

# **DEVELOPER ECONOMICS 2012**

## **The new mobile app economy**

The third in the seminal series of developer research reports -  
Sizing up developer revenues vs costs,  
mapping app supply vs. demand,  
understanding marketing challenges and  
developer segments

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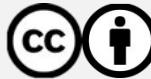
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## Key messages

### The new consolidated landscape of digital ecosystems

**Survival of the fittest has played out within 12 months.** Whereas 2011 was the era of developer experimentation, 2012 is shaping up as the era of ecosystem consolidation around iOS and Android. Developer Mindshare is at an all-time-high 76% for Android and 66% for iOS. Darwin's "survival of the fittest" model explains how BlackBerry, BREW, and Bada (Samsung) have lost Mindshare by failing to compete in terms of user reach, which is consistently the top platform selection criterion for developers. In 2012, developers used on average 2.7 platforms in parallel, vs 3.2 in 2011, a clear sign of consolidation. The trend is further evidenced by declining IntentShare scores for most platforms – apart from mobile web and Windows Phone.

**Tablets are now a mainstream screen for developers.** Developers are rapidly responding to the rising popularity of tablets: our Developer Economics 2012 survey found that, irrespective of platform, more than 50% of developers are now targeting tablets, with iOS developers most likely (74%) to do so. This is a massive increase over last year, when just a third of developers (34.5%) reported targeting tablets. On the other end of the spectrum are TVs and game consoles, with fewer than 10% of developers targeting those screens.

**Mobile web moving from hype to reality.** Mobile web ranked third in the 2012 Platform Mindshare Index, with 53% of developers using it. However, it has somewhat lost ground compared to last year by three percentage points of developer mindshare. As the mobile web moved from hype to reality, developers realise it is still far from the utopia they were originally promised. Developers stumbling on three challenges: fragmentation, performance limitations and lack of distribution and monetisation channels.

**Facebook as the new web.** Facebook is assembling the pieces of the puzzle to become a "platform of platforms" – atop iOS, Android and mobile web – by locking mobile developers into publishing, promoting, distributing and billing through Facebook, irrespective of platform. To mobile web developers, Facebook is offering global discovery, distribution and targeting to 900 million active users, along with direct billing. These are the capabilities that mobile web developers need the most. As the social network's active user base approaches 50% of total Internet users (2.3B users), Facebook is fast becoming the new web.

**Windows Phone is the new cool.** While Windows Phone sales continue to disappoint a year on, with 2.6 million devices sold in Q1 2012, interest among developers continues to build up. Our survey of 1,500 developers indicated that, irrespective of which platform they currently use most, the majority of developers (57%) plan to adopt Windows Phone. At the same time, seeing as last year's 32% Intentshare for Windows Phone added only 1% to this year's actual Mindshare, it becomes clear that converting intention to adoption is not a given. Windows Phone is indeed the new cool, a platform generating increasing developer buzz and anticipation; but to turn the buzz into developer buy-in at the levels of iOS and Android, actual adoption must follow soon or fall flat.

**Mass-exodus from the second runners.** BREW (Qualcomm), is in terminal decline; the rate at which developers are abandoning BREW is alarming, with 60% of developers now using BREW indicate they plan to stop using it. Bada (Samsung) is being abandoned by 49% of developers currently using the platform, paling against the duopoly in both shipments (20 million units cumulative) and platform maturity. BlackBerry (RIM) is close to becoming an endangered species, being abandoned by 41% of developers, - worse, 14% of those using it as their primary platform plan to jump ship. No acquirer of RIM is likely to invest in salvaging the BB platform. The developer exodus is a much greater and more measurable testament to the decline of BREW, Bada and BlackBerry than any other market indicator.

**User reach is the root cause for platform selection.** In our survey of 1,500+ developers, a large installed base of devices still ranks as the top criteria for platform selection, cited by 54% of developers, irrespective of primary platform, while 43% cite low cost. In contrast, only 30% of developers selected a platform based on its revenue potential. Reaching users, eyeballs or wallets is the root cause for platform selection. Once an application has reach, then ad impressions, paid downloads, subscriptions, or distribution deals will follow.

**Untangling the “Babel tower” of developer marketing.** Millions and millions of dollars are being spent to attract developers, not just by mobile firms, but also brick-and-mortar companies. Businesses vying for developer innovation ignore the fact that in a market of over one million mobile app *publishers*, there are many shapes and sizes of *developers*. We present a quantitative segmentation model that addresses how to persuade developers to adopt a tool, platform or API, based on their motivations to commit valuable resources to the platform. The eight developer segments in this model are the Hobbyists, the Explorers, the Hunters, the Guns for Hire, the Product Extenders, the Digital Media Publishers, the Gold Seekers and the Corporate IT developers.

## Sizing revenues vs. costs in the application economy

**One in three developers lives below the app poverty line.** Based on our research of 1,500+ developers we found that the average per-app revenue is in the range of \$1,200-\$3,900 per month depending on platform. At the same time, an app has a 35% chance of generating \$1 – \$500 per month. This means that one in three developers live below the “app poverty line”; That is, they cannot rely on apps as a sole source of income. On the revenue-generating side, 14% of developers will make somewhere between \$500 and \$1,000 per app, while 13% will generate between \$1,001 and \$5,000 per app per month.

**BlackBerry comes out on top in terms of average revenue**, with nearly \$3,900 per app per month, followed by iOS. BlackBerry developers generate, on average, 4% more revenue per app-month than iOS developers, who in turn generate about 35% more than Android developers. iOS wins over Android due to superior demographics (Apple users are less price sensitive), superior content (higher ratio of paid apps to free apps), tablet domination (where per app prices are higher) and frictionless payment (400 million accounts on file with one-click payment).

**iOS apps are most expensive to develop at \$27,000 per app.** Apple's iOS is the most costly platform to target, on average costing just above \$27,000 per app, 21% more expensive than Android and 81% more expensive than Blackberry. The average app will take approximately three man-months to develop. Naturally, app development costs depend on the country and app category – for example, iOS is faster to develop communication and social networking apps than Android.

**App production costs hide beyond the code.** The bar of application experience has been raised so high that, including graphic design and storyboards, creating the user interface often accounts for 25% of the budget. Ongoing maintenance is typically 10% of the original development cost per year. We estimate marketing accounts for 10% of total production costs on average, although can easily scale to half of the production costs for larger software operations.

## Looking for the promised userland

**Marginalisation of telco distribution.** Telco portals have seen a 47% decrease in use as a primary channel to just 3% of developers, normalized by platform. These are the same portals that used to dominate content distribution in the pre-Apple era of downloadable ringtones, wallpapers and Java applications. There is one exception: leveraging the absence of Google Play in China, China Mobile's app store has enrolled 22% of its subscribers, and has served over 600 million downloads, according to IHS Screen Digest.

**Breaking through the discovery bottleneck.** App marketing today takes many forms, from social network promotions to professional PR services. Facebook is far and away the most popular promotion channel employed by developers, utilised on average by 47% of developers across all platforms. Facebook claims to have sent over 160 million visitors to mobile app pages in March 2012 alone. Alongside app stores, Facebook emerges as the only global distribution channel.

**Developers struggle with user engagement and targeting.** There are two important marketing challenges cited by users in our Developer Economics 2012 research. Keeping users engaged was the challenge cited most often overall (39%). This is consistent with data from analytics firm Flurry, who report that user engagement falls sharply over time, with only 24% of consumers continuing to use an app after three months from download. The second most oft-cited challenge is targeting and getting through to the right users – mostly because existing app stores offer little in the way of user targeting.

**Developers struggle to identify the right revenue model.** Developers are becoming increasingly confused (36% of respondents) about which revenue model to use. There are 11 revenue models to pick and mix from, from pay-per-download to product placements. In-app purchasing comes out ahead of other revenue models in terms of per-app, per-month revenues, generating on average 24% more revenue than pay-per-download, 63% more than freemium and 78% more than advertising, irrespective of the developer platform.

**Post-launch challenges.** Tracking bugs and errors is, by far, the most frequent post-launch headache, as reported by 38% of developers in our survey - and particularly so for WP7 developers. There is no direct feedback channel between users and developers, and no out-of-box means to monitor the performance of an app. App reviews work and feel more like post-mortems, rather than a live feedback tool. As a result, developers will often find out what's wrong with their app too late, through users' negative feedback.

## Mapping regional vs global app demand

**The next 10 million apps.** The next 10 million apps are not going to come from the current leading markets, but from BRIC demand for localised apps. North America tops app demand with 41% of developers indicating this is a top-3 download region, irrespective of their region of origin. Europe claims a 31% share, followed by Asia where 25% of developers see most of their apps being downloaded. App demand in each country grows with three factors: rising levels of smartphone penetration, growing user engagement, and total addressable market of smartphone subscribers in a country. While many Western markets drive app demand due to these factors, BRIC markets will be driving demand an order of magnitude larger as their smartphone penetration increases.

**The imbalance between spoken vs app languages.** A local language deficit emerges when comparing the languages spoken globally, against the supply of app-languages produced by developers: 85% of developers publishing in English address just 8% (around 500 million) of the world population speaking English, while Chinese, spoken by 22% of the world population, only attracts 16% of developers. English dominates developers' language share almost everywhere, putting local languages supply at a deficit, not only on a global, but on a regional basis as well. Developers in Europe publish in 2.45 languages, the highest multi-language use across all regions. In South America, Spanish is used by 84% of developers, while English is only used by 48%.

**Mapping the global app trade routes.** App exports vary with each region. Developers in North America see relatively small demand from other regions, with Europe being their top export region (22% of North American developers) but not far ahead of Asia (17%). Latin America and Asia have a large share of developers (44% and 38%) that do not see high local demand - developers there mostly export apps to North America and Europe, where demand for apps, and paid apps in particular, is much presently higher. However, we expect that local demand in Latin America and Asia will grow rapidly as smartphone penetration and app literacy rises. We believe that the majority of the next 10 million apps will be apps produced and consumed within these markets.

## Redefining the basis of competition in mobile handsets

**The new pyramid of handset maker competition.** In the new pyramid of handset maker competition, Apple leads innovators, Samsung leads fast-followers, ZTE

leads assemblers and Nokia leads the feature phone market. Apple has seized almost three quarters of industry profits by delivering unique product experiences and tightly integrating hardware, software, services and design. Samsung ranks second to Apple in total industry profits. As a fast follower, its recipe for success is to reach market first with each new Android release. It produces its own chipsets and screens – the two most expensive components in the hardware stack – ensuring both profits and first-to-market component availability.

**Brand-wise**, Apple captured 33% of the total brand value of all handset makers in 2011, while Nokia lost 15% of its brand value between 2011 and 2010, the biggest year-on-year drop of any top-100 brand tracked by Interbrand.

**No oxygen left in the room.** In Q1 2012, Apple grabbed the lion's share of the profits. However, the largest share of the mobile handset market was taken not by Apple, Nokia or Samsung, but by the “others” category: the hundreds of handset makers producing the hundreds of millions of units sold annually in the developing world. The so-called “Shanzhai” manufacturers and other assemblers earn very little per-unit revenue, and almost no profit. And, they ruin the market for the other handset makers, by depriving them of needed oxygen, i.e. profits.

## About Developer Economics

Welcome to Developer Economics 2012, the third annual report in the series that set the standard for developer research. This report dives deep into app ecosystems, cutting through developer segments, platform economics and global app trade routes.

Developer Economics 2012 focuses on *why* developers make the choices they do rather than just presenting cold facts and figures. We combined empirical knowledge and quantitative data from 1,500+ developers to bring you the definitive job-based segmentation model, a powerful targeting tool for players in the app economy.

We quizzed developers on costs & revenues to understand platform economics and delivered an authoritative view, beyond the hearsay and anecdotal evidence. We also looked into the ways developers promote and sell their apps and the challenges they face when doing so.

Finally, we asked “what next for the app economy?” — So we set out to map global trade routes, analyse demand in regional and global markets and find out where the next 10 million apps will come from.

Our research is based on an online survey of 1,500+ developers from across the globe, as well as 20 qualitative interviews. Our sample was global, including developers not just from North America, Europe and Asia, but also from Africa, Oceania and Latin America.

We believe this report will provide you with key insights on current trends in development, and the ways in which the mobile economy is being still moulded around the app phenomenon. We hope you enjoy this report – we certainly enjoyed writing it!

**AndreasP, Matos, Christina, AndreasC, Vanessa, Michael and Stijn at VisionMobile.**

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## Thank you!

We'd like to thank the executives and developers who helped make this report a reality – those who spent the time on the phone or online to offer a glimpse of the world through their eyes, with its ups and downs. You know who you are.

And of course – a huge thank you to Jose Valles and the team at Telefonica, without whose financial support this research would simply not have been possible.

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We'd like to thank all our marketing partners, who helped us realise this report

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## Research methodology

The Developer Economics 2012 research is based on a large-scale online developer survey and one-to-one interviews with developers and industry executives.

The online survey was designed, produced and carried out by VisionMobile between April and May, 2012.

It received over 1,500 responses, nearly doubling our 2011 reach. Respondents represented 83 different countries and seven major platforms: Android, iOS, mobile web, Windows Phone, BlackBerry, Qt and Java ME. Each platform was represented by at least 50 developers who reported spending the majority of their time on that platform. To remove platform bias, we averaged all results presented in this research across these seven major platforms.

The online survey was translated to Chinese, Spanish and Russian and promoted by t20+ Ecosystem Partners and Regional Partners within the app development industry.

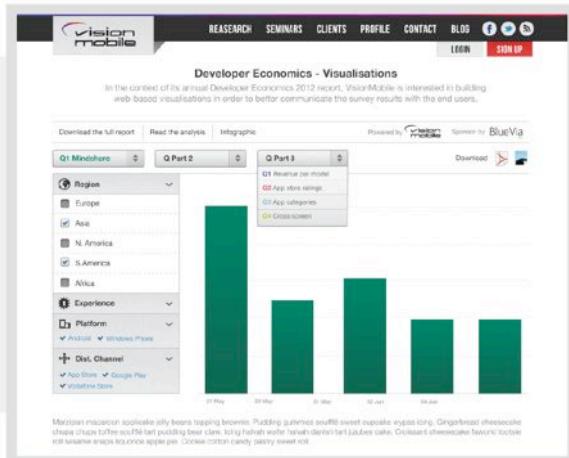


As a result, the research achieved representative coverage of respondents across all continents. While the majority of respondents were from Europe (42%), followed by North America (28%) and Asia (18%), we also gathered a substantial developer sample from Africa (6%), as well as South America (5%). In terms of countries, respondents came primarily from China, the US and Russia, followed by India and the UK. Overall, the 1,500+ respondents hailed from 83 countries across the globe, from Algeria and Argentina to Vietnam and Zimbabwe, making this report truly reflective of the new, global, mobile app economy.

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# DEVELOPER ECONOMICS 2012

## VISUALISATIONS



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## Chapter I



## DEVELOPER ECOSYSTEMS 2012

**A new landscape appears  
as the dust settles**

## CHAPTER ONE

### Developer Ecosystem 2012

#### A new landscape appears as the dust settles

The mobile app phenomenon continues to disrupt the mobile industry with more profound milestones reached in 2012.

Smartphones and tablets have superseded the browser as the new mainstream “platform” where mobile services are developed and deployed. With 145M units shipped in Q1 2012, smartphones now account for over 36% of total handset sales, and have well surpassed sales of PCs and laptops (107M units in Q1 2012, according to Canalys).

Meanwhile, tablets have been outselling netbooks by a factor of two since early Q3 2011, according to ABI, with Apple taking the top spot in the “mobile computer” category comprising laptops, netbooks and pads. Some industry analysts expect tablet sales to surpass PC sales as early as the fall of 2013. Tablets have set themselves apart as a new product category, leading to radically different interaction paradigms (see Flipboard) and use cases (from car showrooms to the living room sofa as TV companions).

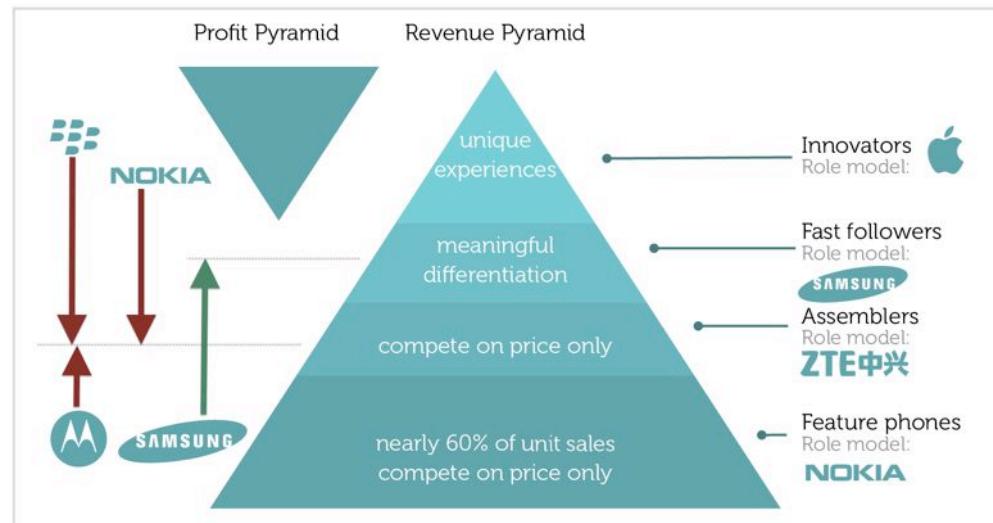
The Apple and Google ecosystems have irreversibly changed the basis for competition in the mobile handset industry. The old-school, vertically integrated phone OEMs (e.g., Nokia) have given way to “fast followers” (e.g., Samsung) and low-cost assemblers who leverage off-the-shelf smartphone reference designs (e.g., ZTE). After 14 years atop the handset shipment leaderboard, Nokia has been surpassed by Samsung. In Q1 2012, Samsung shipped 94M handsets, including 42M smartphones, while Nokia shipped 83M handsets, including 12M smartphones. Only 2.2M of the smartphones Nokia shipped that quarter ran Windows Phone, suggesting its seminal partnership with Microsoft, announced in February 2011, has yet to pay off.

The new ecosystem economics have turned the mobile handset industry into a winner-takes-all game. The new pyramid of handset maker competition comprises four tiers, shown in the next chart. Apple has broken into the new “mobile computers” product category, delivering unique product experiences and admirable profits by tightly integrating hardware, software, services and design. As a result, Apple climbed to the third spot in total phone volumes, and is making more profit than all other handset manufacturers combined.

Trailing in the footsteps of Apple, Google commoditised the traditional phone maker business by lowering barriers-to-entry enough for PC assemblers to move in. In this commoditised market, price and time-to-market are the only basis of competition. Assemblers like Huawei and ZTE are therefore leveraging price as a point of competition.

## The pyramid of handset maker competition

The four tiers of OEMs and the new basis of competition



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Samsung ranks second to Apple in total industry profits. As a fast follower, its recipe for success is to reach market first with each new Android release. It produces its own chipsets and screens – the two most expensive components in the hardware stack – ensuring both profits and first-to-market component availability.

RIM, who once pioneered the mass-market messaging device (in terms of corporate email and consumer messaging) has lost its user appeal and differentiation; email integration is now commonplace, and WhatsApp or other messaging solutions are replacing the BlackBerry Messenger (BBM). As a result, RIM experienced a 25% year-on-year decline in shipments in Q1 2012, with investors pressing the company to break up and sell its assets.

“Brand value,” as tracked by Interbrand, reflects these market-share trends. Apple captured 33% of the total brand value of all handset makers in 2011. Samsung, in the space of just one year, increased its brand value by 20%. Meanwhile, Nokia lost 15% of its brand value between 2011 and 2010, the biggest year-on-year drop of any top-100 brand tracked by Interbrand.

The chart below shows how, over the last year, the changing basis of competition and the migration of profits to smartphones have caused a reshuffling of the handset landscape, in terms of volume, revenue, and profit.

## Reshuffling the mobile handset landscape, Q1 2011 to Q1 2012



Source: Developer Economics 2012 | [www.DeveloperEconomics.com](http://www.DeveloperEconomics.com) | June 2012  
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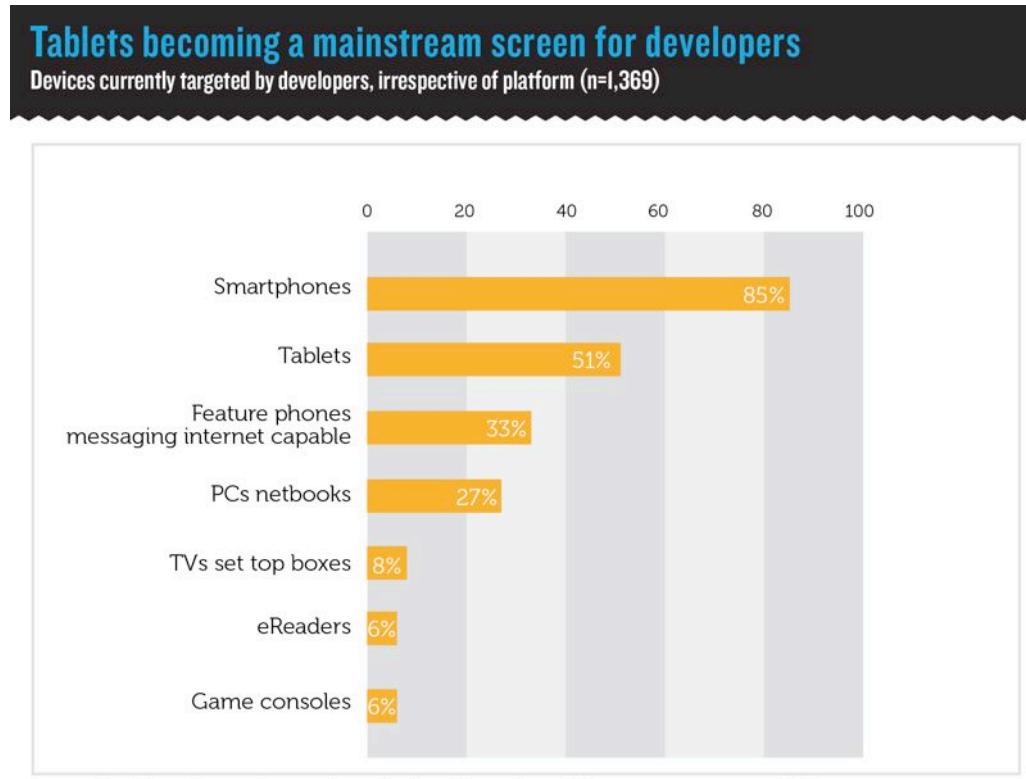
In Q1 2012, the largest share of the mobile handset market was taken not by Apple, Nokia or Samsung, but by the “others” category: the hundreds of handset makers producing the hundreds of millions of units sold annually in the developing world. The prevalence of the “others” category indicates how commoditized the market has become, and how fierce the price competition is. The so-called “Shanzhai” manufacturers and others earn very little revenue, considering their volumes, and almost no profit. And, they ruin the market for the other handset makers. By putting high pressure on prices and therefore profits, they deprive other handset makers of needed oxygen. As the top feature-phone brand, Nokia in particular suffers as a result. Nokia is still large in terms of volume, but revenues are dropping fast while profits have

completely disappeared for the Finnish former champion. Meanwhile, companies like HTC and RIM have lost their differentiating edge, and are withering away, unable to sustain profitability or even volumes.

