Enterprise Mobile Apps
A Stakeholder-Enabled Strategy

• What it Takes to Create Amazing Enterprise Apps
• How to Organize the Delivery of Multiple Apps in the Most Efficient Way
• Making Sure Your Mobile Strategy is Sustainable in the Long Term
The Imperative

Enterprise adoption of mobile applications is spreading like wildfire. In its 2013 online survey of 348 organizations on the state of enterprise mobile applications, Aberdeen Group found that 62% of enterprises already have a formalized mobile initiative of some sort in place. Mobile apps are no longer a luxury—they have become essential tools enabling organizational efficiency, enhancing customer engagement, and streamlining enterprise workflow. Not only is the number of organizations that launch their own mobile apps growing every year; the number of apps each of them releases is growing on average by 38% annually.

Multi-channel customer engagement is becoming the key driver of enterprise mobile app initiatives. With more people addicted to their smartphone and tablet apps for everyday activities such as information-snacking, banking, shopping, or exercise, delivering great mobile experiences will be the cornerstone of customer engagement strategies for the next 10 years. Forrester’s 2013 research projects that this ongoing customer mind-shift will result in the mobile engagement market growth to a whopping $32.4 billion by 2018, comprising app development, application and device management, and mobile engagement services.
Another important tendency is the proliferation of enterprise app stores. According to Gartner’s 2013 enterprise mobility study, the Bring-Your-Own-Device (BYOD) trend in enterprises is on the rise, and it is fueling a Bring Your Own App trend. The latter has many risks: inadequate security, chaotic procurement, inefficient use of time and resources, and potentially higher costs. Therefore, Gartner sees an increasing number of enterprises setting up their own app stores as a way to increase the ROI of the enterprise mobile app portfolio and streamline app delivery. Gartner estimates that 25% of enterprises will have app stores set up by the year 2017.

Gartner estimates that 25% of enterprises will have corporate app stores set up by 2017.

To sum up, enterprise mobile apps are becoming mainstream, and if your organization is not developing them, be assured, your competitors are. With a great portfolio of mobile apps, your enterprise can gain and sustain a competitive advantage regardless of what vertical market you are operating in.

The Challenges

While companies recognize the imperative to develop and launch mobile apps, enterprise mobile initiatives face a number of serious challenges:

**A Multitude of Mobile Platforms.** Organizations face a fragmented mobile platform landscape — smartphones, tablets, and the emerging wearable devices; multiple operating systems — iOS and Android increasingly dominating the OS landscape — and their multiple versions. Amid this fragmentation, companies face a tough choice between launching native, HTML 5, or hybrid applications to accommodate the largest number of users possible while keeping the development costs down.

**Disparate Mobile Needs Within a Global Organization.** In addition to the multitude of mobile platforms and devices, larger organizations may face the challenge of accommodating disparate needs and IT environments within its departments and regional branches. When an app made for a U.S. audience needs to move to Russia or China, adjustments are inevitable. Local creative teams need the flexibility to accommodate the specifics of their respective markets — not just the language, but also design, content, and sometimes functionality. However, the overall branding, value proposition, core functions, and security guidelines of the company’s enterprise apps have to be consistent across all branches.
Aberdeen Group: most organizations are unprepared to function as internal app development shops.

Shortage of Development and Project Management Skills. Although more companies are delving into mobile apps to remain competitive and optimize their processes, most are not prepared to function as internal app development shops, according to Aberdeen Group’s 2012 Mobile Application Lifecycle Management report. Hiring in-house or outsourced developer teams is costly. Moreover, organizations often lack the vision and expertise required for what eventually becomes a full-blown software product management process. While stakeholders are able to identify the requirements to the mobile apps they need, the project often gets mired in various problems on the technology and procurement side.

Excessive Cost and Long Development Cycle. Even when an enterprise manages to put together or hire an adequate mobile development team and pull the mobile app project through the ideation and development stages to completion, the app often becomes outdated before it is launched to the app stores. The average time it takes to develop a fully polished native app for iOS or Android is 4-5 months, with fancier apps taking as long as 12 months. In a dynamic, competitive market, an organization that takes so long to launch its mobile apps runs the risk of losing the competitive advantage. Needless to say, the cost of such a project is often prohibitive compared to the projected value of the app.

This paper presents a forward vision for organizing a rapid, cost-effective Enterprise Mobile App Development Process as part of a comprehensive enterprise mobility strategy, including a process for fast, stakeholder-enabled application delivery for multiple platforms; swift QA and approval; streamlined versioning; and secure long-term app management.
What it Takes to Create Amazing Enterprise Apps

1. Bring App Development Closer to the End User
Value-driving mobile applications may vary widely across your organization, but they have one thing in common: the closer the development process to the stakeholder, the better the resulting app. Awesome mobile app ideas can originate in various departments, offices, and programs. Dynamic, ingenious marketing or customer service teams can generate a firestorm of mobile engagement strategies and use cases. With the right tools in their hands, your brand’s creative team could be fully empowered to advance the mobile app initiatives and drive ROI for your company.

