mentioned earlier, you can't force your customers to use one platform. So, if you build for just one platform, you're confined to internal apps. If you want external apps down the road, you'll have to bring in new developers for every platform you wish to support.

## **Summary**

Building for just one platform is a viable option for companies wanting internal mobile apps. However, it comes with a certain amount of risk. What if you want to switch platforms down the road? What if the platform goes under? If you want more flexibility and don't want to place your future in the hands of another company, choose another option.

## **Option 2: Build for every platform**

Why pick a side when you can build for every platform? This option definitely covers all the bases, but is also the most costly and time consuming. Building apps for every platform is an option best suited for companies that want to appeal to a very large consumer audience, or larger companies with an abundance of resources.

## **Pros**

**Interface:** If you're building a different app for every platform, one of the biggest benefits will come in the form of the user interface. Native apps are designed specifically for each device on which they're being run, which means they offer a more customized and smoother interface. The web is quickly catching up, but as of now, native apps still offer the smoothest interface.

**Greater access:** Native applications provide the most access to the device's hardware and OS. For instance, if you need an app that can access the device's microphone, camera, or contact list, native apps are (currently) the only option.

**You can sell it:** If you wish to monetize your apps, this is the option for you. Building apps for every platform means you can sell your apps through each platform's application store.

## **Cons**

**Development:** Developing for every platform is a difficult and time consuming undertaking. First, as mentioned above, there are 8 major smartphone/tablet platforms, as illustrated below. That means you're developing **8 different versions of every application.**

### The 8 major smartphone/tablet platforms

#### Smartphone Operating Systems



Android



iOS



Windows Phone 7



Blackberry

#### Tablet Operating Systems



Android



iOS



Windows 8



Blackberry

Second, most platforms use different programming languages. Apple uses Objective-C. Android and Blackberry use Java. Windows Phone 7 uses C#. This means you can't just bring in one developer for the whole job. Chances are, you can't find one developer that is an expert at every language. To build applications for each platform, you'll most likely need multiple developers.

Third, it's a very time consuming process. Planning, developing, and testing 8 different versions of a single application isn't easy, or quick. If you really want to develop for every platform, don't plan on having your apps any time soon.

**Maintenance:** Since you have 8 different versions of every application, maintaining your apps is now 8 times as difficult. Every time a business change affects an application, you're stuck changing 8 apps. Also, every time one of the operating systems releases an update, you'll have to update that application to ensure compatibility.

This also means you need developers on staff who are familiar with each platform. You can't just hire contract developers to create your apps. You need to keep them around to maintain your apps as well.

**Security:** Because tablets and smartphones are so portable, they are also more likely to get lost or stolen. Since native apps often store data on the device on which they're installed, this means a lost or stolen device could lead to serious security issues if any proprietary information is being stored on it.

**Distribution:** If you wish to distribute your apps, you're at the mercy of the application store. First, just for the right to place your application in their store, you must pay a fee. Second, they get to decide whether or not your app gets into the store.

**Integration:** If you want your apps to integrate with your current systems or databases, this is the most difficult option. Integrating 8 different apps built with different languages into a backend database is no easy task.

**The human element:** As any project manager knows, asking 8 different developers to design 8 different apps will result in 8 different designs. It doesn't matter how many programming and design standards you specify beforehand. Making sure that multiple apps created by multiple developers look and function identically is a very time-consuming task.

## **Summary**

Building apps for every platform eliminates the problem of picking the right mobile platform, but it is also extremely time consuming and expensive. For companies who need apps that appeal to a very large consumer audience, this might be the best option. However, for most businesses, this option is prohibitively expensive and time consuming.

## **Option 3: Develop mobile web apps**

In a world of fragmented mobile devices and operating systems, the web is the only constant. The web is the only option that automatically works across every device and every operating system. With recent advancements in HTML, CSS, and Javascript, the web provides a user experience similar to native apps, and it's only improving.

Building mobile web apps is a great way to get into mobile applications while avoiding the whole mobile platform decision entirely. Mobile web apps run in each device's web browser, so they work across all platforms. Let's take a look at the pros and cons:

### **Pros**

**Compatibility:** Mobile web apps are not restricted by platforms or operating systems. Since mobile web apps run inside a web browser, they are compatible with all platforms and operating systems. What does that mean? Suppose you want a smartphone app. Instead of building a different app for every platform, one web app will work across all smartphones.

**Development:** When you build mobile web apps, you're essentially building for one platform: The web. However, you're not limited to one development language as you are with native apps. You can build your mobile web apps in whatever language you wish, like Java, PHP, Python, etc..

**Maintenance:** Maintaining one mobile web application is similar to maintaining one native mobile application. You'll need a developer to maintain your application going forward, but since there's only one app, maintenance isn't very time consuming.

**Distribution:** As mobile web apps live on the web, they are easily distributed. They're not confined to any restrictions of app stores—rather, anyone with the URL has access to your mobile web app. Of course, if it's a proprietary app, you can always place your mobile web app behind a secure login screen.