The disruptor and the current king of the handset market is without a doubt Apple. With just a handful of highly differentiated devices, the Cupertino company managed to capture a sizable chunk of the market's revenues, and most of its available profits. Apple is immune against price competition (for now) because of its special combination of competitive advantages: the right industrial structure, a top brand, a self-growing ecosystem and a strong product focus that dominates the "mobile computer" market category. Samsung is the only company that managed to prosper in this cut-throat market, albeit with a strategy completely different to Apple's. Being a fast follower, Samsung leverages its supply chain integration to quickly develop an extensive product portfolio of first-to-market, differentiated designs.

### Tablets becoming a mainstream screen for developers

Tablets have become a significant part of the app ecosystem. Apple led with strong tablet sales at 33% of all iDevices sales in Q1 2012. Amazon's Kindle Fire did remarkably well in the holiday season of 2011. Reportedly, however, sales slumped in Q1 2012, totaling fewer than 750,000 devices. Overall, the tablet market is expected to exceed combined sales of PCs and laptops by the fall of 2013, according to several analysts.



Developers are rapidly responding to the rising popularity of tablets: our Developer Economics 2012 survey found that, irrespective of platform, more than 50% of

developers are now targeting tablets, with iOS developers most likely to do so. This is a massive increase over last year, when just a third of developers (34.5%) reported targeting tablets. On the other end of the spectrum are TVs and game consoles, with fewer than 10% of developers targeting those screens.

Interest in tablets varies greatly, depending on the platform that developers use most. Significantly more iOS developers – almost three quarters -- target tablets. The majority of mobile web, Blackberry OS and Android developers also target tablets. Mobile web developers show a similar level of interest (68%) in PCs and netbooks. This should come as no surprise, given that mobile web knowledge, code and development tools are easily reused across mobile, tablets and PCs. Also note that Java ME developers have the widest diversity of target devices. Naturally, their primary targets are feature-phones. However, some 14% of them also target TVs and set-top boxes, a much higher percentage than in other developer segments.

## **Ecosystem success underpins the numbers**

App stores continue growing, with the Apple app store now hosting more than 650,000 apps. Google Play, the re-branded Android marketplace, is closing in, with 450,000 apps [link]. Following from a distance are BlackBerry and Windows Phone, which both reached 100,000 apps submitted in Q2 2012. It's worth noting that the well-oiled iOS and Android ecosystems benefit from strong "network effects": as with a telephone network, their value grows in proportion to the number of users (see our Clash of Ecosystems 2011 report [link]). Smaller ecosystems are unable to catch up, adding apps more slowly than the top two ecosystems. In Q1 2012, iOS and Android respectively added 4,600 and 9,000 apps per week, (gross, including removals), while BlackBerry and Windows Phone added 1,800 and 1,400, respectively.

Is the number of apps the ultimate metric of ecosystem success today? The mainstream tech press might have you think so, but the truth lies not within but rather behind those numbers. Two more important factors contribute to the success of an app ecosystem:

- Firstly, application quality, which can differ between platforms; for example, the Twitter and Skype flagship applications on WP7 still lag significantly behind their iOS counterparts, despite WP7 handsets having been in the market for more than a year.
- Secondly, the time-to-publish for application updates across platforms is another important metric. Many applications (and their updates) are made available first on iOS and then on Android or other platforms.

This lag in quality and time-to-publish across platforms results from the app production process. Developer teams will prioritise a new platform only if reach and revenue potential justify the effort. In addition, app development on a new platform is often outsourced, resulting in lower quality and feature lag.

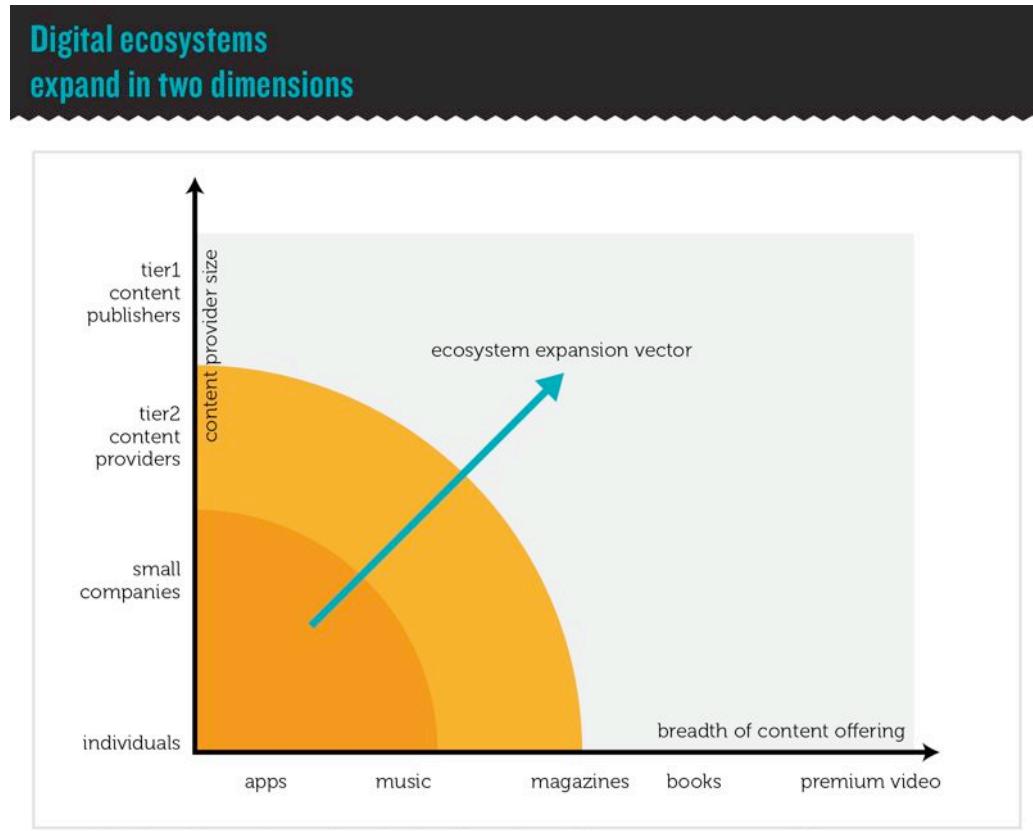
## **Ecosystems expand across two dimensions**

At the launch of the modern-day app stores in 2008, mobile app ecosystems comprised mainly a "long tail" of individual developers and small companies whose apps never achieved great popularity. Over the last two years, the "short head" of high-profile,

popular apps has grown, largely thanks to traditional digital media companies “going mobile” with book, video and music operations.

iOS, followed by Android and Windows Phone 7, have each signed major content deals that bring top-tier digital media publishers to their platforms. In the case of Google, this is epitomised by the Hulu app, which brings premium, on-demand video content to Android tablets. Meanwhile, Amazon’s entry to mobile, via its Appstore for Android (promoted on the Kindle Fire), prompted both Apple and Google to integrate newsstand/book reader applications and launch magazine and book publishing channels.

The end result has been an ecosystem expansion, as of 2012, along two dimensions. One is the type of content, which has grown to include videos, music, and finally books and premium video. The second is the constituency, which has evolved from long-tail “garage” developers to tier-1 digital media publishers. The shape of the 2012 ecosystem is two-dimensional.



## Ecosystem consolidation in 2012

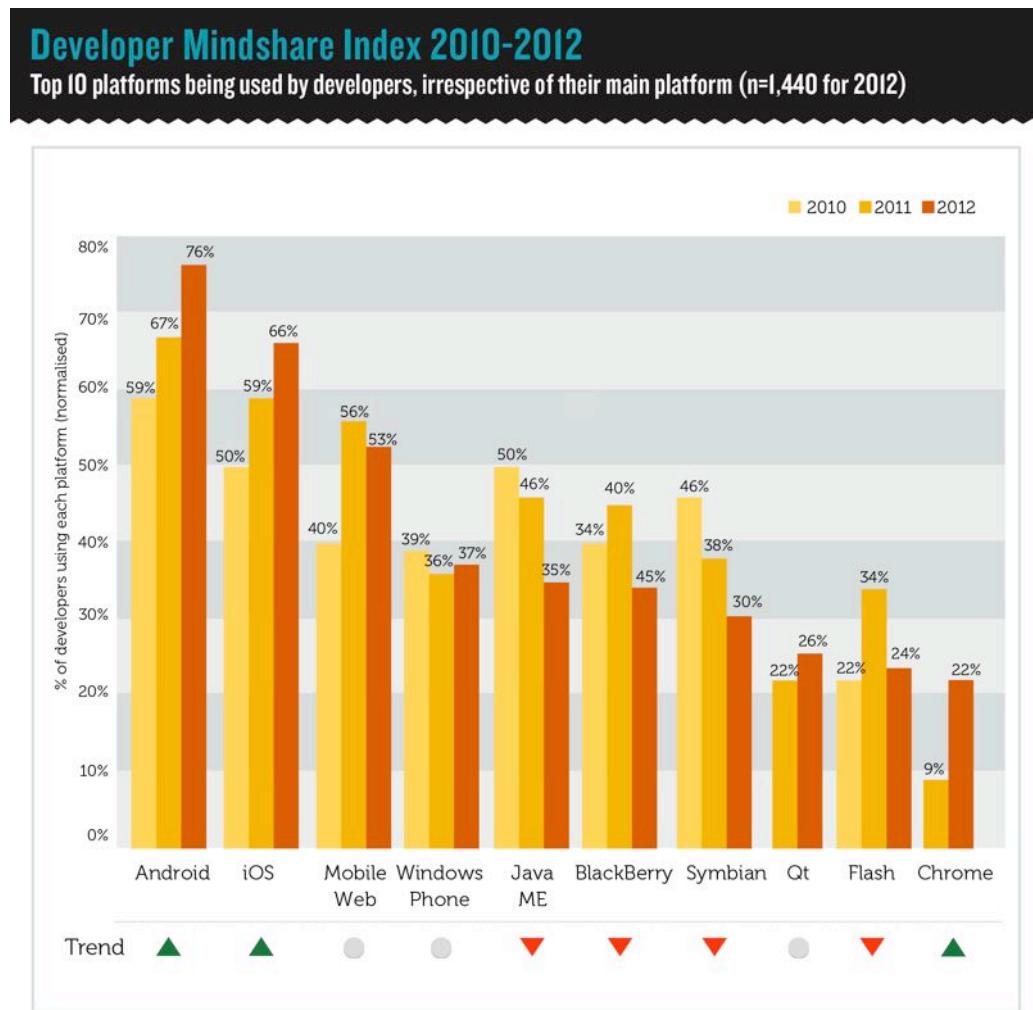
Whereas 2011 was the era of developer experimentation and the rise of the mobile web, 2012 is shaping up as the era of ecosystem consolidation around iOS and Android.

To accurately assess the trends in platform adoption for 2012, we have for the third time in our annual report series created Developer Mindshare and IntentShare indices. The former measures current adoption of mobile platforms, while the latter measures

intent to adopt, irrespective of which platform developers currently use the most. Both indices have been normalised across the top seven mobile platforms, thereby removing any bias arising from the mix or platform preferences among our survey respondents.

Darwin's "survival of the fittest" model serves well to explain what played out in digital ecosystems over the last year. BlackBerry, Windows Phone 7 and Samsung Bada, the challengers to the Apple/Google duopoly, have played their cards in 2011 and are losing out in 2012.

Developers are clearly consolidating around iOS and Android. More than three-quarters of developers in our Developer Economics 2012 survey, irrespective of main platform, reported that they have adopted Android. Blackberry OS is continuing to lose ground, while Windows Phone platform has yet to make a significant impact, despite Microsoft's alliance with Nokia. And, the ghosts of the past – Symbian, Java ME and Flash – are disappearing into oblivion. Platform consolidation is clearly explained by developer motivations: reach is consistently and by far the top developer criterion for platform selection across 2010-2012. And, with only iOS and Android achieving significant reach, developers are moving away from other platforms.



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In 2012, developers used on average 2.7 platforms in parallel, versus 3.2 in 2011, a clear sign of consolidation. The trend is further evidenced by declining IntentShare scores for most platforms – apart from mobile web and Windows Phone, as we shall see.

iOS and Android are clearly the two platforms capturing the bulk of developer mindshare, and both have increased in popularity. Some 76% of developers in our survey are using Android, up 9% from last year. Meanwhile, 66% are using iOS, up 7% from last year. As we discuss later in the chapter, the greater supply of Android developers fits with the greater demand arising from Latin America, Asia and Africa, where consumer price sensitivity is higher and Android sales are elevated compared to iOS.

**Java ME becoming irrelevant.** Java ME, being primarily a feature-phone platform, has been shrinking in Developer Mindshare, slipping 11 percentage points, year-on-year. This indicates dwindling feature-phone market share, and the platform's inability to achieve feature parity with other ecosystems, as it still lacks a global app store. Java apps today are sold mainly via telco app stores, which have very low download traffic. As a result, very few game content providers still pursue the Java app market. Last but not least, with Oracle's acquisition of Sun, the Java ME platform seems leaderless, with Oracle apparently focused more on extracting patent damages from Google than salvaging the platform.

**Mobile web moving from hype to reality.** Mobile web ranked third in the 2012 Platform Mindshare Index, with 53% of developers using it. However, it has slightly lost ground compared to last year, by three percentage points in terms of the developer Mindshare Index. Apparently, as the mobile web moved from hype to reality, developers realised it is not the utopia they were originally promised. In Gartner's hype cycle terms, mobile web is moving from the peak of inflated expectations to the trough of disillusionment.

In specific, mobile web developers stumble on three challenges: fragmentation, performance limitations and lack of distribution and monetisation channels. Discussion of each stumbling block follows.

Firstly, HTML5 fragmentation is driven by the need for browser developers to differentiate, and by the delay with which vendors implement the latest upstream WebKit engine. In May, 2012, iOS scored twice as high as Windows Phone in terms of HTML5 compliance, according to [html5test.com](http://html5test.com). We expect fragmentation to soften in the next two years, partly because standards and implementations will converge around those dictated by the iOS-Android duopoly, and partly due to the availability of cross-platform tools that bridge across browser gaps.

Secondly, mobile web apps suffer, performance-wise. Native apps can leverage a larger set of purpose-built platform APIs that may not be available (yet) to web apps. And, native app code can be optimized for a given platform, and is not hampered by runtime overhead. Nevertheless, mobile web standards have come a long way, and access to native features is improving fast. Hybrid tools like PhoneGap and Sencha can fill gaps, but for the time being, mobile web is not able to compete on complex apps like games, nor on anything involving 3D animation.

Thirdly, mobile web, like Java, lacks a global storefront. This limits discoverability and billing convenience, for example via one-click purchasing. These ingredients may not matter much to digital media publishers with strong brands and existing billing relationships, or to enterprise intranet projects. For everyone else, discoverability and billing are crucial, and it is no coincidence that Facebook is now offering developers both.

**Will HTML5 ever catch-up with native platforms?** Many developers we spoke to believe it's a question of time. "Mobile web needs another three years to catch-up with native" argues Almog Koren, founder at Scoreoid, an Israel-based maker of a CRM platform for game developers.

We believe that HTML5 APIs will always play catch-up to native platform features. Like Tom Hume, founder of FuturePlatform argues, "User expectations will always be formed by the native platforms, and native will always be a step ahead of HTML, as that's in the interest of platform vendors". He explains that "today, HTML5 performs poorly with new user interface paradigms like Microsoft's Metro UI. Tomorrow, HTML5 will need to catch up with ambient sensing. It's always going to be a cat and mouse game."

**Facebook as the new web.** Facebook appears to be sending mixed messages to developers: it encourages developers to migrate to HTML5, while at the same time supporting discovery of native iOS and Android apps through its App Center. In reality, Facebook is moving the pieces into place to become a "platform of platforms" – atop iOS, Android and mobile web – by locking mobile developers into publishing, promoting, distributing and billing through Facebook, irrespective of platform.

There are three key pieces in this Facebook strategy to dominate across mobile platforms.

Firstly, users can discover mobile apps using the timeline and notifications in the Facebook app. The company claims it sent over 160 million visitors to mobile app pages in March, 2012.

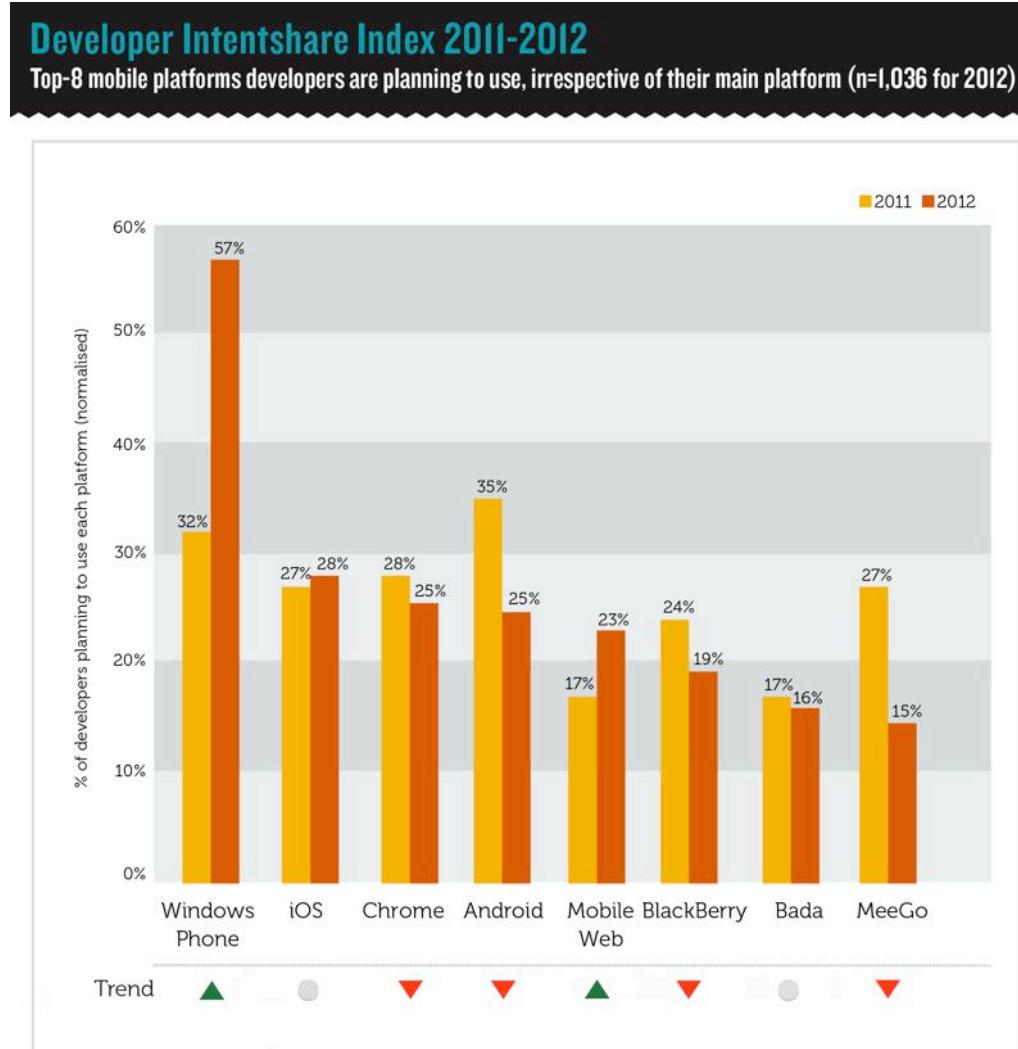
Secondly, the Facebook App Center allows developers of mobile web as well as native iOS and Android apps to apply for listings. Once listed, their apps are discoverable via the App Center web portal or via the Facebook app on mobile devices. The App Center reduces the Apple App Store and Google Play to mere vending mechanisms. As of April, 2012, six of the Apple App Store's ten most popular free apps were also listed in the Facebook App Center.

Thirdly, Facebook offers developers "low friction" monetisation through "Facebook Credits," a tool that integrates the carrier billing mechanisms of over 60 mobile operators around the globe.

"Today, HTML5 performs poorly with new user interface paradigms like Microsoft's Metro UI. Tomorrow, HTML5 will need to catch up with ambient sensing. It's always going to be a cat and mouse game."

Tom Hume  
Founder  
FuturePlatform

To mobile web developers, Facebook is offering global discovery, distribution and targeting to 900 million active users, along with direct billing. These are the capabilities that mobile web developers need the most. As the social network's active user base approaches 50% of total Internet users (2.3B users), Facebook is fast becoming the new web.



