The Mobile Applications Ecosystem: A Primer

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Executive Summary

Mobile access through mobile applications on handsets is set to overtake desktop web access within the next 5 years. By 2015, over 1 billion users worldwide are expected to access the web through their mobile handset\(^1\). Many organizations have not fully considered how to approach and serve their users, customers, and stakeholders on mobile platforms. The majority are still using web applications optimized for use on the desktop, not the handset. With mounting evidence that users, many in emerging markets, are gaining the power to communicate and interact on mobile devices, organizations are still surprisingly unprepared to adapt to the coming challenge of serving these customers and potential customers effectively in an environment of abundance of bandwidth, information, and processing power. In a few short years, it is very likely that the desktop platform will become merely a complementary platform to a new mobile platform as the means of connecting and serving customers online.

New rules and constraints apply in the development of mobile applications today. Limited screen sizes, limited storage, and limited processing capabilities are mainly dictated by the form factor of these devices. However, with exponential improvements in technological capabilities, coupled with exponential drops in cost, the demand for rich interactive applications on mobile platforms is also expected to grow exponentially. For instance, mobile application downloads are expected to grow more than 700 percent, from 2.9 billion to 21 billion, by 2013. Most of these applications to be downloaded do not exist today.\(^2\)

Organizations should put aside immediate concerns about payback and immediately begin exploring the mobile landscape because the pace of change is exponential and likely to overwhelm – or outpace – the strategy development process, leaving value for others at the table.

To take advantage of this new growth, organizations can prepare today by developing rapid development strategies for entry into the mobile marketplace. To do this, organizations can begin by:

- Understanding the mobile ecosystem
- Identifying and supporting small mobile applications initiatives
- Developing a strategy for participation in the mobile applications value chain
- Building strength in serving customers
- Repeating early successes often

\(^1\) (Mobithink Mobile Statistics, 2010)

\(^2\) Ibid.
Introduction

Mobile applications are by no means new in the business and consumer software applications arena. For years, companies have sought to deliver productivity to users through a variety of channels from desktop applications written in native languages, to web applications with high interactivity, and finally, in a very robust way, to a new wave of pocket- and tablet-sized mobile connected devices. The focus of this paper is to describe this new mobile eco-system in terms of participants, size, and coverage; to highlight some insights and opportunities; and to offer a roadmap for considering the ecosystem and developing your own applications for use within, or sales to the participants of, the ecosystem.

Facts and Figures

- The overall mobile applications marketplace for both paid and non-paid applications is estimated to reach a value of $9 billion by 2011\(^3\).
- However, the mobile commerce market (a submarket) is predicted to reach $119 billion by 2015\(^4\).
- The total number of mobile users worldwide will be about 5 billion by the end of 2010. By 2011, 85 percent of these devices will be capable of browsing the web.\(^5\)
- Of the 1.2 billion new mobile handsets sold worldwide, 14.5 percent (172.4 million handsets) were smart phones capable of taking advantage of rich mobile applications.
- Of the 172 million smart phone handsets sold in 2009, 25 million units (2.2 percent of all handsets sold, 14 percent of smart phones) were Apple devices, 34 million (19.8 percent) were Research In Motion (RIM) devices, while Nokia sold more than 67.7 million smart phones (38.9 percent) and over 431 million handsets worldwide\(^6\). Apple garners a lot of attention in the market place, however, it is still a relatively small player compared to Nokia and Research In Motion.
- Total mobile application downloads topped 2.69 billion in 2009 and the total is expected to grow to 21.3 billion by 2013\(^7\) - a 700 percent increase that is expected to take place in an exponential manner.
- Large enterprises are expected to spend almost half of that value (41 percent), with small businesses spending about a third (38 percent). Medium-sized businesses and small office/home office businesses will account for the remaining 15 percent and 5 percent, respectively\(^8\).
- The top five most popular categories of mobile applications currently are books (17-20 percent), games (14 percent), entertainment (eleven percent), education (seven percent) and travel (six percent). Business applications currently account for a mere 2.3 percent of all existing applications (about 400,000 worldwide.) These rankings are expected to change by 2012 to money transfers, location-based services (LBS), mobile search, content browsing, and health monitoring\(^9\).

These statistics are shocking and potentially understated. In part, this may be due to the fact that most of the growth is occurring outside the United States, which already has high penetration rates for mobile devices relative to emerging markets and in particular, to China. To better understand why these figures have profound implications for organizations worldwide, it is important to understand how the eco-system is organized and how value is created.

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3 (M-Gov World)
4 (Mobithink Mobile Statistics, 2010)
5 Ibid.
6 Ibid.
7 (Peter Finocchiaro, 2010)
8 Ibid.
9 (Gartner Research, 2009)
Overview Of the Mobile Applications and User Market

The mobile applications ecosystem consists of different participants playing different roles and jointly supporting the continued growth of the market as a whole. Participants can be broadly categorized into four groups – operating system developers, device manufacturers, cell and mobile network operators, and independents (Figure 1). The unspoken participants are the application users or consumers. Some participants may fall into multiple categories.

