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# THE MOBILE DOZEN

## 12 VITAL CONSIDERATIONS TO HELP BUILD THE BUSINESS CASE FOR A MOBILE APPLICATION PLATFORM

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« Seventy-five percent (75%) of companies that have already or plan to deploy mobile applications during the next year will be increasing their budgets. Twelve percent (12%) plan to increase those budgets by more than 50%. »

*451 Research: "Mobile Applications and Cloud: Vendors take aim at mobilizing Business Workflows", Aug 2014*

# 1. THE ENTERPRISE MOBILITY PROBLEM STATEMENT.

**The mobile revolution that has transformed our lives as consumers is transforming the way enterprises now manage their operations and engage with employees, partners and customers.**

The rapid rate of mobile app development, the increased volume of app deployments, and the frequency of app iterations, balanced with the need for greater security and control is reshaping traditional IT and the role of the business in app development.

As the business grapples with the transition from "I need an app for that" to a "mobile is how I do business" or a mobile-first mindset, they are faced with the complexity of developing and managing multiple apps across the whole organization, across multiple device platforms, and connecting to multiple data points and backend business systems. This multiplicity begs a Mobile Application Platform approach where development, deployment and monitoring of mobile apps, whether B2C or B2B, can be managed in a secure, agile and collaborative way across the organization.

If your business is moving beyond a handful of tactical mobile apps to considering a more strategic approach to the development, deployment and management of 10s or even 100s of app concepts that potentially connect to a number of backend business systems then you are already looking to a more centralized approach to control your mobile projects. A Mobile Application Platform will help you get there.

# 2. WHY A MOBILE APPLICATION PLATFORM?

As organizations move from "once-off apps" to a more strategic mobility solution and as the demands of mobility constantly evolve new software development and distribution models, a Mobile Application Platform offers organizations the following capabilities:

- A shared platform to develop, integrate and run company-wide mobile solutions
- A repository of APIs and backend services for discovery and reuse across multiple projects
- A library of templates and codeless apps that speed development and facilitate fast prototyping
- Centralized control of security & access to backend systems
- A collaborative approach to developing and deploying mobile apps across different teams and skillsets.
- Mobile App Lifecycle management to support continuous develop/deploy cycles
- Reporting and analytics to monitor app and resource usage

Building the business case and opting for more innovative approaches and technologies is a daunting task. The following checklist offers a guideline for building the business case for a Mobile Application Platform.

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« While promising much, mobility also brings greater complexity for IT and the business. Companies will look for integrated platforms to accelerate their innovation and RoM. »

Have some KPIs or metrics around some kind of measurable ROI; otherwise, you might find it hard to justify future updates or future new projects, which may just send you back to the drawing board and waste even more time.

*Chris Marsh, Principal Analyst, 451 Research*

# CHECKLIST: THE MOBILE APPLICATION PLATFORM BUSINESS CASE

- ☐ Do you have a company-wide mobile strategy?
- ☐ Are you supporting BYOD?
- ☐ Are you developing/supporting >10 mobile apps?
- ☐ Are you supporting more than one type of app – native, hybrid, web, HTML5?
- ☐ Are you connecting your apps to backend systems and applications?
- ☐ Will a number of different mobility projects require access to these same backend APIs and connections?
- ☐ Is your IT organization struggling with managing and controlling the security and backend integration for mobile projects?
- ☐ Is IT under pressure to keep pace with faster app development cycles?
- ☐ Is it difficult to balance agile development and more traditional IT practices?
- ☐ Are you supporting multiple developer toolkits and app development languages & approaches?
- ☐ Are you finding it difficult to achieve ROI for your mobile projects?

Once it's clear that you really need to consider a Mobile Application Platform, how do you go about successfully achieving this. The following are 12 key things to consider in choosing a Mobile Application Platform.