Yet, custom apps sourced by most companies today are created by centralized developer teams detached from the stakeholders, and thus the link between the vision and the actual mobile application is weakened or lost. Additional requests or changes to the requirements may extend the development timeframe and, of course, increase the price tag of the project.

For truly vested app development, you need to bring the power to ideate and quickly prototype mobile apps into the hands of the people who would actually use them, or are closest to the future end users. Your mobile project leaders should be able to quickly prototype a custom app, send it over-the-air to mobile devices for live testing and immediate feedback, easily modify the UI elements and/or workflow, test again, and repeat the cycle until they have a totally user-friendly and practical app ready for development.

When you organize the app ideation and design process this way, your mobile use case receives thorough feedback and optimization throughout the design process—before you spend a single dime on developers. Moreover, once completed, your app stands a much better chance of being adopted enthusiastically by the end users.

2. Tie Together, but Do Not Take Over
With a number of mobile initiatives emerging in various branches of your organization, you do not want one department or team to become the bottleneck for mobile app delivery. Your local offices may have awesome ideas as well—or even mobile app pilots in various stages of development.
A good enterprise mobile strategy should streamline and facilitate local mobile app pilots rather than take them over.

A good enterprise mobile app strategy must streamline and simplify those efforts rather than take them over.

The logical first step is developing a common Mobile App Development Framework comprising internal application development, testing, approval, and secure application management for multiple platforms. Such a framework should enable rapid app delivery across key mobile operating systems; leverage local creative talent; drive the use of standards; and facilitate security compliance and consistency among core app functions.

An important part of such a framework is an application development library that would allow your app creators to reuse successful design and functionality, while minimizing effort, development cycle, and the cost of building apps.

3. Go for Native Apps!
Mobile users no longer want to compromise; they want to have interoperability, performance, superior UI, and smooth access to enterprise data via mobile applications. Enterprises want full-featured apps with seamless user experience across major platforms—but also rapid, smooth development without having to pay top dollar.

However, the current wide-spread perception is that cross-platform development is necessarily restricted to HTML5 (web) or hybrid apps. According to Gartner, hybrid architectures are preferable for the enterprise market because pure native development must use “…a fragmented set of development tools and multiple versions of an application to serve the same user need—because different versions must be made for each type of device or operating system.”

On the other hand, Facebook, LinkedIn, and other major market players are discarding HTML5 and moving to native apps—a move hailed by many as a sign that native apps are likely to have the upper hand in the long run. Although the proponents of the hybrid approach claim to have the best of both worlds, offering seamless experience for end users while removing the burden of mastering various native development tools for developers, they acknowledge that native apps offer the best user experience and performance—even compared to hybrid apps.
The consensus so far? You cannot have the full power of native apps and the ease, rapidity and cross-platform flexibility of HTML5/hybrid development at the same time. Cross-platform vs. Native seems to be the predominant dichotomy.

The current decision-making process in most companies looks like this:

<table>
<thead>
<tr>
<th>Native</th>
<th>Hybrid</th>
<th>HTML5</th>
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</thead>
<tbody>
<tr>
<td>Cutting edge native features</td>
<td>Native UI &amp; user experience</td>
<td>CPU intensive functionality</td>
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<tr>
<td>Code &amp; data at rest security</td>
<td>App store distribution</td>
<td>Readily available skills</td>
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<td>Broad platform support</td>
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Native apps for smartphones and tablets require mastery of native-language development for at least iOS and Android. These are the two mobile platforms currently commanding over 90% of app downloads and revenue and likely to steamroll the competition. With in-house or hired developer teams, native development for both iOS and Android can drive up the costs of the project, especially if you add customization for tablets.

Yet, native apps have a number of clear advantages over HTML5 and hybrid apps:

- Rich UI and smooth user experience
- Use of cutting edge device capabilities
- Faster performance
- Better discoverability and monetization
- Superior security
- Robust performance in online or offline mode

In the ideal world, an enterprise mobile app development framework should output full-featured, customized native apps for all the major mobile platforms and device types, while providing the cost savings, flexibility, and easy access to programming expertise comparable to web and hybrid architectures.
4. Plan Ahead

An organization can spend considerable time and resources creating an app and delivering it to market. But after three or six months, the number of downloads may start to go down and more people may start abandoning the app. Statistically, one in four apps will get dumped after just one use. What you must have in place to avoid such a scenario—even before you start building your app—is a good app versioning strategy. App versioning helps ensure the relevance and usability of all your apps, deliver controlled change, and keep the users satisfied. If the users’ potential needs were not anticipated in the initial design due to budget constraints or inadequate analysis of requirements, a controlled, streamlined app versioning strategy becomes a life-saver.