- **Operating system developers** develop operating systems for mobile devices and, in some cases, traditional computer operating systems. They may also develop applications that run within their proprietary operating systems.
- **Device manufacturers** create the physical hardware devices that run the operating systems for the mobile devices.
- **Cell and mobile network operators** are also participants, licensing and creating their own applications for resale through their own ‘app stores’ on their networks and online.
- **Independents** are non-affiliated or weakly-affiliated participants who offer many of the applications available on some, or all, of the platforms. While Independents do not necessarily produce any applications, they do act as a distribution channel for applications and due to the volume of traffic they draw, they are an important factor in the ecosystem.

Figure 1: Mobile ecosystem participants
The dominant player in the mobile applications marketplace is Apple Inc., with a staggering 99.4 percent share of mobile application sales in 2009 – almost $4 billion in revenue\(^\text{10}\), followed by Google and smaller niche independents. However, this application dominance is based on having only 14 percent market share in smart phones, yet accounting for over 67 percent of all downloads.

With regard to the size of the mobile applications user base, it is expected to be 3 billion users, with about 300 million users based in North America, indicating high mobile device penetration.

![Worldwide Mobile Users 2002-2011](image)

**Figure 2: Global mobile handset usage growth\(^\text{11}\)**

### Understanding the Mobile Applications Value Chain

The mobile applications value chain consists of all participants simultaneously injecting and extracting value to and from other participants in the chain. There are no fixed rules for what share of the value is captured within each role, however, participants usually begin with existing value sharing rules on existing channels. For example, book publishers continue to extract the majority of the value in the distribution of eBooks, realizing about 75-85 percent of the available value, exactly as they do in the distribution of real paper books. Book authors capture the residual value.

The generalized form of this value chain, illustrated in Figure 3, applies to both paid and non-paid applications. Users seek content, sometimes in the form of applications, that delivers some value. The value may be entertainment (as in the case of movies or music) or it may render some informational service to the user, for example, a 411 address search, or supporting a business function, such as checking email in transit, delivering convenience and productivity through an email mobile client.

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\(^{10}\) (Chris Foresman, 2010)  
\(^{11}\) (Analytics, 2008)
Mobile Applications Ecosystem Structure

Mobile applications are the primary means by which content is accessed on mobile devices. The application serves as the interface to the content for the consumer and the control point for the producer/creator. The mobile applications aggregator manages the distribution of mobile applications through specialized application store software or websites that act as gateways to applications. Content is further gatewayed through the application. Figure 4 illustrates how Apple plays multiple roles – an aggregator – sometimes an application creator and a platform owner.

![Figure 4: Apple's mobile application platform (green apple indicates Apple is a player)](image)

Mobile applications consume content of all kinds: audio, video, raw and formatted text, documents, geolocation information, and events. The primary devices of consumption are usually smartphones.
iPhone, Google Nexus 1, HTC Evo 4G), tablet devices (Apple iPad, the upcoming HP Slate,) media devices (Apple iPod, iRiver,) and other devices that will appear in the markets soon, such as Cisco’s Cius.

Applications distribution is primarily accomplished through specialized application stores, online marketplaces where applications can be bought and installed on the devices. Some platforms, such as Google Android, allow users to install applications emailed to them or to download them from a website. Application stores provide yet another channel to both control and interact with the customer/stakeholder. These stores are much more than a distribution channel, they can also act as:

- **Filters** – a way to help users quickly reach the information they seek or products they would like to download, use or buy
- **Branding channels** – a mechanism for building trust and awareness with customers/stakeholders about your offerings
- **Markets** – a commerce channel to actually monetize products and services
- **Aggregation points** – virtual locations to aggregate your digital assets or gateways to digital assets

### Where is the growth?

The projected increase of 19 billion new downloads within the next three years will be accounted for through some combination of:

- Additional downloads of existing mobile applications
- New downloads of soon-to-be-written mobile applications
- New downloads from the addition of new users to the mobile applications market

Smartphones, the primary device type that can currently take advantage of rich mobile applications, accounted for 174 million units sold in 2009 (up 23 percent from 2008). In March 2010, the Android Marketplace saw a growth of approximately 9,000 new free and paid applications, up from 5,000 new applications the previous month. Growth in new applications is drastically increasing. New downloads of applications will also be increasing as the numbers of users and awareness increases. However, new user growth, as measured by new smartphone sales, is expected to be linear, growing to 350 million handsets by 2011.

This indicates that the bulk of growth in the mobile applications ecosystem will come from new applications and new downloads from new and existing users. If businesses do not provide the new applications, then consumers will.