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# 3. TWELVE CONSIDERATIONS IN CHOOSING A MOBILE APPLICATION PLATFORM

**Agility:** Are Open Technologies fundamental to the Platform?

**Flexibility:** Can developers use their own tools?

**Market Reach:** Are Multiple Device, OS, and App types supported?

**Collaboration:** How does the platform support team-based development?

**Secure Integration:** Assess the depth of Backend Services?

**Extensibility:** Assess the APIs and API Management offered?

**Reusability:** How much Code Reuse, Templates and Out-of-the-Box functionality is offered?

**Security & Compliance:** How is security handled end-to-end?

**Flexible Deployment:** What deployment models are supported?

**Scalability & Availability:** How will the platform handle app scaling and ensure availability?

**Portability:** How does the Platform support the migration of existing Apps?

**Mobile App Success:** What Analytics are available and how will they help you measure app usage?

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« Enterprise mobile strategists are hungry for ways to make mobile app development and integration easier and faster. JavaScript and its related technologies have emerged as viable tools that can help address these challenges and must be factored into an enterprise's mobile architecture and strategy. »

*Jason Wong, Principal Research Analyst, Gartner. "Improve Mobile App Development and Integration with JavaScript Technologies"*

# #1 – AGILITY

Mobile app projects demand rapid innovation and short iterative development cycles. In building the business case to support greater agility:

1. Look for a flexible cloud-based hosting model that takes your organizations cost, scalability, and security requirements into consideration. Be sure that that the vendor can demonstrate their depth of cloud and SaaS experience.

2. Look for a platform that offers ongoing and open support for the common and leading edge coding languages, JavaScript frameworks and developer toolkits. Beware of use of any proprietary languages, frameworks or IDEs.

3. Look for open technology stacks (e.g. based on JavaScript, Node.js MongoDB, Redis and Linux) that offer enterprise-grade performance, scalability and efficiency.

4. Use of open-source and Git repositories maximize collaboration and agility. Teams should be able to collaborate seamlessly on both the server and client sides of an app project.

5. Ability to support increasingly shorter and dynamic development cycles. Agile sprint-based development is a more iterative, team-based approach. Look for a platform vendor who themselves employs agile software development approaches.

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« When creating hybrid cross-platform apps, developers often employ as many as 10 different coding languages for enterprise app development projects. »

*Forrester Research: Organize for Mobile Development Success, Apr 2014*

# #2: FLEXIBILITY

Mobile developer toolkits are abundant and evolving at a rapid pace. Common coding languages include, JavaScript, Objective C, C#, Java, Node.js, HTML5. Then there is a plethora of frameworks – Sencha Touch, Angular.js, Backbone.js and Ember.js, as well as toolkits such as Apache Cordova, Appcelerator, Xamarin and native iOS, Android and Windows Phone SDKs. When building the business case consider:

1. A "Bring Your Own Toolkit" approach that allows developers flexibility to use the languages and innovative toolkits they are most comfortable with. This encourages greater developer agility.

2. Giving developers the freedom to work locally in their own environment or online directly through the mobile app platform. For example, a command line interface (CLI) to the platform allows developers to code locally with their favorite IDEs and debuggers while remaining connected to the project, the team and all platform features.

3. Proprietary tools or frameworks will lead to lock-in and create issues around training and skills transfer. In choosing a vendor, investigate how an app can be ported for future development.

4. Look to a platform that can easily integrate with any other 3rd party developer toolkits (e.g. for testing, CI, Reporting & Analytics, UI extension, etc.).

5. Check ownership of the final app code and any IP issues. You want to be able to take your code with you and not be tied into any ownership issues.

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« With shipments expected to reach 19 million this year, wearables will finally move beyond early-adopter status. »

*IDC Forecast*

# #3: MARKET REACH

The range of mobile devices, form factors and operating systems does not stand still. Besides this, different business units may have different requirements (B2C, B2B, B2E etc.) that drive the need for different types of apps - hybrid, native, HTML5 or web apps. Since one type doesn't fit all, the development platform needs to support development and deployment not only to multiple mobile devices but also to different versions of each OS on these devices, and for a range of app types. Look for:

1. A mobile application platform that offers the functionality for developers to build native iOS & Android, Windows Phone, hybrid and HTML5 apps and distribute these to the app stores.

2. A platform that supports BYOD and can be easily integrated with MDM/EMM solutions.

3. Look for a platform that offers additional app distribution functionality such as the ability to centrally manage and discover individual app credentials, maintain the native production environments, and build and wrap both the native & hybrid App binaries for development distribution.