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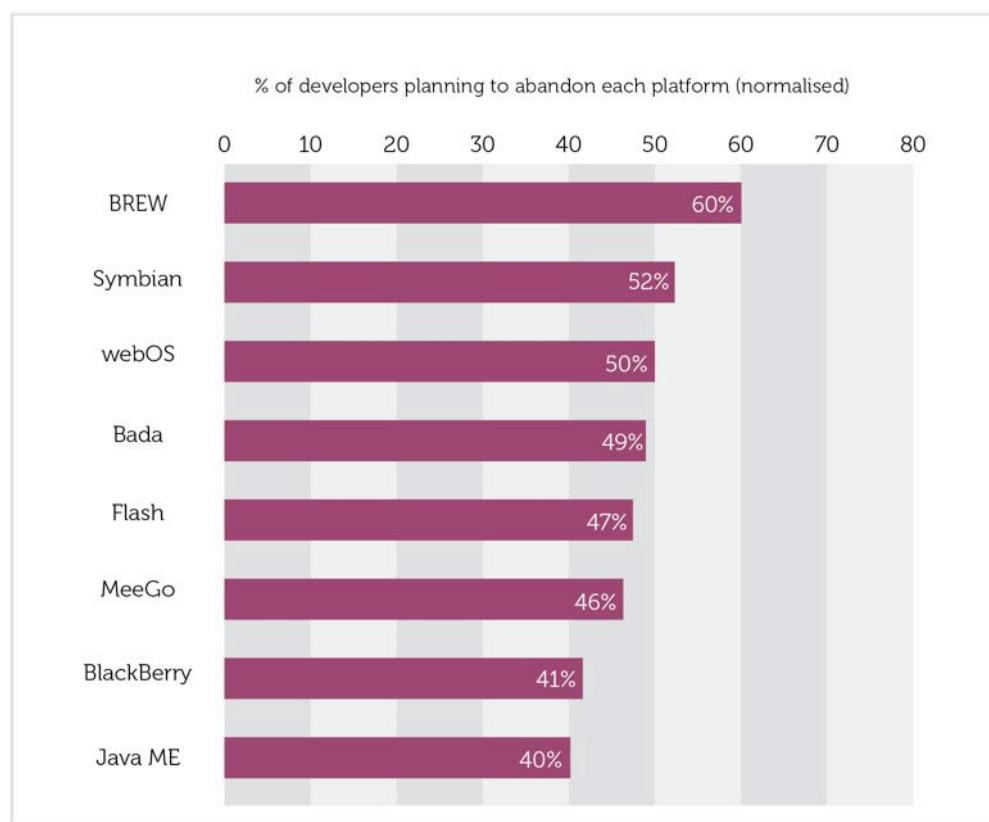
**Windows Phone is the new cool.** While Windows Phone sales continue to disappoint, a year on, with 2.6 million devices sold in Q1 2012, according to Gartner, interest among developers continues to build up. Our survey indicated that irrespective of which platform they currently use most, the majority of developers (57%) plan to adopt Windows Phone. At the same time, seeing as last year's 32% Intentshare for Windows Phone added only 1% to this year's actual Mindshare, it becomes clear that converting intention to adoption is not a given. Windows Phone is indeed the new cool, a platform generating increasing developer buzz and anticipation; but to turn the buzz into developer buy-in at the levels of iOS and Android, actual adoption must follow soon or fall flat.

To attract more developers into Windows Phone, Microsoft also needs to rethink its tool strategy. At present, developing on Windows Phone 7 requires a Windows PC, which presents a barrier to entry for iOS developers and the many web developers who are using a Mac. Support of WP7 development on a Mac is therefore crucial for reducing the onboarding friction for iOS and web developers.

As with previous Developer Economics reports, we measured each platform's defection rate, i.e., the percentage of developers who recently abandoned or plan to abandon each platform. BREW and Symbian fared the worst. They do not lack scale; on the contrary, BREW is still strong in the feature-phone segment, and Symbian shipped in four times more Nokia devices than did Windows Phone in Q1 2012. Yet, both lack ecosystems healthy enough to generate the kind of network effects enjoyed by iOS or Android.

### BREW is burning faster than Symbian

Top-10 mobile platforms developers are planning to abandon, irrespective of their main platform (n=693)



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**BREW in terminal decline.** BREW, the first mobile platform with an app store (launched by Qualcomm in 2001) is approaching the end of its shelf life. The rate at which developers are abandoning BREW is alarming. Some 60% of developers now using BREW indicate they plan to stop using it. BREW had some initial success attracting carrier attention, and it featured in AT&T's messaging device (QMP) line-up in 2011. However, it has since failed to compete against Android, as handset makers are turning high-end BREW feature-phones into low-end Android smartphone designs. We believe that Qualcomm is quietly preparing to discontinue or sell the platform; the

BREW developer conference series was replaced in 2010 by Uplinq, which focuses less on BREW and increasingly on other platforms like Android, Windows Phone, and HTML5. Interestingly, developer exodus is a much greater and more measurable testament to the terminal decline of BREW than any other market indicator.

**Symbian on its last straw.** Not surprisingly, following last year's burning-platform drama by Nokia, Symbian showed the second-highest rate of developer attrition among the platforms in our survey. Developers see little reason to invest time or effort in the platform, given its effective end-of-shelf-life somewhere in 2013. Symbian's developer abandonment rate has rapidly accelerated from 39% of developers last year to 52% in 2012. Clearly, developers heeded Nokia when it unambiguously declared it would bet its smartphone business on Microsoft.

**Bada a risky bet.** In yet another sign of industry consolidation, Samsung's Bada platform is high on the list of platforms being abandoned. Some 49% of developers currently using Bada plan to drop it. Bada is Samsung's application platform for low end smartphones, with 20 million units sold cumulatively since its launch in 2010. In Q1 2012, Bada shipments grew only 10% year-over-year, reaching 3.8 million devices. This lacklustre growth has developers flocking away to platforms seen as safer investments. Other challenges, for Bada, include its immaturity and substantial bug count, low-end smartphone hardware, and a lack of consumer pull leading to missing "hero apps," like Angry Birds. The resulting mindshare churn should ring alarm bells at the Korean HQ, since Samsung needs Bada as a negotiating card against Google's Android. With a weakening developer ecosystem, Bada looks to be niching itself to mostly Korean developers, and Samsung risks losing bargaining power as a result.

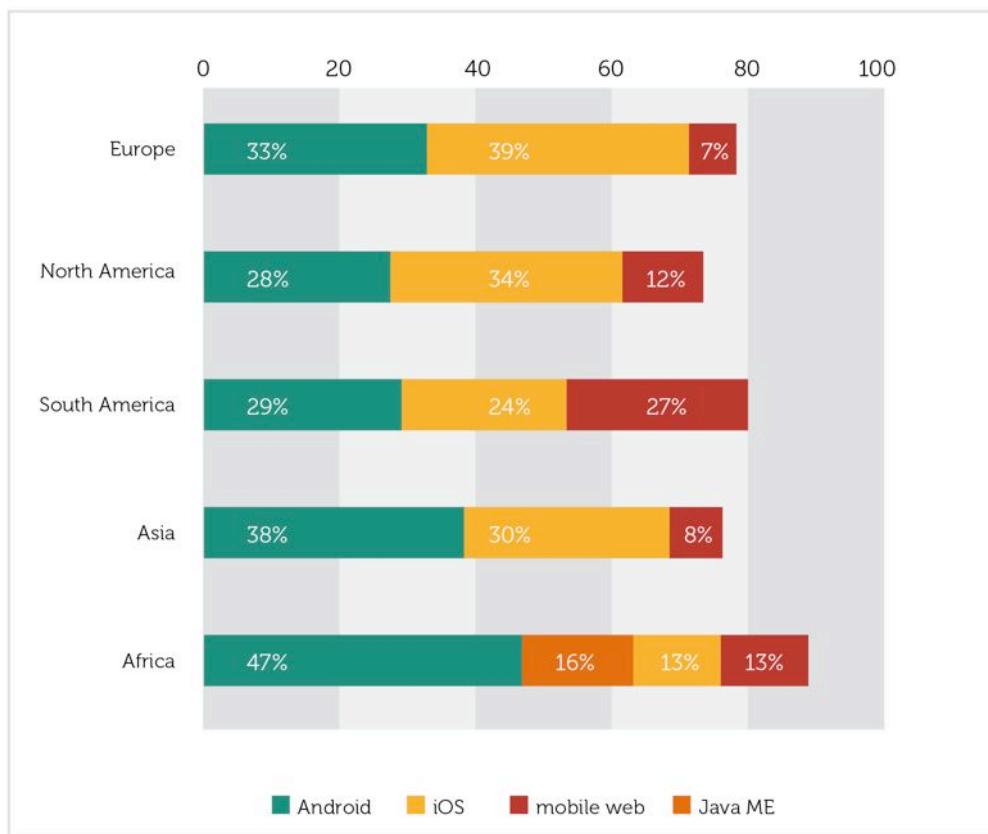
**BlackBerry in the danger zone.** Despite substantial handset shipments – 11 million units in Q1 2012 – and the promise of a completely revamped BB 10 platform in the second half of 2012, BlackBerry is very close to becoming an endangered species. BlackBerry is being abandoned by 41% of developers, irrespective of their main platform. Worse, it is being abandoned by 14% of those using it as their primary platform! In contrast, not a single developer in our survey who cited Windows Phone, iOS or Android as their primary platform plans to jump ship. With continually declining profits and revenues, investors are pushing for RIM to break-up or sell outright – and no acquirer is likely to invest in salvaging the BB platform.

### Regional exceptions to the platform duopoly

While iOS, Android and mobile web lead in global adoption by developers, the picture differs by region. European and North American developers favour iOS as their main development platform, while Android is the platform of choice in Asia, Africa and South America. This pattern seems to track consumer price sensitivity.

## Regional platform mix reveals exceptions to the Apple-Google duopoly

Primary development platform, by region of respondent origin (n=1,523)



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Despite platform consolidation, there are two exceptions to the Android-iOS duopoly. Firstly, Java ME is the second-most preferred platform in Africa, reflecting the large number of low-cost feature-phones still available there, and the opportunities present in feature-phone innovation (e.g., M-Pesa mobile payments). At the same time, almost half of African developers have adopted Android, reflecting its potential in extremely price-sensitive markets. For example, consider the \$80 Huawei IDEOS, an Android phone that has been a sell-out success in Kenya since mid 2011.

The second exception is South America, where the mobile web seems to have captured developer hearts. With 27% there using it, mobile web has achieved greater penetration in South America than on any other continent. However, the majority of developers in this region use it to address feature-phones rather than smartphones. In addition, Symbian and BlackBerry are still being sold in large numbers in South America, compared to other regions. Overall, South America shows a more balanced platform mix than other regions.

“J2ME development is still very relevant for South Africa, but local developers are gradually migrating to development on the smartphone platform.”

Glenn Stein  
Maker of PhraZApp  
prize winner at Vodacom App Star Challenge

## Reach drives platform selection more than money

Throughout the evolution of mobile ecosystems, the primary developer motivation for platform selection has been to reach as many users as possible. Developing for a large installed base of devices still ranks as the top criteria, cited by over half of developers, irrespective of primary platform. "We're a start-up so not interested in making money – we just want to get as many users as possible" explains a Senior Android developer for a start-up in North America.

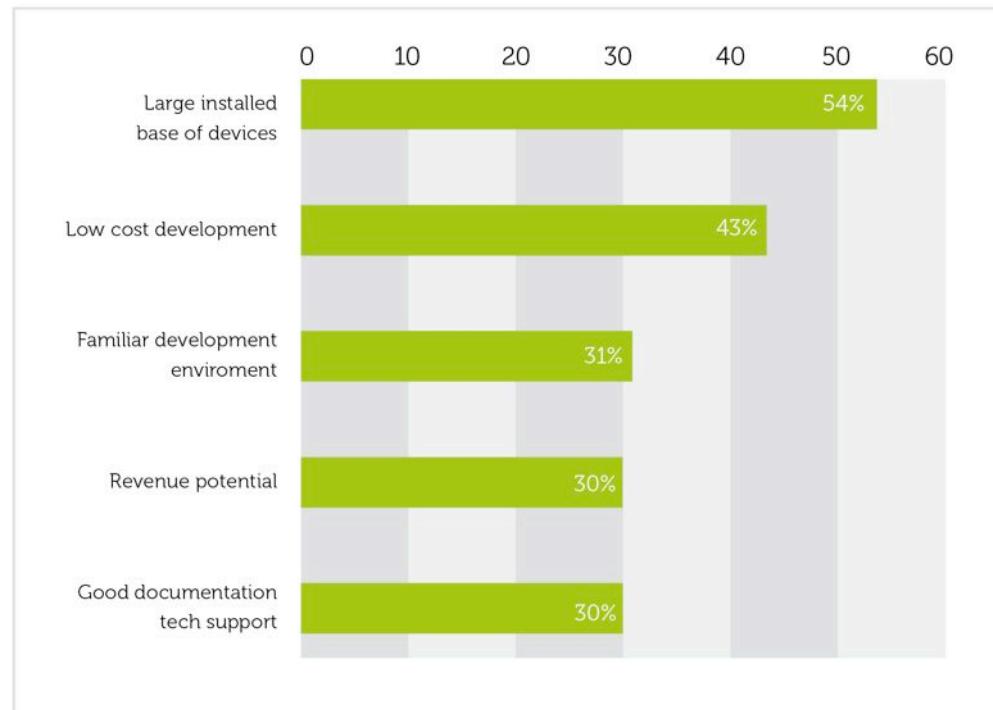
In contrast, only 30% of developers selected a platform based on its revenue potential, a factor that increased by just over 10 percentage points in the last year. The importance of reach, above all other platform selection criteria, explains the consolidation of developer mindshare to iOS and Android.

### **Reaching users, eyeballs or wallets is the root cause for platform selection.**

Once your application has reach, then ad impressions, paid downloads, subscriptions, or distribution deals will follow. It is also notable that unlike with other platform selection criteria, the prioritization of reach increased with developer experience. That is, more experienced developers value reach considerably more than do newbies. Seasoned developers better understand how reach can drive any and all monetisation models, and safeguard their investment in a platform.

### **Reach continues to dominate as root cause for platform selection**

Top-5 platform adoption criteria for developers, irrespective of main platform (n=1,431)



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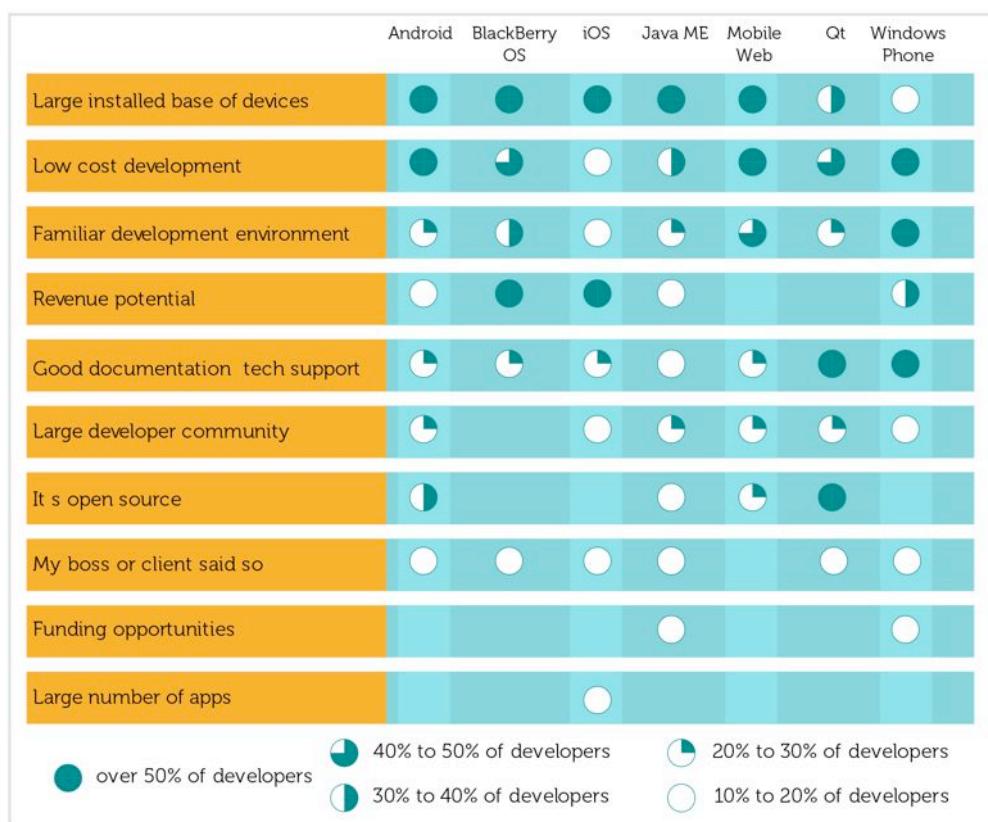
The cost of development is also a top-5 reason for selecting a particular platform, as indicated by 43% of developers, irrespective of their main platform. It is significantly more important than familiarity with the development environment, which is important for around 30% of developers. We also see a continuing trend, from 2010 to 2012, of developers becoming even more commercially savvy and factoring the potential costs and revenues of a platform into their selection process. Developers are coming to realise that platform adoption involves a significant investment of both time and money, as we shall see in Chapter 3. **Put simply, developers select a platform based on how it will enable them to reach the most users most cost-effectively.**

"We're a start-up so not interested in making money – we just want to get as many users as possible"

Director of Engineering  
North America

### Adoption criteria vary widely by platform

Adoption criteria for developers, based on their primary platform (n=1,431)



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Documentation and tech support, highlighted by 30% of developers irrespective of main platform, gained importance. Last year, only 18% of developers rated them as important platform selection criteria. This change points out the challenges faced by new developers.

Interestingly, a significant share (18%) of developers irrespective of platform still value open source as a platform attribute. Open source is associated with both empowering

developers to “do more” on the platform and “contribute more”. This trend is significantly more pronounced among the Qt community (55% of Qt developers), followed by Android and mobile web developers.

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## HTML or native?

This question is often asked, both by developers and by brands going mobile. In practice, it’s the wrong question to ask. Developers have three decision parameters to consider to influence their platform selection:

1. Existing assets: Which languages does your developer team know? What language are your legacy content assets coded in?
2. Depth vs breadth of experience: Do you need to deliver deep experiences and code directly to the platform? Or is breadth of experience more important, which would lead you to leverage cross-platform tools (PhoneGap, Sencha, Appcelerator)?
3. Distribution channel and monetisation: Are you a major brand with existing customer accounts, or do you need app stores to reach and bill customers?

The decision is not HTML *vs* native, but a decision path that traverses these three decision points. For example, a media brand might use existing HTML content assets, wrap code within a native app, and distribute via a native app store. Or a baseball app developer might choose iOS to deliver deeper live video experiences, but market and distribute through Facebook App Center to reach a carefully selected demographic.

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Naturally, platform selection criteria vary widely among developers of different platforms, as the next graph shows.

**Android developers** are mostly driven by low-cost development and reach. While reach is certainly guaranteed on Android, with more than 300 million devices sold to date, development costs are on the rise due to rampant fragmentation (4,000 or more variants – see Chapter 4) that impacts development complexity and QA. Interestingly, more Android developers value the open source element of the platform than value its potential to generate revenue.

**BlackBerry developers**, on the other hand, are driven primarily by revenue potential, more so than any other developer segment. A large installed base and low development costs are also important to a large percentage of BlackBerry adopters.

**iOS developers** are quite resolute about their reasons for platform adoption: reach and revenue potential. The only other selection reason that is highlighted by more than 20% of iOS developers is the quality of documentation and support.

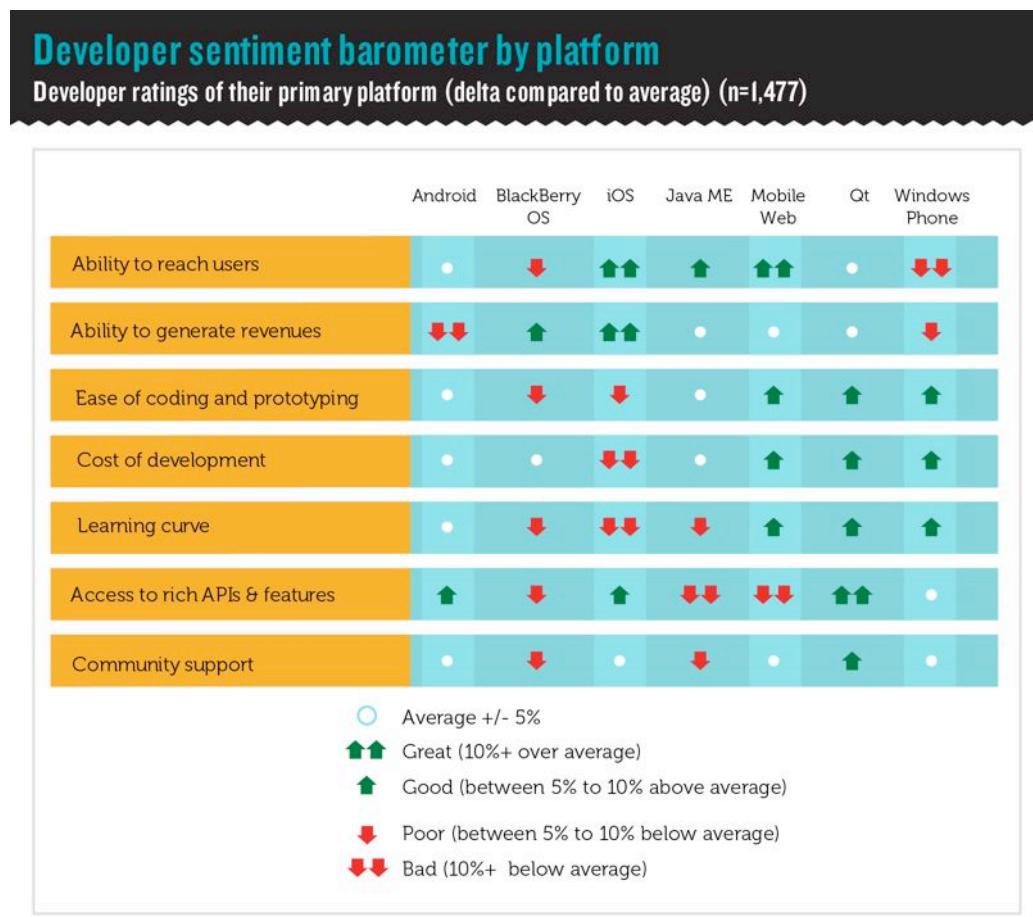
Developers adopting **mobile web** as their main platform cite reasons similar to those cited by Android developers: maximising reach while minimising costs. Unlike Android, mobile web developers are very interested in using a familiar development

environment, which indicates that many migrate to mobile web from a web development background.

