The Mobile Roadmap

We are in the decade of mobility. Smart phones are driving Mobile Internet and App usage. Since the introduction of iPhone in 2007, smart phone penetration has been growing significantly. According to report released by ZentithOptimedia, smartphone penetration in the world’s top 19 digital markets is expected to double from 35.5% last year to an average of 71.7% in 2015.

Not only are smart phones getting more prevalent, consumers are spending more time on them. According to Flurry Analytics, about 81 minutes per day are spent on smart phones compared to 74 minutes on desktop internet. Businesses need to adapt to this changing consumer behavior and consider mobile as one of the key strategic channels for the future.

Despite increasing prevalence of mobile teams and initiatives, the field is relatively young and best practices are hard to come by.

Having worked on over 100 engagements and countless interactions with our customers over the past Three years, we have put together a set of key considerations for navigating your mobile roadmap. These considerations will help you identify opportunities and also avoid major pitfalls while trying to implement mobility projects. We have categorized these considerations into Three phases – Assess, Build and Deploy based on the activity timeline and a series of steps within each phase.
A three-phase approach ensures your mobile project is highly effective

**ASSESS**

This phase ensures that an ROI-driven business case has been built for the mobile project. And technology roadmap to fit business requirements and overall strategy has been identified.

**BUILD**

This phase consists of User Interface creation as well as iterative build and test of application. The objective is to ensure value creation in an incremental fashion, within short time-frames.

**DEPLOY**

The third and final phase includes app approval and distribution, training, maintenance, upgrades and measurement. This phase is key to delivering and measuring ROI.
Establishing a business case prior to starting your mobile initiative is critical to the project success

It is important to build a business case prior to investing in mobile. This helps in ensuring a systematic investment with measured ROI, instead of building an app for the sake of market presence.

Some of the benefits to be considered for ROI calculation are:

- Enhanced revenues – Increased number of purchases via mobile, higher number of store visits and so on.
- Lower costs – Higher efficiencies in operations, saving on printing and postage charges, saving on higher cost equipment.
- Customer Satisfaction – This may be hard to measure quantitatively. However, can become a differentiating factor in the long run.
- Enhanced market presence and visibility.

Some of the costs that need to be considered are:

- Development costs – External vendors, Internal team effort.
- Support and Upgrade costs – Apps will need to be upgraded on a regular basis, both in terms of new technology as well as functionality.
- Marketing costs – Spend needed to get end-consumers to use the app.
- Training costs – Typical mobile/tablet apps do not require as much training as the web applications. However, it is prudent to allocate for training time, especially for enterprise applications.

Example – Marriott Mobile Web App

“Marriott.com’s website built specifically for mobile devices. Marriott Mobile generated more than $1.25 million in gross revenue in the first 100 days after introducing direct mobile Internet bookings.”

**Source: Marriott News, Dec 23, 2008**
And so is identifying the right technology choice.

Mobile enabling technologies are evolving fast. It is important to select the right technology, from the perspective of end-user usability as well as long-term scalability.

Typical choice to be made is between native apps and mobile web. Native apps can be built with OS specific technologies like iOS, Android etc. or leveraging cross-mobile platforms like PhoneGap, Appcelerator and Rhomobile. Mobile web apps can be built using technologies like HTML5, JQuery Mobile and Sencha Touch.

The right approach and technology has to be evaluated and identified after thorough analysis, considering factors such as:

- Business Objectives
- Usability
- Platform
- Cost

Examples

- For retailers, a mobile website may be of a higher priority than an app as a large part of search traffic will be generated through web-based searches.

- For a hospital management application, a cross-mobile platform may be better suited, as it provides the right combination of usability along with the ability to deploy apps on multiple devices.