4. A platform that supports a wide range of applications from B2C, B2E, B2B to hybrid, HTML5, native and web apps. Customer examples and references will help verify this.

5. A platform that can extend to embrace wearables and the Internet of Things (IoT). Consider the future of devices and don't limit yourself to just smartphones and tablets. The market is innovating at speed as wearable technology, beacons and smart sensors evolve. The more a platform leverages open and standard technology, the more this will be seamlessly supported.

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« With 40% of large enterprises planning to increase their development outsourcing collaboration across enterprise IT, lines of business and any external partners that may be involved is crucial. »

*Chris Marsh – Principal Analyst, 451 Research*

*http://mobileenterprise.edgl.com/news/Where-Are-All-the-Enterprise-Apps-95583*

# #4: COLLABORATION

Mobile app development requires multiple skillsets in order to meet the rigors of great user-experience, dedicated business logic, secure access to backend enterprise data, compliance and scalability. These skills can be either in-house or outsourced and need to collaborate and share across multiple app projects.

Many other skillsets can be involved such as UI design, Admin, DevOps, and QA, all of whom need to collaborate and share efficiently across the app development lifecycle. Look for a solution that:

1. Offers developers the flexibility to migrate their existing frontend app code to the platform but still has the ability to leverage the backend development and management functionality.
2. Offers a frontend development environment and tools but will also be open to apps that have been developed outside the platform.
3. Uses a micro-services approach for backend development that can be easily leveraged by several company-wide app projects, no matter where the client code was developed.
4. Supports multiple internal and external people working across various app projects. Team effort to push apps out at ever-faster iterations and development cycles requires streamlined workflows, project visibility, collaboration and code sharing.
5. Provides tools that allow support for specialization among team members, ultimately providing richer UIs and quicker integration to backend systems.
6. Can scale and manage the development of multiple apps at different stages of their lifecycle.

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« Over the next 24 months, the MBaaS market will be disrupted by five Disruption Vectors: a convergence of features from multiple products, a growing importance of mobile-first development, a need for increased control of data assets, a need to unlock corporate data silos, and the growing influence of DevOps and Agile methodologies in mobile development. »

*GigaOm Research: Sector Roadmap – Enterprise MBaaS Platforms*

# #5: SECURE INTEGRATION VIA MBAAS

Mobile Backend-as-a-Service (MBaaS) functionality excels at integrating apps with backend systems and other 3rd party services by acting as a secure cloud-based hub between mobile clients and the systems they need to access. When deciding on MBaaS look at:

1. What backend systems and data sources you wish to connect to? Look for a proven track record of enterprise integration and the availability of prebuilt APIs, plugins or backend connectors that will maximize reusability.
2. Does the platform support heterogenous data source connectivity including, but not limited to web services (SOAP, REST), jms, http(s) etc.?
3. Will data be captured e.g. through leveraging device features such as images, signatures, geo-stamps etc.? Where will this additional data be stored and how will it attach to existing data records?
4. Look for enterprise-grade MBaaS functionality that enables full access to cloud services such as storage, security, caching, and business logic..
5. If your apps will be out in the field, look for strong data sync capability that fully supports offline mode with bi-directional data flow.
6. You need to ensure your data is only accessed by authorized users. Look for rigorous authorization and authentication features.
7. Identify the key elements of the technology stack that will provide more efficient data management, scaling and performance.
8. An MBaaS that is hosted in an environment that provides secure app containerization.

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« The leading mobile app platforms will be characterised by open and extensible architectures, an API management and data orchestration layer, extensive developer libraries, agnosticism to tools, infrastructures and standards, integrated testing and analytics and a rich ecosystem. »

*Chris Marsh, Principal Analyst, 451 Research*

# #6: EXTENSIBILITY THROUGH APIS

Application Programming Interface (API) management provides both risks and opportunities. If executed as part of an overall, strategic mobile development plan that harnesses the right mobile application platform for your business then there is no need to re-architect your systems from the ground-up to meet the demand for mobile as the organization scales. Look for:

1. A platform that offers a set of well-documented enterprise APIs and enables integration with third party APIs (e.g. Google Maps, etc.) offers a means to speed innovation and reduce complexity.