**Windows Phone developers** are the singularity amidst the other ecosystems. They care little about reach, given that Microsoft's mobile platform has shipped in only about 10 million devices to date. On the contrary, documentation and familiarity with the development environment are most important to them, indicating that many of them are approaching mobile from a Windows PC development background. Some 16% of WP developers – the highest ratio among all platforms – also expressed interest in funding opportunities, as Microsoft and Nokia are allocating significant financial resources to co-fund the development of WP7 applications.

### Developer sentiments: platform shoot-out

To gauge developers' sentiments on the most popular platforms, we asked respondents to rate several key aspects of their main platform. The next table maps developer sentiments across platforms, revealing where each platform excels or fails.



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**iOS developers are clearly the most well off**, being more satisfied than Android developers on the ability to generate revenues. At the same time, learning curve and development cost are important pain points for iOS developers; here developer sentiment echoes the difficulty of Objective C and the cost of buying a Mac to develop for iOS, respectively.

**Android developers are neutral compared to other ecosystems**, downgrading Android only on the ability to generate revenues. Despite availability of paid applications across a large number of countries, Android continues to score lowest in terms of monetisation, due to the relatively few Android users with credit cards on file. On this front, Android is at a significant disadvantage to iOS. Due to a strategic oversight by Google, Android v4, launched in 2012, was the first version to ask users for a credit card on sign-up. In contrast, credit card enrollments have been a core part of the iOS sign-up process since 2008, a strategy that was critical in helping Apple surpass 400 million App Store accounts in Q2 2012.

## Platform scorecards

\* The figures presented are for Q1 2012



Number of devices shipped since platform launch	396 million
Number of devices shipped in Q1 2012	81 million
Native app store	Google Play
Available apps	450 thousand
Cumulative downloads	14 billion
Revenue model	70% to developer



Number of devices shipped since platform launch	218 million (iPhone only)
Number of devices shipped in Q1 2012	35 million (iPhone only)
Native app store	Apple App Store
Available apps	650 thousand
Cumulative downloads	26 billion
Revenue model	70% to developer



Number of devices shipped since platform launch	190 million
Number of devices shipped in Q1 2012	10 million
Native app store	BlackBerry App World
Available apps	70 thousand
Cumulative downloads	2 billion
Revenue model	70% to developer



Number of devices shipped since platform launch	11 million
Number of devices shipped in Q1 2012	3 million
Native app store	Windows Marketplace
Available apps	70 thousand
Cumulative downloads	N/A
Revenue model	70% to developer

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**Blackberry developers show an overall discontent with the platform.** On one hand, BlackBerry is faster to develop on and generates more revenues. We have seen many Android developers utilising BlackBerry as a secondary distribution channel, due to its monetisation potential. On the other hand, developers rate most BB attributes below average compared to other platforms. Developer mindshare is on the decline, there is negative overall sentiment, and the QNX-based BlackBerry 10 is yet to ship. If there were a “developer share price” for BlackBerry, it would probably trail RIM’s stock price closely. The decline of BlackBerry is unfortunate, given that as we shall see, it has been the most robust ecosystem in terms of its ability to generate revenue for app developers.

**Developers for mobile web are a happy bunch.** They appreciate the platform's reach but they're also quite pleased with low development costs, ease of coding, and the learning curve. This is not surprising given that most of them come to mobile with more than three years of web experience. The only serious challenge is the limited availability of APIs. While there are efforts to reduce feature lag between web and native – notably PhoneGap and Boot to Gecko – mobile web remains many steps behind native when it comes to API completeness.

# Chapter 2



## THE MYTHICAL “DEVELOPER”

Understanding the many shapes and sizes of today’s developers

## CHAPTER TWO

## The mythical “developer”

### Understanding the many shapes (and sizes) of today’s developers

In the previous decade, the Internet disrupted many industries like music and media publishing, by disintermediating established distribution channels and connecting content creators directly to consumers. In this decade, mobile applications are revolutionising many more industries, like fashion, retail, enterprise services, real estate and transport, by directly connecting app developers to consumers and lowering the barriers to entry for both sides.

In this new app economy, developers are the engine of innovation and apps are the last mile to the consumer. Businesses are coming to realise that attracting developers is the fastest route to innovation. Moreover, attracting developers means attracting external investment, which finances innovation and expansion. Moving forward, businesses are discovering that developers are modern-day channels that help them reach and sell their products to consumers.

**Millions and millions of dollars are being spent to attract developers**, not just by mobile platform owners (Apple, Google, Microsoft, RIM) and handset OEMs (Nokia, Samsung, Motorola), but also Internet companies (Facebook, Amazon, Netflix, Twilio), telecom operators (AT&T, Telefonica, China Mobile, Vodafone) and chipset makers (Qualcomm, Intel, NVIDIA). Many brick-and-mortar companies such as BBC and UPS are also opening their businesses to developers, in the form of APIs. These companies view developer innovation as a way to reach more consumers. And, hundreds of developer tools companies are vying for developer attention, including cross-platform tools vendors (Adobe/PhoneGap, Appcelerator, Sencha), app diagnostic tool vendors (BugSense, Crashlytics, Crittercism), in-app billing and virtual goods tool vendors (Bango, Boku, Papaya), app discovery and retailing tool vendors (Appaware, AppsFire, FrenzApp) and sales analytics tool vendors (AppAnnie, Distimo, Flurry).

The millions of dollars in developer marketing efforts serve one purpose: to persuade developers to use a specific platform, network, tool or API set. Yet, in 2012, mobile developer attention is becoming extremely scarce, and dominated by the three leaders of developer marketing: Apple, Google and Facebook. Competition for developer attention is intensifying month by month, with players bombarding developers with promotions, organising developer events and preaching the advantages of their APIs or toolsets.

This “**Babel tower**” of developer marketing suggests a nascent market. Businesses vying for developer innovation use generic messaging that is unsophisticated with regard to which developers it approaches, which platforms they code in, and what their adoption criteria are. Many businesses ignore the fact that in a market of over one million mobile app *publishers*, there are many shapes and sizes of *developers*. We have all come across the perennial cliché of the developer as an unshaven geek with long hair and sandals. This image is outdated: developers

nowadays comprise a rapidly expanding ecosystem that includes software engineers (architects, implementers, discoverers, thinkers, inventors) within small, medium and large enterprises, hobbyists or indie developers, high school kids, contractors, brands developing B2C apps, system integrators targeting B2B apps, investors funding mobile development and thousands of start-ups. Each developer has invested in different platforms, and has varying needs, incentives, adoption criteria and role models.

Companies reaching out to developers are realising that it's impossible to influence this complex ecosystem without a proper segmentation model. As Harvard Professor Clayton Christensen says in his HBS note "Integrating Around the Job to be Done", market segmentation is pivotal:

"Market segmentation defines the targets toward which innovations are aimed. It profoundly influences which products are developed, drives the features incorporated in those products, and shapes how they are taken to market. Segmentation schemes define who gets framed as competitors and how large market opportunities are believed to be. The market segmentation scheme that companies adopt is a decision of vast consequence."

Traditional segmentation models are based on the developer career stage (student *vs* pro), demographics (income or age), technologies (programming language or platform) or app category (games *vs* enterprise developers). These traditional developer segmentation models rarely yield actionable results. For example, taking Java developers as a single segment does not help much in understanding the best way to persuade them to develop mobile apps for a specific platform or to use a specific API. Some Java developers would be motivated by the potential of monetisation, others by user reach, and others merely by 'coolness factor'.

An alternative is to take a "job-based" segmentation approach, which as Clayton Christensen describes, helps companies escape the plague of the "positioning paradigm" in which differentiation-conscious marketers map their products along a couple of axes and then search for a vacant spot on such maps into which they can position new products.

"Learning & adapting to new technology is the major challenge pre-launch"

Felipe Andrade  
Director of Products & Services  
i2 Mobile Solutions

**In order to answer the key question of how to persuade developers to adopt a tool, platform or API, we need to understand that such a decision is in effect a decision to commit valuable resources to the platform.** Adopting a new API often means hours or days spent understanding and integrating the API into your application, let alone maintaining it. "Learning & adapting to new technology is the major challenge pre-launch" notes characteristically Felipe Andrade, Director of Products and Services at Brazil-based software house i2 Mobile Solutions.

A decision to invest in a technology also comes with an opportunity cost; technologies are fast evolving, and features and boundaries are rapidly changing. Thus, trial and error is often the only means to proceed. As a result, developers take the decision to invest in a platform, tool or API seriously.

## A job-based developer segmentation

In Developer Economics 2012, we used both empirical knowledge and quantitative data from our survey of 1,500+ developers to arrive at a definitive job-based developer segmentation.

As Professor Christensen defines it: “A job is the fundamental problem a customer needs to resolve in a given situation.” When segmenting mobile developers, we are looking at what they wish to achieve when committing resources to platforms or adopting tools and APIs. We defined segments based on how developers differ in terms of motivation and decision criteria.

Our segmentation model consists of eight developer segments, divided according to developer motivations, the platform they primarily use and their decision criteria for adopting a platform, tool or API. These are: the Hobbyists, the Explorers, the Hunters, the Guns for Hire, the Product Extenders, the Digital Media Publishers, the Gold Seekers and the Corporate IT developers.

We believe that this segmentation model is instrumental for both developers (to understand their own competitive ecosystem) and for companies producing platforms, tools or APIs (to understand who the right developer is and how and where to approach them).

The Hobbyists	
<b>Motivations:</b> Fun and recognition, not money	<b>Description:</b> Hobbyists have many faces -- in our survey they are the students, architects, analysts or researchers who are new to mobile – with an average of less than one year experience in the sector. They experiment with mobile apps just to learn or have fun, not to make money, at least not yet.
<b>Apps:</b> Any Category	
<b>Platforms:</b> Primarily Android (37% of the segment). iOS is low in terms of use.	
<b>Decision Criteria:</b> Size of installed base	Their primary platform selection criterion is the size of the platform's installed base. They are often individual developers or part of small, ad-hoc development teams.
<b>Examples:</b> Students, moonlighting software engineers, people out of work	

The Explorers	
<b>Motivations:</b> To gain ancillary income as well as experience in selling apps	<b>Description:</b> Explorers are typically independents working on their own apps or part of a small development team. They are moderately experienced, with an average of 1.9 years of mobile experience, the lowest among other segments, except for Hobbyists.
<b>Apps:</b> Primarily games (52% of the segment) and utilities (50%)	
<b>Platforms:</b> Strong bias towards Android and least fond of iOS.	Explorers experiment with the low hanging fruit of revenue models – advertising (69% of segment) and pay-per-
<b>Decision Criteria:</b> Low cost is the	

### The Explorers

main reason (72%) for platform selection, followed by a familiar development environment (48%) and good documentation/support (46%)

**Examples:** Freelancers that make apps in parallel to contract development, wannabe entrepreneurs, employees in mobile development companies

download (63%). Their revenues are mostly in the \$1-\$500 range, and they have the lowest average monthly revenue per app per month at just over \$1,100 per month.

Explorers typically promote their apps through Facebook (46%) or freemium models (34%).

### The Hunters

**Motivations:** To make as much money as possible with their own apps

**Apps:** Games and business/productivity apps, followed by utilities and education/reference apps

**Platforms:** Devoted to iOS (60%), followed by BlackBerry, and have the lowest preference for Android

**Decision Criteria:** Large installed base (74%) and revenue potential (83%) are the dominant reasons for platform selection

**Examples:** Game studios, bootstrapped startups, independent software vendors with mobile experience

**Description:** Hunters chase the money. They usually live in North America and came to mobile around 2009 when Android and iOS starting appearing in the mainstream tech press.

Hunters are sophisticated when it comes to revenue models. They utilise multiple models, mostly in-app purchasing (61%), pay-per-download (56%), freemium (52%) and advertising (51%).

They are partners, co-founders or run development teams and usually call the shots. Hunters promote primarily through Facebook, but also free demos.

### Guns for Hire

**Motivations:** To win client projects

**Apps:** Focused on branded apps, business tools and enterprise apps, where the majority of commissioned work is

**Platforms:** No dominant platform, although they demonstrate above-average preference for mobile web apps

**Decision Criteria:** Large installed base

**Examples:** Mobile marketing

**Description:** Guns for Hire are contract developers, marketing agencies and software integrators. They are seasoned mobile developers and run a development team.

Guns for Hire develop apps on behalf of clients, and in some cases share revenues with their clients.

In the case of marketing agencies, the app development budget is a small fraction of the total marketing budget. In the case of contract developers or software integrators, the development budget is nearly 100% of the total budget, and marketing is done by the client.

### Guns for Hire

agencies, mobile outsourcing shops

### Product Extenders

**Motivations:** Extend a B2C product to mobile to acquire customers or create a new revenue source

**Apps:** Entertainment, lifestyle, transport, retail, banking, music and fitness apps

**Platforms:** iOS and Android are preferred for delivering premium experiences, with mobile web as a lowest common denominator on all other devices

**Decision Criteria:** Large installed base and depth of experience delivered

**Examples:** Adidas, Coca Cola, Fedex

**Description:** This segment consists of a diverse group of companies whose business is generally unrelated to mobile. The companies see mobile and mobile apps as a channel to reach users, promote their brand, keep users engaged, and create new revenue streams.

Product Extenders includes CMOs, marketing directors, or IT teams within B2C companies that develop apps as product extensions or even as new revenue streams.

### Digital Media Publishers

**Motivations:** To reach as many mobile & tablet users as possible

**Apps:** Magazines, news, and entertainment apps

**Platforms:** All platforms due to need for widest possible reach

**Decision Criteria:** Large base (81% of segment) and low cost of development (54%)

**Examples:** Financial Times, CNN, Conde Nast

**Description:** Internal development teams within digital media publishers. Monetise primarily through advertising (61% of segment) and indirectly through brand awareness (40%). Low revenues per app compared to other segments.

Promotion is mostly through Facebook, leveraging the social network more so than any other segment.

### Gold Seekers

**Motivations:** Use apps as a vehicle to launch a high-profile startup

**Apps:** Apps may fall into any vertical (transport, entertainment, retail, etc.)

**Description:** Gold seekers are startups (mostly venture backed) who leverage apps as a way to implement a new venture and reach users.

Gold Seekers	
<b>Platforms:</b> iOS, Andorid	Their main goal is to reach a large user base in order to demonstrate user traction to their investors and potential acquirers. Interest in direct monetisation is secondary, if it exists at all.
<b>Decision Criteria:</b> Large installed base	
<b>Examples:</b> Instagram, Path, Waze	

Corporate IT	
<b>Motivations:</b> To extend the corporate intranet to mobile apps	<b>Description:</b> CIOs, and salaried employees in large companies, working on mobilising intranet applications as a way to increase staff productivity
<b>Apps:</b> Enterprise productivity, CRM and ERP apps	
<b>Platforms:</b> iOS, Android, BlackBerry, mobile web	
<b>Decision Criteria:</b> RoI and total cost of ownership	
<b>Examples:</b> Diverse group of companies with a significant mobile workforce	

## Top-down vs bottom-up approaches to segment reach

The above segmentation model has identified eight developer segments, based on their motivations for committing resources to a platform, tool, or API. Companies can approach each segment from the top-down (i.e., from the decision maker, typically the CxO or team lead) or bottom-up (i.e., from the developers at the end of the command chain).

A top-down approach means pitching a platform, tool or API to the CxO on the basis of increasing user reach, revenue potential or operational savings. People at the top of each developer segment usually have extensive mobile experience, and nearly 10 years software experience. They command development budgets, and are the most risk-averse. As a result, they typically choose mobile platforms that are proven in terms of both reach and revenues – such as iOS.

A bottom-up approach requires a completely different messaging angle. At the end of the command chain are the developers. Typically, developers are risk-prone. They favour open source platforms with proven developer traction, which leads to easier experimentation and support, respectively. As a result, these developers will favour Android and mobile web platforms, while much less so iOS. They are part of a development team, often residing in an Asian outsourcing hub, with low experience in mobile and moderate experience in software and web development.

Segmenting developers, identifying promising segments and developing a targeted value-proposition for those segments is a non-trivial task. It needs to consider the functional, emotional, and social dimensions of developer jobs.

While requiring significant effort, thorough understanding of developer segments allows companies to achieve higher market adoption, understand competition and create a sustainable competitive advantage for products, services and API aimed at mobile developers.

# Chapter 3



## WHERE'S THE MONEY?

Sizing up revenues vs costs  
in developer economics

## CHAPTER THREE

## Where's the money?

### Sizing up revenues vs costs in developer economics

Developer profitability has been a hotly debated topic in the mobile industry since 2009, when the first overnight success stories started appearing in the mainstream technology press. Apple's iOS is generally thought to support greater revenues per application, compared to Android, but the evidence is mostly anecdotal. To further understand developer profitability, we polled more than 1,500 developers who took part in our survey. We asked about their app revenues and costs, across six key platforms: iOS, Android, Windows Phone, BlackBerry, Java ME and mobile web.

Before we dive into the details, it's worth emphasizing the relative importance of app monetisation. The primary reason for developer platform selection is not money, but reach; irrespective of platform, 54% of developers adopt a platform because of reach, while 43% cite low cost and 30% cite revenue potential. Moreover, out of the eight developer segments we identified in Chapter 2, only three segments (Explorers, Hunters and Guns for Hire) are directly motivated by money when committing resources to a new platform.

In order to formulate an informed opinion and shed some light on costs and revenues per platform, we dedicated a major part of the Developer Economics 2012 survey to finding out how financially rewarding mobile app development is, what the relative costs are and how platforms fare against each other when it comes to money making.

### The money equation

**Developers have a range of options to choose from when it comes to generating revenue.** This choice is, to some extent, dependant on their business model, scale and target market. There has been substantial innovation on revenue models, which continues unabated. First there were pay-per-download and freemium models, then purchase intermediation for partners and affiliates. The latest innovation is product placement, taking the well-established marketing practice pioneered in Hollywood into the mobile app domain. The next table lists the 11 mainstream revenue models practiced in mobile apps, alongside their respective revenue sources.

Table: Eleven mainstream revenue models practiced in mobile apps

Revenue Source	Revenue Model
<b>Consumers</b>	Pay per download (one-off payment for an app, book or magazine). in-app purchasing (for app features, game levels or virtual goods). Subscriptions (recurring monthly payments). Freemium (free download, pay to upgrade).
<b>Businesses</b>	Commissioned applications (applications made for hire).
<b>Ad networks or brands</b>	In-app advertising (currently the revenue model used most frequently by

Table: Eleven mainstream revenue models practiced in mobile apps

Revenue Source	Revenue Model
	developers). Product placement (e.g., Coke-branded soft drink appearing in a game)
<b>Partners &amp; affiliates</b>	Purchase intermediation (share from enabling third party transactions, e.g., in case of search app).
<b>Handset Makers or Platform owners</b>	Per-unit royalties (for pre-loading an app on handsets). Distribution exclusivity deals (for exclusive app distribution via an app store).
<b>Angels or VCs</b>	Investors providing capital in return for equity, often the “revenue model” of startups.

Source: VisionMobile

Our Developer Economics 2012 survey found pay-per-download to be the most frequently used revenue model. Irrespective of platform, it was used by 34% of developers, a slightly lower percentage than last year. It was followed closely by advertising, which 33% of developers reported using. In-app purchasing also gained popularity since last year, which is not surprising given it is now among the highest-grossing revenue models. We explore the ins and outs of revenue models later on in this chapter.

**Development costs exhibit a degree of complexity** in their own right. The bar of application experience has been raised so high that, including graphic design and storyboards, creating the user interface often accounts for 25% of the budget. Ongoing maintenance is typically 10% of the original development cost per year. We estimate marketing accounts for 10% of total production costs on average, although can easily scale to half of the production costs for larger software operations.

Table: Mobile application development costs

Cost	Description
<b>Tools</b>	Computer cost, developer registration fees and tools licenses.
<b>Development &amp; Debugging</b>	The bulk of app production costs (upwards of 55%). Practically speaking, the cost of person-hours devoted to the project.
<b>UX design</b>	Storyboards, user interaction and graphic design typically make up 25% of total app cost.
<b>Maintenance</b>	Typically 10% of the initial app cost, on an annual basis
<b>Marketing</b>	We estimate that marketing costs average 10% of app production expenses. In practice, marketing costs differ based on the developer segment – Hobbyists and Explorers will use Facebook as the lowest hanging fruit, whereas Hunters will use more sophisticated and premium channels such as professional PR services and incentivised downloads.
<b>Back-end</b>	Back-end costs vary depending on the application’s requirements – from lightweight (user management services on Appcelerator, Spire.io or Parse.com) to heavy (applications written from scratch on Amazon Web Services (AWS) or Google App Engine).

Source: VisionMobile

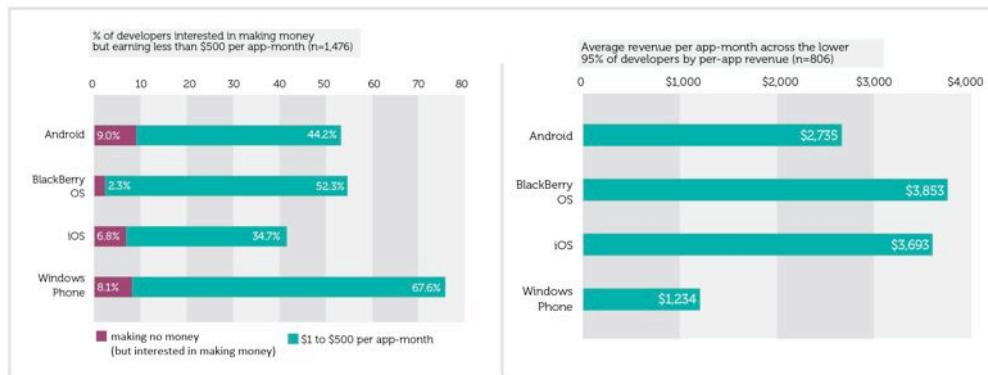
## Sizing revenues per platform

Our Developer Economics 2012 survey analysed the average revenues per app generated by the 1,500+ developers who took part in our survey. A large percentage of developers (29%) was not sure about how much money they made. Among those that knew, we found that an app has a 35% chance of generating \$1 – \$500, and that one in three developers live below the “app poverty line”; That is, they cannot rely on apps as a sole source of income, even if developing multiple apps. Moreover, around 25% of all developers do not generate any revenue at all, although some do not aim to make money. On the revenue-generating side, 14% of developers will make somewhere between \$500 and \$1,000 per app, while 13% will generate between \$1,001 and \$5,000 per app per month. Less than 7% of all developers will make more than \$10,000 per app per month, according to our survey.

