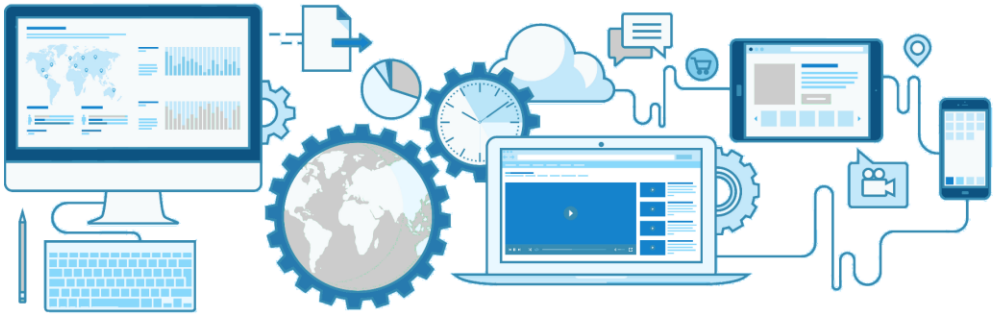
alpha Software®

7 CRITICAL CAPABILITIES



Your Mobile App Development and Deployment Platform Must Include

Speed Mobile App Development and Ensure Wide User Adoption

WHITE PAPER

7 Critical Capabilities Your Mobile App Development and Deployment Platform Must Include

Speed Mobile App Development and Ensure Wide User Adoption

Executive Summary

In today's mobile business environment companies are scrambling to quickly mobilize hundreds of B2B and B2E business processes or legacy applications. There are three main approaches developers can use to build mobile business apps:

- Responsive web apps
- Native app development
- "Native quality" hybrid apps

This whitepaper explains important differences between these three approaches, outlines 7 mobile capabilities that real-world business apps require today, and identifies the most productive development approach for getting these mobile business apps to market FAST.

High Demand for Mobile Apps

For competitive and productivity reasons, businesses and organizations are embracing mobile more than ever. Gartner forecasts enterprise application software spending to double from $300B in 2013 to over $575B by the end of 2018.[1] Yet, Gartner also predicts demand for enterprise mobile apps will outstrip available development capacity by five to one.[2] Forrester warns: "The CIO who fails in mobile will lose his job."[3] As a result, companies are trying to find new ways to enable their employees to develop business apps. Everyone from young IT or business workers with basic HTML5 skills, to IT developers with limited mobile experience and business analysts are exploring how to build apps to get routine things mobilized faster.