**Security:** Mobile web apps don't store data on the device itself, so a lost or stolen phone/tablet doesn't pose any security risks. Instead, all data is stored on your database, with as much security as you require.

### **Cons**

**Sensors:** Mobile web apps can't use all of the device's sensors. While a mobile web application can access some sensors, like the GPS, accelerometer, and gyroscope, it can't access the microphone or camera. For most businesses, this shouldn't be a problem. Very few business apps require the use of all hardware sensors. However, if your business is one of the few that does, mobile web apps might not be the best choice.

**Interface:** While the interface on a mobile web app is smooth, it's not as smooth as you will find on a native app. For most businesses, the interface found on a mobile web app is more than sufficient. However, for businesses that require a native interface, mobile web apps may not be the best option.

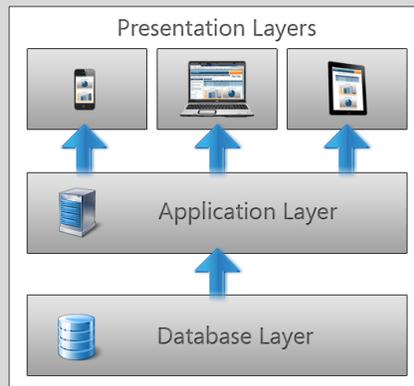
### **Summary**

Mobile web apps are a great way to get into the mobile game while completely insulating yourself from the platform problem. From getting your apps up and running to maintaining existing apps, everything is simple and inexpensive. Even better yet, mobile web apps are cross-platform compatible and secure. However, if your apps needs access to the camera or microphone, this isn't the best option. But, for most businesses, this is the ideal choice: It's flexible, cost effective, and easy.

## **Option 3a: m-Power (Mobile web apps simplified)**

While mobile web apps are the simplest and cheapest option for the majority of businesses, there is still a fair amount of complexity involved. After all, building and maintaining a true mobile web app (complete with business logic and an underlying database) does require programming knowledge. What if you could build mobile web apps for your business without any programming?

That's where m-Power comes in. m-Power is a web application development tool that lets you build web (and mobile web) apps quickly, and without any programming. Better yet, one web application created with m-Power automatically looks and feels like a native application on any device (smartphone/tablet/PC/Laptop). How does this work? When m-Power creates one application, it builds multiple presentation (HTML) layers, each formatted for a different device. The application automatically detects the user's device and displays the appropriate layer. This image illustrates the concept.



m-Power's method of automatically creating mobile/tablet versions of web apps provides some outstanding advantages for businesses:

**Fast development:** With just one build process, you create a web app, a mobile app, and a tablet app. There is no faster way to create business apps for smartphones and tablets.

**Use what you have:** There's no need to bring in mobile developers. m-Power lets you build all the applications you need using your current staff and skills.

**Simple maintenance:** Any changes made to the one underlying application reflects across all presentation layers. This drastically simplifies maintenance, as you are essentially maintaining 3 different apps with one process.

How does developing mobile web apps with m-Power stack up against the other options? This chart provides a good illustration:

	Develop for one platform	Develop for all platforms	Build mobile web apps	Build mobile web apps with m-Power
Cost	 Moderate Expense	 High Expense	 Moderate Expense	 Low Expense
Time Required	 Moderate time requirement	 Large time requirement	 Moderate time requirement	 Low time requirement
Developers Needed	 One Developer	 Many Developers	 One Developer	 One Developer
Risk Involved	 High Risk	 Low Risk	 Low Risk	 Low Risk
Platforms Reached	Just one	All Platforms	All Platforms	All Platforms

## Conclusion

Mobile apps have finally grown to the point where businesses can no longer afford to ignore them. This is the year that the majority of companies will finally build mobile apps for their business. However, the problem is this: There are 4 major smartphone platforms and 4 major tablet platforms. Which ones are best for business?

As of now, businesses have 3 options. Here are the options along with a brief summary of each:

1. **Build native apps for one platform:** You could pick one platform and hope it succeeds. This option is decent if you're only planning on building internal apps. However, it limits your future flexibility and places the success of your mobile apps in the platform vendor's hands.
2. **Build native apps for all platforms:** This option insulates you from the "platform war" and leaves you with native apps designed for every platform. If your company wants an app that appeals to a very large consumer audience, this is a good option. However, it's expensive, time consuming, and difficult. It will also force you to bring in a whole mobile development team for ongoing app maintenance.

3. **Build mobile web apps:** This option also insulates you from the “platform war,” but it’s much cheaper, easier, and more flexible than any of the other options. It leaves you with secure, cross-platform apps that are easily maintained and distributed.
- 3a. **Build mobile web apps with m-Power:** This option gives you all the benefits of mobile web apps, but simplifies the development and maintenance significantly. It lets you build mobile web apps quickly, using your current staff and skills.

Very rarely do we encounter a choice that offers the best of all worlds: Simplicity, flexibility, and price. With mobile web apps, we have just that. For most businesses looking to build mobile apps, this is the ideal situation.