In the custom development world, app versioning can be tricky. Having spent time and money gathering the requirements, ideating and approving the wireframes and mockups and developing your custom app, you may still find that it has not turned out exactly as you expected. Spending another 30% to 50% of the original budget on upgrading the app might not be an option. Your app versioning strategy should plan ahead to ensure your app stays relevant and useful, while your long-term costs are kept to the minimum. More importantly, it should allow you to test your app in action, with real users in their everyday environment, and allow the app to evolve without disrupting the end-user experience.

Another important aspect to consider is enterprise scalability to support the projected growth of your user base. A scalable, virtualized architecture is vital to the long-term viability of your enterprise mobile framework and the satisfaction of your users.

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The following section outlines various aspects of the MobileSmith platform technology that can enable the implementation of the above principles in your organization.
The MobileSmith platform is an enterprise-class cloud solution for rapid prototyping, delivery, and secure management of custom native applications for iPhone, Android, and iPad. The key foundations of the MobileSmith platform and application development process answer the needs of an efficient enterprise mobile application development framework.

1. Zero-Compromise Multi-Platform Development
Let us look again at the seemingly relentless tug-of-war between HTML5, hybrid, and native mobile architectures. In a nutshell, the perceived choice is between lower-cost, quicker, cross-platform applications with inferior user experience, and higher-cost, slower-to-develop, native apps for each platform providing superior user experience. However, if you could get rapid, low-cost, multi-platform, fully native apps—no coding; no templates; no lengthy development lifecycle—wouldn’t that solve the dilemma?

MobileSmith is just such a solution. MobileSmith’s patent-pending technology abolishes the false dichotomy of cross-platform vs. native apps by delivering amazing native apps for key mobile platforms—including iPad tablets—at the cost and time it takes to develop lowest common denominator HTML5 apps. You can design your app once, in a user-friendly WYSIWYG canvas, and build it natively for iOS and Android with just one click—no coding required!
2. Rapid Prototyping and Streamlined Decentralized Procurement

Our agile, cloud-based approach delivers the power to build custom native applications directly into the hands of your stakeholders. One of the major advantages of the MobileSmith platform is its accessibility, within approved guidelines and with various functionality access levels, to multiple roles within your organization. Some of these employees may have zero programming skills but excellent knowledge of the environment in which the application would be used—and a clear idea of how it should operate. Thus, within a controlled environment, your app development can be appropriately decentralized to allow for unbridled creativity and maximized stakeholder input.

The MobileSmith AppCanvas™ enables grassroots creativity in your organization by providing easy, user-friendly tools for native app prototyping and development for iPhone, Android, and iPad, without writing a line of code. In-built design best practices for all of these platforms can save your teams up to 70 percent of time at the mockup and prototype stages. MobileSmith also offers a number of ready-to-use AppBlocks (modular blocks of pre-coded functionality)—galleries, maps, hand gesture inputs, GPS services, tap to call/email, or more sophisticated native features. These functions can make an app truly useful without compromising custom design.

MobileSmith AppBlocks make it easy to securely connect your multiple apps to backend data. Your IT can provide a secure connection between an AppBlock in the Platform and your CRM or ERP system. Once a pilot app is complete and tested, that AppBlock is ready to be included in any number of customized apps. Moreover, app creation can now be handed over to non-IT staff—designers or line-of-business managers.

AppBlocks play an important role in the next capability of the MobileSmith model we’ll discuss:
3. Code Reusability and Streamlined QA Process

Using pre-coded functionality blocks to rapidly create customized applications on the cloud might not be a novel concept in the IT world. In the mobility world, however, there has always been a chasm between, on the one hand, template-based application development platforms with limited designs/functionality, and on the other hand, pure custom development which permits unlimited functionality but little code reuse, restricted control over the development process, and severely limited opportunity for change within an approved budget.

MobileSmith brings the best of both worlds by providing an effortless process comparable to the ease of a template-based app development platform, while also giving you the power to create fullFeatured, fully customized native apps. Moreover, you can clone and reuse successful code without limits to produce an infinite number of apps—without compromising the flexibility of design and function in each particular case.

Such factory-like efficiency is achieved by using pre-coded AppBlocks connected to custom designed UI elements (buttons, tabs, images etc.) Building a custom application literally becomes a day’s work.

But the benefits of this approach do not end at app delivery. Using MobileSmith AppBlocks can prove a major advantage when applications have to go through your quality assurance and approval/certification process. With a cloud app development platform placed within an internal firewall and containing such preapproved AppBlocks uniformly connected to the necessary data sources, the review and approval of the resulting custom-assembled native apps become a breeze.
4. Over-the-Air Distribution and Remote Updates

Both the rapid prototyping/development for multiple platforms and the streamlined QA/approval are dependent on the ability of a mobile platform to deliver mobile applications over the air (OTA).