### Broad insights and implications for businesses and government

The strengthening of the mobile applications ecosystem has some profound implications for technology infrastructure deployments and, therefore, for policy, security and budget focus, as discussed below.

- **New platforms to support**
  For many years, mobile applications have mainly consisted of corporate email and status monitoring of various enterprise applications. This role is about to expand, with the mobile platform(s) becoming very prominent or the dominant platform of support. As more workers work remotely, demand for corporate access to internal applications on more capable mobile devices will grow. An increasing share of IT budgets should begin to shift towards supporting mobile platforms relative to desktop ones.

12 (Sarah Perez, 2010)
13 Android Marketplace – the Google Android Platform’s Application Sales outlet at: [www.android.com/marketplace](http://www.android.com/marketplace)
14 (Updates)
Opportunities for gains in productivity
By focusing on building applications that address the most critical features of business applications, organizations can empower their staff to work in new ways and from different locations. Mobile applications allow organizations to think in a more focused way about the tasks and activities that are critical to the organization’s functions and encode only these actions in mobile applications.

Reductions in operating costs
Mobile devices continue to drop in price at an exponential rate while conversely increasing exponentially in power and capability. Today’s devices have many of the same capabilities as notebook and desktop computers at a fraction of the price and form factor. New applications can be built as extension interfaces to existing enterprise applications. They are also smaller in size and quicker to build or deploy.

Simplification amidst complexity and abundance of information
The new platforms will require new thinking about how we present information to users. The trend is moving toward simpler and more succinct displays of information, requiring the application of design thinking to the design of information systems. To manage complexity, there will be an increased emphasis on the roles of filters and context – the understanding of what information is relevant with what other information in particular circumstances. Organizations may have to reach outside their own boundaries to link and integrate with information sources they do not control but that must still be present to provide maximum value to their customers.

New channels and sources of revenue / reputation
Some organizations use mobile applications as a loss leader, driving traffic to a website where premium offerings are sold to customers who perceive the unique value of their products. Others have used mobile applications to transform internet identities, with the mobile applications sales driving new revenues, or selling new products and services from within the application.

Public access to organizational assets
Mobile applications present an opportunity for organizations to be more transparent and effective – offering services, data, and knowledge to the public on mobile platforms. Organizations benefit by reaching a broader base of users relative to the PC base and the nature of offerings can be significantly simpler and more innovative.

Universe of free support and components
Numerous applications and services are being created in the user communities for each of the mobile application platforms. Many of these services and components are reusable and embeddable in existing mobile applications. These informal communities also provide valuable information on building new applications.

Conclusion
The evidence suggests that the mobile applications marketplace is about to grow rapidly in the next five to 10 years. If organizations deliver value to customers, users, and stakeholders via mobile applications, there is a significant opportunity to capture value in the form of cost savings, stronger brand loyalty, and direct access to the customer. It is imperative that organizations begin refactoring now to appropriately position themselves for the coming wave of mobile opportunities.

For organizations bold enough to venture into this new marketplace, we offer the following roadmap as a guide to success:

1. Envision – Rediscover your core values and principles as a means for guiding the development of a new vision
   - Rediscover organizational goals and values/norms that guide the organization
   - Capture guiding norms and lay down the guiding principles for the endeavor
   - Develop a vision of the organization’s future in the ecosystem in the context of those norms and values
2. **Strategize and formalize** – Identify organizational strengths that can be projected onto the new platform and articulate high level commitments that will be required to achieve the vision
   - Articulate the key areas the organization would like to participate in or dominate
   - Define specific goals and timeframes for their achievement
   - Define specific measures for each goal and align them with the broader organizational strategy
   - Identify partners who own information that you will need to eventually bring together to provide context to the solution
   - Define the resources to be deployed in the achievement of the goals

3. **Materialize** – Identify an executive champion, provide an initial budget, and develop specific projects for implementation within three-six months
   - Appoint a senior executive who can maintain initiative visibility and budget responsibility
   - Allocate funds for skunkworks resources and physically separate premises, where possible
   - Form a team(s) appropriate to the initiative and provide them with time and resources to begin working on projects
   - Select prototypes for execution

4. **Strengthen** – Develop a deeper bench of resources who can work to bring out the value of the organization’s data, capabilities, and services through partnering with other groups and organizations with complementary capabilities
   - Hire design-minded individuals who can think about new ways of presenting and building future interfaces of systems
   - Partner with organizations with information you do not own but need, in order to add context to your information
   - Begin providing users with filters to help them more quickly reach the information they need
   - Build new applications targeted at ever smaller groups of people with the ideal goal being able to serve each individual customer in a unique way

5. **Revise** – Monitor feedback channels, such as blogs, to capture customer needs and adapt
   - Empower members of the organization to make adjustments to services and products to fit users needs
   - Cycle through new ideas and approaches, while watching for the next wave of improvements
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Bibliography