2. An API-based, mobile-backend-as-a-service approach that handles the caching and performance management and can respond to a myriad of often concurrent requests. Apps now serve anywhere from 1,000s to millions of users, all of whom need access to mission critical applications at the exact same time.

3. As developers move toward more of a self-service approach to app development, look for a platform that enables auto documentation & discovery of APIs and backend services.

4. API management performed in the cloud. This provides the simplicity, speed and scalability to develop, deploy and manage apps quickly and efficiently and with the added advantage of delivering/providing utility-based SaaS pricing.

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# #7: REUSABILITY

Reusable code, APIs, templates, codeless apps and out-of-the-box solutions all help accelerate the development cycle, increase efficiencies and reduce costs. Additionally, the concept of discovery is becoming increasingly significant for developers in re-use of APIs and backend services.

1. Investigate how the MBaaS is structured to allow reuse of backend services and make them available across multiple projects. A backend connector built for an app for one particular use case may equally be used by a very different part of the business and by a different developer.

2. Re-use of APIs and sharing them across multiple app projects will significantly cut down overall development time and ensure faster time to market. Outline what APIs the business case requires and what APIs are available from the platform. How easily these can be discovered for re-use and how can existing business APIs be integrated?

3. Out of the Box solutions may be a good way to jumpstart some mobile projects with low risk and fast implementation. Beware - many pre-packaged solutions lack the flexibility to be customized to the business use case so may be short-lived. Look for app solutions that are open enough to allow a certain level of customization without much additional development.

4. Templates and Codeless or Drag and Drop Apps allow non-developers such as the business users to quickly prototype and test. Access to a library of templates can give also developers a head start on more complex app projects, eliminating the need to code basic features.

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# #8: SECURITY & COMPLIANCE

Mobile security needs to extend to every aspect of data integration and handling: between back-end systems and the cloud; within the cloud; between the cloud and the mobile device; and on device – including devices your company doesn't own. Consider the following:

1. The security technologies provided by the platform e.g. encryption and protection of data, user access and controls, monitoring, etc.
2. How data can be encrypted on the device and during communication between the device and backend systems. Is an end-to-end encryption facility necessary for your business needs?
3. User authorization ensures that apps and data gets into the right hands. If this is important you need to consider what functionality is available from the platform to support user authentication and authorization?
4. Do you need a platform that supports end-to-end security including use of VPNs and SSL?
5. Will you require extra secure deployments. If so, what do these encompass e.g. private compliance cloud deployment, use of private mobile APNs, etc.
6. If you have your own security policies and technologies in place, you may want these leveraged by the platform and not just be tied into the platform's choice of security.
7. How does the platform handle integration with MDM and MAM solutions?

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« Not all vendors have the technology to meet the requirements of the most demanding customers in the enterprise segment. These requirements include the ability to deliver both cloud and on-premises deployments, data-level management capabilities and compliance with strict industry regulation in verticals such as finance and health care. »

*451 Research,*
*Mobile Predictions 2014*

# #9: FLEXIBLE DEPLOYMENT

Mobile app development has moved towards a more DevOps driven culture. The type of infrastructure deployments required and how these may evolve is important to consider.

1. Is the platform fully hosted and what are the hosting options that the business needs? Choose a platform that offers multiple hosting options – public, private and hybrid or on-premise.
2. Do you want the solution deployed in your existing cloud or on-premise environment? How do you want this architecture to look? Can new deployment targets be added quickly and with minimal effort?
3. It may make sense to have a number of your mobile apps hosted publically while more sensitive apps can be deployed on-premise or in a private cloud configuration. As more apps are developed and deployed a mix of deployment options may be desirable.
4. Does the deployment target offered by the platform vendor adhere to the policies and requirements of your business? If not, how will this be engineered and at what cost?
5. Data Protection laws vary by region. For businesses with global operations the location of where personal data resides often needs to be considered. Understand where are the data centers are located.
6. Does the platform offer infrastructure management and monitoring tools that track cloud resource consumption etc.?