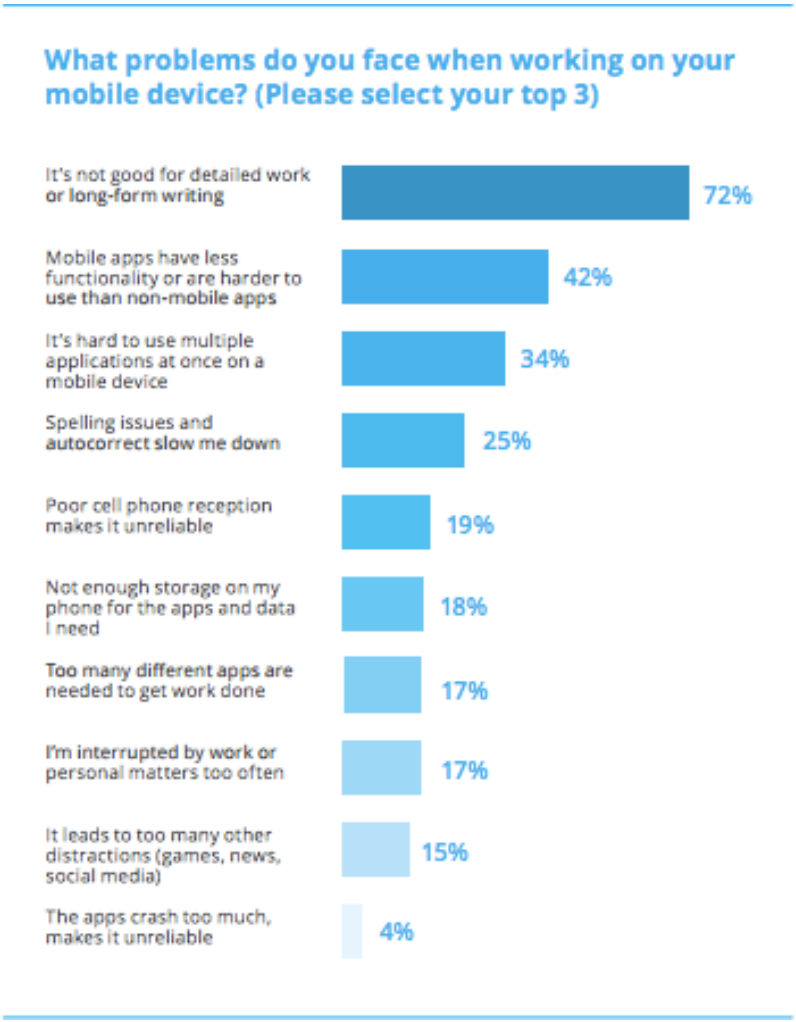
Rising End-User Expectations

Complicating the problem is the rising expectations of an increasingly mobile workforce. Employees are adopting mobile devices exponentially and demanding more business apps to do their work. Like their B2C apps, they want their business apps to be intuitive; leverage mobile hardware device features, including geo-location, video, audio, ink, scanners, special detectors, and the ability to work with large amounts of read/write data offline; and to streamline their work tasks.

While more mobile business apps are slowly getting into the hands of business workers, the results have slowed – because meeting the requirements of business mobility is not an easy task to achieve.

[1] "Gartner Worldwide IT Spending Forecast Q4, 2105"
[2] "The Enterprise App Explosion: Scaling One to 100 Mobile Apps," Gartner, May 2015
[3] Forrester "Mobile Becomes A Key Success Imperative For CIOs,"

A recent survey by Wrike, surveyed 850 professionals from a variety of departments. Marketing, IT, finance, and human resources workers were asked, about their mobile usage and how it affected their daily productivity. While respondents viewed mobile devices as indispensable to their work, they listed a range of problems and productivity issues that they frequently encounter with business apps:



Source: Wrike, "2016 Mobile Productivity Report"

Top complaints centered on app inefficiencies, limited app functionality, the unique challenges of mobile data capture disconnected situations, and limited device storage. This offers telltale signs for developers: users want sophisticated business apps tailored for mobile experiences and that leverage powerful device capabilities.

Satisfying Today's Mobile Business User: 7 Critical Business App Capabilities

End users want to increasingly use mobile devices to assist in their daily work. Just look at the number of people who bring tablets, smartphones, and smartwatches into conference rooms and leave their laptops behind. Additionally, remote workers increasingly use tablets for more activities. In surveying top mobile developers on business app requirements[4] and reviewing research from companies like Wrike, Alpha Software identified several themes that repeatedly appeared as key requirements for business apps.

We've narrowed these themes down to 7 critical business app capabilities that are required to meet the real world needs of corporations today. While every app may not require each capability, if you don't have a developer roadmap for these types of business app requirements, your mobile approach will likely not be successful.

To produce mobile business apps that are widely adopted by end users (the true measure of success of a mobile app), business developers must address these 7 critical business app capabilities:

[4] Alpha Software "Enterprise Developers Rank Critical Requirements for Success in the Coming Mobile App Explosion"

1. Utilize device-specific hardware capabilities, such as: a scanner, camera, specialized detectors, GPS, or local file system storage - which expands the amount of data an app can handle. These are data entry capabilities that are impossible to deliver through a browser-only experience.