Naturally, per-app revenues will depend on many pivotal developer choices, including revenue model, app category, marketing strategy and target region. Before looking at how these choices affect revenue potential, it is quite interesting to look at how platforms perform overall.

Monetisation varies widely by platform, of course. To measure revenues by platform, we excluded developers that do not care about making money and controlled for outliers by considering the lower 95% of revenue-making developers.

### BlackBerry and iOS top revenue chart, but many apps are below the poverty line



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BlueVia

Average per-app revenue is in the range of \$1,200-\$3,900 depending on platform. Per-app revenues are distributed across the range from 0 to well over \$100,000 per app per month. Average dollar ranges across such a wide distribution of revenues does really speak to how much money developers can make on a given platform, though.

**BlackBerry comes out on top in terms of average revenue** with nearly \$3,900 per app per month. BlackBerry developers generate, on average, 4% more revenue per app-month than iOS developers, who in turn generate about 35% more than Android developers. Windows Phone developers rank last, with slightly less than half as much revenue per app-month as Android developers.

**iOS a healthy developer economy.** The iOS economy is the one that works best for its developers: it has the lowest percentage of developers below the “app poverty line” (42%) while offering opportunities to sustain a profitable business. iOS has the highest ratio of developers generating more than \$5,000 per app-month in revenue.

**BlackBerry: enterprise-grade revenues.** Above the \$10,000 per-app, per-month mark is where BlackBerry is out-doing all other platforms, with 10% of BlackBerry developers earning revenues in that range. iOS and mobile web are also very strong here, with 9% of developers in this range, while Android follows with 7%.

iOS beats Android over the who-makes-most-money debate. On the iOS vs Android debate, it is fair to say, based on figures for 50% of developers (second quartile), that iOS developers will generate, on average, 37% more revenue per app-month than Android developers. The gap narrows when we look at high-earners, as both platforms have massive scale and the potential to generate huge profits.

iOS leads Android in terms of per-app revenues for many reasons.

- Superior demographics: the price premium of Apple products attracts more affluent consumers, who apart from purchasing Apple products have more disposable income to allocate for apps – while Android users are more price-sensitive. Apple also attracts more technology-savvy users. “Android users are less tech savvy and new to the smartphone experience and so tend to engage less with apps” argues Jai Jaisimha, founder of Open Mobile Solutions, a brand-to-developer matchmaking service. “This is mainly a demographics issue and is partly due to aggressive selling tactics that aim to sell Android devices to people that are not so familiar with the technology, at least in the US” notes Jaisimha. “Android users are not always the same as iOS - they buy the handsets because they’re cheap and might not even know they’re using an Android device,” observes a mobile web expert from Argentina.
- Superior content. The Apple App Store has a far higher ratio of paid apps to free apps, while the Android store suffers from many apps that are copyright-infringing, copycats or malware.
- Tablet domination. iOS dominates the tablet market, where revenue per app is considerably higher.
- Frictionless payment. While Google Play has been a major improvement over its predecessor, the Android Market, the Apple App Store provides a better-integrated user experience, offering frictionless, one-click buying to 400 million customers whose cards are on file. In contrast, Android only started asking users for credit card details with Android v4, launched in early 2012, and so Google has a lot of catching up to do. Currently, it relies mainly on carrier billing.
- Ad revenue. With a higher eCPM rate than Android, iOS apps generate on average higher ad revenue than Android. While eCPM rates vary by

“Android users are less tech savvy and new to the smartphone experience and so tend to engage less with apps. This is mainly a demographics issue and is partly due to aggressive selling tactics that aim to sell Android devices to people that are not so familiar with the technology, at least in the US”

Jai Jaisimha  
Founder  
Open Mobile Solutions

ad-size, a standard banner ad (300x50 pixels) on iPhone is, on average, almost twice the eCPM rate for Android according to Mobclix.

We also looked at revenues for mobile web and Java ME, which are both based on different business models and distribution channels to the 4 main platforms presented above. Mobile web and Java ME heavily commissioned-based revenue models while only a minority of developers use app stores as a distribution channel. As such, per-add revenues for mobile web and Java ME platforms are not directly comparable to the app-store-driven platforms.

**Java ME: a collapsing economy.** Java ME developers are a declining middle class with a dated business model, mostly driven by emerging regions like Africa. 40% of Java ME developers that are interested in money generate between \$1k and \$10k, which is higher than any other platform. Java ME also has the lowest percentage of developers below the “app poverty line” of \$500 per app-month revenue (38%). While all this is commendable, it is mostly a sign of decline, rather than success: Java ME is a prime example of a feature-phone ecosystem, comprising mostly professional or semi-pro developers, and based on the dated business model based on carrier distribution. With Java ME being abandoned by handset vendors, consumers and developers alike, and only a fraction of app titles remaining production compared to 2009, few developers can sustain a profitable business on the platform. We expect Java ME developers’ average revenues to slide towards the app poverty line in the next few years. It is indicative that Java ME has the lowest ratio of developers (3%) that earn more than \$10k. Java ME is a collapsing economy, and opportunities exist only because of emerging markets like Africa and the fact that supply (developers) decreases faster than demand (installed base). However, the crash is inevitable.

**Mobile web: revenue disparity.** There is a large disparity in revenues among mobile web developers. It is striking that 17% among those wishing to make money, actually make no money at all on mobile web development, a higher percentage than any other platform. At the same time, mobile web developers in the \$5,000 to \$100,000 range pocket 91% of mobile web of app-month revenues. To some extent, these revenue ranges are occupied by established content publishers, such as the Financial Times, that use mobile web as a means to evade the 30% app store commission. Mobile web revenues in the \$5-100K tier are also due to the B2B developers working on corporate IT intranets and commissioned apps for brands and B2C companies (“Product Extender” segment) with million-dollar-plus marketing budgets. Mobile web is the exact opposite of Java ME: it has no middle class of developers.

## Winning by revenue model

The app economy has seen a fair amount of economic innovation, with 11 revenue models to pick and mix from, as we documented earlier in this chapter. In Developer Economics 2012, we researched the winning revenue models. We found that on average, developers use just under two revenue models concurrently.

Irrespective of platform, pay-per download is the revenue model used most frequently, by 34% of developers, slightly lower than last year. Advertising followed closely, used by 33% of developers. In-app purchasing also gained popularity since last year, which is

not surprising given it is now one of the highest-grossing revenue models. By December, 2011, apps with in-app purchasing were monetizing 2.2 times more than apps without, according to app analytics firm App Annie.

With the popularity of in-app advertising, the sector is rapidly evolving. Besides the global mobile ad networks (e.g., AdMob, InMobi), there are now real-time bidding platforms (MobClix, MoPub, Nexage), app promotion networks (Flurry, Appboost, Applifier) and performance-based ad networks (OfferMobi, SponsorPay, TapJoy).

**Popular revenue models are not the most revenue-generating.** The most successful model in terms of average monthly per-app revenue is royalties from apps pre-loaded onto handsets, according to our survey of 1,500 developers. This model generates, on average, 60% more revenue per app than subscriptions, the second runner-up revenue model. Before developers jump onto this model, though, there's a big caveat: device preloading is by far the least popular revenue model, used by just 4% of developers. Device preloading is an invitation-only club: handset vendors will cherry-pick the most successful apps to pre-load, while developers will need to spend months of business development to get through the door of one handset maker. Device preloading comes with a very high barrier to entry.

### Top-5 revenue models by popularity and earnings

Average revenue per app-month, for lower 95% of developers by earnings (n=1,473)



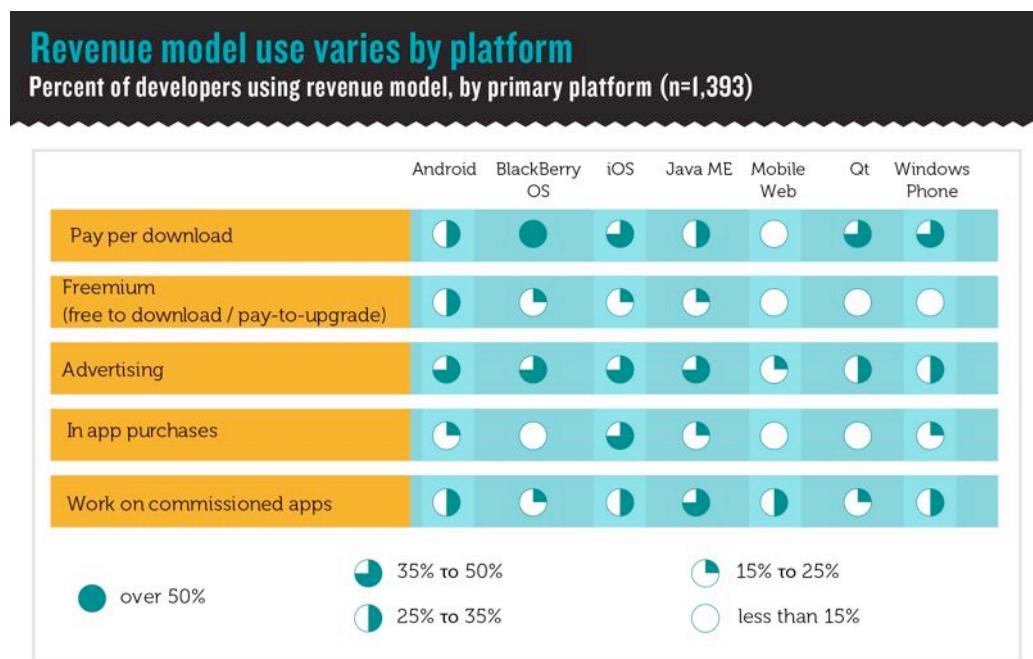
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 BlueVia

Subscription-based revenue models seem to work quite well, coming ahead of in-app purchasing in terms of per-app revenues. However, they are utilised by just 13% of developers. This reflects how challenging a subscription model can be: building up a paying subscriber base requires a continuous stream of quality content, which is usually associated with higher production or licensing costs.

Following subscriptions, in-app purchasing comes out ahead of other revenue models, generating on average 24% more revenue than pay-per-download, 63% more than freemium and 78% more than advertising. Note that In-app purchasing is the second most popular revenue model for iOS developers (36%). However, it is much more popular on iOS than on other platforms. The next table summarises the popularity of revenue models across the seven major platforms (iOS, Android, Windows Phone, BlackBerry, mobile web, Java ME and Qt).

It's worth pointing out that commissioned applications are generally much more lucrative than direct revenue models, i.e., revenues made directly through an app store. Commissioned development is on the rise, driven by thousands of brands going mobile in each country, and system integrators mobilising corporate intranets around the globe. We should not ignore new platform entrants like Microsoft, who are subsidising the development of a Windows Phone app ecosystem, with per-app bills running from \$60,000 to \$600,000 per application, as reported by the New York Times.



## The cost side of the equation

With developer revenues varying per platform, we also felt compelled to research the cost side of the equation. In talking to developers, the most significant factor in the application production cost is coding time; that is, the cost of paying engineers to develop and debug an application. Other cost elements include UI design time (storyboards, user interaction and graphic design), back-end development costs, ongoing app maintenance and marketing costs (from Facebook pages to professional

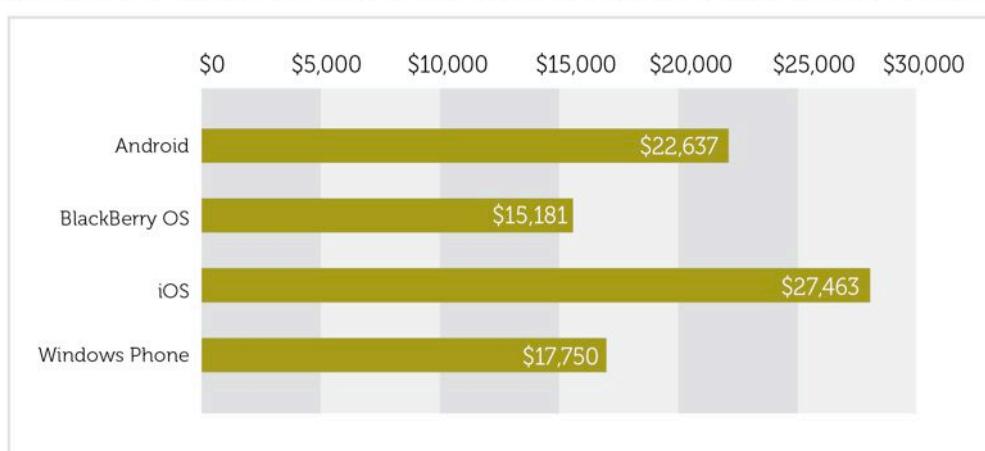
PR and incentivised downloads). We have included an estimated cost breakdown earlier in this chapter. Nonetheless, all other costs associated with app production are usually dwarfed by the cost of development time.

As part of Developer Economics 2012, we asked 1,500+ developers to quantify the time it takes to develop an app on their main platform. Note that in order to remove statistical outliers, we have considered the lower 95% of apps in terms of development time, across all categories. We found that the average app will take approximately three man-months to develop. Some 39% of developers across all platforms report that development time falls within one and three man-months, 34% report less than 3 months and 28% report more than 3 months.

There are of course significant differences between platforms. Overall, Java ME and BlackBerry are the platforms with the fastest development time. Some 47% of Java ME apps and 49% of BlackBerry apps are developed in less than one month. The speed of BB and Java ME development comes down to the lower barriers to entry for these platforms, both in terms of features and user experience expectations.

### iOS apps are the most expensive to develop

Average cost to develop an app for 95% of apps excluding those with highest development time (n=1,510)



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iOS requires more development time on average, with less than a quarter of all apps completed within a month. Over one-third of Android and iOS apps will take longer than three months, the highest ratio across all platforms.

Assuming that development time (incl. UI design time) is the single most significant cost factor (approx. 80%) in app production, we have approximated additional costs as maintenance (10% each year) and marketing (10%). We researched average and “identified average” pay rates for different types of developers on oDesk, which claims to be the largest outsourcing hub connecting freelance developers with clients. We found that

“In Colombia, it’s hard to charge more than \$8,000 (USD) for a commissioned app. This is for an application that takes four weeks to develop. If we were in North America, we could probably be able to charge 4-5 times that”

Ivan Sosa  
Head of Technology  
Mobile Brand Experience

highly qualified developers demand on average \$30/hr for iOS, \$27.50/hr for BlackBerry and Windows Phone, \$26/hr for Java, and \$24.70/hr for mobile web development. Note that these figures are averages across several countries and rates can vary significantly by country. iOS skills generally attract higher hourly rates, while mobile web skills, being more abundant, are valued at lower rates. We then adjusted oDesk outsourcing rates with another 20% on top to account for project management overheads.

### **Based on this methodology we have arrived at the per-app development costs, across**

**platforms.** iOS is the most costly platform to target, with an average cost of \$27,000 per app, 21% more expensive than Android and 81% more expensive than BlackBerry. BlackBerry has the lowest development costs among the four platforms.

The low cost platforms include Windows Phone and mobile web, with an average development cost that is 17% higher than BlackBerry, and Java ME, which, at +1% is on par with BlackBerry.

“The way to deal with fragmentation is to have a whole department dealing with it. Around 15% of the company’s workforce is engaged with fragmentation issues.”

Alexey Sazonov  
Marketing Director  
HeroCraft

The devil is in the details of course – and app development costs depend not only on the platform, but the app category. We found that communication and social networking apps (e.g., Foursquare, WhatsApp) require 14% more development time than maps and navigation apps (e.g., TomTom), and 52% more than news and media apps (e.g., Economist). Also, despite iOS generally requiring more development time, it is quite a bit faster to develop communication and social networking apps on iOS than on Android or Java ME.

Naturally, app development costs also depend on the cost of labour in each country. “In Colombia, it’s hard to charge more than \$8,000 (USD) for a commissioned app. This is for an application that takes four weeks to develop,” notes Ivan Sosa, Head of Technology at Mobile Brand Experience. “If we were in North America, we could probably be able to charge 4-5 times that”.

“We get a lot of clients that have an unrealistic expectation of the amount of effort it takes to build a really good looking mobile app, so the biggest challenge is the education of our clients and the product managers working on the mobile app as to realistically how much work it is to build the app and what they need to expect in the process of building it,” explains Jeff Bacon, Director of Mobile Strategy at bitHeads, a Canadian software house with clients like the New York Times and ESPN.

**Fragmentation becoming cost prohibitive on Android.** Another cost factor that needs to be accounted for is platform and device fragmentation. OpenSignalMaps, a popular Android application, has tracked over 600 thousand devices (0.2% of the Android installed base) and reported nearly 600 device models and 4,000 device variants. Such fragmentation is starting to inflate the cost base for Android developers, who must port, test, and debug across many devices they do not physically possess. “Testing for Android is really, really hard due to fragmentation” notes Head of Technology at Mobile Brand Experience, Ivan Sosa. Sosa explains, “Some of our clients

had these weird Android phones that we were never able to test on. Google needs to provide a universal emulator, too, as every manufacturer – including Samsung and LG – comes out with their own.”

To deal with fragmentation, a number of crowdsourced beta-testing services are available to developers. Testdroid, Testflight, uTest and Mob4Hire let developers trial test their apps with actual users before launching. While these services are not free, they can often reduce the costs associated with in-house debugging and testing.

At the same time, established software houses often resort to managing fragmentation in house. “The way to deal with fragmentation is to have a whole department dealing with it,” notes Alexey Sazonov, sales and marketing director at HeroCraft, a 100-strong publisher and developer house based in Russia and the Ukraine that publishes 25 game titles per year. “Around 15% of the company’s workforce is engaged with fragmentation issues,” says Sazonov.

**Cross-platform tools reduce development time.** Development time and hence cost can be significantly reduced by utilising cross-platform tools, such as PhoneGap, Sencha, and Appcelerator (see our report, “Cross Platform Tools 2012”). Hybrid, native-wrapped HTML apps increase platform portability, at the cost of always being one step behind native features and performance. In most media apps, off-the-shelf “app factory” tools like AppsGeyser, Mobile Roadie and Pajap are used to help non-developers create interactive content-led apps. These tools allow developers to utilise time-saving frameworks when porting or developing for new platforms and can reduce development costs substantially. “If we didn’t use Appcelerator for app development, we would probably need to spend twice as much time coding” notes Yiannis Varelas, co-founder of Weandy, a weather app for surfers available on iOS and Android platforms.

### Sizing up revenues vs costs

A frequently quoted data point suggests that startups have a 90% failure rate, i.e., only 10% manage to survive. We wanted to compare this figure with the failure rate in mobile app development, considering that many developers are also startups. What we found is that developers are in a much better position than most startups: at least 48% of all developers manage to break even.

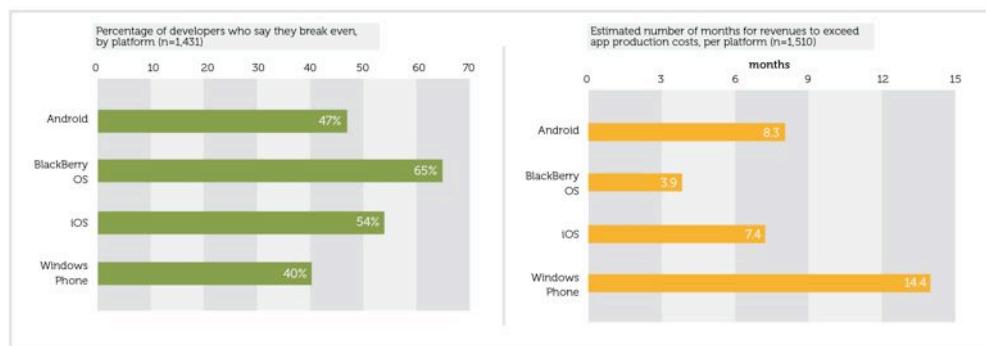
These figures vary between platforms, in some cases significantly. Overall, Blackberry OS has more developers that break even, compared to all other platforms: 65% of Blackberry developers indicate that they break even within two years. Meanwhile, 54% of iOS developers break even, followed by Android at 47% of developers. Mobile web has the least number of developers breaking even overall, with 33%. We also found that if you’re a mobile web developer, you should break even within the first year; otherwise, the chances get very slim. The break-even time indicated by developers in our survey correlates well with a calculated break-even time based on sizing per-app revenues *vs* costs per

“If we didn’t use Appcelerator for app development, we would probably need to spend twice as much time coding

Yiannis Varelas  
co-Founder  
Weandy

platform. This further validates per-app, per-platform revenues and cost modeling.