The MobileSmith Platform can deliver prototypes OTA to mobile devices for testing and evaluation, as well as submit them directly to public or internal enterprise app stores.

With the MobileSmith Platform, you can:

- Deliver your app instantly over-the-air to the approvers for testing
- Make changes on the fly in the AppCanvas
- Test and refine the UI and user experience until you are totally happy with it, and
- Cut change management costs drastically compared to the regular process.

5. Enterprise App Versioning

With so much flexibility, creative input, and continuous adjustment, establishing a sound application versioning strategy for all your apps is paramount.

The MobileSmith platform includes a streamlined, enterprise-class app versioning workflow that can enable a controlled evolution while slashing the costs of multiple releases. With our platform, you can:

- Save each project as a draft or a live app
- Lock the live version and continue adjusting or reinventing your app
- Manage content in all the live versions of your app from a cloud-based Content Management System. You are using the same AppBlocks in all versions, so no need for multiple data entry!
• As a result, you don’t have to force your users to upgrade immediately when a new version of your app is available. They still get your content updates and can use the older version of your app until they are ready to download the new one.

With this approach, when your apps need to be quickly overhauled, you no longer have to go through a budgeting cycle, write requirements, launch a new project, etc. Simply open the platform, create a new draft, instantly prototype it and send over-the-air to your device; test it live, have it approved, push to production, and deploy! This agile approach to app versioning is the most effective way to ensure all apps in your enterprise app store stay relevant each and every day, and the long-term upgrade and maintenance costs are kept to the minimum.

6. Secure App Management from a Cloud-Based CMS
An efficient enterprise application store ought to provide an easy way for content editors in your organization to manage content in the mobile applications hosted on the cloud.
The MobileSmith Platform comes complete with a secure AppOffice™—your Content Management System on the cloud. MobileSmith AppOffice is powered by a patent-pending dynamic back office technology that creates a dedicated, custom CMS instance for each app built in the Platform. Using your app CMS, you can push notifications to all live versions of the app; publish and securely manage content with role-based access levels; import RSS, XML, CSV, rich media, and update content in real time. With cached end-user authentication credentials, your native apps will function seamlessly even in areas with limited or zero connectivity, enabling your users to access and enter critical business data.

7. Data Integration and Application Access

Enterprise mobile apps need up-to-date content and interactive components to remain a valuable tool for the end users. MobileSmith provides flexible and secure mobile app data integration strategies, so you can reliably publish your data as app content without impacting performance or security.

**Direct XML Integration**

**Ideal for:** dynamically changing or frequently updated content; e.g. news feeds, inventory, work orders, etc. In most scenarios, this integration will not require two-way communication although two-way communication is supported by the platform.

Data streaming is set up directly between your backend system server and the mobile devices, bypassing the MobileSmith server. MobileSmith provides a simple set of instructions to help you deliver your data in the XML format the apps require. When you assemble your app, the AppBlock intended to interface with your system is configured with a URL that pulls that data from the backend server. Data is pulled directly into the mobile device and displayed in the app user interface according to the data mapping rules you define.
API-Based Integration

**Ideal for:** static or infrequently updated content; e.g. locations, personnel lists, etc.

MobileSmith can provide secure and reliable SOAP/REST connectors to your web-based or legacy systems. Our modular adapters will utilize your existing APIs to quickly access and translate your data into the XML format used by our platform. You can configure the MobileSmith CMS to automatically refresh your data at various intervals (daily, weekly, etc.) or you can refresh your content on-demand in MobileSmith AppOffice™ (your cloud-based CMS).

Application Access and Security

MobileSmith’s **Access Manager** AppBlock provides various types of application access: Anonymous; App Activation; Registration Required; or User Authentication based on SASL mechanisms.10

8. Evolution and Adaptability

The MobileSmith team stays abreast of the latest advances in the mobile world and tries to preempt many of its trends. The Platform was designed for quick adjustment, integration, and scalability. Launching a pilot app with the MobileSmith Platform is a low-threshold, low-cost way for your organization to accelerate its mobile strategy, and for your creative team, to become an in-house mobile strategy task force.

Visit www.MobileSmith.com to learn more about our Platform and our team!
1 Aberdeen Group, *Enterprise-Grade Mobile Apps: Powering Organizational Transformation*, 4/1/2013


3 Ted Schadler, *Mobile Engagement Providers are a New $32.4 Billion Market by 2018*, Forrester Blog, 8/9/2013


6 Dan Rowinski, *How Long Does It Take To Build A Native Mobile App? [Infographic]*, ReadWhite, 1/9/2013


9 Joe Levin, *One In Four Apps Abandoned After a Single Use (…)*, Android Headlines, 3/22/2013

10 *Simple Authentication and Security Layer*, WikiPedia