2. Support off-line work, even when mobile workers are disconnected from backend applications. The app automatically synchronizes stored information (even large media files) and intelligently handles data conflicts when reconnected with the backend system. Offline capabilities that only allow you to add records versus reading data from a database for editing or deleting is of limited value.

3. Manage the various rich media types available on mobile devices, including images, videos, and audio tracks.

4. Deliver digital ink as a data type, and support stylus annotation of images, handwriting, and other kinds of touch-sensitive drawing experiences.

5. Run well on tablets, smartphones, with careful consideration of how – and how often – an end user will interact with the device.

6. Be location, time, and mobile-context aware; automatically capture important field-level data as part of the experience.

7. Optimize experiences for particular devices and specific tasks. This includes capabilities to dynamically produce custom keyboards (such as a digit-only keyboard for numeric entry fields), and apps that require only one hand or a single finger to operate. Ergonomics can be directly designed into the app.

Business users rely on these types of features in the B2C mobile apps they use every day, and expect their B2B and B2E apps to allow the same types of streamlined, optimized mobile experiences. In addition, it's critical that mobile developers realize that mobile apps and forms are very different from desktop apps or traditional forms. Corporate developers will only disappoint end-users and see lower adoption rates if they fail to incorporate these capabilities into their development projects.

Traditional Methods for Building Mobile Apps

There are three main approaches that developers have used to meet the rising demand for these types of mobile business apps:

- **Responsive web apps** replicate the full-screen, desktop applications you've already developed for PCs and Macs, and optimizes them to run on smartphones and tablets. Mobile apps do not require users to install an app or have available space on their devices; they simply load within a mobile browser, like Safari or Chrome, similar to every other website. They are one

of the fastest, most affordable methods of building mobile apps. Unfortunately, web apps are not optimized for users on mobile devices capturing data using a smaller screen and often working without a keyboard or with one hand. Web apps cannot utilize the device hardware that makes mobile apps truly unique, such as the camera, GPS, bar code scanner, or audio recording. Finally, web apps can bring user productivity to a halt because they do not work offline. In short, responsive web apps cannot meet the 7 critical capabilities outlined above.

- **Native apps** are apps developed for use on a particular platform or mobile device. They can take advantage of operating system features and other software that is installed on that platform, including the ability to use device-specific hardware and software on that mobile device, such as a GPS and camera. Native apps however don't solve the common requirement of needing to run cross-platform -- on multiple brands and sizes of mobile devices -- normally associated with BYOD trends in enterprises. Native app development is also typically very time consuming because of the amount of low-level, hand coding necessary. Finally, native development requires highly skilled mobile developers, who are hard to find and hire, and are inherently expensive to initially develop, deploy, and update or maintain.

- **Native-Quality Hybrid Apps** is the approach that Alpha Anywhere takes, which combines both approaches using cross-compatible web technologies such as HTML5, CSS and JavaScript. This approach does most of the routine coding for developers, yet also allows developers to code when needed to allow wider functionality of the device while delivering a more tailored user experience. Hybrid apps are much faster and more affordable to produce than native apps, and because Alpha Anywhere is very tightly coupled with Adobe PhoneGap Build, it is able to deliver the native-quality features outlined in the 7 critical criteria above.

Meeting Exploding Demand with a New Type of Hybrid App Approach

In 2012, Alpha Software Corporation identified the potential for native-quality hybrid apps to speed business development. The company began to work on ways to make hybrid app development a viable approach for sophisticated business apps, while at the same time including the 7 critical capabilities outlined above. Alpha Software focused on solving difficult development and business problems that require complex capabilities like offline operation, authentication, storage of large media files, use of mobile hardware and a stylist. Alpha Software launched Alpha Anywhere in 2013, and soon became the first hybrid app development solution in the market to solve the offline problem, and integrate Adobe PhoneGap Build into the product.