## BlackBerry apps break even sooner



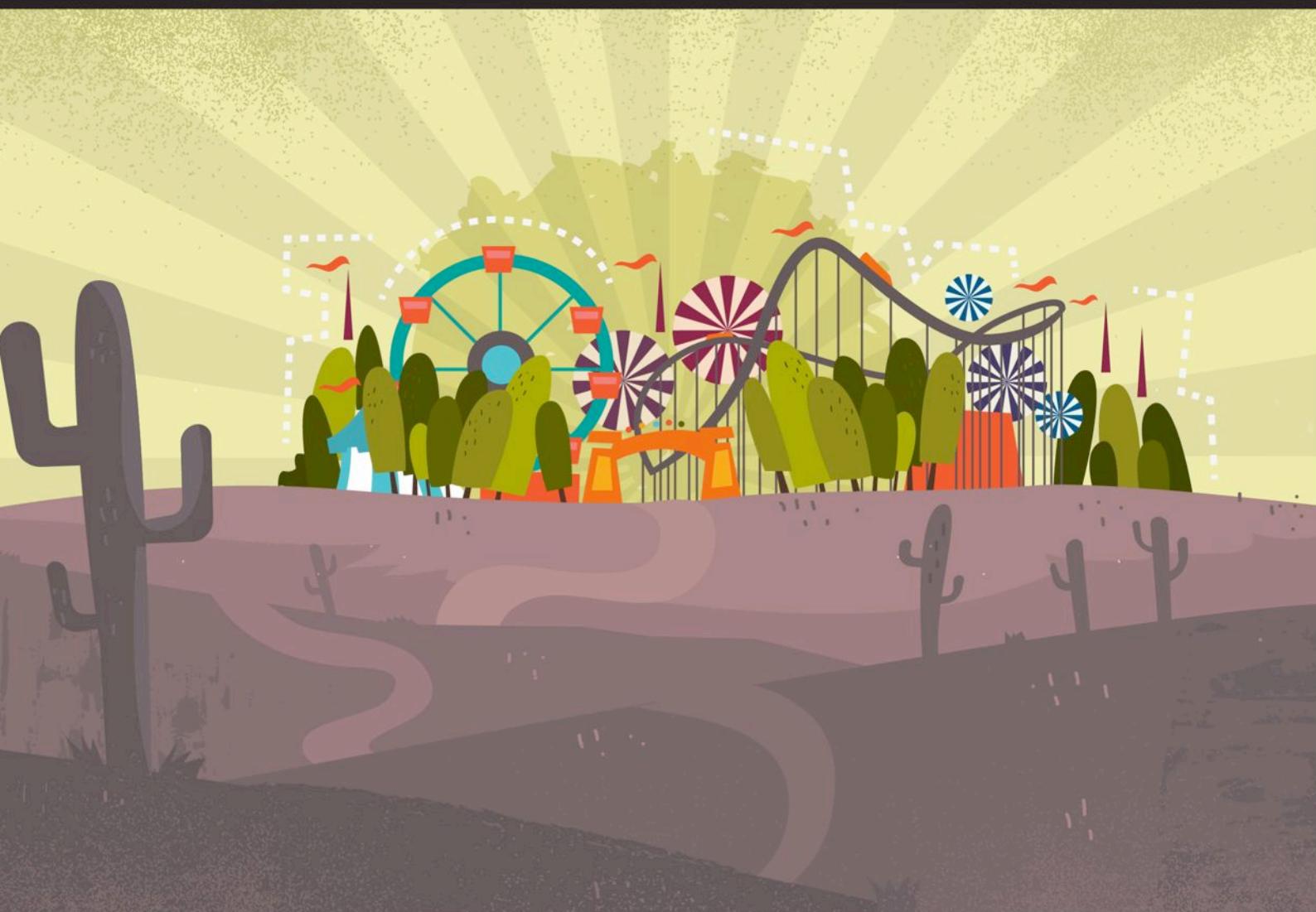
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While development costs and average revenues vary, in some cases significantly, by platform, there are a lot more factors that will determine developers' revenue potential. For example, developers that prioritise one platform over another are likely to see lower revenues on low priority platforms. Delivering a consistent user experience across platforms can iron out perceived differences that are due to developers' bias in favour of one platform over another. Game developers TinyCo claim that their revenue on Android increased to near-iOS level when they "treated it as a first-class citizen".

Targeting the right users and promoting apps through the right channels can also take developers a long way. In the next section we'll look at the options developers at their disposal to market and distribute their apps and how these compare against each other.

# Chapter 4



## APP MARKETING

Looking for the promised user land

## CHAPTER FOUR

## App marketing: Looking for the promised user land

The most notable trend across 2011-2012 is the marginalisation of telcos as distribution channels. Telco portals have seen a 47% decrease in use by developers as a primary channel, irrespective of platform. These are the same portals that used to dominate content distribution in the pre-Apple era of downloadable ringtones, wallpapers and Java applications. Telcos have therefore decisively lost control of service distribution. There is one exception: leveraging the absence of Google Play in China, China Mobile's app store has enrolled 22% of its subscribers, and has served over 600 million downloads, according to IHS Screen Digest.

With over one million total apps available on Apple and Google app stores combined, and hundreds of thousands on the other platforms, the competition to get on consumers' handsets is fierce. It's becoming a shark-infested ocean, as hundreds of apps are added each and every day. App discovery remains, essentially, an unsolved challenge in the last two years, and it's only getting worse. App quality, originality, innovation and any attempt to differentiate runs a very high risk of going unnoticed, with developers getting caught up in the "long tail" of apps that never achieve great popularity. On Apple's iOS "you're a fish in a very large pond" says characteristically Jeff Bacon, Director of Mobile Strategy at bitHeads, a Canadian software house with clients like the New York Times and ESPN.

Platforms deliver on their promise of user reach, but not on adoption and engagement. "It's very difficult to get visibility on app stores as this means competing against heavyweights like Gameloft & Electronic Arts and their substantial marketing budgets" explains Felipe Andrade, Director of Products and Services at Brazil-based software house i2 Mobile Solutions.

Like in any fast-moving consumer goods (FMCG) business, the value within apps is moving from code development to the packaging (the user experience) and marketing. In this chapter we explore the many techniques developers are adopting to market their apps, and the new challenges that open up in the app post-launch phase.

"It's very difficult to get visibility on app stores as this means competing against heavyweights like Gameloft & Electronic Arts and their substantial marketing budgets."

Felipe Andrade  
Director of Products & Services  
i2 Mobile Solutions

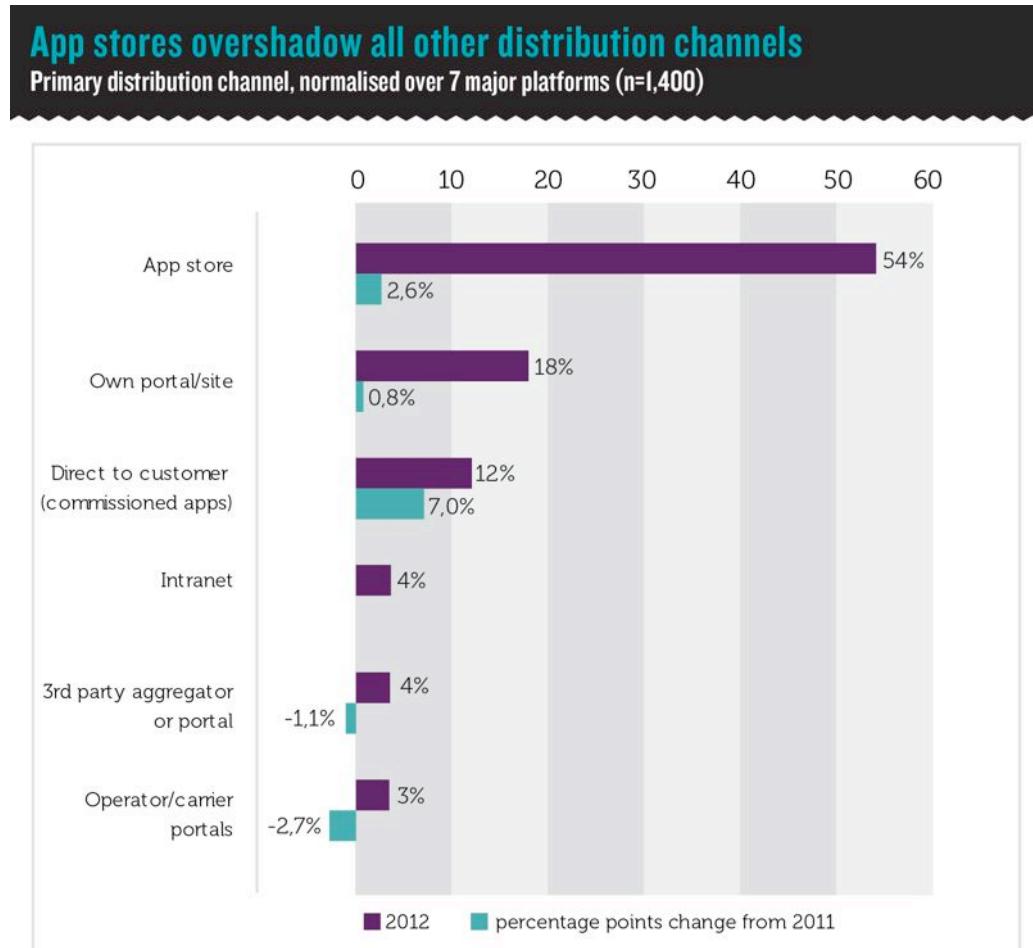
### Telco portals marginalised

The most notable trend across 2011-2012 is the marginalisation of telcos as distribution channels. Telco portals have seen a 47% decrease in use by developers as a primary channel, irrespective of platform. These are the same portals that used to dominate content distribution in the pre-Apple era of downloadable ringtones, wallpapers and Java applications. Telcos have therefore decisively lost control of service distribution. There is one exception: leveraging the absence of Google Play in China, China Mobile's

app store has enrolled 22% of its subscribers, and has served over 600 million downloads, according to IHS Screen Digest.

App stores continue to erode the share of traditional mobile distribution channels such as telco portals and third-party aggregators. More than half of the 1,500+ developers taking part in the Developer Economics survey, irrespective of platform, used an app store as their main channel. In other words, more developers use app stores as their primary channel than use all other channels combined -- regardless of their primary platform.

Naturally, with iOS and Android, these numbers are far higher, as we shall see. In parallel, there is a noticeable increase in the number of developers delivering apps directly to their clients. This should come as no surprise, given the increasing number of brands and existing businesses venturing into mobile, and outsourcing app development.



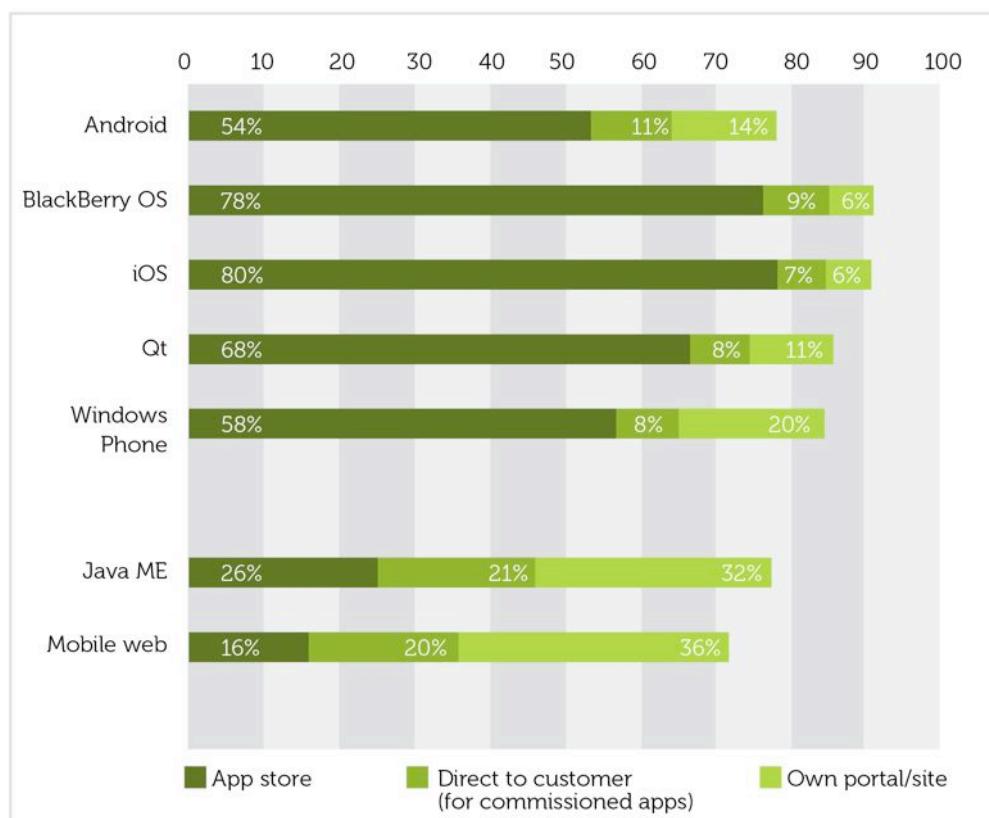
Source: Developer Economics 2012 | [www.DeveloperEconomics.com](http://www.DeveloperEconomics.com) | June 2012  
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The platforms lacking an app store – mobile web and Java ME – exhibit very different distribution patterns, compared to the modern-day platforms, as the next graph shows. Mobile web and Java have the highest percentages of developers using their own portal or direct-to-customer methods as their primary channel: 20% and 34% of respondents, respectively.

## The gap between Web/Java and app store led ecosystems

% of developers by primary platform who distribute apps (n=1,410)



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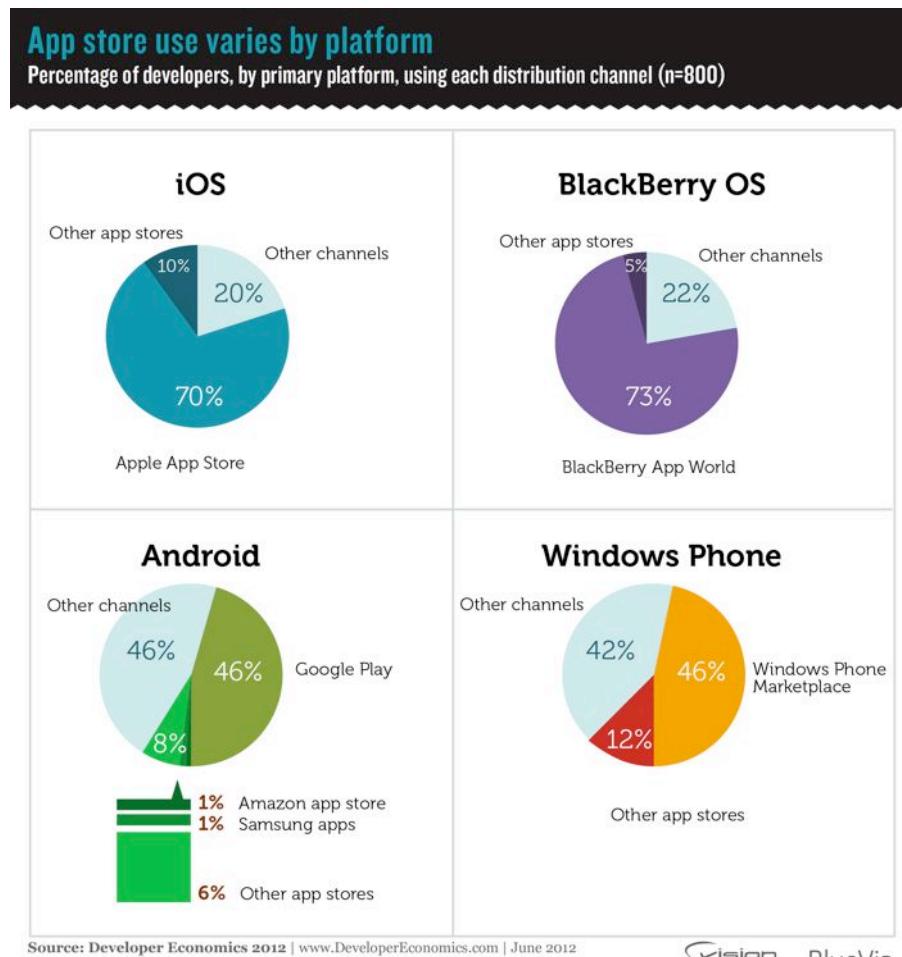
App store use is much more popular among iOS (80%) and Blackberry developers (78%), compared to developers of other platforms. Android and Windows Phone developers also use app stores: 54% and 58%, respectively. Considering that distribution of Windows Phone apps is only possible via Windows Phone Marketplace we believe that the relatively low number of developers using the native app store is due to the fact that a large number of these developers work on commissioned apps that they do not distribute directly.

Where a native app store exists, this is by far the preferred distribution channel for developers, as the next graph shows. Native app stores are pre-installed on all devices, and therefore attract developers that are interested in user reach, i.e., most developer segments, as we saw in Chapter 2. None of the alternative app stores hold a prominent position, for those platforms that allow distribution outside the native app store. The much-hyped Amazon Appstore claims just 0.8% of Android respondents, while Samsung Apps stands at 1%. Note here that the figures in the “Other app store” category in the graph include developers that may not use an app store for

“Typically clients assign up to 10% of their app budget on ASO. Unfortunately, most clients rely on their traditional marketing partners to promote the app and don’t understand the nuances of mobile and why ASO, not SEO is needed.”

Ivan Sosa  
Director of Technology  
Mobile Brand Experience

their primary platform, but may use one when developing for other platforms, as iOS and Windows Phone do not officially allow distribution outside their native app stores.



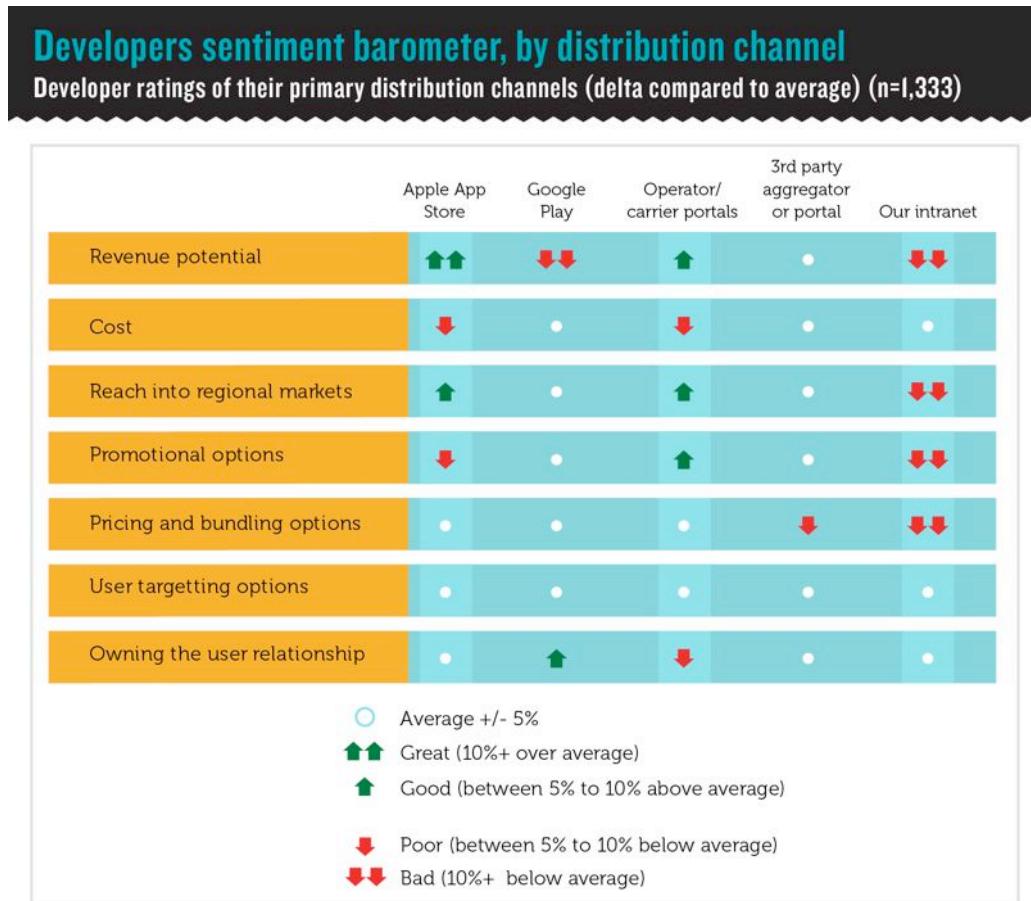
The Amazon store offers frictionless payment, superior per-app revenues, application vetting and exclusive deals with high-profile publishers. Despite these advantages, the Amazon Appstore is notoriously cumbersome to install on an Android phone (typically eight clicks!), although it is well integrated on the Amazon Kindle Fire. This manual install process hampers the reach of the store on non-Amazon devices, outside the Kindle Fire. Developer adoption stands at 0.8% of Android respondents in our survey.

### Developer sentiments: app store shoot-out

To gauge developers' sentiments on the most popular distribution channels, we asked respondents to rate several key aspects of the channels. The next table maps developer sentiments across distribution channels, revealing where each channel excels or fails in terms of cost, reach, user targeting options and revenue potential.

App stores on average surpass all other distribution channels in terms of low cost and mass reach into regional markets. With the Apple App Store reaching 155 countries in June, 2012, and other stores following, app stores enable a publish-once-reach-all process that allows cost-effective access to regional markets. Naturally, local marketing

and localisation are mandatory in order to convert this local reach into adoption and engagement, as we'll see in Chapter 5.



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Where app stores are lacking – and where innovation has yet to happen – is in marketing facilities. App stores rate only average in terms of helping developers promote, price/bundle, and target their wares. As such, Apple's acquisition of app discovery solution Chomp should provide an edge to the platform, once it's integrated into the app store. Another important area where app stores lack is in the ownership of the user relationship: most stores obscure customer account information, making it difficult to understand, let alone reach existing customers. This is an area where Facebook is aiming to create value for developers with the Facebook Platform and the Facebook App Center.

### Escaping the bottleneck

So how do developers break through the app discovery bottleneck? App marketing today takes many forms, from social network promotions to professional PR services. As the next graph shows, Facebook is far and away the most popular promotion channel employed by developers, utilised on average by 47% of developers across all platforms. Facebook claims to have sent over 160 million visitors to mobile app pages in March, 2012 alone. Alongside app stores, Facebook is the only global distribution channel.