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# #10: SCALABILITY & AVAILABILITY

Backend development demands it's own set of rules for scalability, security and availability.in order to manage large numbers of concurrent users accessing the same data. When you factor in a continuous stream of growing app deployments, the ability of the server-side to scale quickly is a must for any organization.

1. Will the platform support scaling over the long term
    a) as app usage increases to potentially 100,000s and more
    b) as the volume of apps in the organization increases
    c) as the number of backend integrations increases
    d) as the variety of backend integrations increases to include legacy, third party, and mission critical systems
2. Look for technologies that support scaling. elasticity and load balancing.
3. Using a hosted PaaS may be worth considering as it provides a ready-made environment with built-in services for scalability, rapid deployment and on-demand elasticity. Combining mobile services in a PaaS environment offers developers a self-service approach to developing and deploying their apps at speed and at scale. Consider how the platform vendor supports PaaS deployment.
4. Outline your policies and requirements for availability, resiliency and data recovery? How will the platform perform against your business needs. How will the infrastructure handle failover, clustering, redundancy, load balancing etc.?

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# #11: PORTABILITY

When choosing a platform, often you do not want to redevelop your existing mobile apps. Question portability and use of existing apps and look for:

1. A solution that supports the migration of existing apps to the platform. Legacy mobile apps that were built on proprietary technology may not lend themselves to portability to a new environment but it's important to examine the platform's migration strategy and possibilities.

2. It is important to know which and how many of the popular app development paradigms the target platform supports - Cordova Hybrid, Native iOS, Native Android, Xamarin, Mobile and desktop web apps. Depending on previous app development, there may be a range of different apps that will need to be imported.

3. Ease of integration. What steps are involved to get existing apps integrated with the target platform? It should be as simple as adding the appropriate SDK and configuring a few well-defined parameters e.g. environment variables, endpoints, etc.

4. Automation of importing apps. If you have more than 20 or so apps to import, doing this as a manual process can be time consuming, error prone and frustrating. Look for a platform that supports automation, not just of app importation, but of all key tasks.

5. Ease of app export. How easy is it to re-export the apps? It should be as easy to export apps as to import them - ensuring that there is no long term platform lock in. Other reasons for wanting to export your apps could include local building or debugging, compliance and source code storage or management.

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« Incorporating analytics early in the deployment cycle will provide valuable insight that can shape the company's strategy. This is particularly important for customer-facing projects, but also relevant for B2E and B2B applications. »

*451 Group: Mobile Applications and Cloud: Companies, Vendors take aim at mobilizing Workflows*

# #12: MOBILE APP SUCCESS

Analytics that track app usage and user experience are imperative to app success. Even the "best" app will fail if it does not meet user expectations for ease of use and functionality.

1 Use reporting and analytics to monitor app usage. This will enable you to enforce policy compliance, but it will also give you the chance to find out how users interact with the app and inform future development. Check what analytics and reporting tools are available from the platform and how they will inform you of:

- App Downloads/Installs
- Active Users over time
- Cloud Requests
- Responsiveness
- Cloud Monitoring
- Alerts on failures

2. Can the platform integrate with other 3rd party analytics tools? If so what tools and how easy is this integration

3. Prototyping offers one of the best ways for apps to be tested with users. A platform that offers templates and easy solutions that facilitate fast and low cost prototyping gives attractive opportunities to ensure app success.

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# THE LAST WORD

Mobility is increasingly becoming a top priority for business as a means to drive innovation and streamline operational efficiency. However, it's also creating demand for faster, continuous development cycles that challenge traditional IT infrastructure and development methodologies.

In crafting and reviewing your mobile strategy, this eBook helps you break the process across the 10 pillars outlined. You'll find the real value of enterprise mobility will be revealed as your app deployments mature from tactical to more strategic use cases and as you evolve towards more agile approaches to development and deployment. This is not a one and done exercise. You must remain flexible, even when it comes to your mobile strategy.

Red Hat's experience and leadership in enterprise IT, its portfolio of open source and cloud technologies, and its mobile capabilities and mobile application platform can help your organization evolve towards greater agility and digital innovation.

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