- For a highly consumer centric music application, a native application is a better choice, as it provides the best user-experience.
Kick-off the project by setting up a cross-functional team

Mobile engagements need a co-ordinated team assembled from cross-functional departments. Some of the roles that are needed for an effective mobile team are:

- User Experience designers: For designing the end-customer experience and navigation.
- UI Graphic designers: For graphics and branding.
- Marketing & Sales team: Especially for customer focused apps in order to ensure effective way to market and sell the concept.
- Business team: Provides scope for the project as well as user acceptance criteria.
- IT development team: Team that is primarily involved in the development of the engagement. Usually this team may need multiple skills especially when developing applications for different platforms like IOS, Android, Blackberry etc. If the application being developed uses cross platform tools like Rhomobile or PhoneGap or HTML5, then skills required for each of those tools will also be required.
- Quality Assurance team: It is highly recommended to have an independent testing team for device testing which provides both manual testing and automated testing support.
- Compliance team: These skills are needed where the application needs to adapt to compliance requirements like HIPAA.
Creating a compelling user experience is the next step

Example – Flipboard iPad app

“Though there many news aggregation apps available today, one of the applications that creates a unique experience is Flipboard. What differentiates Flipboard is the clean and simple UI coupled with a reading experience uniquely designed for the iPad. Users have chosen this application over most other news reader apps though Flipboard did not have the first mover advantage.

Users get to chance upon new content in such an easy way thereby increasing the stickiness of the application making users to browse more than what they initially started to read.”

Building the right user experience is the key to a successful mobile engagement. Traditional software development did not give this aspect too much importance. Most developers still focus on “functionality” rather than end customer experience leading to functional but non-sticky applications. “Experience Engineering” is the new paradigm in the mobile world.

Users in the mobile world have a lot more choice now and will pick the product that gives them the best overall experience. Building stickiness and wow factor is very important. Mobile design should take care of aspects like screen size, connectivity, bandwidth, designing for a variety of devices and creating the best navigation experience.

Mobile has some unique features compared to desktop. For example, smart mobiles have cameras, they can determine your position using GPS, detect motion, scan barcodes etc. These features can be used innovatively to enhance user experience to increase customer stickiness to your app. For example, delivering the right coupon when a user walks into his favorite store will significantly increase customer satisfaction.

In short, mobile projects should be driven by customer experience and UX designs rather than software functionality alone.
Build your projects in an iterative way to deliver incremental, measurable value

Mobile development is best accomplished using an iterative development approach. This approach is what we call a “Self-Funded Model” and typically uses an eight to ten weeks iteration cycle. The benefits of the first iteration partly fund the cost of development of the following iterations and if the app is successful can even fund the full costs by the third or forth iteration.

Following are the key steps to this model:
- Split overall scope into small chunks of functionality.
- Identify quick wins.
- Group functionality into multiple iterations prioritizing on quick wins.
- Launch the first version of the app.
- Take customer feedback and launch new functionality in six to eight weeks iterations.

Main advantages of this model are:
- Benefits-focused development approach rather than features.
- Better customer satisfaction due to constant feedback and delivery of functionality.
- Increased flexibility to customer needs or changing requirements.
- Early iterations expose and mitigate risks.
- Management can make tactical changes to the product.
Example – A Large Accessories Retailer in US

RapidValue has helped a US based women’s accessories retailer build a catalog application using its Xcelerate methodology. This retailer has over 150 stores across the US. The key benefits to consumers and employees were identified and the first version of the app was released in just six weeks. This was rolled out to all stores in the first version. The second version of the app was rolled out to consumers.

Every subsequent release brought new features and incremental benefits. Six months after the launch of the first version, the app is currently in its fourth version.
And do not under-estimate Integration effort

Most mobile engagements need integration with cloud applications or enterprise legacy applications for them to work smoothly. Moreover, integrations are not one big bang to be done at the end of the project. Leaving integration decisions to the end, results in a lot of rework and this can be as high as 40% of the overall effort.

In order to avoid this, Integration design should be taken up in parallel to mobile application design and should be given a higher priority. Also all APIs needed for Integration should be developed earlier to the mobile component development that needs it. Therefore, effective project planning with dependencies is required.