These innovations have allowed Alpha Anywhere to operate as a hybrid app development solution with powerful native-like capabilities. Here are just a few examples:

- **Working with Pictures** – Alpha Anywhere let you access the "exif " data of the pictures on the device, including where the photo was taken, it's date-time stamp, the orientation of the camera when the image was captured, and other useful data.

- **Working with The File System** – Alpha Anywhere includes code for working with a large amount of data (in excess of 5MB) when offline – based on a simple or complex nested database query while the device is online. Being able to use large files on a mobile device becomes very important with business apps. An example use case is a product catalog or a selection of customer accounts, for mobile field access when connectivity may be intermittent or simply not available.

- **Working with Audio** – For applications that need to permit voice dictation and audio capture, Alpha Anywhere includes code that saves data in a common format that works on iOS, Android, and other platforms. It also allows you to control compression to save storage space on the device, and users can also pause and resume audio recording.

These capabilities go far beyond a traditional hybrid app and allow developers to quickly deliver sophisticated business apps that meet end-users' expectations.

Since its launch, Alpha Anywhere has been widely recognized for offering a practical approach to using hybrid technology. The software won an InfoWorld 2016 Technology of the Year award[5] and emerged as the highest-ranked software vendor on Gartner's Peer Insights review website for Mobile Application Development Platforms in March, 2016.[6]

Adobe PhoneGap and Why It's Critical for Hybrid Apps that Meet Business Requirements

Adobe PhoneGap, an open source project of Adobe Inc., allows developers to create HTML5 hybrid apps that take advantage of mobile device hardware features, including the camera, barcode scanning, GPS and geo-location, and access to GBs of storage instead of the 5MB typically allowed by the device. While PhoneGap can save enormous amounts of time and cost compared to native development and can make hybrid apps for complex business problems, it still requires working with native SDKs. This requires extensive time and development expertise to set up and use. To shorten this required development time, Adobe created a service called Adobe PhoneGap Build – which handles some of the grunt work for developers, but it's still time-consuming and requires moderate skills.

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[5] InfoWorld "2016 Technology of the Year Awards"
[6] Gartner Peer Insights: Mobile Application Development Platforms

Adobe PhoneGap Cont'd

At Alpha Software, we've taken this significantly further. By automating PhoneGap Build, and more importantly, tightly integrating it into our development environment we've greatly sped development time while enabling hybrid apps to incorporate native-like features. The result is that Alpha Anywhere now offers a very fast and efficient method for building cross-platform mobile apps that are modern mobile applications with complete access to device hardware and have powerful capabilities only found on mobile devices. Alpha Anywhere's integration with PhoneGap Build also enables a wider range of business app developers, even non-IT developers, to build modern mobile apps with popular features requested by mobile workers.

Alpha Anywhere integration with PhoneGap Build saves developers significant time by:

- Finding the PhoneGap Plugins developers need and automatically including them with your project. This greatly helps speed development throughout the process.
- Giving developers quick access to the applications they have already created with a built-in manager screen, allowing developers to always keep track of and easily access all of your mobile development projects.
- Generating the application icons and splash screens for all of the supported platforms and at all of the required resolutions for developers. In this way, business apps easily feature popular design elements that users expect or want.
- Including written and tested PhoneGap JavaScript for features that are common, but complicated, like reading exif data (including Geo-location) from pictures, handling audio recording, and accessing the device's file system to massively expand the device's ability to work with media files – such as photos, audio or video – when working offline.

Summary

Considering all the mobile application development platforms arriving on the market, it's important to select one that not only promises more productivity, but also delivers the sophisticated business apps end-users require. Developers must consider the 7 critical business app capabilities that end-users will increasingly expect in their business apps. There is good news for developers – hybrid apps offer a great path to fast, mobile app development. Alpha Anywhere's innovations add another level of sophistication with the addition of native-like capabilities not previously seen in hybrid apps.

Click here to learn more about how to build hybrid business apps with powerful mobile device capabilities using Alpha Anywhere.