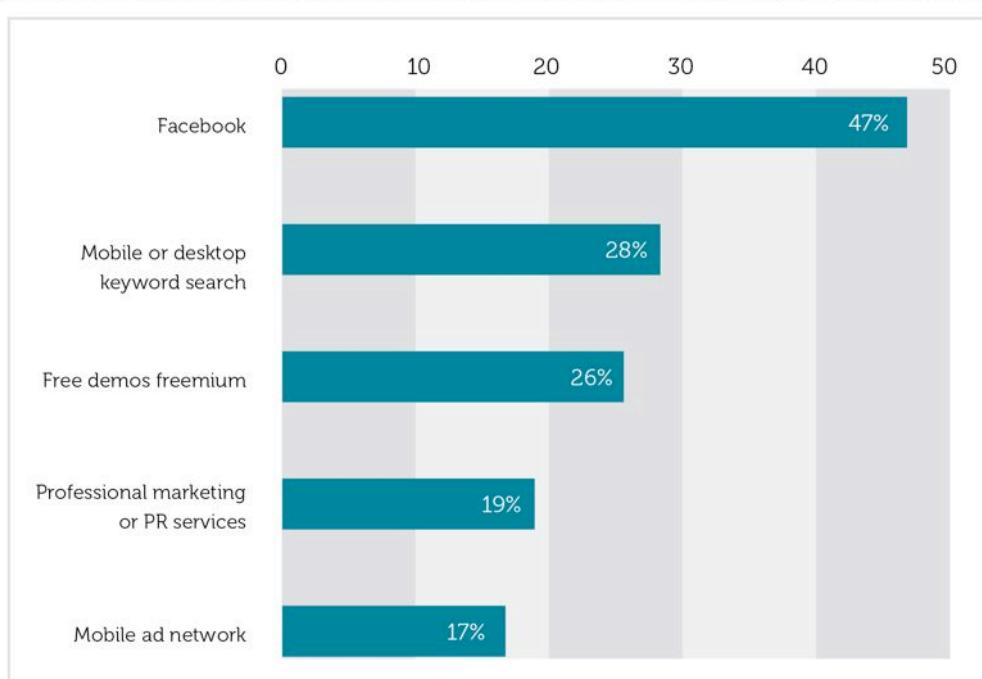
Facebook's dominance as a promotion channel is evident across all app categories. However, games and media apps utilise it most frequently, based on our research. The social networking giant is exploiting the app store marketing bottleneck by offering more ways for developers to be discovered. For example, six of the top 10 free apps on the Apple Store are also listed on Facebook's "App Center," as of April, 2012.

Promotions are mandatory in today's app economy. We found that developers that do not promote their apps in any way are much less likely to break-even: **only 22% of developers not promoting their apps indicated that they break-even**, as opposed to 60% of developers that do promote their apps.

Our research further found that 28% of developers, irrespective of platform, utilise keyword search, either on mobile or desktop, to promote their apps. Paid keyword search is mostly used for promoting media and education/reference apps.

### Facebook is developers' favourite app promotion channel

Percentage of developers using promotion channel, irrespective of primary platform (n=1,419)



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Around one quarter of developers release free demos in order to promote their apps. Free demos are used most by developers publishing games, entertainment or medical/fitness apps. Free demos may decrease revenues from compulsive app-buyers, but can attract price-sensitive users that need to know what they are buying. Finally, irrespective of platform, 19% of all developers resort to professional marketing or PR services. Such services are especially popular among developers of location services or music/video apps.

Promotions are part of what is referred to as "App Store Optimisation" (ASO), the app world-equivalent of Search Engine Optimisation (SEO). While SEO is mandatory for

any self-respecting web developer, ASO is a relatively new and differentiating service for developers. “We’re one of the first companies in Colombia to offer app store optimisation to clients” notes Ivan Sosa, Director of Technology at Mobile Brand Experience. “Typically clients assign up to 10% of their app budget on ASO. Unfortunately, most clients rely on their traditional marketing partners to promote the app and don’t understand the nuances of mobile and why ASO, not SEO is needed.”

## Retention and the bigger picture of app marketing

Promotions are only a small part of application marketing, the process of reaching, onboarding and engaging users. Good marketers will give equal consideration to reaching the right target segment, pricing the app, and keeping users engaged.

There are two important marketing challenges cited by the 1,500+ developers in our research. Keeping users engaged was the challenge cited most often overall, by 39% of developers, irrespective of primary platform. This is consistent with data from analytics firm Flurry, who report that user engagement falls sharply over time, with only 24% of consumers continuing to use an app after three months from download. “Developers must focus on tracking user engagement & usage patterns rather than just on downloads” notes Jai Jaisimha, founder of Open Mobile Solutions, a brand-to-developer matchmaking service.

There are many techniques for improving user engagement and retention. Social buttons like Follow or Like, especially when integrated with social networks are known to increase engagement. “Follow is the most common social feature used by our users” notes Yiannis Varelas, co-founder of Weundy, a weather app for surfers, with 6,500 monthly active users and 80% retention rate in May.

Gamification is another retention technique that rewards users for achievements (e.g. FourSquare-style badges) or for inviting other users (e.g. for each user you invite to Dropbox, you get another 250 MB free storage space). Moreover, Tom Hume, founder of Future Platforms, argues that developers need to fundamentally rethink user retention. “To improve retention, developers need to build up value for the user that increases with usage. A natural way to do this is to build in a history of usage data – for example in the Nike Plus the value and stickiness of the application increases as more data is recorded in the application”.

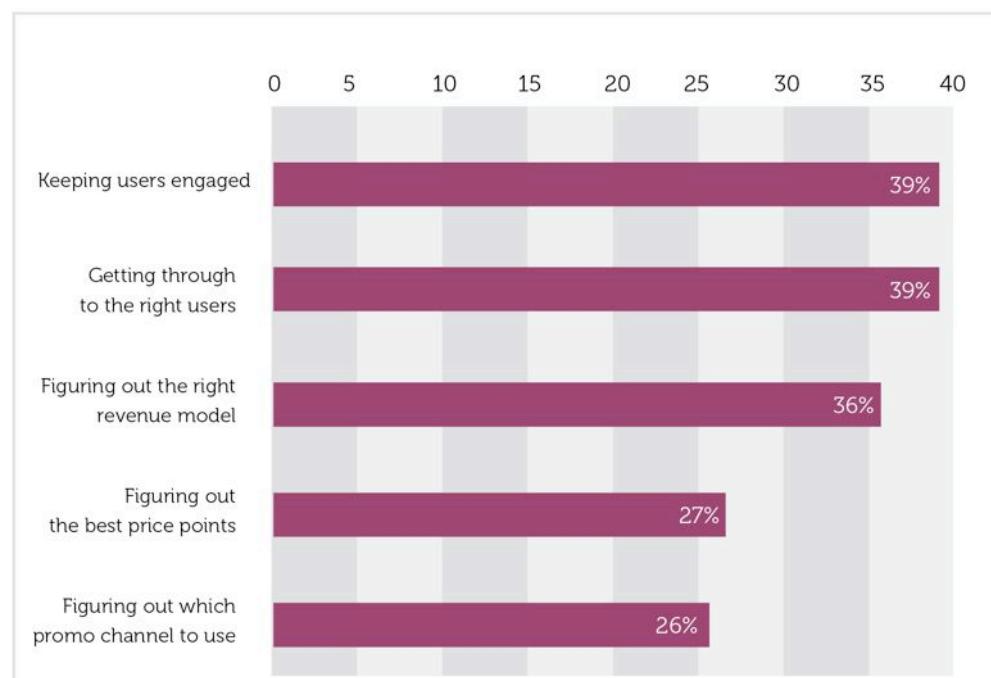
The second most oft-cited challenge is targeting and getting through to the right users – mostly because existing app stores offer little in the way of user targeting. App stores, for example, provide no means for developers to reach existing customers or gain information about them. The only way developers can target users via app stores is via coarse-grained methods based on app categorisation or keyword selection.

“To improve retention, developers need to build up value for the user that increases with usage. A natural way to do this is to build in a history of usage data – for example in the Nike Plus the value and stickiness of the application increases as more data is recorded in the application.”

Tom Hume  
Founder  
Future Platfroms

## Keeping users engaged is a major marketing challenge

Main marketing challenges normalised over 7 main platforms (n=1,327)



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Consequently, we found that developers using app stores are more concerned about targeting (39%) and engagement (46%) than developers using most other distribution channels. The situation in carrier portals is even worse: around 55% of developers using them are challenged by targeting and engagement.

Customer information, as with any business, is a key source of competitive advantage. As such, app stores have little incentive to share customer data with app developers. Apple has done so in part, after considerable pressure, but only to Newsstand publishers, and only where customers opt in. There's more to it than just control: app store owners are loath to jeopardise user privacy contracts, lest their platforms become marketing "wild wests."

The inaccessibility of customer information will likely remain a thorny issue, and one that hampers developers' marketing potential. For the moment, it generates a flurry of innovation, as evidenced by the proliferation of in-app and external app marketing channels. However, seeing as this will remain a pain point, there may be opportunities for app stores to differentiate, if they manage to balance their priorities against those of developers – as Apple arguably has with Newsstand publishers.

"Developers must focus on tracking user engagement & usage patterns rather than just on downloads."

Jai Jaisimha  
Founder  
Open Mobile Solutions

**Developers struggle to identify the right revenue model.** Developers are becoming increasingly confused (36%) about which revenue model to use. As we saw in

Chapter 3, there are over 10 revenue models to choose from and no guarantees as to which revenue model will work best in the long run in terms of reach *vs* monetisation.

Moreover, the revenue model needs to be optimised to the platform and app category. The decision should also take into account factors such as customer paying propensity (which varies across platforms), competitor pricing and positioning (which varies by app category. For example Angry Birds is free on Android, but uses a pay-per-download model on iOS and WP7. User needs should also come into perspective when considering your pricing strategy. “You may only need one Facebook, sports or weather app, but you will want to play many games. Mobile games are like movies – users are always looking for the latest one,” notes Markus Kassulke, CEO at Germany-based HandyGames.

Overall, we found that pay-per download is the revenue model used most frequently, by 34% of developers irrespective of platform, followed closely by advertising, which is used by 33% of developers. Chapter 3 in this report lists most popular revenue models by platform.

Developers are also restricted by the set-menu options offered by app stores and the limited opportunities to innovate around these. For example most stores lack the try/buy version capability, bundling options (e.g. buy 1, get 1 free), or A/B testing of pricing options. Pricing innovation is an area that is ripe for app store differentiation.

### The wild west of post-launch challenges

One of the areas of developer activity that remains under the radar is post-launch and the challenges it poses for developers - in other words how to maintain applications in the field and deal with customers.

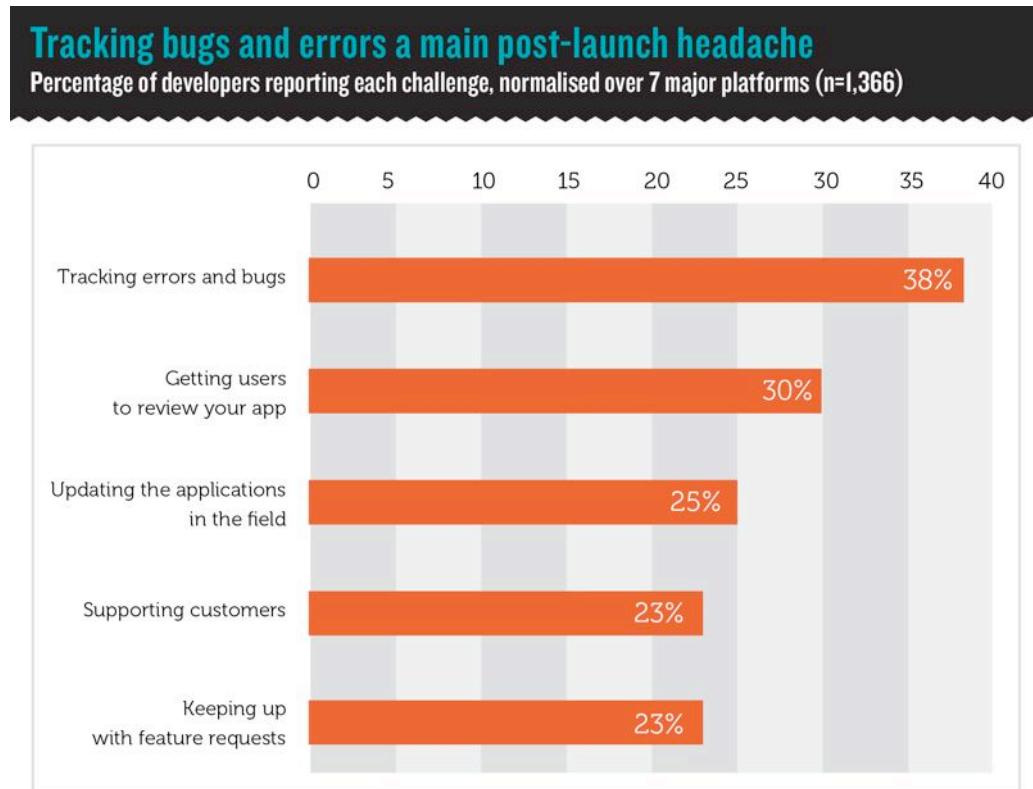
Tracking bugs and errors is, by far, the most frequent post-launch headache, as reported by 38% of developers in our survey - and particularly so for WP7 developers. There is no direct feedback channel between users and developers, and no out-of-box means to monitor the performance of an app. App reviews work and feel more like post-mortems, rather than a live feedback tool. As a result, developers will often find out what's wrong with their app too late, through users' negative feedback. “Our biggest headache after launch is the lack of a two-way communication channel with our users” notes Hong Wu, Director of Android Engineering at Peel, makers of a personalised TV guide app.

The challenge of tracking bugs and errors has prompted the emergence of a series of well-funded startups. Services such as Bugsense, Crashlytics and Crittercism track app errors by monitoring crashes and reporting the type of error, platform, device and environmental variables like location, time and transaction flow. As such, they can

“Our biggest headache after launch is the lack of a two-way communication channel with our users.”

Hong Wu  
Director of Android Engineering  
Peel

provide useful insights to developers, helping them fix errors before they drive users away.



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Bug tracking service Crittercism, which monitored crash rates from January to April, 2012, reported that the average iOS or Android app crashes 2% of the time. The company also found that a large number of users abandon an app upon its first crash, a fact that highlights the significance and utility of error-tracking services for developers, especially for brands and businesses.

Updating apps is another thorny issue, highlighted by 25% of developers irrespective of platform.

Interestingly, the difference in the update process between iOS and Android has no impact on developers' attitudes - as both iOS and Android have their own update challenges. On iOS the process requires full certification and approval by Apple, plus explicit opt-in by the user. On Android, the update process can be automatic and near-instantaneous. This however requires that users opt-in for automatic updates for specific applications. In effect, these challenges with the update process on both iOS and Android increase the average application "age" and escalate both code maintenance and customer support costs for developers.

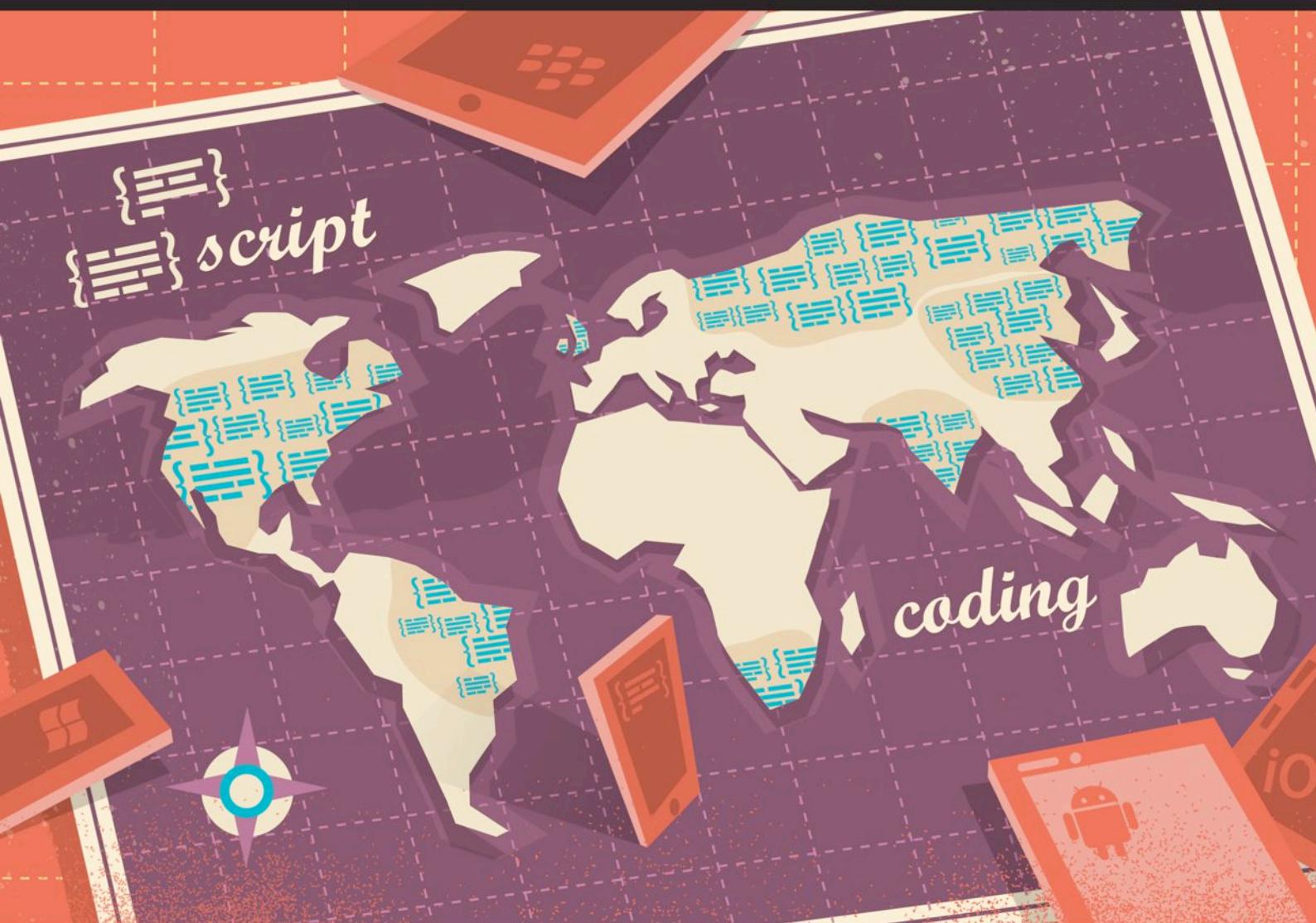


Source: Sylvia Lorente

Another frequent post-launch challenge is getting users

to review apps, reported by 30% of developers irrespective of platform. At the same time, there have been some success stories of apps boosting their review numbers, usually by nagging users after they have used the app for some time. For example, to solicit reviews, DrawSomething shows a motivating alert where “Rate 5 stars!” and “Remind me later” are the only two options, wrapped in a friendly pop-up box. The example shows that the runaway success of DrawSomething - 50 million downloads in 50 days since launch - is more science than luck.

# Chapter 5



## GOING LOCAL

Where the next 10 million apps  
will come from

CHAPTER FIVE

## Going local: Where the next 10 million apps will come from

The mobile app phenomenon has played out globally. Apple and Google have managed to deploy hundreds of millions of iPhone and Android devices worldwide and establish direct developer-to-consumer distribution channels (aka app stores) in more than 120 countries. With devices and apps distributed globally, developers have been able to go from Azerbaijan to Zambia through global stores and publishing processes. Within this streamlined route to market lie many challenges – and opportunities.

For some high-profile apps such as Facebook, Google Maps or Angry Birds the demand is global and these apps easily penetrate local markets. For other apps – like a taxi booking, cinema schedules or restaurant reservation apps – what works with US consumers will not work in the local business environment or culture in a European or Asian city. Different language, culture, business environment, promotional channels, regulations, brands and local consumer behaviour will mean that many apps will need adaptation to penetrate local markets. It also means that much local app demand is currently undersupplied. China, Brazil and Russia are good examples of major markets that are hard to penetrate, yet present major opportunities for mobile app developers globally.

We believe that in the app economy, global demand for top-seller apps will dominate downloads in most regions. At the same time, regional demand for localised apps will drive the production of the next 10 million apps.

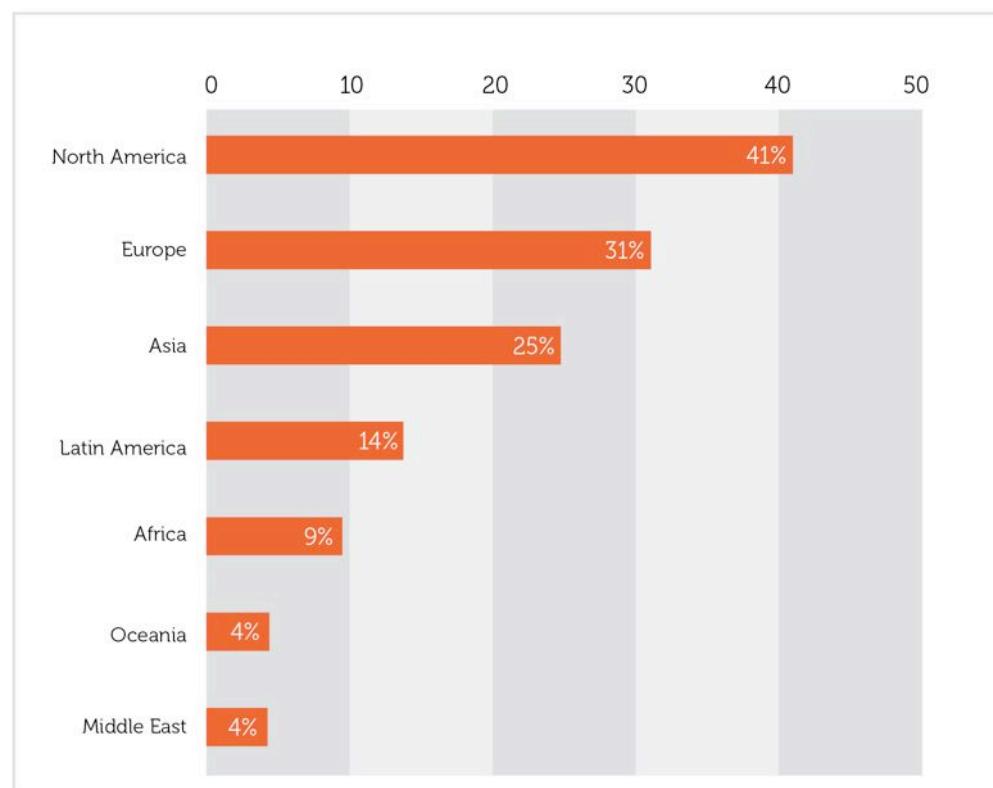
In this chapter we'll dig deeper into how app demand across regions and languages matches with developer supply, quantify the app trade balance, and identify opportunities that will drive demand and supply across regions.