Example – Integration within Mobile Commerce application

“For one of our customers, a US based retail chain, we are currently building an innovative and unique m-commerce application that helps provide the wow factor to customers and increase usage. This application’s UI can be controlled from the backend by an admin and can be changed frequently to keep the novelty factor. In order to ensure that this application works to meet the dynamic requirements, it had to be integrated for various functions like product management, inventory management, user management, shipping, tax, order management, payment integration, Facebook and Twitter.”
Plan appropriate amount of testing effort

Mobile testing can take considerable amount of time even though the development timeframe may be short. This is because of the unique nature of mobile and fragmentation of devices.

For starters, testing should be not only planned on simulators but also on physical devices. Also, there may be multiple devices from various manufacturers for operating systems such as Android and Windows Mobile. Each device may have a different screen size and features. Your application may not work as intended on all devices. Therefore, the application should be thoroughly tested for any issues and defect-fixes before implementing it.

Moreover, in-house testing teams might not have all the devices and hence tools like DeviceAnywhere or Perfecto Mobile can be used for remote testing on actual devices.

Mobile testing may also need in-field testing for applications that use GPS, maps etc. This means that someone has to travel to a few locations and test the application, especially features like serving coupons or deals when user is near a shopping area.

In-field testing is also needed for testing under various network conditions like 2G/3G and network switching.

Since most mobile projects tend to be iterative in nature, automated testing can help in reducing overall testing effort. Some of the automated testing tools that can be considered are SeeTest, TestPlant, Robotium, Android Monkey and Selenium.

Example – A Large Education Provide in the US

One of our clients, a $4 billion education provider in the US, needed continuous testing efforts for their mobile initiatives. We set up a dedicated mobile testing lab for both manual as well as automated testing. The independent testing lab provides a validation and quality assurance service and ensures that the product that is launched in the market is bug free. This lab also certifies the app for various devices.
Deployment of native mobile apps for consumers will require you to understand App Stores and approval processes

Native apps are typically distributed to end-users through an App Store process. Mobile web applications do not need to go through an approval process.

Some of the key store-fronts are Apple App-Store, Google Android Market, Windows Marketplace, BlackBerry App World and Amazon Appstore. In addition, there are a number of other App Stores that can be used for distribution.

Some of the app-stores require an approval process for the apps to be made available to public. Where an approval is required, it is important to pay attention to the approval process.

Apple Store has a manual review and approval process, while Google Store does not have an approval process. It is imperative to understand the approval guidelines and timelines involved, to ensure that you have a launch process as planned.

Examples

- Apple guidelines indicate that apps which do not have significant native features may be rejected. It is therefore advisable to have only those applications that have significant native components to be built as native apps. Apps that have only links to videos etc. may be better built using HTML5 or mobile web frame-work.

- Typically, Apple approval timeline ranges from one week to three weeks, therefore at least two weeks timeline need to be planned to ensure that apps are ready to be launched (For example - If you want to show-case an app in an event, you need to complete the app development and testing at least two weeks in advance).

Note: You can always reach out to Apple for an expedited approval with a valid reason.
While enterprise apps would require you to be familiar with enterprise distribution methods

One of the key challenges associated with an enterprise app is to deliver the app to all/relevant employees. One of the ways of distributing an application intended for the employees of an enterprise is to distribute the app on App Store, but requiring credentials, so that only employees can access with the right login. However, this may not be considered safe for apps involving information requiring high security.

An alternative mode of distribution without going through the App Stores is an enterprise mode of distribution in case of Apple. Apple provides an enterprise mode of distribution to distribute applications to employees of an enterprise. In this case, an app is hosted on the server and an email or SMS with the webpage link is sent to the target device.

Another option to deploy applications within enterprises is to use a Mobile Device Management software like Zenprise or AirWatch. Most leading MDM providers provide an ability to setup enterprise app-stores which can then be used to distribute apps to enterprise users.

Examples

– For an in-store catalog application that we deployed for a retailer, we used an approach of getting the app on the App Store with authentication. The app was also made available to users in the public domain, but with different content.

– For a sales catalog app deployed for a medical device manufacturer, the approach was to go through enterprise distribution mode, as the app content was more sensitive, as well as there was no information that was relevant for general public.
And of course, enterprise mobile security cannot be left open

Mobile Device security should be a key consideration while deploying enterprise mobile apps, especially the ones accessing corporate documents or corporate data. Security has been important in the laptop world as well, but in mobile world, security assumes paramount importance just because the device is “mobile”, with a higher possibility of losing the device.