### The global app supply and demand

App demand is currently driven by the US and followed by China, with 1.2 billion versus 350 million apps downloaded in April 2012, alone, according to Xyologic. To quantify app demand per region, we analysed responses from the 1,500+ developers who participated in Developer Economics 2012. North America tops app demand with 41% of developers indicating this is a top-3 download region, irrespective of their region of origin. Europe claims a 31% share, followed by Asia, where 25% of developers see most of their apps being downloaded, again normalised by region of origin.

## North America dominates global downloads

Regional distribution of downloads, normalised over developers' region of origin (n=1,504)



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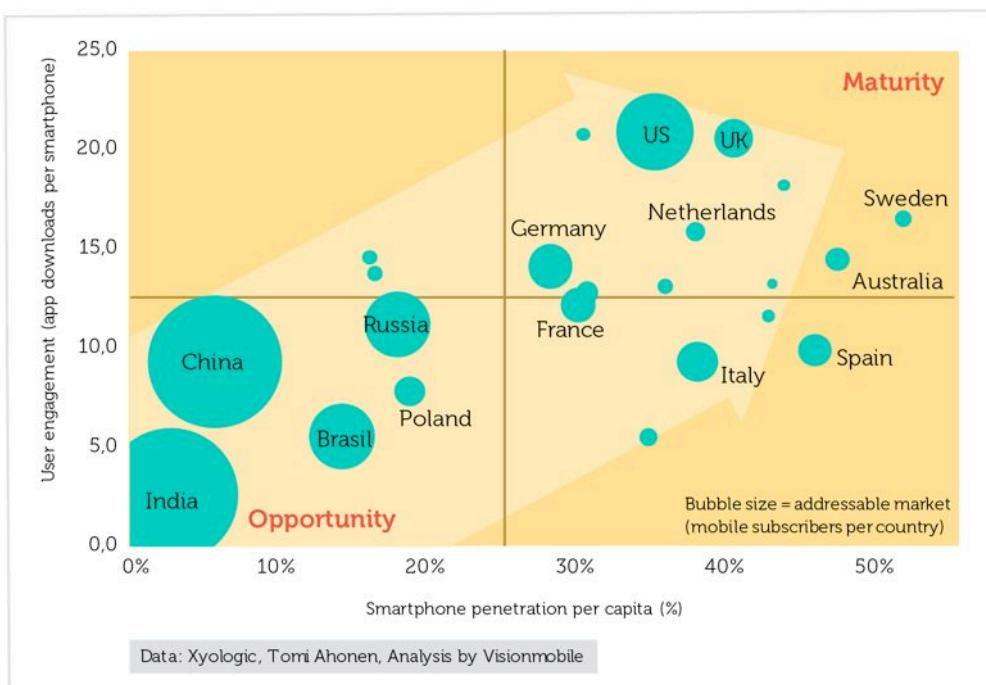
The underlying reasons for this regional pattern of demand have to do with smartphone penetration and app literacy per region, as shown in the next graph.

Each country moves forward on a trajectory of increasing smartphone penetration. However, as people become more familiar with smartphones and use them to carry out more and more everyday tasks, they become more app literate. Their engagement levels increase, as they download more apps and use them more often. Therefore, app demand in each country will grow with the three factors shown in the next graph: rising levels of smartphone penetration, rising user engagement, and total addressable market of smartphone subscribers in each country.

Presently the leading markets for apps, in terms of downloads per user, are the US and the UK. They are followed by other European markets, such as Germany and the Netherlands, most of which are found in the top-right quadrant. This is the quadrant of maturity, in which markets show the highest levels of user engagement combined with a high smartphone penetration. These are the countries that kick-started the app economy, and have been driving it forward for the past three years.

## Evolution of app demand across regions

Smartphone installed base vs. user app engagement by country



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The lower left quadrant, dominated by the BRIC countries, shows lower but rapidly increasing levels of user engagement and smartphone penetration. At the same time, the addressable size of these markets (indicated by bubble size which corresponds to the number of mobile subscribers per country) is much larger than most other countries. As a result, the country-wide app demand in the lower left quadrant of the graph in some cases does exceed that of countries found in the top right corner.

The lower left is the quadrant of opportunity: these countries are at the start of their upwards trajectory in the app-demand curve, and will eventually end-up in the quadrant of maturity. In the app economy, most new opportunities will be found along the path these countries take towards maturity. The opportunity will grow as the product of the three variables shown in the graph: addressable market (circle size), smartphone penetration (x-axis) and user engagement levels (y-axis). The opportunity for developers over the next decade is enormous as smartphones expand beyond the billion-user mark in 2013 and app literacy increases globally.

We believe that the size of the world app economy will be an order of magnitude larger when these BRIC markets enter the maturity quadrant. The next 10 million apps are not going to come from the current leading markets, but from the opportunity quadrant and the demand for localised apps.

### Decoding imbalances in user engagement

At the same time, what becomes clear from this graph is that smartphone penetration on its own is not a good predictor for app demand: countries with similar penetration

(e.g., UK and Spain) may have quite a large difference in app demand per user. There are several reasons behind this imbalance.

**Demographics:** Cultural and income differences make people respond differently to the mobile app phenomenon. People in developed countries will respond more rapidly to new technology and may also have more disposable income and time to buy and engage with apps

**Infrastructure:** Affordable, wireless broadband is an important factor that affects users' propensity to download apps. While affordable wireless broadband spreading its way throughout Europe and the US, there are too many countries where this is not yet the case.

**App literacy:** There is a substantial number of smartphone users who hardly ever use the applications on their smartphones. Android has reduced the entry price-point to "smart" features so rapidly that many consumers buy smartphones just because they are the same price as the feature-phone they want to use to make calls. In other words, due to price reduction, smartphones have "leaked" into consumer segments with low app literacy.

"Latin America currently presents developers with very few opportunities. For example most Argentinean developers write their apps in English and channel them globally."

Mobile web expert from Argentina

Nonetheless, one of highest barriers to app usage and demand is localisation and adapting to local language and culture. "The main barriers to enter the Asian markets are cultural differences and sourcing/creating the right content," explains Felipe Andrade, Director of Products and Services at Brazil-based software house i2 Mobile Solutions. While some app categories, such as games or utilities lend themselves to global audiences, most apps will need adapting to local language, and cultural references if they are to drive local demand.

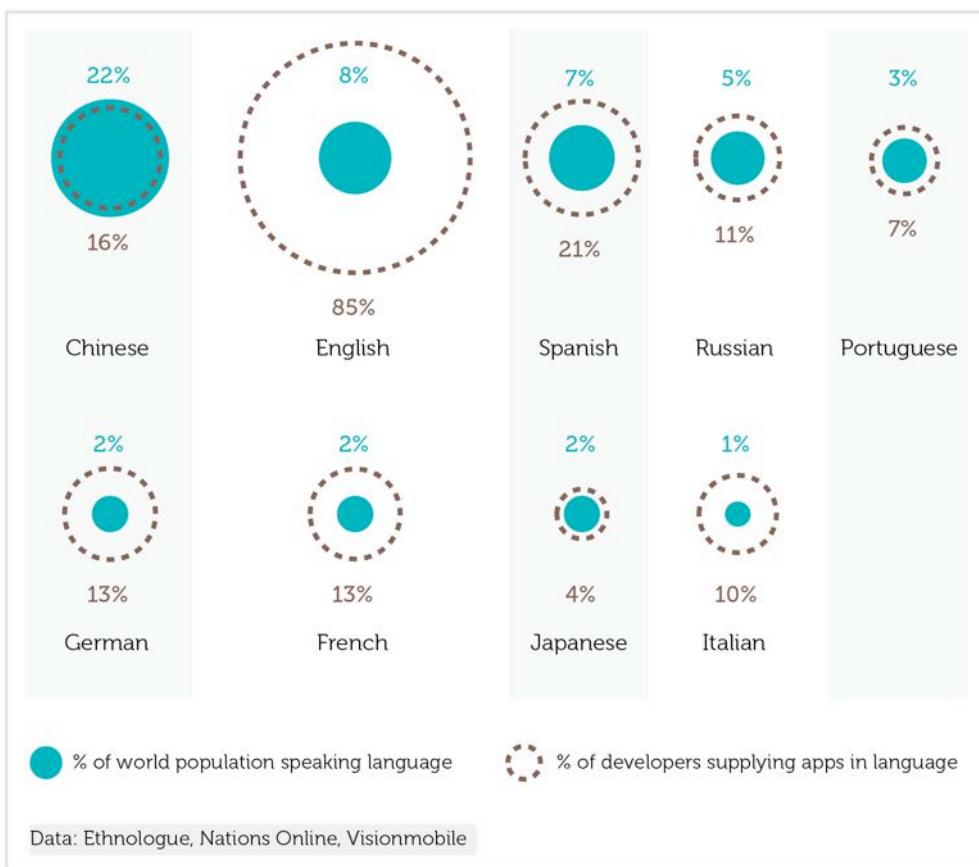
## What languages do apps speak?

To uncover the regional relevance of apps, we examined the languages that 1,500+ developers in our survey make their apps available in, based on their region of origin. We found that the vast majority of developers (85%) publish apps in English, 21% publish apps in Spanish while 16% publish in Chinese, when normalised by region of origin. It's worth noting that on average, developers publish their apps in two languages.

A global language deficit starts to become clear when comparing the languages spoken globally against the supply of app-languages produced by developers. The next graph reveals a large imbalance between languages spoken and app languages: 85% of developers publishing in English address just 8% (around 500 million) of the world population speaking English, while Chinese, spoken by 22% of the world population, only attracts 16% of developers.

## Language supply vs. demand

% of developers supplying apps in language vs. % of population speaking language



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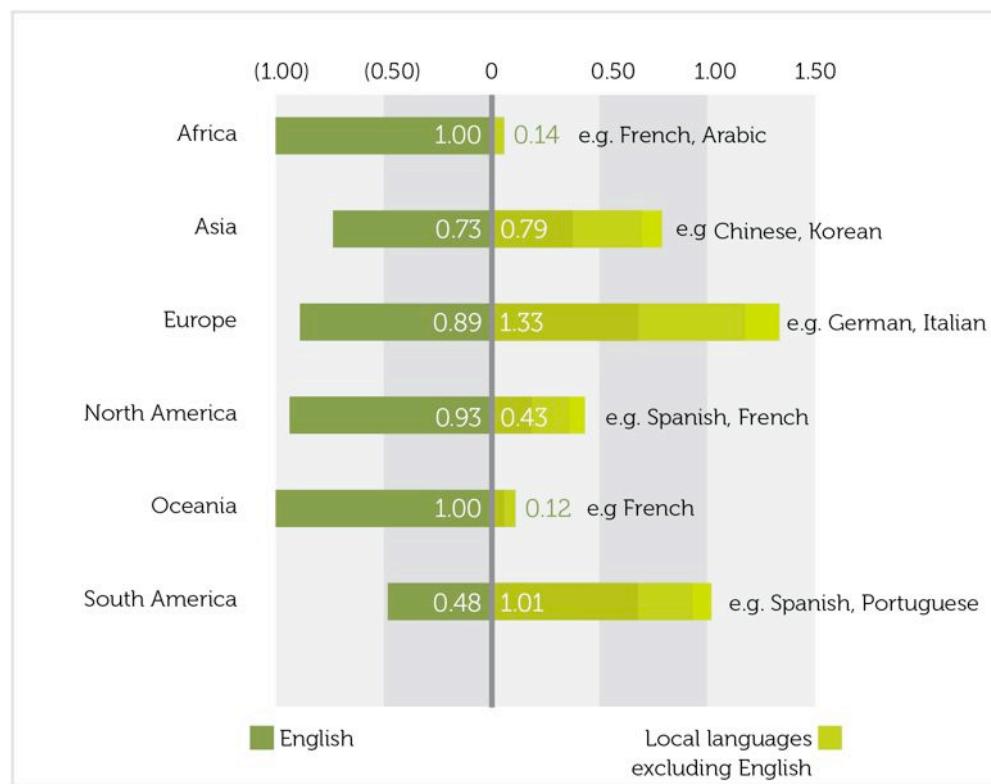
Naturally, app language supply, as indicated by the share of developers publishing in a language, corresponds to app demand patterns; North America and Europe drive app demand, where English has a very high share among spoken languages. By utilising English, developers achieve two goals: they directly target high-demand markets such as North America but also reach the rest of the English-speaking world, which is estimated at more than 500 million people worldwide, although some estimates put it above the billion mark. At the same time, English apps may provide a good-enough substitute for non-English speakers who cannot access the app in their native language.

Certain European languages such as German and Italian also have a relatively high developer-to-language ratio, as founding members of the app economy. However, for languages spoken in the quadrant of opportunity i.e., in developing economies, the developer-to-language ratio is extremely low.

We looked into the language supply in each region to determine the extent to which developers prefer English *vs* local languages. The following graph shows the average number of languages developers produce apps in, by developers' region, and contrasts English-speaking *vs* local-language app production.

## The local languages deficit across regions

Average number of languages developers develop in, per developer, per region (n=1,467)



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Europe, for example has a local language surplus: developers in Europe publish apps in 1.33 local language (excluding English). But 89% also publish apps in English. On average, European developers publish in 2.45 languages (including English), the highest multi-language use across all regions. At the same time, no single European language has a higher developer share than English, so each local language (e.g., German or Italian) has a deficit against English. This is true for all other regions, apart from South America, where Spanish is used by 84% of developers, while English is only used by 48%. In Asia, Chinese is used by 53% of developers but English is used by 73%.

It is evident that English dominates developers' language share almost everywhere, putting local language supply at a deficit, not only on a global but on a regional basis as well. This deficit is a major friction point, that dampens demand in regions where English is not the primary language. According to app analytics firm App Annie, local languages dominate the top-25 download charts of several Asian markets such as Korea (70%) and Taiwan (60%), indicating that there is very high demand for localised apps. At the same time, these countries seem undersupplied when looking at the developer/population ratio of their languages.

Emerging app economies have an addressable market that is much larger than that of English speaking regions and Europe. The next boost to the app economy will come from these regions i.e., the quadrant of opportunity. To tap into this opportunity,

developers worldwide must close the language deficit by accelerating production of local language apps.

### Localisation challenges

While language barriers can have a dampening effect on demand across many regions, there is a spark of interest from content localisation vendors - from translation incumbents (e.g., Lionbridge) to crowd sourced translation (e.g., MyGengo, Transifex) and app localisation specialists (e.g., Applingua, Mentez).

But localization is less about translation, and more about the entire app experience. There are more complex challenges than just translating the language pack when localising an app. For example, Chinese or Arabic localisations will often need layout changes and adaptation of the colour scheme to cultural nuances. Iconography often needs to be revised for each region.

Programmatic changes are also part of localisation. For one, cloud APIs and infrastructure may need to be adapted to different localities. Evernote for example has a different datastore and a separate set of APIs for developers targeting China.

Identifying and sourcing local content (news, reviews, or service partnerships) may also prove a challenge for global developers looking to target local markets. Local developers are in a much better position to understand and thereby optimise for local nuances and work with local partners in their markets.

“The main barriers to enter the Asian markets are cultural differences and sourcing/creating the right content.”

Felipe Andrade  
Director of Products & Services  
i2 Mobile Solutions

### The global app trade routes

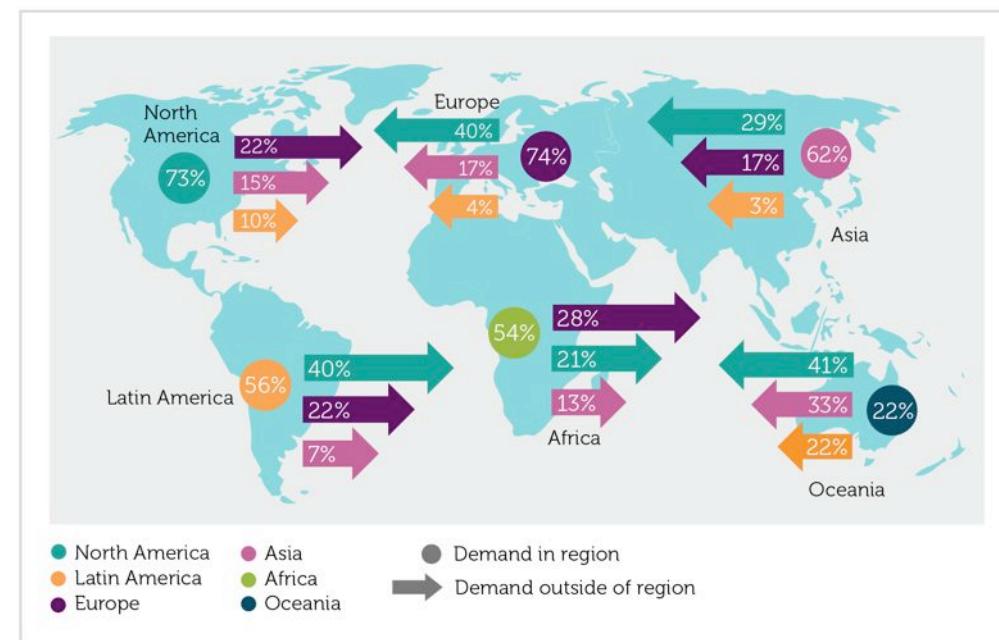
As part of Developer Economics 2012 we analysed global app trade routes i.e., the routes apps take from production to download. We looked at the ratio of developers that see most downloads locally to those that see more “exports”, in order to determine the levels of local demand *vs* global demand within and across regions.

We found that most developers see the bulk of their downloads coming from the region in which they are based. This pattern is more pronounced in North America and Europe where over 70% of developers see most downloads coming from local markets. This confirms that local developers are better placed to address local app demand rather than global needs. However, in Asia and Latin America local demand is quite lower because of lower smartphone penetration and user engagement.

North America dominates unique app imports across all regions, with 36% of developers, on average, globally, seeing it in their top-3 download regions. Developers in North America see relatively small demand from other regions, with Europe being their top export region but not far ahead of Asia.

## Global Map of App Trade Routes

% of developers seeing most downloads in local vs. global markets (n=1,504)



Source: Developer Economics 2012 | [www.DeveloperEconomics.com](http://www.DeveloperEconomics.com) | June 2012  
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In Europe, there is very strong demand for apps that are developed within the region, although a large percentage of European developers also see strong demand from North America.

Asia is now the target of 16% of developers in North America and Europe. Seeing as Asia is becoming a major part of the app economy, with an accelerating demand for apps, developers in North America and Europe have started to respond to this demand, by publishing in Asian languages such as Chinese (7% of developers in North America and Europe) and Japanese (6%).

Latin America and Asia have a large share of developers (44% and 38%) that do not see high local demand, i.e. their top-3 download regions do not include their own region, and they are mainly app-exporters. Developers in these regions target more lucrative global markets like North America and Europe, where demand for apps, and paid apps in particular is much higher.

“Latin America currently presents developers with very few opportunities” notes an Argentinean mobile web developer. He explains. “For example most Argentinean developers write their apps in English and channel them globally.”

However, we expect that, in a few years time, local demand in these markets will reach the levels of local demand in Europe and North America, as smartphone penetration rises and people in these regions becomes more engaged. Due to the growth potential and the size of Asian and Latin American markets, we believe that the majority of the next 10 million apps will be apps produced and consumed within these markets.

## What this means for developers

We showed how major opportunities are emerging for developers globally, fueled by rising demand from BRIC countries and other emerging app economies, representing at least half of the world's mobile subscribers. In order to capture these opportunities, developers can focus on two broad strategies: to "reach-out" or to "search within".

Developers that "reach-out" will address international app-demand by supplying apps that appeal to users across borders and continents. These apps can reach far and wide but in order to do so requires a moderate level of localisation.

Those developers that "search within" will look at gaps and opportunities in local markets. These apps have local reach and require a high level of localisation.

To illustrate these opportunities further we have segmented apps into two main categories: tradable apps *vs* non-tradable apps.

Table: Tradable *vs* non-Tradable apps

	<b>Non-tradable apps (local)</b>	<b>Tradable apps (global)</b>
Description	These apps are the equivalent of non-tradable goods, i.e. goods and services that cannot be provided from a distance without losing their utility (e.g., property, local transport and prepared meals).	These apps are the equivalent of tradable goods, i.e. goods and services that can be traded from a distance (e.g., frozen food, electronics, clothing)
Examples	Local News (e.g. Canal Touch), transport (e.g. Tube Map, Ubercab), transactions (e.g. local banks).	Communications & social networking (e.g. Facebook, Skype), utilities (e.g. Dropbox), reference (e.g. Wikipedia), weather (e.g. Accuweather), maps (e.g. Google Maps).
Localisation	Service partnerships, layout changes, colour scheme, iconography, content, service partnerships.	Menu and content in multiple languages, regional Cloud APIs.
Trade route	Local to local	Local to global
Opportunities	Address market gaps in non-tradable app categories in each country.	Identify tradable apps which are top-sellers in limited regions and take them global.
Regions	Asia, Latin America, Eastern Europe, Russia and Africa where local app demand exceeds developer supply.	Regions with medium levels of smartphone penetration, where user app engagement is growing rapidly.

For developers focusing on in-region, for-region development, the opportunity lies in addressing market gaps in non-tradable app categories in their own country. These opportunities are particularly strong in countries where local app demand exceeds developer supply, like Asia, Latin America, Eastern Europe, Russia and Africa.

Secondly, for developers exporting their apps, the opportunity is to take tradable apps that are top sellers in a small number of regions and take them global. This opportunity is particularly ripe in regions with medium levels of smartphone penetration, and where user app engagement is growing rapidly.

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