Some of the leading Mobile Device Management players like Zenprise, Sybase Afaria and AirWatch handle mobile security aspects as well. However, a careful mapping of your enterprise security requirements will have to be completed to ensure that the right solution is implemented, that suits your needs.

Examples

- CIO at a large financial organization wants to ensure that the enterprise data that is accessed on user's mobile phone is secure, and is wiped off if the device is lost.

- IT organization wants to ensure that the apps that are installed on the employee's device can be controlled and managed centrally.

- Ensure that users abide by password policies to ensure that the password cannot be broken.
Training should not be ignored for enterprise mobile apps

Mobile and tablet apps are normally much more intuitive and user-friendly than traditional web-based applications and hence require less user training.

However, for an enterprise app, it is prudent to budget cost and effort for training to ensure that you obtain maximum results. Especially for apps requiring data entry (e.g. by service technicians or sales people in the field), planned training sessions would eliminate any potential for errors and maximize overall returns.

Examples

– While deploying an in-store sales catalog system for a retailer, RapidValue conducted training sessions and workshops for a key set of field sales people at their annual conference. These sales people in turn acted as trainers for the store sales people. This ensured that the app was used by the in-store sales people in an effective way, resulting in high level of customer satisfaction.

– While deploying a mobile hospital management mobile system, training videos were created and sent out to all the key personnel using the system including pharmacists, specialists and practitioners. A systematic training and tracking program ensured a smooth deployment without any surprises.
Plan for ongoing maintenance & upgrades

In most cases, mobile and tablet apps require constant updates due to multiple reasons –

- Constant changes to technology – new releases of Operating Systems and new features
- User feedback – As mobile is an area that is evolving quickly, new features as well as different ways to use and navigate the apps are always brought in by the users. Of course, the best mobile app is built by listening to your customers continuously, and improving on a regular basis. Most of the mobile apps ecosystems have built-in mechanisms for feedback, and this provides a great source for improvement opportunities.

It is always useful to plan and budget for on-going maintenance and upgrade costs in advance as part of your planning exercise, as that will ensure a better ROI realization.

Examples

- A mobile shopping app that costs about 200K to develop (and integrate with the retail/ecommerce system) could potentially cost about 50K per year for subsequent functionality upgrades and changes. However, the incremental effort may bring the maximum ROI, ensuring customer feedback is incorporated.

- Moving an app to another platform (from iPad to Android tablets for example) should be considered as an independent project. The effort itself may be only about 50-60% of the original project as the integration aspects have already been addressed, but this still needs to be looked at as a separate effort with independent planning.
And last but not least, measure the app effectiveness

As they say, ‘you cannot manage what you cannot measure’ – This is true for mobile apps as well. As this is an emerging field, measurement of user behavior is the key to obtaining relevant insights. Having the right data on user behavior also puts you in a position to monetize your apps, by providing relevant information to your advertisers.

Once the app starts getting used, it is important to monitor key data parameters generated by the app. Valuable information on the app usage including time spent on specific pages and advertisements can be obtained and charted, if the app has been designed with this in mind. A lot of valuable information to finetune the app, can be obtained by closely monitoring this data.

Examples

In one of the end-to-end iPad based magazine publishing solutions that we built for a leading health care publisher, we built an analytics module that was able to track a lot of good information, like the total time spent by the user per magazine issue, time spent on each page, time spent on each ad etc. The client was able to use this information to effectively sell advertisement space and was also able to identify the sections of the magazine that generated maximum interest.
About RapidValue

RapidValue is a leading provider of mobility solutions to enterprises worldwide. Armed with a team of 175+ experts in mobility consulting and application development, along with experience delivering over 200 mobility projects, we offer a range of mobility services across industry verticals. RapidValue delivers its services to the world’s top brands and Fortune 1000 companies, and has offices in the United States and India.

www.rapidvaluesolutions.com

www.rapidvaluesolutions.com/blog

+1 877.690.4844

contactus@rapidvaluesolutions.com